

**RON BROWN**

**air temperature**

Designator		Date Valid	
ATEMP		03/21/2007 to 08/19/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
air temperature	celsius		
Observation Type	Distance from Bow	Distance from Center Line	Height
measured			
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	0.9167
Data Precision			

Designator		Date Valid	
ATEMP		08/20/2010 to 07/25/2014	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
air temperature	celsius	Rotronic MP-101A	
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated	0	3	14
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			
.01			

Designator		Date Valid	
ATEMP		07/26/2014 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
air temperature	celsius	Rotronic MP-101A SN270	20140726
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated	0	3	14
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			
.01			

**atmospheric pressure**

Designator		Date Valid	
BARO		03/21/2007 to 08/31/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
atmospheric pressure	millibar		
Mean SLP Indicator	Observation Type	Distance from Bow	Distance from Center Line

at sensor height	measured		
Height	Average Method	Averaging Time Center	Average Length
15.56	average	time at end of period	60
Sampling Rate	Data Precision		
0.1			

Designator		Date Valid	
BARO		09/01/2010 to 03/31/2014	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
atmospheric pressure	millibar	Vaisala PTB330	20100901
Mean SLP Indicator	Observation Type	Distance from Bow	Distance from Center Line
adjusted to sea level	calculated	43.3	3.7
Height	Average Method	Averaging Time Center	Average Length
15.24	average	time at end of period	60
Sampling Rate	Data Precision		
1	0.01		

Designator		Date Valid	
BARO		04/01/2014 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
atmospheric pressure	millibar	Vaisala PTB330	20140401
Mean SLP Indicator	Observation Type	Distance from Bow	Distance from Center Line
adjusted to sea level	calculated	43.3	3.7
Height	Average Method	Averaging Time Center	Average Length
15.24	average	time at end of period	60
Sampling Rate	Data Precision		
1	0.01		

<b>conductivity</b>			
Designator		Date Valid	
TSGC		01/01/2010 to 09/08/2014	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
conductivity	siemens meter-1		
Observation Type	Distance from Bow	Distance from Center Line	Height
measured			
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	0.1667
Data Precision			

Designator		Date Valid	
TSGC		09/09/2014 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration

conductivity	siemens meter-1	SBE45 SN0491	20140426
Observation Type	Distance from Bow	Distance from Center Line	Height
measured	5	1	-5.3
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			
.01			

[-] earth relative wind direction			
Designator		Date Valid	
TWDIR		03/21/2007 to 08/26/2014	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
earth relative wind direction	degrees (clockwise from true north)		
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated			
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision	Wind Direction Convention		
	meteorological		

Designator		Date Valid	
TWDIR		08/27/2014 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
FWD earth relative wind direction	degrees (clockwise from true north)		RM Young 5103
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated	0	0	14.2
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	.2
Data Precision	Wind Direction Convention		
.01	meteorological		

[-] earth relative wind speed			
Designator		Date Valid	
TWSPD		03/21/2007 to 08/26/2014	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
earth relative wind speed	knot		
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated			
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			

Designator		Date Valid	
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TWSPD		08/27/2014 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
FWD earth relative wind speed	knot		RM Young 5103
Observation Type	Distance from Bow	Distance from Center Line	Height
calculated	0	0	14.2
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	.2
Data Precision			
.01			

latitude			
Designator		Date Valid	
LAT		03/21/2007 to 08/19/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
latitude	degrees (+N)	Furuno GP90	
Observation Type	Average Method	Averaging Time Center	Average Length
measured	average	time at end of period	60
Sampling Rate	Data Precision		
1	.001		

Designator		Date Valid	
LAT		08/20/2010 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
latitude	degrees (+N)	Furuno GP150	
Observation Type	Average Method	Averaging Time Center	Average Length
measured	average	time at end of period	60
Sampling Rate	Data Precision		
1	.01		

longitude			
Designator		Date Valid	
LON		03/21/2007 to 08/19/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
longitude	degrees (-W/+E)	Furuno GP90	
Observation Type	Average Method	Averaging Time Center	Average Length
measured	average	time at end of period	60
Sampling Rate	Data Precision		
1	.001		

Designator		Date Valid	
LON		08/20/2010 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration

longitude	degrees (-W/+E)	Furuno GP150	
Observation Type	Average Method	Averaging Time Center	Average Length
measured	average	time at end of period	60
Sampling Rate	Data Precision		
1	.01		

**platform course**

Designator		Date Valid	
COG		03/21/2007 to 08/19/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
platform course	degrees (clockwise towards true north)	Furuno GP90	
Observation Type	Average Method	Averaging Time Center	Average Length
calculated	average	time at end of period	60
Sampling Rate	Data Precision		
1	.001		

Designator		Date Valid	
COG		08/20/2010 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
platform course	degrees (clockwise towards true north)	Furuno GP150	
Observation Type	Average Method	Averaging Time Center	Average Length
calculated	average	time at end of period	60
Sampling Rate	Data Precision		
1	.01		

**platform heading**

Designator		Date Valid	
GYRO		03/21/2007 to 07/31/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
platform heading	degrees (clockwise towards true north)	Sperry MK37	
Observation Type	Average Method	Averaging Time Center	Average Length
calculated	average	time at end of period	60
Sampling Rate	Data Precision		
1			

Designator		Date Valid	
GYRO		08/01/2010 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
platform heading	degrees (clockwise towards true north)	Teledyne Meridian Standard	Unknown
Observation Type	Average Method	Averaging Time Center	Average Length
calculated	average	time at end of period	60
Sampling Rate	Data Precision		
1	.001		

platform relative wind direction			
Designator		Date Valid	
RWDIR		03/21/2007 to 08/26/2014	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
platform relative wind direction	degrees (clockwise from bow)		
Last Calibration	Anemometer Zero Reference	Observation Type	Distance from Bow
		measured	
Distance from Center Line	Height	Average Method	Averaging Time Center
		average	time at end of period
Average Length	Sampling Rate	Data Precision	Wind Direction Convention
60	0.2		meteorological

Designator		Date Valid	
RWDIR		08/27/2014 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
FWD platform relative wind direction	degrees (clockwise from bow)		RM Young 5103
Last Calibration	Anemometer Zero Reference	Observation Type	Distance from Bow
20140501		measured	0
Distance from Center Line	Height	Average Method	Averaging Time Center
0	14.2	average	time at end of period
Average Length	Sampling Rate	Data Precision	Wind Direction Convention
60	.2	.01	meteorological

platform relative wind speed			
Designator		Date Valid	
RWSPD		03/21/2007 to 08/26/2014	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
platform relative wind speed	knot		
Last Calibration	Observation Type	Distance from Bow	Distance from Center Line
	measured		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		
1			

Designator		Date Valid	
RWSPD		08/27/2014 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
FWD platform relative wind speed	knot		RM Young 5103
Last Calibration	Observation Type	Distance from Bow	Distance from Center Line
20140501	measured	0	0
Height	Average Method	Averaging Time Center	Average Length

14.2	average	time at end of period	60
Sampling Rate	Data Precision		
.2	.01		

platform speed over ground			
Designator		Date Valid	
SOG		03/21/2007 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
platform speed over ground	knot		
Observation Type	Average Method	Averaging Time Center	Average Length
calculated	average	time at end of period	60
Sampling Rate	Data Precision		
1			

relative humidity			
Designator		Date Valid	
RELH		08/20/2010 to 07/25/2014	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
relative humidity	percent	Rotronic MP-101A	
Observation Type	Distance from Bow	Distance from Center Line	Height
measured	0	3	14
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			
.01			

Designator		Date Valid	
RELH		03/21/2007 to 08/19/2010	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
relative humidity	percent		
Observation Type	Distance from Bow	Distance from Center Line	Height
measured			
Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	.9167
Data Precision			

Designator		Date Valid	
RELH		07/26/2014 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
relative humidity	percent	Rotronic MP-101A SN270	20140726
Observation Type	Distance from Bow	Distance from Center Line	Height
measured	0	3	14

Average Method	Averaging Time Center	Average Length	Sampling Rate
average	time at end of period	60	1
Data Precision			
.01			

**salinity**

Designator		Date Valid	
TSGS		01/01/2010 to 02/09/2015	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
salinity	PSU	60	SBE21 SN2647
Last Calibration	Observation Type	Distance from Bow	Distance from Center Line
	calculated		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		
0.1667			

Designator		Date Valid	
TSGS		02/10/2015 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Instrument Make & Model
salinity	PSU		SBE45
Last Calibration	Observation Type	Distance from Bow	Distance from Center Line
	calculated		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		

**sea temperature**

Designator		Date Valid	
TSGWT		03/21/2007 to 09/08/2014	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
sea temperature	celsius		
TS Sensor Category	Observation Type	Distance from Bow	Distance from Center Line
12	measured		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		
0.1667			

Designator		Date Valid	
TSGWT		09/09/2014 to 02/09/2015	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration



sea temperature	celsius	SBE21 SN2647	
TS Sensor Category	Observation Type	Distance from Bow	Distance from Center Line
thermosalinograph	measured		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		
0.1667			

Designator		Date Valid	
TSGWT		02/10/2015 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
sea temperature	celsius	SBE45	
TS Sensor Category	Observation Type	Distance from Bow	Distance from Center Line
thermosalinograph	measured		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		
1	.01		

<b>short wave atmospheric radiation</b>			
Designator		Date Valid	
SWR		03/21/2007 to Today	
Descriptive Name	Original Units	Instrument Make & Model	Last Calibration
short wave atmospheric radiation	watts meter-2		
Radiation Direction	Observation Type	Distance from Bow	Distance from Center Line
downwelling	measured		
Height	Average Method	Averaging Time Center	Average Length
	average	time at end of period	60
Sampling Rate	Data Precision		

<b>time</b>			
Designator		Date Valid	
YMD		03/21/2007 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Observation Type
time	YYYYMMDD UTC	60	measured

Designator		Date Valid	
HMS		03/21/2007 to Today	
Descriptive Name	Original Units	Data Reporting Interval	Observation Type
time	hhmmss UTC	60	measured