Professor Multanovsky AWS Data Quality Control Report

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Introduction:

This report summarizes the quality of surface meteorological data collected by the research vessel *Professor Multanovsky* (identifier: UJFO) automated weather system (AWS) on one WOCE cruise beginning 19 December 1992 and ending on 11 January 1993. The data were provided to the Florida State University Data Assembly Center (DAC) in electronic format by S. Gulev of the Shirshov Oceanological Institute and were converted to standard DAC netCDF format. The data were then processed using an automated screening program, which adds quality control flags to the data, highlighting potential problems. Finally, the Data Quality Evaluator (DQE) reviewed the data and current flags, whereby flags were added, removed, or modified according to the judgement of the DQE and other DAC personnel. Details of the WOCE quality control procedures can be found in Smith et al. (1996). The data quality control report summarizes the flags for the *Professor Multanovsky* AWS surface meteorological data, including those added by both the preprocessor and the DQE.

Statistical Information:

The *Professor Multanovsky* AWS data are expected to include observations taken hourly for the following variables:

Time	(TIME)
Latitude	(LAT)
Longitude	(LON)
Platform Course	(PL_CRS)
Platform Speed	(PL_SPD)
Atmospheric Pressure	(P)
Air Temperature	(T)
Sea Temperature	(TS)
Relative Humidity	(RH)

Details of the cruise are listed in Table 1 and include cruise dates, number of records, number of values, number of flags, and total percentage of data flagged. The data provider, the Shirshov Oceanological Institute, pre-analyzed the data and included 33 flags before forwarding the data to the DAC. The DAC reviewed these flags and reassigned appropriate flags in the WOCE quality control format. A total of 3,960 values were evaluated with 62 flags assessed by the preprocessor, the DQE, and the data provider resulting in a total of 1.57% of the values being flagged.

Table 1: Statistical Cruise Information

CTC	Dates	Number of Records	Number of Values	Number of Flags	Percent Flagged
Unknown	12/19/92 - 01/11/93	440	3,960	62	1.57

Summary:

The overall quality of the AWS data from the *Professor Multanovsky* was excellent. The distribution of flags for each variable evaluated by the data provider, preprocessor, and the DQE is detailed in Table 2.

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

Variable	B	F	J	R	S	Total Number of Flags	Percentage of Variable Flagged
TIME						0	0.00
LAT		1				1	0.23
LON		1			1	2	0.45
PL_CRS			16			16	3.64
PL_SPD			16			16	3.64
P					3	3	0.68
T						0	0.00
TS	22			1		23	5.23
RH					1	1	0.23
Total Number of Flags	22	2	32	1	5	62	
Percentage of All Flagged	0.56	0.05	0.81	0.03	0.13	1.57	

Missing Data:

There were four and a half days of missing AWS data from the *Professor Multanovsky* for all reported variables starting on 22 December at 00Z and ending on 26 December at 12Z.

Erroneous Data:

The AWS data from the *Professor Multanovsky* were pre-analyzed by the Shirshov Oceanological Institute. Two of the variables, platform course and platform speed contained erroneous data and were flagged by the data provider. These data values were reassigned the J flag which is the WOCE quality control flag indicating erroneous data, do not use.

Spike Flag:

Isolated spikes are relatively common occurrences in automated data, caused by such factors as electrical interference and ship accelerations. These individual points were assigned the S flag.

Latitude and Longitude:

Two F flags were assigned by the preprocessor to the latitude and longitude values that indicated an unrealistic platform velocity (>15m/s) as determined by the platform position data.

Sea Temperature:

The sea temperature was flagged 22 times with the B flag indicating where the sea surface temperatures fell below freezing. One R flag was assigned to a sea temperature to identify a value that was interpolated by the data provider.

References:

Smith, S.R., C. Harvey, and Legler, D.M., 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 32306-2840