

Report on the Quality of Land Surface Observations in Region II (Asia)

January – June 2020

No. 59

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**RSMC Tokyo
Lead Center for Monitoring Quality of Land Surface Observations**

**Japan Meteorological Agency
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Japan**

Report on the Quality of Land Surface Observations in Region II
(No. 59)
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Summary

In its role as a Lead Center, RSMC Tokyo has issued the 59th report on the land surface observation quality monitoring for the period from January to June 2020. The report includes a consolidated list of stations suspected of producing low-quality observation data.

As a result of monitoring, four stations (40835, 42299, 50756, 40954) were excluded from the consolidated lists of the previous report (July – December 2019), and twenty four stations (35284, 38313, 38318, 38836, 40587, 40621, 41265, 42056, 42114, 42299, 48001, 48018, 48062, 48085, 48107, 48925, 51467, 54945, 56946, 56951, 57731, 58921, 58968, 59632) were newly added to the lists.

1. Introduction

Pursuant to Paragraph 22 of Attachment II.7 of the Manual on the Global Data Processing and Forecasting System (WMO No. 485), the Regional Specialized Meteorological Center (RSMC) Tokyo was designated by the President of the Commission for Basic Systems (CBS) as a Lead Center for monitoring the quality of land surface observations (i.e., SYNOP) in Region II in March 1991. The Center is responsible for monitoring the quality of land surface observations and maintaining consolidated lists of stations suspected of reporting low-quality observation data together with adequate evidence. The lists are to be passed on to the WMO Secretariat and monitoring centers participating in this activity as well as to Members of Regional Association (RA) II for their reference.

2. Monitored Data

Monitored surface observation data are obtained at 00, 06, 12 and 18 UTC and collected at RSMC Tokyo before the data cut-off time, defined as the end of the period in which observation data are gathered for operational analysis. The cut-off times for Japan Meteorological Agency (JMA) global analysis are shown in Table 1.

Table 1 Data cut-off times for JMA global analysis.

Analysis time	Data cut-off time
00 UTC	11:50 UTC
06 UTC	13:50 UTC
12 UTC	23:50 UTC
18 UTC	01:50 UTC

The observation elements monitored are (1) station level pressure, (2) mean sea level pressure and (3) geopotential height, hereafter referred to as SLP, MSLP and GZ, respectively. In accordance with the Manual on Codes (WMO No. 306) Volume II, GZ data on an agreed standard pressure level are reported at the stations whose elevation is higher than 800 m. Standard pressure levels defined in line with station elevation are shown in Table 2.

Table 2 Elevation of stations reporting GZ data and corresponding standard pressure levels.

Station elevation (m)	Pressure level (hPa)
800 - 2,300	850
2,300 - 3,700	700
Higher than 3,700	500

The numbers of stations reporting SLP, MSLP and/or GZ data in Region II are shown in Table 3, and the locations of these land surface stations are shown in Figure 1.

Table 3 Numbers of stations reporting SLP, MSLP and/or GZ data in Region II

Element	Number of stations
SLP	1886
MSLP	1990
GZ	87

3. Monitoring Methods

The three items described below are examined for each element.

- (i) Monthly statistics on observation deviations from the most recent forecast of JMA ' s global model (referred to as first-guess values) (observation minus guess, hereafter referred to as O-G) and on related trends over the monitoring period
- (ii) Monthly statistics on deviations from values observed at surrounding stations
- (iii) Reference information from other monitoring centers

Information on the latitude, longitude and altitude of each station is necessary for calculation of first-guess values. Such data for land surface station locations is retrieved from the surface-based observing system component of the Observing Systems Capability Analysis and Review Tool (OSCAR/Surface)* , replacing WMO No. 9, Volume A.

*<https://oscar.wmo.int/surface/index.html#/>

The monitoring procedure has two steps as outlined below.

(1) Exclusion of data with gross errors from the statistical calculation sample

The following thresholds are applied for the gross error check in the first step:

$$\begin{aligned}|O-G| &\geq 15 \text{ hPa for SLP and MSLP} \\ |O-G| &\geq 100 \text{ gpm for GZ}\end{aligned}$$

Gross error data are excluded from the calculation of BIAS (the mean of O-G) and SD (the standard deviation of O-G).

(2) Identification of suspect stations

When the total number of observations (NOBS) is 182 or more, the next criteria are applied:

- BIAS	$ BIAS \geq 3 \text{ hPa for SLP and MSLP}$
- SD	$ BIAS \geq 30 \text{ gpm for GZ}$
	$SD \geq 5 \text{ hPa for SLP and MSLP}$
	$SD \geq 40 \text{ gpm for GZ}$
- Percentage of gross errors (PGE)	$PGE \geq 25\%$

Stations with even one statistic exceeding the threshold are considered suspect.

Note:

- (i) The quality of observation data from stations is not checked when the NOBS value is less than 182 or the difference between H and HM is greater than 1,000 m. MSLP reports are also not checked for stations located at altitudes higher than 1,000 m above sea level.
- (ii) In case of low quality of the first-guess field, those statistics can exceed the threshold and the stations are listed in the consolidated list. To avoid such situations, statistics of surrounding stations and information from other monitoring centers are also used to judge whether the quality of the station's first-guess field value is appropriate.

4. Monitoring Results

4.1 Consolidated list of suspect stations throughout the period

Table 4 List of suspect land surface stations during the period from January to June 2020

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
36090	51.1	93.7	1043	1382	SLP	702	0	1.6	5.1	5.3
					GZ850	700	0	9.0	-1.0	9.1
38262	43.0	59.8	93	59	SLP	728	0	0.9	3.7	3.8
					MSLP	727	0	0.9	0.5	1.0
38719	39.1	68.9	3373	3151	SLP	357	1	3.6	5.4	6.5
					GZ700	726	18	28.3	46.4	54.3
38880	38.0	58.4	312	319	SLP	727	0	1.0	12.1	12.1
					MSLP	727	0	0.9	0.2	0.9
38944	37.5	69.4	447	593	SLP	725	0	1.4	-6.0	6.2
					MSLP	725	0	1.9	-6.7	7.0
40633	34.6	43.7	107	106	MSLP	203	0	3.0	4.5	5.4
					-	-	-	-	-	-
40700	39.6	47.9	32	84	SLP	726	0	0.8	-6.2	6.3
					MSLP	726	0	0.8	-0.4	0.9
40713	37.4	46.2	1478	1535	SLP	724	5	0.9	13.0	13.0
					MSLP	724	0	2.8	-2.4	3.7
40741	36.5	61.2	235	289	SLP	723	0	0.8	-4.3	4.4
					MSLP	723	0	1.0	0.6	1.2
40854	29.1	58.4	940	1157	SLP	718	7	0.8	-13.7	13.7
					MSLP	718	0	2.3	-1.7	2.9
40877	28.0	57.7	470	682	SLP	724	0	0.8	-3.5	3.6
					MSLP	724	0	1.5	-3.9	4.2
40942	33.5	65.3	2183	2453	SLP	416	0	1.4	-6.6	6.7
					MSLP	416	0	4.2	-2.2	4.7
40945	34.8	67.8	2550	3232	SLP	264	1	3.4	-4.2	5.4
					MSLP	264	11	5.6	-5.1	7.6
41573	33.9	73.4	2127	1335	SLP	717	0	1.1	8.8	8.9
					GZ850	716	0	11.0	-2.1	11.2
42083	31.1	77.2	2202	1570	SLP	358	6	0.6	13.9	13.9
					-	-	-	-	-	-
42111	30.3	78.0	683	878	SLP	723	0	0.9	6.2	6.3
					MSLP	721	0	1.5	-1.1	1.9
42147	29.5	79.7	2311	1563	SLP	361	0	0.6	4.5	4.5
					-	-	-	-	-	-
42295	27.1	88.3	2134	1270	SLP	362	85	0.3	14.7	14.7
					GZ850	362	100	-	-	-
43226	14.3	74.5	60	50	SLP	640	0	0.6	4.4	4.4
					MSLP	641	0	0.8	0.5	0.9

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
43418	8.6	81.3	79	8	SLP	701	0	0.7	4.5	4.6
					MSLP	701	0	0.4	-0.3	0.5
43479	7.0	81.1	670	862	SLP	478	1	0.5	-9.5	9.5
44406	29.3	81.0	617	1547	SLP	378	2	2.0	4.9	5.3
					MSLP	376	0	3.3	-2.1	3.9
44424	29.3	82.2	2300	3274	SLP	369	2	1.3	-6.2	6.3
					GZ700	366	0	14.4	-49.9	51.9
44429	28.1	82.5	634	883	SLP	380	0	0.8	-3.4	3.5
					MSLP	380	0	1.9	0.9	2.1
47037	40.0	125.3	99	228	SLP	727	0	1.3	-3.9	4.1
					MSLP	727	0	1.4	-3.9	4.1
47102	38.0	124.7	146	2	SLP	728	0	0.6	12.2	12.2
					MSLP	728	0	0.6	-1.3	1.4
47145	36.8	127.3	26	110	SLP	728	0	0.6	-6.3	6.3
					MSLP	728	0	0.7	0.4	0.8
47152	35.6	129.3	36	125	SLP	728	0	0.7	-5.8	5.8
					MSLP	728	0	0.7	-0.2	0.7
48921	21.6	101.9	1360	1072	SLP	406	2	1.3	-4.5	4.7
					GZ850	403	100	0.0	-6.7	6.7
48935	19.5	103.1	1094	1196	SLP	417	1	1.3	-0.6	1.4
					GZ850	417	39	11.6	-89.7	90.4
48952	15.7	106.4	180	334	SLP	420	0	1.0	3.6	3.7
					MSLP	418	0	1.1	2.4	2.6

WMO IDENT: WMO station identification number
 LAT: station latitude
 LON: station longitude
 H: barometer elevation
 HM: model elevation
 ELEM: observed element
 NOBS: total number of observations during the period
 PGE: percentage of gross errors
 SD: standard deviation of (observation - guess)
 BIAS: bias of (observation - guess)
 RMS: root mean square of (observation - guess)

RUSSIAN FEDERATION IN ASIA

36090 - Positive bias of O-G at the station level (Figures 2 and 3)

UZBEKISTAN

38262 - Positive bias of O-G at the station level (Figures 4 and 5)

TAJIKISTAN

38719 - Positive bias of O-G at the station level and at 700 hPa (Figures 6 and 7)

38944 - Negative bias of O-G at the station level and at the mean sea level (Figures 6 and 9)

TURKMENISTAN

38880 - Positive bias of O-G at the station level (Figures 4 and 8)

IRAQ

40633 - Positive bias of O-G at the mean sea level (Figure 10)

IRAN, ISLAMIC REPUBLIC OF

40700 - Negative bias of O-G at the station level (Figures 11 and 12)

40713 - Positive bias of O-G at the station level (Figures 11 and 13)

40741 - Negative bias of O-G at the station level (Figures 4 and 14)

40854 - Negative bias of O-G at the station level (Figures 15 and 16)

40877 - Negative bias of O-G at the station level and at the mean sea level (Figures 15 and 17)

AFGHANISTAN

40942 - Negative bias of O-G at the station level (Figures 18 and 19)

40945 - Negative bias of O-G at the station level (Figures 6 and 20)

PAKISTAN

41573 - Positive bias of O-G at the station level (Figures 21 and 22)

INDIA

42083 - Positive bias of O-G at the station level (Figures 21 and 23)

42111 - Positive bias of O-G at the station level (Figures 21 and 24)

42147 - Positive bias of O-G at the station level (Figures 21 and 25)

42295 - Positive bias of O-G at the station level and at 850 hPa (Figures 26 and 27)

43226 - Positive bias of O-G at the station level (Figures 28 and 29)

SRI LANKA

43418 - Positive bias of O-G at the station level (Figures 30 and 31)

43479 - Negative bias of O-G at the station level (Figures 30 and 32)

NEPAL

44406 - Positive bias of O-G at the station level (Figures 21 and 33)

44424 - Negative bias of O-G at the station level and at 700 hPa (Figures 34 and 35)

44429 - Negative bias of O-G at the station level (Figures 34 and 36)

KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

47037 - Negative bias of O-G at the station level and at the mean sea level (Figures 37 and 38)

KOREA, REPUBLIC OF

47102 - Positive bias of O-G at the station level (Figures 37 and 39)

47145 - Negative bias of O-G at the station level (Figures 37 and 40)

47152 - Negative bias of O-G at the station level (Figures 37 and 41)

LAO PEOPLE'S DEMOCRATIC REPUBLIC

48921 - Negative bias of O-G at the station level and at 850 hPa (Figures 42 and 43)

48935 - Negative bias of O-G at 850 hPa (Figure 44)

48952 - Positive bias of O-G at the station level (Figures 42 and 45)

4.2 Stations where quality deteriorated during the period

Table 5 List of suspect land surface stations where quality deteriorated during the period

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
35284	50.6	70.0	384	324	SLP	728	0	0.7	6.5	6.5
					MSLP	727	0	0.8	0.4	0.9
38313	43.7	69.0	405	706	SLP	490	81	1.1	13.9	13.9
					MSLP	490	0	2.6	-1.1	2.8
38318	42.1	68.1	183	222	SLP	490	0	0.7	-3.4	3.5
					MSLP	490	0	0.8	0.8	1.1
38836	38.6	68.7	800	1199	SLP	727	0	2.2	-2.6	3.4
					MSLP	727	0	2.8	-3.6	4.6
40587	29.3	47.7	55	79	MSLP	727	7	6.4	3.4	7.2
					-	-	-	-	-	-
40621	35.5	44.4	331	394	MSLP	646	0	4.5	3.5	5.7
					-	-	-	-	-	-
41265	22.8	58.5	469	592	SLP	721	0	0.6	-5.2	5.2
					MSLP	721	0	1.1	-1.8	2.1
42056	32.7	74.8	323	304	SLP	721	0	1.0	-6.5	6.6
					-	-	-	-	-	-
42114	30.4	78.5	770	1512	SLP	360	100	-	-	-
					-	-	-	-	-	-
42299	27.3	88.6	1756	1989	SLP	364	0	2.1	-2.1	3.0
					GZ850	364	0	23.2	31.2	38.9
48001	27.3	97.4	409	794	SLP	538	100	-	-	-
					MSLP	539	0	1.9	-1.0	2.1
48018	24.2	96.3	95	197	SLP	534	0	1.4	3.8	4.0
					MSLP	536	0	1.1	-0.4	1.2

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
48062	20.1	92.9	5	3	SLP	535	0	1.1	6.3	6.4
					MSLP	535	0	0.6	-0.3	0.7
48085	17.6	94.6	3	78	SLP	530	0	0.9	6.8	6.9
					MSLP	529	0	0.8	-0.3	0.9
48107	15.3	97.9	7	90	SLP	535	0	1.0	-3.6	3.7
					MSLP	535	0	1.0	0.0	1.0
48925	20.7	102.0	636	950	SLP	416	1	1.1	-3.0	3.2
					MSLP	416	0	1.7	-1.1	2.0
51467	42.7	86.3	1733	2582	SLP	726	0	1.9	-5.4	5.7
					MSLP	725	10	4.7	-6.8	8.3
54945	35.4	119.5	37	32	SLP	728	0	0.5	-3.6	3.6
					MSLP	728	0	0.5	-0.1	0.5
56946	23.6	99.4	1104	1396	SLP	728	0	0.8	-3.9	4.0
					MSLP	728	0	2.4	1.2	2.7
56951	24.0	100.2	1503	1786	SLP	727	0	0.9	-12.6	12.6
					MSLP	726	0	2.8	1.7	3.3
57731	28.0	108.3	418	727	SLP	705	100	0.2	-14.8	14.8
					MSLP	703	0	1.1	1.0	1.5
58921	26.0	117.4	204	502	SLP	728	0	0.8	-6.4	6.4
					MSLP	728	0	1.0	0.0	1.0
58968	25.0	121.5	9	226	SLP	724	0	0.5	-3.0	3.0
					MSLP	724	0	0.5	-0.5	0.7
59632	22.0	108.6	6	22	SLP	728	0	0.6	-5.0	5.0
					MSLP	728	0	0.6	0.2	0.6

KAZAKHSTAN

35284 - Positive bias of O-G at the station level (Figures 46 and 47)

38313 - Positive bias of O-G at the station level (Figures 6 and 48)

38318 - Negative bias of O-G at the station level (Figures 6 and 49)

TAJIKISTAN

38836 - Negative bias of O-G at the mean sea level (Figure 50)

KUWAIT

40587 - The observed value was constant during the period (Figure 51)

IRAQ

40621 - Positive bias of O-G at the mean sea level (Figure 52)

The positive bias of O-G at the mean sea level appears to have been observed since March 2020.

OMAN

41265 - Negative bias of O-G at the station level (Figures 53 and 54)

INDIA

42056 - Negative bias of O-G at the station level (Figures 21 and 55)

42114 - Negative bias of O-G at the station level (Figures 21 and 56)

42299 - Positive bias of O-G at 850 hPa (Figure 57)

The positive bias of O-G at 850 hPa appears to have been observed since May 2020.

REPUBLIC OF THE UNION OF MYANMAR

48001 - Positive bias of O-G at the station level (Figures 58 and 59)

The positive bias of O-G at station level appears to have been observed since January 2020.

48018 - Positive bias of O-G at the station level (Figures 58 and 60)

The positive bias of O-G at station level appears to have been observed since January 2020.

48062 - Positive bias of O-G at the station level (Figures 58 and 61)

The positive bias of O-G at station level appears to have been observed since January 2020.

48085 - Positive bias of O-G at the station level (Figures 62 and 63)

The positive bias of O-G at station level appears to have been observed since January 2020.

48107 - Negative bias of O-G at the station level (Figures 62 and 64)

The negative bias of O-G at station level appears to have been observed since January 2020.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

48925 - Negative bias of O-G at the station level (Figures 42 and 65)

CHINA

51467 - Negative bias of O-G at the station level (Figures 66 and 67)

The negative bias of O-G at station level appears to have been observed since January 2020.

54945 - Negative bias of O-G at the station level (Figures 68 and 69)

56946 - Negative bias of O-G at the station level (Figures 42 and 70)

56951 - Negative bias of O-G at the station level (Figures 42 and 71)

57731 - Negative bias of O-G at the station level (Figures 72 and 73)

58921 - Negative bias of O-G at the station level (Figures 74 and 75)

58968 - Negative bias of O-G at the station level (Figures 74 and 76)

59632 - Negative bias of O-G at the station level (Figures 77 and 78)

4.3 Stations improved and excluded from the previous consolidated list

IRAN, ISLAMIC REPUBLIC OF

40835 - Although station 40835 still displays negative biases of O-G at the station level, it was removed from the consolidated list because the biases did not exceed the threshold. (Figure 79)

INDIA

42299 - The negative bias of O-G at the station level has improved since May 2020. (Figure 80)

CHINA

50756 - Although station 50756 still displays positive biases of O-G at the station level, it was removed from the consolidated list because the biases did not exceed the threshold. (Figure 81)

4.4 Stations removed from the previous consolidated list

AFGHANISTAN

40954 - Although station 40954 still displays negative biases of O-G at the station level, it was removed from the consolidated list because the number of reports (141) was insufficient for quality checking. (Figure 82)

5. Possible Causes of Remarkable and Sustained Biases

The following are possible causes of remarkable and sustained biases

- (i) The barometer used for observation is not correctly calibrated.
- (ii) The latitude, longitude or altitude of the station in OSCAR/Surface has not been updated in a timely and appropriate manner. This could result in remarkable biases because it may cause incorrect calculated first-guess field values.
- (iii) Biases are specific to the NWP model used in quality monitoring.

Note: Model biases are likely to appear in relatively large areas.

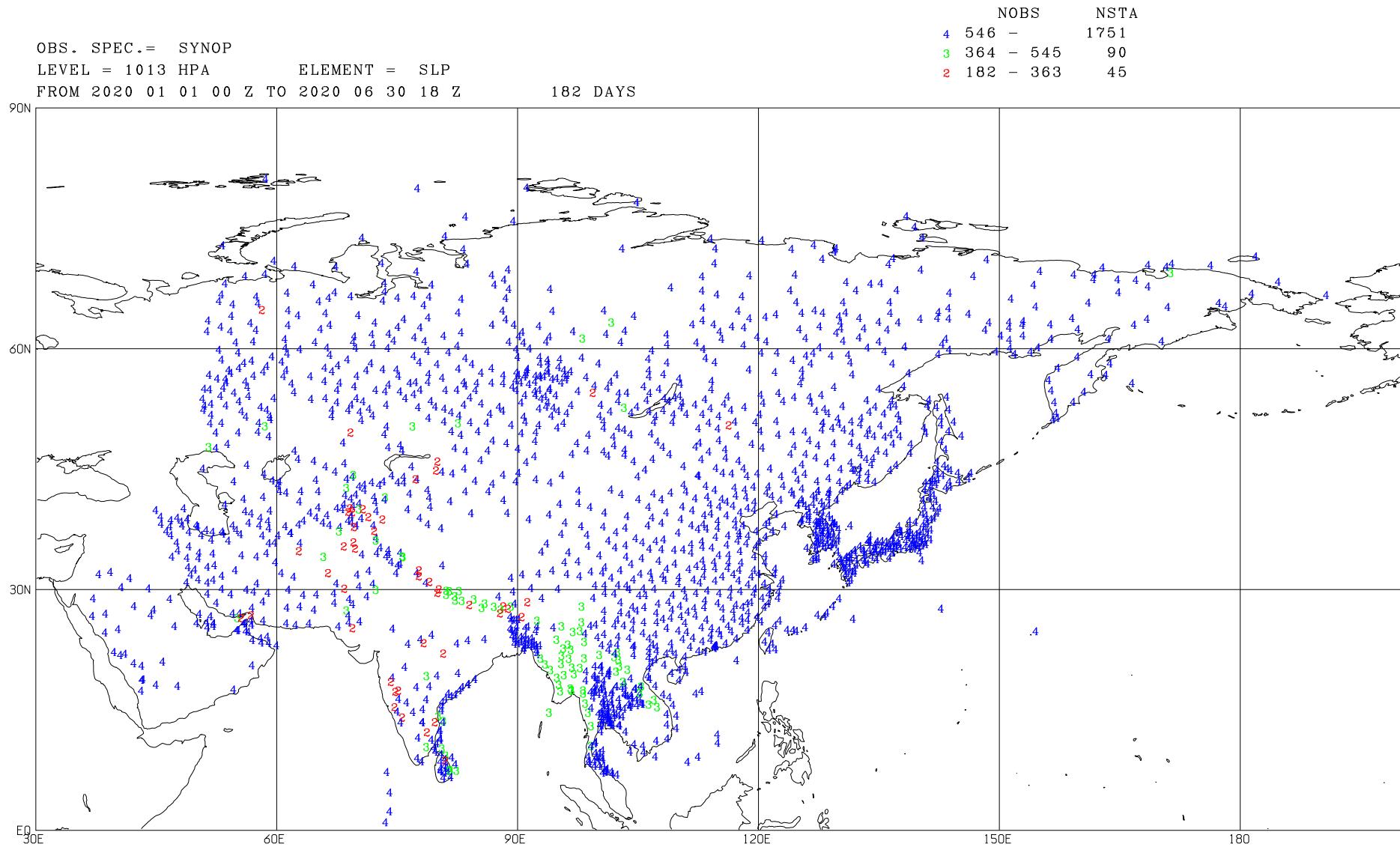


Figure 1(a) Location of all land surface stations reporting station level pressure (SLP) observations in Region II over the six-month period from January to June 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting SLP are shown at the top of the figure.

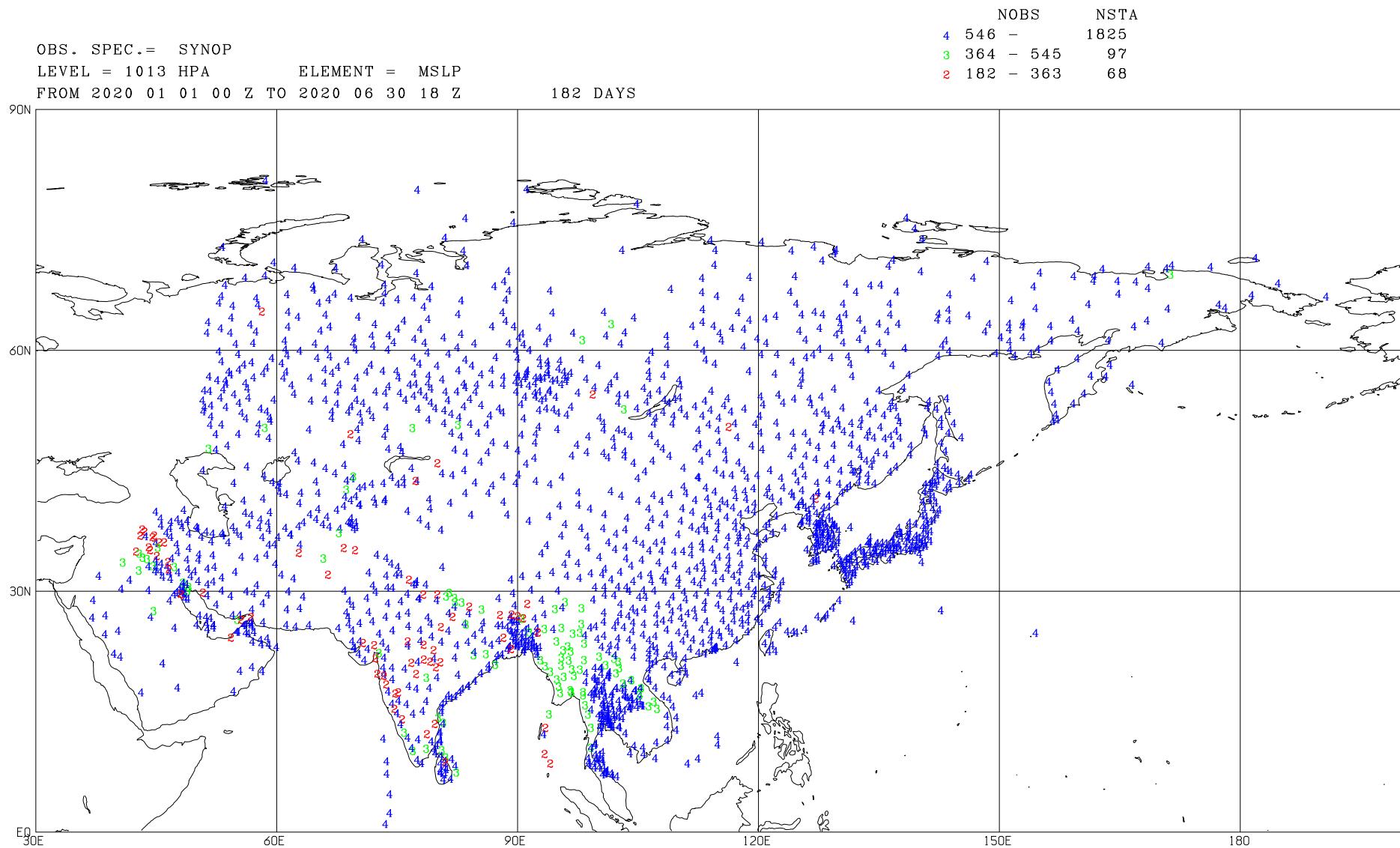


Figure 1(b) Location of all land surface stations reporting mean sea level pressure (MSLP) observations in Region II over the six-month period from January to June 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting MSLP are shown at the top of the figure.

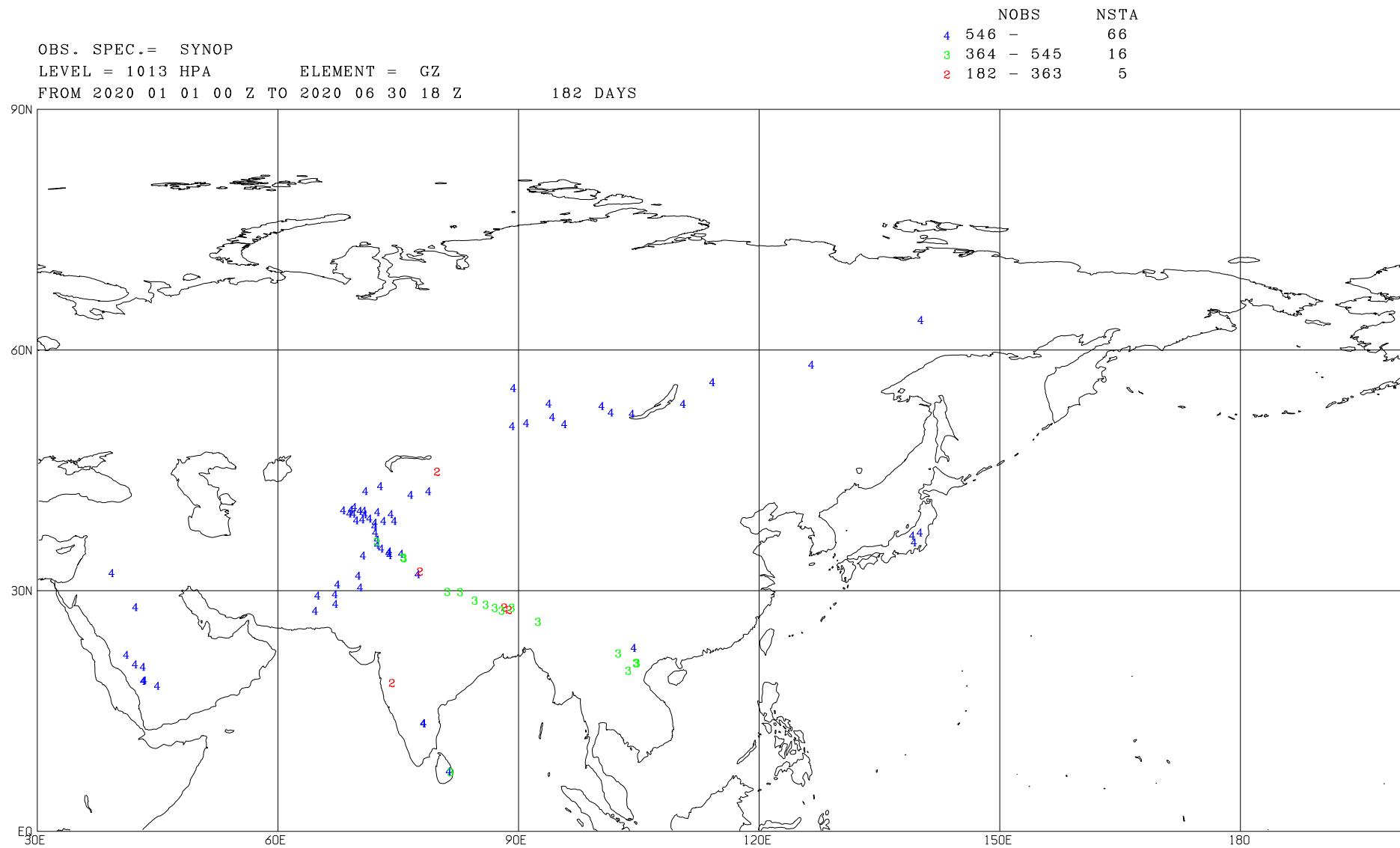
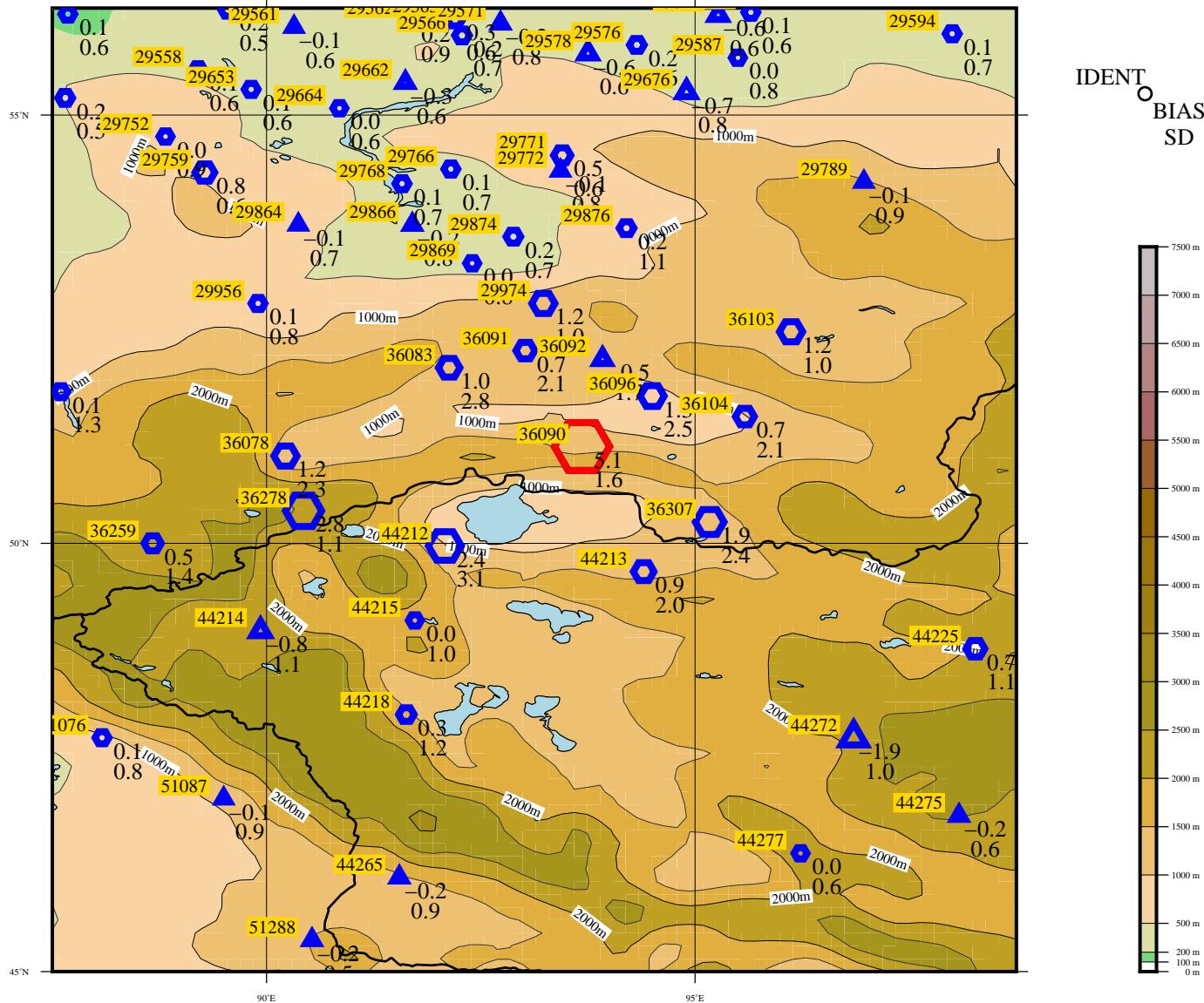


Figure 1(c) Location of all land surface stations reporting geopotential height (GZ) observations in Region II over the six-month period from January to June 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting GZ are shown at the top of the figure.

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

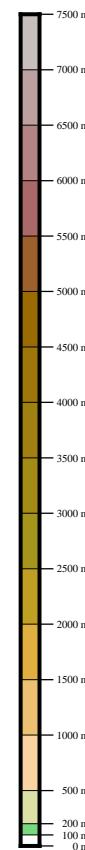


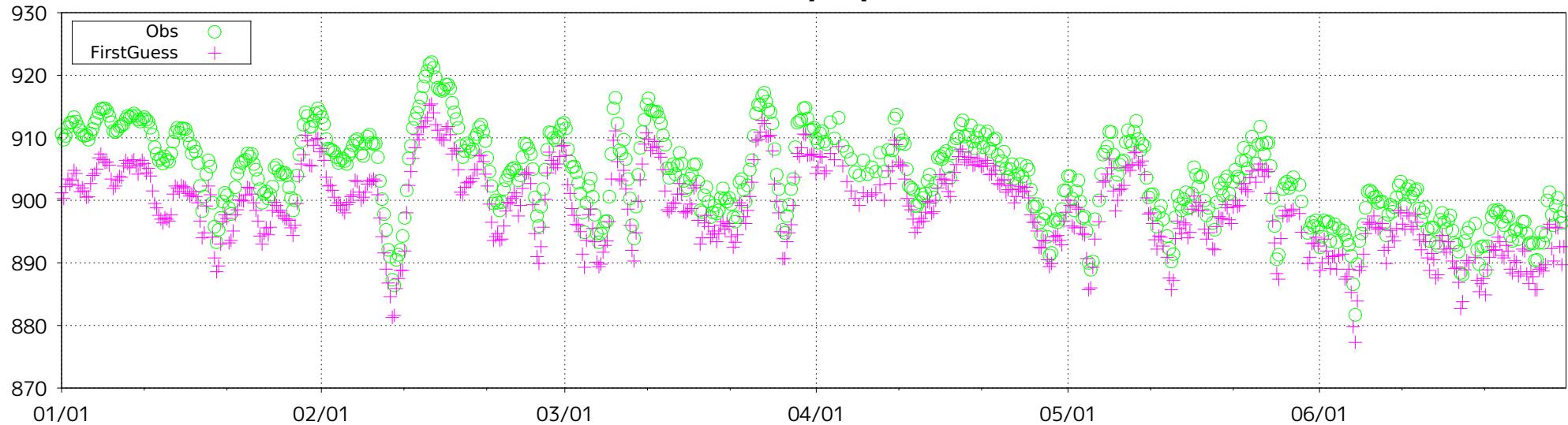
Figure 2 BIAS and SD of SLP for station 36090 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 36090 (lat: 51.1N, lon: 93.7E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

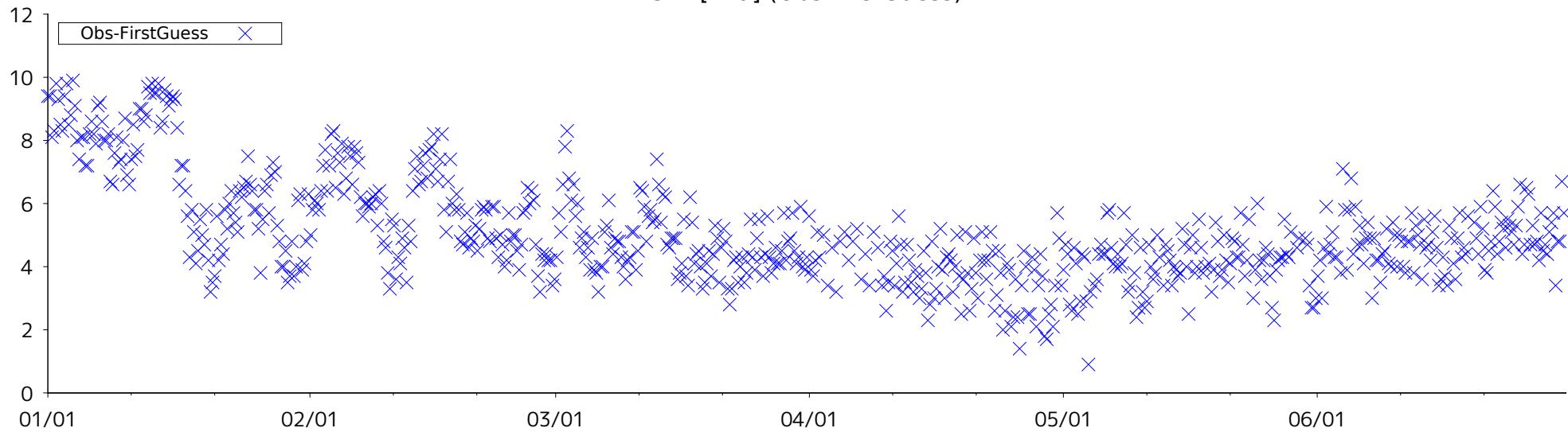
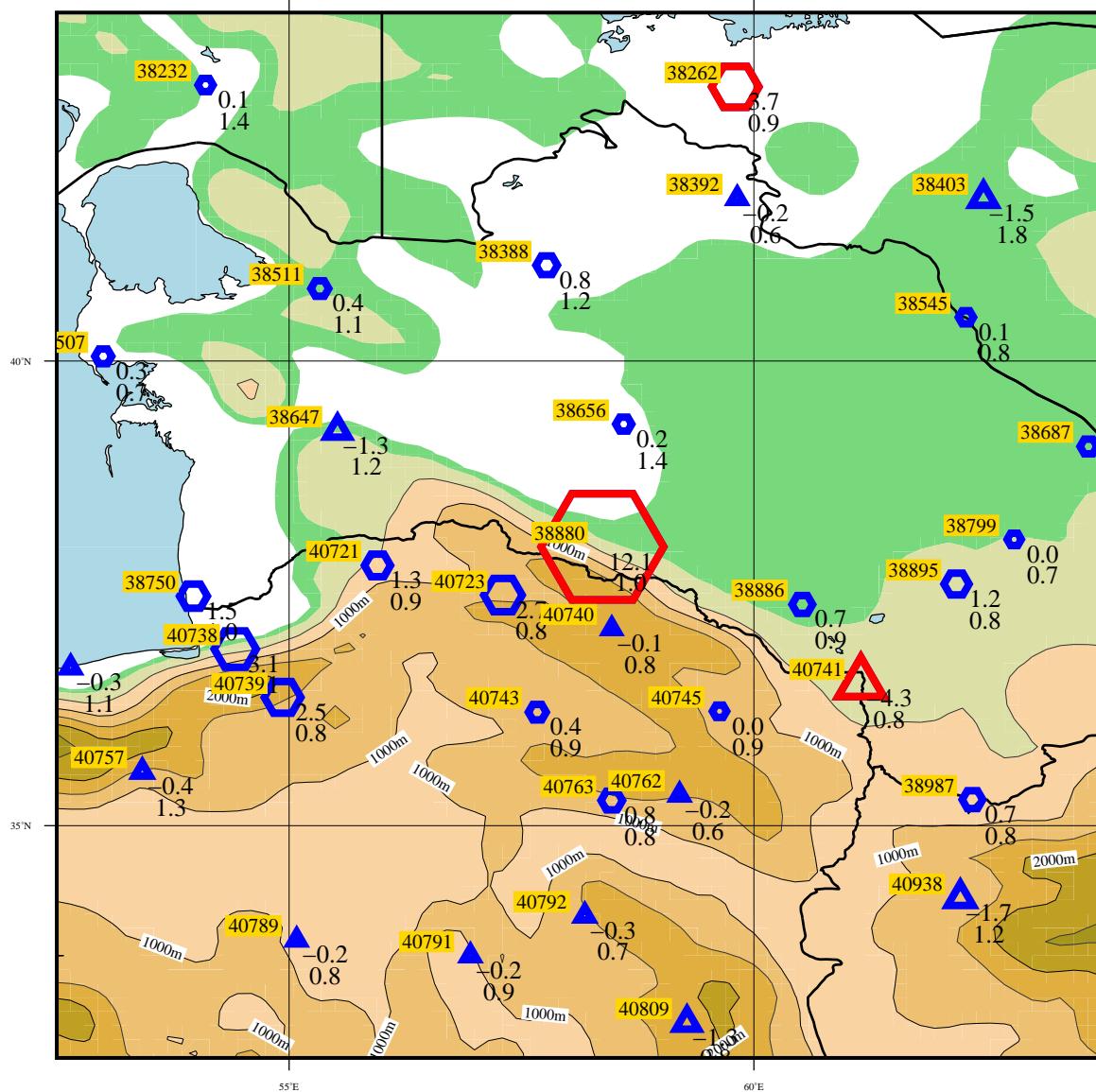


Figure 3 Time-series representation of SLP Obs minus FirstGuess for station 36090

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
O BIAS
SD

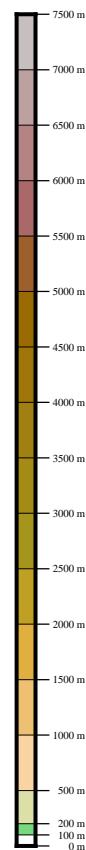


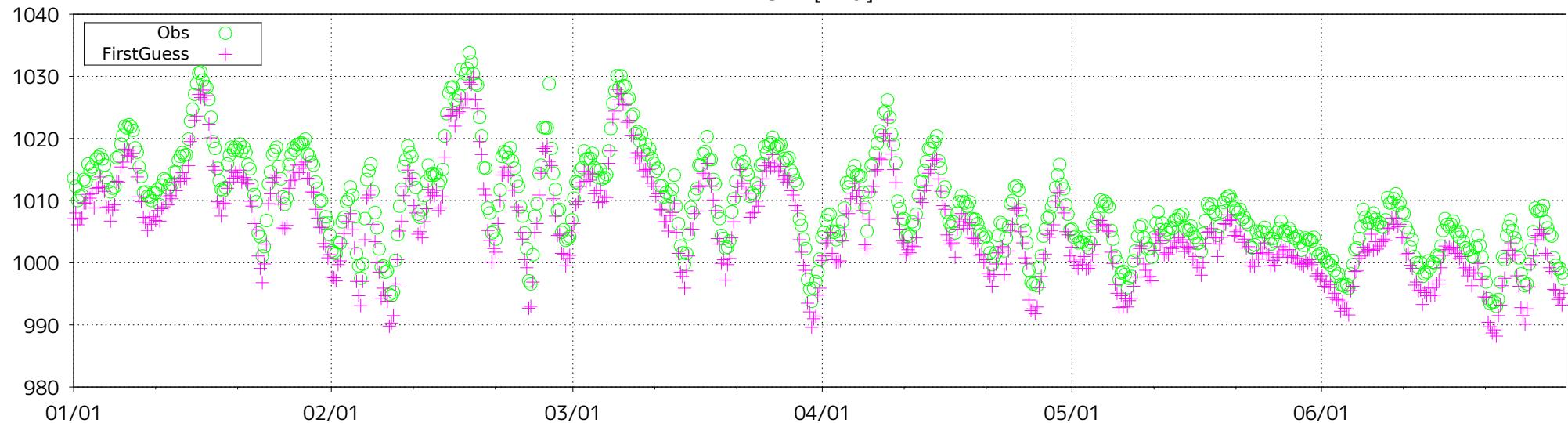
Figure 4 BIAS and SD of SLP for station 38262, 38880, 40741 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 38262 (lat: 43.0N, lon: 59.8E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

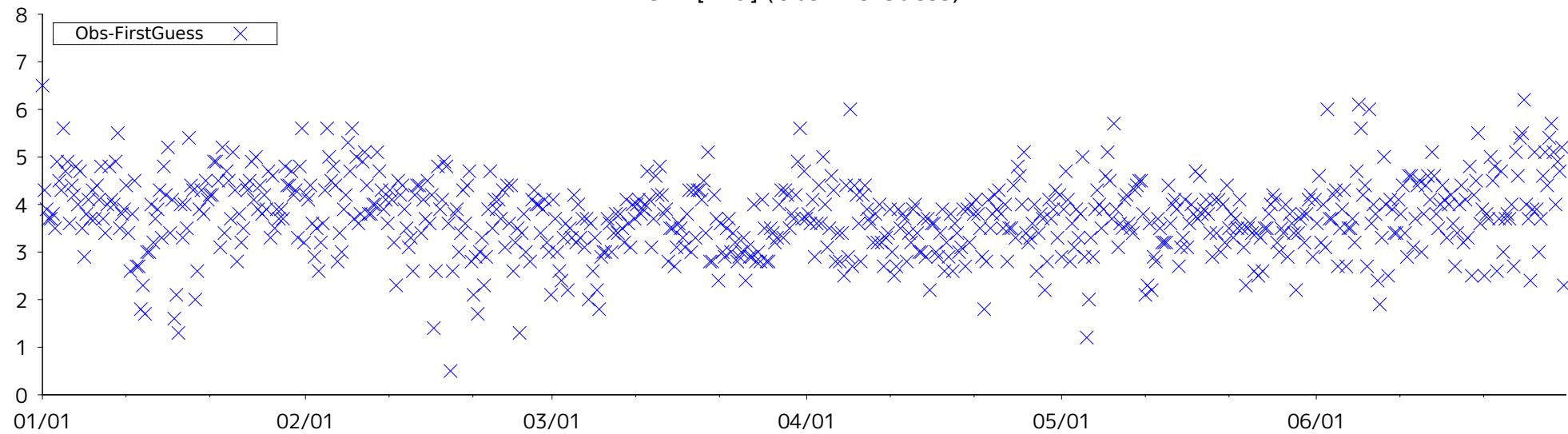
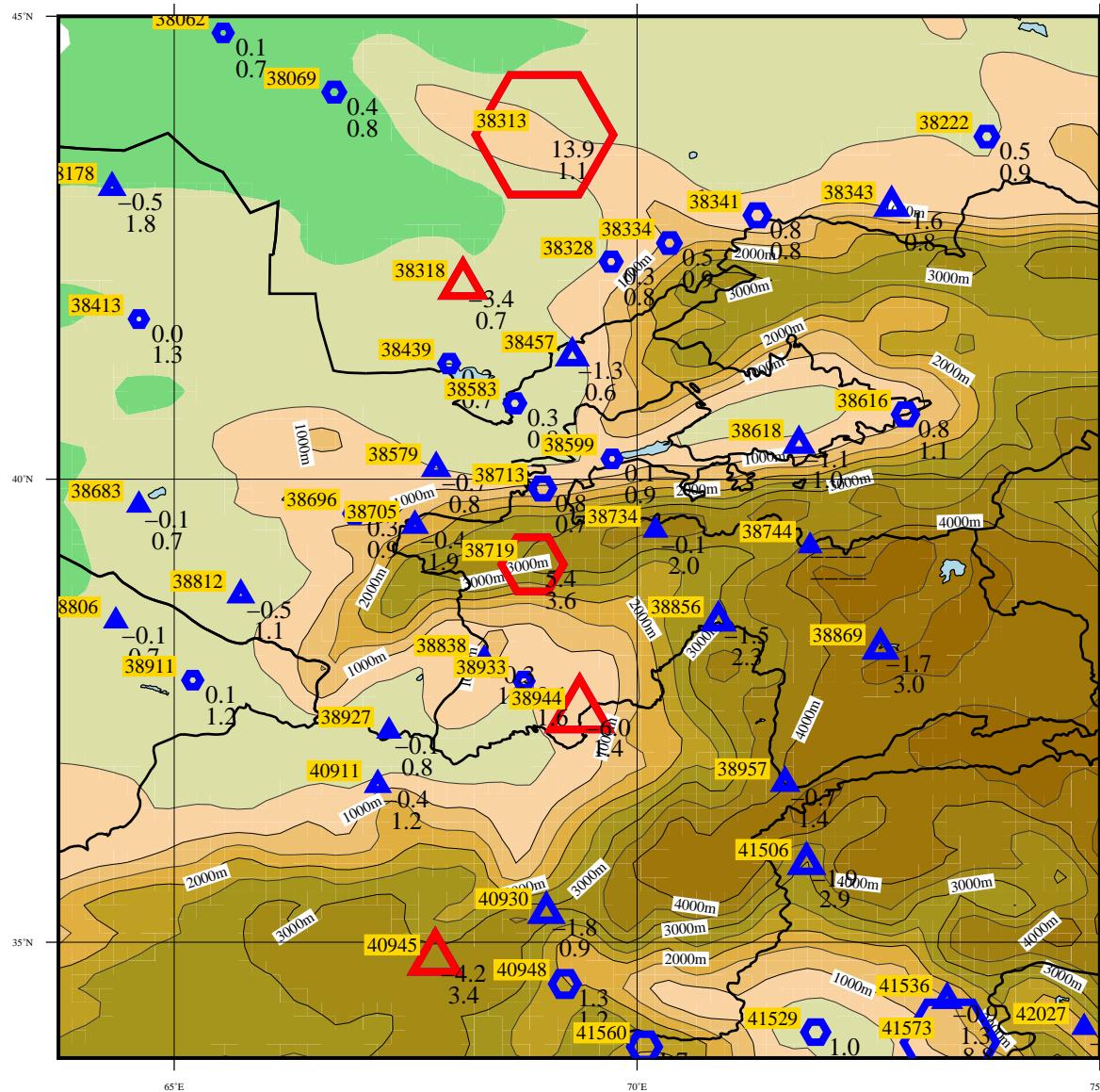


Figure 5 Time-series representation of SLP Obs minus FirstGuess for station 38262

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

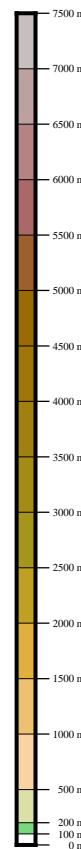


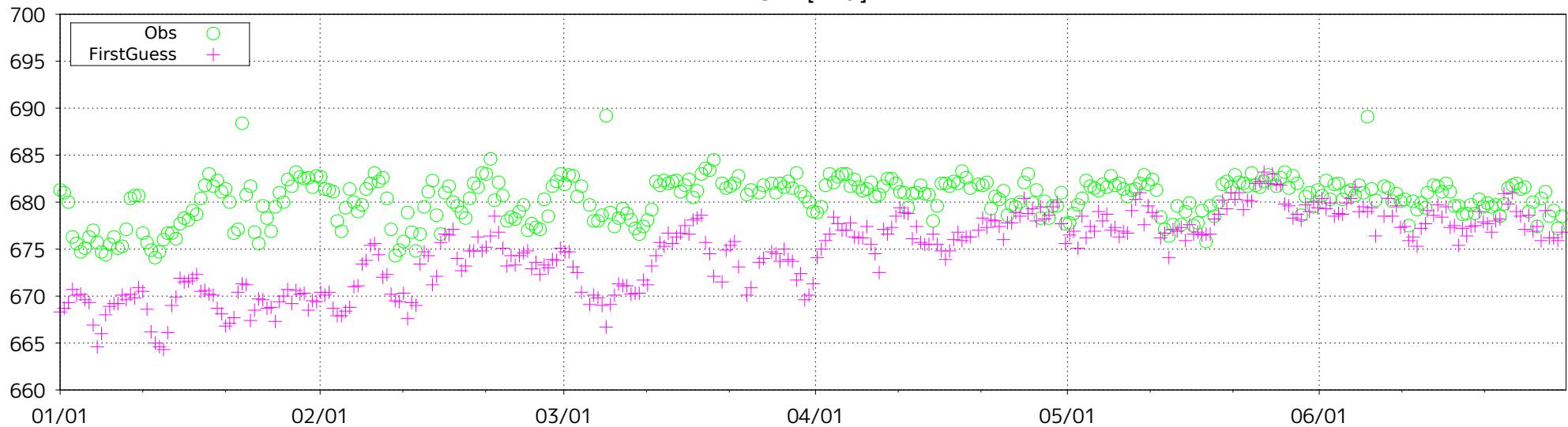
Figure 6 BIAS and SD of SLP for station 38313, 38318, 38719, 38944, 40945 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 38719 (lat: 39.1N, lon: 68.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

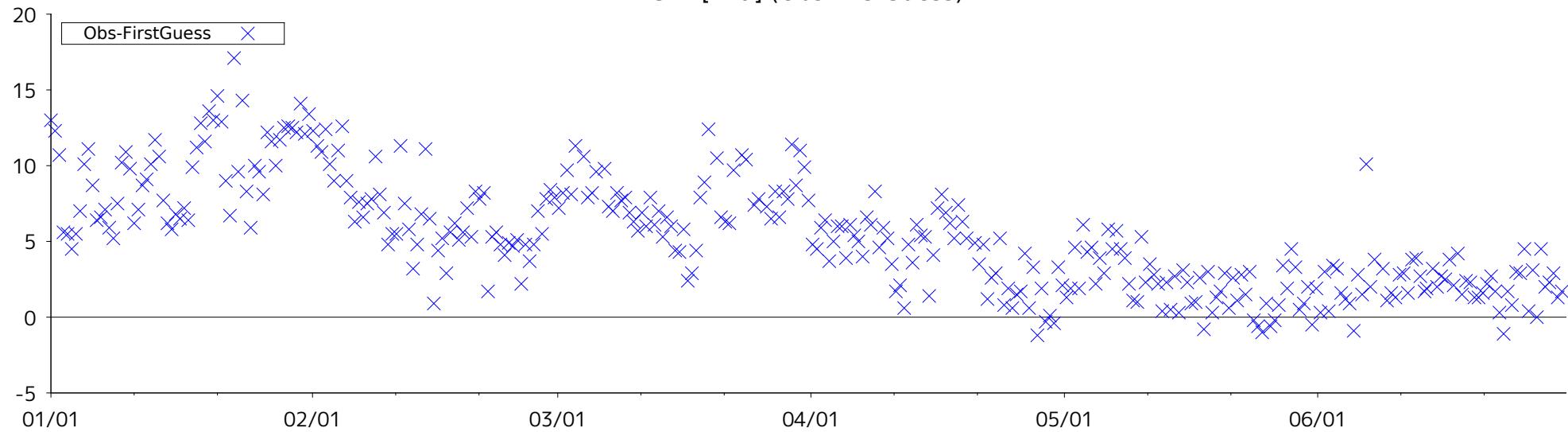
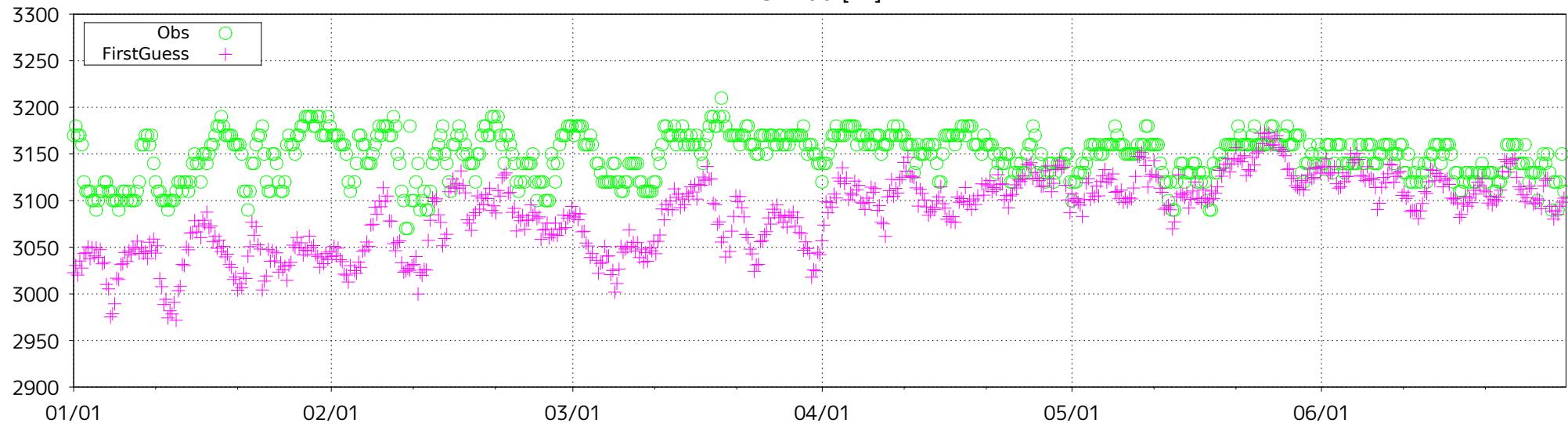


Figure 7(a) Time-series representation of SLP Obs minus FirstGuess for station 38719

ID: 38719 (lat: 39.1N, lon: 68.9E)

GZ700 [m]



GZ700 [m] (Obs-FirstGuess)

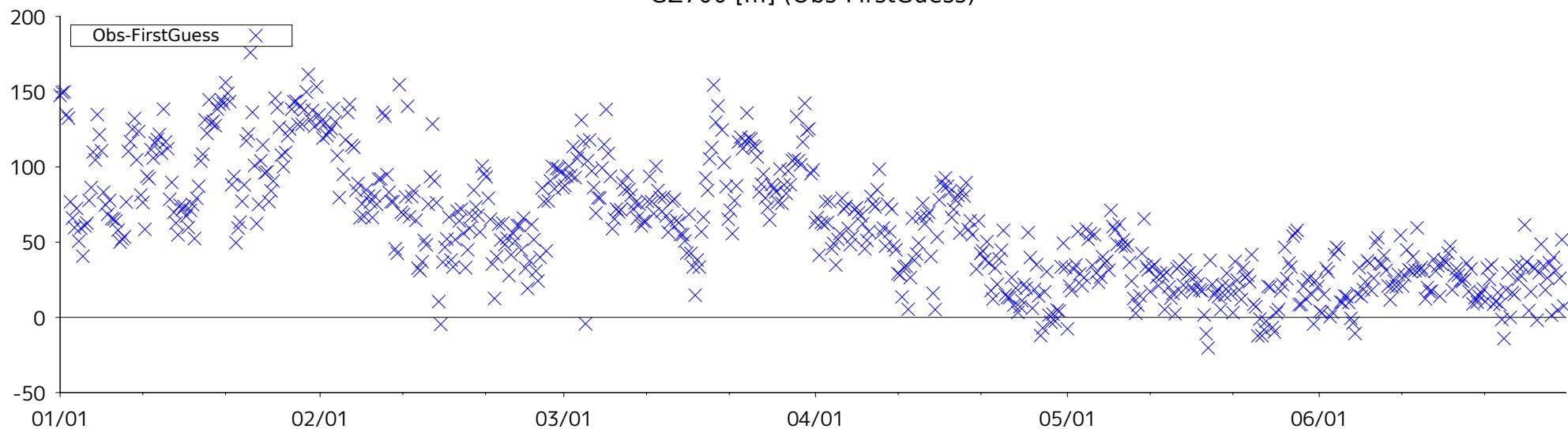
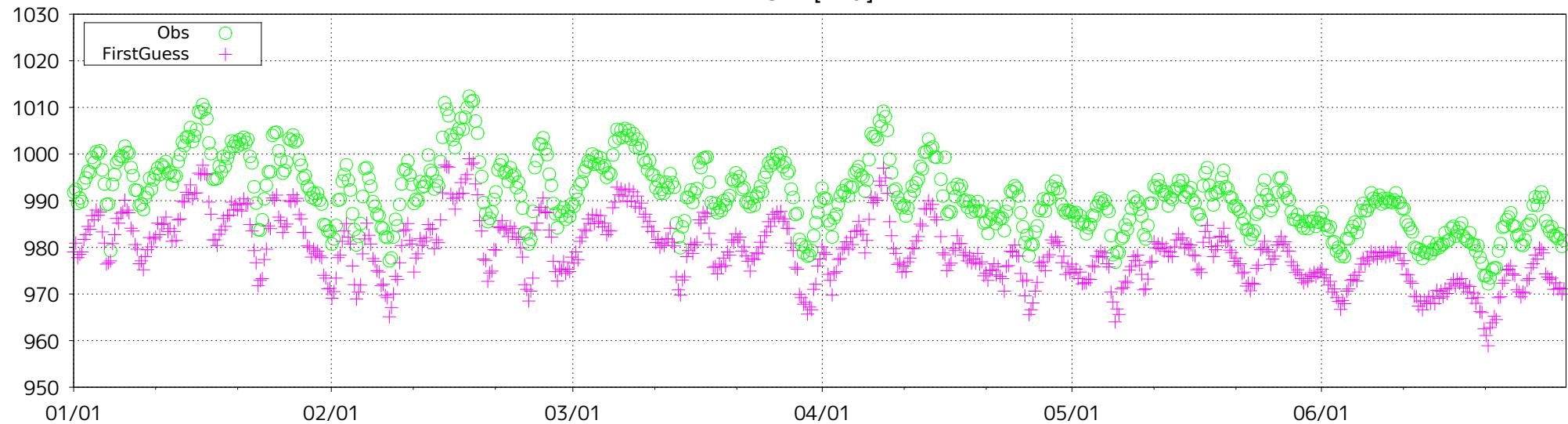


Figure 7(b) Time-series representation of GZ700 Obs minus FirstGuess for station 38719

ID: 38880 (lat: 38.0N, lon: 58.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

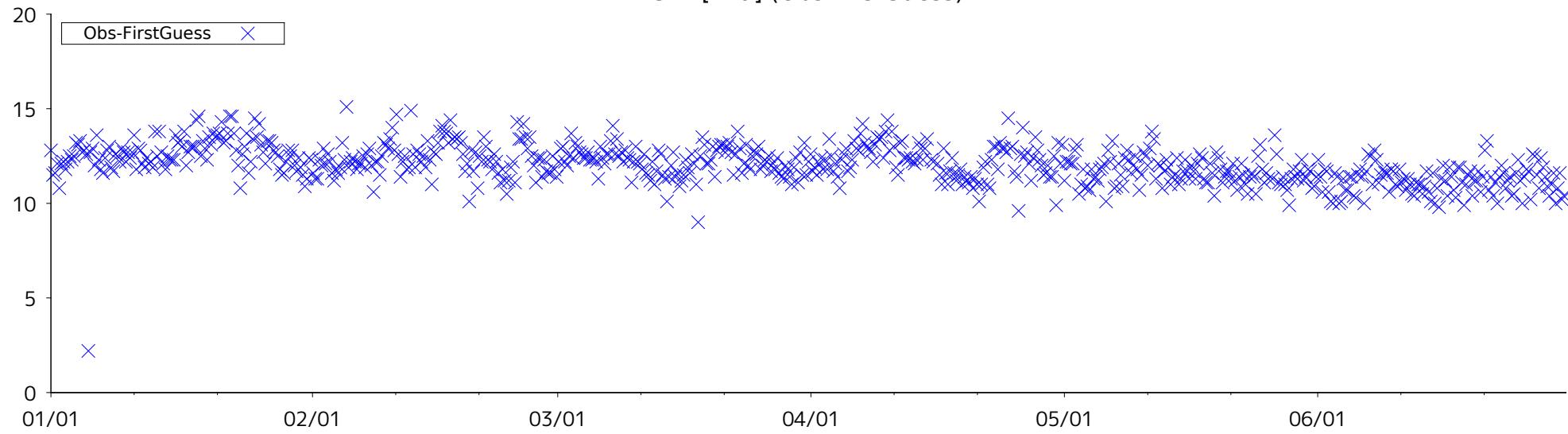
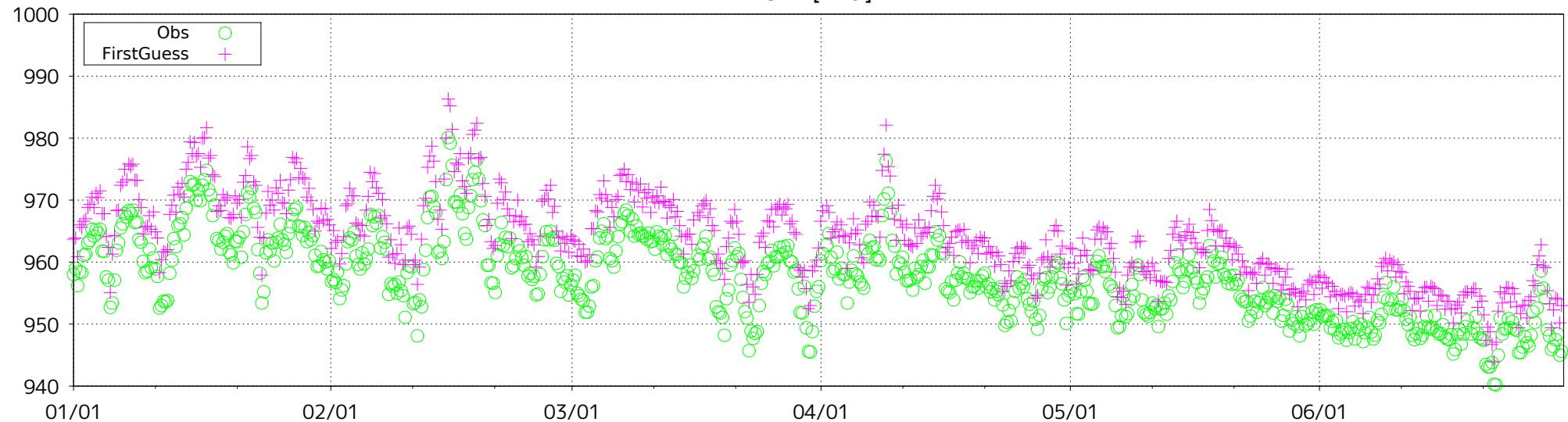


Figure 8 Time-series representation of SLP Obs minus FirstGuess for station 38880

ID: 38944 (lat: 37.5N, lon: 69.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

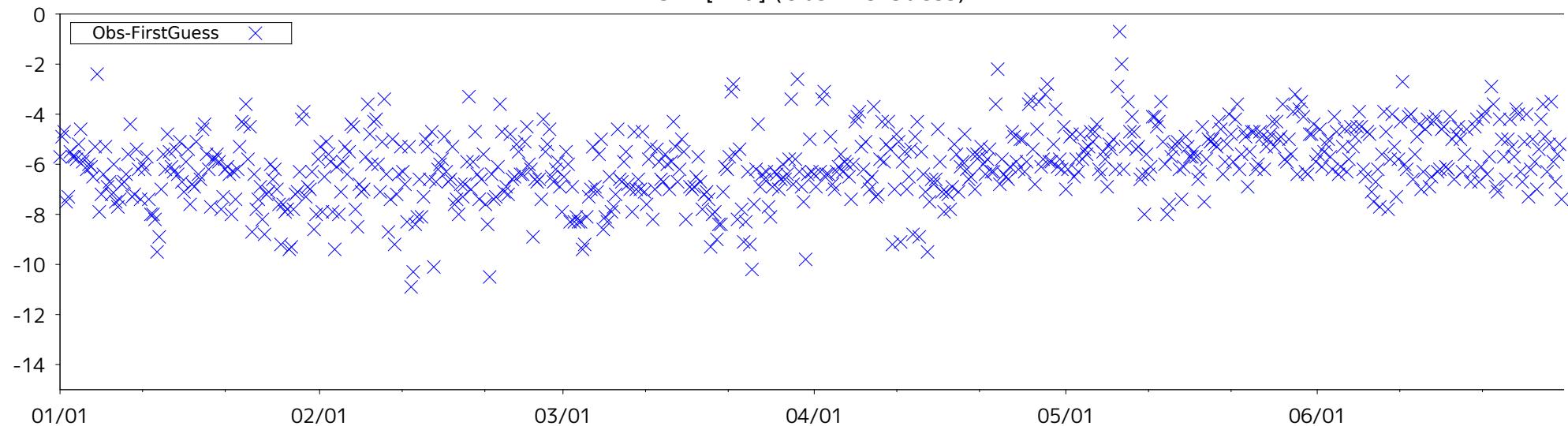
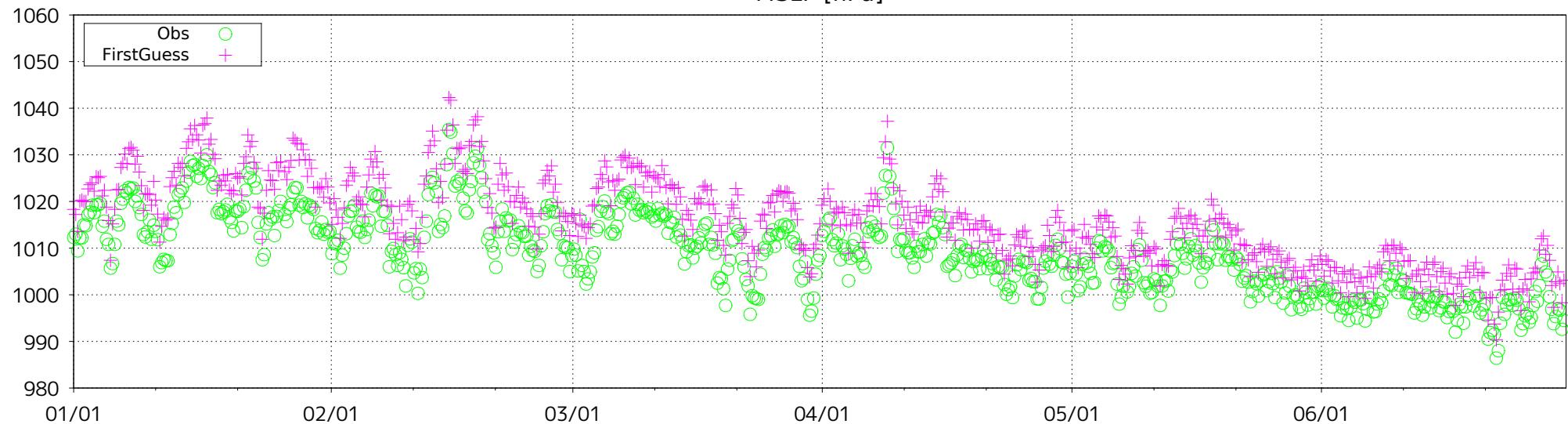


Figure 9(a) Time-series representation of SLP Obs minus FirstGuess for station 38944

ID: 38944 (lat: 37.5N, lon: 69.4E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

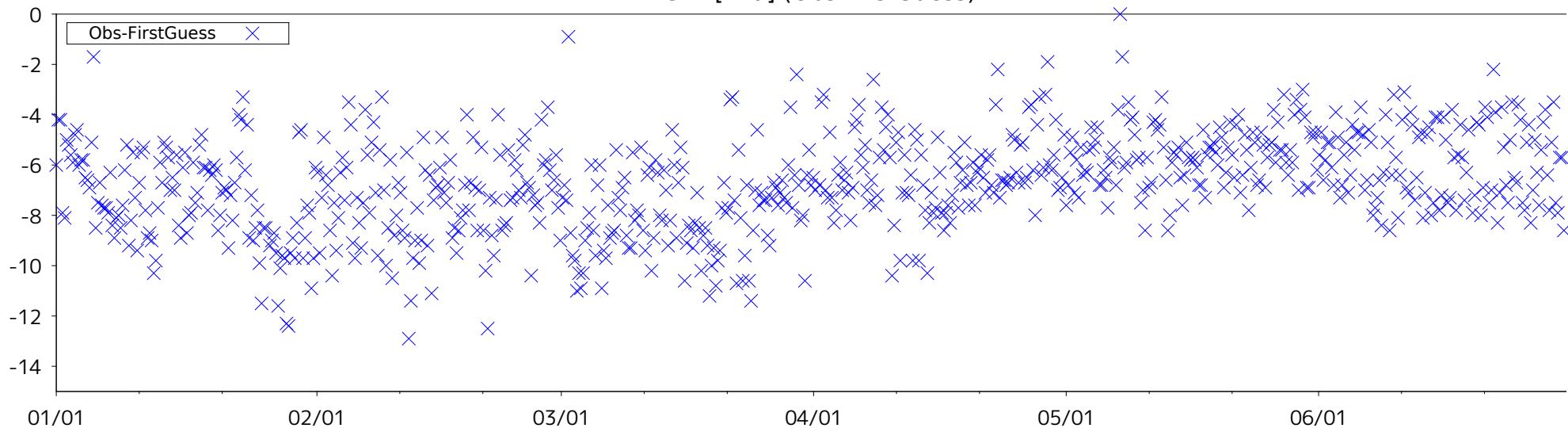
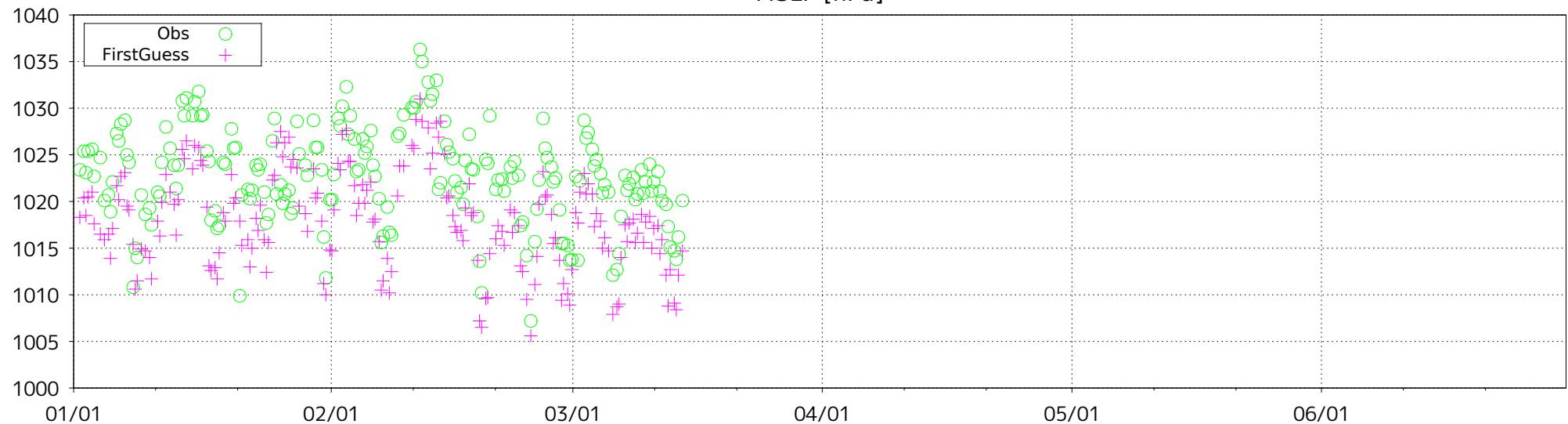


Figure 9(b) Time-series representation of MSLP Obs minus FirstGuess for station 38944

ID: 40633 (lat: 34.6N, lon: 43.7E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

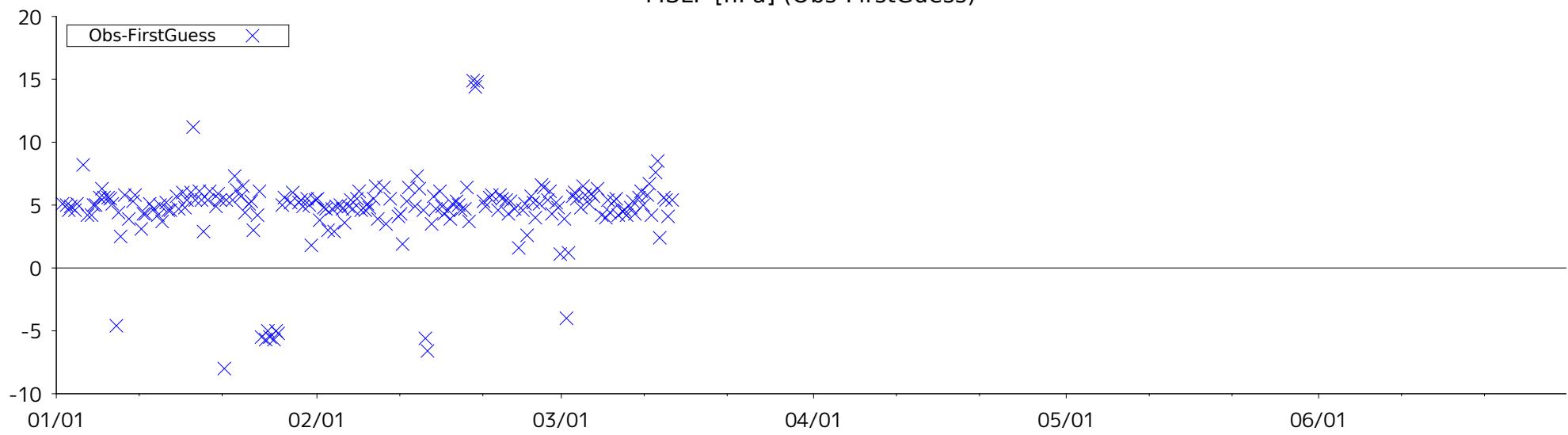
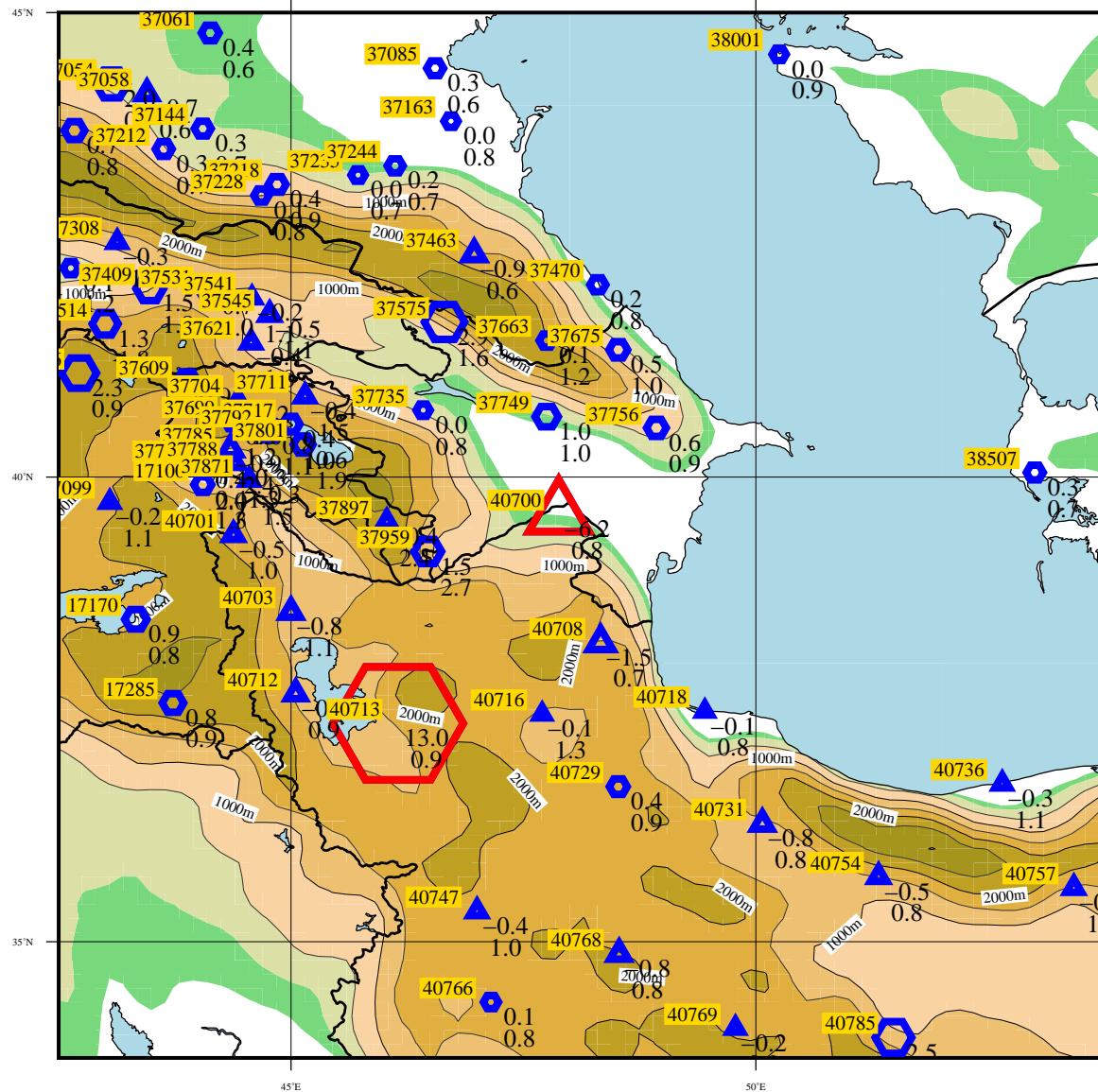


Figure 10 Time-series representation of MSLP Obs minus FirstGuess for station 40633

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

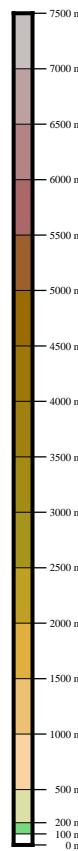


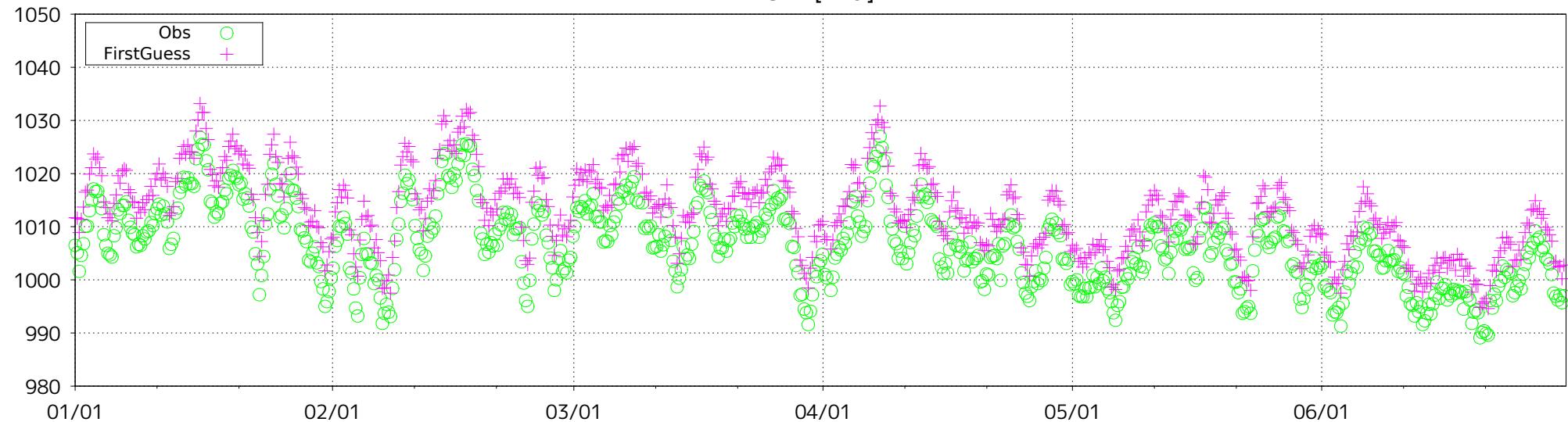
Figure 11 BIAS and SD of SLP for station 40700, 40713 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 40700 (lat: 39.6N, lon: 47.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

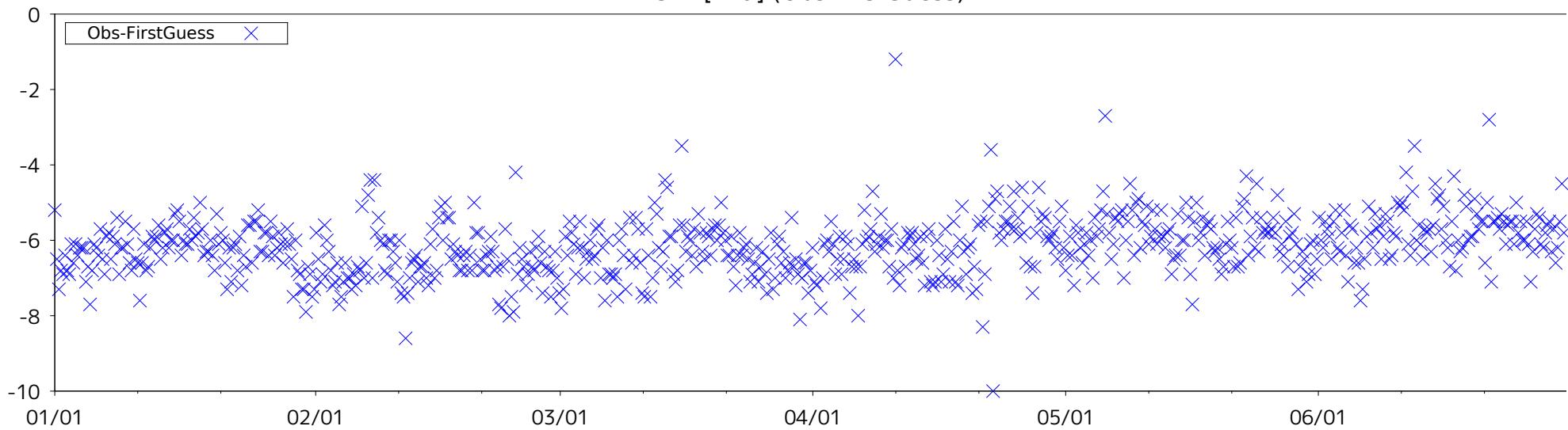
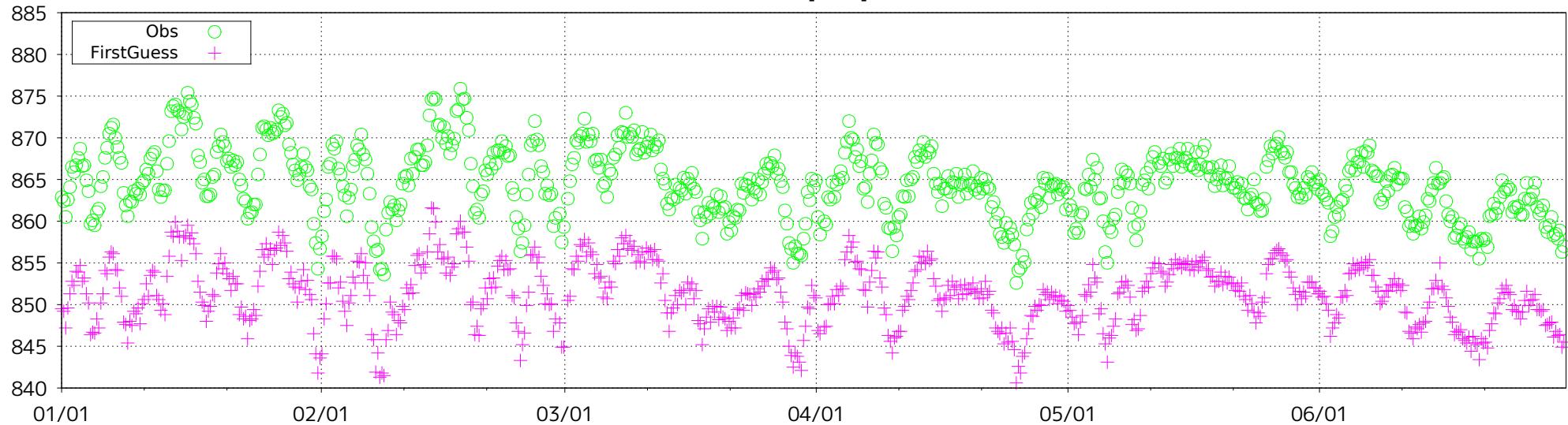


Figure 12 Time-series representation of SLP Obs minus FirstGuess for station 40700

ID: 40713 (lat: 37.4N, lon: 46.2E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

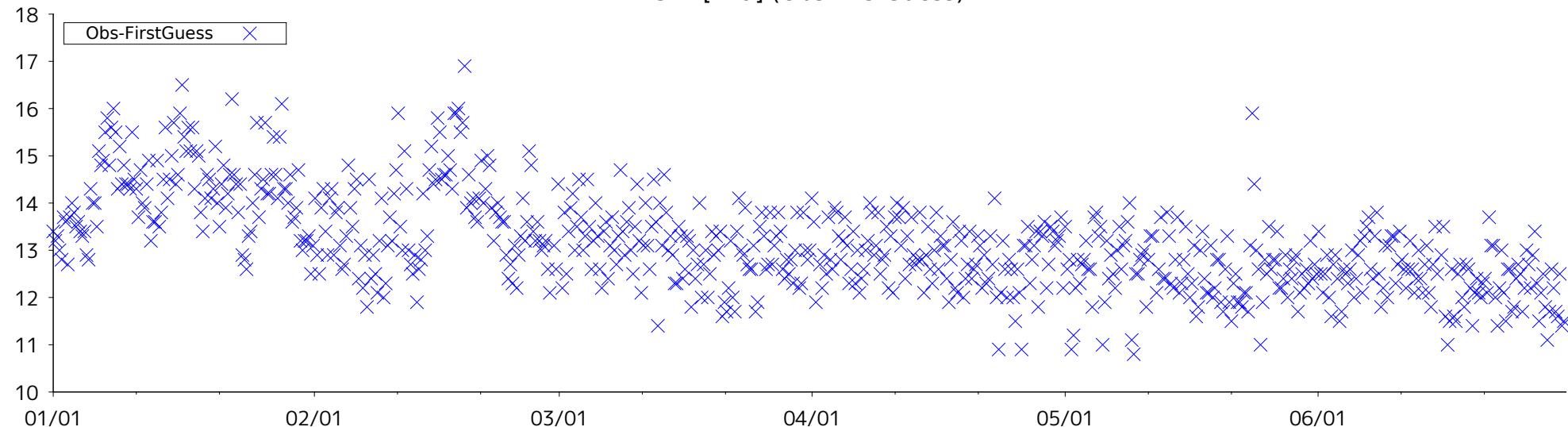
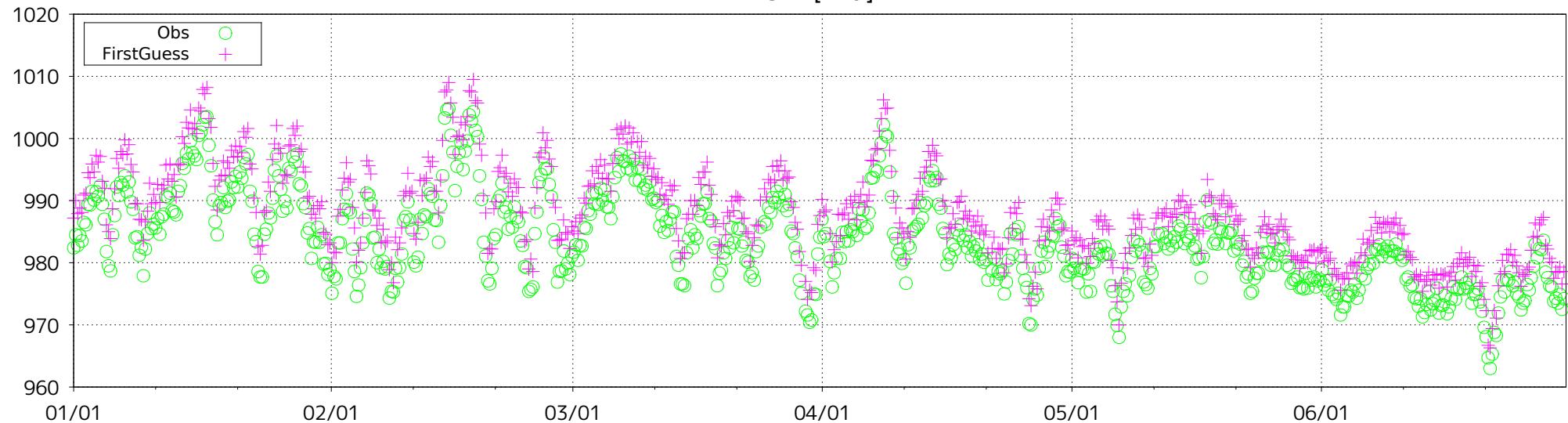


Figure 13 Time-series representation of SLP Obs minus FirstGuess for station 40713

ID: 40741 (lat: 36.5N, lon: 61.2E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

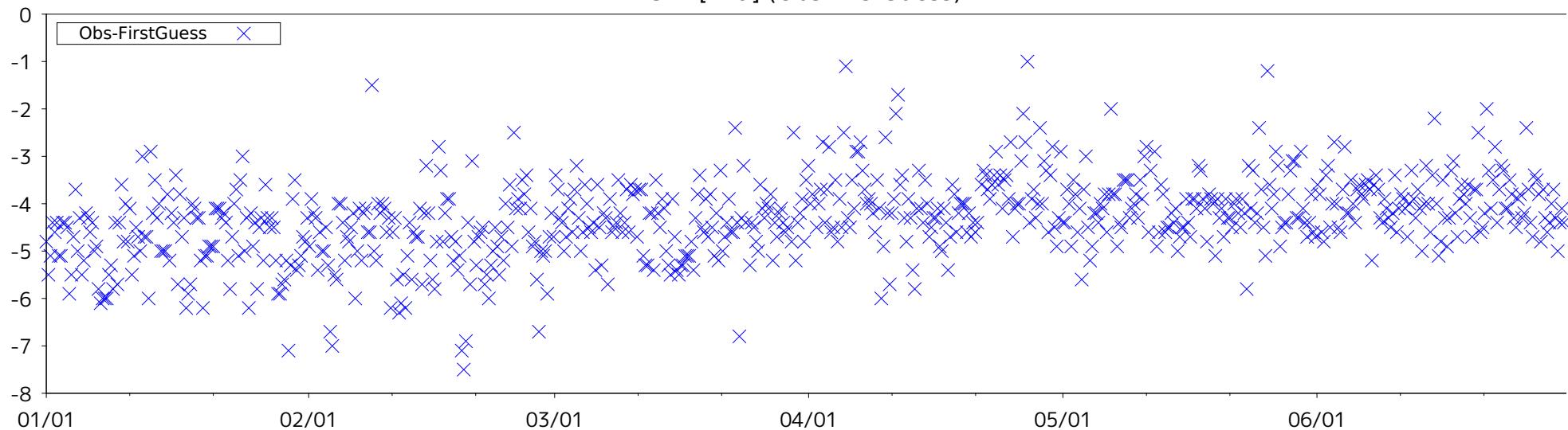
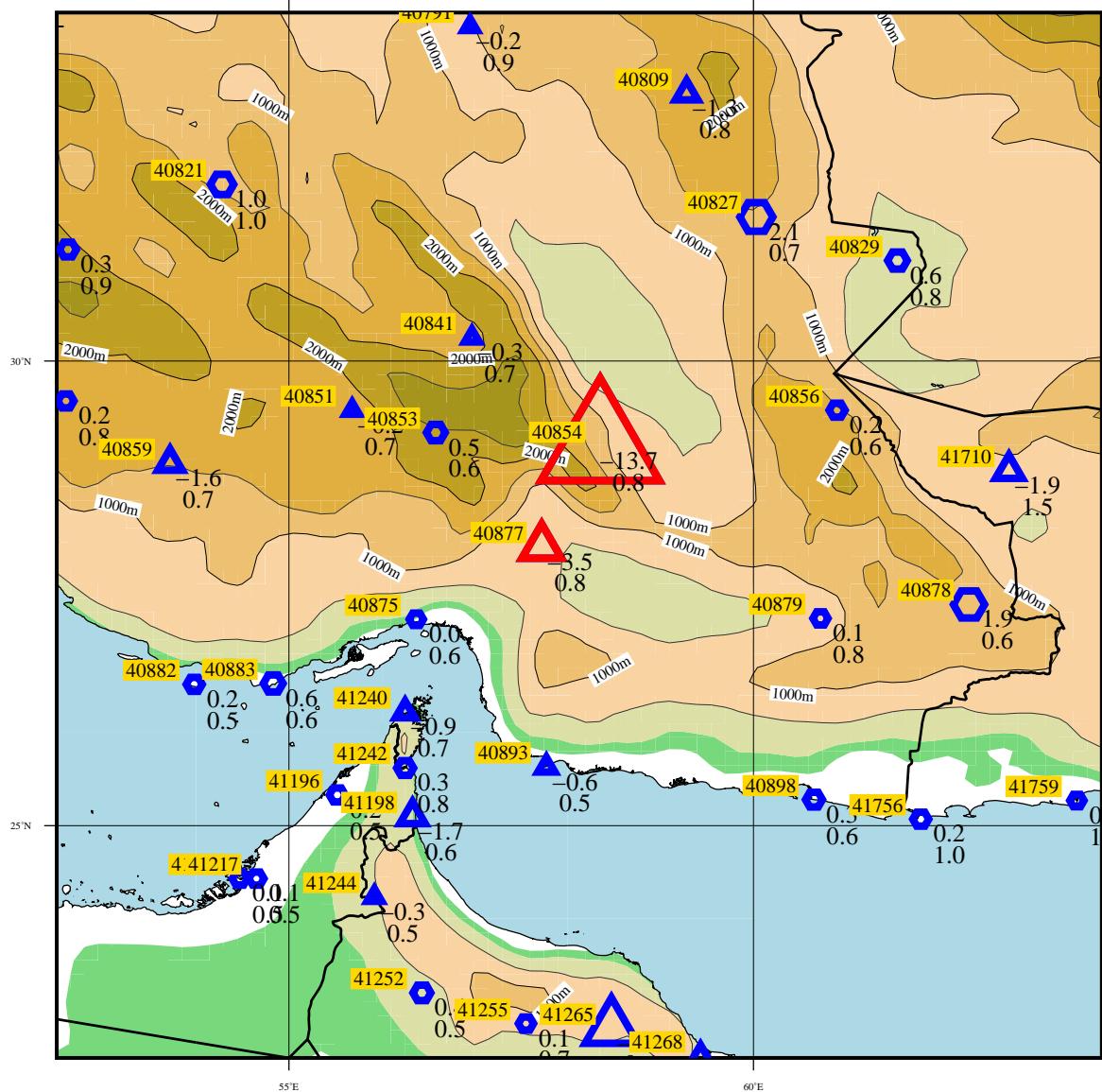


Figure 14 Time-series representation of SLP Obs minus FirstGuess for station 40741

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
O BIAS
SD

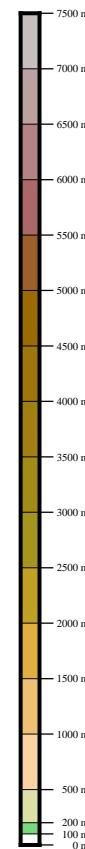


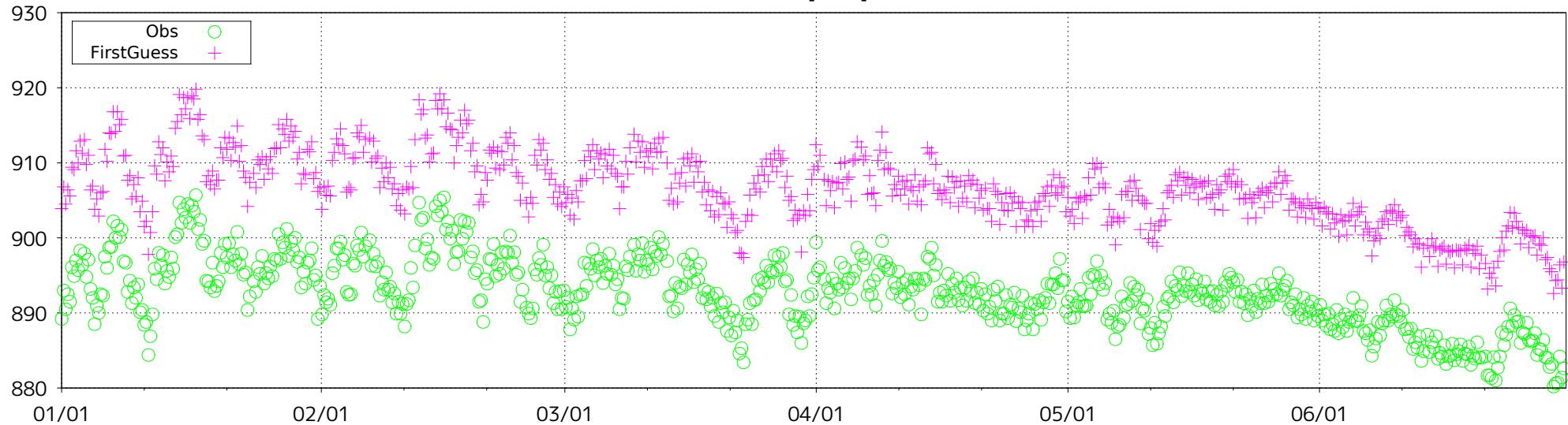
Figure 15 BIAS and SD of SLP for station 40854, 40877 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 40854 (lat: 29.1N, lon: 58.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

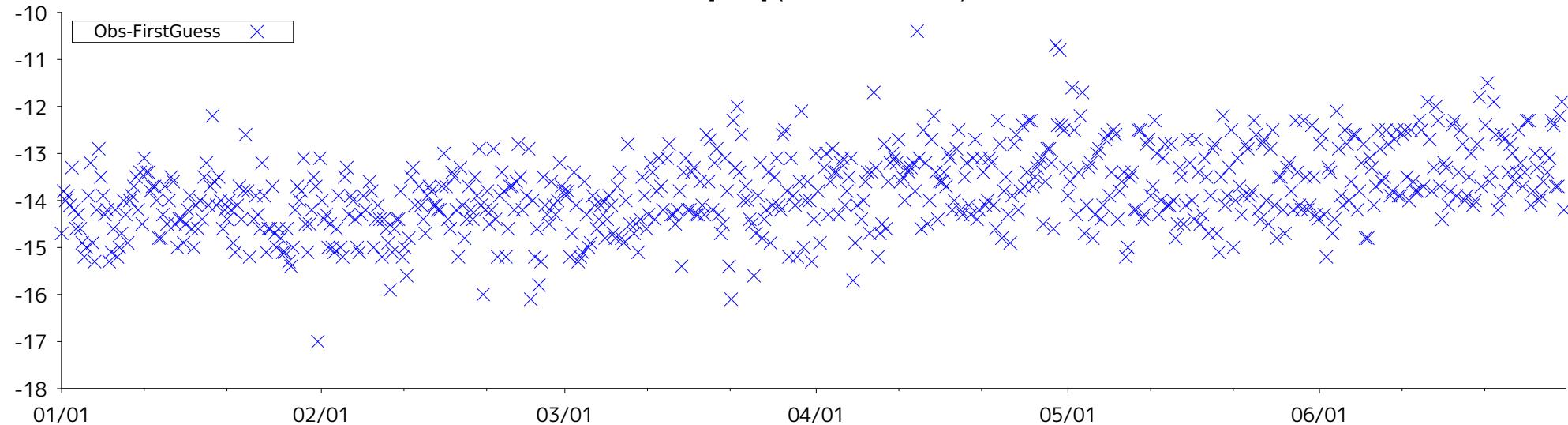
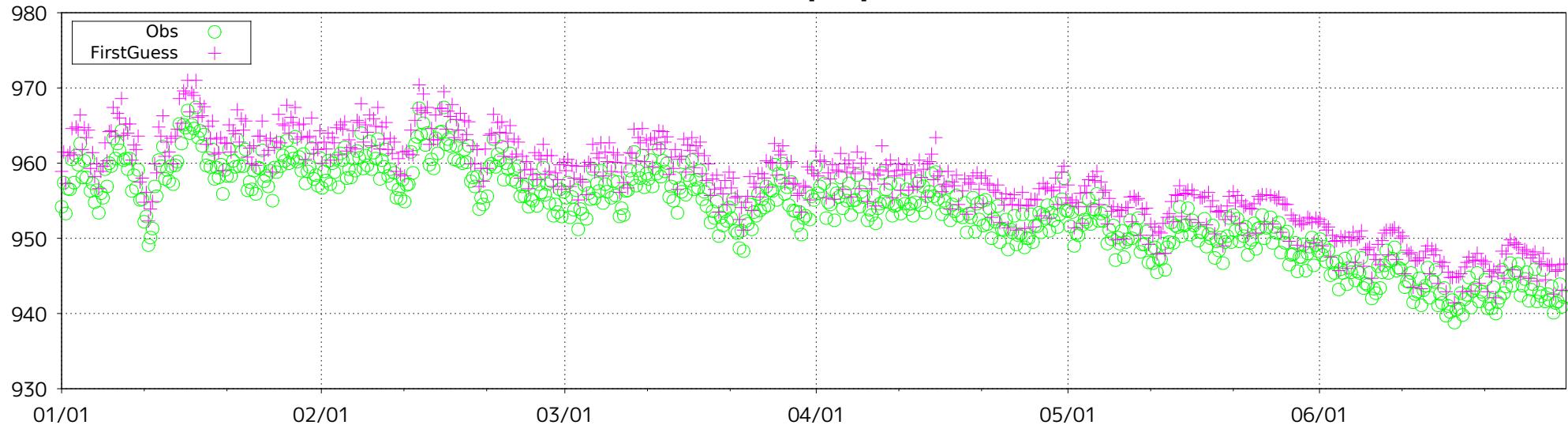


Figure 16 Time-series representation of SLP Obs minus FirstGuess for station 40854

ID: 40877 (lat: 28.0N, lon: 57.7E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

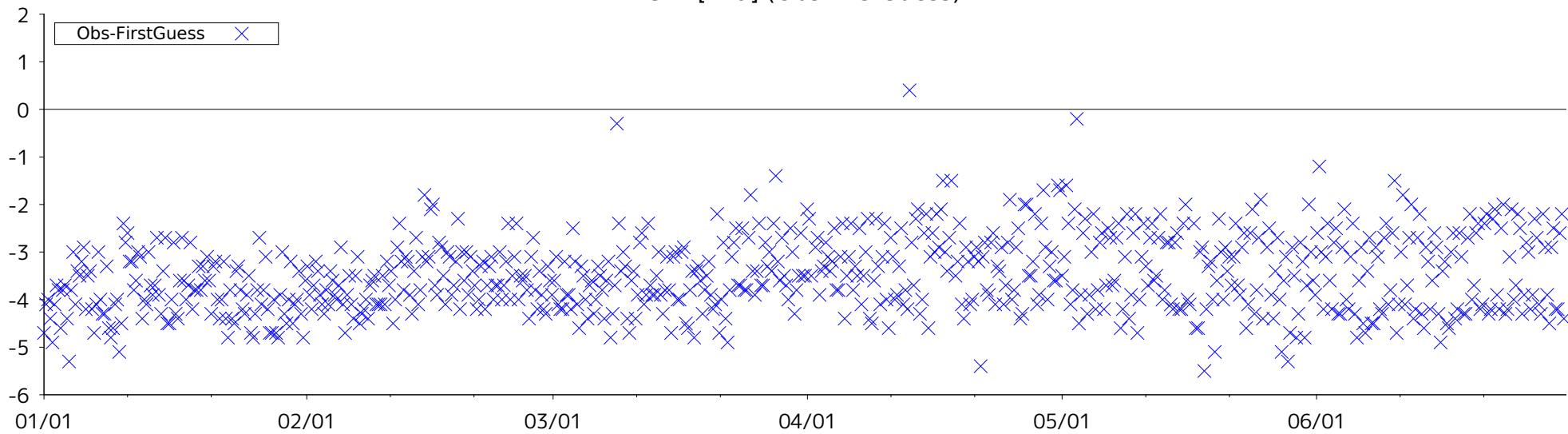
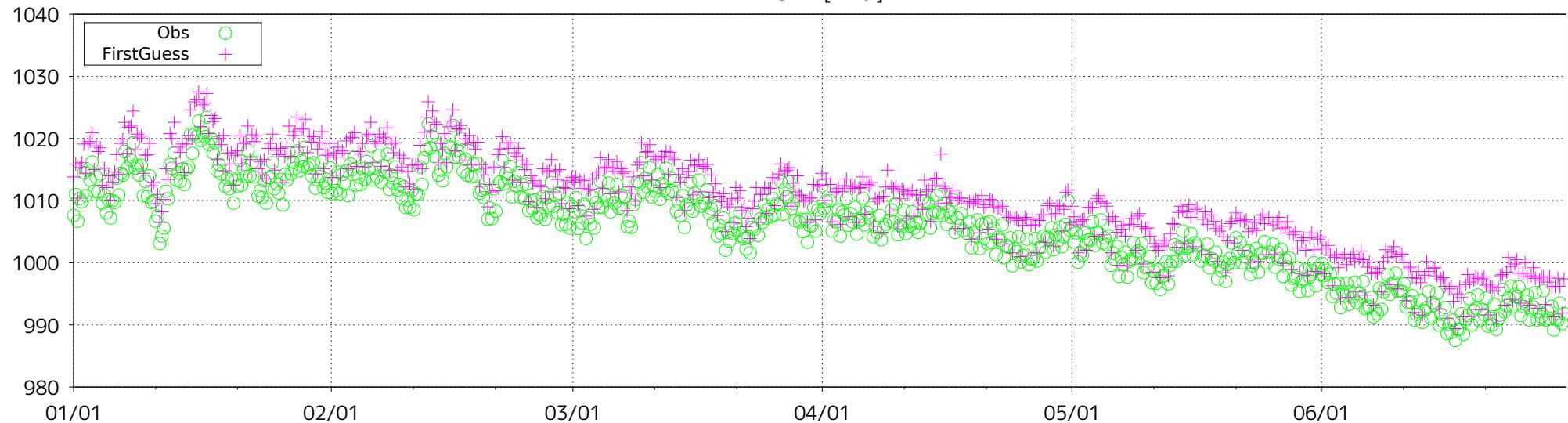


Figure 17(a) Time-series representation of SLP Obs minus FirstGuess for station 40877

ID: 40877 (lat: 28.0N, lon: 57.7E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

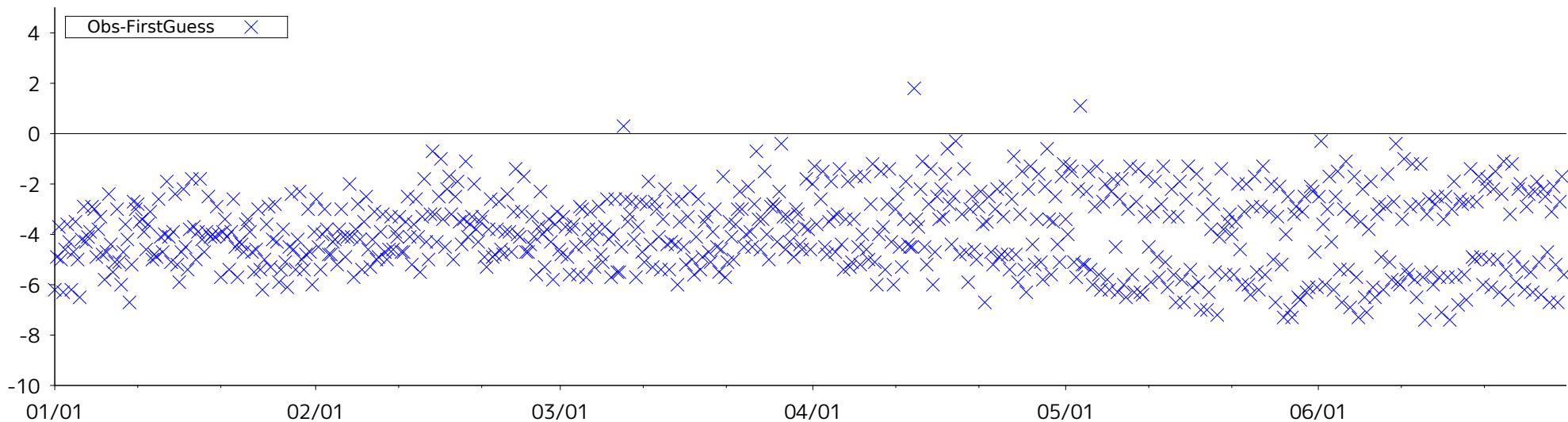
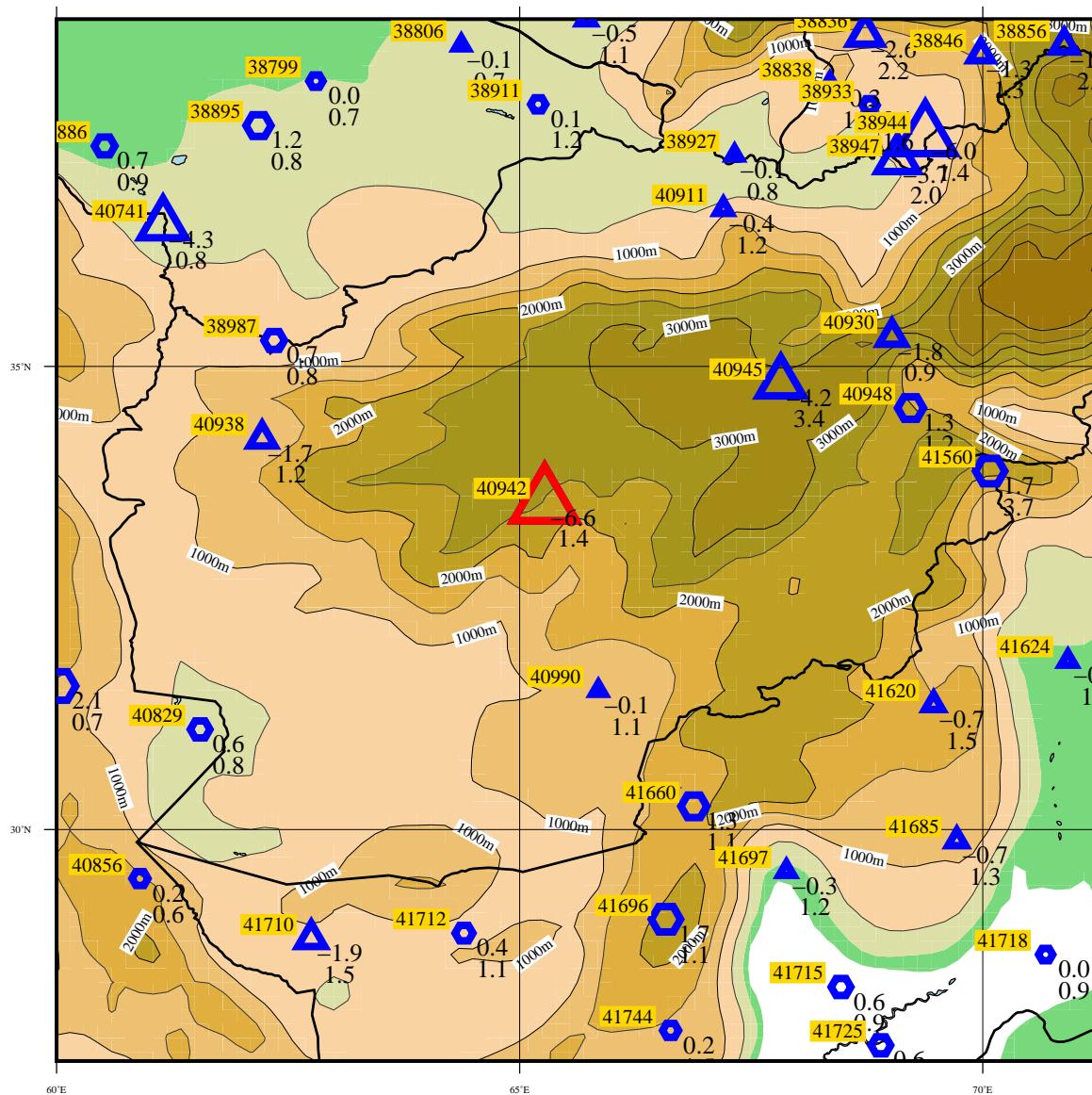


Figure 17(b) Time-series representation of MSLP Obs minus FirstGuess for station 40877

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

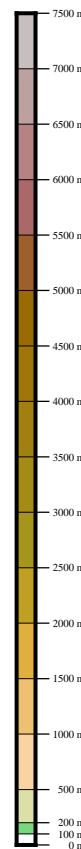


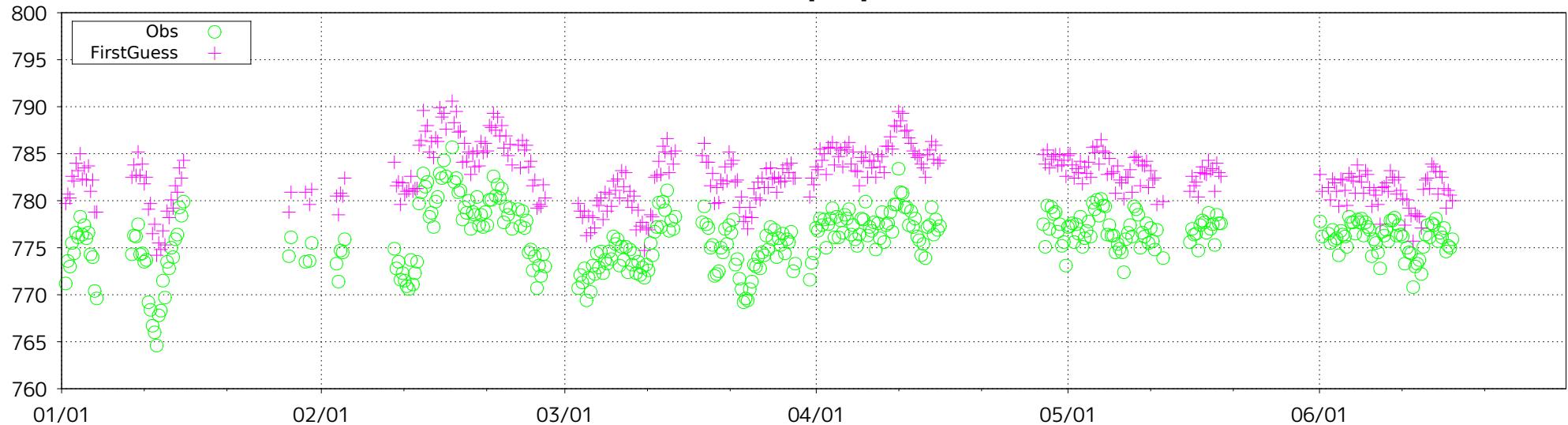
Figure 18 BIAS and SD of SLP for station 40942 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of Bias, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 40942 (lat: 33.5N, lon: 65.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

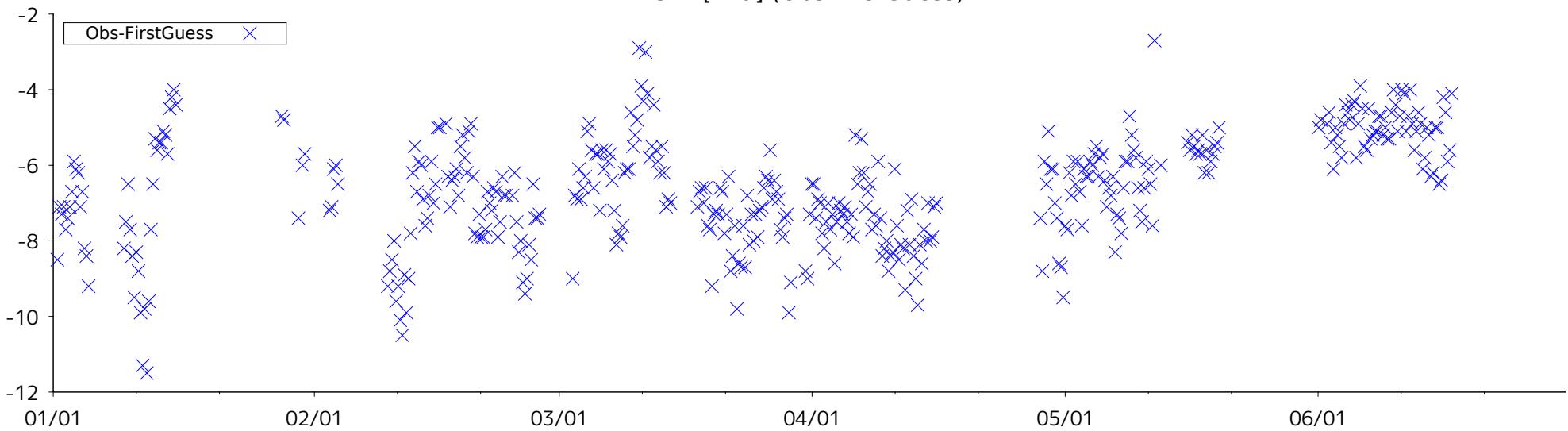
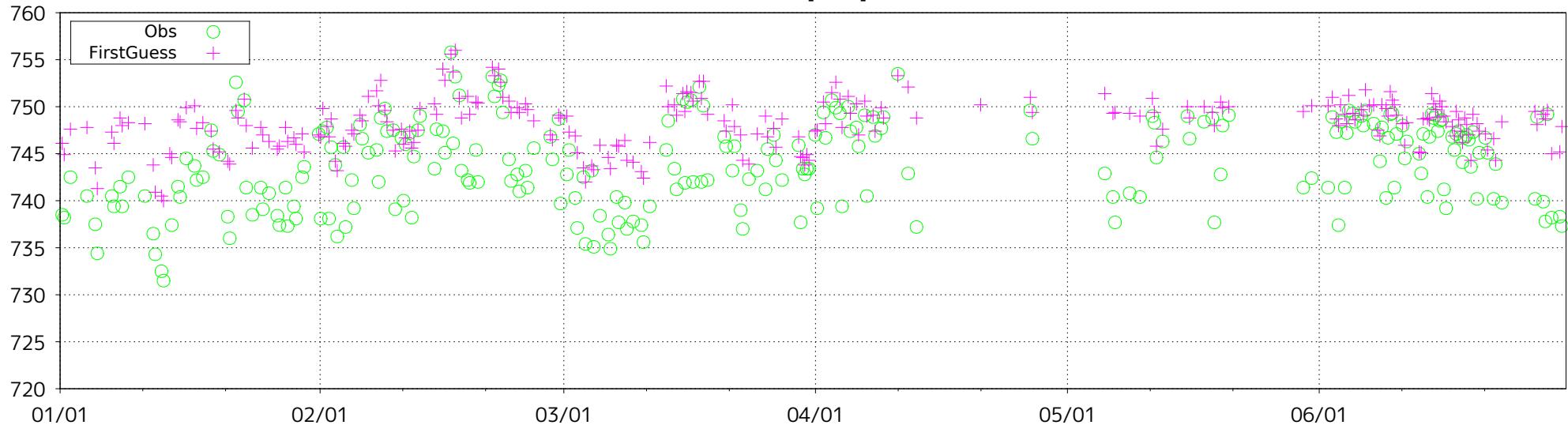


Figure 19 Time-series representation of SLP Obs minus FirstGuess for station 40942

ID: 40945 (lat: 34.8N, lon: 67.8E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

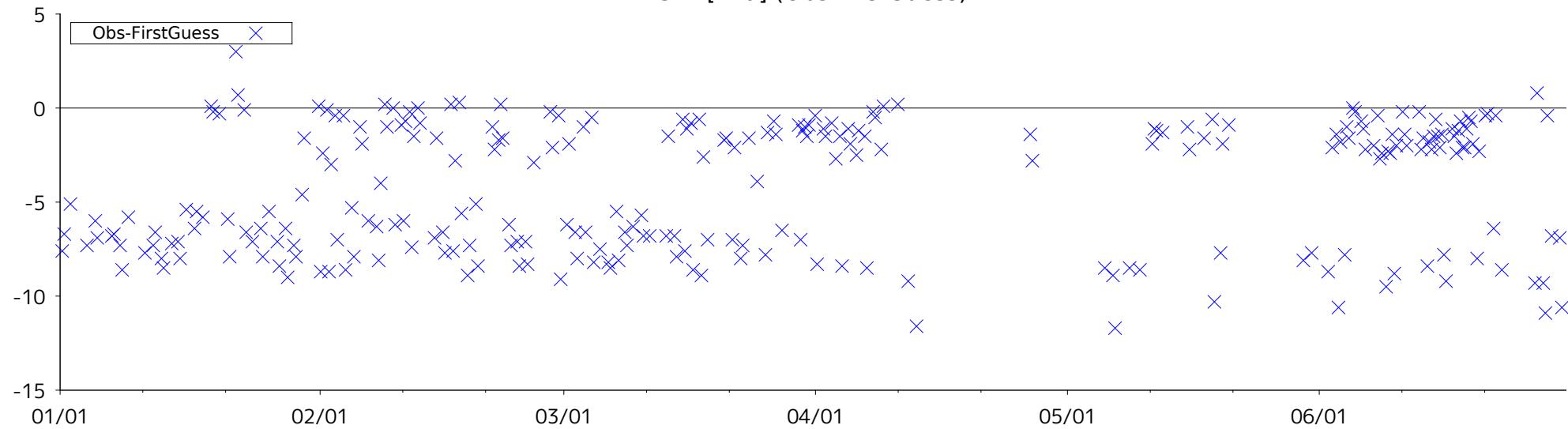


Figure 20 Time-series representation of SLP Obs minus FirstGuess for station 40945

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

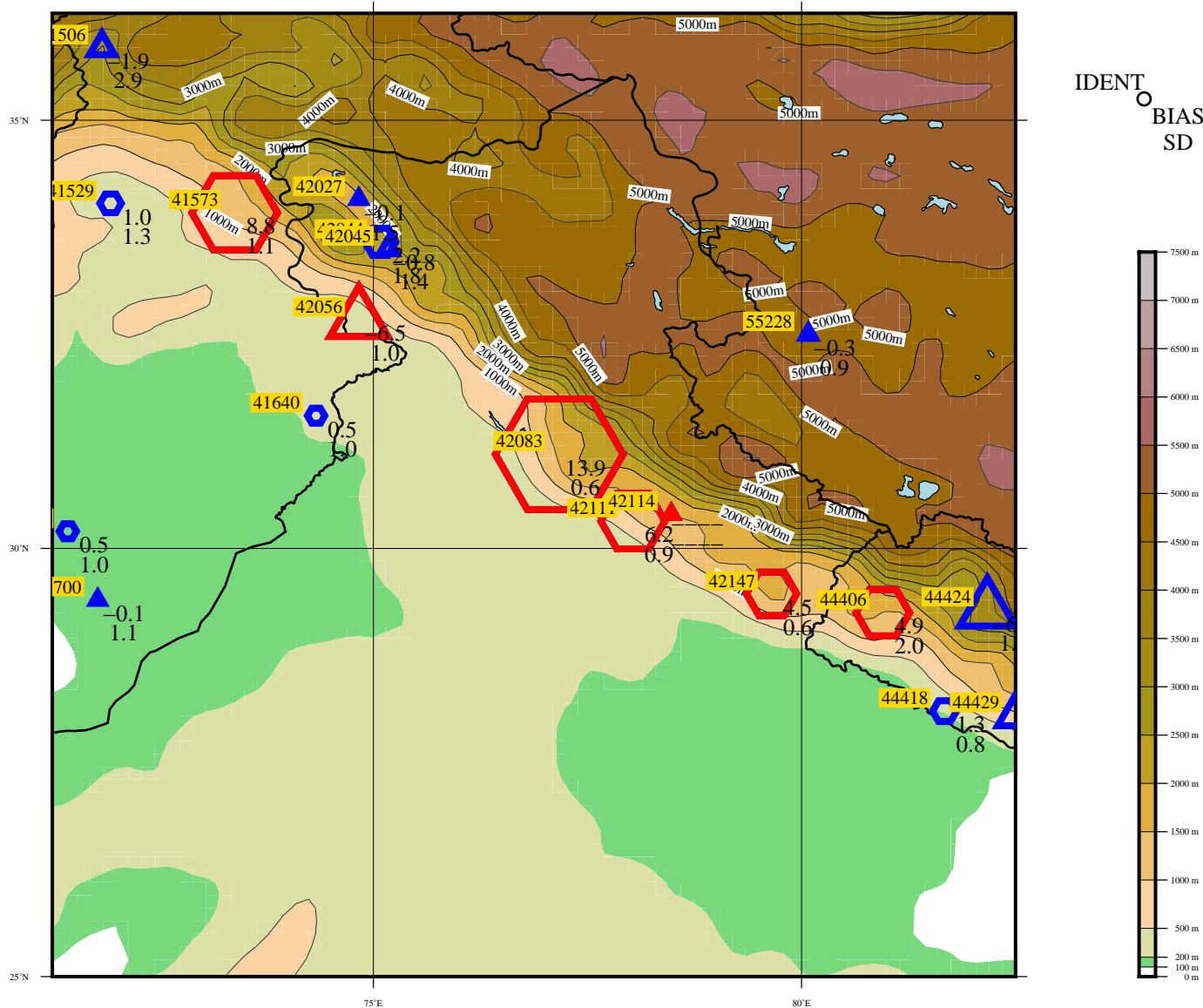
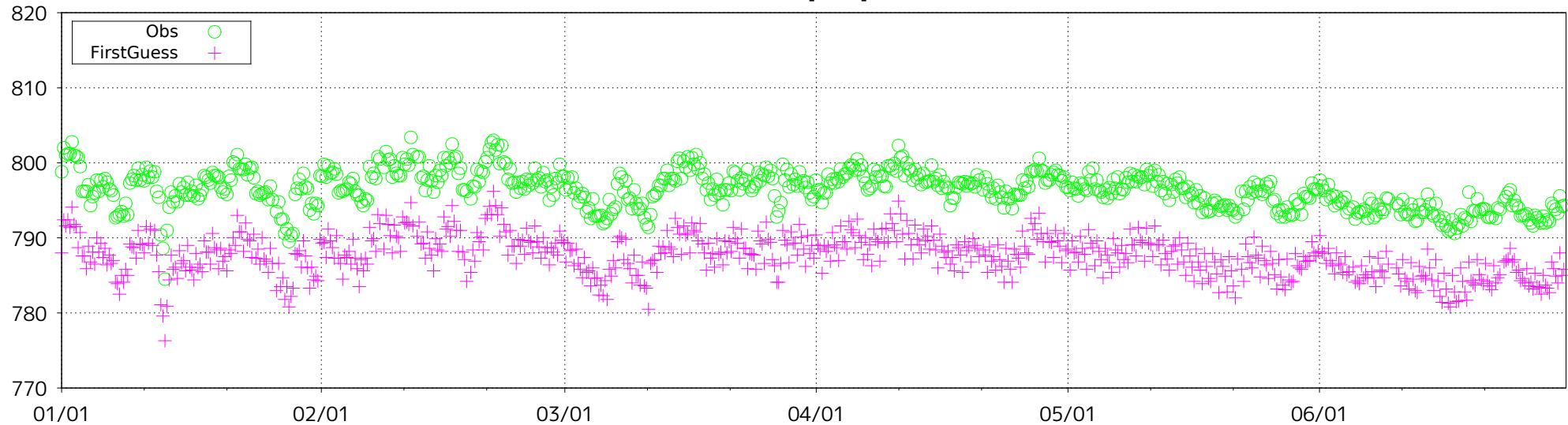


Figure 21 BIAS and SD of SLP for station 41573, 42056, 42083, 42111, 42114, 42147, 44406 (red) and surrounding stations (blue).
 The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.
 The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 41573 (lat: 33.9N, lon: 73.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

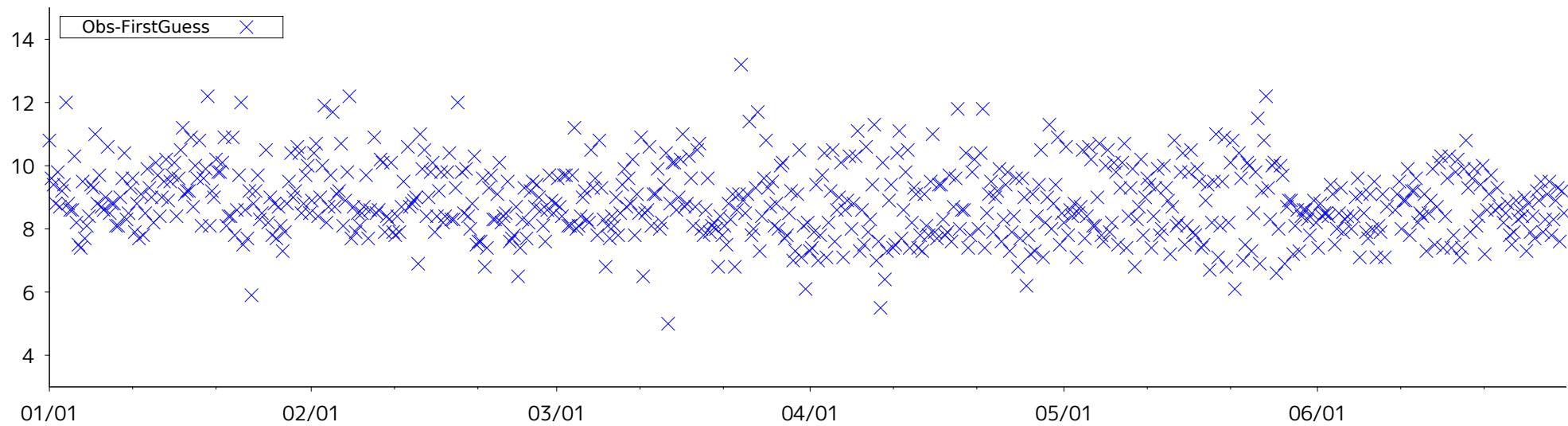
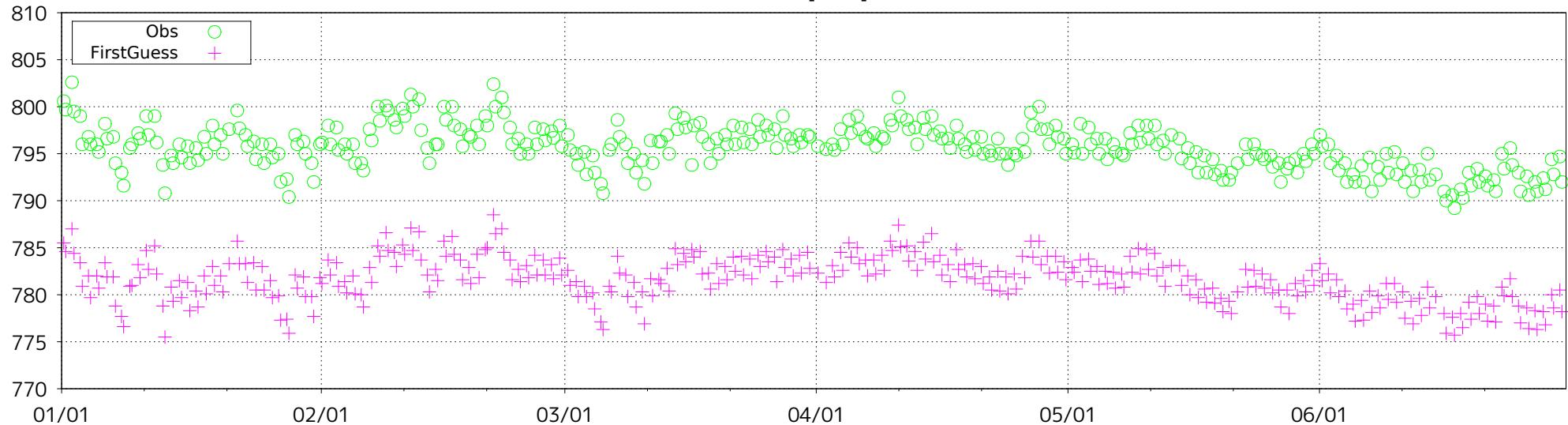


Figure 22 Time-series representation of SLP Obs minus FirstGuess for station 41573

ID: 42083 (lat: 31.1N, lon: 77.2E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

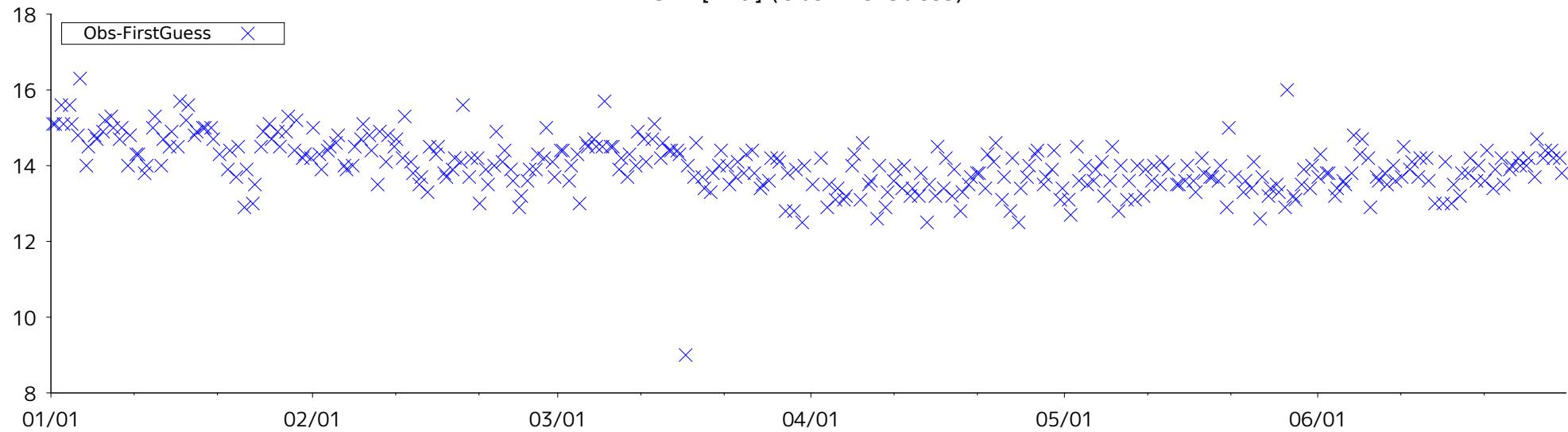
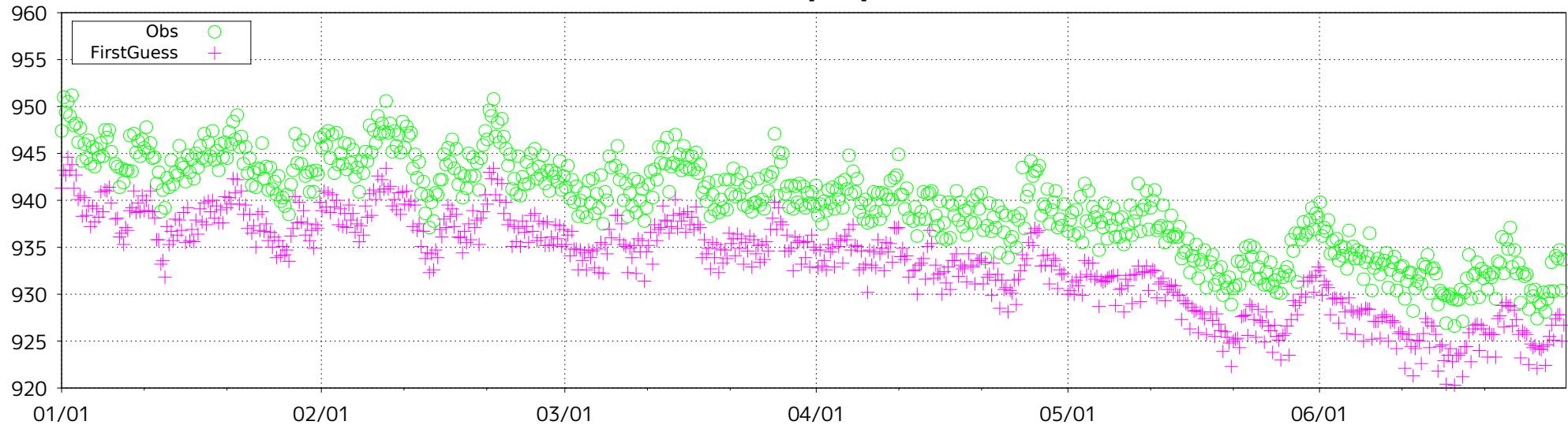


Figure 23 Time-series representation of SLP Obs minus FirstGuess for station 42083

ID: 42111 (lat: 30.3N, lon: 78.0E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

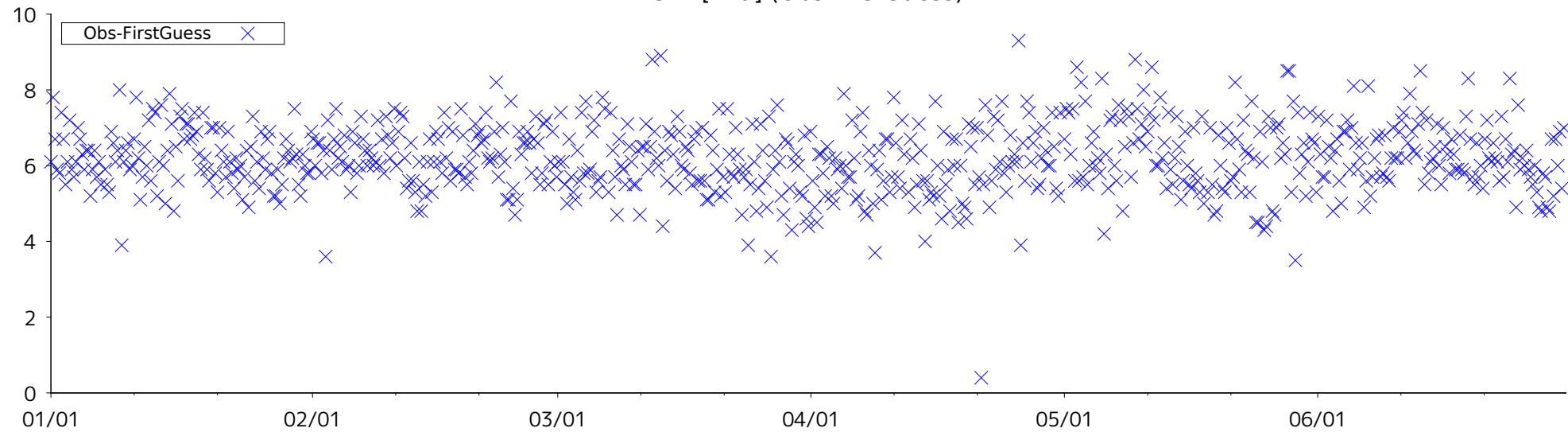
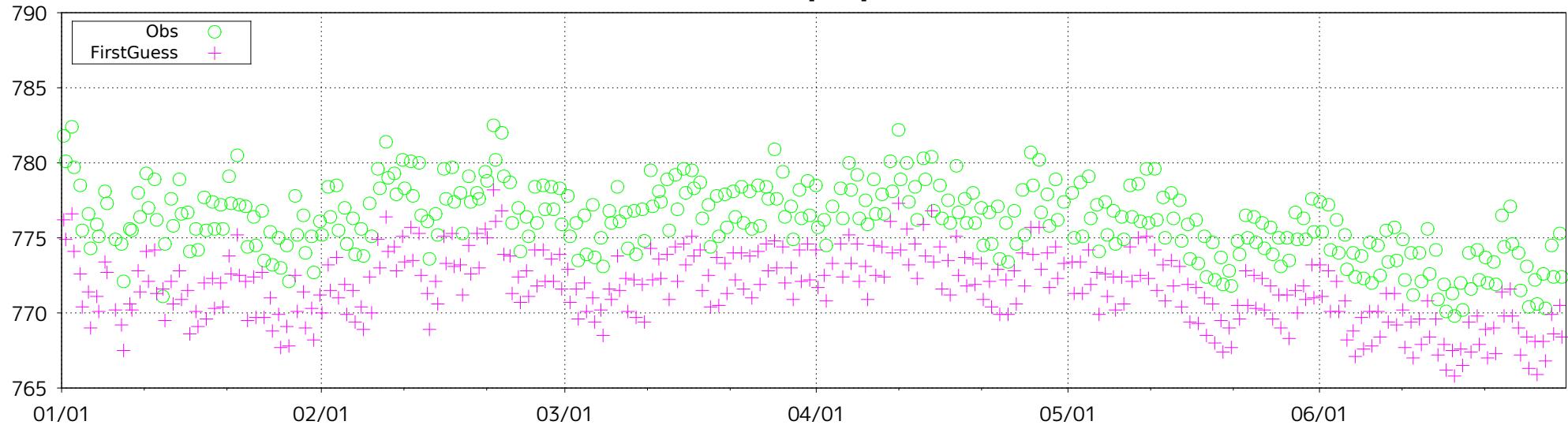


Figure 24 Time-series representation of SLP Obs minus FirstGuess for station 42111

ID: 42147 (lat: 29.5N, lon: 79.7E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

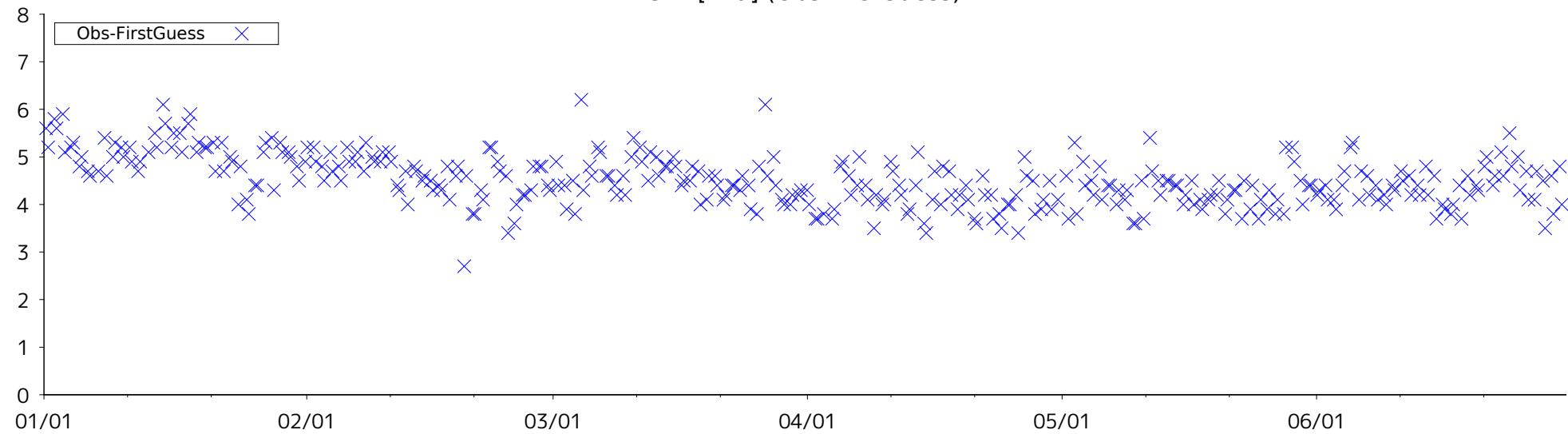
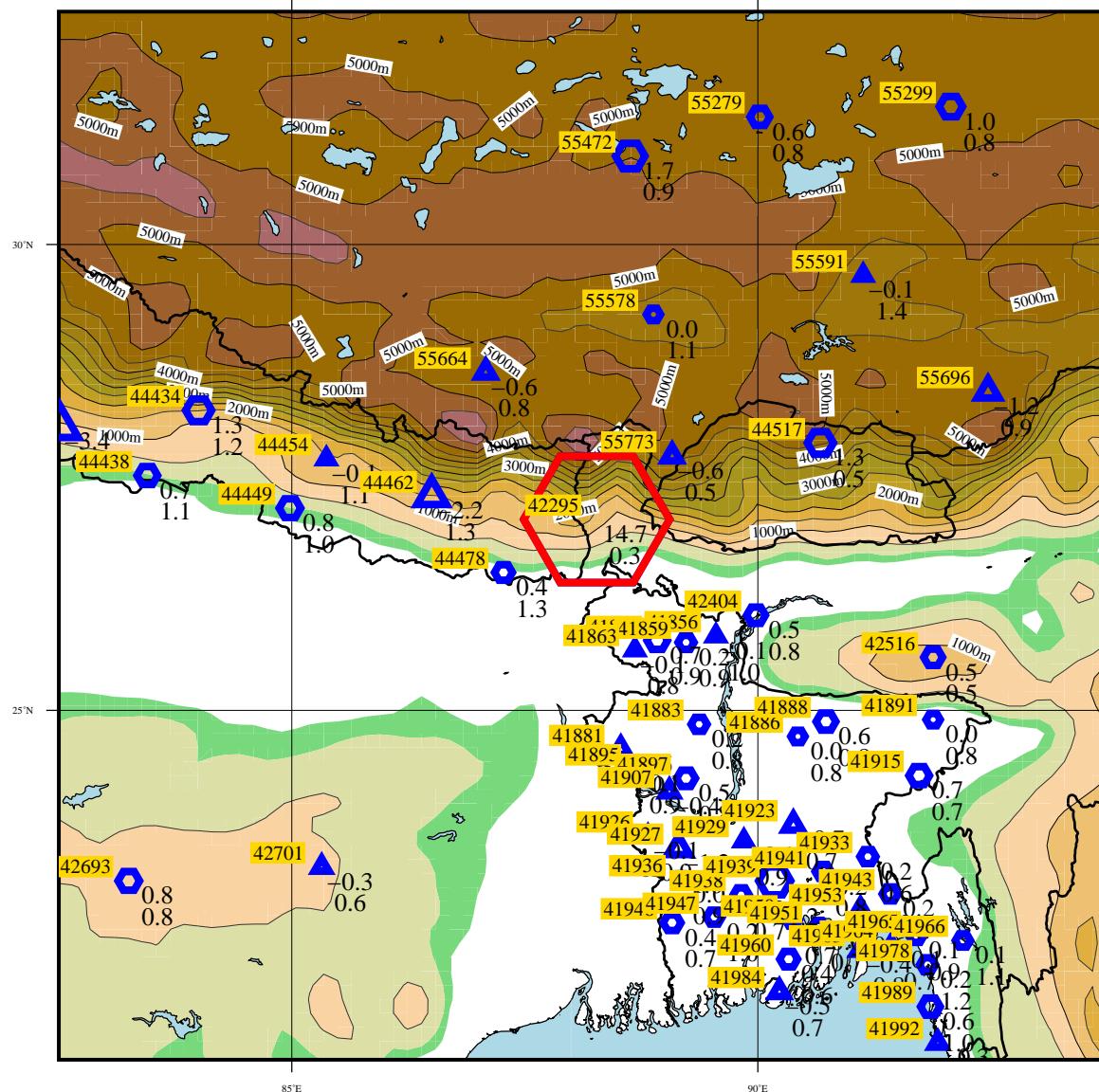


Figure 25 Time-series representation of SLP Obs minus FirstGuess for station 42147

LEVEL = SUR ELEMENT = S

2020 01 01 00 UTC -> 2020 06 30 18 UTC (182 DAYS)



IDENT
O BIAS
SD

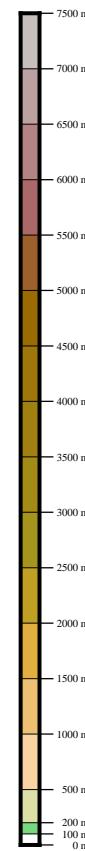


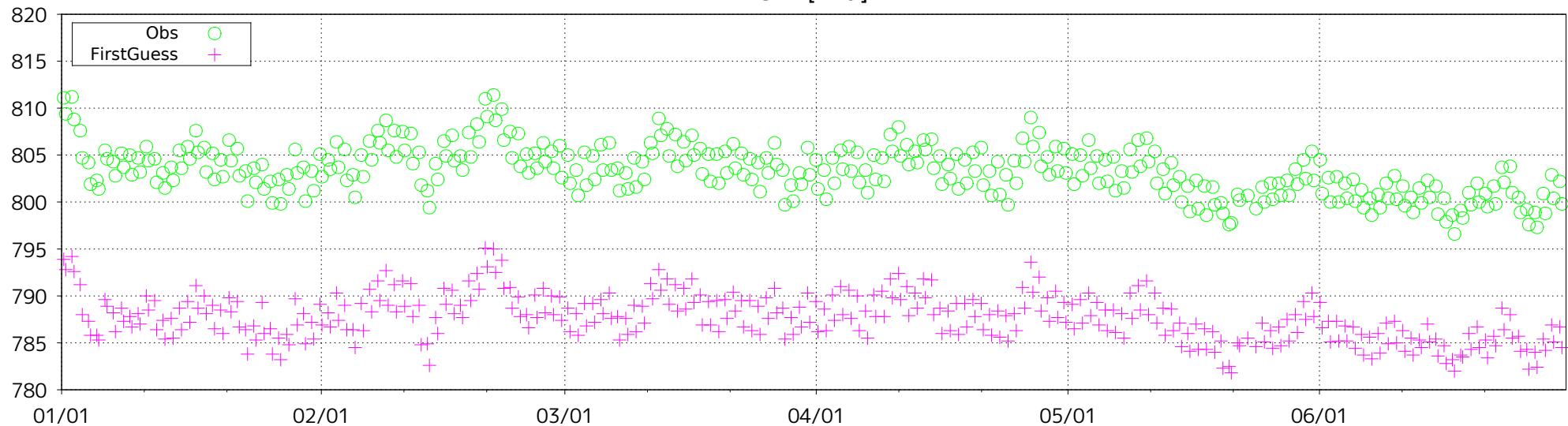
Figure 26 BIAS and SD of SLP for station 42295 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The number to the upper left of each symbol is the VNR value, and those to the lower right are the values of BIAS and SD.

ID: 42295 (lat: 27.1N, lon: 88.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

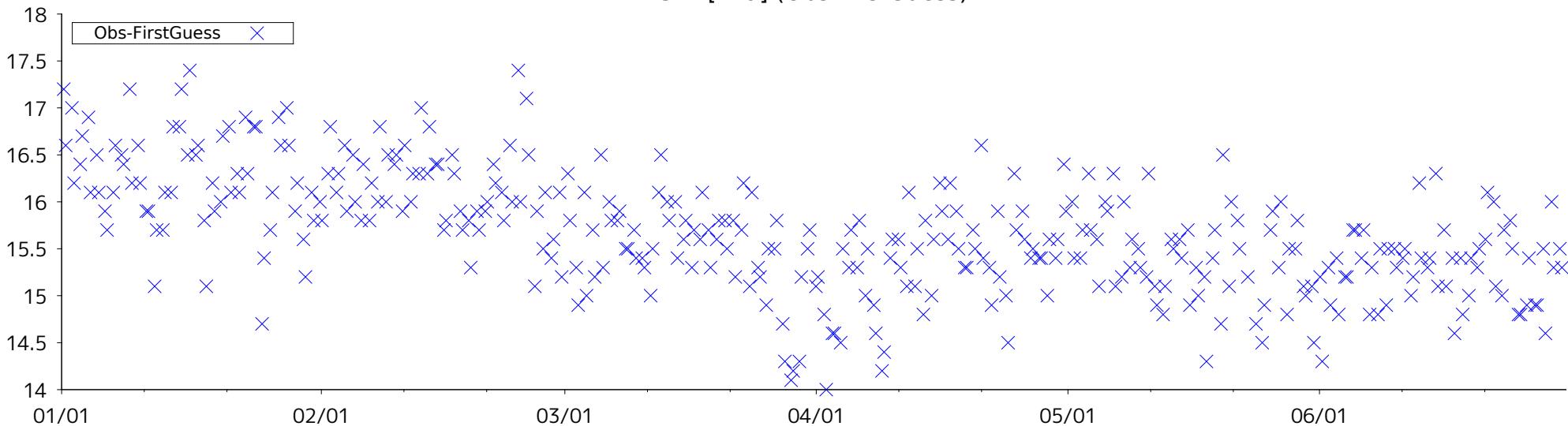
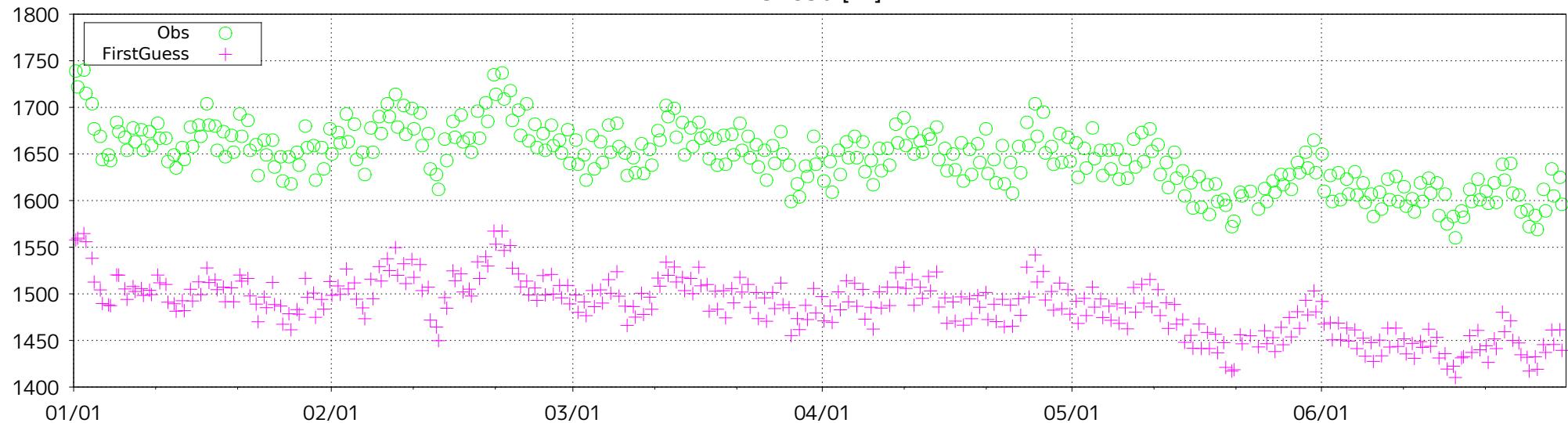


Figure 27(a) Time-series representation of SLP Obs minus FirstGuess for station 42295

ID: 42295 (lat: 27.1N, lon: 88.3E)

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

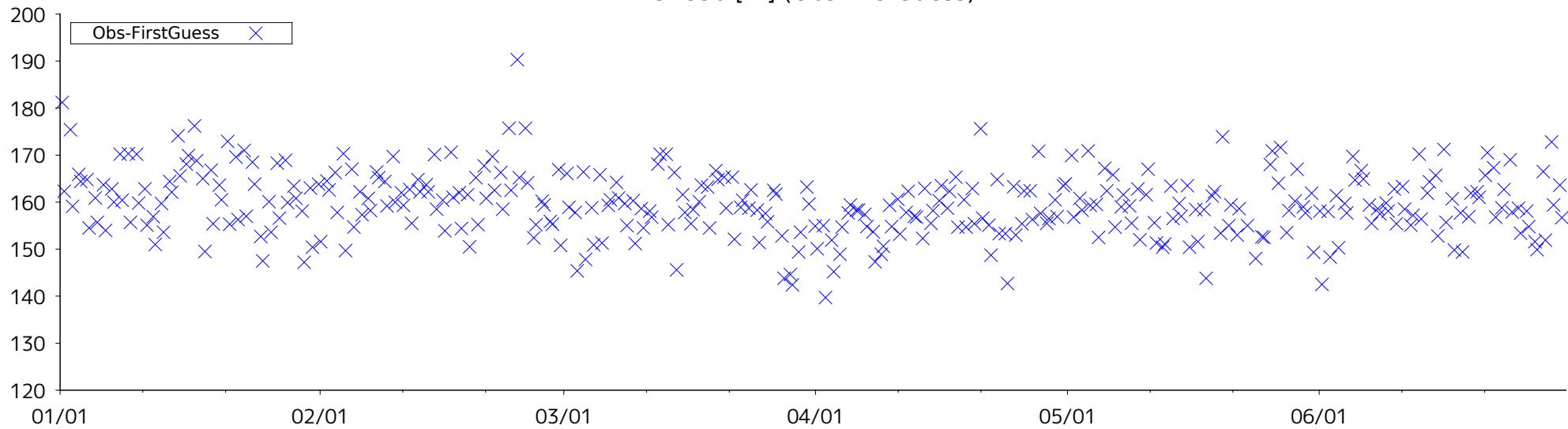


Figure 27(b) Time-series representation of GZ850 Obs minus FirstGuess for station 42295

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

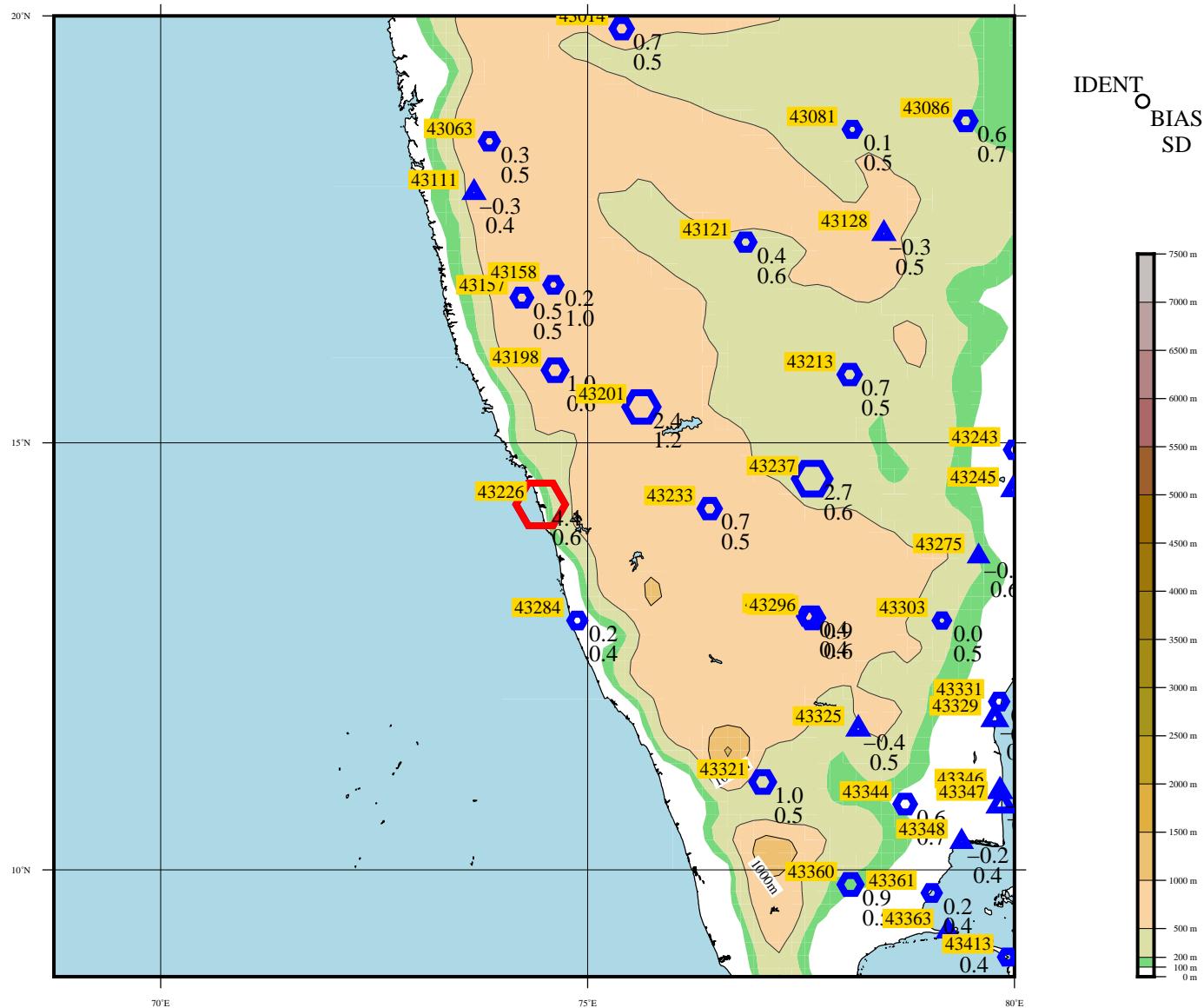


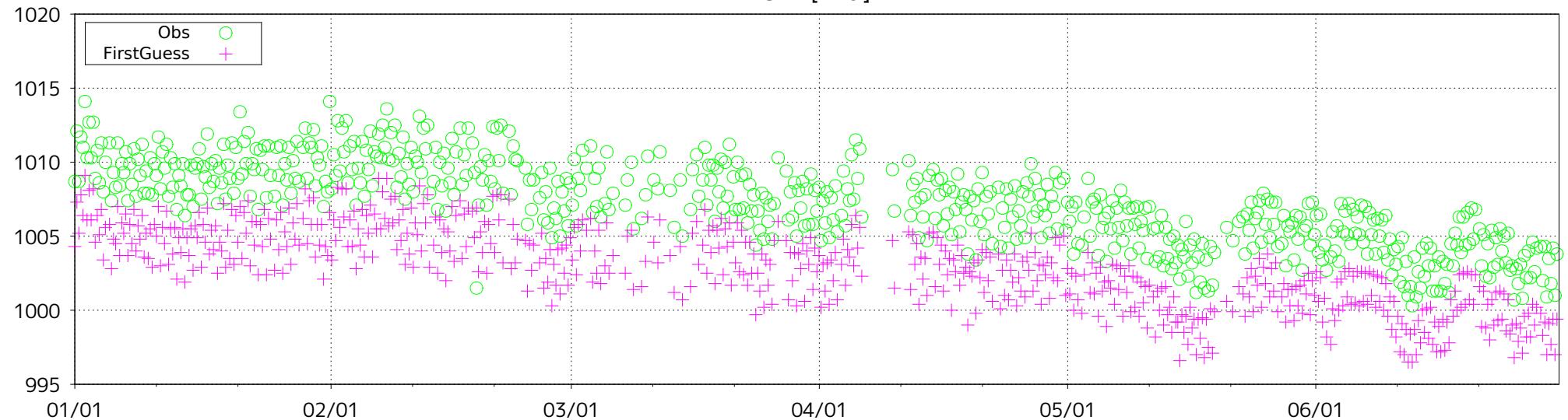
Figure 28 BIAS and SD of SLP for station 43226 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 43226 (lat: 14.3N, lon: 74.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

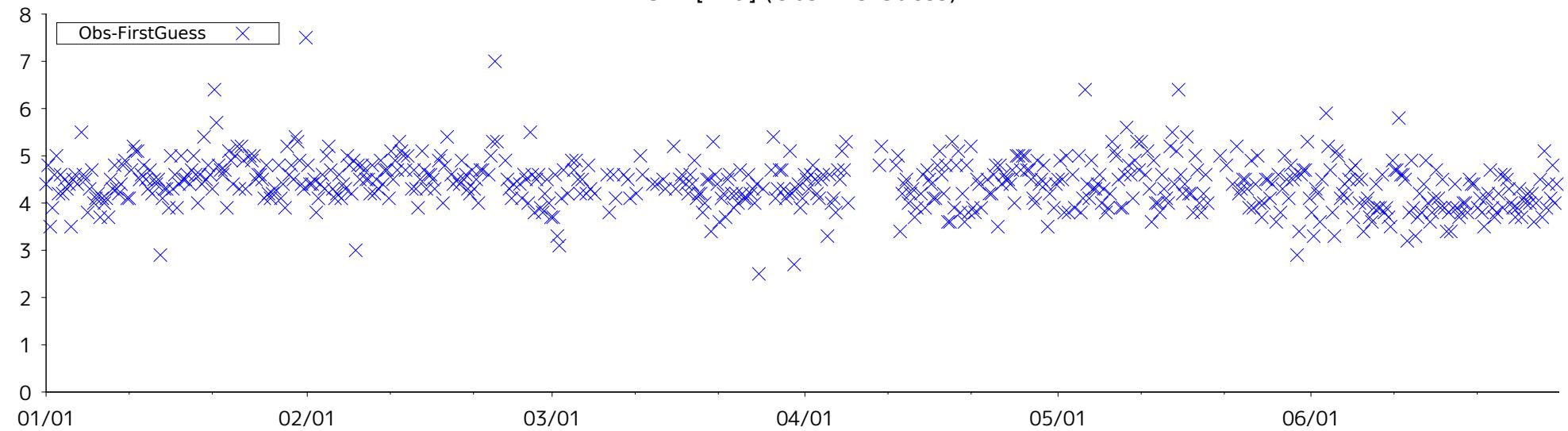
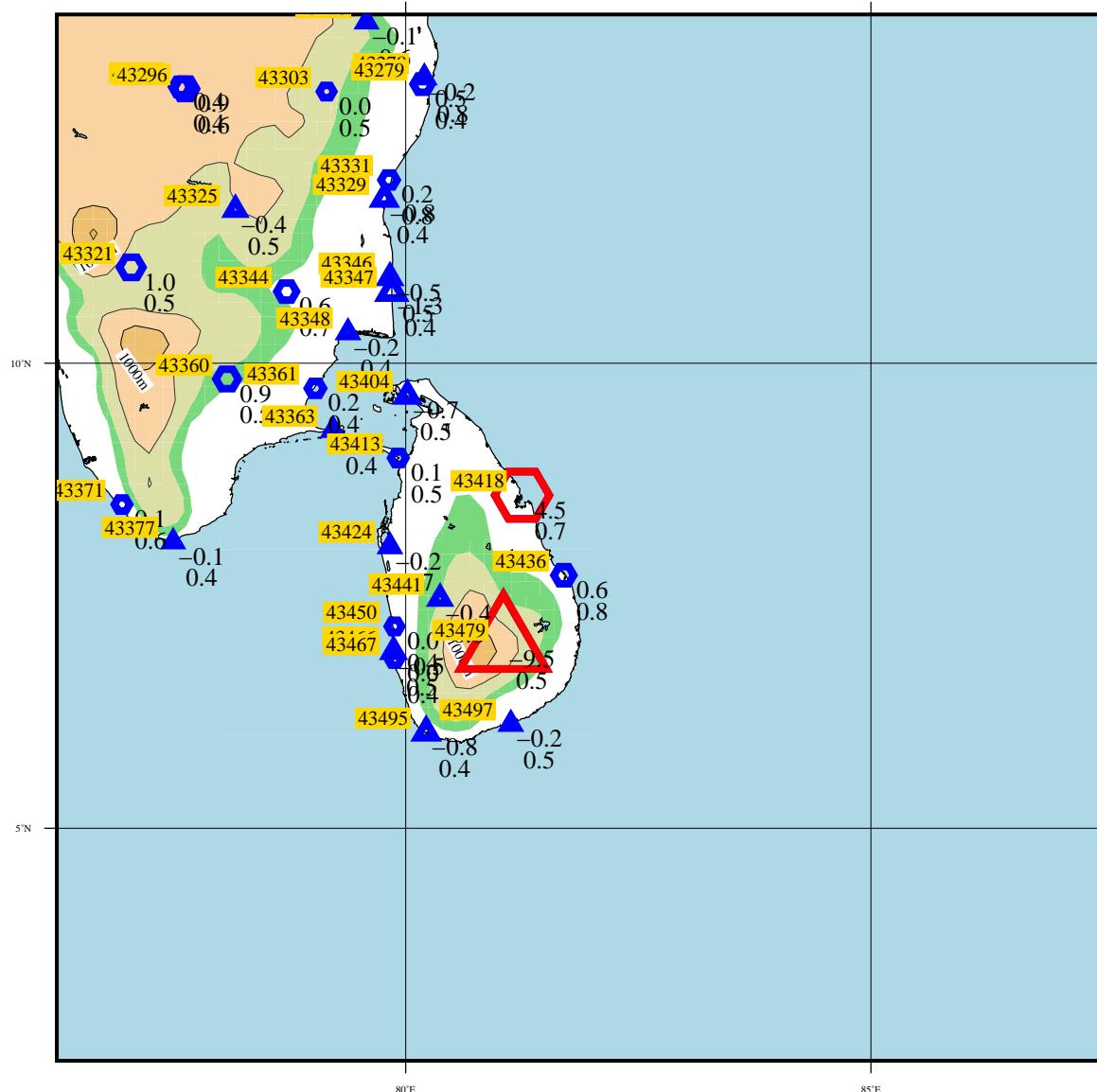


Figure 29 Time-series representation of SLP Obs minus FirstGuess for station 43226

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
O BIAS
SD

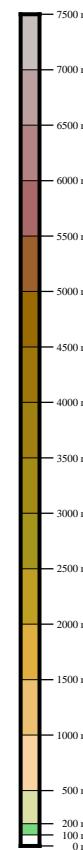


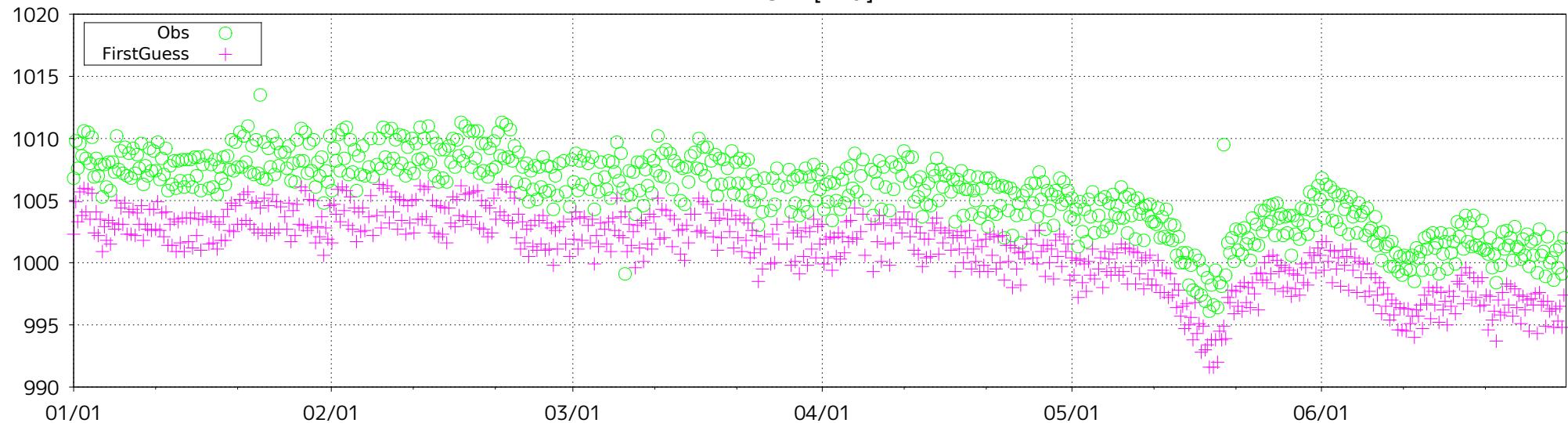
Figure 30 BIAS and SD of SLP for station 43418, 43479 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 43418 (lat: 8.6N, lon: 81.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

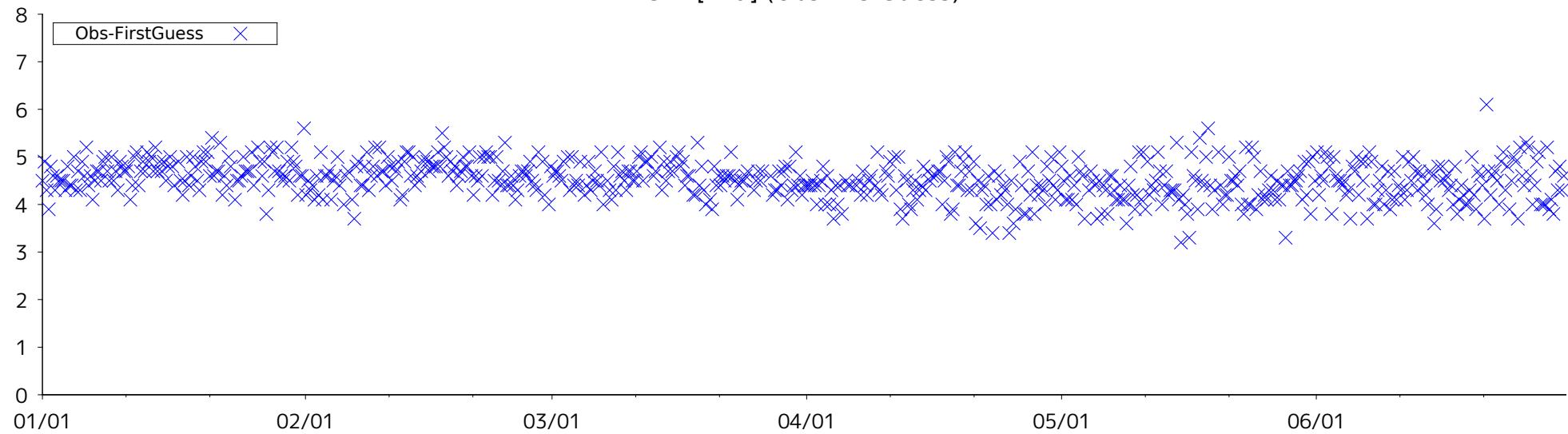
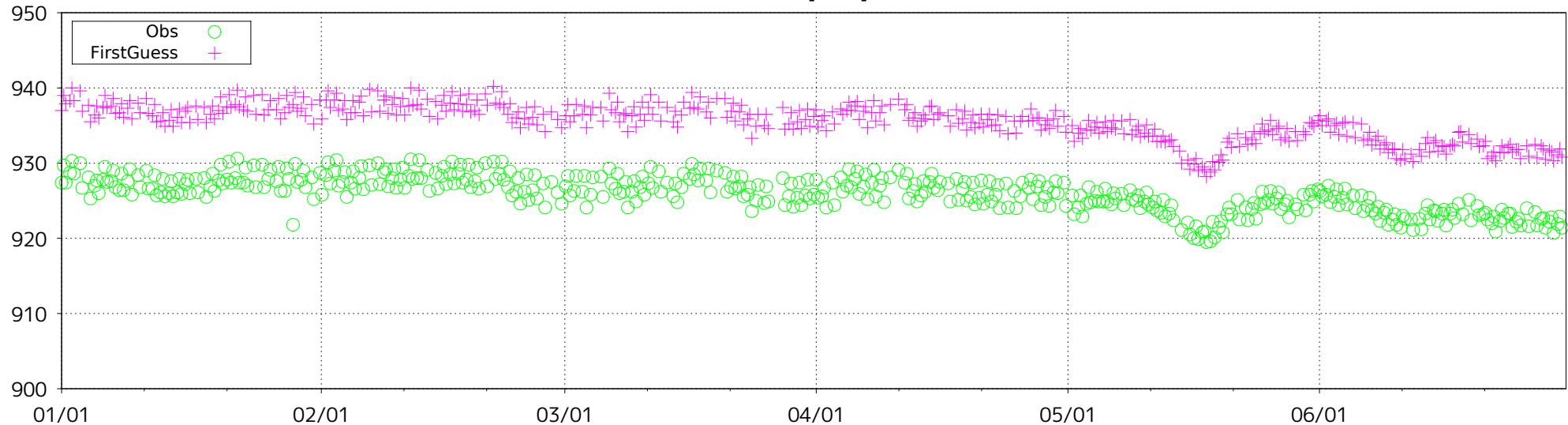


Figure 31 Time-series representation of SLP Obs minus FirstGuess for station 43418

ID: 43479 (lat: 7.0N, lon: 81.1E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

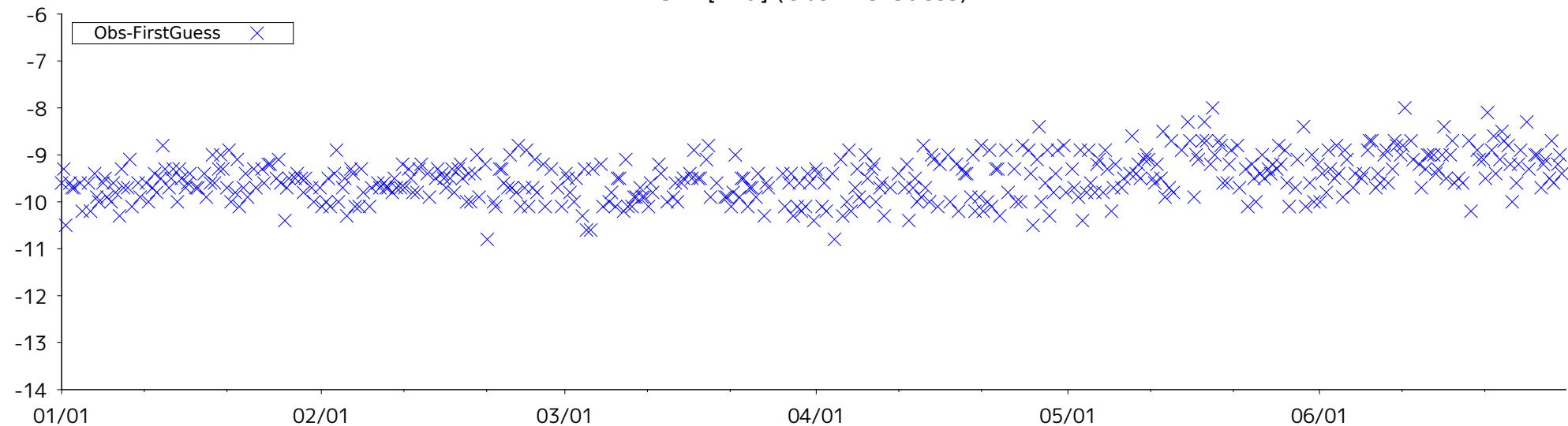
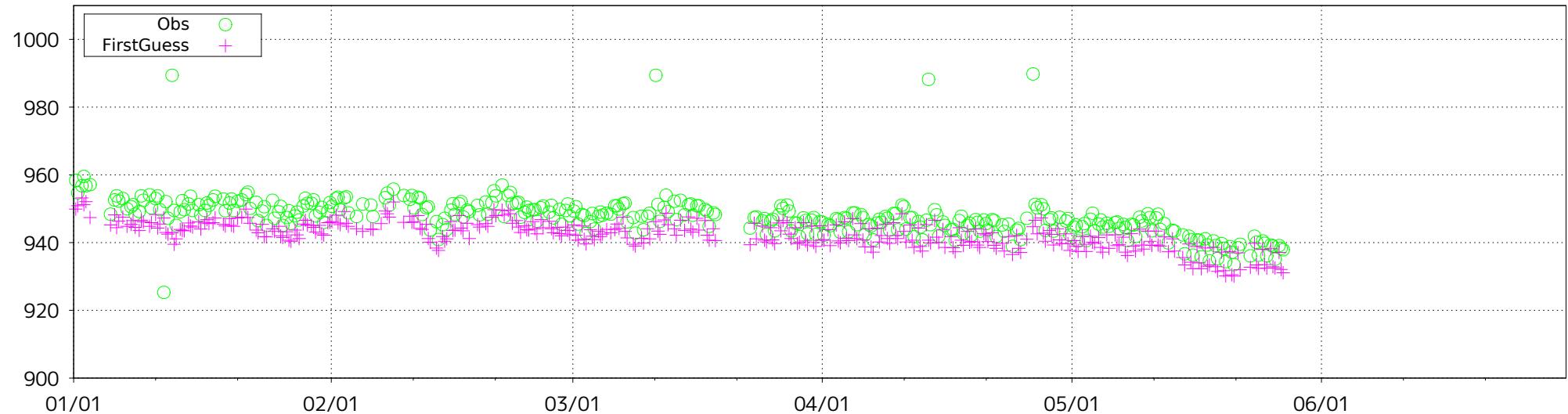


Figure 32 Time-series representation of SLP Obs minus FirstGuess for station 43479

ID: 44406 (lat: 29.3N, lon: 81.0E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

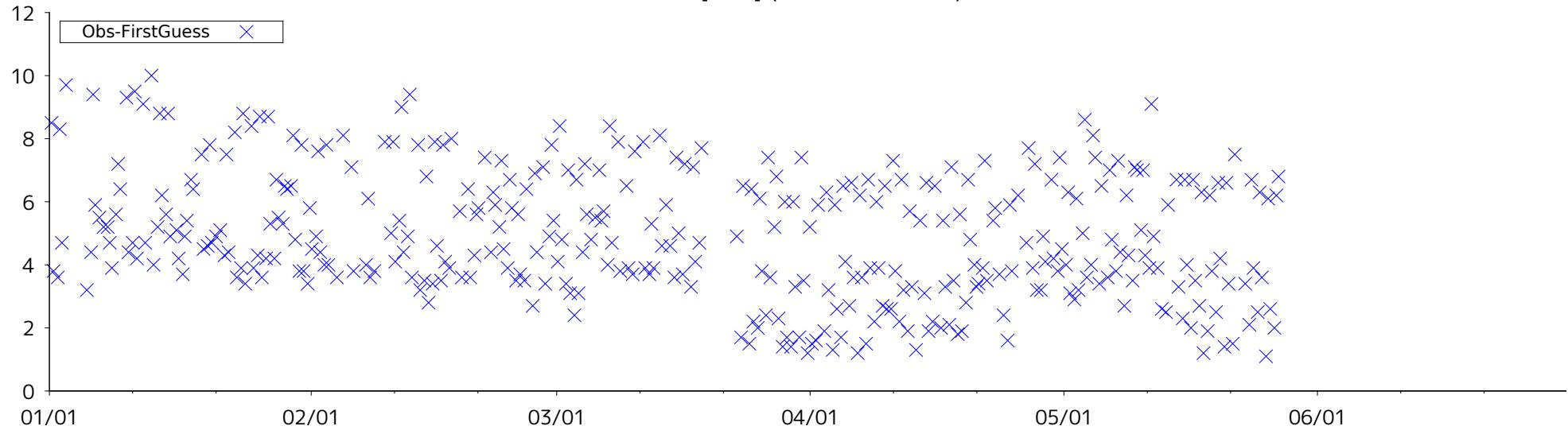


Figure 33 Time-series representation of SLP Obs minus FirstGuess for station 44406

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

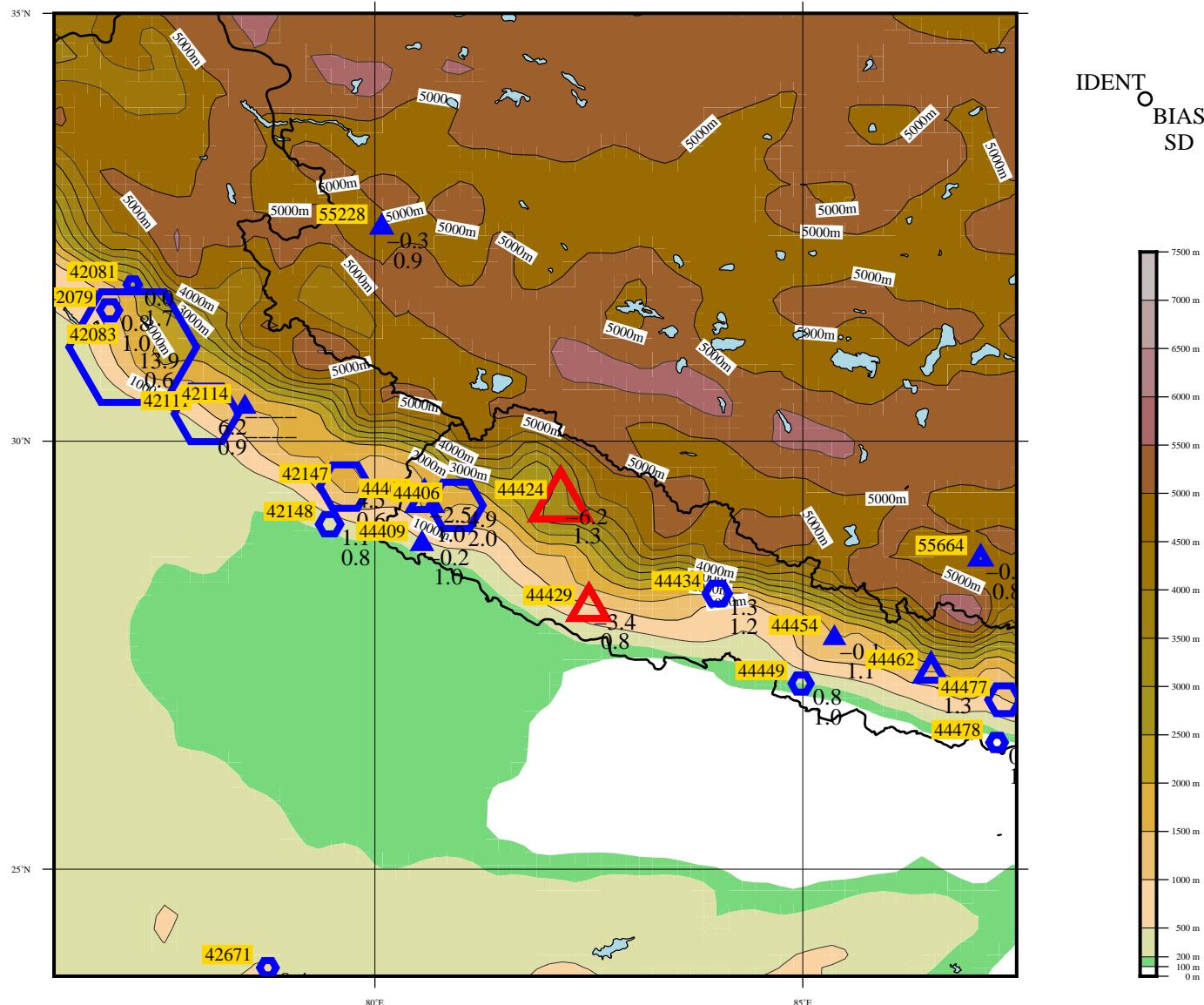


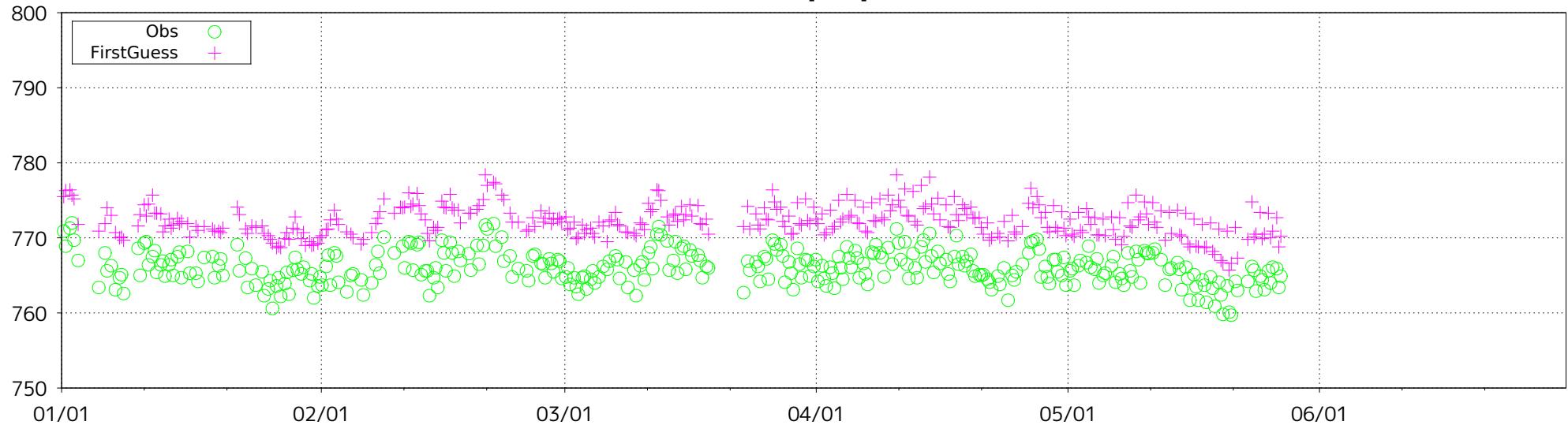
Figure 34 BIAS and SD of SLP for station 44424, 44429 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 44424 (lat: 29.3N, lon: 82.2E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

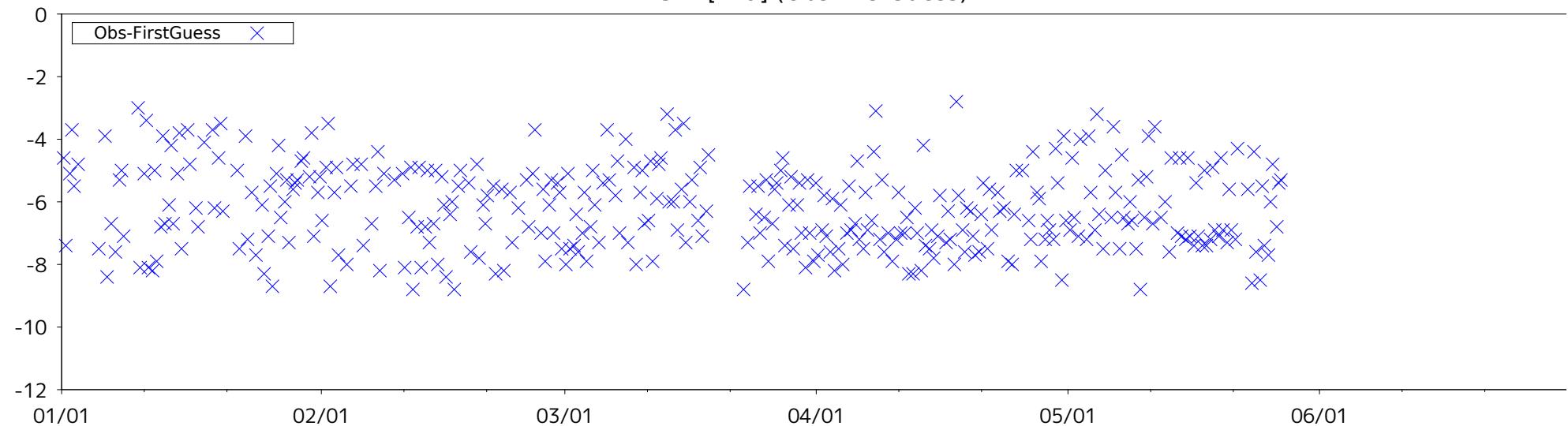
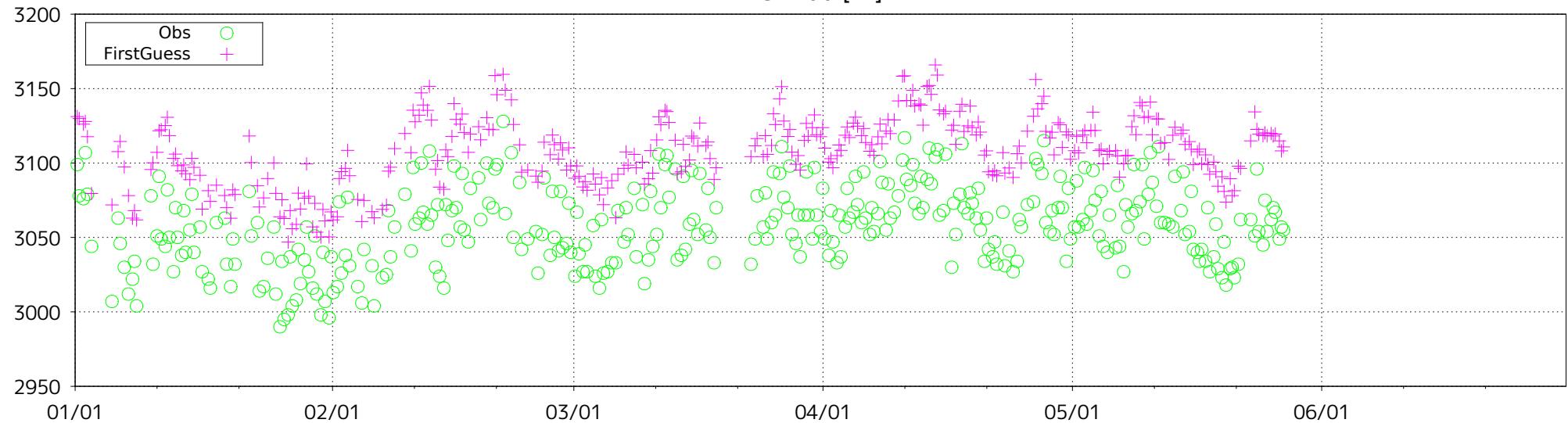


Figure 35(a) Time-series representation of SLP Obs minus FirstGuess for station 44424

ID: 44424 (lat: 29.3N, lon: 82.2E)

GZ700 [m]



GZ700 [m] (Obs-FirstGuess)

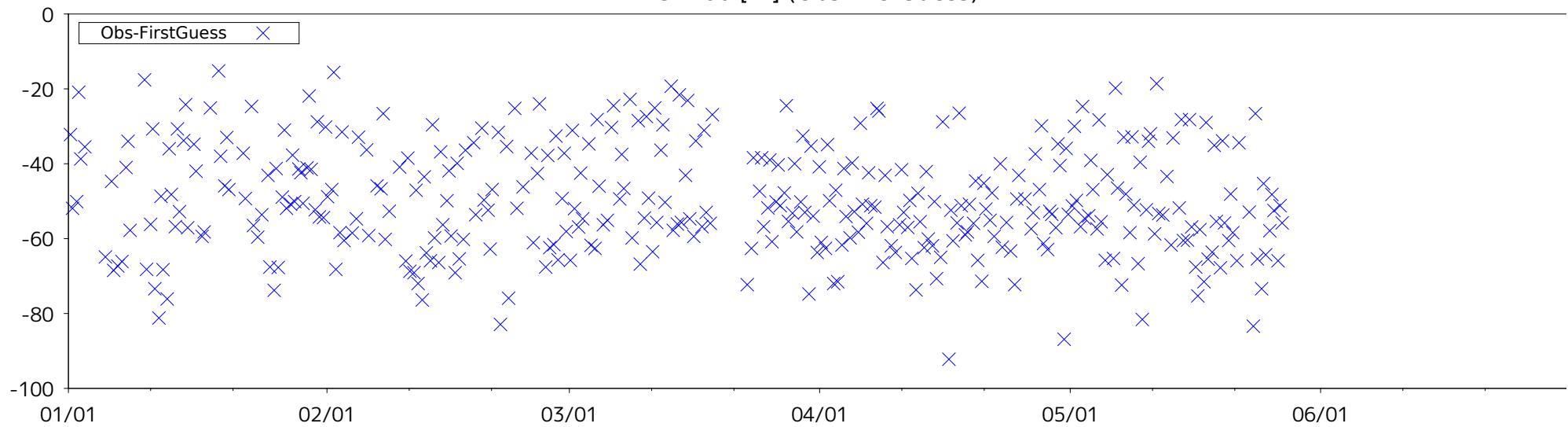
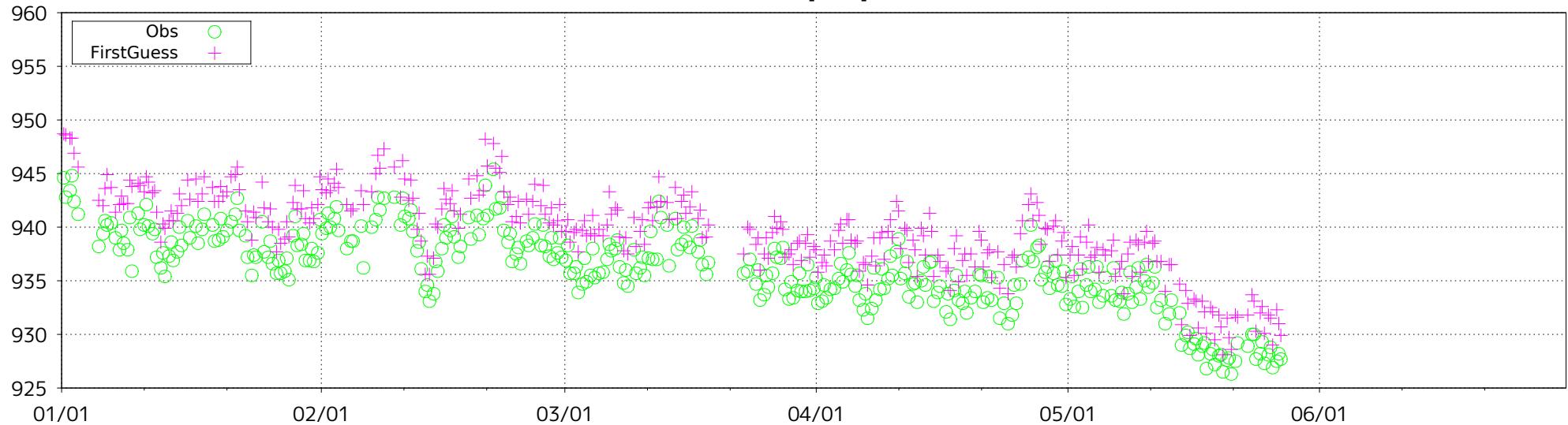


Figure 35(b) Time-series representation of GZ700 Obs minus FirstGuess for station 44424

ID: 44429 (lat: 28.1N, lon: 82.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

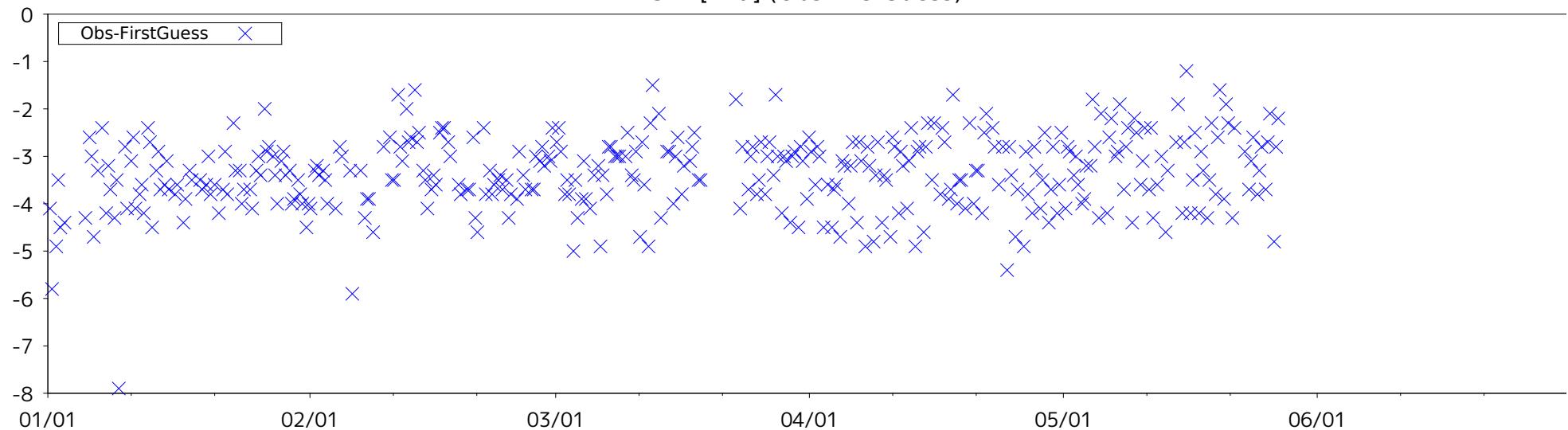
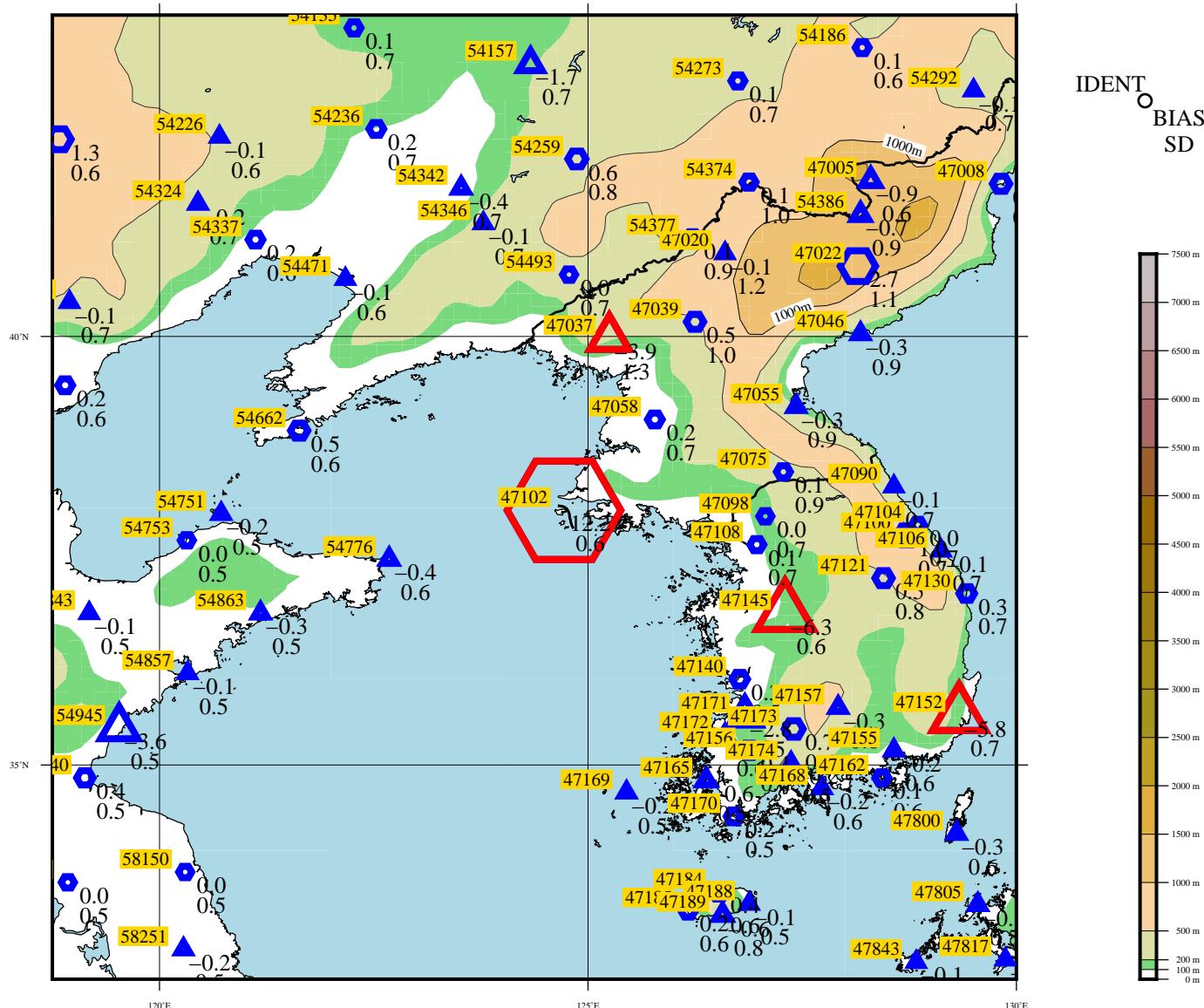


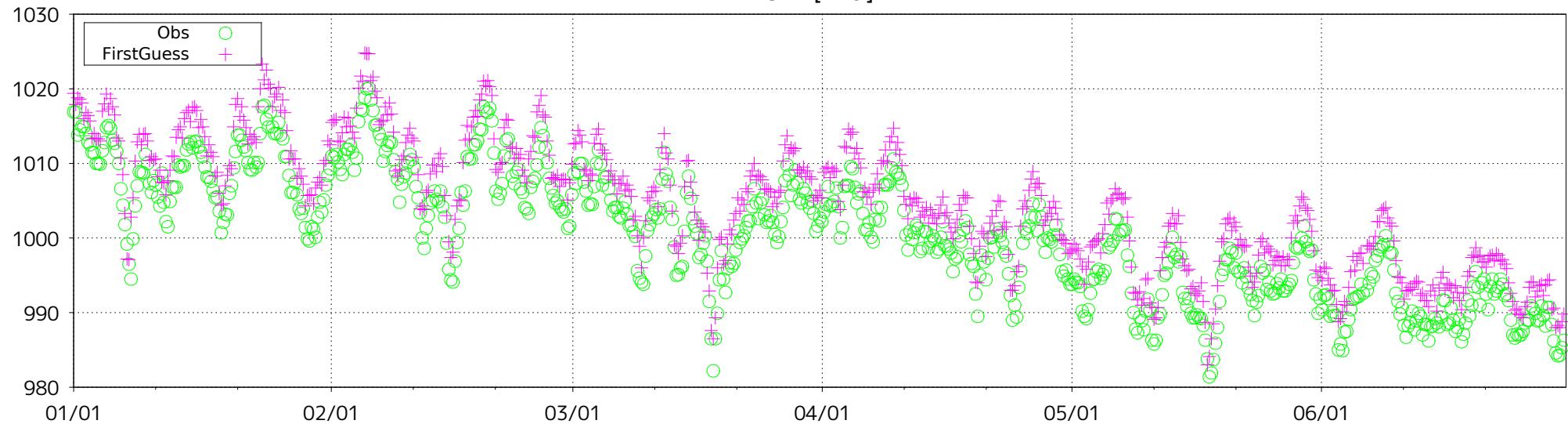
Figure 36 Time-series representation of SLP Obs minus FirstGuess for station 44429

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



ID: 47037 (lat: 40.0N, lon: 125.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

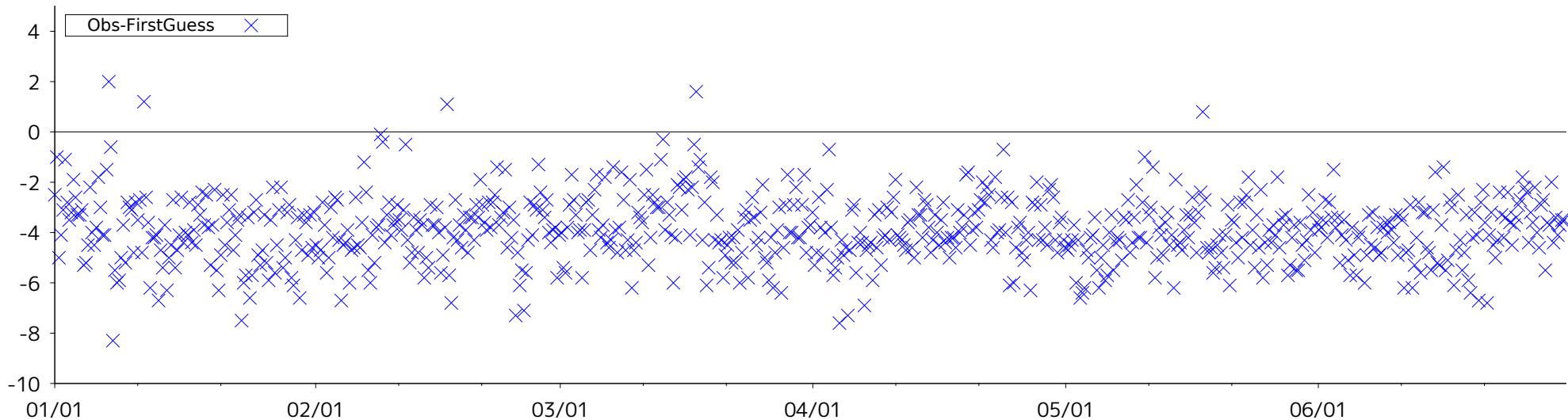
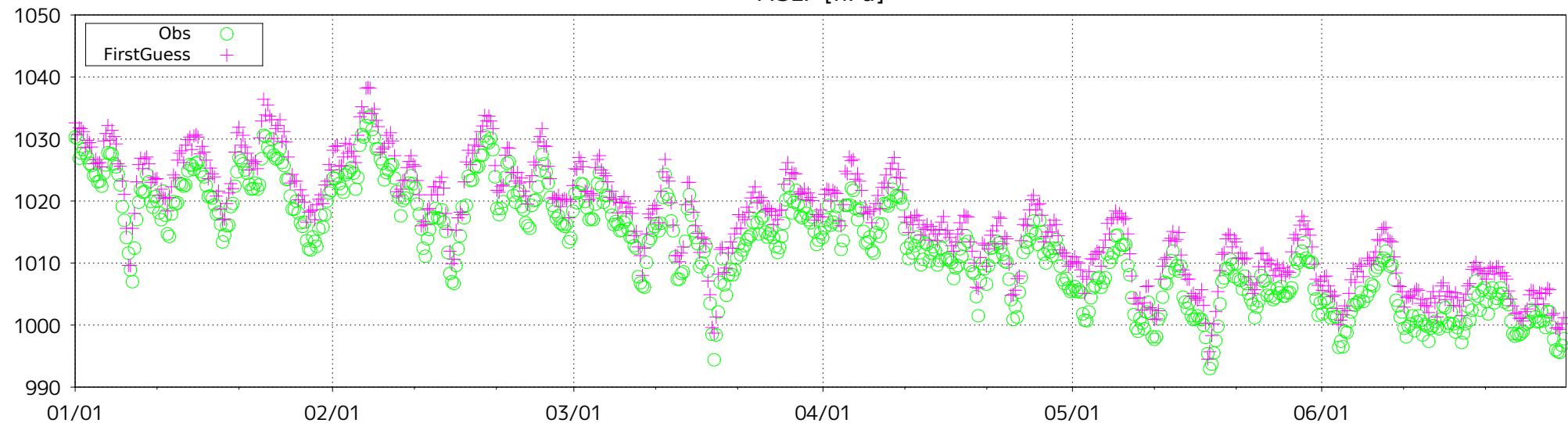


Figure 38(a) Time-series representation of SLP Obs minus FirstGuess for station 47037

ID: 47037 (lat: 40.0N, lon: 125.3E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

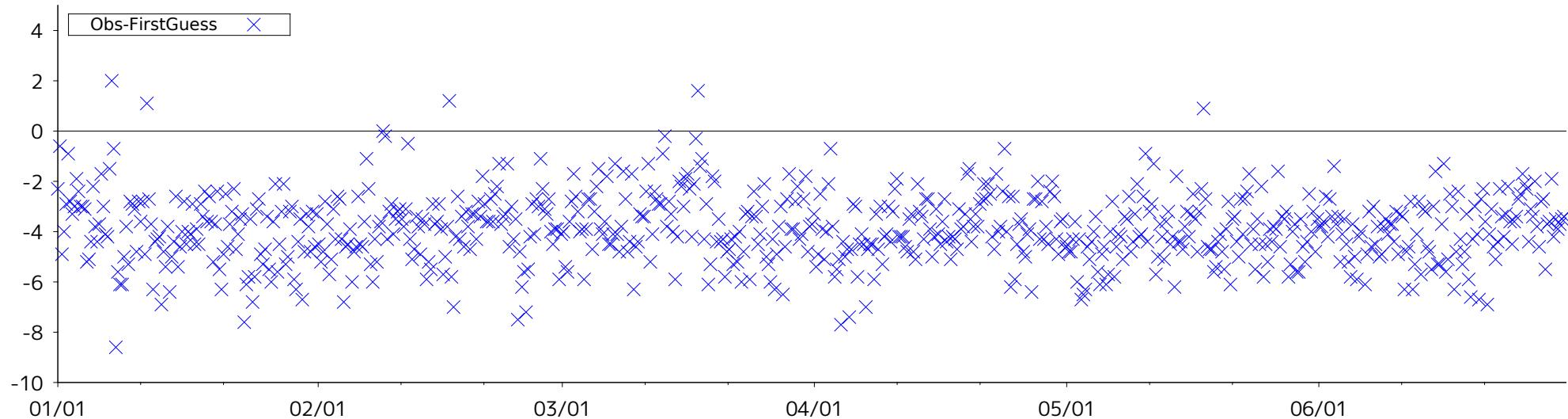
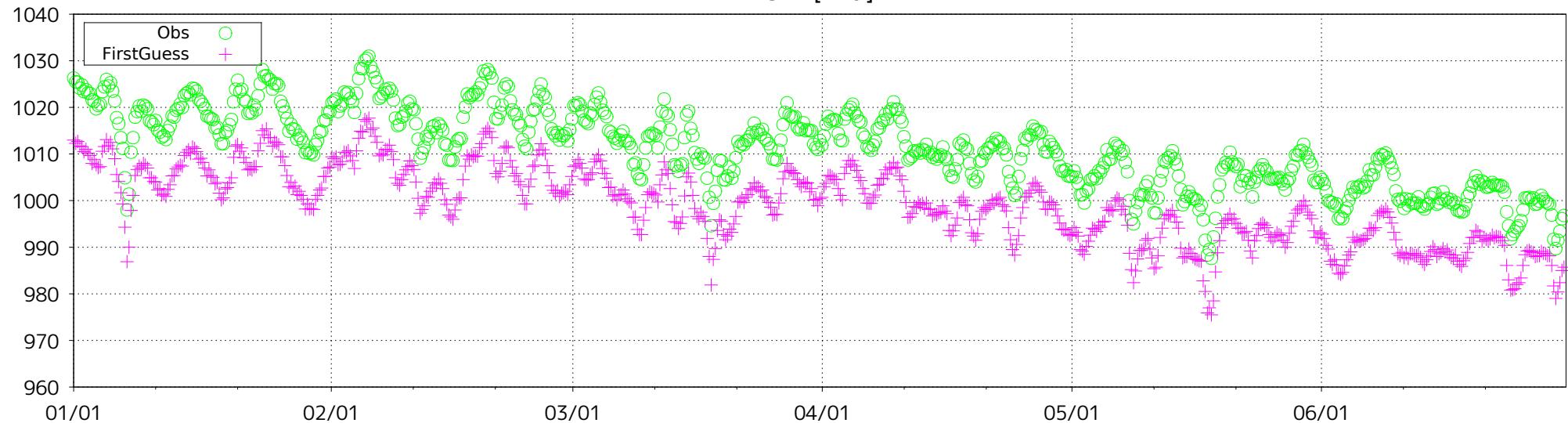


Figure 38(b) Time-series representation of MSLP Obs minus FirstGuess for station 47037

ID: 47102 (lat: 38.0N, lon: 124.7E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

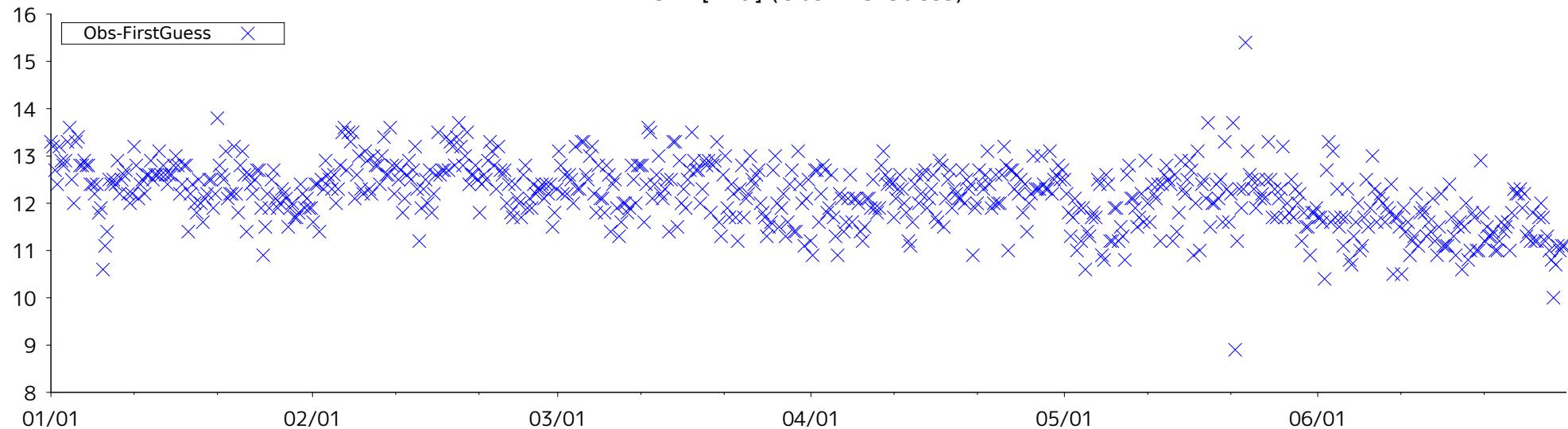
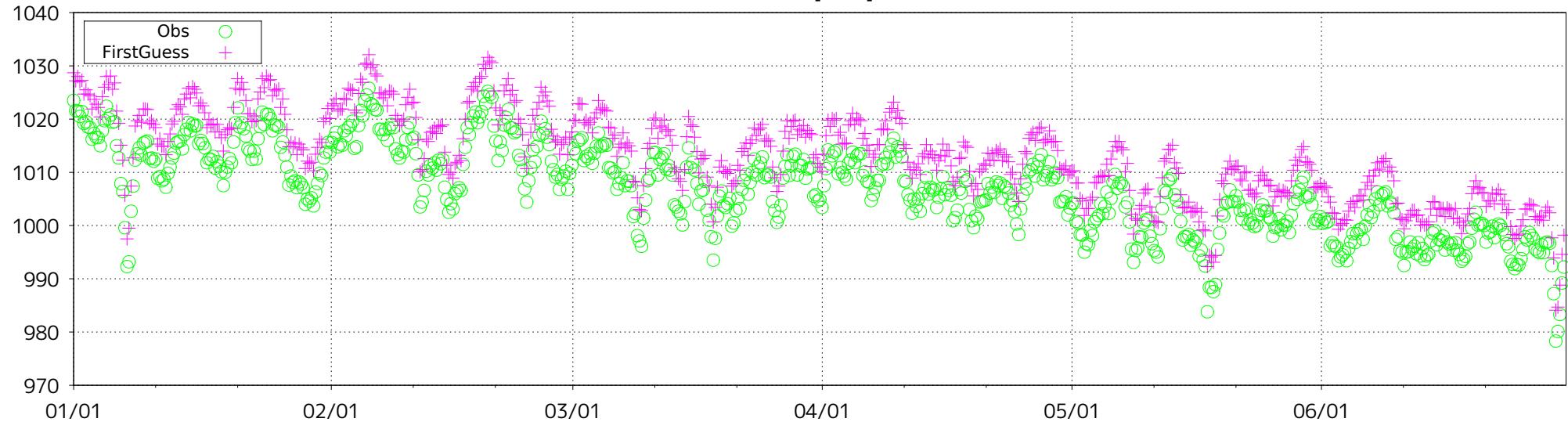


Figure 39 Time-series representation of SLP Obs minus FirstGuess for station 47102

ID: 47145 (lat: 36.8N, lon: 127.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

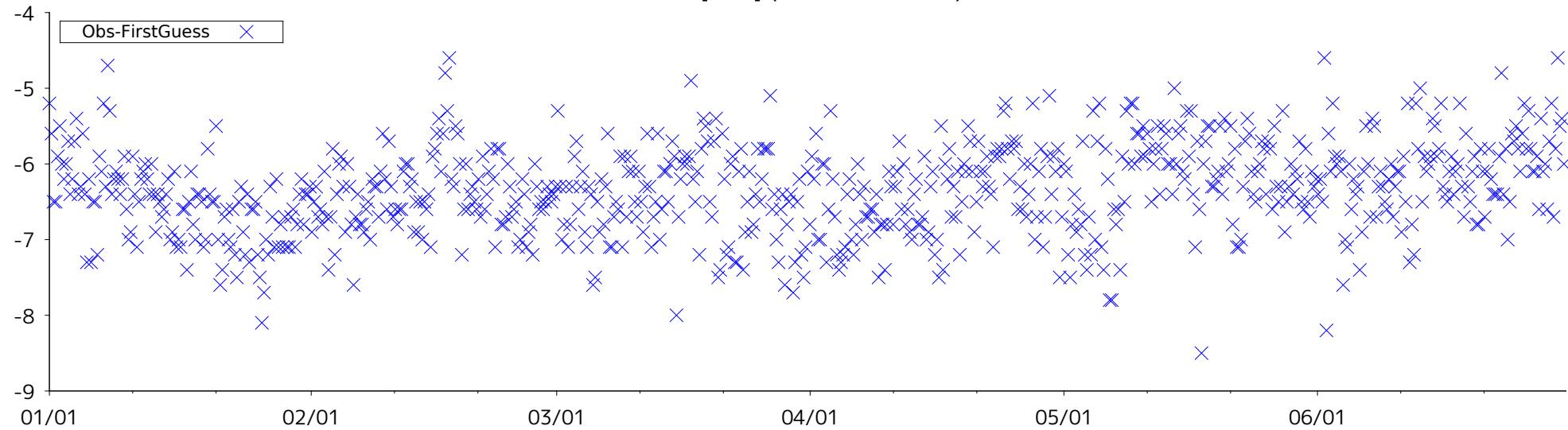
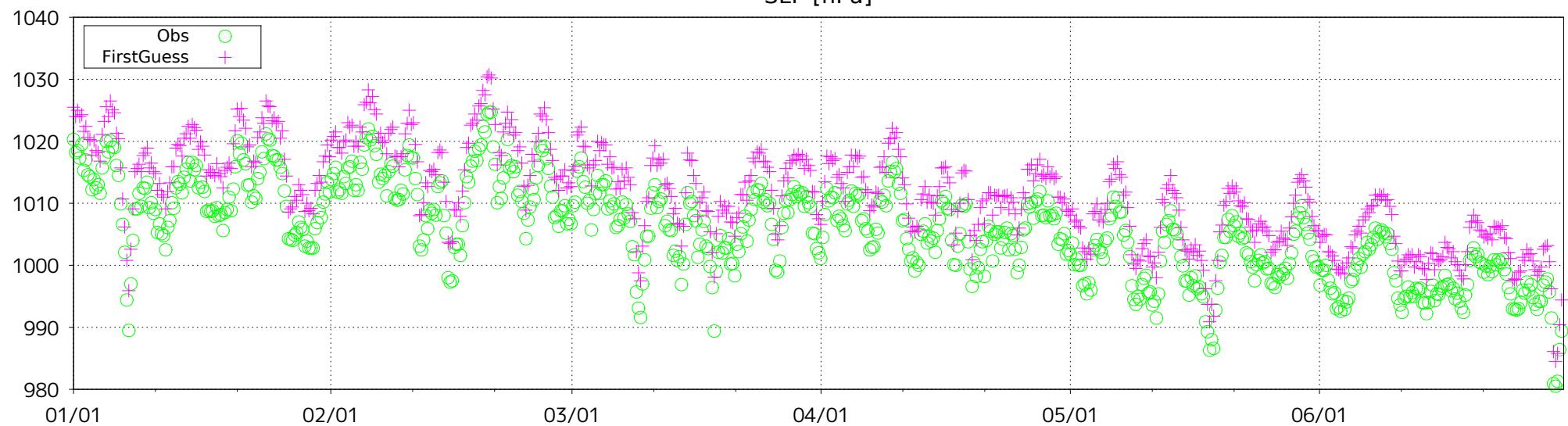


Figure 40 Time-series representation of SLP Obs minus FirstGuess for station 47145

ID: 47152 (lat: 35.6N, lon: 129.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

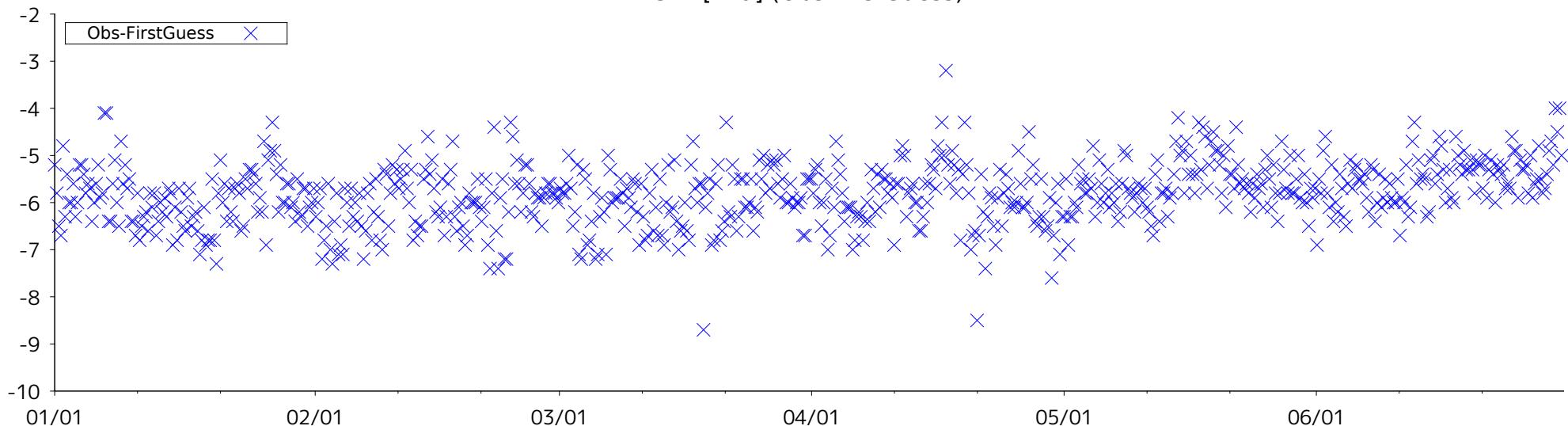


Figure 41 Time-series representation of SLP Obs minus FirstGuess for station 47152

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

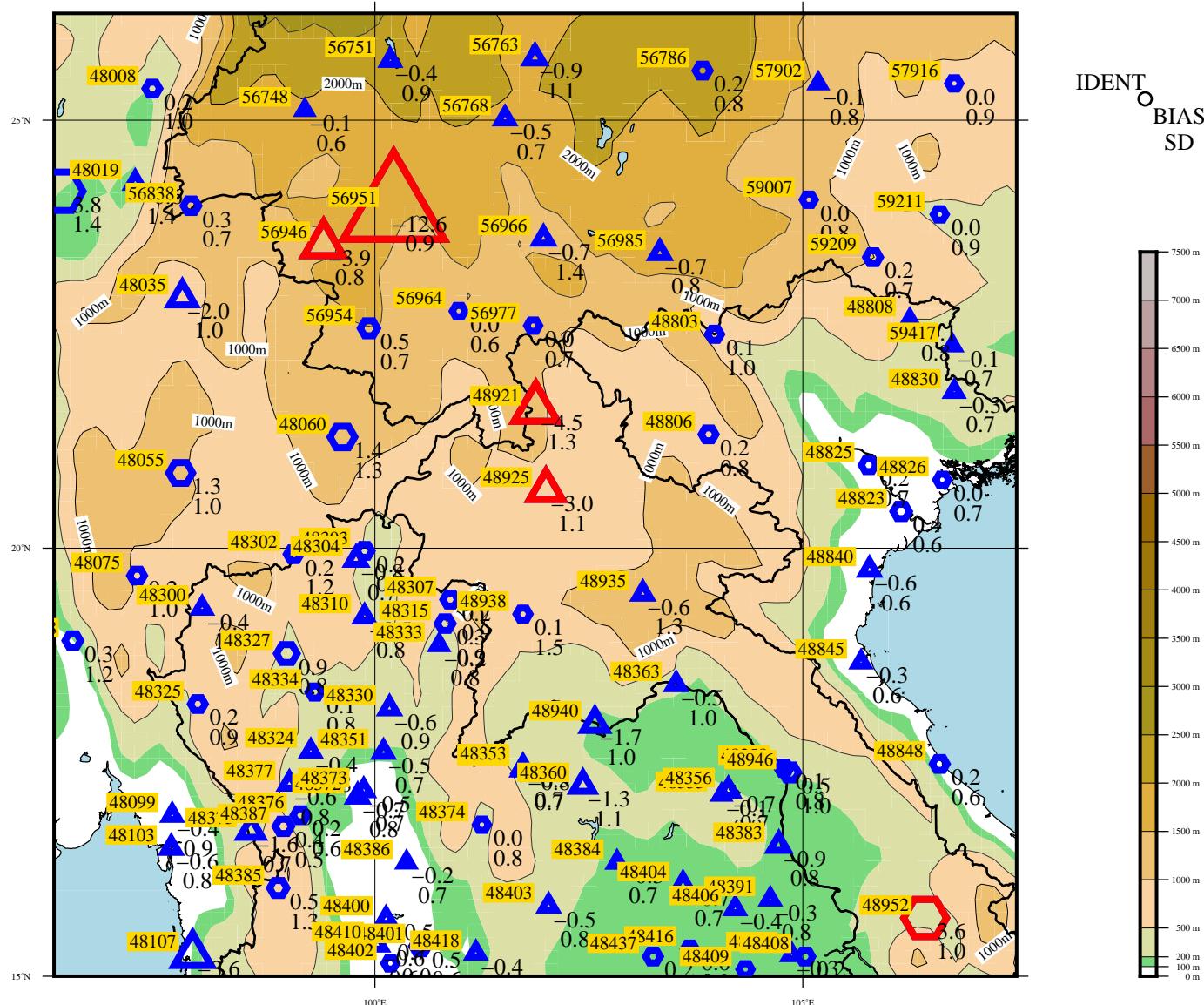


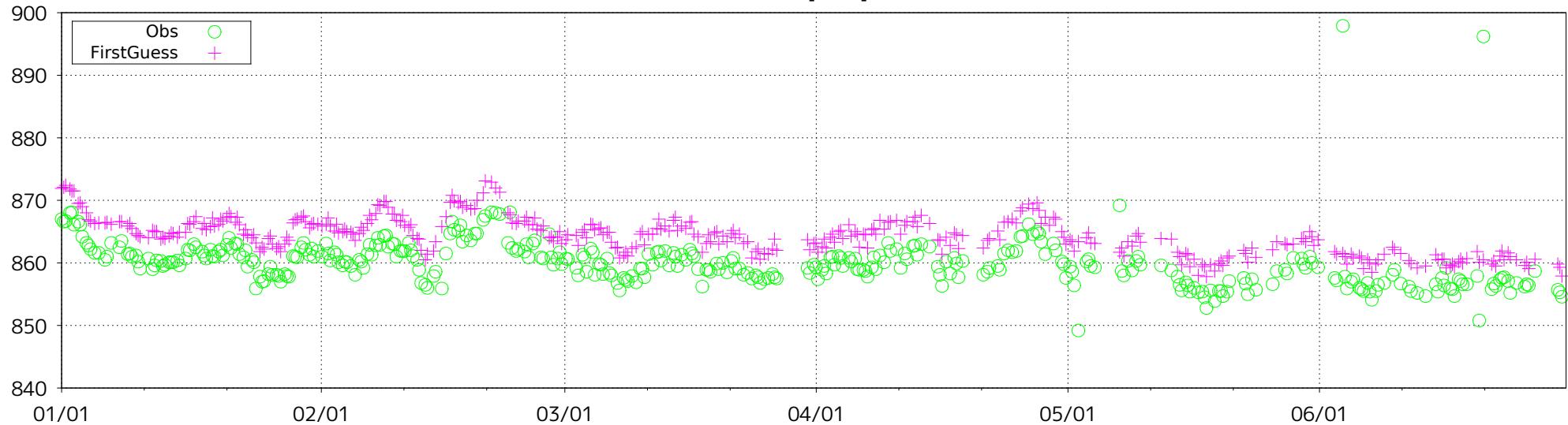
Figure 42 BIAS and SD of SLP for station 48921, 48925, 48952, 56946, 56951 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 48921 (lat: 21.6N, lon: 101.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

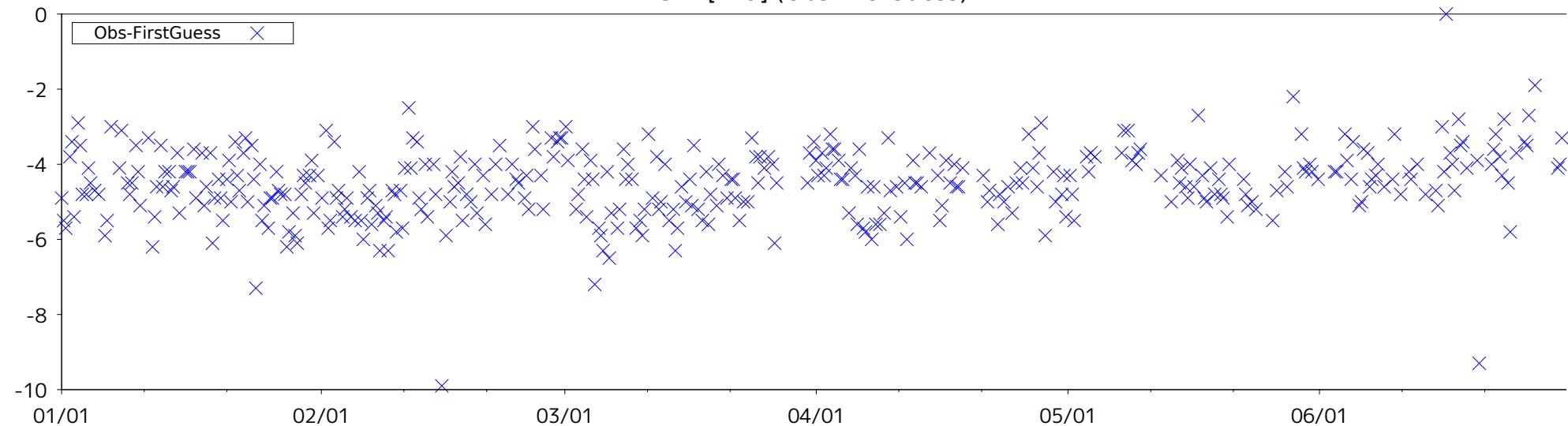
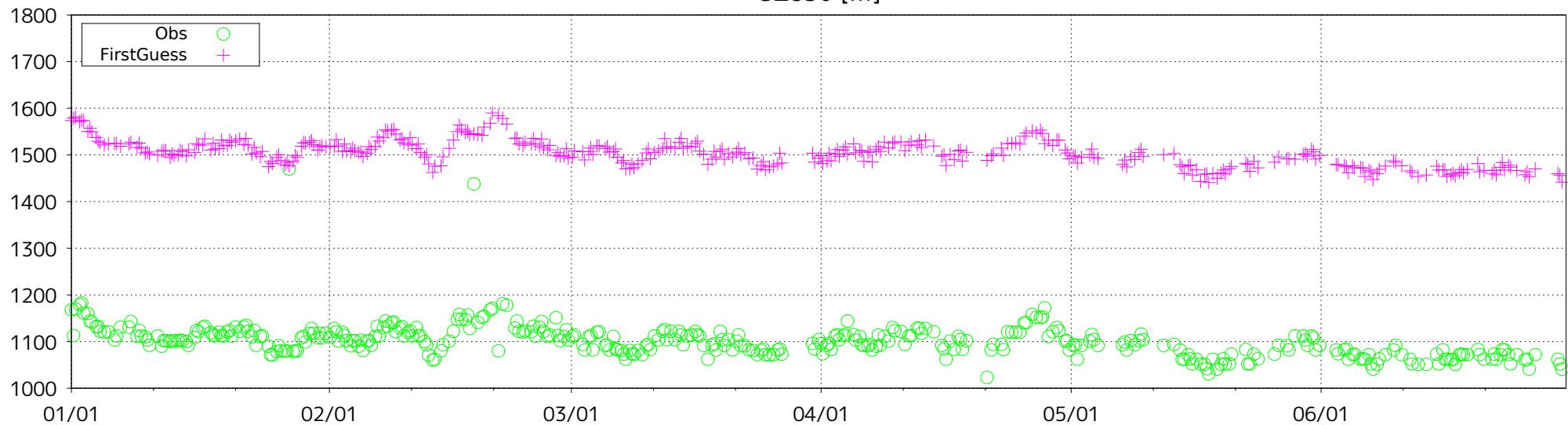


Figure 43(a) Time-series representation of SLP Obs minus FirstGuess for station 48921

ID: 48921 (lat: 21.6N, lon: 101.9E)

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

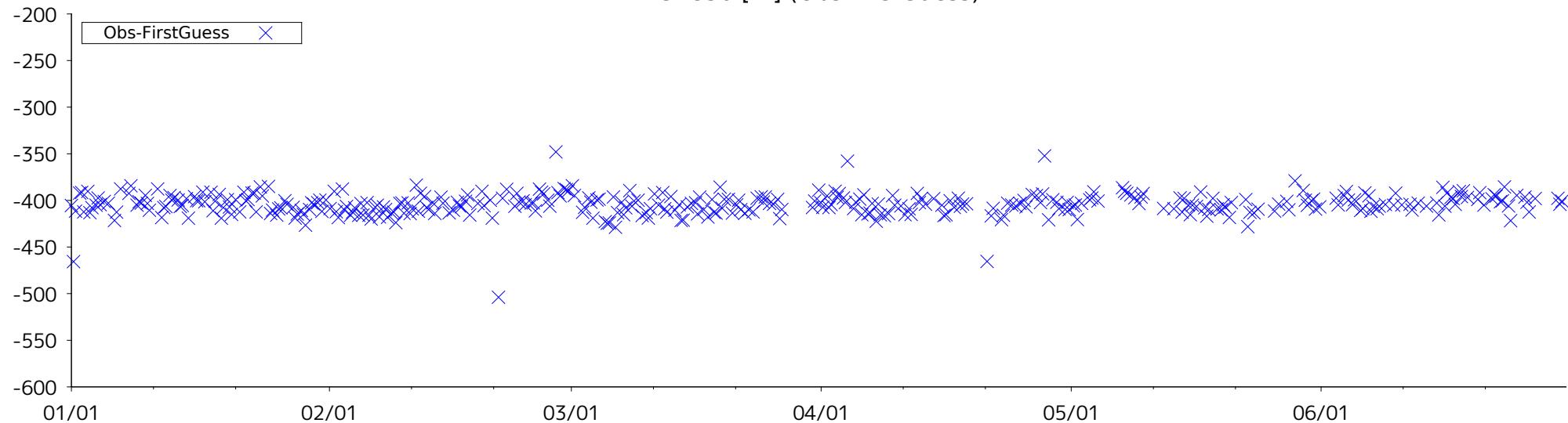
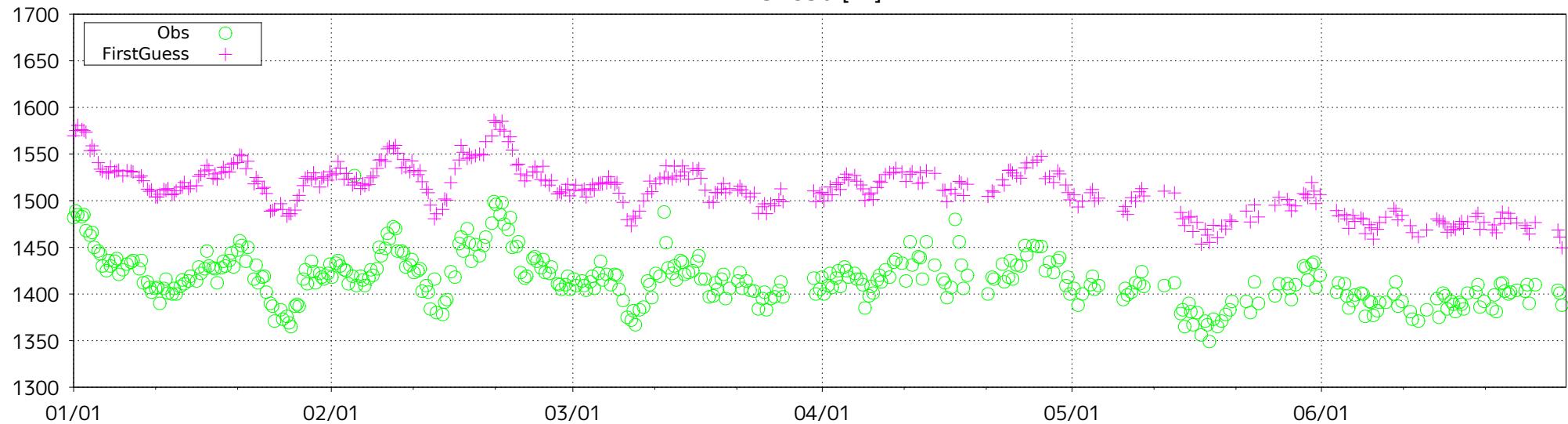


Figure 43(b) Time-series representation of GZ850 Obs minus FirstGuess for station 48921

ID: 48935 (lat: 19.5N, lon: 103.1E)

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

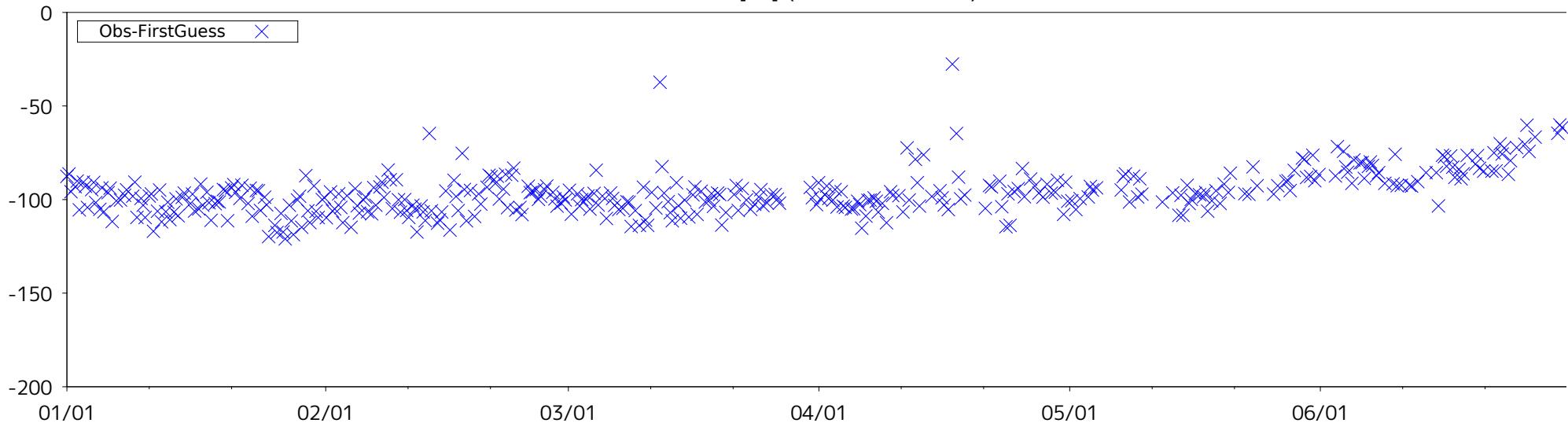
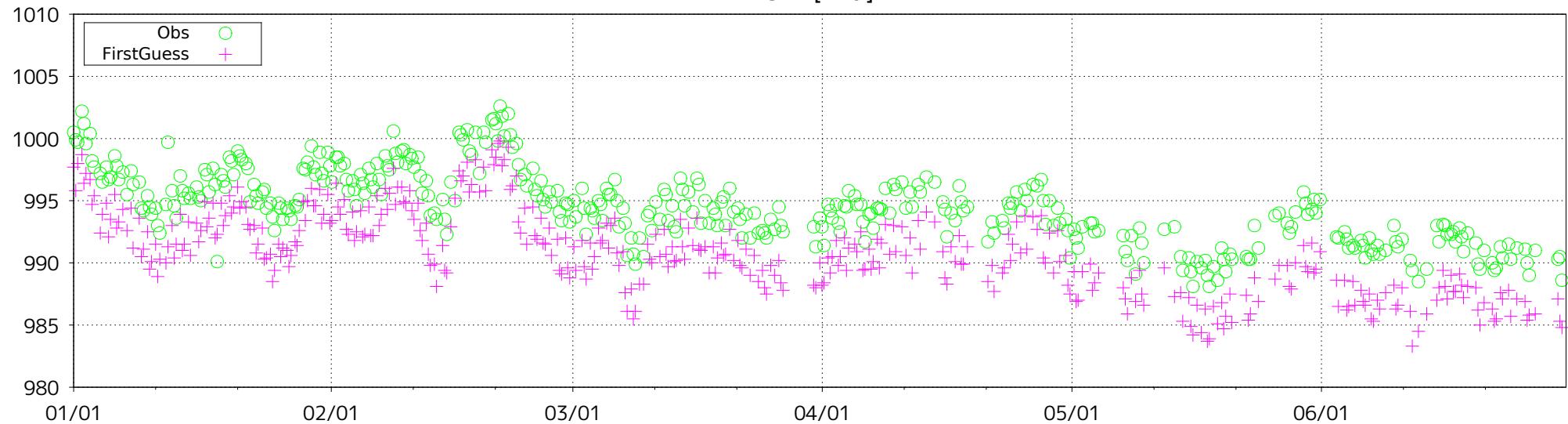


Figure 44 Time-series representation of GZ850 Obs minus FirstGuess for station 48935

ID: 48952 (lat: 15.7N, lon: 106.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

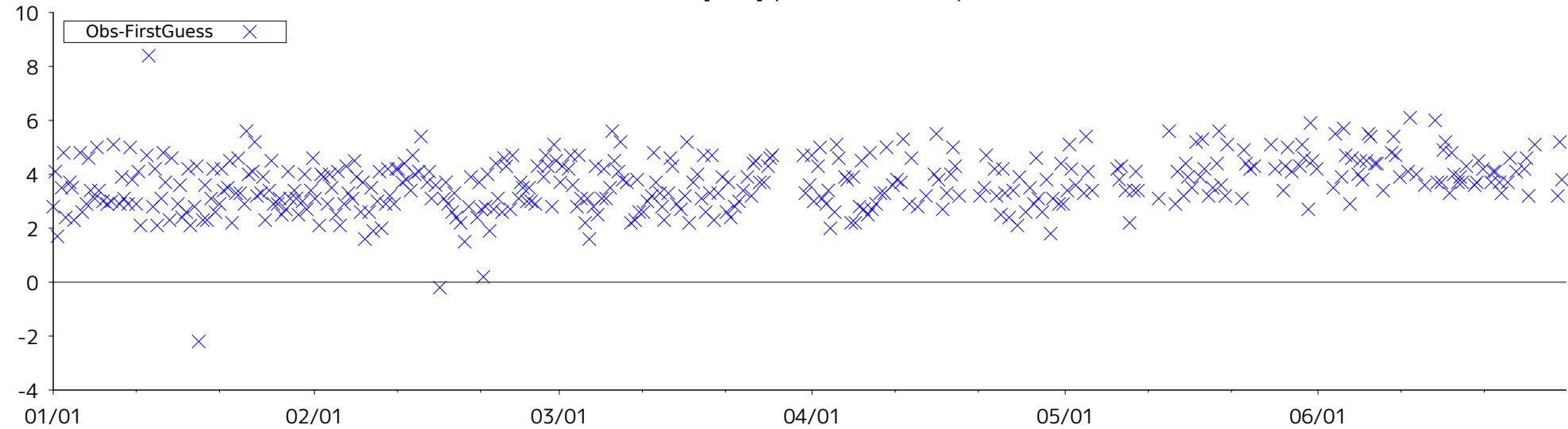
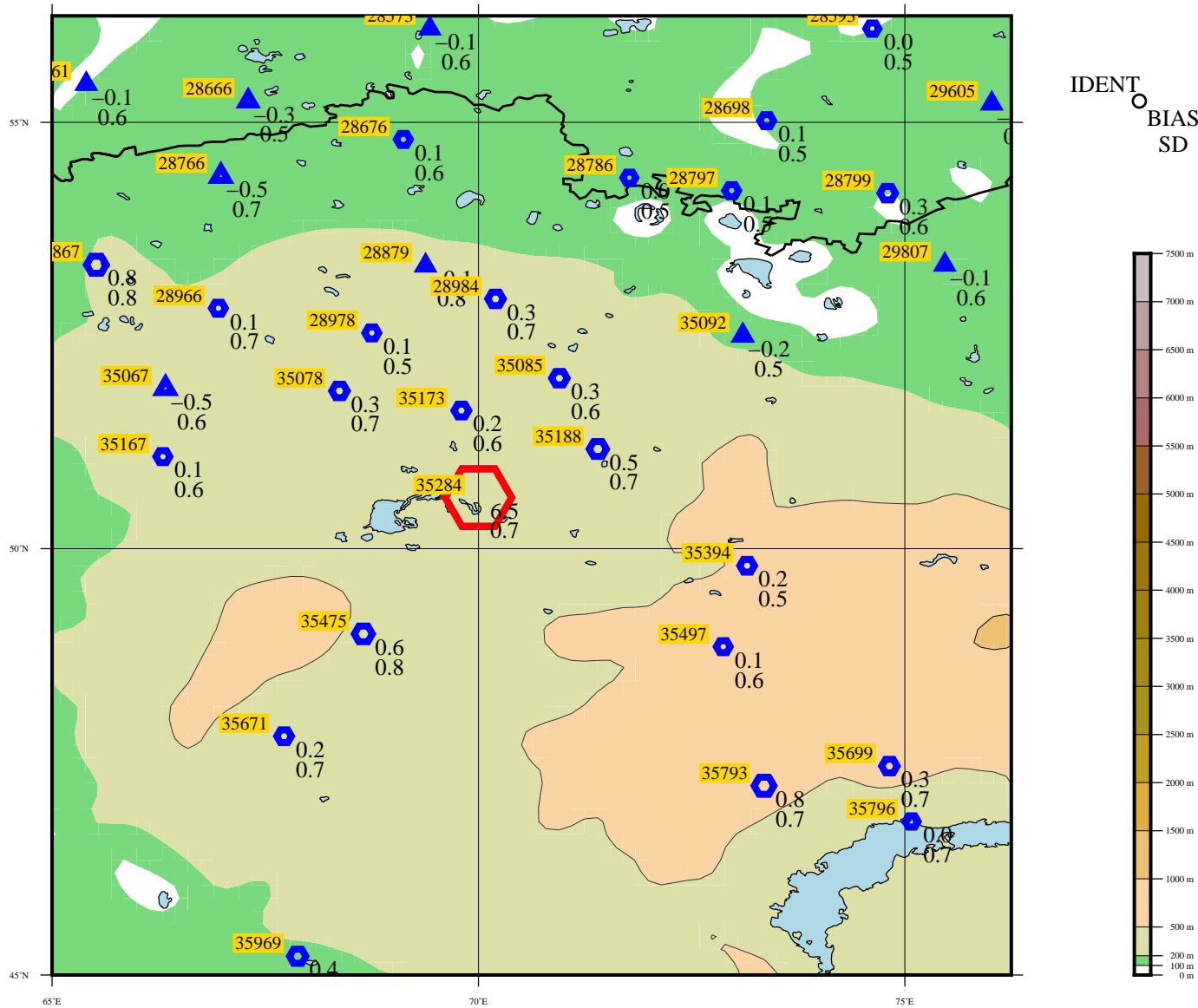


Figure 45 Time-series representation of SLP Obs minus FirstGuess for station 48952

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

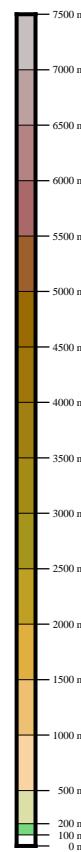


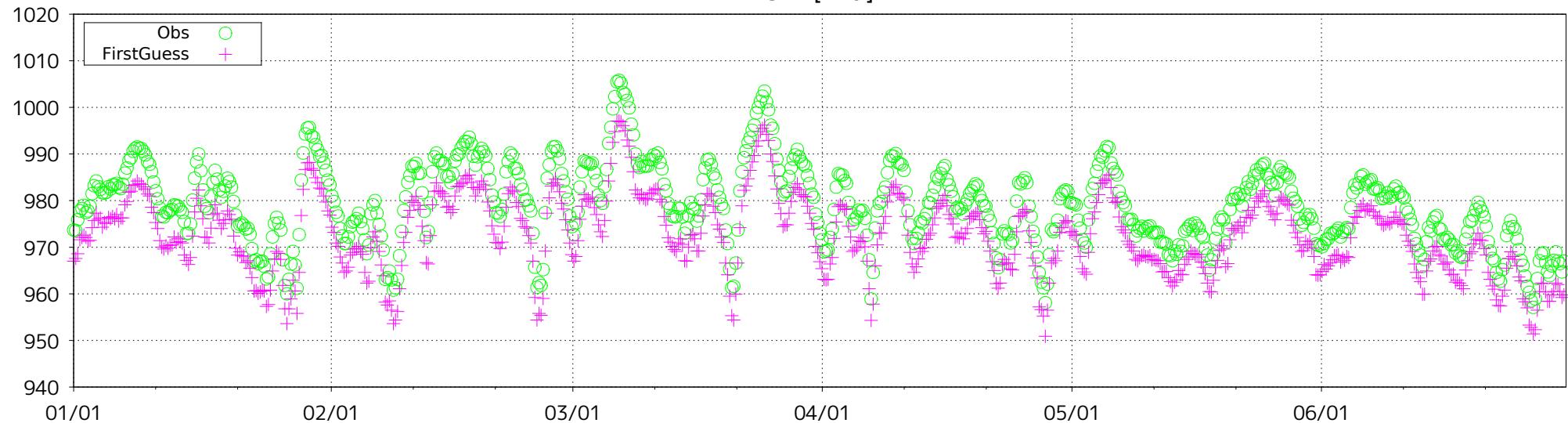
Figure 46 BIAS and SD of SLP for station 35284 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 35284 (lat: 50.6N, lon: 70.0E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

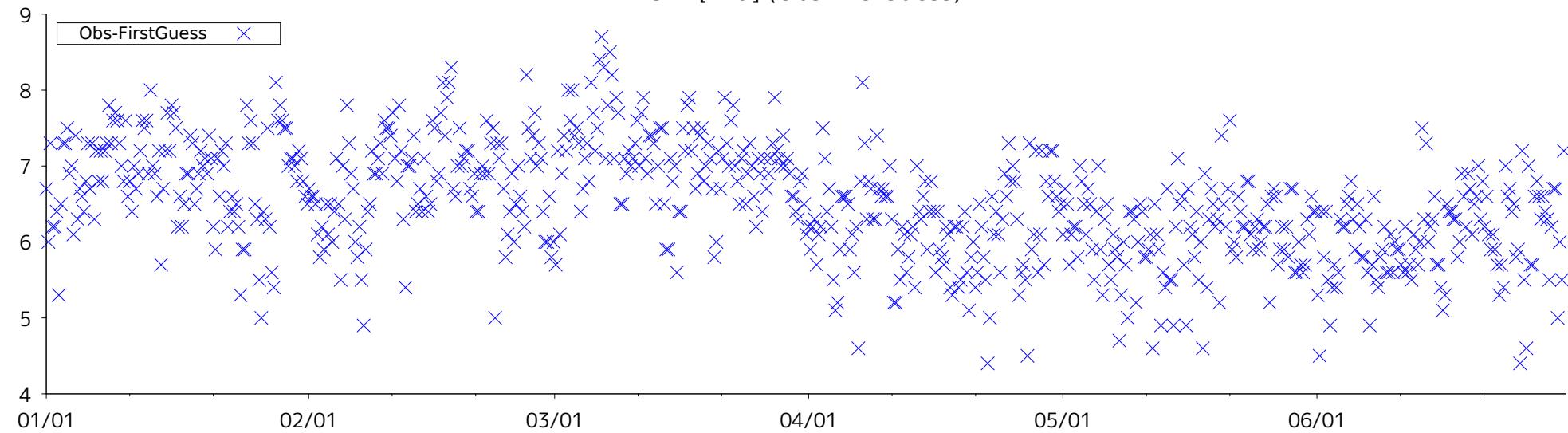
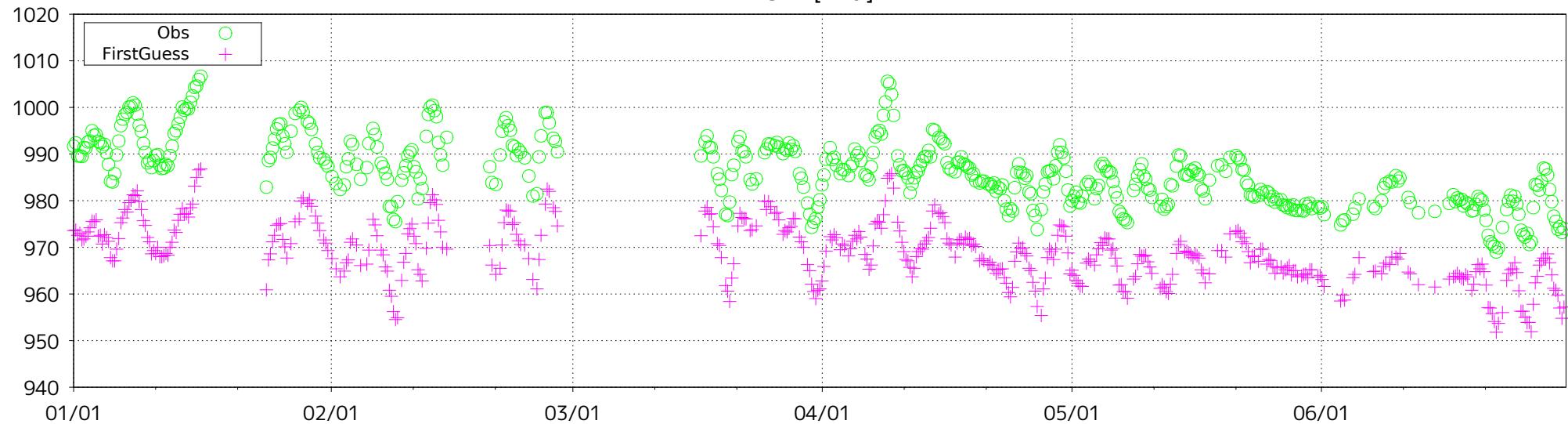


Figure 47 Time-series representation of SLP Obs minus FirstGuess for station 35284

ID: 38313 (lat: 43.7N, lon: 69.0E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

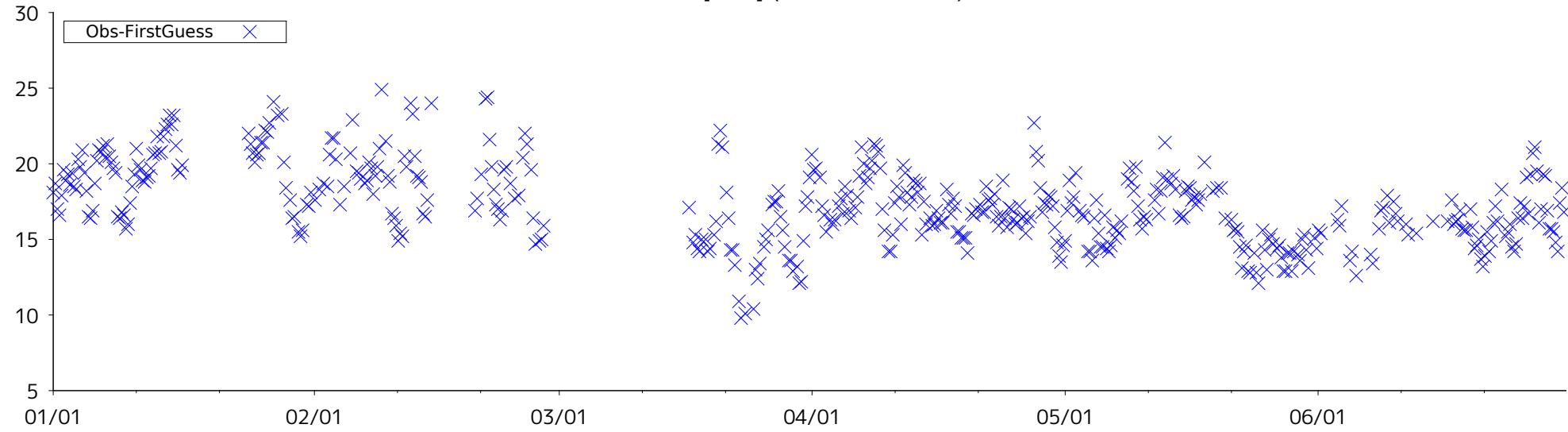
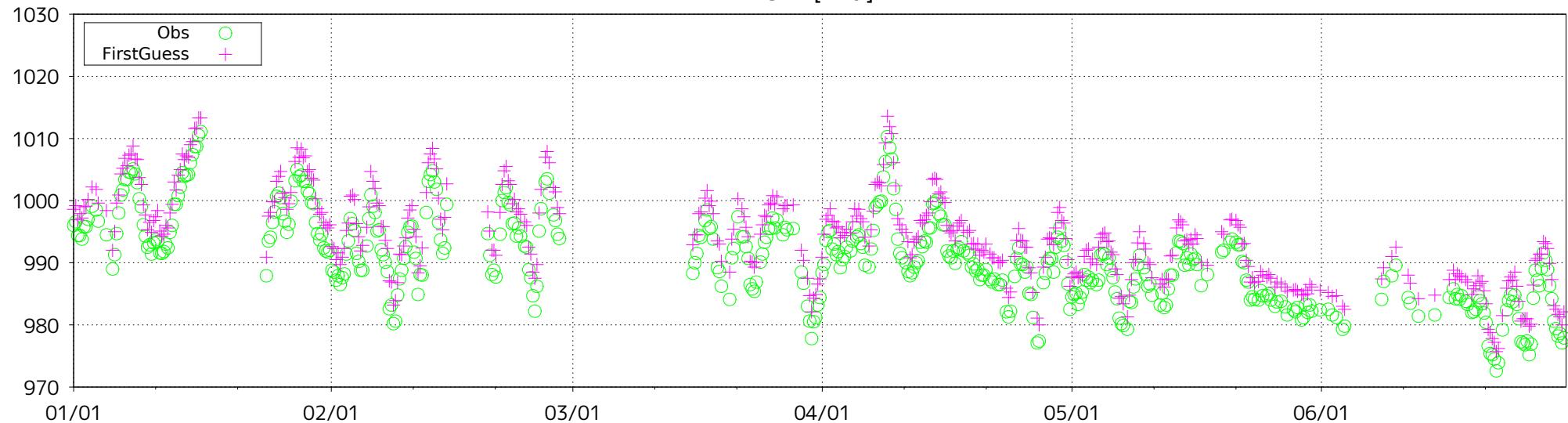


Figure 48 Time-series representation of SLP Obs minus FirstGuess for station 38313

ID: 38318 (lat: 42.1N, lon: 68.1E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

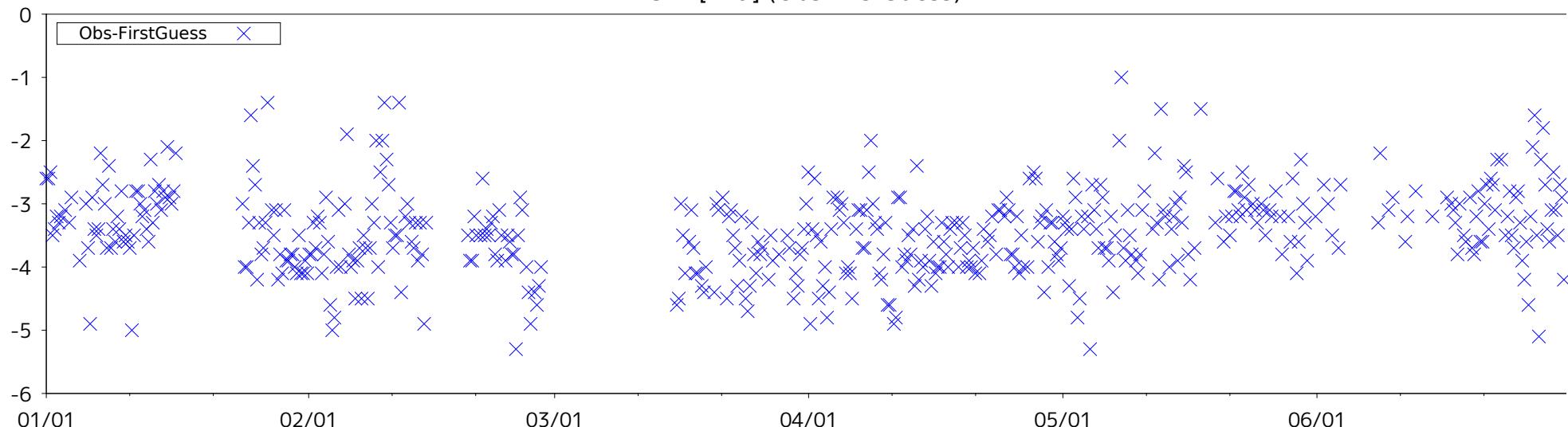
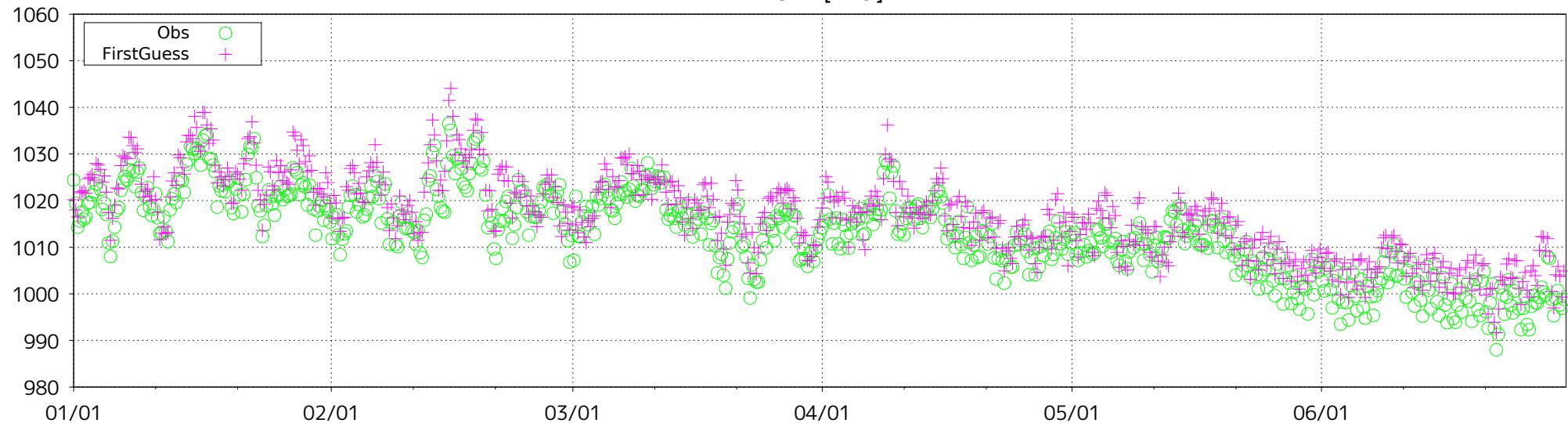


Figure 49 Time-series representation of SLP Obs minus FirstGuess for station 38318

ID: 38836 (lat: 38.6N, lon: 68.7E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

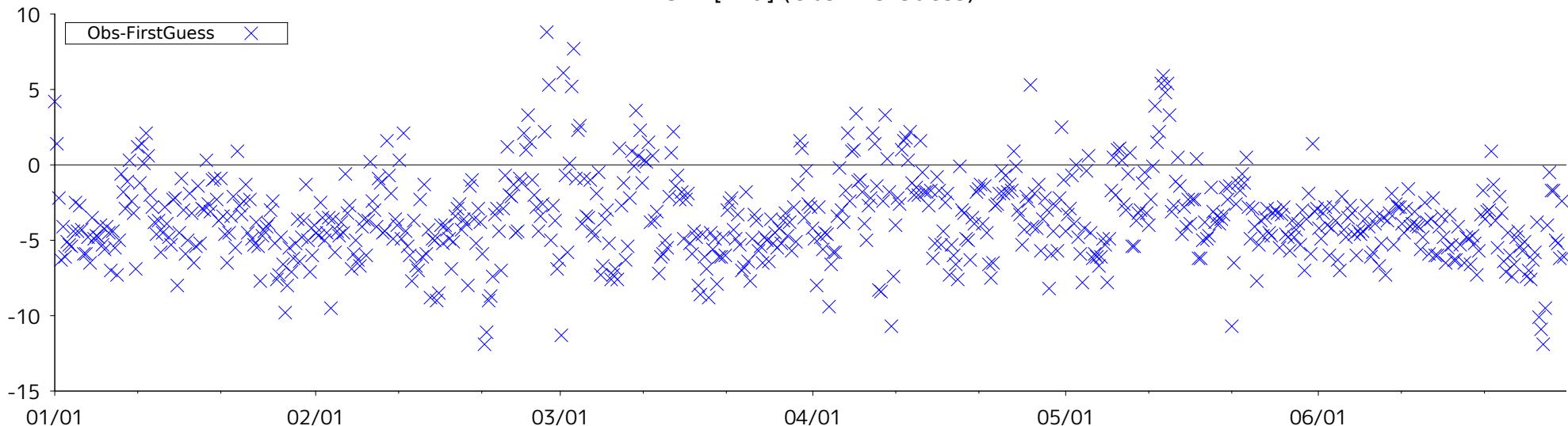
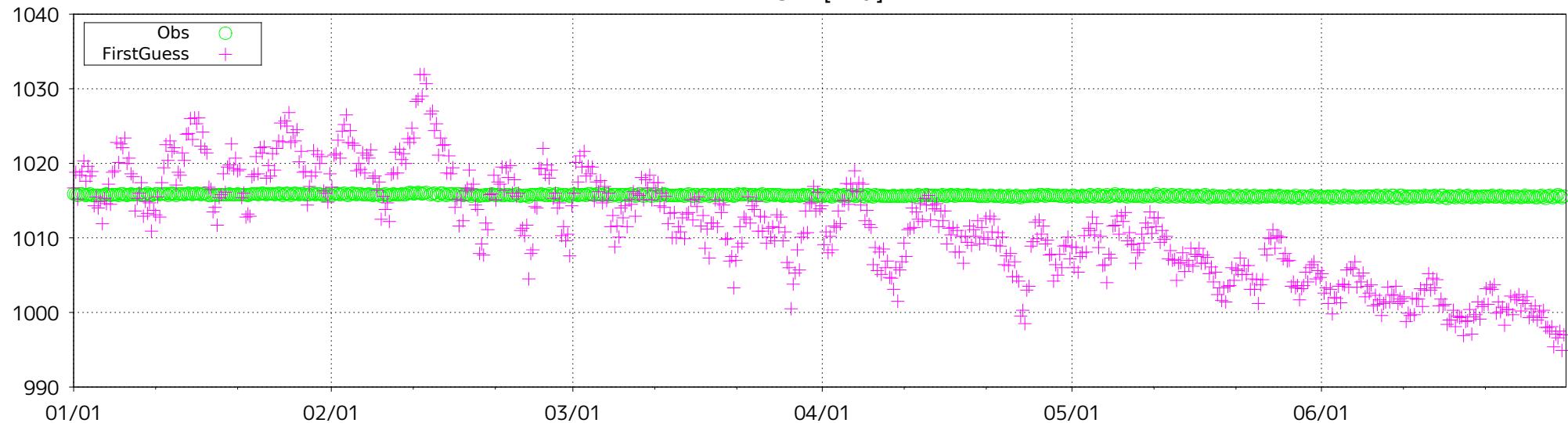


Figure 50 Time-series representation of MSLP Obs minus FirstGuess for station 38836

ID: 40587 (lat: 29.3N, lon: 47.7E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

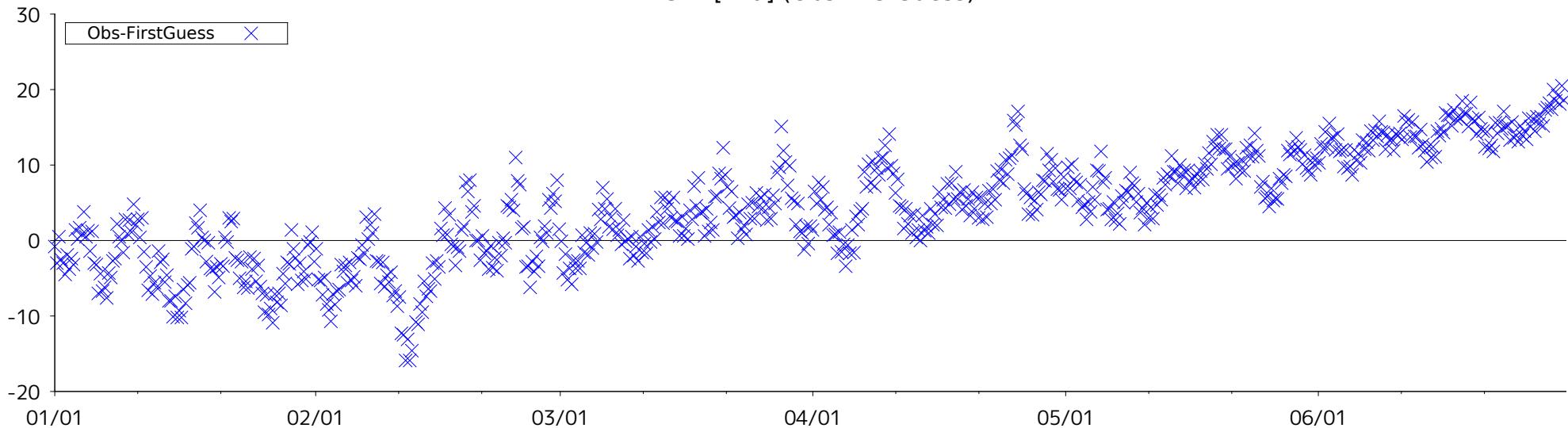
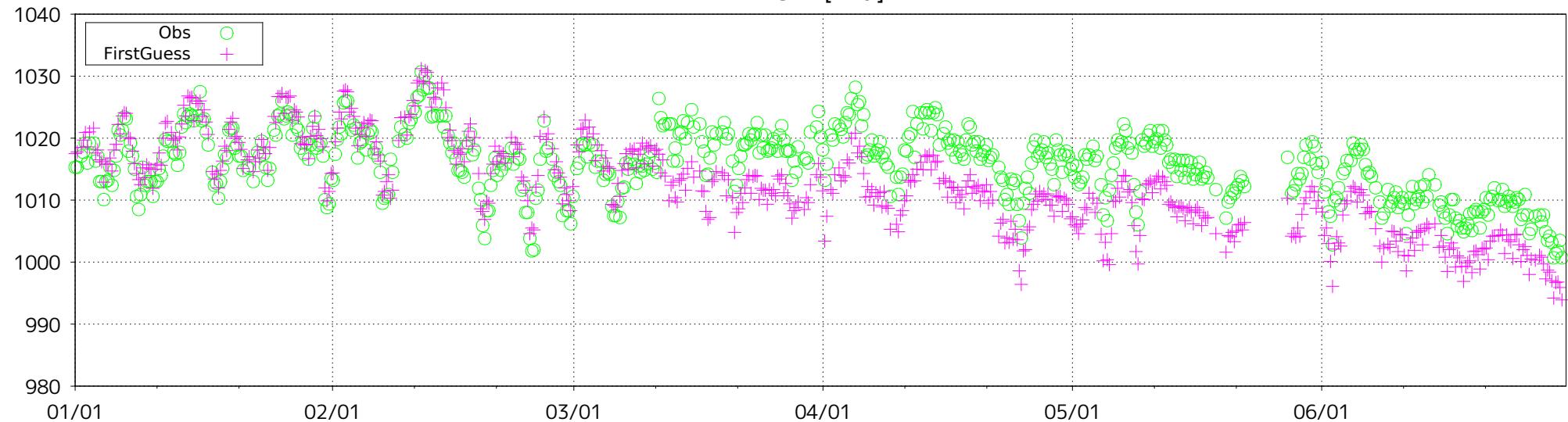


Figure 51 Time-series representation of MSLP Obs minus FirstGuess for station 40587

ID: 40621 (lat: 35.5N, lon: 44.4E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

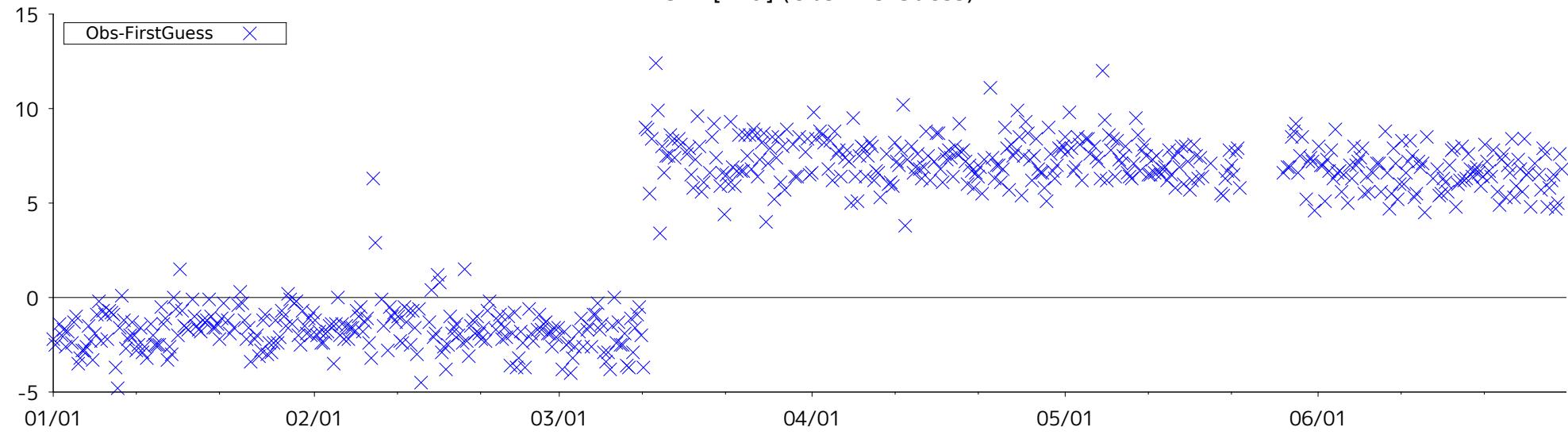
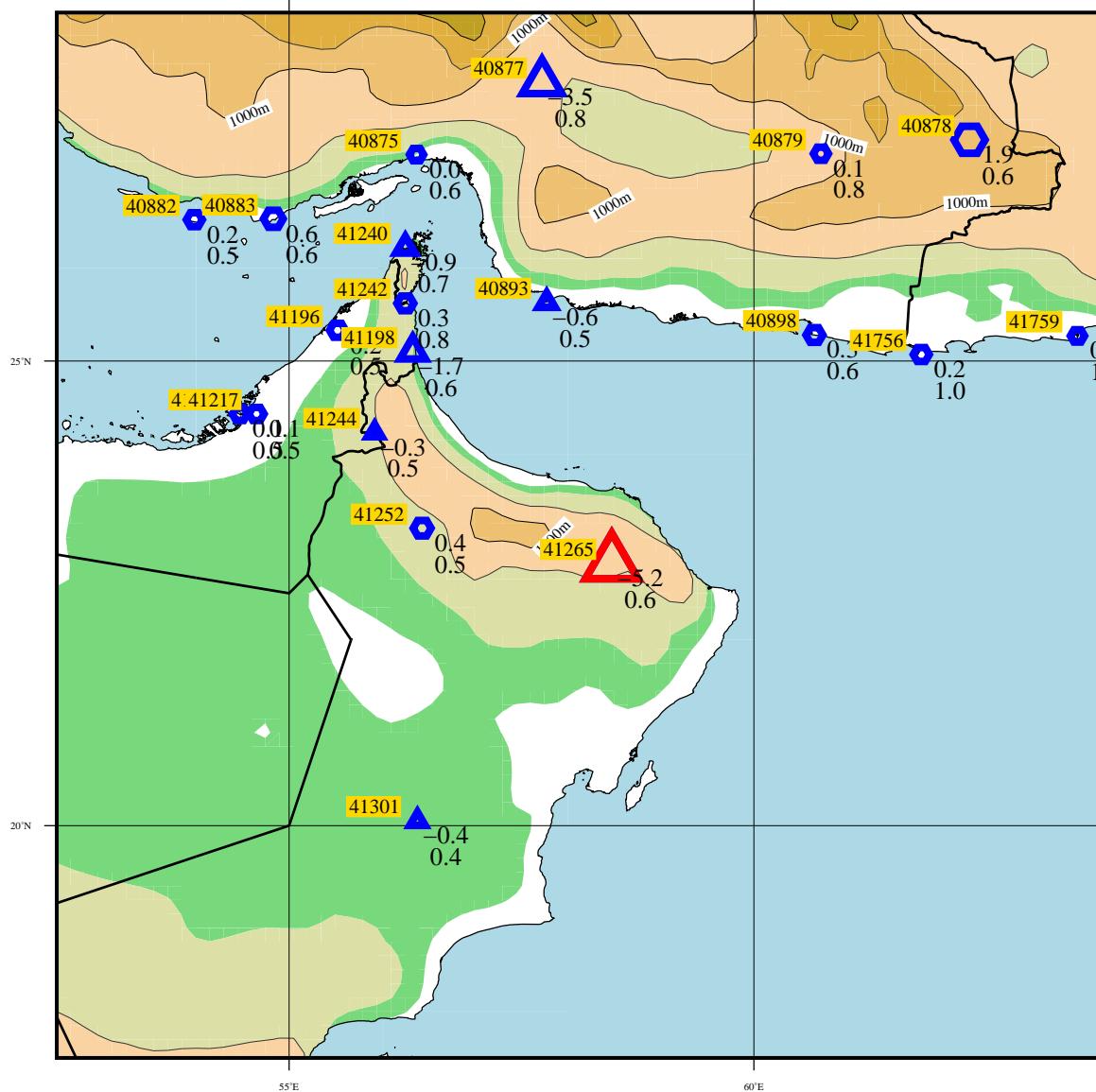


Figure 52 Time-series representation of MSLP Obs minus FirstGuess for station 40621

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

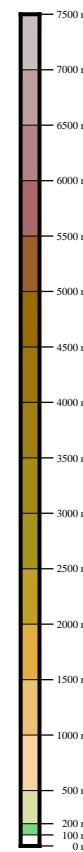


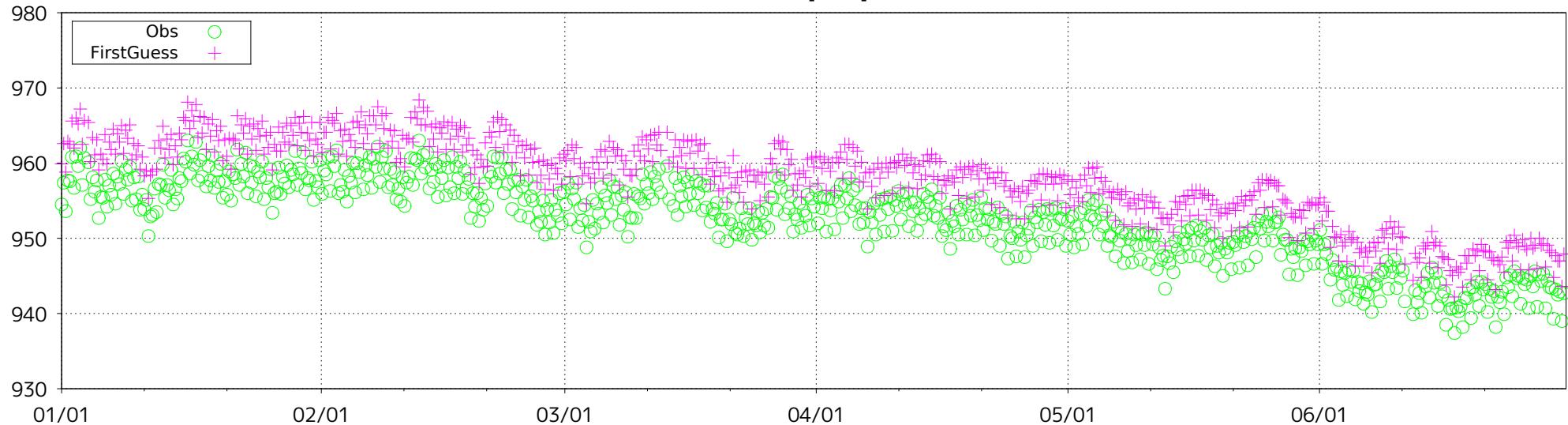
Figure 53 BIAS and SD of SLP for station 41265 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 41265 (lat: 22.8N, lon: 58.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

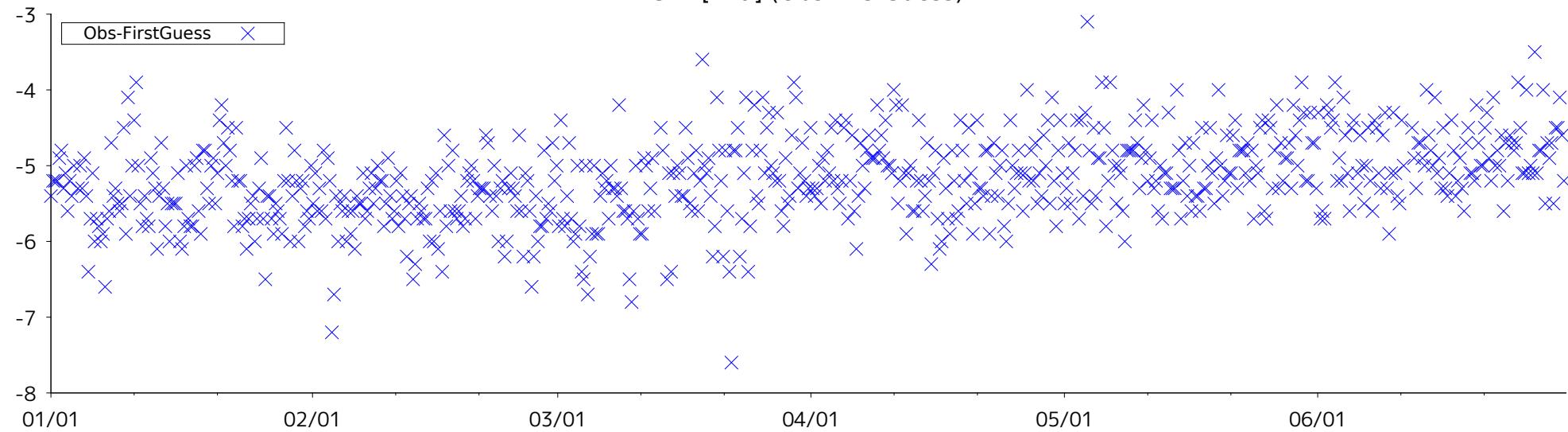
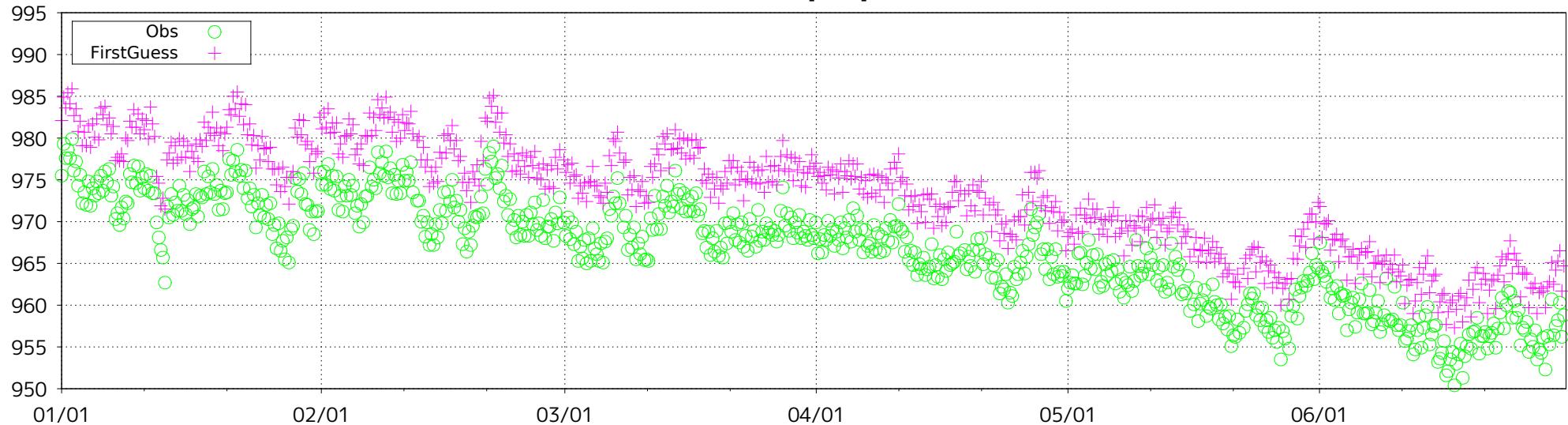


Figure 54 Time-series representation of SLP Obs minus FirstGuess for station 41265

ID: 42056 (lat: 32.7N, lon: 74.8E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

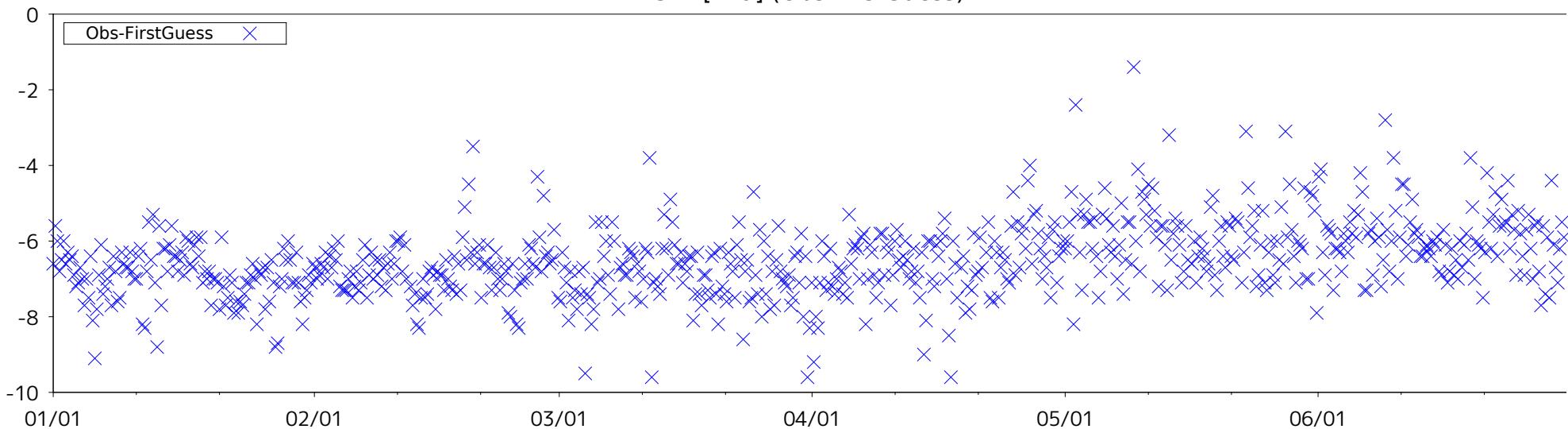
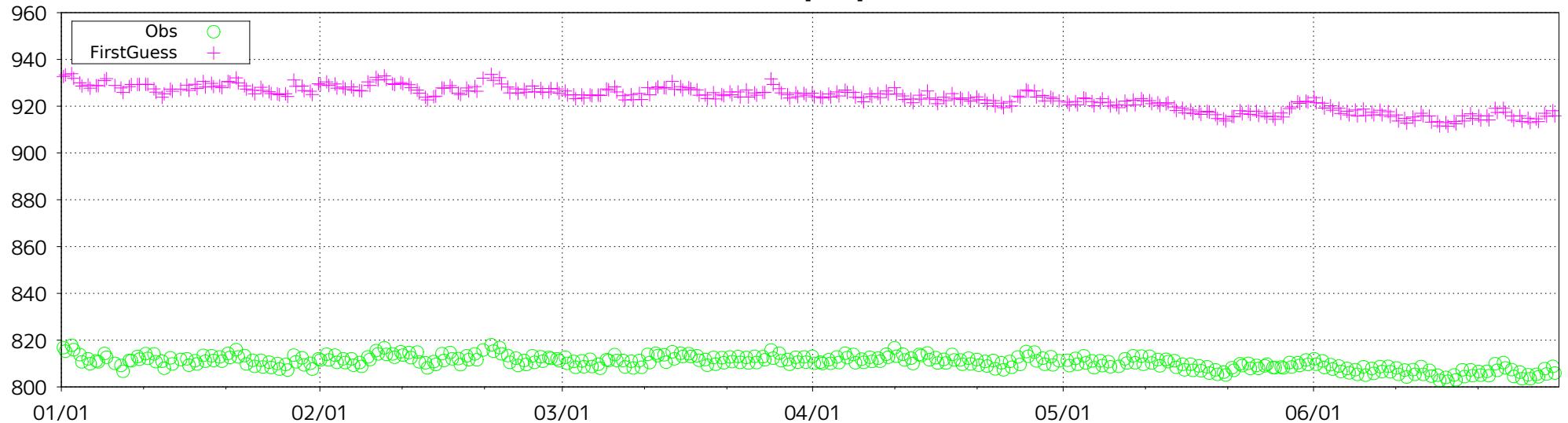


Figure 55 Time-series representation of SLP Obs minus FirstGuess for station 42056

ID: 42114 (lat: 30.4N, lon: 78.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

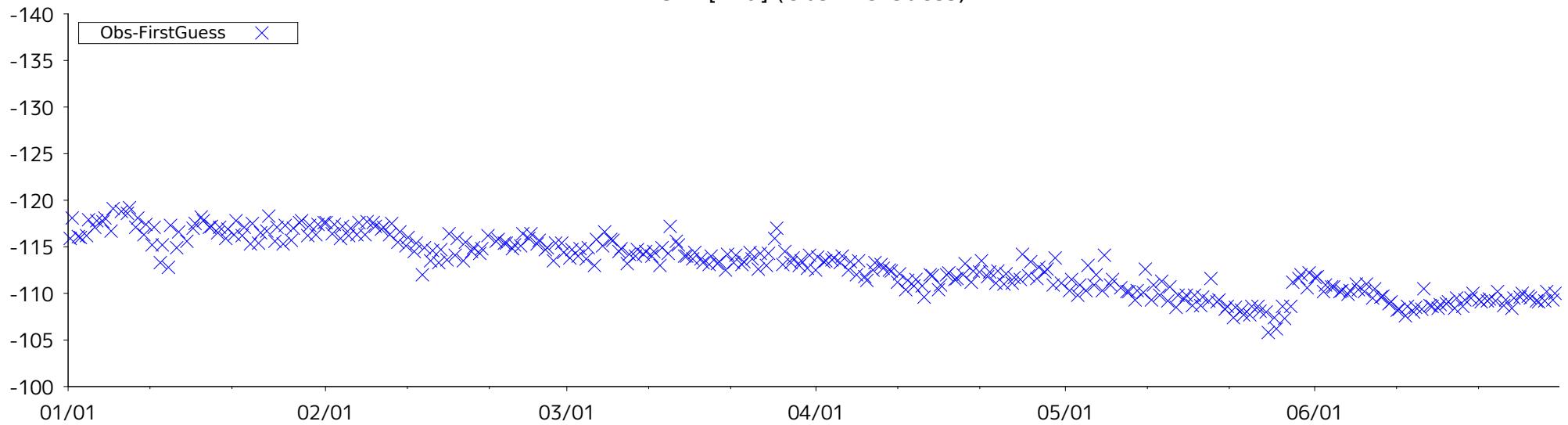
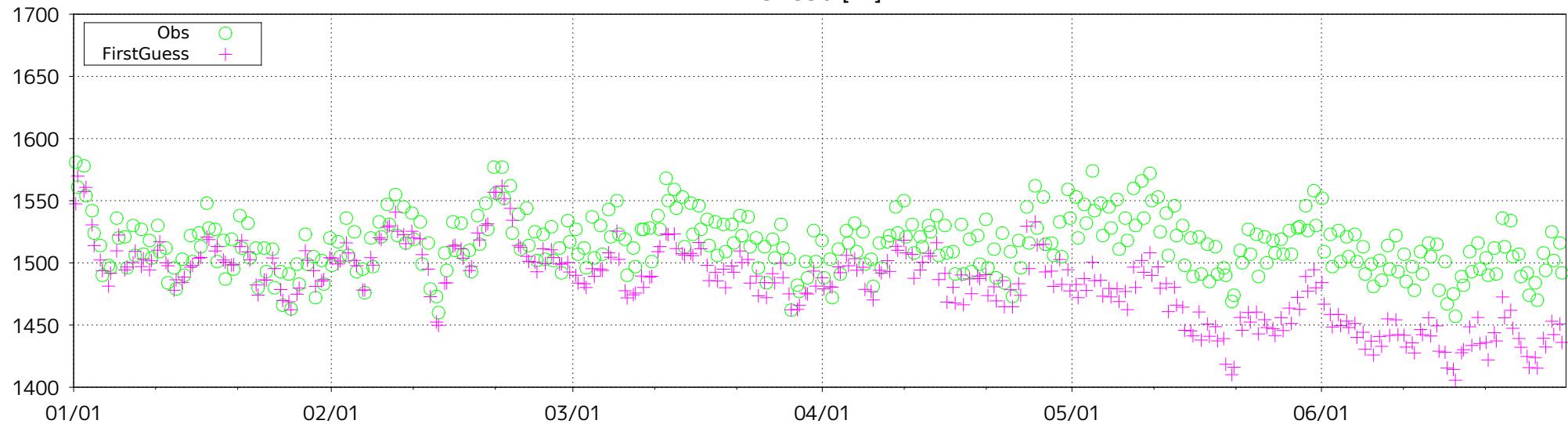


Figure 56 Time-series representation of SLP Obs minus FirstGuess for station 42114

ID: 42299 (lat: 27.3N, lon: 88.6E)

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

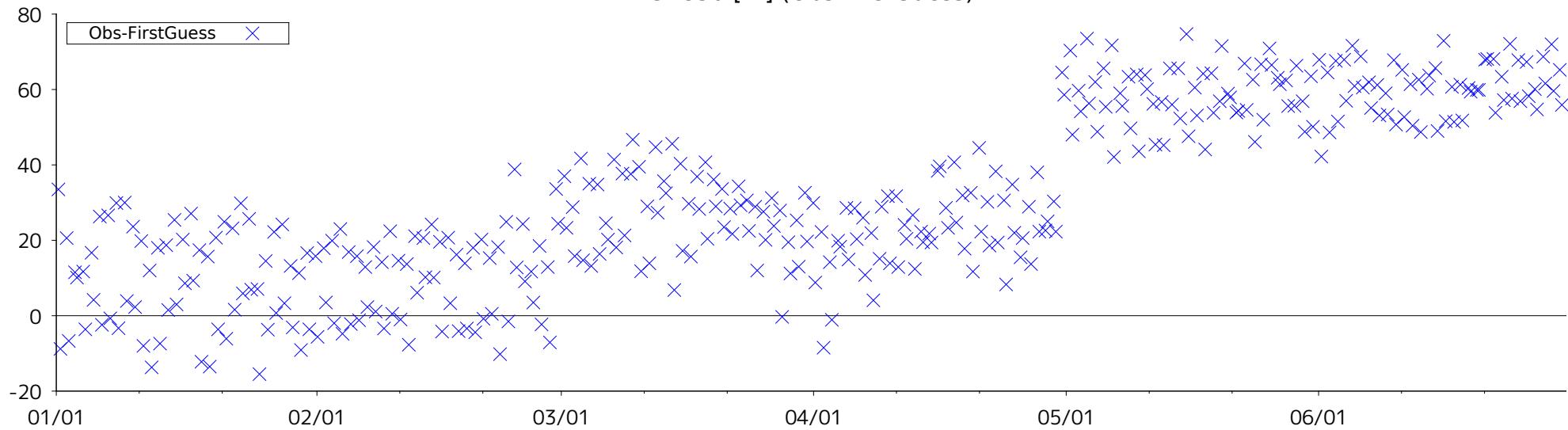
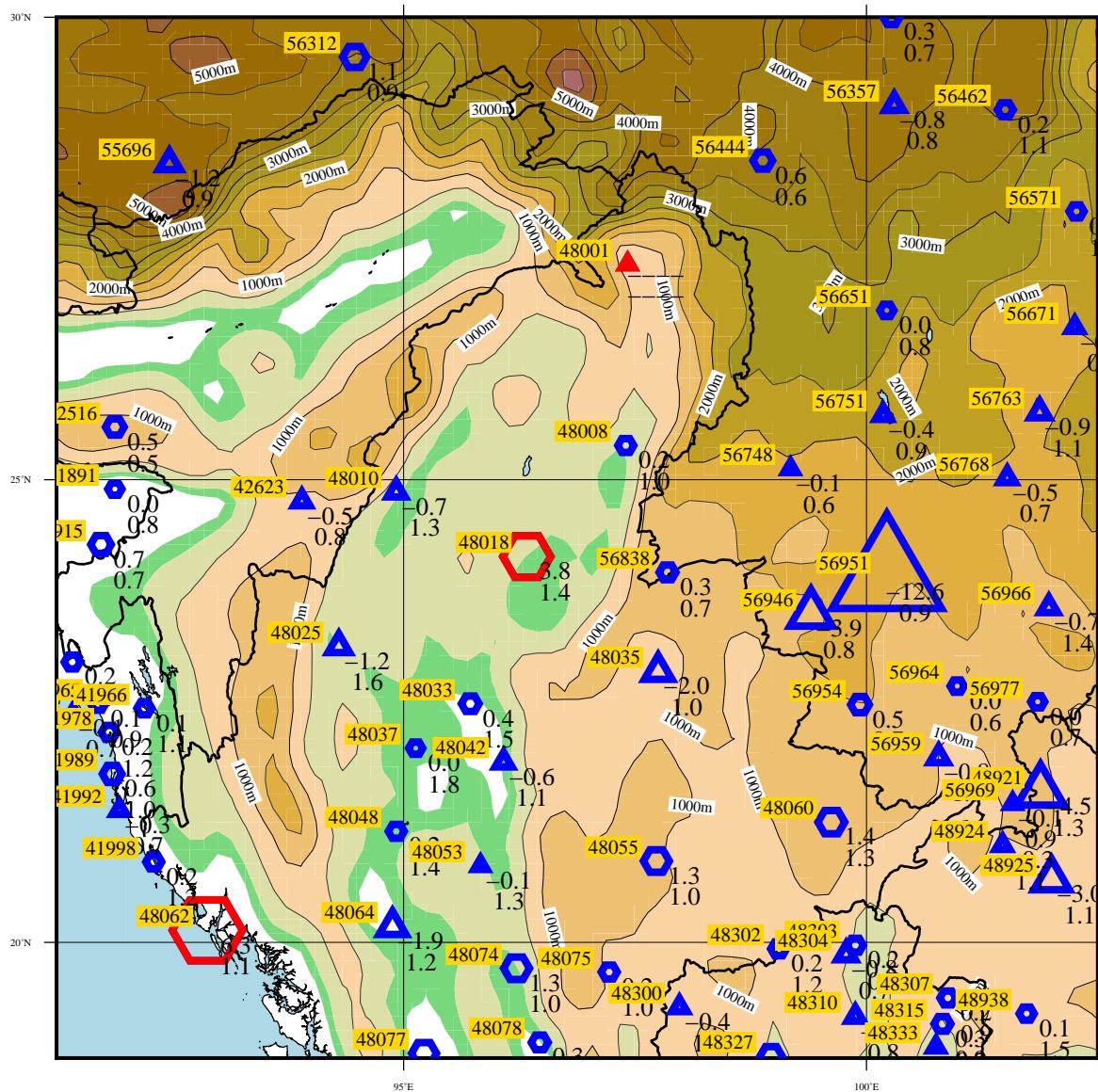


Figure 57 Time-series representation of GZ850 Obs minus FirstGuess for station 42299

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

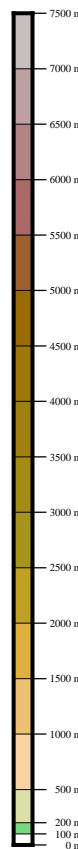


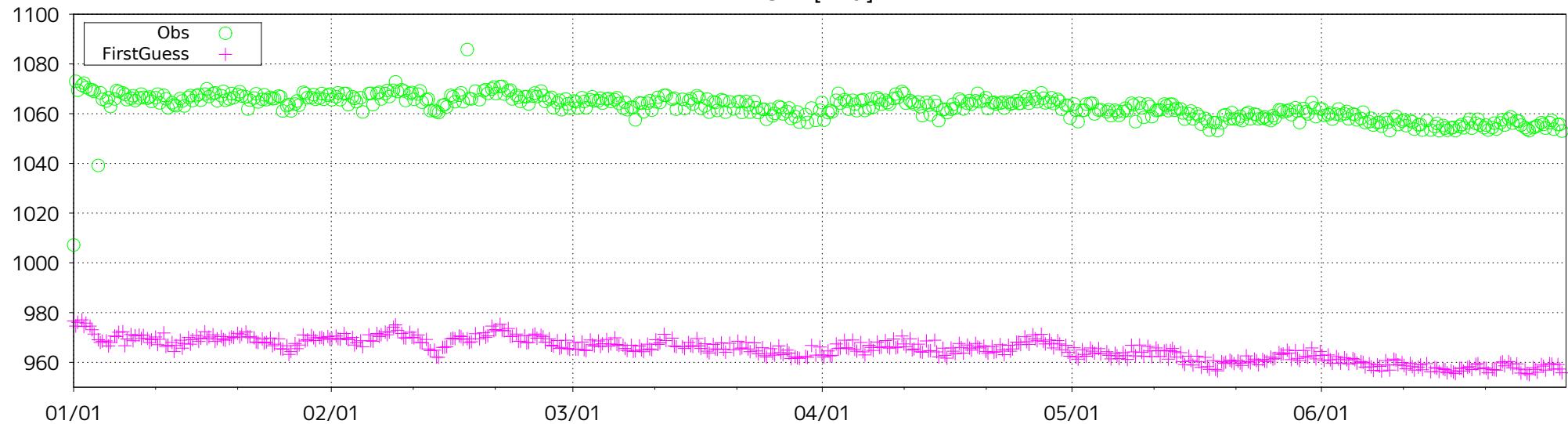
Figure 58 BIAS and SD of SLP for station 48001, 48018, 48062 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 48001 (lat: 27.3N, lon: 97.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

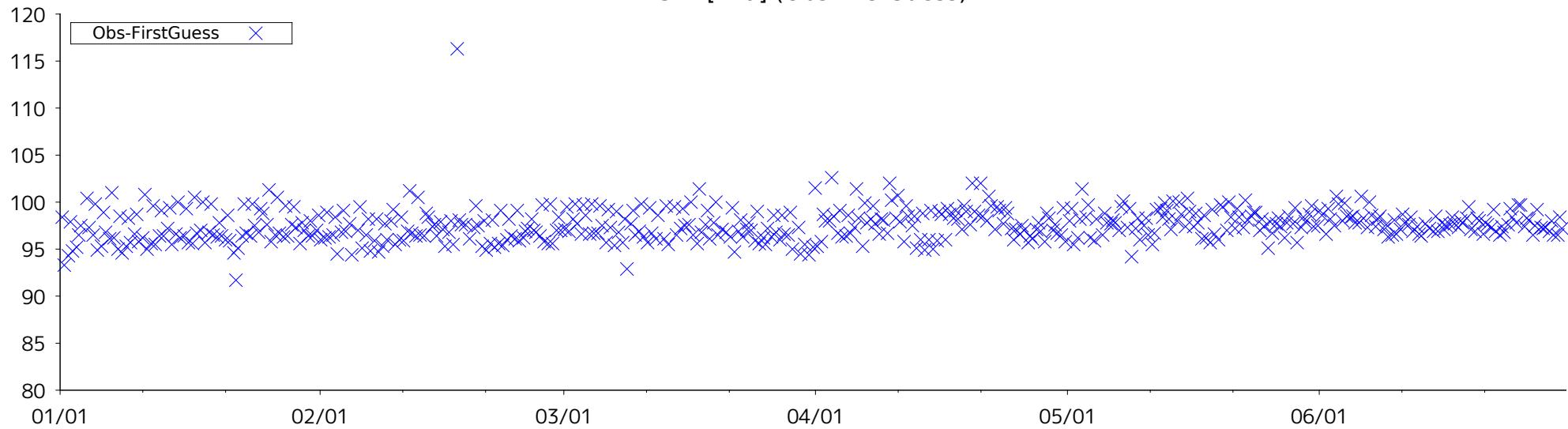
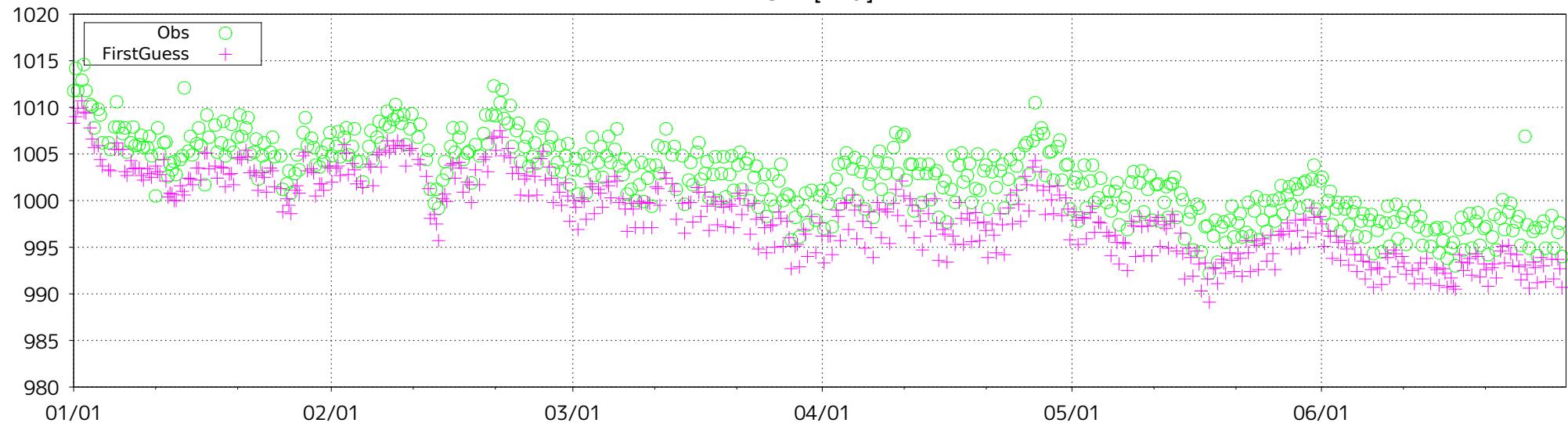


Figure 59 Time-series representation of SLP Obs minus FirstGuess for station 48001

ID: 48018 (lat: 24.2N, lon: 96.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

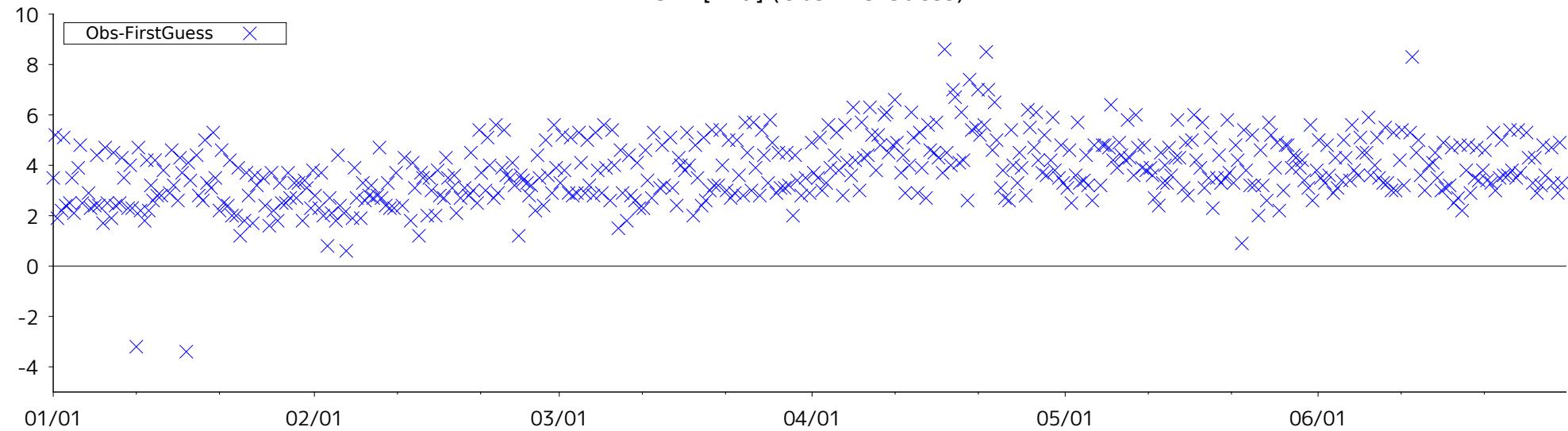
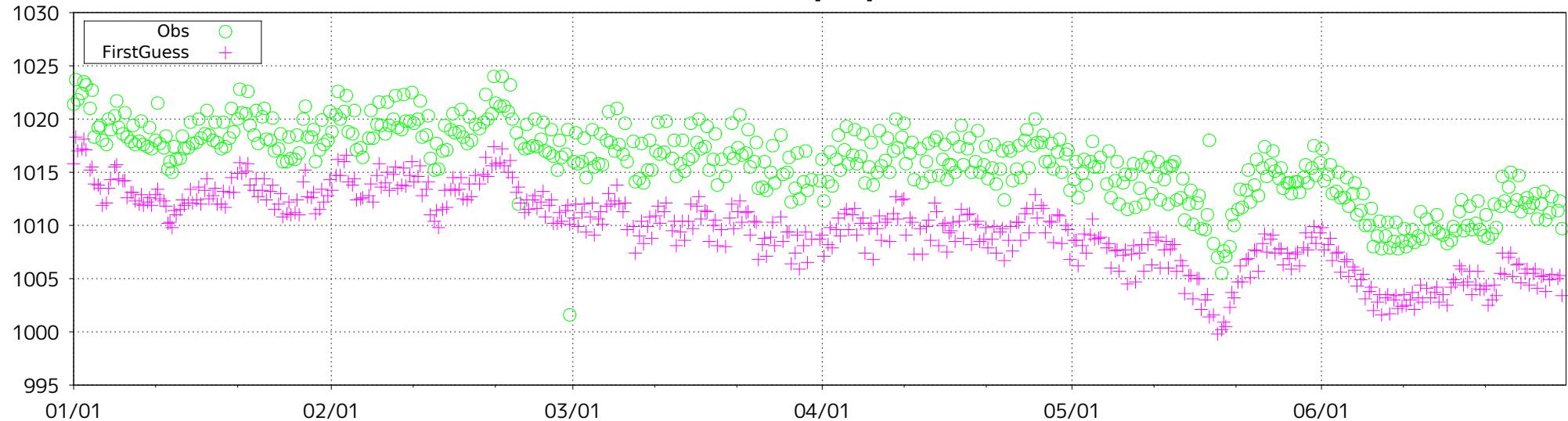


Figure 60 Time-series representation of SLP Obs minus FirstGuess for station 48018

ID: 48062 (lat: 20.1N, lon: 92.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

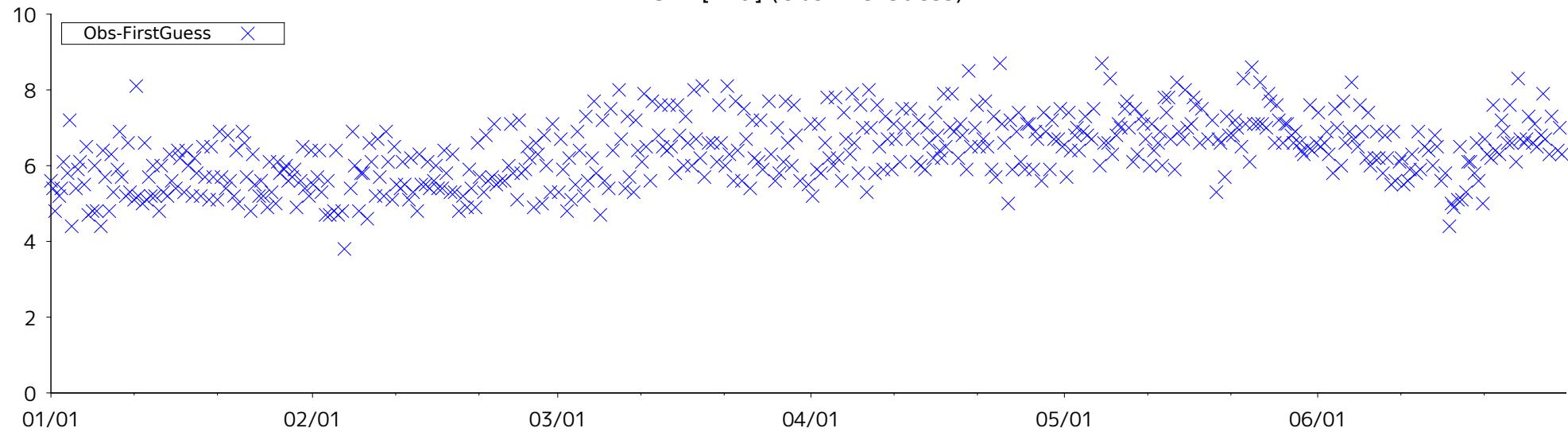


Figure 61 Time-series representation of SLP Obs minus FirstGuess for station 48062

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

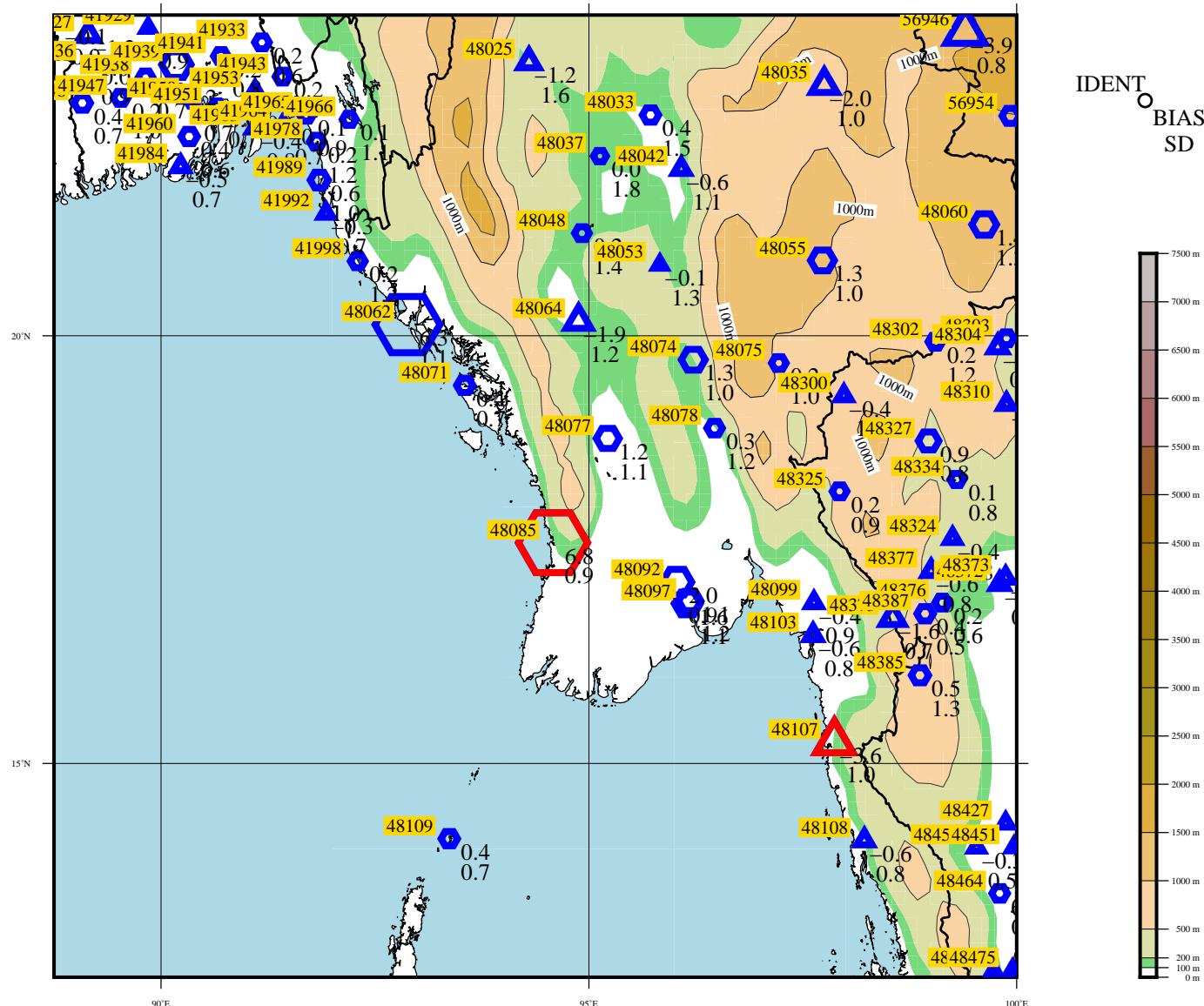


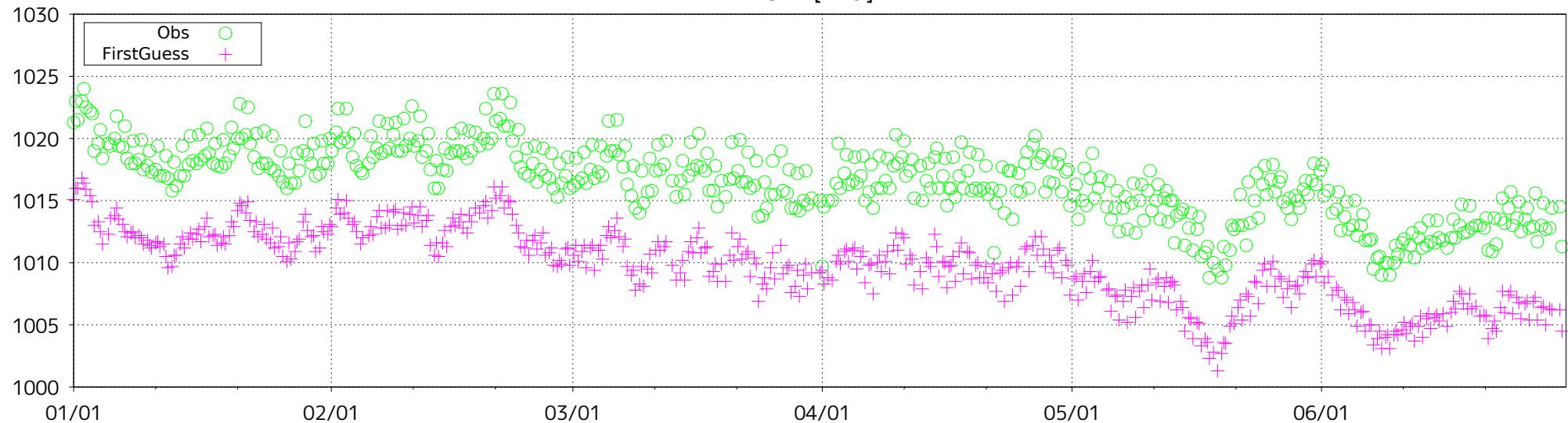
Figure 62 BIAS and SD of SLP for station 48085, 48107 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 48085 (lat: 17.6N, lon: 94.6E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

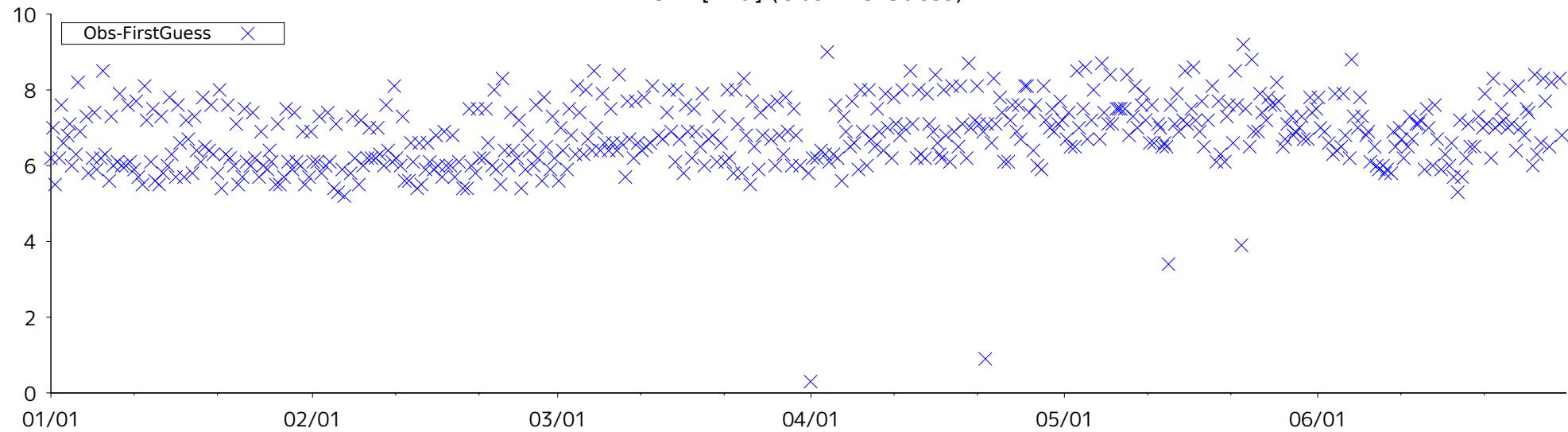
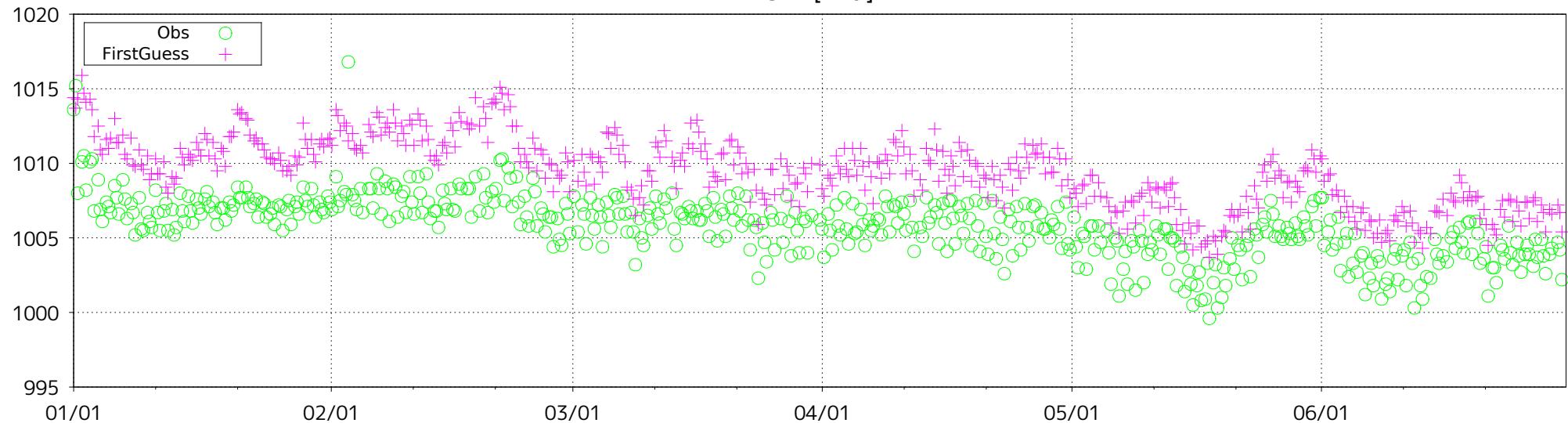


Figure 63 Time-series representation of SLP Obs minus FirstGuess for station 48085

ID: 48107 (lat: 15.3N, lon: 97.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

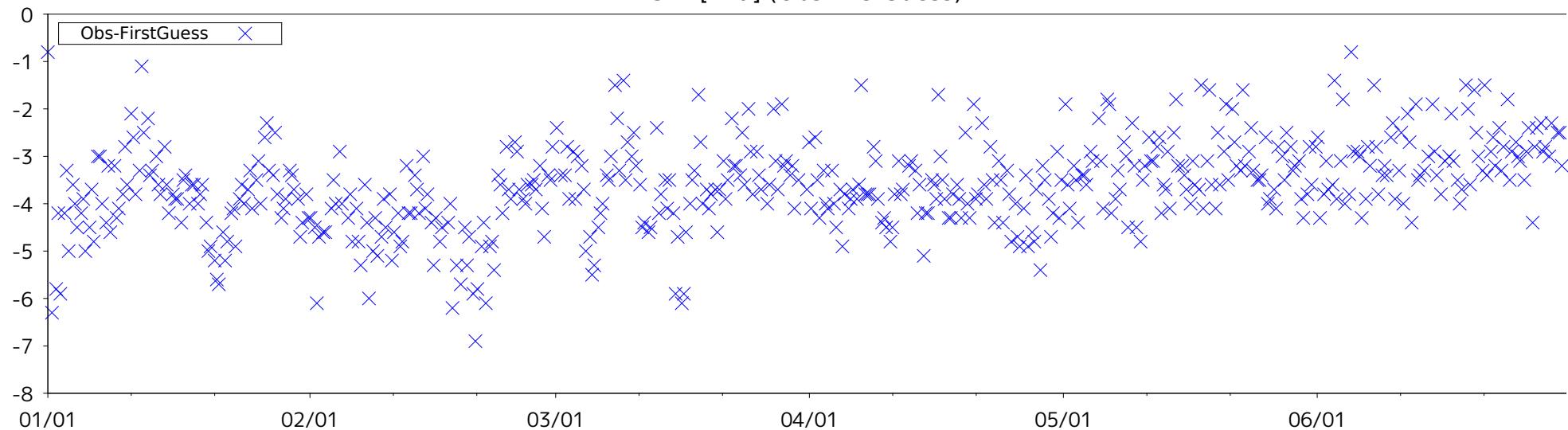
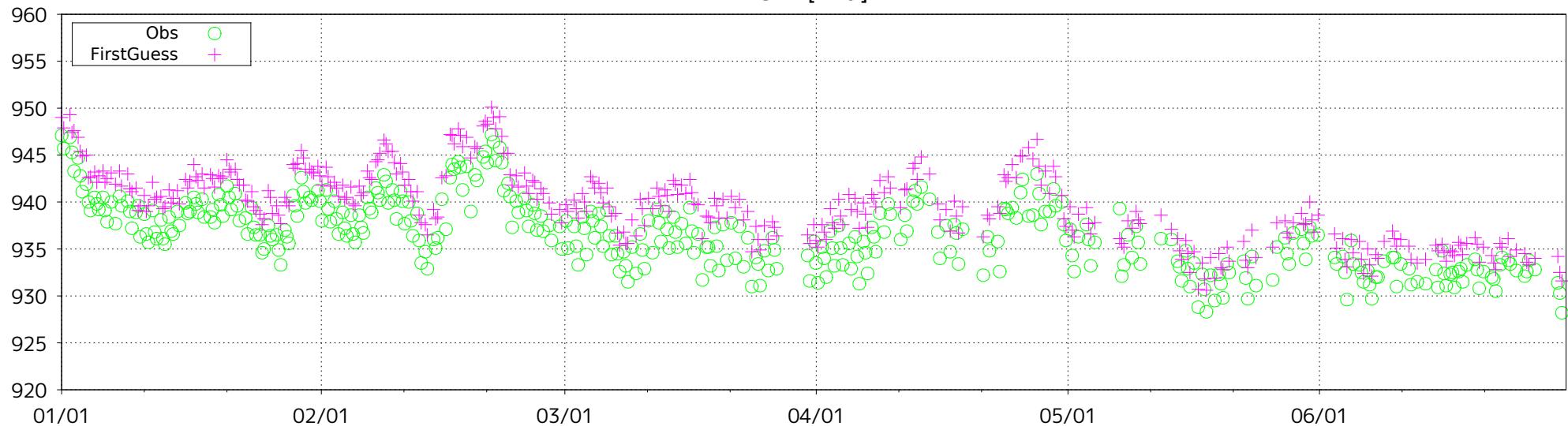


Figure 64 Time-series representation of SLP Obs minus FirstGuess for station 48107

ID: 48925 (lat: 20.7N, lon: 102.0E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

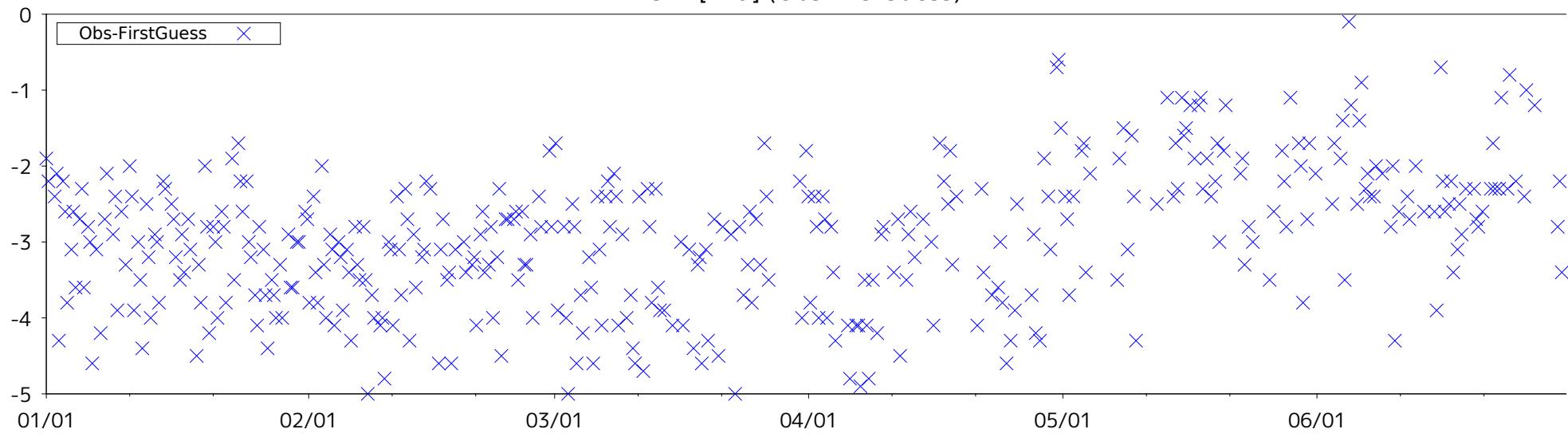


Figure 65 Time-series representation of SLP Obs minus FirstGuess for station 48925

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

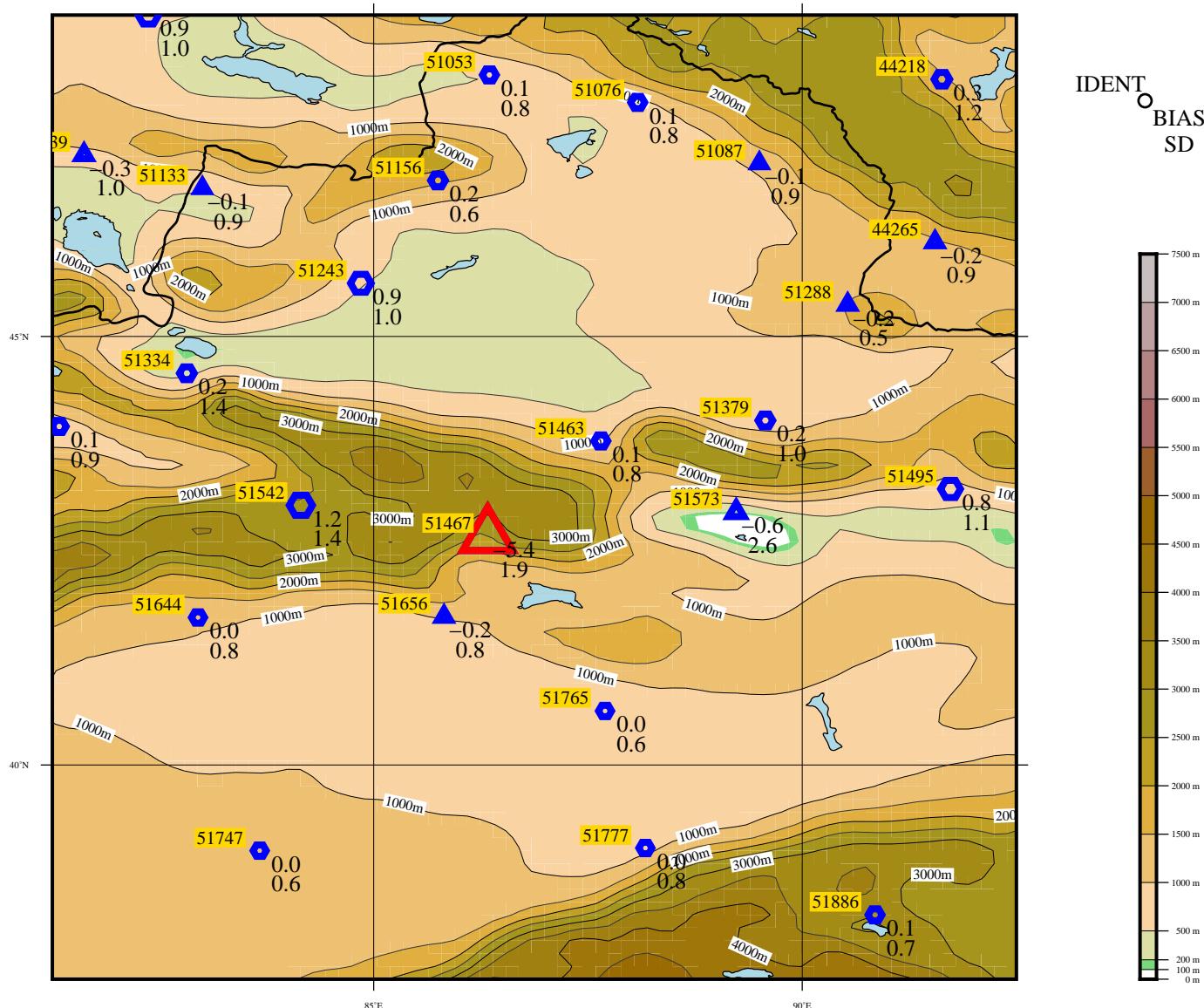


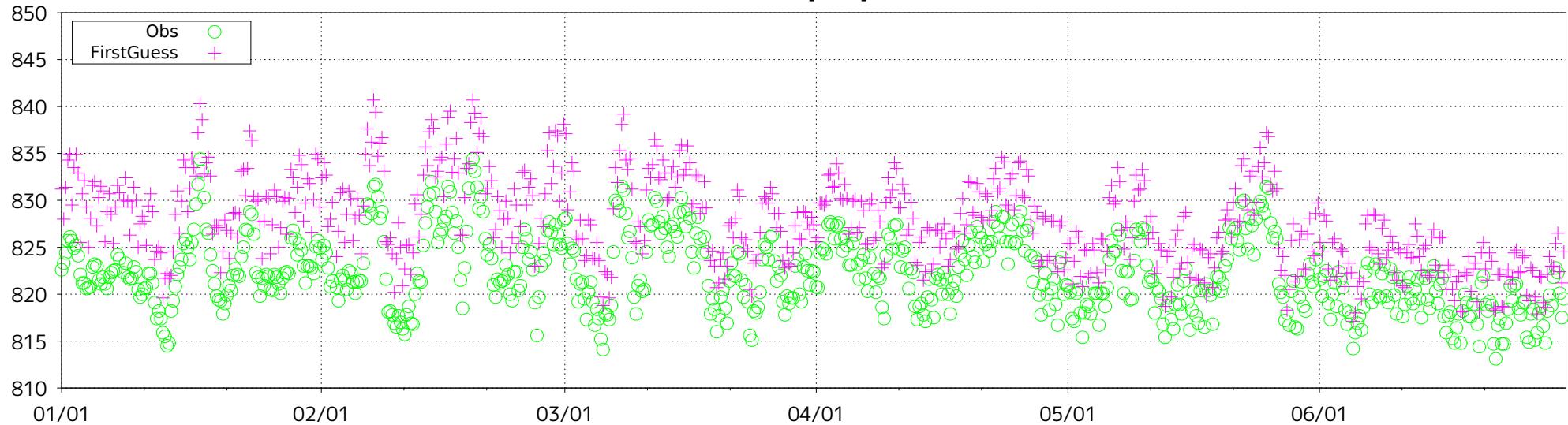
Figure 66 BIAS and SD of SLP for station 51467 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 51467 (lat: 42.7N, lon: 86.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

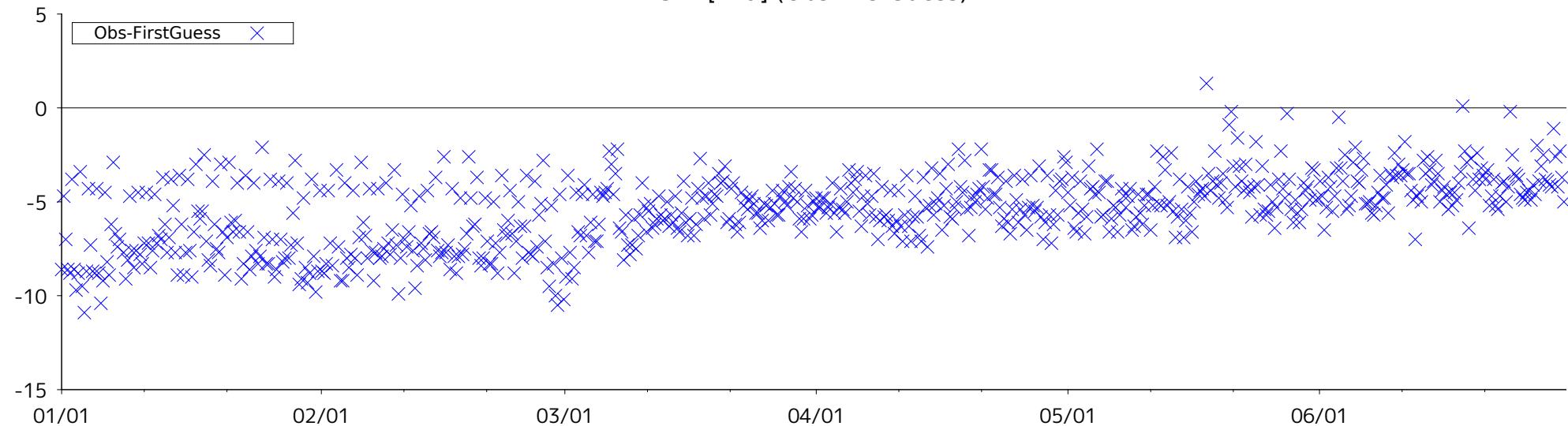
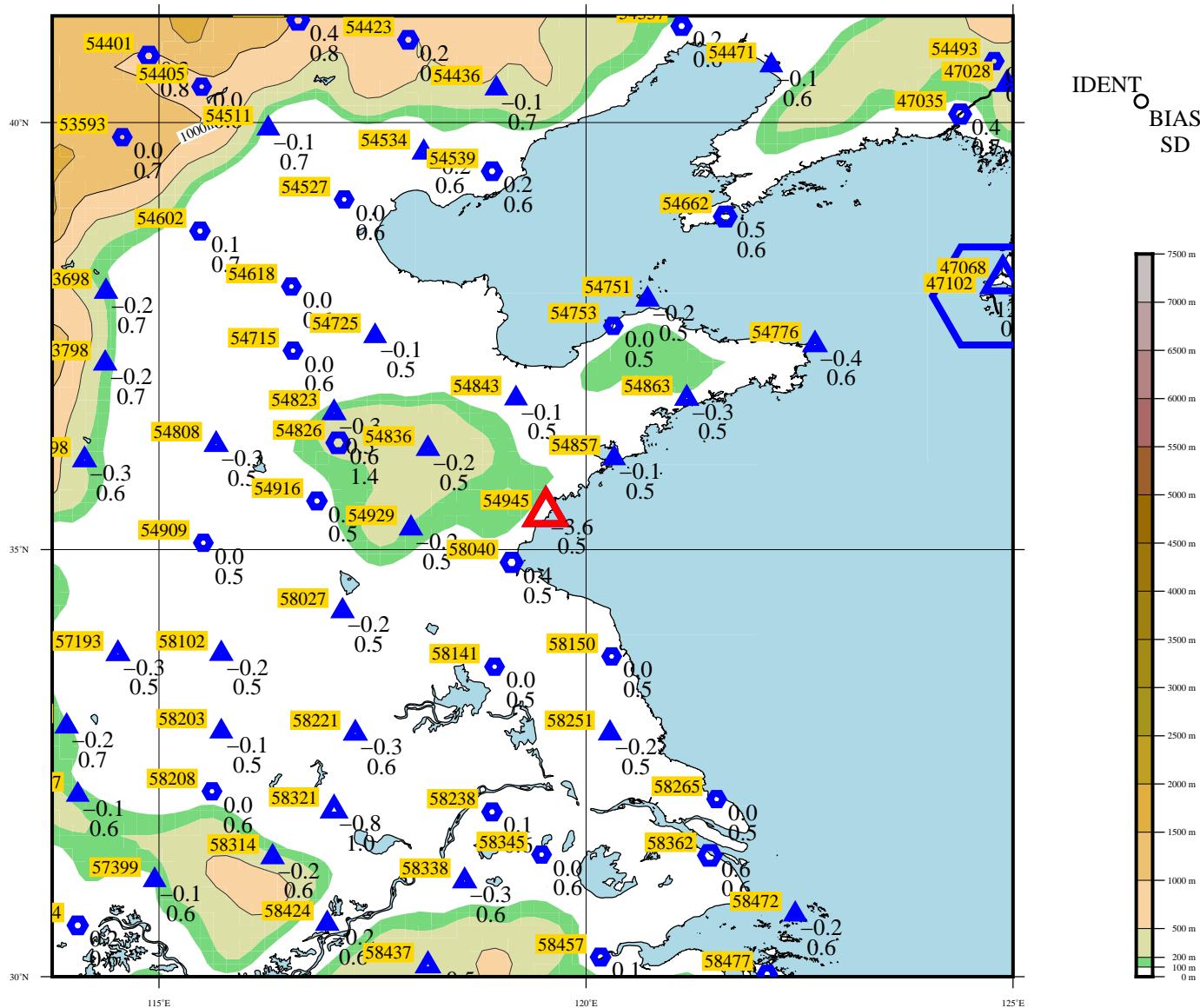


Figure 67 Time-series representation of SLP Obs minus FirstGuess for station 51467

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
BIAS
SD

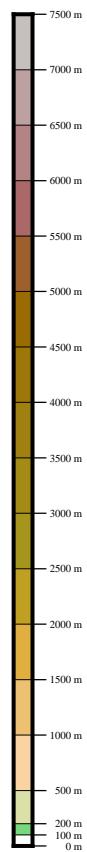


Figure 68 BIAS and SD of SLP for station 54945 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

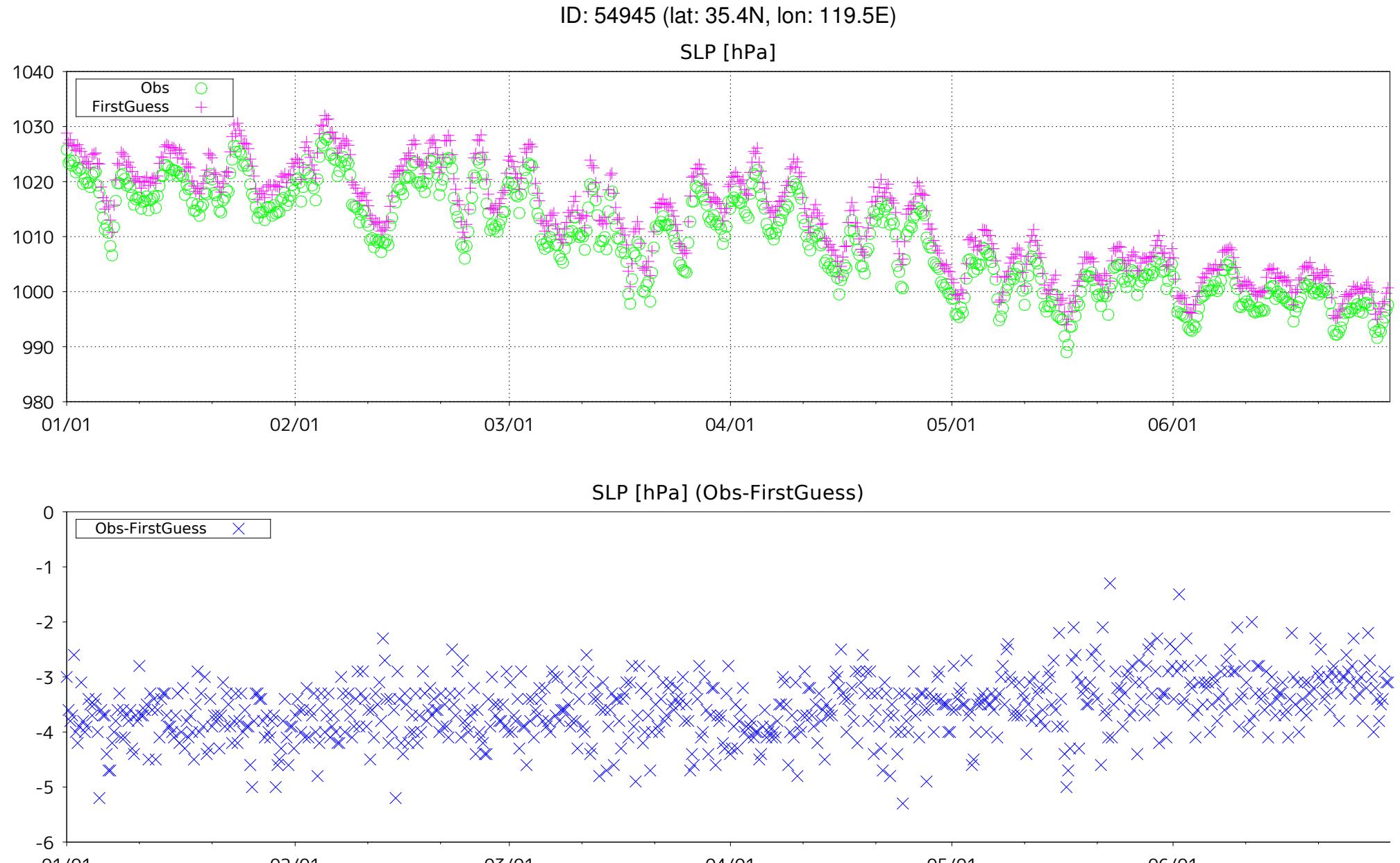
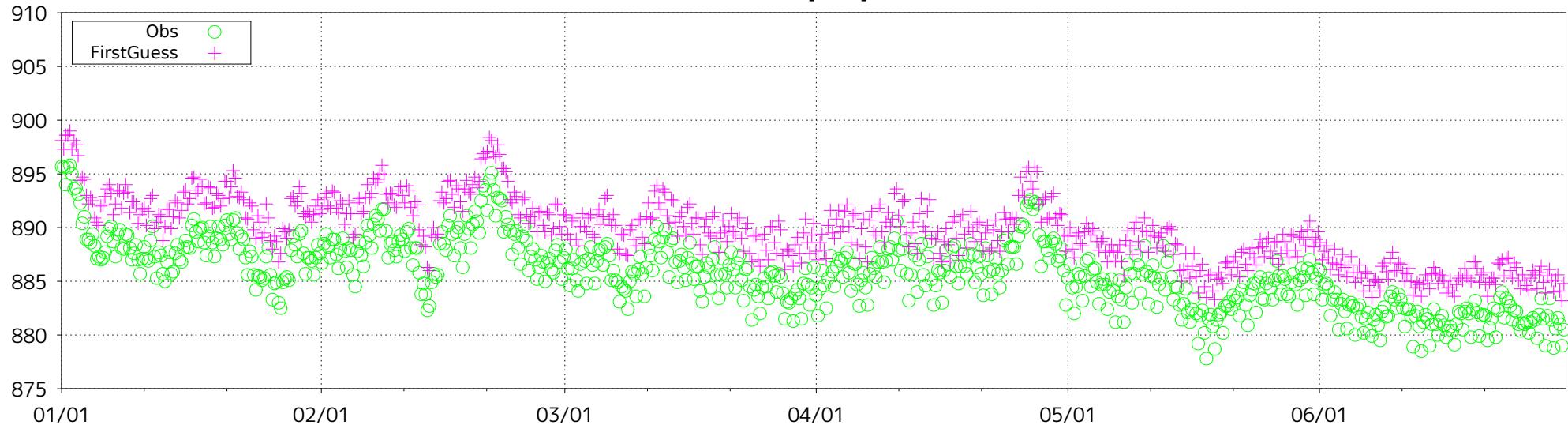


Figure 69 Time-series representation of SLP Obs minus FirstGuess for station 54945

ID: 56946 (lat: 23.6N, lon: 99.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

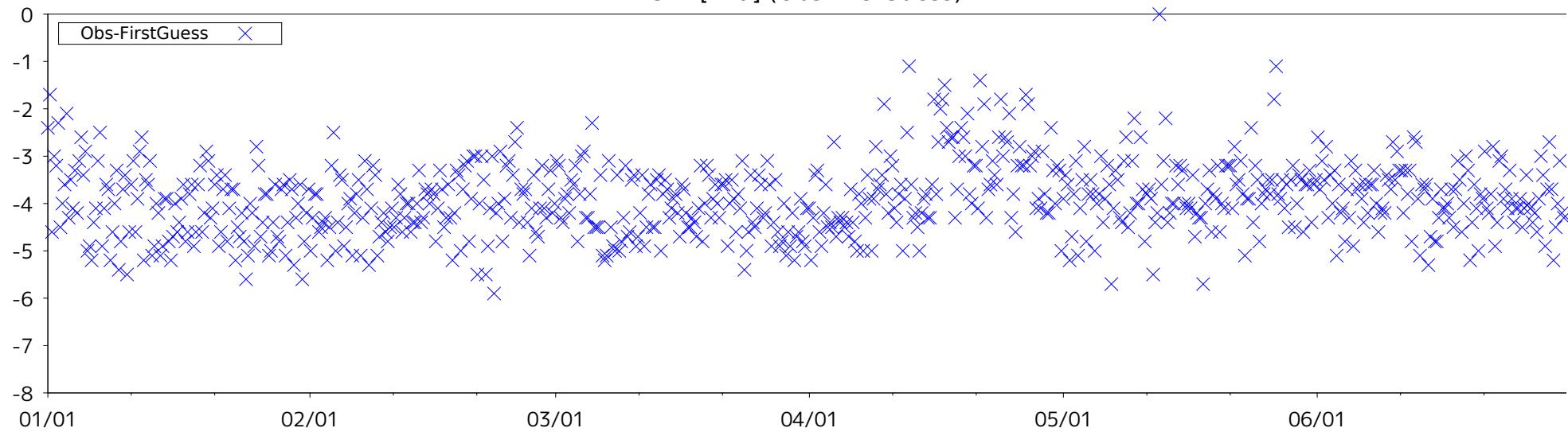
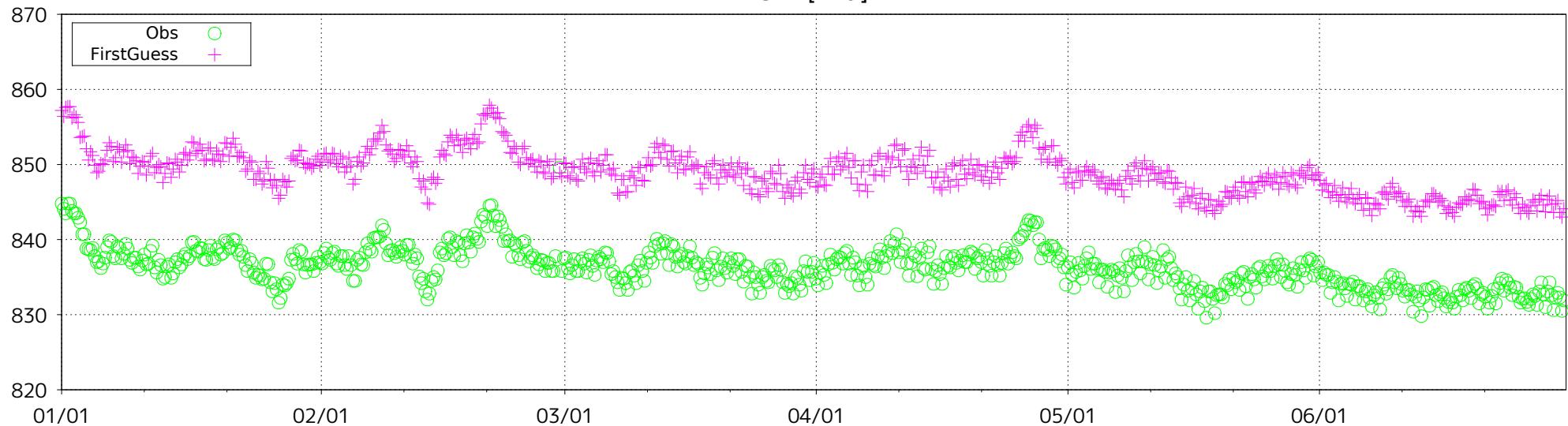


Figure 70 Time-series representation of SLP Obs minus FirstGuess for station 56946

ID: 56951 (lat: 24.0N, lon: 100.2E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

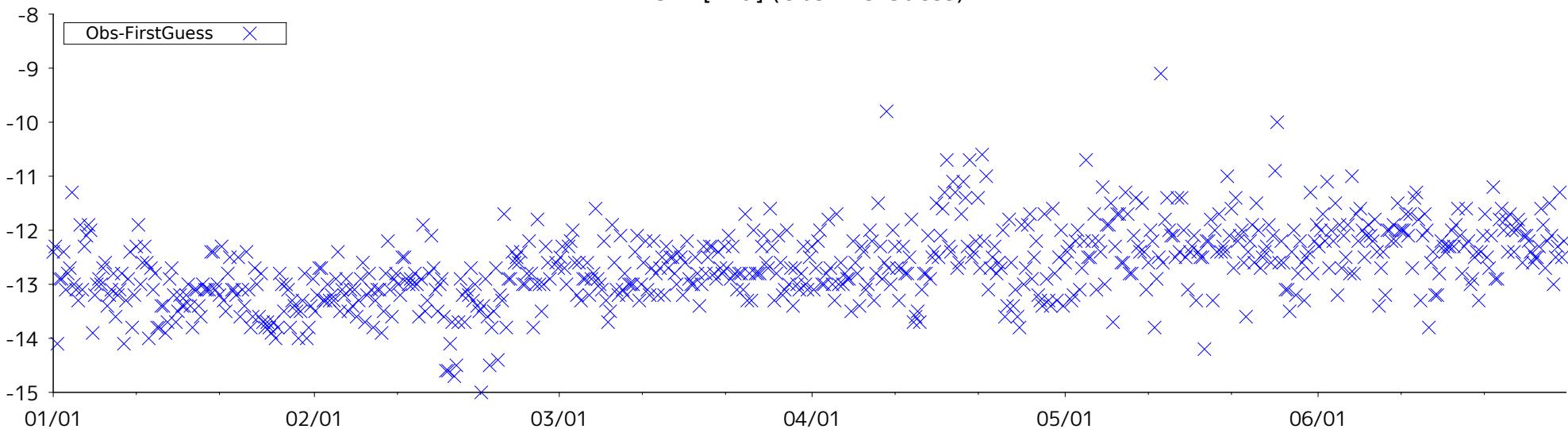
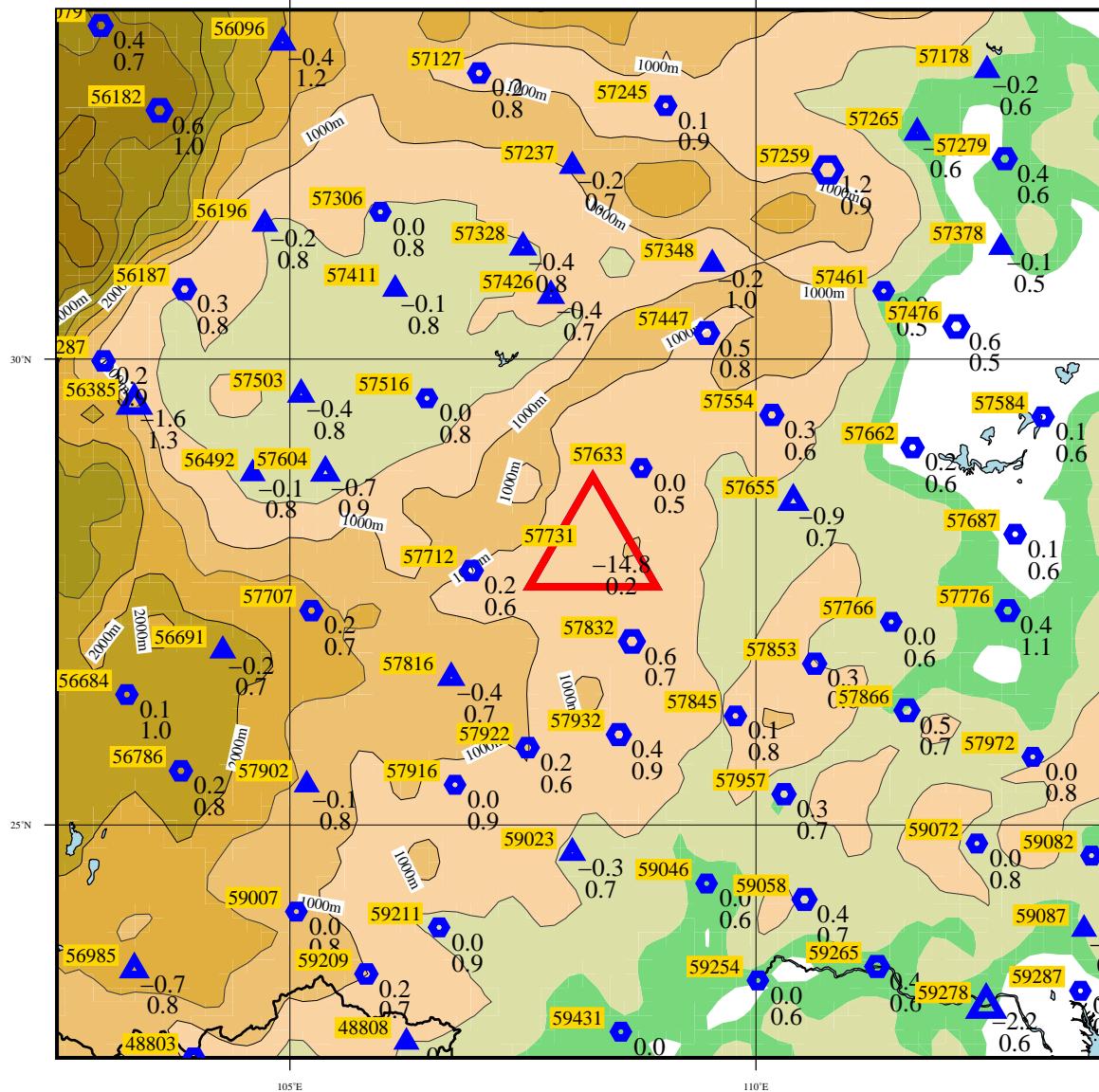


Figure 71 Time-series representation of SLP Obs minus FirstGuess for station 56951

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT
O BIAS
SD

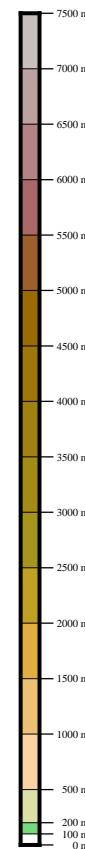


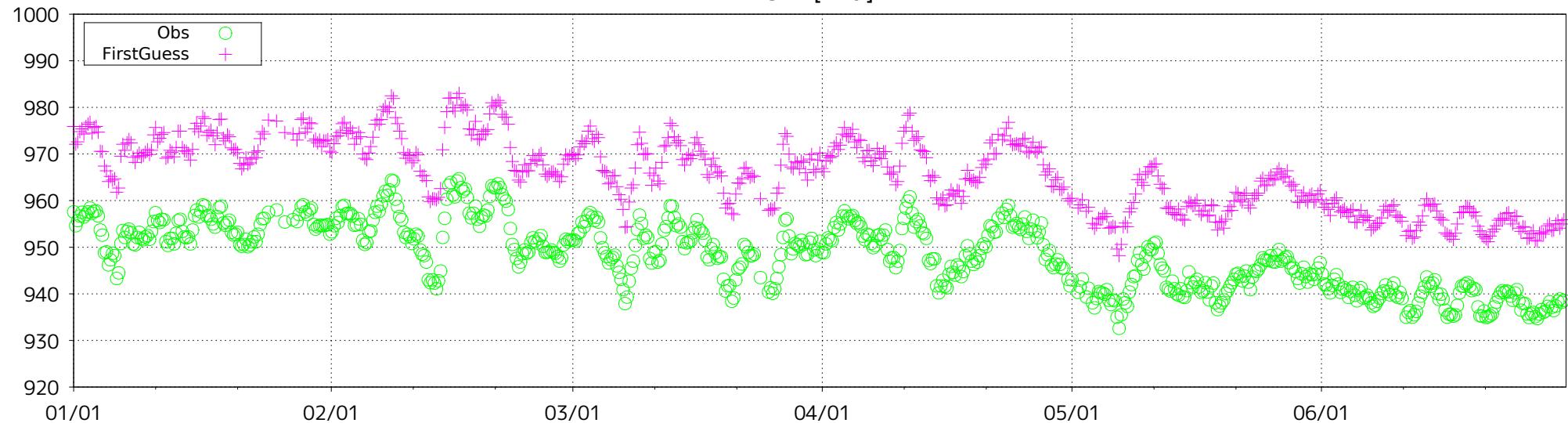
Figure 72 BIAS and SD of SLP for station 57731 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The numbers to the upper-left of each symbol is the **WEIGHTS**, and those to the lower-right are the values of **BIAS** and **SD**. The size of each symbol is proportional to the value of **BIAS**, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 57731 (lat: 28.0N, lon: 108.3E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

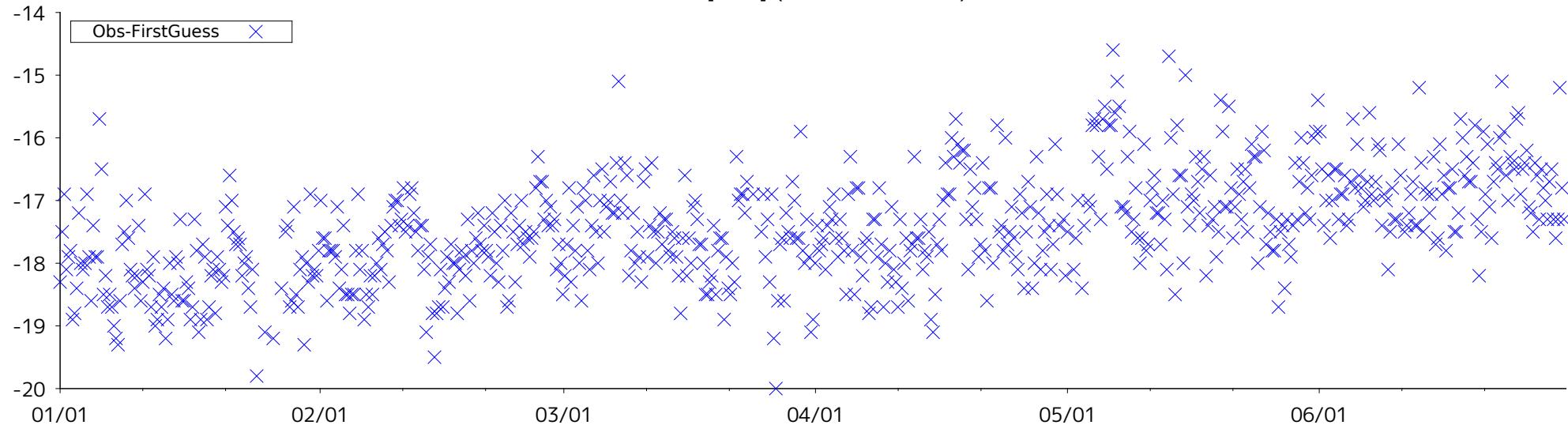


Figure 73 Time-series representation of SLP Obs minus FirstGuess for station 57731

LEVEL = SUR ELEMENT = SLP
 2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)

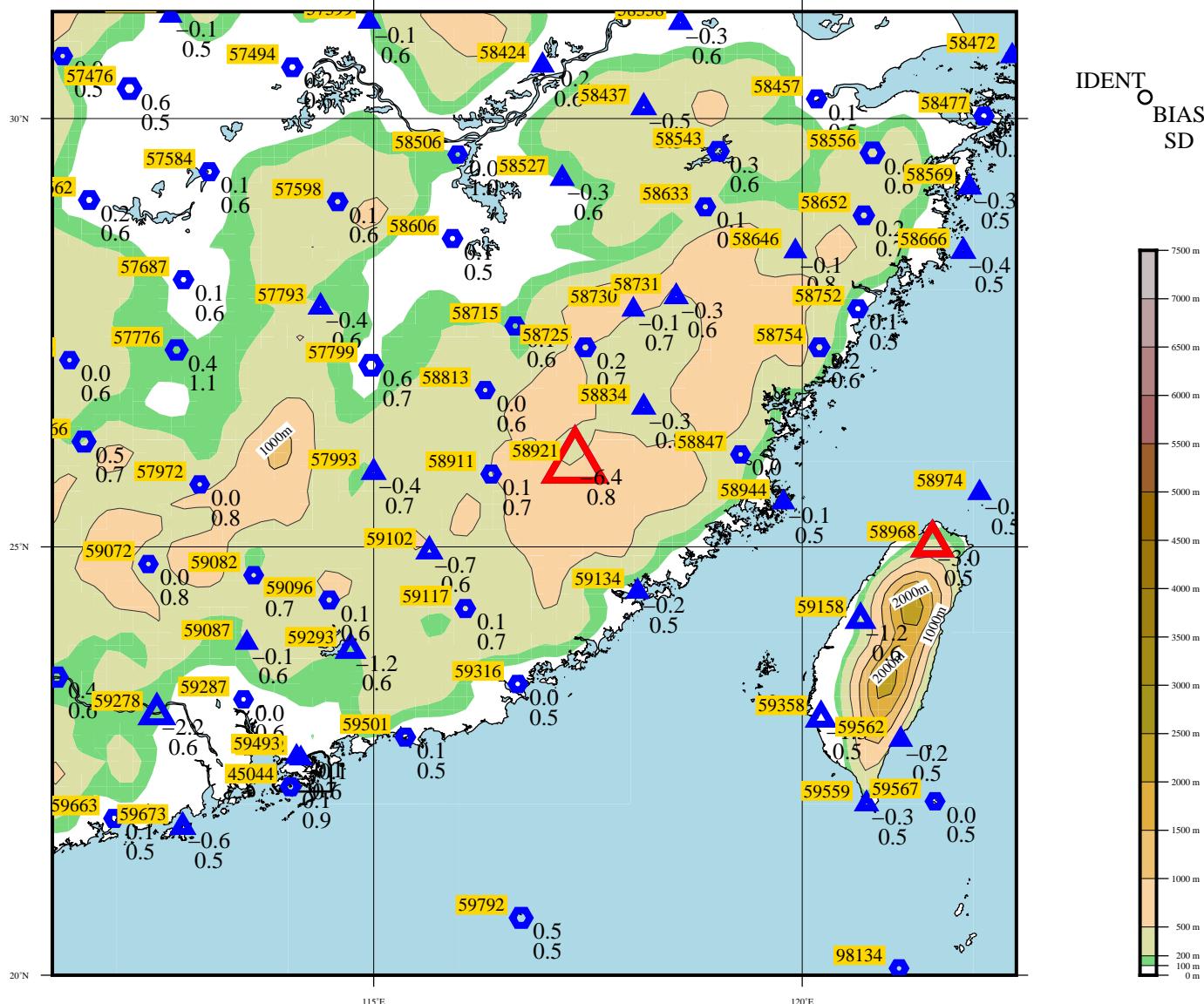


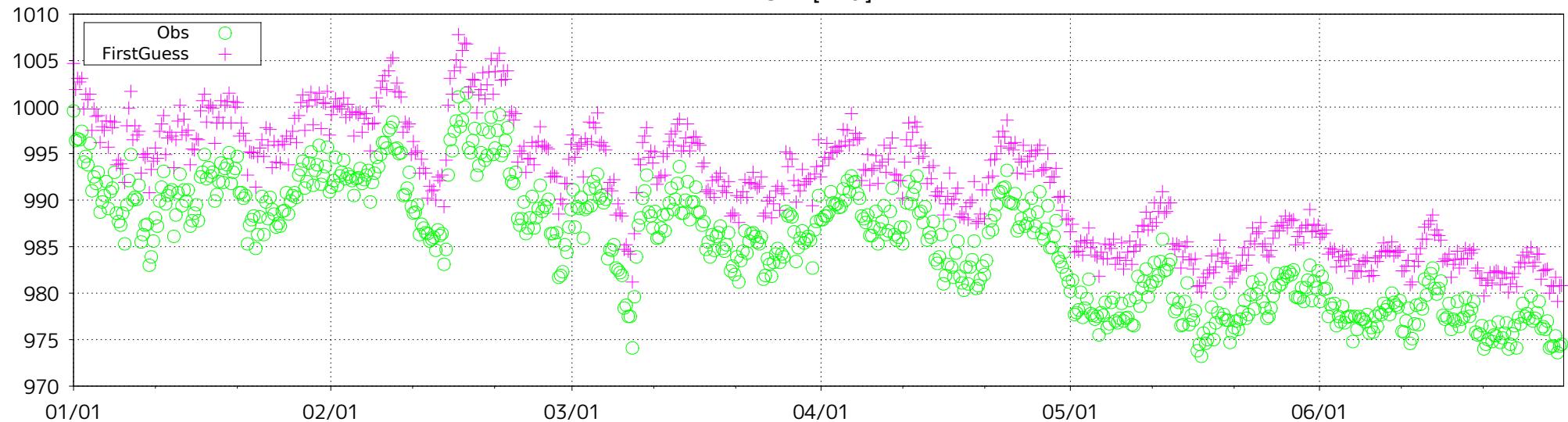
Figure 74 BIAS and SD of SLP for station 58921, 58968 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 58921 (lat: 26.0N, lon: 117.4E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

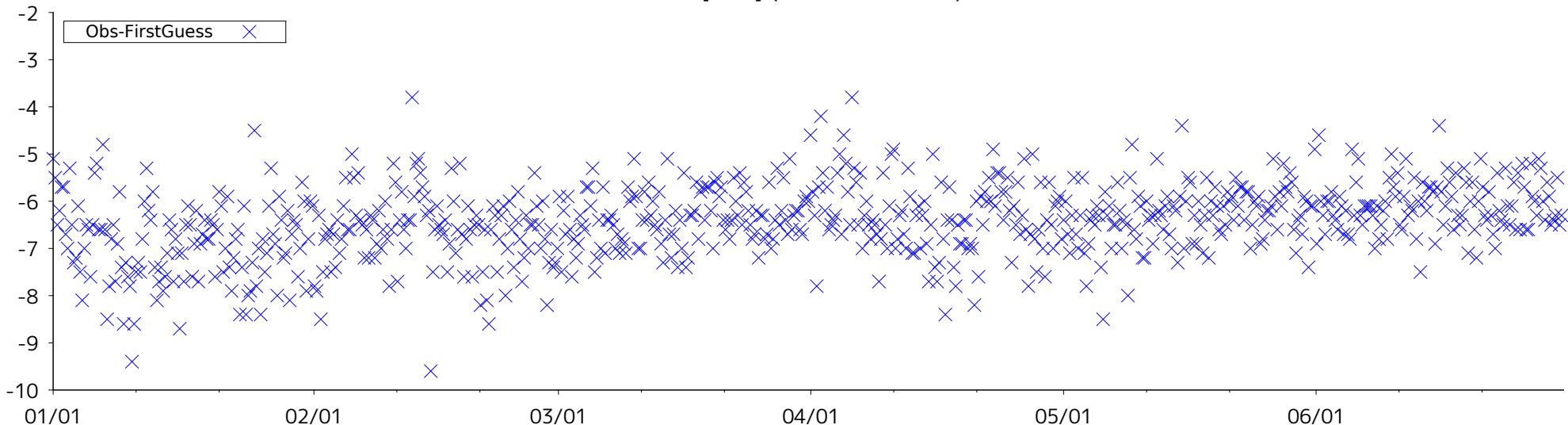
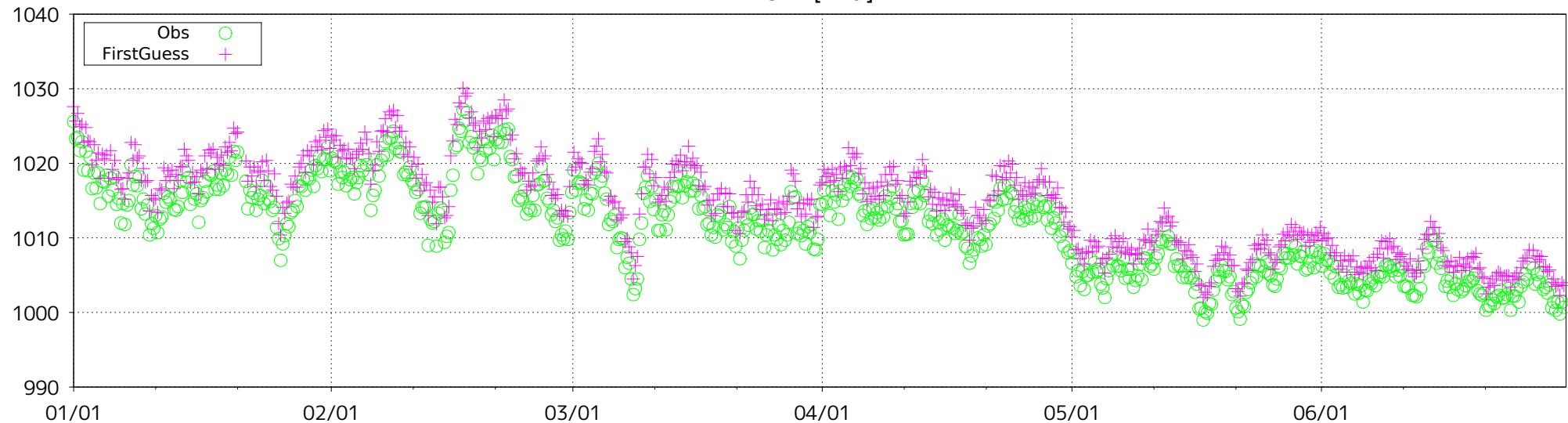


Figure 75 Time-series representation of SLP Obs minus FirstGuess for station 58921

ID: 58968 (lat: 25.0N, lon: 121.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

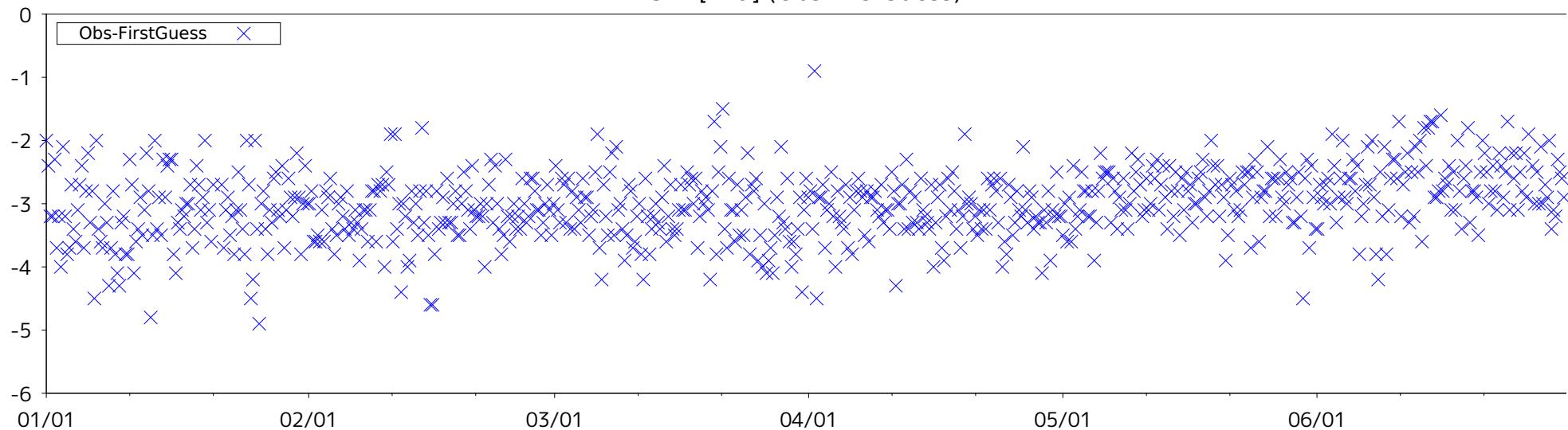
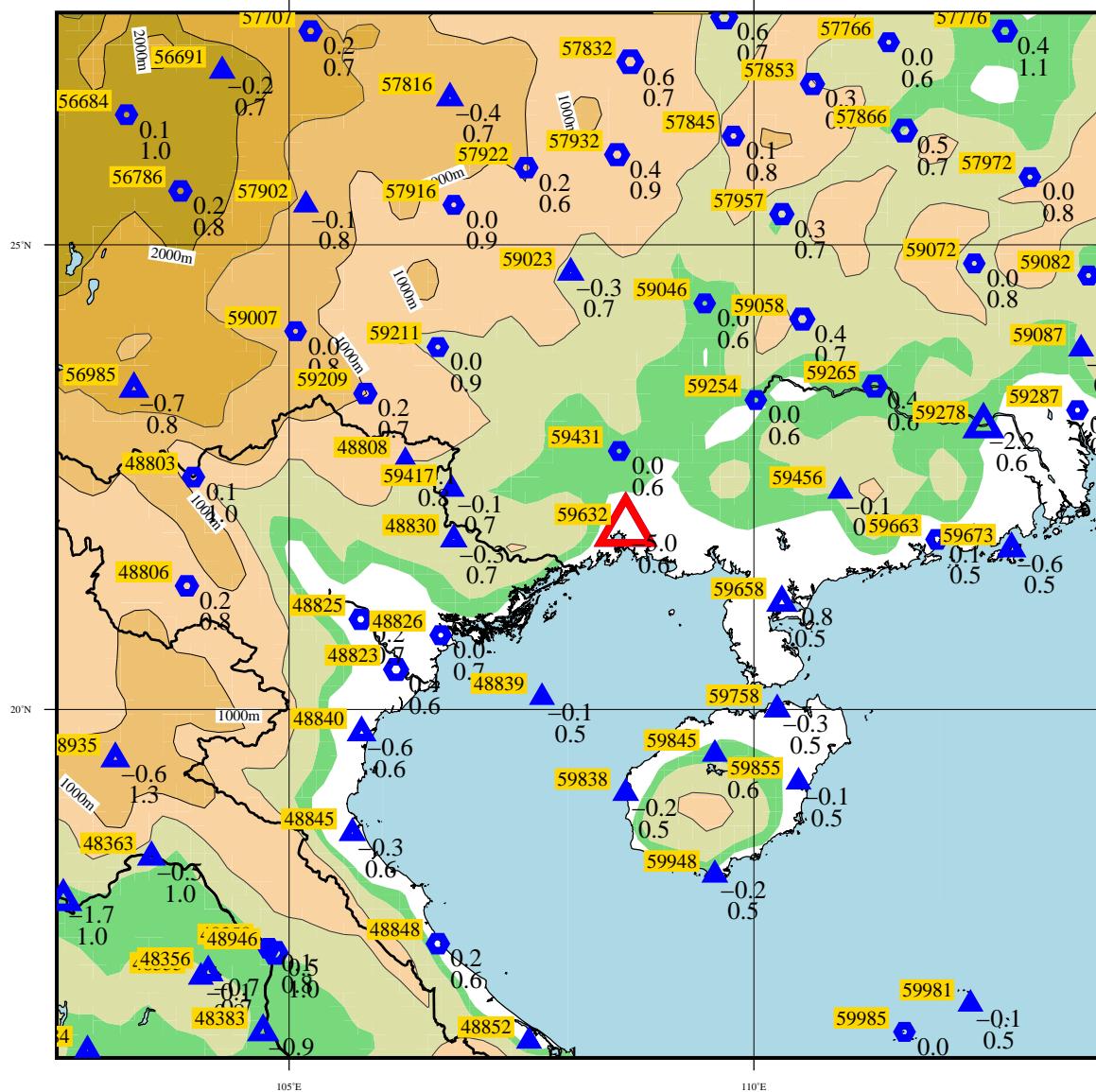


Figure 76 Time-series representation of SLP Obs minus FirstGuess for station 58968

LEVEL = SUR

ELEMENT = SLP

2020 01 01 00 UTC → 2020 06 30 18 UTC (182 DAYS)



IDENT O BIAS SD

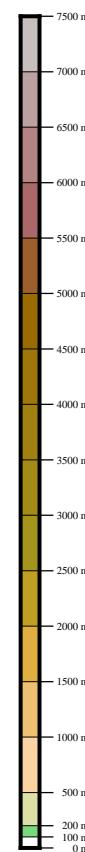


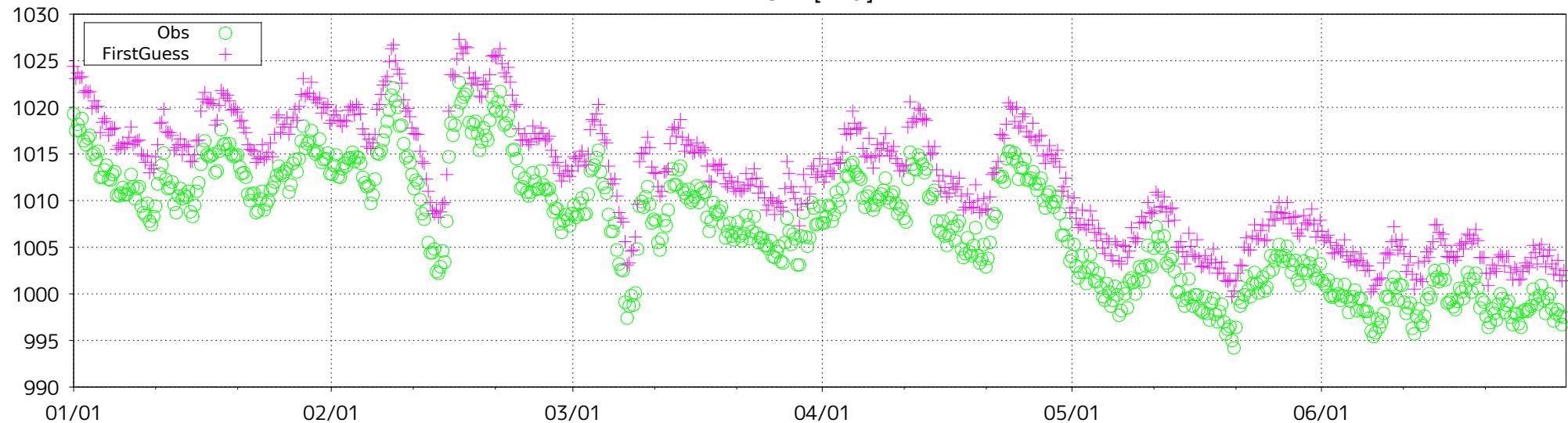
Figure 77 BIAS and SD of SLP for station 59632 (red) and surrounding stations (blue).

The number to the upper left of each symbol is the WMO IDENT, and those to the lower right are the values of BIAS and SD.

The size of each symbol is proportional to the value of BIAS, with hexagonal forms representing positive bias and triangular forms representing negative bias.

ID: 59632 (lat: 22.0N, lon: 108.6E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

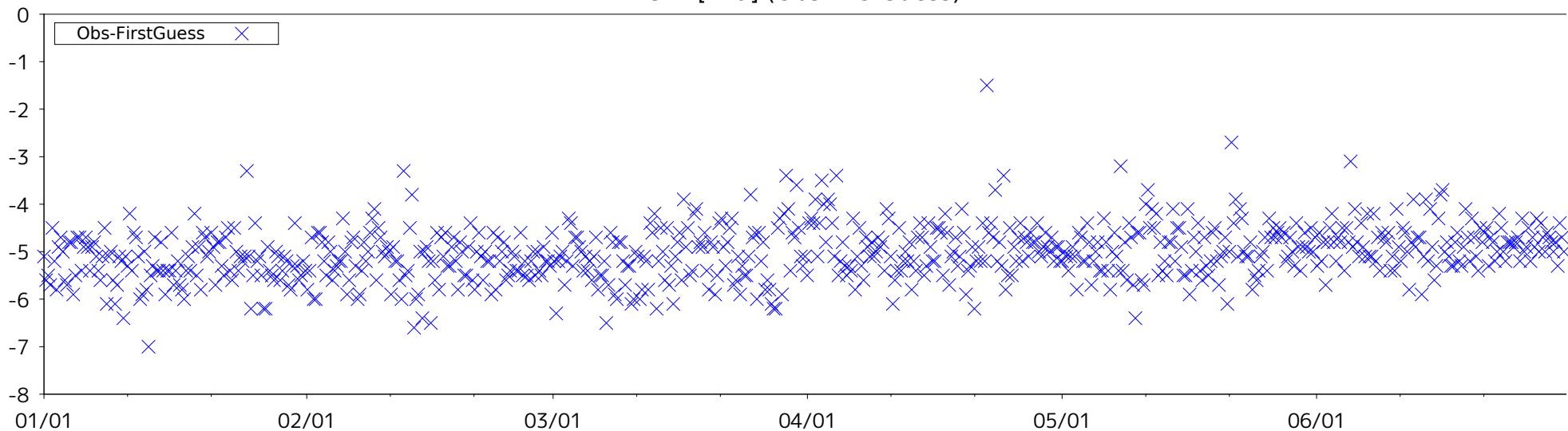
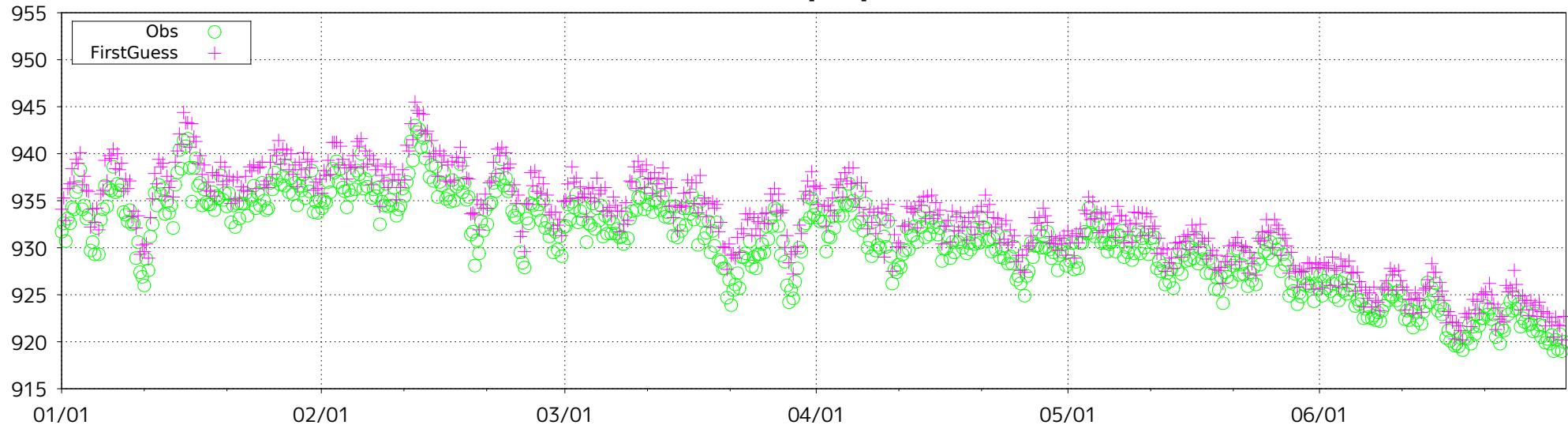


Figure 78 Time-series representation of SLP Obs minus FirstGuess for station 59632

ID: 40835 (lat: 30.4N, lon: 50.8E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

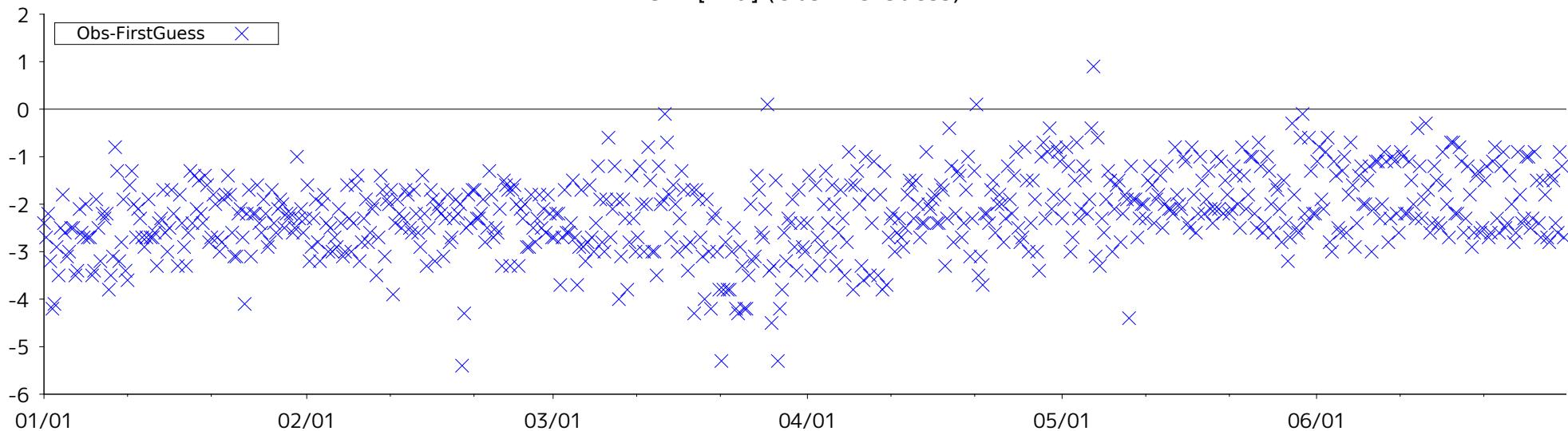
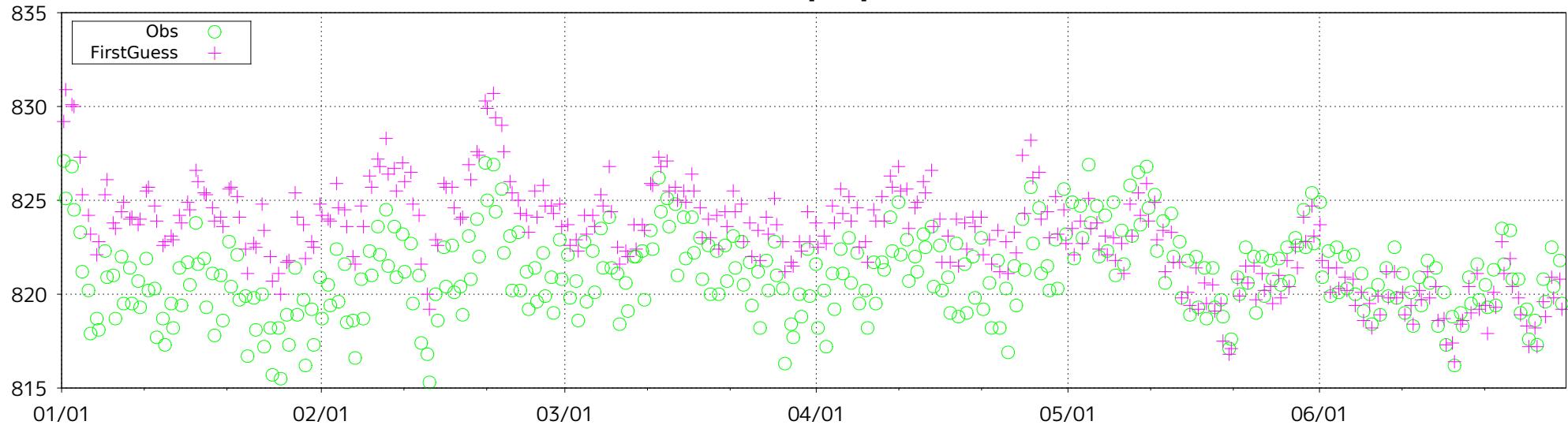


Figure 79 Time-series representation of SLP Obs minus FirstGuess for station 40835

ID: 42299 (lat: 27.3N, lon: 88.6E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

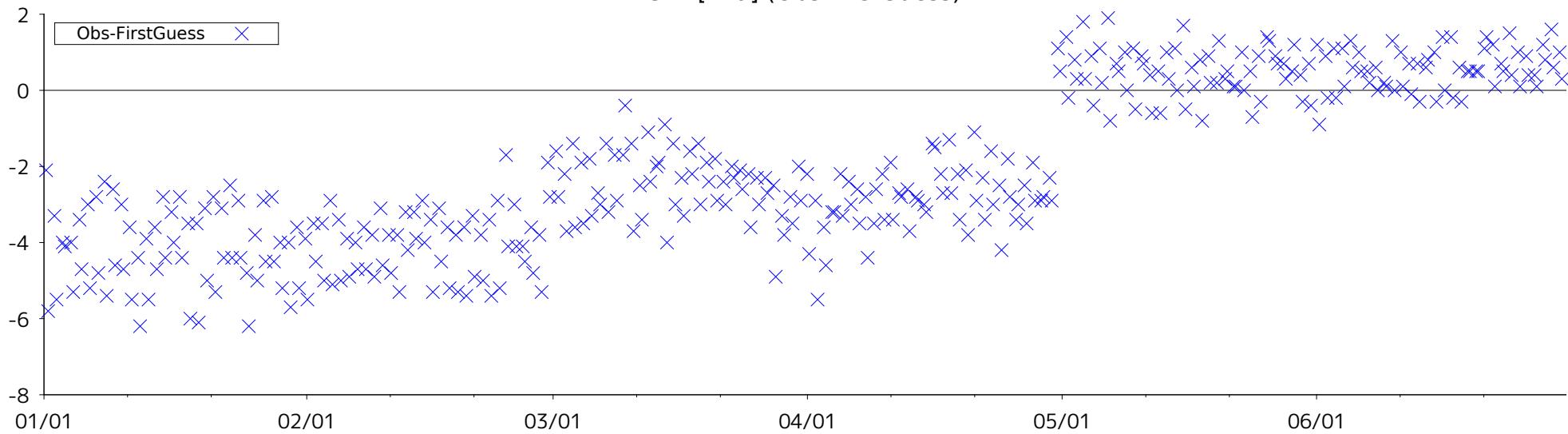
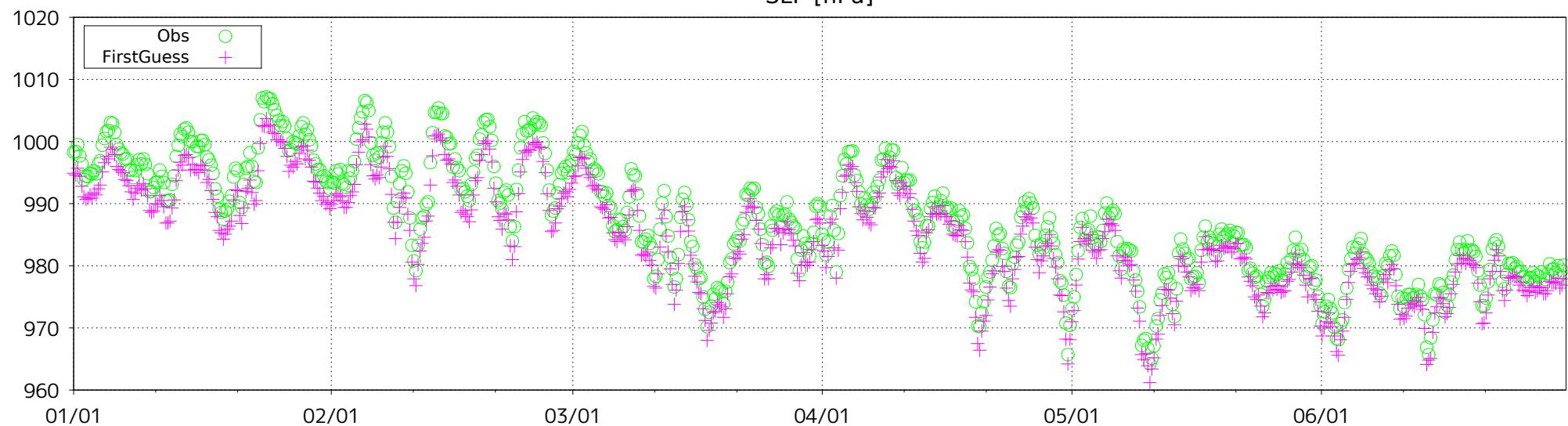


Figure 80 Time-series representation of SLP Obs minus FirstGuess for station 42299

ID: 50756 (lat: 47.5N, lon: 126.9E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

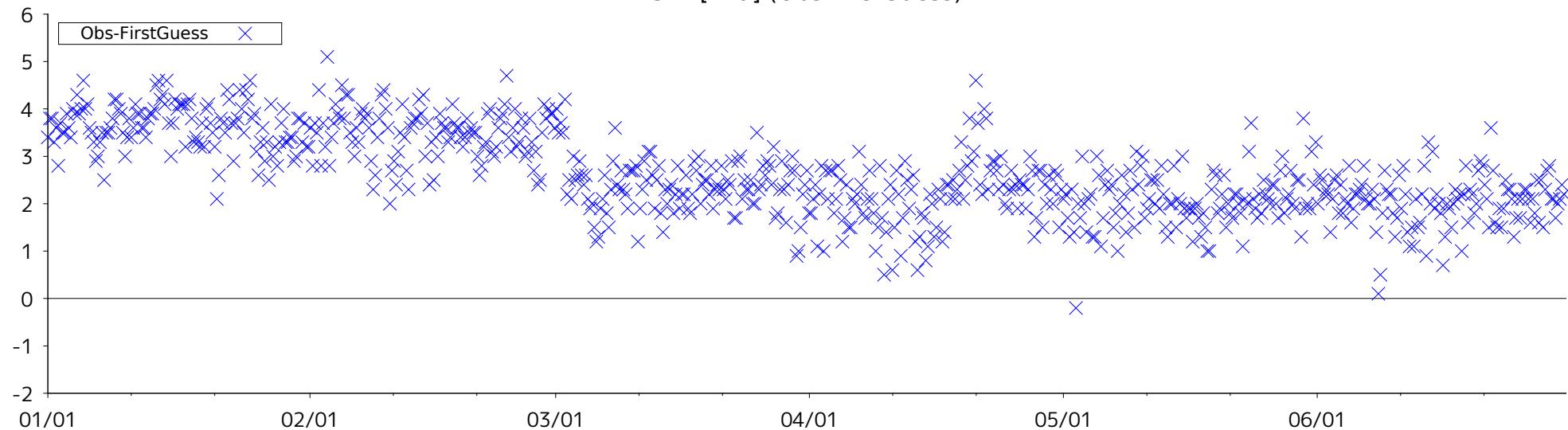
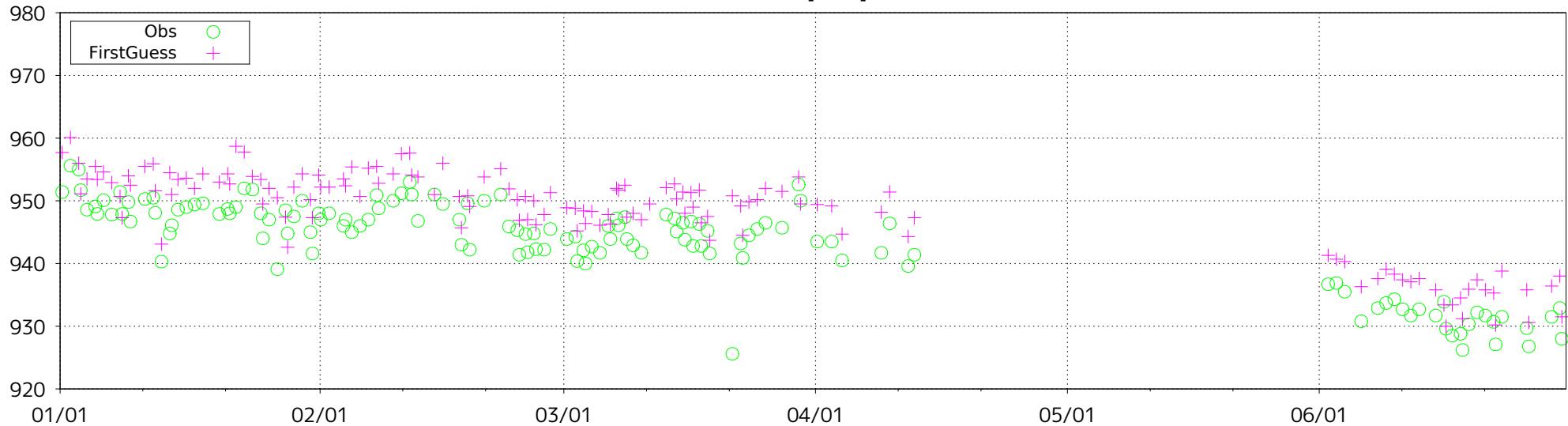


Figure 81 Time-series representation of SLP Obs minus FirstGuess for station 50756

ID: 40954 (lat: 34.4N, lon: 70.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

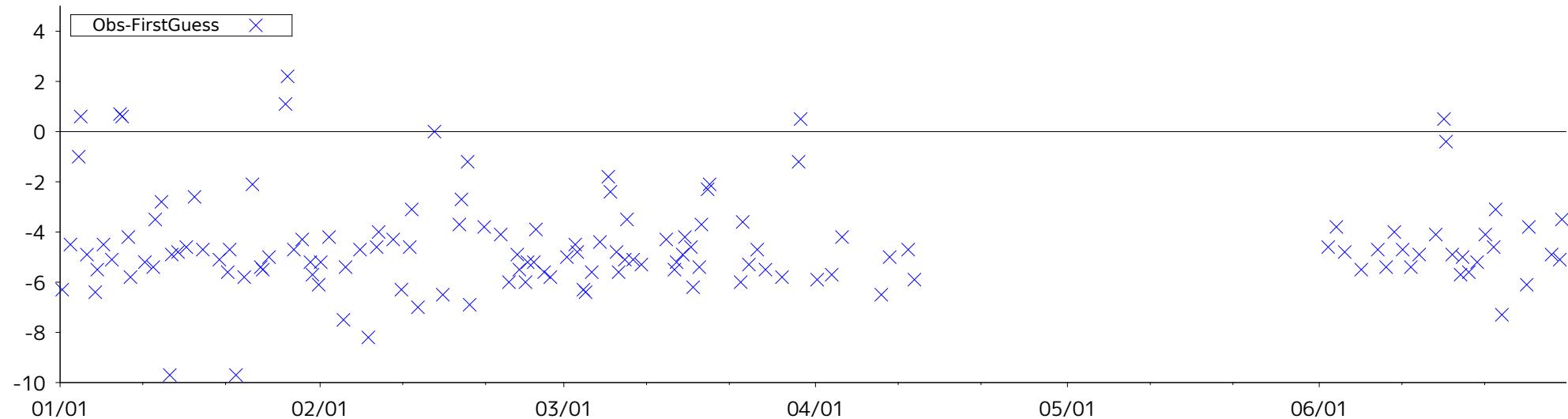


Figure 82 Time-series representation of SLP Obs minus FirstGuess for station 40954