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January 2007**

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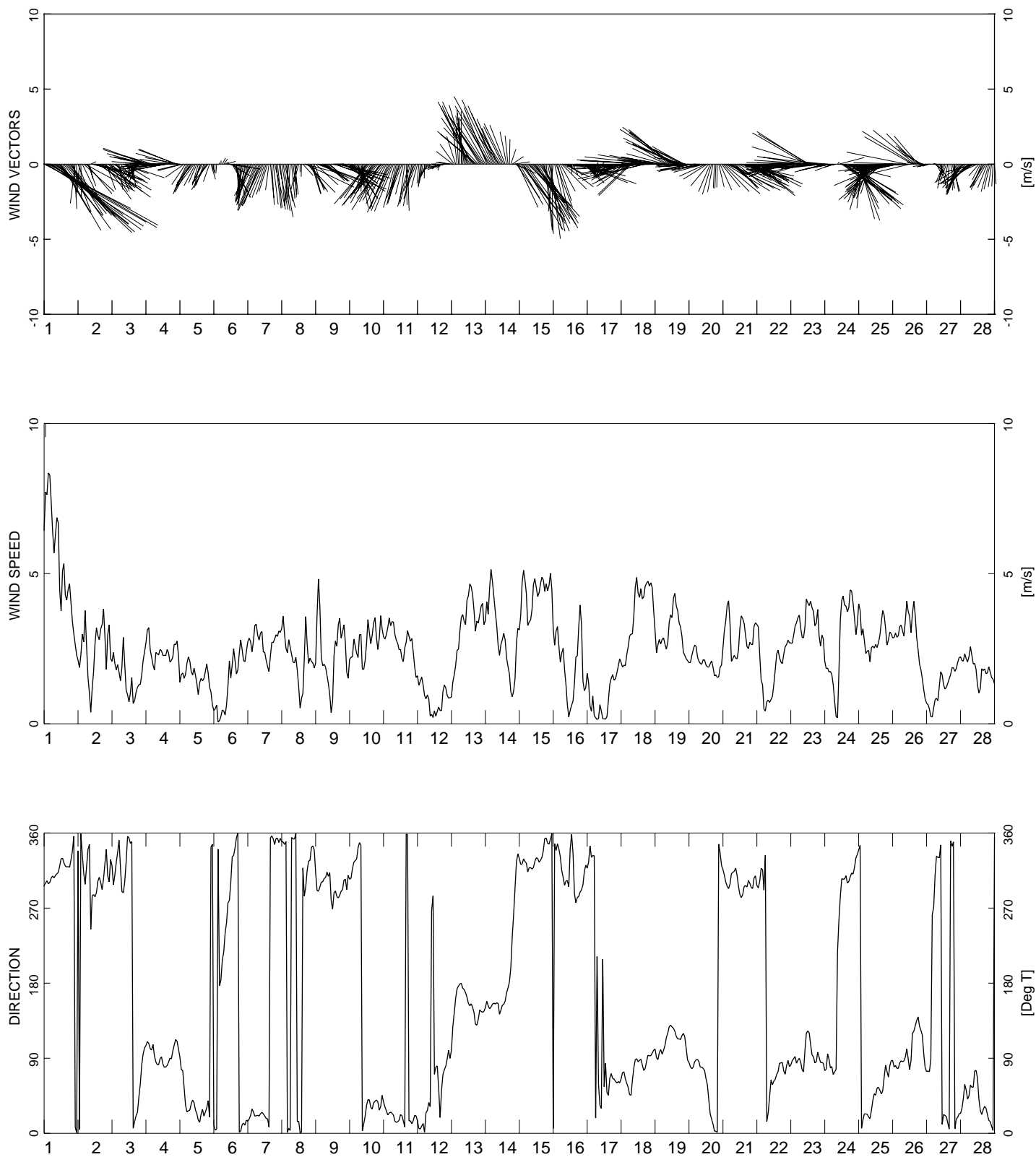
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Figure B-29



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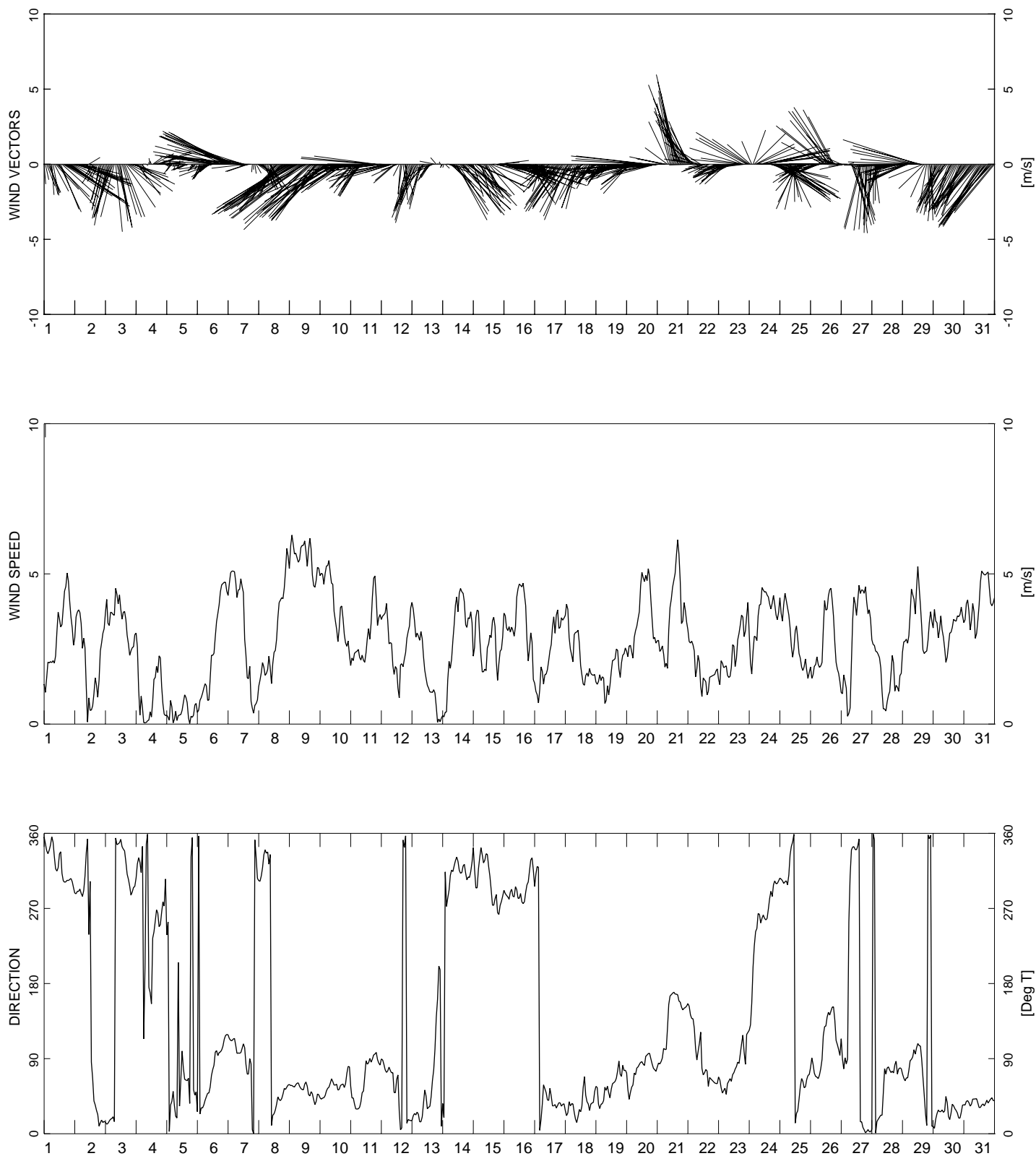
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Figure B-30



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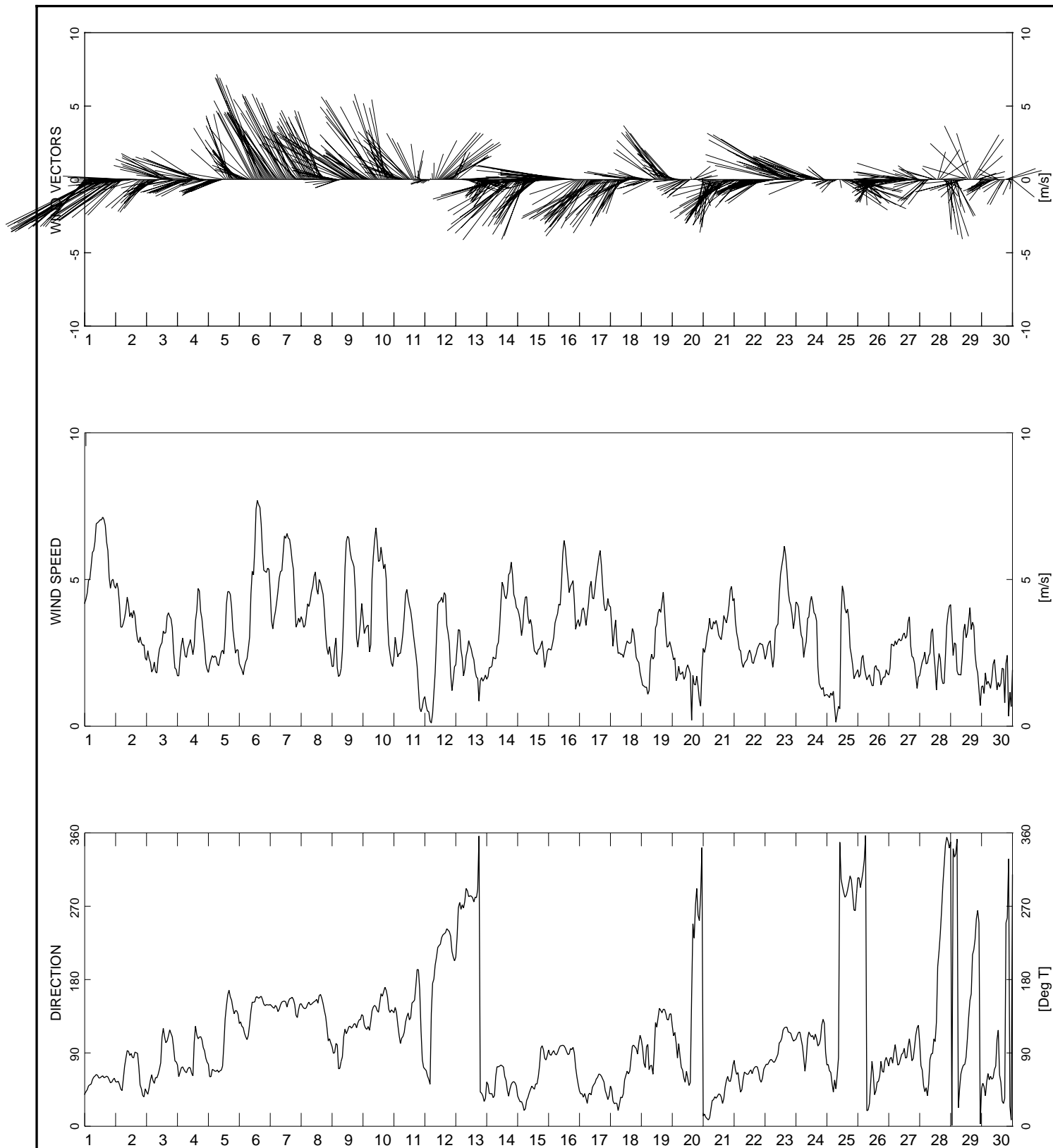
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Figure B-31



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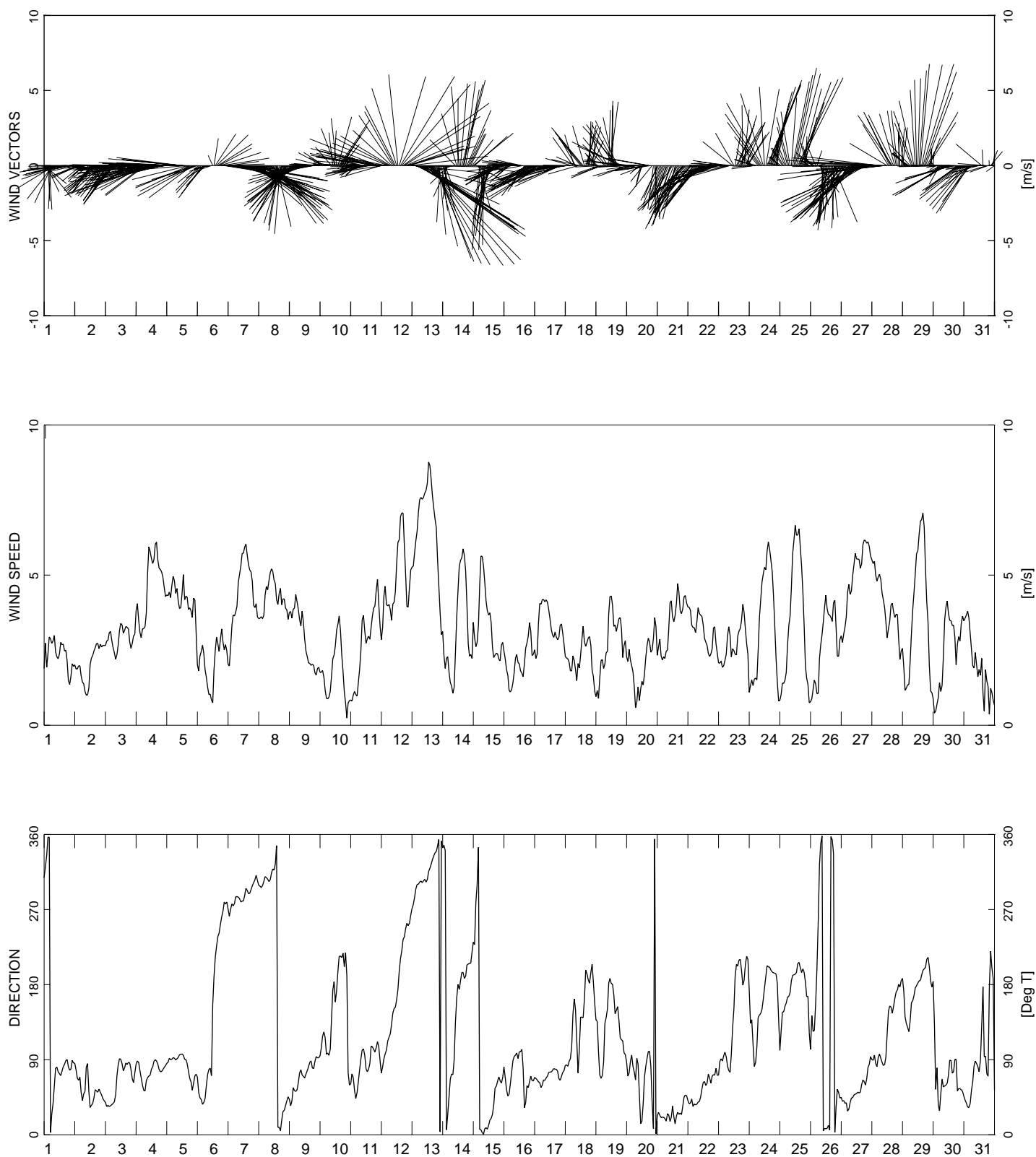
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Figure B-32



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Wind Data
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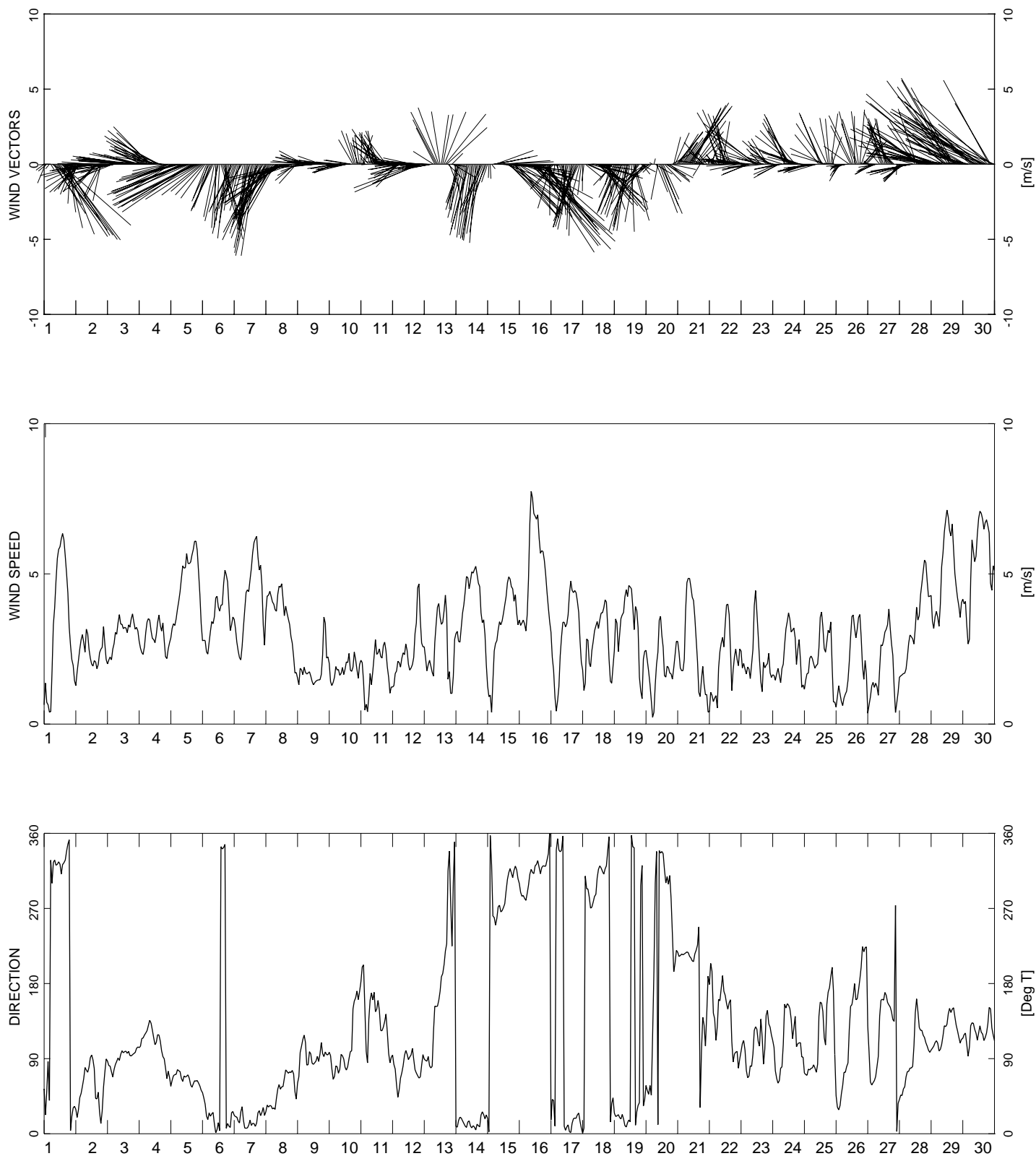
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Figure B-33



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Wind Data
June 2007**

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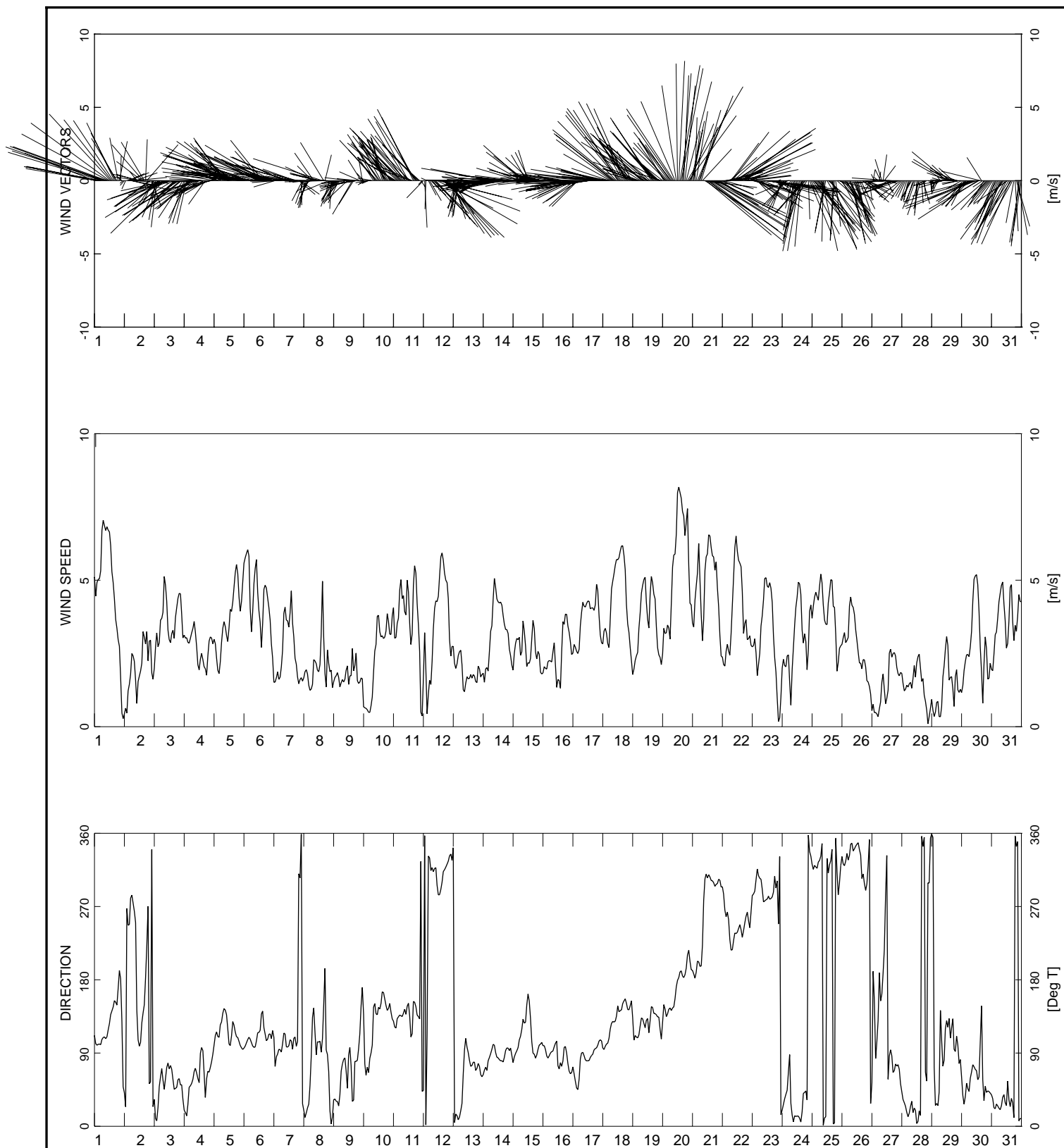
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Figure B-34



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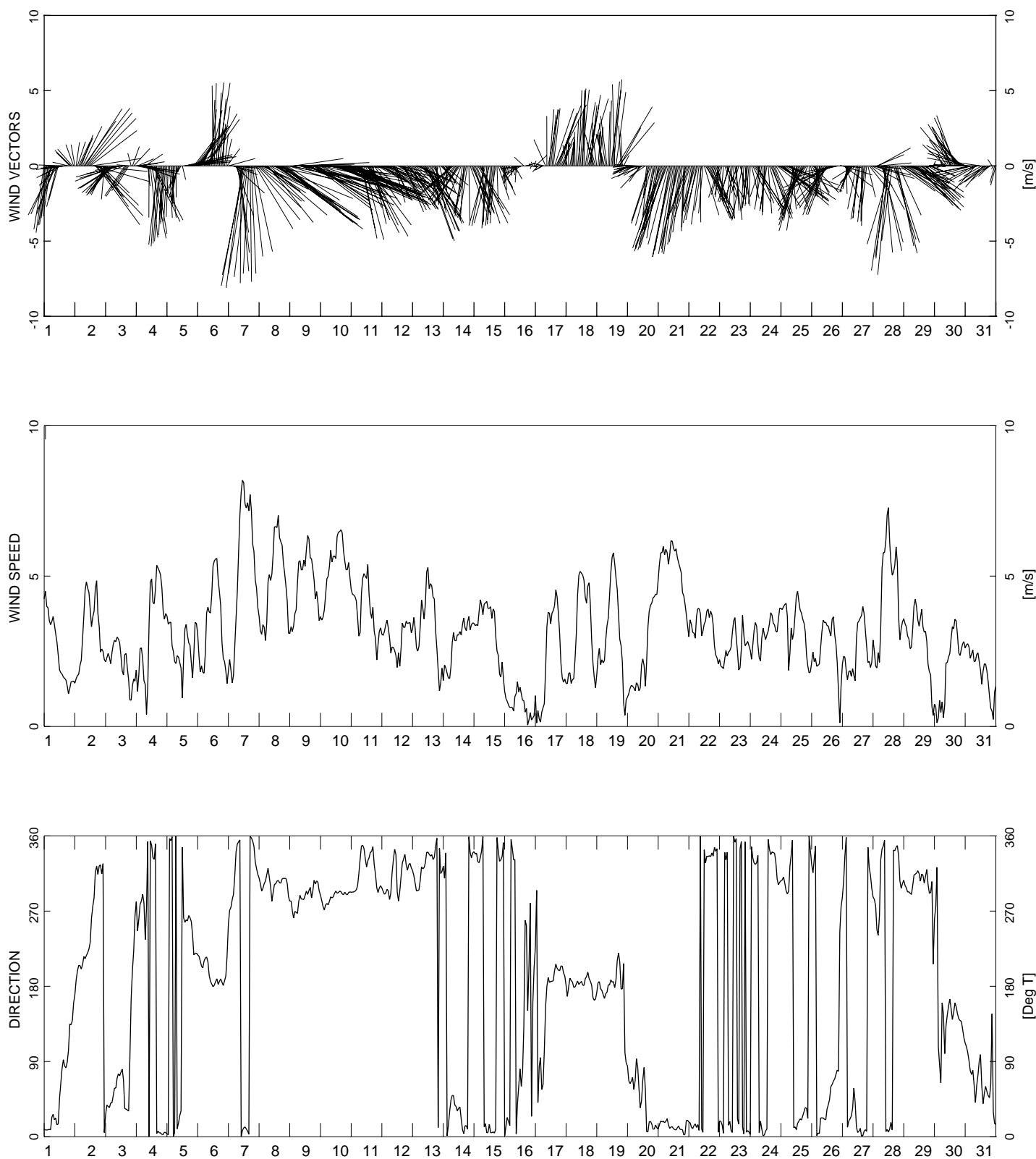
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Figure B-35



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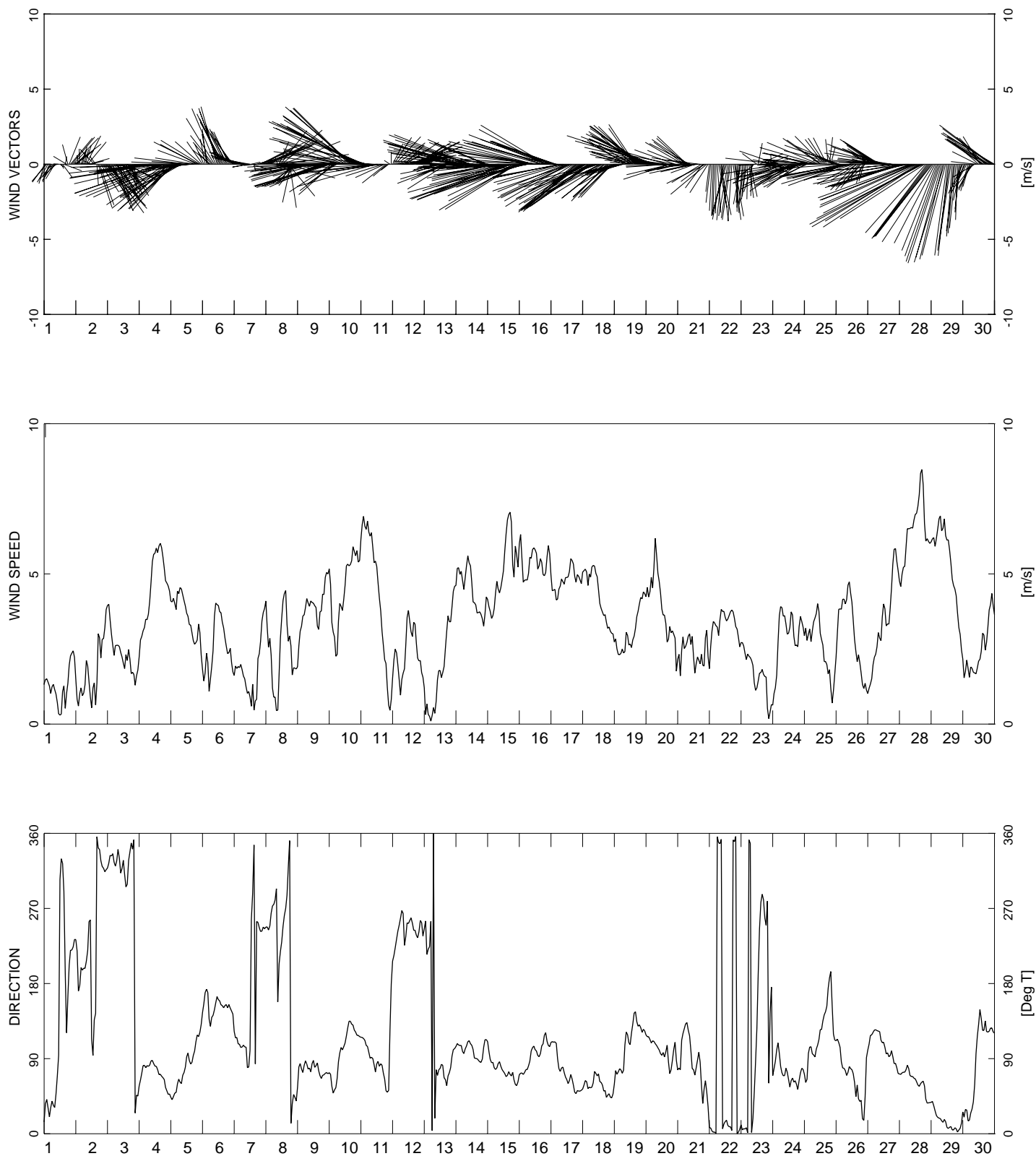
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Figure B-36



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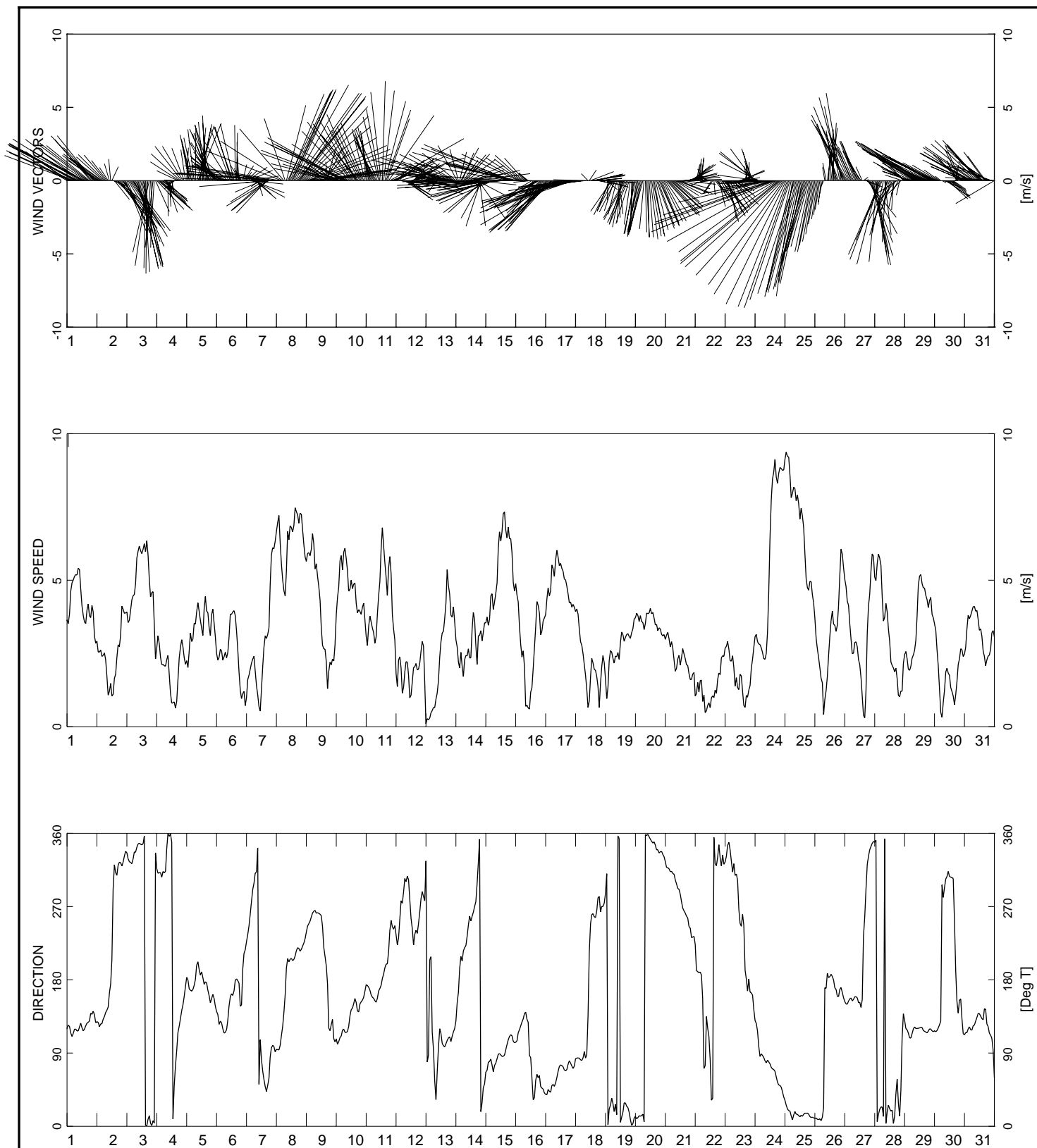
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Figure B-37



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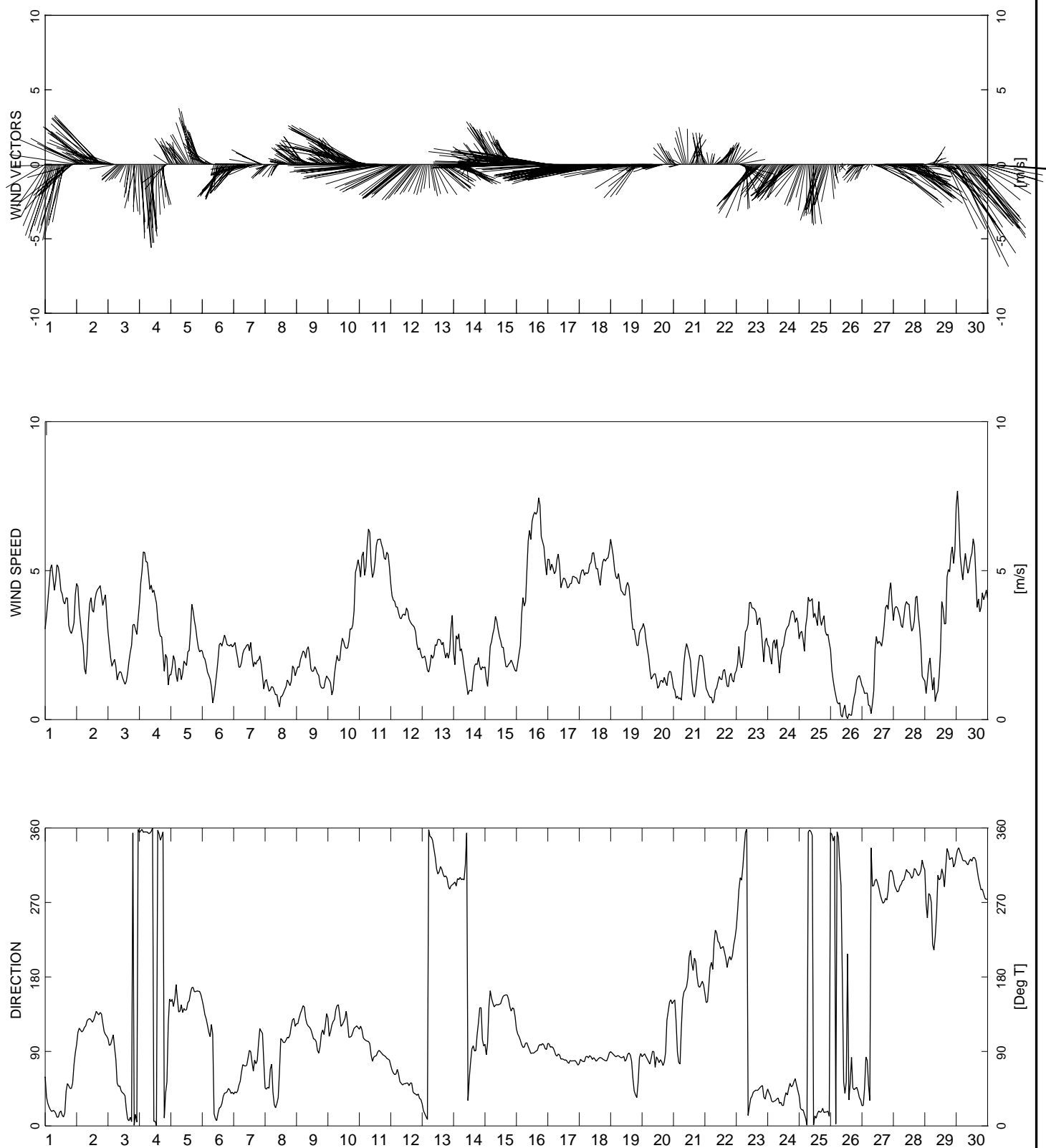
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Figure B-38



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Wind Data
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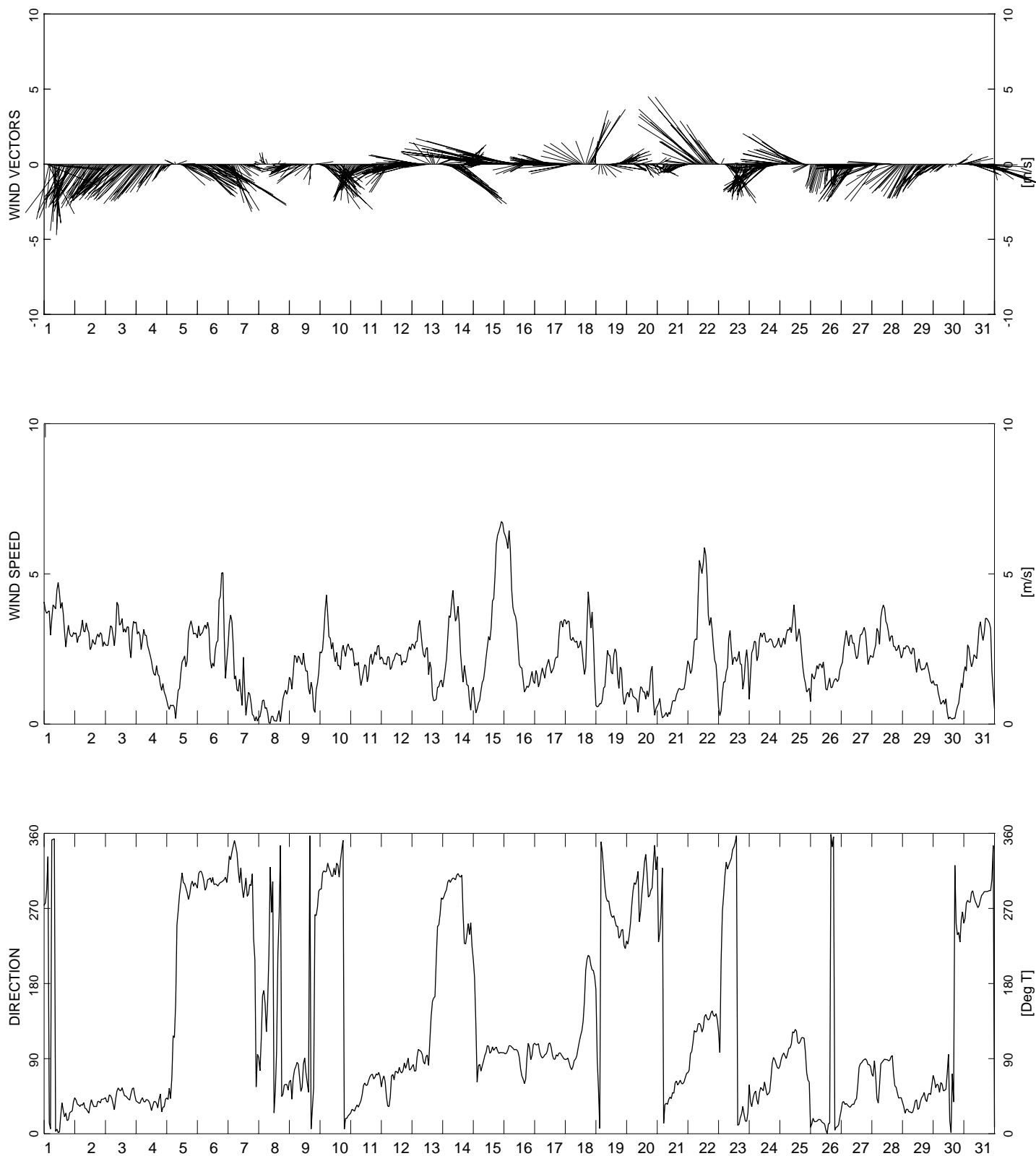
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Figure B-39



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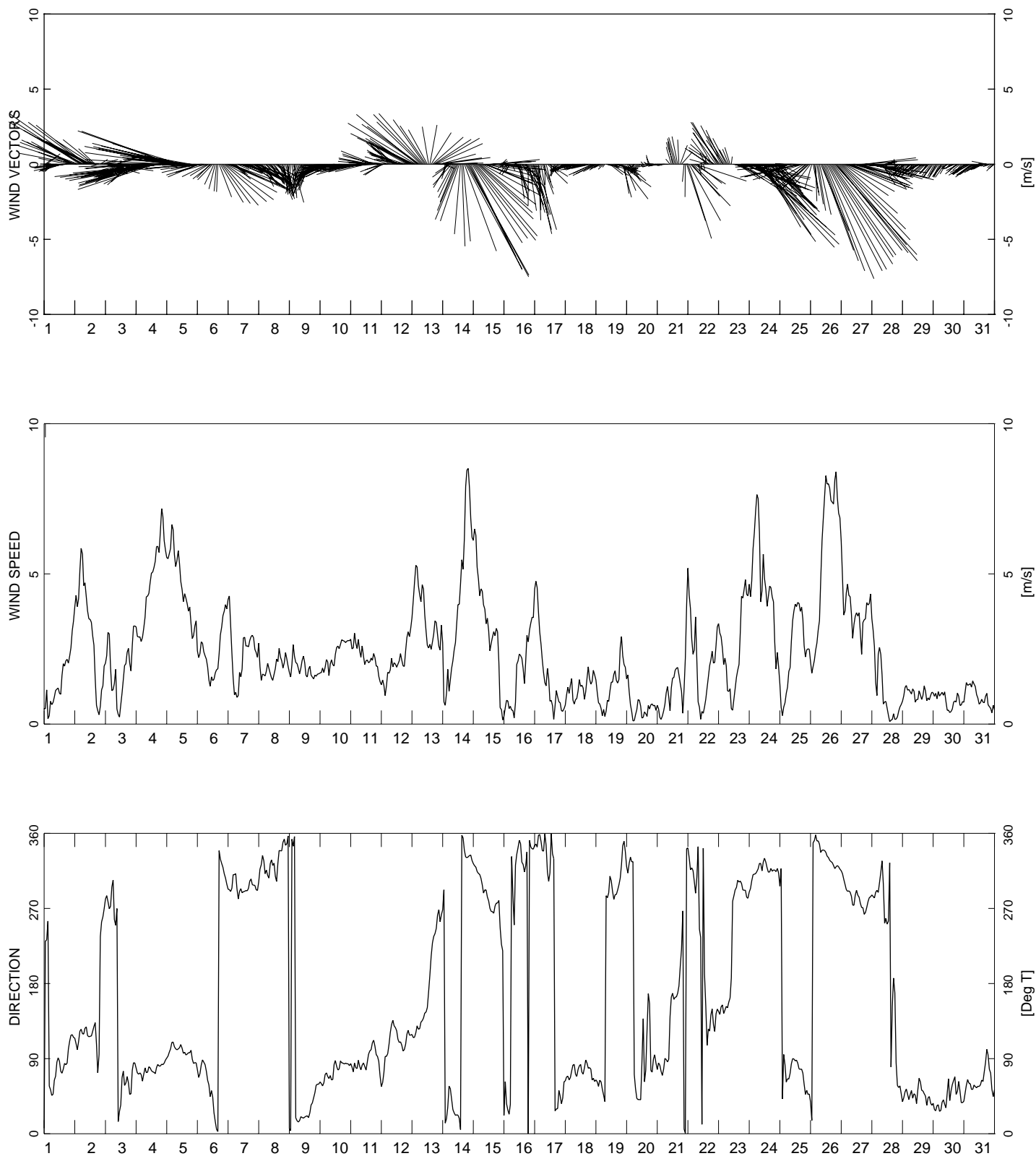
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Figure B-40



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**Tyhee Station
Wind Data
January 2008**

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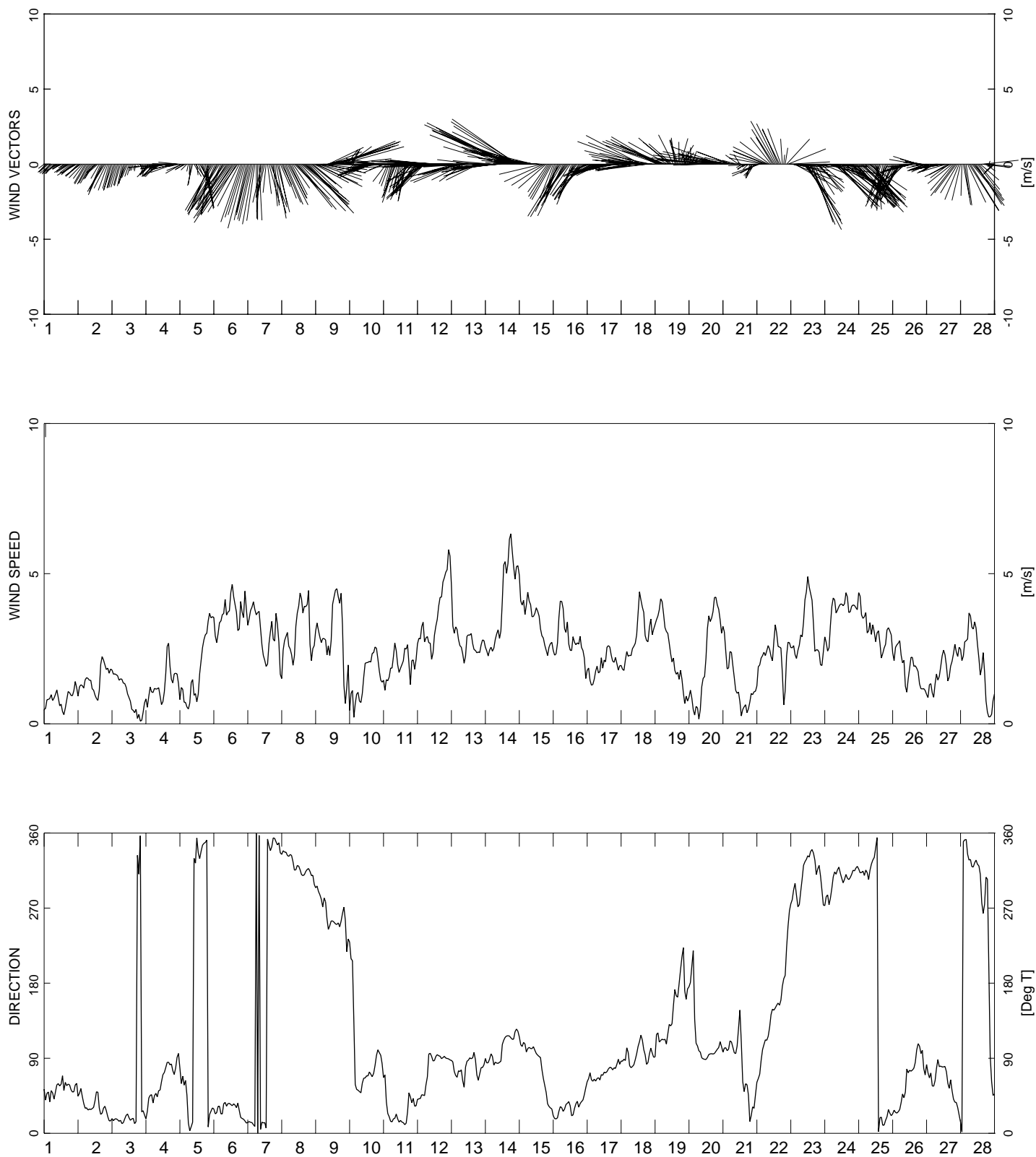
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Figure B-41



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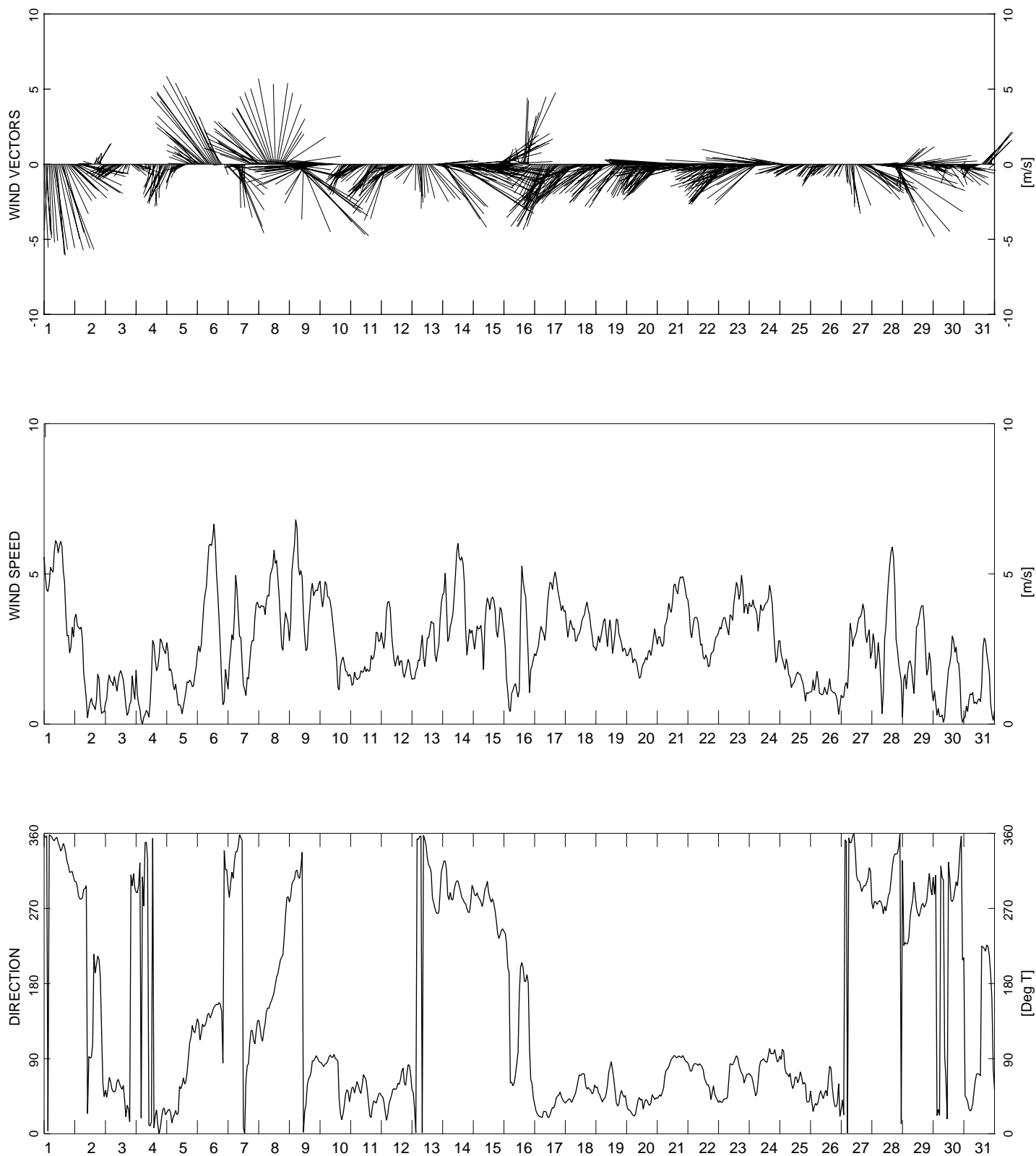
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Figure B-42



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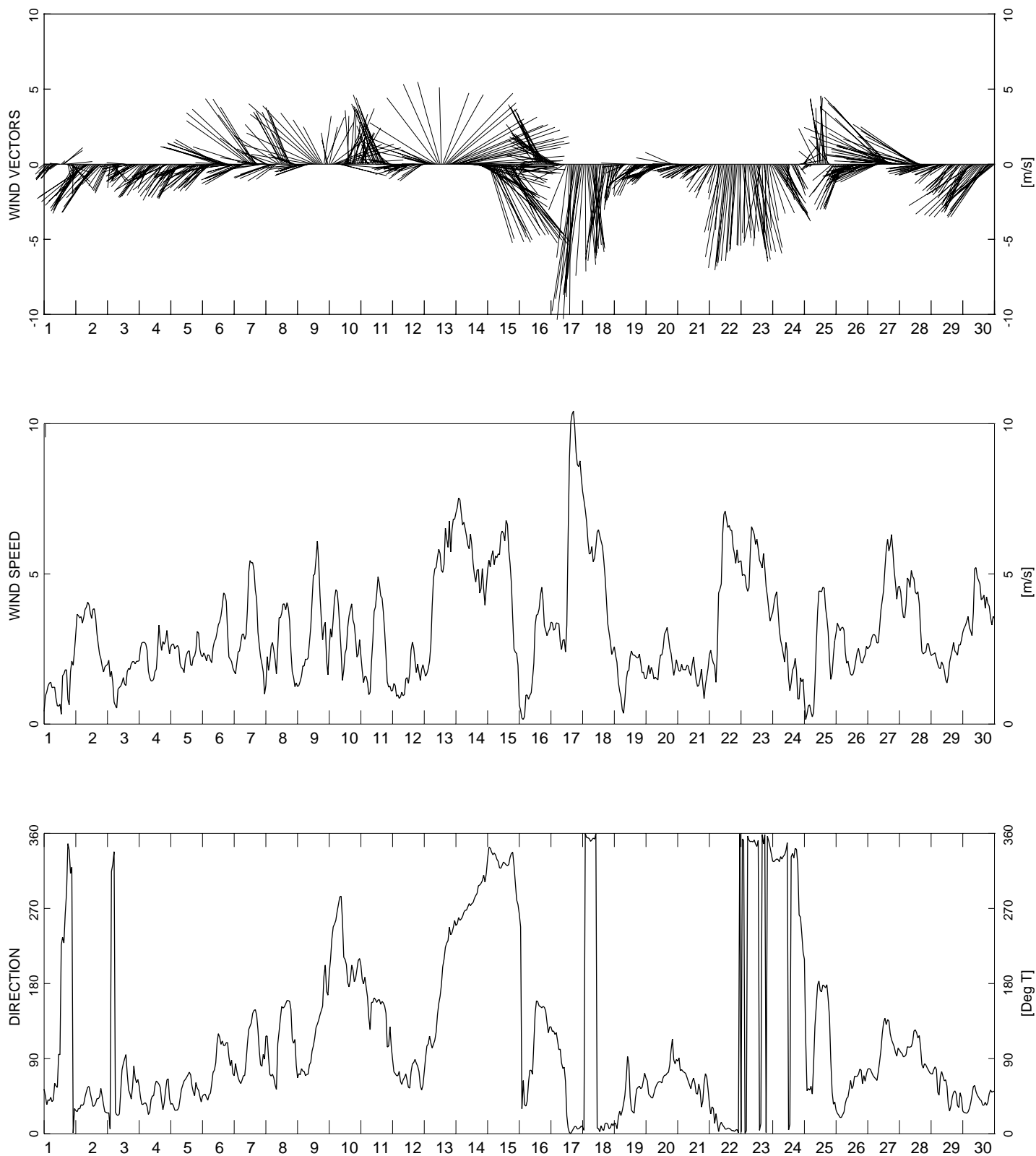
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Figure B-43



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**Tyhee Station
Wind Data
April 2008**

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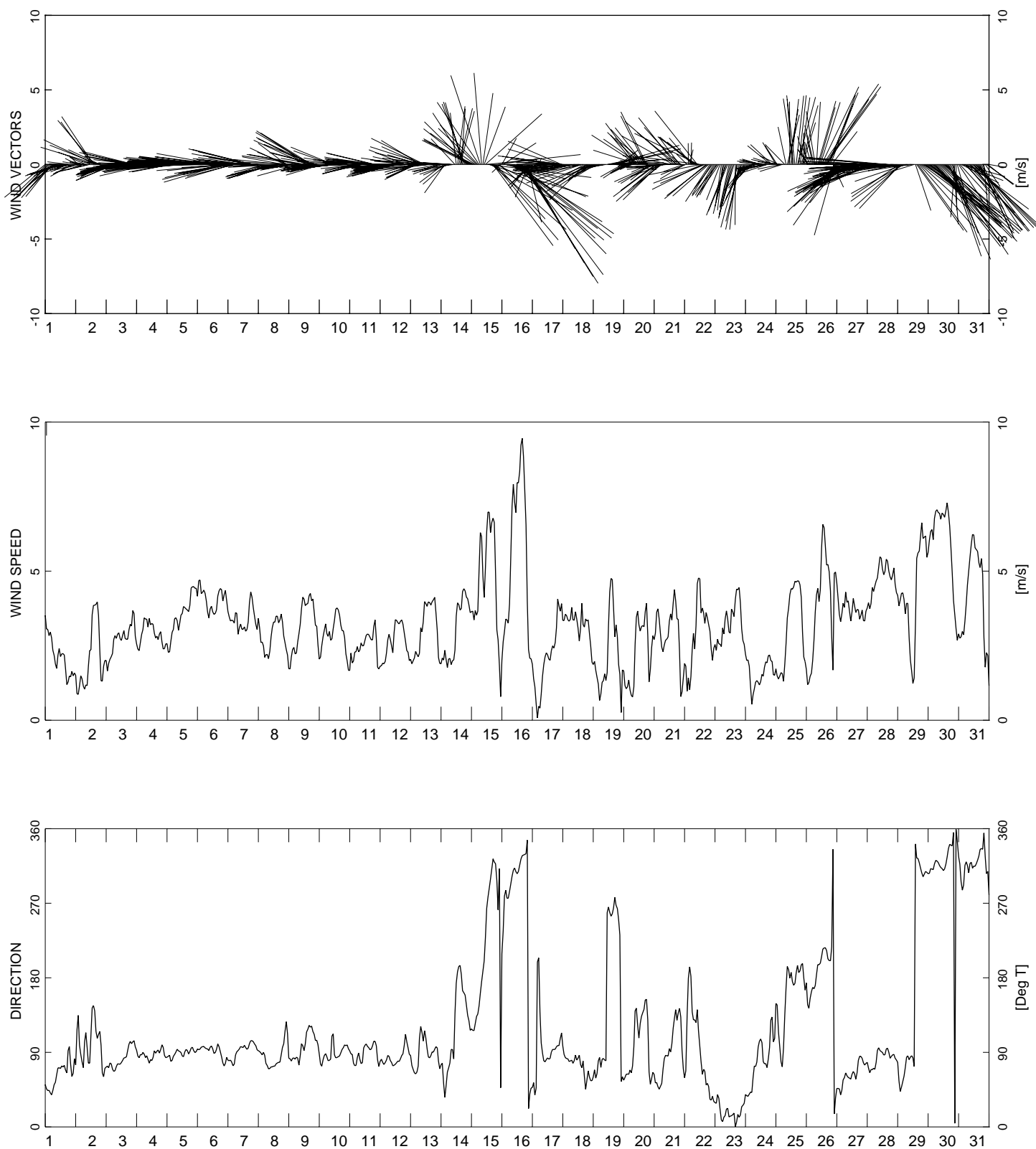
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Figure B-44



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**Tyhee Station
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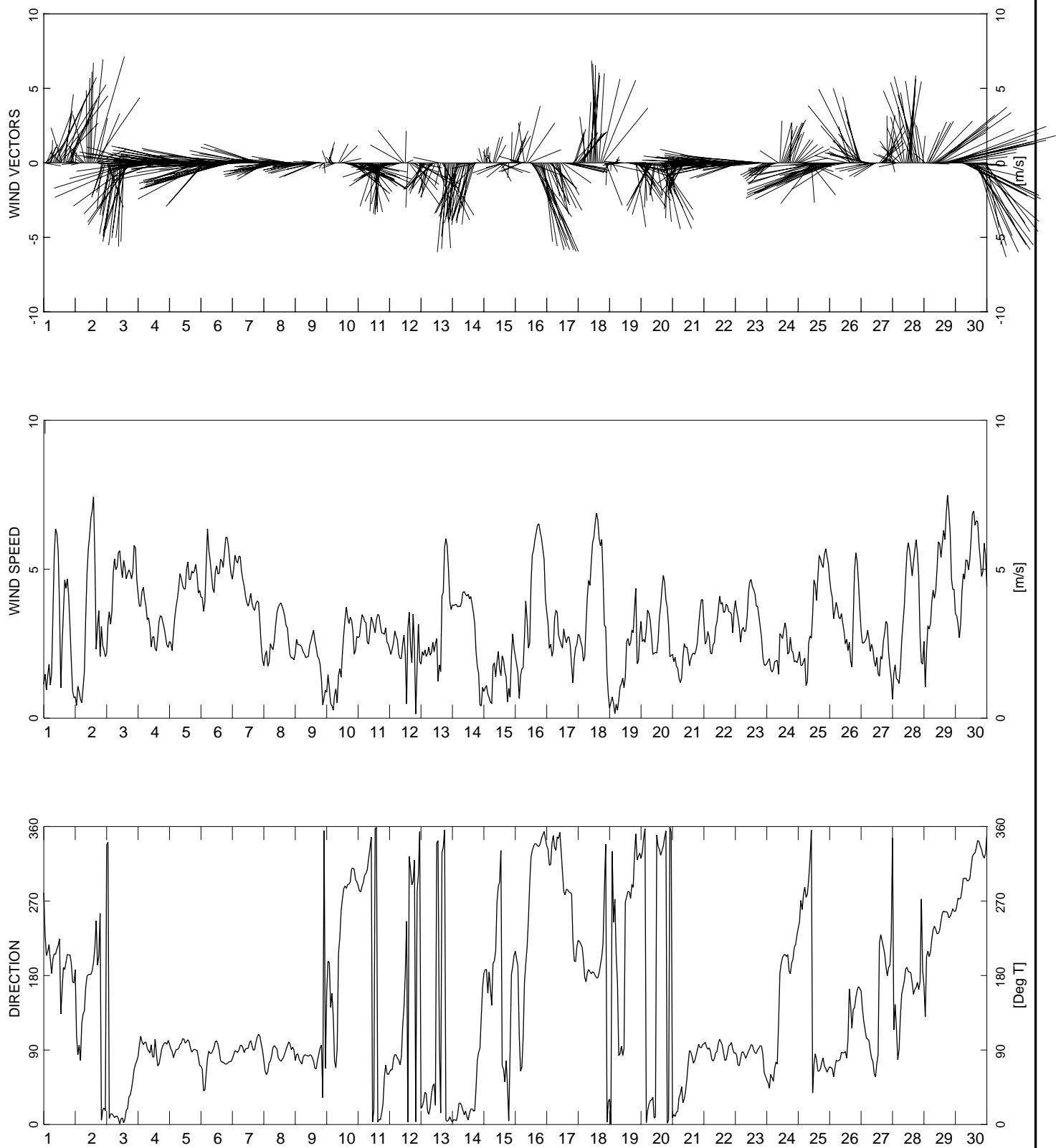
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Figure B-45



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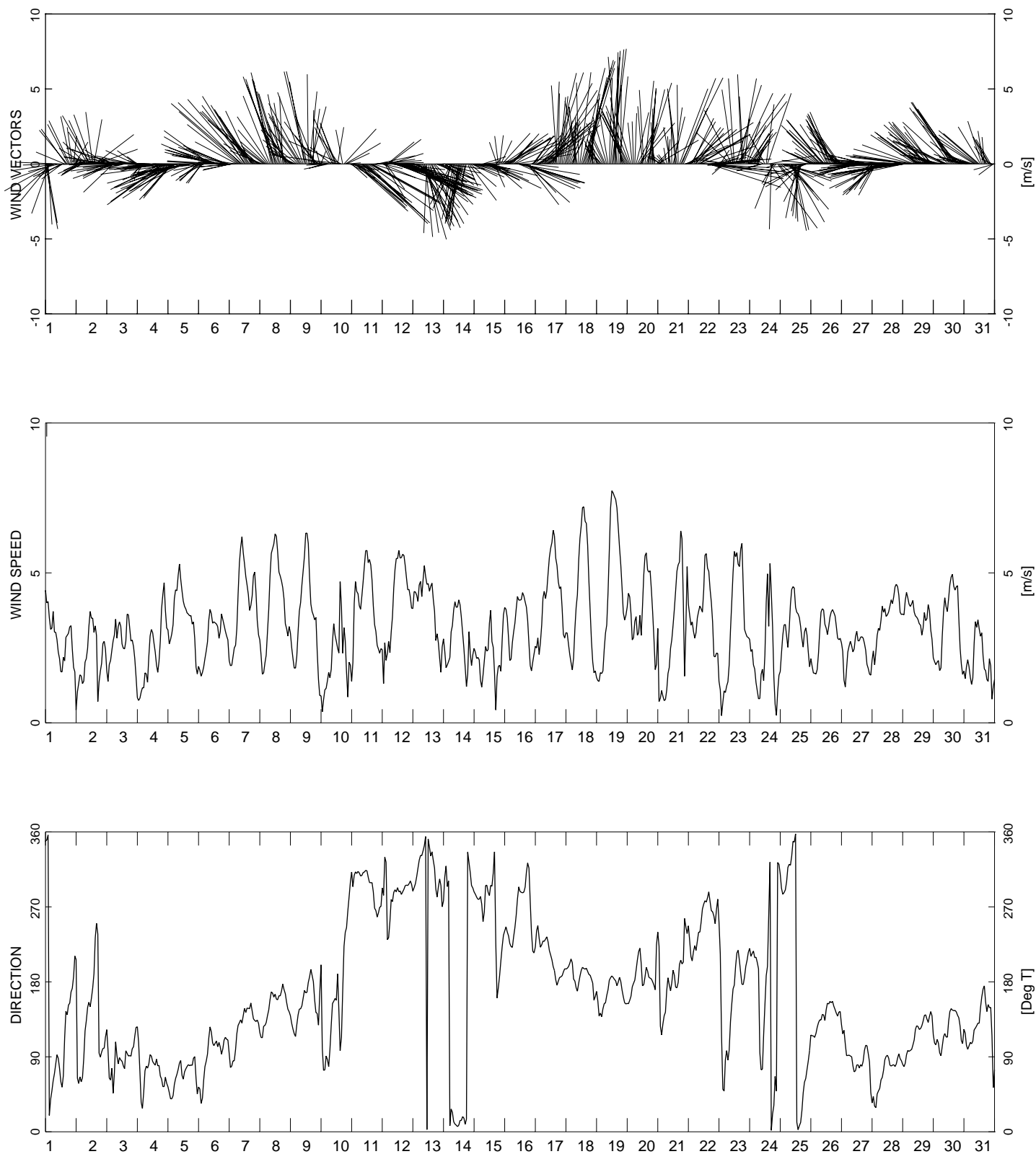
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Figure B-46



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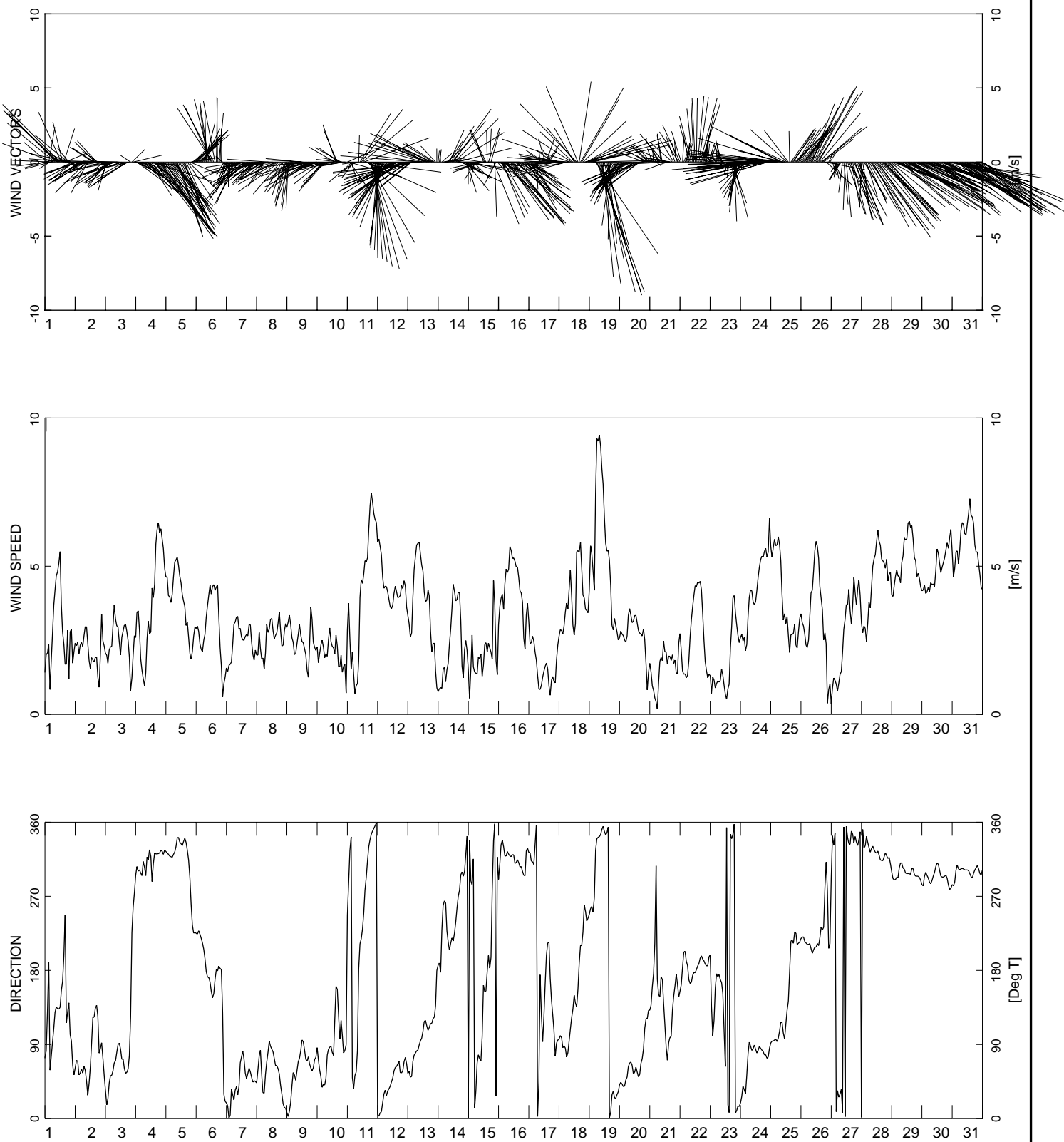
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Figure B-47



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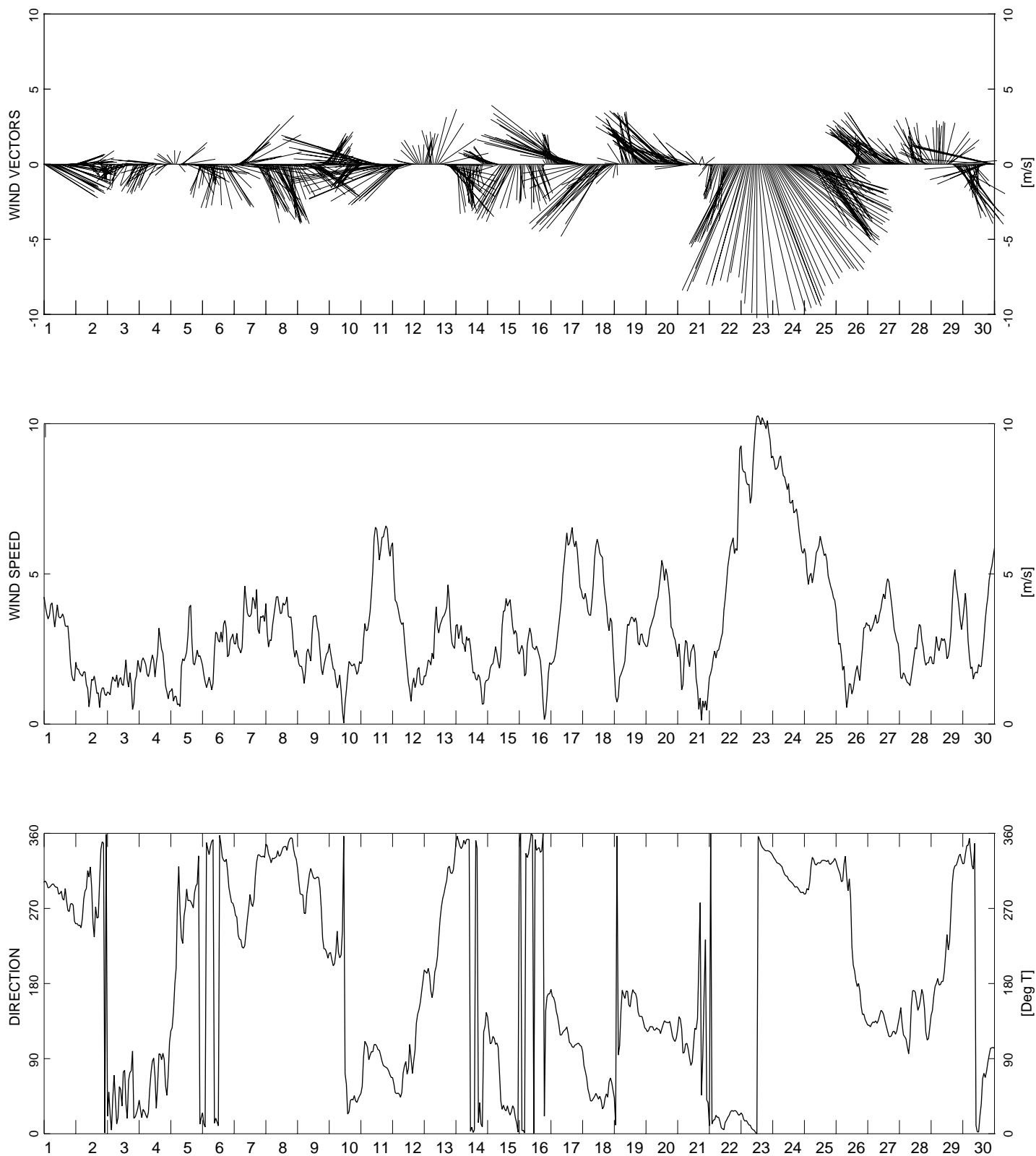
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Figure B-48



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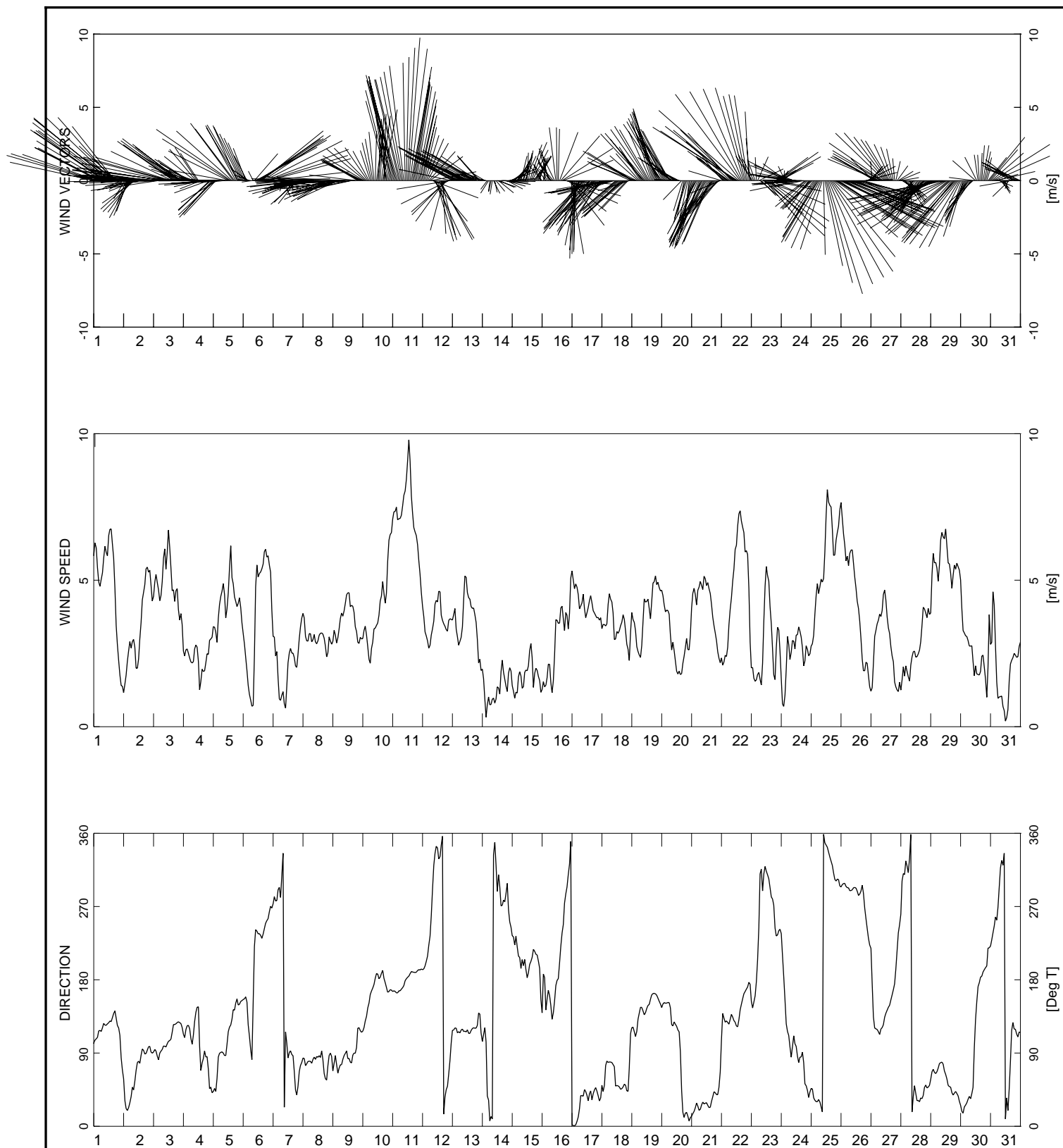
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Figure B-49



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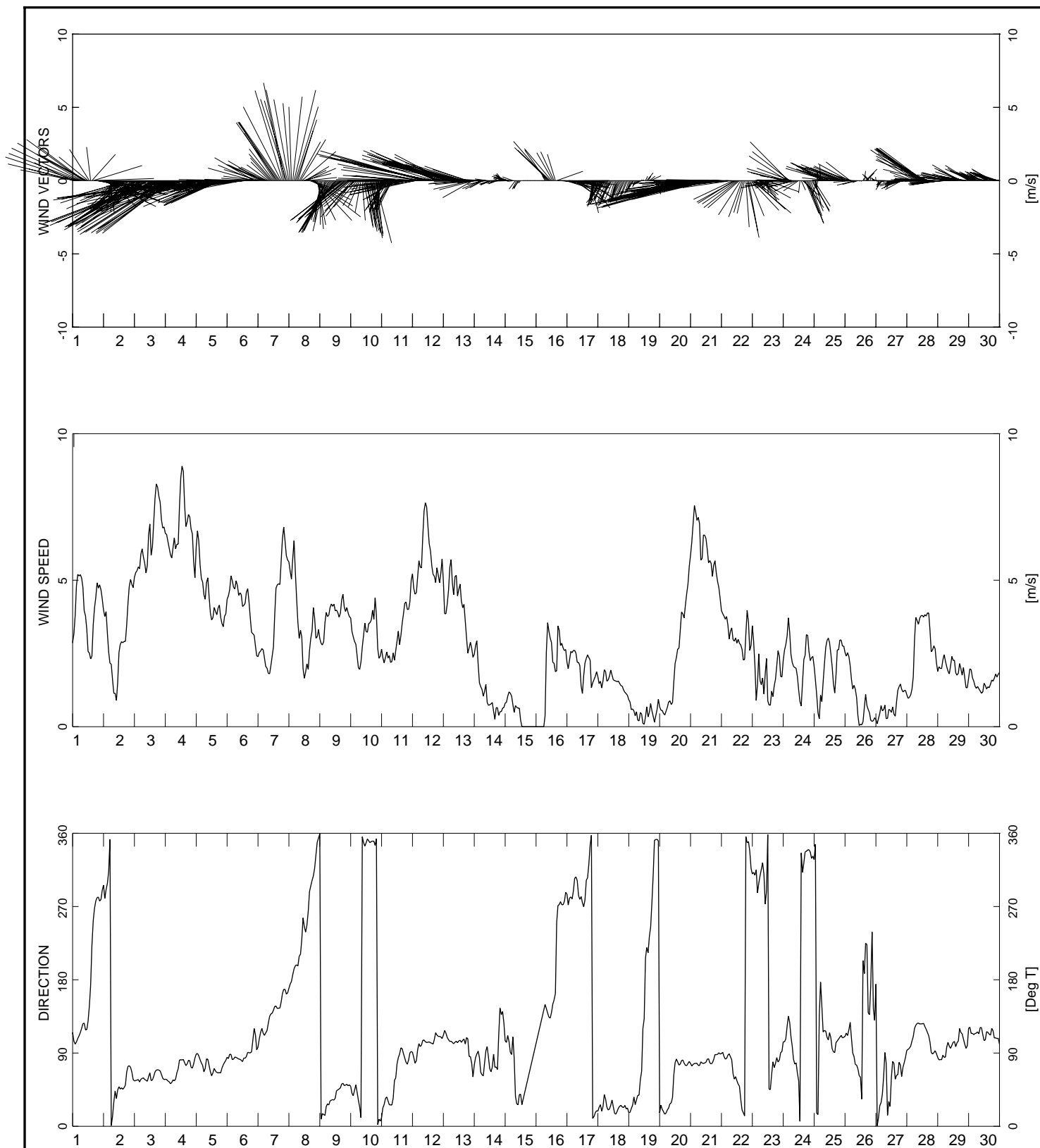
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Figure B-50



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**Tyhee Station
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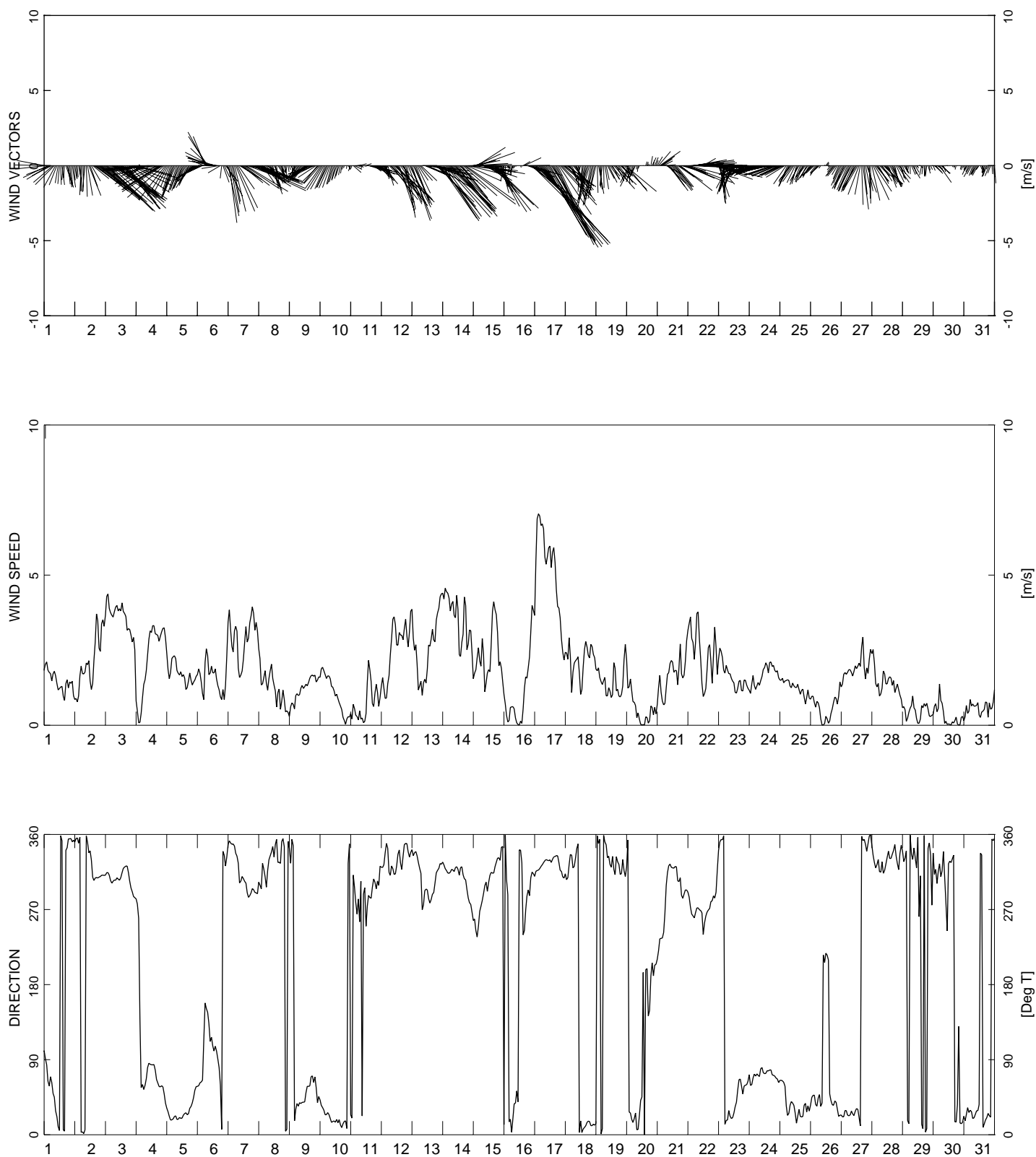
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Figure B-51



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**Tyhee Station
Wind Data
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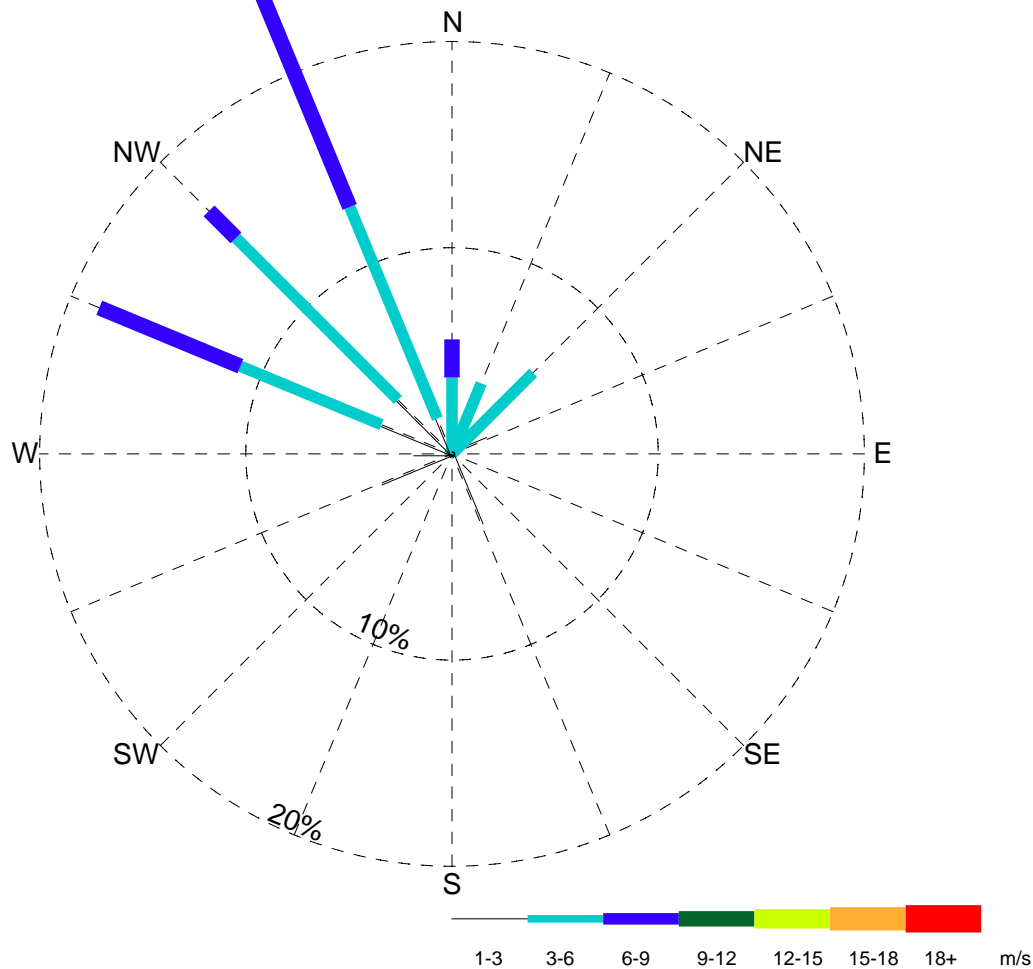
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Figure B-52

APPENDIX

APPENDIX C MONTHLY WIND ROSES – SEPTEMBER 2004 TO DECEMBER 2008



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	1.85	-	-	-	-	-	-	1.85
NE	-	-	5.56	-	-	-	-	-	5.56
NNE	-	-	3.70	-	-	-	-	-	3.70
N	-	-	3.70	1.85	-	-	-	-	5.56
NNW	-	1.85	11.11	16.67	-	-	-	-	29.63
NW	-	3.70	11.11	1.85	-	-	-	-	16.67
WNW	-	3.70	7.41	7.41	-	-	-	-	18.52
W	-	1.85	-	-	-	-	-	-	1.85
WSW	-	3.70	-	-	-	-	-	-	3.70
SW	-	-	-	-	-	-	-	-	-
SSW	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-
SSE	-	3.70	-	-	-	-	-	-	3.70
SE	-	-	-	-	-	-	-	-	-
ESE	-	-	-	-	-	-	-	-	-
E	-	-	-	-	-	-	-	-	-
Calm	9.26	-	-	-	-	-	-	-	9.26
Total (%)	9.26	20.37	42.59	27.78	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 3 days


Start Date: Sep. 28, 2004

End Date: Sep. 30, 2004

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**Tyhee Station
Wind Rose
September 2004**

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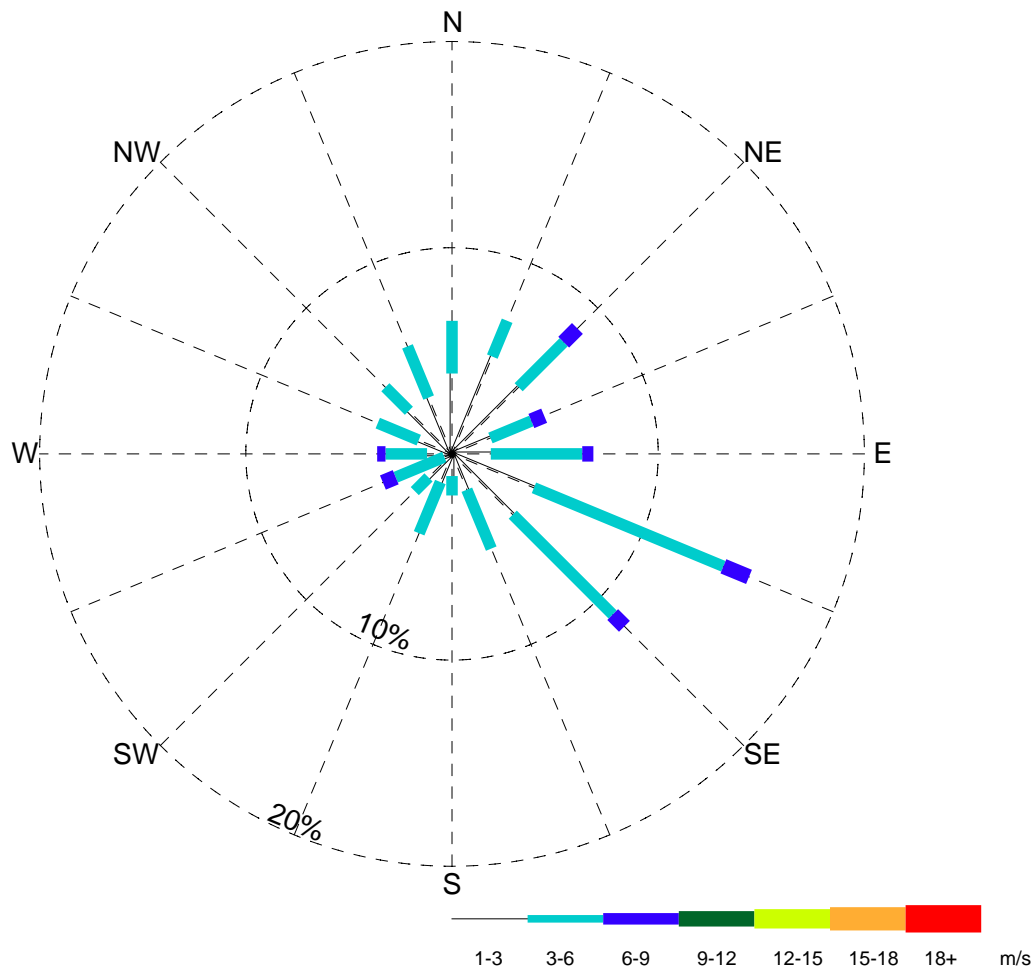
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Figure C-01



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	2.02	2.15	0.67	-	-	-	-	4.84
NE	-	4.57	3.09	0.94	-	-	-	-	8.60
NNE	-	5.11	1.88	-	-	-	-	-	6.99
N	-	3.90	2.55	-	-	-	-	-	6.45
NNW	-	2.96	2.69	-	-	-	-	-	5.64
NW	-	2.96	1.61	-	-	-	-	-	4.57
WNW	-	1.75	2.15	-	-	-	-	-	3.90
W	-	1.21	2.02	0.40	-	-	-	-	3.63
WSW	-	0.40	2.55	0.67	-	-	-	-	3.63
SW	-	1.61	0.94	-	-	-	-	-	2.55
SSW	-	1.48	2.69	-	-	-	-	-	4.17
S	-	1.08	0.94	-	-	-	-	-	2.02
SSE	-	1.88	3.09	-	-	-	-	-	4.97
SE	-	4.17	6.86	0.81	-	-	-	-	11.83
ESE	-	4.30	9.95	1.34	-	-	-	-	15.59
E	-	1.88	4.43	0.54	-	-	-	-	6.86
Calm	3.76	-	-	-	-	-	-	-	3.76
Total (%)	3.76	41.26	49.60	5.38	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Oct. 01, 2004

End Date: Oct. 31, 2004

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**Tyhee Station
Wind Rose
October 2004**

PROJECT NO.
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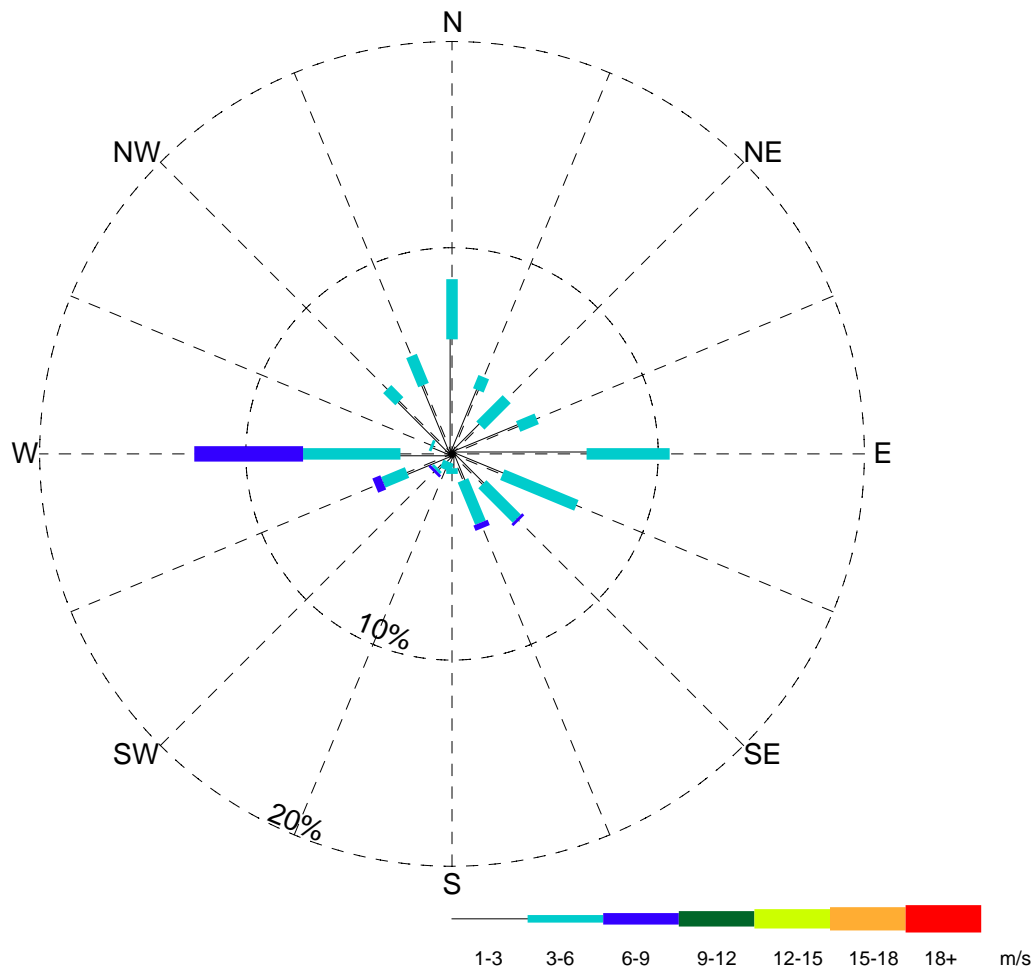
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Figure C-02



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.47	0.97	-	-	-	-	-	4.44
NE	-	1.94	1.81	-	-	-	-	-	3.75
NNE	-	3.33	0.69	-	-	-	-	-	4.03
N	-	5.56	2.92	-	-	-	-	-	8.47
NNW	-	3.61	1.53	-	-	-	-	-	5.14
NW	-	3.61	0.83	-	-	-	-	-	4.44
WNW	-	0.97	0.14	-	-	-	-	-	1.11
W	-	2.50	4.72	5.28	-	-	-	-	12.50
WSW	-	2.36	1.25	0.42	-	-	-	-	4.03
SW	-	0.97	0.14	0.14	-	-	-	-	1.25
SSW	-	0.42	0.42	-	-	-	-	-	0.83
S	-	0.69	0.28	-	-	-	-	-	0.97
SSE	-	1.39	2.22	0.28	-	-	-	-	3.89
SE	-	2.08	2.36	0.14	-	-	-	-	4.58
ESE	-	2.64	3.89	-	-	-	-	-	6.53
E	-	6.53	4.03	-	-	-	-	-	10.56
Calm	23.47	-	-	-	-	-	-	-	23.47
Total (%)	23.47	42.08	28.19	6.25	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days


Start Date: Nov. 01, 2004

End Date: Nov. 30, 2004

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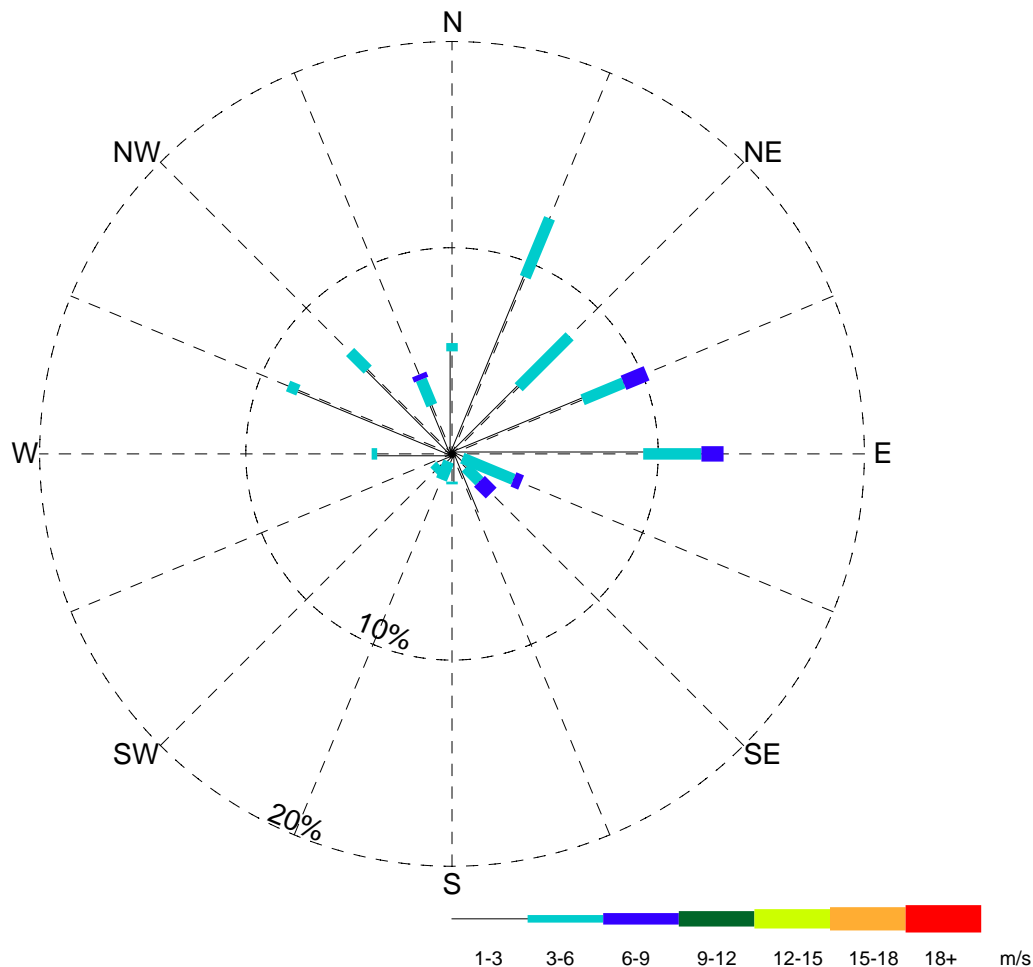
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**Tyhee Station
Wind Rose
November 2004**

PROJECT NO. Y22101057	DWN TM	CHK JAS	REV 0
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Figure C-03



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.86	2.15	1.21	-	-	-	-	10.22
NE	-	4.57	3.49	-	-	-	-	-	8.06
NNE	-	9.27	3.09	-	-	-	-	-	12.37
N	-	4.97	0.40	-	-	-	-	-	5.38
NNW	-	2.55	1.34	0.27	-	-	-	-	4.17
NW	-	5.78	1.21	-	-	-	-	-	6.99
WNW	-	8.06	0.54	-	-	-	-	-	8.60
W	-	3.63	0.27	-	-	-	-	-	3.90
WSW	-	0.81	-	-	-	-	-	-	0.81
SW	-	0.81	0.40	-	-	-	-	-	1.21
SSW	-	0.40	0.94	-	-	-	-	-	1.34
S	-	1.34	0.13	-	-	-	-	-	1.48
SSE	-	3.09	-	-	-	-	-	-	3.09
SE	-	0.94	0.94	0.81	-	-	-	-	2.69
ESE	-	0.54	2.69	0.40	-	-	-	-	3.63
E	-	9.27	2.82	1.08	-	-	-	-	13.17
Calm	12.90	-	-	-	-	-	-	-	12.90
Total (%)	12.90	62.90	20.43	3.76	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Dec. 01, 2004

End Date: Dec. 31, 2004

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**Tyhee Station
Wind Rose
December 2004**

PROJECT NO.
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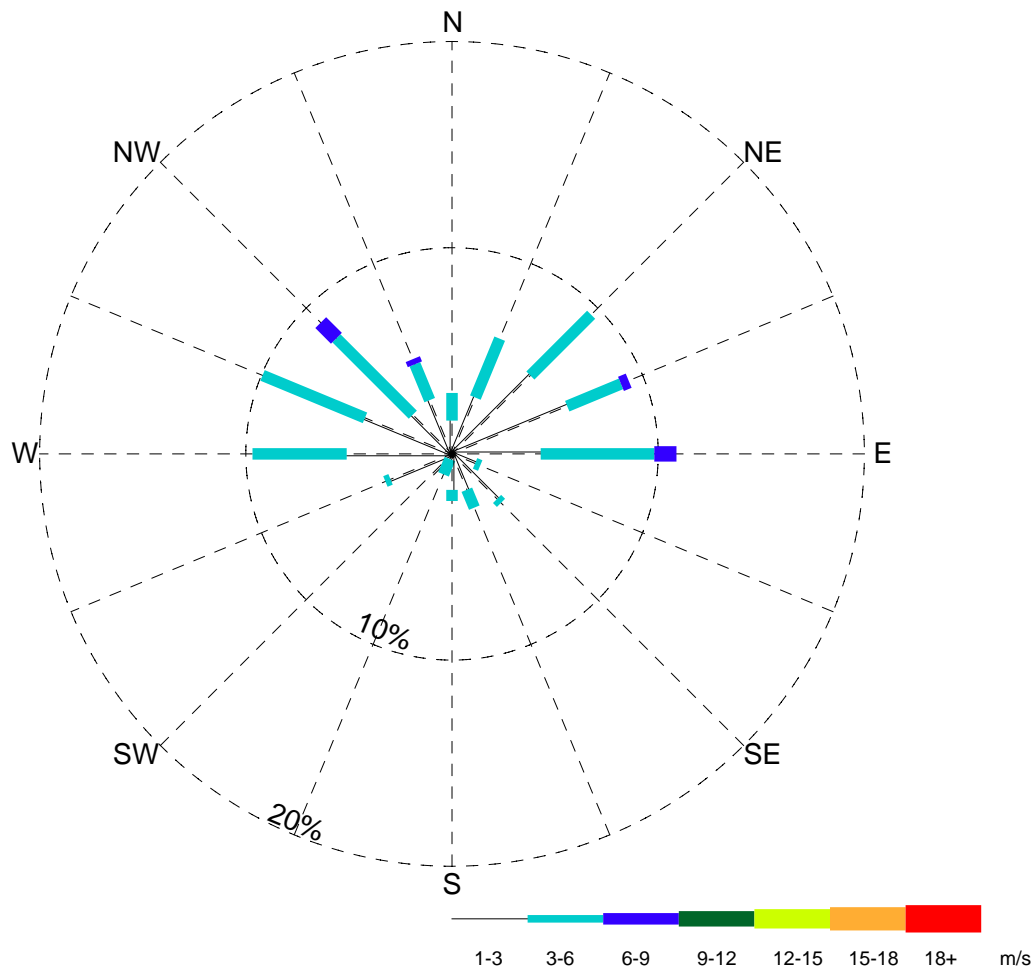
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Figure C-04



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.05	2.82	0.40	-	-	-	-	9.27
NE	-	5.38	4.17	-	-	-	-	-	9.54
NNE	-	2.96	3.09	-	-	-	-	-	6.05
N	-	1.61	1.34	-	-	-	-	-	2.96
NNW	-	2.82	1.88	0.27	-	-	-	-	4.97
NW	-	2.69	5.24	1.08	-	-	-	-	9.01
WNW	-	4.57	5.38	-	-	-	-	-	9.95
W	-	5.11	4.57	-	-	-	-	-	9.68
WSW	-	3.23	0.27	-	-	-	-	-	3.49
SW	-	1.34	-	-	-	-	-	-	1.34
SSW	-	0.27	0.81	-	-	-	-	-	1.08
S	-	1.75	0.54	-	-	-	-	-	2.29
SSE	-	1.88	0.94	-	-	-	-	-	2.82
SE	-	3.09	0.27	-	-	-	-	-	3.36
ESE	-	1.21	0.27	-	-	-	-	-	1.48
E	-	4.30	5.51	1.08	-	-	-	-	10.89
Calm	11.83	-	-	-	-	-	-	-	11.83
Total (%)	11.83	48.25	37.10	2.82	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Jan. 01, 2005

End Date: Jan. 31, 2005

NOTES

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EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
January 2005**

PROJECT NO.
Y22101057

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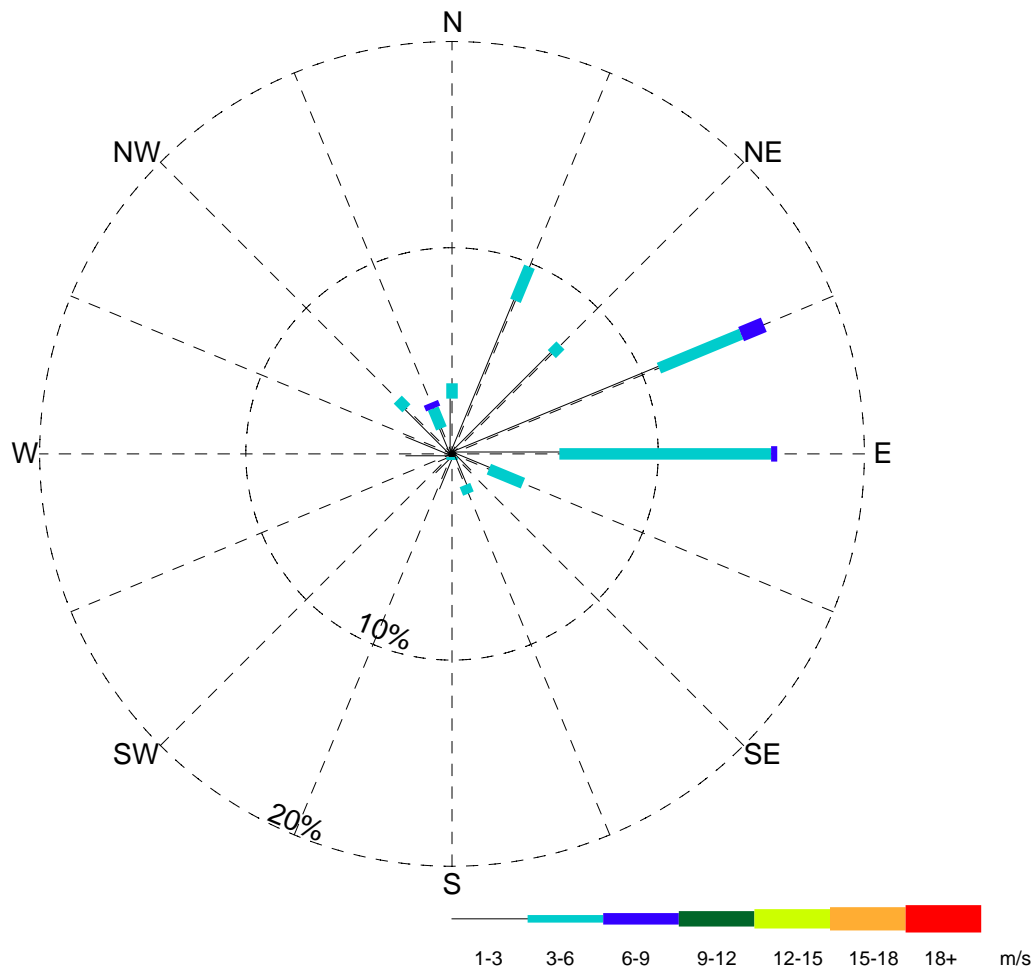
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DATE
May 2009

Figure C-05



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	10.86	4.32	1.19	-	-	-	-	16.37
NE	-	6.84	0.60	-	-	-	-	-	7.44
NNE	-	8.04	1.79	-	-	-	-	-	9.82
N	-	2.68	0.74	-	-	-	-	-	3.42
NNW	-	1.34	1.04	0.30	-	-	-	-	2.68
NW	-	3.12	0.60	-	-	-	-	-	3.72
WNW	-	2.38	-	-	-	-	-	-	2.38
W	-	2.23	-	-	-	-	-	-	2.23
WSW	-	0.74	-	-	-	-	-	-	0.74
SW	-	1.19	-	-	-	-	-	-	1.19
SSW	-	1.79	-	-	-	-	-	-	1.79
S	-	0.15	0.15	-	-	-	-	-	0.30
SSE	-	1.64	0.45	-	-	-	-	-	2.08
SE	-	1.19	-	-	-	-	-	-	1.19
ESE	-	1.93	1.79	-	-	-	-	-	3.72
E	-	5.21	10.27	0.30	-	-	-	-	15.77
Calm	25.15	-	-	-	-	-	-	-	25.15
Total (%)	25.15	51.34	21.73	1.79	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 28 days

Start Date: Feb. 01, 2005

End Date: Feb. 28, 2005

NOTES

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**EBA Engineering
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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
February 2005**

PROJECT NO.
Y22101057

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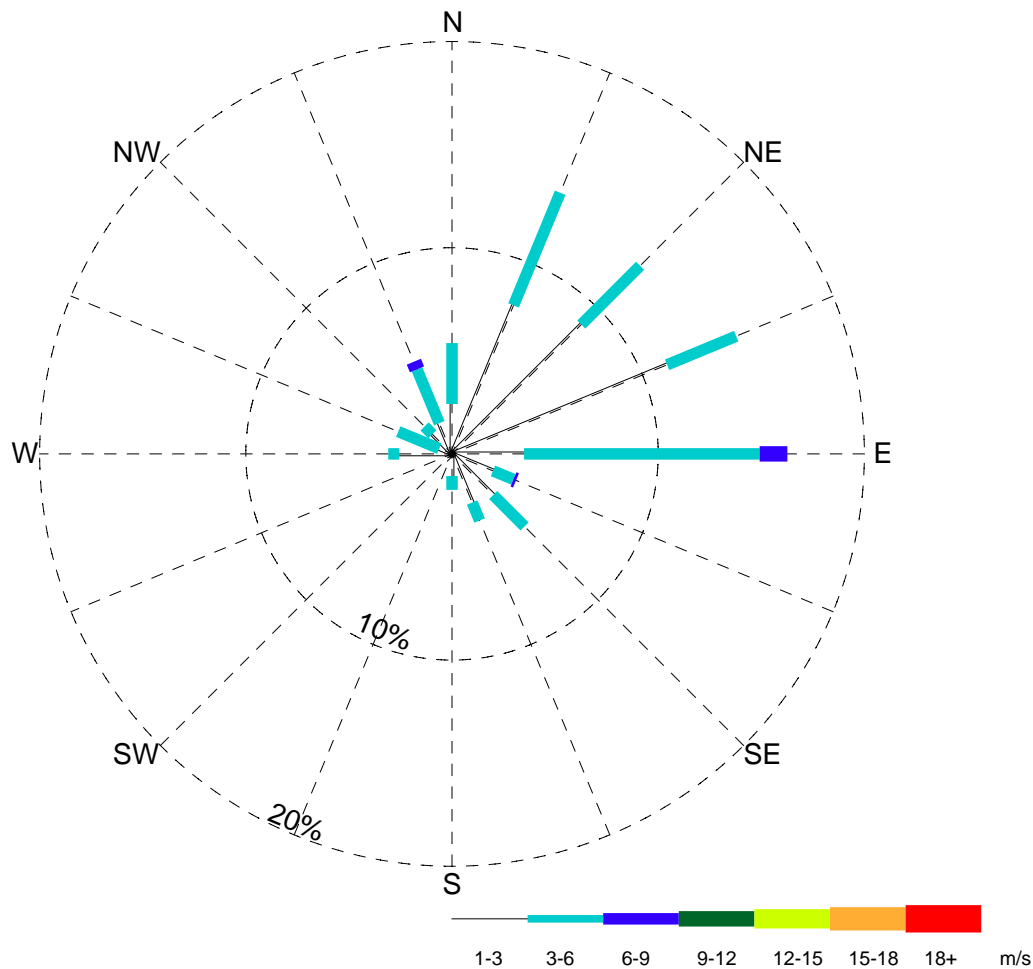
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Figure C-06



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	11.29	3.63	-	-	-	-	-	14.92
NE	-	8.87	4.03	-	-	-	-	-	12.90
NNE	-	7.80	5.91	-	-	-	-	-	13.71
N	-	2.42	2.96	-	-	-	-	-	5.38
NNW	-	1.61	2.82	0.40	-	-	-	-	4.84
NW	-	1.34	0.54	-	-	-	-	-	1.88
WNW	-	0.67	2.15	-	-	-	-	-	2.82
W	-	2.55	0.54	-	-	-	-	-	3.09
WSW	-	0.27	-	-	-	-	-	-	0.27
SW	-	0.40	-	-	-	-	-	-	0.40
SSW	-	0.13	-	-	-	-	-	-	0.13
S	-	1.08	0.67	-	-	-	-	-	1.75
SSE	-	2.55	0.94	-	-	-	-	-	3.49
SE	-	2.82	2.15	-	-	-	-	-	4.97
ESE	-	2.15	1.08	0.13	-	-	-	-	3.36
E	-	3.49	11.43	1.34	-	-	-	-	16.26
Calm	9.81	-	-	-	-	-	-	-	9.81
Total (%)	9.81	49.46	38.84	1.88	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Mar. 01, 2005

End Date: Mar. 31, 2005

NOTES

CLIENT



**EBA Engineering
Consultants Ltd.**



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
March 2005**

PROJECT NO.
Y22101057

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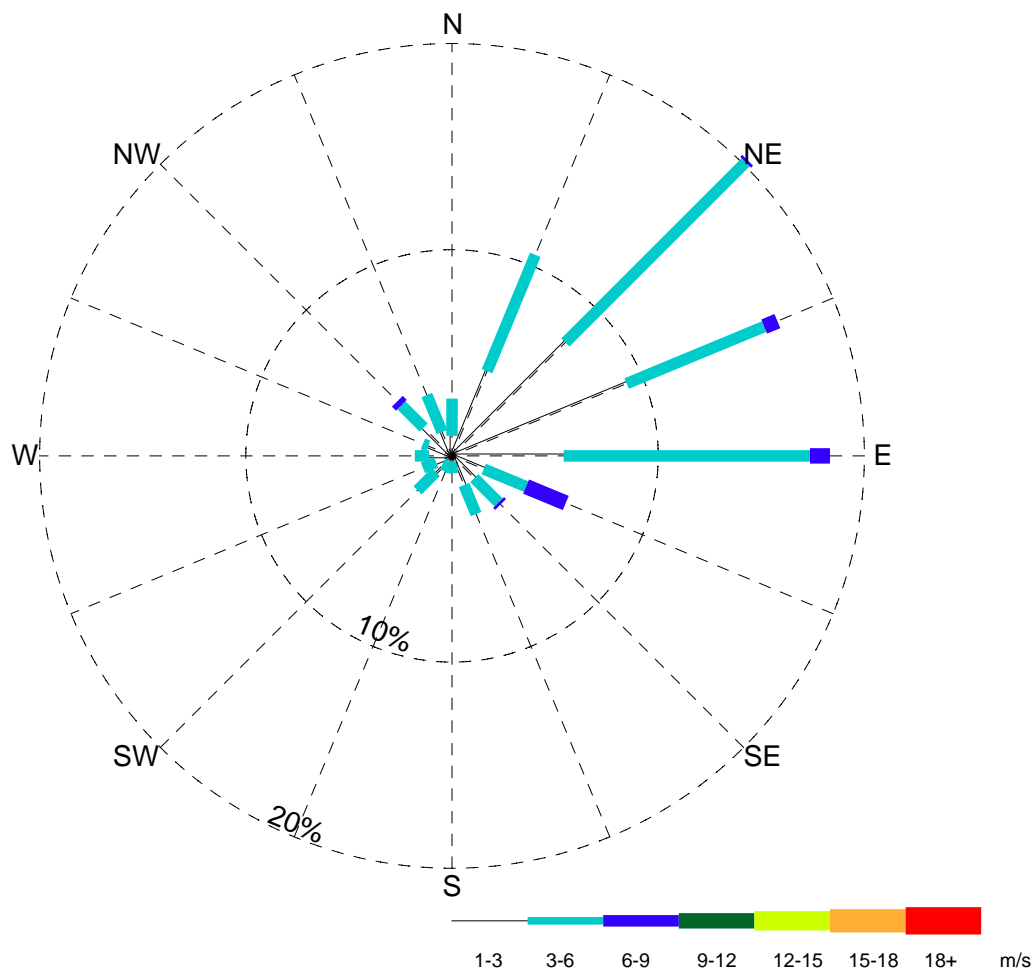
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DATE
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Figure C-07



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	9.17	7.22	0.69	-	-	-	-	17.08
NE	-	7.78	12.36	0.14	-	-	-	-	20.28
NNE	-	4.44	6.11	-	-	-	-	-	10.56
N	-	0.97	1.81	-	-	-	-	-	2.78
NNW	-	1.25	1.94	-	-	-	-	-	3.19
NW	-	1.94	1.53	0.28	-	-	-	-	3.75
WNW	-	1.25	0.28	-	-	-	-	-	1.53
W	-	1.11	0.69	-	-	-	-	-	1.81
WSW	-	0.83	0.69	-	-	-	-	-	1.53
SW	-	1.11	1.25	-	-	-	-	-	2.36
SSW	-	0.28	0.56	-	-	-	-	-	0.83
S	-	0.28	0.56	-	-	-	-	-	0.83
SSE	-	1.53	1.53	-	-	-	-	-	3.06
SE	-	1.53	1.67	0.14	-	-	-	-	3.33
ESE	-	1.67	2.22	2.08	-	-	-	-	5.97
E	-	5.42	11.94	0.97	-	-	-	-	18.33
Calm	2.78	-	-	-	-	-	-	-	2.78
Total (%)	2.78	40.56	52.36	4.31	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Apr. 01, 2005

End Date: Apr. 30, 2005

NOTES

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**EBA Engineering
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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
April 2005**

PROJECT NO.
Y22101057

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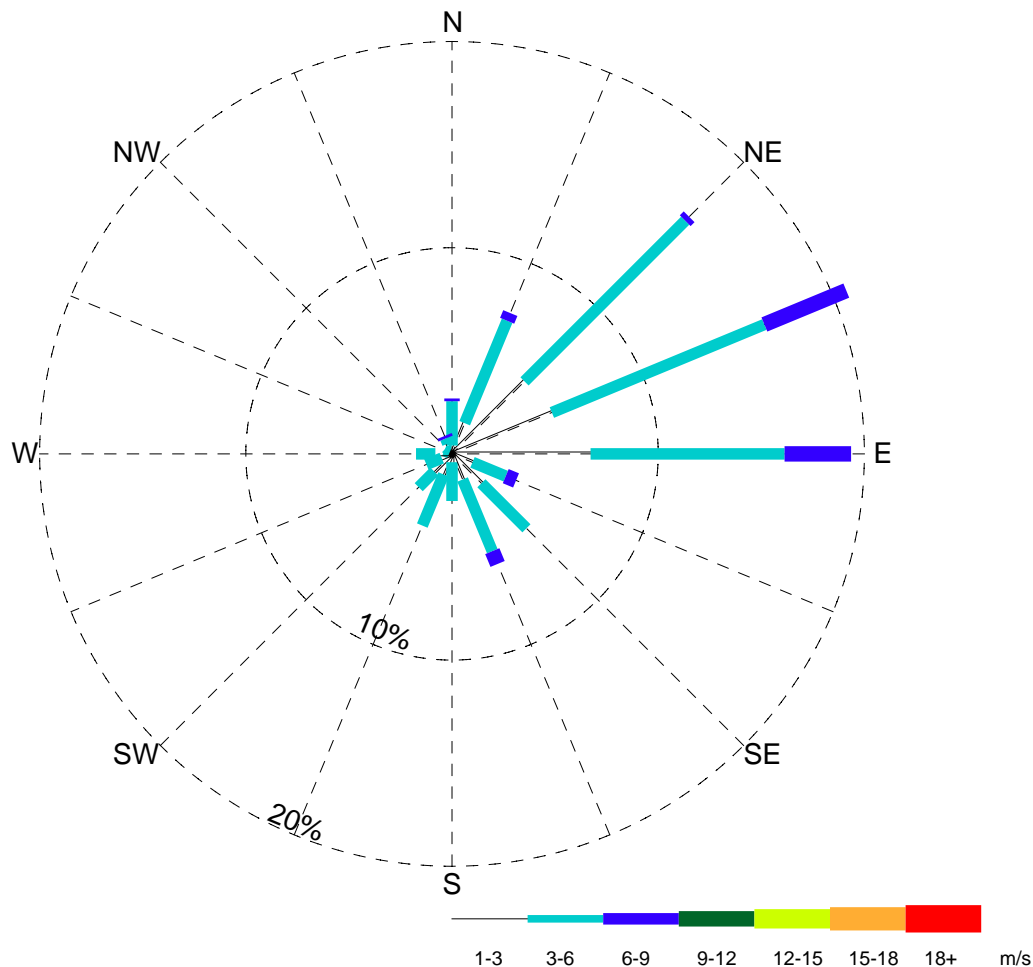
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May 2009

Figure C-08



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	5.24	11.16	4.30	-	-	-	-	20.70
NE	-	4.97	11.02	0.27	-	-	-	-	16.26
NNE	-	1.61	5.38	0.40	-	-	-	-	7.39
N	-	0.40	2.15	0.13	-	-	-	-	2.69
NNW	-	0.54	0.27	0.13	-	-	-	-	0.94
NW	-	0.27	0.13	-	-	-	-	-	0.40
WNW	-	0.13	0.27	-	-	-	-	-	0.40
W	-	0.81	0.94	-	-	-	-	-	1.75
WSW	-	0.54	0.81	-	-	-	-	-	1.34
SW	-	1.21	1.08	-	-	-	-	-	2.29
SSW	-	1.08	2.69	-	-	-	-	-	3.76
S	-	0.40	1.88	-	-	-	-	-	2.29
SSE	-	1.34	3.76	0.67	-	-	-	-	5.78
SE	-	2.02	3.09	-	-	-	-	-	5.11
ESE	-	1.08	1.75	0.54	-	-	-	-	3.36
E	-	6.72	9.41	3.23	-	-	-	-	19.35
Calm	6.18	-	-	-	-	-	-	-	6.18
Total (%)	6.18	28.36	55.78	9.68	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: May. 01, 2005

End Date: May. 31, 2005

NOTES

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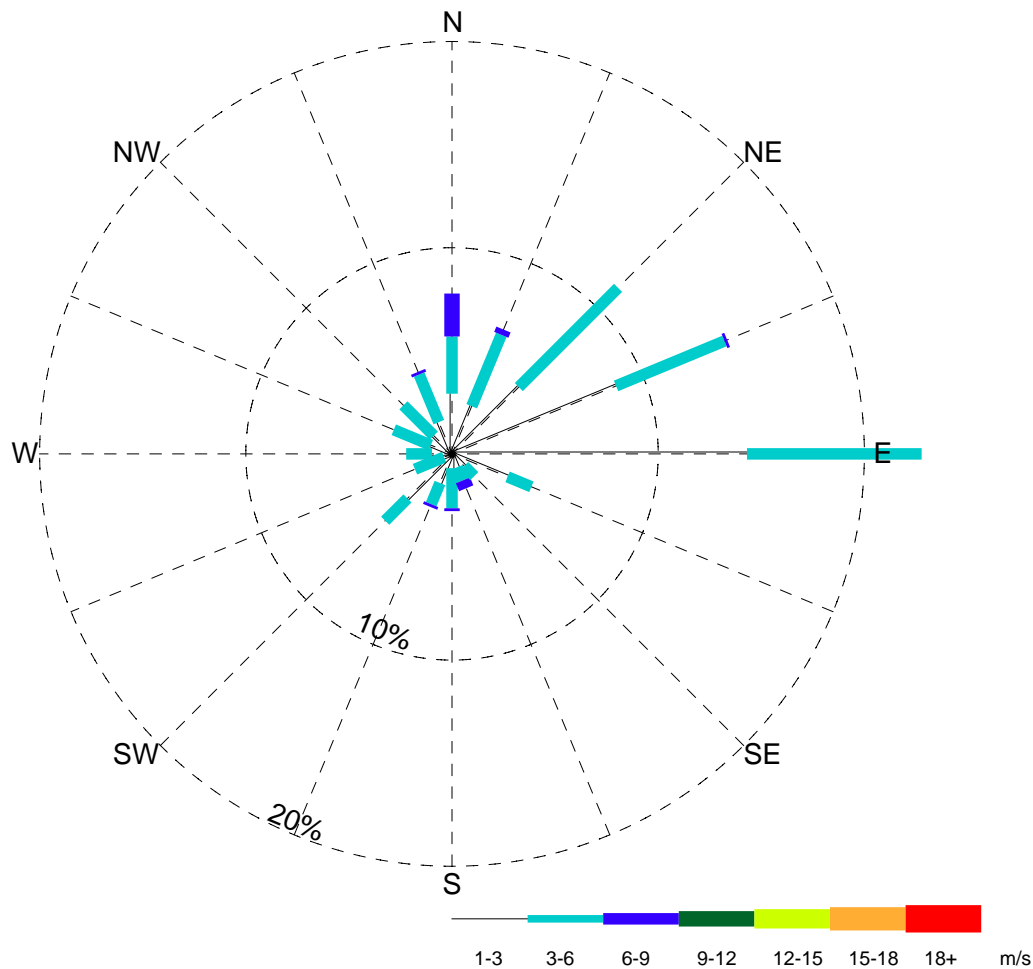
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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
May 2005**

PROJECT NO. Y22101057	DWN TM	CHK JAS	REV 0
OFFICE EBA-VANC	DATE May 2009		

Figure C-09



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	8.61	5.69	0.14	-	-	-	-	14.44
NE	-	4.58	6.81	-	-	-	-	-	11.39
NNE	-	2.50	3.75	0.28	-	-	-	-	6.53
N	-	2.92	2.78	2.08	-	-	-	-	7.78
NNW	-	1.67	2.50	0.14	-	-	-	-	4.31
NW	-	1.25	2.08	-	-	-	-	-	3.33
WNW	-	1.11	1.94	-	-	-	-	-	3.06
W	-	0.97	1.25	-	-	-	-	-	2.22
WSW	-	0.42	1.53	-	-	-	-	-	1.94
SW	-	3.06	1.53	-	-	-	-	-	4.58
SSW	-	1.53	1.11	0.14	-	-	-	-	2.78
S	-	0.69	1.94	0.14	-	-	-	-	2.78
SSE	-	0.69	0.69	0.42	-	-	-	-	1.81
SE	-	0.83	0.69	-	-	-	-	-	1.53
ESE	-	2.92	1.25	-	-	-	-	-	4.17
E	-	14.31	8.47	-	-	-	-	-	22.78
Calm	4.58	-	-	-	-	-	-	-	4.58
Total (%)	4.58	48.06	44.03	3.33	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: June 01, 2005

End Date: June 30, 2005

NOTES

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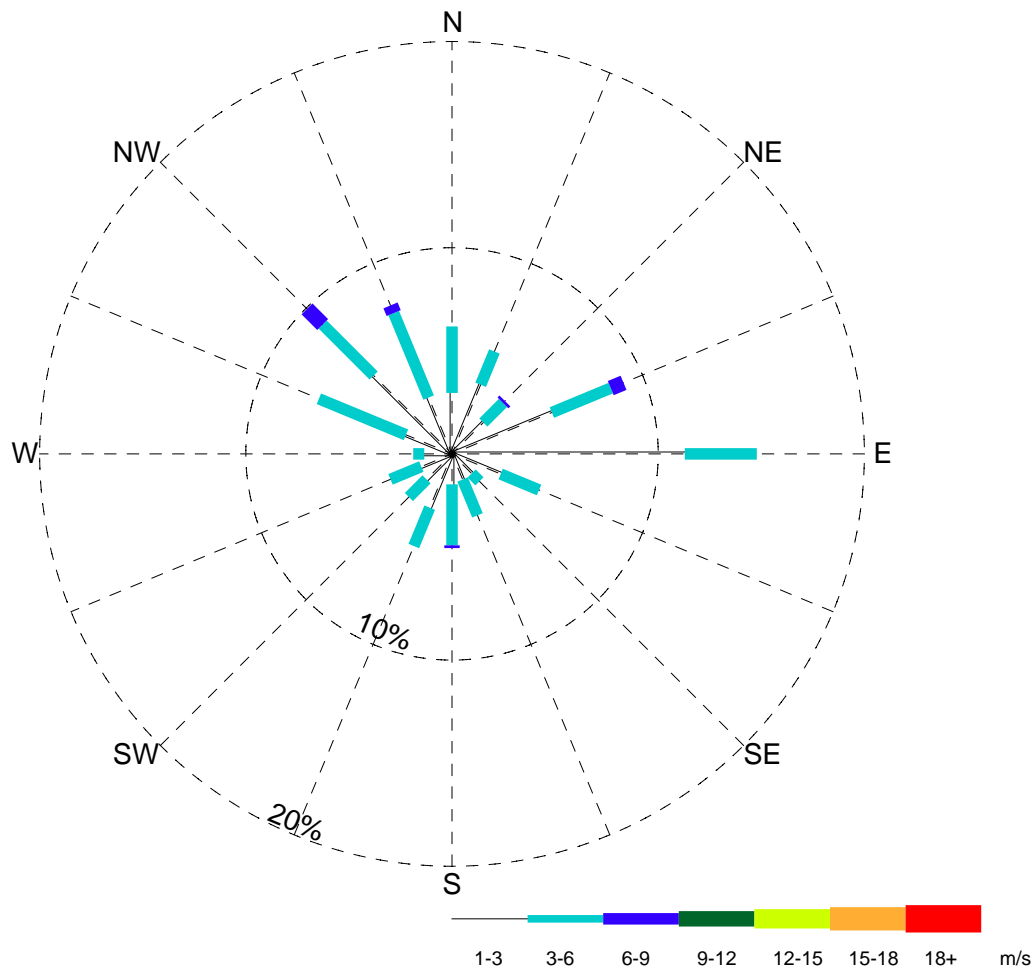


YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
June 2005**

PROJECT NO. Y22101057	DWN TM	CHK JAS	REV 0
OFFICE EBA-VANC	DATE May 2009		

Figure C-10



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	5.24	3.09	0.67	-	-	-	-	9.01
NE	-	2.15	1.34	0.13	-	-	-	-	3.63
NNE	-	3.63	1.75	-	-	-	-	-	5.38
N	-	2.96	3.23	-	-	-	-	-	6.18
NNW	-	2.96	4.43	0.40	-	-	-	-	7.80
NW	-	5.38	3.49	1.08	-	-	-	-	9.95
WNW	-	2.42	4.57	-	-	-	-	-	6.99
W	-	1.34	0.54	-	-	-	-	-	1.88
WSW	-	1.61	1.61	-	-	-	-	-	3.23
SW	-	1.75	1.21	-	-	-	-	-	2.96
SSW	-	2.82	2.02	-	-	-	-	-	4.84
S	-	1.48	2.96	0.13	-	-	-	-	4.57
SSE	-	1.34	1.88	-	-	-	-	-	3.23
SE	-	1.34	0.54	-	-	-	-	-	1.88
ESE	-	2.55	2.02	-	-	-	-	-	4.57
E	-	11.29	3.49	-	-	-	-	-	14.78
Calm	9.14	-	-	-	-	-	-	-	9.14
Total (%)	9.14	50.27	38.17	2.42	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: July 01, 2005

End Date: July 31, 2005

NOTES

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EBA Engineering Consultants Ltd. 

YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
July 2005**

PROJECT NO.
Y22101057

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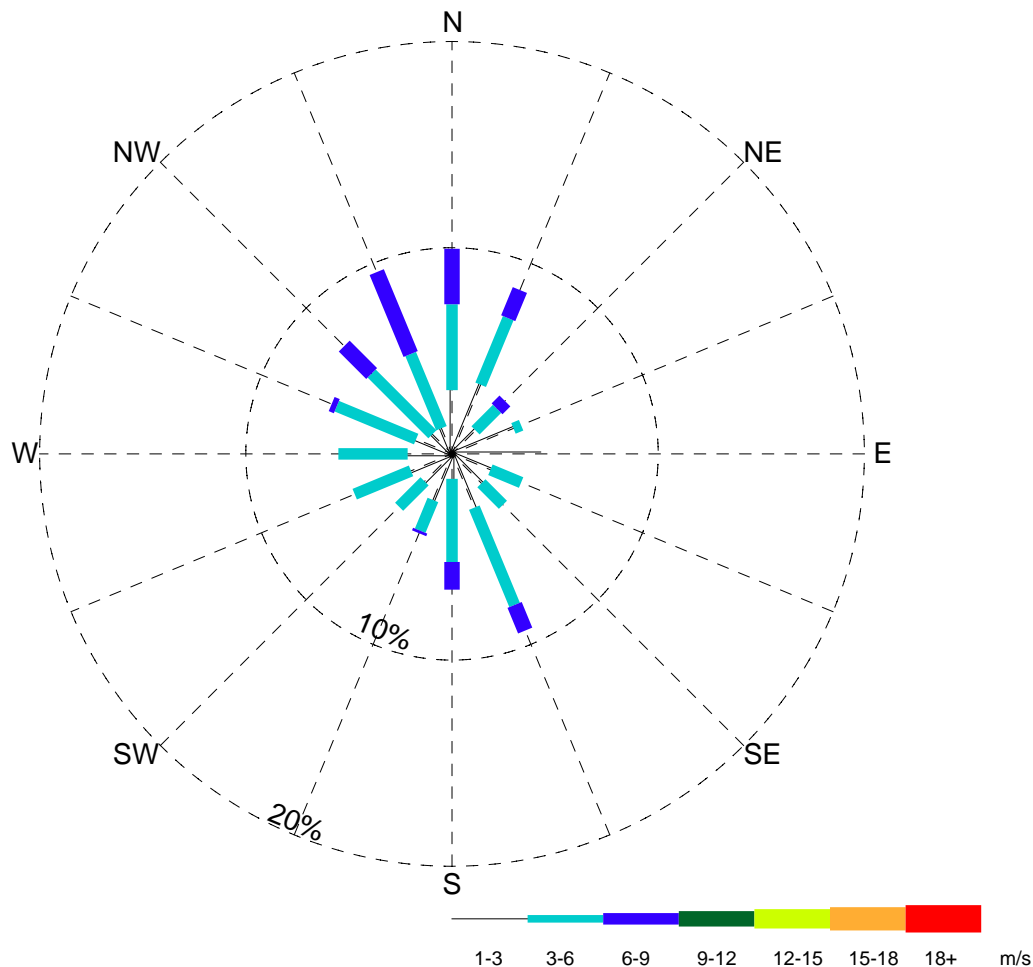
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May 2009

Figure C-11



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.23	0.40	-	-	-	-	-	3.63
NE	-	1.61	1.48	0.54	-	-	-	-	3.63
NNE	-	3.63	3.49	1.48	-	-	-	-	8.60
N	-	3.09	4.17	2.69	-	-	-	-	9.95
NNW	-	1.34	3.90	4.30	-	-	-	-	9.54
NW	-	1.34	4.17	1.88	-	-	-	-	7.39
WNW	-	1.88	4.17	0.27	-	-	-	-	6.32
W	-	2.15	3.36	-	-	-	-	-	5.51
WSW	-	2.15	2.96	-	-	-	-	-	5.11
SW	-	1.88	1.75	-	-	-	-	-	3.63
SSW	-	2.42	1.61	0.13	-	-	-	-	4.17
S	-	1.21	4.03	1.34	-	-	-	-	6.59
SSE	-	2.82	5.11	1.34	-	-	-	-	9.27
SE	-	2.02	1.48	-	-	-	-	-	3.49
ESE	-	2.02	1.61	-	-	-	-	-	3.63
E	-	4.30	-	-	-	-	-	-	4.30
Calm	5.24	-	-	-	-	-	-	-	5.24
Total (%)	5.24	37.10	43.68	13.98	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Aug. 01, 2005

End Date: Aug. 31, 2005

NOTES

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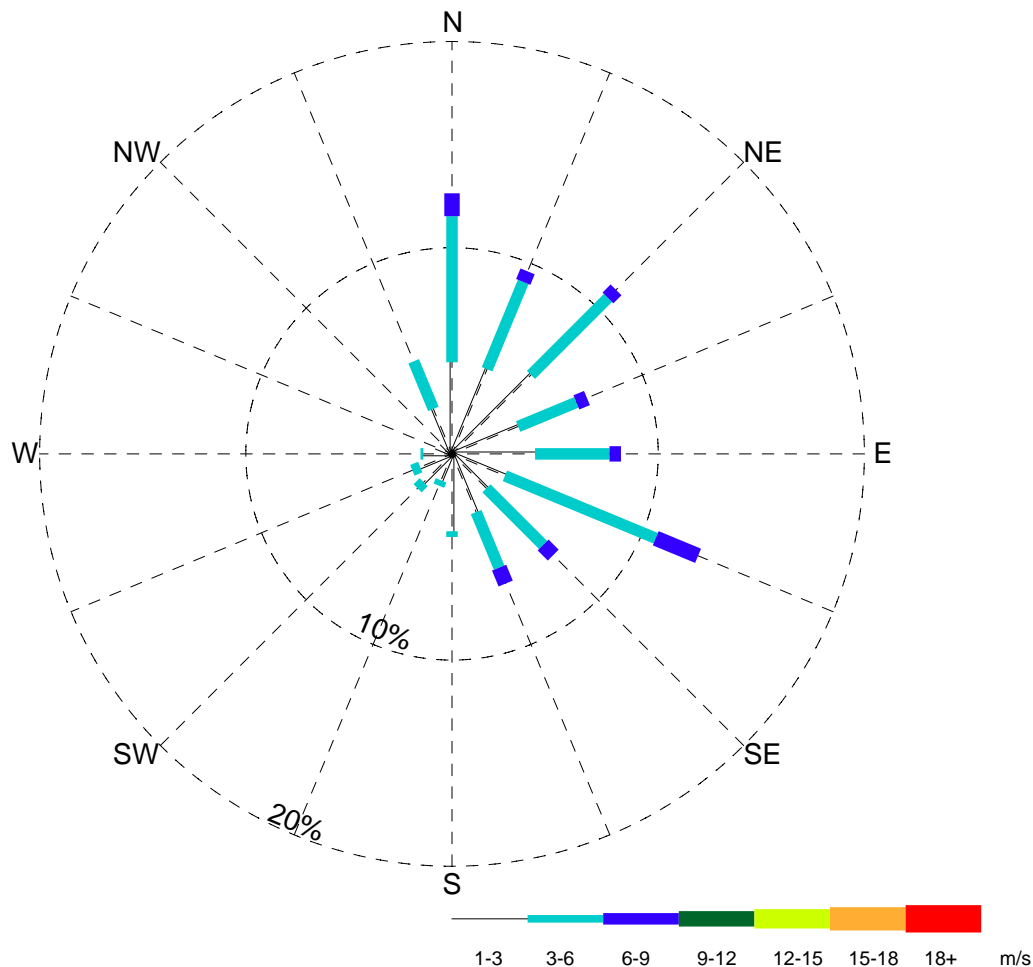
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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
August 2005**

PROJECT NO. Y22101057	DWN TM	CHK JAS	REV 0
OFFICE EBA-VANC	DATE May 2009		

Figure C-12



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.47	3.06	0.56	-	-	-	-	7.08
NE	-	5.42	5.28	0.56	-	-	-	-	11.25
NNE	-	4.44	4.58	0.56	-	-	-	-	9.58
N	-	4.44	7.08	1.11	-	-	-	-	12.64
NNW	-	2.36	2.50	-	-	-	-	-	4.86
NW	-	0.69	-	-	-	-	-	-	0.69
WNW	-	0.83	-	-	-	-	-	-	0.83
W	-	1.39	0.14	-	-	-	-	-	1.53
WSW	-	1.67	0.42	-	-	-	-	-	2.08
SW	-	1.94	0.42	-	-	-	-	-	2.36
SSW	-	1.39	0.28	-	-	-	-	-	1.67
S	-	3.75	0.28	-	-	-	-	-	4.03
SSE	-	3.06	2.92	0.83	-	-	-	-	6.81
SE	-	2.36	3.89	0.69	-	-	-	-	6.94
ESE	-	2.78	7.92	2.22	-	-	-	-	12.92
E	-	4.03	3.61	0.56	-	-	-	-	8.19
Calm	6.53	-	-	-	-	-	-	-	6.53
Total (%)	6.53	44.03	42.36	7.08	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Sep. 01, 2005

End Date: Sep. 30, 2005

NOTES

CLIENT



EBA Engineering Consultants Ltd.



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**Tyhee Station
Wind Rose
September 2005**

PROJECT NO.
Y22101057

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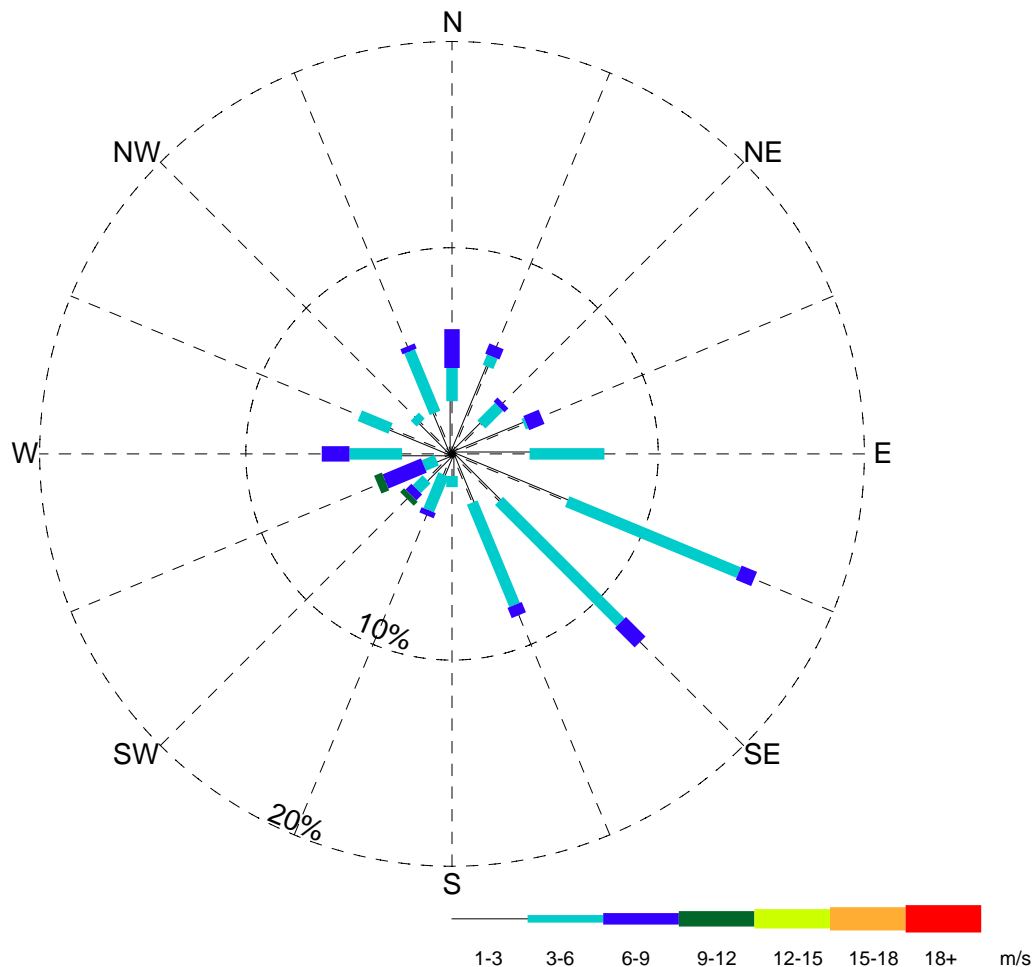
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Figure C-13



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.76	0.13	0.81	-	-	-	-	4.70
NE	-	2.02	1.21	0.27	-	-	-	-	3.49
NNE	-	4.57	0.54	0.54	-	-	-	-	5.64
N	-	2.55	1.61	1.88	-	-	-	-	6.05
NNW	-	2.15	3.23	0.27	-	-	-	-	5.64
NW	-	2.15	0.40	-	-	-	-	-	2.55
WNW	-	3.23	1.61	-	-	-	-	-	4.84
W	-	2.42	2.55	1.34	-	-	-	-	6.32
WSW	-	0.81	0.67	2.02	0.40	-	-	-	3.90
SW	-	1.75	0.67	0.40	0.27	-	-	-	3.09
SSW	-	1.08	1.88	0.27	-	-	-	-	3.23
S	-	1.08	0.54	-	-	-	-	-	1.61
SSE	-	2.55	5.38	0.54	-	-	-	-	8.47
SE	-	3.23	8.33	1.34	-	-	-	-	12.90
ESE	-	6.05	9.01	0.81	-	-	-	-	15.86
E	-	3.76	3.63	-	-	-	-	-	7.39
Calm	4.30	-	-	-	-	-	-	-	4.30
Total (%)	4.30	43.15	41.40	10.48	0.67	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Oct. 01, 2005

End Date: Oct. 31, 2005

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
October 2005**

PROJECT NO.
Y22101057

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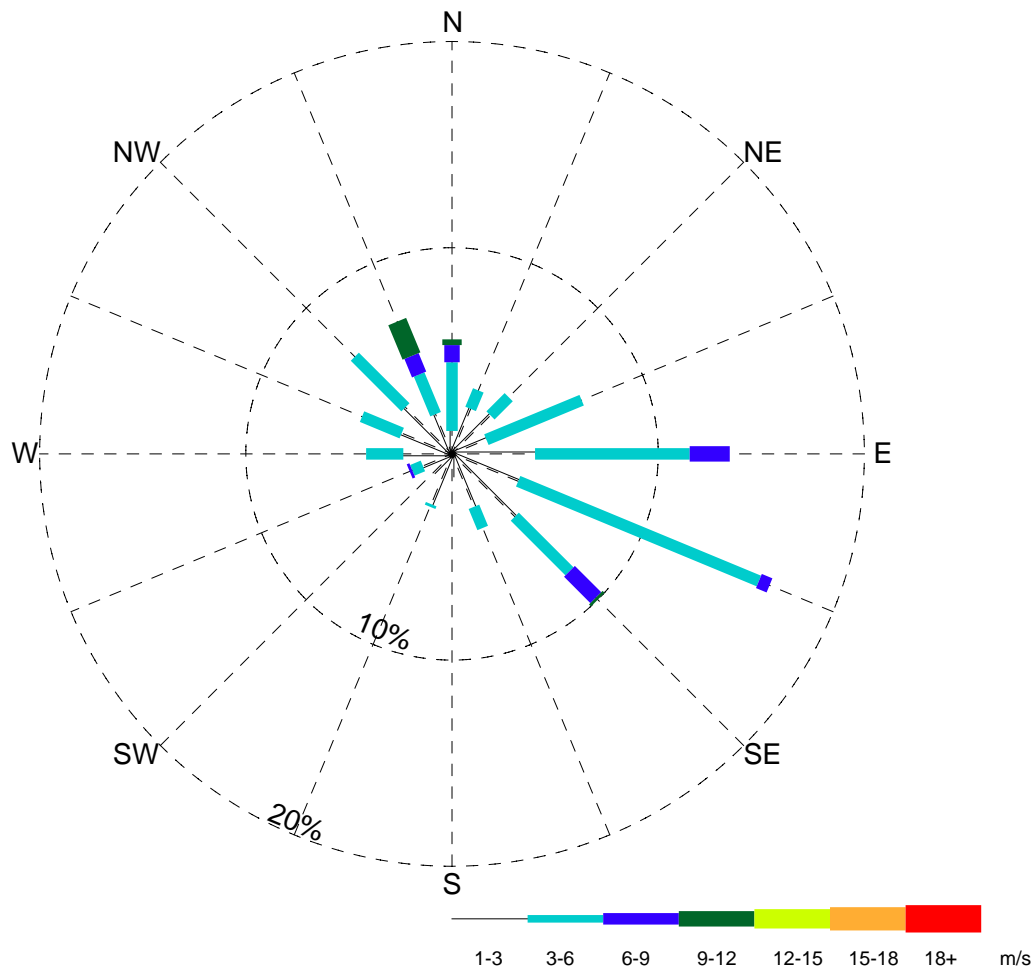
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Figure C-14



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	1.81	5.00	-	-	-	-	-	6.81
NE	-	2.64	1.25	-	-	-	-	-	3.89
NNE	-	2.36	0.97	-	-	-	-	-	3.33
N	-	1.11	3.33	0.83	0.28	-	-	-	5.56
NNW	-	2.08	2.08	0.97	1.81	-	-	-	6.94
NW	-	3.19	3.47	-	-	-	-	-	6.67
WNW	-	2.64	2.08	-	-	-	-	-	4.72
W	-	2.36	1.81	-	-	-	-	-	4.17
WSW	-	1.53	0.56	0.14	-	-	-	-	2.22
SW	-	1.25	-	-	-	-	-	-	1.25
SSW	-	2.64	0.14	-	-	-	-	-	2.78
S	-	1.11	-	-	-	-	-	-	1.11
SSE	-	2.78	1.11	-	-	-	-	-	3.89
SE	-	4.31	3.75	1.81	0.14	-	-	-	10.00
ESE	-	3.47	12.64	0.56	-	-	-	-	16.67
E	-	4.03	7.50	1.94	-	-	-	-	13.47
Calm	6.53	-	-	-	-	-	-	-	6.53
Total (%)	6.53	39.31	45.69	6.25	2.22	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Nov. 01, 2005

End Date: Nov. 30, 2005

NOTES

CLIENT



**EBA Engineering
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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
November 2005**

PROJECT NO.
Y22101057

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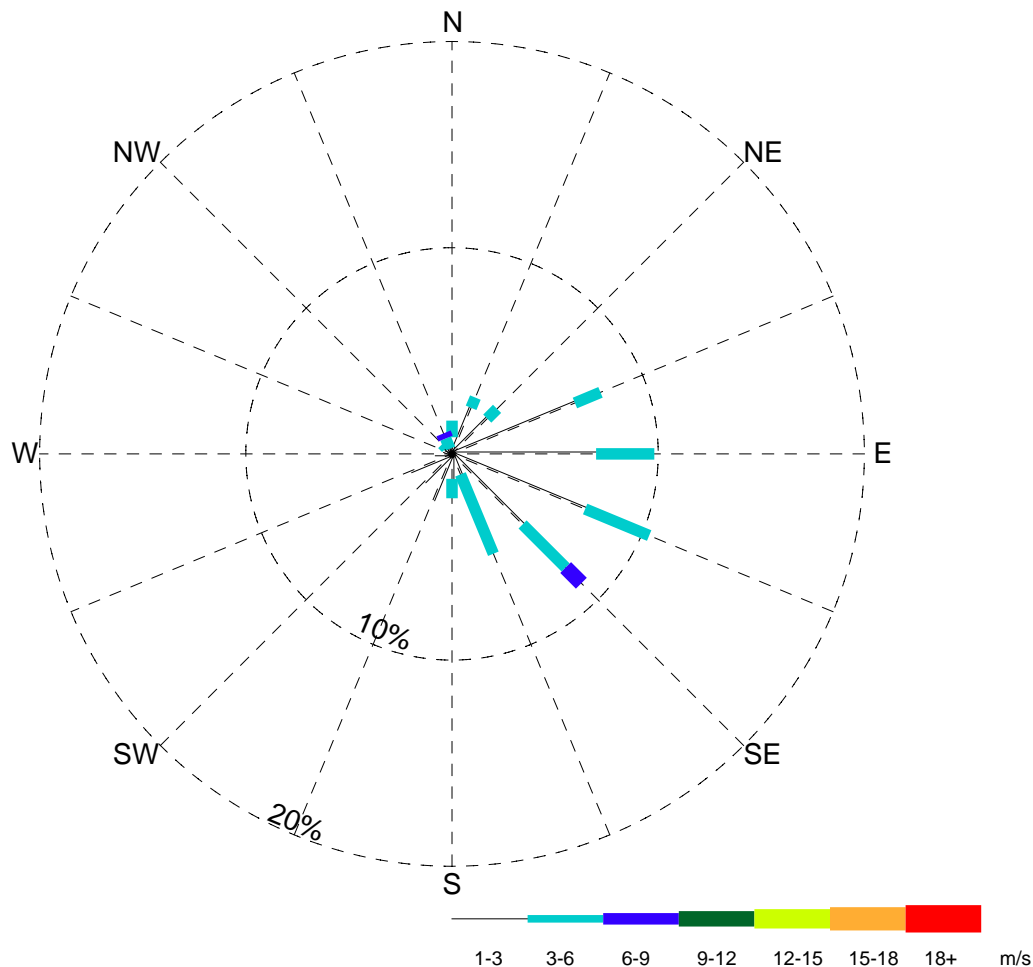
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Figure C-15



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.45	1.34	-	-	-	-	-	7.80
NE	-	2.42	0.67	-	-	-	-	-	3.09
NNE	-	2.42	0.54	-	-	-	-	-	2.96
N	-	0.81	0.81	-	-	-	-	-	1.61
NNW	-	0.27	0.54	0.27	-	-	-	-	1.08
NW	-	0.40	0.27	-	-	-	-	-	0.67
WNW	-	0.40	-	-	-	-	-	-	0.40
W	-	0.81	-	-	-	-	-	-	0.81
WSW	-	2.15	-	-	-	-	-	-	2.15
SW	-	1.88	-	-	-	-	-	-	1.88
SSW	-	2.42	-	-	-	-	-	-	2.42
S	-	1.21	0.94	-	-	-	-	-	2.15
SSE	-	1.08	4.17	-	-	-	-	-	5.24
SE	-	4.84	2.96	1.08	-	-	-	-	8.87
ESE	-	6.99	3.36	-	-	-	-	-	10.35
E	-	6.99	2.82	-	-	-	-	-	9.81
Calm	38.71	-	-	-	-	-	-	-	38.71
Total (%)	38.71	41.53	18.41	1.34	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Dec. 01, 2005

End Date: Dec. 31, 2005

NOTES

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2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
December 2005**

PROJECT NO.
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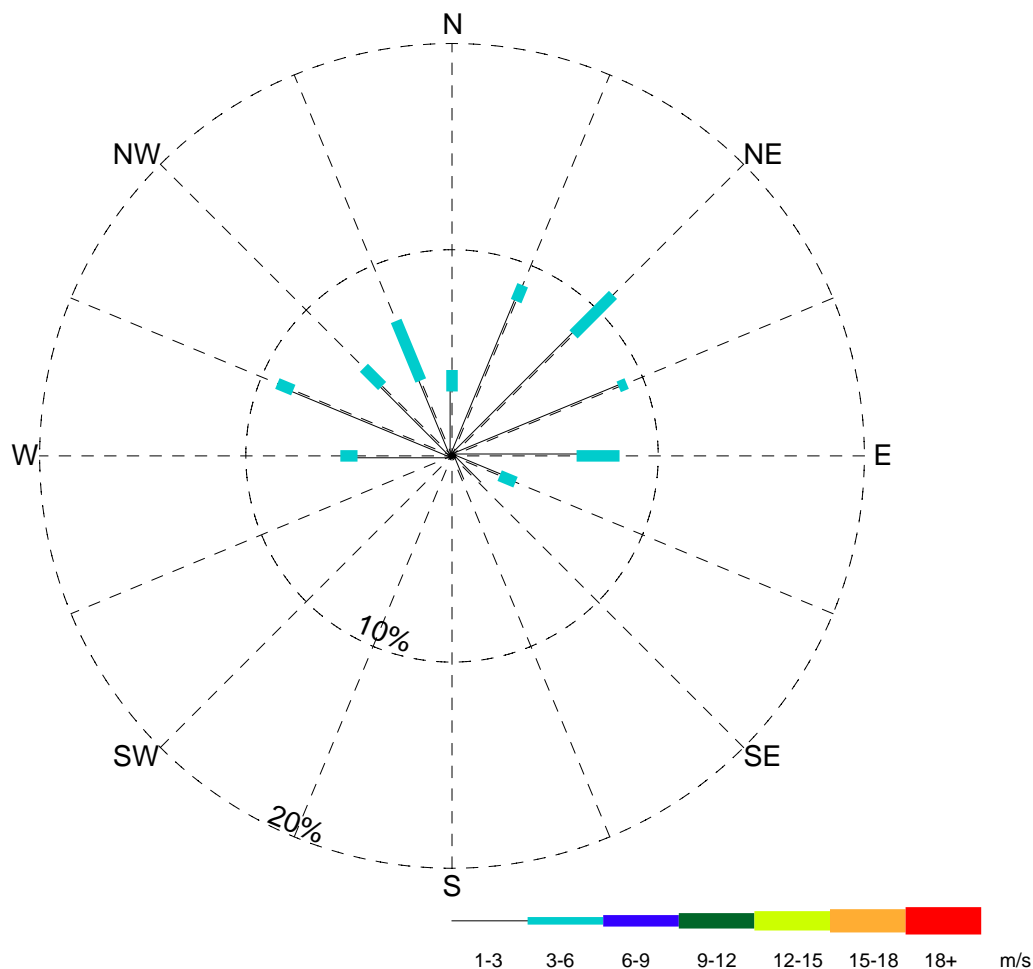
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Figure C-16



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	8.75	0.42	-	-	-	-	-	9.17
NE	-	8.33	2.71	-	-	-	-	-	11.04
NNE	-	8.12	0.83	-	-	-	-	-	8.96
N	-	3.12	1.04	-	-	-	-	-	4.17
NNW	-	3.96	3.12	-	-	-	-	-	7.08
NW	-	4.79	1.25	-	-	-	-	-	6.04
WNW	-	8.33	0.83	-	-	-	-	-	9.17
W	-	4.58	0.83	-	-	-	-	-	5.42
WSW	-	0.21	-	-	-	-	-	-	0.21
SW	-	-	-	-	-	-	-	-	-
SSW	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-
SSE	-	1.25	-	-	-	-	-	-	1.25
SE	-	1.88	-	-	-	-	-	-	1.88
ESE	-	2.50	0.83	-	-	-	-	-	3.33
E	-	6.04	2.08	-	-	-	-	-	8.12
Calm	24.17	-	-	-	-	-	-	-	24.17
Total (%)	24.17	61.88	13.96	-	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 20 days

Start Date: Jan. 12, 2006

End Date: Jan. 31, 2006

NOTES

Suspected erroneous wind data between January 1st and 12th has been removed from the record.

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**Tyhee Station
Wind Rose
January 2006**

PROJECT NO.
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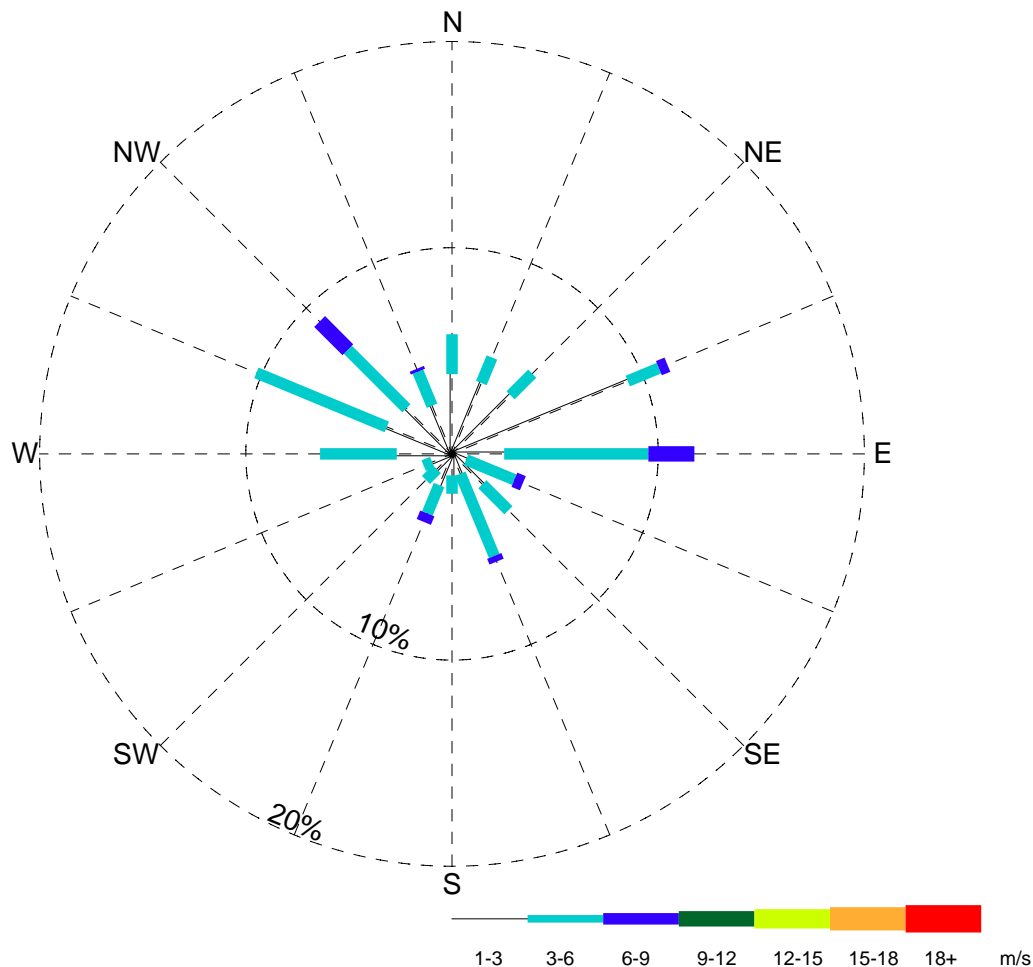
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Figure C-17



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	9.23	1.64	0.45	-	-	-	-	11.31
NE	-	4.02	1.49	-	-	-	-	-	5.51
NNE	-	3.72	1.34	-	-	-	-	-	5.06
N	-	3.87	1.93	-	-	-	-	-	5.80
NNW	-	2.53	1.79	0.15	-	-	-	-	4.46
NW	-	3.12	4.02	1.93	-	-	-	-	9.08
WNW	-	3.42	6.84	-	-	-	-	-	10.27
W	-	2.68	3.72	-	-	-	-	-	6.40
WSW	-	1.04	0.45	-	-	-	-	-	1.49
SW	-	1.04	0.74	-	-	-	-	-	1.79
SSW	-	1.64	1.49	0.45	-	-	-	-	3.57
S	-	1.04	0.89	-	-	-	-	-	1.93
SSE	-	1.04	4.32	0.30	-	-	-	-	5.66
SE	-	2.08	1.79	-	-	-	-	-	3.87
ESE	-	0.74	2.53	0.45	-	-	-	-	3.72
E	-	2.53	6.99	2.23	-	-	-	-	11.76
Calm	8.33	-	-	-	-	-	-	-	8.33
Total (%)	8.33	43.75	41.96	5.95	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 28 days

Start Date: Feb. 01, 2006

End Date: Feb. 28, 2006

NOTES

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2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
February 2006**

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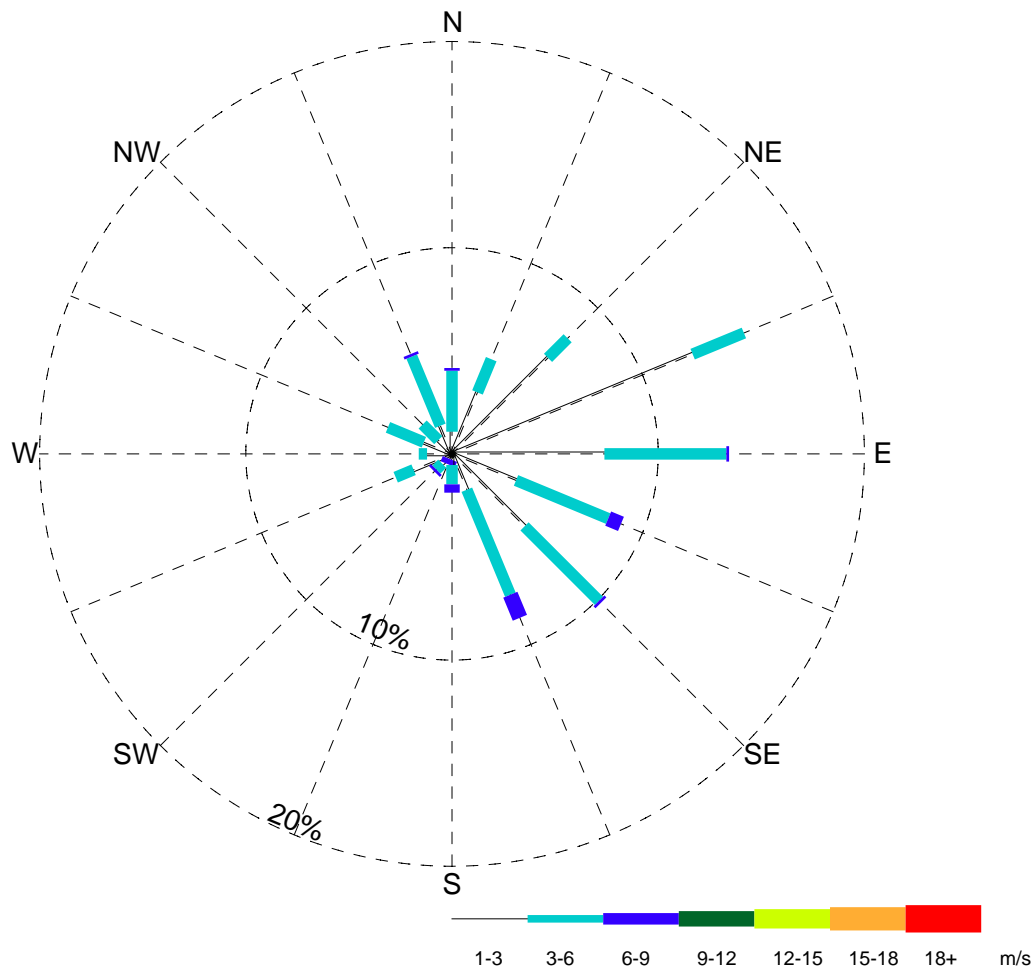
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Figure C-18



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	12.63	2.69	-	-	-	-	-	15.32
NE	-	6.59	1.34	-	-	-	-	-	7.93
NNE	-	3.23	1.75	-	-	-	-	-	4.97
N	-	1.08	2.96	0.13	-	-	-	-	4.17
NNW	-	1.48	3.63	0.13	-	-	-	-	5.24
NW	-	0.94	1.08	-	-	-	-	-	2.02
WNW	-	1.48	1.88	-	-	-	-	-	3.36
W	-	1.21	0.40	-	-	-	-	-	1.61
WSW	-	2.02	0.94	-	-	-	-	-	2.96
SW	-	0.67	0.40	0.13	-	-	-	-	1.21
SSW	-	0.27	-	0.27	-	-	-	-	0.54
S	-	0.54	0.94	0.40	-	-	-	-	1.88
SSE	-	1.88	5.51	1.21	-	-	-	-	8.60
SE	-	4.97	5.11	0.13	-	-	-	-	10.22
ESE	-	3.36	4.84	0.67	-	-	-	-	8.87
E	-	7.39	5.91	0.13	-	-	-	-	13.44
Calm	7.66	-	-	-	-	-	-	-	7.66
Total (%)	7.66	49.73	39.38	3.23	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Mar. 01, 2006

End Date: Mar. 31, 2006

NOTES

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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
March 2006**

PROJECT NO.
Y22101057

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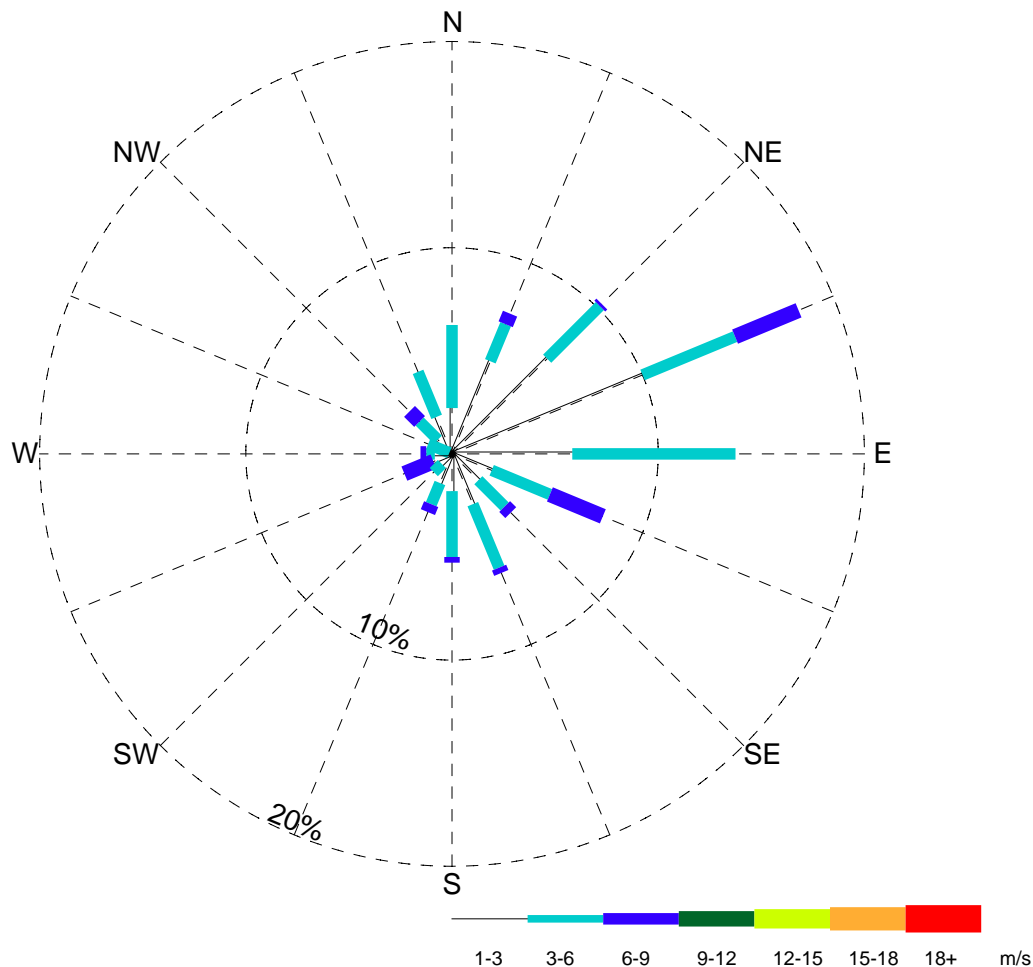
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Figure C-19



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	10.00	4.86	3.33	-	-	-	-	18.19
NE	-	6.53	3.61	0.14	-	-	-	-	10.28
NNE	-	4.86	1.94	0.56	-	-	-	-	7.36
N	-	2.22	4.03	-	-	-	-	-	6.25
NNW	-	1.94	2.36	-	-	-	-	-	4.31
NW	-	0.97	1.25	0.69	-	-	-	-	2.92
WNW	-	0.14	1.11	-	-	-	-	-	1.25
W	-	0.83	0.42	0.28	-	-	-	-	1.53
WSW	-	0.97	-	1.53	-	-	-	-	2.50
SW	-	0.69	0.56	-	-	-	-	-	1.25
SSW	-	1.53	1.11	0.42	-	-	-	-	3.06
S	-	1.81	3.19	0.28	-	-	-	-	5.28
SSE	-	2.64	3.33	0.28	-	-	-	-	6.25
SE	-	1.81	1.81	0.42	-	-	-	-	4.03
ESE	-	2.08	3.06	2.78	-	-	-	-	7.92
E	-	5.83	7.92	-	-	-	-	-	13.75
Calm	3.89	-	-	-	-	-	-	-	3.89
Total (%)	3.89	44.86	40.56	10.69	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days


Start Date: Apr. 01, 2006

End Date: Apr. 30, 2006

NOTES

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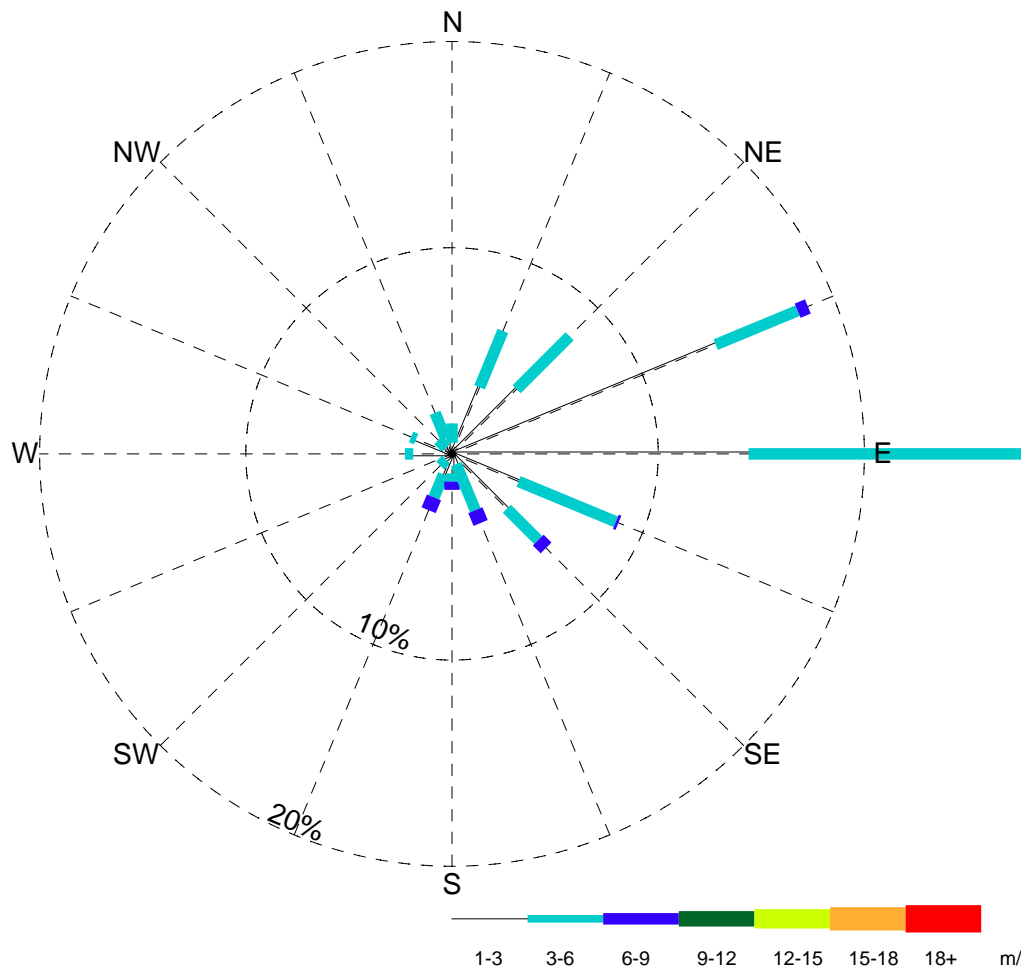
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2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
April 2006**

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Figure C-20



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	13.84	4.30	0.54	-	-	-	-	18.68
NE	-	4.43	3.63	-	-	-	-	-	8.06
NNE	-	3.49	2.96	-	-	-	-	-	6.45
N	-	0.54	0.94	-	-	-	-	-	1.48
NNW	-	0.81	1.34	-	-	-	-	-	2.15
NW	-	0.40	0.54	-	-	-	-	-	0.94
WNW	-	1.88	0.27	-	-	-	-	-	2.15
W	-	1.88	0.40	-	-	-	-	-	2.29
WSW	-	0.67	-	-	-	-	-	-	0.67
SW	-	0.40	0.40	-	-	-	-	-	0.81
SSW	-	1.08	1.21	0.67	-	-	-	-	2.96
S	-	0.94	0.40	0.40	-	-	-	-	1.75
SSE	-	0.54	2.42	0.67	-	-	-	-	3.63
SE	-	3.76	2.15	0.54	-	-	-	-	6.45
ESE	-	3.49	5.11	0.13	-	-	-	-	8.74
E	-	14.38	13.31	0.27	-	-	-	-	27.96
Calm	4.84	-	-	-	-	-	-	-	4.84
Total (%)	4.84	52.55	39.38	3.23	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: May. 01, 2006

End Date: May. 31, 2006

NOTES

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**Tyhee Station
Wind Rose
May 2006**

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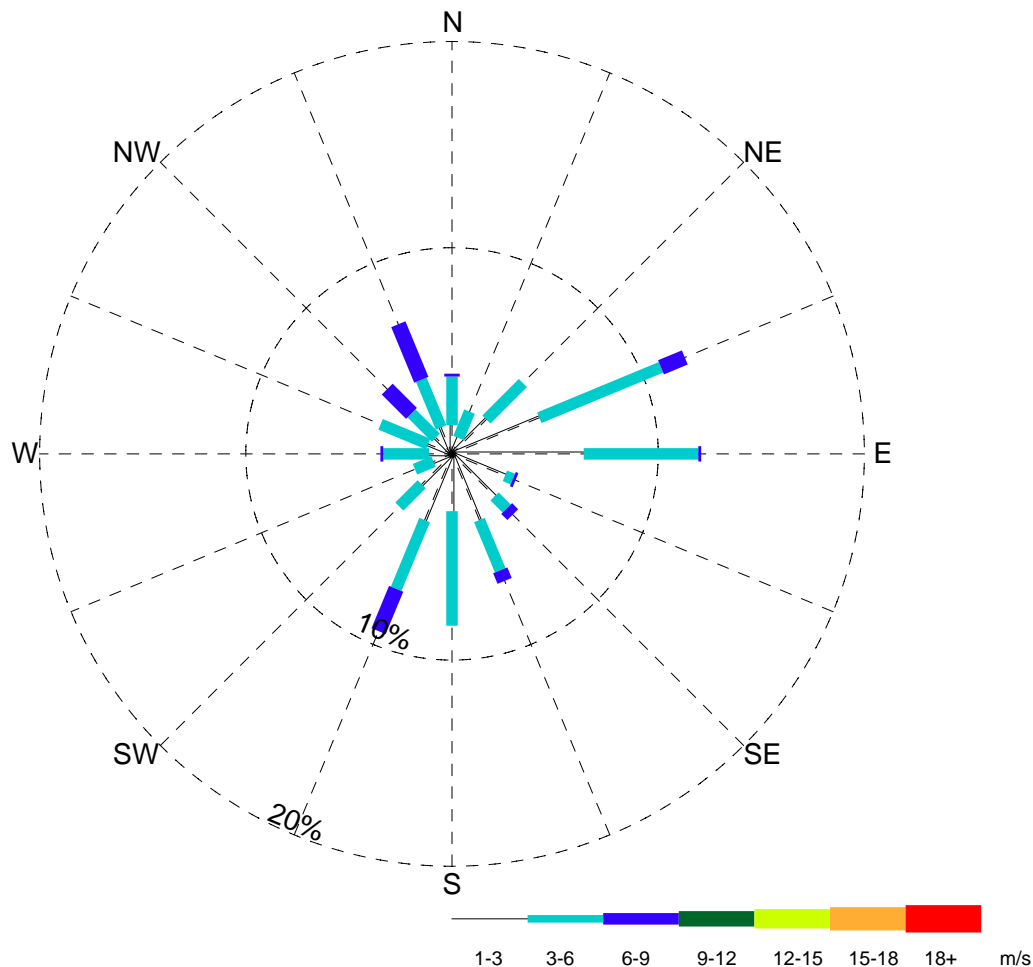
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Figure C-21



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	4.58	6.39	1.25	-	-	-	-	12.22
NE	-	2.36	2.50	-	-	-	-	-	4.86
NNE	-	0.83	1.39	-	-	-	-	-	2.22
N	-	1.39	2.36	0.14	-	-	-	-	3.89
NNW	-	1.39	2.50	2.92	-	-	-	-	6.81
NW	-	1.11	1.67	1.67	-	-	-	-	4.44
WNW	-	1.25	2.50	-	-	-	-	-	3.75
W	-	1.11	2.22	0.14	-	-	-	-	3.47
WSW	-	0.97	0.97	-	-	-	-	-	1.94
SW	-	2.08	1.53	-	-	-	-	-	3.61
SSW	-	3.47	3.61	2.22	-	-	-	-	9.31
S	-	2.78	5.56	-	-	-	-	-	8.33
SSE	-	3.47	2.64	0.56	-	-	-	-	6.67
SE	-	2.92	0.83	0.42	-	-	-	-	4.17
ESE	-	2.78	0.42	0.14	-	-	-	-	3.33
E	-	6.39	5.56	0.14	-	-	-	-	12.08
Calm	8.89	-	-	-	-	-	-	-	8.89
Total (%)	8.89	38.89	42.64	9.58	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days


Start Date: June 01, 2006

End Date: June 30, 2006

NOTES

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**Tyhee Station
Wind Rose
June 2006**

PROJECT NO.
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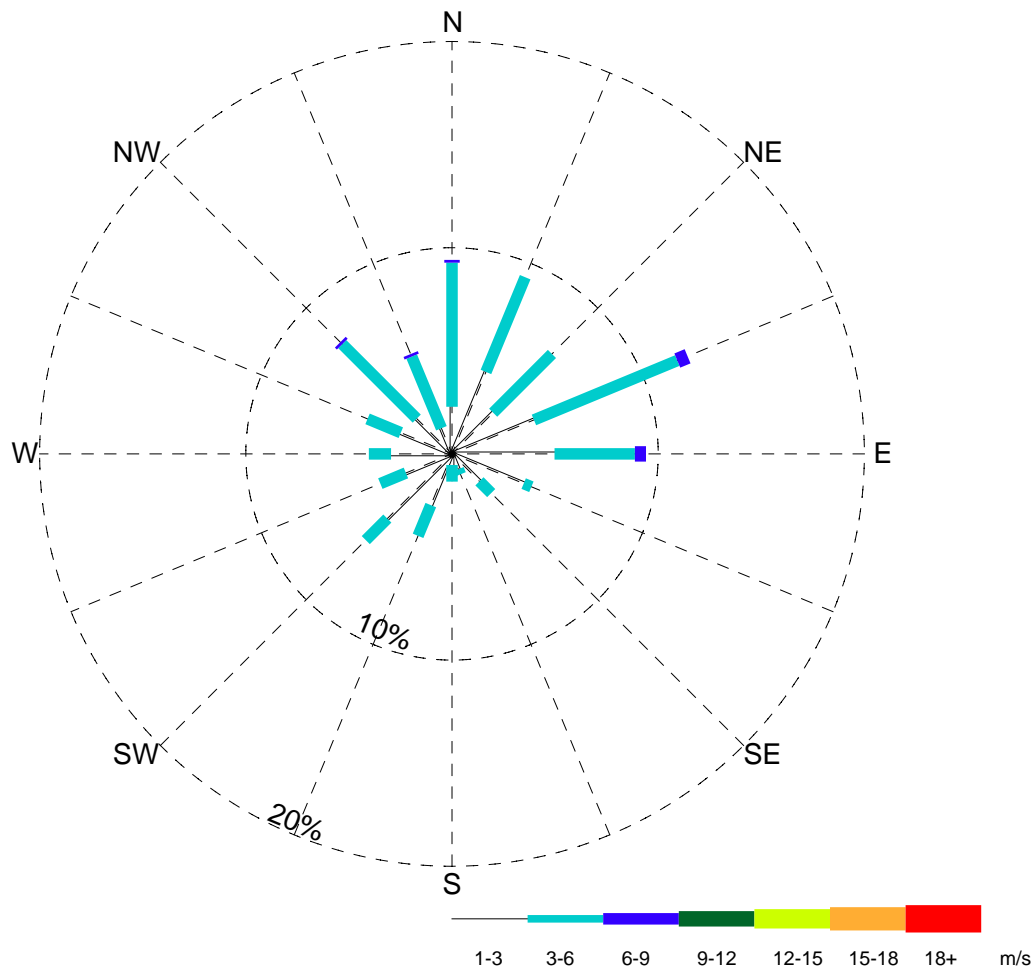
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Figure C-22



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	4.30	7.53	0.54	-	-	-	-	12.37
NE	-	2.82	4.03	-	-	-	-	-	6.86
NNE	-	4.30	4.97	-	-	-	-	-	9.27
N	-	2.29	6.99	0.13	-	-	-	-	9.41
NNW	-	1.34	3.76	0.13	-	-	-	-	5.24
NW	-	2.42	5.11	0.13	-	-	-	-	7.66
WNW	-	2.69	1.75	-	-	-	-	-	4.43
W	-	2.96	1.08	-	-	-	-	-	4.03
WSW	-	2.42	1.34	-	-	-	-	-	3.76
SW	-	4.43	1.48	-	-	-	-	-	5.91
SSW	-	2.69	1.61	-	-	-	-	-	4.30
S	-	0.54	0.81	-	-	-	-	-	1.34
SSE	-	0.81	0.27	-	-	-	-	-	1.08
SE	-	1.88	0.81	-	-	-	-	-	2.69
ESE	-	3.76	0.40	-	-	-	-	-	4.17
E	-	4.97	3.90	0.54	-	-	-	-	9.41
Calm	8.06	-	-	-	-	-	-	-	8.06
Total (%)	8.06	44.62	45.83	1.48	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: July 01, 2006

End Date: July 31, 2006

NOTES

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**Tyhee Station
Wind Rose
July 2006**

PROJECT NO.
Y22101057

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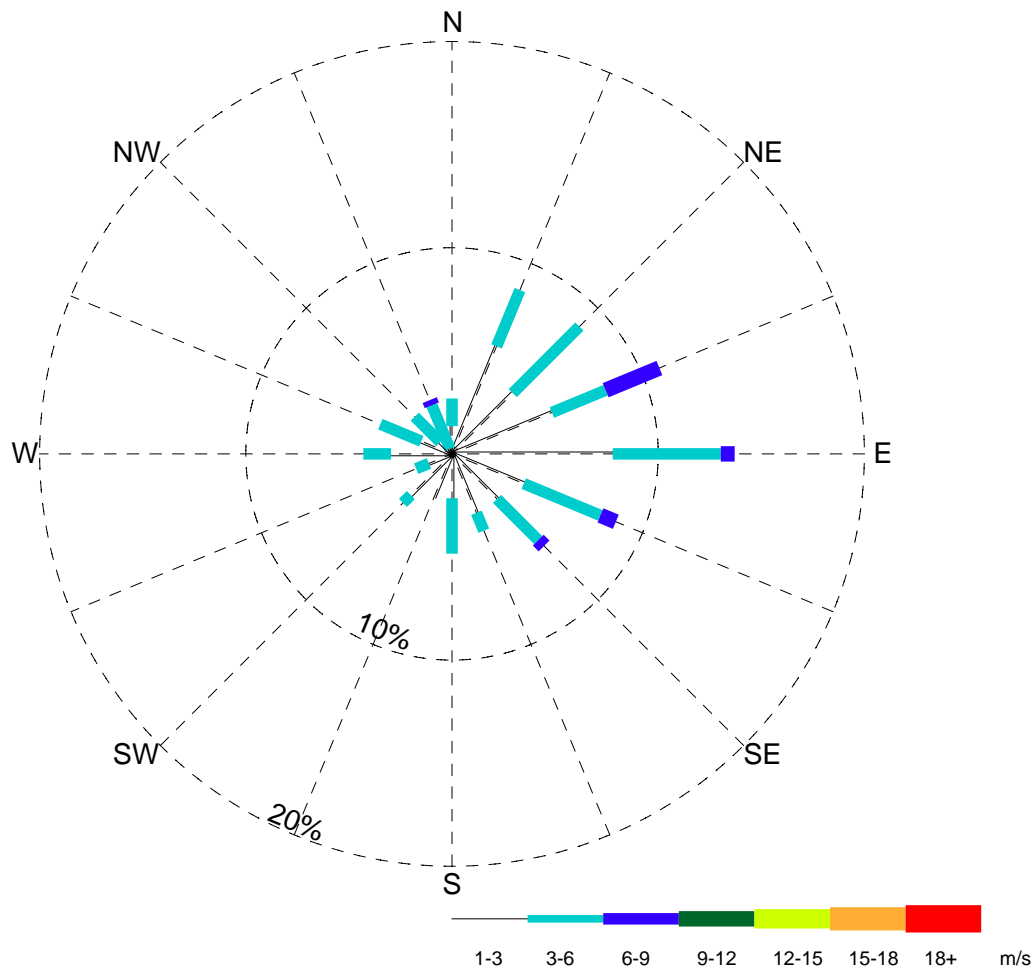
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Figure C-23



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	5.24	2.82	2.82	-	-	-	-	10.89
NE	-	4.17	4.57	-	-	-	-	-	8.74
NNE	-	5.64	2.96	-	-	-	-	-	8.60
N	-	1.34	1.34	-	-	-	-	-	2.69
NNW	-	0.27	2.29	0.27	-	-	-	-	2.82
NW	-	0.81	1.75	-	-	-	-	-	2.55
WNW	-	1.61	2.15	-	-	-	-	-	3.76
W	-	2.96	1.34	-	-	-	-	-	4.30
WSW	-	1.21	0.67	-	-	-	-	-	1.88
SW	-	2.82	0.54	-	-	-	-	-	3.36
SSW	-	2.29	-	-	-	-	-	-	2.29
S	-	2.15	2.69	-	-	-	-	-	4.84
SSE	-	3.09	0.94	-	-	-	-	-	4.03
SE	-	3.09	2.82	0.40	-	-	-	-	6.32
ESE	-	3.76	4.03	0.81	-	-	-	-	8.60
E	-	7.80	5.24	0.67	-	-	-	-	13.71
Calm	10.62	-	-	-	-	-	-	-	10.62
Total (%)	10.62	48.25	36.16	4.97	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Aug. 01, 2006

End Date: Aug. 31, 2006

NOTES

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EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
August 2006**

PROJECT NO.
Y22101057

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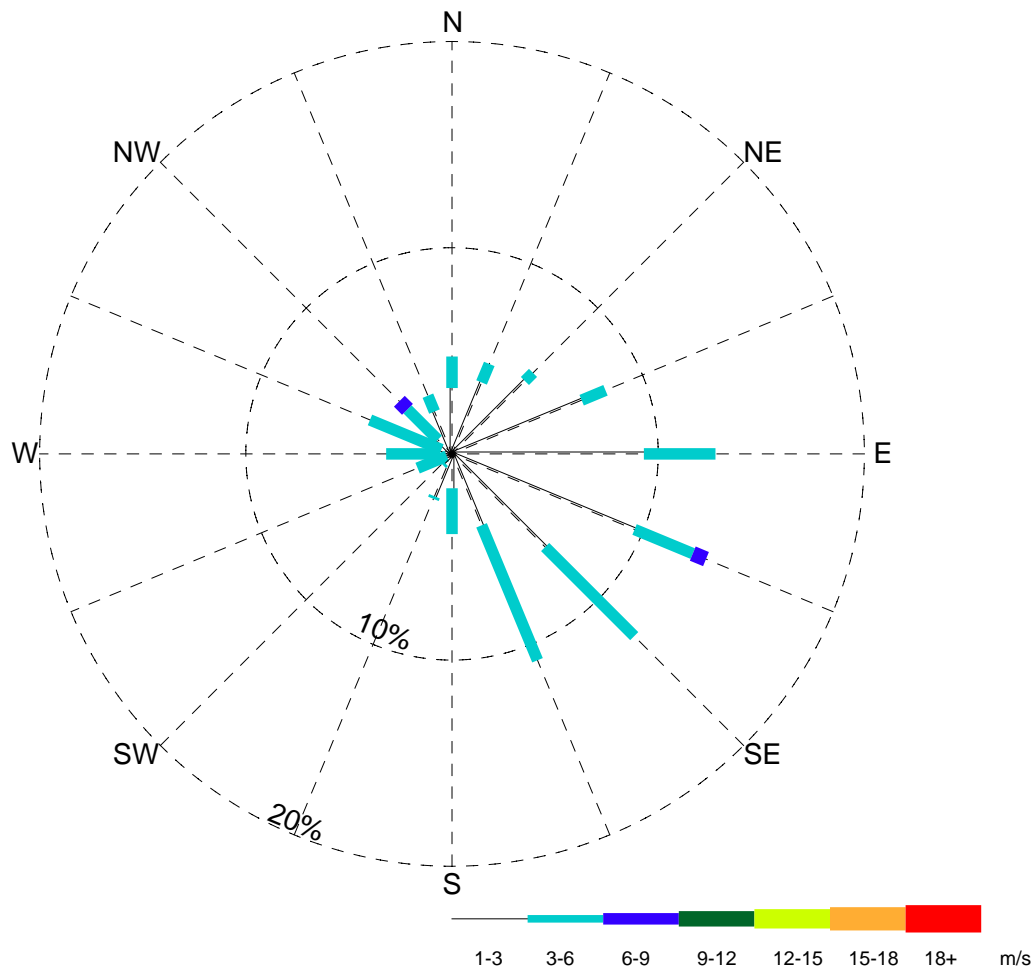
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Figure C-24



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.81	1.25	-	-	-	-	-	8.06
NE	-	5.00	0.56	-	-	-	-	-	5.56
NNE	-	3.75	0.97	-	-	-	-	-	4.72
N	-	3.19	1.53	-	-	-	-	-	4.72
NNW	-	2.22	0.83	-	-	-	-	-	3.06
NW	-	0.97	2.08	0.56	-	-	-	-	3.61
WNW	-	0.56	3.75	-	-	-	-	-	4.31
W	-	0.69	2.50	-	-	-	-	-	3.19
WSW	-	0.28	1.53	-	-	-	-	-	1.81
SW	-	0.56	0.14	-	-	-	-	-	0.69
SSW	-	2.22	0.14	-	-	-	-	-	2.36
S	-	1.67	2.22	-	-	-	-	-	3.89
SSE	-	3.75	7.08	-	-	-	-	-	10.83
SE	-	6.39	6.11	-	-	-	-	-	12.50
ESE	-	9.58	3.06	0.69	-	-	-	-	13.33
E	-	9.31	3.47	-	-	-	-	-	12.78
Calm	4.58	-	-	-	-	-	-	-	4.58
Total (%)	4.58	56.94	37.22	1.25	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days


Start Date: Sep. 01, 2006

End Date: Sep. 30, 2006

NOTES

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2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
September 2006**

PROJECT NO.
Y22101057

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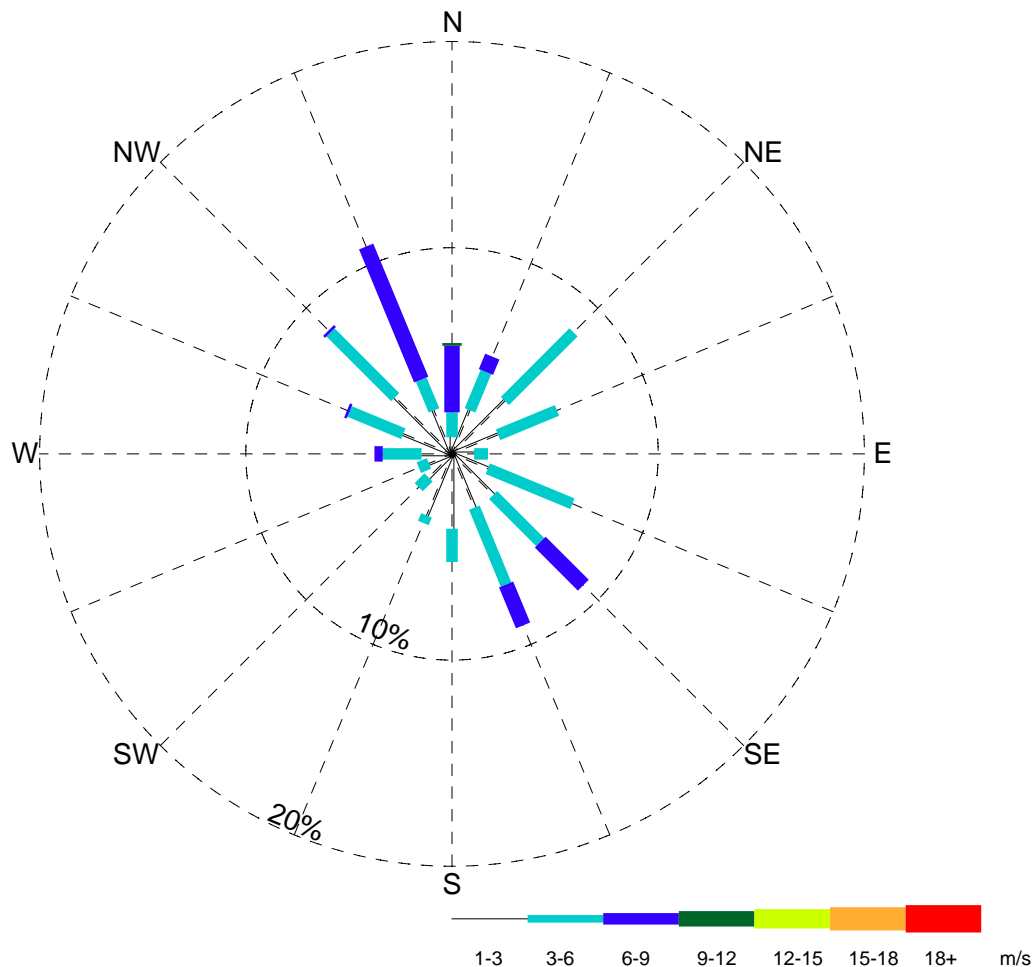
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Figure C-25



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	2.42	3.09	-	-	-	-	-	5.51
NE	-	3.63	4.70	-	-	-	-	-	8.33
NNE	-	2.29	2.02	0.81	-	-	-	-	5.11
N	-	0.81	1.21	3.23	0.13	-	-	-	5.38
NNW	-	2.29	1.61	6.99	-	-	-	-	10.89
NW	-	3.90	4.43	0.13	-	-	-	-	8.47
WNW	-	2.55	2.82	0.13	-	-	-	-	5.51
W	-	1.48	1.88	0.40	-	-	-	-	3.76
WSW	-	1.21	0.54	-	-	-	-	-	1.75
SW	-	1.61	0.67	-	-	-	-	-	2.29
SSW	-	3.23	0.40	-	-	-	-	-	3.63
S	-	3.63	1.61	-	-	-	-	-	5.24
SSE	-	2.82	4.03	2.15	-	-	-	-	9.01
SE	-	2.82	3.23	2.96	-	-	-	-	9.01
ESE	-	1.88	4.43	-	-	-	-	-	6.32
E	-	1.08	0.67	-	-	-	-	-	1.75
Calm	8.06	-	-	-	-	-	-	-	8.06
Total (%)	8.06	37.63	37.37	16.80	0.13	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Oct. 01, 2006

End Date: Oct. 31, 2006

NOTES

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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
October 2006**

PROJECT NO.
Y22101057

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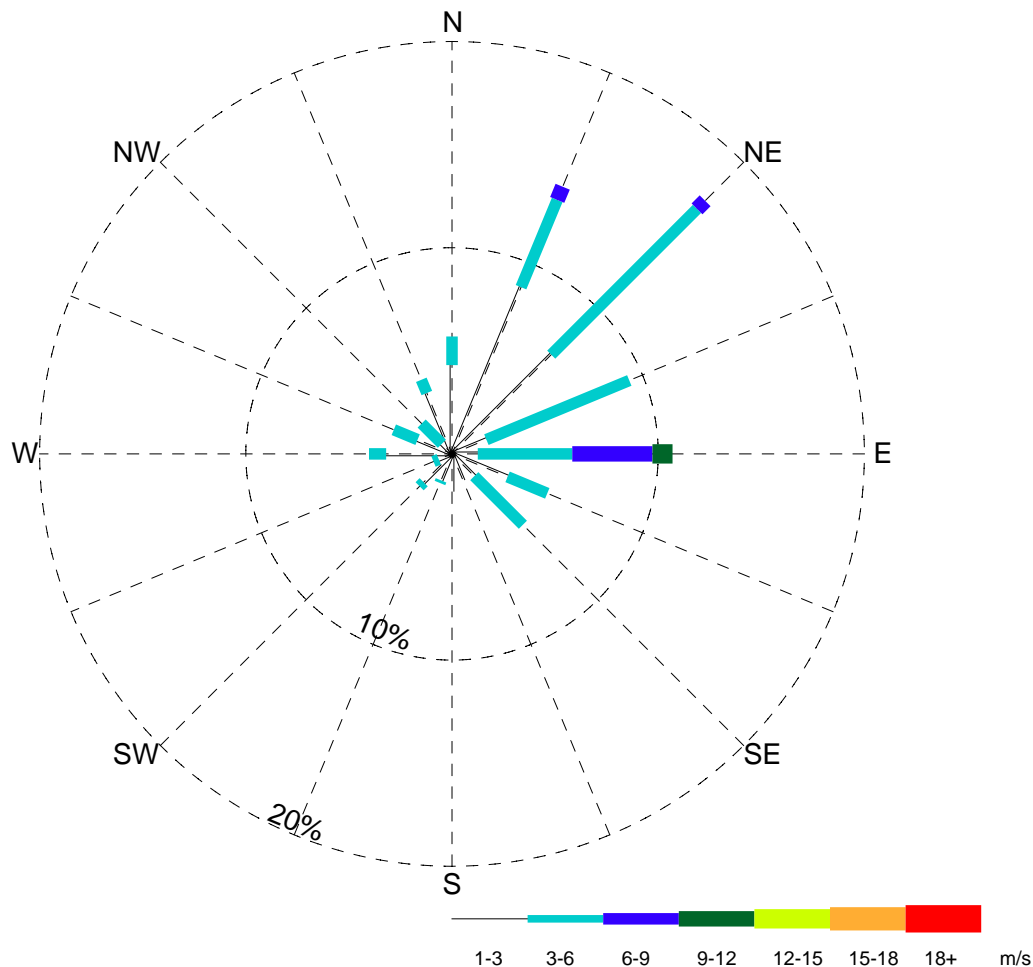
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Figure C-26



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	1.81	7.50	-	-	-	-	-	9.31
NE	-	6.81	10.00	0.56	-	-	-	-	17.36
NNE	-	8.75	4.58	0.69	-	-	-	-	14.03
N	-	4.31	1.39	-	-	-	-	-	5.69
NNW	-	3.19	0.69	-	-	-	-	-	3.89
NW	-	0.69	1.39	-	-	-	-	-	2.08
WNW	-	1.81	1.25	-	-	-	-	-	3.06
W	-	3.19	0.83	-	-	-	-	-	4.03
WSW	-	0.69	0.28	-	-	-	-	-	0.97
SW	-	1.94	0.28	-	-	-	-	-	2.22
SSW	-	1.39	0.14	-	-	-	-	-	1.53
S	-	1.81	-	-	-	-	-	-	1.81
SSE	-	1.39	-	-	-	-	-	-	1.39
SE	-	1.53	3.33	-	-	-	-	-	4.86
ESE	-	2.92	2.08	-	-	-	-	-	5.00
E	-	1.25	4.58	3.89	0.97	-	-	-	10.69
Calm	12.08	-	-	-	-	-	-	-	12.08
Total (%)	12.08	43.47	38.33	5.14	0.97	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Nov. 01, 2006

End Date: Nov. 30, 2006

NOTES

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**Tyhee Station
Wind Rose
November 2006**

PROJECT NO.
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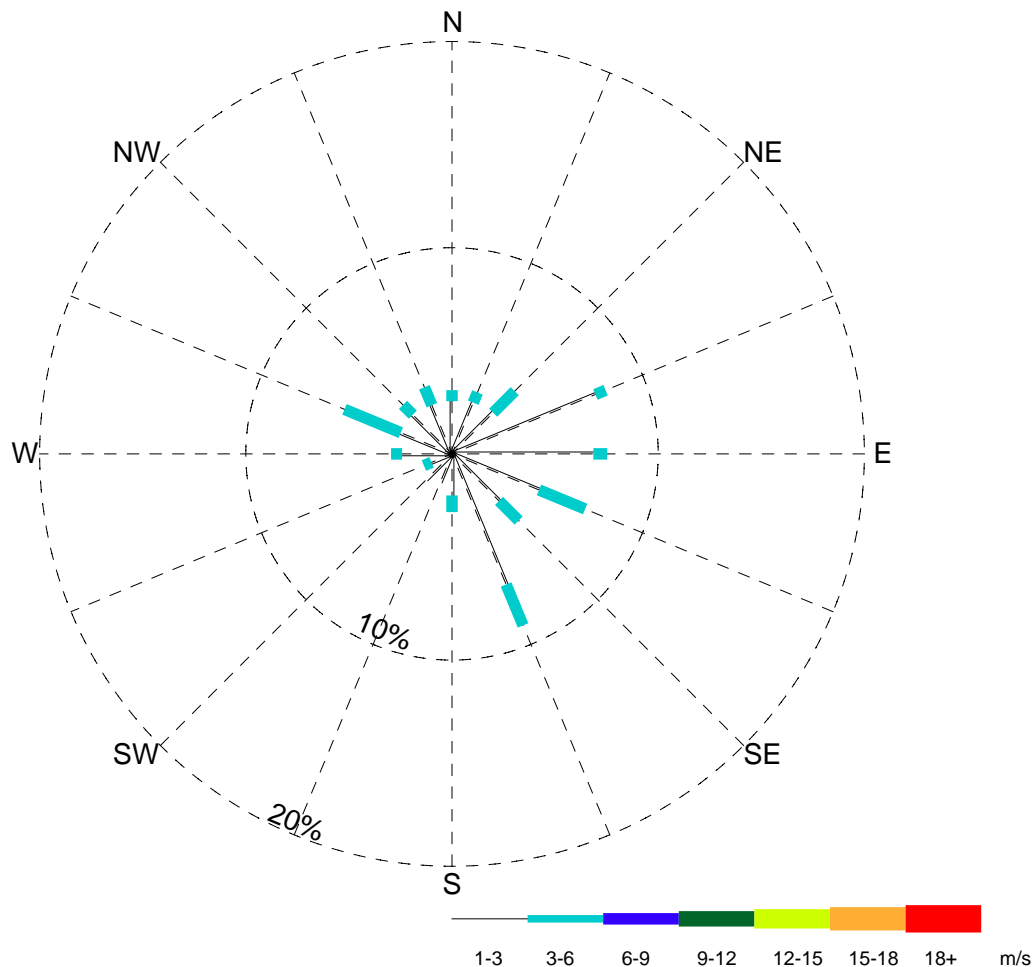
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Figure C-27



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	7.53	0.54	-	-	-	-	-	8.06
NE	-	2.82	1.48	-	-	-	-	-	4.30
NNE	-	2.69	0.54	-	-	-	-	-	3.23
N	-	2.55	0.54	-	-	-	-	-	3.09
NNW	-	2.55	0.94	-	-	-	-	-	3.49
NW	-	2.69	0.67	-	-	-	-	-	3.36
WNW	-	2.69	2.96	-	-	-	-	-	5.64
W	-	2.42	0.54	-	-	-	-	-	2.96
WSW	-	1.08	0.40	-	-	-	-	-	1.48
SW	-	1.75	-	-	-	-	-	-	1.75
SSW	-	1.48	-	-	-	-	-	-	1.48
S	-	2.02	0.81	-	-	-	-	-	2.82
SSE	-	6.86	2.15	-	-	-	-	-	9.01
SE	-	3.23	1.34	-	-	-	-	-	4.57
ESE	-	4.57	2.42	-	-	-	-	-	6.99
E	-	6.86	0.67	-	-	-	-	-	7.53
Calm	30.24	-	-	-	-	-	-	-	30.24
Total (%)	30.24	53.76	15.99	-	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Dec. 01, 2006

End Date: Dec. 31, 2006

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
December 2006**

PROJECT NO.
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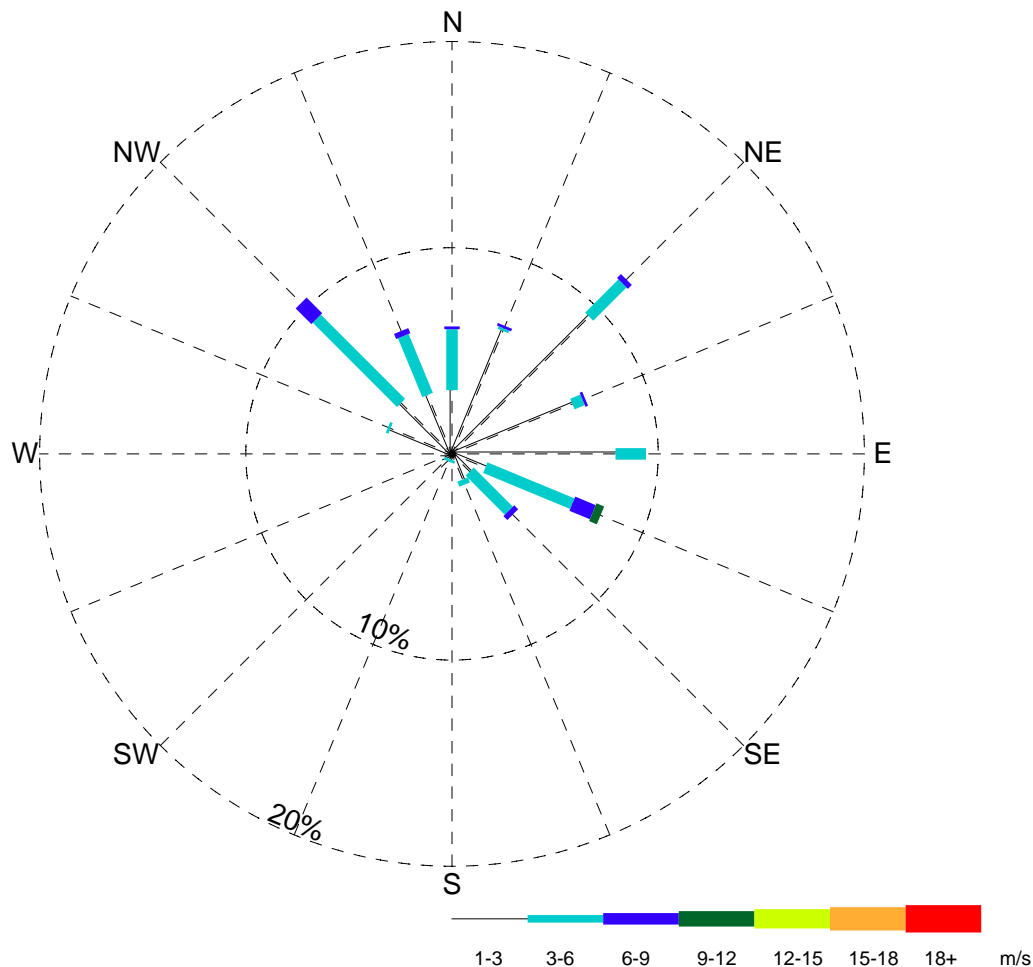
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Figure C-28



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.32	0.54	0.13	-	-	-	-	6.99
NE	-	9.41	2.29	0.27	-	-	-	-	11.96
NNE	-	6.45	0.13	0.13	-	-	-	-	6.72
N	-	3.09	2.96	0.13	-	-	-	-	6.18
NNW	-	3.09	3.09	0.27	-	-	-	-	6.45
NW	-	3.49	5.78	1.08	-	-	-	-	10.35
WNW	-	3.23	0.13	-	-	-	-	-	3.36
W	-	0.54	-	-	-	-	-	-	0.54
WSW	-	0.54	-	-	-	-	-	-	0.54
SW	-	0.81	-	-	-	-	-	-	0.81
SSW	-	0.27	0.13	-	-	-	-	-	0.40
S	-	0.27	-	-	-	-	-	-	0.27
SSE	-	1.34	0.27	-	-	-	-	-	1.61
SE	-	1.21	2.69	0.27	-	-	-	-	4.17
ESE	-	1.75	4.57	1.08	0.40	-	-	-	7.80
E	-	7.93	1.48	-	-	-	-	-	9.41
Calm	22.45	-	-	-	-	-	-	-	22.45
Total (%)	22.45	49.73	24.06	3.36	0.40	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Jan. 01, 2007

End Date: Jan. 31, 2007

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
January 2007**

PROJECT NO.
Y22101057

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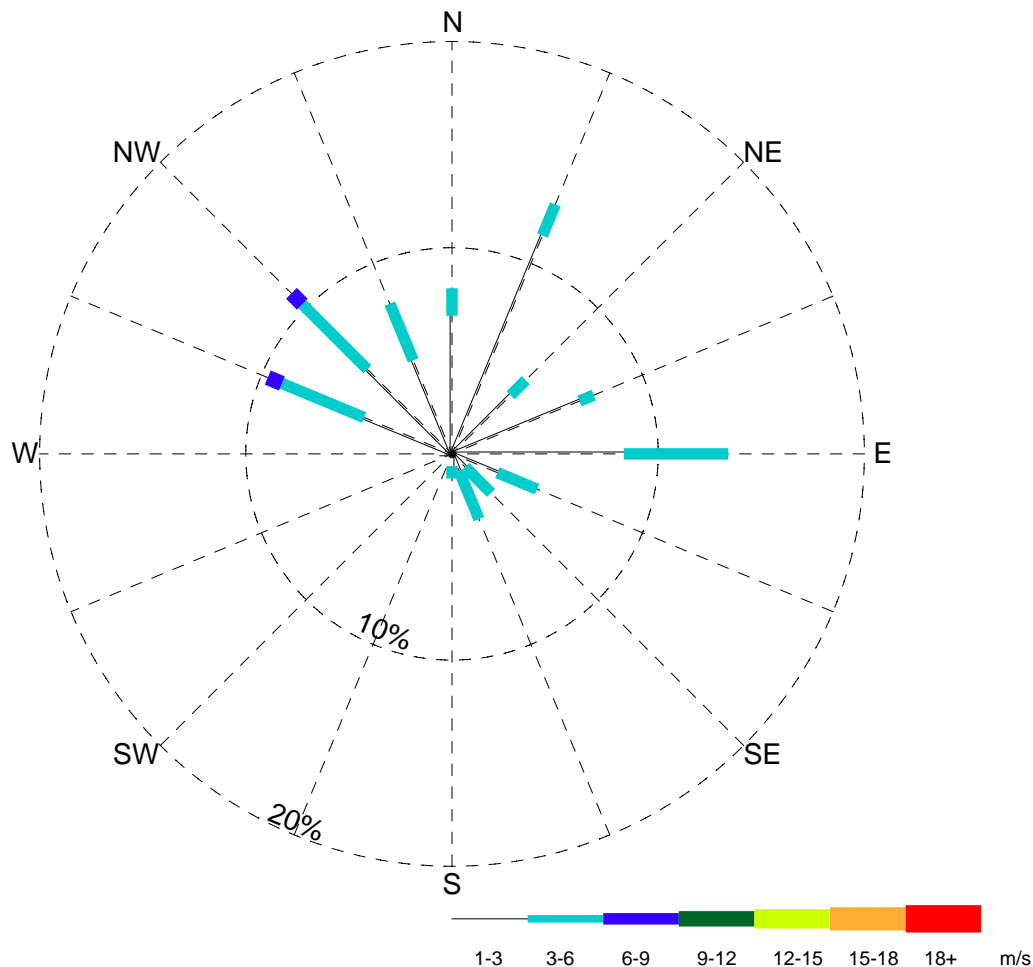
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Figure C-29



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.70	0.74	-	-	-	-	-	7.44
NE	-	4.02	1.04	-	-	-	-	-	5.06
NNE	-	11.46	1.64	-	-	-	-	-	13.10
N	-	6.70	1.34	-	-	-	-	-	8.04
NNW	-	4.91	2.98	-	-	-	-	-	7.89
NW	-	5.80	4.46	0.74	-	-	-	-	11.01
WNW	-	4.61	4.32	0.74	-	-	-	-	9.67
W	-	0.60	-	-	-	-	-	-	0.60
WSW	-	0.15	-	-	-	-	-	-	0.15
SW	-	-	-	-	-	-	-	-	-
SSW	-	0.15	-	-	-	-	-	-	0.15
S	-	0.60	0.60	-	-	-	-	-	1.19
SSE	-	0.89	2.53	-	-	-	-	-	3.42
SE	-	0.89	1.79	-	-	-	-	-	2.68
ESE	-	2.38	2.08	-	-	-	-	-	4.46
E	-	8.33	5.06	-	-	-	-	-	13.39
Calm	11.76	-	-	-	-	-	-	-	11.76
Total (%)	11.76	58.19	28.57	1.49	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 28 days

Start Date: Feb. 01, 2007

End Date: Feb. 28, 2007

NOTES

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**Tyhee Station
Wind Rose
February 2007**

PROJECT NO.
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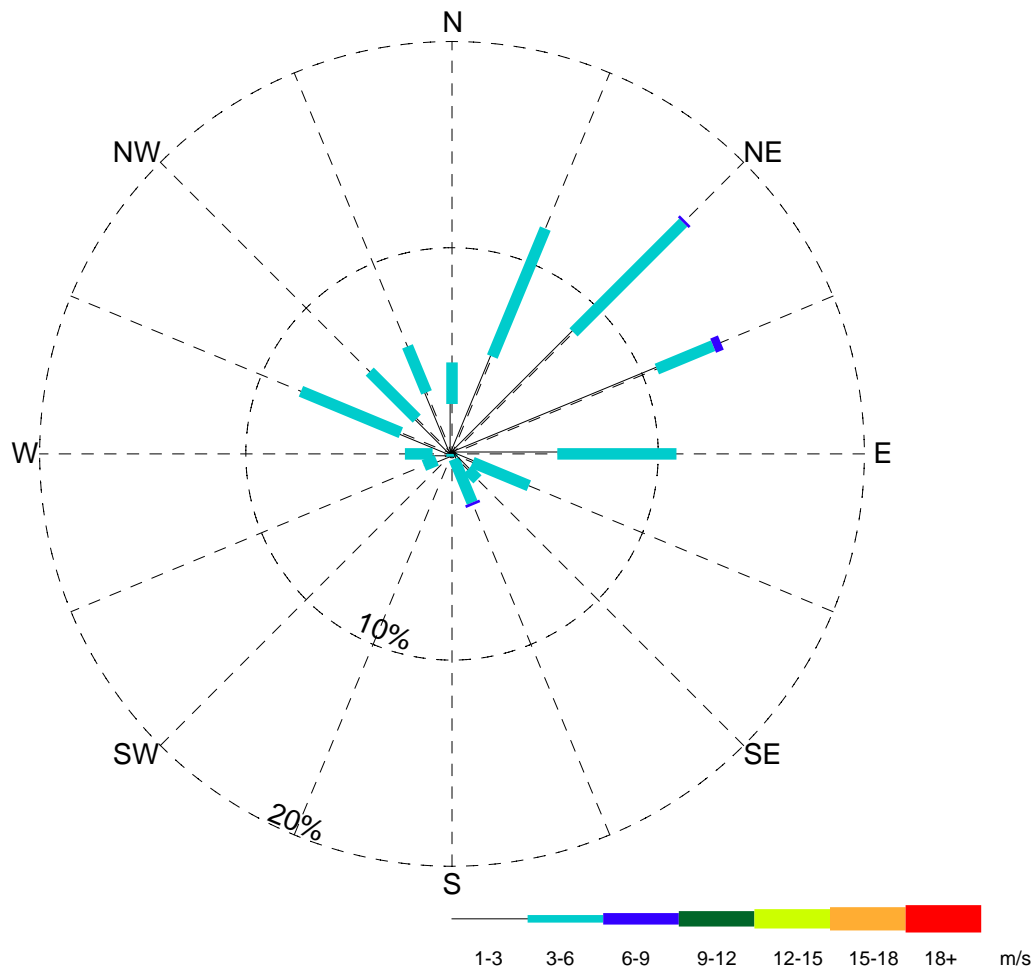
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Figure C-30



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	10.75	2.96	0.40	-	-	-	-	14.11
NE	-	8.33	7.53	0.13	-	-	-	-	15.99
NNE	-	5.11	6.72	-	-	-	-	-	11.83
N	-	2.42	2.02	-	-	-	-	-	4.43
NNW	-	3.23	2.42	-	-	-	-	-	5.64
NW	-	2.42	3.23	-	-	-	-	-	5.64
WNW	-	2.69	5.24	-	-	-	-	-	7.93
W	-	0.94	1.34	-	-	-	-	-	2.29
WSW	-	0.81	0.67	-	-	-	-	-	1.48
SW	-	0.13	-	-	-	-	-	-	0.13
SSW	-	0.13	-	-	-	-	-	-	0.13
S	-	-	0.13	-	-	-	-	-	0.13
SSE	-	0.27	2.29	0.13	-	-	-	-	2.69
SE	-	1.08	0.67	-	-	-	-	-	1.75
ESE	-	1.08	2.96	-	-	-	-	-	4.03
E	-	5.11	5.78	-	-	-	-	-	10.89
Calm	10.89	-	-	-	-	-	-	-	10.89
Total (%)	10.89	44.49	43.95	0.67	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Mar. 01, 2007

End Date: Mar. 31, 2007

NOTES

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**Tyhee Station
Wind Rose
March 2007**

PROJECT NO.
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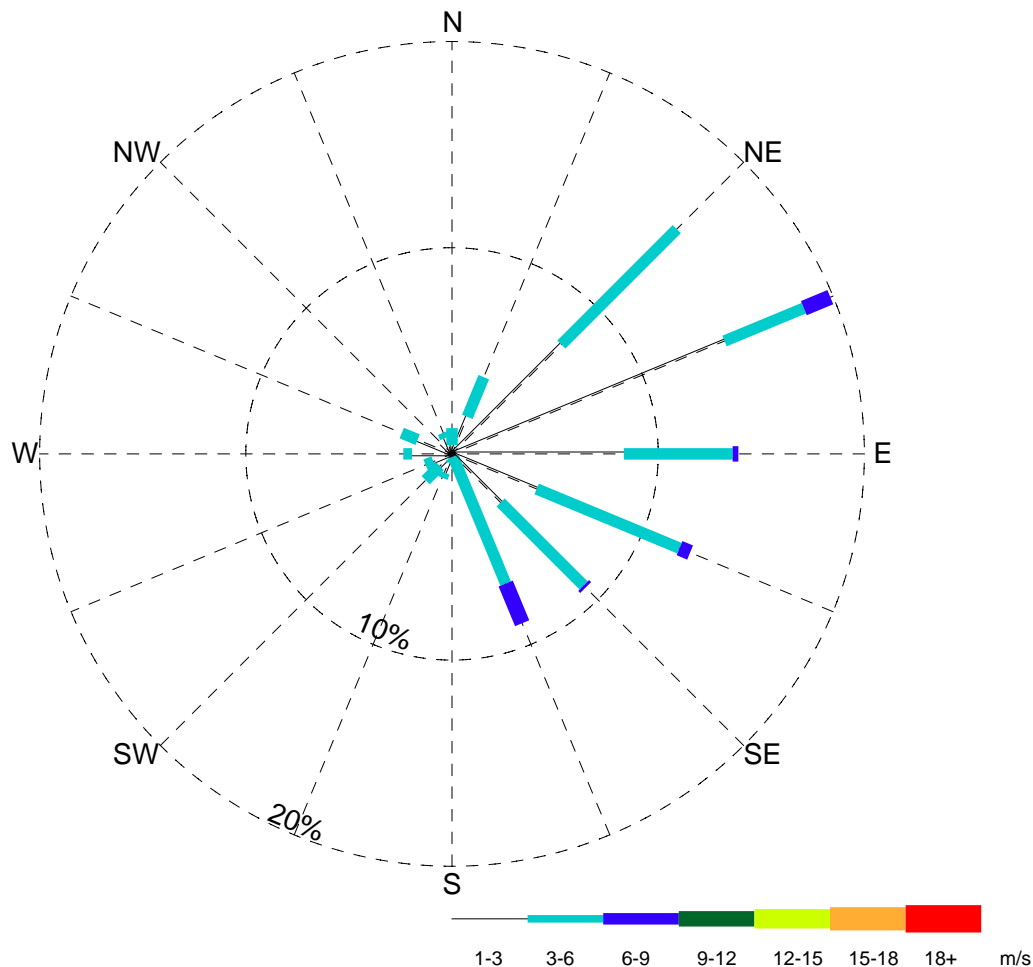
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Figure C-31



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	14.31	4.17	1.39	-	-	-	-	19.86
NE	-	7.50	7.92	-	-	-	-	-	15.42
NNE	-	1.94	2.08	-	-	-	-	-	4.03
N	-	0.42	0.83	-	-	-	-	-	1.25
NNW	-	0.83	0.28	-	-	-	-	-	1.11
NW	-	0.69	-	-	-	-	-	-	0.69
WNW	-	1.81	0.83	-	-	-	-	-	2.64
W	-	1.94	0.42	-	-	-	-	-	2.36
WSW	-	0.97	0.42	-	-	-	-	-	1.39
SW	-	0.83	0.97	-	-	-	-	-	1.81
SSW	-	0.97	0.28	-	-	-	-	-	1.25
S	-	0.28	0.14	-	-	-	-	-	0.42
SSE	-	0.14	6.67	2.08	-	-	-	-	8.89
SE	-	3.33	5.69	0.14	-	-	-	-	9.17
ESE	-	4.44	7.50	0.56	-	-	-	-	12.50
E	-	8.33	5.28	0.28	-	-	-	-	13.89
Calm	3.33	-	-	-	-	-	-	-	3.33
Total (%)	3.33	48.75	43.47	4.44	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Apr. 01, 2007

End Date: Apr. 30, 2007

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**Tyhee Station
Wind Rose
April 2007**

PROJECT NO.
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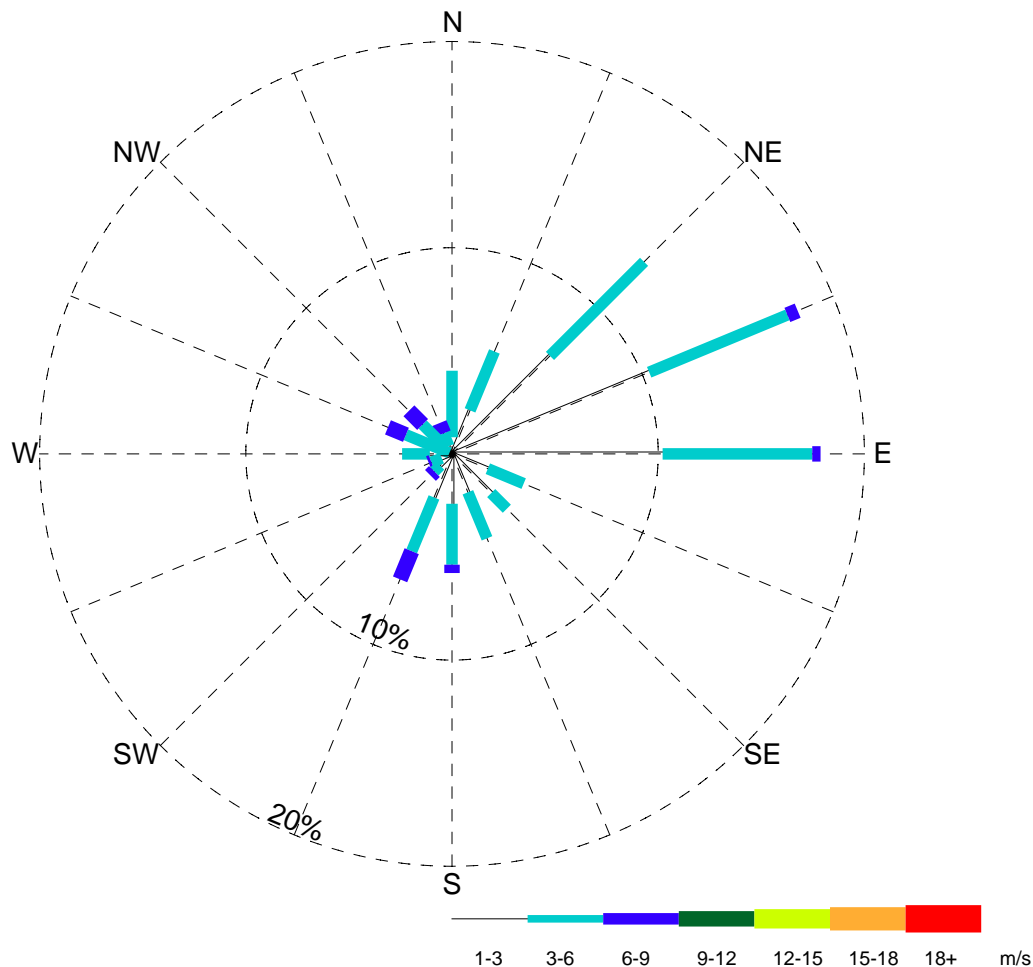
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Figure C-32



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	10.35	7.26	0.54	-	-	-	-	18.15
NE	-	6.72	6.45	-	-	-	-	-	13.17
NNE	-	2.29	3.09	-	-	-	-	-	5.38
N	-	0.81	3.23	-	-	-	-	-	4.03
NNW	-	0.40	0.67	0.54	-	-	-	-	1.61
NW	-	0.40	1.61	0.94	-	-	-	-	2.96
WNW	-	0.13	2.29	0.94	-	-	-	-	3.36
W	-	1.08	1.34	-	-	-	-	-	2.42
WSW	-	0.54	0.54	0.13	-	-	-	-	1.21
SW	-	0.81	0.40	0.27	-	-	-	-	1.48
SSW	-	2.29	2.82	1.48	-	-	-	-	6.59
S	-	2.42	2.96	0.40	-	-	-	-	5.78
SSE	-	2.02	2.42	-	-	-	-	-	4.43
SE	-	2.69	1.08	-	-	-	-	-	3.76
ESE	-	1.88	1.88	-	-	-	-	-	3.76
E	-	10.22	7.26	0.40	-	-	-	-	17.88
Calm	4.03	-	-	-	-	-	-	-	4.03
Total (%)	4.03	45.03	45.30	5.64	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: May. 01, 2007

End Date: May. 31, 2007

NOTES

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EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
May 2007**

PROJECT NO.
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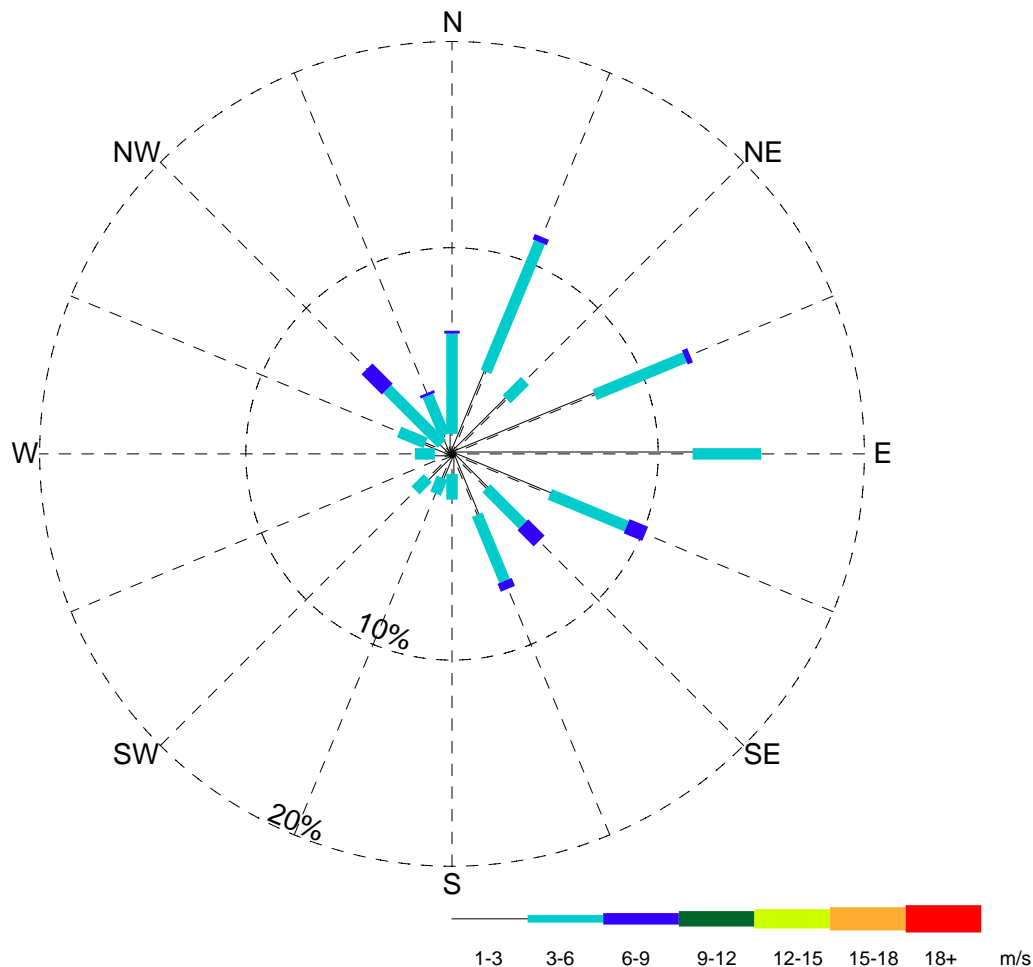
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Figure C-33



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	7.50	4.72	0.28	-	-	-	-	12.50
NE	-	3.75	1.25	-	-	-	-	-	5.00
NNE	-	4.31	6.81	0.28	-	-	-	-	11.39
N	-	0.97	4.86	0.14	-	-	-	-	5.97
NNW	-	0.97	2.08	0.14	-	-	-	-	3.19
NW	-	0.69	3.75	1.39	-	-	-	-	5.83
WNW	-	1.39	1.39	-	-	-	-	-	2.78
W	-	0.83	0.97	-	-	-	-	-	1.81
WSW	-	0.56	-	-	-	-	-	-	0.56
SW	-	1.67	0.83	-	-	-	-	-	2.50
SSW	-	1.25	0.83	-	-	-	-	-	2.08
S	-	0.97	1.25	-	-	-	-	-	2.22
SSE	-	3.19	3.47	0.42	-	-	-	-	7.08
SE	-	2.36	2.50	1.11	-	-	-	-	5.97
ESE	-	5.14	4.03	0.97	-	-	-	-	10.14
E	-	11.67	3.33	-	-	-	-	-	15.00
Calm	5.97	-	-	-	-	-	-	-	5.97
Total (%)	5.97	47.22	42.08	4.72	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: June 01, 2007

End Date: June 30, 2007

NOTES

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EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
June 2007**

PROJECT NO.
Y22101057

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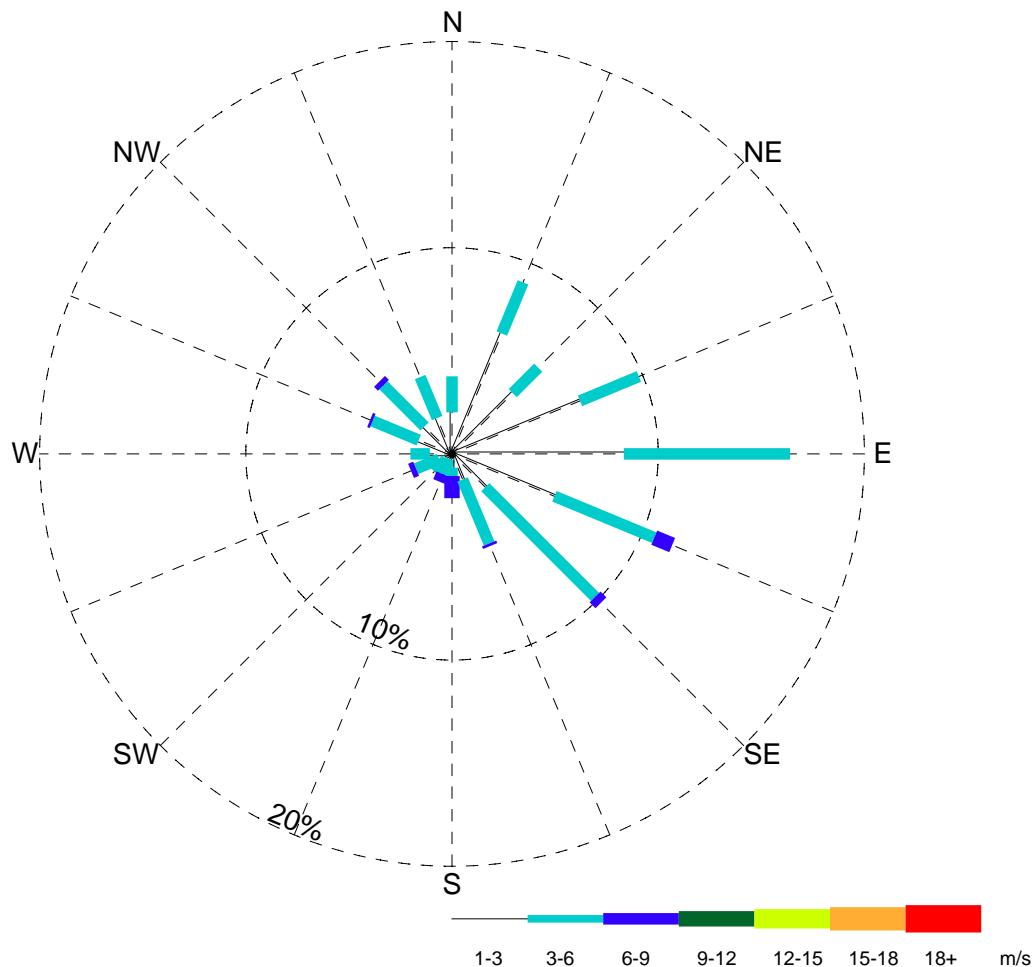
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Figure C-34



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.72	3.09	-	-	-	-	-	9.81
NE	-	4.17	1.75	-	-	-	-	-	5.91
NNE	-	6.32	2.69	-	-	-	-	-	9.01
N	-	2.02	1.75	-	-	-	-	-	3.76
NNW	-	1.88	2.15	-	-	-	-	-	4.03
NW	-	1.88	2.82	0.27	-	-	-	-	4.97
WNW	-	1.75	2.42	0.13	-	-	-	-	4.30
W	-	1.08	0.94	-	-	-	-	-	2.02
WSW	-	0.67	1.21	0.27	-	-	-	-	2.15
SW	-	0.40	0.81	-	-	-	-	-	1.21
SSW	-	0.27	0.81	0.40	-	-	-	-	1.48
S	-	0.67	0.40	1.08	-	-	-	-	2.15
SSE	-	1.34	3.36	0.13	-	-	-	-	4.84
SE	-	2.29	7.53	0.40	-	-	-	-	10.22
ESE	-	5.38	5.24	0.94	-	-	-	-	11.56
E	-	8.33	8.06	-	-	-	-	-	16.40
Calm	6.18	-	-	-	-	-	-	-	6.18
Total (%)	6.18	45.16	45.03	3.63	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: July 01, 2007

End Date: July 31, 2007

NOTES

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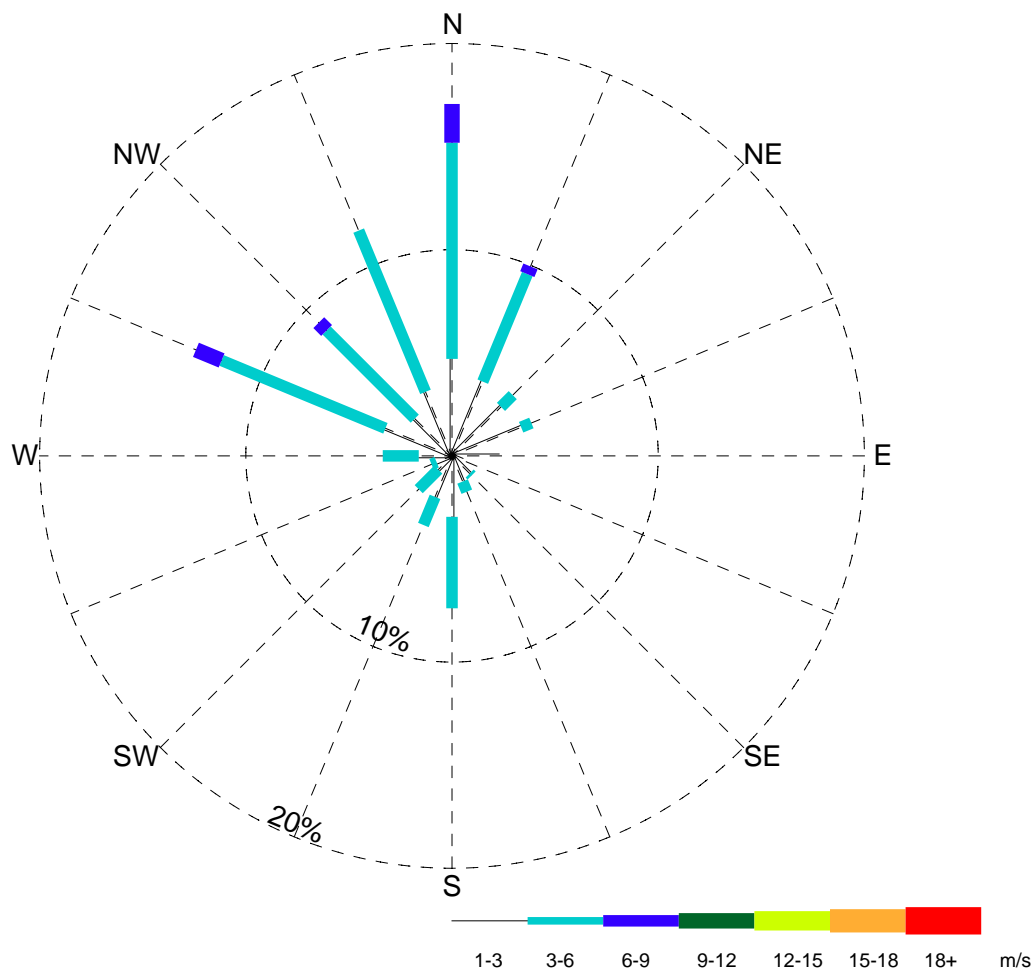
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**Tyhee Station
Wind Rose
July 2007**

PROJECT NO. Y22101057	DWN TM	CHK JAS	REV 0
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Figure C-35



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.63	0.54	-	-	-	-	-	4.17
NE	-	3.36	0.81	-	-	-	-	-	4.17
NNE	-	3.90	5.64	0.40	-	-	-	-	9.95
N	-	4.70	10.48	1.88	-	-	-	-	17.07
NNW	-	3.36	8.47	-	-	-	-	-	11.83
NW	-	2.55	6.05	0.54	-	-	-	-	9.14
WNW	-	3.49	8.60	1.34	-	-	-	-	13.44
W	-	1.61	1.75	-	-	-	-	-	3.36
WSW	-	0.81	0.27	-	-	-	-	-	1.08
SW	-	0.94	1.34	-	-	-	-	-	2.29
SSW	-	2.15	1.48	-	-	-	-	-	3.63
S	-	2.96	4.43	-	-	-	-	-	7.39
SSE	-	1.34	0.54	-	-	-	-	-	1.88
SE	-	1.21	0.13	-	-	-	-	-	1.34
ESE	-	0.54	-	-	-	-	-	-	0.54
E	-	2.29	-	-	-	-	-	-	2.29
Calm	6.45	-	-	-	-	-	-	-	6.45
Total (%)	6.45	38.84	50.54	4.17	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Aug. 01, 2007

End Date: Aug. 31, 2007

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
August 2007**

PROJECT NO.
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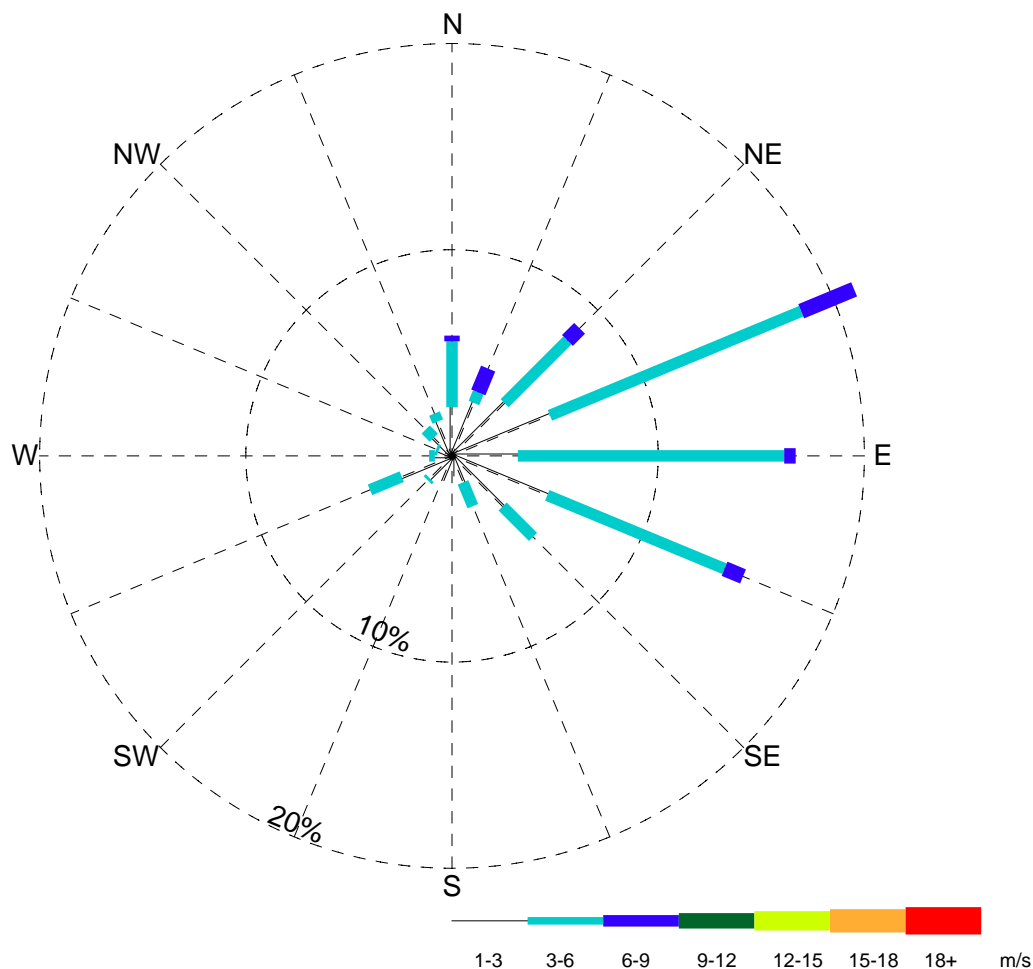
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Figure C-36



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	5.14	13.19	2.78	-	-	-	-	21.11
NE	-	3.61	4.31	0.83	-	-	-	-	8.75
NNE	-	2.78	0.56	1.25	-	-	-	-	4.58
N	-	2.36	3.19	0.28	-	-	-	-	5.83
NNW	-	1.81	0.42	-	-	-	-	-	2.22
NW	-	1.25	0.56	-	-	-	-	-	1.81
WNW	-	0.69	0.14	-	-	-	-	-	0.83
W	-	0.83	0.28	-	-	-	-	-	1.11
WSW	-	2.64	1.67	-	-	-	-	-	4.31
SW	-	1.53	0.14	-	-	-	-	-	1.67
SSW	-	1.25	-	-	-	-	-	-	1.25
S	-	0.97	-	-	-	-	-	-	0.97
SSE	-	1.39	1.25	-	-	-	-	-	2.64
SE	-	3.47	2.08	-	-	-	-	-	5.56
ESE	-	5.00	9.31	0.97	-	-	-	-	15.28
E	-	3.19	12.92	0.56	-	-	-	-	16.67
Calm	5.42	-	-	-	-	-	-	-	5.42
Total (%)	5.42	37.92	50.00	6.67	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Sep. 01, 2007

End Date: Sep. 30, 2007

NOTES

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**EBA Engineering
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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
September 2007**

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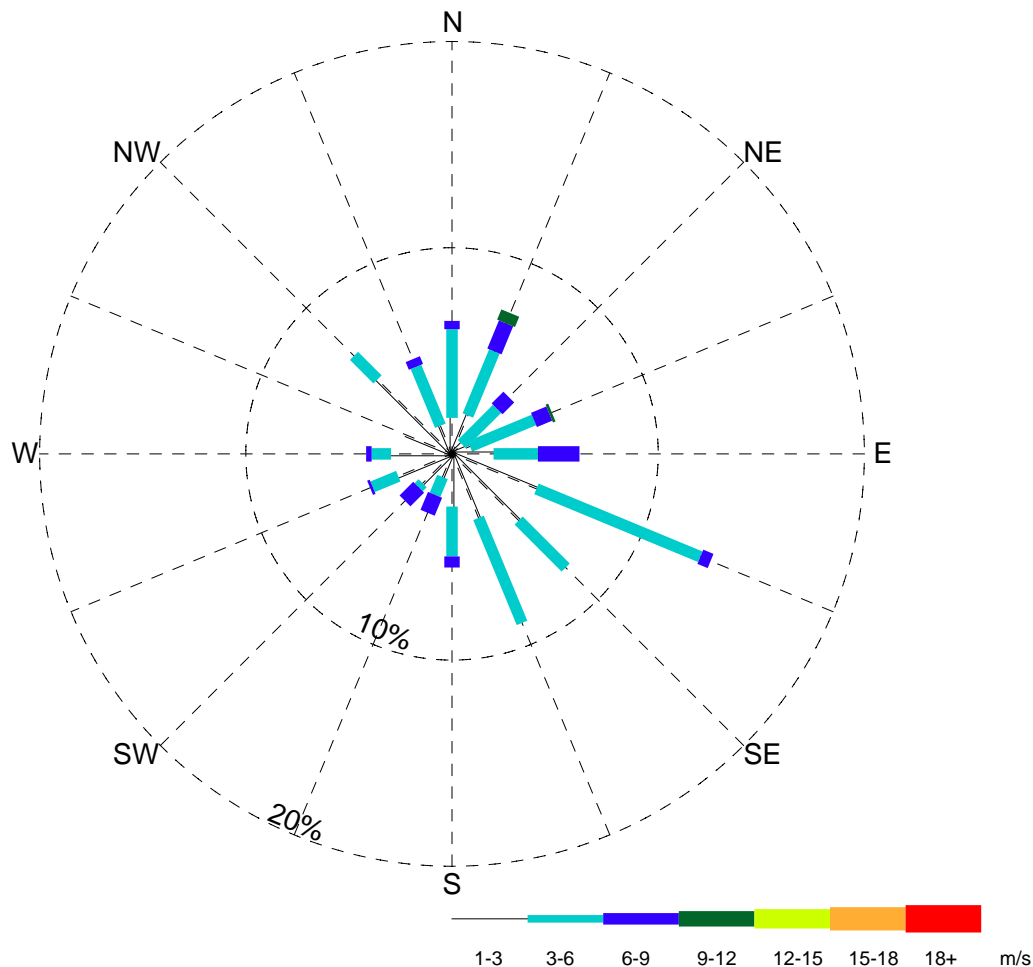
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Figure C-37



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	0.94	3.36	0.81	0.13	-	-	-	5.24
NE	-	0.67	2.42	0.81	-	-	-	-	3.90
NNE	-	2.02	3.36	1.48	0.54	-	-	-	7.39
N	-	1.75	4.30	0.40	-	-	-	-	6.45
NNW	-	1.48	3.09	0.40	-	-	-	-	4.97
NW	-	5.11	1.61	-	-	-	-	-	6.72
WNW	-	2.42	-	-	-	-	-	-	2.42
W	-	2.96	0.94	0.27	-	-	-	-	4.17
WSW	-	2.82	1.34	0.13	-	-	-	-	4.30
SW	-	2.02	0.27	0.94	-	-	-	-	3.23
SSW	-	1.21	0.94	0.94	-	-	-	-	3.09
S	-	2.55	2.42	0.54	-	-	-	-	5.51
SSE	-	3.36	5.51	-	-	-	-	-	8.87
SE	-	4.57	3.23	-	-	-	-	-	7.80
ESE	-	4.43	8.60	0.54	-	-	-	-	13.57
E	-	2.02	2.15	2.02	-	-	-	-	6.18
Calm	6.18	-	-	-	-	-	-	-	6.18
Total (%)	6.18	40.32	43.55	9.27	0.67	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Oct. 01, 2007

End Date: Oct. 31, 2007

NOTES

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EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
October 2007**

PROJECT NO.
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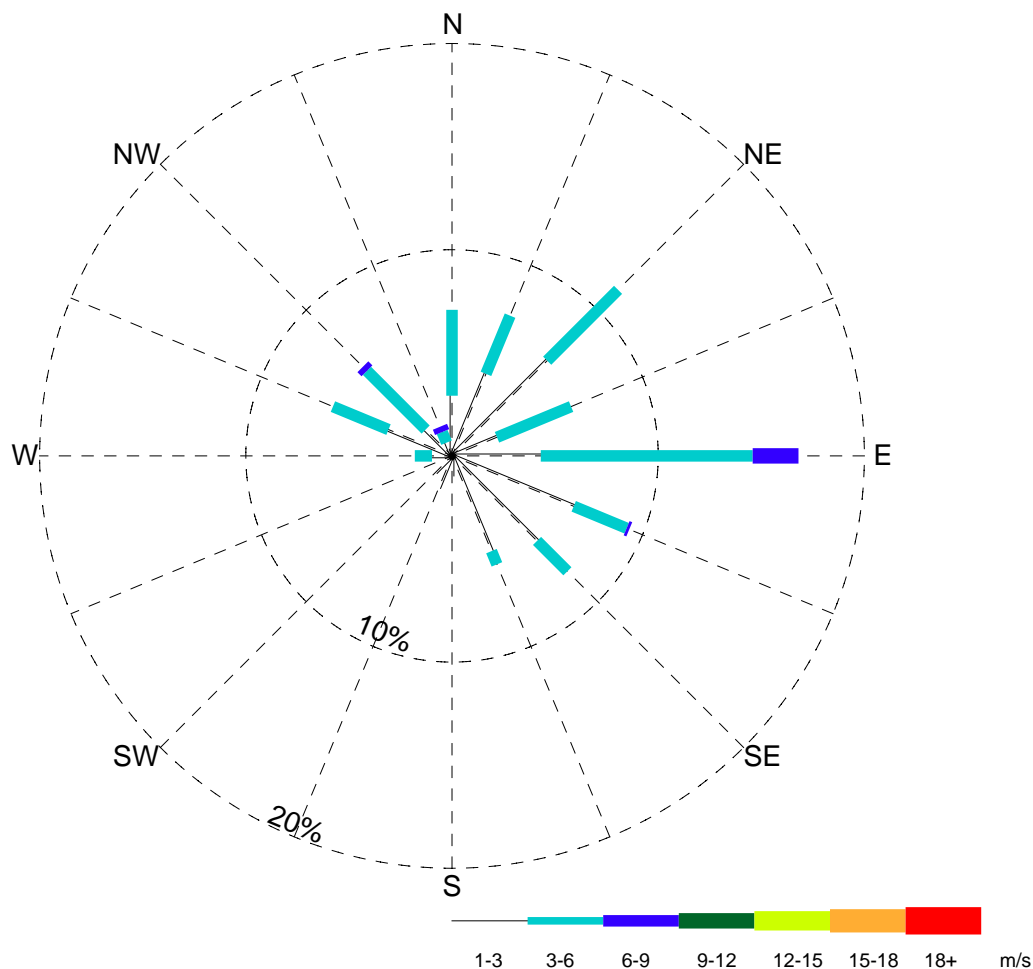
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Figure C-38



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	2.36	3.89	-	-	-	-	-	6.25
NE	-	6.53	4.86	-	-	-	-	-	11.39
NNE	-	4.31	3.06	-	-	-	-	-	7.36
N	-	2.92	4.17	-	-	-	-	-	7.08
NNW	-	0.69	0.56	0.28	-	-	-	-	1.53
NW	-	1.81	4.03	0.28	-	-	-	-	6.11
WNW	-	3.33	2.92	-	-	-	-	-	6.25
W	-	0.97	0.83	-	-	-	-	-	1.81
WSW	-	0.28	-	-	-	-	-	-	0.28
SW	-	1.11	-	-	-	-	-	-	1.11
SSW	-	1.67	-	-	-	-	-	-	1.67
S	-	0.97	-	-	-	-	-	-	0.97
SSE	-	5.00	0.69	-	-	-	-	-	5.69
SE	-	5.83	2.08	-	-	-	-	-	7.92
ESE	-	6.39	2.78	0.14	-	-	-	-	9.31
E	-	4.31	10.28	2.22	-	-	-	-	16.81
Calm	8.47	-	-	-	-	-	-	-	8.47
Total (%)	8.47	48.47	40.14	2.92	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Nov. 01, 2007

End Date: Nov. 30, 2007

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
November 2007**

PROJECT NO.
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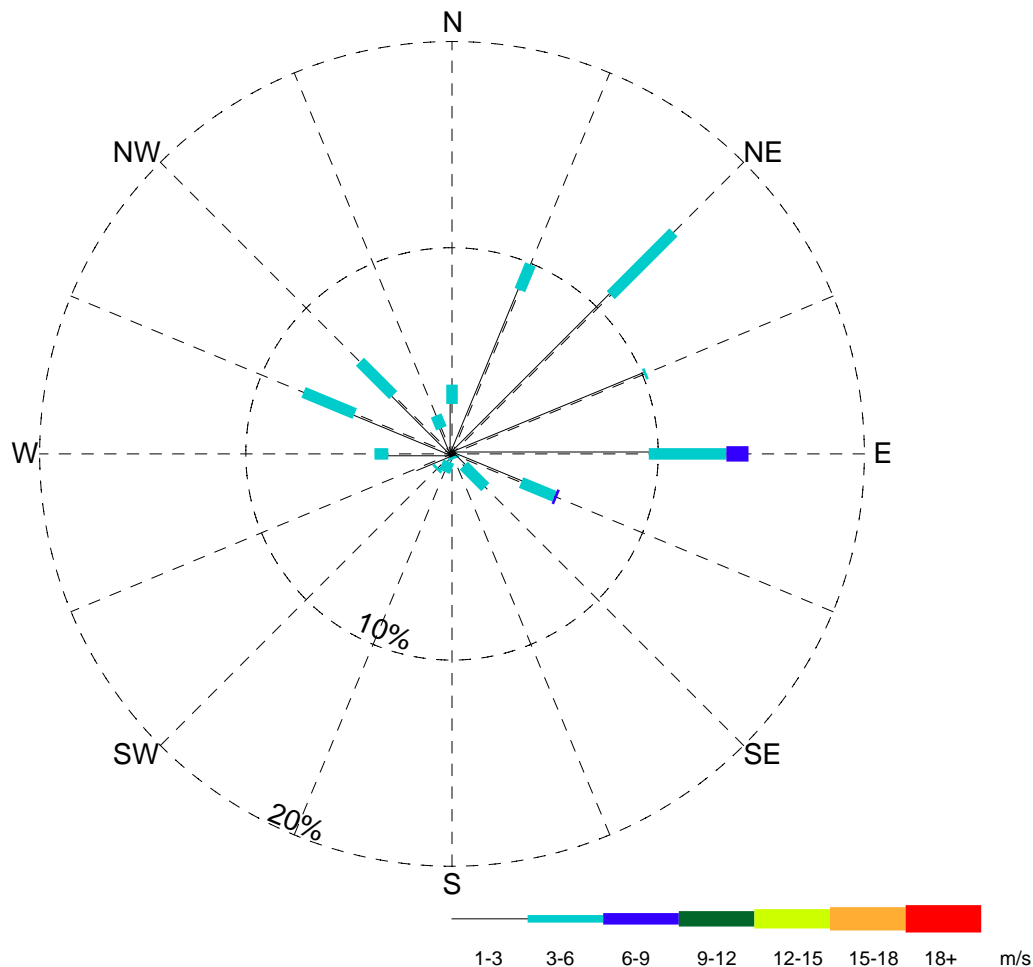
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Figure C-39



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	10.08	0.13	-	-	-	-	-	10.22
NE	-	10.89	4.30	-	-	-	-	-	15.19
NNE	-	8.60	1.34	-	-	-	-	-	9.95
N	-	2.42	0.94	-	-	-	-	-	3.36
NNW	-	1.34	0.67	-	-	-	-	-	2.02
NW	-	4.03	2.29	-	-	-	-	-	6.32
WNW	-	5.11	2.69	-	-	-	-	-	7.80
W	-	3.09	0.67	-	-	-	-	-	3.76
WSW	-	1.88	-	-	-	-	-	-	1.88
SW	-	0.94	0.13	-	-	-	-	-	1.08
SSW	-	0.40	0.54	-	-	-	-	-	0.94
S	-	0.13	-	-	-	-	-	-	0.13
SSE	-	0.13	0.13	-	-	-	-	-	0.27
SE	-	0.81	1.48	-	-	-	-	-	2.29
ESE	-	3.63	1.75	0.13	-	-	-	-	5.51
E	-	9.54	3.76	1.08	-	-	-	-	14.38
Calm	14.92	-	-	-	-	-	-	-	14.92
Total (%)	14.92	63.04	20.83	1.21	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Dec. 01, 2007

End Date: Dec. 31, 2007

NOTES

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**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
December 2007**

PROJECT NO.
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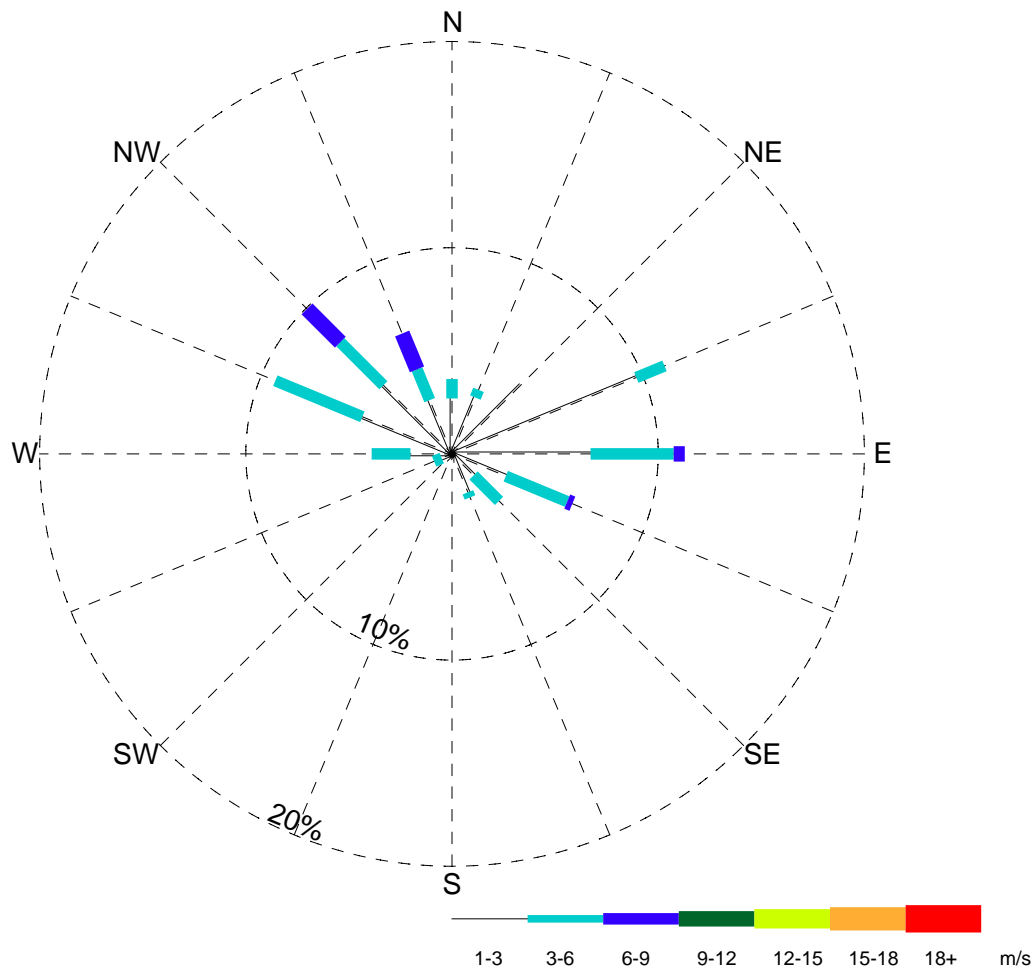
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Figure C-40



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	9.68	1.48	-	-	-	-	-	11.16
NE	-	4.70	-	-	-	-	-	-	4.70
NNE	-	2.96	0.40	-	-	-	-	-	3.36
N	-	2.69	0.94	-	-	-	-	-	3.63
NNW	-	2.82	1.61	1.88	-	-	-	-	6.32
NW	-	4.70	2.96	2.29	-	-	-	-	9.95
WNW	-	4.70	4.57	-	-	-	-	-	9.27
W	-	2.02	1.88	-	-	-	-	-	3.90
WSW	-	0.54	0.40	-	-	-	-	-	0.94
SW	-	0.40	-	-	-	-	-	-	0.40
SSW	-	0.27	-	-	-	-	-	-	0.27
S	-	0.40	-	-	-	-	-	-	0.40
SSE	-	2.02	0.27	-	-	-	-	-	2.29
SE	-	1.48	1.75	-	-	-	-	-	3.23
ESE	-	2.82	3.23	0.27	-	-	-	-	6.32
E	-	6.72	4.03	0.54	-	-	-	-	11.29
Calm	22.58	-	-	-	-	-	-	-	22.58
Total (%)	22.58	48.92	23.52	4.97	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Jan. 01, 2008

End Date: Jan. 31, 2008

NOTES

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EBA Engineering Consultants Ltd. 

**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
January 2008**

PROJECT NO.
Y22101057

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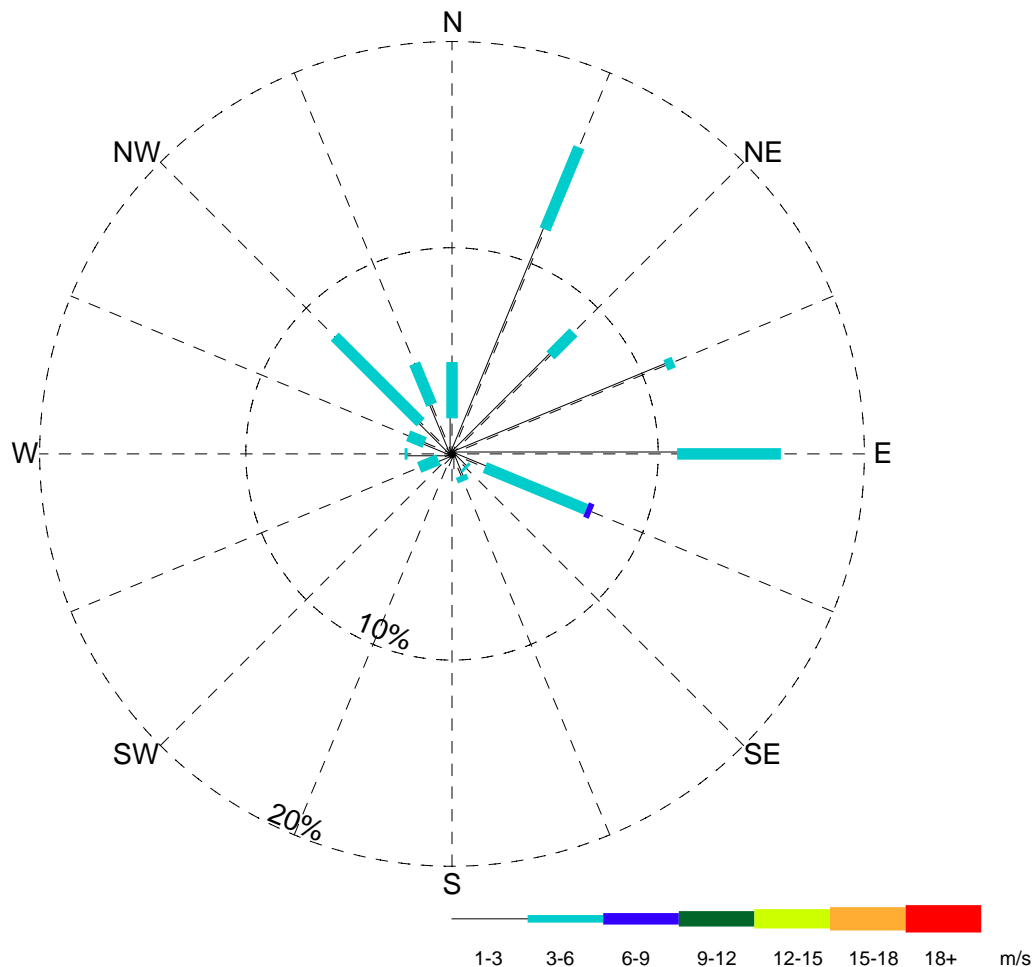
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Figure C-41



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	11.21	0.43	-	-	-	-	-	11.64
NE	-	6.75	1.58	-	-	-	-	-	8.33
NNE	-	11.78	4.31	-	-	-	-	-	16.09
N	-	1.72	2.73	-	-	-	-	-	4.45
NNW	-	2.59	2.15	-	-	-	-	-	4.74
NW	-	2.15	5.89	-	-	-	-	-	8.05
WNW	-	1.44	0.86	-	-	-	-	-	2.30
W	-	2.15	0.14	-	-	-	-	-	2.30
WSW	-	0.72	1.01	-	-	-	-	-	1.72
SW	-	0.57	-	-	-	-	-	-	0.57
SSW	-	0.57	-	-	-	-	-	-	0.57
S	-	0.72	-	-	-	-	-	-	0.72
SSE	-	1.15	0.29	-	-	-	-	-	1.44
SE	-	0.86	0.14	-	-	-	-	-	1.01
ESE	-	1.72	5.32	0.29	-	-	-	-	7.33
E	-	10.92	5.03	-	-	-	-	-	15.95
Calm	12.79	-	-	-	-	-	-	-	12.79
Total (%)	12.79	57.04	29.89	0.29	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 29 days

Start Date: Feb. 01, 2008

End Date: Feb. 29, 2008

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**Tyhee Station
Wind Rose
February 2008**

PROJECT NO.
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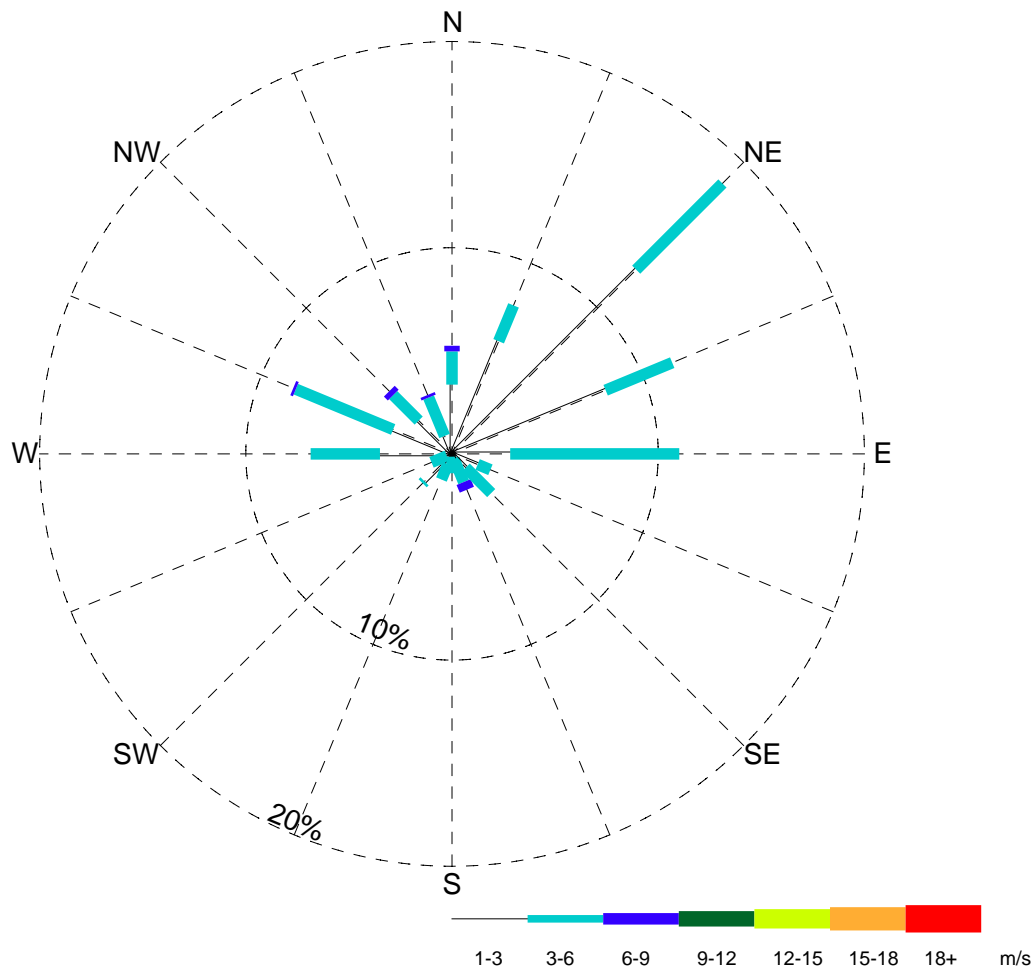
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Figure C-42



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	8.06	3.49	-	-	-	-	-	11.56
NE	-	12.63	5.91	-	-	-	-	-	18.55
NNE	-	5.91	1.88	-	-	-	-	-	7.80
N	-	3.36	1.61	0.27	-	-	-	-	5.24
NNW	-	0.94	2.02	0.13	-	-	-	-	3.09
NW	-	2.29	1.75	0.27	-	-	-	-	4.30
WNW	-	3.09	5.11	0.13	-	-	-	-	8.33
W	-	3.49	3.36	-	-	-	-	-	6.86
WSW	-	0.27	0.81	-	-	-	-	-	1.08
SW	-	1.88	0.13	-	-	-	-	-	2.02
SSW	-	0.54	0.81	-	-	-	-	-	1.34
S	-	0.13	0.81	-	-	-	-	-	0.94
SSE	-	0.27	1.21	0.40	-	-	-	-	1.88
SE	-	0.94	1.75	-	-	-	-	-	2.69
ESE	-	1.34	0.67	-	-	-	-	-	2.02
E	-	2.82	8.20	-	-	-	-	-	11.02
Calm	11.29	-	-	-	-	-	-	-	11.29
Total (%)	11.29	47.98	39.52	1.21	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Mar. 01, 2008

End Date: Mar. 31, 2008

NOTES

CLIENT



EBA Engineering Consultants Ltd. 

**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
March 2008**

PROJECT NO.
Y22101057

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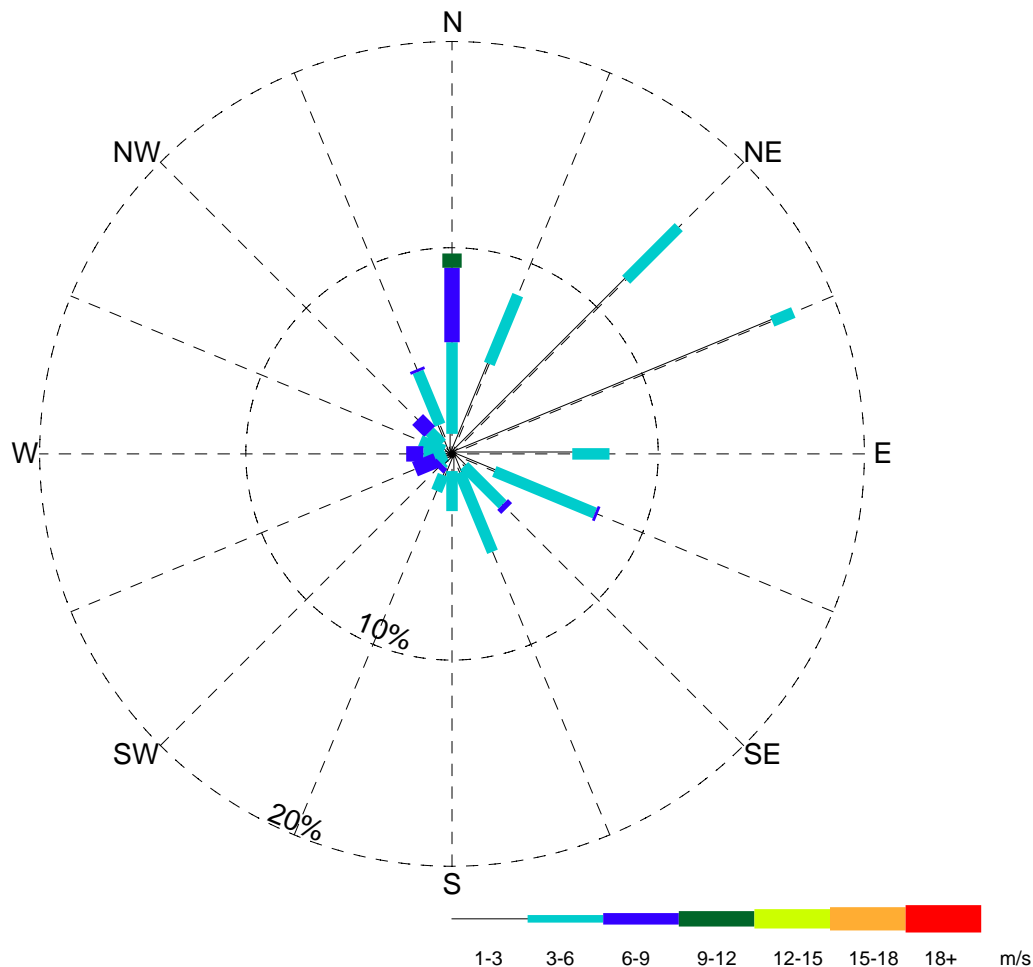
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Figure C-43



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	16.81	1.11	-	-	-	-	-	17.92
NE	-	11.94	3.61	-	-	-	-	-	15.56
NNE	-	4.72	3.61	-	-	-	-	-	8.33
N	-	0.97	4.44	3.61	0.69	-	-	-	9.72
NNW	-	1.53	2.78	0.14	-	-	-	-	4.44
NW	-	0.69	0.83	0.83	-	-	-	-	2.36
WNW	-	0.42	1.25	-	-	-	-	-	1.67
W	-	0.56	0.83	0.83	-	-	-	-	2.22
WSW	-	0.28	0.56	1.11	-	-	-	-	1.94
SW	-	0.56	0.14	0.28	-	-	-	-	0.97
SSW	-	1.11	0.83	-	-	-	-	-	1.94
S	-	0.83	1.94	-	-	-	-	-	2.78
SSE	-	0.97	4.17	-	-	-	-	-	5.14
SE	-	0.83	2.64	0.28	-	-	-	-	3.75
ESE	-	2.22	5.28	0.14	-	-	-	-	7.64
E	-	5.83	1.81	-	-	-	-	-	7.64
Calm	5.97	-	-	-	-	-	-	-	5.97
Total (%)	5.97	50.28	35.83	7.22	0.69	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Apr. 01, 2008

End Date: Apr. 30, 2008

NOTES

CLIENT



**EBA Engineering
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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
April 2008**

PROJECT NO.
Y22101057

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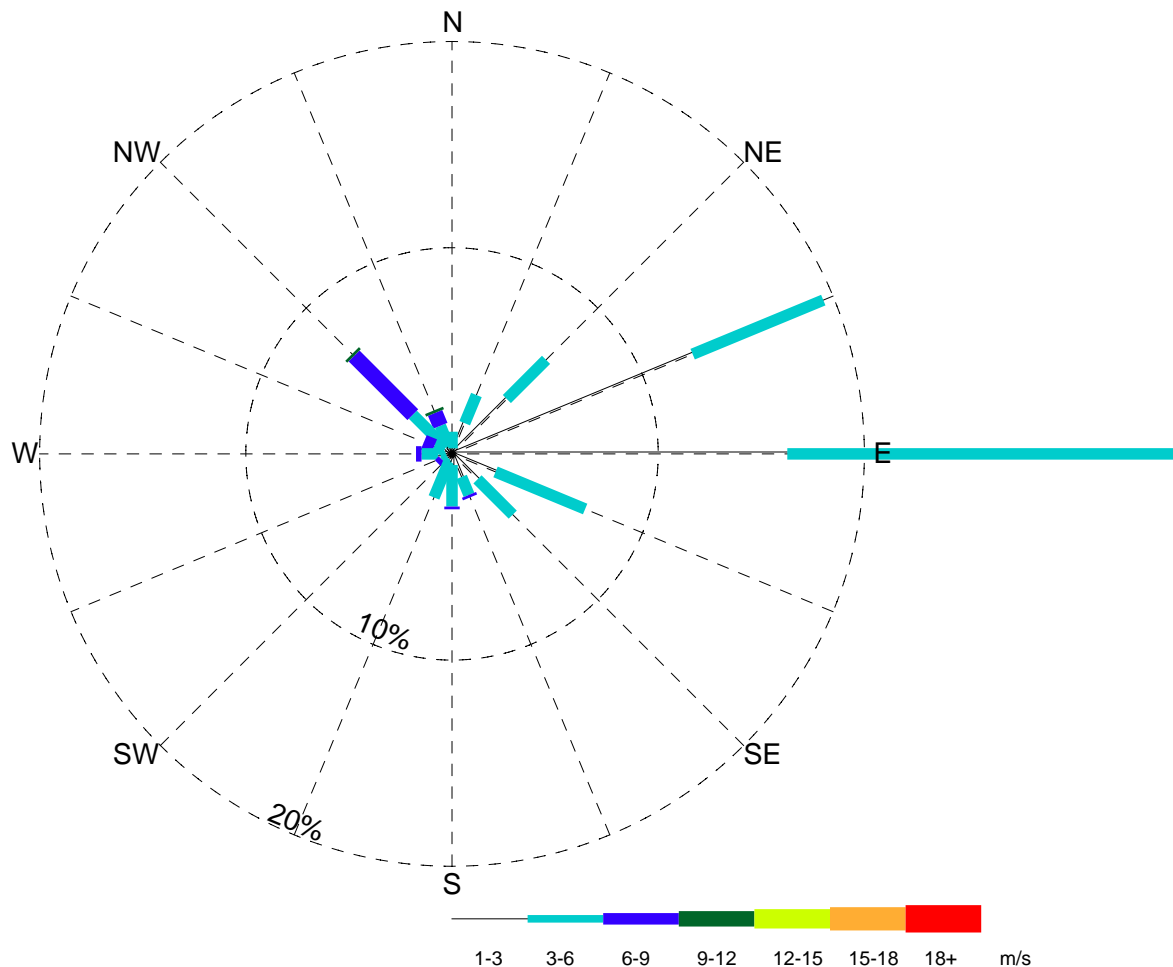
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Figure C-44



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	12.63	6.86	-	-	-	-	-	19.49
NE	-	3.76	2.69	-	-	-	-	-	6.45
NNE	-	1.61	1.48	-	-	-	-	-	3.09
N	-	0.27	0.81	-	-	-	-	-	1.08
NNW	-	0.40	1.08	0.67	0.13	-	-	-	2.29
NW	-	0.67	2.02	4.03	0.13	-	-	-	6.86
WNW	-	0.40	0.54	0.54	-	-	-	-	1.48
W	-	0.67	0.81	0.27	-	-	-	-	1.75
WSW	-	0.27	0.27	-	-	-	-	-	0.54
SW	-	0.27	0.27	0.27	-	-	-	-	0.81
SSW	-	0.40	1.88	-	-	-	-	-	2.29
S	-	0.54	2.02	0.13	-	-	-	-	2.69
SSE	-	1.21	0.94	0.13	-	-	-	-	2.29
SE	-	1.75	2.42	-	-	-	-	-	4.17
ESE	-	2.29	4.70	-	-	-	-	-	6.99
E	-	16.26	19.09	-	-	-	-	-	35.35
Calm	2.42	-	-	-	-	-	-	-	2.42
Total (%)	2.42	43.41	47.85	6.05	0.27	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: May. 01, 2008

End Date: May. 31, 2008

NOTES

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**EBA Engineering
Consultants Ltd.**



**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
May 2008**

PROJECT NO.
Y22101057

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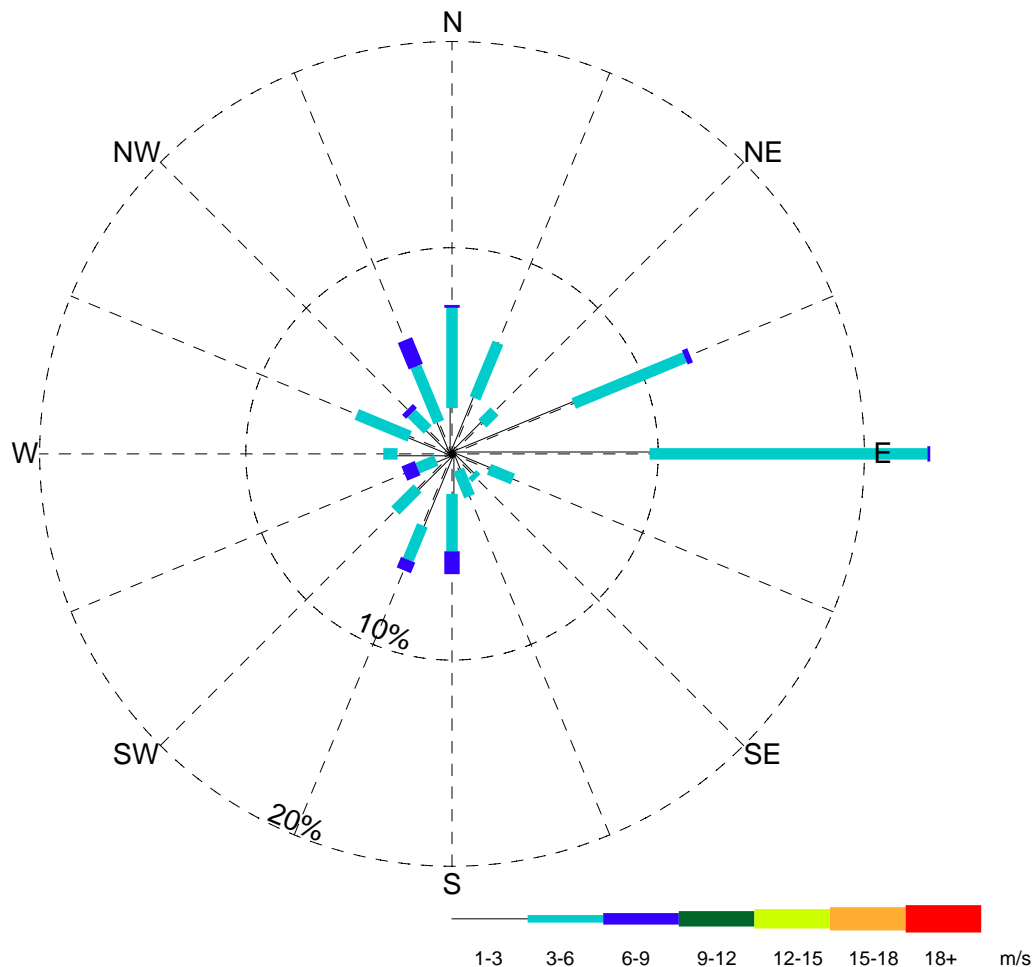
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Figure C-45



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.39	5.83	0.28	-	-	-	-	12.50
NE	-	2.08	0.83	-	-	-	-	-	2.92
NNE	-	2.92	2.92	-	-	-	-	-	5.83
N	-	2.22	4.86	0.14	-	-	-	-	7.22
NNW	-	1.67	2.92	1.39	-	-	-	-	5.97
NW	-	1.67	1.11	0.28	-	-	-	-	3.06
WNW	-	2.22	2.78	-	-	-	-	-	5.00
W	-	2.64	0.69	-	-	-	-	-	3.33
WSW	-	0.83	0.97	0.69	-	-	-	-	2.50
SW	-	2.36	1.53	-	-	-	-	-	3.89
SSW	-	3.75	1.81	0.56	-	-	-	-	6.11
S	-	1.94	2.78	1.11	-	-	-	-	5.83
SSE	-	0.83	1.39	-	-	-	-	-	2.22
SE	-	1.39	0.28	-	-	-	-	-	1.67
ESE	-	1.94	1.25	-	-	-	-	-	3.19
E	-	9.58	13.47	0.14	-	-	-	-	23.19
Calm	5.56	-	-	-	-	-	-	-	5.56
Total (%)	5.56	44.44	45.42	4.58	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: June 01, 2008

End Date: June 30, 2008

NOTES

CLIENT



EBA Engineering Consultants Ltd.



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
June 2008**

PROJECT NO.
Y22101057

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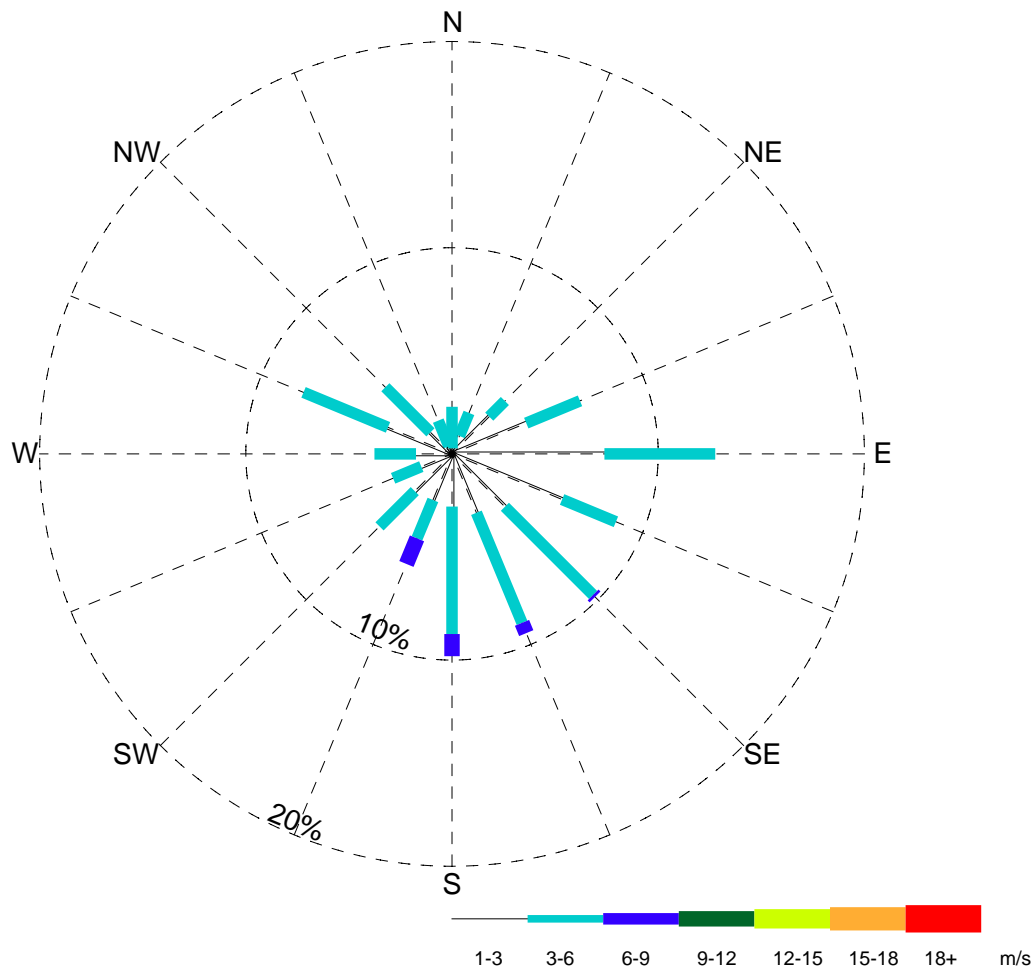
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Figure C-46



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.90	2.82	-	-	-	-	-	6.72
NE	-	2.55	1.08	-	-	-	-	-	3.63
NNE	-	0.94	1.21	-	-	-	-	-	2.15
N	-	0.27	2.02	-	-	-	-	-	2.29
NNW	-	0.40	1.34	-	-	-	-	-	1.75
NW	-	1.48	3.09	-	-	-	-	-	4.57
WNW	-	3.36	4.43	-	-	-	-	-	7.80
W	-	1.75	2.02	-	-	-	-	-	3.76
WSW	-	1.61	1.48	-	-	-	-	-	3.09
SW	-	2.55	2.42	-	-	-	-	-	4.97
SSW	-	2.42	2.02	1.34	-	-	-	-	5.78
S	-	2.55	6.18	1.08	-	-	-	-	9.81
SSE	-	3.09	5.78	0.54	-	-	-	-	9.41
SE	-	3.63	6.05	0.13	-	-	-	-	9.81
ESE	-	5.78	2.82	-	-	-	-	-	8.60
E	-	7.39	5.38	-	-	-	-	-	12.77
Calm	3.09	-	-	-	-	-	-	-	3.09
Total (%)	3.09	43.68	50.13	3.09	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: July 01, 2008

End Date: July 31, 2008

NOTES

CLIENT



**EBA Engineering
Consultants Ltd.**



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
July 2008**

PROJECT NO.
Y22101057

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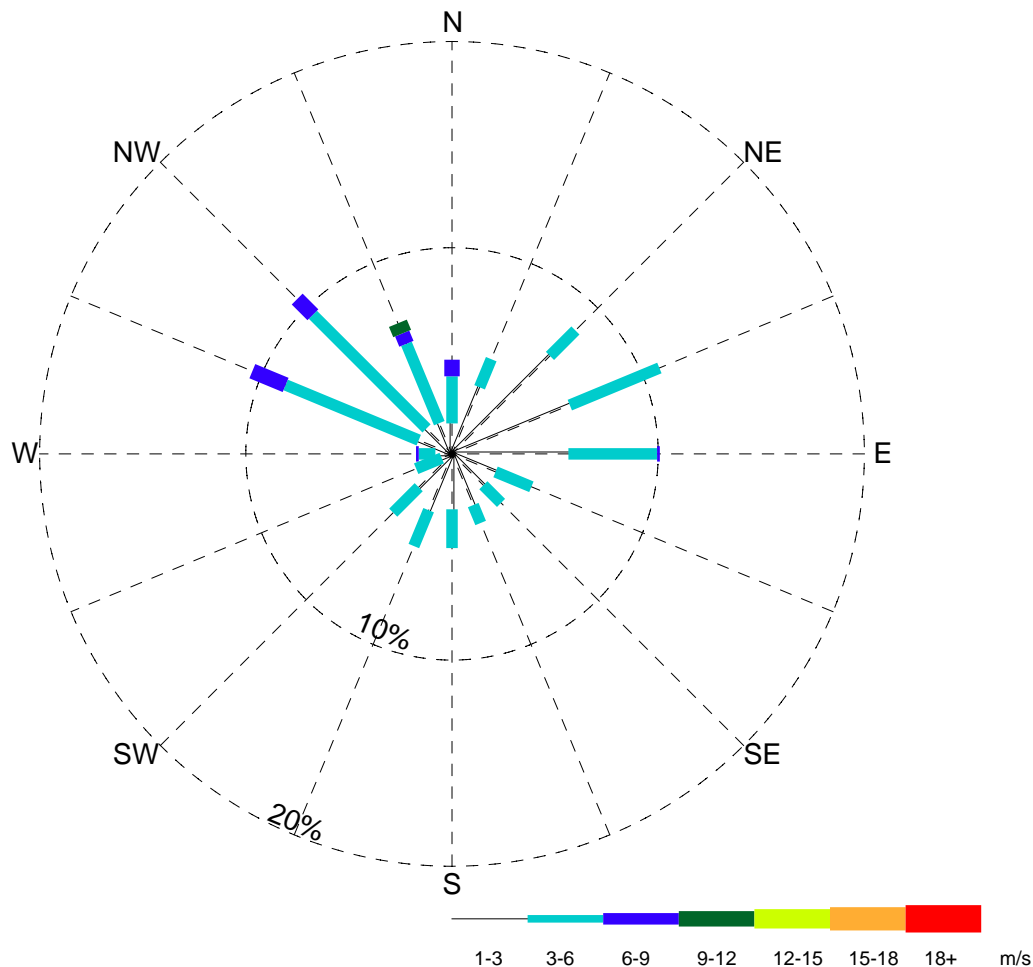
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Figure C-47



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.18	4.70	-	-	-	-	-	10.89
NE	-	6.72	1.75	-	-	-	-	-	8.47
NNE	-	3.49	1.48	-	-	-	-	-	4.97
N	-	1.48	2.29	0.81	-	-	-	-	4.57
NNW	-	1.61	4.17	0.54	0.54	-	-	-	6.86
NW	-	1.75	7.80	1.08	-	-	-	-	10.62
WNW	-	1.75	6.99	1.75	-	-	-	-	10.48
W	-	0.81	0.81	0.13	-	-	-	-	1.75
WSW	-	0.54	1.34	-	-	-	-	-	1.88
SW	-	2.29	1.75	-	-	-	-	-	4.03
SSW	-	2.96	1.88	-	-	-	-	-	4.84
S	-	2.69	1.88	-	-	-	-	-	4.57
SSE	-	2.69	0.94	-	-	-	-	-	3.63
SE	-	2.15	1.21	-	-	-	-	-	3.36
ESE	-	2.29	1.88	-	-	-	-	-	4.17
E	-	5.64	4.30	0.13	-	-	-	-	10.08
Calm	4.84	-	-	-	-	-	-	-	4.84
Total (%)	4.84	45.03	45.16	4.43	0.54	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Aug. 01, 2008

End Date: Aug. 31, 2008

NOTES

CLIENT



EBA Engineering Consultants Ltd. 

**YELLOWKNIFE GOLD PROJECT
2008 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
August 2008**

PROJECT NO.
Y22101057

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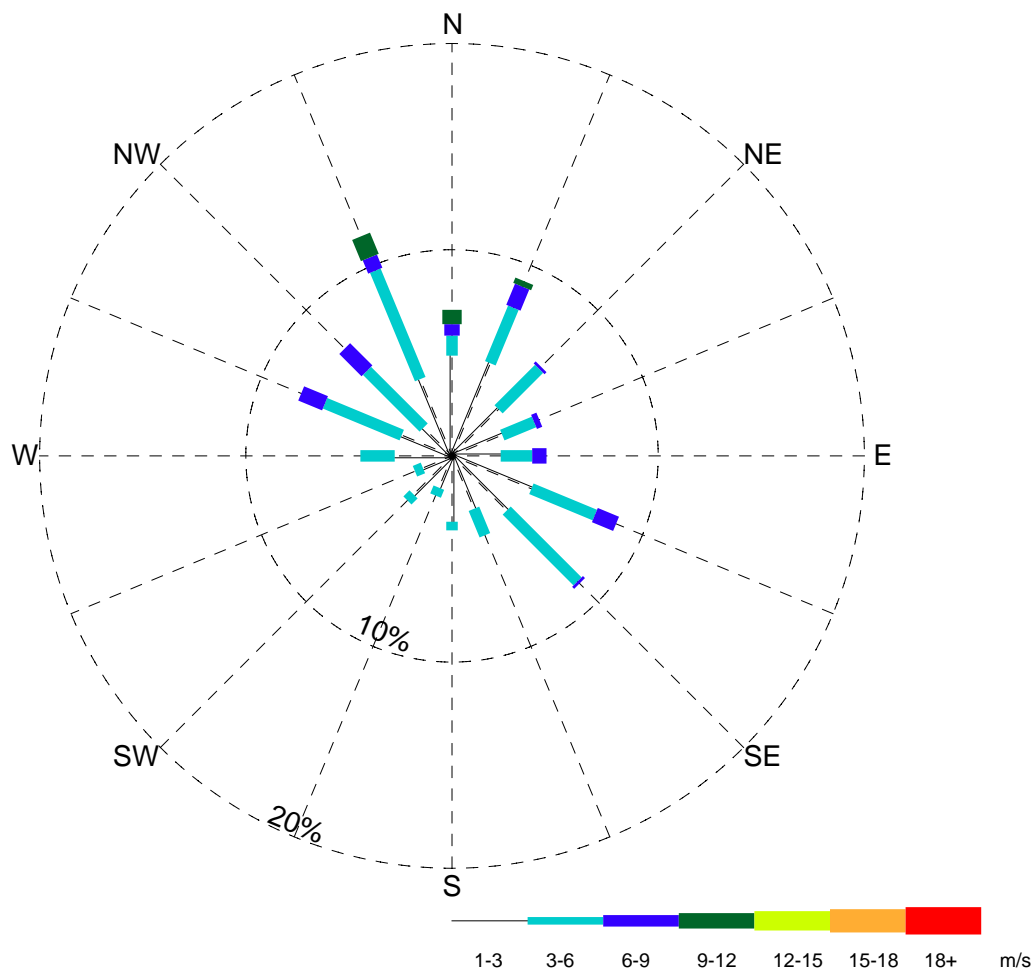
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Figure C-48



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	2.64	1.67	0.28	-	-	-	-	4.58
NE	-	3.19	2.78	0.14	-	-	-	-	6.11
NNE	-	4.86	2.92	1.11	0.28	-	-	-	9.17
N	-	4.86	0.97	0.56	0.69	-	-	-	7.08
NNW	-	4.03	5.69	0.69	1.11	-	-	-	11.53
NW	-	1.94	3.89	1.53	-	-	-	-	7.36
WNW	-	2.64	4.03	1.25	-	-	-	-	7.92
W	-	2.78	1.67	-	-	-	-	-	4.44
WSW	-	1.53	0.42	-	-	-	-	-	1.94
SW	-	2.64	0.42	-	-	-	-	-	3.06
SSW	-	1.67	0.42	-	-	-	-	-	2.08
S	-	3.19	0.42	-	-	-	-	-	3.61
SSE	-	2.78	1.39	-	-	-	-	-	4.17
SE	-	3.75	4.86	0.14	-	-	-	-	8.75
ESE	-	4.17	3.33	1.11	-	-	-	-	8.61
E	-	2.36	1.53	0.69	-	-	-	-	4.58
Calm	5.00	-	-	-	-	-	-	-	5.00
Total (%)	5.00	49.03	36.39	7.50	2.08	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Sep. 01, 2008

End Date: Sep. 30, 2008

NOTES

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**EBA Engineering
Consultants Ltd.**



YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
September 2008**

PROJECT NO.
Y22101057

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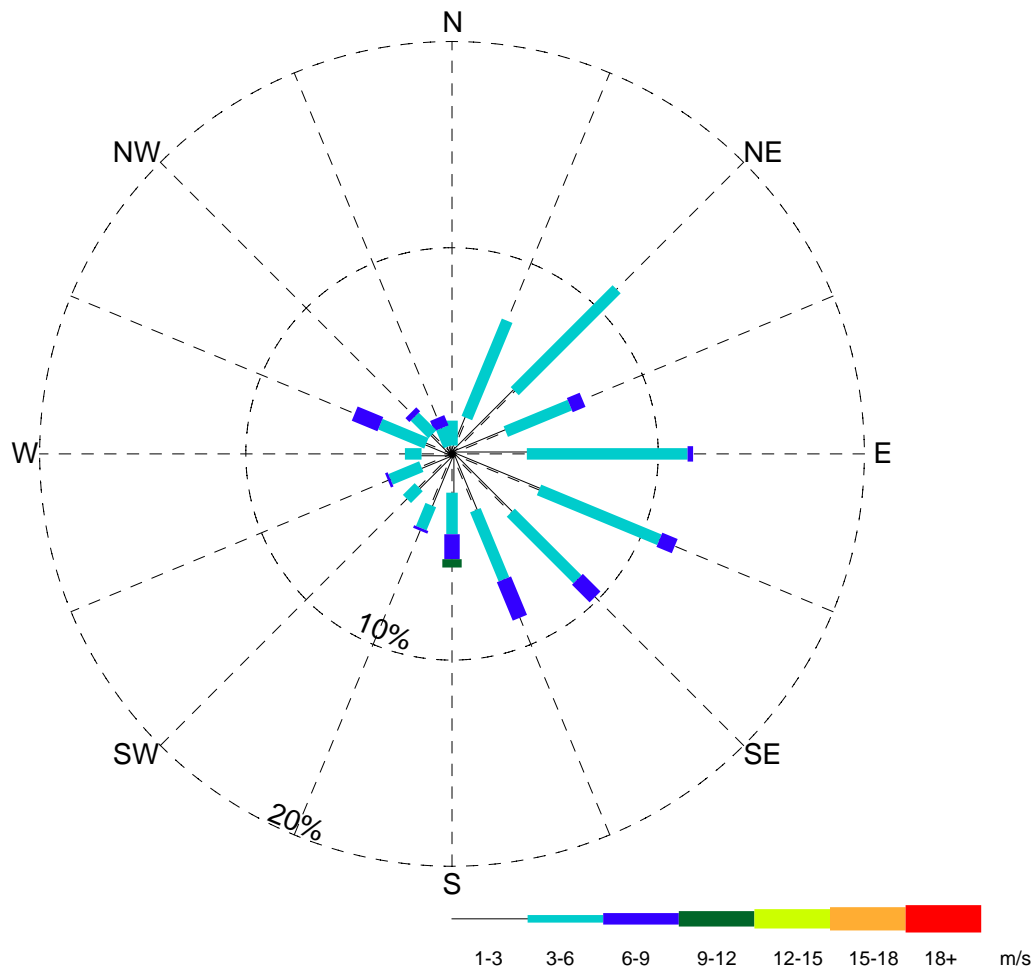
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Figure C-49



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	2.82	3.36	0.67	-	-	-	-	6.86
NE	-	4.30	6.99	-	-	-	-	-	11.29
NNE	-	1.88	5.11	-	-	-	-	-	6.99
N	-	0.40	1.21	-	-	-	-	-	1.61
NNW	-	0.40	0.94	0.54	-	-	-	-	1.88
NW	-	1.34	1.21	0.27	-	-	-	-	2.82
WNW	-	1.34	2.42	1.34	-	-	-	-	5.11
W	-	1.48	0.81	-	-	-	-	-	2.29
WSW	-	1.61	1.61	0.13	-	-	-	-	3.36
SW	-	2.29	0.81	-	-	-	-	-	3.09
SSW	-	2.69	1.21	0.13	-	-	-	-	4.03
S	-	1.88	2.02	1.21	0.40	-	-	-	5.51
SSE	-	2.96	3.63	2.02	-	-	-	-	8.60
SE	-	4.03	4.57	1.21	-	-	-	-	9.81
ESE	-	4.57	6.32	0.81	-	-	-	-	11.69
E	-	3.63	7.80	0.27	-	-	-	-	11.69
Calm	3.36	-	-	-	-	-	-	-	3.36
Total (%)	3.36	37.63	50.00	8.60	0.40	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days


Start Date: Oct. 01, 2008

End Date: Oct. 31, 2008

NOTES

CLIENT



EBA Engineering Consultants Ltd. 

YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
October 2008**

PROJECT NO.
Y22101057

DWN
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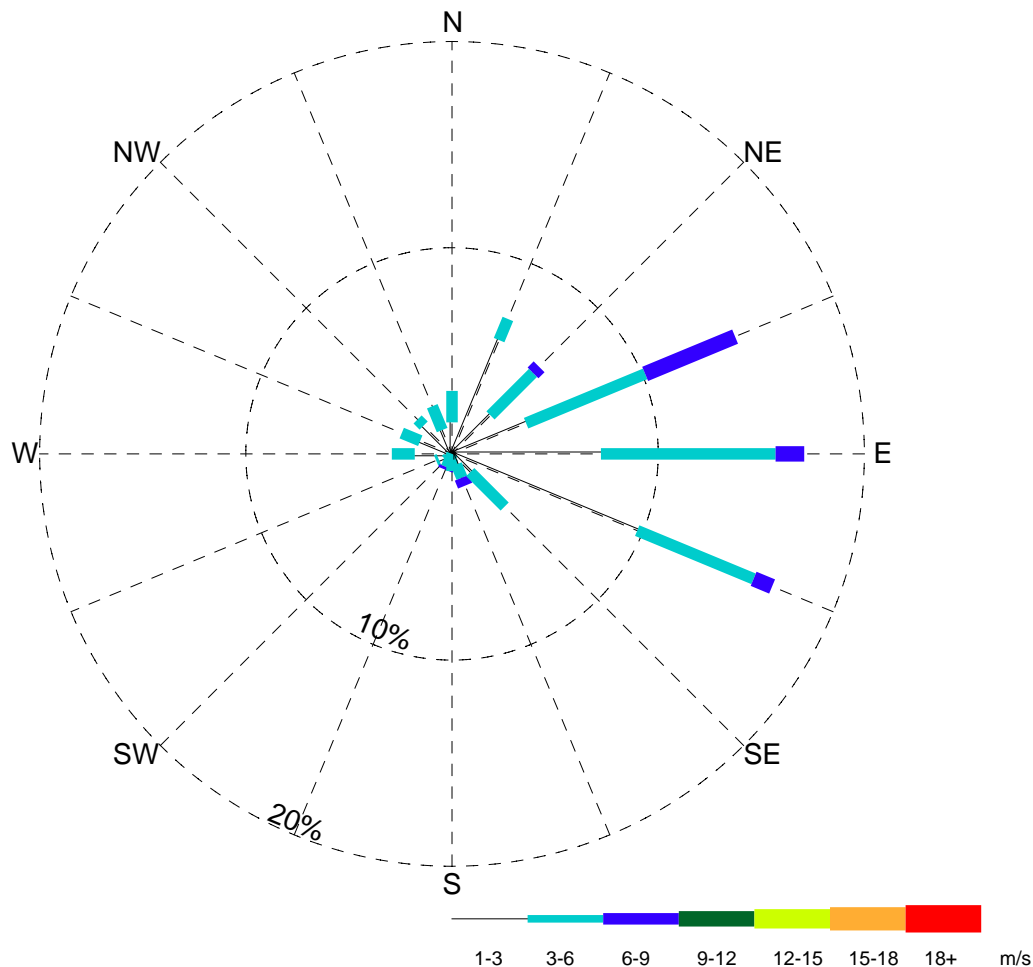
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Figure C-50



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	3.89	6.25	4.72	-	-	-	-	14.86
NE	-	2.64	2.92	0.42	-	-	-	-	5.97
NNE	-	5.97	1.11	-	-	-	-	-	7.08
N	-	1.53	1.53	-	-	-	-	-	3.06
NNW	-	1.25	1.25	-	-	-	-	-	2.50
NW	-	1.94	0.42	-	-	-	-	-	2.36
WNW	-	1.67	0.97	-	-	-	-	-	2.64
W	-	1.81	1.11	-	-	-	-	-	2.92
WSW	-	0.69	0.14	-	-	-	-	-	0.83
SW	-	0.28	0.14	-	-	-	-	-	0.42
SSW	-	-	0.69	0.14	-	-	-	-	0.83
S	-	0.28	0.56	-	-	-	-	-	0.83
SSE	-	0.56	0.69	0.42	-	-	-	-	1.67
SE	-	1.25	2.36	-	-	-	-	-	3.61
ESE	-	9.72	6.11	0.97	-	-	-	-	16.81
E	-	7.22	8.47	1.39	-	-	-	-	17.08
Calm	16.53	-	-	-	-	-	-	-	16.53
Total (%)	16.53	40.69	34.72	8.06	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 30 days

Start Date: Nov. 01, 2008

End Date: Nov. 30, 2008

NOTES

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**EBA Engineering
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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
November 2008**

PROJECT NO.
Y22101057

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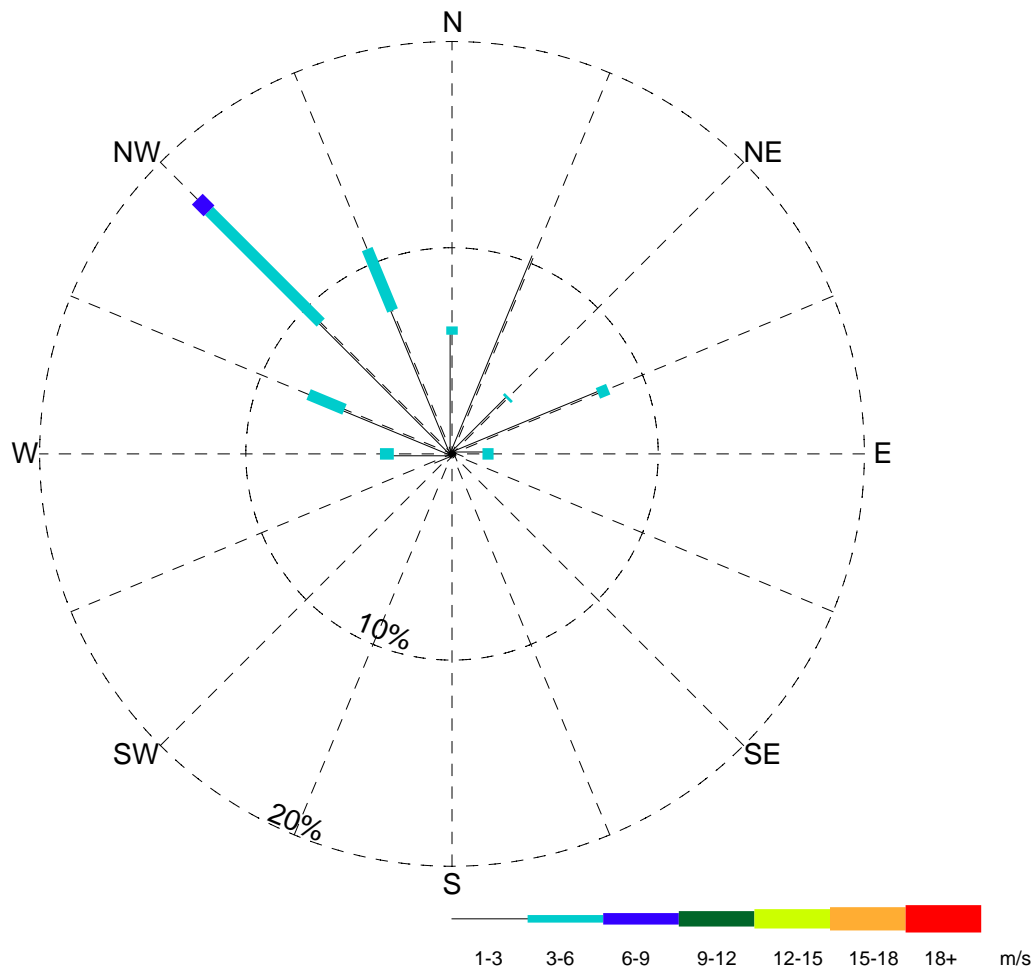
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Figure C-51



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	7.66	0.54	-	-	-	-	-	8.20
NE	-	3.76	0.13	-	-	-	-	-	3.90
NNE	-	10.35	-	-	-	-	-	-	10.35
N	-	5.78	0.40	-	-	-	-	-	6.18
NNW	-	7.53	3.23	-	-	-	-	-	10.75
NW	-	9.01	7.66	0.81	-	-	-	-	17.47
WNW	-	5.64	1.88	-	-	-	-	-	7.53
W	-	2.82	0.67	-	-	-	-	-	3.49
WSW	-	0.94	-	-	-	-	-	-	0.94
SW	-	0.40	-	-	-	-	-	-	0.40
SSW	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-
SSE	-	0.40	-	-	-	-	-	-	0.40
SE	-	0.13	-	-	-	-	-	-	0.13
ESE	-	0.54	-	-	-	-	-	-	0.54
E	-	1.48	0.54	-	-	-	-	-	2.02
Calm	27.69	-	-	-	-	-	-	-	27.69
Total (%)	27.69	56.45	15.05	0.81	-	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 31 days

Start Date: Dec. 01, 2008

End Date: Dec. 31, 2008

NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Rose
December 2008**

PROJECT NO.
Y22101057

DWN
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CHK
JAS

REV
0

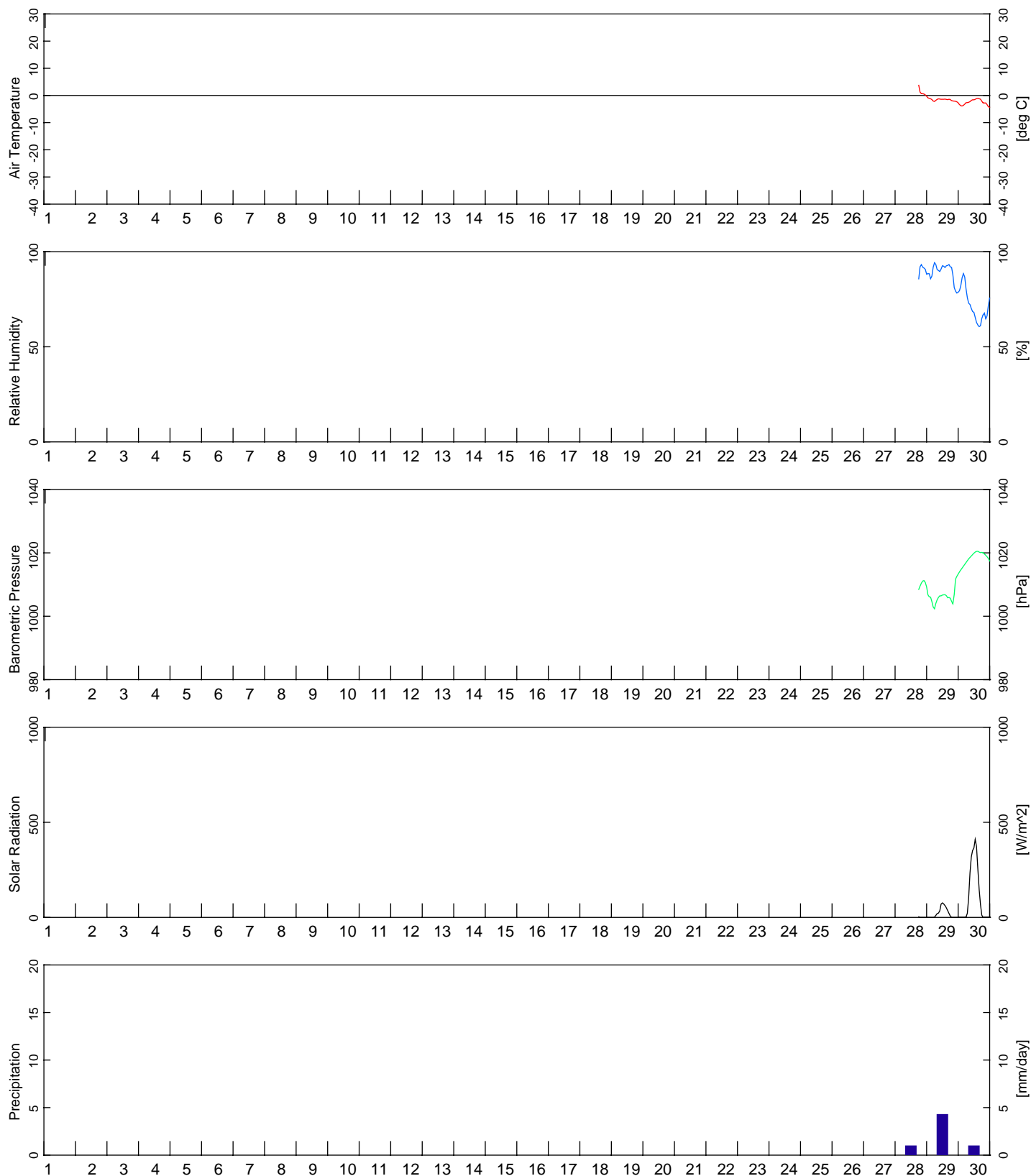
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DATE
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Figure C-52

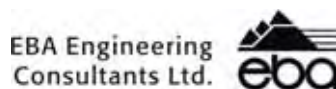
APPENDIX

APPENDIX D SUMMARY OF WEATHER PARAMETERS – SEPTEMBER 2004 TO DECEMBER 2008



NOTES

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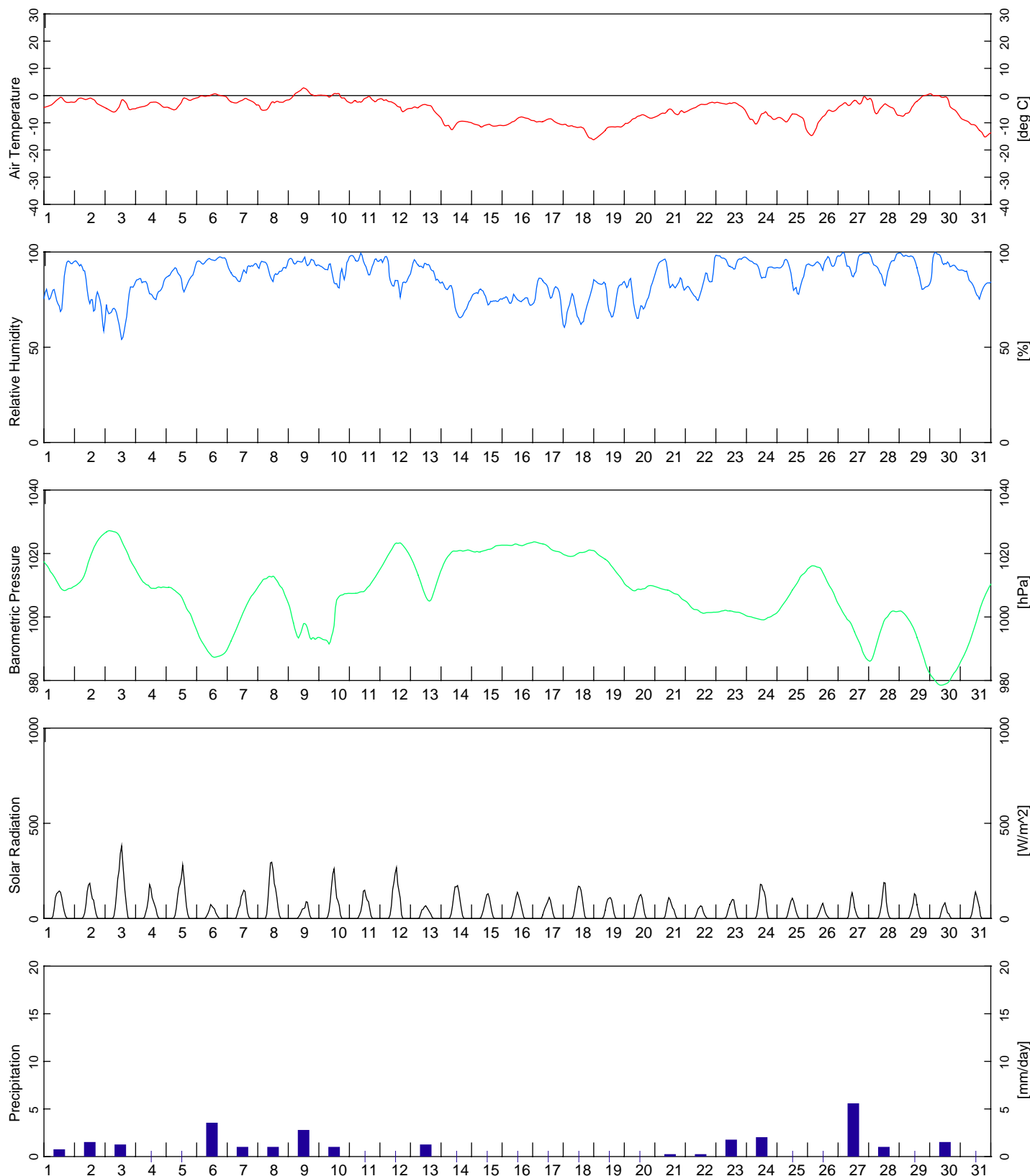


YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Weather Data
September 2004**

PROJECT NO. Y22101057	DWN RED	CHK JAS	REV 0
OFFICE EBA-VANC	DATE July 2009		

Figure D-01



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**Tyhee Station
Weather Data
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PROJECT NO.
Y22101057

DWN
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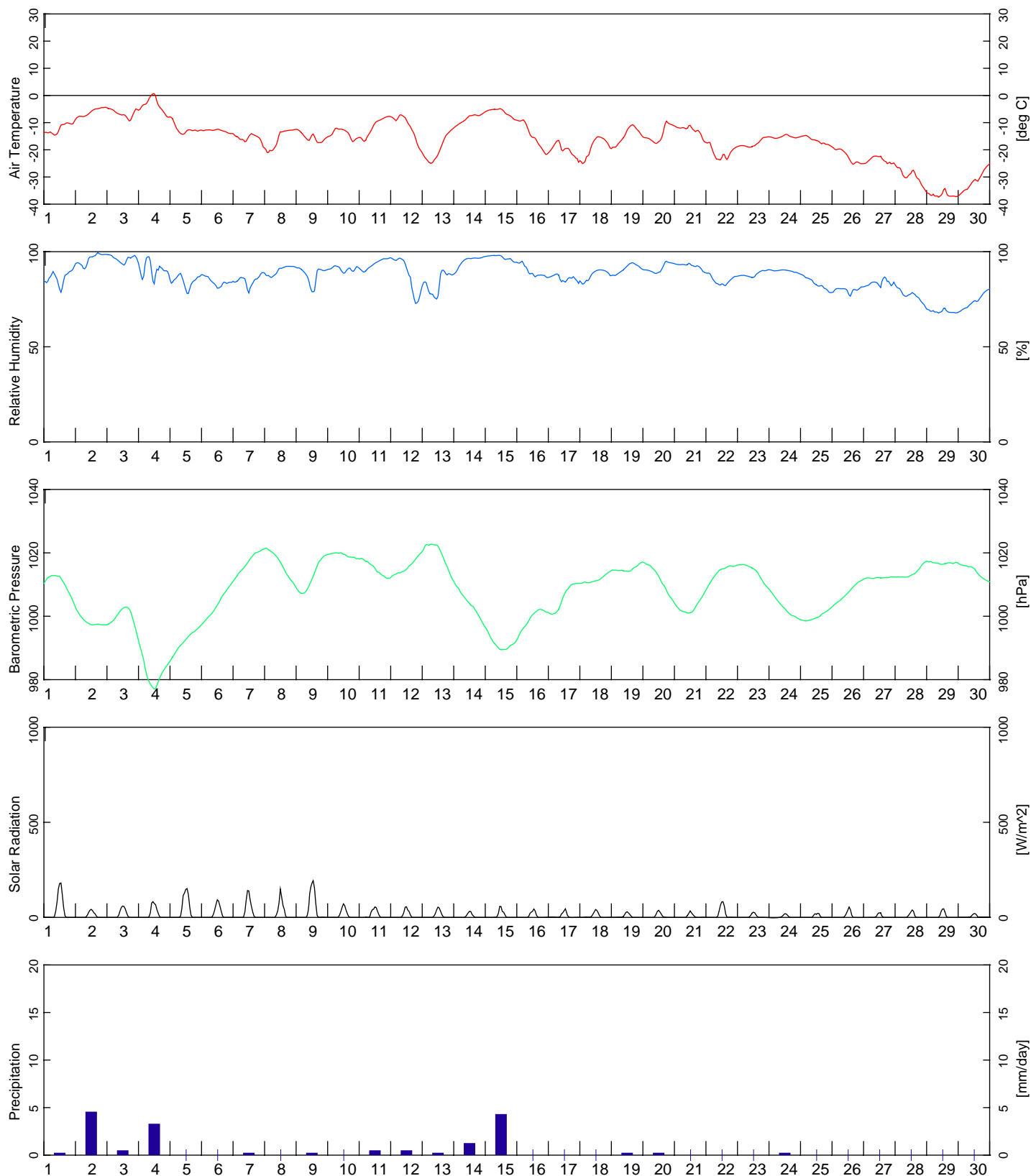
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Figure D-02



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**Tyhee Station
Weather Data
November 2004**

PROJECT NO.
Y22101057

DWN
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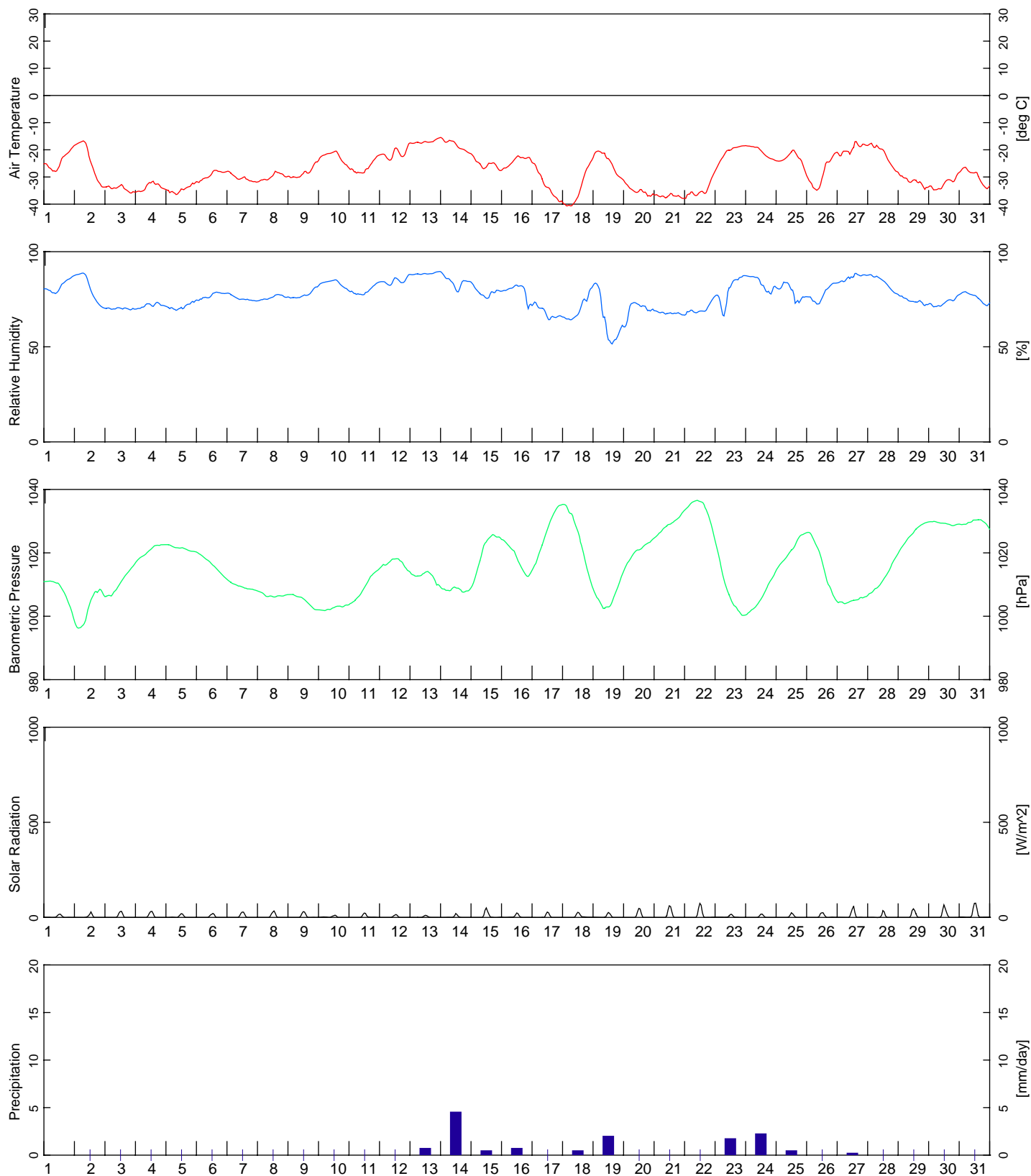
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Figure D-03



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**Tyhee Station
Weather Data
December 2004**

PROJECT NO.
Y22101057

DWN
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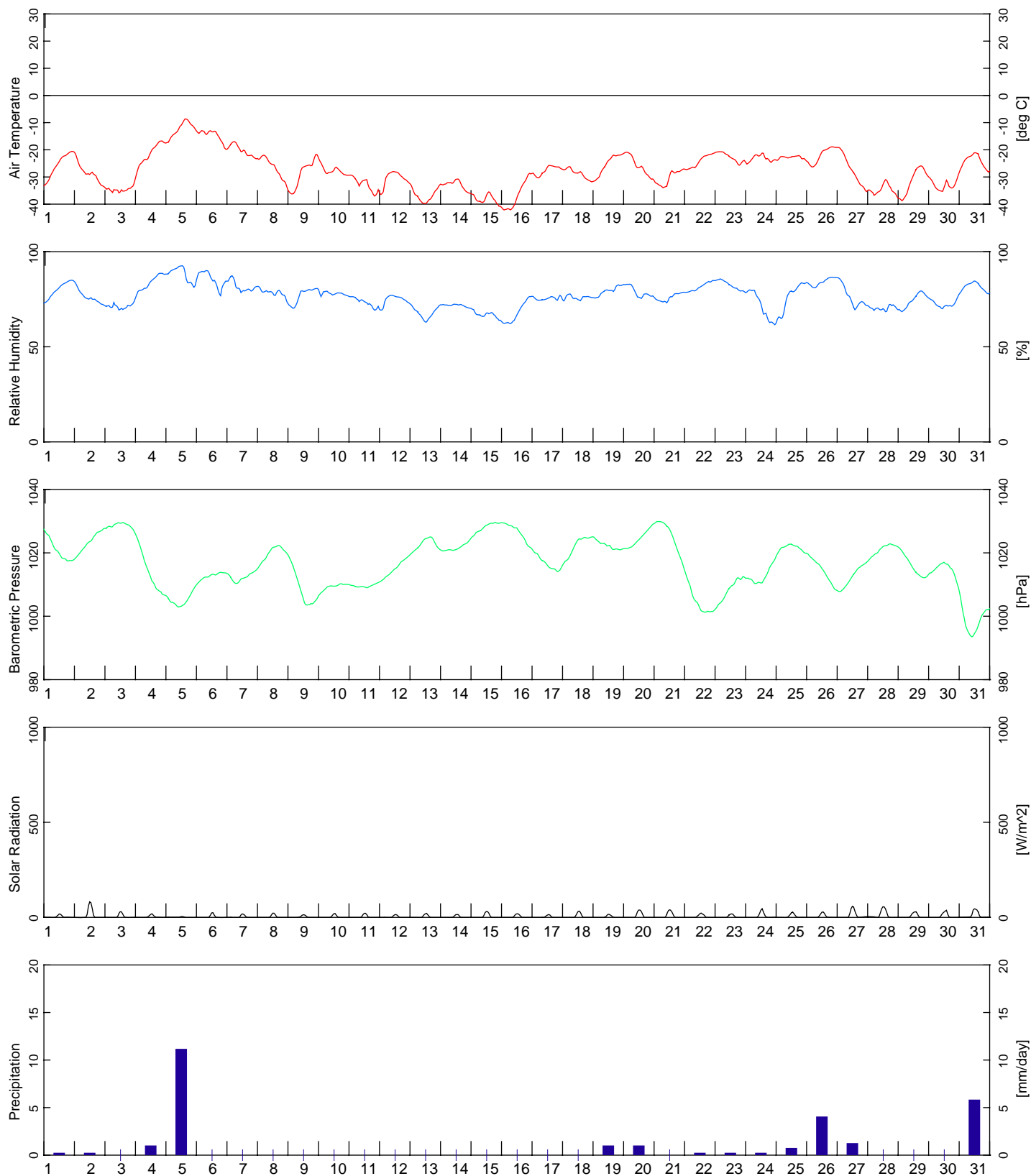
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Figure D-04



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**Tyhee Station
Weather Data
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PROJECT NO.
Y22101057

DWN
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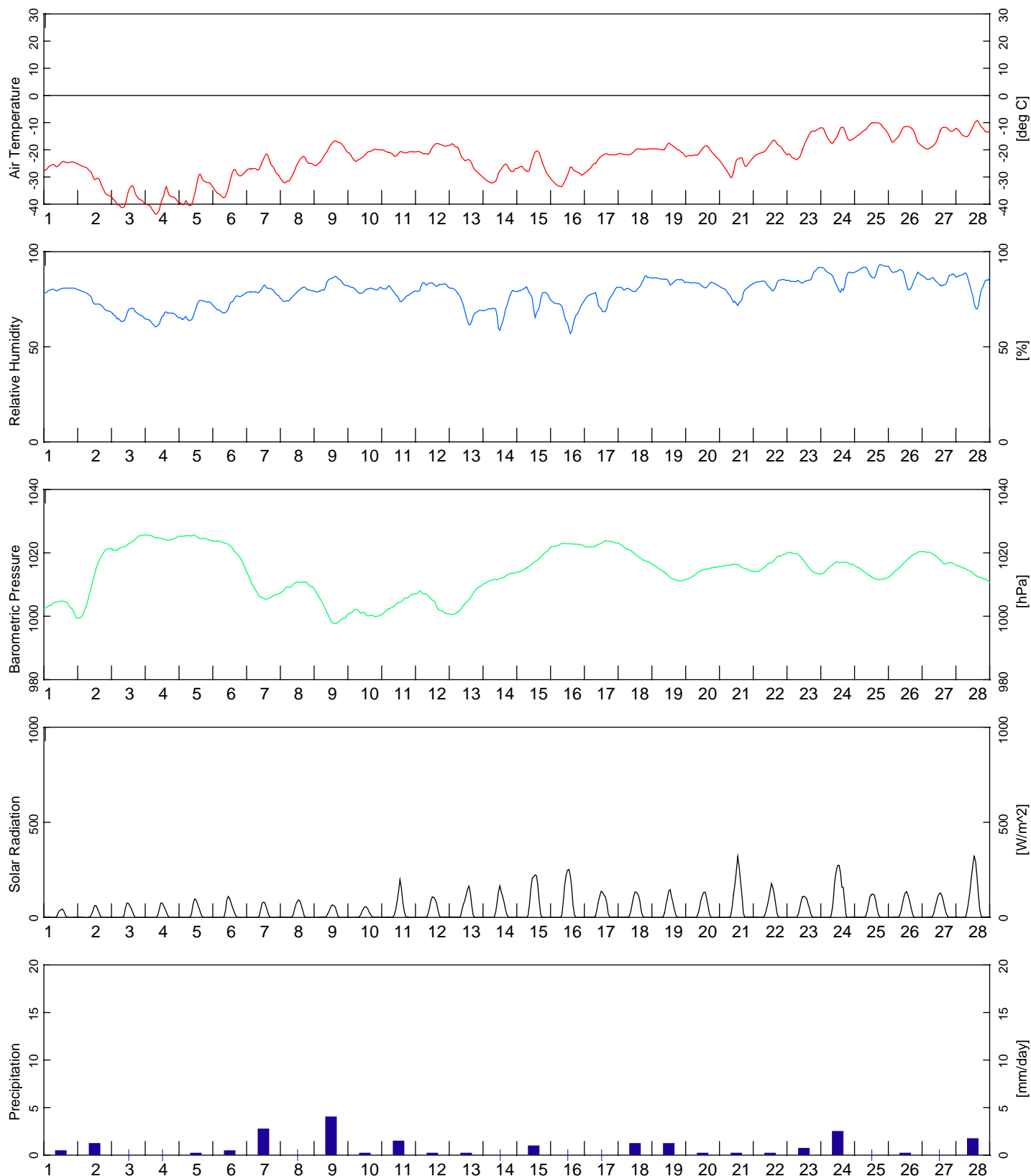
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Figure D-05



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**Tyhee Station
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Y22101057

DWN
RED

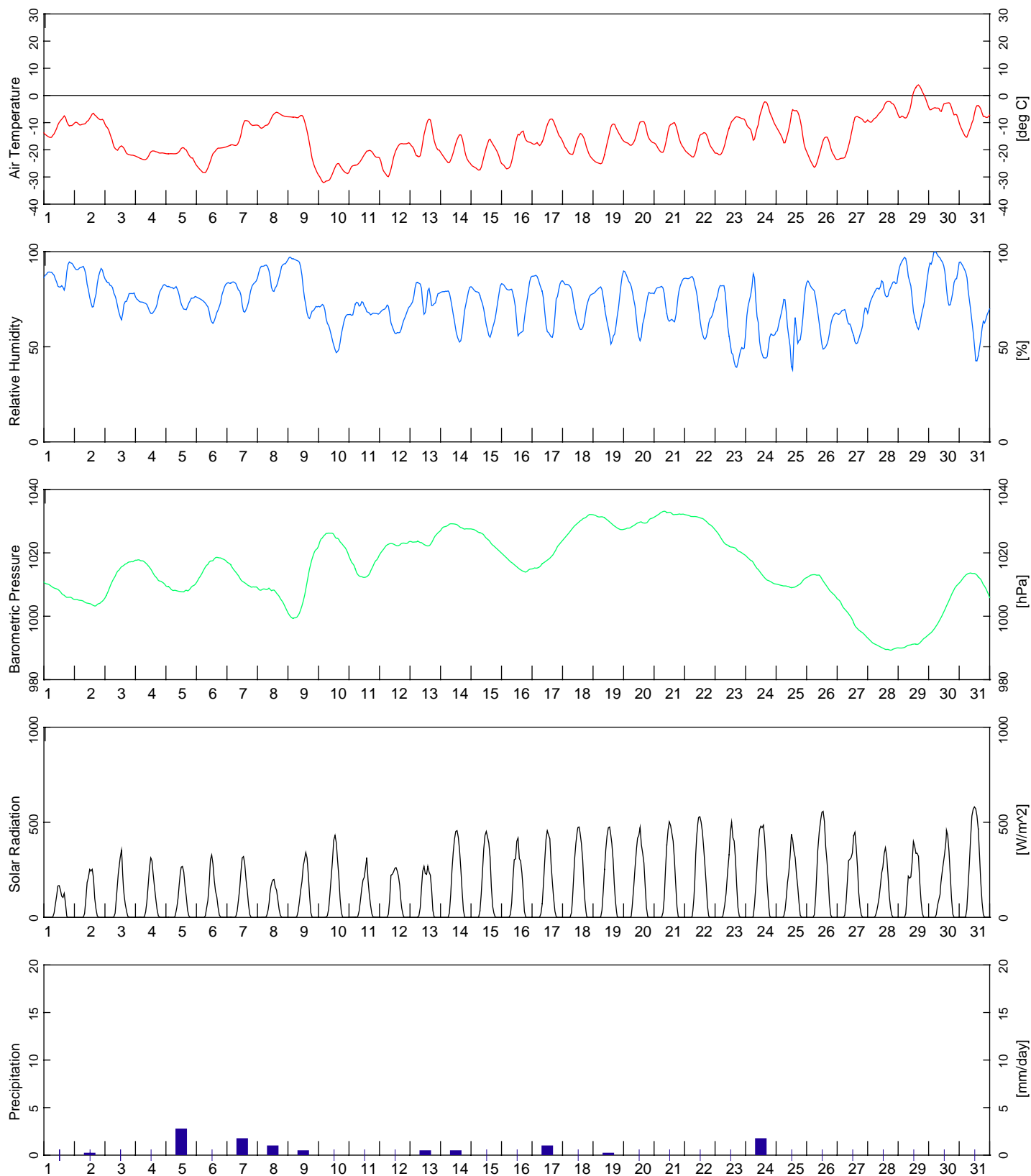
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Figure D-06



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**Tyhee Station
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March 2005**

PROJECT NO.
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DWN
RED

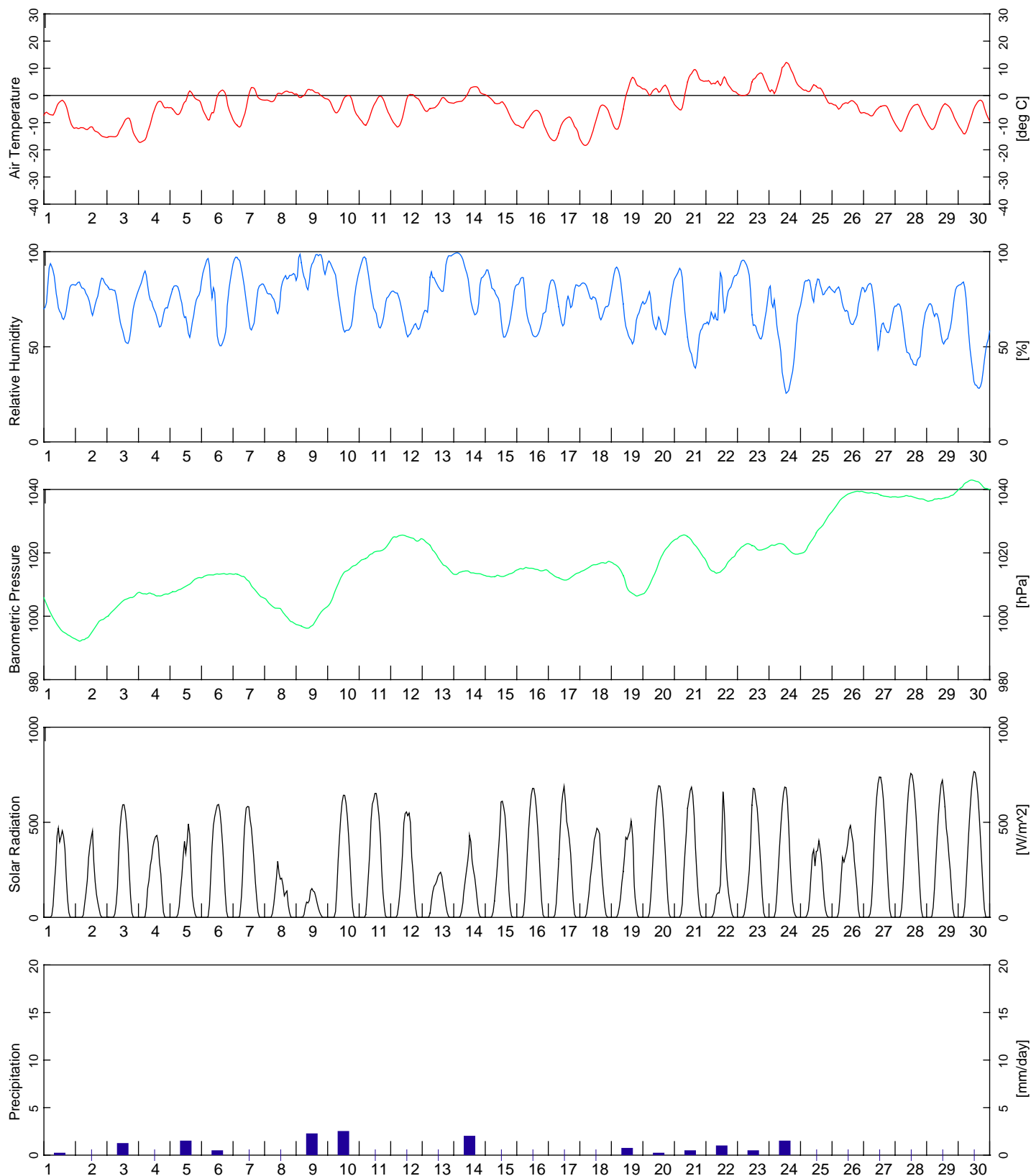
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Figure D-07



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**Tyhee Station
Weather Data
April 2005**

PROJECT NO.
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DWN
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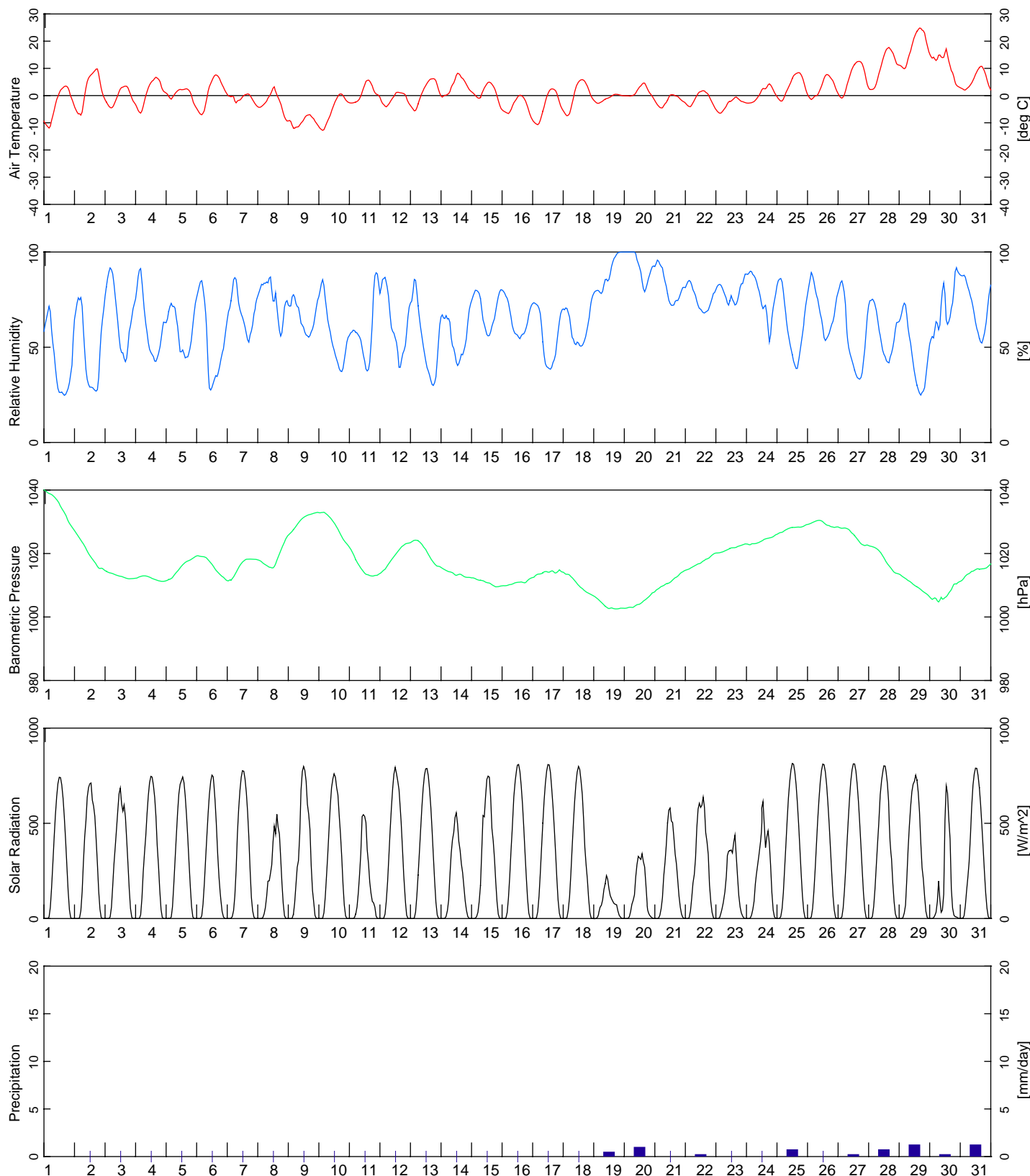
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Figure D-08



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Weather Data
May 2005**

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DWN
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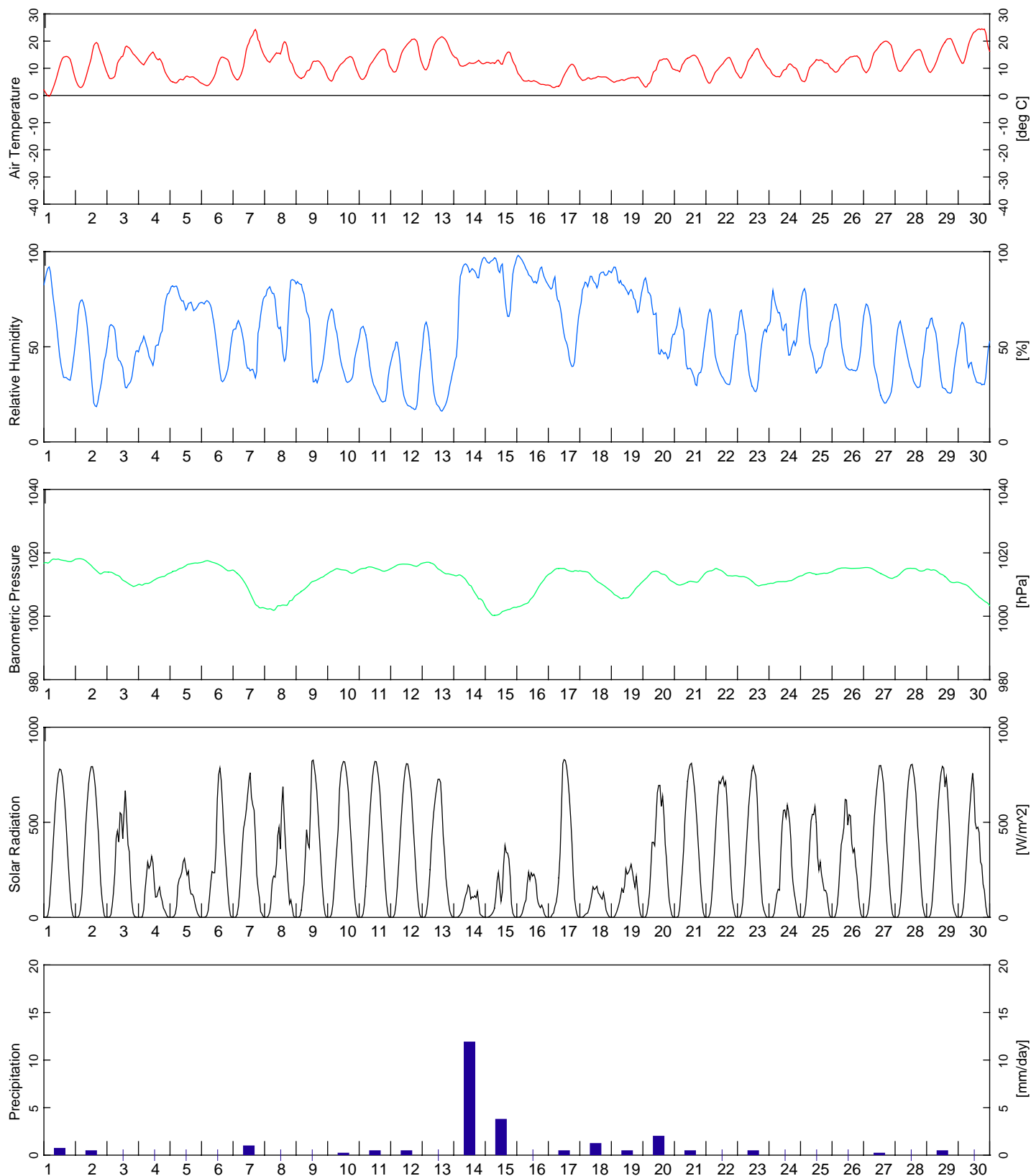
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Figure D-09



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**Tyhee Station
Weather Data
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Y22101057

DWN
RED

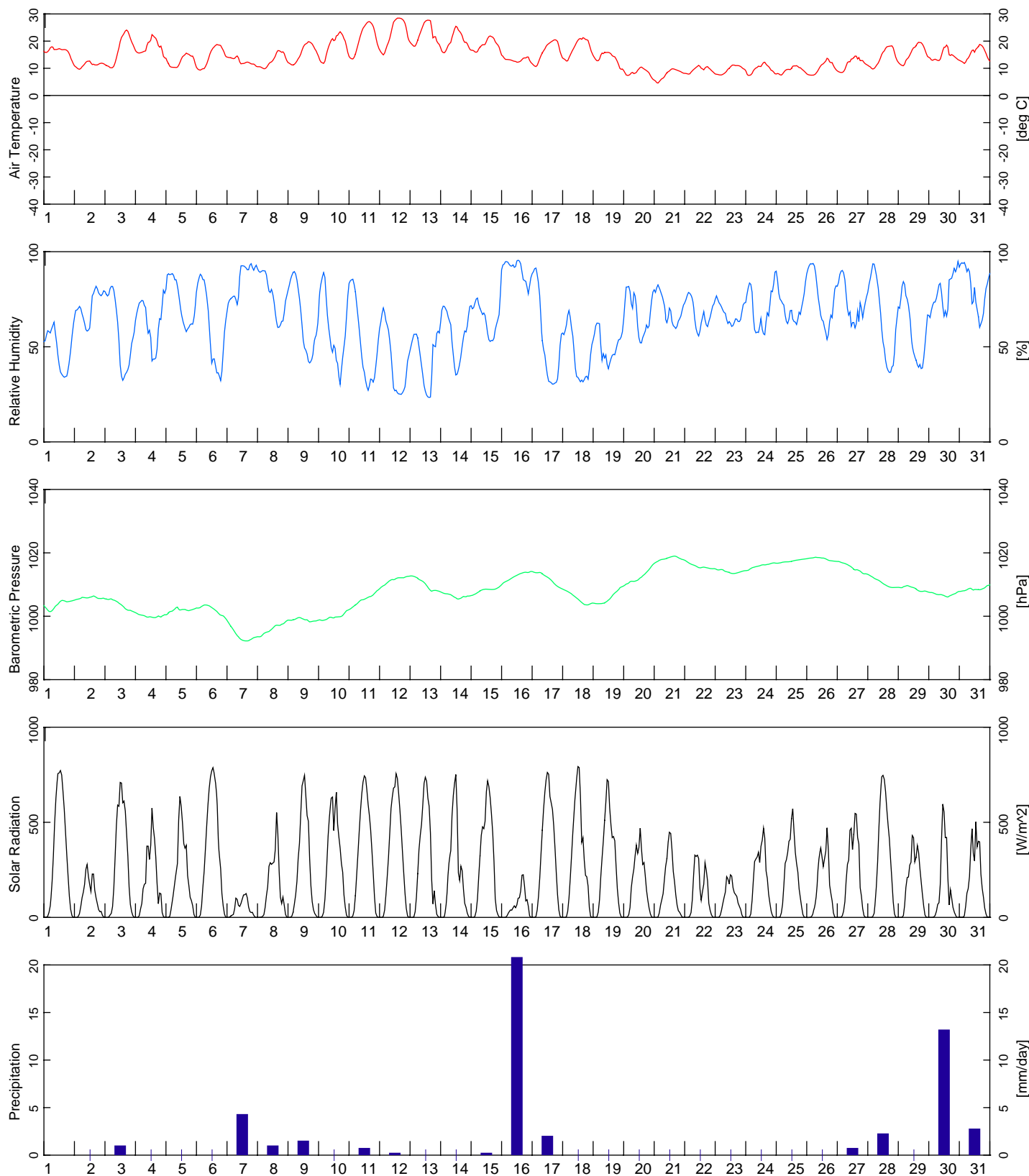
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Figure D-10



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Weather Data
July 2005**

PROJECT NO.
Y22101057

DWN
RED

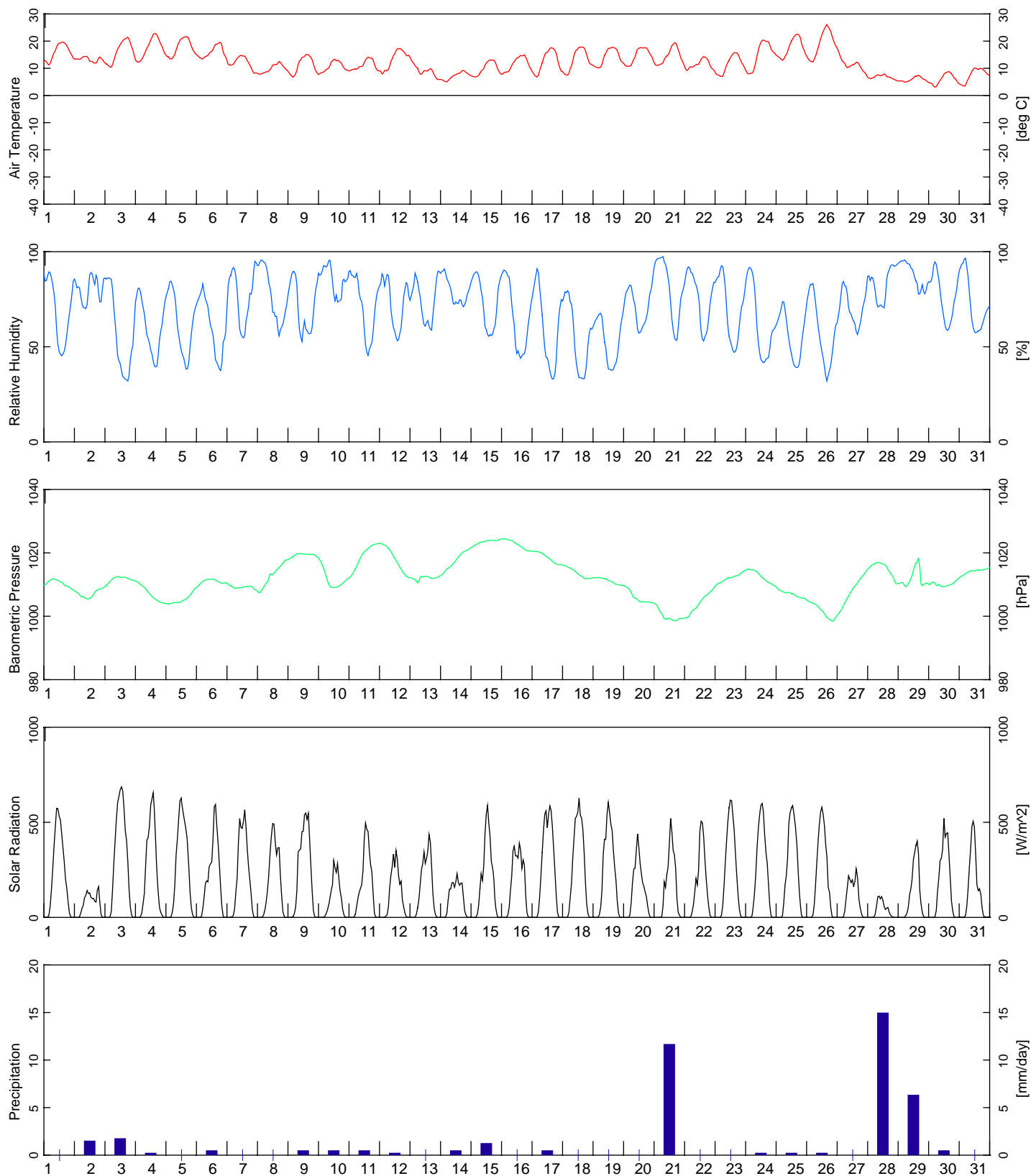
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Figure D-11



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PROJECT NO.
Y22101057

DWN
RED

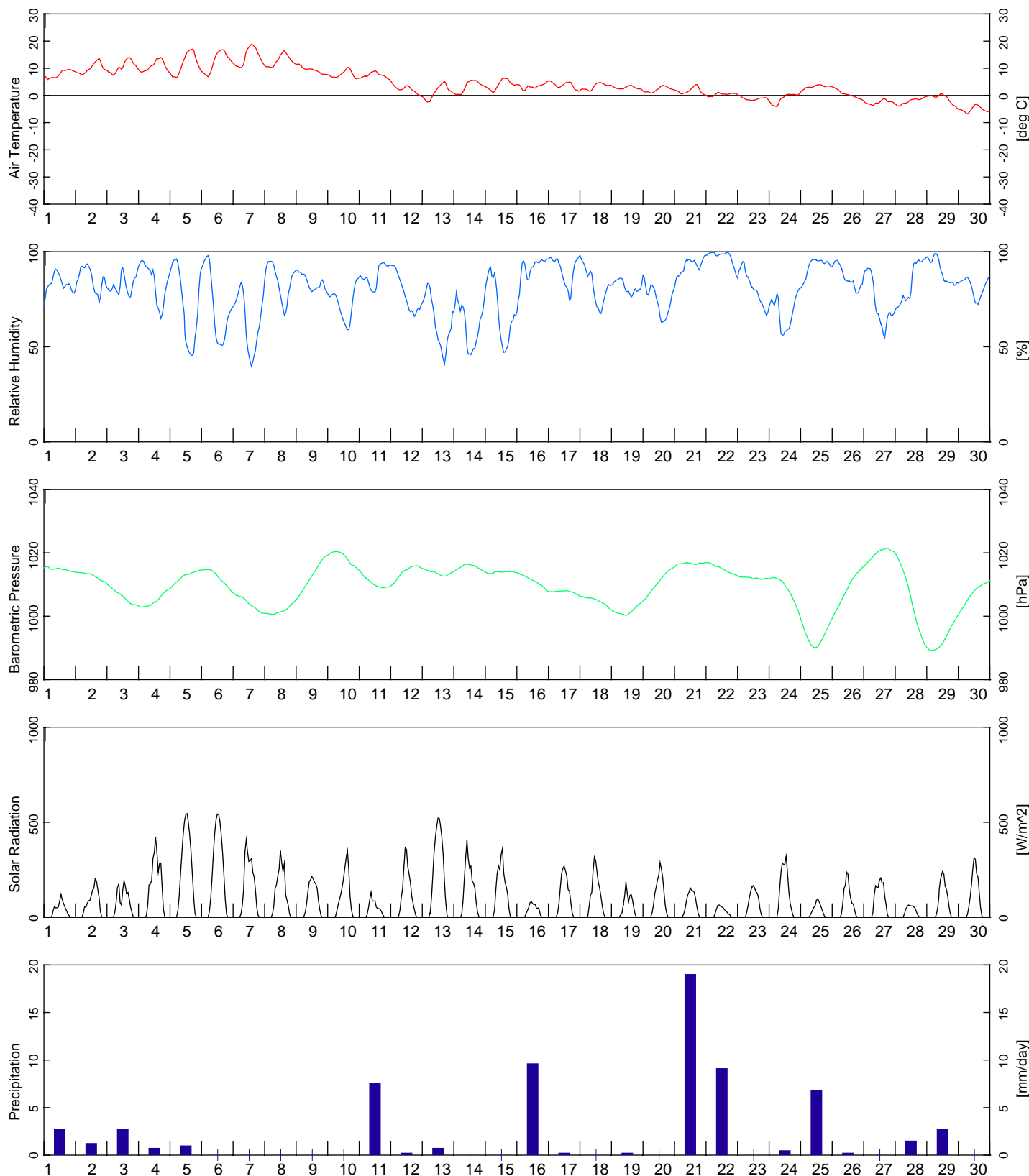
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Figure D-12



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**Tyhee Station
Weather Data
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PROJECT NO.
Y22101057

DWN
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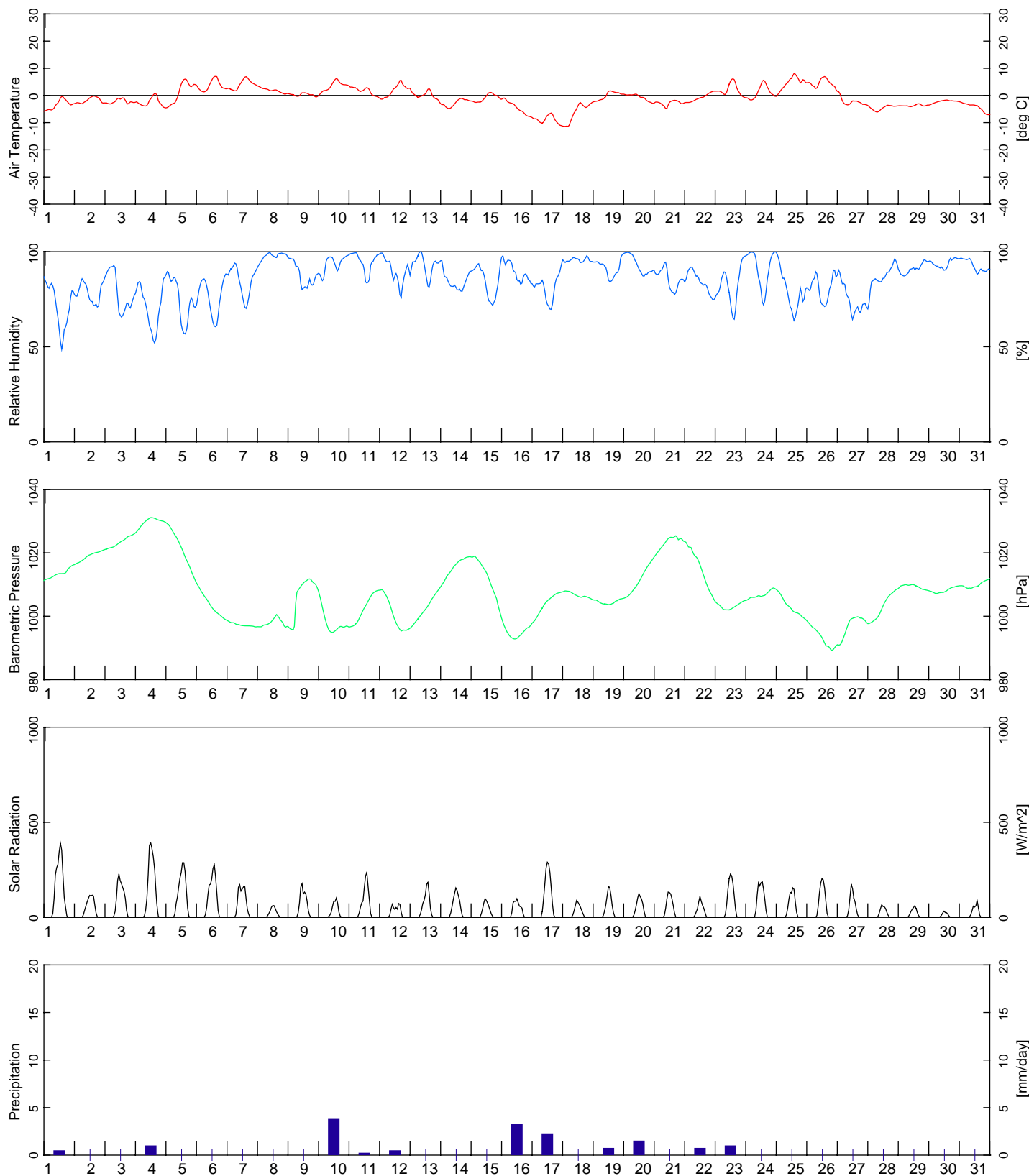
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Figure D-13



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**Tyhee Station
Weather Data
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DWN

RED

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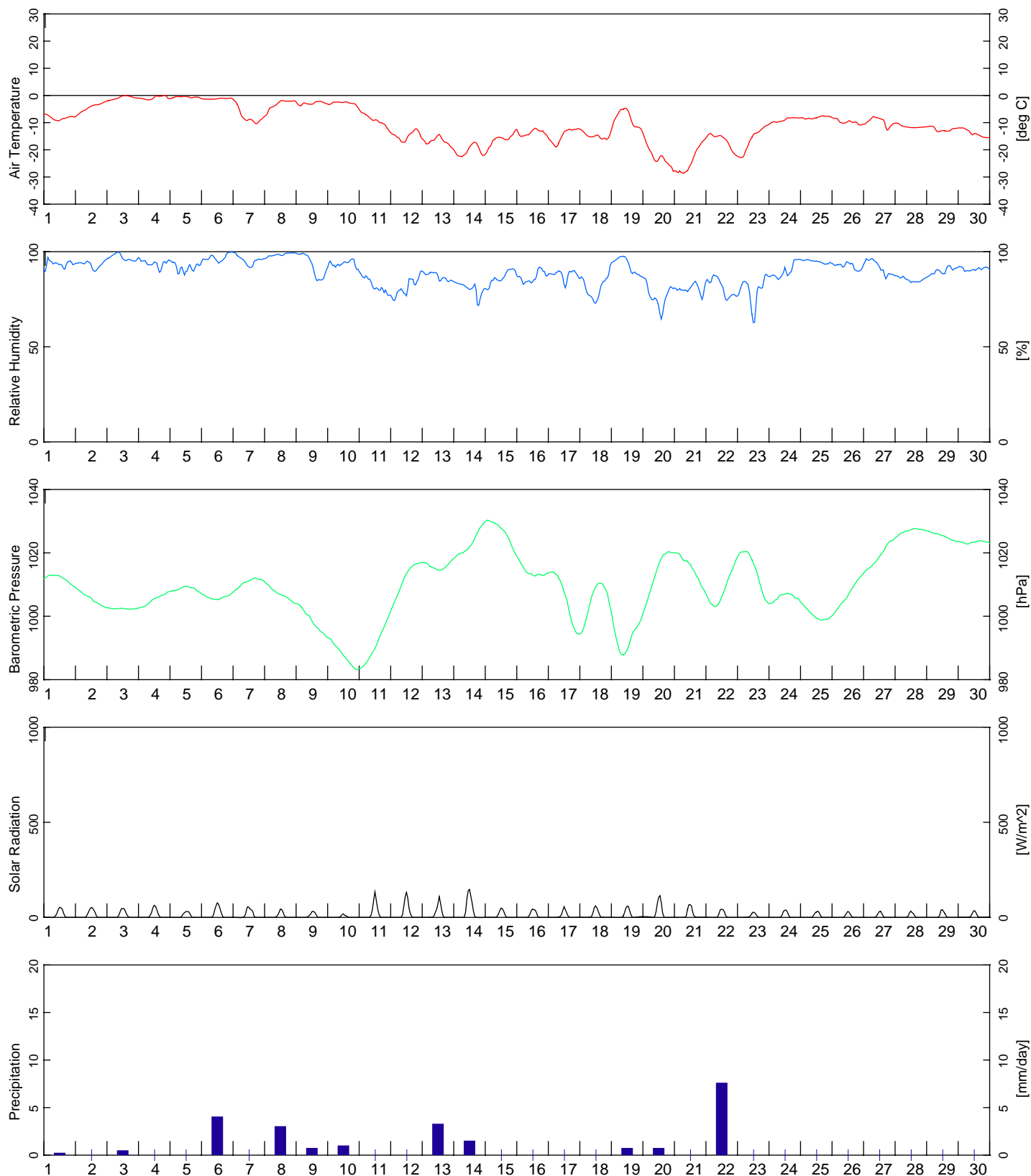
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Figure D-14



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**Tyhee Station
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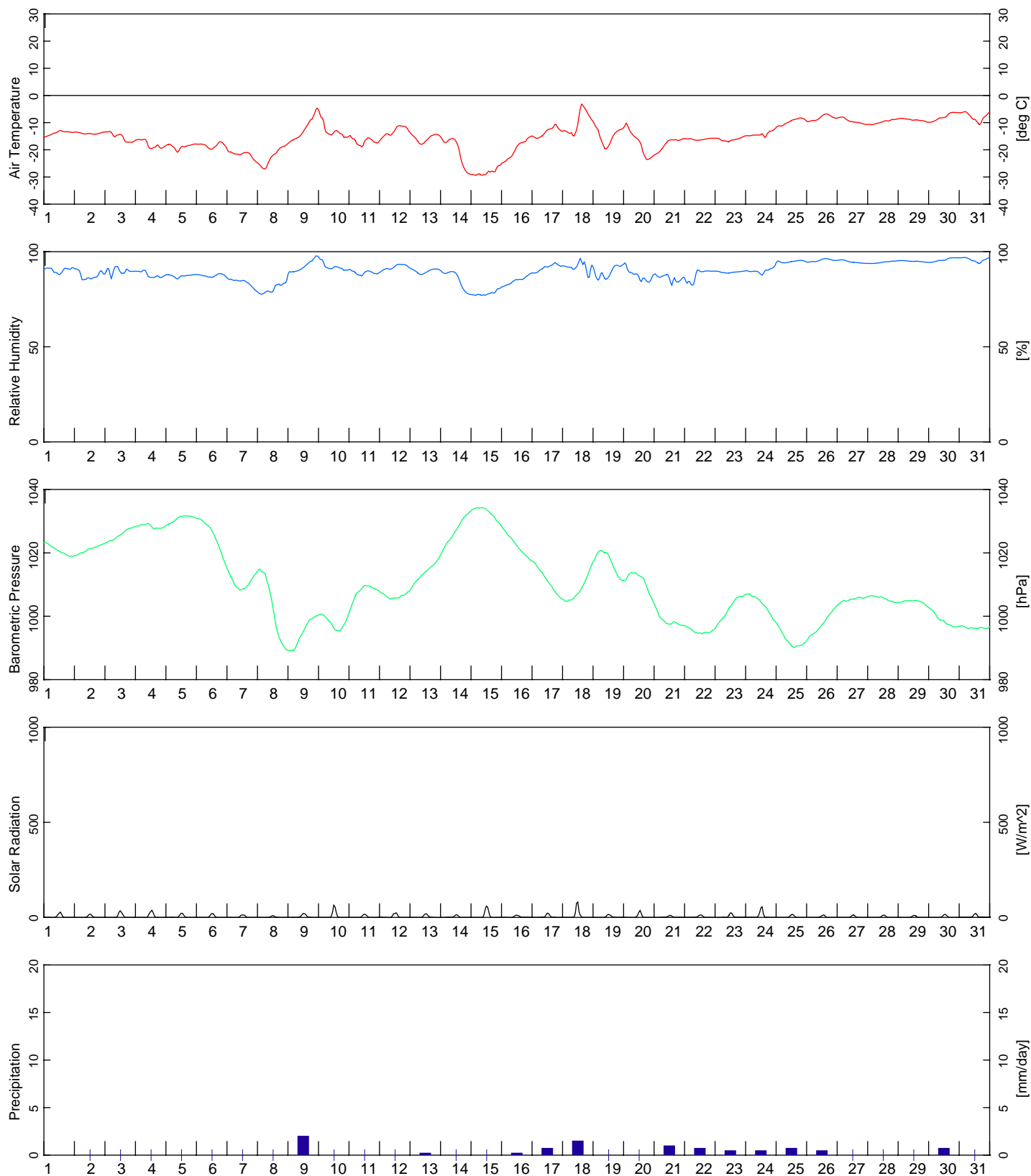
DWN
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Figure D-15



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**Tyhee Station
Weather Data
December 2005**

PROJECT NO.
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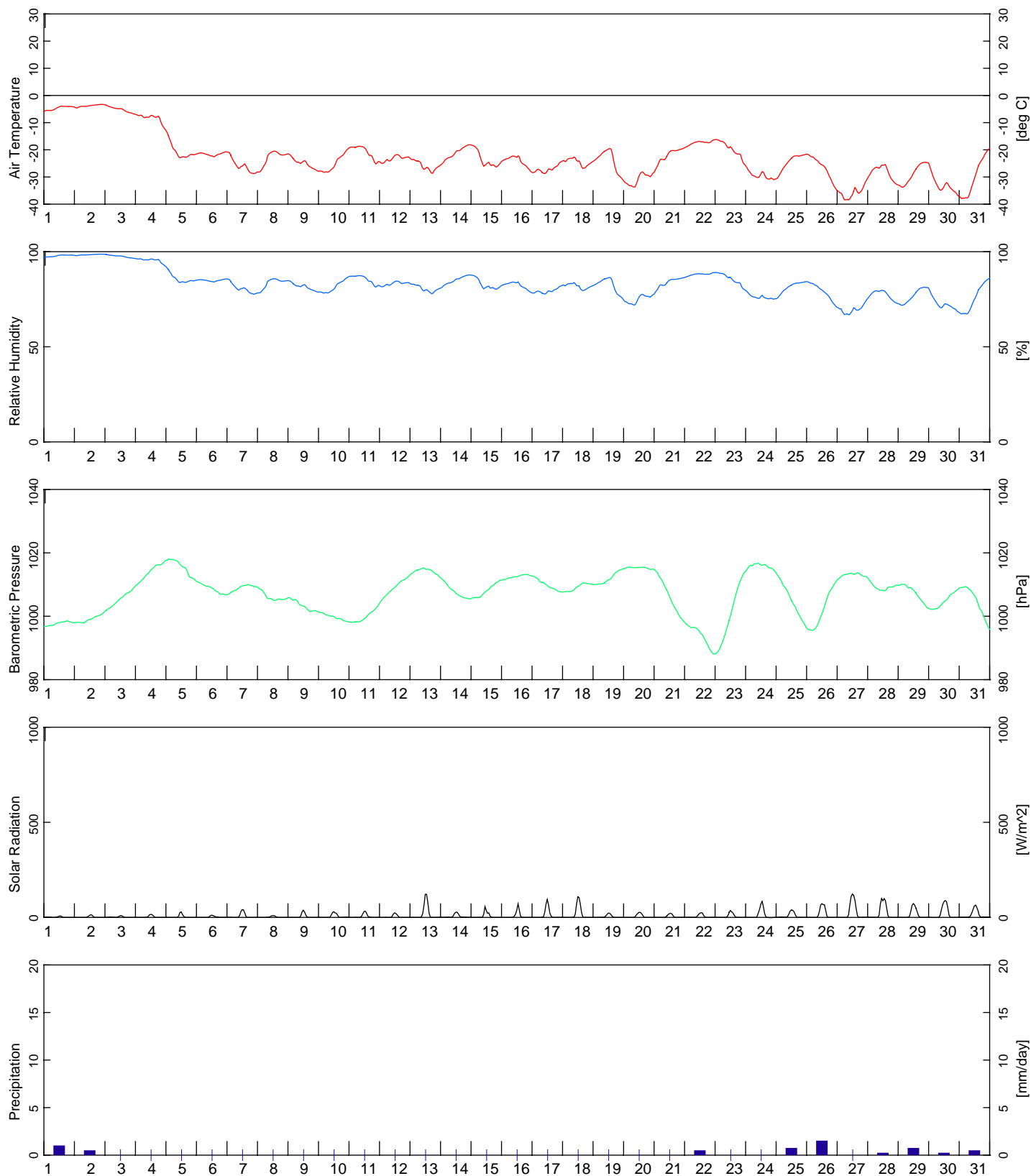
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Figure D-16



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Weather Data
January 2006**

PROJECT NO.
Y22101057

DWN
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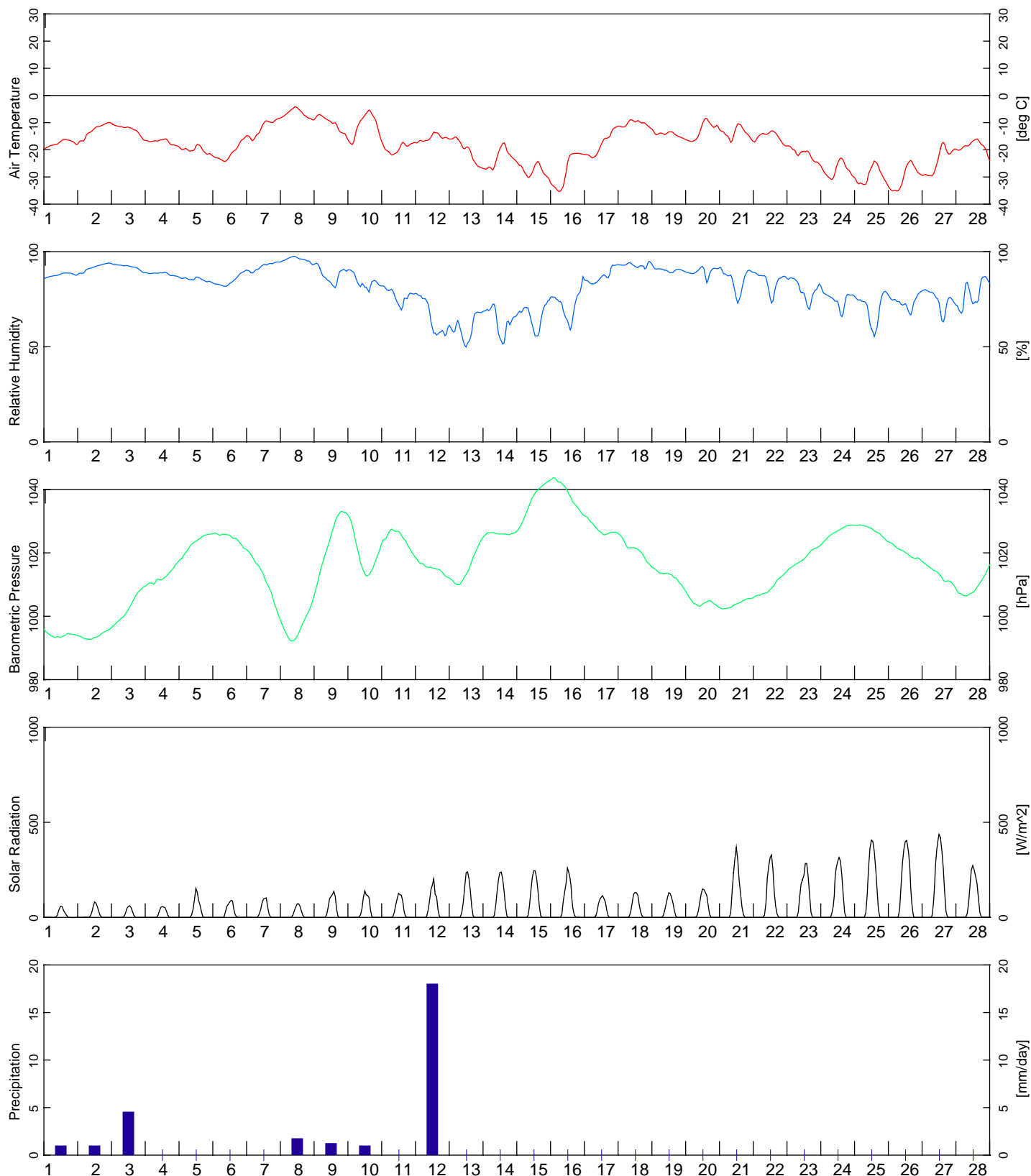
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Figure D-17



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**Tyhee Station
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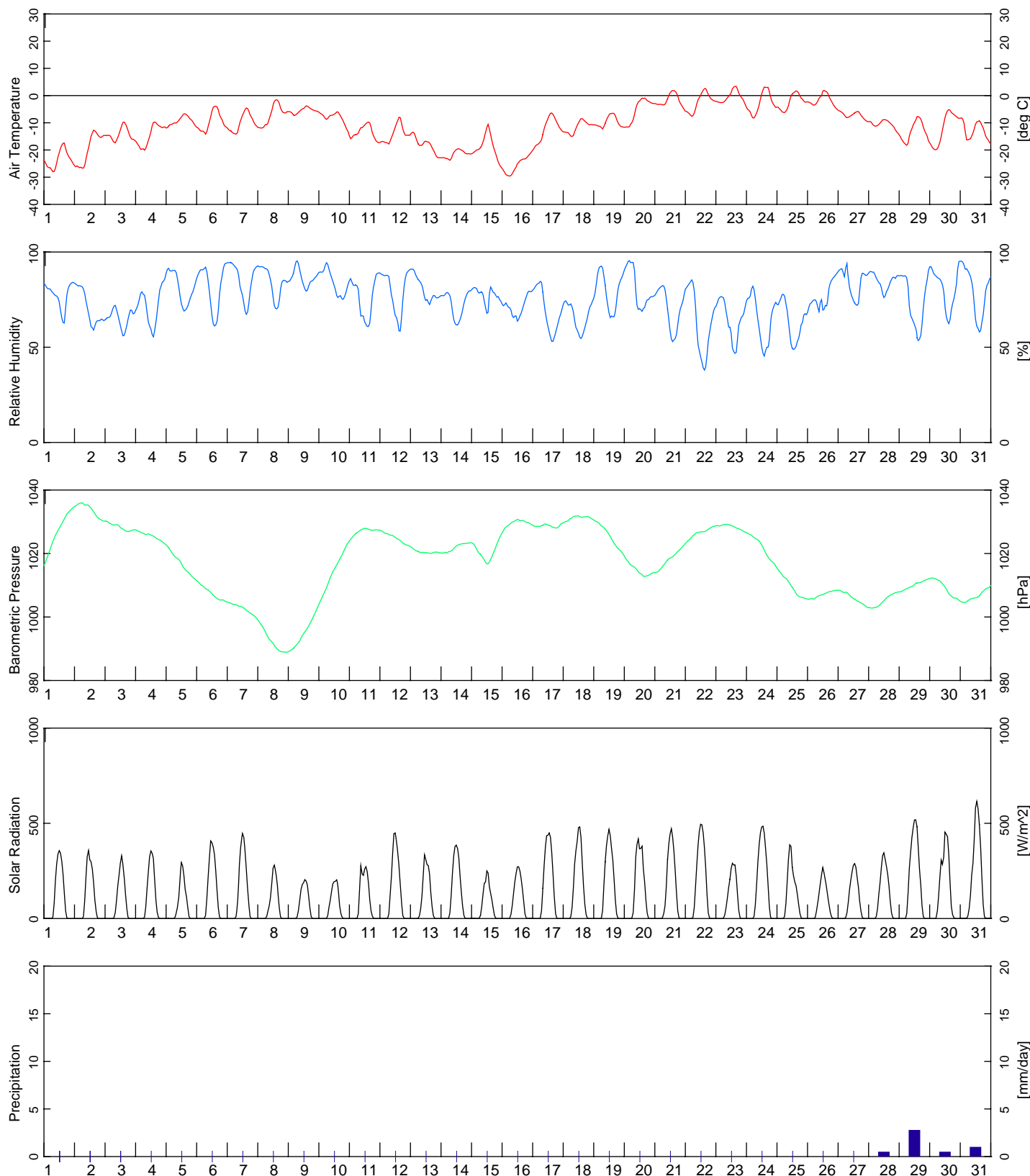
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Figure D-18



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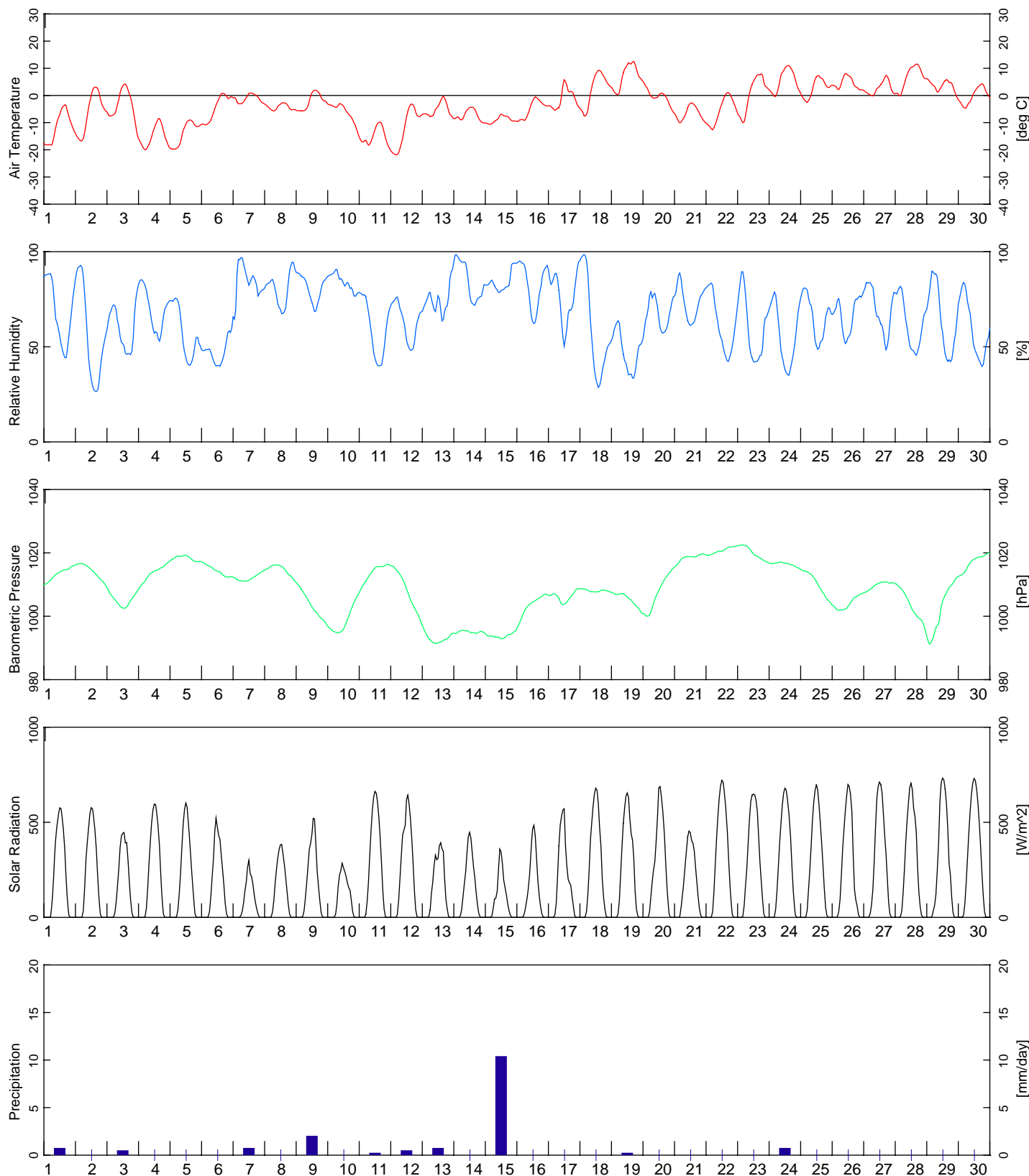
**Tyhee Station
Weather Data
March 2006**

PROJECT NO.
Y22101057
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Figure D-19



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**Tyhee Station
Weather Data
April 2006**

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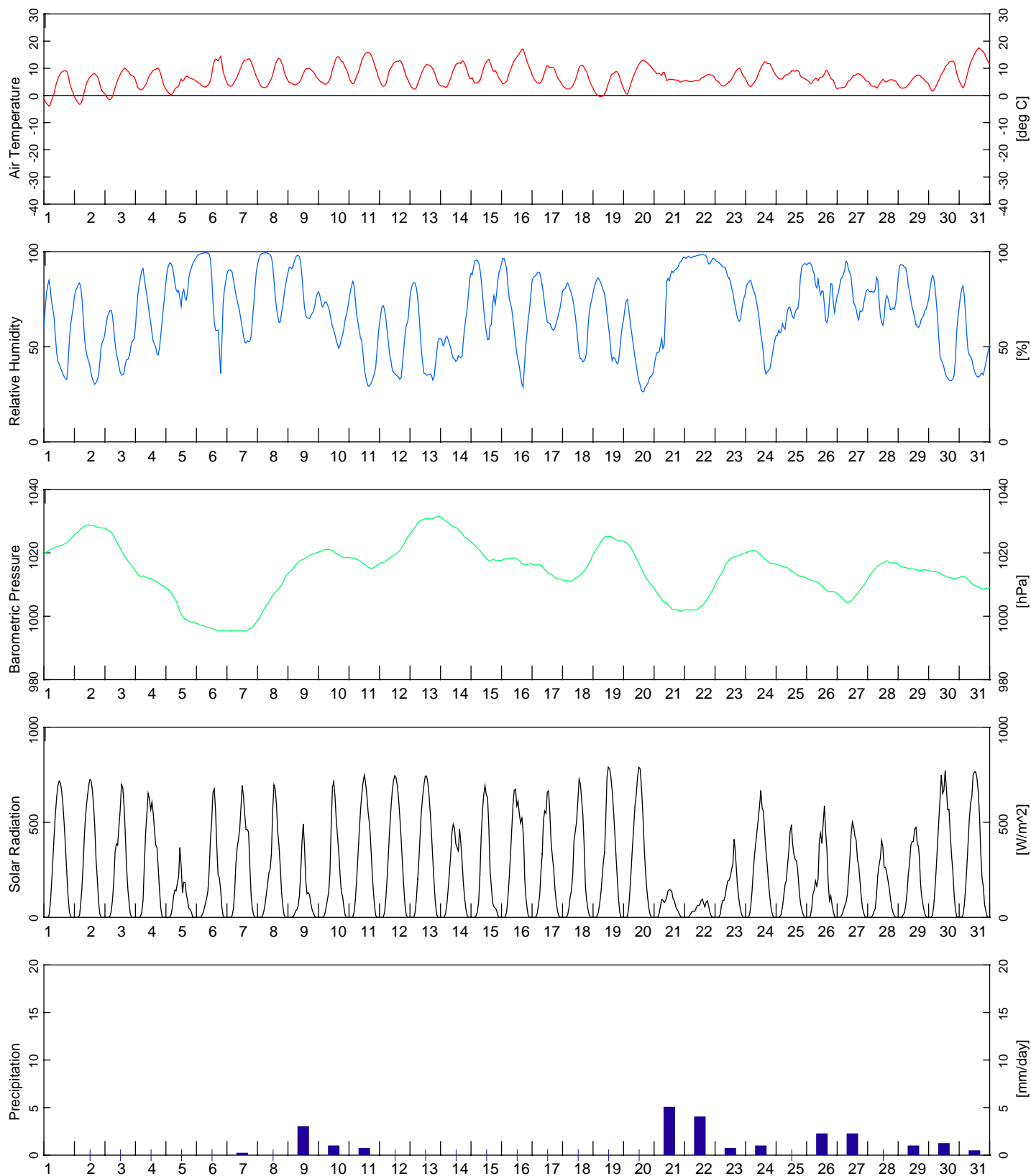
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Figure D-20



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**Tyhee Station
Weather Data
May 2006**

PROJECT NO.

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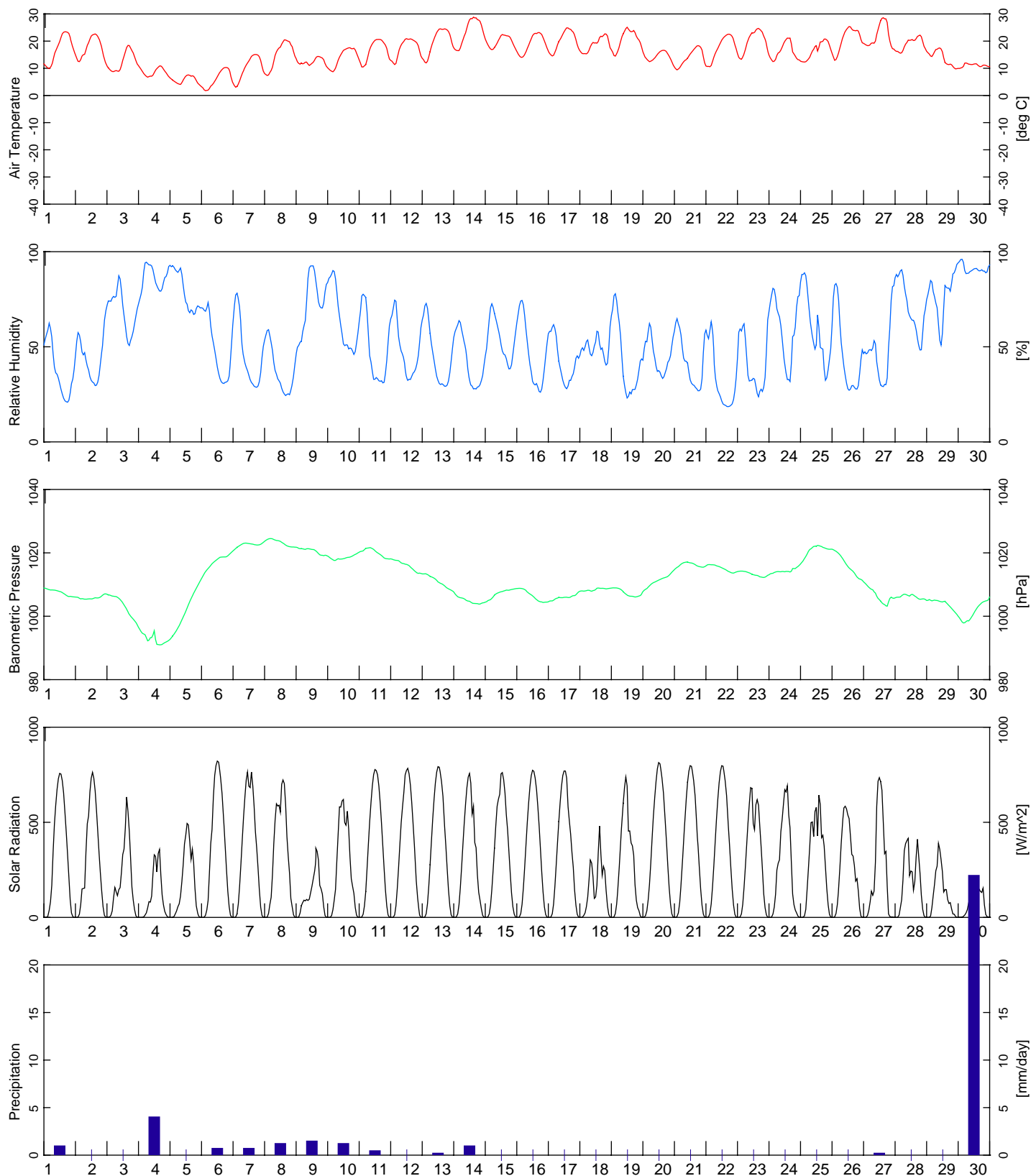
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Figure D-21



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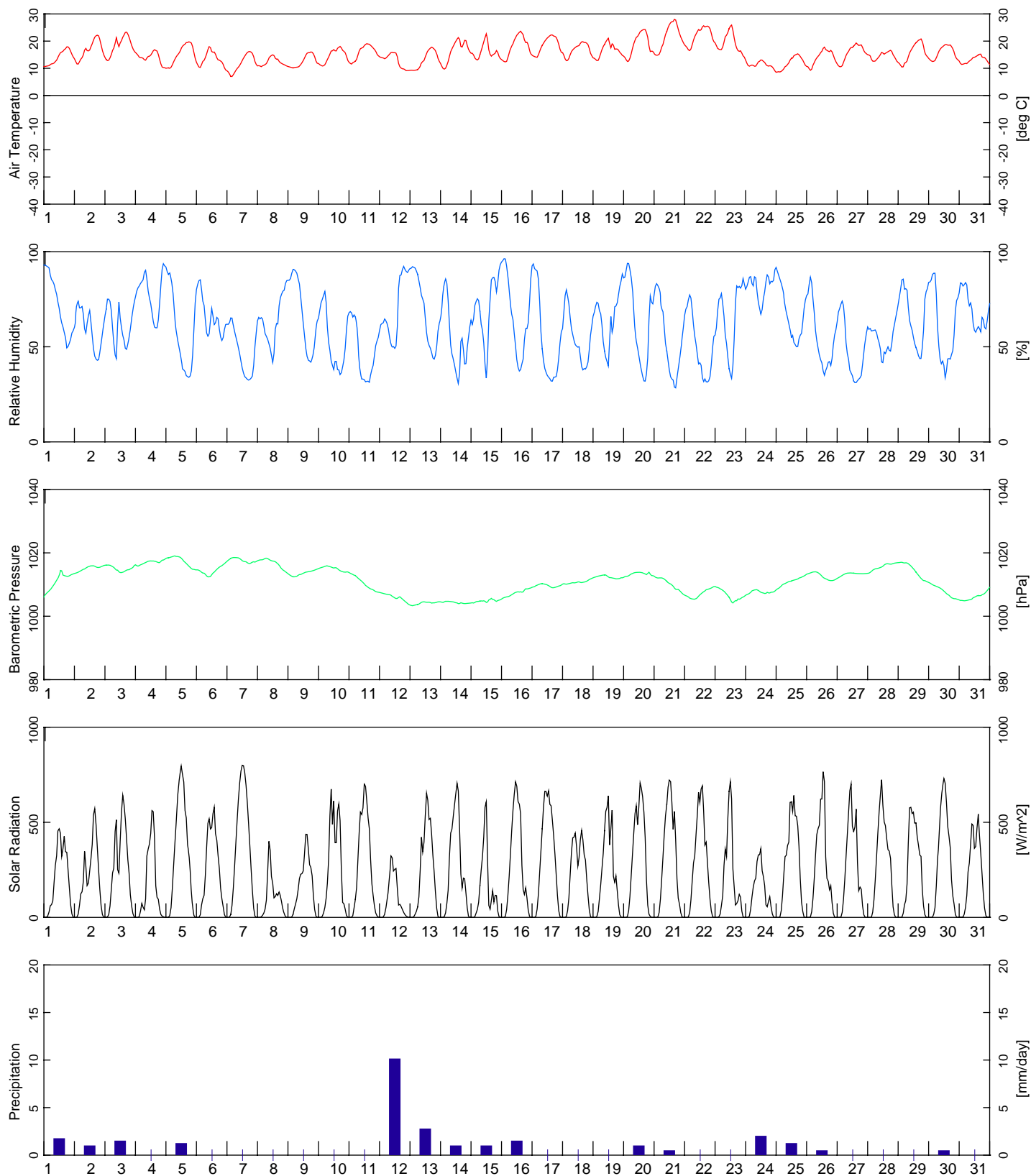
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Figure D-22



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**Tyhee Station
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PROJECT NO.
Y22101057

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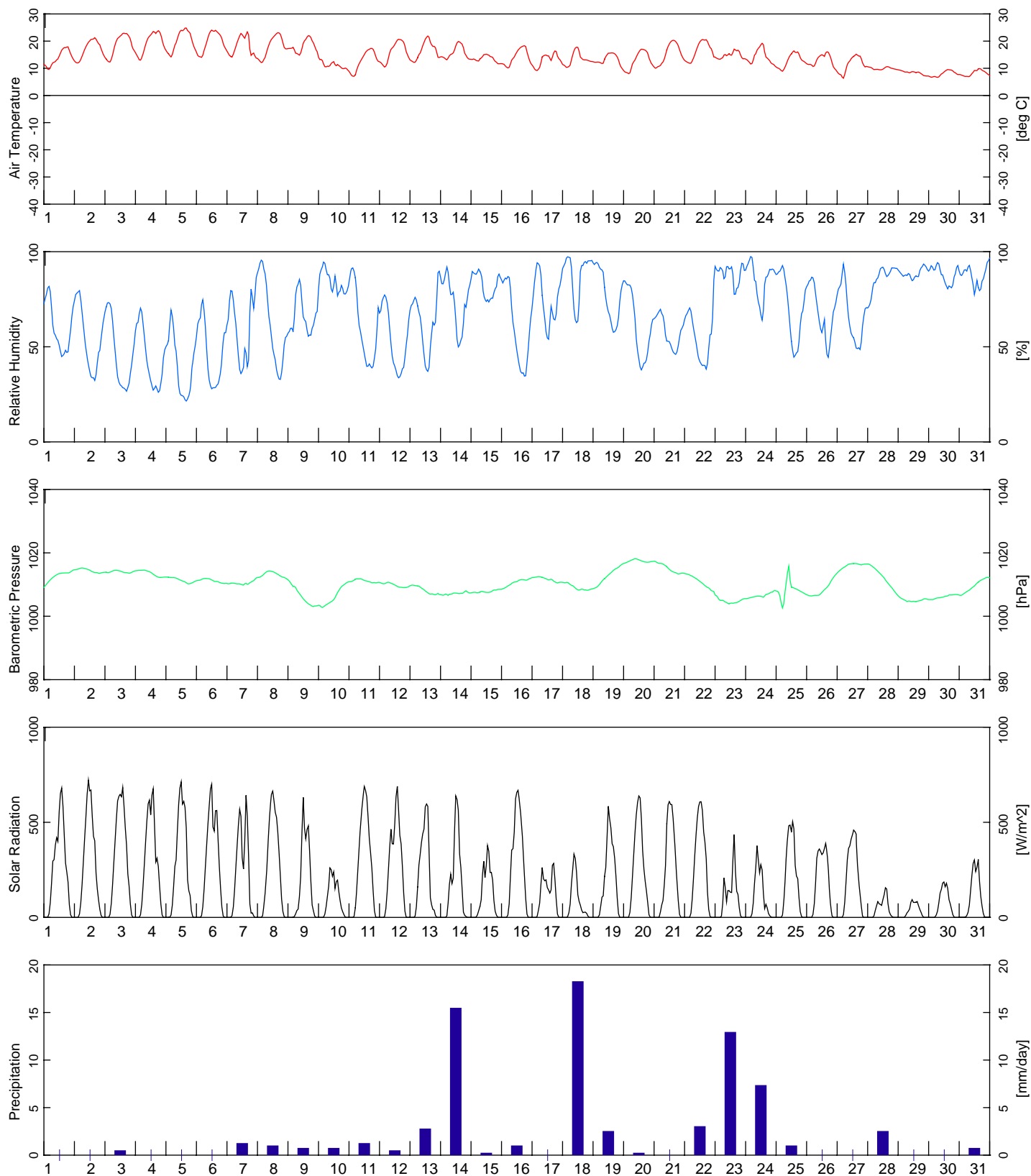
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Figure D-23



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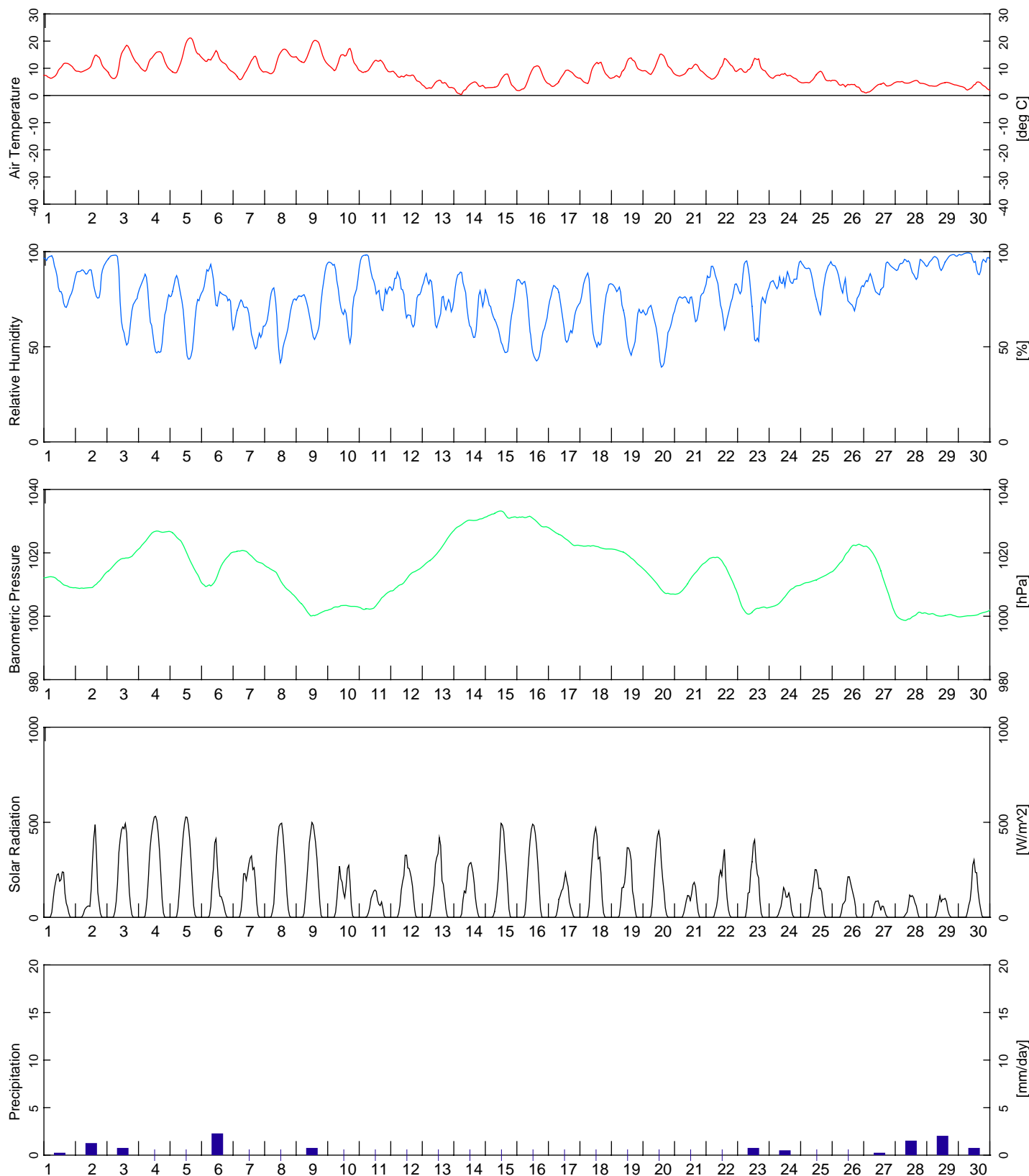
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Figure D-24



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**Tyhee Station
Weather Data
September 2006**

PROJECT NO.
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DWN
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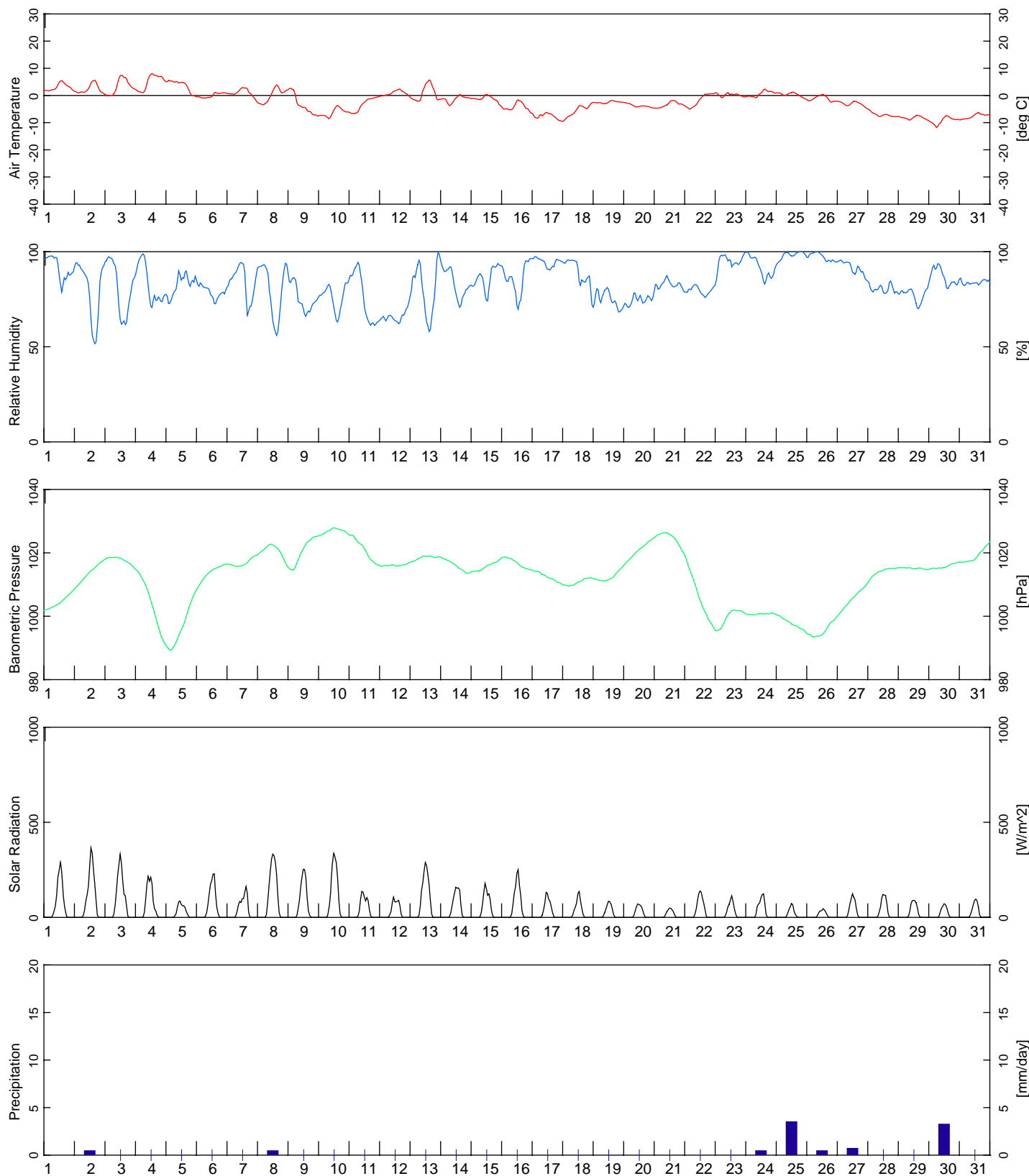
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Figure D-25



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**Tyhee Station
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DWN
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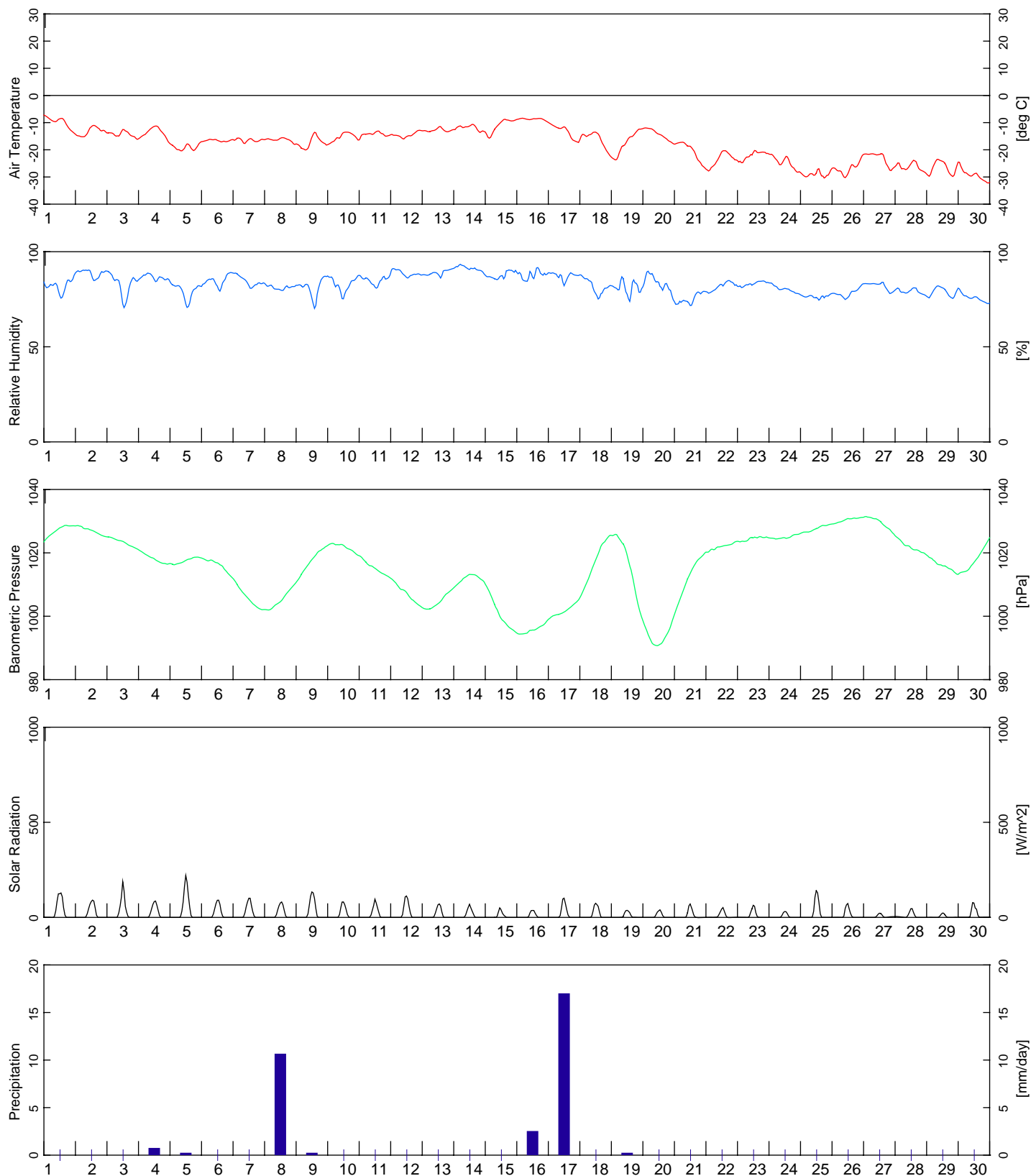
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Figure D-26



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**Tyhee Station
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DWN
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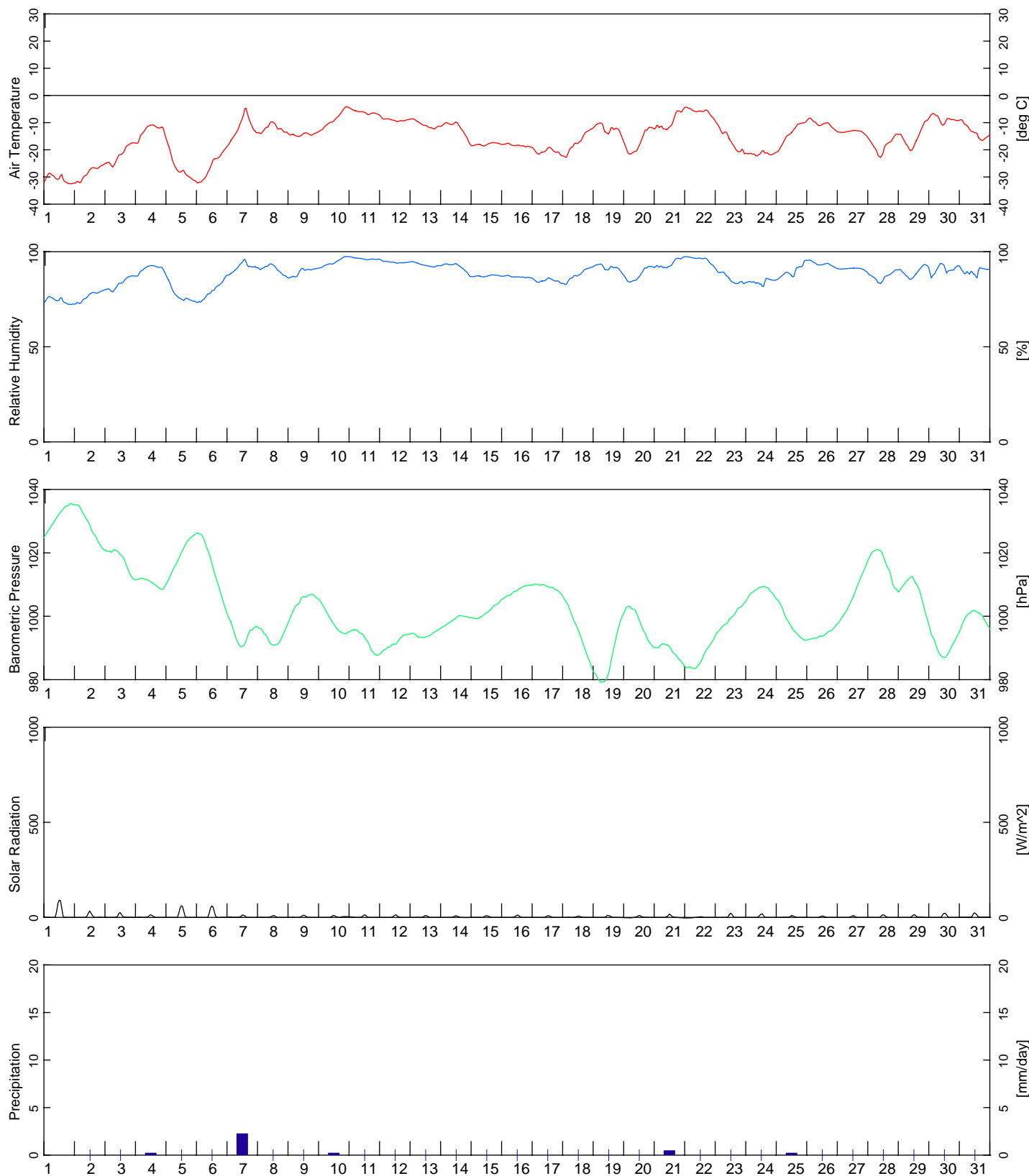
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Figure D-27



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**Tyhee Station
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DWN

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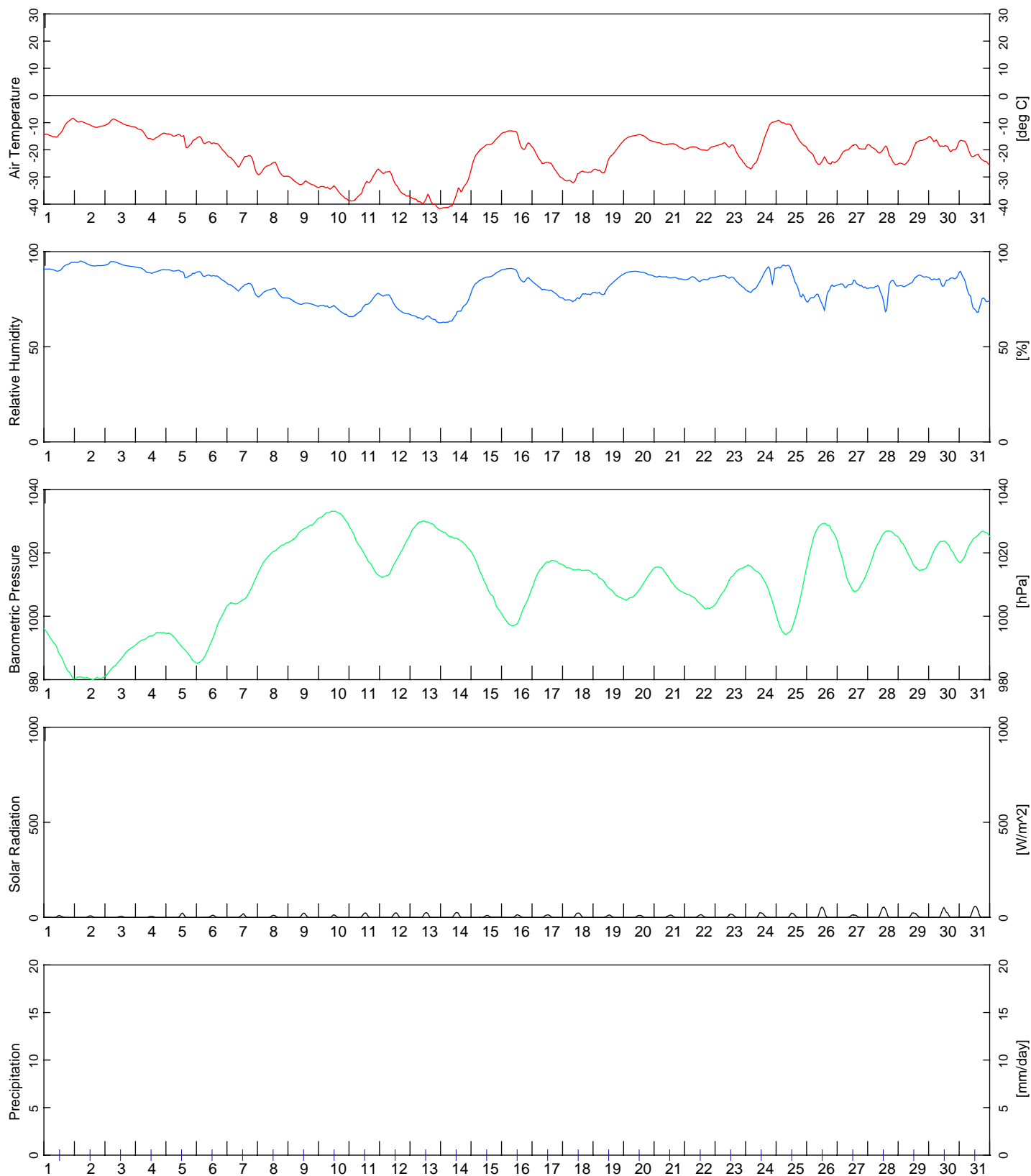
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Figure D-28



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**Tyhee Station
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January 2007**

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DWN
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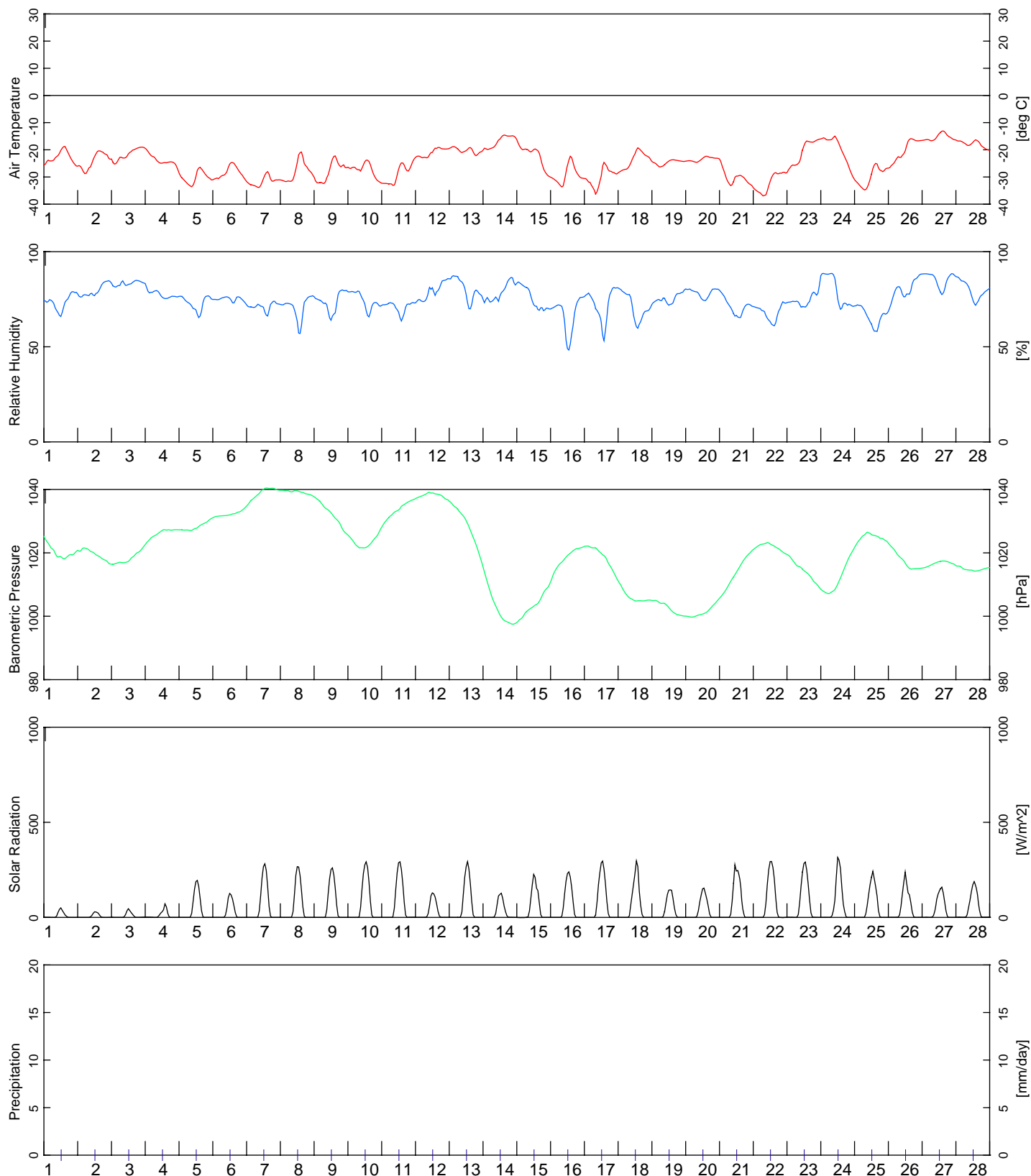
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Figure D-29



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**Tyhee Station
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February 2007**

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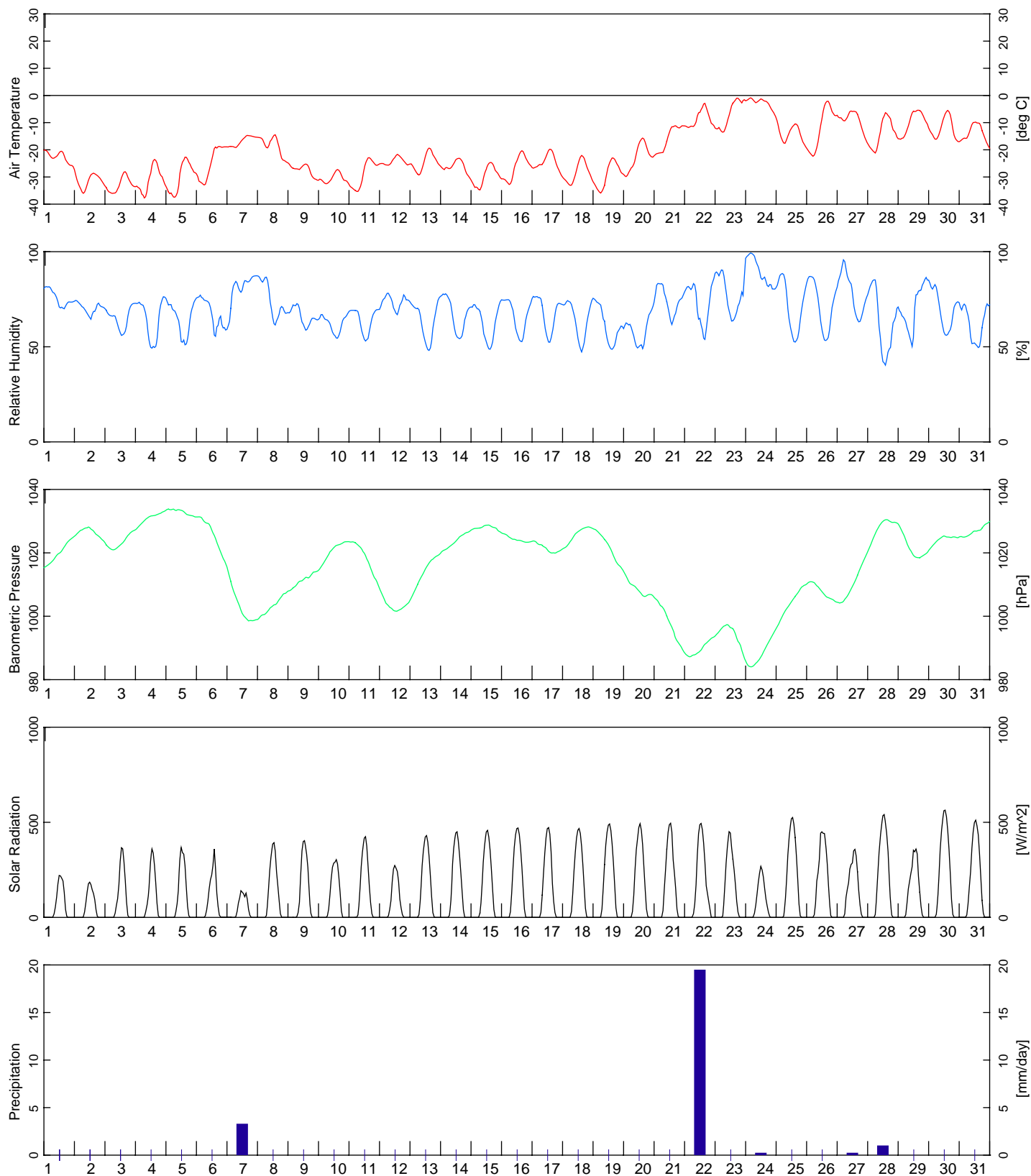
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**Tyhee Station
Weather Data
March 2007**

PROJECT NO.
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DWN
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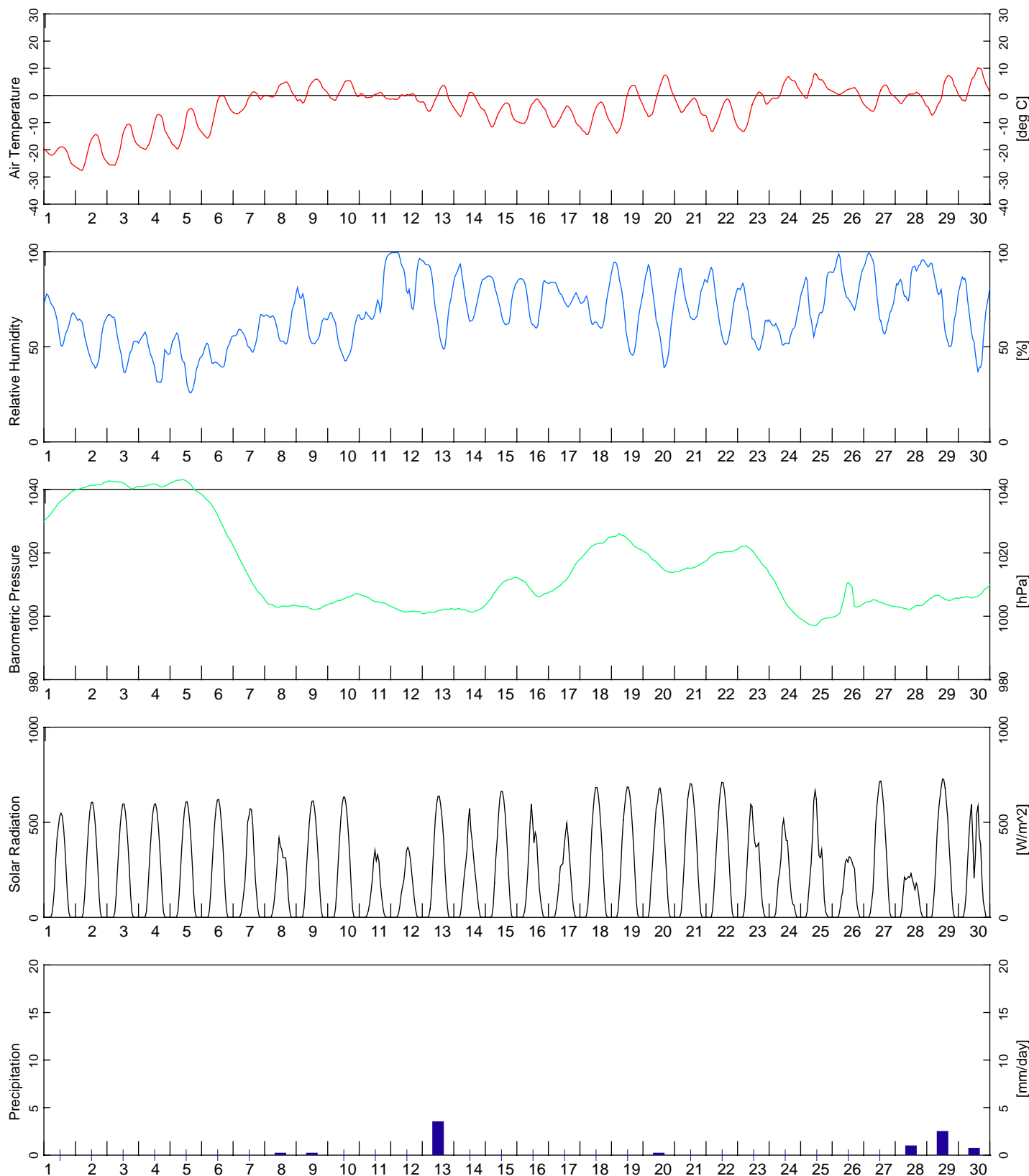
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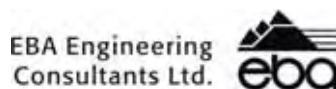
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Figure D-31



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Weather Data
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PROJECT NO.
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DWN
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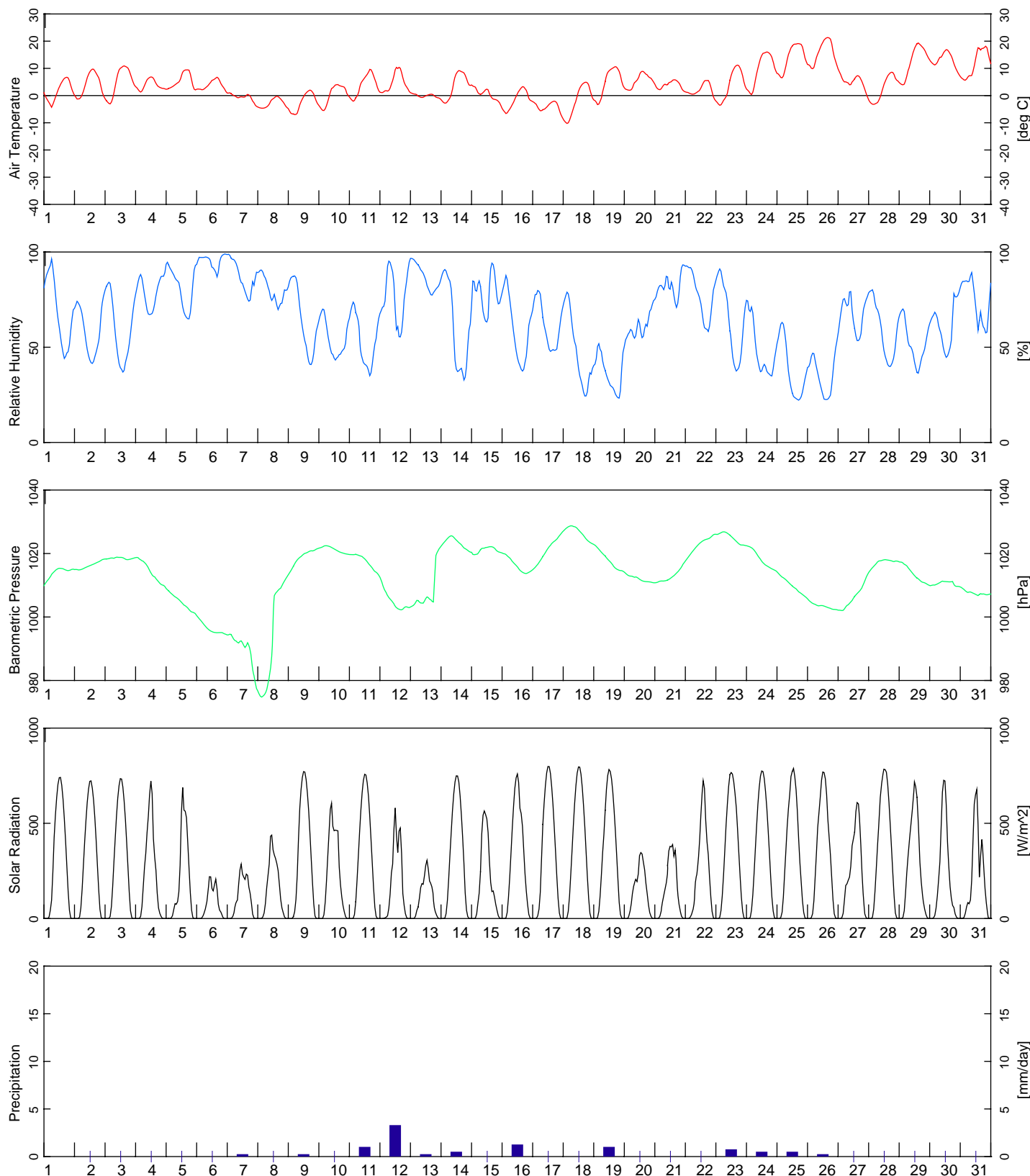
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Figure D-32



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
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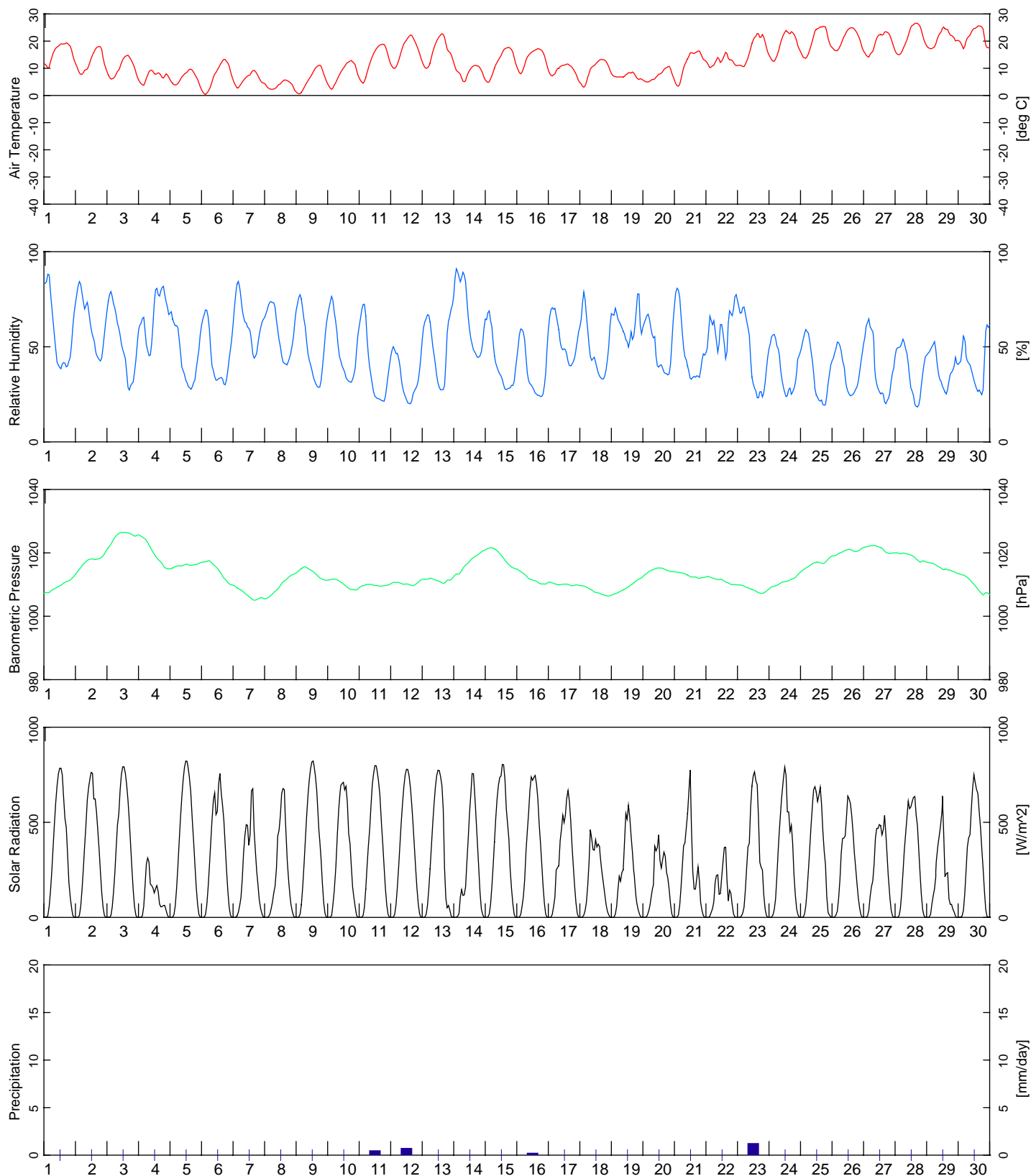
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Figure D33



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Weather Data
June 2007**

PROJECT NO.
Y22101057

DWN
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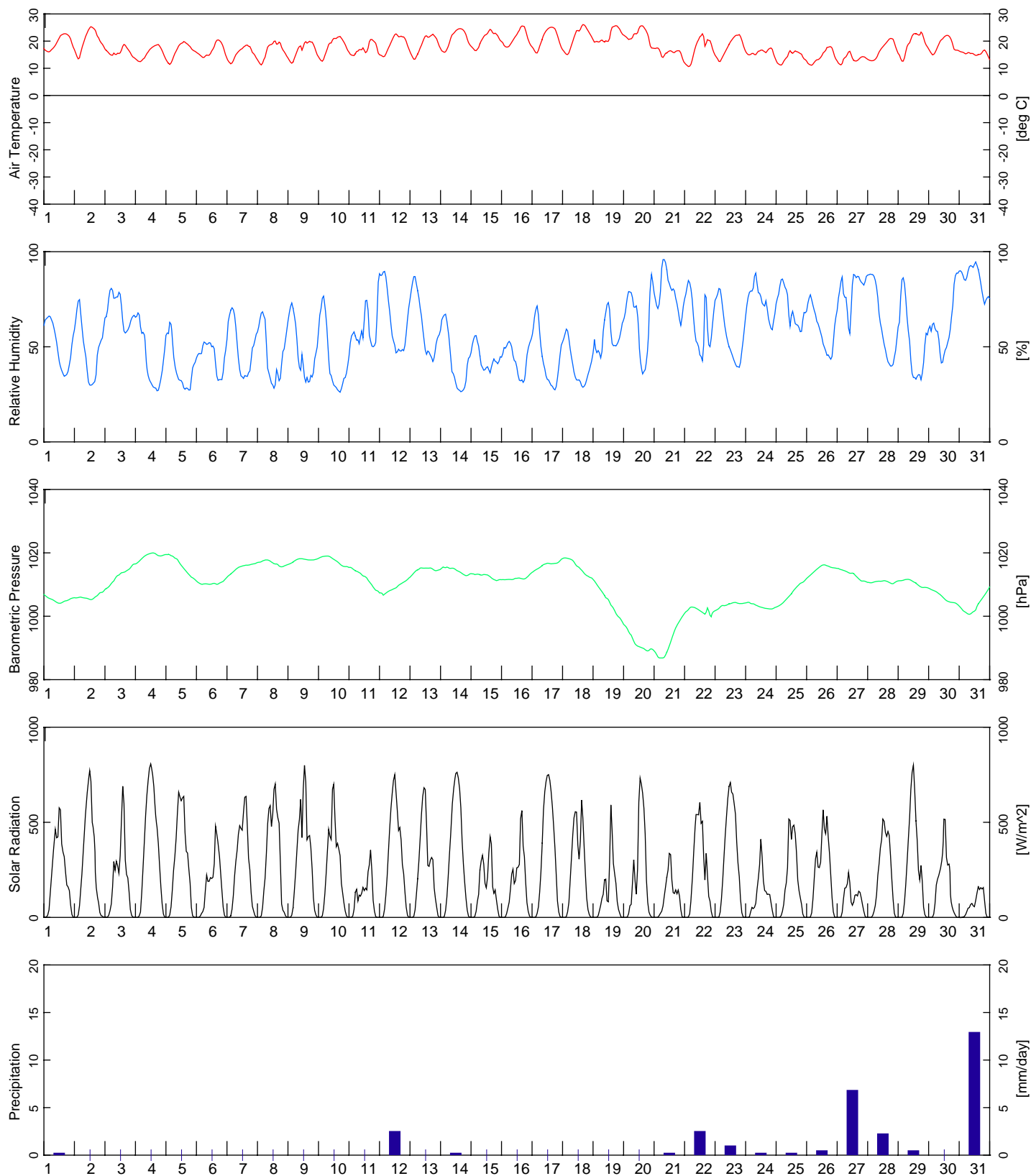
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**Tyhee Station
Weather Data
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PROJECT NO.
Y22101057

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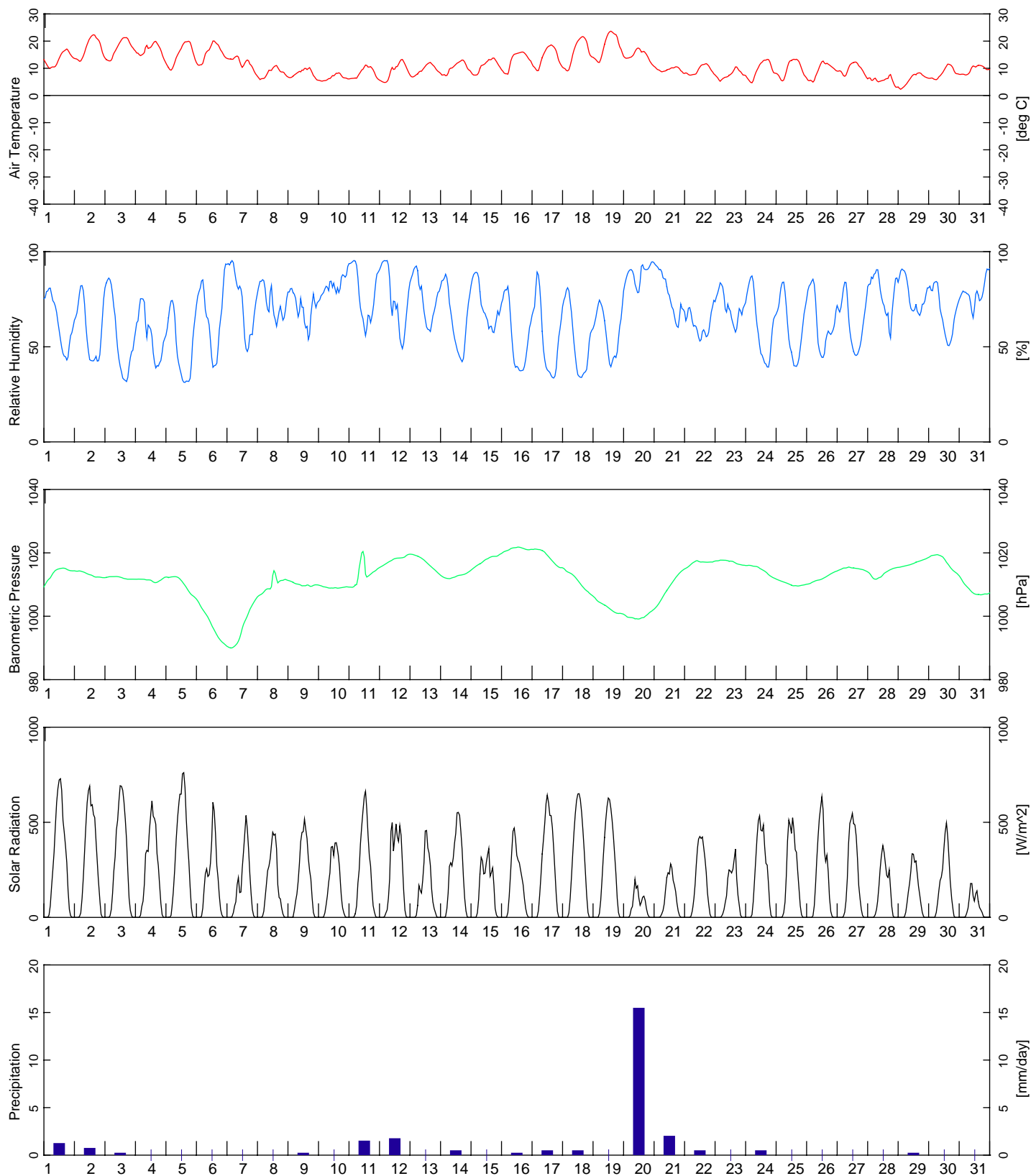
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Figure D-35



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**Tyhee Station
Weather Data
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PROJECT NO.
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DWN
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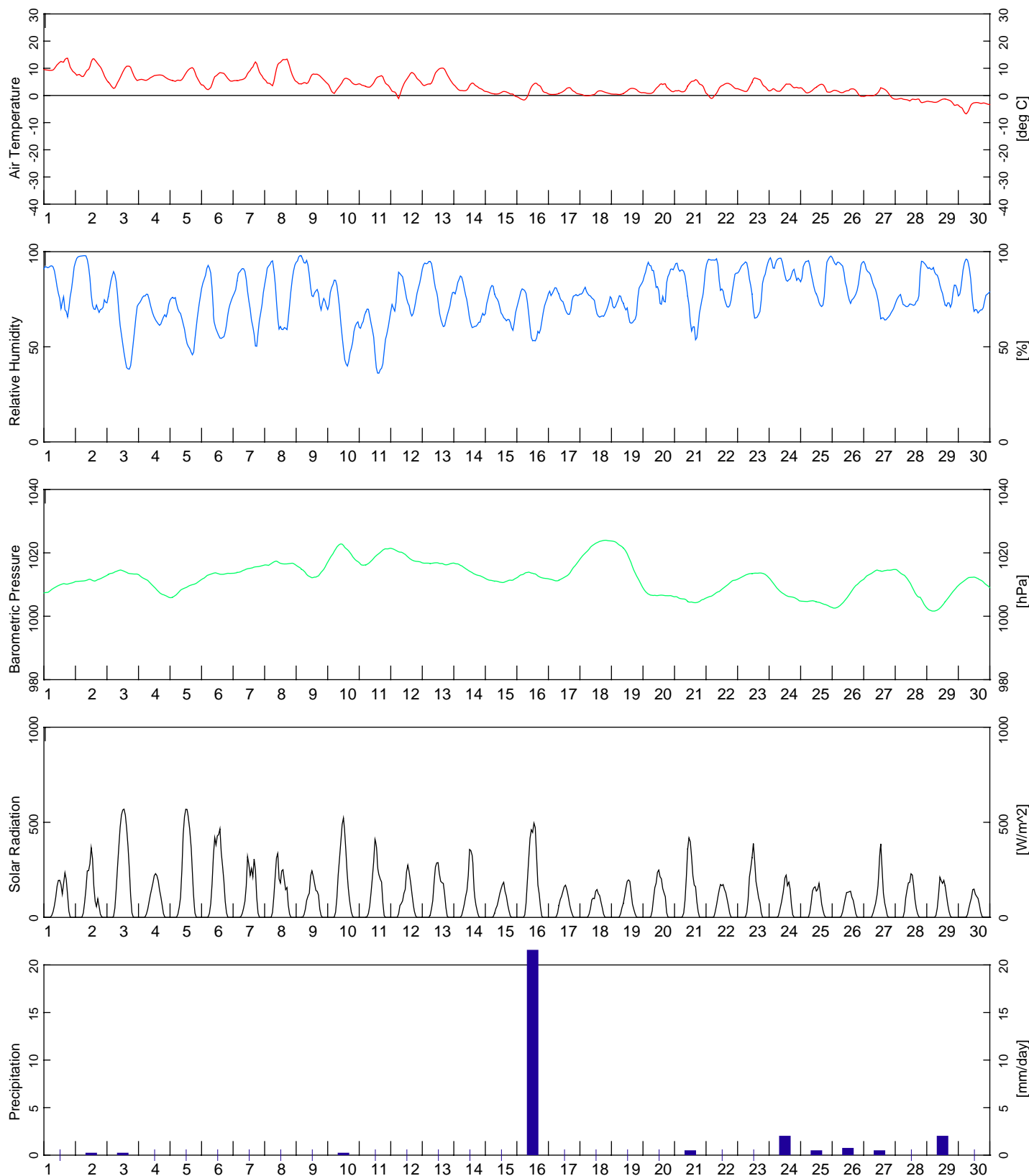
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Figure D-36



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**Tyhee Station
Weather Data
September 2007**

PROJECT NO.
Y22101057

DWN
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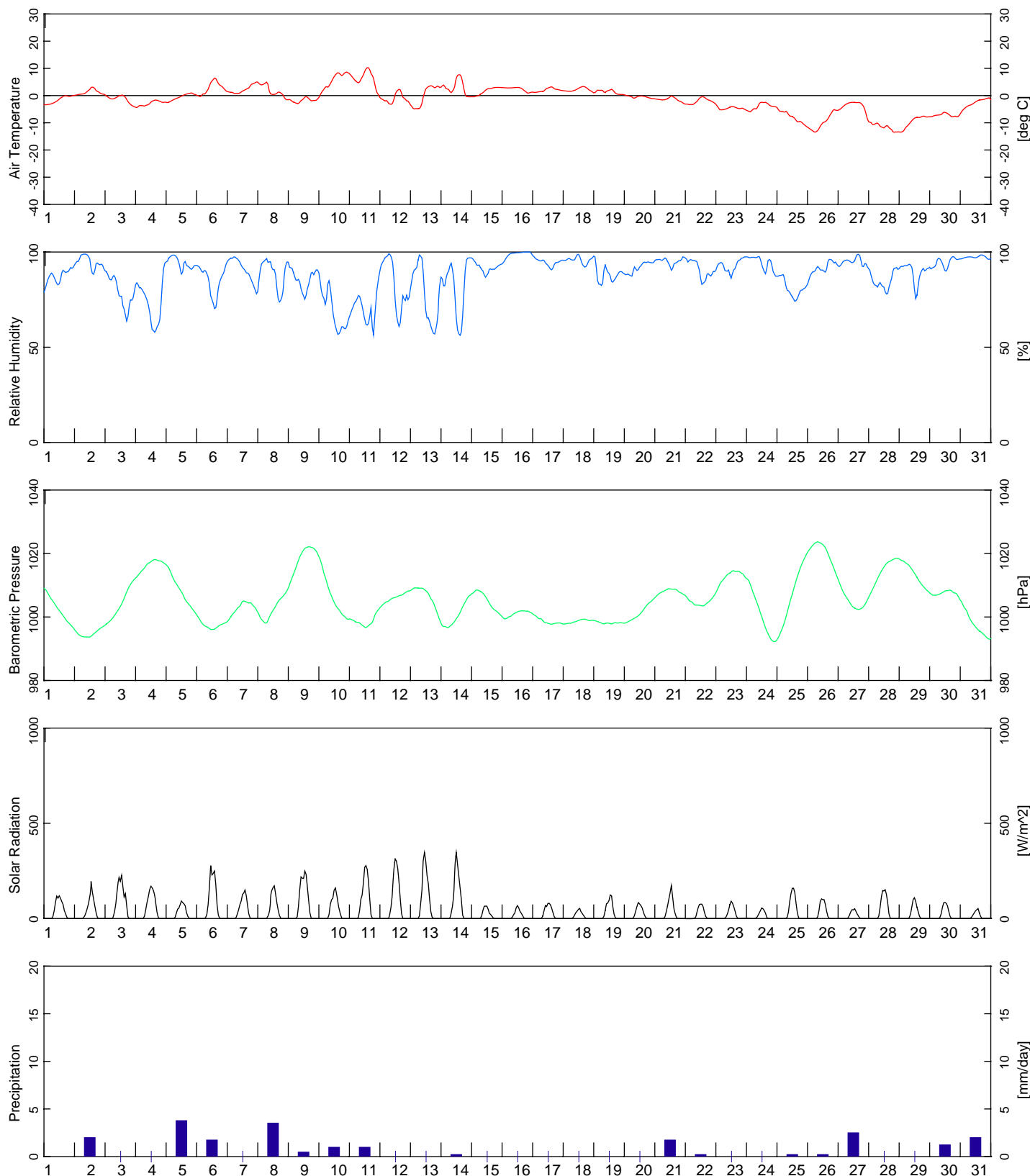
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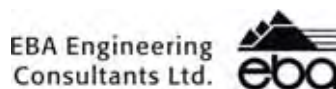
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Figure D-37



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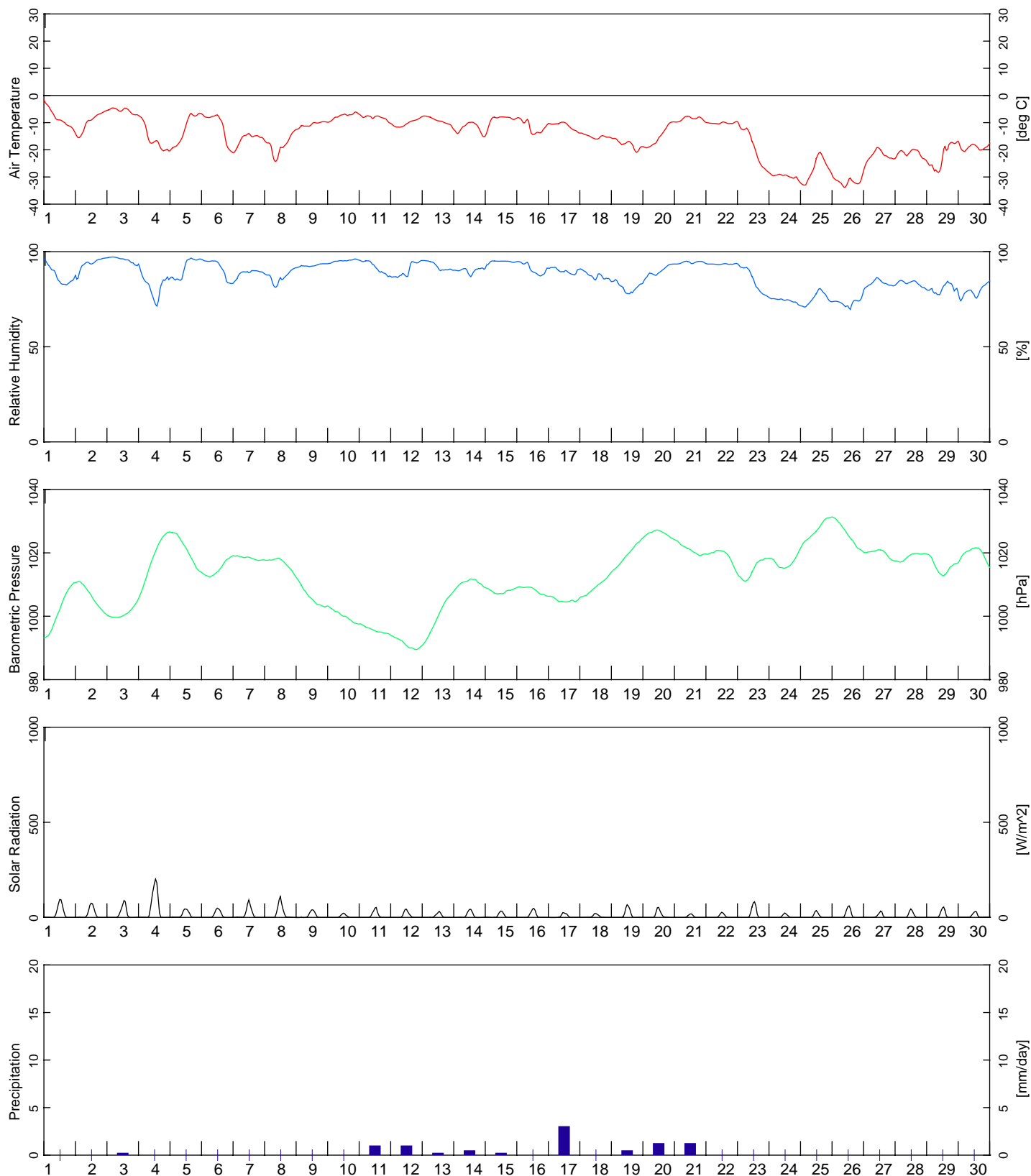


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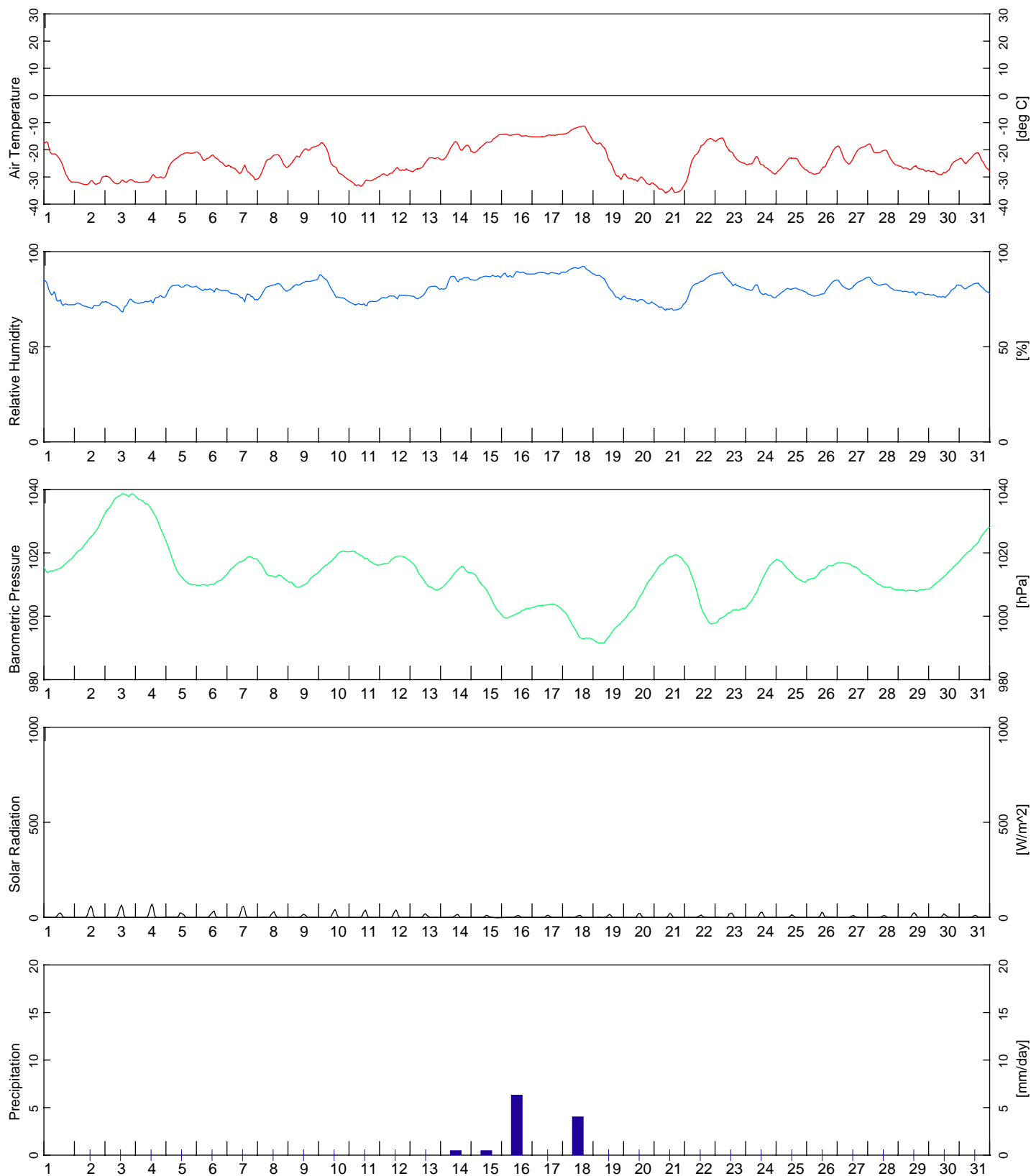
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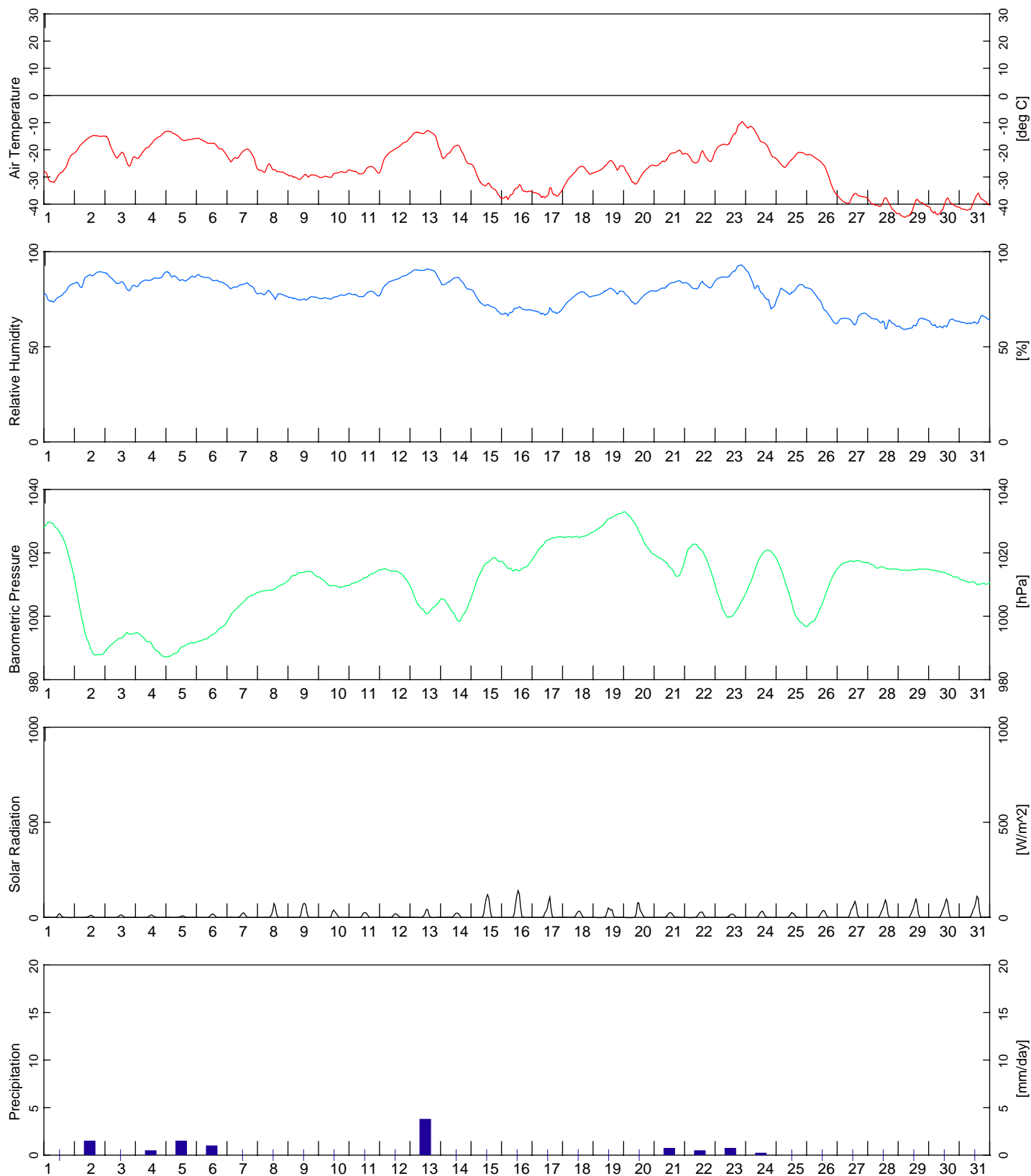
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Weather Data
January 2008**

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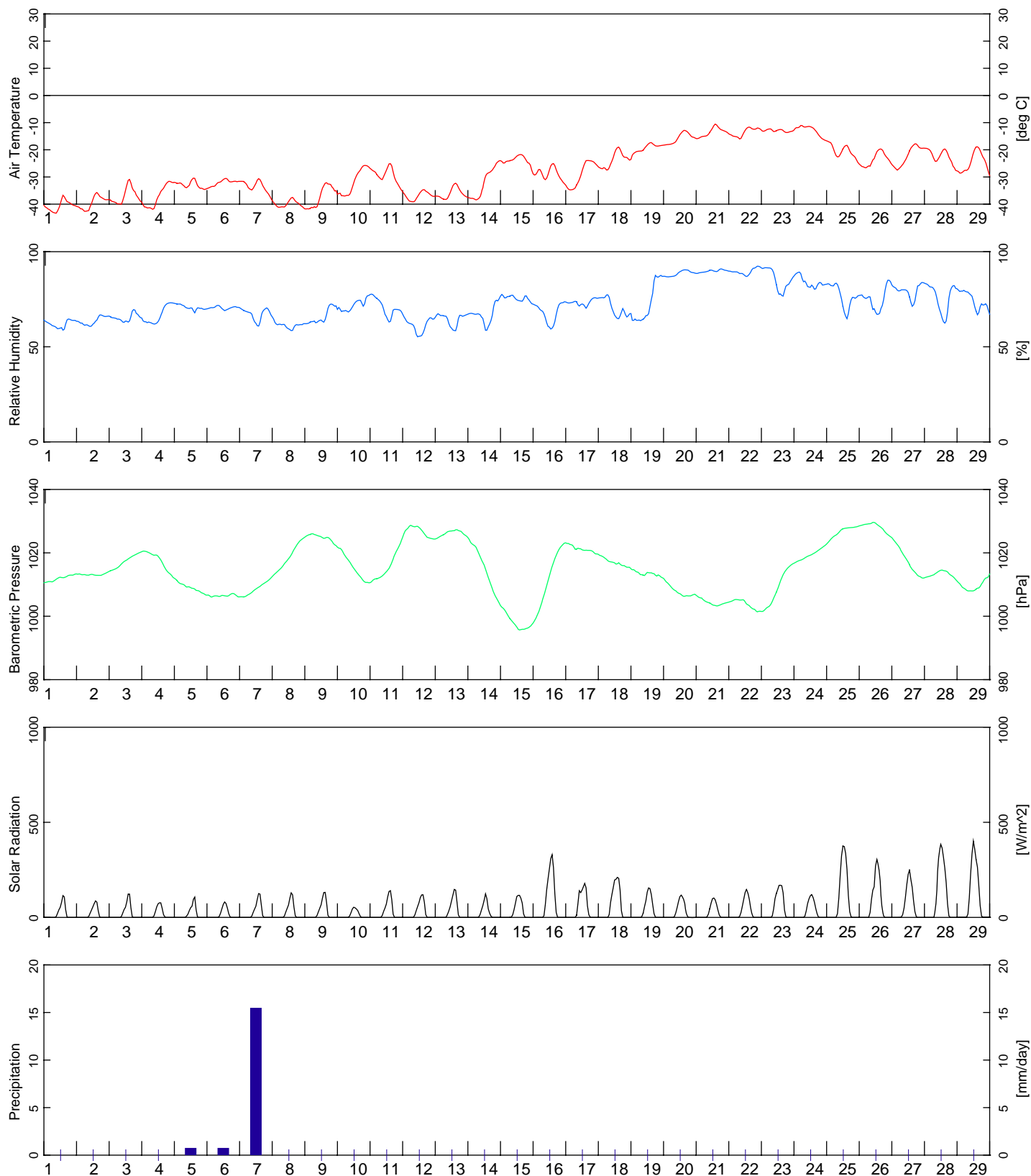
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February 2008**

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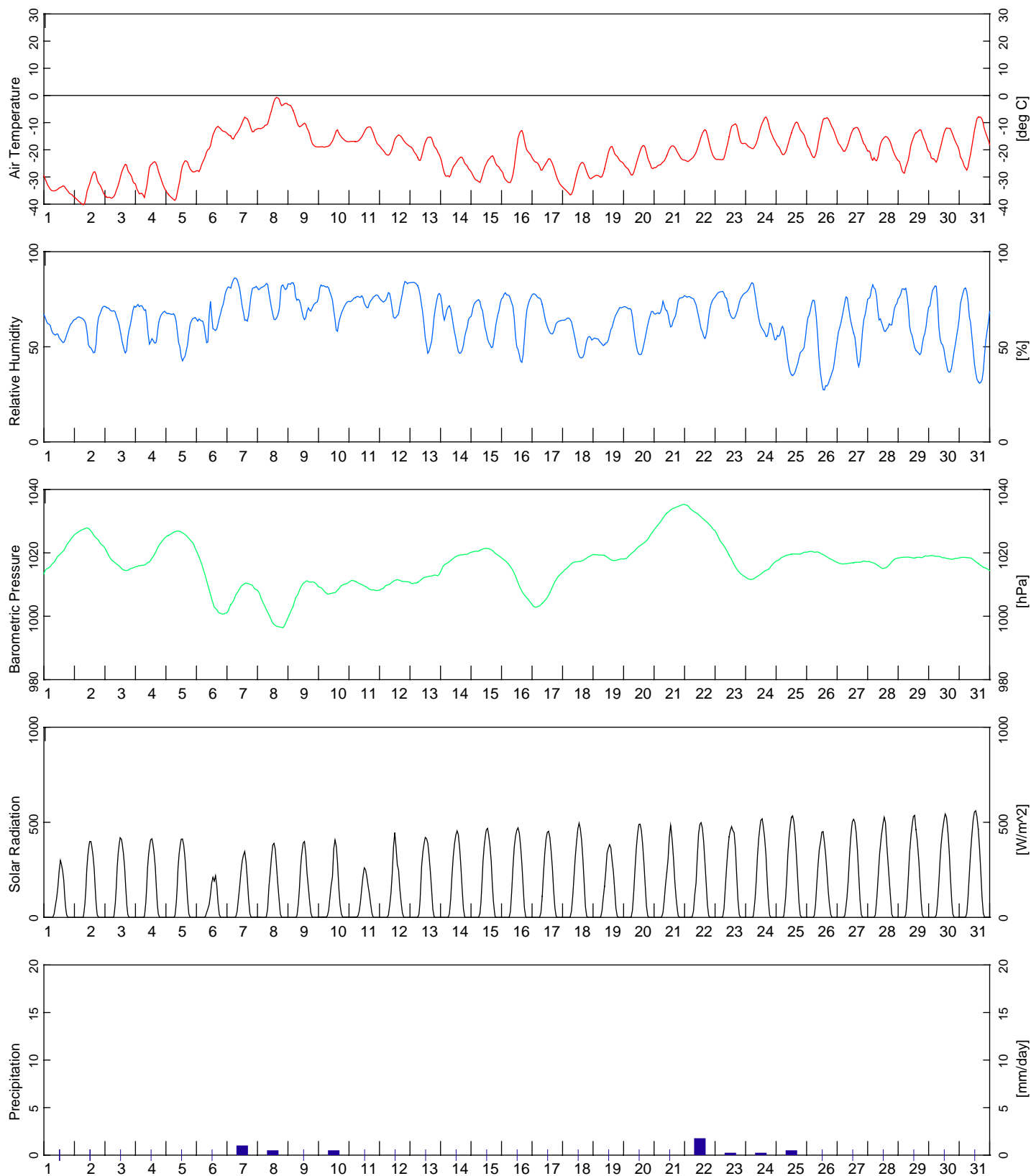
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**Tyhee Station
Weather Data
March 2008**

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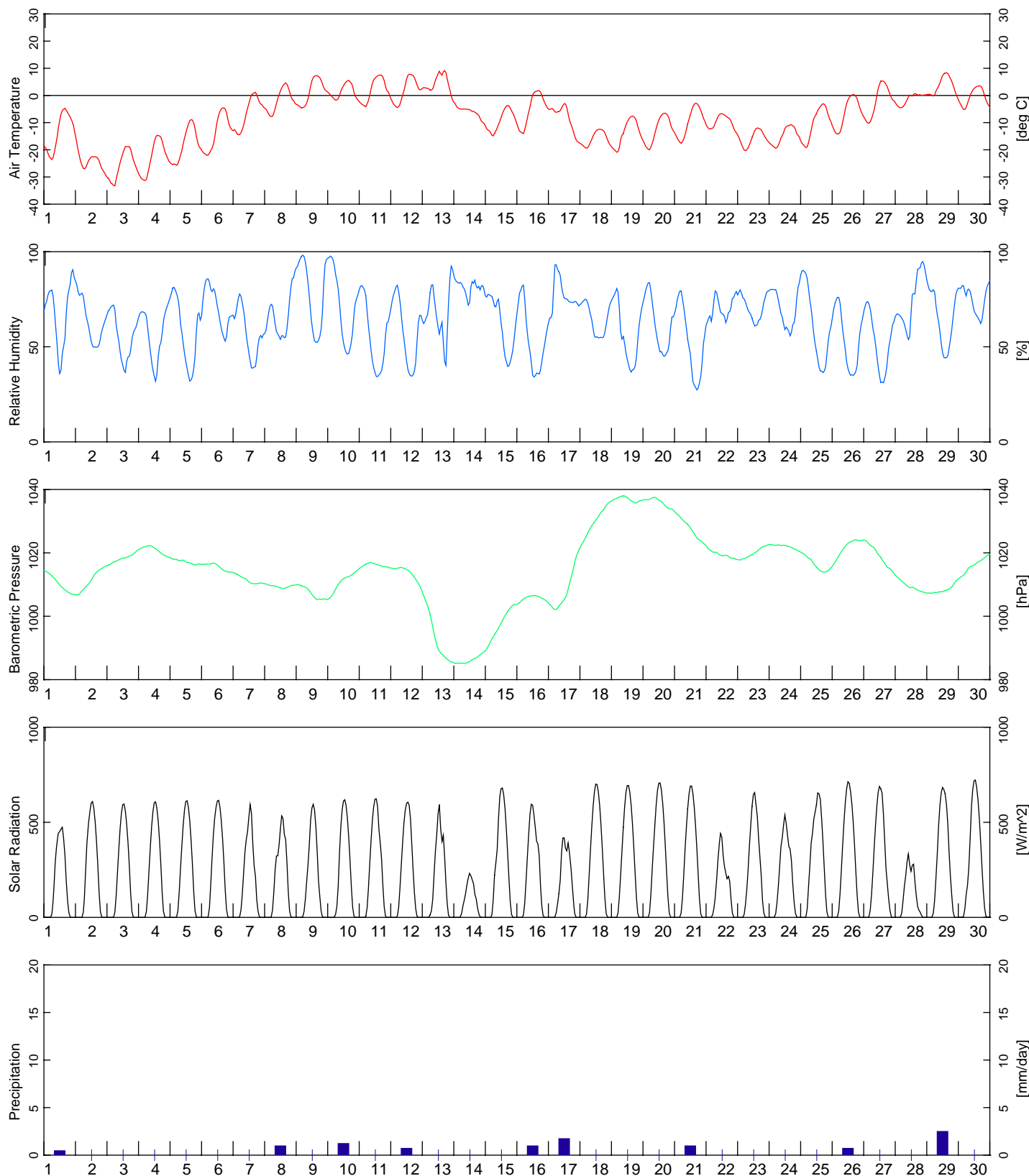
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**Tyhee Station
Weather Data
April 2008**

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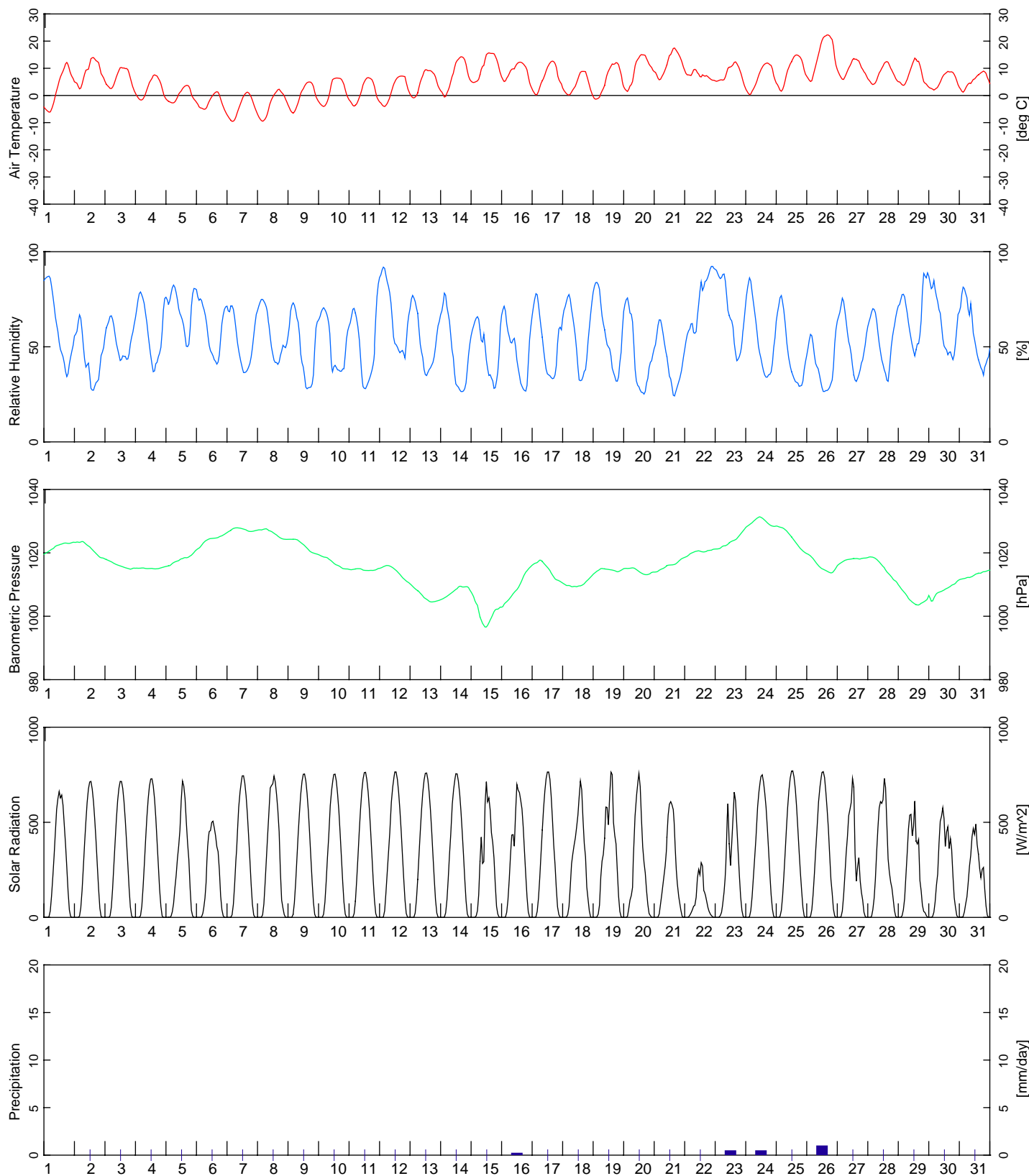
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**Tyhee Station
Weather Data
May 2008**

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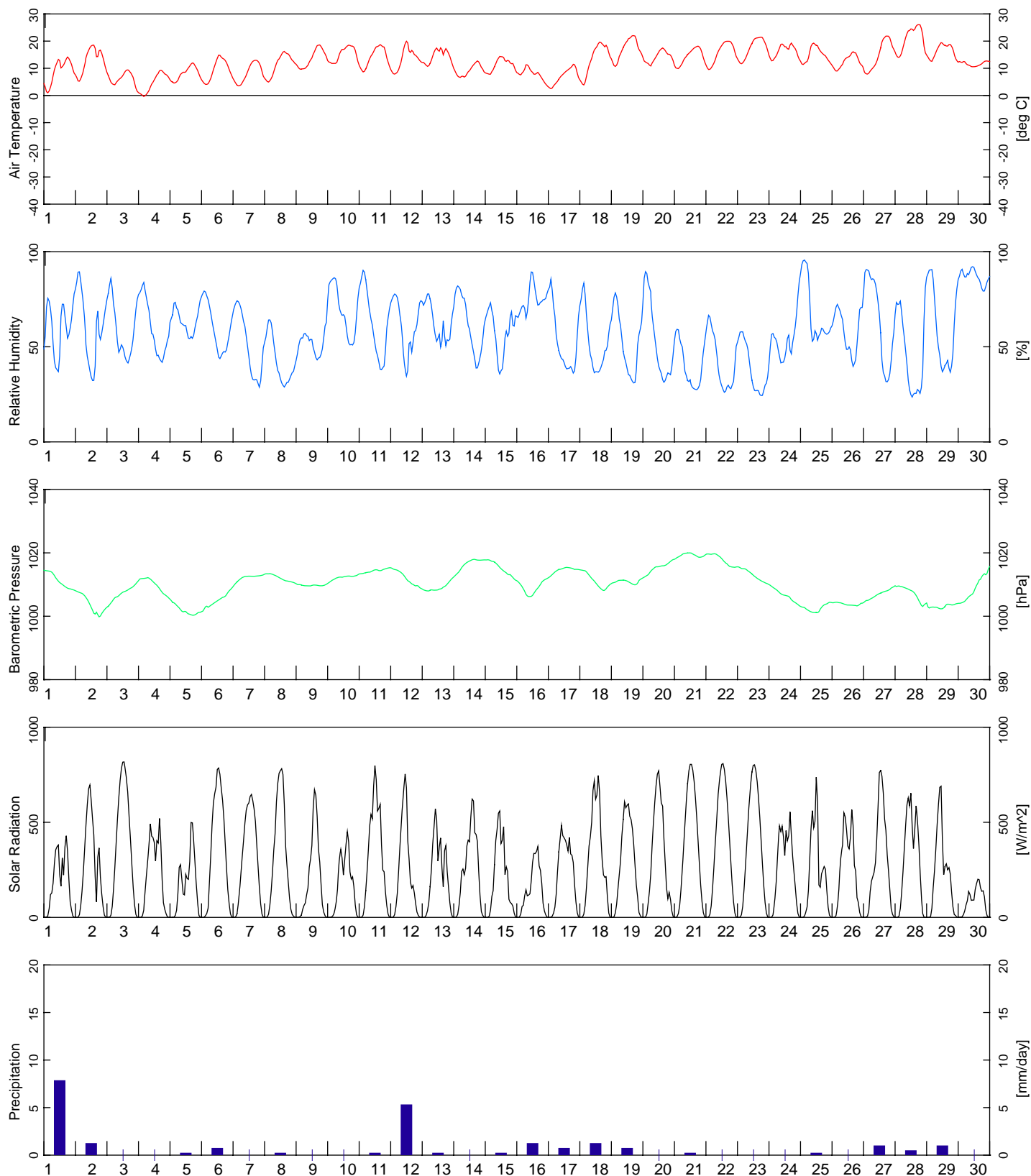
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**Tyhee Station
Weather Data
June 2008**

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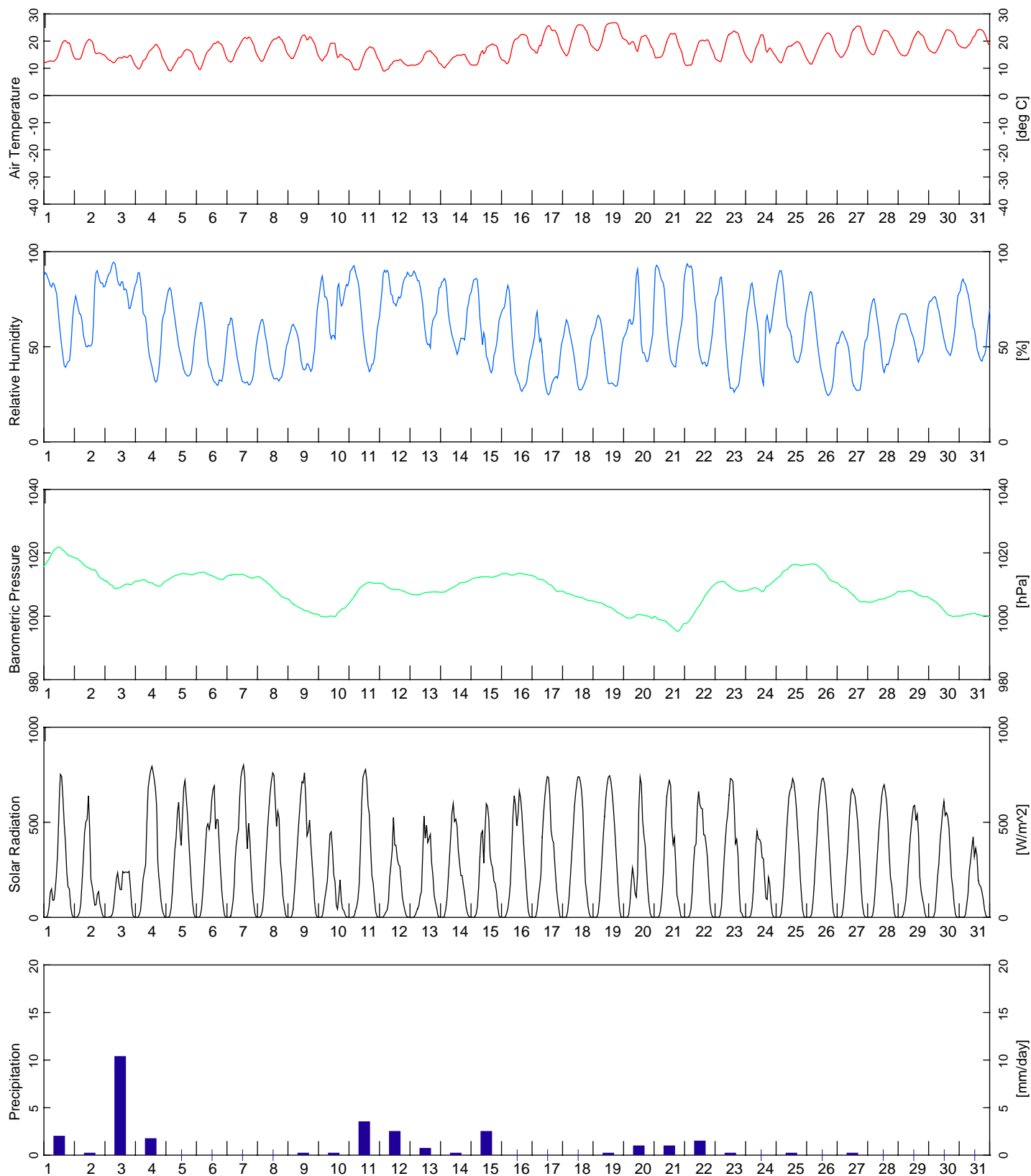
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Weather Data
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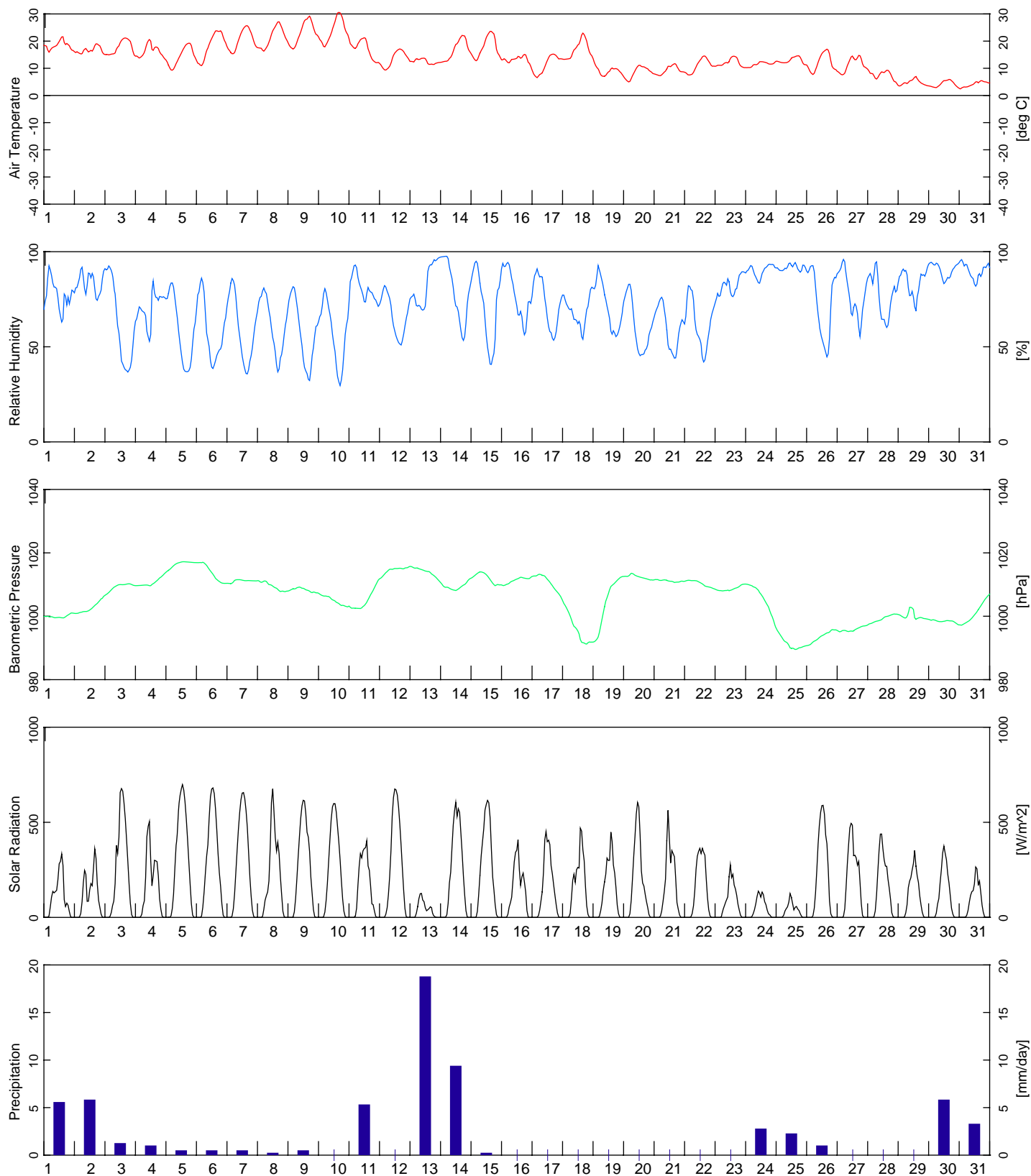
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**Tyhee Station
Weather Data
August 2008**

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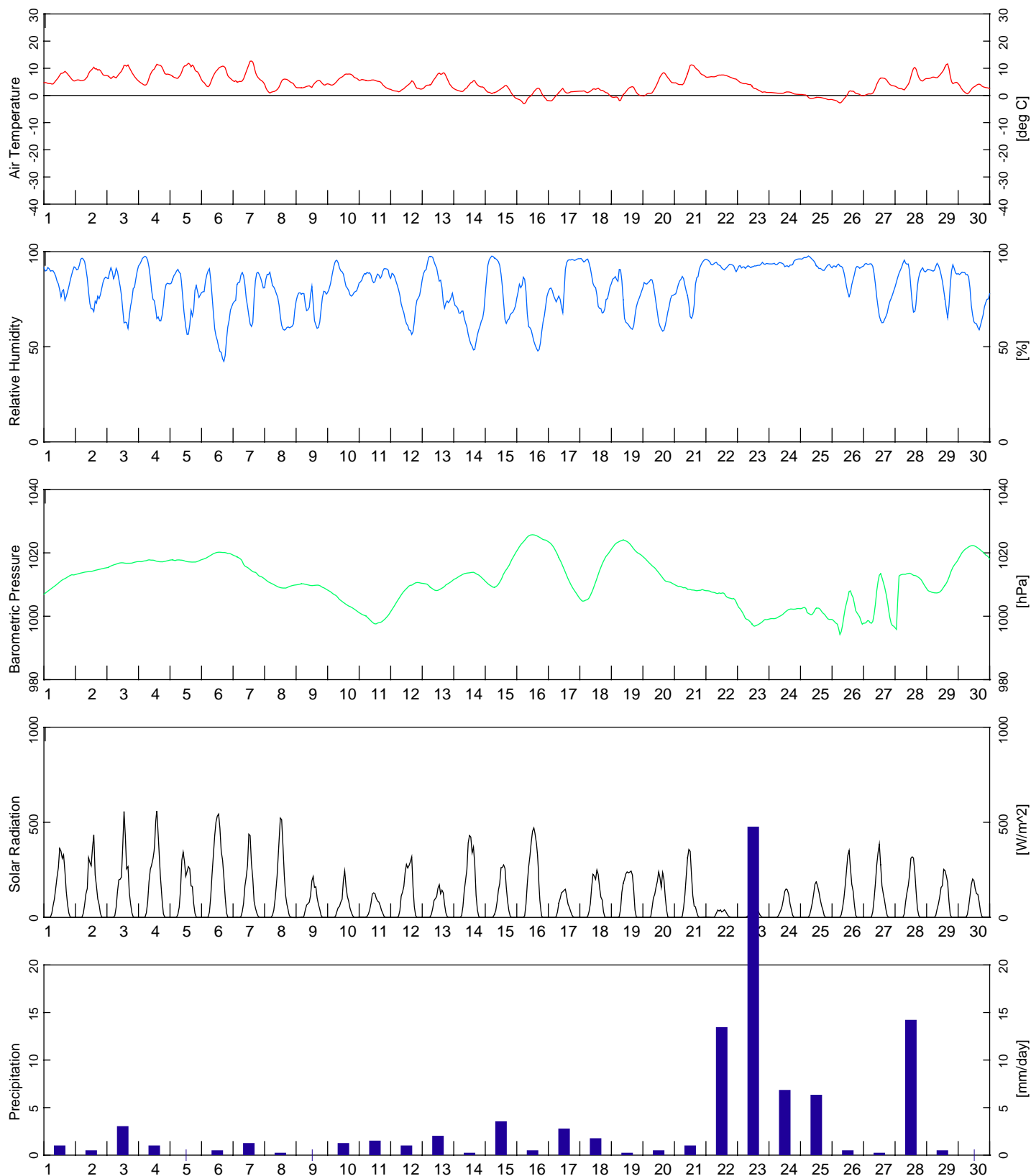
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**Tyhee Station
Weather Data
September 2008**

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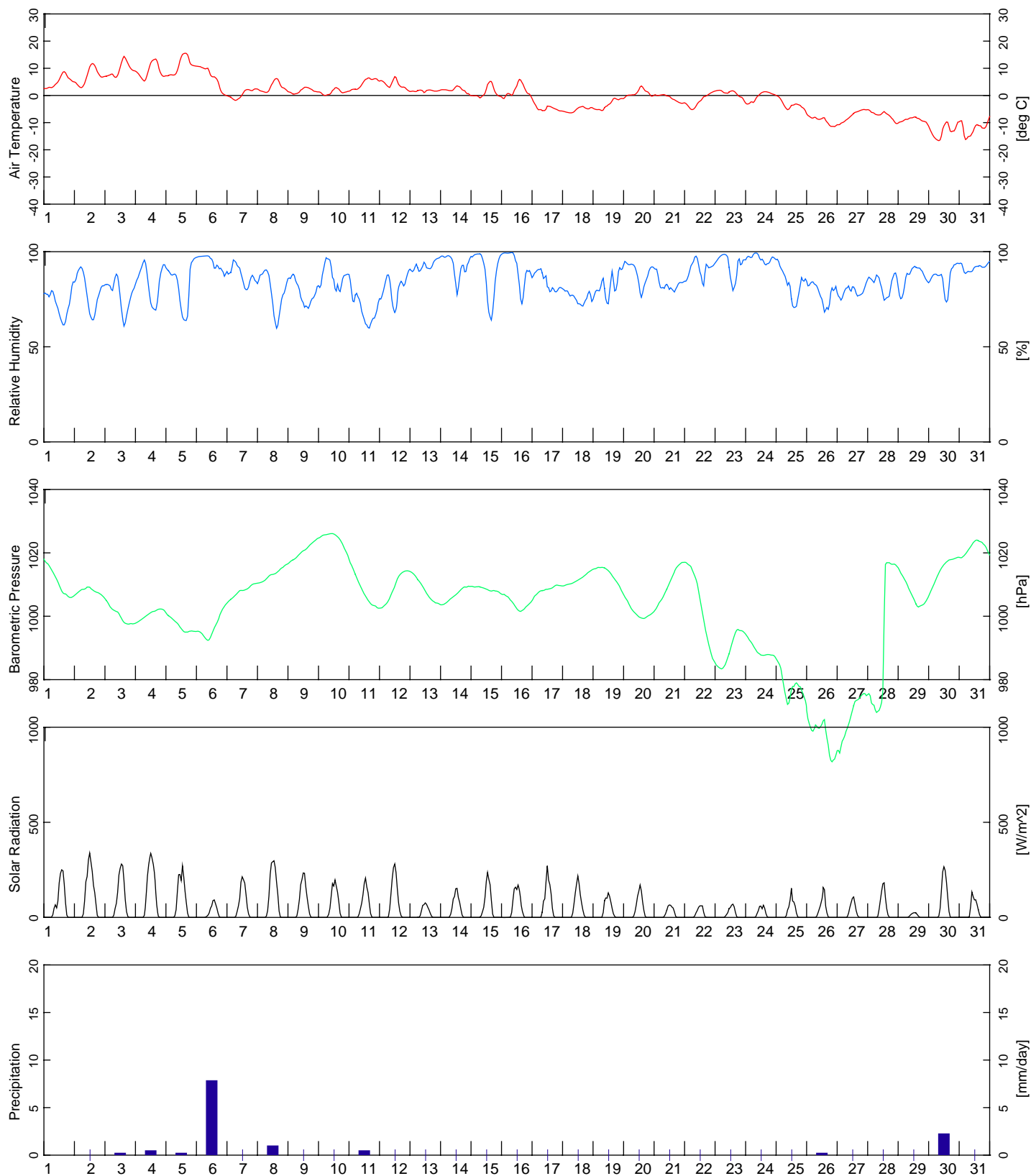
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**Tyhee Station
Weather Data
October 2008**

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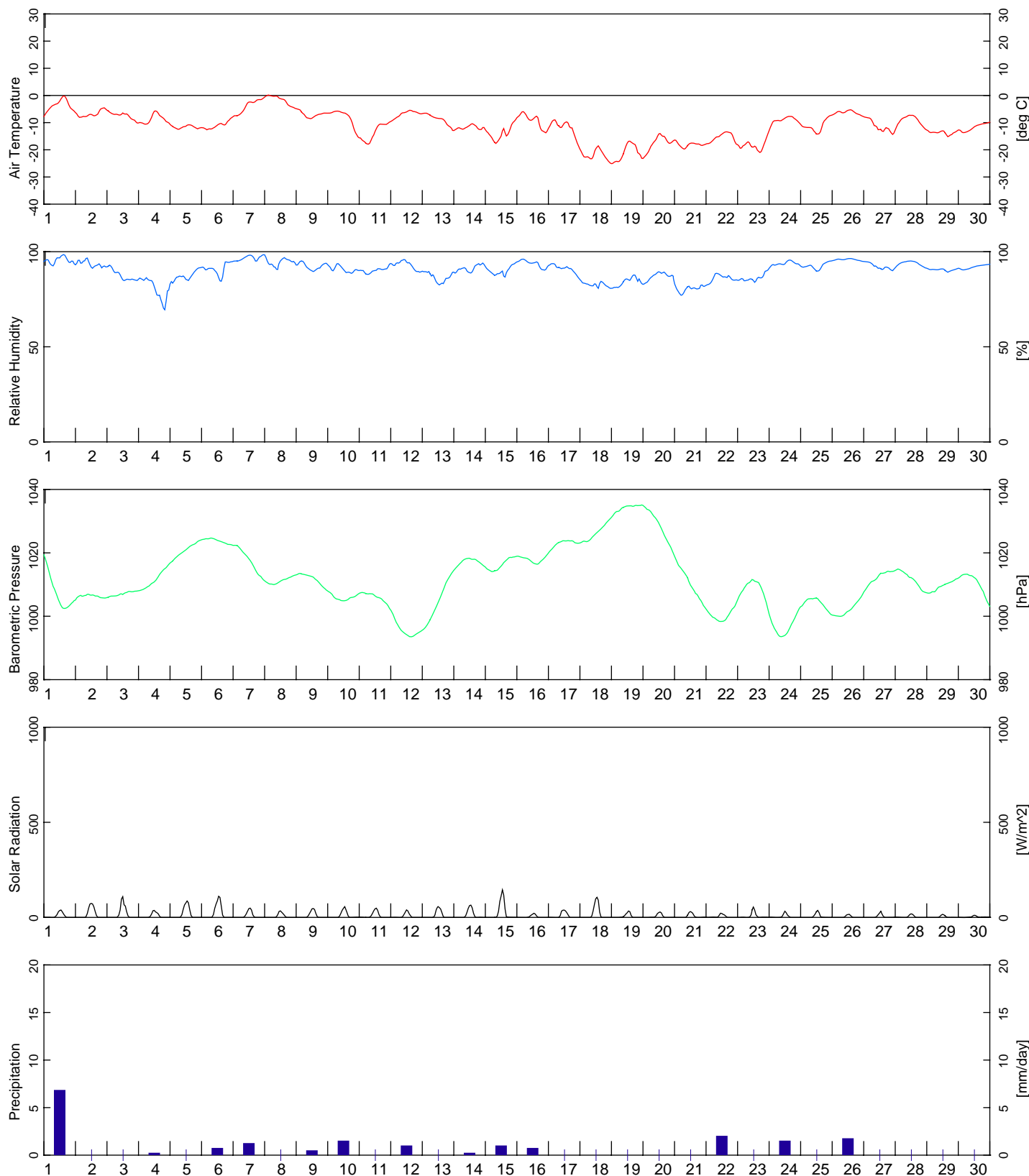
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Figure D-50



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**Tyhee Station
Weather Data
November 2008**

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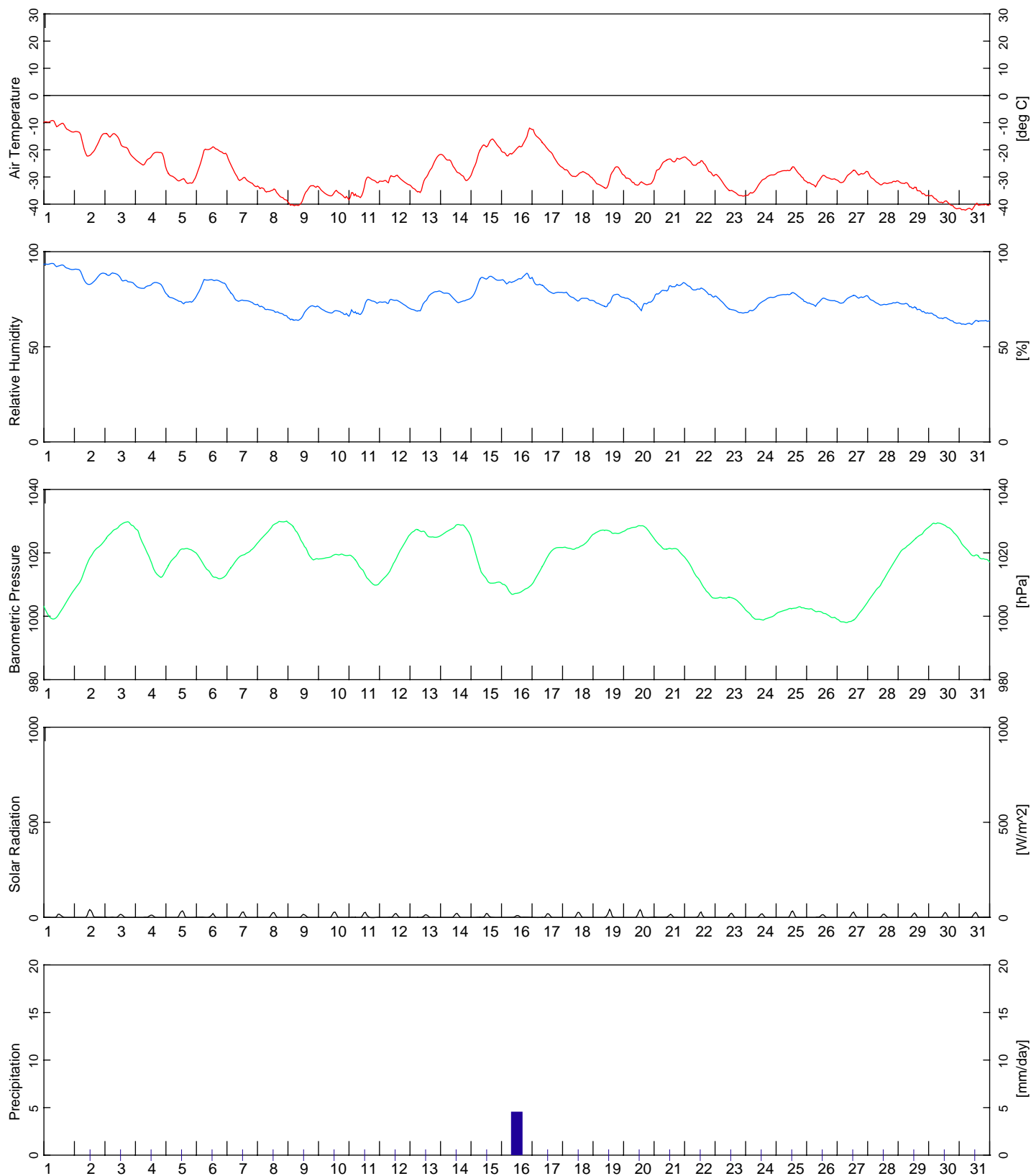
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**Tyhee Station
Weather Data
December 2008**

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Figure D-52

APPENDIX

APPENDIX E DESCRIPTION OF DATA FILES ON THE REPORT CD

Description of the Data Files for the Yellowknife Gold Project 2008 Hydrometeorological Report

The data directory section of the Yellowknife Gold Project 2008 Hydrometeorological Report CD contains the meteorology and hydrology field data collected by Hay & Company consultants over the period from September 28, 2004 to December 31, 2008. All the files are in space delineated format with the file extension “dat”. A flag of -9999 is used to indicate records with no data.

1.0 METEOROLOGICAL DATA

There are 12 meteorological station files. The station is located on the northeast end the Yellowknife Gold Project Airstrip.

1.1 HOURLY METEOROLOGICAL DATA

The 5 data files named “**2004_hr_lp_metdata.dat**” to “**2008_hr_lp_metdata.dat**” contains space delineated hourly meteorological data over the period from September 28, 2004 to December 31, and January 1 to December 31, for the years from 2005 to 2008. The data was collected at 15-minute intervals and was low pass filtered and sub-sampled at hourly intervals such that only hourly data is contained in this file. The file format is such that each data record represents one sample time period.

The 12 data columns identified from left to right are year, month, day, hour, minute, wind vector [u], wind vector [v], standard deviation of wind direction (degrees), air temperature [C°], relative humidity [%], barometric pressure at sea level [hPa], and incident solar radiation [W/m²].

1.2 DAILY METEOROLOGICAL DATA

The data file named “**2004-2008_Tyhee_daily_summary.dat**” contains the daily mean, maximum and minimum data saved at midnight for each day for 2007.

The 17 data columns identified from left to right are year, month, day, hour, minute, maximum wind speed [m/s], 3 columns for mean, maximum and minimum sea level equivalent barometric pressure [hPa], precipitation [mm/day of water], 3 columns for mean, maximum and minimum relative humidity [%], 3 columns for mean, maximum and minimum air temperature [°C] and the last column is incident solar radiation [W/m²].

1.3 15 MINUTE PRECIPITATION DATA

The 5 data files named “**2004_Tyhee_15_min_Precipitation.dat**” to “**2008_Tyhee_15_min_Precipitation.dat**” contains the 15 minute water equivalent precipitation data collected from the all-weather precipitation gauge installed at

the Yellowknife Gold Project site for the period from September 28, 2004 to December 31, 2008.

The 6 data columns identified from left to right are year, month, day, hour, minute and water equivalent precipitation [mm/15 min].

1.4 DAILY PRECIPITATION DATA

The data file named **“2004-2008_Tyhee_daily_precip.txt”** contains the daily water equivalent precipitation data collected from the all-weather precipitation gauge installed at the Yellowknife Gold Project site for the period from September 28, 2004 to December 31, 2008.

The 6 data columns identified from left to right are year, month, day, hour, minute and water equivalent precipitation [mm/day].

2.0 HYDROLOGICAL DATA

This directory contains the four stream flow data file for the stations (Narrow, Winter, Round and Nicholas Lake Outlets) that were monitored over the 2005 to 2008 study period.

The Narrow Lake discharge data is contained in the file:

“2005-2008_Narrow_Lake_Outlet_Discharges.prn”

The Winter Lake discharge data is contained in the file:

“2005-2008_Winter_lake_discharges.prn”

The Round Lake discharge data is contained in the file:

“2005-2008_Round_lake_discharges.prn”

Each space delineated data file contains 6 data columns identified from left to right as year, month, day, hour, minute and the last column is outlet discharge in [L/s].

The Nicholas Lake Outlet hydrometric station recorded water temperatures as well as discharge data. This data is contained in the file **“2005-2008_Nicholas_Lake_Outlet_Discharges.prn”**.

This space delineated data file contains 7 data columns identified from left to right as year, month, day, hour, minute, creek temperature [°C], and outlet discharge [L/s].

APPENDIX

APPENDIX F GENERAL CONDITIONS

DESIGN REPORT – GENERAL CONDITIONS

This Design Report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This Design Report pertains to a specific site, a specific development, and a specific scope of work. The Design Report may include plans, drawings, profiles and other support documents that collectively constitute the Design Report. The Report and all supporting documents are intended for the sole use of EBA’s Client. EBA does not accept any responsibility for the accuracy of any of the data, analyses or other contents of the Design Report when it is used or relied upon by any party other than EBA’s Client, unless authorized in writing by EBA. Any unauthorized use of the Design Report is at the sole risk of the user.

All reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

2.0 ALTERNATIVE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless so stipulated in the Design Report, EBA was not retained to investigate, address or consider, and has not investigated, addressed or considered any environmental or regulatory issues associated with the project specific design.

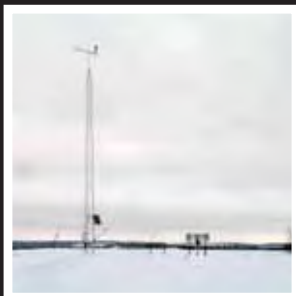
4.0 CALCULATIONS AND DESIGNS

EBA has undertaken design calculations and has prepared project specific designs in accordance with terms of reference that were previously set out in consultation with, and agreement of, EBA’s client. These designs have been prepared to a standard that is consistent with industry practice. Notwithstanding, if any error or omission is detected by EBA’s Client or any party that is authorized to use the Design Report, the error or omission should be immediately drawn to the attention of EBA.

5.0 GEOTECHNICAL CONDITIONS

A Geotechnical Report is commonly the basis upon which the specific project design has been completed. It is incumbent upon EBA’s Client, and any other authorized party, to be knowledgeable of the level of risk that has been incorporated into the project design, in consideration of the level of the geotechnical information that was reasonably acquired to facilitate completion of the design.

If a Geotechnical Report was prepared for the project by EBA, it will be included in the Design Report. The Geotechnical Report contains General Conditions that should be read in conjunction with these General Conditions for the Design Report.



 *tyhee NWT Corp*

Tyhee NWT Corp.

YELLOWKNIFE GOLD PROJECT 2009 HYDROMETEOROLOGICAL REPORT

Issued for Use

February 2010

Y22101103

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ISSUED FOR USE

**YELLOWKNIFE GOLD PROJECT
2009 HYDROMETEOROLOGICAL REPORT**

Y22101103

February 2010

EXECUTIVE SUMMARY**Foreword**

Tyhee NWT Corp. is conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began the hydrology and meteorology baseline studies for the Yellowknife Gold Project.

This report is a summary of the meteorological and hydrological data collected on site during 2009 and is a continuation of the report submitted to Tyhee NWT Corp. in July of 2009 by EBA Engineering Consultants Ltd. entitled "Yellowknife Gold Project 2008 Hydrometeorological Report". This report contains all the hydrometeorological data collected at site since 2004. Only hourly meteorology data recorded in 2009 is presented in hard copy in Appendices B through D. Hourly data from all years is contained on the data disk accompanying this report.

Two field surveys were conducted during 2009. The first trip was in early June was conducted for the purpose of inspecting the hydrometric stations, reinstalling the recording instruments and measuring outlet discharges. The evaporation pan was reinstalled and maintenance of the meteorological station completed during the first site visit.

The second trip, which occurred during the third week of August, was for inspecting the hydrometric stations and measuring outlet discharges.

The following section summarizes various hydrological statistics. All of the values quoted are for the 2009 period of record from June 5 to October 8.

The maximum recorded discharges at Narrow, Winter and Round Lake Outlets were 108 l/s, 72 l/s and 29 l/s, respectively. The peak discharges were the result of a large precipitation event occurring June 22, 2009 which increased creek flow dramatically at all stations.

The average daily total discharge for the Narrow Lake outlet was 3,435 m³/day. The total Narrow, Winter and Round lake basin runoff was 45.8 mm.

The average daily total discharge for the Winter Lake outlet was 1,890 m³/day. The total Winter and Round Lake basin runoff was 42.9 mm.

The average daily total discharge for the Round Lake basin was 663 m³/day. The total Round Lake basin runoff was 67.4 mm.

The average daily total discharge for the Nicholas Lake basin was 2,290 m³/day. The total Nicholas Lake basin runoff was 45.0 mm.

The meteorological station installed at the Yellowknife Gold Property has continuously recorded the meteorological parameters of wind speed and direction, air temperature, relative humidity, incident solar radiation and precipitation since its installation on September 28, 2004 until the present.

The period of record for the meteorological statistics presented below is from January 1 to December 31, 2009.

The predominant wind at this site is from the east. In 2009, typical maximum daily wind gusts were in the range of 7 to 9 m/s, however, wind gust speeds near 17.0 m/s were recorded. Average wind speeds were commonly in the range of 2 to 4 m/s.

Air temperatures were typically 10 to 25°C during the summer with a maximum recorded temperature of 27.9°C on July 21, 2009. Typical winter temperatures ranged from -5 to -40°C. The lowest recorded temperature for 2009 was -44.4°C, occurring on January 2, 2009.

Average daily relative humidity for 2009 was 73%, with instantaneous values ranging from 20% to 100%.

Average sea-level equivalent barometric pressure was 1012 hPa, varying from a maximum of 1041 to a minimum of 990 hPa.

Average peak incident solar radiation during the summer was in the vicinity of 900 W/m² with maximums near 1200 W/m². During December and January peak daily values rarely exceeded 50 W/m².

The total precipitation recorded for 2009 was 283.7 mm. The largest daily event recorded in 2009 was 26.9 mm on September 7, 2009.

Average evaporation pan rates were 4.1 mm/day with a total of 471.2 mm over the period from June 5 to September 28, 2009.

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Appendix F	General Conditions

1.0 INTRODUCTION

Tyhee NWT Corp. has been conducting baseline environmental studies on its Yellowknife Gold Project site as part of the development of a gold mine in the area. In 2004, Hay & Company Consultants, a division of EBA Engineering Consultants Ltd., began hydrology and meteorology baseline studies for this project. This report is a summary of the meteorological and hydrological data collected at the site during 2009 and is a supplement to earlier reports, submitted to Tyhee NWT Corp. entitled “Yellowknife Gold Project 2006 Hydrology and Meteorology Report”, “Yellowknife Gold Project 2007 Hydrology and Meteorology Report”, “Yellowknife Gold Project 2008 Hydrometeorological Report”.

The first field survey was conducted in early June, 2009 to inspect the hydrometric station installations, reinstall the instrumentation and record discharges for Narrow, Winter, Round and Nicholas Lake outlets. Maintenance of the meteorological station instruments, downloading the weather data and reinstallation of the evaporation pan was also done during the first site visit. The hydrometeorological sites were again visited mid August in conjunction with the installation of lake level monitoring instrumentation as part of the Pre-Feasibility Study. During the second visit creek discharges were measured and stage data downloaded.

Figure 1.1 is a site location map showing a portion of a 1:50,000 scale topographic map of the area on which the sites are indicated. Both active and inactive sites are shown. Table 1.1 lists the GPS coordinates for each site. The four hydrometric sites and the meteorological station that were monitored during 2009 are listed below along with the purpose of each station.

- Site #1 – Narrow Lake Outlet, collection of creek discharge and stage data.
- Site #3 – Winter Lake Outlet, collection of creek discharge and stage data.
- Site #4 – Round Lake Outlet, collection of creek discharge and stage data.
- Site #6 – Nicholas Lake Outlet, collection of creek discharge, water temperatures and stage data.
- Site #7 – Tyhee Meteorological station, recording of various weather parameters.

Further detailed information on these sites has been provided in the site description documents included in Appendix A. Section 2 of this report presents the hydrological component of the study program, Section 3 discusses the meteorological component and Section 4 outlines the recommendations.

2.0 HYDROLOGY

2.1 METHODS

To gain an understanding of the hydrological conditions of the Yellowknife Gold Project study area, hydrometric stations were installed at the four previously identified sites.

Parshall flumes were installed at Round, Winter and Narrow Lake outlets; during the summer of 2005. As in 2006, 2007, 2008, they were reactivated for the 2009 study. A Parshall flume is installed in a creek such that all flow passes through it. The flume has a unique design that enables the determination of creek discharge by measuring the depth of water in the upstream part of the flume and applying a factory calibration to determine the discharges. The creek stage upstream of the flume is measured by a pressure transducer and the data recorded by a logger every 15 minutes. A fixed value, representing the vertical distance from the upstream floor of the flume to the creek bed, was added to the depth of water in the flume, recorded by the data logger, to determine creek stages.

The hydrometric station at Nicholas Lake outlet, originally installed in 2005, was reactivated for the 2009 study similar to the procedure in 2005, 2007 and 2008. The creek stage is recorded by the data logger every 15 minutes and the data is used in combination with the stage-discharge relationship, determined in the previous studies, and further refined in 2009, to calculate creek discharge.

Note that discharges that occurred after spring thaw, before the hydrometric station instruments were installed, as well as discharges that occurred after the instrumentation was removed, prior to the winter freeze, were not monitored by the hydrometric station. Therefore, the actual volume of flow through the station will be greater than the values stated in this report. The basin average runoff values will also be greater.

2.2 OUTLET OF NARROW LAKE (SITE #1)

Narrow Lake basin is approximately 3.9 km by 1.5 km and has a catchment area of 3.8 km². The elevation of Narrow Lake is approximately 282 m above mean sea level (asl) and the maximum elevation in the basin is approximately 350 m asl.

The outlet of Narrow Lake is located at the southwest end of the lake and consists of two creeks that enter a small pond about 100 m southwest of the lake, near the existing winter road. A single creek flows out of this pond. The hydrometric station is located on this creek, in a well-defined channel, about 10 m downstream of the pond. Downstream of the station, there is no well-defined channel and the flow meanders generally southwest through muskeg and stunted growth of birch and conifers. Discharge from the Narrow Lake basin flows southwest to Morris Lake (el. 278 m), and eventually to the Yellowknife River.

An aerial view of the Narrow Lake outlet hydrometric station and photos of the 12-inch Parshall flume and staff gauge installed in the creek are located in the Narrow Lake Station site description in Appendix A.

2.2.1 Station History for 2009

The stage recorder was installed for the 2009 hydrological study on June 6, at 8:46 AM during the initial site visit for the year. The Parshall flume and bulkhead were inspected and no damage or leakage was observed at this time. Stage discharge data was collected and the data logger downloaded to ensure correct operation.

A second site visit occurred on August 24 for the purpose of site inspection, stage discharge data collection and downloading of the station's data.

The instrumentation was removed for the season on October 8, at 1:01 PM.

A complete history of the Narrow Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work is located in the site description in Appendix A.

2.2.2 Stage Measurements

The 2009 freshet began in late May, about a week prior to the installation of the automatic stage recorder. Narrow Lake outlet Parshall flume data were recorded every 15 minutes over the summer until the logger was removed, prior to the outlet freezing up for the winter. Creek stages varied from 0.23 to 0.51 m over the 124 day period of record for 2009.

The Narrow Lake outlet stage hydrograph for all years on record (2005 to 2009) is presented in Figure 2.1.

2.2.3 Narrow Lake Parshall Flume Calibration

The Parshall flume installed at Narrow Lake outlet has a throat width of 30.48 cm (12 inches) and a flow measurement range of 3 ℓ/s to 455 ℓ/s.

The Narrow Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 690.917 \times H^{1.522}$$

where: Q = outlet discharge (ℓ/s)

 H = recorded water depth (flume head) (m)

2.2.4 Narrow Lake Outlet Discharge Hydrograph

The period of record for the 2009 Narrow Lake hydrology survey was from June 6 to October 8, 2009. The 2009 hydrograph is shown in Figure 2.2 as a solid light blue line. The hydrographs from the previous four years are included on this same graph for the purposes of comparing Narrow Lake outlet discharges for each year on record. The 2004 data consist of a series of manual discharge measurements as this data pre-dates the installation of the stage logger.

For 2009 the maximum measured outlet discharge of 109 ℓ/s occurred on June 26. This peak flow was created by typical freshet flow rates being augmented by a large 4 day precipitation event starting on Jun 22 (Appendix D figure D-58) in which over 28 mm of rainfall had occurred. Air temperatures during the event were in the vicinity of 10°C. The warm rain increased the melt rate of the existing snowpack and hence increased the outlet discharge. This explains the large “bump” in the 2009 discharge hydrograph shown in Figure 2.2.

The minimum measured discharge of 8.4 ℓ/s occurred on August 16, 2008.

The creek does not flow during the winter months from approximately mid October to mid May.

Based on the Narrow Lake outlet discharge hydrographs from 2004 to 2009, the following observations were made:

1. Based on field observations by EBA and anecdotal information from on site Tyhee staff it is estimated that the creek typically begins to flow in early to mid May.
2. Once the creek begins flowing, discharge increases rapidly, typically over a span of less than two weeks, to peak freshet flow, which typically occurs during the last week of May to the first week of June.
3. Peak freshet flows range from 50 ℓ/s to over 200 ℓ/s . Typical maximum freshet flow, based on the 5 years of observations, is estimated at 140 ℓ/s .
4. After the freshet, creek discharge reduces rapidly until the end of June, at which time typical discharges are on the order of 50 ℓ/s . At this time snowmelt is no longer the major factor in determining creek flows.
5. From July 1 to the end of August outlet flows gradually decrease from 50 ℓ/s to less than 20 ℓ/s . During this period the hydrograph shows evidence of large precipitation events affecting discharge.
6. From September 1 to the end of the record in late September, early October, flows typically increase slightly and are more variable in nature as increased precipitation events during this period become the dominant factor for creek discharge.

The following are comments specific to the 2009 hydrograph:

1. In 2009 the freshet was late by an estimated 7 to 10 days due to a late spring melt.
2. From June 6 to June 22, 2009 Narrow Lake Outlet discharges were typical of freshet flows recorded in previous years.
3. As a result of a 4 day 28 mm precipitation event beginning on June 22 the discharge rapidly increased from the typical flow of 50 ℓ/s to over 100 ℓ/s .

4. From June 27, the date of the highest recorded flow for the year (108 ℓ/s), to the end of July, the discharge dropped to 19 ℓ/s which is typical of discharges occurring at the end of July for previous years.
5. During August the discharge remained relatively stable at about 15 ℓ/s .
6. From September 1 to the end of the record on October 8 the Narrow Lake outlet flow increased from 15 ℓ/s to over 50 ℓ/s due to the various precipitation events in September totalling more than 69 mm for the month.

The Narrow Lake hydrometric station data enables the calculation of total volume of water that has passed the gauging station over the recorded period. The period of record for 2009 was from 8:46 hours on June 6, 2009 to 13:01 hours on October 8, 2008. Over this 124-day period, a total of 426,000 m^3 passed through the hydrometric station. This flow consisted of discharges from the Narrow Lake drainage basin (3.8 km^2), the Winter Lake (4.3 km^2) and the Round Lake (1.2 km^2) drainage basins. Average Narrow Lake outlet discharge for the 2009 monitoring period was 39.7 ℓ/s .

The calculated average runoff for the combined Narrow, Winter and Round Lake basins is estimated at 45.8 mm for the period of record in 2009. This represents an average daily flow volume of 3,435 m^3 . A summary of the Narrow Lake outlet drainage basin observations for 2005 to 2009 is contained in Tables 2.1 to 2.3.

2.3 WINTER LAKE OUTLET (SITE #3)

Winter Lake basin is approximately 4.3 km by 1.4 km and has a catchment area of 4.3 km^2 . The elevation of Winter Lake is approximately 285 m asl and the maximum elevation in the basin is approximately 330 m asl.

Winter Lake outlet flows from the northwest portion of Winter Lake at a location about 10 m south of the existing winter road between Winter and Narrow Lakes. The creek channel is typically 30 to 60 cm wide and 15 to 20 cm deep at the hydrometric station. The creek meanders southwest in a vegetated creek bed until about midway between Winter and Narrow Lakes, where it aligns with the existing winter road and flows to Narrow Lake along a poorly-defined diffuse route.

An aerial view of the Winter Lake outlet hydrometric station and photos of the 9-inch Parshall flume and staff gauge installed in the Winter Lake outlet creek are located in the Winter Lake outlet hydrometric site description in Appendix A.

2.3.1 Station History for 2009

The stage recorder was installed for the 2009 hydrological study on June 5, at 12:31 PM during the initial site visit for the year. The Parshall flume and bulkhead were inspected and some minor repairs were necessary to prevent leakage through the bulkhead. No leakage was observed after the repairs. Stage discharge data was collected and the data logger downloaded to ensure correct operation.

A second site visit occurred on August 21 for the purpose of site inspection, stage discharge data collection and downloading of the station's data.

The instrumentation was removed for the season on October 8, at 1:16 PM.

A complete history of the Winter Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work, can be found in the site description in Appendix A.

2.3.2 Stage Measurements

Creek stages just upstream of the 9-inch Parshall flume were recorded every 15 minutes by a pressure transducer and saved in the data logger over the 125-day period of record. The stages presented in Figure 2.3 approximate the maximum creek depth directly upstream of the Parshall flume, which, over the period of record, ranged between 0.23 and 0.47 m.

2.3.3 Winter Lake Parshall Flume Calibration

The Parshall flume installed at Winter Lake has a throat width of 22.9 cm (9 inches) and a flow measurement range of between 3 and 251 ℓ/s. The Winter Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 535.343 \times H^{1.53}$$

where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.3.4 Winter Lake Outlet Discharge Hydrograph

The discharge record for the Winter Lake outlet began after the water level recorder was reinstalled into the Parshall flume on June 5, 2009. The 2009 discharge hydrograph is presented as a light blue line in Figure 2.4, along with the hydrographs from the previous four years.

Based on the Winter Lake outlet hydrographs for the data collected from 2005 to 2009, the following general observations were made:

1. Based on field observations by EBA and anecdotal information from on site Tyhee staff it is estimated that the creek typically begins to flow in early to mid May.
2. Once the creek begins flowing, discharge increases rapidly to peak freshet flow, which occurs during late May or early June.
3. Measured freshet flows have ranged from less than 15 ℓ/s to 72 ℓ/s.
4. After peak freshet, the discharge reduces till the end of June, at which time discharges are on the order of 20 ℓ/s. Snowmelt is no longer the major factor for determining the creek flow.

5. From July 1 to the end of August, the outlet flow typically decreases from 20 ℓ/s to less than 10 ℓ/s . During this period, hydrographs show a response to large precipitation events which temporarily increase discharge.
6. From September 1 to the end of the record in late September or early October, flows typically increase slightly and are more variable in nature, as precipitation events becomes the dominant control of creek discharge.

The following are comments specific to the 2009 hydrograph:

1. When compared to previously recorded years the 2009 freshet was late by an estimated 7 days.
2. The creek was flowing prior to the June 5 installation of the hydrometric station instrumentation.
3. From June 5 to June 22, 2009 Winter Lake Outlet discharges were typical of freshet flows recorded in previous years for the same time period.
4. Beginning on June 22, as a result of a four day 28 mm precipitation event the discharge rapidly increased from the typical flow of 32 ℓ/s to over 70 ℓ/s .
5. From June 27, the date of the highest recorded flow for the year (72.5 ℓ/s), to the end of July, the discharge dropped to less than 10 ℓ/s , which is typical of discharges occurring at the end of July for previous years on record.
6. During August the discharge remained relatively constant at less than 3 ℓ/s .
7. From September 1 to the end of the record on October 8 the Winter Lake outlet flow increased from 3 ℓ/s to over 20 ℓ/s due to the various precipitation events in September totalling more than 69 mm for the month. In particular a sharp rise in flow was observed on September 7 in response to the 27 mm of precipitation that occurred on the previous day.

Over the 125-day period of record, a total of 236,100 m^3 passed through the hydrometric station. This flow consists of inputs from the Winter Lake drainage basin (3.8 km^2) and the Round Lake (1.2 km^2) drainage basin.

The calculated runoff for the combined Winter and Round Lake basin for the period of record in 2009 is 42.9 mm and the average flow was 1,890 m^3/day . The average discharge through the station during the 2009 period of record was 21.9 ℓ/s . Tables 2.4 to 2.6 provide a summary of the Winter Lake Outlet drainage basin observations for all years on record.

2.4 ROUND LAKE OUTLET (SITE #4)

Round Lake basin is approximately 1.8 km by 0.8 km with a catchment area of 1.2 km^2 . The estimated elevation of Round Lake is 288 m asl and basin elevations extend up to approximately 330 m asl. Inflows to Round Lake consist only of Round Lake drainage basin runoff.

The outlet from Round Lake, which flows into Winter Lake, is situated on the northwest side of Round Lake. There is no distinct flow channel out of Round Lake, but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream of the lake. The outlet creek flows southwest into Winter Lake, typically as a subsurface flow, through the muskeg and willow. At one point, about 25 m southwest of the Round Lake outlet, the flow is contained in a single channel. This site was selected for the hydrometric station.

An aerial view of the Round Lake outlet hydrometric station and photos of the 6-inch Parshall flume installed in the Round Lake outlet creek are located in the Round Lake station site description in Appendix A.

2.4.1 Station History for 2009

The stage recorder was reinstalled for the 2009 hydrological study on June 5, at 10:14 hours. The Parshall flume and bulkhead were inspected for damage and leakage. Some seepage was noted, but was easily repaired by packing more mud and sandbags on the bulkhead.

A second site visit occurred on August 21 for the purpose of site inspection, stage discharge data collection and downloading of the station's data.

The water level recorder was removed for the season on October 8, at 13:59 hours.

A complete history of the Round Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work are located in the site description in Appendix A.

2.4.2 Stage Measurements

Round Lake outlet stages were logged by the Parshall flume instrumentation every 15 minutes over a period of record of 125 days. Figure 2.5 summarizes the creek stages recorded over the study periods from 2005 to 2009. Creek stages varied from 0.29 to 0.46 m over the period of record for 2009.

2.4.3 Round Lake Parshall Flume Calibration

The Parshall flume installed at Round Lake has a throat width of 15.24 cm (6 inches) and a flow measurement range of between 2 and 110 ℓ/s.

The Round Lake Parshall flume calibration formula, used to calculate discharge from the flume head is:

$$Q = 381.206 \times H^{1.58}$$

where Q = outlet discharge (ℓ/s)

H = recorded water depth (flume head) (m)

2.4.4 Round Lake Outlet Discharge Hydrograph

The discharge record for the Round Lake outlet began when the water level recorder was installed in the Parshall flume on June 5, 2009, just prior to the occurrence of the peak freshet flow. The discharges corresponding to water levels recorded by the sensor are presented in Figure 2.6. The light blue line indicates the discharge determined by the Parshall flume for 2009.

Based on the Round Lake Outlet discharge hydrographs for 2005 to 2009, the following general observations were made:

1. The creek typically begins to flow in early to mid May.
2. Freshet flows have ranged from less than 10 ℓ/s to 20 ℓ/s . Typical freshet flows for this creek are 15 ℓ/s .
3. After peak freshet flows, discharges typically decreases until the end of July, at which time they are at a seasonal minimum, on the order of 1 to 3 ℓ/s . Snowmelt is no longer the major factor in determining creek flow.
4. Through out August, flows typically remain less than 3 ℓ/s .
5. From September on, flows typically increase slightly and are more variable in nature, as an increase in precipitation events becomes the dominant control for creek discharge.
6. Based on the air temperature data it is assumed that the outlet stops flowing sometime in October.

The following are comments specific to the 2009 hydrograph:

1. In 2009 the freshet was late by an estimated 7 days.
2. The creek was flowing prior to the June 5 installation of the hydrometric station instrumentation.
3. From June 5 to June 22, 2009 Round Lake Outlet discharges were typical of freshet flows recorded in previous years except for the week long delay.
4. Beginning on June 22, as a result of a 4 day 28 mm precipitation event the discharge rapidly increased from the typical flow of 10 ℓ/s to over 28 ℓ/s .
5. From June 27, the date of the highest recorded flow for the year (28.8 ℓ/s), to the end of July, the discharge dropped to less than 4 ℓ/s which is typical of discharges occurring at the end of July for previous years.
6. During August the discharge remained relatively constant at less than 3 ℓ/s .
7. From September 1 to the end of the record on October 8 the Round Lake outlet flow increased from 2 ℓ/s to over 8 ℓ/s due to the various precipitation events in

September totalling more than 69 mm for the month. In particular a sharp rise in flow was observed on September 7 in response to the 27 mm of precipitation that occurred on the previous day.

Over the 125 day period from June 5, 2009 to October 8, 2009, a total of 80,800 m³ passed through the hydrometric station. The average runoff for the Round Lake basin is estimated at 67.4 mm and the average outflow is estimated at 663 m³/day or 7.7 l/s. Tables 2.7 to 2.9 provide a summary of the Round Lake outlet drainage basin observations from 2005 to 2009.

2.5 NICHOLAS LAKE OUTLET (SITE #6)

The Nicholas Lake drainage basin is approximately 6 km by 2 km, with a total area of 6.28 km². Nicholas Lake is at an elevation of 325 m asl and elevations in the basin range up to about 370 m asl.

The Nicholas Lake outlet is located at the western end of the northwest arm of Nicholas Lake and conveys all flow leaving the Nicholas Lake drainage basin. At the lake outlet, there is a clearly defined channel about 30 cm deep and 1.5 m wide. Within 30 m of the lake outlet, the creek bed consists of large boulders and there is little evidence of surface flow. The flow travels through boulders for about 700 m prior to discharging into a small lake, and then flows west into Eclipse Lake (el. 311 m) before eventually reaching the Yellowknife River via numerous small lakes, ponds and bogs.

The hydrometric station was installed approximately 10 m downstream of the Nicholas Lake outlet. Stage discharge flow gauging techniques were utilized for this hydrometric station as the geometry of the bedrock creek bed remains constant over time.

An aerial view of the Nicholas Lake outlet hydrometric station and photos of the installed hydrometric station are located in the Nicholas Lake station site description in Appendix A.

2.5.1 Station History for 2009

The Nicholas Lake hydrometric station was reactivated for the 2009 hydrological study. The stage and temperature recorder and data logger were installed in the existing housing on June 6 at 13:03 hours.

The station was visited again on August 24 for site inspection, stage discharge data collection and downloading of the station's data.

The instrumentation was removed for the season on October 9, 2009 at 12:33 hours.

A complete history of the Nicholas Lake outlet hydrometric station, including installation notes, activation and deactivation dates, and repair work can be found in the site description in Appendix A.

2.5.2 Stage Measurements

Nicholas Lake outlet stage-discharge data were recorded on June 6 and August 24, 2009. This data was appended to flow data collected between May 31, 2004 and August 2, 2008 and is summarized in Table 2.10. Figure 2.7 shows the stage hydrographs at the Nicholas Lake outlet recorded from 2005 to 2009. Creek stages varied from 0.39 to 0.69 m over the period of record for 2009.

Note that there was no hydrometric program for this station in 2006 as per the client's request.

2.5.3 Stage-Discharge Relationship

A stage-discharge relationship was developed using the stage data and the measured discharge data obtained during this year and the previous years studies. This relationship is presented in Figure 2.8. During the spring of 2009 the Nicholas lake outlet flows were high; double the normal for this period and therefore the stage discharge relationship required the addition of a 3rd order polynomial to correctly fit the recorded stage discharge data to these higher than normal flows.

The relationship that best fits the data set as of August 24, 2009 is:

$$Q = 5.49 + 10.74 x + 22.75 x^3 + .02 e^{(11.06x)}$$

where Q = Nicholas Lake outlet discharge (ℓ/s)
 x = depth of water over the pressure transducer (m).

The correlation coefficient (r^2) is 0.9865.

2.5.4 Nicholas Lake Outlet Discharge Hydrograph

The recorded stages were used in conjunction with the stage-discharge relationship to produce the 2009 discharge hydrograph, see Figure 2.9. Also included in this figure is the discharge data collected at the site by Norecol in 1989.

Based on the discharge hydrographs of the Nicholas Lake Outlet for 2004 to 2009, the following observations were made:

1. There is little change in the Nicholas Lake hydrograph over the last 20 years. The 1989 data set fits well with the data collected from 2004 to 2009.
2. Nicholas Lake outlet typically begins to flow in early May. Peak freshet flows typically occur during late May.
3. Measured peak freshet flows range from 20 ℓ/s to 60 ℓ/s. Typical peak freshet flows for this creek are estimated at 35 ℓ/s.

4. After peak freshet, discharge typically decreases until mid August, at which time they are near the seasonal minimum of 8 to 15 ℓ/s .
5. During the month of September, recorded flows remain in the range of 8 to 15 ℓ/s , and are more variable in nature as precipitation is the dominant control for discharge.

The following are comments specific to the 2009 hydrograph:

1. In 2009 the freshet was late by an estimated 12 days due to a late spring melt.
2. The creek was flowing prior to the June 5 installation of the hydrometric station instrumentation.
3. The date of the highest recorded discharge of 60 ℓ/s occurred on June 6, the day the instruments were reinstalled. Peak freshet discharges were thus higher than 60 ℓ/s .
4. From June 6 to June 22, 2009 Nicholas Lake Outlet discharges were an estimated 80 to 100% higher than typical freshet flows recorded in previous years.
5. Beginning on June 22, as a result of a 4 day 28 mm precipitation event the discharge rapidly increased from the typical flow of 39 ℓ/s to over 58 ℓ/s by June 26.
6. From June 27 to mid August, the discharge dropped to less than 13 ℓ/s which is at the high end of typical discharges occurring at this time for previous years.
7. From mid August to the end of the record on October 9 the discharge remained relatively constant at 12.5 ℓ/s .

For the 125 day period from June 6 to October 9, a total of 282,400 m^3 passed through the hydrometric station. This flow consists only of runoff from the Nicholas Lake drainage basin.

Based on lake outflow data, the average runoff for the Nicholas Lake basin over the recorded period in 2009 was equivalent to 45.0 mm and the average flow was 2,290 m^3/day or 26.2 ℓ/s . Tables 2.11 and 2.14 provide a summary of the drainage basin observations for all four years of record.

2.5.5 Water Temperature Records

Nicholas Lake outlet water temperatures were recorded over the summers of 2005, 2007, 2008 and 2009. This was possible because the pressure/temperature transducers were located in the active flow area of the creek and therefore accurate water temperatures could be recorded. The entire record of creek temperatures is presented in Figure 2.10. The water temperature records for the first three years are quite consistent; however it is clear from Figure 2.10 that there is a shift to the right of almost 2 weeks in the water temperature recorded in 2009. This shift is further evidence that the spring melt was delayed.

Water temperatures exhibit a diurnal temperature fluctuation of about 2°C over the entire period of record. Diurnal minimum water temperatures occur between 6:00 and 8:00 hours, with maximums occurring between 17:00 and 19:00 hours.

At peak freshet in May, the water temperature was typically less than 10°C. Water temperatures increased to 18 to 20°C in early July and remain constant until the second week in August when they begin to cool. By late September to early October, water temperatures were typically less than 5°C.

3.0 METEOROLOGY

On September 28, 2004, a meteorological station was installed at a location approximately 50 m east of the north end of the airstrip. The NAD 27 GPS coordinates for the station are provided in Table 1.1 and in the station description in Appendix A.

The station measures wind speed and direction, air temperature, barometric pressure, relative humidity, incident solar radiation and water-equivalent precipitation. Meteorological data is logged at 15-minute intervals as an average of instantaneous measurements recorded every 5 seconds. A 24-hour daily summary is produced at the end of each day which includes the daily maximum, mean and minimum for each measured parameter. Data is retrieved from the logger with a laptop computer.

Evaporation is measured using an evaporation pan, installed 5 m from the meteorological station.

Meteorological data presented in this report has been analyzed over a period of 1920 days, beginning on September 28, 2004 and ending on December 31, 2009 with a focus on the data recorded in 2009.

3.1 METEOROLOGICAL STATION INSTRUMENTATION

The weather station consists of a standard 10 m meteorological tower with instrumentation to measure the previously mentioned parameters, with the exception of evaporation. The meteorological station is powered by a 12 V DC battery and 20 watt solar panel. Data are recorded by a Campbell Scientific CR10X data logger.

Brief descriptions and specifications of the instruments installed on the weather station, a map showing the station location and a picture of the meteorological station showing the 10 m tower, evaporation pan and the all-weather precipitation gauge are contained in the site description for the meteorological station in Appendix A.

3.2 WIND

Wind data recorded by the station over the period of record has been summarized and discussed in three different formats, as described below.

3.2.1 Wind Speed

The average daily wind speed is calculated from 15-minute wind data. The maximum instantaneous gust wind speed for the day is recorded by the meteorological station at midnight. These data for 2009 are displayed in Figure 3.1 with the maximum daily gust plotted in black and the average daily wind speed plotted in grey. Figure 3.2 displays wind speed summary data over the entire period of record.

Figure 3.1 shows that the mean daily maximum gust speed recorded in 2009 was approximately 9 m/s during the summer and 7 m/s during the winter. The maximum recorded wind gust in 2009 was 17.1 m/s on September 24. The highest wind gust recorded over the entire record was 18.8 m/s on May 18, 2008 (Figure 3.2).

Average wind speeds during 2009 were approximately 3 m/s, with the highest daily average of 6.4 m/s occurring on May 30. The highest daily average wind speed over the entire record was 9.2 m/s on September 23, 2008 (Figure 3.2).

Figure 3.2 illustrates a seasonal pattern with respect to wind speed with lower speeds occurring between November and March and higher speeds occurring between June and August. Maximum daily gusts are 3 m/s lower on average during the winter than during the summer.

Monthly averages for wind speeds and maximum daily gusts, based on data recorded over the entire period of record are summarized in Table 3.1. The monthly wind speeds contained in this table also illustrate the seasonal trend, with the lowest averages occurring during the winter months. Based on the period of record, the mean wind speed in December was 2.1 m/s while during June it was 3.4 m/s. Daily peak gusts also exhibit a seasonal pattern, with the highest average daily maximums occurring in August (9.4 m/s), and the lowest occurring in December (5.6 m/s).

3.2.2 Wind Speed and Direction Stick Plots

Hourly wind data for 2009 is contained in Figures B-53 through B-64 in Appendix B. Each figure consists of three panels.

The upper panel is a stick plot which displays the hourly wind vector. Direction is indicated by the angle of each hourly stick, with true north towards the top of the page. The wind speed is indicated by the length of the stick according to the scale in m/s, which is given at the left and right of the plot. The central panel indicates the hourly wind speed in m/s. This panel is useful as an indicator of windstorms or periods of calm. The lower panel shows the hourly wind direction.

Hourly wind data figures for previous months of the record appear chronologically in Figures B-1 through B-52 in Appendix B contained in the accompanying data DVD.

3.2.3 Wind Roses

A wind rose displays an entire period of recorded wind data on a single graph. The total duration of wind occurring within a specified speed range and compass direction is determined as a percentage of the total period of record. Wind speeds are grouped into ranges from: 0 to 1 m/s (calm); 1 to 3 m/s; 3 to 6 m/s etc.; in 3 m/s ranges to 18+ m/s. The wind direction is grouped into 16 compass direction ranges of 22.5 degrees. These data are summarized in the wind speed and direction frequency distribution table, which is located in the lower right of the figure. The wind rose displays graphically the data contained within the table.

The wind rose for the 2005 to 2009 period of record is shown in Figure 3.3. The length of the line in a particular compass direction is indicative of the duration of winds coming from that direction over the period of record. The thickness and colour of each portion of the line represents the different categories of wind speeds. Figure 3.3 shows that winds came predominantly from the east (12.4% frequency of occurrence) and the east-northeast (11.5%). Winds were least common from the southwest and west-southwest (2.1% and 1.9%, respectively).

The percentage of time the wind blows at a specific speed, irrespective of direction, can be determined by viewing the "Total %" row at the bottom of the frequency distribution table. Over the period of record, calm winds (less than 1 m/s) occurred 10.3% of the time. Wind speeds from all directions was between 1 and 3 m/s 46.2% of the time, between 3 and 6 m/s for 38.8%, between 6 and 9 m/s for 14.6% and between 9 and 12 m/s for 0.2% of the time. There were no extended periods when the wind speed was greater than 12 m/s.

The wind rose for 2009 is shown in Figure 3.4 and shows a similar pattern to the multi-year statistics presented in Figure 3.3. In 2009 winds came predominantly from the east (10.3% of the time) and the east-northeast (12.2%). Winds were least common from the southwest and west-southwest (2.6% and 2.2%, respectively).

Over 2009 calm winds occurred 10.9% of the time, wind speeds between 1 and 3 m/s 45.7%, between 3 and 6 m/s for 40.0%, between 6 and 9 m/s for 3.4% and between 9 and 12 m/s for 0.1% of the time. There were no extended periods when the wind speed was greater than 12 m/s.

Monthly wind rose figures for each month of 2009 are contained in Figures C-53 through C-64 in Appendix C.

Wind rose figures for previous months of the record are contained chronologically in Figures C-1 through C-52 in Appendix C on the accompanying data DVD.

An analysis of the monthly figures reveals a slight annual variability in wind behaviour at the site, with more prominent easterly winds occurring in the spring and summer, in particular, in April and May. Calm periods occur more often in December and January (frequency of occurrence typically in the range of 15% to 25%) than during the rest of the year. This behaviour is similar to the seasonal characteristics for wind speeds reported in Section 3.2.1.

The similarity of monthly wind patterns observed from 2005 to 2009 indicates consistency in the wind regime at the site over the four years of recorded data.

3.3 OTHER METEOROLOGICAL PARAMETERS

Monthly meteorological data for 2009 plotted in Figures D-53 through D-64 in Appendix D display hourly observations of air temperature, solar radiation, relative humidity, barometric pressure, and water-equivalent precipitation recorded at the meteorological station.

Monthly meteorological wind data figures for previous months of the record appear chronologically in Figures D-1 through D-52 in Appendix D contained in the accompanying data DVD.

The summary plots shown in Figures 3.5 through 3.15 show the daily maximum, mean and minimum for each of the measured meteorological parameter. The parameters are described in detail in the following sections.

3.3.1 Air Temperature

Air temperatures are summarized in terms of daily extreme and mean temperatures and presented as hourly observations.

3.3.1.1 Daily Extremes for Air Temperature

Daily maximum, minimum and mean air temperatures are recorded by the meteorological station at midnight.

The data summarized in Figure 3.5 is for the period of January 1 to December 31, 2009 and shows the mean daily air temperatures as a thick red line bounded by thin black lines indicating the daily maximum and minimum temperatures. This figure shows the maximum recorded air temperature in 2009 was 27.9°C on July 21. The minimum recorded was -44.4°C on January 2. A short term rise in air temperatures resulted in a daily maximum slightly above zero on January 19 from winter norms over a period of 5 days.

Daily maximum, mean and minimum air temperatures are plotted for the entire period of record in Figure 3.6. This figure clearly illustrates the sinusoidal seasonal pattern to air temperature at the property. The summer period can be defined as the period where daily temperatures typically remain above 0°C, and runs from mid-May through late-September. Winter normals are typically in the range of -20°C to -40°C.

Monthly average summaries in Table 3.1 show that the warmest month is July, with a mean temperature of 16°C and typical diurnal temperature extremes of 21°C and 11°C. The coldest month of the year is January with a mean daily temperature of -25°C, and typical extremes of -21°C and -29°C. The highest temperature recorded at the site was 31.3°C on August 10, 2008. The lowest temperature recorded was -45.1°C on January 29, 2008.

Generally, the daily variation is $\pm 5^\circ\text{C}$ from the mean daily air temperature, with a slightly larger variation during the summer months.

3.3.1.2 Hourly Air Temperatures

The air temperature recorded hourly over the entire period of record is indicated by the red line in the upper panel in the figures in Appendix D. These figures are useful for viewing temperature trends for a particular day or over a short period of time.

3.3.2 Relative Humidity

Relative humidity is summarized in terms of daily extremes and means and presented as hourly observations.

3.3.2.1 Daily Extremes for Relative Humidity

Figure 3.7 shows the relative humidity data plotted for 2009. The thick blue line in the figure represents the mean relative humidity for the day. The maximums and minimums are indicated by black lines. Maximum, mean and minimum relative humidity is plotted for the entire period of record in Figure 3.8.

A sinusoidal seasonal pattern to mean relative humidity is evident. During the winter months, mean daily relative humidity typically fluctuates between 80% and 90%. During the summer months, mean relative humidity has a much larger variance, typically fluctuating between 45% and 80%. Table 3.1 shows that the lowest daily mean relative humidity levels occur in May, June and July (63%, 56% and 61%, respectively). The highest levels occur in October, November and December (86%, 87% and 82%, respectively).

The fluctuation in daily relative humidity is indicated by the envelope of daily maximums and minimums. Daily extremes also exhibit a seasonal variance, with a larger variance occurring during the summer. Over the summer period, daily maximum and minimum relative humidity typically varies $\pm 30\%$ from the mean. However, during the winter period, the typical diurnal variation of relative humidity is less than $\pm 10\%$. Over the period of record, the relative humidity varied from an extreme minimum of 16.1% on June 28, 2007 to a high of 100%, which occurred numerous times throughout the record.

3.3.2.2 Hourly Relative Humidity

Daily relative humidity for the entire period of record is indicated by the blue line in the second panel in the figures in Appendix D.

The data can be used to identify an increase in moisture in the air, relative to air temperature.

3.3.3 Barometric Pressure

Barometric pressure is summarized in terms of daily extremes, means and presented as hourly observations.

Barometric pressure has been corrected to represent the equivalent pressure at mean sea level. This is a standard meteorological convention used to enable direct comparison of

meteorological station data regardless of the station elevation. To correct barometric pressures presented in this report to actual barometric pressures at site, it is necessary to reduce the stated pressure by 36 hPa. (hPa is the metric equivalent to a millibar and represents 0.1 kPa.)

3.3.3.1 Daily Extremes for Barometric Pressure

The station records the daily maximum, mean and minimum barometric pressures at midnight. Figure 3.9 shows the daily maximum, mean and minimum barometric pressures recorded in 2009. The thick green line in the figure represents the mean daily barometric pressure. Daily maximum and minimum barometric pressures are indicated by black lines.

The average barometric pressure for 2009 was 1010 hPa., the lowest barometric pressure was 974 hPa on October 6 and 7 and the highest was 1041 hPa on December 5.

Figure 3.10 displays the daily mean and extremes over the entire period of record. Annually barometric pressure at the site typically varies from a low of 990 hPa to a high of 1040 hPa (sea-level-equivalent). The lowest pressure recorded over the entire period of record was 953 hPa on October 26, 2008 and the highest was 1044 hPa on February 16, 2006.

Figure 3.10 shows a slight seasonal variation in barometric pressure, with a wider day-to-day range of pressures occurring during the winter months. Typical variances during the summer are in the range of ± 3 hPa while during the winter they are (± 10 hPa). Table 3.1 shows that the months with the highest mean barometric pressure are February through May. The yearly mean is 1012 hPa.

3.3.3.2 Hourly Barometric Pressure

Hourly barometric pressure over the entire period of record is indicated by the green line in the third panel of the figures in Appendix D.

Hourly barometric pressure data can be used to give an idea as to the type of weather conditions at the site at any given time. High pressure would tend to indicate clearer conditions while lower pressure would tend to indicate an intrusion of a moister air mass. The data can be helpful in inferring the movement of weather patterns over the site.

3.3.4 Incident Solar Radiation

Incident solar radiation is summarized in terms of daily maximums and presented as hourly observations. Monthly solar radiation at the site is also provided in Table 3.1 as an approximate percentage of the latitude-dependent theoretical maximum under clear skies.

3.3.4.1 Daily Extremes for Incident Solar Radiation

The daily maximum instantaneous incident solar radiation is archived at midnight. The minimum daily incident solar radiation should always be zero at 63° 11' N, because the sun is below the horizon for at least a short period each day throughout the year.

Figure 3.11 shows the 2009 daily maximum incident solar radiation. Maximum incident solar radiation for the entire period of record is plotted in Figure 3.12.

Due to the latitude of the Yellowknife Gold Project site, there is an obvious sinusoidal pattern to the data set. During December, the sun is lowest in the sky, and incident solar radiation is at a minimum. Table 3.1 shows that the average daily maximum for December is 35 W/m^2 . During December, daily variations in the maximum solar incident radiation are usually less than 30 W/m^2 .

During the summer, incident solar radiation is at its highest, with daily peak values averaging 928 W/m^2 in July. The highest flux of solar radiation received at the site in 2009 was 1204 W/m^2 , which occurred on May 24. The highest value recorded over the entire period was 1281 W/m^2 on June 19, 2007. During the summer months, cloud cover can cause large variations from the theoretical maximum on the order of daily maximums, dropping peak daily values below 400 W/m^2 .

Percentage of received theoretical solar radiation is an estimate that provides some information on the annual and monthly cloud cover. Theoretical incident radiation at the site is calculated for each hour of the year as a function of latitude and longitude. The percentage is approximate only, as atmospheric dispersion is estimated at 20% and is held constant throughout the year. Based on a comparison of theoretical and recorded values at the site, March and April are the sunniest months of the year with less than 40% of solar insolation attenuated by the atmosphere. The lowest monthly percentages occur between October and January, when less than 36% of all incoming solar radiation is received at the surface. The annual average over the period of record was 48%.

3.3.4.2 Hourly Incident Solar Radiation

Hourly incident solar radiation for the entire period of record is indicated by the black line in the fourth panel in the figures in Appendix D.

In the absence of cloud cover, smoke or air pollution, daily peaks occur when the sun is at its highest point in the sky. At $113^\circ 53' \text{ W}$, the sun's zenith occurs at 12:36 pm. Incident solar radiation drops to zero overnight.

Hourly insolation data is useful for determining the amount of daylight the site receives on a given day. Based on the data, the site, receives approximately 20 hours of daylight at the summer solstice and approximately four hours at the winter solstice. Hourly insolation data is also useful in determining periods of cloud cover on a given day.

3.3.5 Precipitation

Precipitation at the site can occur as either rain or snow. Generally, the precipitation is in the form of rain between June and August, and as snow from October to April. During May and September there is a possibility of either rain or snow or both. The type of precipitation that fell during a particular hour can be established by cross-referencing with the hourly air temperature using the figures contained in Appendix D.

3.3.5.1 Recorded Precipitation

Precipitation is recorded at 15 minute intervals. Both rain and snow are recorded by the gauge as water-equivalent. The instrumentation for the continuous measurement of all forms of precipitation is outlined in Appendix A.

The 2009 summary of daily precipitation is presented in Figure 3.13 as a histogram and in tabular form as Table 3.7. The maximum precipitation recorded in one day in 2009 was 26.9 mm on September 7. The largest single-day precipitation event of the entire monitoring period (34.5 mm) occurred on September 23, 2008. Figure 3.14 shows daily precipitation amounts over the entire period of record. Tabulated records for 2004 to 2009 are contained in Tables 3.2 to 3.7 inclusive. The amount of precipitation associated with a typical rain event is about 1 to 3 mm and generally lasts between 1 and 2 hours. Heavy precipitation days tend to occur more commonly during the summer months in the form of rain, but can also occasionally occur as snowfall during the winter months.

Daily precipitation data collected over the period of record has been summarized as monthly and annual averages in Table 3.1. Based on the 4 complete years of recorded data, the site receives, on average, 261 mm of precipitation annually. The most precipitation fell in July, August & September (35 mm, 48 mm & 48 mm per month, respectively). The least fell in March (8 mm for the month).

The bottom panel in the figures in Appendix D show the amount of daily precipitation recorded over the entire period of record.

3.4 EVAPORATION

On June 4, 2009 the evaporation pan was reinstalled near the meteorological station, and data was recorded from this date until September 28, 2009, when the pan was decommissioned due to the onset of freezing temperatures. The water level in the pan was typically measured daily at 07:00 hours using a point gauge, accurate to ± 0.5 mm. Daily evaporation was calculated by determining the change in the pan water level and subtracting the increase in the water depth due to precipitation for the same period. For days when the point gauge was read at times other than at 07:00 hours, a ratio of 24 hours to the time difference between the two consecutive readings was used to correct the evaporation to a 24 hour period.

The equivalent daily evaporation rate is shown as a black line in Figure 3.15. On days when the evaporation is less than zero, it is assumed that water was added to the pan by condensation. The pink line in Figure 3.15 is a seven-day running average of the daily evaporation rate.

Table 3.7 is a summary of the evaporation collection period for each year, and the number of days of data collected for each month.

Tables 3.8 and 3.9 summarize the daily pan evaporation rates and totals for each month the evaporation pan was operational for all years on record. Table 3.8 summarizes the average pan evaporation rates for the data collected from 2005 to 2009. The average site

pan evaporation for the five years was 4.0 mm/day. There was very little change in the average evaporation for each of the four years. Average monthly pan evaporation rates are included in this table.

Table 3.9 is a summary of the total pan evaporation for all five years of record both on a monthly basis and the total for each year. The five-year average total pan evaporation for the summer (June to mid September) was 426 mm.

Research into evaporation pan rates has shown that lake evaporation rates are lower than pan evaporation rates by a factor of 0.6 to 0.8 (Chow, 1964).

4.0 RECOMMENDATIONS

It is recommended that the hydrology and meteorology programs be continued through 2010, so as to extend the period of record for both flows and weather parameters. Tyhee NWT Corp. has indicated that the mineral resource at Nicholas Lake will likely be developed in conjunction with the Ormsby resource; therefore, the Nicholas Lake hydrometric station should be reinstalled and activated for the 2010 hydrological field program.

A robust pressure transducer has recently been developed which can remain installed over the winter period, and then when thawed out resume the accurate recording of creek stage. It is recommended that these new transducers be utilized to enable the hydrographs to contain a full year of hydrology data.

Lake level data was collected during 2009, for only a short period of time from August 24 to September 28. It is recommended that the lake level studies be continued. As all the stations are still installed the increase in cost to the 2010 hydrometric field program would be minimal.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Tyhee NWT Corp. and their agents. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Tyhee NWT Corp., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in EBA's Services Agreement and in the General Conditions provided in Appendix F of this report.

6.0 CLOSURE

We trust this report meets your requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Yours sincerely,
Hay & Company Consultants
(a division of EBA Engineering Consultants Ltd.)

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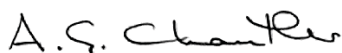


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REFERENCES

Chow, V.T. 1964. Handbook of Applied Hydrology. McGraw-Hill Book Company, New York, USA.



TABLES



TABLE 1.1: HYDROMETRIC AND METEOROLOGICAL STATION COORDINATES							
Site #	Site Name	Longitude			Latitude		
		deg	min	sec	deg	min	sec
1	Narrow Lake Outlet	63	9	16.4	113	57	7.3
3	Winter Lake Outlet	63	10	4.8	113	55	38.5
4	Round Lake Outlet	63	10	30.3	113	54	27.2
6	Nicholas Lake Outlet	63	15	20.1	113	46	4.4
7	Tyhee Meteorological Station	63	11	6.2	113	53	40.2

Note: All coordinates are referenced to NAD 27

TABLE 2.1: NARROW LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD

Year	Days of Recorded Data for Each Month						Period of Record for Year		
	May	June	July	August	September	October	Length (days)	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)			
2005	10	30	30	31	12		112	May 22/05 11:11	Sep 12/05 14:59
2006		22	31	31	19		102	Jun 09/06 09:42	Sep 19/06 14:12
2007	11	30	31	31	28		130	May 21/07 09:27	Sep 28/07 16:42
2008		27	31	31	25		114	Jun 04/08 08:14	Sep 26/08 11:44
2009		25	31	31	30	8	124	Jun 06/09 08:46	Oct 08/09 13:01

Note: Shaded areas indicate incomplete months of data

TABLE 2.2: NARROW LAKE OUTLET - MEAN MONTHLY DISCHARGES

Year	May	June	July	August	September	October	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005	173.6	156.4	44.3	21.6	27.9		77.4
2006		71.8	35.6	19.9	28.5		37.2
2007	113.5	58.6	11.9	4.8	0.6		26.8
2008		22.0	9.4	1.9	17.3		12.1
2009		76.5	55.0	10.9	21.1	49.6	39.7

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

TABLE 2.3: NARROW LAKE BASIN - RUNOFF ESTIMATES

Year	May	June	July	August	September	October	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005	15.4	43.6	12.3	6.2	3.0		80.5
2006		14.4	10.3	5.7	4.9		35.3
2007	11.2	16.3	3.4	1.4	0.2		32.5
2008		5.5	2.7	0.6	4.1		12.8
2009		17.5	15.8	3.1	5.9	3.5	45.8

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

ISSUED FOR USE

TABLE 2.4: WINTER LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD

Year	Days of Recorded Data for Each Month						Period of Record for Year		
	May (days)	June (days)	July (days)	August (days)	September (days)	October (days)	Length (days)	Start Date	End Date
2005			17	31	11		60	Jul 14/05 14:26	Sep 12/05 10:26
2006		22	31	31	19		102	Jun 09/06 11:10	Sep 19/06 13:40
2007	13	30	31	31	28		132	May 19/07 11:04	Sep 28/07 15:49
2008	9	30	31	30	25		126	May 22/08 14:45	Sep 26/08 08:00
2009		25	31	31	30	8	125	Jun 05/09 12:31	Oct 08/09 13:16

Note: Shaded areas indicate incomplete months of data

TABLE 2.5: WINTER LAKE OUTLET - MEAN MONTHLY DISCHARGES

Year	May (L/s)	June (L/s)	July (L/s)	August (L/s)	September (L/s)	October (L/s)	*POR (L/s)
2005			20.1	13.6	16.5		16.0
2006		31.0	13.8	8.0	14.8		15.9
2007	60.3	33.7	4.1	0.3	0.0		14.4
2008	13.5	11.1	4.0	1.7	3.4		5.7
2009		48.2	33.3	3.2	7.6	19.2	21.9

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

TABLE 2.6: WINTER LAKE BASIN - RUNOFF ESTIMATES

Year	May (mm)	June (mm)	July (mm)	August (mm)	September (mm)	October (mm)	*POR (mm)
2005			5.5	6.6	3.0		15.1
2006		10.5	6.7	3.9	4.3		25.5
2007	11.9	15.9	2.0	0.2	0.0		29.9
2008	2.0	5.2	1.9	0.8	1.3		11.3
2009		19.3	16.2	1.6	3.6	2.3	42.9

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data

TABLE 2.7: ROUND LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD

Year	Days of Recorded Data for Each Month						Period of Record for Year		
	May	June	July	August	September	October	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)	(days)		
2005			14	31	11		56	Jul 18/05 09:32	Sep 12/05 09:32
2006		21	31	31	30	3	116	Jun 09/06 16:29	Oct 03/06 14:44
2007	13	30	3				46	May 19/07 10:04	Jul 04/07 09:04
2008	9	26	0	31	25		93	May 22/08 14:30	Sep 26/08 07:42
2009		26	31	31	30	8	125	Jun 05/08 10:15	Oct 08/08 14:00

Note: Shaded areas indicate incomplete months of data.

TABLE 2.8: ROUND LAKE OUTLET - MEAN MONTHLY DISCHARGES

Year	May	June	July	August	September	October	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005			7.0	2.5	3.0		3.7
2006		8.1	3.5	1.7	5.3	20.1	4.7
2007	9.5	6.0	0.2				6.6
2008	6.6	5.1	0.3	0.2	4.5		3.4
2009		15.6	9.5	2.7	4.3	8.4	7.7

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data.

TABLE 2.9: ROUND LAKE BASIN - RUNOFF ESTIMATES

Year	May	June	July	August	September	October	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005			6.9	5.5	2.5		14.8
2006		12.5	7.9	3.8	11.5	3.9	39.6
2007	8.6	13.0	0.0				21.7
2008	4.5	9.7	0.0	0.3	8.2		22.7
2009		28.7	21.2	6.0	9.4	4.6	67.4

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data.

TABLE 2.10: SUMMARY OF DISCHARGE MEASUREMENTS			
Site#6 - Nicholas Lake Outlet			
Date/time	Staff Gauge Reading	Discharge	Comments
MDST	m	l/s	
2004			
May 19/04 16:00	Not installed	0.0	Ice filled creek bed
May 31/04 15:53	0.470	22.4	
May 31/04 16:39	0.470	21.0	
Jun 01/04 14:04	0.478	26.4	
Jun 01/04 14:26	0.478	22.0	
Jun 02/04 13:34	0.487	25.5	
Jun 02/04 13:57	0.487	30.3	
Sep 30/04 14:26	0.229	10.5	
Sep 30/04 14:52	0.228	10.4	
Oct 01/04 08:52	0.231	11.3	
Oct 01/04 09:02	0.231	11.2	
2005			
May 23/05 08:10	n/a	0.0	Ice filled creek bed
Aug 06/05 09:06	0.390	13.6	
Aug 06/05 09:28	0.390	14.8	
2007			
Jun 10/07 17:12	0.480	19.9	
Jun 10/07 17:32	0.480	22.8	
Jun 11/07 8:29	0.500	21.7	
Jun 11/07 8:39	0.500	24.7	
2008			
Jun 04/08 13:51	0.497	14.4	
Jun 04/08 14:04	0.497	13.0	
Jun 04/08 14:39	0.497	13.8	
Jun 04/08 14:50	0.497	14.5	
Aug 02/08 09:34	0.310	7.6	
Aug 02/08 09:53	0.310	7.3	
2009			
Jun 06/09 14:47	0.712	61.3	
Jun 06/09 15:16	0.712	60.5	
Aug 24/09 14:09	0.426	12.2	
Aug 24/09 14:32	0.426	12.6	

TABLE 2.11: NICHOLAS LAKE OUTLET - HYDROMETRIC DATA - PERIODS OF RECORD

Year	Days of Recorded Data for Each Month						Period of Record for Year		
	May	June	July	August	September	October	Length (days)	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)	(days)			
2005			19	31	12		62	Jul 13/05 10:17	Sep 13/05 16:17
2006									
2007		20	31	31	29		112	Jun 10/07 15:51	Sep 30/07 09:06
2008	6	30	31	31	23		121	May 26/08 12:51	Sep 26/08 11:51
2009		24	31	31	30	9	125	Jun 06/09 13:03	Oct 09/09 12:33

Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR

No hydrometric data was collected at this site during 2006

TABLE 2.12: NICHOLAS LAKE OUTLET - MEAN MONTHLY DISCHARGES

Year	May	June	July	August	September	October	*POR
	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)
2005			18.2	14.2	13.7		15.30
2006							
2007		19.2	11.7	9.3	7.8		11.40
2008	15.2	12.5	9.9	8.3	8.2		10.05
2009		49.6	35.0	15.2	12.8	13.2	26.20

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR

No hydrometric data was collected at this site during 2006

TABLE 2.13: NICHOLAS LAKE OUTLET - MEAN WATER TEMPERATURES

Year	MAY	June	July	August	September	October	*POR
	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)	(°C)
2005			16.7	14.4	11.5		14.5
2006							
2007		15.6	18.9	14.9	7.7		14.3
2008	7.4	13.6	18.5	17.4	9.0		14.6
2009		10.9	17.1	15.9	12.9	13.2	26.2

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR

No hydrometric data was collected at this site during 2006

TABLE 2.14: NICHOLAS LAKE BASIN - RUNOFF ESTIMATES

Year	May	June	July	August	September	October	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2005			4.7	6.0	2.4		13.1
2006							
2007		5.4	5.0	4.0	3.1		17.5
2008	1.1	5.2	4.2	3.5	2.6		16.7
2009		16.7	14.9	6.5	5.3	1.5	45.0

* POR Refers to period of recorded data for each year.

Note: Shaded areas indicate incomplete months of data which occur at the start and end of the POR

No hydrometric data was collected at this site during 2006

TABLE 3.1: SUMMARY OF TYHEE STATION MONTHLY AVERAGE METEOROLOGICAL OBSERVATIONS

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Wind													
†Average Wind Speed (m/s)	2.38	2.56	2.87	3.23	3.32	3.42	3.04	3.29	3.24	3.48	2.91	2.12	2.97
Average Daily Maximum Wind Gust (m/s)	6.06	6.65	7.3	8.23	8.37	9.05	9.12	9.36	8.42	8.94	7.62	5.58	7.89
Extreme Wind Gust (m/s)	10.25	9.23	8.97	11.29	11.14	10.19	11.41	10.64	10.81	11.08	11.53	9.47	11.53
Air Temperature													
Extreme Daily Maximum Temperature (°C)	0.2	-3.9	4.8	13.4	25.5	30.1	29.0	31.3	24.7	15.8	1.0	-2.7	31.3
Average Daily Maximum (°C)	-21.1	-19.2	-12.2	0.5	8.6	17.7	20.7	17.5	9.2	0.7	-11.1	-18.6	-0.6
Average Daily Mean (°C)	-24.9	-23.6	-18.1	-5.3	3.3	12.7	16.0	13.1	5.9	-1.9	-14.1	-22.2	-4.9
Average Daily Minimum (°C)	-29.0	-27.9	-23.8	-11.2	-2.0	7.4	11.4	9.1	3.1	-4.5	-17.6	-25.9	-9.2
Extreme Daily Minimum Temperature (°C)	-45.1	-44.5	-40.5	-34.4	-13.7	-1.1	2.7	2.1	-7.2	-16.8	-38.3	-42.5	-45.1
Relative Humidity													
Average Daily Maximum (%)	83.6	83.3	83.3	87.0	85.4	80.6	85.1	89.8	93.0	94.8	91.9	86.3	94.8
Average Daily Mean (%)	79.0	76.8	70.2	68.4	63.0	55.7	60.7	69.2	78.5	85.5	87.3	82.2	73.0
Average Daily Minimum (%)	73.6	67.7	53.0	47.7	40.6	34.4	37.2	46.3	59.5	72.5	81.3	77.6	34.4
Barometric Pressure													
Average Daily Maximum (hPa)	1016	1020	1019	1017	1018	1013	1012	1013	1014	1011	1015	1015	1020
Average Daily Mean (hPa)	1012	1016	1015	1014	1015	1011	1010	1010	1011	1007	1011	1011	1012
Average Daily Minimum (hPa)	1007	1012	1011	1011	1012	1009	1008	1007	1007	1002	1007	1006	1002
Incident Solar Radiation													
Average Daily Total (W/m ²)	7	40	116	198	255	262	225	168	84	37	11	4	117
Average Daily Maximum (W/m ²)	50	219	485	690	840	909	928	778	489	268	88	35	482
Extreme Daily Maximum (W/m ²)	178	523	786	1187	1204	1281	1207	1093	924	650	303	165	1281
‡Percentage Received of Theoretical	29%	54%	67%	65%	61%	55%	51%	48%	39%	36%	33%	35%	48%
Precipitation Totals													
Average Monthly Total (mm)	11.2	13.3	8.1	14.1	9.6	26.4	34.7	48.1	48.3	17.4	20.1	8.7	259.8
Average Daily Total (mm)	0.36	0.47	0.26	0.47	0.31	0.88	1.12	1.55	1.61	0.56	0.67	0.28	0.71
Extreme Daily Maximum (mm)	11.2	15.5	2.8	10.4	4.8	29.5	21.1	17.0	34.5	7.9	17.0	6.6	34.5
†Intensity - Extreme 15-Minute (mm)	3.05	3.56	0.51	3.56	1.27	3.56	5.84	4.32	3.56	3.30	5.33	2.03	5.84

Averages based on 24-hour summary data between September 29, 2004 and December 31, 2009

†Average wind speed, extreme maximum gust, extreme 15-minute precipitation calculated using 15-minute data

‡Percent of theoretical maximum solar radiation is the percentage of the average monthly total recorded by the station of the total theoretical monthly solar input based on latitude excluding affects of attenuation by the atmosphere and is a indicator of average monthly cloud cover

TABLE 3.2: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2004

Date	Jan (mm)	Feb (mm)	Mar (mm)	Apr (mm)	May (mm)	Jun (mm)	Jul (mm)	Aug (mm)	Sep (mm)	Oct (mm)	Nov (mm)	Dec (mm)
1										0.76	0.25	-
2										1.52	4.32	-
3										1.27	0.76	-
4										-	3.30	-
5										-	-	-
6										3.56	-	-
7										1.02	0.25	-
8										1.02	-	-
9										2.79	0.25	-
10										1.02	-	-
11										-	0.51	-
12										-	0.51	-
13										1.27	0.25	0.76
14										-	1.27	4.32
15										-	4.32	0.76
16										-	-	0.76
17										-	-	-
18										-	-	0.25
19										-	0.25	2.29
20										-	0.25	-
21										0.25	-	-
22										0.25	-	-
23										1.78	-	1.78
24										2.03	0.25	2.29
25										-	-	0.51
26										-	-	-
27										5.33	-	0.25
28										1.27	-	-
29									4.32	-	-	-
30									1.02	1.27	-	-
31										0.25		-
Total									5.33	26.67	16.76	13.97

Total water equivalent precipitation measured over the period from September 29, 2004 to December 31, 2004 was **62.74** mm


 indicates days with no precipitation data

TABLE 3.3: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2005

Date	Jan (mm)	Feb (mm)	Mar (mm)	Apr (mm)	May (mm)	Jun (mm)	Jul (mm)	Aug (mm)	Sep (mm)	Oct (mm)	Nov (mm)	Dec (mm)
1	0.25	0.25	-	0.25	-	0.76	-	-	2.79	0.51	0.25	-
2	0.25	1.52	0.25	-	-	0.51	-	1.52	1.27	-	-	-
3	-	-	-	1.27	-	-	1.02	1.78	2.79	-	0.51	-
4	1.02	-	-	-	-	-	-	0.25	0.76	1.02	-	-
5	11.18	0.25	2.79	1.52	-	-	-	-	1.02	-	-	-
6	-	0.51	-	0.51	-	-	-	0.51	-	-	3.81	-
7	-	2.79	1.78	-	-	1.02	4.32	-	-	-	0.25	-
8	-	-	1.02	-	-	-	1.02	-	-	-	3.05	-
9	-	4.06	0.51	2.29	-	-	1.52	0.51	-	-	0.76	2.03
10	-	0.25	-	2.54	-	0.25	-	0.51	-	3.81	1.02	-
11	-	1.52	-	-	-	0.51	0.76	0.51	7.62	0.25	-	-
12	-	0.25	-	-	-	0.51	0.25	0.25	0.25	0.51	-	-
13	-	0.25	0.51	-	-	-	-	-	0.76	-	0.51	0.25
14	-	-	0.51	2.03	-	11.94	-	0.51	-	-	4.32	-
15	-	1.02	-	-	-	3.81	-	1.27	-	-	-	-
16	-	-	-	-	-	-	21.08	-	9.65	3.30	-	0.25
17	-	-	1.02	-	-	0.51	2.03	0.51	0.25	2.29	-	0.76
18	-	1.27	-	-	-	1.27	-	-	-	-	-	1.52
19	1.02	1.27	0.25	0.76	0.51	0.51	-	-	0.25	0.76	0.76	-
20	1.02	0.25	-	0.25	1.02	2.03	-	-	-	1.52	0.76	-
21	-	0.25	-	0.51	-	0.51	-	11.68	1.02	-	-	0.76
22	0.25	0.25	-	1.02	0.25	-	-	-	9.14	0.76	7.62	1.02
23	0.25	0.51	-	0.51	-	0.51	-	-	-	1.02	-	0.51
24	0.25	2.79	1.78	1.52	-	-	-	0.25	0.51	-	-	0.51
25	0.76	-	-	-	0.76	-	-	0.25	6.86	-	-	0.76
26	3.56	0.25	-	-	-	-	-	0.25	0.25	-	-	0.51
27	1.78	-	-	-	0.25	0.25	0.76	-	-	-	-	-
28	-	1.78	-	-	0.76	-	2.29	12.95	1.52	-	-	-
29	-		-	-	1.27	0.51	-	8.38	2.79	-	-	-
30	-		-	-	0.25	-	13.21	0.51	-	-	-	0.76
31	5.84		-		1.27		2.79	-		-		-
Total	27.44	21.34	10.41	14.99	6.35	25.40	51.05	42.41	49.53	15.75	23.62	9.65

Total water equivalent precipitation measured over the period from January 1, 2005 to December 31, 2005 was **297.94** mm

TABLE 3.4: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2006

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	1.02	1.02	-	0.76	-	1.02	1.78	-	0.25	-	-	-
2	0.51	1.02	-	-	-	-	1.02	-	1.27	0.51	-	-
3	-	4.57	-	0.51	-	-	1.52	0.51	0.76	-	-	-
4	-	-	-	-	-	4.06	-	-	-	-	0.76	0.25
5	-	-	-	-	-	-	1.27	-	-	-	0.25	-
6	-	-	-	-	-	0.76	-	-	2.29	-	-	-
7	-	-	-	0.76	0.25	0.76	-	1.27	-	-	-	2.29
8	-	1.78	-	-	-	1.27	-	1.02	-	0.51	10.67	-
9	-	1.27	-	2.03	3.05	1.52	-	0.76	0.76	-	0.25	-
10	-	1.02	-	-	1.02	1.27	-	0.76	-	-	-	0.25
11	-	-	-	0.25	0.76	0.51	-	1.27	-	-	-	-
12	-	-	-	0.51	-	-	9.91	0.51	-	-	-	-
13	-	-	-	0.76	-	0.25	3.05	2.79	-	-	-	-
14	-	-	-	-	-	1.02	1.02	15.49	-	-	-	-
15	-	-	-	10.41	-	-	1.02	0.25	-	-	-	-
16	-	-	-	-	-	-	1.52	1.02	-	-	2.54	-
17	-	-	-	-	-	-	-	-	-	-	17.02	-
18	-	-	-	-	-	-	-	17.02	-	-	-	-
19	-	-	-	0.25	-	-	-	3.81	-	-	0.25	-
20	-	-	-	-	-	-	1.02	0.25	-	-	-	-
21	-	-	-	-	4.83	-	0.51	-	-	-	-	0.51
22	0.51	-	-	-	4.32	-	-	0.51	-	-	-	-
23	-	-	-	-	0.76	-	-	15.49	0.76	-	-	-
24	-	-	-	0.76	1.02	-	2.03	7.37	0.51	0.51	-	-
25	0.76	-	-	-	-	-	1.27	1.02	-	3.56	-	0.25
26	1.52	-	-	-	2.29	-	0.51	-	-	0.51	-	-
27	-	-	-	-	2.29	0.25	-	-	0.25	0.76	-	-
28	0.25	-	0.51	-	-	-	-	2.54	1.52	-	-	-
29	0.76		2.79	-	1.02	-	-	-	2.03	-	-	-
30	0.25		-	-	1.27	29.46	0.51	-	0.76	3.30	-	-
31	0.51		1.52		0.51		-	0.76		-		-
Total	6.10	10.67	4.83	17.01	23.37	42.16	27.94	74.42	11.18	9.65	31.75	3.56

Total water equivalent precipitation measured over the period from January 1, 2006 to December 31, 2006 was **262.63** mm

TABLE 3.5: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	-	-	1.00	-	-	-	0.25	1.27	-	-	-	-
2	-	-	0.60	-	-	-	-	0.76	0.25	2.03	-	-
3	-	-	0.60	-	-	-	-	0.25	0.25	-	0.25	-
4	0.20	-	-	-	-	-	-	-	-	-	-	-
5	0.20	-	-	-	-	-	-	-	-	3.81	-	-
6	5.20	-	-	-	-	-	-	-	-	1.78	-	-
7	-	-	1.80	-	0.25	-	-	-	-	-	-	-
8	-	-	0.20	0.25	-	-	-	-	-	3.56	-	-
9	-	-	1.60	0.25	0.25	-	-	0.25	-	0.51	-	-
10	0.20	-	1.40	-	-	-	-	-	0.25	1.02	-	-
11	-	-	-	-	1.02	0.51	-	1.52	-	1.02	1.02	-
12	0.20	0.20	1.80	-	3.30	0.76	2.54	1.78	-	-	1.02	-
13	-	-	-	3.56	0.25	-	-	-	-	-	0.25	-
14	-	0.40	0.40	-	0.51	-	0.25	0.51	-	0.25	0.51	0.51
15	1.20	-	-	-	-	-	-	-	-	-	0.25	0.25
16	1.20	-	-	-	1.27	0.25	-	0.25	-	-	-	6.60
17	-	-	-	-	-	-	-	0.51	-	-	3.05	-
18	-	0.60	-	-	-	-	-	0.51	-	-	-	4.06
19	-	1.40	-	-	1.02	-	-	-	-	-	0.51	-
20	0.20	4.00	-	0.25	-	-	-	13.97	-	-	1.27	-
21	-	-	0.80	-	-	-	0.25	3.56	0.51	1.78	1.27	-
22	-	-	-	-	-	-	2.54	0.51	-	0.25	-	-
23	-	1.00	-	-	0.76	1.27	1.02	-	-	-	-	-
24	1.80	1.00	0.25	-	0.51	-	0.25	0.51	2.03	-	-	-
25	9.40	-	-	-	0.51	-	0.25	-	0.51	0.25	-	-
26	-	1.20	-	-	0.25	-	0.51	-	0.76	0.25	-	-
27	-	0.40	0.25	-	-	-	6.86	-	0.51	2.54	-	-
28	-	0.40	1.02	1.02	-	-	2.29	-	-	-	-	-
29	1.80	-	-	2.54	-	-	0.51	0.25	2.03	-	-	-
30	-	-	-	0.76	-	-	-	-	-	1.27	-	-
31	-	-	-	-	-	-	12.95	-	-	2.03	-	-
Total	21.60	10.60	11.72	8.64	9.91	2.79	30.48	26.42	7.11	22.35	9.40	11.43
			* 1.52									

- 1) Total water equivalent precipitation measured over the period from January 1, 2006 to December 31, 2006 was **172.44** mm
- 2) The all weather precipitation gauge was unservicable for period of January 1 to March 22, 2007. No site precipitation data was recorded during this period.
- 3) Daily precipitation totals for this period are provided by Environment Canada as recorded at the Yellowknife Airport. This data is indicated by the lightly shaded cells.

TABLE 3.6: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Date	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1	-	-	-	0.51	-	7.87	2.03	5.59	1.02	-	6.86	-
2	1.52	-	-	-	-	1.27	0.25	5.84	0.51	-	-	-
3	-	-	-	-	-	-	10.41	1.27	3.05	0.25	-	-
4	0.25	-	-	-	-	-	1.78	1.02	1.02	0.51	0.25	-
5	1.52	0.76	-	-	-	0.25	-	0.51	-	0.25	-	-
6	1.27	0.76	-	-	-	0.76	-	0.51	0.51	7.87	0.76	-
7	-	15.49	1.02	-	-	-	-	0.51	1.27	-	1.27	-
8	-	-	0.51	1.02	-	0.25	-	0.25	0.25	1.02	-	-
9	-	-	-	-	-	-	0.25	0.51	-	-	0.25	-
10	-	-	0.51	1.27	-	-	0.25	-	1.27	-	1.78	-
11	-	-	-	-	-	0.25	3.56	5.33	1.52	0.51	-	-
12	-	-	-	0.76	-	5.33	2.54	-	1.02	-	1.02	-
13	3.81	-	-	-	-	0.25	0.76	14.22	2.03	-	-	-
14	-	-	-	-	-	-	0.25	13.97	0.25	-	0.25	-
15	-	-	-	-	-	0.25	2.54	0.25	3.56	-	1.02	-
16	-	-	-	1.02	0.25	1.27	-	-	0.51	-	0.76	4.57
17	-	-	-	1.78	-	0.76	-	-	2.79	-	-	-
18	-	-	-	-	-	1.27	-	-	1.78	-	-	-
19	-	-	-	-	-	0.76	0.25	-	0.25	-	-	-
20	-	-	-	-	-	-	1.02	-	0.51	-	-	-
21	0.76	-	-	1.02	-	0.25	1.02	-	1.02	-	-	-
22	0.51	-	1.78	-	-	-	1.52	-	13.21	-	2.03	-
23	0.76	-	0.25	-	0.51	-	0.25	-	34.54	-	-	-
24	0.25	-	0.25	-	0.51	-	-	2.79	6.86	-	1.52	-
25	-	-	0.51	-	-	0.25	0.25	2.29	6.60	-	-	-
26	-	-	-	0.76	1.02	-	-	1.02	0.51	0.25	1.78	-
27	-	-	-	-	-	1.02	0.25	-	0.25	-	-	-
28	-	-	-	-	-	0.51	-	-	0.76	-	-	-
29	-	-	-	2.54	-	1.02	-	-	0.51	-	-	-
30	-		-	-	-	-	-	5.33	-	2.29	-	-
31	-		-		-		-	3.81		-		-
Total	10.67	17.01	4.83	10.67	2.29	23.62	29.21	65.02	87.37	12.95	19.56	4.57

Total water equivalent precipitation measured over the period from January 1, 2008 to December 31, 2008 was **287.76** mm

TABLE 3.7: YELLOWKNIFE GOLD PROJECT DAILY PRECIPITATION FOR 2009

Date	Jan (mm)	Feb (mm)	Mar (mm)	Apr (mm)	May (mm)	Jun (mm)	Jul (mm)	Aug (mm)	Sep (mm)	Oct (mm)	Nov (mm)	Dec (mm)
1	-	-	-	-	-	0.51	2.54	-	-	0.51	-	-
2	-	-	-	-	0.76	-	5.59	-	0.25	-	-	-
3	-	2.79	2.54	-	-	-	1.78	-	-	-	-	-
4	-	14.22	0.51	-	-	-	2.54	-	-	-	-	0.76
5	-	-	1.27	0.25	-	-	0.25	-	-	1.52	0.25	-
6	1.52	-	-	-	-	-	8.64	0.25	-	-	5.59	-
7	3.30	-	-	-	-	0.25	2.54	-	26.92	-	1.27	-
8	-	-	-	-	-	0.51	-	-	6.86	-	0.76	-
9	-	-	-	-	-	1.78	0.25	0.51	-	-	-	-
10	-	-	0.25	-	-	-	1.27	-	2.54	-	-	-
11	-	-	1.02	-	-	-	0.51	-	2.29	-	2.79	-
12	-	-	-	1.02	-	-	0.51	-	0.76	-	1.02	-
13	-	-	-	9.14	1.52	-	0.51	-	-	-	3.05	-
14	-	-	-	1.78	1.78	3.81	-	-	0.51	-	-	-
15	-	-	-	0.51	1.52	1.52	0.51	-	-	-	1.27	-
16	-	-	-	0.76	-	-	-	0.25	-	-	-	-
17	-	-	-	0.76	-	0.25	-	11.18	-	0.25	-	-
18	-	-	0.25	-	1.02	-	1.52	-	0.76	-	-	-
19	6.10	-	-	-	-	-	0.51	-	0.25	-	-	2.03
20	-	-	1.02	1.78	-	-	0.25	-	0.25	-	-	0.51
21	-	-	-	0.25	-	-	2.03	0.76	4.57	-	3.56	-
22	-	-	2.03	0.25	-	0.76	-	-	2.54	3.30	-	-
23	-	-	0.51	-	0.25	17.53	-	9.40	1.02	4.06	-	-
24	-	-	0.76	1.02	-	8.64	2.29	0.25	6.86	0.25	1.02	-
25	-	-	0.76	-	-	0.25	-	-	0.51	2.03	1.02	-
26	-	-	0.51	-	-	0.76	-	6.35	4.32	0.51	0.51	1.27
27	-	-	1.52	0.25	-	0.51	0.25	1.27	0.51	-	1.27	-
28	-	-	-	-	-	-	-	0.25	-	-	-	-
29	-	-	-	-	-	1.02	-	1.52	7.11	-	0.25	-
30	-	-	1.02	0.76	-	0.25	0.25	-	1.02	-	-	-
31	-	-	1.02	-	-	-	-	-	-	-	-	-
Total	10.92	17.01	14.99	18.54	6.86	38.36	34.55	32.01	69.84	12.45	23.62	4.57

Total water equivalent precipitation measured over the period from
January 1, 2009 to December 31, 2009 was **283.7** mm

TABLE 3.8: TYHEE STATION PAN EVAPORATION - PERIOD OF RECORD

Year	Days of Recorded Data for Each Month				*Period of Record for Year		
	June	July	August	September	Length	Start Date	End Date
	(days)	(days)	(days)	(days)	(days)		
2005	30	31	31	13	105	Jun 01/05	Sep 13/05
2006	22	31	31	21	102	Jun 09/06	Sep 21/06
2007	29	31	31	15	105	Jun 02/07	Sep 15/07
2008	30	31	31	16	107	Jun 01/08	Sep 16/08
2009	26	31	31	28	115	Jun 05/09	Sep 28/09

Shaded areas indicate incomplete months of data which occur at the start and end of the POR

TABLE 3.9: MONTHLY PAN EVAPORATION RATES

Year	June	July	August	September	*POR
	(mm/day)	(mm/day)	(mm/day)	(mm/day)	(mm/day)
2005	4.5	3.5	3.6	1.6	3.80
2006	7.3	5.1	3.6	2.1	4.40
2007	6.0	5.2	2.7	1.7	4.10
2008	4.6	5.3	2.9	0.9	3.80
2009	3.6	5.8	5.0	1.6	4.10

* POR Refers to period of recorded data for each year.

Shaded areas indicate incomplete months of data which occur at the start and end of the POR

TABLE 3.10: MONTHLY PAN EVAPORATION TOTALS

Year	June	July	August	September	*POR
	(mm)	(mm)	(mm)	(mm)	(mm)
2005	136.4	91.2	96.0	19.1	377.5
2006	138.4	156.7	112.6	43.2	450.9
2007	157.4	160.9	82.8	22.3	423.5
2008	137.9	164.9	90.7	12.9	406.6
2009	97.0	180.5	150.9	43.7	472.1

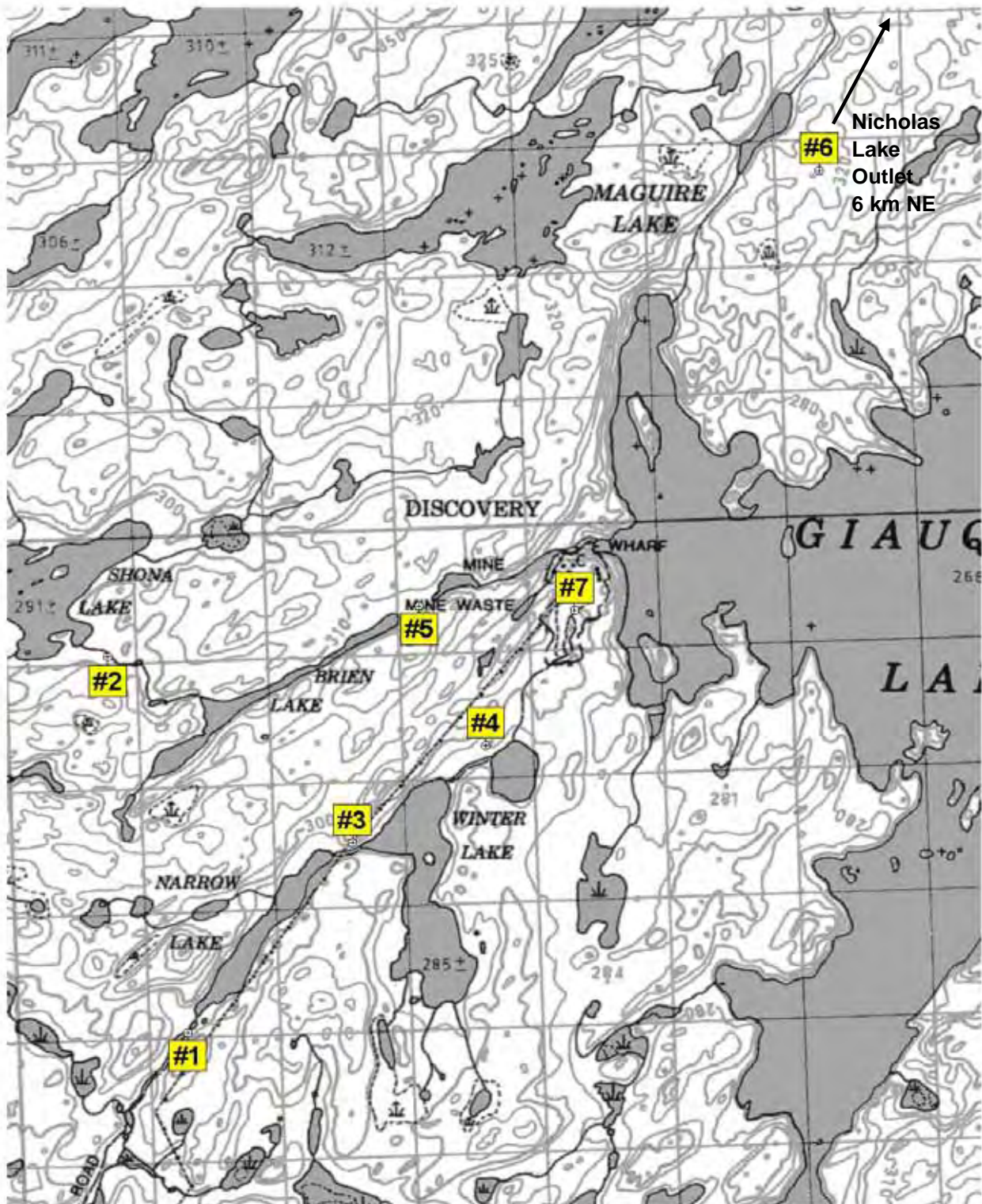
* POR Refers to period of recorded data for each year.

Shaded areas indicate incomplete months of data which occur at the start and end of the POR



FIGURES





NOTES

Site #1 - Narrow Lake Outlet
 Site #2 - Brien Lake Outlet (discontinued)
 Site #3 - Winter Lake Outlet
 Site #4 - Round Lake Outlet
 Site #5 - Northeast Brien Lake (discontinued)
 Site #6 - Nicholas Lake Outlet
 Site #7 - Tyhee Meteorological Station



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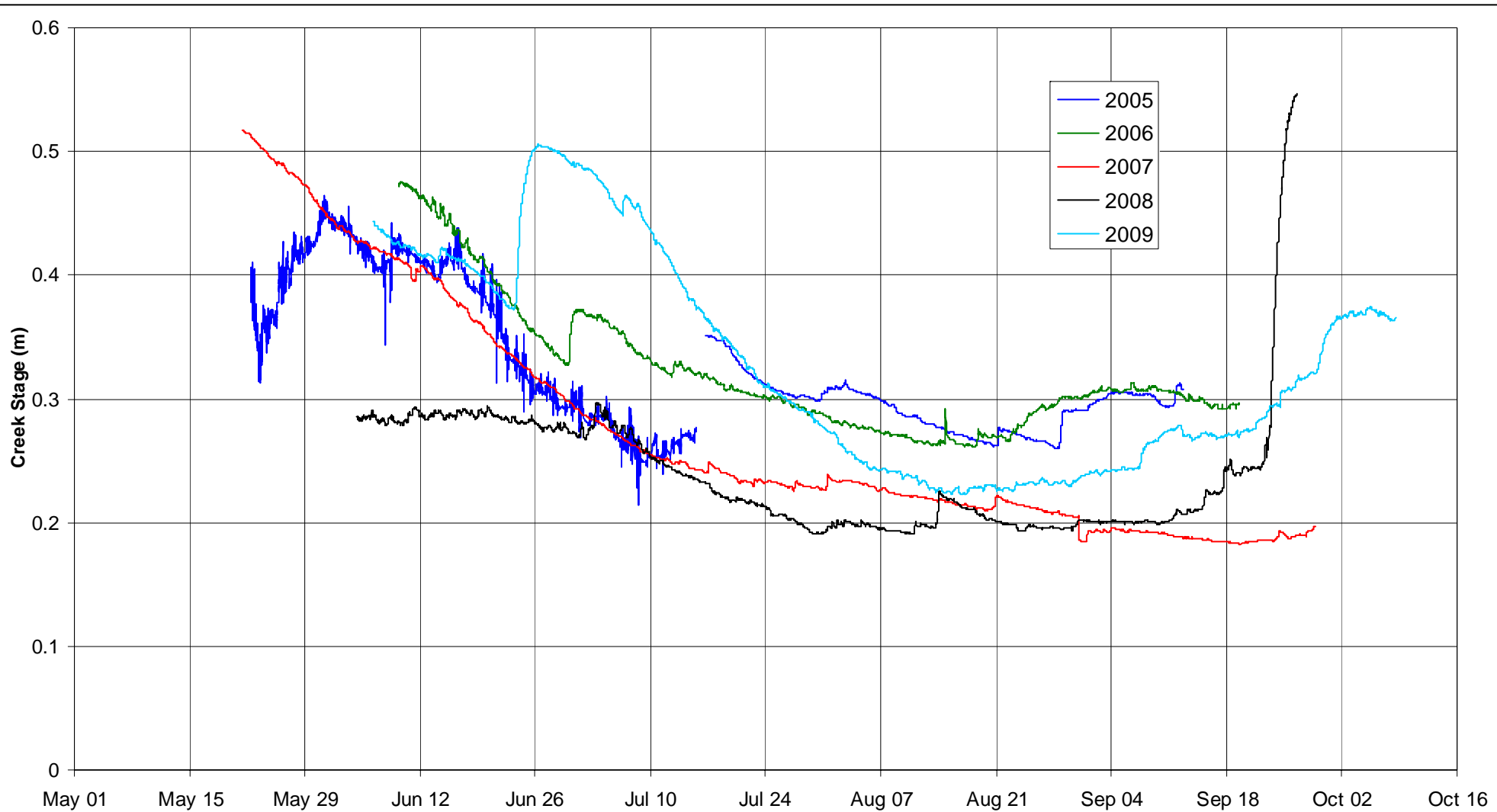


TYHEE NWT CORP.
 YELLOWKNIFE GOLD PROJECT

Site Location Map

PROJECT NO.	DWN	CHK	REV
Y22101103	RED	JAS	n
OFFICE	DATE		
FRA-VANC.	February, 2010		

Figure 1.1



NOTES

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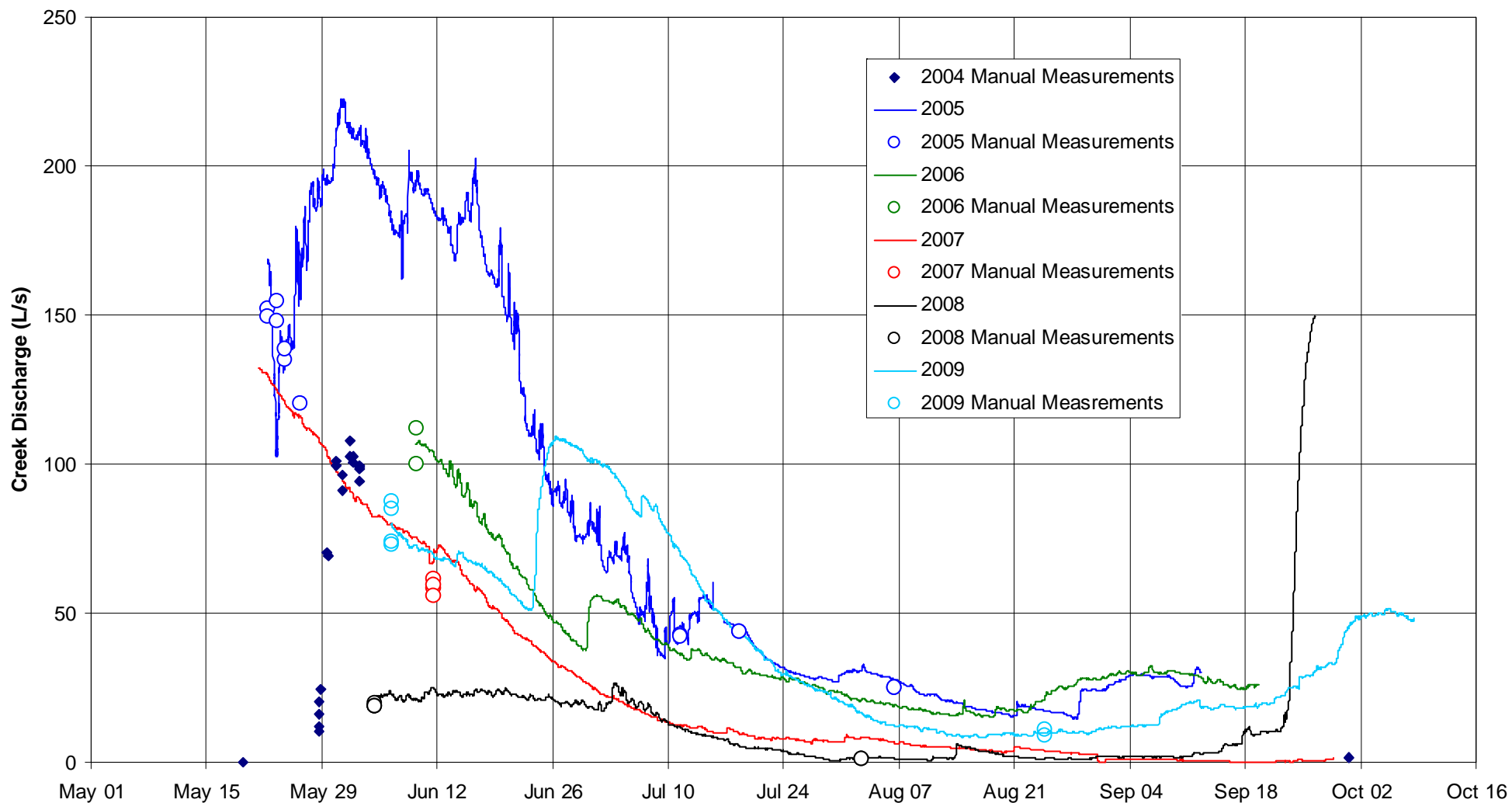
**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT**
**Narrow Lake Outlet
Stage Hydrograph
2005 to 2009**

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN	CKD	REV
RFD	JAS	0

DATE
February, 2010

Figure 2.1



NOTES

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**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Narrow Lake Outlet
Discharge Hydrograph
2004 to 2009**

EBA Engineering
Consultants Ltd.

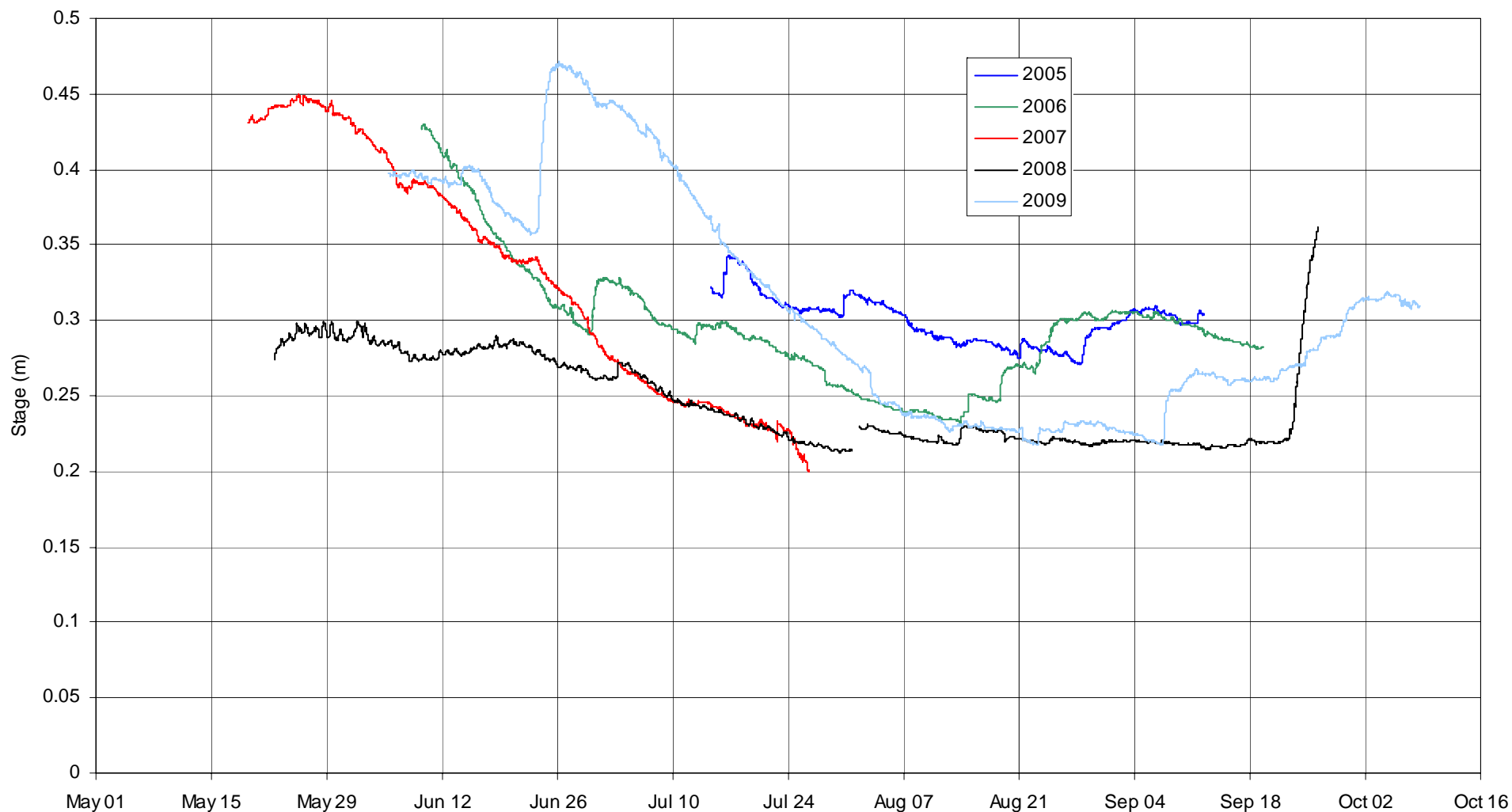


PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN	CKD	REV
RFD	JAS	0

DATE
February, 2010

Figure 2.2



NOTES

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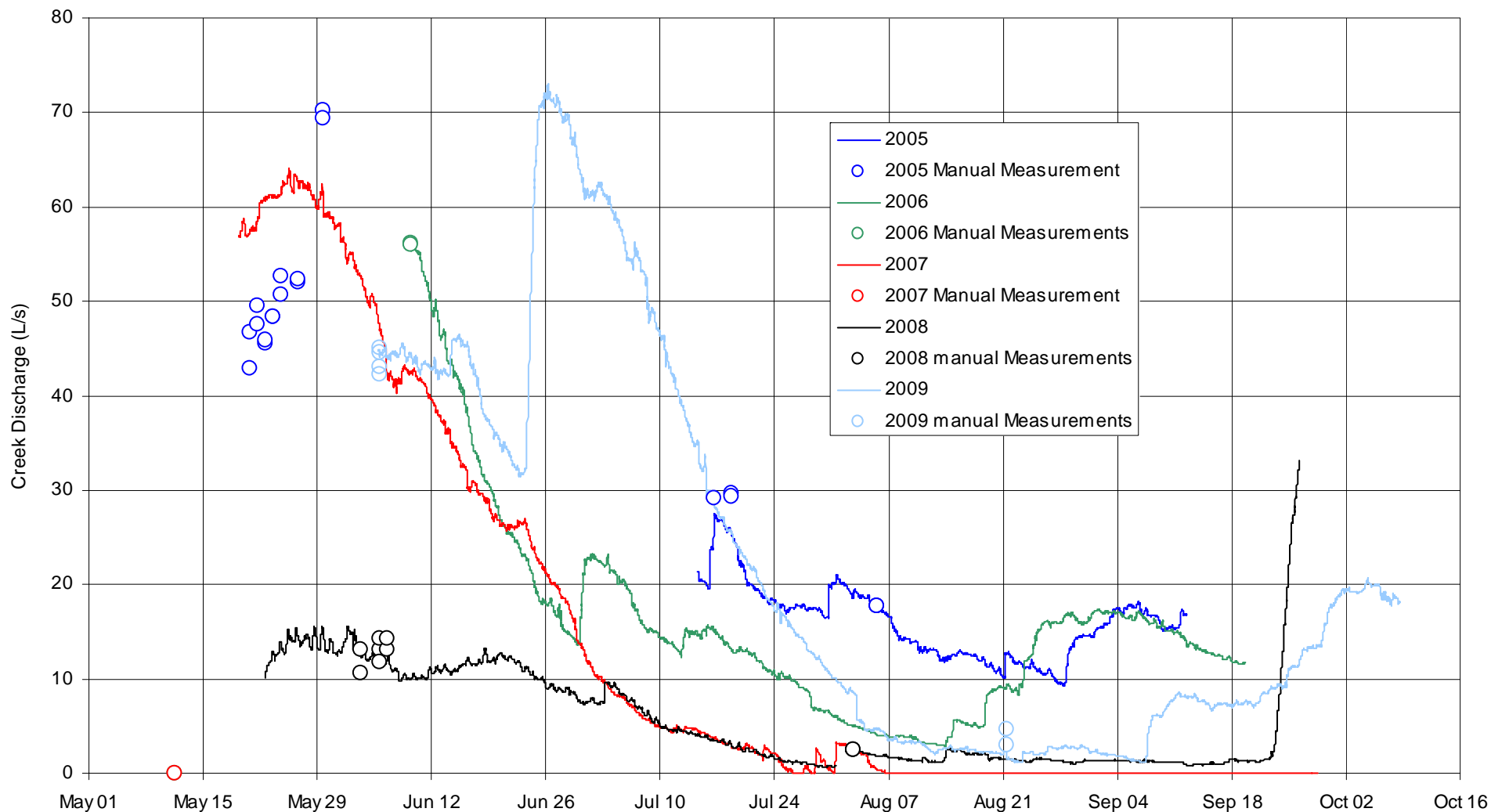
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Winter Lake Outlet
Stage Hydrograph
2005 to 2009

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RFD
DATE
February, 2010

CKD
JAS
REV
0

Figure 2.3



NOTES

CLIENT



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Consultants Ltd.

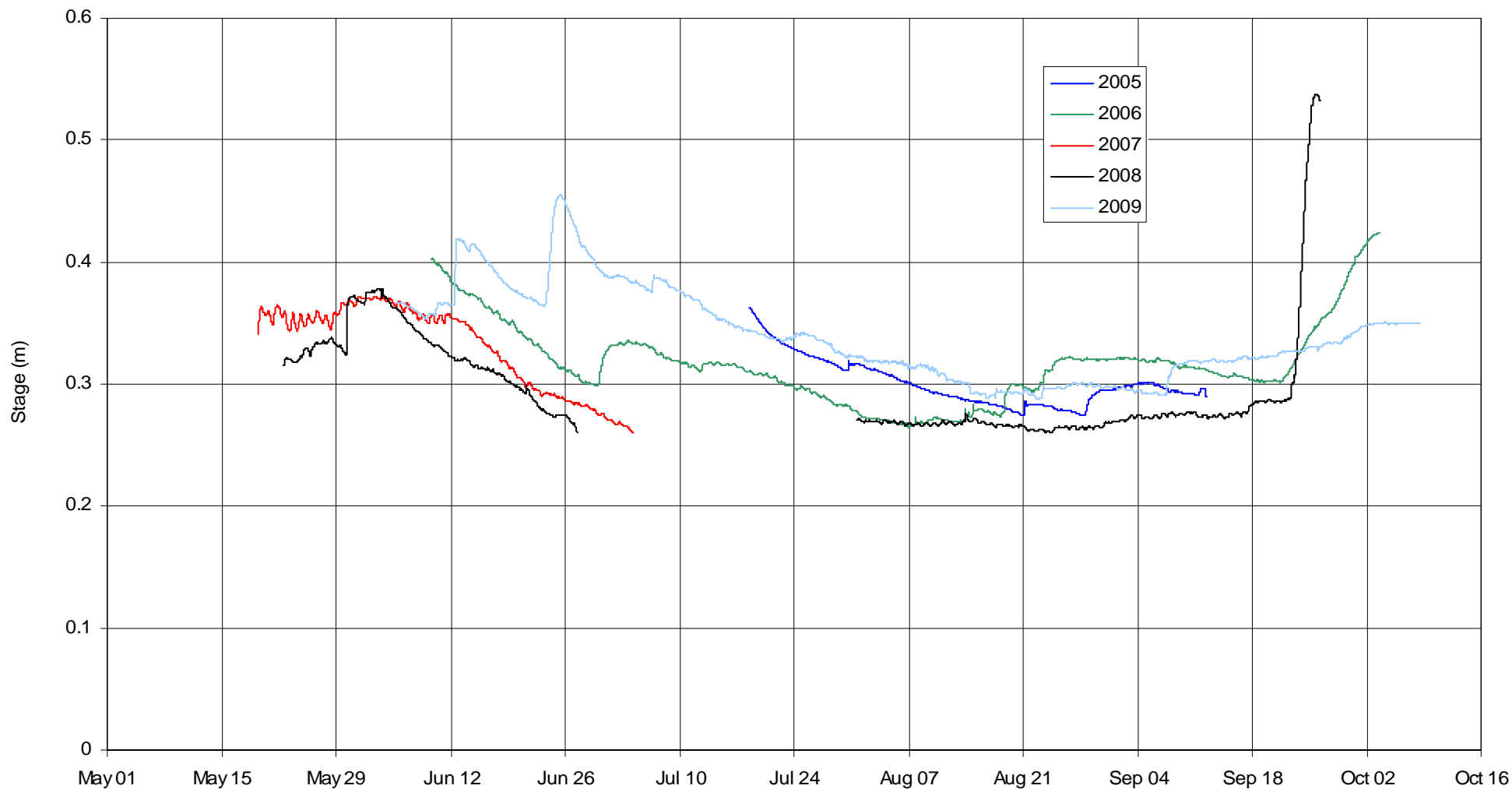


**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Winter Lake Outlet
Discharge Hydrograph
2005 to 2009**

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN	CKD	REV
RFD	JAS	0
DATE February, 2010		

Figure 2.4



NOTES

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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Round Lake Outlet
Stage Hydrograph
2005 to 2009

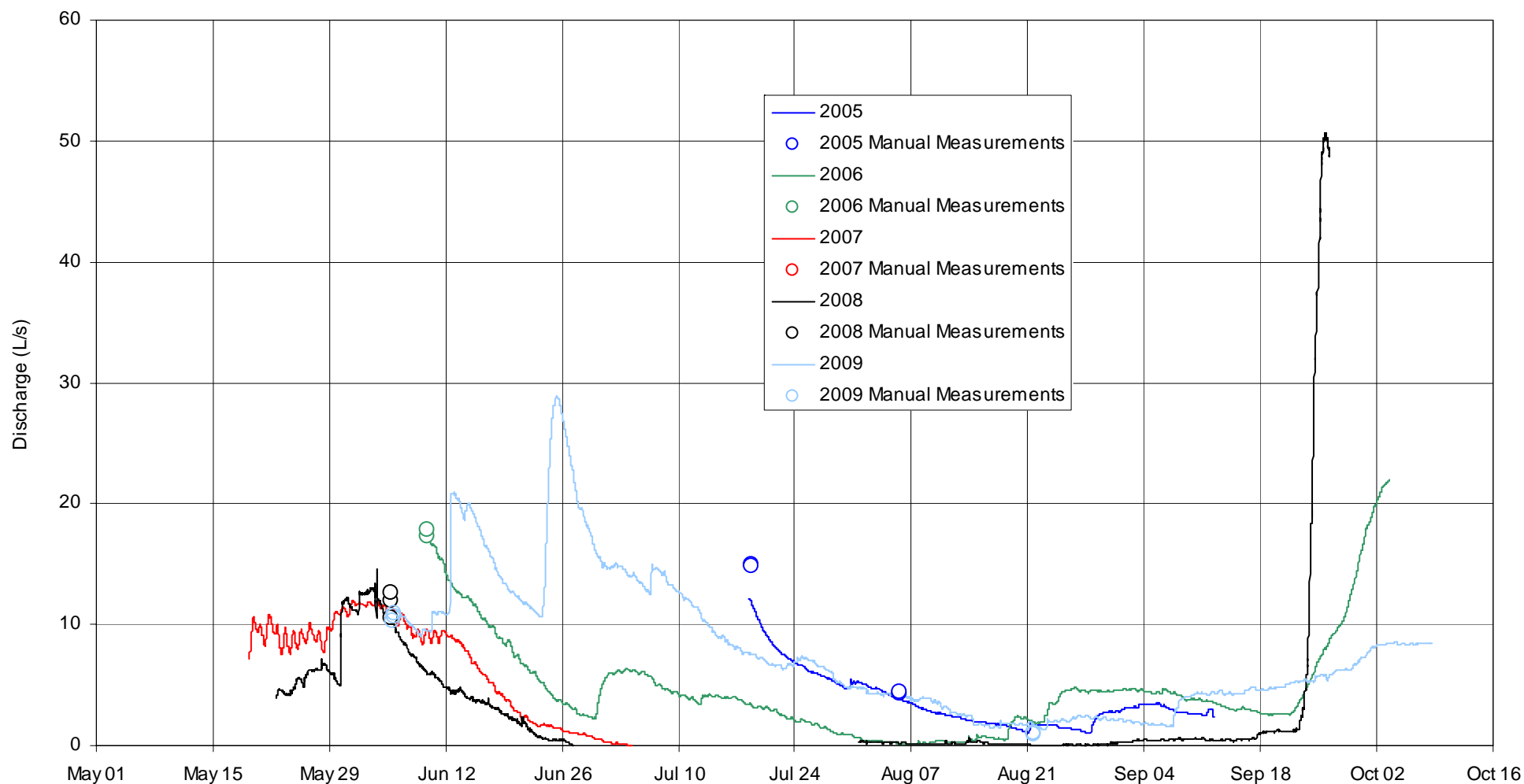
PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RFD
DATE
February, 2010

CKD
JAS

REV
0

Figure 2.5



NOTES

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**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Round Lake Outlet
Discharge Hydrograph
2005 to 2009**

EBA Engineering
Consultants Ltd.

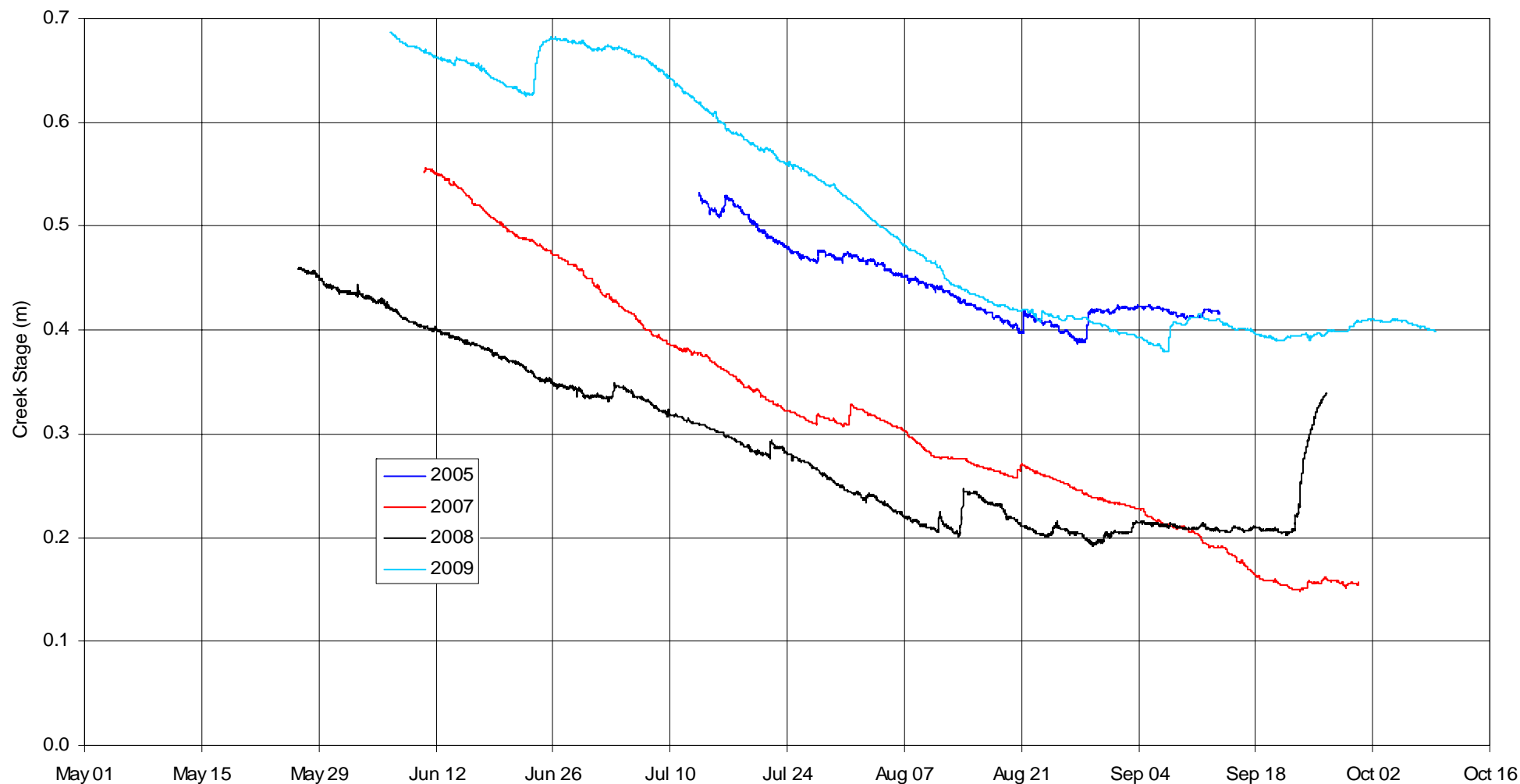


PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN	CKD	REV
RFD	JAS	0

DATE
February, 2010

Figure 2.6



NOTES

No water stage data was collected in 2006 as there was no hydrology program implemented for Nicholas Lake for that year.

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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Nicholas Lake Outlet
Stage Hydrograph
2005 to 2009

PROJECT NO.

Y22101103

OFFICE

EBA-VANC

DWN

RFD

CKD

JAS

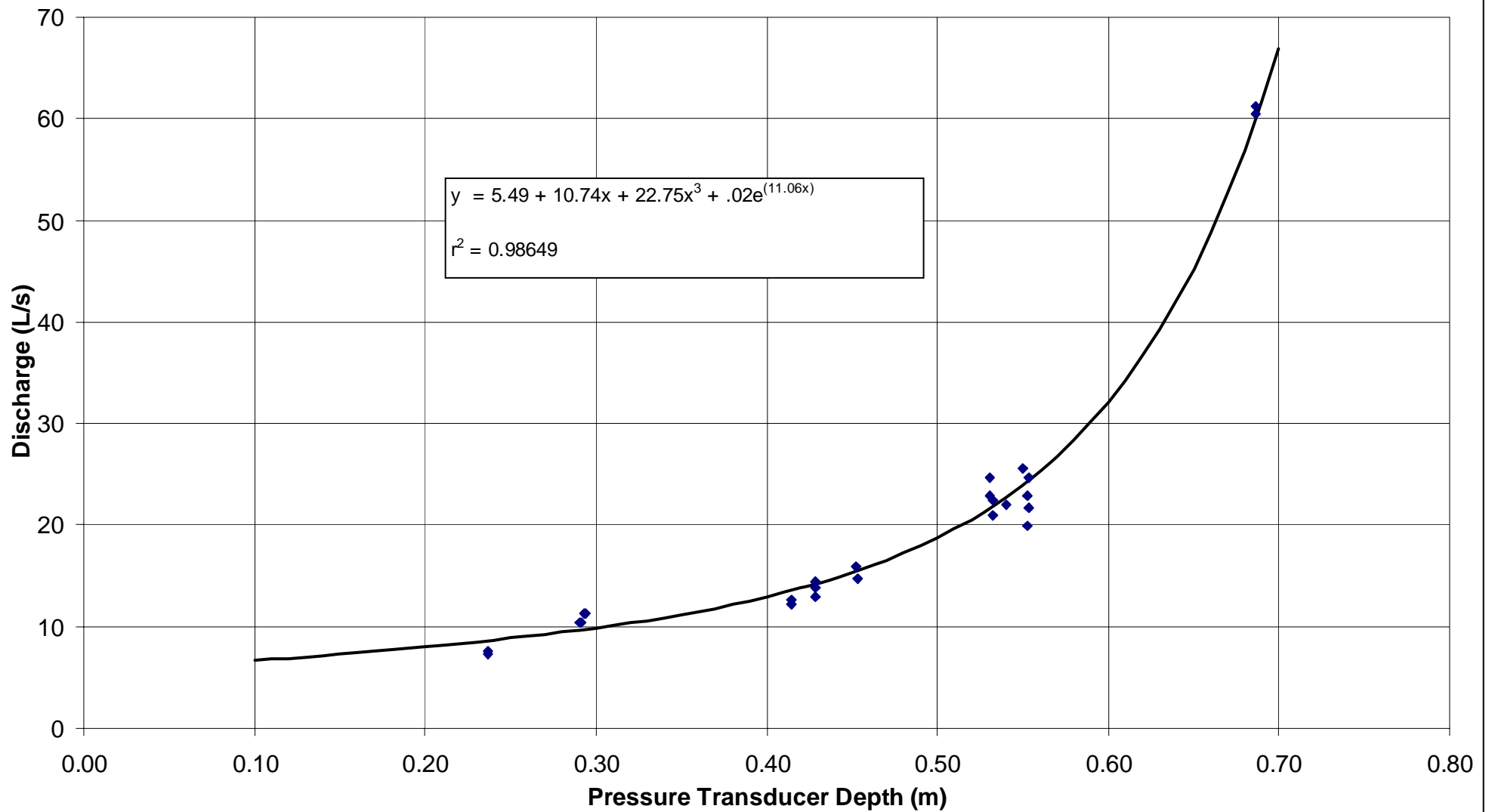
REV

0

DATE

February 2010

Figure 2.7



NOTES

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**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT**
Nicholas Lake Outlet
Stage-Discharge Relationship
as of August 24, 2009

PROJECT NO.

Y22101103

OFFICE

EBA-VANC

DWN

RFD

DATE

February 2009

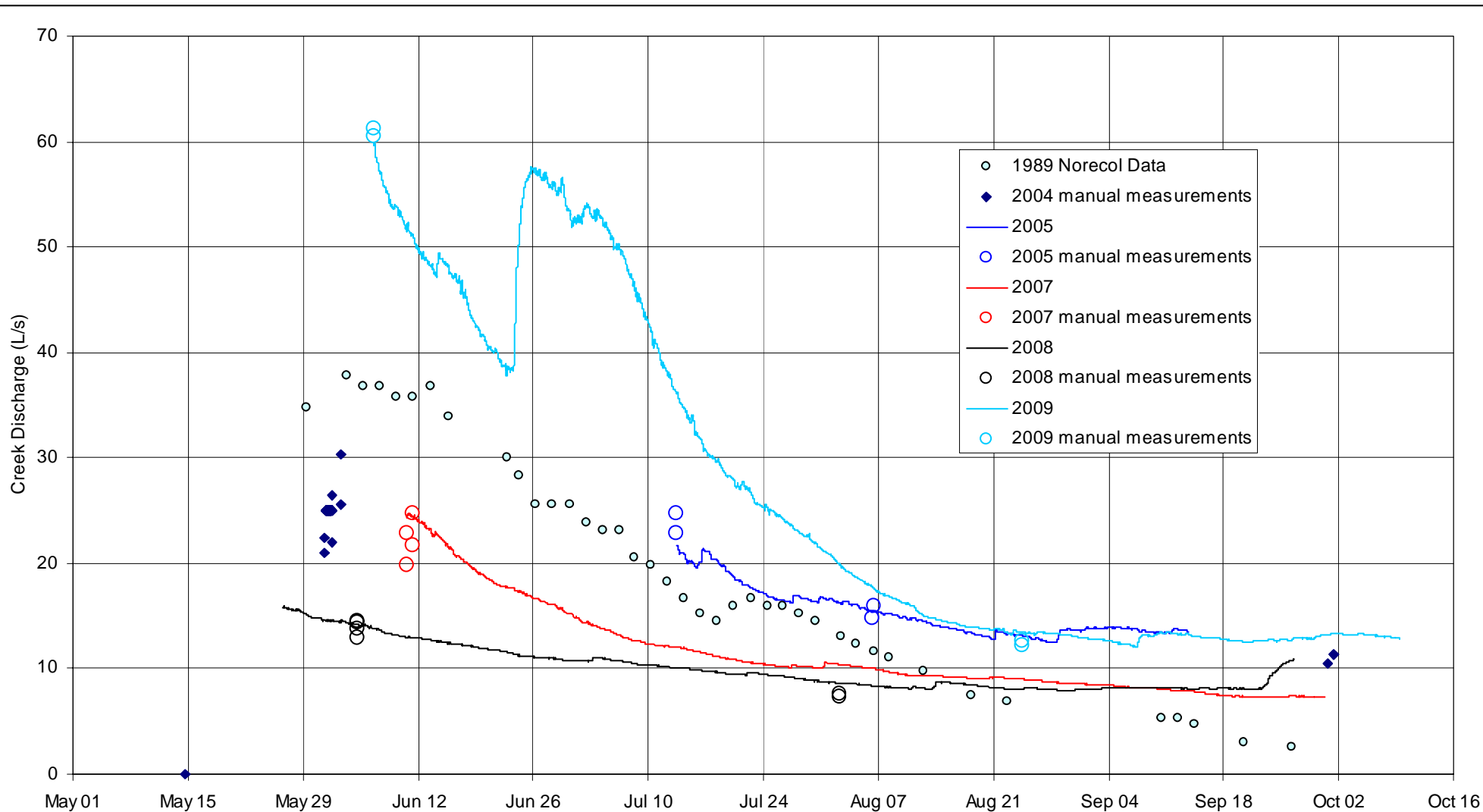
CKD

JAS

REV

0

Figure 2.8



NOTES

No discharge data was collected in 2006 as there was no hydrology program implemented for Nicholas Lake for that year.

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Consultants Ltd.



TYHEE NWT CORP. YELLOWKNIFE GOLD PROJECT Nicholas Lake Outlet Discharge Hydrograph 2004 to 2009

PROJECT NO.

Y22101103

OFFICE

EBA-VANC

DWN

RFD

CKD

JAS

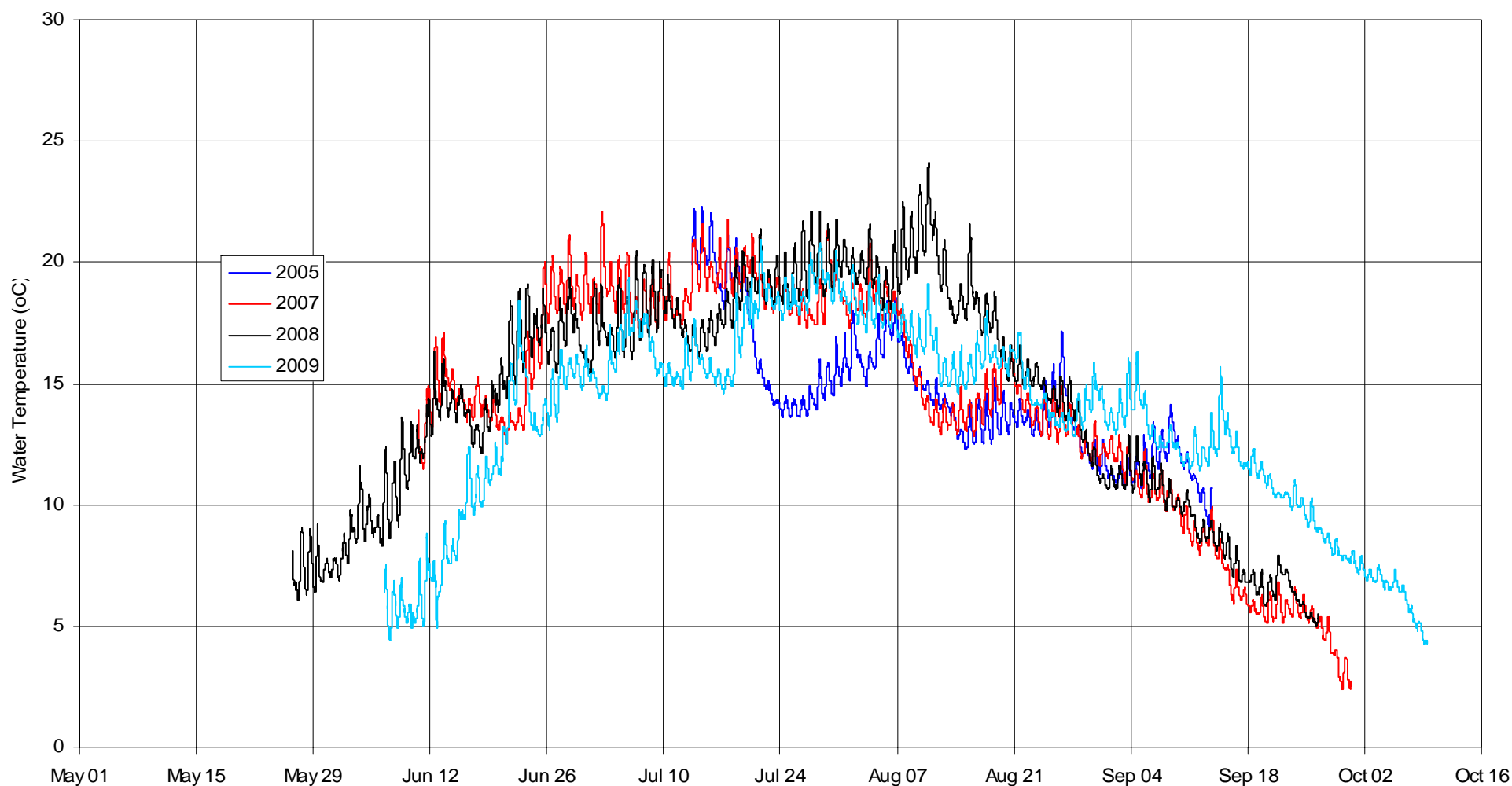
REV

0

DATE

February 2010

Figure 2.9



NOTES

No water temperature data was collected in 2006 as there was no hydrology program implemented for Nicholas Lake for that year.

CLIENT



EBA Engineering
Consultants Ltd.



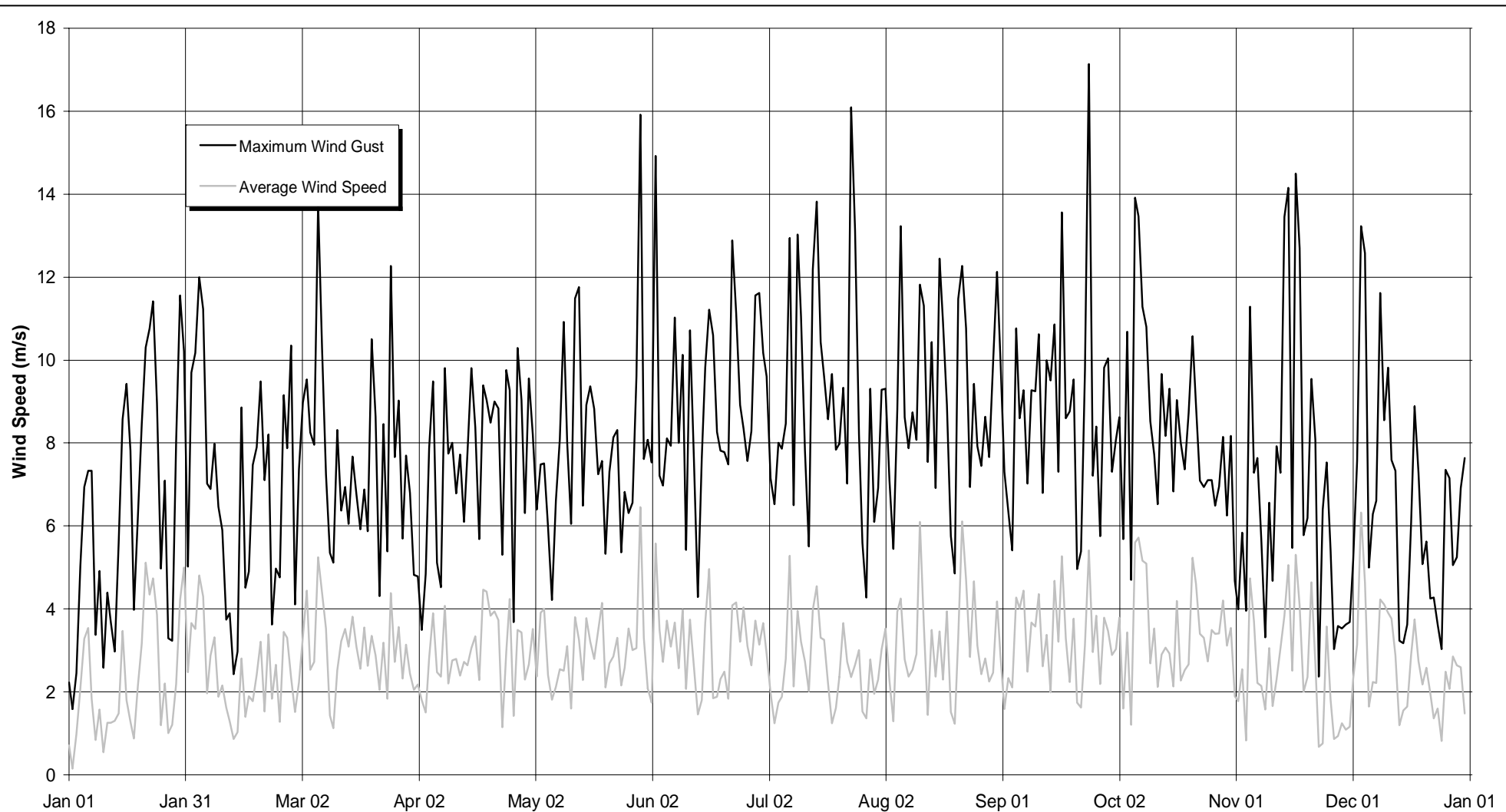
TYHEE NWT CORP. YELLOWKNIFE GOLD PROJECT Nicholas Lake Outlet Water Temperature Hydrograph 2005 to 2009

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN	CKD	REV
RFD	JAS	0

DATE
February 2010

Figure 2.10



NOTES

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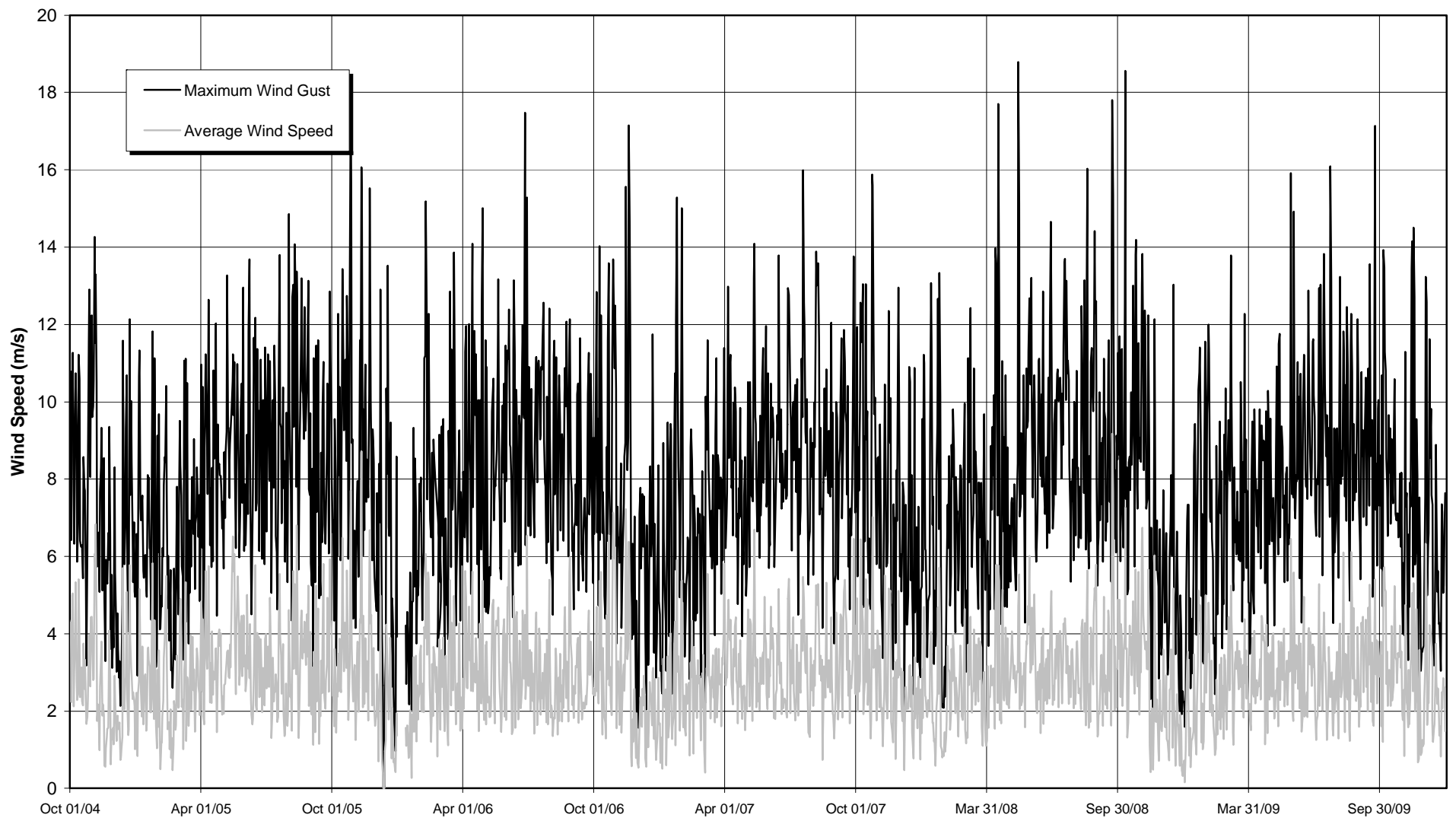
TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station
**Average Daily Wind Speed &
Maximum Daily Wind Gust - 2009**

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
TM
DATE
February 2010

CKD
JAS
REV
0

Figure 3.1



NOTES

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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station

**Average Daily Wind Speed & Maximum Daily
Wind Gust - Period of Record**

PROJECT NO.

Y22101103

OFFICE

EBA-VANC

DWN

TM

CKD

JAS

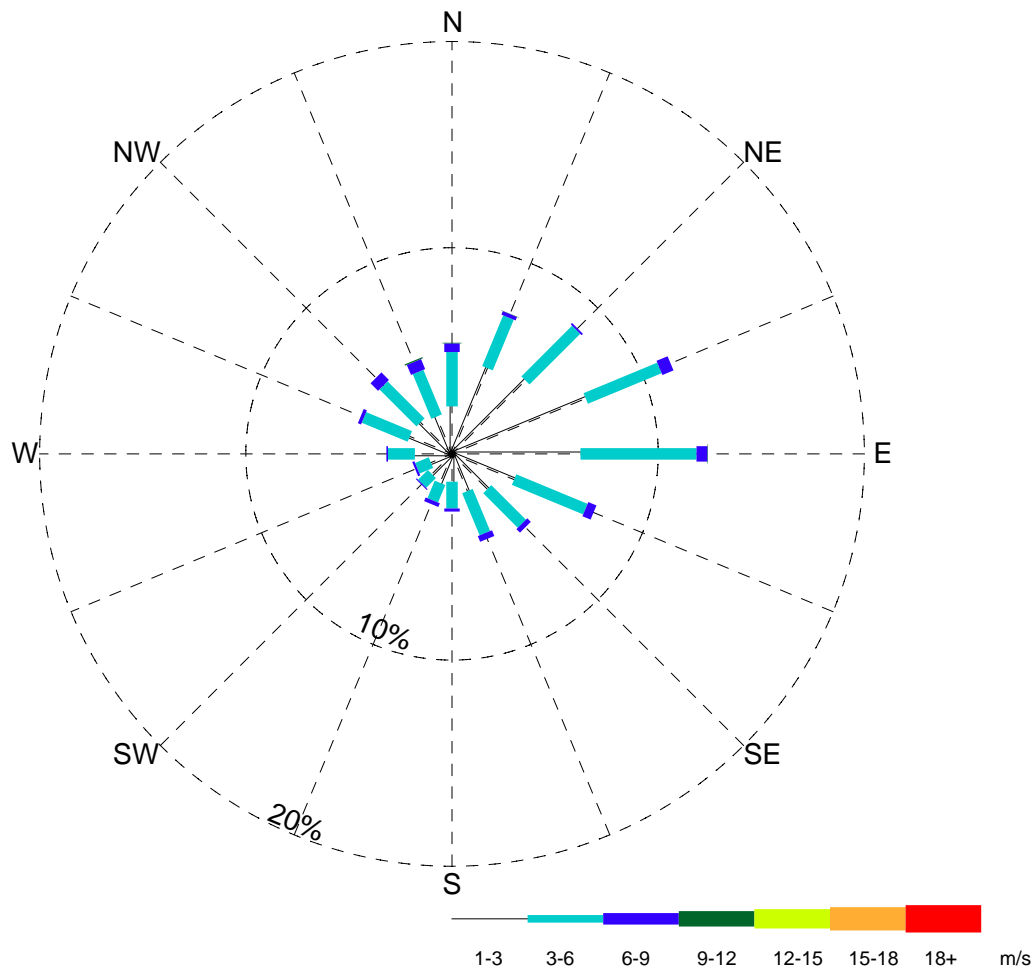
REV

0

DATE

February 2010

Figure 3.2



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	7.02	3.87	0.58	-	-	-	-	11.48
NE	-	5.04	3.48	0.09	-	-	-	-	8.61
NNE	-	4.50	2.66	0.18	0.01	-	-	-	7.36
N	-	2.30	2.63	0.42	0.03	-	-	-	5.39
NNW	-	1.96	2.34	0.53	0.06	-	-	-	4.89
NW	-	2.16	2.54	0.52	-	-	-	-	5.22
WNW	-	2.21	2.41	0.17	-	-	-	-	4.79
W	-	1.80	1.30	0.08	-	-	-	-	3.18
WSW	-	1.11	0.72	0.11	-	-	-	-	1.94
SW	-	1.38	0.67	0.06	-	-	-	-	2.11
SSW	-	1.52	0.92	0.19	-	-	-	-	2.63
S	-	1.35	1.30	0.15	-	-	-	-	2.81
SSE	-	1.95	2.21	0.30	-	-	-	-	4.46
SE	-	2.42	2.37	0.24	-	-	-	-	5.03
ESE	-	3.26	3.74	0.43	-	-	-	-	7.44
E	-	6.23	5.63	0.54	0.02	-	-	-	12.41
Calm	10.26	-	-	-	-	-	-	-	10.26
Total (%)	10.26	46.21	38.79	4.59	0.16	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 1814 days

Start Date: Jan. 1, 2005

End Date: Dec. 31, 2009

NOTES

*Excluding January 1 to 12th, 2006.

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YELLOWKNIFE GOLD PROJECT 2009 HYDROMETEOROLOGICAL REPORT

Tyhee Station Wind Rose 2005 to 2009

PROJECT NO.
Y22101103

DWN
RED

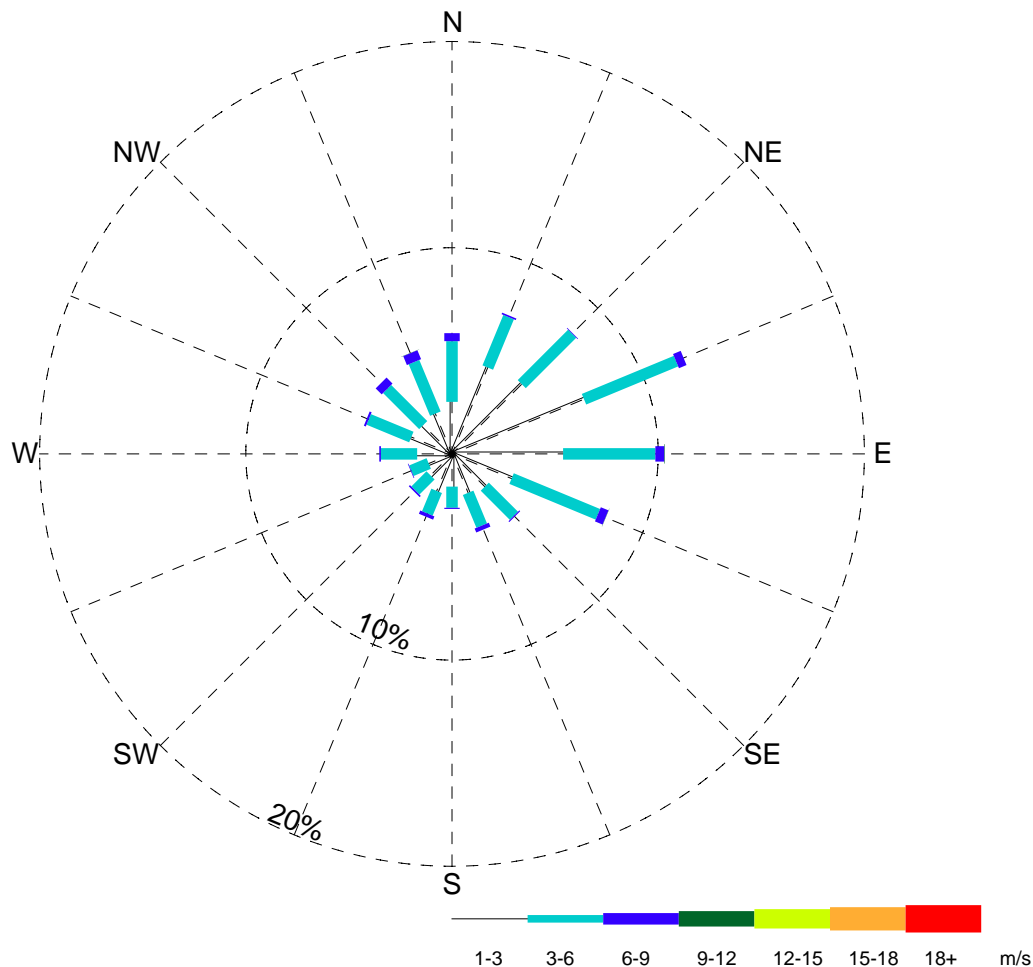
CHK
JAS

REV
0

OFFICE
EBA-VANC

DATE
February 2010

Figure 3.3



Wind Speed & Direction Frequency Distribution Table

Direction	Percent Occurrence (%)								Total (%)
	0-1 m/s	1-3 m/s	3-6 m/s	6-9 m/s	9-12 m/s	12-15 m/s	15-18 m/s	18+ m/s	
ENE	-	6.93	4.83	0.40	-	-	-	-	12.16
NE	-	4.78	3.46	0.03	-	-	-	-	8.28
NNE	-	4.53	2.65	0.08	-	-	-	-	7.26
N	-	2.52	2.94	0.39	-	-	-	-	5.86
NNW	-	2.11	2.70	0.47	0.01	-	-	-	5.30
NW	-	1.98	2.48	0.41	-	-	-	-	4.86
WNW	-	2.13	2.24	0.10	-	-	-	-	4.47
W	-	1.69	1.76	0.08	-	-	-	-	3.53
WSW	-	1.22	0.91	0.03	-	-	-	-	2.17
SW	-	1.47	1.04	0.08	-	-	-	-	2.59
SSW	-	1.94	1.19	0.17	-	-	-	-	3.30
S	-	1.59	1.03	0.06	-	-	-	-	2.67
SSE	-	2.04	1.72	0.20	-	-	-	-	3.97
SE	-	2.25	2.00	0.06	-	-	-	-	4.30
ESE	-	3.13	4.53	0.40	0.01	-	-	-	8.07
E	-	5.39	4.47	0.43	0.02	-	-	-	10.32
Calm	10.89	-	-	-	-	-	-	-	10.89
Total (%)	10.89	45.71	39.95	3.40	0.05	-	-	-	100.00

Station Name: Tyhee

NAD 27 location:

N63° 11' 6.2" W113° 53' 40.2"

Elevation above SL: 300 m

Tower Height: 10 m

Record Length: 365 days


Start Date: Jan. 1, 2009

End Date: Dec. 31, 2009

NOTES

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EBA Engineering Consultants Ltd. 

**YELLOWKNIFE GOLD PROJECT
2009 HYDROMETEOROLOGICAL REPORT**

**Tyhee Station
Wind Rose
2009**

PROJECT NO.
Y22101103

DWN
RED

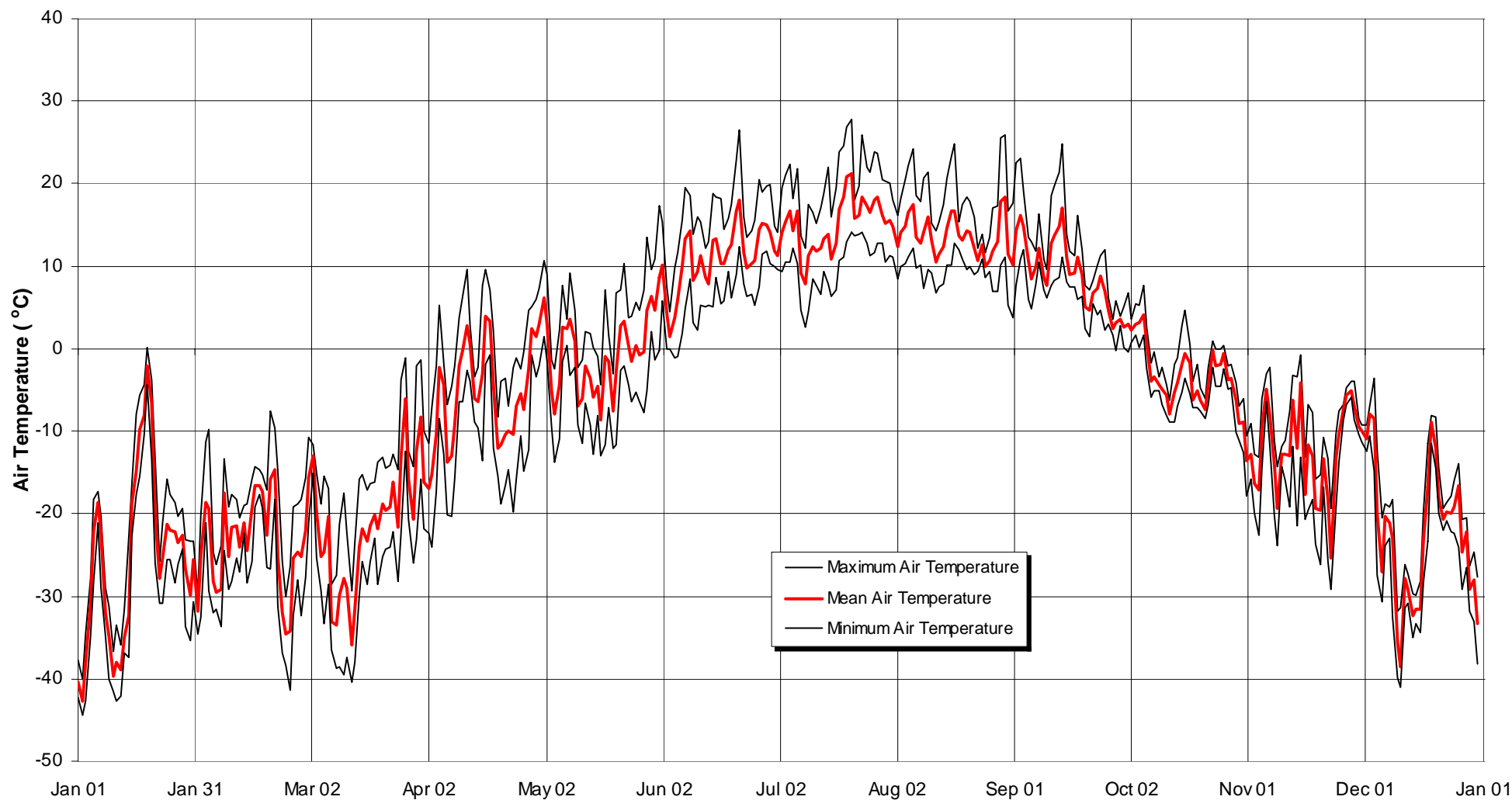
CHK
JAS

REV
0

OFFICE
EBA-VANC

DATE
February 2010

Figure 3.4



NOTES

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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

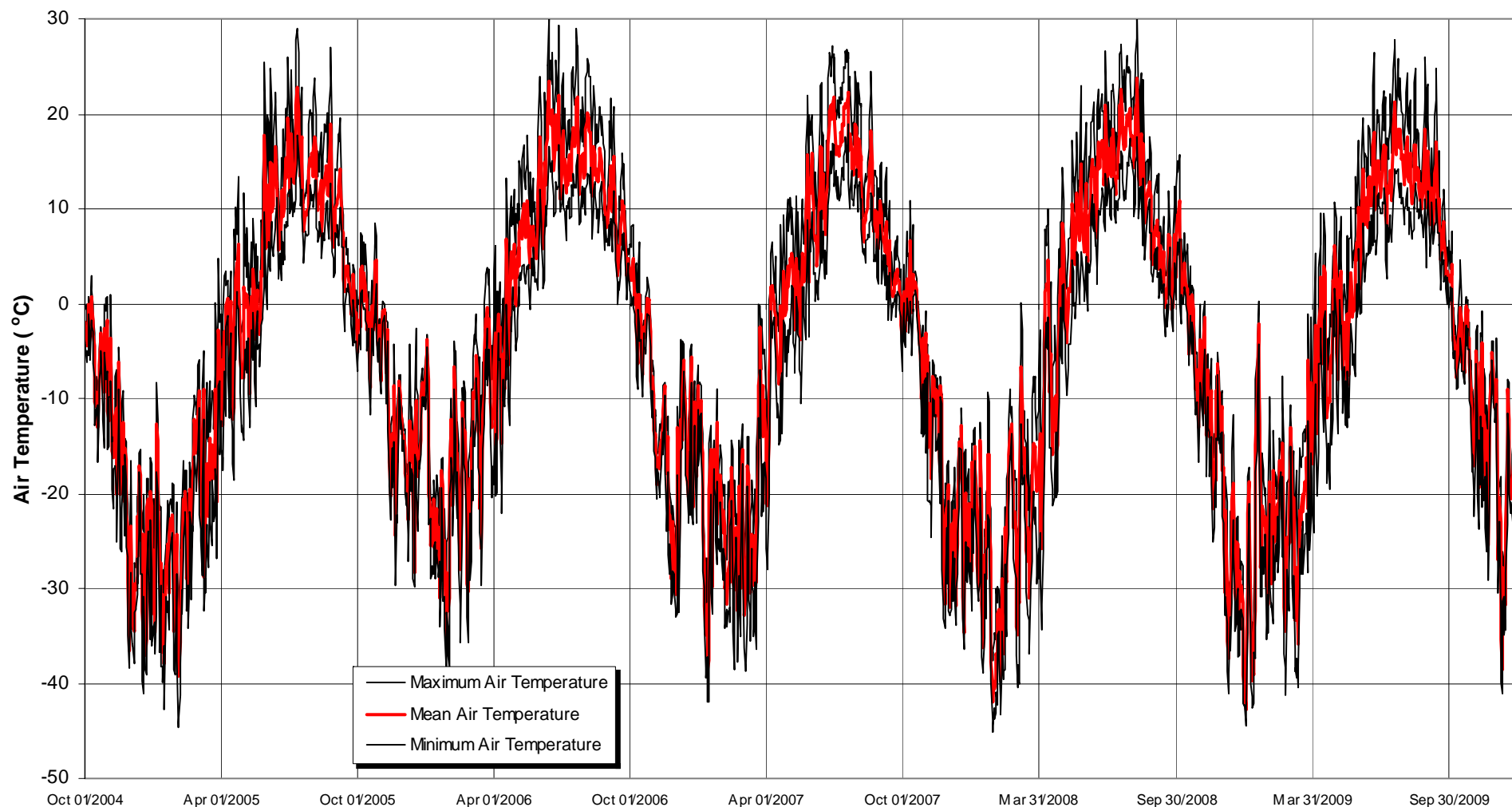
Tyhee Station
Air Temperature
Daily Maximum, Mean & Minimum – 2009

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RFD
DATE
February 2, 2010

CKD
JAS
REV
0

Figure 3.5



NOTES

CLIENT



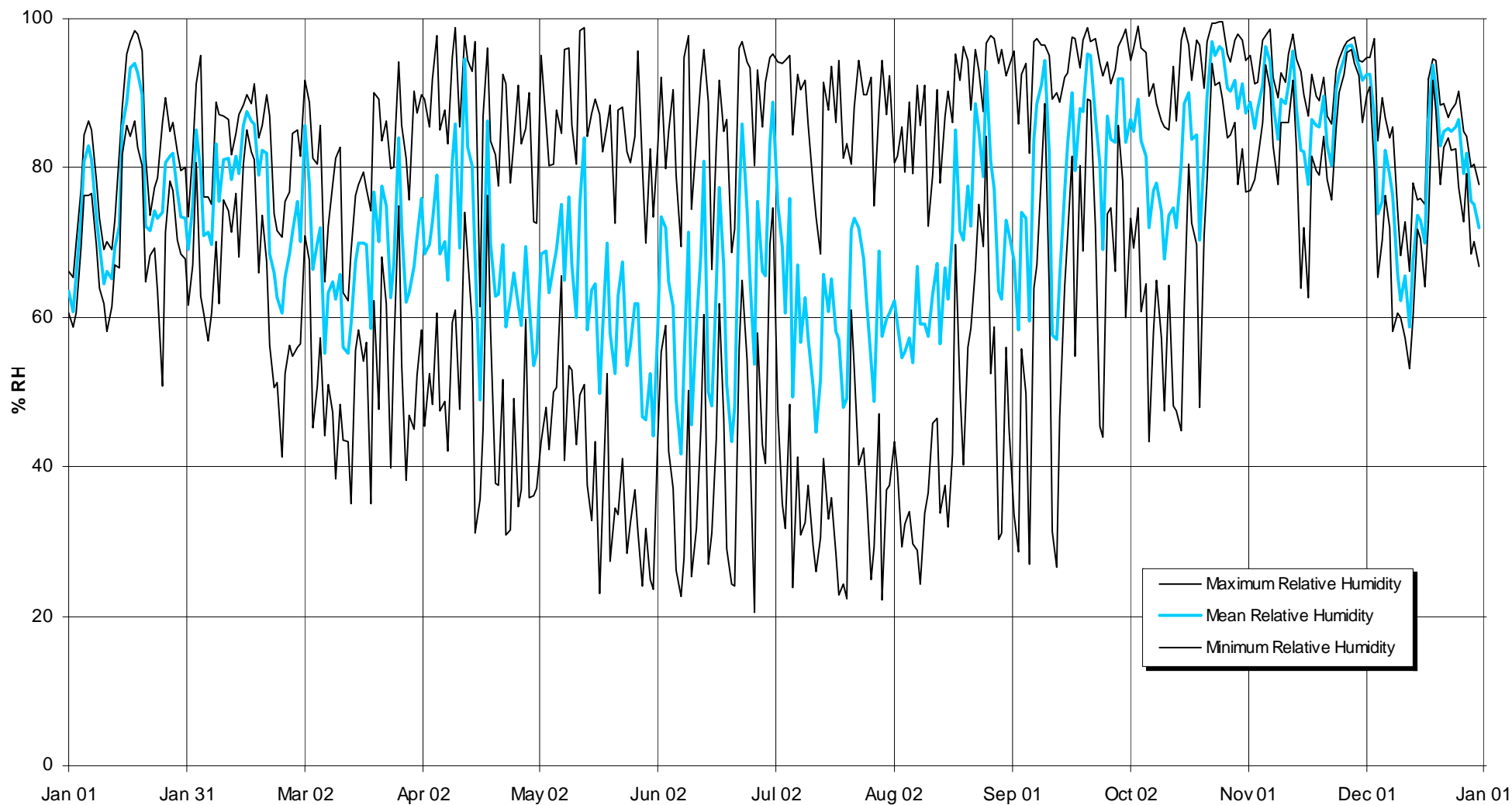
EBA Engineering
Consultants Ltd. 

**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station**

**Air Temperature - Daily Maximum,
Mean & Minimum - Period of Record**

PROJECT NO. Y22101103	DWN RFD	CKD JAS	REV 0
OFFICE EBA-VANC	DATE February 2, 2010		

Figure 3.6



NOTES

CLIENT



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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Relative Humidity
Daily Maximum, Mean & Minimum – 2009

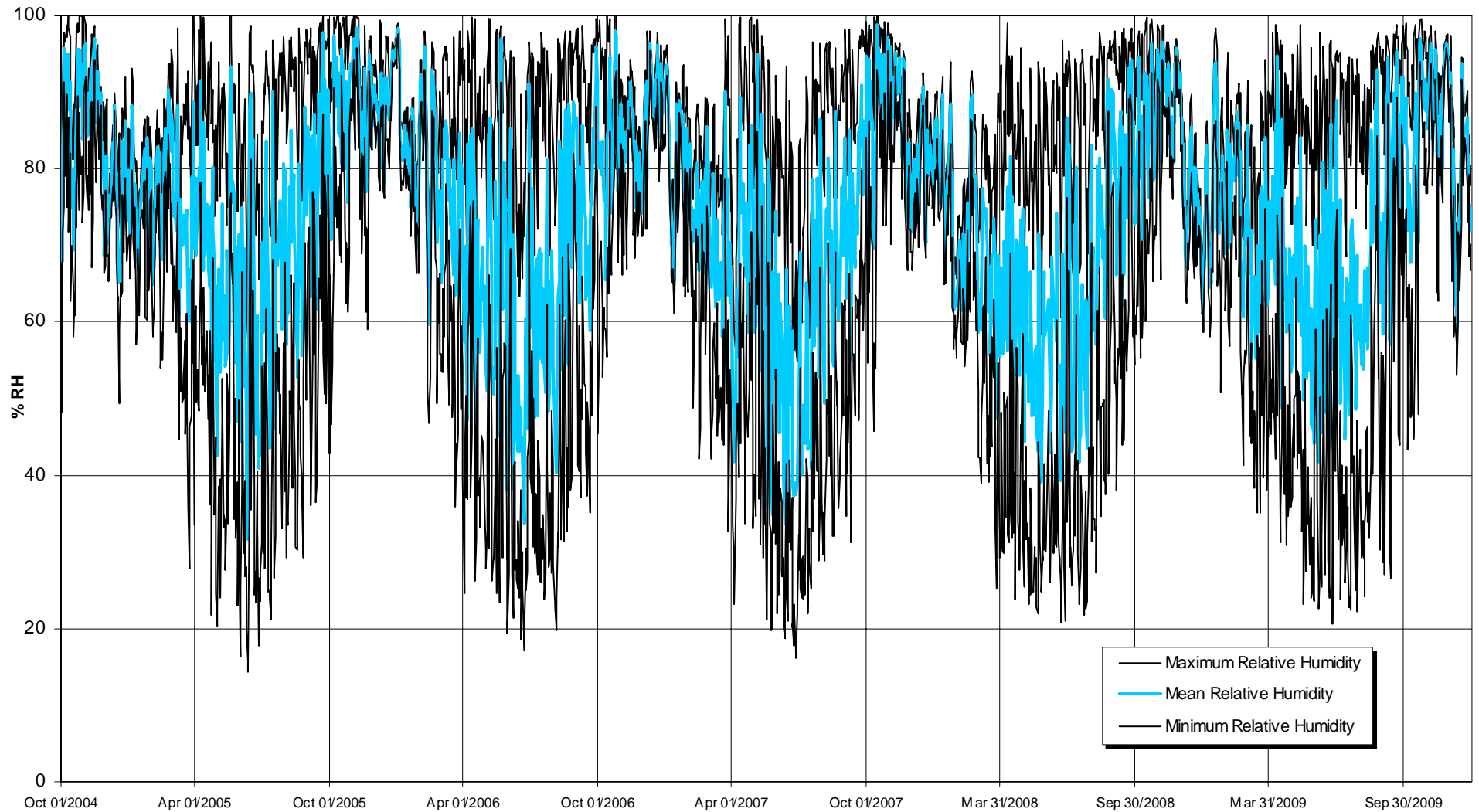
PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RFD
DATE
February 2, 2010

CKD
JAS

REV
0

Figure 3.7



NOTES

CLIENT

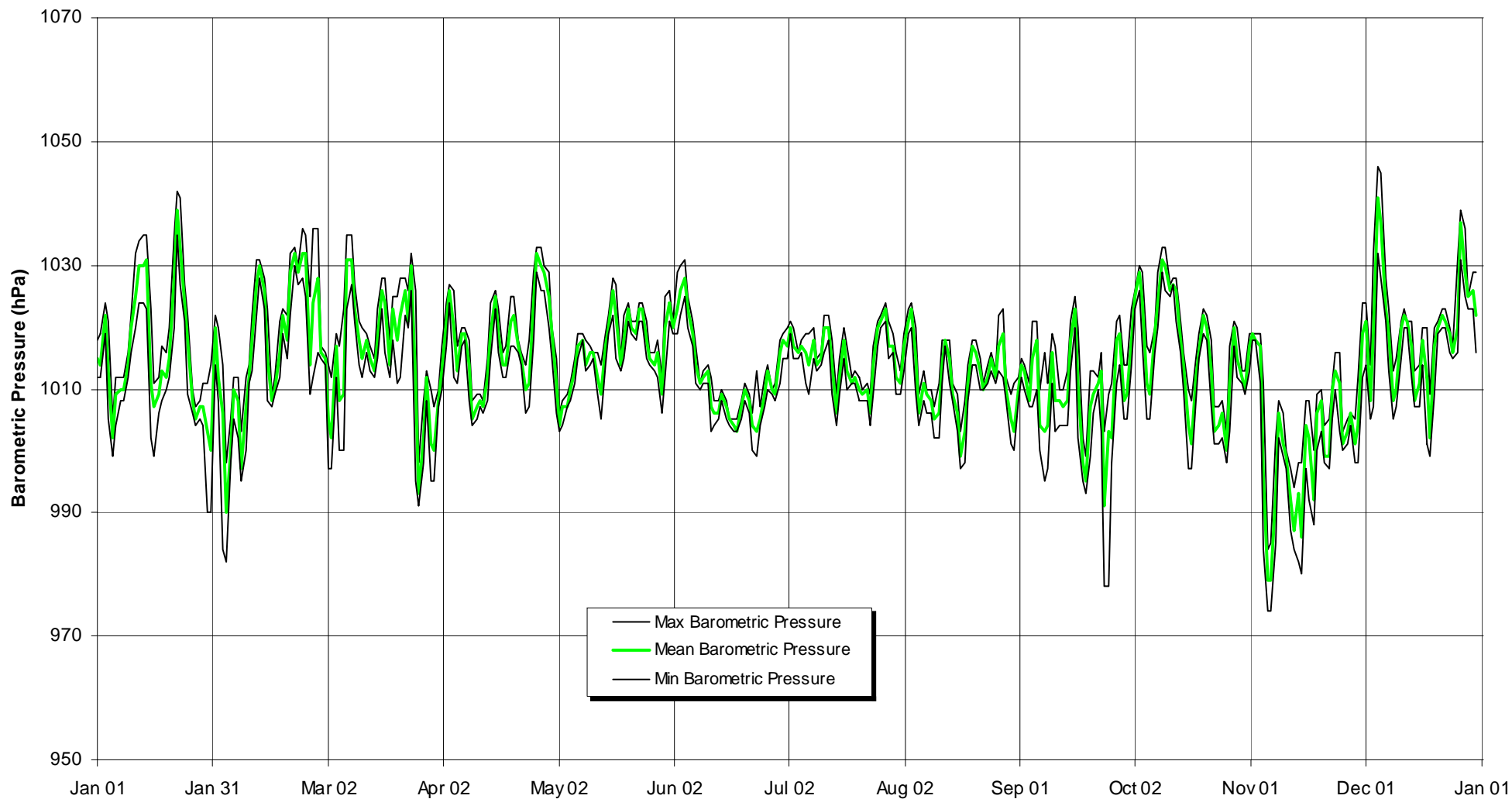


EBA Engineering Consultants Ltd. 

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station
Relative Humidity - Daily Maximum,
Mean & Minimum - Period of Record

PROJECT NO.	DWN	CKD	REV
Y22101103	RFD	JAS	0
OFFICE	DATE		
EBA-VANC	February 2, 2010		

Figure 3.8



NOTES

CLIENT

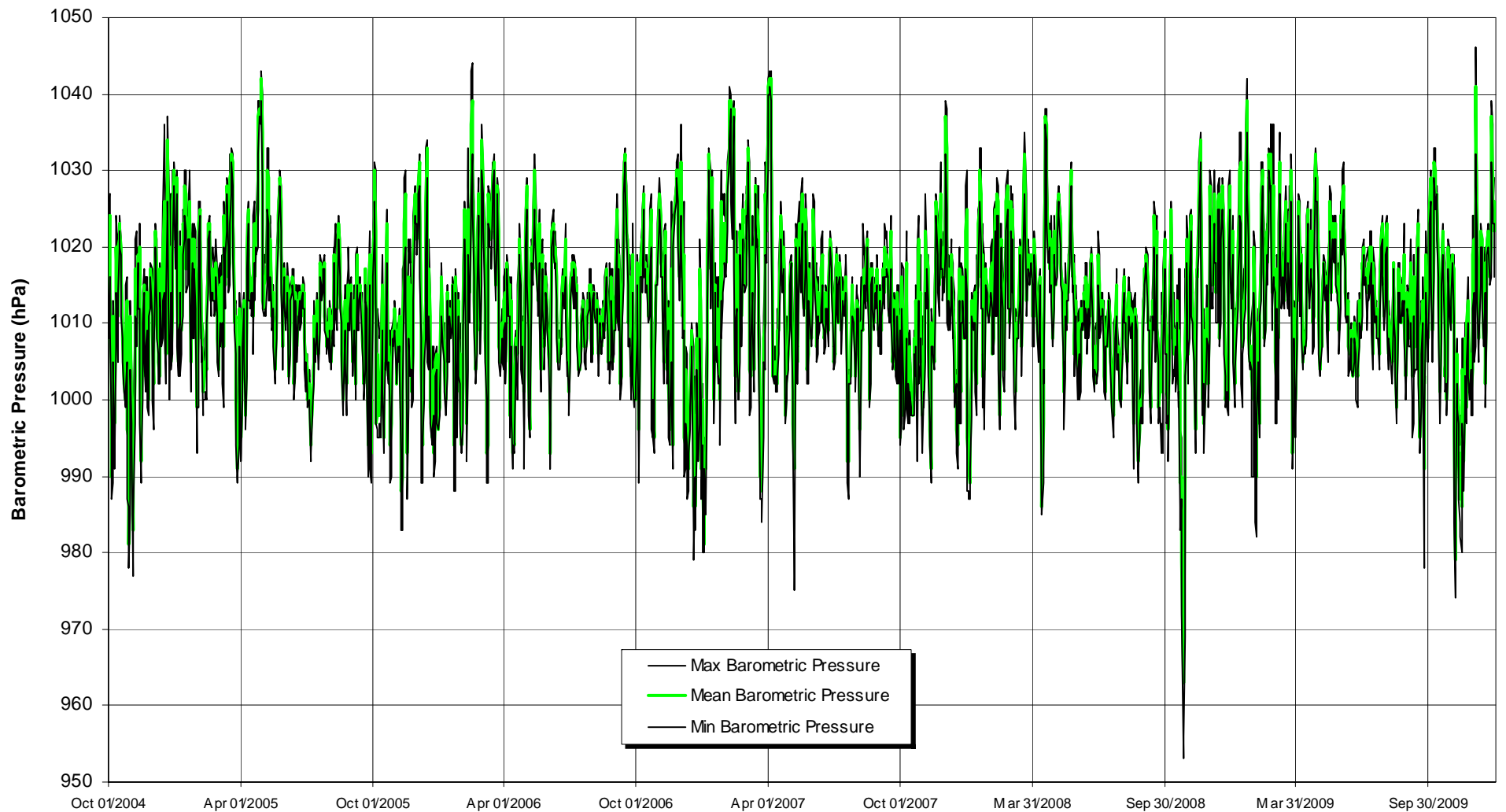


EBA Engineering
Consultants Ltd. 

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station
Barometric Pressure
Daily Maximum, Mean & Minimum – 2009

PROJECT NO.	DWN	CKD	REV
Y22101103	RFD	JAS	0
OFFICE	DATE		
EBA-VANC	February 2, 2010		

Figure 3.9



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**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT**

Tyhee Station

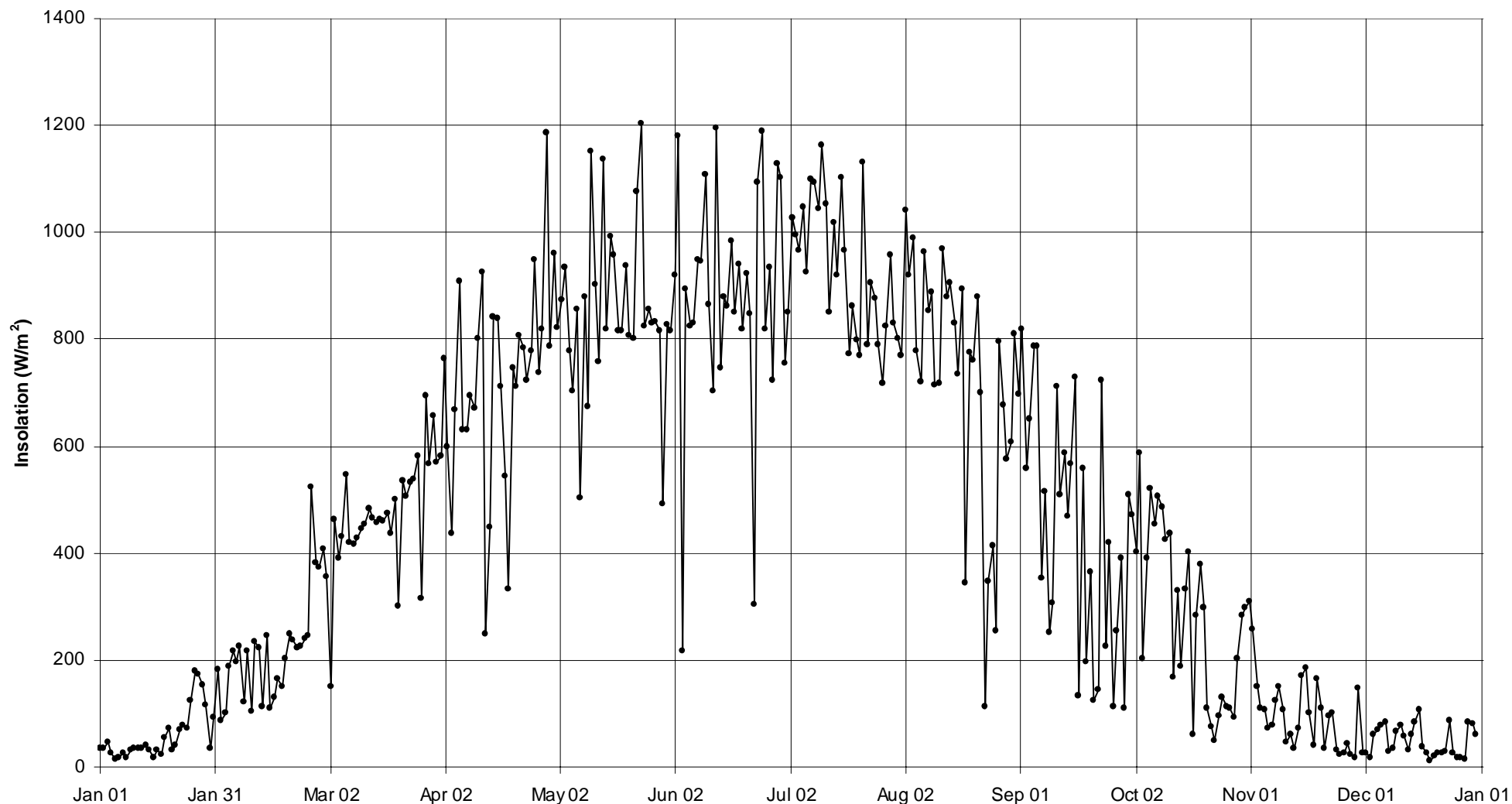
**Barometric Pressure - Daily Maximum,
Mean & Minimum - Period of Record**

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RFD
DATE
February 2, 2010

CKD
JAS
REV
0

Figure 3.10



NOTES

CLIENT

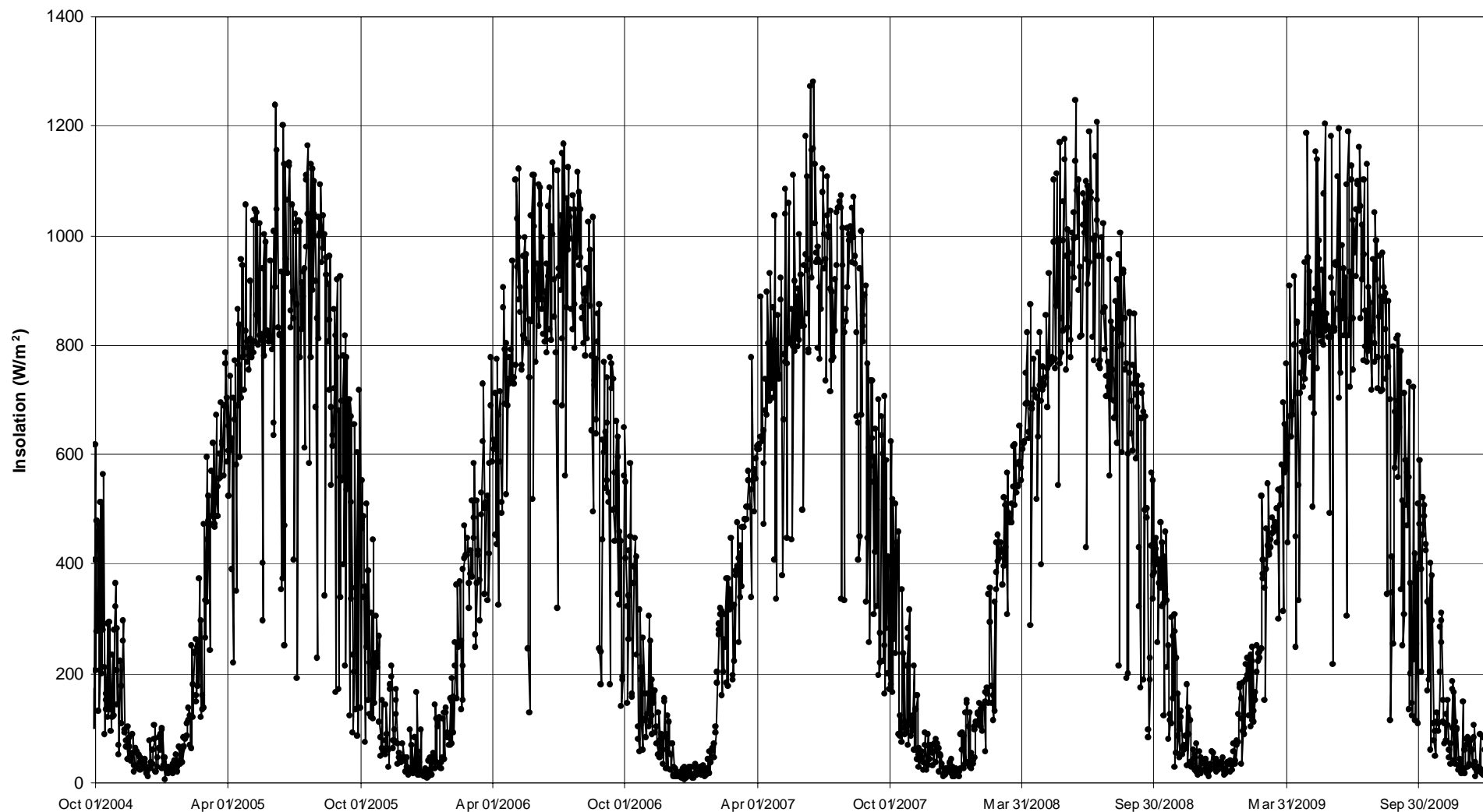


EBA Engineering
Consultants Ltd. 

TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT
Tyhee Station
Daily Maximum Incident Solar Radiation
2009

PROJECT NO. Y22101103	DWN RFD	CKD JAS	REV 0
OFFICE EBA-VANC	DATE February 2, 2010		

Figure 3.11



NOTES

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**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT**

Tyhee Station

**Daily Maximum Incident Solar Radiation
Period of Record**

PROJECT NO.

Y22101103

OFFICE

EBA-VANC

DWN

RFD

CKD

JAS

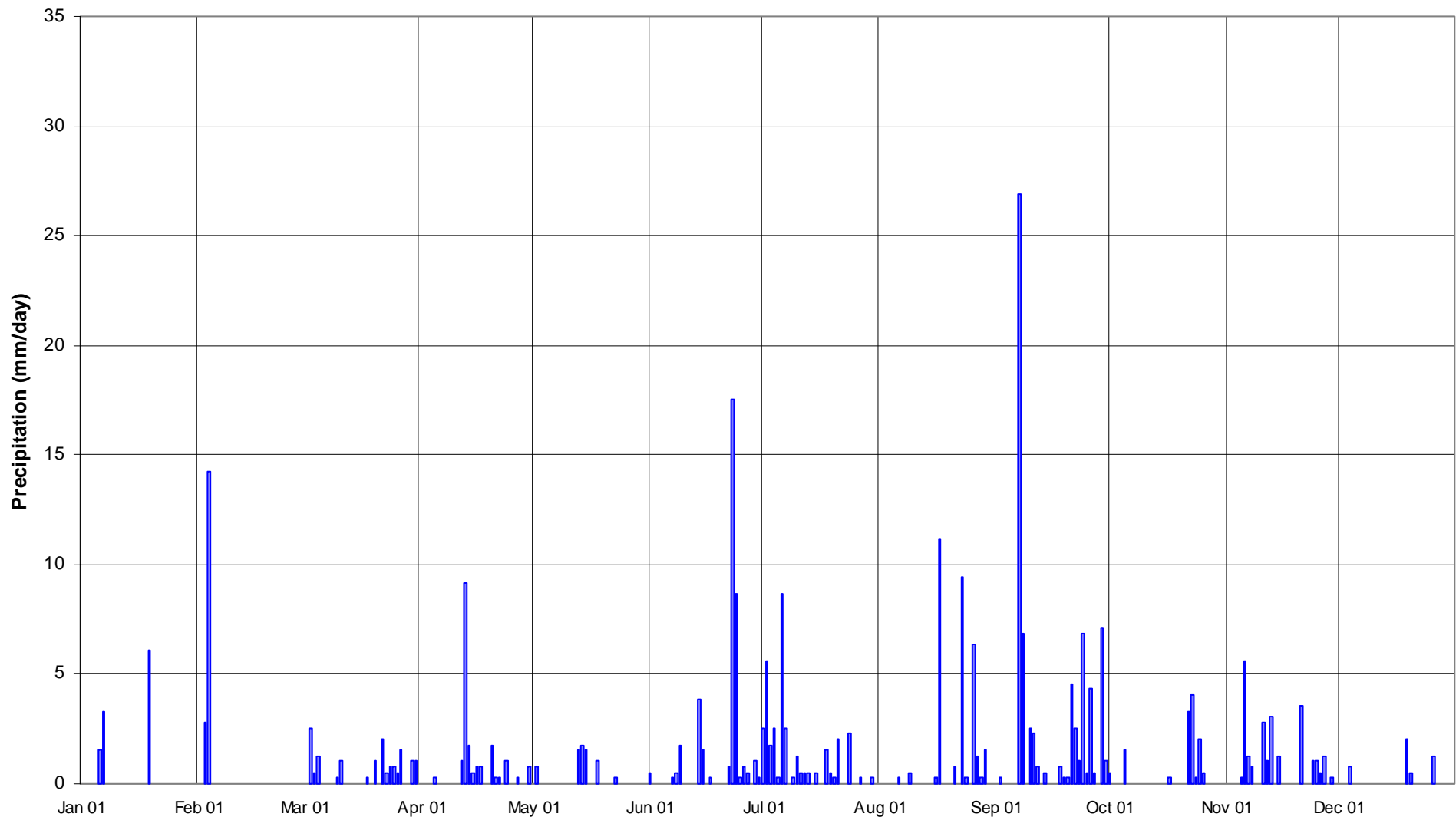
REV

0

DATE

February 2, 2010

Figure 3.12



NOTES

CLIENT

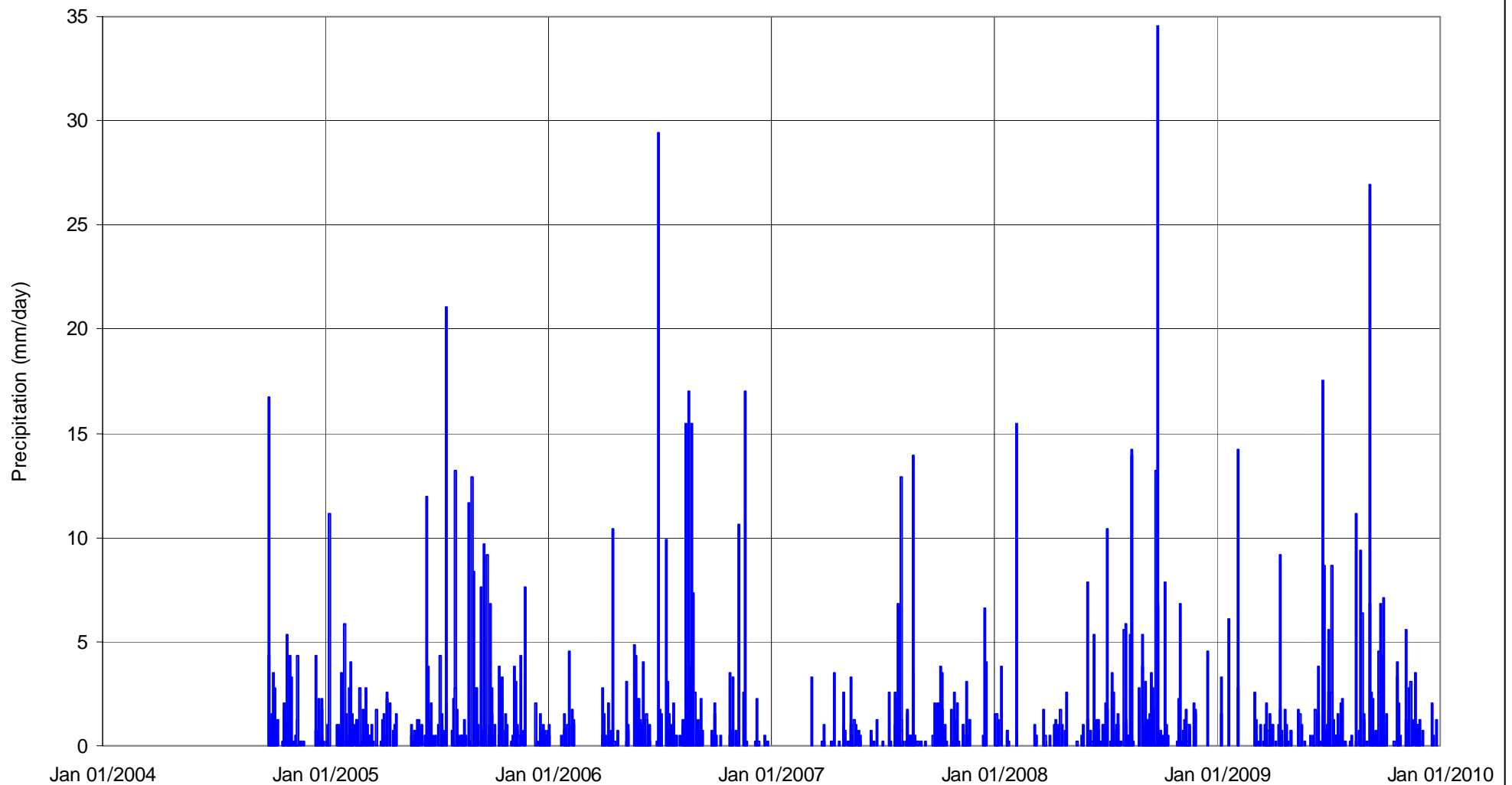


EBA Engineering Consultants Ltd. 

**TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT**
Tyhee Station
Daily Water-Equivalent Precipitation
2009

PROJECT NO. Y22101103	DWN RFD	CKD JAS	REV 0
OFFICE EBA-VANC	DATE February 2, 2010		

Figure 3.13



NOTES

The all weather precipitation gauge was not functional over the period for January 1 to March 22, 2007.

CLIENT



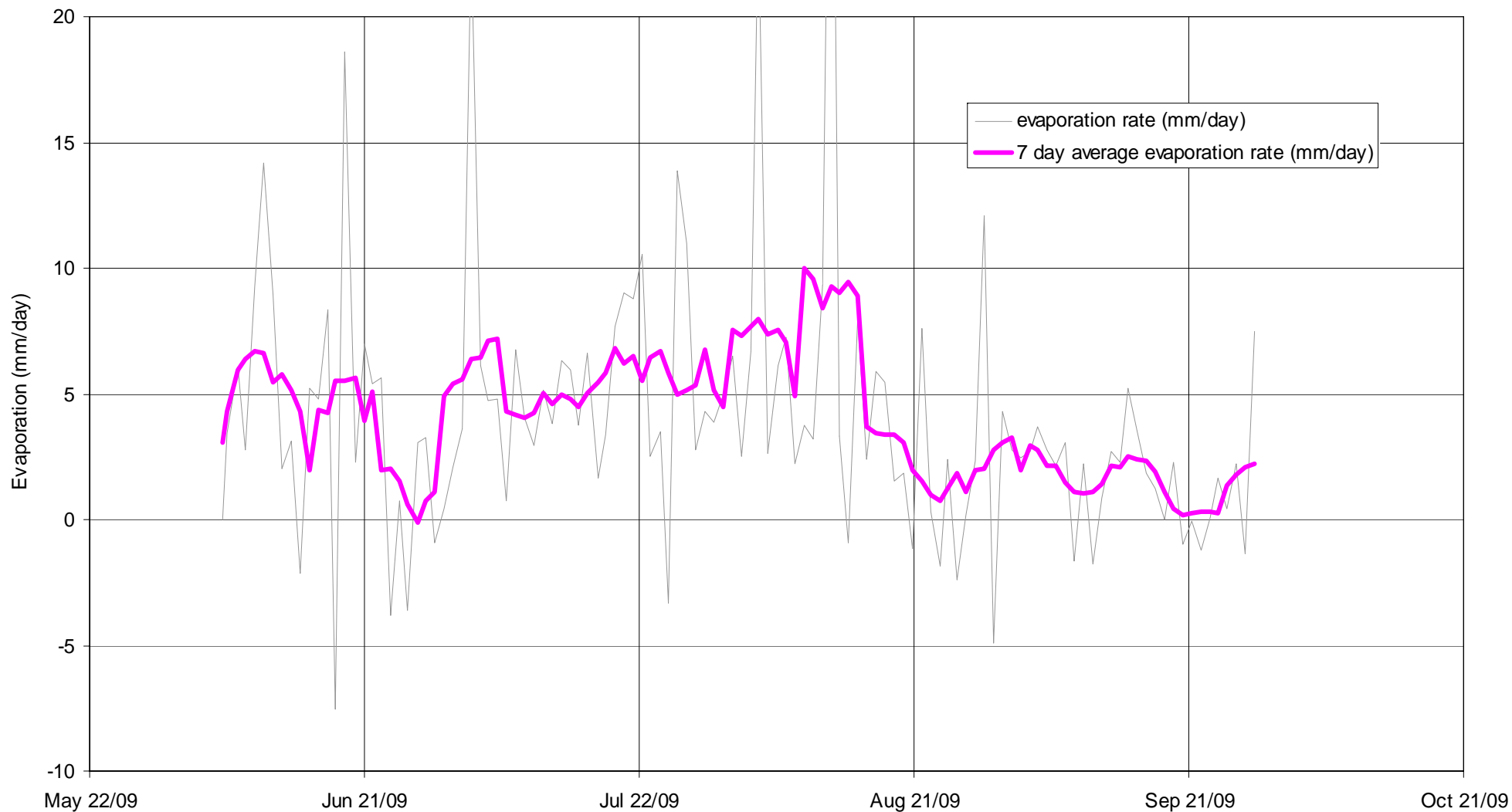
EBA Engineering
Consultants Ltd. 

TYHEE NWT CORP. YELLOWKNIFE GOLD PROJECT

Tyhee Station Daily Water-Equivalent Precipitation Period of Record

PROJECT NO. Y22101103	DWN RFD	CKD JAS	REV 0
OFFICE EBA-VANC	DATE February 2, 2010		

Figure 3.14



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TYHEE NWT CORP.
YELLOWKNIFE GOLD PROJECT

Tyhee Station
Pan Evaporation
2009

PROJECT NO.
Y22101103
OFFICE
EBA-VANC

DWN
RED
DATE
February 2010

CKD
JAS
REV
0

Figure 3.15

APPENDIX

APPENDIX A SITE DESCRIPTIONS

Site Identification: **Site #1: Narrow Lake Outlet** Installation Date: July 17, 2005
Site GPS Coordinates: North 63° 9' 16.4 " Basin Area: 9.3 km²
West 113° 57' 7.3" (NAD 27)

1.0 STATION LOCATION

The station is located on the southwest end of Narrow Lake. It is about 10 m north of the winter road at the junction of the creek with the road. There are two small creeks, which flow out of Narrow Lake. Both creeks enter a small pond. A single creek flows out of this pond and for the first 50 m the flow is along a well-defined channel. The Narrow Lake outlet hydrometric Site #1 is located in this channel about 10 m downstream of the pond.

2.0 SITE DESCRIPTION

Two creeks flow southwest from Narrow Lake and merge again into a small pond. A single creek flows out of the southwest side of the pond. The creek bed is about 0.5 m below the typical bank elevation and is typically about 1 to 3 m in width. After approximately 100 m of defined creek channel, the channel disappears and the creek flow is diffuse in nature and in general, meanders through stunted growth of birch, pine trees, willow shrubs and long grass.

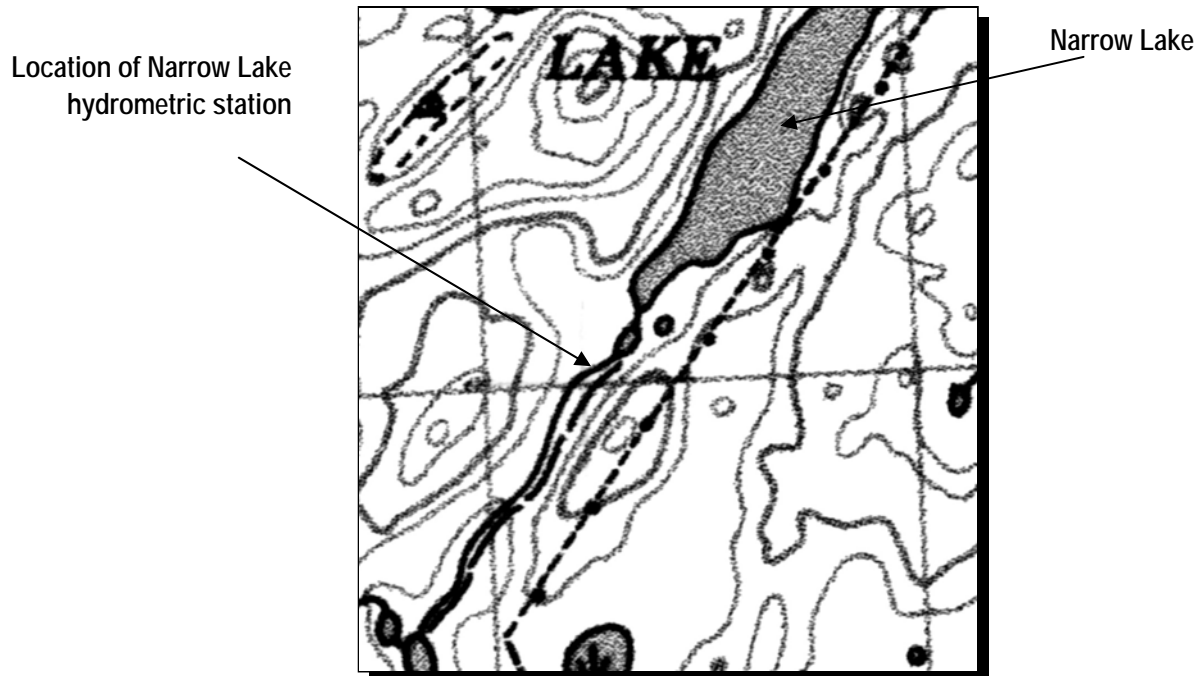
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2434006	Pressure Transducer / Data Logger Serial Number
12.00 in	Parshall Flume Throat Diameter
0.07 psi	Parshall Flume Transducer Well Offset
0.159 psi	Transducer Zero Offset
690.917	Flume Calibration Algorithm Multiplier for ℓ/s discharge
1.522	Flume Calibration Algorithm Exponent

5.0 MAP OF NARROW LAKE OUTLET HYDROMETRIC STATION



6.0 SITE PHOTOGRAPHS



Photo 1

Aerial view looking upstream to the northeast to Narrow Lake



Photo 2

Parshall Flume – Narrow Lake Outlet Hydrometric Station Photo Caption



Photo 3

Parshall Flume – Narrow Lake Outlet Hydrometric Station (downstream)

7.0 STATION HISTORY

The Narrow Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. During the summer of 2004, a staff gauge was installed at the site and spot measurements of flow and stage were recorded manually.

- May 22, 2005 – an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation. This station was removed from service on July 15, 2005 to accommodate site improvements.
- July 17, 2005 – the hydrometric station was upgraded by installing a Parshall flume.
- June 9, 2006 – the Parshall flume and bulkhead was inspected for damage or leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 – the instrumentation was removed for the season.
- May 11, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 10, 2007 – the Parshall flume and bulkhead was inspected damage or leakage. Leaks were plugged on both sides of flume. It was observed that during high flows, leaks may occur around the sides of the bulkhead.
- September 28, 2007 – the instrumentation was removed for the season.
- June 4, 2008 – the Parshall flume and bulkhead was inspected and there was no damage or leakage. Instrumentation re-installed for the summer and discharge measurements collected for flume calibration.
- July 29, 2008 – the Parshall flume and bulkhead was inspected and there was no damage or leakage. Flume calibrations data collected.
- September 26, 2008 – the instrumentation was removed for the season.
- June 6, 2009 - The stage recorder was re-installed for the 2009 hydrological study at 8:46 AM during the initial site visit for the year. The Parshall flume and bulkhead were inspected and no damage or leakage was observed at this time. Stage discharge data was collected and the data logger downloaded to ensure correct operation.
- August 24, 2009 - A second site visit occurred on for the purpose of site inspection, stage discharge data collection and downloading of the station's data.
- October 8, 2009 - The instrumentation was removed for the season at 1:01 PM.

Site Identification: **Site #3 Winter Lake Outlet** Installation Date: July 14, 2005
Site GPS Coordinates: North 63° 10' 4.8 " Basin Area: 5.5 km²
West 113° 55' 38.5" (NAD 27)

1.0 STATION LOCATION

The site is located between Narrow Lake to the southwest and Winter Lake to the northeast. The Winter Lake outlet is located on the northwest portion of Winter Lake about 10 m to the south of the winter road. The hydrometric station is located 60 m downstream from the outlet.

2.0 SITE DESCRIPTIONS

The creek flows along the south side of the winter road to the midway point between Winter and Narrow Lakes. Over this reach of the creek, the channel is typically 30 to 60 cm wide by 15 to 20 cm deep. Over the rest of the distance to Narrow Lake, the creek flows along a poorly defined diffuse route down the winter road and discharges to Narrow Lake.

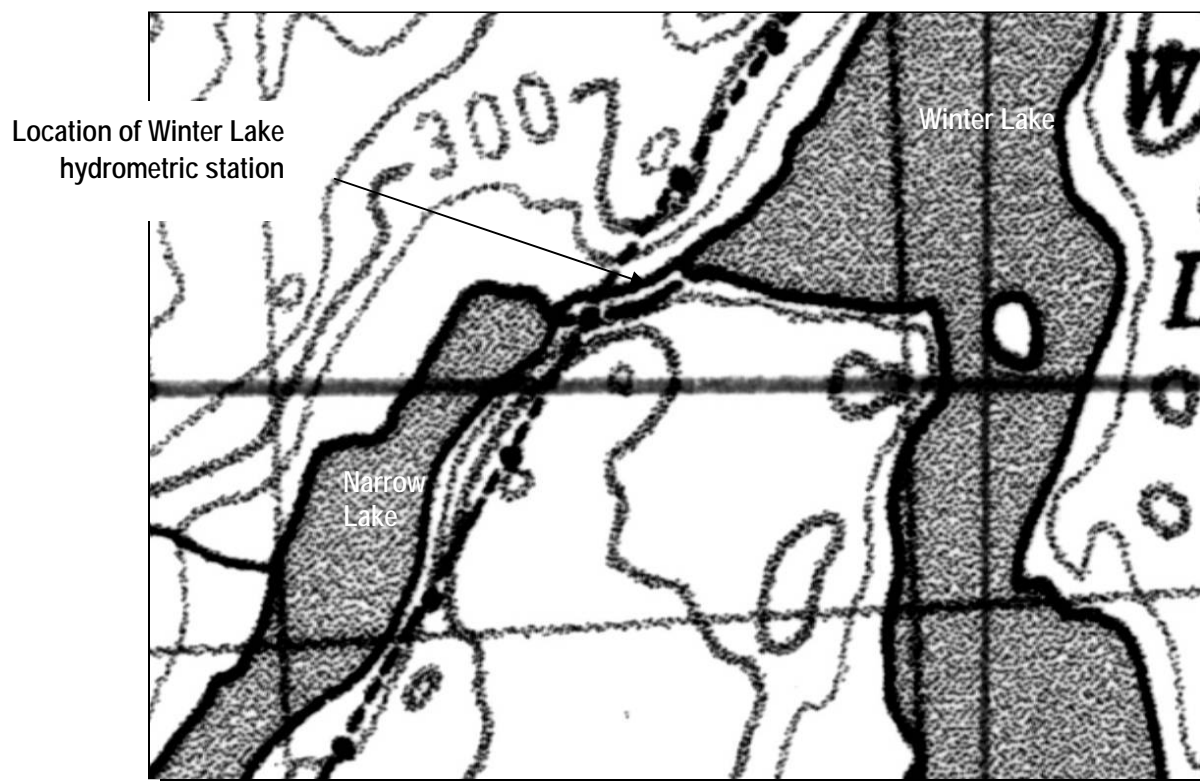
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2434007	Pressure Transducer / Data Logger Serial Number
9.00 in	Parshall Flume Throat Diameter
0.048 psi	Parshall Flume Transducer Well Offset
0.156 psi	Transducer Zero Offset
535.343	Flume Calibration Algorithm Multiplier
1.53	Flume Calibration Algorithm Exponent

5.0 MAP OF WINTER LAKE OUTLET HYDROMETRIC STATION



6.0 PHOTOGRAPHS OF WINTER LAKE OUTLET HYDROMETRIC STATION



Photo 1

Aerial view from Winter Lake looking southwest across site to Narrow Lake

7.0 SITE PHOTOGRAPH



Photo 2

Parshall Flume – Winter Lake Outlet Hydrometric Station (upstream)

8.0 STATION HISTORY

A site was selected for the Winter Lake hydrometric station on May 20, 2005 during the first hydrometric site visit of that year. Only manually determined discharges were recorded during the 2005 field survey. A Parshall flume was sized and ordered as well as the necessary hydrometric station instrumentation.

- July 14, 2005 - the hydrometric station was upgraded by installing a Parshall flume.
- June 9, 2006 - the Parshall flume and bulkhead was inspected for damage and leakage. No problems were observed and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- September 19, 2006 - the instrumentation was removed for the season.
- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 10, 2007 – the Parshall flume and bulkhead was inspected for damage and leakage. Leakage at higher flows around the flume was observed to be possible and attempts at repairs made. Next season further repairs to the flume construction are necessary to prevent further leakage and erroneous flow data.
- September 28, 2007 - the instrumentation was removed for the season.
- May 27, 2008 - the instrumentation was installed for the summer of 2008.
- June 3, 2008 - Leakage at higher flows around the flume was observed to be possible and attempts at repairs made. Plans made to completely overhaul the flume and bulkhead.
- July 29, 2008 – The flume and bulkhead were removed from the station and the flume and new bulkhead installed. The flume was installed approximately 10 cm lower than the previous installation to minimize potential backwater effects. Discharge data collected to check the calibration of the flume.
- September 26, 2008 - the instrumentation was removed for the season.
- June 5, 2009 - The stage recorder was installed for the 2009 hydrological study. The Parshall flume and bulkhead were inspected and some minor repairs were necessary to prevent leakage through the bulkhead. No leakage was observed after the repairs. Stage discharge data was collected and the data logger downloaded to ensure correct operation.
- August 21, 2009 – The second site visit for site inspection, stage discharge data collection and downloading of the station's data.
- October 8, 2009 - The instrumentation was removed for the season.

Site Identification: **Site #4 Round Lake Outlet** Installation Date: July 18, 2005
Site GPS Coordinates: North 63° 10' 30.3" Basin Area: 1.2 km²
West 113° 54' 27.2" (NAD 27)

1.0 STATION LOCATION

The site is located between Winter Lake to the southwest and Round Lake to the east. The station is located on the north side of the winter road, 75 m northeast from the point the winter road intersects Round Lake. The flow outlet is situated on the northwest side of Round Lake.

2.0 SITE DESCRIPTIONS

There is no distinct flow channel out of Round Lake but rather a diffuse flow through the muskeg into a small marsh approximately 5 m downstream from the lake. The outlet from this marsh flows southwest into Winter Lake, typically as a vadose flow, through the muskeg and willow shrubs. At one point, about 25 m southwest of the Round Lake outlet, the flow is contained in a single channel. The hydrometric station was installed here.

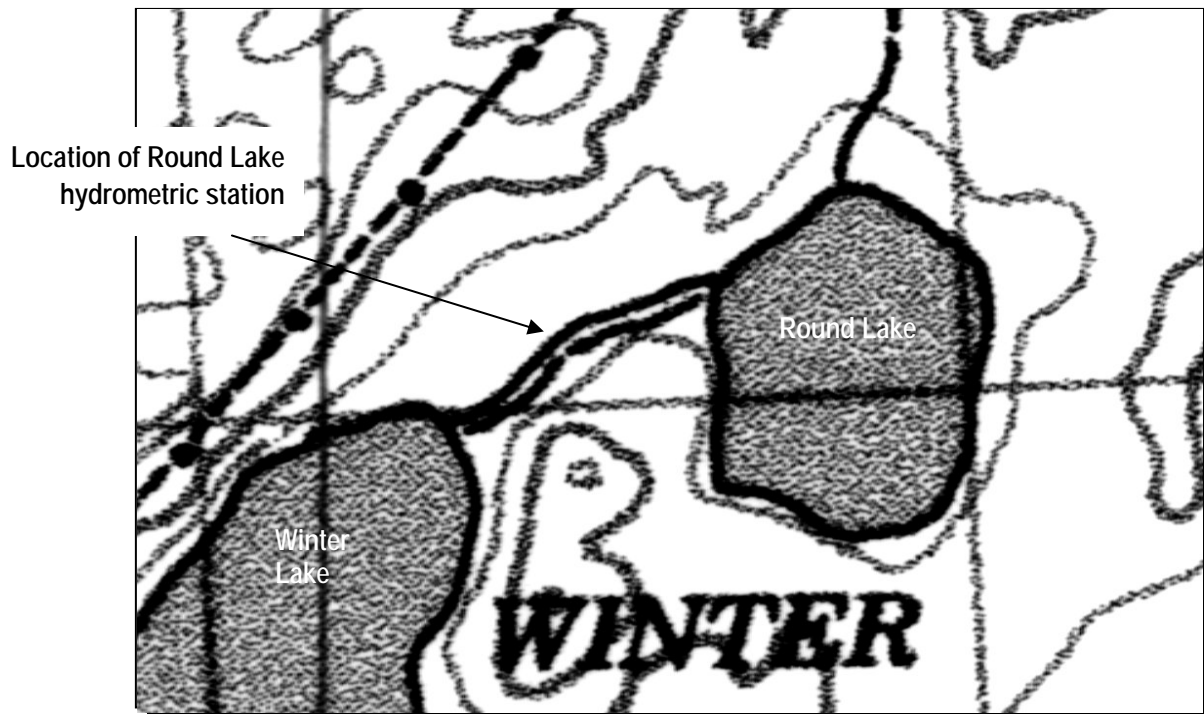
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a Parshall Flume, a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the Parshall Flume.

4.0 SPECIFICATIONS

Equipment Specifications	
2516008	Pressure Transducer / Data Logger Serial Number
6.00 in	Parshall Flume Throat Diameter
0.049 psi	Parshall Flume Transducer Well Offset
0.214 psi	Transducer Zero Offset
381.206	Flume Calibration Algorithm Multiplier
1.580	Flume Calibration Algorithm Exponent

5.0 MAP OF ROUND LAKE OUTLET HYDROMETRIC STATION



6.0 PHOTOGRAPHS OF ROUND LAKE OUTLET HYDROMETRIC STATION



Photo 1

Aerial view from Round Lake southwest across site to Winter Lake



Photo 2

Parshall Flume – Round Lake Outlet Hydrometric Station (downstream)

7.0 STATION HISTORY

A site was selected for the Round Lake hydrometric station on May 21, 2005 during the first hydrometric site visit of that year. Only manually-determined discharges were recorded during this field survey.

- July 14, 2005 – the hydrometric station was upgraded by installing a Parshall flume.
- July 18, 2005 – a Parshall flume was installed and instrumented.
- September 12, 2005 – instrumentation was removed for the season.
- June 9, 2006 – the Parshall flume and bulkhead was inspected for damage or leakage. A leak in the bulkhead was repaired and the pressure transducer and data logger were reinstalled to collect discharge data over the summer of 2006.
- October 3, 2006 – the instrumentation was removed for the season.
- May 19, 2007 – instrumentation was re-installed to collect discharge data over the summer of 2007.
- June 11, 2007 – the Parshall flume and bulkhead was inspected for damage and leakage. The bulkhead needs repair work, as during high flows, leakage could occur around the sides, however at low flows, there is no apparent leakage.
- September 28, 2007 – the instrumentation was removed for the season.
- May 22, 2008 – the instrumentation was installed for the season.
- June 4, 2008 – the Parshall flume and bulkhead was inspected for damage and leakage. The bulkhead needs repair work and it is scheduled for the next field trip to site in July.
- July 29, 2008 – the Parshall flume and bulkhead was completely removed and the flume re-installed with a new bulkhead. Discharge measurements were collected to check flume calibration.
- September 26, 2008 – the instrumentation was removed for the season.
- June 5, 2009 - The stage recorder was reinstalled for the 2009 hydrological study. The Parshall flume and bulkhead were inspected for damage and leakage. Some seepage was noted, but was easily repaired by packing more mud and sandbags on the bulkhead.
- August 21, 2009 – The second site visit for site inspection, stage discharge data collection and downloading of the station's data.
- October 8, 2009 - The water level recorder was removed for the season.

Site Identification: **Site #6 Nicholas Lake Outlet** Installation Date: July 13, 2005
Site GPS Coordinates: North 63° 15' 20.1" Basin Area: 6.28 km²
West 113° 46' 4.4" (NAD 27)

1.0 STATION LOCATION

The site is located at the western end of the Northwest arm of Nicholas Lake just downstream of Nicholas Lake outlet. The discharge gauging station and staff gauge are located about 10 m downstream of the creek outlet at Nicholas Lake, in the open and well-defined channel. Five metres further downstream from the staff gauge, the hydrometric stage recorder housing is attached to a vertical rock face so that the sensor is submerged.

2.0 SITE DESCRIPTIONS

The creek exits in a well-defined bedrock channel. Within 30 m from the outlet of the lake, large boulders begin to occupy the streambed. Within 100 m of the outlet, boulders almost completely fill the creek channel, restricting the flow area. Flow occurs around and under the numerous boulders. There are only small areas where the flow is visible under the rock-filled channel. The rock-filled channel extends the rest of the length of the creek.

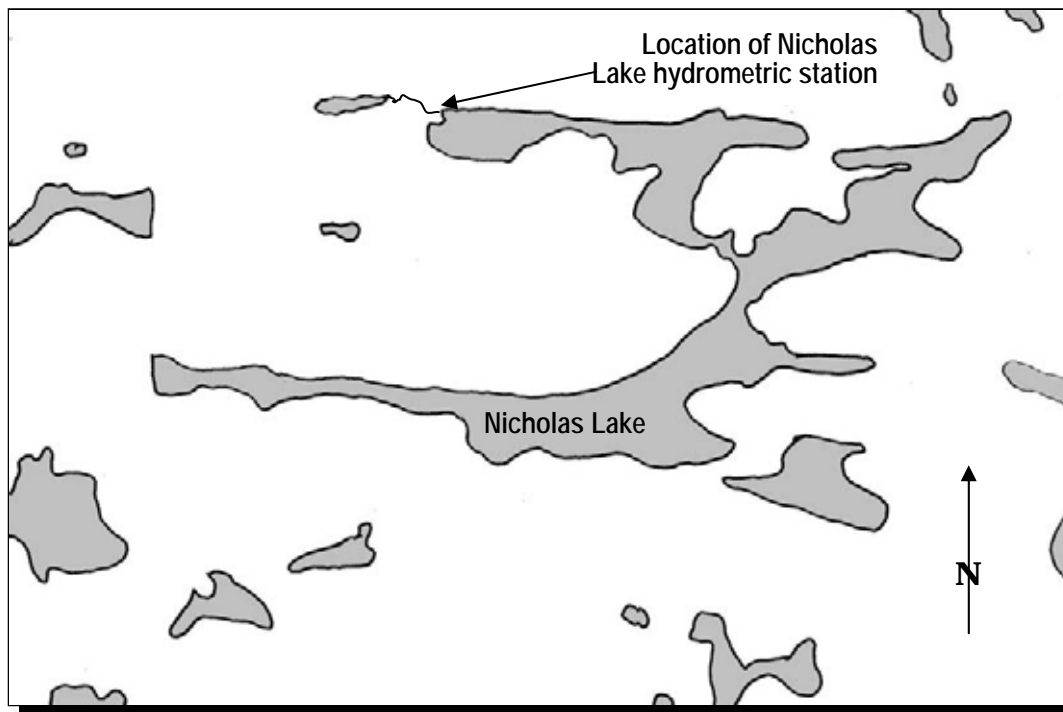
3.0 INSTRUMENTATION

The hydrometric station installed at this site includes a water level and temperature sensor and a data logger which records data at 15 minute intervals. A staff gauge is located at the cross section where the creek is gauged, just upstream of the station.

4.0 SPECIFICATIONS

Equipment Specifications	
2434009	Pressure Transducer / Data Logger Serial Number
1000.000 m	Sea level, benchmark elevation at the site (assumed)
997.707 m	Sea level, elevation of zero reading on staff gauge (assumed)
2.293 m	Difference in elevation from BM to staff gauge zero reading
2.356 m	Difference in elevation from BM to the pressure transducer
997.645 m	Transducer elevation (assumed)

5.0 MAP OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION



Map 1
Nicholas Lake Hydrometric Station

6.0 PHOTOGRAPH OF NICHOLAS LAKE OUTLET HYDROMETRIC STATION



Photo 1

Arial view from Nicholas Lake northwest across site

7.0 SITE PHOTOGRAPHS



Photo 2
Staff gauge and discharge gauging station



Photo 3
Pressure transducer and data logger

8.0 STATION HISTORY

The Nicholas Lake Outlet flow monitoring station was established shortly after the spring thaw in 2004. A staff gauge was installed on the Nicholas Lake outlet on May 31, 2004, and spot measurements of flow and stage were recorded manually.

- July 13, 2005 – an automated stage and temperature recorder was installed at this station. A survey monument was also installed at this site, to provide a known reference point, for elevation surveys of the site instrumentation.
- September 13, 2005 – the instrumentation was removed for the season.
- Spring 2006 – Nicholas Lake Outlet was excluded from the hydrological study for 2006 and no flow data was collected.
- June 10, 2007 – Nicholas Lake Outlet was re-included into the hydrology study for 2007, and instrumentation was re-installed to collect discharge data over the summer of 2007.
- September 30, 2007 – the instrumentation was removed for the season.
- May 26, 2008 - The station was reactivated for the 2008 hydrological study. The hydrometric station instruments were installed in the existing housing at 12:51 hours.
- September 26, 2008 - The instrumentation was removed for the season on at 11:51 AM.
- June 6, 2009 - The hydrometric station was reactivated for the 2009 hydrological study at 13:03 hours. Instrumentation was re-installed to collect discharge data over the summer of 2007. Stage discharge data collected and an elevation survey conducted.
- August 24, 2009 - The station was visited for site inspection, stage discharge data collection, downloading of the station's data and an elevation survey conducted.
- October 9, 2009 - The instrumentation was removed for the season on at 12:33 hours.

Site Identification:	Site #7: Tyhee	Installation Date:	Sept 28, 2004
Site GPS Coordinates:	North 63° 11' 6.2"	Tower Height:	10 m
	West 113° 53' 40.2" (NAD 27)	Site elevation above sea level:	300 m
Magnetic Deviation:	22.83° or TN=337.17°	North alignment pole set to	337.2°

1.0 STATION LOCATION

The station was installed at a site overlooking Giauque Lake to the east. It is located about 50 metres to the east of the north end of the Tyhee airstrip and just southeast of the old Discovery Mine site. The elevation of the station is 300 metres asl.

2.0 SITE DESCRIPTION

The weather station consists of a standard 10 metre meteorological tower with instrumentation to measure wind speed and direction, air temperature, relative humidity, barometric pressure, and incident solar radiation, an all-weather precipitation gauge and an evaporation pan. The station is powered by a 12 Vdc 8 Ahr battery with a 20-watt solar panel for charging. Data is recorded to a Campbell Scientific CR10X data logger. The data collection cycle is 5 seconds and the data is averaged over a 15 minute archiving period and saved to the logger memory. Station memory capacity exceeds one year of data at the current sampling rate.

3.0 INSTALLATION NOTES

The tower base supports are fixed to a 1 cubic metre block of concrete. The tower legs are bolted to the base supports. Three guy lines secure the top of the tower and prevent the tower from swaying under high winds. The wind anemometer is located near the top of the tower, just below the lightning rod. The remaining instrumentation is located near the base.

The precipitation gauge is located 5 metres southeast from the tower. It is mounted on a concrete slab to enable support of the tipping bucket rain gauge and the alter wind screen. The support table for the evaporation pan is located beside the precipitation gauge.

4.0 RECORDED DATA

The two tables below show examples of the data collected every 15 minutes, as well as a 24 hour summary of the daily maximums and minimums and information on the status of the data logger and the battery.

15 Minute Record

Date / Time	Wind Speed (m/s)	Wind Dir (degrees)	SD Wind dir (degrees)	Air Temp (°C)	Relative Humidity (%)	Barometric Pressure (hPa)	Precipitation (mm)	Pyranometer (W/m²)
Sep. 21/07 11:00	2.947	290.5	10.28	-0.942	93.9	1008.9	0	98.2
Sep. 21/07 11:15	2.348	289.7	12.79	-0.884	94.1	1009	0.254	89.2
Sep. 21/07 11:30	2.369	300	10.36	-0.775	93.7	1008.8	0.508	120.6
Sep. 21/07 11:45	2.01	298.3	13.13	-0.547	92.6	1008.8	0	151.9

Daily Summary

Date	Speed Max (m/s)	Daily Barometric Pressure Mean (hPa)	Max (hPa)	Min (hPa)	Precipitation (mm/day)	Daily Relative humidity Mean (%)	Max (%)	Min (%)	Daily Air Temperature Mean (%)	Max (%)	Min (%)	Pyranometer (W/m²)
May 23/2007	8.02	1025	1027	1022	0.762	64.71	92.2	33.64	3.786	11.62	-3.771	915
May 24/2007	10.47	1019	1023	1015	0.508	49.53	76.5	32.49	9.47	16.51	-0.063	787
May 25/2007	11.39	1010	1015	1006	0.508	38.71	63.98	19.75	13.94	19.69	6.32	888
May 26/2007	7.9	1004	1006	1002	0.254	34.86	56.04	20.22	15.76	21.98	8.88	816

Internal Logger Temperature Max (°C)	Min (°C)	Battery Voltage Min (Vdc)	Station ID	Battery Voltage Min (Vdc)	Low 12Vdc Counts	Program Signature	Watch Dog Errors
12.72	-5.116	12.81	2	3.134	0	1168	0
17.29	-1.775	12.76	2	3.134	0	1168	0
20.28	4.066	12.74	2	3.134	0	1168	0
22.81	8.21	12.76	2	3.134	0	1168	0

5.0 METEOROLOGICAL STATION INSTRUMENTATION PARAMETERS

Instrument	Model	Measuring Range	Sensitivity/Accuracy
Wind Monitor	05103AP-10 R.M. Young	0 to 60 m/s	Accuracy ± 0.3 m/s
		0 to 100 m/s gusts	Threshold wind = 1.0 m/s
		0 to 355 degrees	$\pm 1.4^\circ$
Relative Humidity / Air Temperature Probe	HMP45C212-L Vaisala	Relative Humidity 0.8 to 100% non-condensing	Accuracy at 20 °C $\pm 2\%$ RH (0-90% RH) $\pm 3\%$ RH (90-100% RH)
		Air Temperature -50° to +50°C	Accuracy at 20 °C ± 0.2 °C

Instrument	Model	Measuring Range	Sensitivity/Accuracy
Barometric Pressure Sensor	61205V R.M. Young	600 – 1100 hPa (mb)	±0.1 hPa (mb)
Pyranometer	CM3-L Kipp & Zonen	Spectral Waveband. 305-2800 nm	2.5% Non linearity (at 1000 W/m ²) 1.0% Non stability (% change/year)
All-Weather Precipitation Gauge	TE525WS CS705 Alter Screen 51	Each tip of the bucket is 0.254 mm of precipitation	<10 mm/hr ±1.0% 10-20 mm/hr -3.0% 20-30 mm/hr -5.0%

5.1 WIND SPEED AND DIRECTION MONITOR

The Model 05103-10-L wind speed and direction monitor is manufactured by R.M. Young. It is composed of a four-blade propeller mounted on a torpedo-shaped wind vane. Rotation of the propeller produces an alternating current with a frequency that is directly proportional to the wind speed. Wind direction is sensed by a potentiometer that is excited by an applied voltage. The potentiometer produces a voltage that is directly proportional to the azimuth angle. Wind data are collected every five seconds and the mean wind vector magnitude and direction are calculated and stored at 15-minute intervals. The standard deviation of wind direction is also computed and indicates the variability of wind direction over the archiving period.

5.2 TEMPERATURE AND RELATIVE HUMIDITY PROBE

The HMP25C212-L relative humidity and air temperature probe contains a Vaisala capacitive relative humidity sensor and a YSI 44212 thermistor. Both sensors are enclosed in a 10-plate gill radiation shield designed to shield the sensors from rainfall and solar radiation.

5.3 BAROMETRIC PRESSURE SENSOR

A 61205V barometric pressure sensor is enclosed inside the data logger housing. A hydrophobic filter and entry seal prevents moisture and insects from entering the housing, while allowing the inside of the housing to maintain atmospheric pressure.

5.4 PYRANOMETER

A pyranometer is a device used to measure incident solar radiation. The CM3 Kipp & Zonen pyranometer consists of a thermopile sensor coated with a black absorbent coating, which converts the incident solar radiation to heat. The resultant temperature difference is converted to a voltage by a copper-constantan thermocouple. The thermopile is encapsulated inside the pyranometer's glass dome such that it has a field of view of 180 degrees. It has a flat spectral sensitivity between 300 and 3000 nm.

5.5 ALL-WEATHER PRECIPITATION GAUGE

The all-weather precipitation gauge consists of 3 devices. These are a tipping bucket for the measurement of water equivalent precipitation, a precipitation adaptor to convert snowfall to water, and a device to ensure catchment of all snow and rainfall.

The TE525WS is an adaptation of the standard US Weather Bureau tipping bucket rain gauge. The output is a switch closure for each bucket tip. Each tip represents 0.254 mm of water equivalent precipitation.

To enable the TE525WS gauge to measure snowfall a CS705 precipitation adaptor is mounted on top of the tipping bucket rain gauge. The CS705 consists of a catch tube, antifreeze reservoir and overflow tube. Snow is captured in the catch tube and melts into the antifreeze solution contained in the reservoir and as the snow melts the level in the reservoir rises causing the water antifreeze mix to flow through the overflow tube onto the tipping bucket, thereby measuring the quantity of precipitation.

The Alter windscreen is to prevent snow and rain from blowing past the rain gauge catch tube during periods of high wind velocities. The Alter windscreen prevents strong updrafts and induces turbulence around the rain gauge catch tube. This aids in reducing airflow streams over the rain gauge resulting in better collection of precipitation during windy periods and, therefore, increasing the accuracy of the precipitation measurements.

5.6 DATA STORAGE

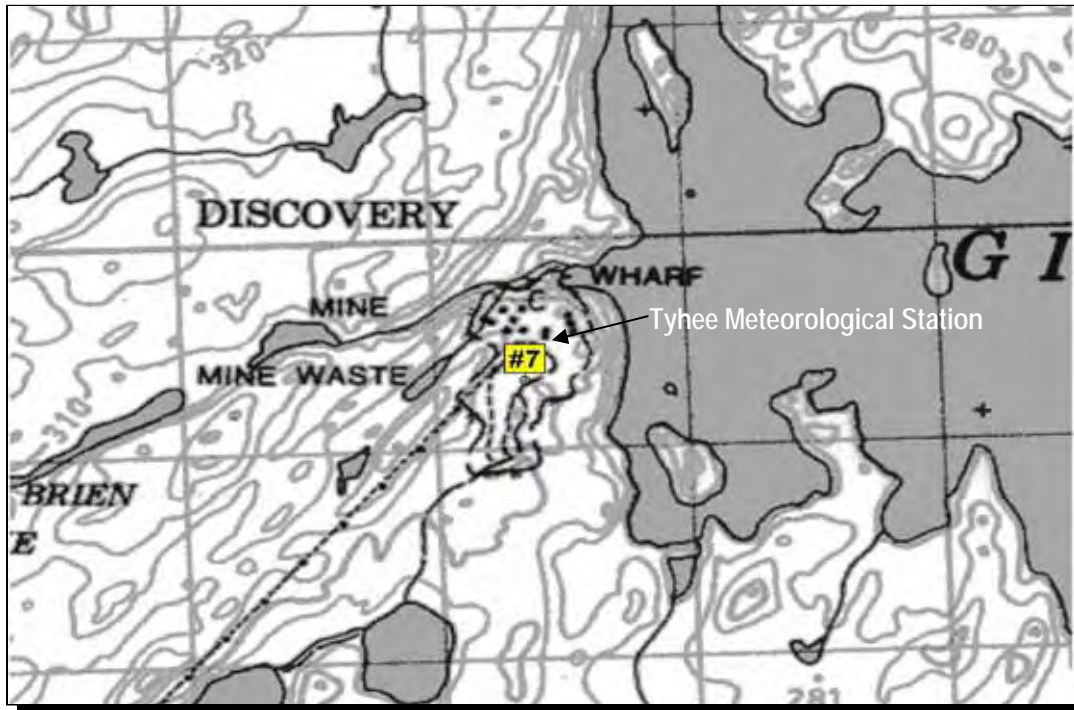
Data are recorded to a Campbell Scientific CR10X-2M data logger. The archiving interval for all parameters, except evaporation, is 15 minutes but this can be adjusted to suit specific data collection requirements. At a 15-minute sample frequency, the station will log up to one year of data before filling the memory. Meteorological data on all instruments are collected at 5-second intervals, then averaged over the archiving period and saved to the logger memory.

At the conclusion of each 24-hour period a daily summary of the meteorological data is saved to the logger memory. Other variables, which are indicative of the status of the meteorological station, such as battery power, internal temperatures and low voltage counts are also saved. Refer to the site description document in Appendix A for further information on the daily summary.

5.7 STATION POWER

The meteorological station is powered by a 12 V DC battery, a 20 watt solar panel and a charge regulator, all of which are attached to the 10 m tower. With this power configuration the station can run unattended for more than a year.

6.0 MAP OF TYHEE METEOROLOGICAL STATION



Map 1

Map of Tyhee Meteorological Station

7.0 PHOTOGRAPH OF WINTER LAKE OUTLET HYDROMETRIC STATION

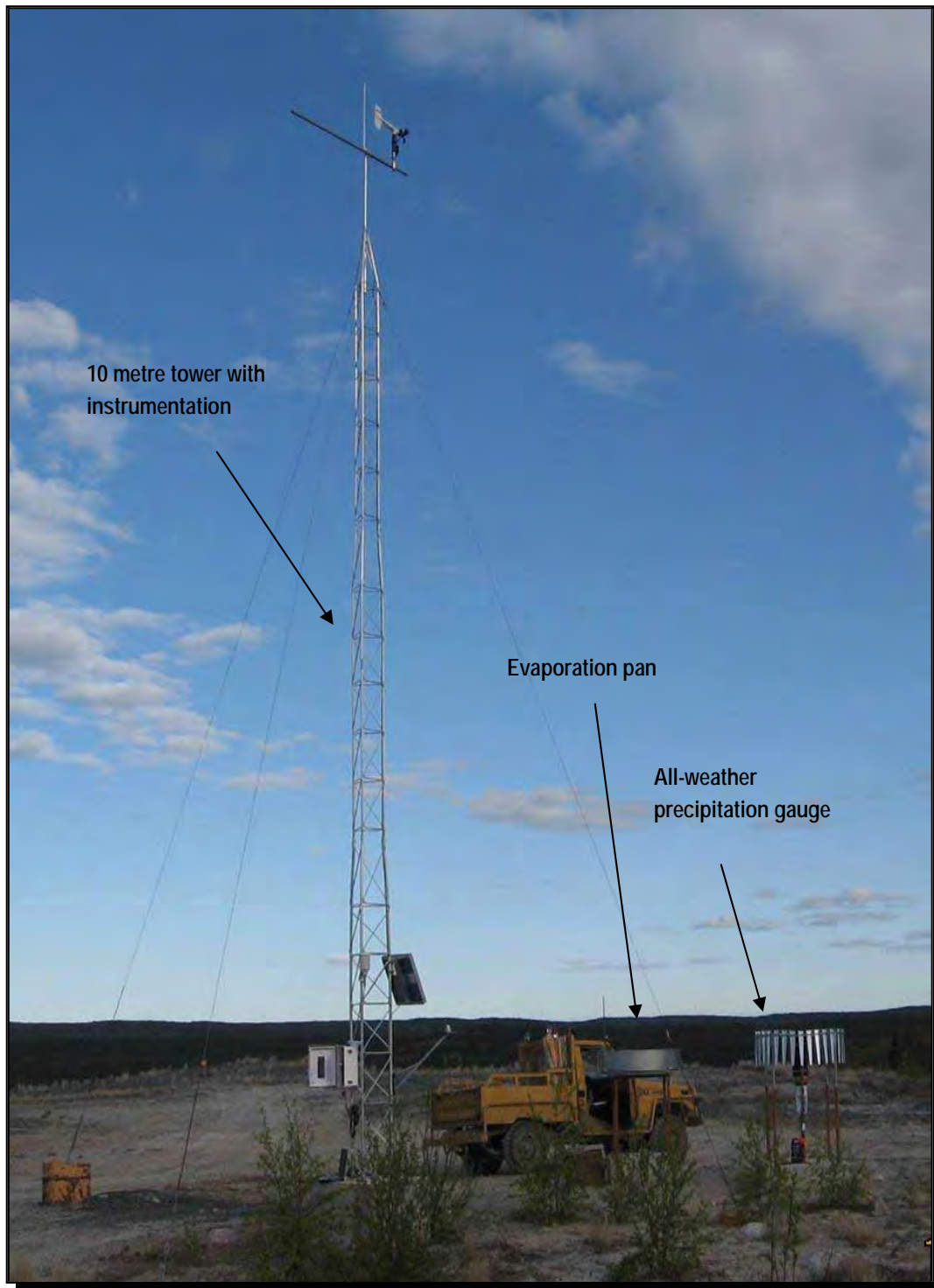
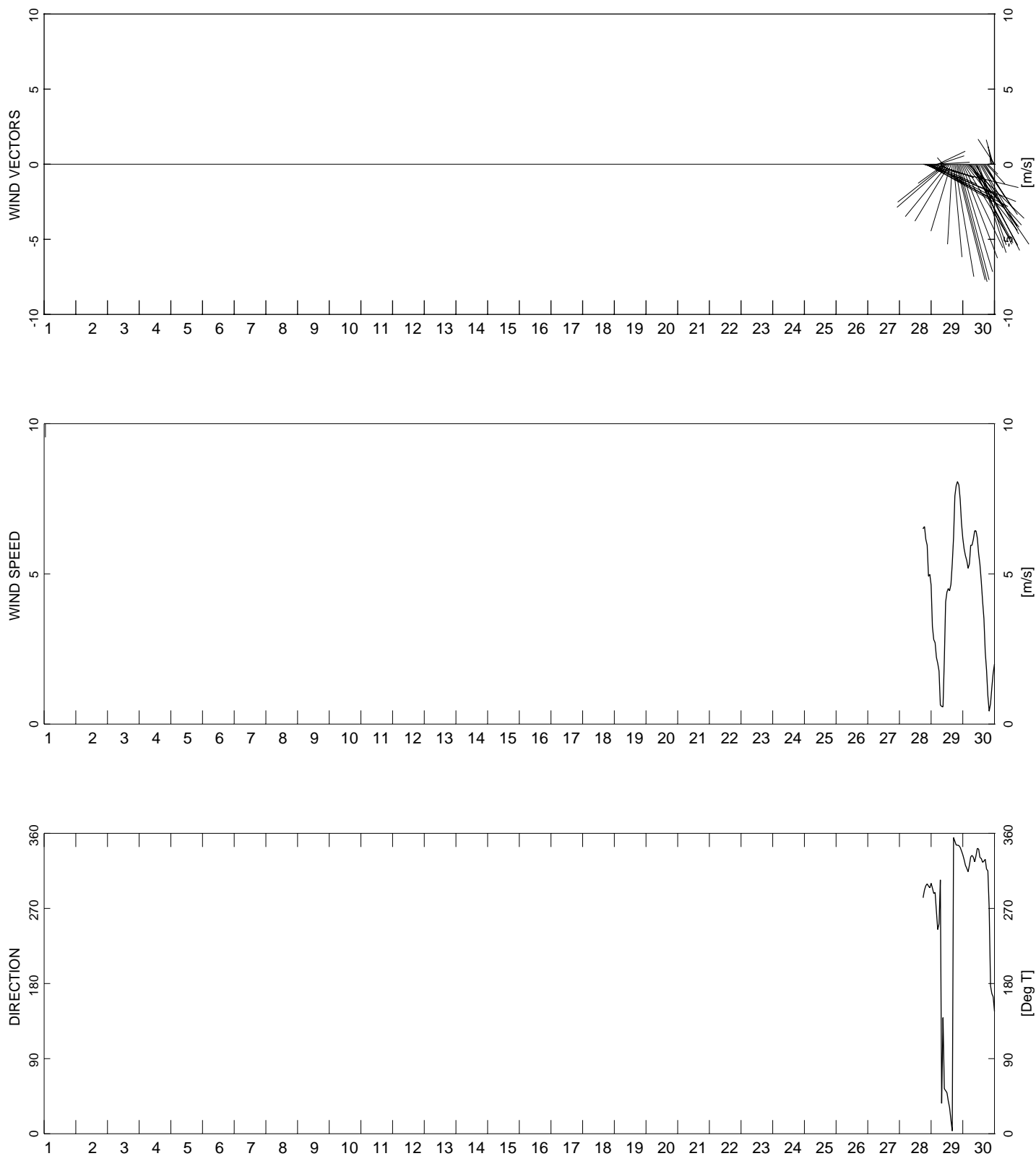


Photo 1

Site #7: View of the Tyhee Meteorological Station

APPENDIX


APPENDIX B MONTHLY WIND SUMMARIES – SEPTEMBER 2004 TO DECEMBER 2008



NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
September 2004**

PROJECT NO.
Y22101057

DWN
RED

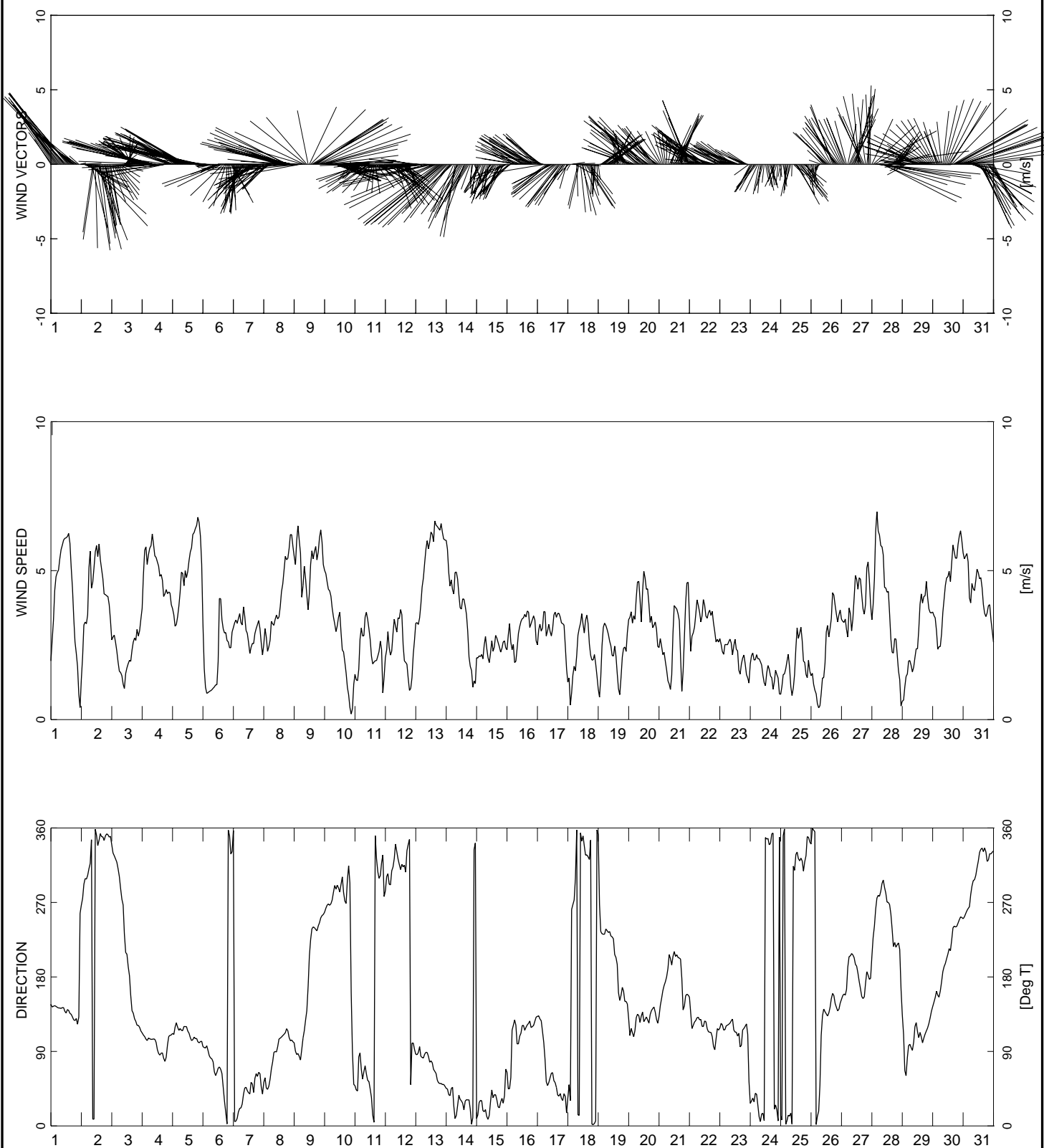
CHK
JAS

REV
0

OFFICE
EBA-VANC

DATE
July 2009

Figure B-01



NOTES

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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
October 2004**

PROJECT NO.
Y22101057

DWN
RED

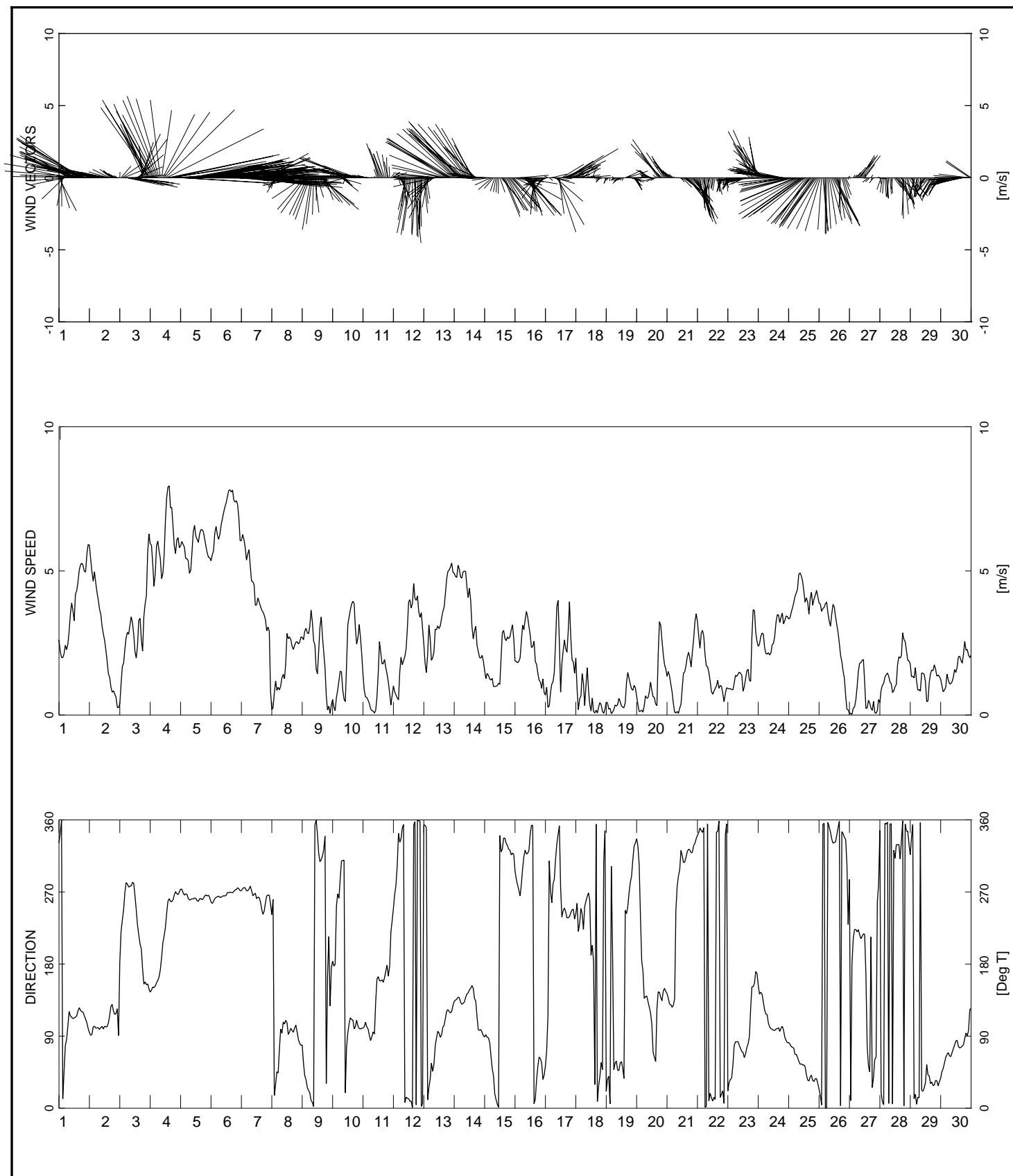
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JAS

REV
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DATE
July 2009


Figure B-02



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
November 2004**

PROJECT NO.
Y22101057

DWN
RED

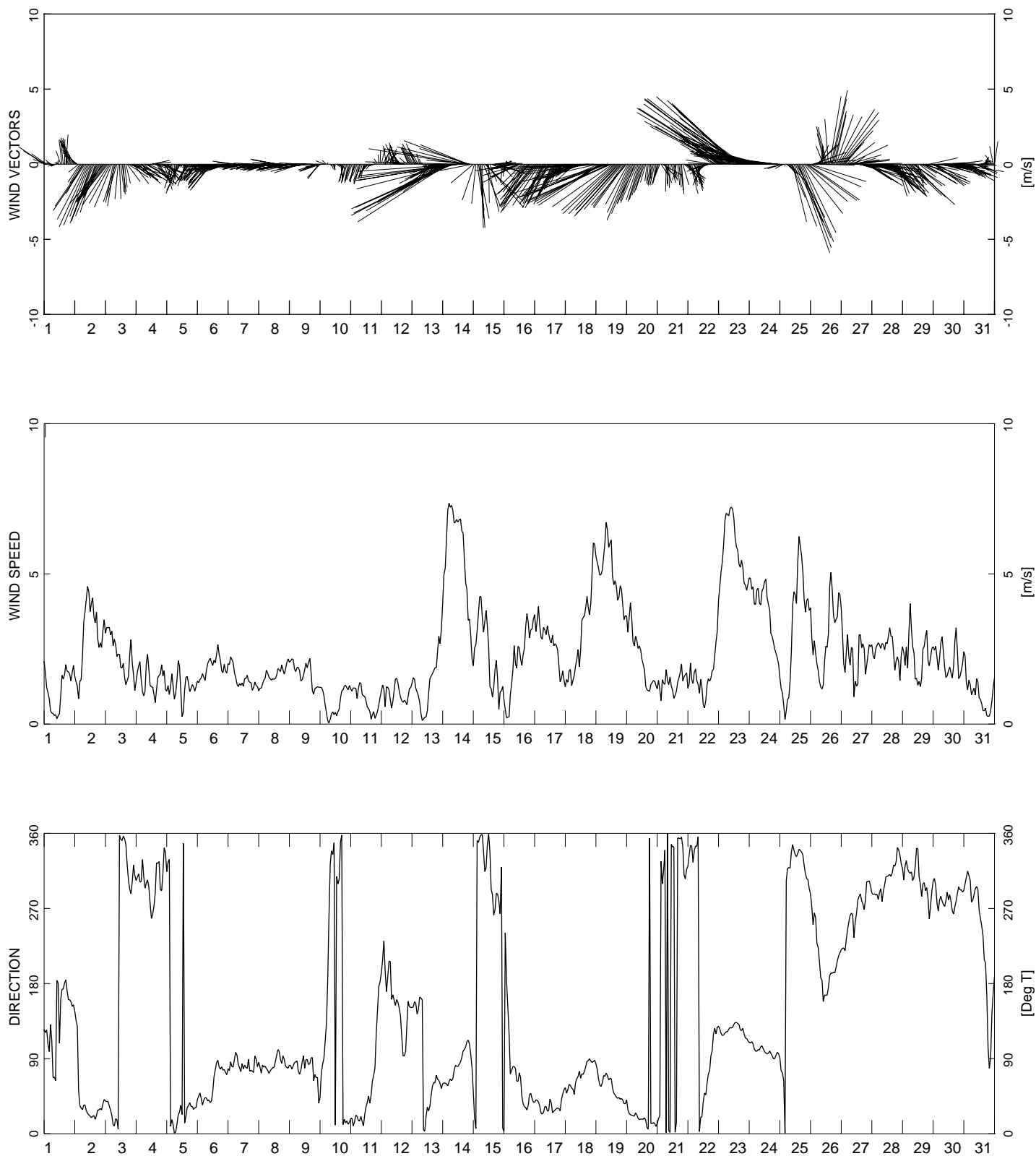
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REV
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DATE
July 2009


Figure B-03



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
December 2004**

PROJECT NO.
Y22101057

DWN
RED

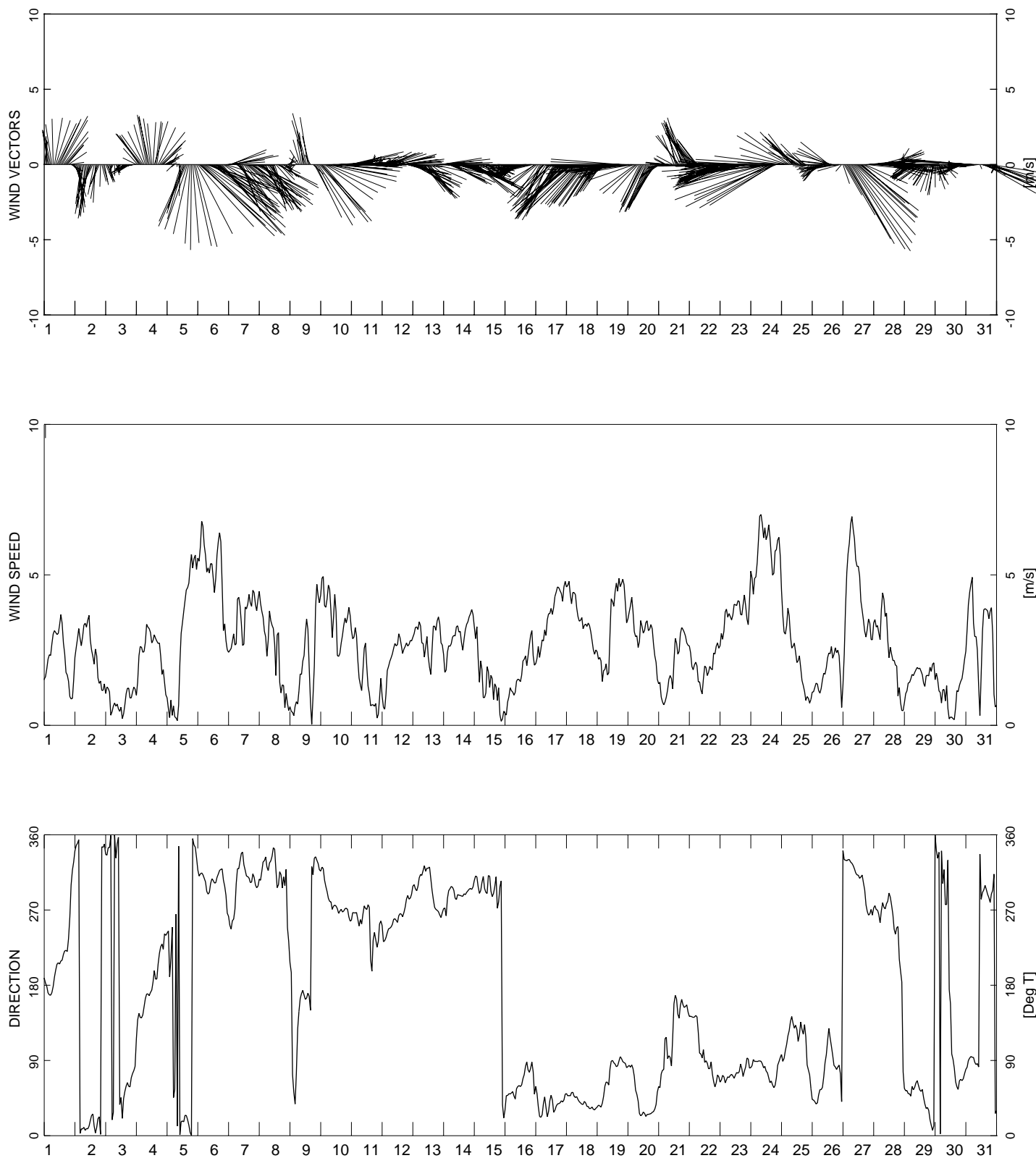
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DATE
July 2009


Figure B-04



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
January 2005**

PROJECT NO.
Y22101057

DWN
RED

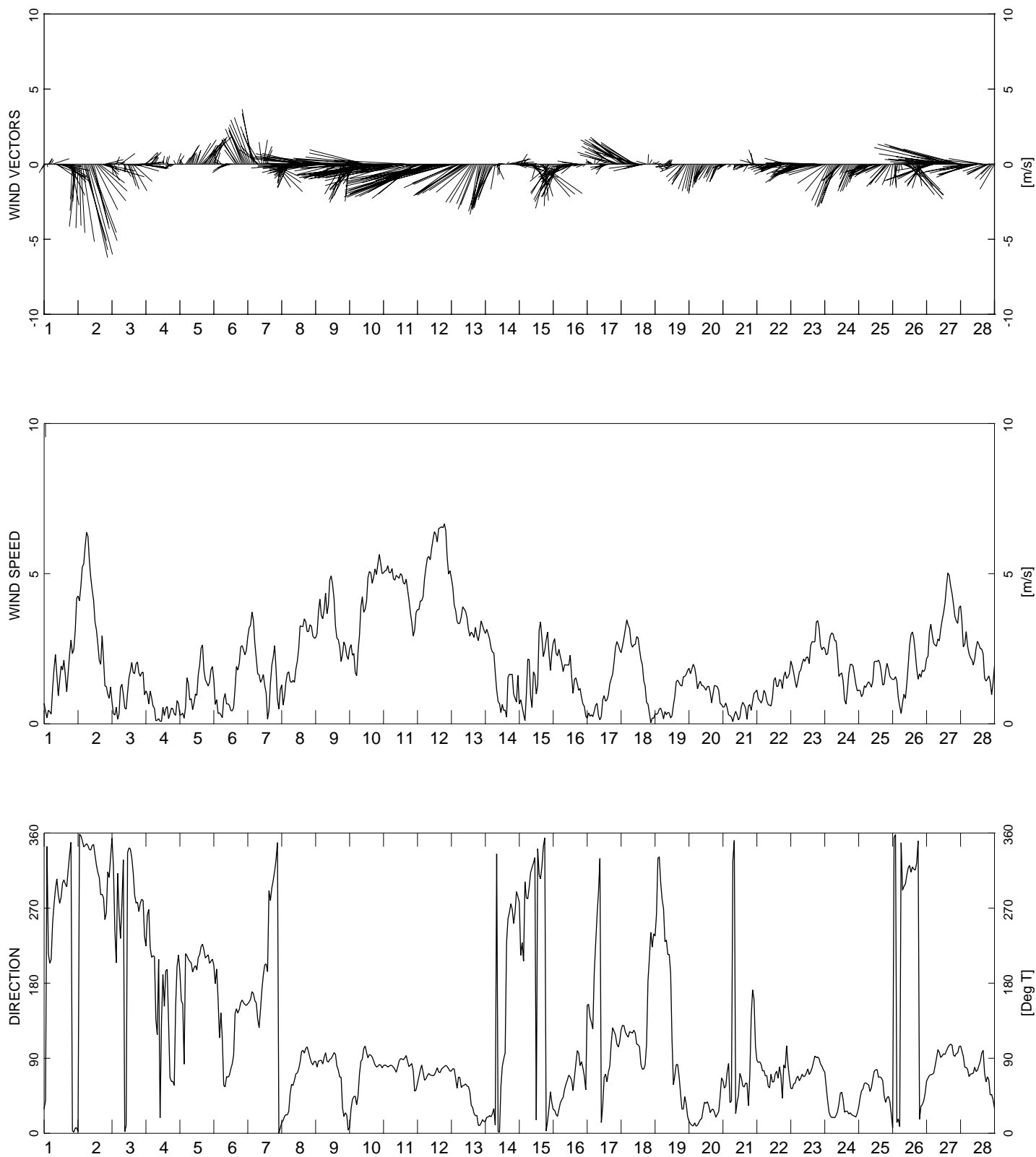
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DATE
July 2009

Figure B-05



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
February 2005**

PROJECT NO.
Y22101057

DWN
RED

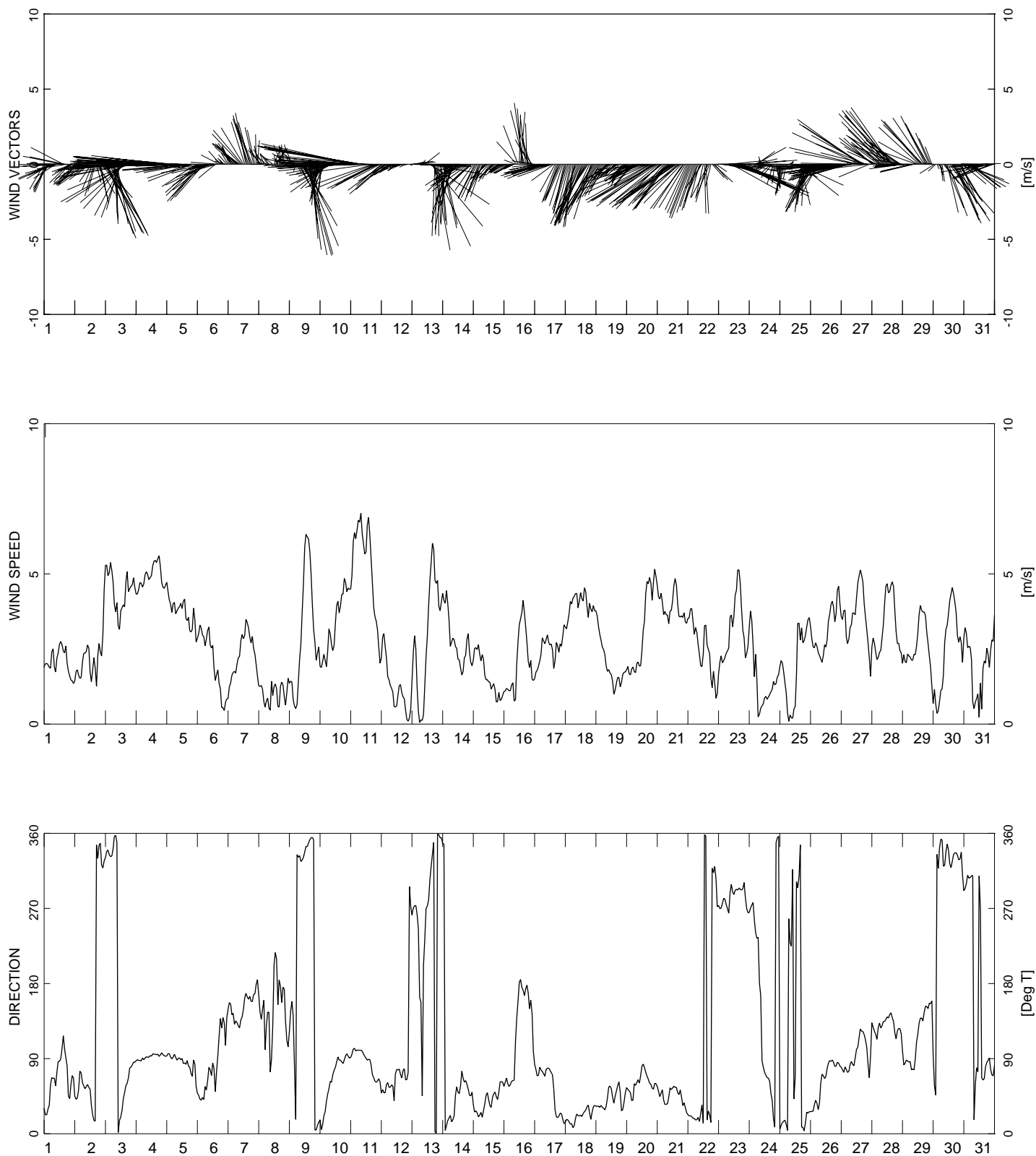
CHK
JAS

REV
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DATE
July 2009


Figure B-06



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YELLOWKNIFE GOLD PROJECT 2008 HYDROMETEOROLOGICAL REPORT

**Tyhee Station
Wind Data
March 2005**

PROJECT NO.
Y22101057

DWN
RED

CHK
JAS

REV
0

OFFICE
EBA-VANC

DATE
July 2009

Figure B-07