Real Time Water Quality Monthly Report
Rattling Brook below Bridge (VBNC)
April 2007—May 2007

General

- The Water Resources Management Division staff monitors the real-time web page on a daily basis.
- Voisey's Bay Nickel Company (VBNC) will be informed of any significant water quality events in the future in the form of a monthly report.
- The initial installation of the RTWQ instrumentation at Rattling Brook below Bridge occurred on December 12th, 2006.

Maintenance and Calibration of Instrumentation

- The instrument was reinstalled on April 17th, 2007
- Due to technical difficulties with the datalogger, no water quality data was transmitted from April 13th to 20th. QA/QC could not be completed for reinstallation of the instrument due to lack of Datasonde data on April 17th.

- The Rattling Brook instrument was deployed until May 17th, 2007 (30-day deployment period) at which point it was removed for maintenance and calibration.
- On May 15th, reprogramming of the datalogger was performed with an incorrect parameter order, resulting in graphs that show what appear to be anomalous values for dissolved oxygen, specific conductivity, percent saturation and turbidity. Parameter values for the period were, however, normal. In order to deal with this issue, the erroneous parameter order was obtained and data was adjusted for the sake of QA/QC. Explanations of incident are described with the parameter graphs in the data interpretation section of this report. The parameter order was reprogrammed correctly in June.
- Additional readings were taken with a QA/QC Datasonde, so a QA/QC value for turbidity was obtained

Table 1: QA/QC Data Comparison Rankings upon removal on May 17th, 2007

Station	Date	Action	Minisonde vs. Datasonde Comparison Ranking				
			Temperature	pH	Conductivity	Dissolved Oxygen	Turbidity
Rattling Brook (Long Harbour)	May 17th	Removal	Good	Fair	Excellent	Excellent	Excellent

Data Interpretation

- This monthly report interprets the data from the Rattling Brook RTWQ station in Long Harbour for the period of April 17thth, 2007 – May 17thth, 2007

- The water temperature **(Figure 1)** readings for Rattling Brook remained fairly consistent over the deployment period with a gradual increase in temperatures. This is expected at this time of the year with a temperature range of 1.4– 12.01 ^{o}C.

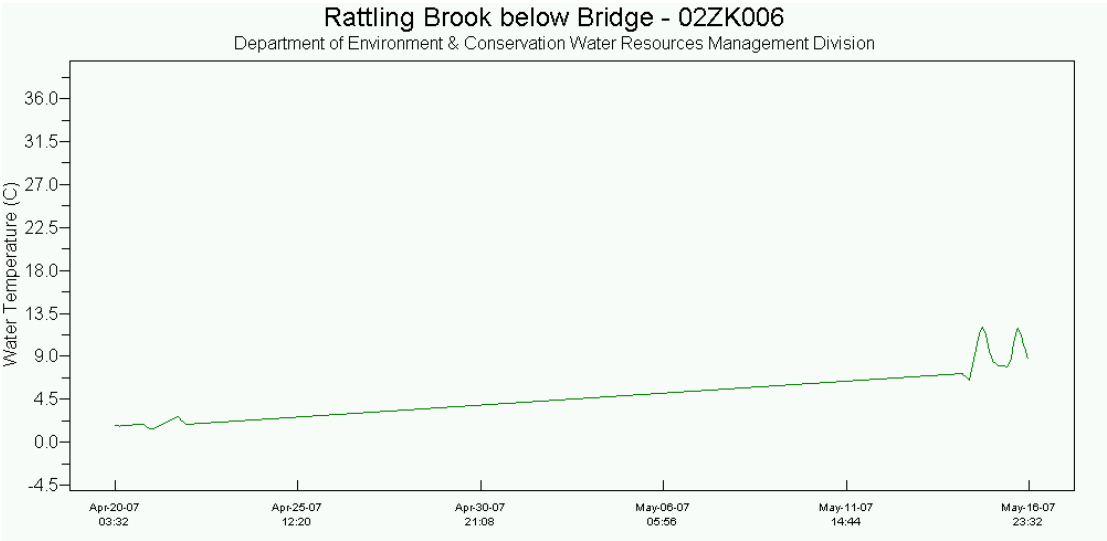

Figure 1

- The dissolved oxygen (DO) values (**Figure 2**) remained fairly consistent over the deployment period with a slight decrease in values. This is consistent with the slight increase in temperature seen in **Figure 1**. On May 15th, the datalogger was reprogrammed with an incorrect parameter order, and the graph from this point onwards is actually showing turbidity values (see **Figure 3**). Data for DO values can be found for May 15th and 16th in the Conductivity graph. The dissolved oxygen values ranged from 10.92 mg/L to 14.08 mg/L. These values fall within the recommended CCME Protection of Aquatic Life guidelines for dissolved oxygen (cold water/other life stages – above 6.5; warm water/other life stages – above 5.5; warm water/early life stages – above 6; cold water/early life stages – 9.5 mg/L).

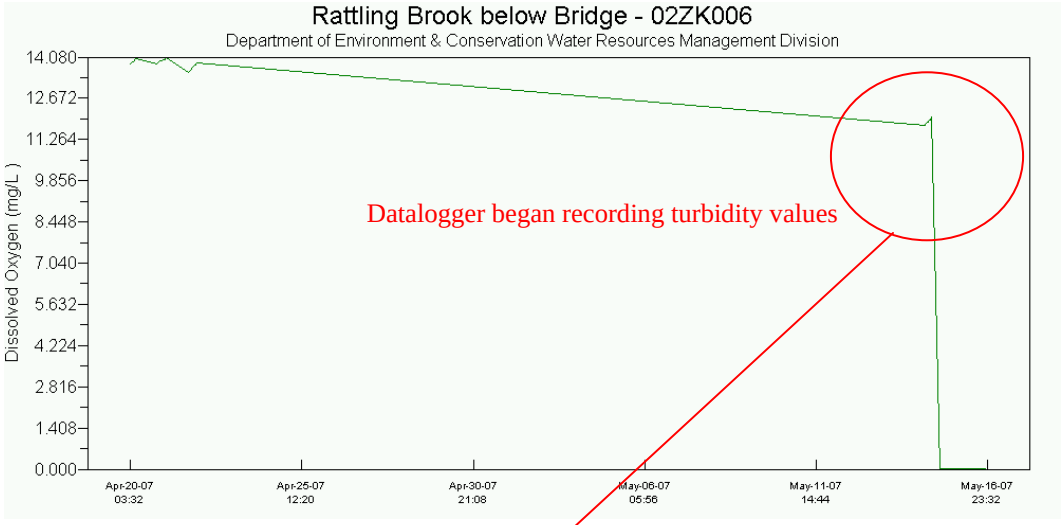

Figure 2

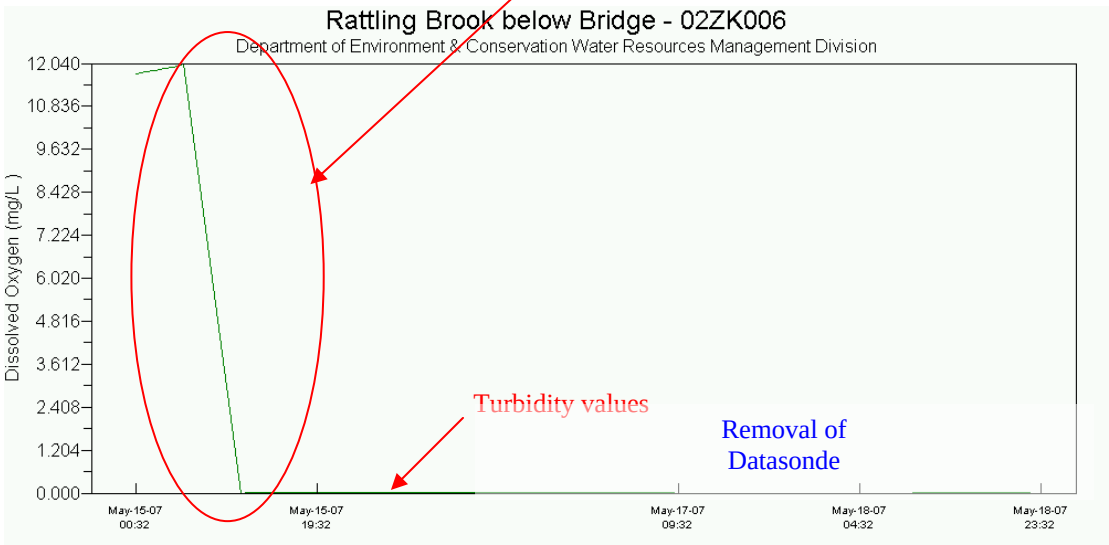

Figure 3

- The pH values **(Figure 4)** for Rattling Brook station remained consistent throughout the deployment period. The pH values ranged from 5.88 – 6.22 with all values falling outside the recommended range (6.5 – 9.0) for the CCME Protection of Aquatic Life guidelines due to the naturally acidic nature of NL waters.

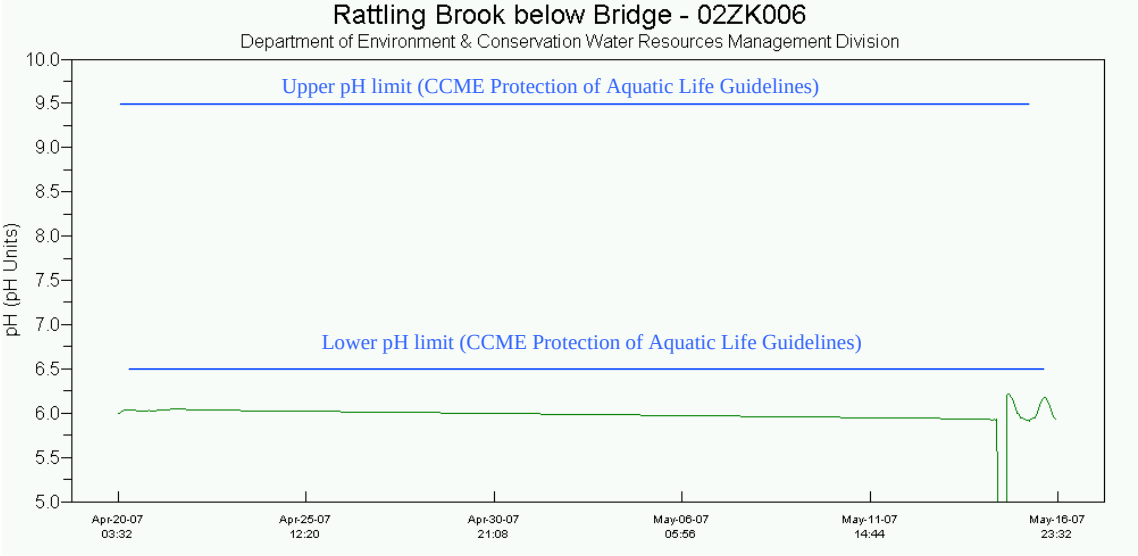

Figure 4

- On May 15th, the datalogger was reprogrammed with an incorrect parameter order, and the graph from this point onwards is actually showing DO values (see **Figure 6**). Data for specific conductivity values can be found for May 15th and 16th in the percent saturation graph. The specific conductivity values (**Figure 5)** remained consistent throughout the deployment period with values ranged from 34.2– 36 µS/cm.

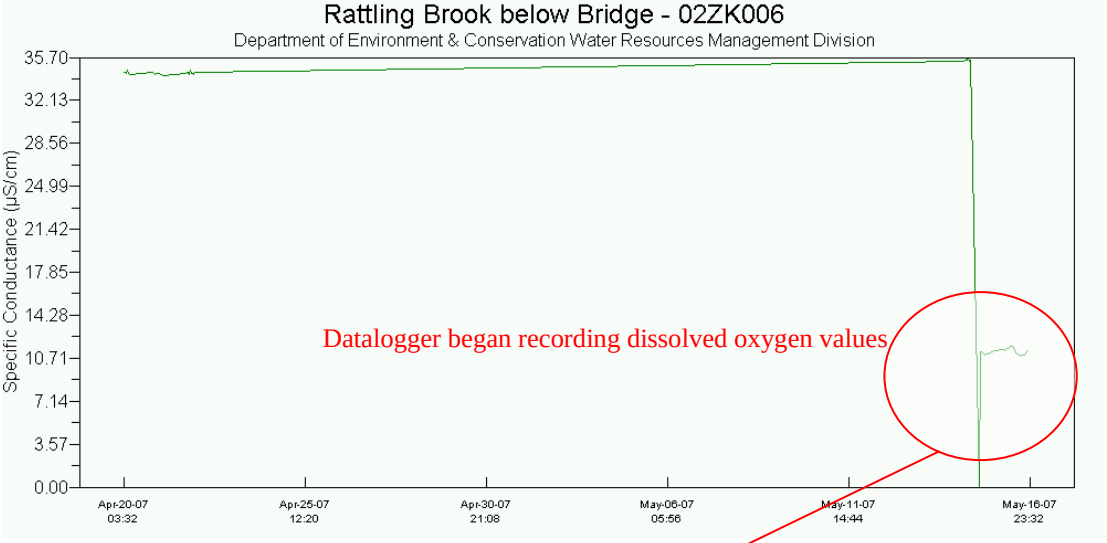

Figure 5

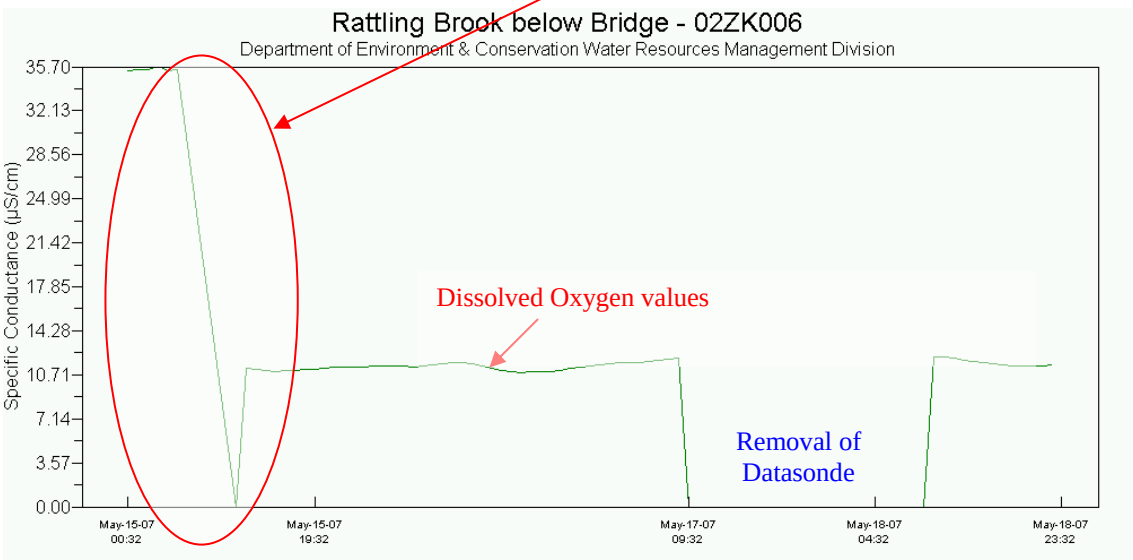

Figure 6

- On May 15th, the datalogger was reprogrammed with an incorrect parameter order, and the graph from this point onwards is actually showing percent saturation value (see **Figure 8**). Data for turbidity values can be found for May 15th and 16th in the dissolved oxygen graph. The turbidity values (**Figure 7**) ranged between 0 -1.2 NTU throughout the deployment period.

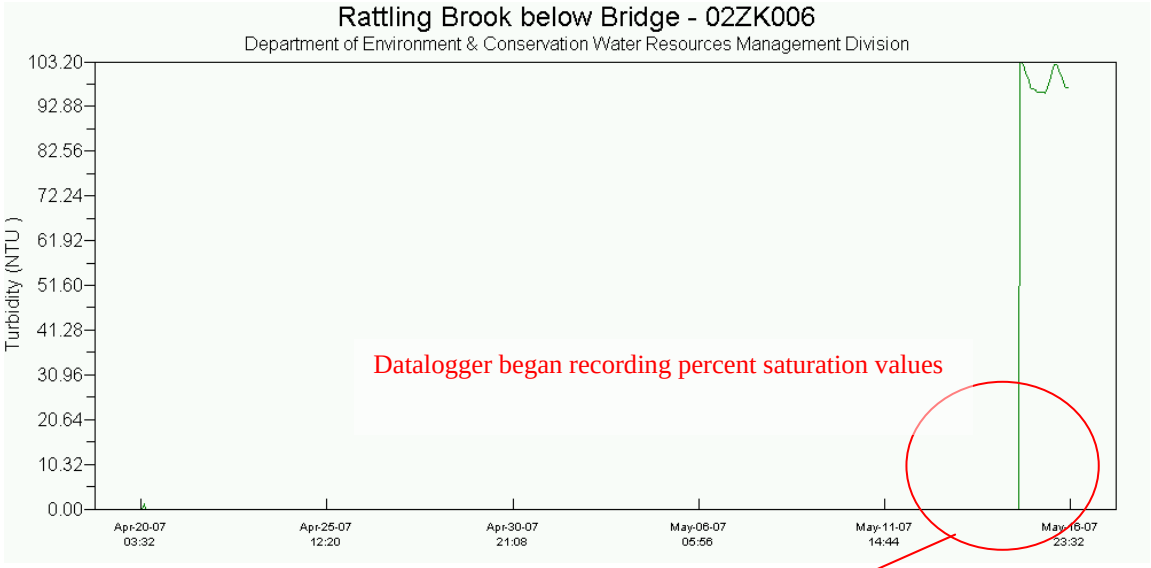

Figure 7

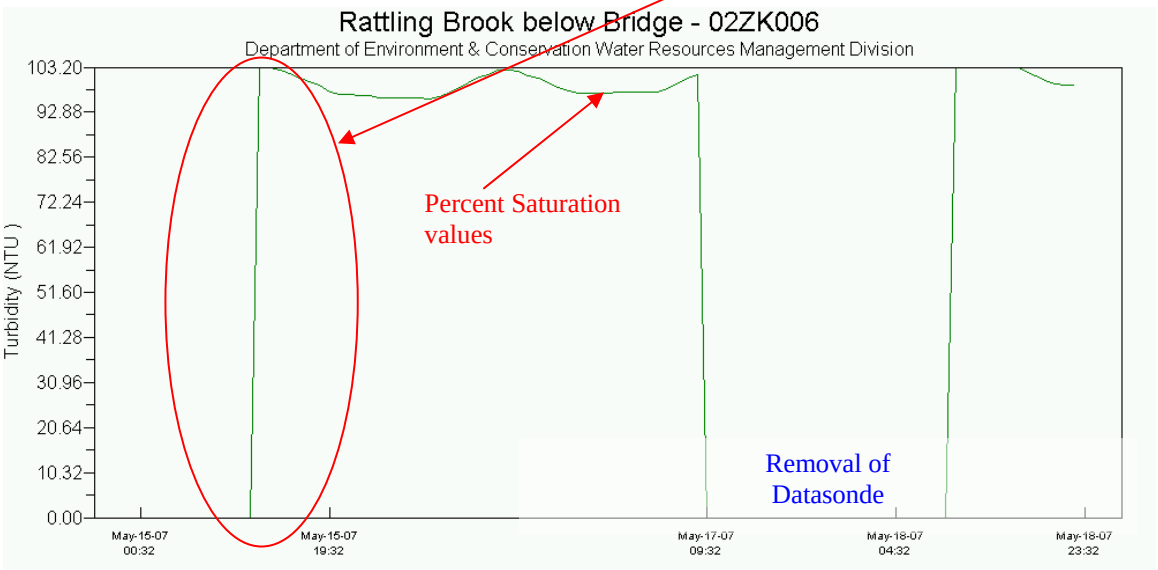

Figure 8

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Appendix A – Climate Data for Argentia, NL (April 2007 & May 2007)

Daily Data Report for April 2007											
Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days C	Cool Deg Days C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
01	0.0	-3.4	-1.7	19.7	0.0			0.0	10		
02	1.2	-5.2	-2.0	20.0	0.0			0.0	10		
03	1.9	-4.9	-1.5	19.5	0.0			1.3	9		
04	2.5	-0.8	0.9	17.1	0.0			0.6	10		
05	4.7	1.0	2.9	15.1	0.0			0.0	10		
06	8.4	-0.7	3.9	14.1	0.0			3.0	8		
07	5.9	-0.7	2.6	15.4	0.0			2.7	9		
08	9.3	1.3	5.3	12.7	0.0			1.6	8		
09	3.0	0.2	1.6	16.4	0.0			0.6	10		
10	1.2	-1.0	0.1	17.9	0.0			0.0	9		
11	2.0	-1.3	0.4	17.6	0.0			0.0	10		
12	2.4	-3.6	-0.6	18.6	0.0			0.0	9		
13	4.9	-3.4	0.8	17.2	0.0			0.0	10		
14	2.0	-1.0	0.5	17.5	0.0			0.0	9		
15	6.1	-0.6	2.8	15.2	0.0			0.0	9		
16	7.5	-0.6	3.5	14.5	0.0			0.0	10		
17	3.8	1.3	2.6	15.4	0.0			0.0	9		
18	3.3	0.9	2.1	15.9	0.0			0.6	9		
19	3.4	0.6	2.0	16.0	0.0			0.0	9		
20	4.3	-0.5	1.9	16.1	0.0			0.0	9		
21	6.3	-2.3	2.0	16.0	0.0			0.0	9		
22	5.3	-2.4	1.5	16.5	0.0			0.0	11		
23	4.4	-0.8	1.8	16.2	0.0			1.6	10		
24	6.5	1.1	3.8	14.2	0.0			0.0	10		
25	5.3	0.5	2.9	15.1	0.0			0.0	9		
26	4.0	-0.8	1.6	16.4	0.0			0.0	9		
27	5.3	0.1	2.7	15.3	0.0			0.0	8		
28	7.0	0.3	3.7	14.3	0.0			14.7	8		
29	5.7	0.8	3.3	14.7	0.0			0.0	8		
30	5.8	2.1	4.0	14.0	0.0			0.6	8		
Sum				**484.6**	**0.0**			**27.3**			
Avg	**4.4**	**-0.8**	**1.8**								
Xtrm	**9.3**	**-5.2**									

Daily Data Report for May 2007											
Day	Max Temp °C	Min Temp °C	Mean Temp °C	Heat Deg Days C	Cool Deg Days C	Total Rain mm	Total Snow cm	Total Precip mm	Snow on Grnd cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
01	7.0	2.8	4.9	13.1	0.0			15.8	0		
02	4.1	1.3	2.7	15.3	0.0			0.7	0		
03	3.2	-0.3	1.5	16.5	0.0			0.0	0		
04	2.8	0.8	1.8	16.2	0.0			1.9	0		
05	5.8	1.1	3.5	14.5	0.0			0.0	0		
06	6.4	1.8	4.1	13.9	0.0			0.0	0		
07	5.8	1.4	3.6	14.4	0.0			0.0	0		
08	10.2	1.8	6.0	12.0	0.0			0.0	0		
09	8.5	2.7	5.6	12.4	0.0			0.0	0		
10	14.6	2.8	8.7	9.3	0.0			0.0	0		
11	11.4	3.6	7.5	10.5	0.0			0.6	0		
12	9.1	3.5	6.3	11.7	0.0			9.2	0		
13	8.5	0.1	4.3	13.7	0.0			0.0	0		
14	7.3	0.4	3.9	14.1	0.0			0.0	0		
15	6.1	-1.5	2.3	15.7	0.0			0.7	0		
16	8.8	2.8	5.8	12.2	0.0			0.0	0		
17	6.5	0.5	3.5	14.5	0.0			11.1	0		
18	9.6	1.6	5.6	12.4	0.0			0.0	0		
19	13.5	1.5	7.5	10.5	0.0			2.5	0		
20	16.8	5.5	11.2	6.8	0.0			3.6	0		
21	12.0	4.8	8.4	9.6	0.0			0.0	0		
22	6.7	3.0	4.9	13.1	0.0			0.6	0		
23	8.1	1.6	4.9	13.1	0.0			0.0	0		
24	10.1	-0.6	4.8	13.2	0.0			0.0	0		
25	18.0	1.8	9.9	8.1	0.0			1.4	0		
26	6.9	3.4	5.2	12.8	0.0			6.8	0		
27	12.3	3.8	8.1	9.9	0.0			0.0	0		
28	8.2	3.2	5.7	12.3	0.0			4.7	0		
29	9.3	4.2	6.8	11.2	0.0			0.7	0		
30	8.6	3.5	6.1	11.9	0.0			0.0	0		
31	11.1	2.6	6.9	11.1	0.0			0.0	0		
Sum				**386.0**	**0.0**			**60.3**			
Avg	**8.9**	**2.1**	**5.5**								
Xtrm	**18.0**	**-1.5**									