Oca Balda, El Austral, Dr. Eduardo L. Holmberg, and Puerto Deseado Bridge Data Quality Control Report

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Florida State University

June 28, 2001

Report WOCEMET 01-11

Version 1.0

INTRODUCTION

This report summarizes the quality of surface meteorological data collected by four Argentine research vessels the *Oca Balda* (identifier: LW4344), *El Austral* (identifier: LW5931), *Dr. Eduardo L. Holmberg* (identifier: LW4343), and the *Puerto Deseado* (identifier: LOPD) during eight cruises completed in 1991-1996. The data provided to the Florida State University Data Assembly Center (DAC) by M. Charo (Hidro-Argentina) included manually observed data. These data were converted by the DAC to our standard netCDF format (see Appendex). The data were then processed using an automated screening program, which added 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 judgment of the DQE and other DAC personnel. Details of the quality control procedures can be found in Smith et al. (1994). The data quality control report summarizes the flags for the Argentine research vessels' meteorological data, including those added by the WOCEMET preprocessor and the DQE.

DATA VARIABLES

The Argentine research vessels' data includes observations taken in hourly intervals or as provided by the specific ship. Values for the following variables were collected:

Time	(TIME)
Latitude	(LAT)
Longitude	(LON)
Earth Relative Wind Direction	(DIR)
Earth Relative Wind Speed	(SPD)
Atmospheric Pressure	(P)
Air Temperature	(T)
Wet Bulb Temperature**	**(TW)
Sea Temperature*	*(TS)
Relative Humidity**	**(RH)

*Sea temperature (TS) was recorded only on the *Dr. Eduardo L. Holmberg* 1994 cruise.

**Relative humidity (RH) was observed only on the *El Austral* 1992 cruise. This cruise did not contain wet bulb temperature (TW), as did ever other cruise.

FLAG SUMMARY

Statistical Information:

Details of the Argentine bridge cruises are listed in Table 1 and include the cruise dates, number of records, number of values, number of flags, and total percentage of data flagged.

Table 1: Statistical Cruise Information

Cruise Identifier	Cruise Dates	Number of Records	Number of Values	Number of Flags	Percent Flagged
LW4344					
AR_08_/01	09/12/91 – 09/15/91	10	90	1	1.11
AR_08_/04	03/27/93 – 03/30/93	17	153	1	0.65
AR_08_/05	08/22/93 – 08/24/93	15	135	1	0.74
AR_08_/06	03/06/94 – 03/13/94	58	522	0	0.00
R/V Total	---------------------	100	900	3	0.33
LW5931					
AR_08_/03	10/13/92 – 10/16/92	18	162	1	0.62
R/V Total	---------------------	18	162	1	0.62
LW4343					
AR_08_/02	05/09/92 – 05/11/92	10	90	0	0.00
AR_08_/07	09/18/94 – 09/25/94	46	460	0	0.00
R/V Total	---------------------	56	550	0	0.00
LOPD					
AR_08_/08	03/29/96 – 04/06/96	41	369	0	0.00
R/V Total	---------------------	41	369	0	0.00

Table 2: Number of Flags and Percentage Flagged for Each Variable on the *R/V Oca Balda* (LW4344)

Variable	Q	S	Total Number of Flags	Percentage of Variable Flagged
TIME				0.00
LAT				0.00
LON				0.00
DIR				0.00
SPD				0.00
P		1	1	1.00
T	2		2	2.00
TW				0.00
Total Number of Flags	2	1	3	
Percent of All Values Flagged	0.22	0.11	0.33	

Table 3: Number of Flags and Percentage Flagged for Each Variable on the *R/V El Austral* (LW5931)

Variable	S	Total Number of Flags	Percentage of Variable Flagged
TIME			0.00
LAT			0.00
LON			0.00
DIR			0.00
SPD			0.00
P	1	1	5.56
T			0.00
RH			0.00
Total Number of Flags	1	1	
Percent of All Values Flagged	0.62	0.62	

Summary:

The Argentine bridge observations are in excellent condition with only 0.20% of the total data being flagged for errors. In addition, tables 2 and 3 reveal that flags were added to the LW4344 and LW5931 cruises.

Q-flags:

The data provider sent a memo along with the digitized data explaining two specific times when the air temperature data was increased by the sun's exposure (see Appendex) on the *Oca Balda*. WOCEMET assessed Q-flags to these data points and the statisical information can be found in **Table 2**. Q-flags reveal data that arrived to WOCEMET as questionable.

Spikes:

An isolated spike occurred in atmospheric pressure (P) on both the AR_08_/03 and the AR_08_/05. Spikes may arise with bridge data when recorded values are written down or digitized incorrectly. These individual points were assigned the S-flag.

FINAL DISCUSSION

These data were extremely sporadic in time scale and lacked ship relative wind and navigation data, which made it difficult to accurately assess these meteorological variables for specific problems such as, flow distortion and ship heating.

REFERENCES

Smith, S.R., C. Harvey, and D.M. Legler, 1994: *Handbook of Quality Control Procedures and Methods for Surface Meteorology Data*. Report No. 141/96, Report MET 96-1, Center for Ocean-Atmospheric Prediction Studies Florida State University, Tallahassee FL 32306-2840

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.

APPENDEX

The following modifications were made to the Argentine bridge data when they were converted from digitized bridge observations to standard DAC netCDF format.

On October 15, the observed time 0010 occurred after the 23rd hour. The times following this observation occurred on October 16, so the date on time 0010 was changed to October 16.

Two notes were given to the DAC from the data provider:

> September 12, 1991 at 16:46 the temperature (T) increased by sun exposure.
> March 28, 1993 at 17:51 the temperature (T) increased by sun exposure.