



Australian Government
Bureau of Meteorology

Report on the Quality of Land Surface Observations in Region V

January – June 2005

Report No. 17

WMC Melbourne
Lead Centre for Monitoring of the Quality of Land Surface Observation in RA-V

*Data Management Section
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1. Introduction

Within the Data Management Section of the Bureau of Meteorology lie responsibilities for collecting a full set of meteorological data in real-time from the WMO Global Observing System, and for making such data available to the Analysis-Prognosis models along with some indication as to reliability of report content.

Real-time judgement as to whether a reported element be assimilated by models relies largely on first guess fields, supplemented by observations from any neighbouring stations. Additionally, listings of platforms, which are currently considered suspect, are presented to the Analysis model.

To monitor platform performance, and also to expose likely positional errors, selected reported elements are paired with the interpolated first-guess value from the global model (6 hour forecast field) and analysed statistically each 6 months in a format which accords with the CBS recommended standards for the exchange of monitoring results. All observations used are unvalidated or "raw" data. This report covers a consolidated list of the suspect stations for the period January to June 2005. The locations of the suspect stations are shown in Figure1 and diagrams of the residuals for each of station are in Figures 2-3.

As part of WMO responsibilities as a WMC, copies of this report are made available to major GDPS Centres participating in data monitoring activities.

2. Monitoring Methods

The decision as to whether a station is 'suspect' is from determination of the deviations of Mean Sea Level Pressure (MSLP) from the GASP first-guess fields (Observation minus Guess), hereafter called O-G. Deviations are assessed relative to the first guess fields.

To achieve more complete reporting profiles for the investigation of suspect stations, observations were not retrieved for statistical analysis until 24 hours after real-time, thus not all values used in such computations may have been available to the assimilation processing.

The selection criteria for deciding whether a station is suspect or not are as follows:

Number of observations (NOBS) ≥ 120 , and one or more of the following:

1. the mean of O-G $|BIAS| \geq 3.0$ hPa
2. the standard deviation of O-G $SD \geq 5.0$ hPa
3. the percentage of gross errors $PGE \geq 25\%$

BIAS and SD are calculated excluding gross error data.

3 Monitoring Results

Table 1 contains a list of synoptic stations, which are considered to have reported suspect observations of mean sea level pressure (MSLP) during the 6 months.

WMO REGION 5

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
97012	1.5	124.9	67	ALL	MSLP	127	1	1	2.8	-8.2	8.7
97378	-10.7	123.1	1	ALL	MSLP	241	186	77	0.5	-14.5	14.5

Table 1. List of land surface stations reporting suspect observations of mean sea level pressure over the period January to June 2005.

Table 2 details a Global coverage of synoptic stations, which are considered to have reported suspect observations of mean sea level pressure (MSLP) during the 6 months.

MONITORING OF SURFACE DATA

SUSPECT LIST

MONITORING CENTRE: MELBOURNE

JANUARY to JUNE 2005

MONITORING PROCEDURES :-

PERIOD : SIX CALENDAR MONTHS

DATA MONITORED : REPORTS FROM EACH UNIQUE IDENTIFIER FOR SYNOP

AREA : FULL GLOBAL

STANDARD OF COMPARISON : +6H FIRST GUESS FIELD FROM THE AUSTRALIAN GLOBAL ASSIMILATION PREDICTION (GASP) MODEL

OBSERVATION TIMES : 00, 06, 12, 18 UTC

ELEMENT MONITORED : MSLP - MEAN SEA LEVEL PRESSURE (hPa)

PARAMETERS MONITORED :-

NOBS : NUMBER OF OBSERVATIONS RECEIVED (WITH FIRST GUESS AVAILABLE) EXCLUDING DUPLICATES

NGE : NUMBER OF OBSERVATIONS WITH GROSS ERRORS

PGE : PERCENTAGE OF OBSERVATIONS WITH GROSS ERRORS

SD : STANDARD DEVIATION OF DIFFERENCE BETWEEN OBSERVATIONS AND BACKGROUND FIELD EXCLUDING OBSERVATIONS WITH GROSS ERRORS

BIAS : MEAN OF DIFFERENCE BETWEEN OBSERVATIONS AND BACKGROUND FIELD EXCLUDING OBSERVATIONS WITH GROSS ERRORS

RMS : ROOT MEAN SQUARE OF DIFFERENCE BETWEEN
OBSERVATIONS AND BACKGROUND FIELD
EXCLUDING OBSERVATIONS WITH GROSS ERRORS

GROSS ERROR LIMIT : 15.0 hPa

SELECTION CRITERIA : NOBS >= 120 AND ONE OR MORE OF THE FOLLOWING:
1. |BIAS| >= 3.0hPa
2. SD >= 5.0hPa
3. PGE >= 25%

LIST OF SUSPECT LAND SURFACE STATIONS FOR JAN to JUN 2005

WMO REGION 1

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
61492	16.1	-13.5	18	ALL	MSLP	326	0	0	1.6	4.0	4.3
62271	24.2	23.3	436	ALL	MSLP	440	0	0	1.7	3.1	3.6
63671	1.8	40.1	244	ALL	MSLP	389	0	0	2.0	-5.7	6.1
65125	9.3	7.0	344	ALL	MSLP	132	0	0	1.9	5.1	5.4
65401	10.9	-1.1	203	ALL	MSLP	167	0	0	1.3	3.1	3.4
68903	-37.0	-12.3	51	ALL	MSLP	195	185	95	7.2	4.2	8.0

WMO REGION 2

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
24688	63.3	143.1	741	ALL	MSLP	721	87	12	5.9	3.1	6.7
36096	51.7	94.5	628	ALL	MSLP	713	58	8	5.5	2.7	6.1
36864	43.5	75.3	743	ALL	MSLP	718	9	1	3.1	3.3	4.5
38933	37.8	68.8	429	ALL	MSLP	377	0	0	2.8	7.3	7.9
40700	39.7	48.1	45	ALL	MSLP	691	0	0	1.6	-4.0	4.3
40726	36.8	45.7	1385	ALL	MSLP	593	11	2	3.1	4.5	5.5
40836	30.8	51.7	1880	ALL	MSLP	657	0	0	2.5	3.5	4.3
40854	29.1	58.4	1067	ALL	MSLP	667	2	0	2.6	-3.5	4.3
41396	16.0	49.0	700	ALL	MSLP	275	0	0	1.9	4.2	4.6
44203	51.1	99.7	1583	ALL	MSLP	710	197	28	5.0	3.2	5.9
44207	50.4	100.2	1687	ALL	MSLP	707	63	9	5.0	4.2	6.5
44212	49.8	92.1	936	ALL	MSLP	712	260	37	5.3	2.6	5.9
44213	49.7	94.4	1232	ALL	MSLP	714	233	33	5.6	2.7	6.2
44214	49.0	90.0	1714	ALL	MSLP	719	53	7	5.7	2.5	6.2
44215	49.1	91.7	1591	ALL	MSLP	718	182	25	5.8	1.6	6.0
44216	48.8	93.1	1051	ALL	MSLP	690	255	37	5.6	0.9	5.6
44218	48.0	91.7	1406	ALL	MSLP	714	179	25	6.3	1.0	6.3
44219	47.6	95.0	1391	ALL	MSLP	697	203	29	5.9	1.2	6.1
44221	49.7	96.4	1420	ALL	MSLP	708	239	34	5.8	2.5	6.3
44224	48.8	90.1	1928	ALL	MSLP	700	210	30	6.5	1.4	6.6
44225	48.7	98.3	1723	ALL	MSLP	710	252	35	5.6	3.0	6.4
44229	48.2	99.9	2055	ALL	MSLP	710	59	8	5.2	3.9	6.5
44230	49.6	102.0	1236	ALL	MSLP	715	8	1	4.3	4.4	6.1
44231	49.6	100.2	1288	ALL	MSLP	714	27	4	6.0	2.4	6.4
44232	49.4	102.7	933	ALL	MSLP	710	6	1	4.9	3.8	6.2
44241	48.9	106.1	807	ALL	MSLP	718	5	1	4.0	3.3	5.2
44263	46.9	91.1	1951	ALL	MSLP	698	171	24	4.5	4.6	6.5
44265	46.1	91.6	1186	ALL	MSLP	713	43	6	5.1	2.9	5.9
44266	46.3	93.9	2222	ALL	MSLP	712	29	4	5.0	3.4	6.1
44272	47.8	96.8	1753	ALL	MSLP	708	55	8	6.8	0.9	6.8
44275	46.8	98.1	2255	ALL	MSLP	711	117	16	5.9	2.9	6.5
44277	46.4	96.3	2147	ALL	MSLP	715	4	1	5.7	0.8	5.8
44284	46.7	100.1	2117	ALL	MSLP	714	176	25	5.3	3.5	6.4
44285	46.9	102.8	1655	ALL	MSLP	713	12	2	5.2	3.1	6.0
44291	47.8	106.8	1272	ALL	MSLP	711	7	1	5.1	2.7	5.8
44302	47.8	112.1	926	ALL	MSLP	695	4	1	3.3	3.2	4.6
44325	44.9	96.8	1183	ALL	MSLP	708	54	8	5.4	1.1	5.5
44329	44.6	98.7	2103	ALL	MSLP	705	11	2	4.0	4.4	6.0
44336	45.5	103.9	1316	ALL	MSLP	672	30	4	4.4	4.3	6.1
44338	44.7	102.2	1519	ALL	MSLP	692	33	5	4.3	4.9	6.5
48952	15.7	106.4	168	ALL	MSLP	164	0	0	1.5	-4.8	5.1
51087	47.0	89.5	827	ALL	MSLP	723	10	1	4.3	3.3	5.4

51243	45.6	84.8	428	ALL	MSLP	722	1	0	4.2	3.0	5.2
51334	44.6	82.9	321	ALL	MSLP	713	3	0	4.6	4.0	6.1
51379	44.0	89.6	794	ALL	MSLP	708	10	1	4.0	3.4	5.3
51463	43.8	87.7	919	ALL	MSLP	722	3	0	3.8	3.5	5.2
53192	44.0	114.9	1128	ALL	MSLP	723	0	0	2.5	3.2	4.0
56287	30.0	103.0	629	ALL	MSLP	724	0	0	2.0	3.3	3.8

WMO REGION 3

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
80099	7.1	-70.7	128	ALL	MSLP	134	0	0	1.6	-3.8	4.1
80398	-4.2	-69.9	84	ALL	MSLP	250	0	0	1.3	5.0	5.2
82212	-2.5	-66.2	55	ALL	MSLP	536	2	0	2.0	4.3	4.7
82287	-2.9	-41.6	22	ALL	MSLP	467	0	0	0.9	-3.8	3.9
82353	-3.2	-52.2	74	ALL	MSLP	525	0	0	1.5	-3.5	3.8
82425	-4.1	-63.1	46	ALL	MSLP	472	0	0	1.6	3.1	3.5
82445	-4.3	-55.6	45	ALL	MSLP	539	0	0	1.5	3.1	3.4
82586	-5.2	-39.3	212	ALL	MSLP	535	0	0	1.2	-4.3	4.5
82861	-8.3	-49.3	157	ALL	MSLP	521	0	0	1.6	-3.3	3.6
83264	-12.2	-56.5	415	ALL	MSLP	521	2	0	1.2	5.3	5.5
83270	-13.5	-52.5	430	ALL	MSLP	511	0	0	1.7	4.0	4.3
83319	-14.7	-52.3	315	ALL	MSLP	517	2	0	1.5	5.1	5.4
83388	-15.1	-42.8	604	ALL	MSLP	530	0	0	1.6	-3.5	3.9
83726	-22.0	-47.9	856	ALL	MSLP	534	0	0	1.7	3.5	3.9
84377	-3.8	-73.3	126	ALL	MSLP	651	0	0	1.5	3.5	3.8
84401	-5.2	-80.6	55	ALL	MSLP	651	3	0	1.7	5.3	5.5
84425	-5.9	-76.1	184	ALL	MSLP	132	0	0	1.3	8.2	8.3
84452	-6.8	-79.8	34	ALL	MSLP	618	1	0	1.6	6.4	6.6
84455	-6.5	-76.4	282	ALL	MSLP	476	2	0	2.0	9.3	9.6
84501	-8.1	-79.0	30	ALL	MSLP	463	0	0	1.6	5.6	5.8
84531	-9.1	-78.5	27	ALL	MSLP	127	0	0	1.3	3.1	3.3
84720	-14.9	-74.9	567	ALL	MSLP	313	0	0	1.5	6.1	6.2
84782	-18.1	-70.3	458	ALL	MSLP	489	0	0	1.7	3.9	4.2
85041	-11.0	-68.8	235	ALL	MSLP	348	0	0	2.0	7.1	7.4
85210	-16.3	-58.4	124	ALL	MSLP	333	0	0	1.4	3.7	3.9
85268	-18.3	-59.8	276	ALL	MSLP	339	0	0	1.5	3.5	3.8
85365	-22.0	-63.7	645	ALL	MSLP	332	2	1	2.8	3.9	4.8
85394	-22.8	-64.3	381	ALL	MSLP	269	1	0	2.5	3.1	4.0
85406	-18.4	-70.3	55	ALL	MSLP	712	0	0	1.7	4.7	5.0
85418	-20.5	-70.2	48	ALL	MSLP	706	0	0	1.3	3.3	3.5
88900	-54.0	-38.0	2	ALL	MSLP	129	20	16	6.3	-0.7	6.3

WMO REGION 4

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
71023	65.9	-89.4	18	ALL	MSLP	721	146	20	7.7	-0.5	7.7
71094	66.7	-61.4	725	ALL	MSLP	311	0	0	2.4	-3.6	4.3
71506	67.0	-136.2	720	ALL	MSLP	597	0	0	2.1	-3.8	4.4
72375	35.1	-11.2	2139	ALL	MSLP	669	73	11	5.4	-4.1	6.8
72462	37.4	-105.9	2299	ALL	MSLP	712	3	0	4.3	3.1	5.3
72570	40.5	-107.5	1915	ALL	MSLP	624	2	0	3.5	3.1	4.6
76061	31.3	-113.6	48	ALL	MSLP	179	0	0	1.4	4.2	4.5
76220	29.0	-107.8	1932	ALL	MSLP	308	29	9	3.0	9.0	9.5
76323	26.9	-105.7	1661	ALL	MSLP	474	1	0	3.9	4.1	5.7
76625	20.6	-100.4	1880	ALL	MSLP	202	0	0	2.8	-4.0	4.8
76634	20.1	-98.4	2181	ALL	MSLP	195	0	0	2.7	3.9	4.7
76658	19.2	-103.7	494	ALL	MSLP	151	0	0	1.3	5.3	5.5
76685	19.0	-98.2	2179	ALL	MSLP	486	0	0	3.8	-3.4	5.1
76726	18.9	-99.2	1618	ALL	MSLP	362	0	0	3.9	-4.4	5.9
76762	17.5	-99.5	1265	ALL	MSLP	320	0	0	1.4	3.5	3.7
76848	16.3	-92.1	1646	ALL	MSLP	382	0	0	1.9	-4.1	4.5
78588	17.2	-87.5	1	ALL	MSLP	688	688	100	**	**	**

WMO REGION 5

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
97012	1.5	124.9	67	ALL	MSLP	127	1	1	2.8	-8.2	8.7
97378	-10.7	123.1	1	ALL	MSLP	241	186	77	0.5	-14.5	14.5

WMO REGION 6

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
11116	47.5	10.8	870	ALL	MSLP	357	0	0	2.3	3.1	3.8
17042	41.4	41.4	33	ALL	MSLP	648	0	0	3.6	4.2	5.5
40030	35.1	36.8	303	ALL	MSLP	441	0	0	1.5	-3.7	4.0
40296	31.0	35.5	-350	ALL	MSLP	567	1	0	1.4	3.1	3.3

WMO REGION ANTARCTICA

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
89504	-72.0	2.4	1290	ALL	MSLP	132	2	2	5.7	1.2	5.9
89514	-70.8	11.7	117	ALL	MSLP	571	8	1	2.7	-3.3	4.2

Figure 1
 SUSPECT STATIONS FOR LAND SURFACE OBSERVATIONS FOR MSLP in RA-V
 JANUARY to JUNE 2005

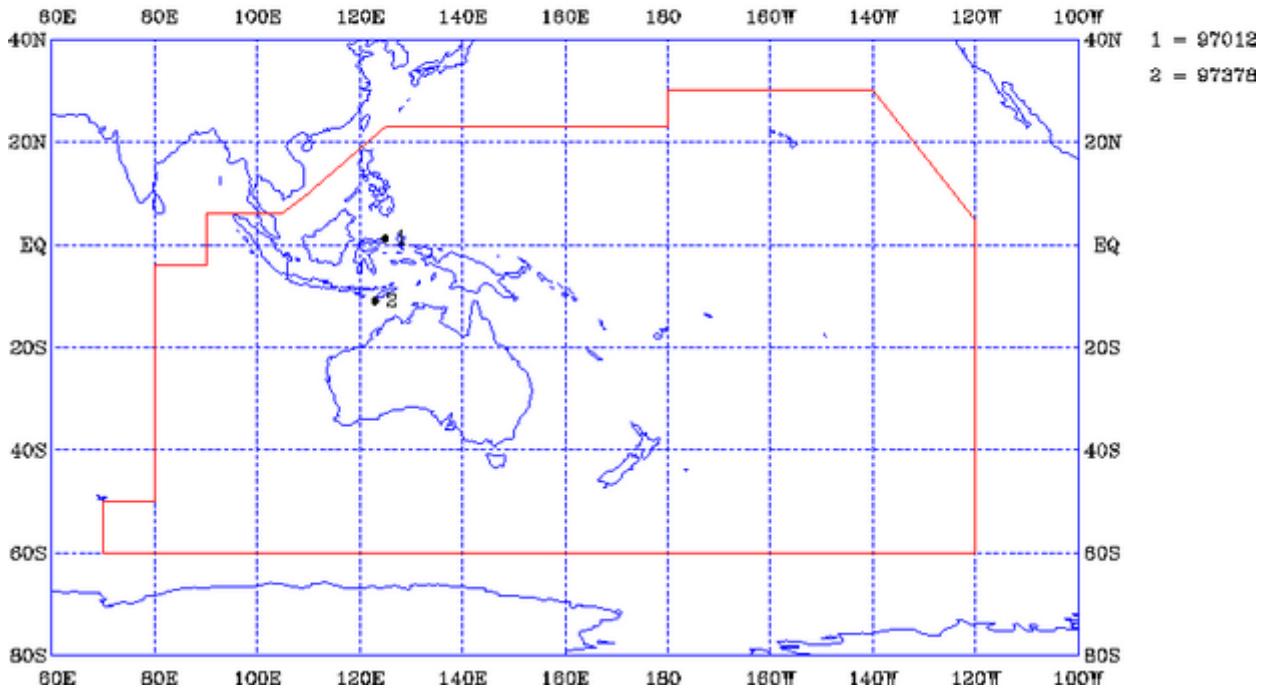


Figure 2
Residuals of MSL Pressure
January – June 2005
STATION: **97012** KAYU WATU MANADO

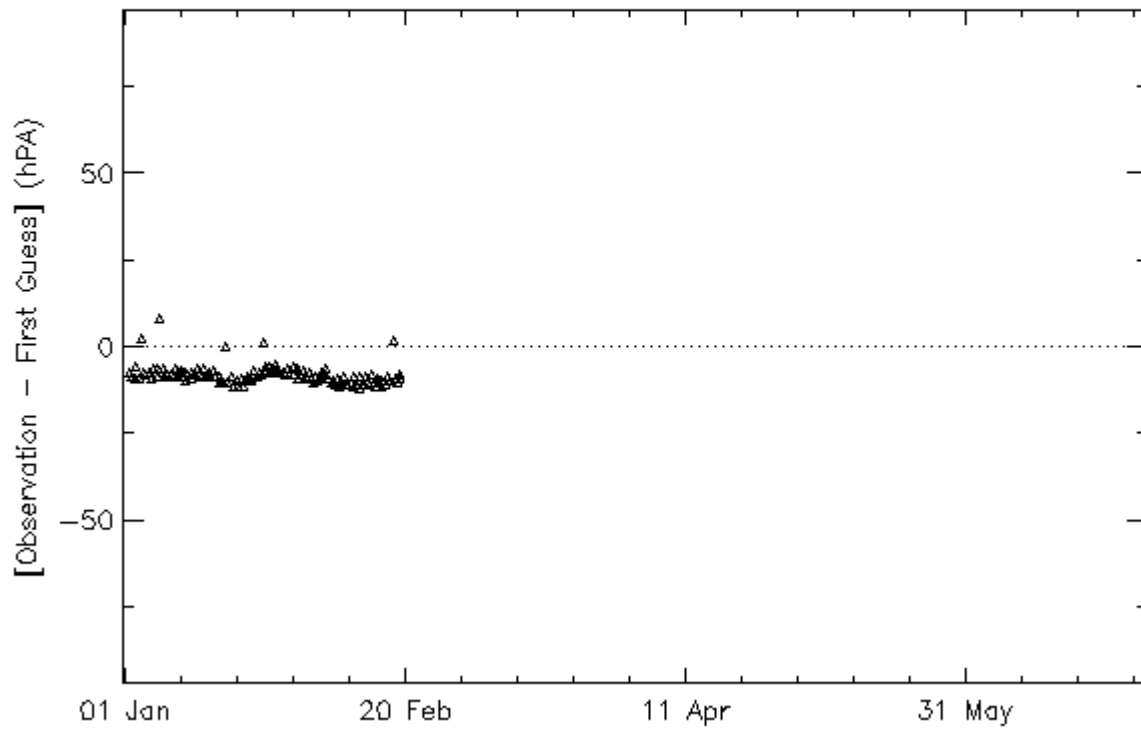


Figure 3
Residuals of MSL Pressure
January – June 2005
STATION: **97378** ROTE/BAA

