



Australian Government
Bureau of Meteorology

Report on the Quality of Land Surface Observations in Region V

January – June 2004

Report No. 15

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

*Data Management Section
Communications & Computing Systems Branch
Bureau of Meteorology, Australia*

Distribution List

Mr D. Schiessl	Director, World Weather Watch, WMO
Dr A.I. Gusev	President CBS
Dr E. I. Sarukhanian	WWW Department, WMO
Mr S. L. Woon	President of RA V
Mr F. Lalaurette	ECMWF
Mr I. Gitonga	Kenya Meteorological Department
Mr H. Sasaki	Japanese Meteorological Agency
Mr A. Rabiolo	Servicio Meteorologico Nacional, Argentina
Dr B. Ballish	NCEP, Washington
Mr G. Verner	Canadian Meteorological Centre
Mr B. Richter	Deutscher Wetterdienst, German
Mr H. Benichou	Meteo-France
Dr B. Macpherson	UK Meteorological Office

Focal Points for Data Quality Monitoring in RA-V

For further information or comments on this report please contact:

Data Management Section
Communications & Computing Systems Branch
Bureau of Meteorology
G.P.O. Box 1289K
Melbourne, VIC 3001
Australia

Email: stdm@bom.gov.au

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 2004. The locations of the suspect stations are shown in Figure1 and diagrams of the residuals for each of station are in Figures 2-5.

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

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
96753	-6.5	106.8	250	ALL	MSLP	239	1	0	2.2	4.4	5.0
96947	-8.0	112.7	526	ALL	MSLP	130	0	0	1.2	3.7	3.9
97012	1.5	124.9	67	ALL	MSLP	453	0	0	2.2	-5.0	5.5
97378	-10.7	123.1	1	ALL	MSLP	231	188	81	3.0	-13.6	14.0

Table 1. List of land surface stations reporting suspect observations of mean sea level pressure over the period January to June 2004.

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 2004

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 2004

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	423	0	0	1.5	3.6	3.9
62271	24.2	23.3	436	ALL	MSLP	323	0	0	1.7	3.7	4.1
63330	13.5	39.5	2070	ALL	MSLP	170	69	41	2.2	11.8	12.0
63333	11.1	39.7	1903	ALL	MSLP	175	1	1	1.7	5.1	5.4
63478	5.9	43.6	295	ALL	MSLP	154	0	0	2.2	5.4	5.9
64656	4.7	22.8	500	ALL	MSLP	308	0	0	1.7	3.3	3.7
65416	9.0	-2.5	301	ALL	MSLP	220	0	0	1.6	3.4	3.8
65418	9.5	-0.9	173	ALL	MSLP	319	0	0	1.4	4.0	4.2
67241	-15.0	40.7	11	ALL	MSLP	271	0	0	1.7	-3.4	3.8
68106	-23.6	15.1	400	ALL	MSLP	174	8	5	3.4	-4.2	5.4
68674	-31.6	29.5	47	ALL	MSLP	155	2	1	3.3	4.9	5.9
68903	-37.0	-12.3	51	ALL	MSLP	366	101	28	6.6	5.9	8.9

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	718	94	13	5.5	2.6	6.1
31137	56.3	131.1	850	ALL	MSLP	675	1	0	5.2	2.7	5.9
36859	44.2	80.1	645	ALL	MSLP	723	0	0	2.7	-3.2	4.2
40700	39.7	48.1	45	ALL	MSLP	679	1	0	1.8	-4.0	4.4
40726	36.8	45.7	1385	ALL	MSLP	655	0	0	2.2	3.7	4.3
40741	36.5	61.2	236	ALL	MSLP	662	0	0	2.4	-3.9	4.6
40836	30.8	51.7	1880	ALL	MSLP	665	0	0	2.3	3.7	4.3
44212	49.8	92.1	936	ALL	MSLP	707	155	22	5.2	3.3	6.1
44213	49.7	94.4	1232	ALL	MSLP	707	119	17	5.2	3.0	6.0
44214	49.0	90.0	1714	ALL	MSLP	695	17	2	5.1	-2.2	5.5
44215	49.1	91.7	1591	ALL	MSLP	706	52	7	5.2	0.0	5.2
44218	48.0	91.7	1406	ALL	MSLP	711	53	7	5.6	0.6	5.6
44224	48.8	90.1	1928	ALL	MSLP	663	111	17	6.6	0.5	6.6
44225	48.7	98.3	1723	ALL	MSLP	714	148	21	5.2	2.0	5.6
44265	46.1	91.6	1186	ALL	MSLP	700	92	13	5.2	5.0	7.2
44272	47.8	96.8	1753	ALL	MSLP	712	19	3	6.2	-0.3	6.2
44275	46.8	98.1	2255	ALL	MSLP	704	80	11	5.3	1.3	5.5
44277	46.4	96.3	2147	ALL	MSLP	719	3	0	5.3	-1.1	5.4
44284	46.7	100.1	2117	ALL	MSLP	713	103	14	5.0	3.9	6.3
44336	45.5	103.9	1316	ALL	MSLP	683	13	2	4.0	3.3	5.2
48952	15.7	106.4	168	ALL	MSLP	263	0	0	1.5	-3.6	3.9
48957	14.8	106.8	105	ALL	MSLP	131	0	0	1.4	3.5	3.8
51076	47.7	88.1	737	ALL	MSLP	728	0	0	3.5	3.1	4.6
51087	47.0	89.5	827	ALL	MSLP	727	2	0	4.1	3.5	5.4
51334	44.6	82.9	321	ALL	MSLP	716	0	0	3.6	3.7	5.2
51379	44.0	89.6	794	ALL	MSLP	720	0	0	4.0	3.7	5.4
51495	43.2	91.7	732	ALL	MSLP	719	58	8	5.8	1.0	5.9
51709	39.5	76.0	1291	ALL	MSLP	728	1	0	5.1	0.3	5.1
51730	40.5	81.1	1013	ALL	MSLP	715	7	1	3.9	-3.1	5.0
51747	39.0	83.7	1099	ALL	MSLP	728	9	1	5.2	-1.7	5.5
51777	39.0	88.2	889	ALL	MSLP	728	3	0	5.2	-3.0	6.0
53192	44.0	114.9	1128	ALL	MSLP	728	0	0	2.4	3.3	4.1
53391	41.9	114.0	1484	ALL	MSLP	726	2	0	2.2	3.0	3.7
53480	41.0	113.1	1416	ALL	MSLP	719	0	0	2.2	3.3	3.9
56287	30.0	103.0	629	ALL	MSLP	728	0	0	1.8	3.5	3.9

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
80398	-4.2	-69.9	84	ALL	MSLP	195	0	0	1.4	5.8	6.0
82212	-2.5	-66.2	55	ALL	MSLP	500	0	0	2.2	4.4	4.9
82287	-2.9	-41.6	22	ALL	MSLP	535	0	0	1.0	-3.7	3.8
82353	-3.2	-52.2	74	ALL	MSLP	519	0	0	1.4	-3.6	3.8
82425	-4.1	-63.1	46	ALL	MSLP	425	0	0	1.6	3.9	4.2
82445	-4.3	-55.6	45	ALL	MSLP	528	0	0	1.7	3.2	3.7
82586	-5.2	-39.3	212	ALL	MSLP	534	0	0	1.7	-3.7	4.1
82861	-8.3	-49.3	157	ALL	MSLP	524	0	0	1.7	-3.1	3.5
83319	-14.7	-52.3	315	ALL	MSLP	524	1	0	1.2	5.0	5.1
83726	-22.0	-47.9	856	ALL	MSLP	504	3	1	1.7	3.3	3.7
83738	-22.5	-44.5	440	ALL	MSLP	414	244	59	0.9	-13.9	14.0
84377	-3.8	-73.3	126	ALL	MSLP	611	0	0	1.4	3.5	3.8
84390	-4.6	-81.3	90	ALL	MSLP	124	0	0	1.3	4.7	4.9
84401	-5.2	-80.6	55	ALL	MSLP	628	1	0	1.5	4.8	5.0
84425	-5.9	-76.1	184	ALL	MSLP	131	0	0	1.5	8.2	8.4
84452	-6.8	-79.8	34	ALL	MSLP	609	0	0	1.6	3.8	4.1
84455	-6.4	-76.4	282	ALL	MSLP	451	7	2	2.2	9.6	9.8
84501	-8.1	-79.0	30	ALL	MSLP	445	0	0	1.8	4.9	5.2
84531	-9.2	-78.5	21	ALL	MSLP	123	0	0	1.4	3.0	3.3
84720	-14.9	-74.9	567	ALL	MSLP	292	0	0	1.7	6.0	6.2
84773	-17.7	-71.3	9	ALL	MSLP	124	0	0	1.5	3.7	4.0
84782	-18.1	-70.3	458	ALL	MSLP	506	0	0	1.9	7.3	7.5
85041	-11.0	-68.8	235	ALL	MSLP	338	1	0	2.2	7.4	7.7
85210	-16.3	-58.4	124	ALL	MSLP	347	0	0	1.5	3.5	3.8
85268	-18.3	-59.8	276	ALL	MSLP	341	0	0	1.3	3.2	3.5
85365	-22.0	-63.7	645	ALL	MSLP	335	0	0	2.9	3.5	4.6
85394	-22.8	-64.3	381	ALL	MSLP	260	1	0	3.1	3.6	4.7
85406	-18.4	-70.3	55	ALL	MSLP	706	1	0	1.9	5.0	5.3
85418	-20.5	-70.2	48	ALL	MSLP	705	0	0	1.8	3.8	4.2
85442	-23.4	-70.4	140	ALL	MSLP	716	0	0	1.9	3.0	3.6
86011	-19.5	-59.4	150	ALL	MSLP	490	0	0	1.8	3.0	3.5

WMO REGION 4

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
71020	61.2	-123.7	204	ALL	MSLP	246	0	0	1.7	-3.0	3.5
71023	65.9	-89.4	18	ALL	MSLP	726	145	20	7.8	0.2	7.8
71060	65.6	-118.1	230	ALL	MSLP	719	111	15	6.9	-3.5	7.7
71094	66.6	-61.6	393	ALL	MSLP	698	0	0	2.4	-3.5	4.3
71421	51.9	-63.3	589	ALL	MSLP	442	0	0	2.0	3.6	4.1
71506	67.0	-136.2	720	ALL	MSLP	711	0	0	2.5	-4.8	5.4
71571	55.7	-119.2	1015	ALL	MSLP	334	0	0	2.1	-3.5	4.0
71619	48.0	-65.3	47	ALL	MSLP	680	476	70	3.5	-1.4	3.8
72375	35.1	-11.2	2139	ALL	MSLP	702	61	9	6.0	-3.4	6.9
72462	37.4	-105.9	2299	ALL	MSLP	713	8	1	4.3	3.7	5.7
72570	40.5	-107.5	1915	ALL	MSLP	703	0	0	3.8	4.0	5.5
76220	29.0	-107.8	1932	ALL	MSLP	233	36	15	3.8	9.6	10.3
76225	28.6	-106.1	1435	ALL	MSLP	451	5	1	4.8	-4.0	6.2
76323	26.9	-105.7	1661	ALL	MSLP	455	2	0	4.2	4.6	6.3
76625	20.6	-100.4	1880	ALL	MSLP	180	0	0	3.1	-4.0	5.0
76634	20.1	-98.4	2181	ALL	MSLP	161	0	0	2.5	5.0	5.6
76658	19.2	-103.7	494	ALL	MSLP	142	0	0	1.2	5.1	5.3
76687	19.5	-96.9	1389	ALL	MSLP	498	0	0	1.8	4.1	4.5
76762	17.5	-99.5	1265	ALL	MSLP	323	0	0	2.1	3.5	4.1
76773	17.8	-97.8	1680	ALL	MSLP	142	0	0	4.0	6.1	7.3
76843	16.8	-93.1	528	ALL	MSLP	327	0	0	2.7	4.7	5.4
76848	16.3	-92.1	1646	ALL	MSLP	308	0	0	1.7	-3.5	3.9
76903	14.9	-92.3	118	ALL	MSLP	345	0	0	3.1	3.4	4.6
78588	17.2	-87.5	1	ALL	MSLP	720	694	96	1.0	0.1	1.0
78718	14.4	-89.2	626	ALL	MSLP	347	0	0	1.6	-3.1	3.5

WMO REGION 5

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
96753	-6.5	106.8	250	ALL	MSLP	239	1	0	2.2	4.4	5.0
96947	-8.0	112.7	526	ALL	MSLP	130	0	0	1.2	3.7	3.9
97012	1.5	124.9	67	ALL	MSLP	453	0	0	2.2	-5.0	5.5
97378	-10.7	123.1	1	ALL	MSLP	231	188	81	3.0	-13.6	14.0

WMO REGION 6

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
01389	61.2	11.4	240	ALL	MSLP	370	95	26	1.6	-0.6	1.7
17042	41.4	41.4	33	ALL	MSLP	670	1	0	3.5	3.2	4.7
40296	31.0	35.5	-350	ALL	MSLP	544	0	0	1.6	3.1	3.5

WMO REGION ANTARCTICA

STN NO.	LAT	LONG	HT (M)	TIME	ELEM	NOBS	NGE	PGE	SD	BIAS	RMS
89004	-71.7	-2.8	817	ALL	MSLP	548	0	0	2.8	3.0	4.1
89263	-66.0	-66.1	20	ALL	MSLP	703	140	20	4.6	10.8	11.7

Figure 1
 SUSPECT STATIONS FOR LAND SURFACE OBSERVATIONS FOR MSLP in RA-V
 JANUARY to JUNE 2004

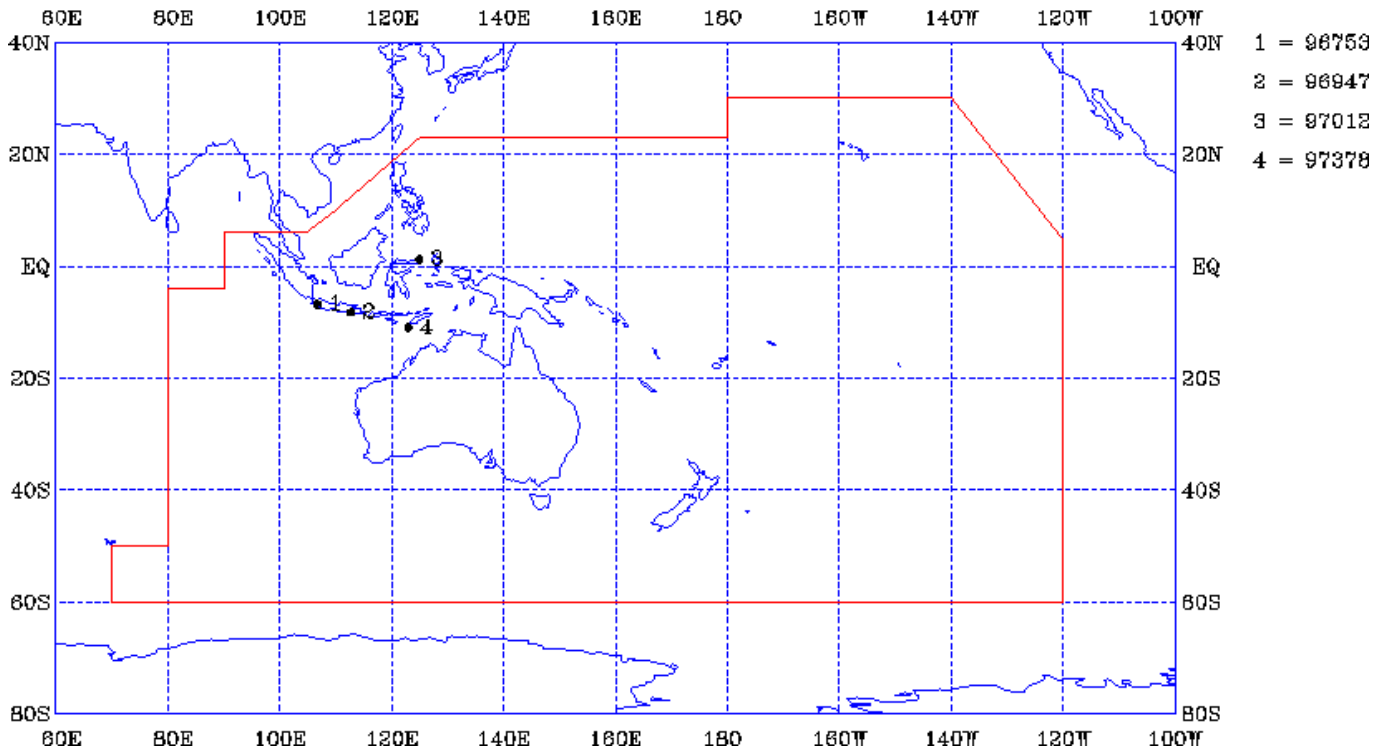


Figure 2
Residuals of MSL Pressure
January – June 2004
STATION: **96753** BOGOR/DERMAGA

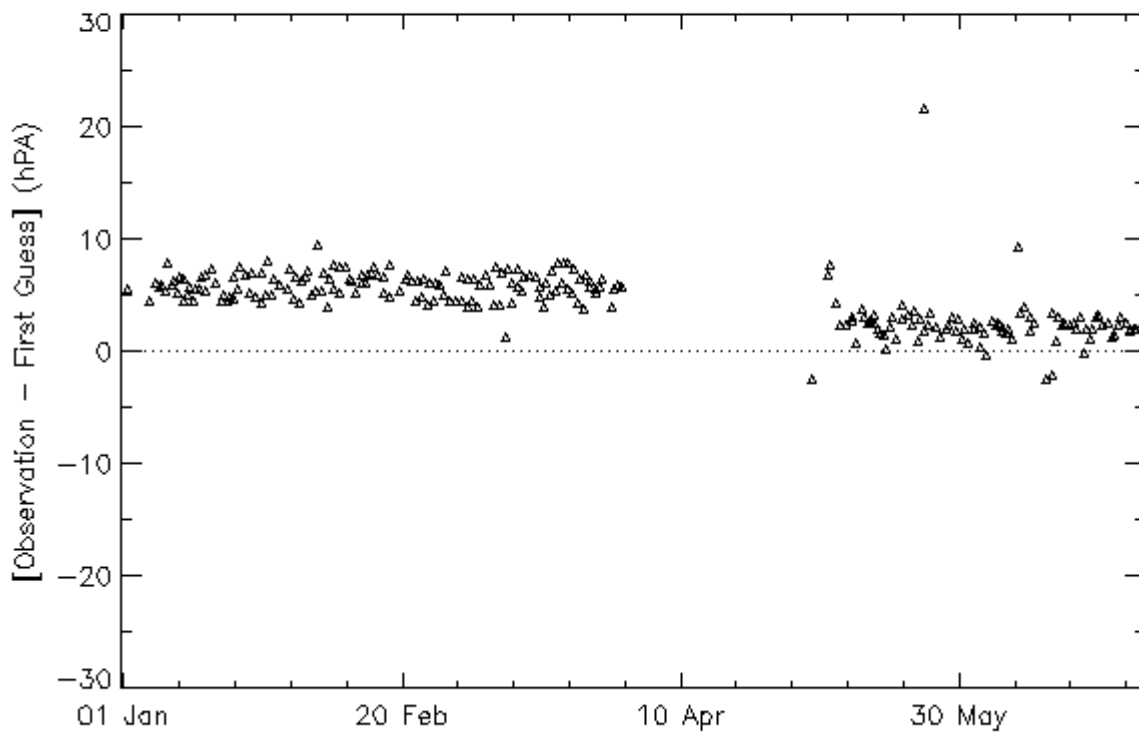


Figure 3
Residuals of MSL Pressure
January – June 2004
STATION: **96947** MALANG/ABDUL RAHKMAN

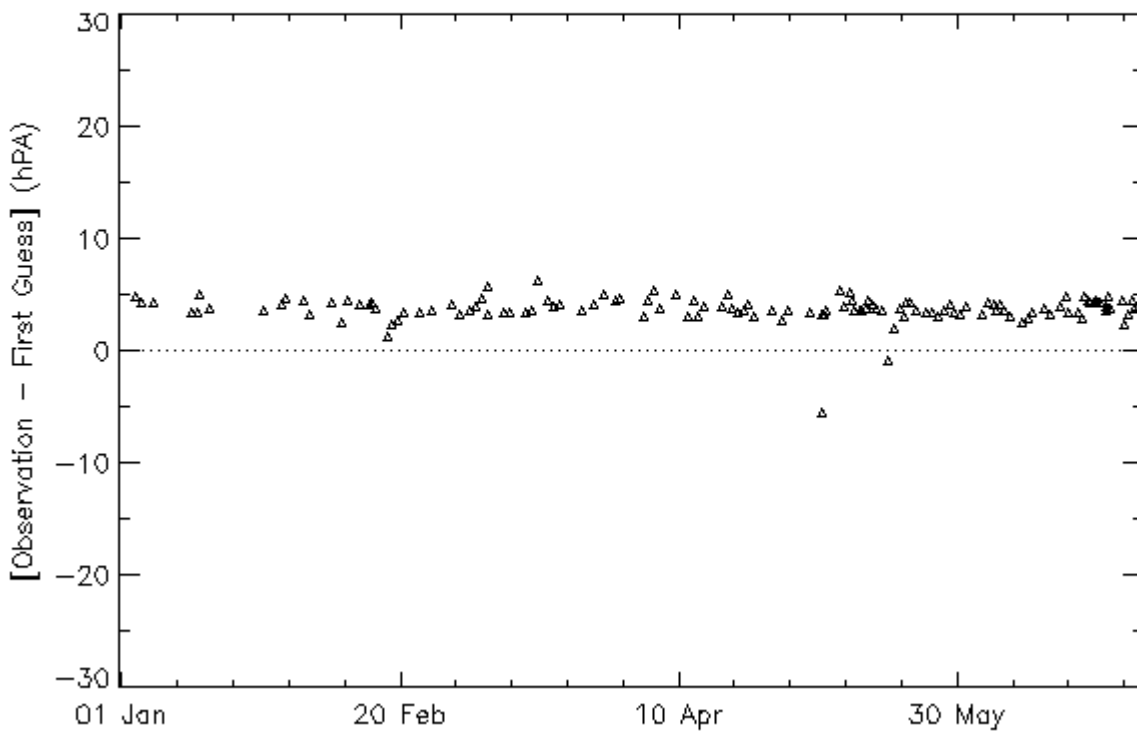


Figure 4
Residuals of MSL Pressure
January – June 2004
STATION: **97012** KAYU WATU MANADO

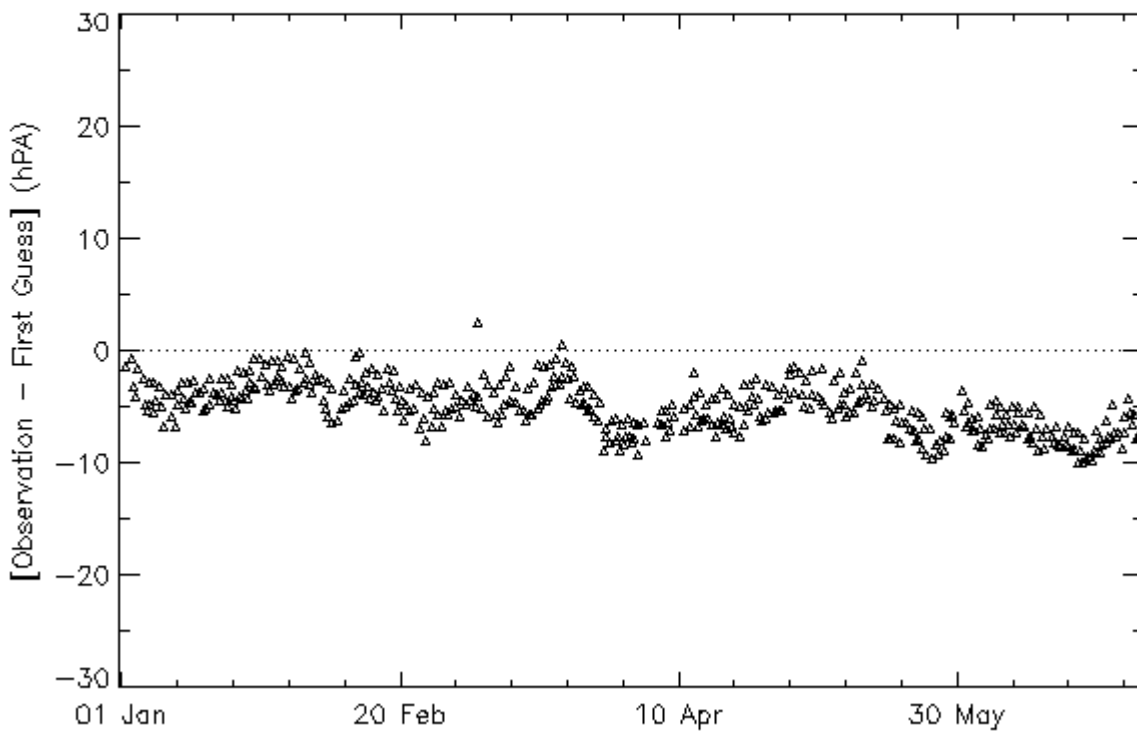


Figure 5
Residuals of MSL Pressure
January – June 2004
STATION: **97378** ROTE/BAA

