Dimitri Mendeleev Quality Control Report

WOCE Cruise: AR11

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Introduction:

The data referenced in this report were collected from the research vessel Dimitri Mendeleev (call sign UILS) Standard Bridge Logs (data acquired from V. Zhurbas at the Shirshov Institute of Oceanology) for WOCE. The original hard copy data were digitized and then converted to a standard format. The data were then pre-processed using an automated data checking program. A visual inspection was then completed by a data quality analyst 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). This report summarizes the flags for the Dimitri Mendeleev data, including flags added by both the preprocessor and the analyst.

Statistical Information:

The data from the Dimitri Mendeleev were expected to include observations every 3 hours from a cruise which began on October 1, 1991 and lasted until November 25, 1991. Time (TIME), latitude (LAT), longitude (LON), platform course (PL_CRS), platform speed (PL_SPD), wind direction (DIR), wind speed (SPD), atmospheric pressure (P), dry air temperature (T), sea temperature (TS), and relative humidity (RH) were quality controlled. A total of 7810 values were reviewed and checked and 29 flags were added resulting in 0.37% of the data being flagged. Table 1 details the distribution of flags and includes the

percentages flagged for each variable sorted by flag type.

Table 1: Frequency of Flags assigned for Each Variable and Flag Type

Variable	Out of Bounds	Unreal Move-ment	Interest-ing Data	Spike	Total Number of Flags	Percent of Variable Records Flagged
TIME	0	0	0	0	0	0.00
LAT	0	9	0	0	9	1.27
LON	0	9	0	0	9	1.27
PL_CRS	0	0	0	1	1	0.14
PL_SPD	0	0	0	1	1	0.14
DIR	0	0	0	0	0	0.00
SPD	0	0	0	1	1	0.14
P	0	0	0	0	0	0.00
T	0	0	2	1	3	0.42
TS	0	0	1	0	1	0.14
RH	4	0	0	0	4	0.56
Total	4	18	3	4	29	0.37
Percent of Total Data Flagged	0.05	0.23	0.04	0.05	0.37	

Summary:

These data were in very good condition with only a two minor problems. No data were returned for the time from 10/21 at 1300 to10/25 at 900 and from 11/18 at 0000 to

11/20 at 0000 for all parameters. No explanation was provided for the missing data. There is a jump in the longitudinal position of the ship between 10/3 at 300, when the ship was located at 0 degrees east, and 10/3 at 600, when the ship was located at 360 degrees east. This was flagged by the pre-screener as "F", unreal movement. However, this jump is the result of the ship crossing the Greenwich Meridian, so the "F" flags were changed to "Z". There are 9 other "F" flags for each LAT and LON added by the prescreener. These appear to be valid flags. In the absence of any disputing evidence, the analyst has chosen to retain these "F" flags.

In addition there were 2 interesting features. As the Dimitri Mendeleev nears the North American coast on November 16, the dry air temperature drops from 22 to 7 degrees in 18 hours, remains near 7 degrees for 27 hours and then returns to 22 degrees in the next 30 hours. This is due to a high pressure ridge bringing cold air from the north as indicated by wind direction from around 330 degrees for the entire period. The start and finish of this period were flagged with "I". During the same period the lowest sea temperature was recorded. This was also flagged with an "I".

Final Note:

As can be seen from the summary, these data are in very good shape. The analyst foresees no problems using this data set.

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.