Akademik Shuleykin AWS Data Quality Control Report

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Introduction:

This report summarizes the quality of surface meteorological data collected by the research vessel *Akademik Shuleykin* (identifier: UBNZ) automated weather system (AWS) on one WOCE cruise beginning 22 February 1992 and ending on 30 April 1992. The data were provided to the Florida State University Data Assembly Center (DAC) in electronic format by S. Gulev 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 *Akademik Shuleykin* AWS surface meteorological data, including those added by both the preprocessor and the DQE.

Statistical Information:

The *Akademik Shuleykin* AWS data are expected to include observations taken hourly. Values for the following variables were collected:

Time	(TIME)
Latitude	(LAT)
Longitude	(LON)
Platform Course	(PL_CRS)
Platform Speed	(PL_SPD)
Earth Relative Wind Direction	(DIR)
Earth Relative Wind Speed	(SPD)
Atmospheric Pressure	(P)
Temperature	(T)
Sea Temperature	(TS)
Dewpoint Temperature	(TD)
Relative Humidity	(RH)
Atmospheric Radiation	(RAD)

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. A total of 14,378 values are evaluated with 465 flags added by both the preprocessor and the DQE resulting in a total of 3.23% of the values being flagged.

Table 1: Statistical Cruise Information

CTC	Dates	Number of Records	Number of Values	Number of Flags	Number Flagged
AR_13_/01	02/22/92 - 04/30/92	1106	14,378	465	3.23

Summary:

The AWS data from the *Akademic Shuleykin* proves to be of very good quality. Six F flags were assessed to the latitude and longitude at values that indicated unrealistic platform velocity (>15m/s) determined by platform position data. The pressure data showed a drop in pressure of approximately 20 mb in an hour's time, followed immediately by a rise in pressure of approximately 20 mb, also in an hour's time. This value was flagged a spike by the DQE as it had no other meteorological data supporting such an occurrence. A spike was also assessed to the dewpoint temperature as the data indicated an increase and decrease of approximately 15 degrees Celsius inside of two hours, also with no supporting meteorological evidence. The sea temperature was flagged 220 times with the B flag and it should be noted that these values were anomalously low given the climatology for this region. The bounds flag was left on to indicate where the sea surface temperatures fell below freezing. Also worthy of mention are the R flags which indicate values that were interpolated by the data provider. These interpolated values were found to be of good quality. The distribution of these flags assessed by the preprocessor and the DQE is detailed in Table 2.

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

Variable	B	D	F	R	S	Total Number of Flags	Percentage of Variable Flagged
TIME						0	0.00
LAT			6			6	0.54
LON			6			6	0.54
PL_CRS				10		10	0.90
PL_SPD				10		10	0.90
DIR				17		17	1.54
SPD				17		17	1.54
P				10	1	11	0.99
T	4	37		10		51	4.61
TS	220			49		269	24.32
TD	10	37			1	48	4.34
RH				10		10	0.90
RAD				10		10	0.90
Total Number of Flags	234	74	12	143	2	465	
Percentage of All Flagged	1.63	0.51	0.08	0.99	0.01	3.23	

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