Vidal Gormaz Bridge Data Quality Control Report (1995)

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Introduction:

This report summarizes the quality of surface meteorological data collected by the Vidal Gormaz (identifier: CCVG) bridge crew during two WOCE cruises in 1995. The data were provided to the Florida State University Data Assembly Center (DAC) in electronic format by W. Garcia of the Chilean Navy. They 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 reviews the data and current flags. Flags are then added, modified, and deleted according to the judgement of the Data Quality Evaluator and other DAC personnel. An in depth description of the WOCE quality control procedures can be found in Smith et al. (1996). The data quality control report summarizes all flags for the Vidal Gormaz bridge data and explains reasons why these flags were assigned.

Statistical Information:

The Vidal Gormaz bridge data are expected to include observations taken every six hours on each of the WOCE cruises. Values for the following variables were collected:

Time	(TIME)
Latitude	(LAT)
Longitude	(LON)
Earth Relative Wind Direction	(DIR)
Earth Relative Wind Speed	(SPD)
Sea Temperature	(TS)
Atmospheric Pressure	(P)
Air Temperature	(T)
Dewpoint Temperature	(TD)
Current Weather	(WX)*
Total Cloud Amount	(TCA)*
Low/middle cloud Amount	(LMCA)*
Cloud Base Height	(ZCL)*
Low Cloud Type	(LCT)*
Middle Cloud Type	(MCT)*
High Cloud Type	(HCT)*

* Verified only for correct WMO coding.

Details of each cruise including cruise dates, number of records, number of values, number of flags, and percentage flagged are listed in Table 1. A total of 1,116 values are evaluated with 8 flags added by the preprocessor and Data Quality Evaluator for a total of 0.72 percent of the values being flagged.

Table 1: Statistical Cruise Information

CTC	Dates	Number of Records	Number of Values	Number of Flags	Percentage Flagged
PR_14_/05	5/28/95 - 6/16/95	68	612	7	1.14
SR_01_/09	11/28/95 - 12/15/95	56	504	1	0.20

Summary:

The bridge data from the Vidal Gormaz are in excellent condition. There appeared to be a problem in only two of the 124 records for these two cruises. Table 2 details all flags the distribution of flags among the variables and a thorough discussion of the flags immediately follows.

Table 2: Number of Flags and Percentage Flagged by Variable

Variable	D	G	K	Total Number of Flags	Percentage of Variable Flagged
TS		4		4	3.22
T	1		1	2	1.61
TD	1		1	2	1.61
Total number of Flags	2	4	2	8	0.72
Percentage of All Values Flagged	0.18	0.36	0.18	0.72	

TD greater than T

The prescreener performs a multivariate check to determine if the reported dewpoint temperature is greater than the reported air temperature, a physical impossibility. When TD is greater than T, a "D" flag is assigned to both the T and TD values. The variables failed this test one time and were flagged appropriately.

Climatology

The prescreener compares the values of SPD, TS, P, and T to a climatology (da Silva et al. 1994) and assigns the "G" flag for values outside of four standard deviations from the mean. TS received four "G" flags, but the analyst believes the data represent accurate values. They were measured off the southern coast of Chile, where the weather is highly variable and the climatology questionable. The "G" flags were left in place to call attention to relatively extreme sea temperatures.

Suspicious Data

On 6/11/92 a positive spike of 8 degrees C occurred in the air temperature plot. A similar spike of 3 degrees C occurred simultaneously in dewpoint temperature. These spikes were flagged with a "K" instead of an "S" because they may represent accurate values. The analyst finds them suspicious, but at a time step of 6 hours and because both variables spiked he could not prove them to be in error.

Final Comments:

The Vidal Gormaz bridge data is of excellent quality and, aside from two minor problems, should be very reliable for the user.

References:

da Silva, A. M., C. C. Young and S. Levitus, 1994: Atlas of Surface Marine Data 1994, Volume 1: Algorithms and Procedures. NOAA Atlas Series. In preparation.

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 32301