Marion Dufresne Meteorological Data Quality Control Report

Cruises: ISS01_/05

Daniel M. Gilmore and Shawn Smith

World Ocean Circulation Experiment(WOCE)

Surface Meteorological Data Assembly Center
Center for Ocean Atmospheric Prediction Studies
The Florida State University

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Introduction:

The data referenced in this report were collected from the research vessel Marion Dufresne (call sign: FNGB; data provider: IFRTP/CNRS, France; P.I.: J. Gaillard) bridge logs for 1 WOCE cruise. These data were received in electronic format and converted to a standard FSU format. Then they were preprocessed using an automated data checking program. Next a visual inspection was completed by a Data Quality Evaluator who reviewed, modified and added appropriate quality control (QC) flags to the data. Details of the WOCE QC can be found in Smith et al (1996). The data quality control report summarizes the flags for the Marion Dufresne bridge log data, including those added by both the preprocessor and the analyst.

Statistical Information:

This data set was expected to include hourly observations recorded in the Marion Dufresne bridge log. The details of the cruise, including start and end date, number of values, records, and flags, and percentage flagged are outlined in Table 1.

Table 1: Statistical Cruise Information

CTC	Dates	Number of Records	Number of Values	Number of Flags	Percentage of Data Flagged
ISS01_/05	03/30/93 - 05/01/93	737	8844	195	2.20

Time (TIME), latittude (LAT), longitude (LON), platform course (PL_CRS), platform speed (PL_SPD), earth relative wind direction (DIR), earth relative wind speed (SPD), sea temperature (TS), atmospheric pressure (P), manipulated atmospheric pressure (P2), air temperature (T), and wet-bulb temperature (TW) were analyzed. A total of 8844 values were checked, with 195 flags added by the prescreener and DQE, resuling in 2.20 percent of the data being flagged. The distribution of flags for each variable sorted by flag type is detailed in Table 2.

Summary:

There were no significant problems with this data set. The only questionable data was SPD. At first glance, these data are full of gaps, and have a range of nearly 80m/s. However, the Marion Dufresne Cruise Report indicated that the ship operated in foul weather and encountered waves as high as 20 meters. The information from the cruise report supports the extrememly high wind speeds recorded. As a result, 7 "I" flags have been assigned during periods of peak wind speed.

B:Minor Problems:

T and TW were each assigned 64 "D" flags. One possiblilty for these flags is that there may have been a rounding problem with the data. Further speculation as to the cause of these flags is left to the user.

Table 2: Number of Flags and Percentage Flagged for Each Variable

Variable	B	D	G	I	S	Total Number of Flags	Percentage of Variable Flagged
TIME						0	0.00
LAT						0	0.00
LON						0	0.00
PL_CRS						0	0.00
PL_SPD	29					29	3.93
DIR						0	0.00
SPD				7		7	1.06
TS			8			8	1.09
P			3		3	6	0.81
P2					1	1	0.14
T		64	15		1	80	10.85
TW		64				64	8.68
Total Number of Flags Used	29	128	26	7	5	195	2.20
Percentage of Flags Used	0.33	1.45	0.29	0.08	0.06	2.20	

B: Data out of bounds
D: Data failed T>=Tw>=Td
G: Data greater than 4 standard deviations from climatology
I: Data value of some interest
S: Spike in data

- PL_SPD had 29 values greater than 15m/s. These were flagged with the "B", value out of bounds, flag. These values appear to be correct, and the flags were left as a caution to the user.
- A total of 26 "G", value greater than 4 standard deviations from climatology, flags were applied to these data by the prescreener. These values appear to be in order, and the flags were left as a caution to the user.
- In addition 5 "S", spike in data, flags were added to these data. Spikes are common in all data sets. Any value flagged with an "S" flag should not be used.

Final Note:

These data are in very good shape. The minor problems indicated by the "G" flags and "B" flags most likely are the result of the extreme weather conditions that this ship enccountered. In addition, most of the variables have some missing values, but this data set should be quite usable.

References:

Smith, S.R., C. Harvey, and D.M. Legler, 1996: Handbook of Quality Control Procedures and Methods for Surface Meteorology Data. WOCE Report No. 141/96, Report WOCEMET 96-1, Center for Ocean Atmospheric Prediction Studies, Florida State University, Tallahassee, FL 32310.