

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

July – December 2020

No. 60

May 2021

**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. 60)
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Summary

In its role as a Lead Center, RSMC Tokyo has issued the 60th report on the land surface observation quality monitoring for the period from July to December 2020. The report includes a consolidated list of stations suspected of producing low-quality observation data.

As a result of monitoring, five stations (43226, 48925, 58968, 38719, 40633) were excluded from the consolidated lists of the previous report (January – June 2020), and seven stations (38232, 38836, 38875, 38878, 40785, 48802, 48935) 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	1888
MSLP	1987
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 184 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 184 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 July to December 2020

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
35284	50.6	70.0	384	324	SLP	735	0	0.7	6.5	6.5
					MSLP	735	0	0.8	0.7	1.1
36090	51.1	93.7	1003	1382	SLP	712	0	1.8	4.1	4.5
					GZ850	710	0	7.9	-0.2	7.9
38262	43.0	59.8	93	59	SLP	736	0	0.7	4.0	4.1
					MSLP	736	0	0.8	0.7	1.1
38313	43.7	69.0	405	706	SLP	717	80	0.7	14.1	14.1
					MSLP	717	0	2.3	-1.4	2.7
38318	42.1	68.1	183	222	SLP	709	0	0.6	-3.4	3.5
					MSLP	709	0	0.7	1.0	1.2
38719	39.1	68.9	3373	3151	SLP	365	0	3.2	3.4	4.7
					GZ700	734	8	23.6	28.5	37.0
38836	38.6	68.7	800	1199	SLP	733	1	2.2	-3.7	4.3
					MSLP	733	1	3.0	-5.0	5.8
38880	38.0	58.4	312	319	SLP	735	0	1.0	11.9	11.9
					MSLP	735	0	0.9	0.0	0.9
38944	37.5	69.4	447	593	SLP	735	0	1.3	-6.0	6.1
					MSLP	734	0	1.8	-6.7	6.9
40587	29.3	47.7	55	79	MSLP	716	29	6.7	3.1	7.4
					-	-	-	-	-	-
40621	35.5	44.4	331	394	MSLP	646	0	2.6	3.7	4.5
					-	-	-	-	-	-
40700	39.6	47.9	32	84	SLP	733	0	0.7	-5.9	5.9
					MSLP	733	0	0.6	0.0	0.6
40713	37.4	46.2	1478	1535	SLP	734	2	0.9	12.8	12.8
					MSLP	734	0	2.9	-2.3	3.7
40741	36.5	61.2	235	289	SLP	733	0	0.8	-5.1	5.2
					MSLP	733	0	1.1	-0.3	1.1
40854	29.1	58.4	940	1157	SLP	725	7	0.7	-13.7	13.7
					MSLP	725	0	2.5	-2.3	3.4
40877	28.0	57.7	470	682	SLP	729	0	1.0	-4.0	4.1
					MSLP	729	0	2.0	-4.9	5.3
40942	33.5	65.3	2183	2453	SLP	233	0	1.5	-6.1	6.3
					MSLP	233	4	5.3	-1.3	5.5
40945	34.8	67.8	2550	3232	SLP	324	0	3.6	-4.3	5.6
					MSLP	324	3	6.8	-1.7	7.0
41265	22.8	58.5	469	592	SLP	681	0	0.6	-5.2	5.2
					MSLP	681	0	1.1	-2.3	2.5

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
41573	33.9	73.4	2127	1335	SLP GZ850	661 661	0 0	1.4 10.4	9.0 -3.1	9.1 10.9
42056	32.7	74.8	323	304	SLP	724	0	0.6	-6.7	6.7
42083	31.1	77.2	2202	1570	SLP	359	42	0.5	14.0	14.0
42111	30.3	78.0	683	878	SLP MSLP	728 726	0 0	0.7 1.3	5.9 -1.4	5.9 1.9
42114	30.4	78.5	770	1512	SLP	361	100	*****	*****	*****
42147	29.5	79.7	2311	1563	SLP	361	0	0.6	4.3	4.3
42295	27.1	88.3	2134	1270	SLP GZ850	360 360	77 100	0.2 *****	14.8 *****	14.8 *****
42299	27.3	88.6	1756	1989	SLP GZ850	359 359	0 0	0.7 9.6	0.4 56.9	0.8 57.7
43418	8.6	81.3	79	8	SLP MSLP	721 721	0 0	0.6 0.5	4.4 -0.4	4.4 0.6
43479	7.0	81.1	670	862	SLP	493	2	0.5	-9.4	9.4
44406	29.3	81.0	617	1547	SLP MSLP	221 220	0 0	2.2 3.8	4.1 -3.5	4.7 5.2
44424	29.3	82.2	2300	3274	SLP GZ700	218 217	0 0	1.6 18.0	-6.3 -53.2	6.5 56.2
44429	28.1	82.5	634	883	SLP MSLP	229 229	0 0	0.8 1.7	-3.9 0.0	4.0 1.7
47037	40.0	125.3	99	228	SLP MSLP	736 736	0 0	1.3 1.3	-3.9 -3.9	4.1 4.1
47102	38.0	124.7	146	2	SLP MSLP	736 736	0 0	0.7 0.5	11.8 -1.2	11.8 1.3
47145	36.8	127.3	26	110	SLP MSLP	735 735	0 0	0.6 0.6	-6.1 0.7	6.1 0.9
47152	35.6	129.3	36	125	SLP MSLP	736 736	0 0	0.7 0.7	-5.6 -0.2	5.6 0.7
48001	27.3	97.4	434	794	SLP MSLP	547 548	100 0	***** 1.8	***** -1.0	***** 2.1
48018	24.2	96.3	95	197	SLP MSLP	547 548	0 0	0.9 1.1	3.7 -0.6	3.8 1.3
48062	20.1	92.9	5	3	SLP MSLP	549 546	0 0	1.2 0.6	6.1 -0.5	6.2 0.8
48085	17.6	94.6	3	78	SLP MSLP	549 547	0 0	0.9 0.6	6.6 -0.7	6.7 0.9
48107	15.3	97.9	7	90	SLP MSLP	548 549	0 0	1.0 0.8	-3.5 0.1	3.6 0.8

WMO IDENT	LAT (N)	LON (E)	H (m)	HM (m)	ELEM	NOBS	PGE (%)	SD	BIAS	RMS
48921	21.6	101.9	1360	1072	SLP GZ850	508 503	1 100	1.3 *****	-4.3 *****	4.5 *****
48935	19.5	103.1	1094	1196	SLP GZ850	517 515	2 0	1.5 16.1	5.5 -37.2	5.7 40.5
48952	15.7	106.4	180	334	SLP MSLP	516 516	0 0	1.0 1.2	3.7 2.5	3.8 2.8
51467	42.7	86.3	1733	2582	SLP MSLP	736 735	0 2	1.4 4.0	-4.9 -5.6	5.1 6.9
54945	35.4	119.5	37	32	SLP MSLP	736 736	0 0	0.5 0.5	-3.4 0.0	3.4 0.5
56946	23.6	99.4	1104	1396	SLP MSLP	736 736	0 0	0.6 1.6	-4.0 1.0	4.0 1.9
56951	24.0	100.2	1503	1786	SLP MSLP	736 734	0 0	0.6 2.0	-12.9 1.2	12.9 2.3
57731	28.0	108.3	418	727	SLP MSLP	736 736	100 0	0.1 1.1	-14.7 0.7	14.7 1.3
58921	26.0	117.4	204	502	SLP MSLP	736 736	0 0	0.6 0.8	-6.1 0.3	6.1 0.9
59632	22.0	108.6	6	22	SLP MSLP	736 736	0 0	0.5 0.5	-5.0 0.2	5.0 0.5

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)

KAZAKHSTAN

35284 - Positive bias of O-G at the station level (Figures 2 and 3)

38313 - Positive bias of O-G at the station level (Figures 8 and 9)

38318 - Negative bias of O-G at the station level (Figures 8 and 10)

RUSSIAN FEDERATION IN ASIA

36090 - Positive bias of O-G at the station level (Figures 4 and 5)

UZBEKISTAN

38262 - Positive bias of O-G at the station level (Figures 6 and 7)

TAJIKISTAN

38719 - Positive bias of O-G at the station level (Figures 8 and 11)

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

38836 - Negative bias of O-G at the mean sea level (Figure 12)

38944 - Negative bias of O-G at the station level and at the mean sea level (Figures 8 and 14)

TURKMENISTAN

38880 - Positive bias of O-G at the station level (Figures 6 and 13)

KUWAIT

40587 - Observed values were constant during the period. (Figure 15)

IRAQ

40621 - Positive bias of O-G at the mean sea level (Figure 16)

IRAN, ISLAMIC REPUBLIC OF

40700 - Negative bias of O-G at the station level (Figures 17 and 18)

40713 - Positive bias of O-G at the station level (Figures 17 and 19)

40741 - Negative bias of O-G at the station level (Figures 6 and 20)

40854 - Negative bias of O-G at the station level (Figures 21 and 22)

40877 - Negative bias of O-G at the station level and at the mean sea level (Figures 21 and 23)

AFGHANISTAN

40942 - Negative bias of O-G at the station level (Figures 24 and 25)

40945 - Negative bias of O-G at the station level (Figures 24 and 26)

OMAN

41265 - Negative bias of O-G at the station level (Figures 27 and 28)

PAKISTAN

41573 - Positive bias of O-G at the station level (Figures 29 and 30)

INDIA

42056 - Negative bias of O-G at the station level (Figures 29 and 31)

42083 - Positive bias of O-G at the station level (Figures 29 and 32)

42111 - Positive bias of O-G at the station level (Figures 29 and 33)

42114 - Negative bias of O-G at the station level (Figures 29 and 34)

42147 - Positive bias of O-G at the station level (Figures 29 and 35)

42295 - Positive bias of O-G at the station level and at 850 hPa (Figures 36 and 37)

42299 - Positive bias of O-G at 850 hPa (Figure 38)

SRI LANKA

43418 - Positive bias of O-G at the station level (Figures 39 and 40)

43479 - Negative bias of O-G at the station level (Figures 39 and 41)

NEPAL

44406 - Positive bias of O-G at the station level (Figures 42 and 43)

44424 - Negative bias of O-G at the station level and at 700 hPa (Figures 42 and 44)

44429 - Negative bias of O-G at the station level (Figures 42 and 45)

KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

47037 - Negative bias of O-G at the station level and at the mean sea level (Figures 46 and 47)

KOREA, REPUBLIC OF

47102 - Positive bias of O-G at the station level (Figures 46 and 48)

47145 - Negative bias of O-G at the station level (Figures 46 and 49)

47152 - Negative bias of O-G at the station level (Figures 46 and 50)

REPUBLIC OF THE UNION OF MYANMAR

48001 - Positive bias of O-G at the station level (Figures 51 and 52)

48018 - Positive bias of O-G at the station level (Figures 51 and 53)

48062 - Positive bias of O-G at the station level (Figures 51 and 54)

48085 - Positive bias of O-G at the station level (Figures 55 and 56)

48107 - Negative bias of O-G at the station level (Figures 55 and 57)

LAO PEOPLE'S DEMOCRATIC REPUBLIC

48921 - Negative bias of O-G at the station level and at 850 hPa (Figures 58 and 59)

48935 - Negative bias of O-G at 850 hPa (Figure 60)

48952 - Positive bias of O-G at the station level (Figures 61 and 62)

CHINA

51467 - Negative bias of O-G at the station level (Figures 63 and 64)

54945 - Negative bias of O-G at the station level (Figures 46 and 65)

56946 - Negative bias of O-G at the station level (Figures 58 and 66)

56951 - Negative bias of O-G at the station level (Figures 58 and 67)

57731 - Negative bias of O-G at the station level (Figures 68 and 69)

58921 - Negative bias of O-G at the station level (Figures 70 and 71)

59632 - Negative bias of O-G at the station level (Figures 72 and 73)

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
38232	43.0	54.1	78	89	SLP	685	3	2.7	-0.7	2.8
					MSLP	686	48	5.2	1.3	5.4
38836	38.6	68.7	800	1199	SLP	733	1	2.2	-3.7	4.3
					MSLP	733	1	3.0	-5.0	5.8
38875	39.0	73.6	3930	4338	SLP	190	98	1.0	0.0	1.0
					-	-	-	-	-	-
38878	38.2	74.0	3576	4105	GZ700	733	9	29.6	-42.2	51.5
					-	-	-	-	-	-
40785	34.0	51.5	982	1181	SLP	734	0	1.1	3.2	3.4
					MSLP	734	0	2.5	-0.8	2.6
48802	22.4	103.8	1584	1306	SLP	733	1	4.2	-4.6	6.2
					GZ850	733	16	27.8	-30.1	41.0
48935	19.5	103.1	1094	1196	SLP	517	2	1.5	5.5	5.7
					GZ850	515	0	16.1	-37.2	40.5

KAZAKHSTAN

38232 - Positive bias of O-G at the mean sea level (Figure 74)

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

TAJIKISTAN

38836 - Negative bias of O-G at the station level (Figures 8 and 75)

38875 - Positive bias of O-G at the station level (Figures 8 and 76)

38878 - Negative bias of O-G at 700 hPa (Figure 77)

IRAN, ISLAMIC REPUBLIC OF

40785 - Positive bias of O-G at the station level (Figures 78 and 79)

VIET NAM

48802 - Negative bias of O-G at the station level and at 850 hPa (Figures 58 and 80)

The negative bias of O-G at the station level and at 850 hPa appears to have been observed since October 2020.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

48935 - Positive bias of O-G at the station level (Figures 58 and 81)

4.3 Stations improved and excluded from the previous consolidated list

INDIA

43226 - The positive bias of O-G at the station level has improved since August 2020. However, low-quality observation data also still appear to have been reported. (Figure 82)

LAO PEOPLE'S DEMOCRATIC REPUBLIC

48925 - Improved at the station level (Figure 83)

CHINA

58968 - Improved at the station level (Figure 84)

4.4 Stations removed from the previous consolidated list

TAJIKISTAN

38719 - Although station 38719 still displays positive biases of O-G at 700 hPa near the end of this period, the data were removed from the consolidated list because the biases did not exceed the threshold. (Figure 85)

IRAQ

40633 - Although station 40633 still displays positive biases of O-G at the mean sea level, it was removed from the consolidated list because the number of reports (116) was insufficient for quality checking. (Figure 86)

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.

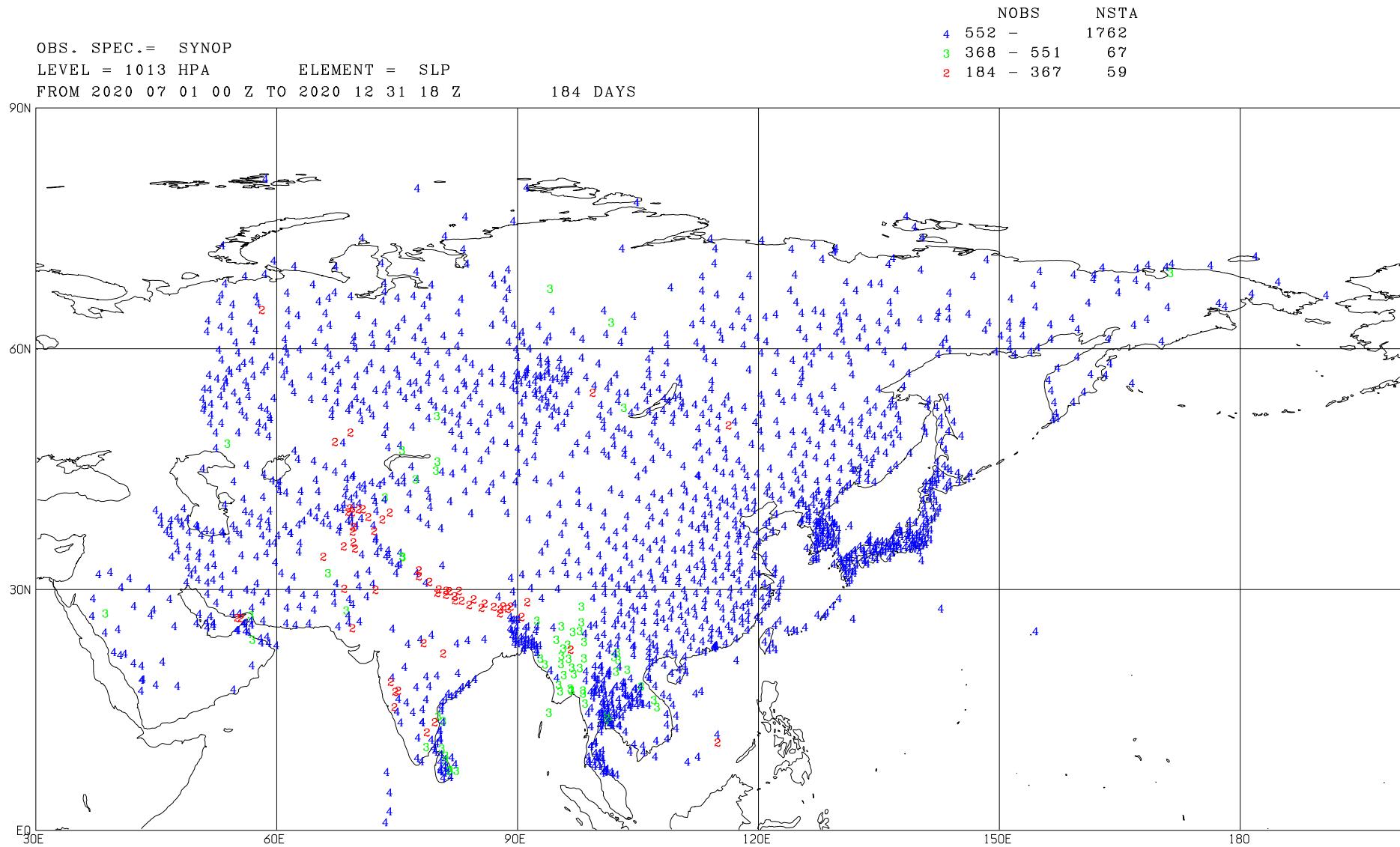


Figure 1(a) Location of all land surface stations reporting station level pressure (SLP) observations in Region II over the six-month period from July to December 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting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

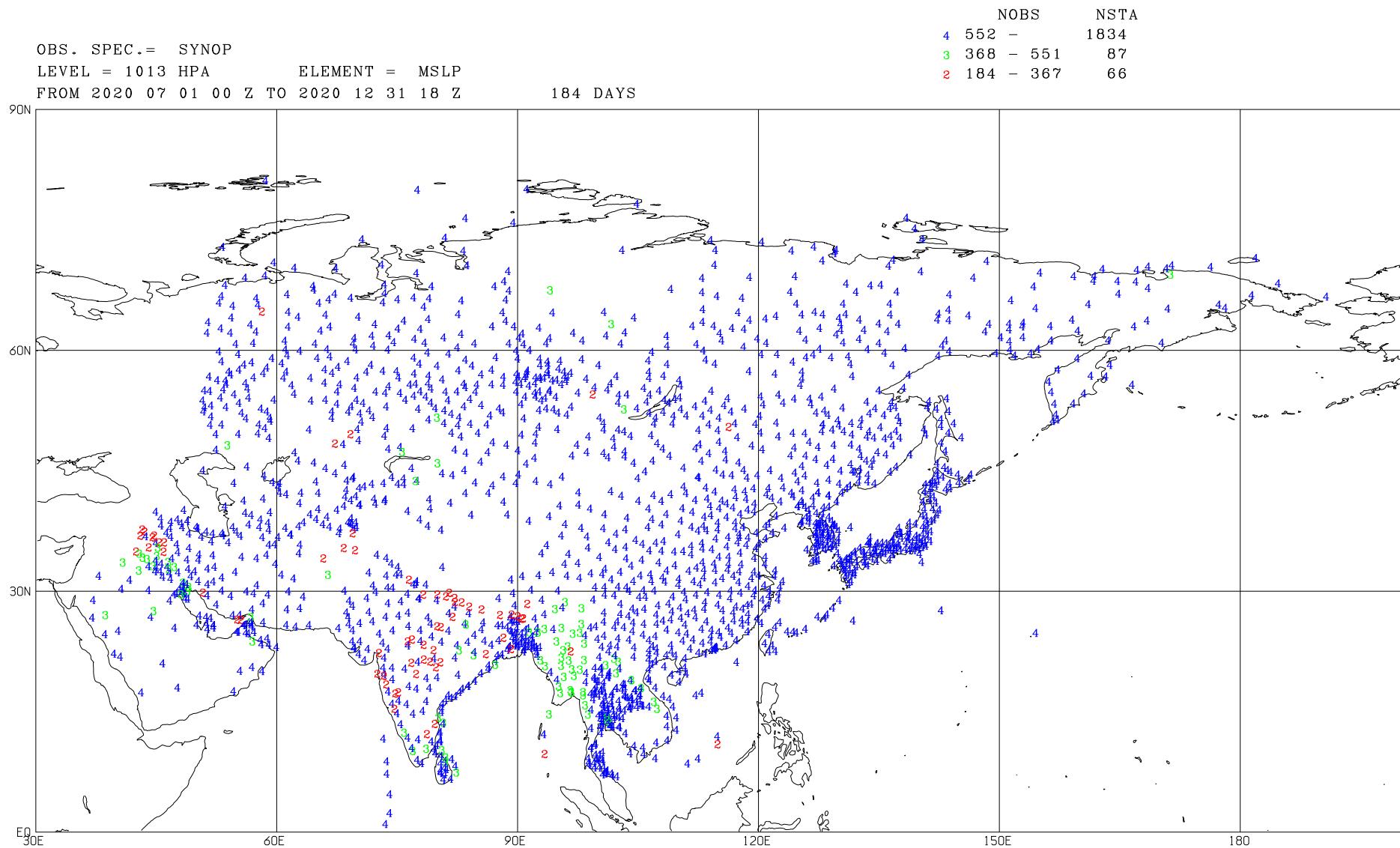


Figure 1(b) Location of all land surface stations reporting mean sea level pressure (MSLP) observations in Region II over the six-month period from July to December 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting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

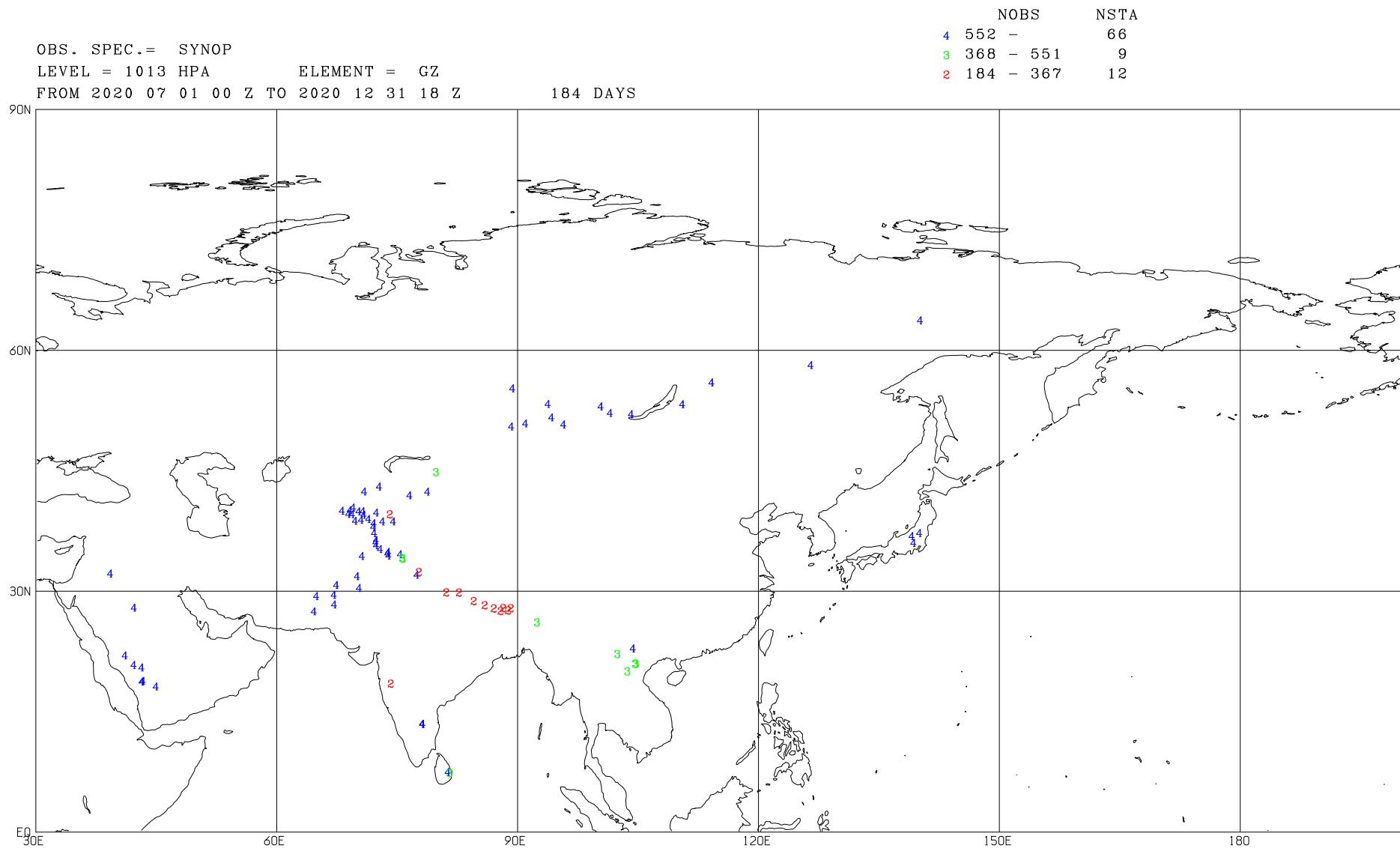
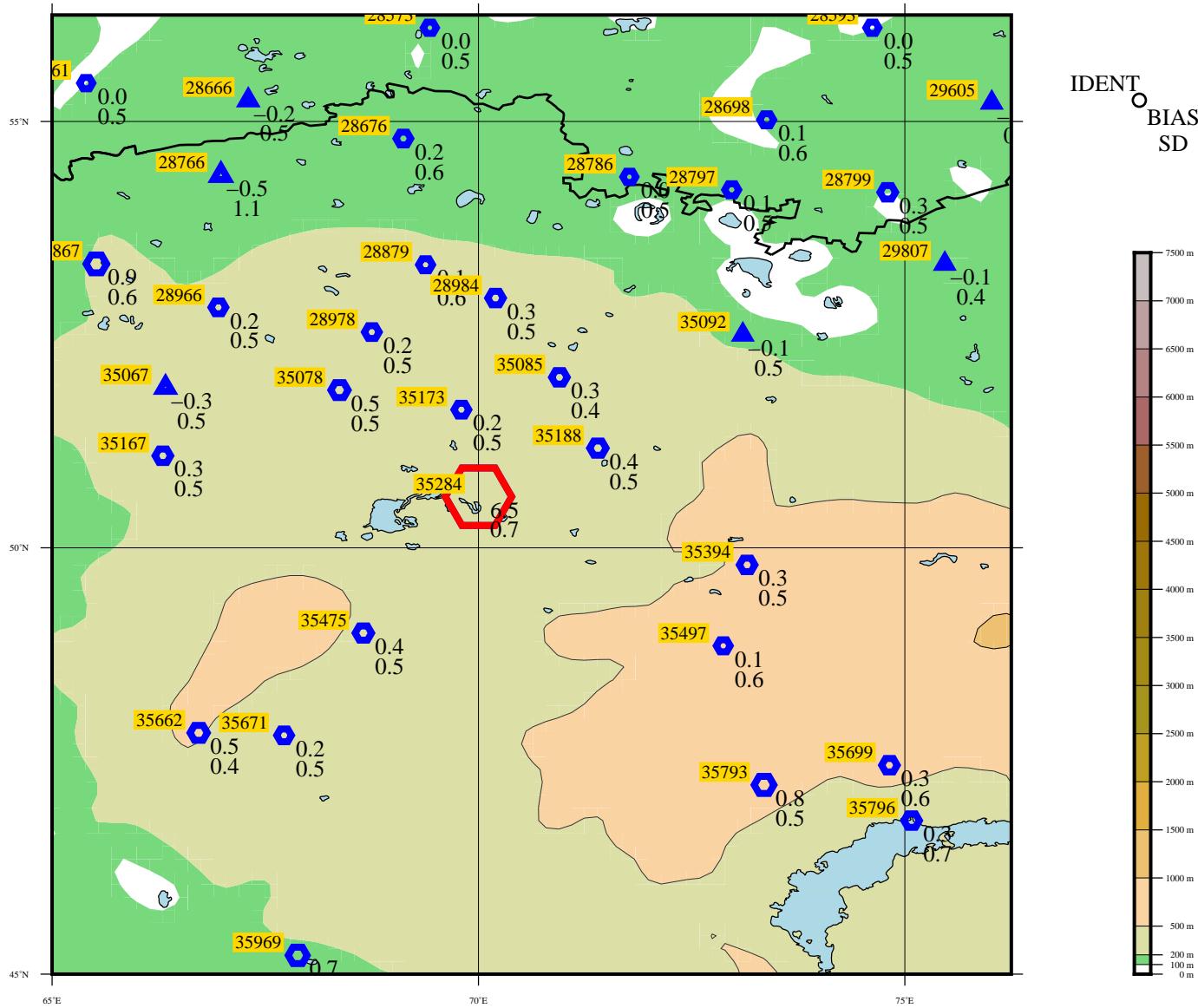


Figure 1(c) Location of all land surface stations reporting geopotential height (GZ) observations in Region II over the six-month period from July to December 2020. Numbers (2, 3, 4) show the total number of observations (NOBS) received at RSMC Tokyo. The total numbers of stations (NSTA) reporting GZ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

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

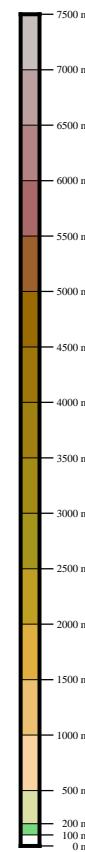


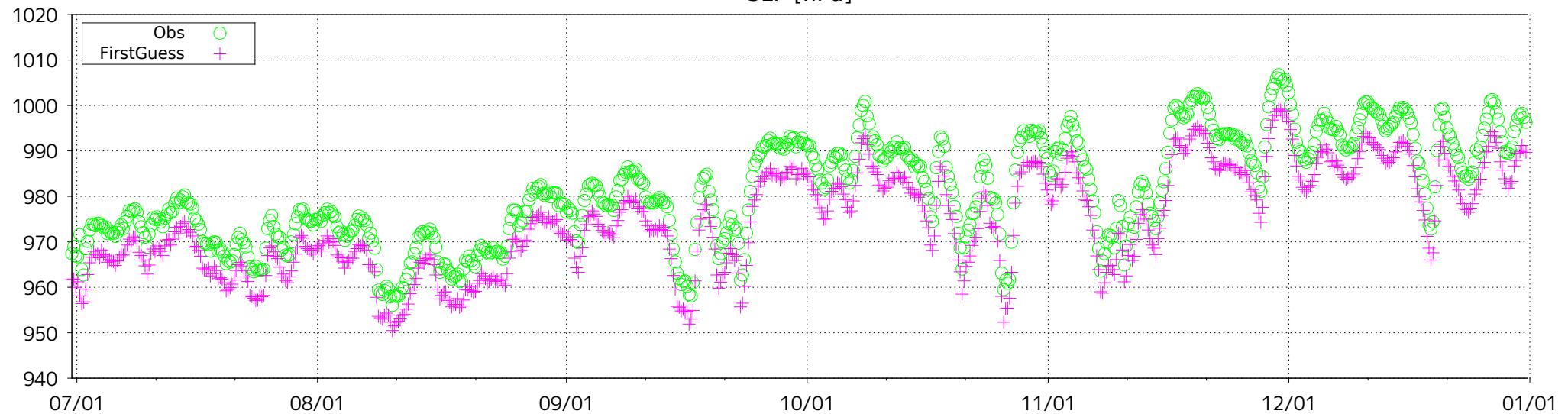
Figure 2 BIAS and SD of SLP for station 35284 (red) and surrounding stations (blue).

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)

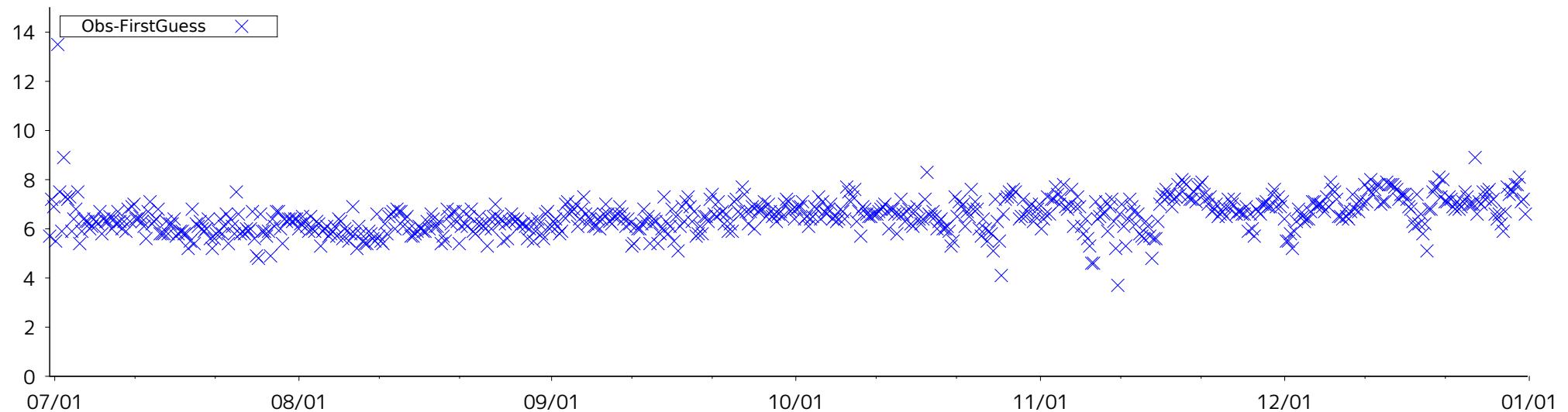
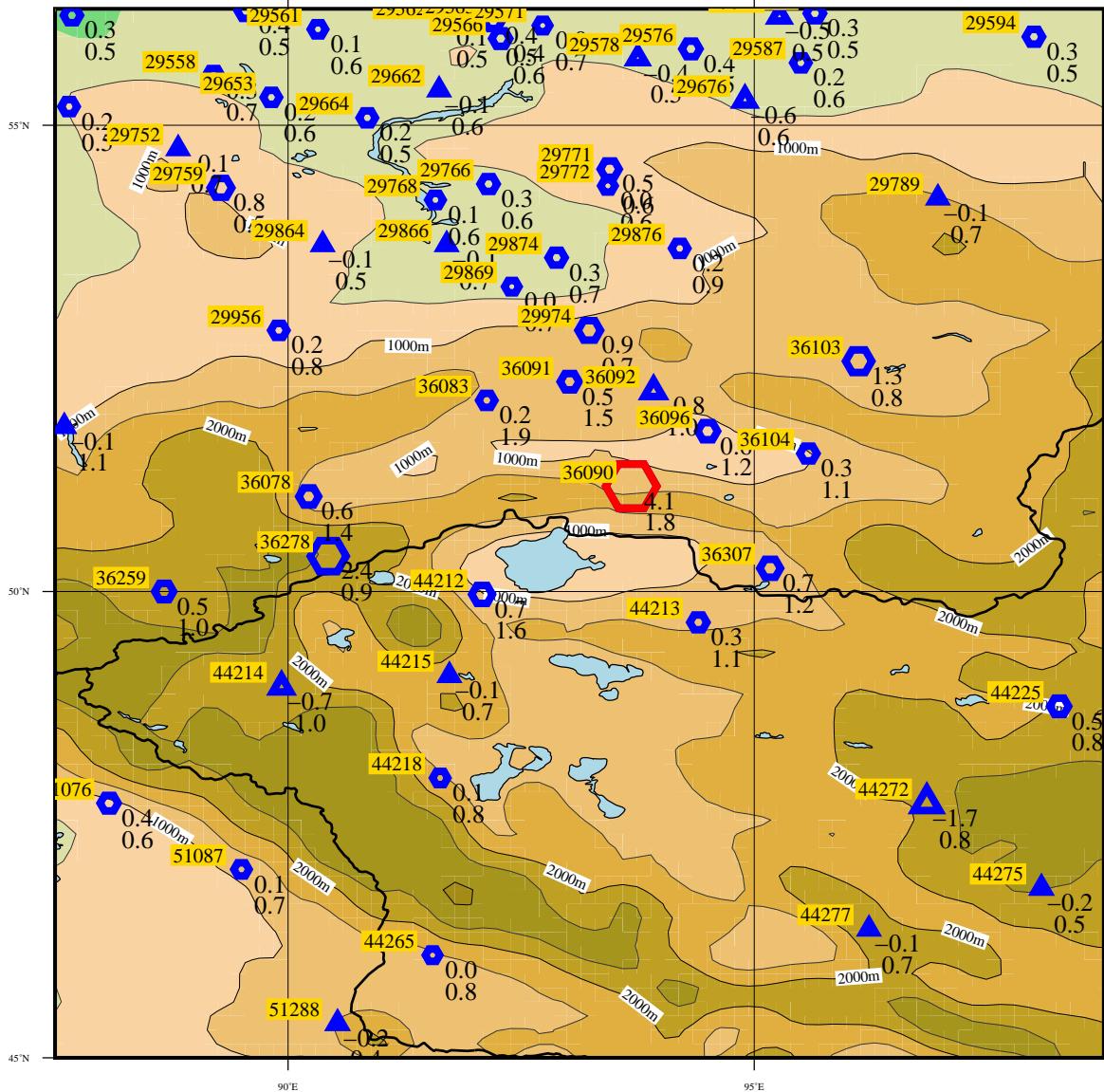


Figure 3 Time-series representation of SLP Obs minus FirstGuess for station 35284

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

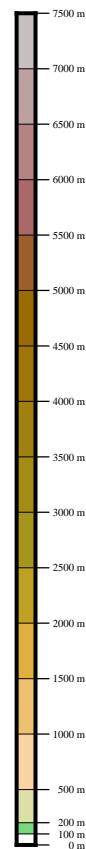


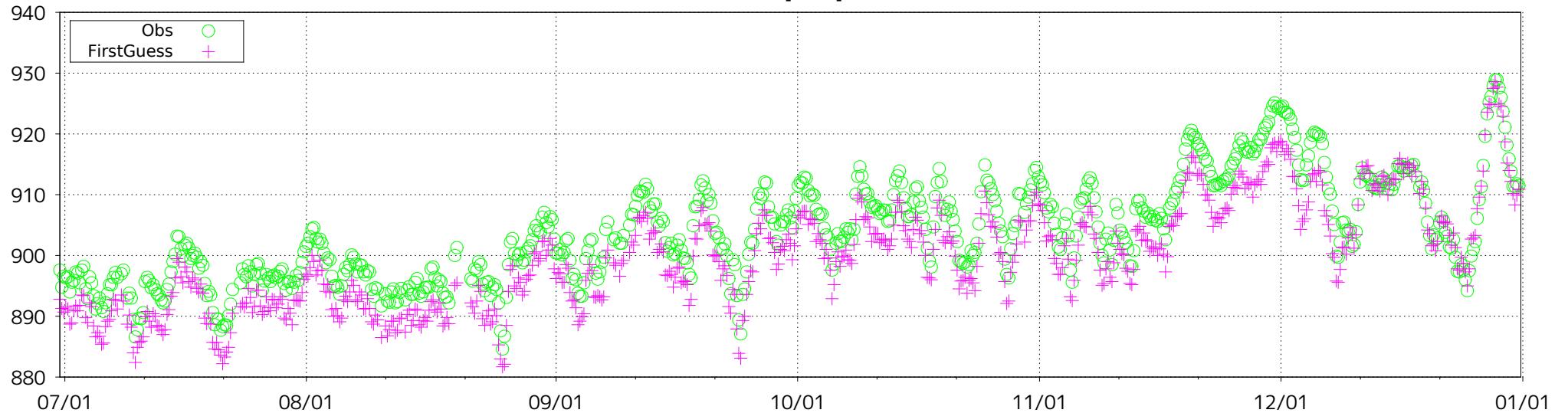
Figure 4 BIAS and SD of SLP for station 36090 (red) and surrounding stations (blue).

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)

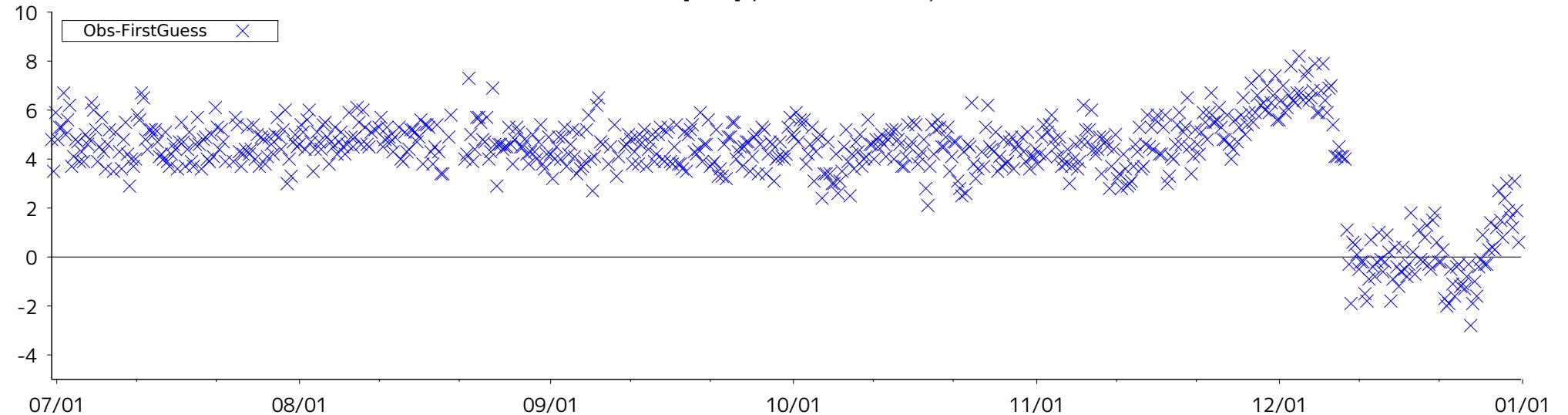
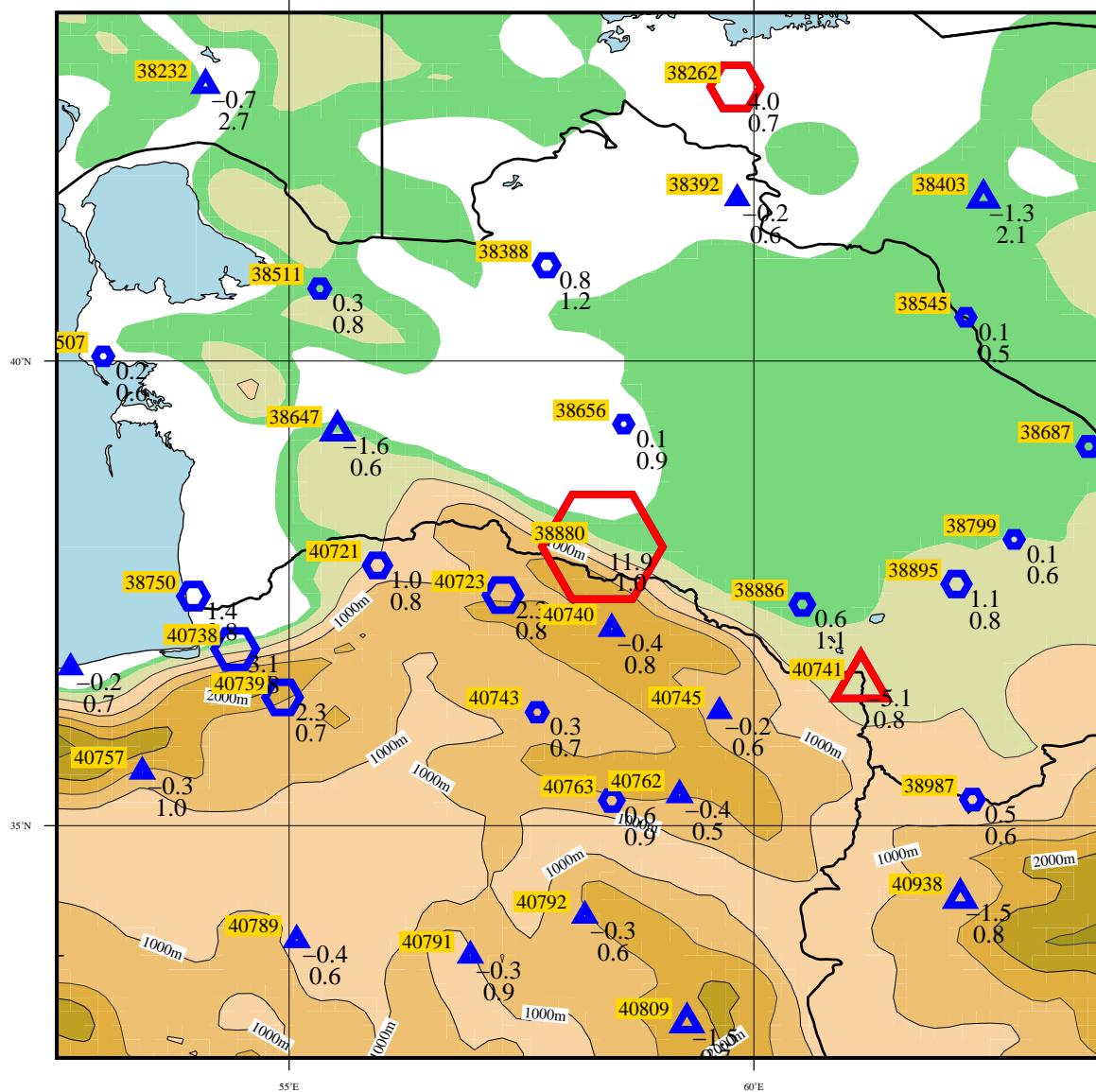


Figure 5 Time-series representation of SLP Obs minus FirstGuess for station 36090

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

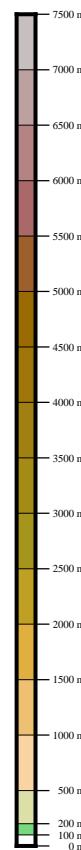


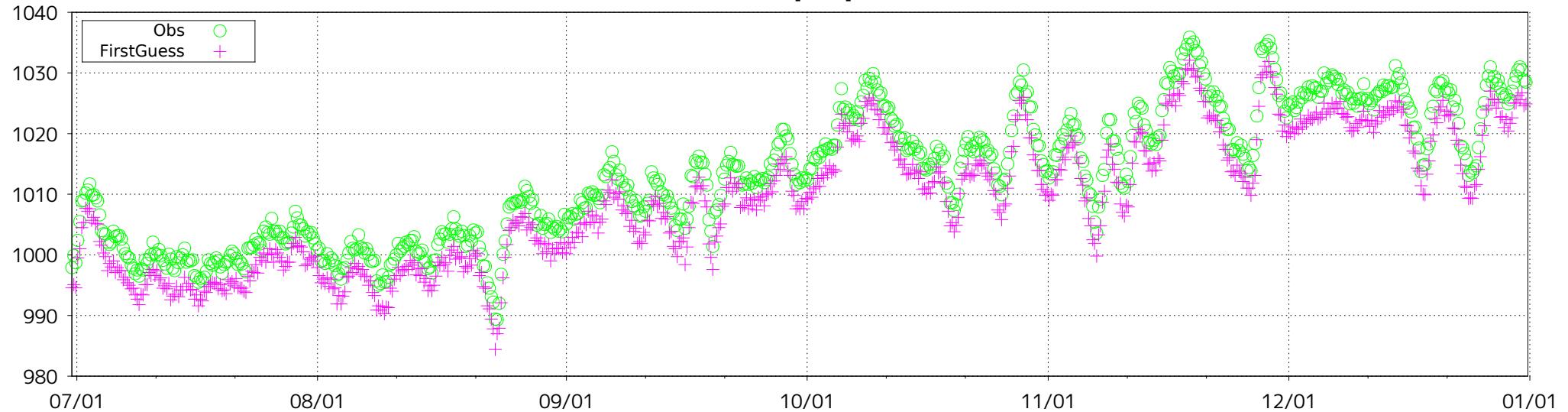
Figure 6 BIAS and SD of SLP for station 38262, 38880, 40741 (red) and surrounding stations (blue).

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)

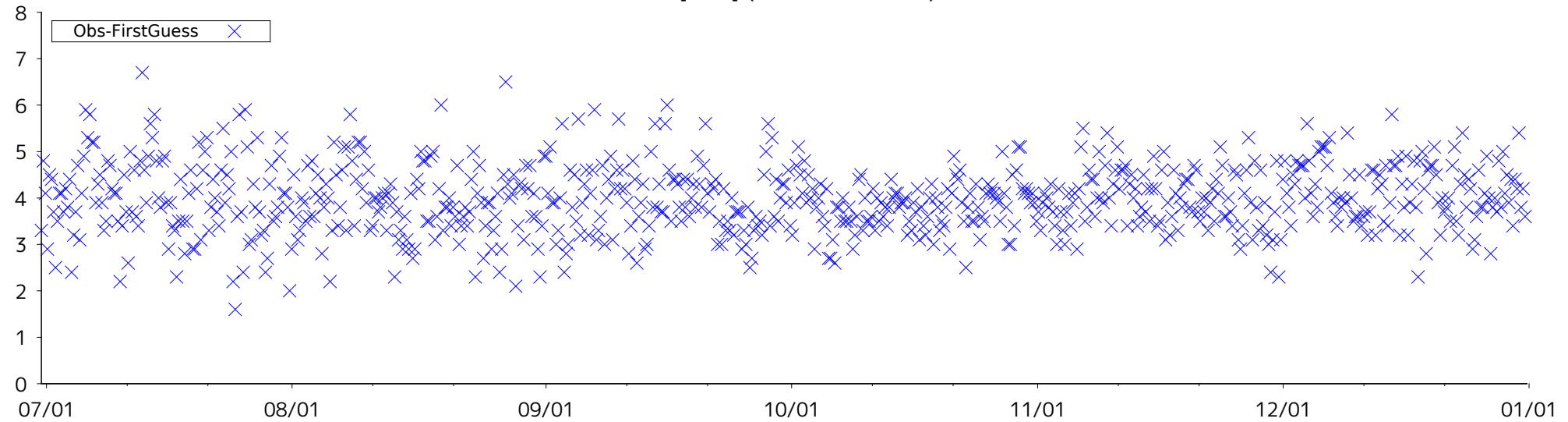
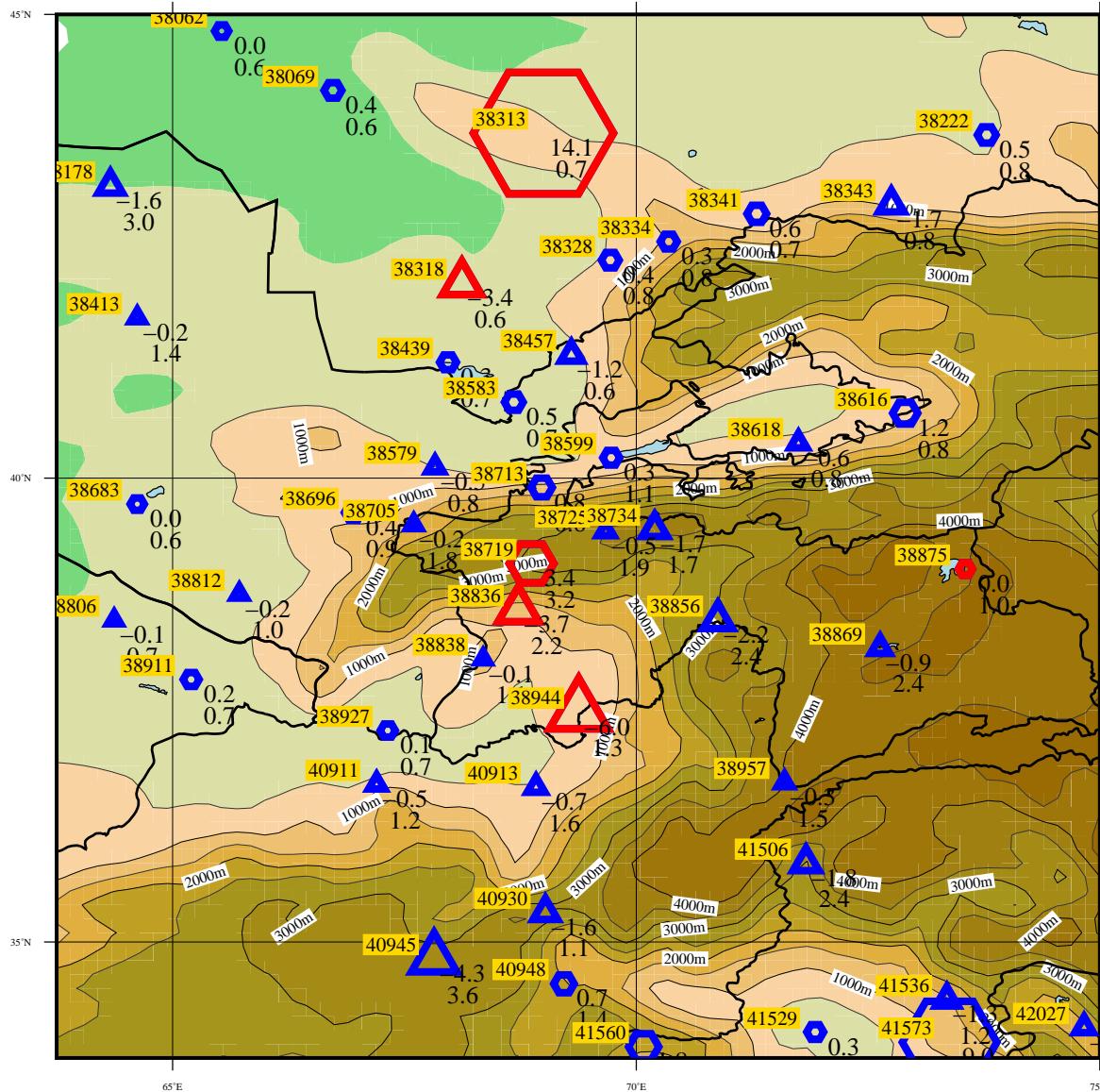


Figure 7 Time-series representation of SLP Obs minus FirstGuess for station 38262

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

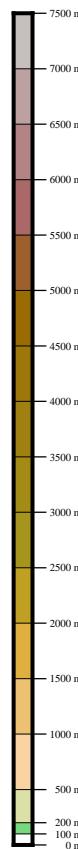


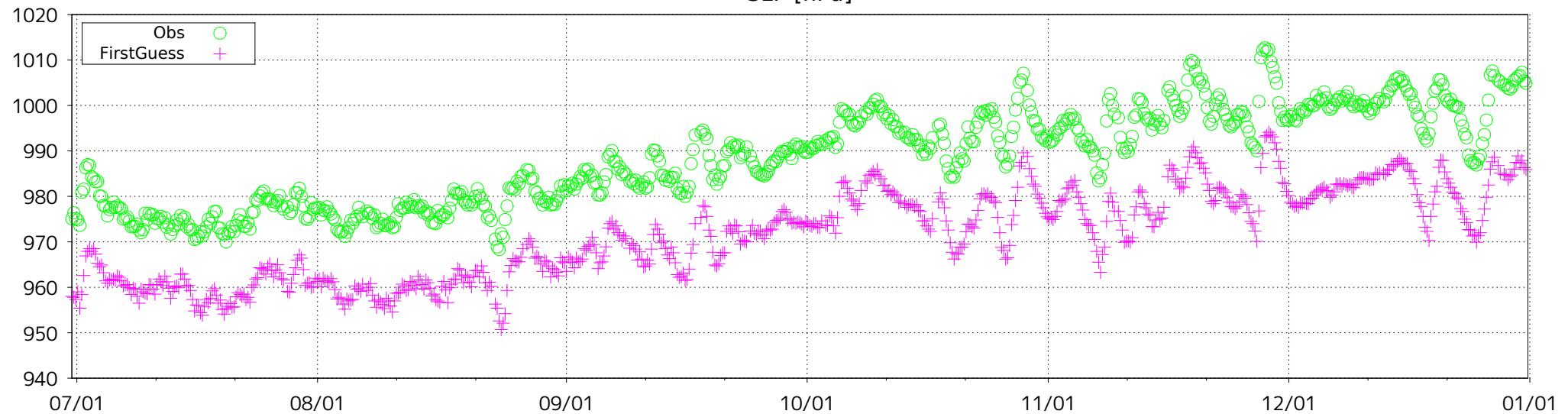
Figure 8 BIAS and SD of SLP for station 38313, 38318, 38719, 38836, 38875, 38944 (red) and surrounding stations (blue).

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

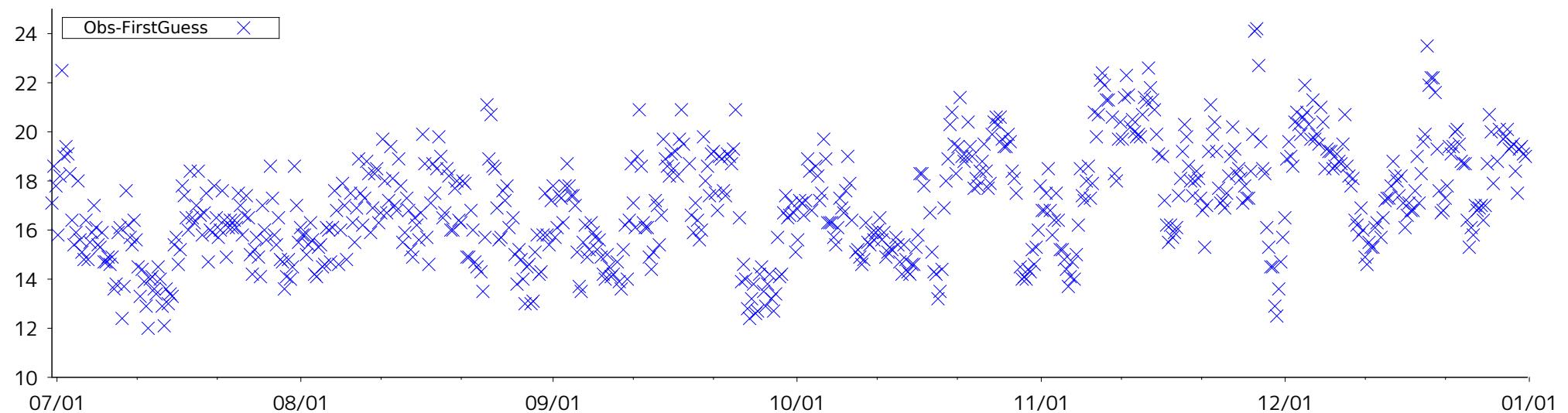
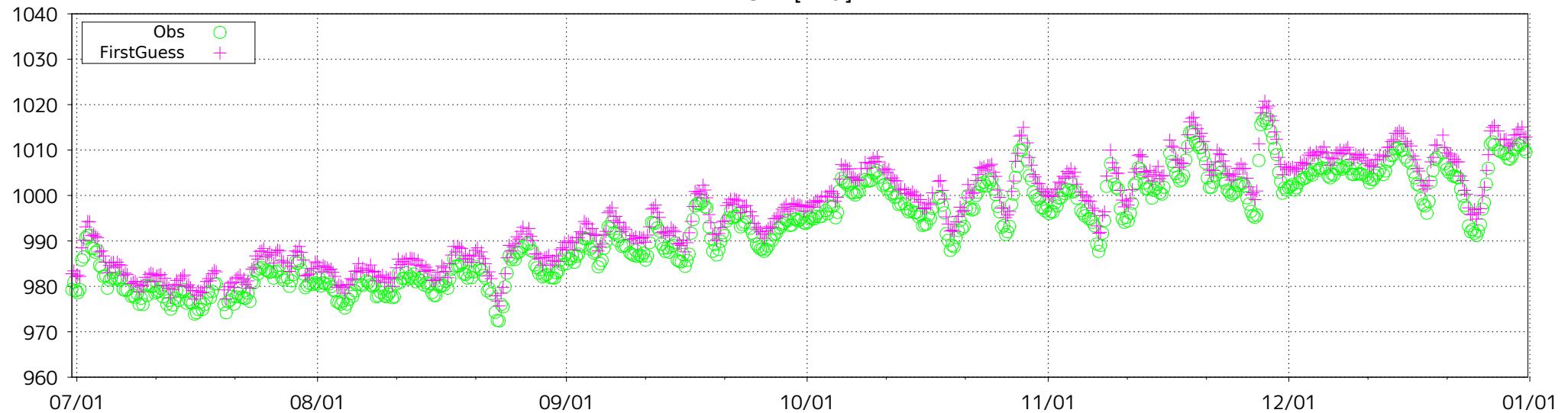


Figure 9 Time-series representation of SLP Obs minus FirstGuess for station 38313

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

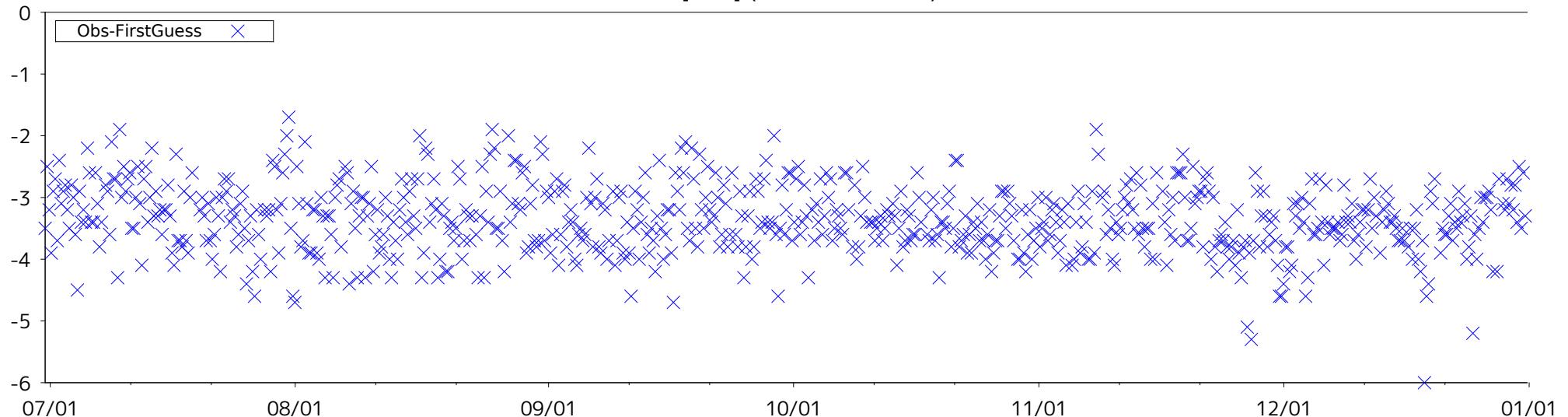
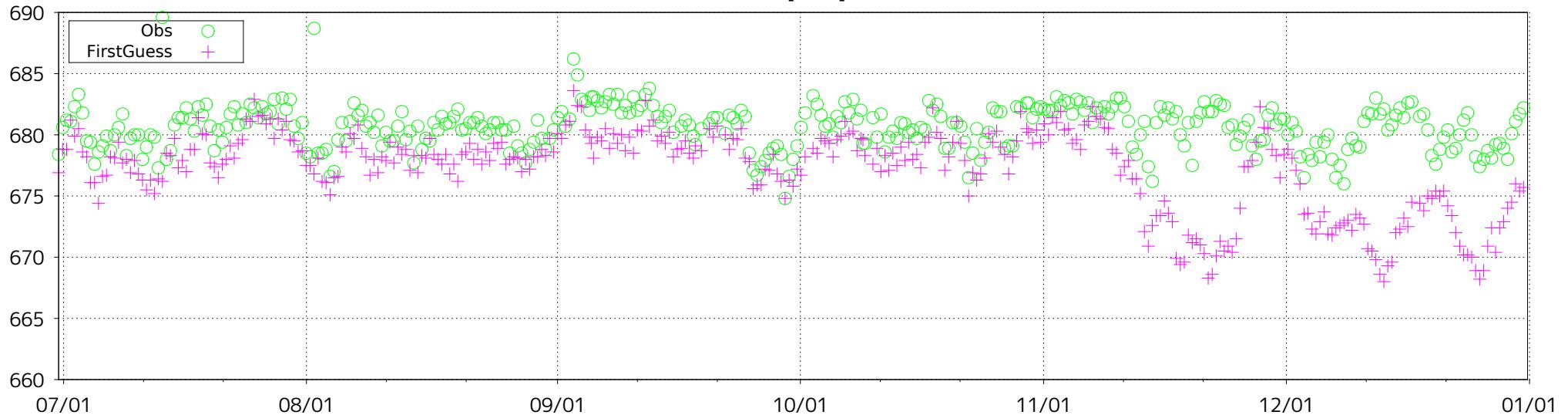


Figure 10 Time-series representation of SLP Obs minus FirstGuess for station 38318

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

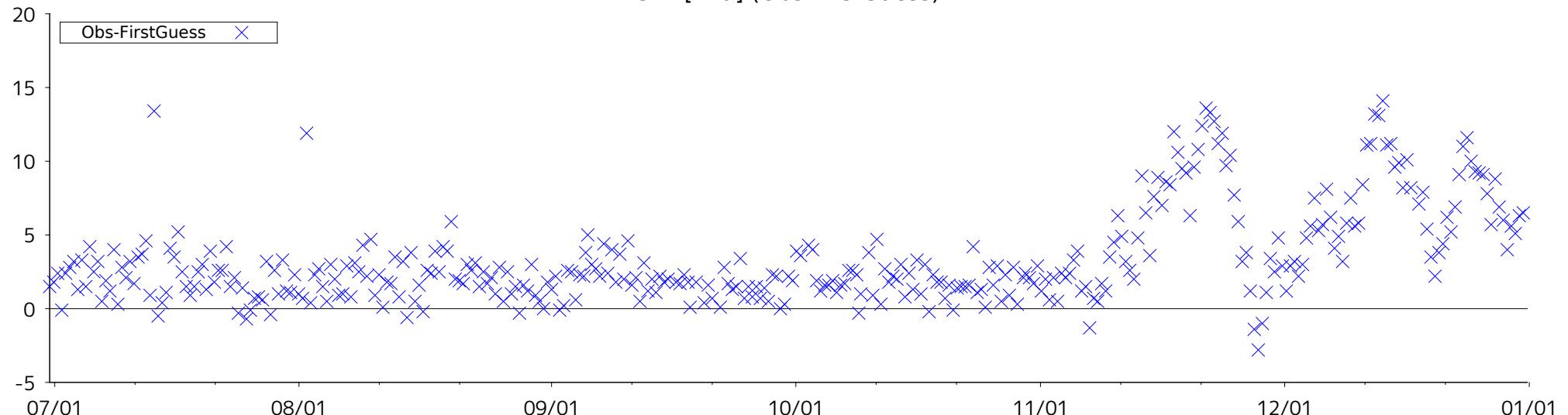
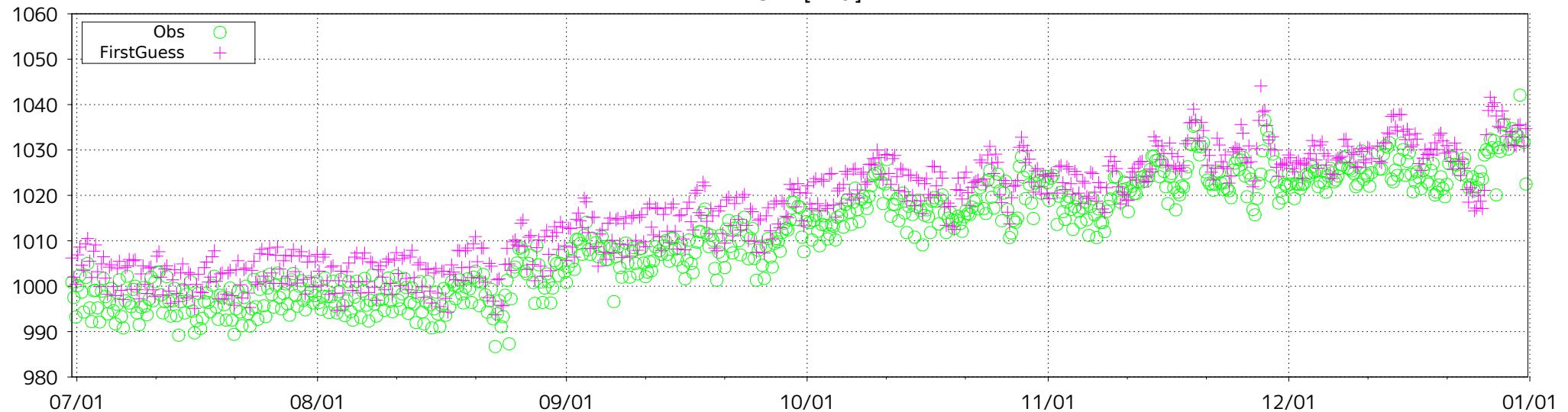


Figure 11 Time-series representation of SLP Obs minus FirstGuess for station 38719

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

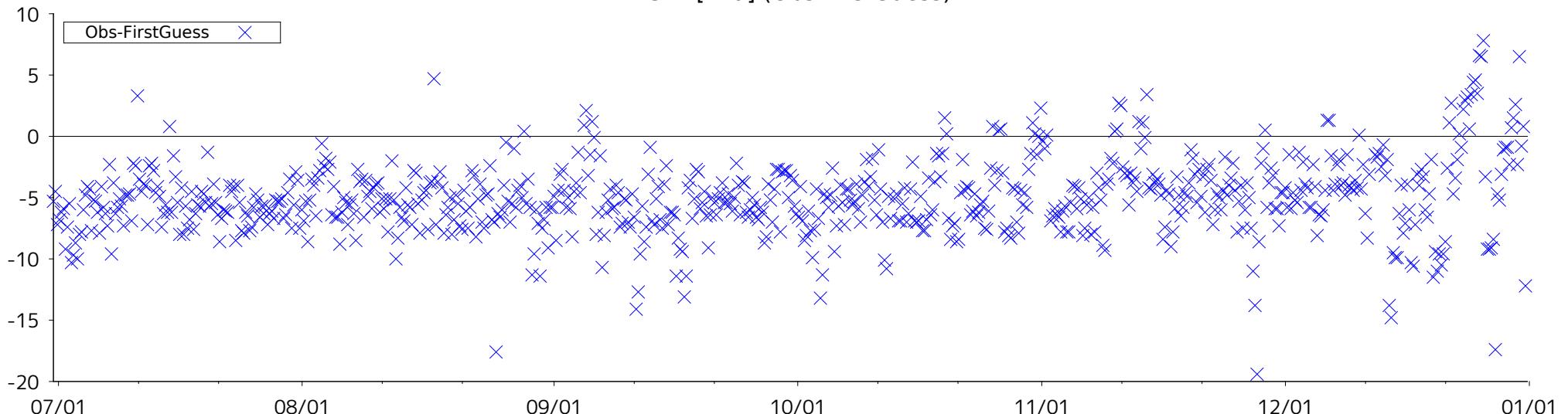
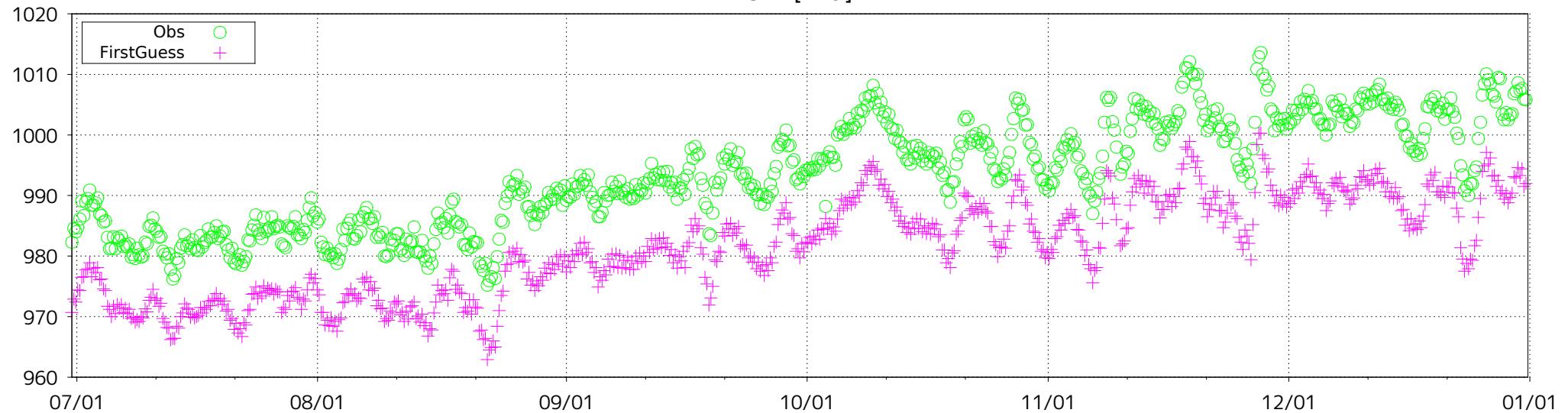


Figure 12 Time-series representation of MSLP Obs minus FirstGuess for station 38836

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

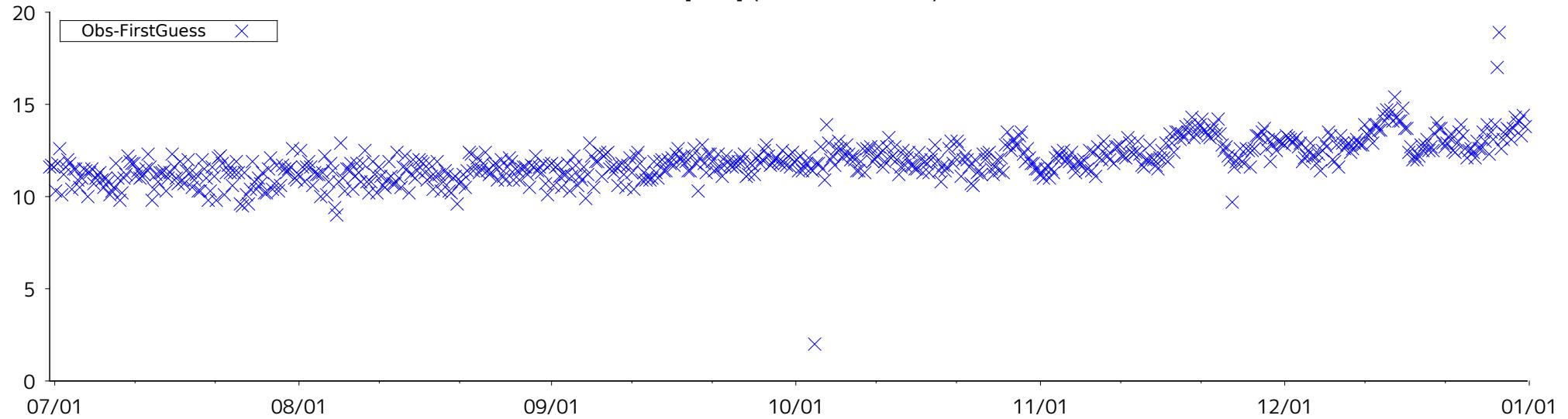
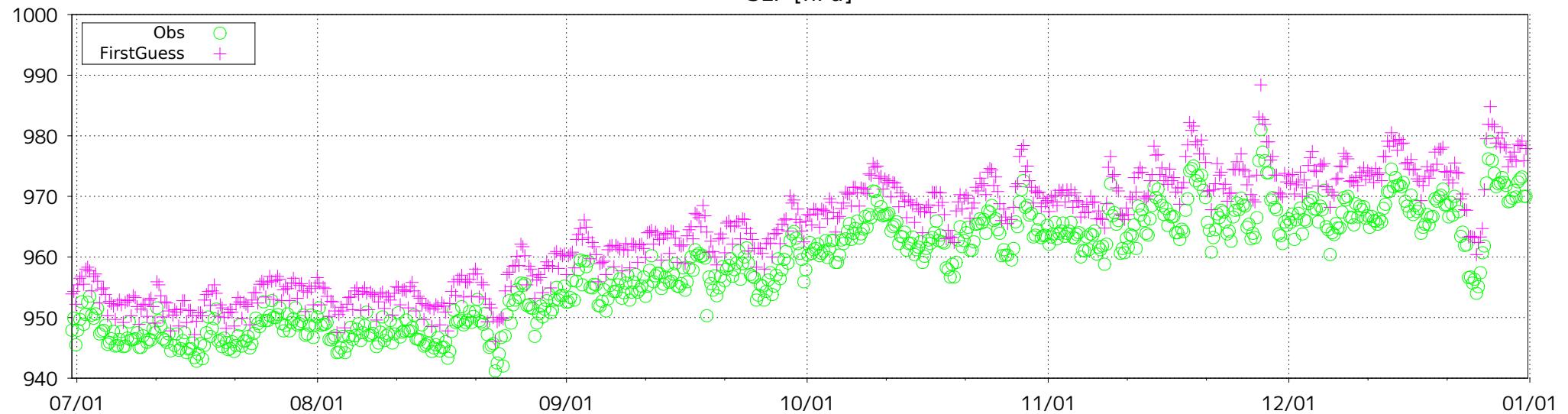


Figure 13 Time-series representation of SLP Obs minus FirstGuess for station 38880

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

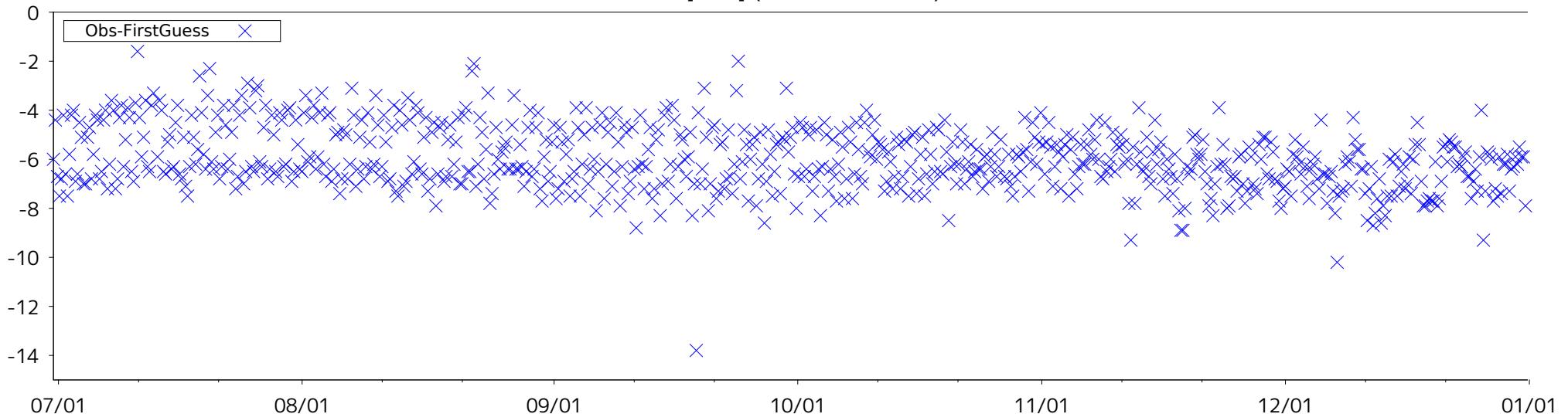
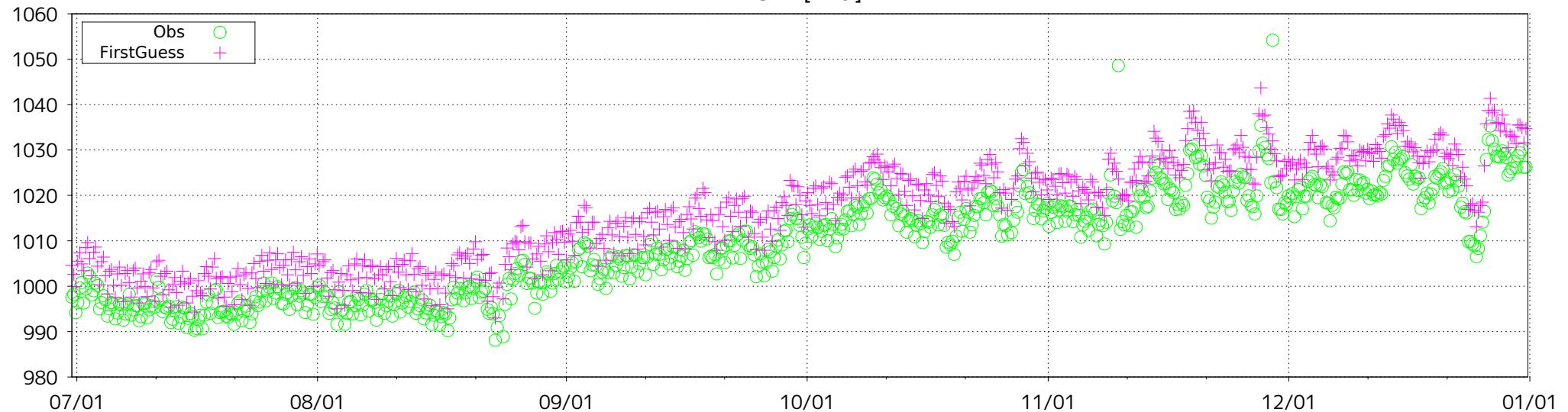


Figure 14(a) Time-series representation of SLP Obs minus FirstGuess for station 38944

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

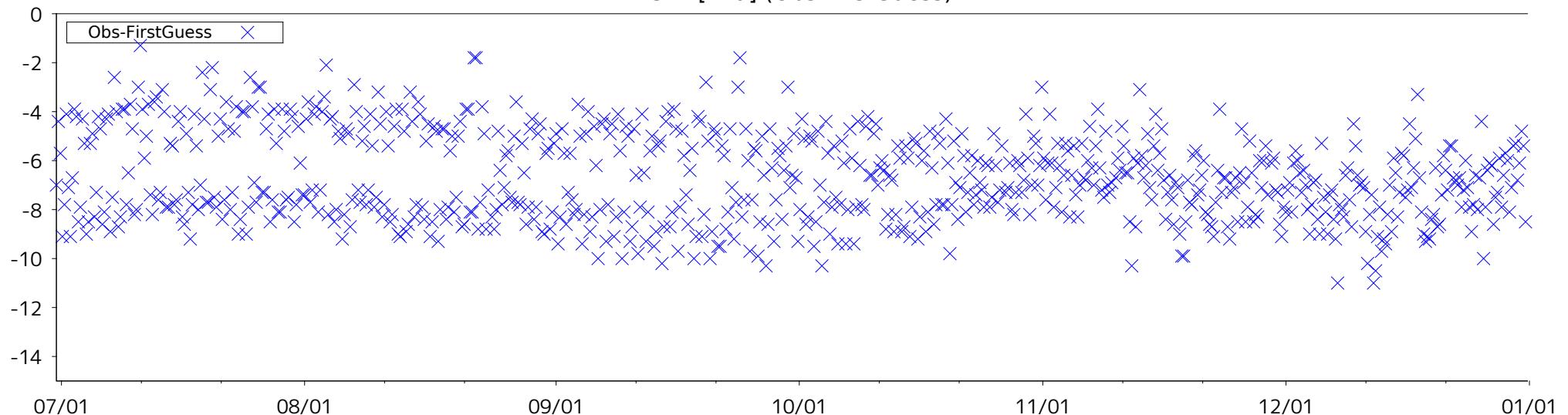
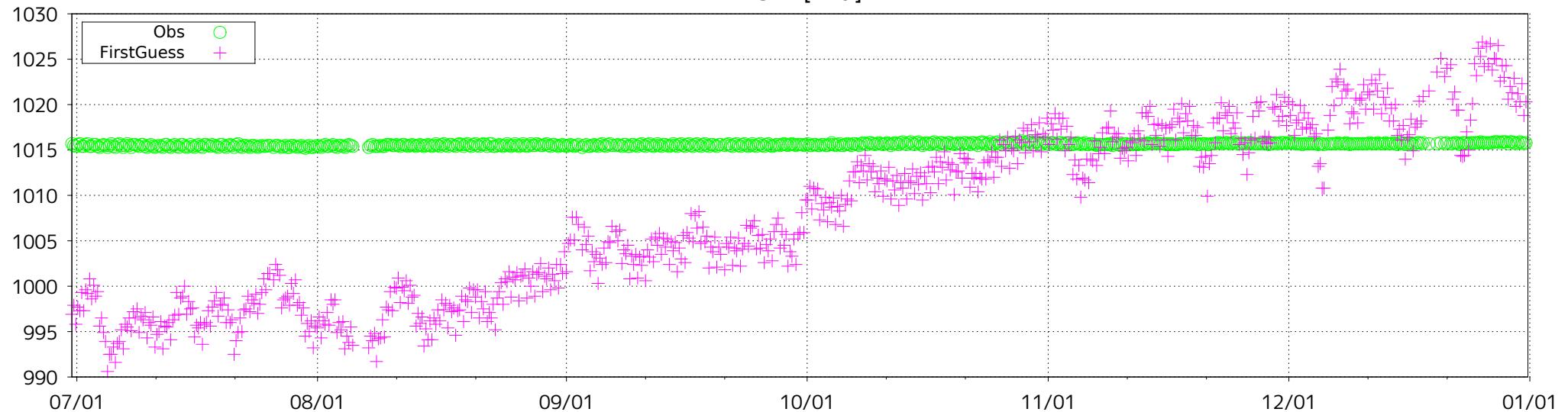


Figure 14(b) Time-series representation of MSLP Obs minus FirstGuess for station 38944

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

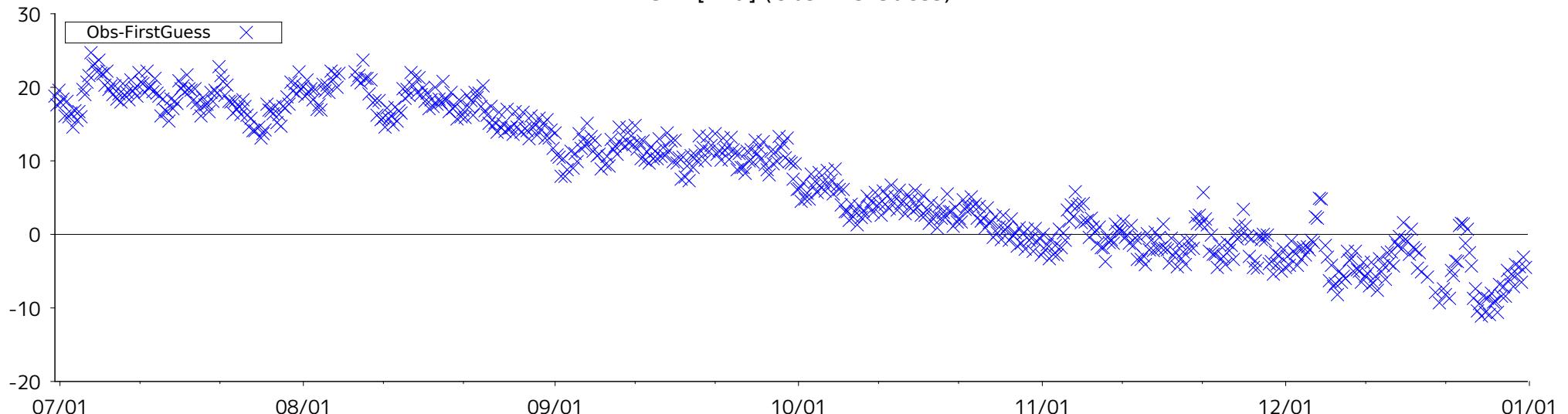
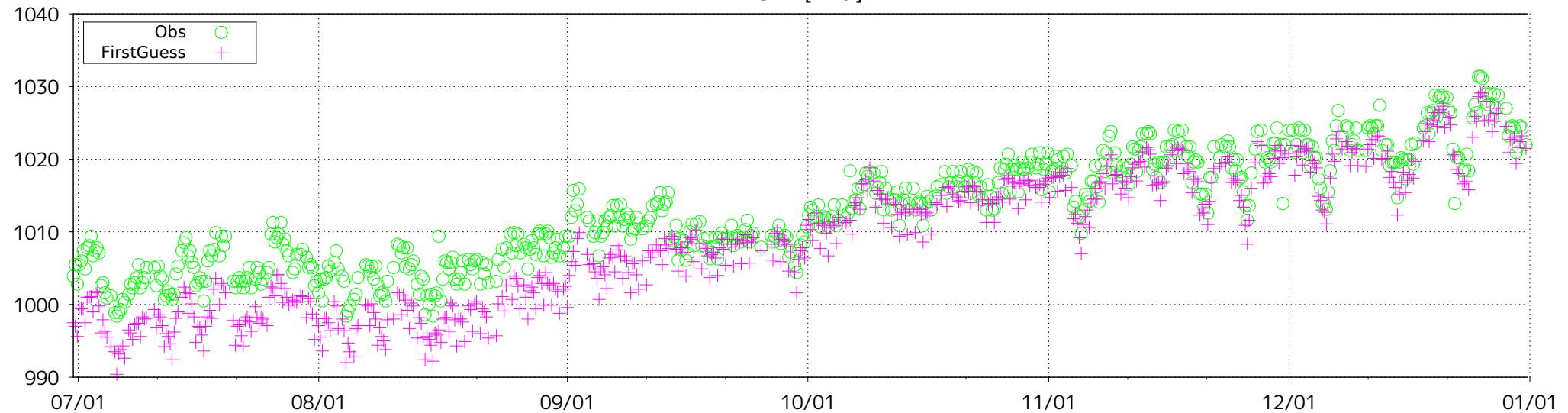


Figure 15 Time-series representation of MSLP Obs minus FirstGuess for station 40587

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

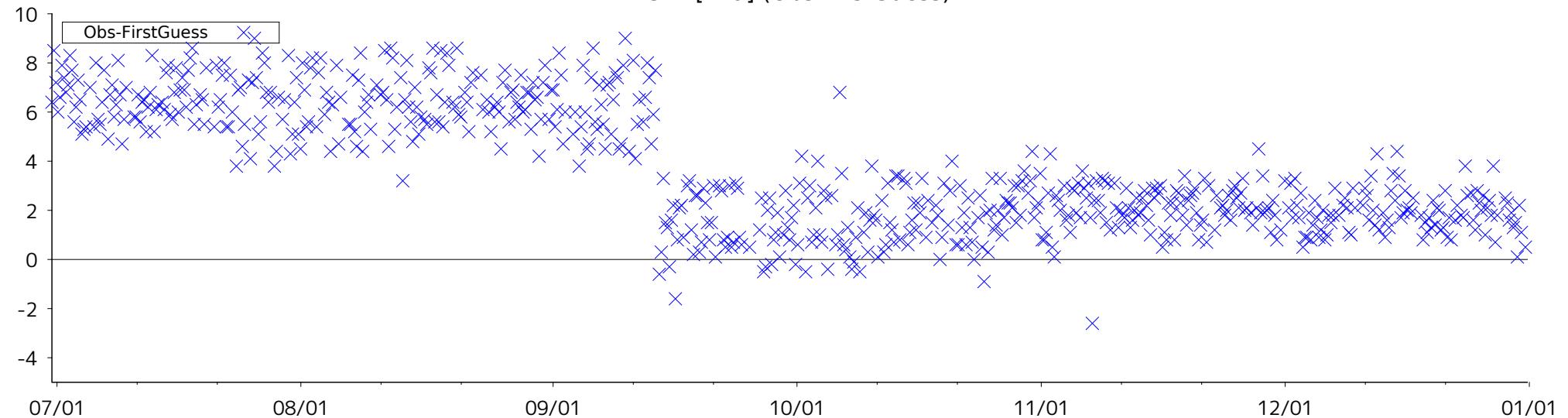


Figure 16 Time-series representation of MSLP Obs minus FirstGuess for station 40621

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

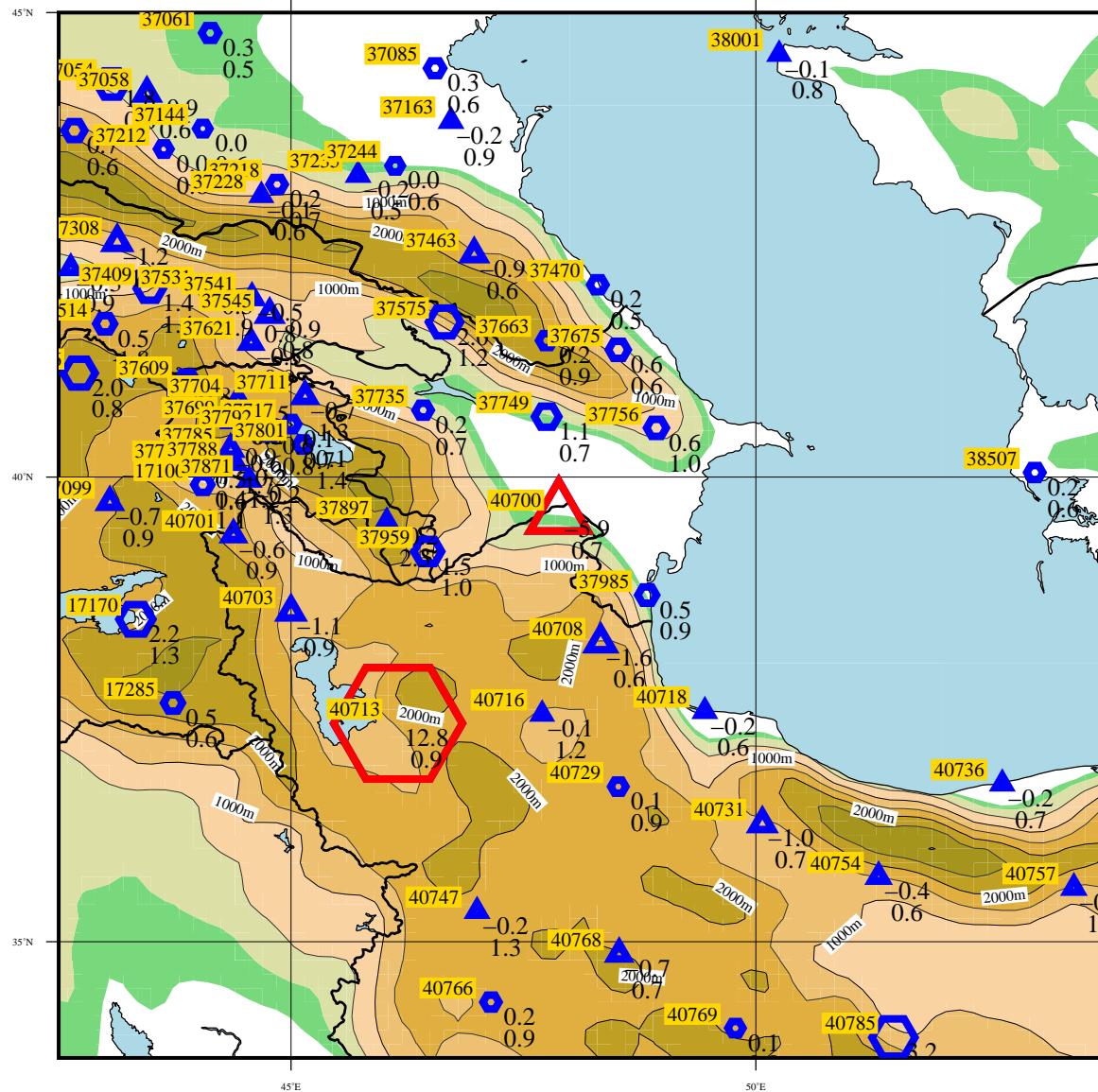


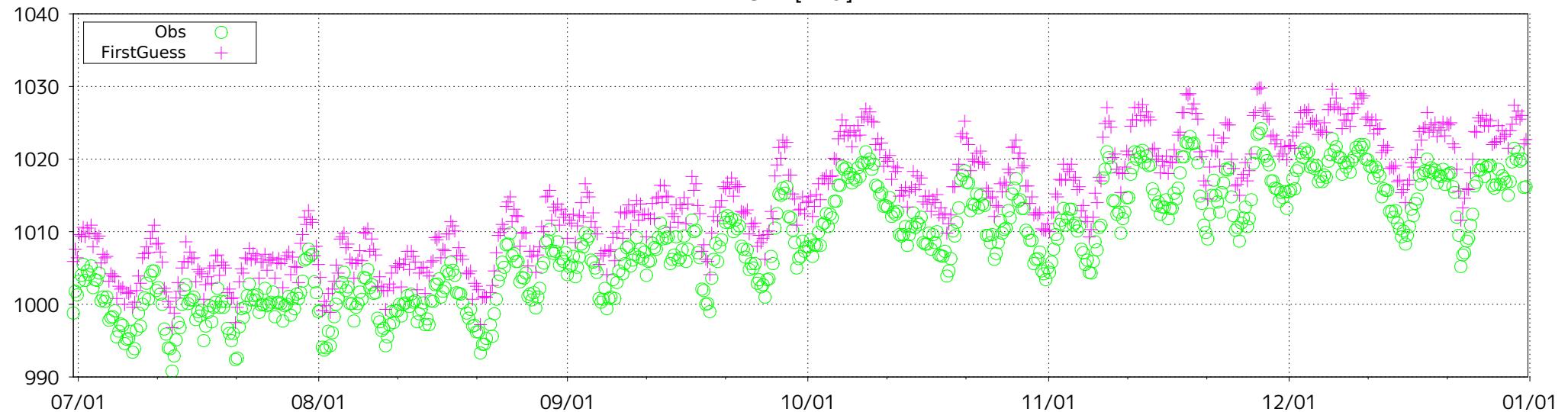
Figure 17 BIAS and SD of SLP for station 40700, 40713 (red) and surrounding stations (blue).

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)

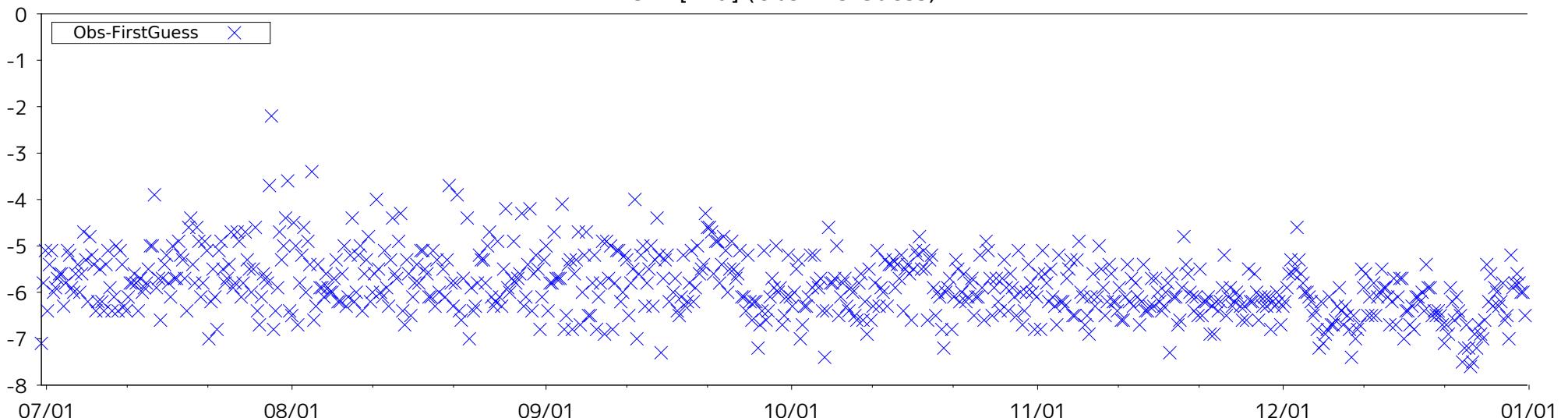
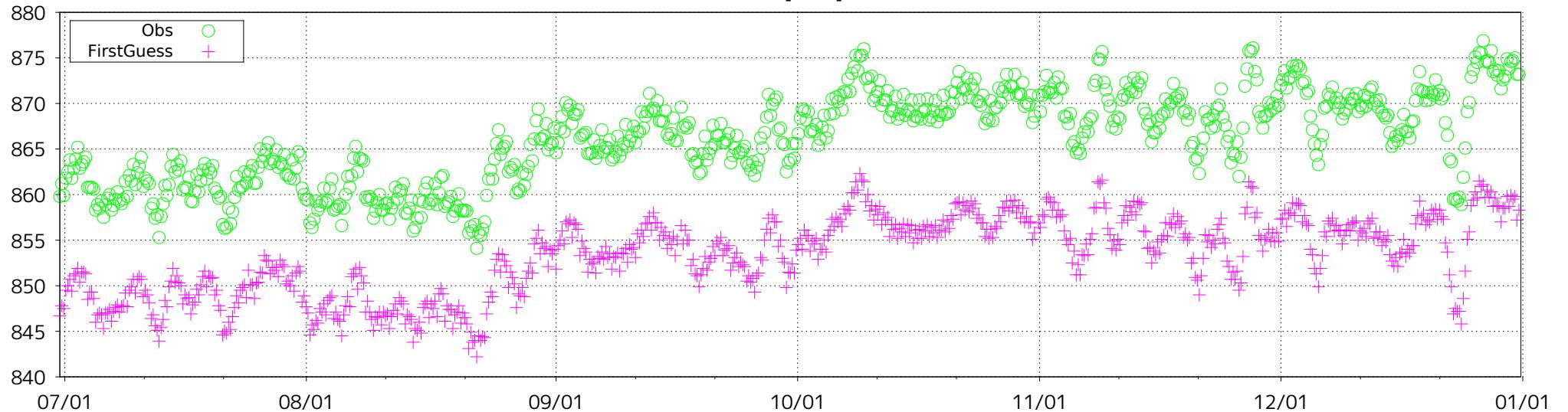


Figure 18 Time-series representation of SLP Obs minus FirstGuess for station 40700

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

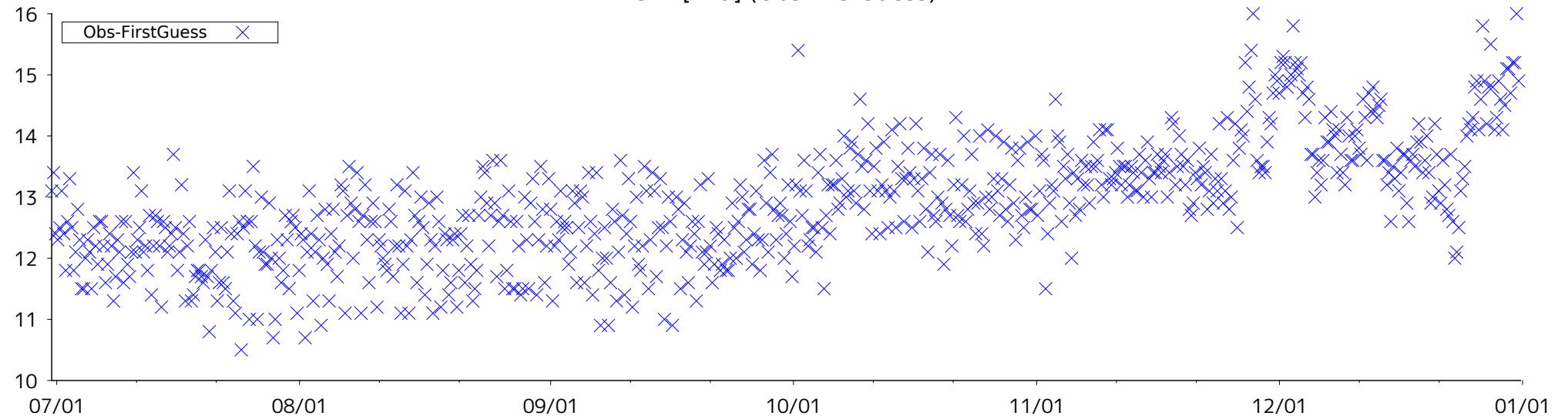
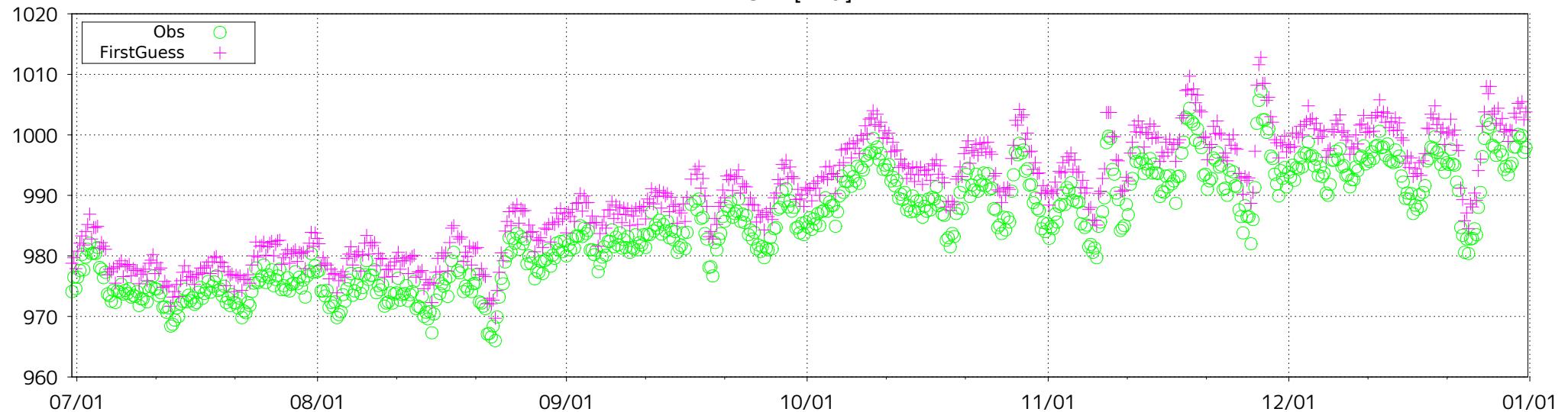


Figure 19 Time-series representation of SLP Obs minus FirstGuess for station 40713

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

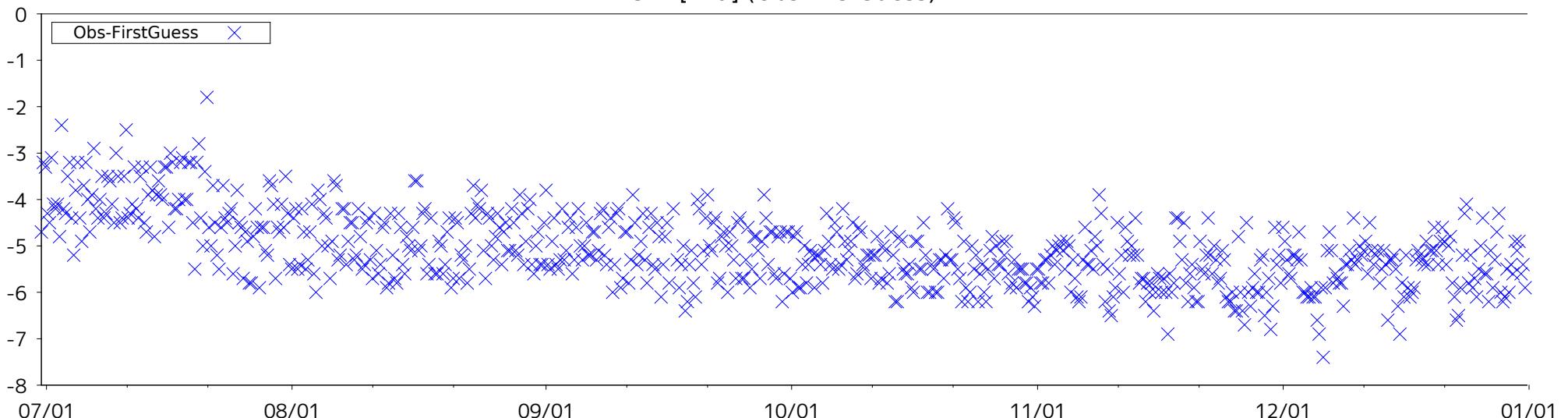
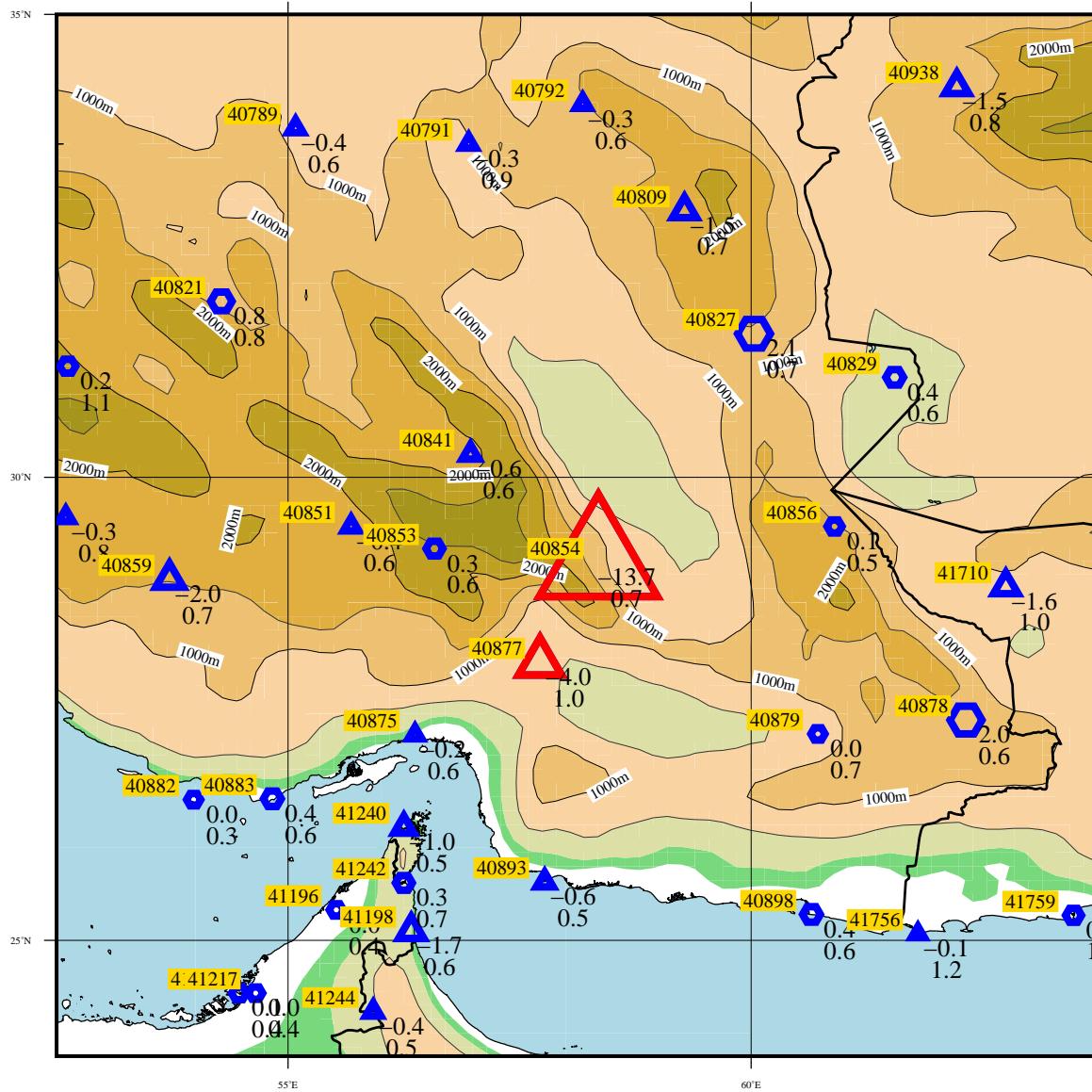


Figure 20 Time-series representation of SLP Obs minus FirstGuess for station 40741

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

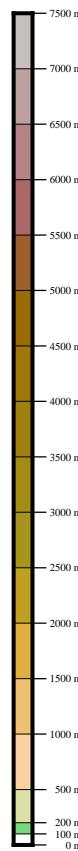


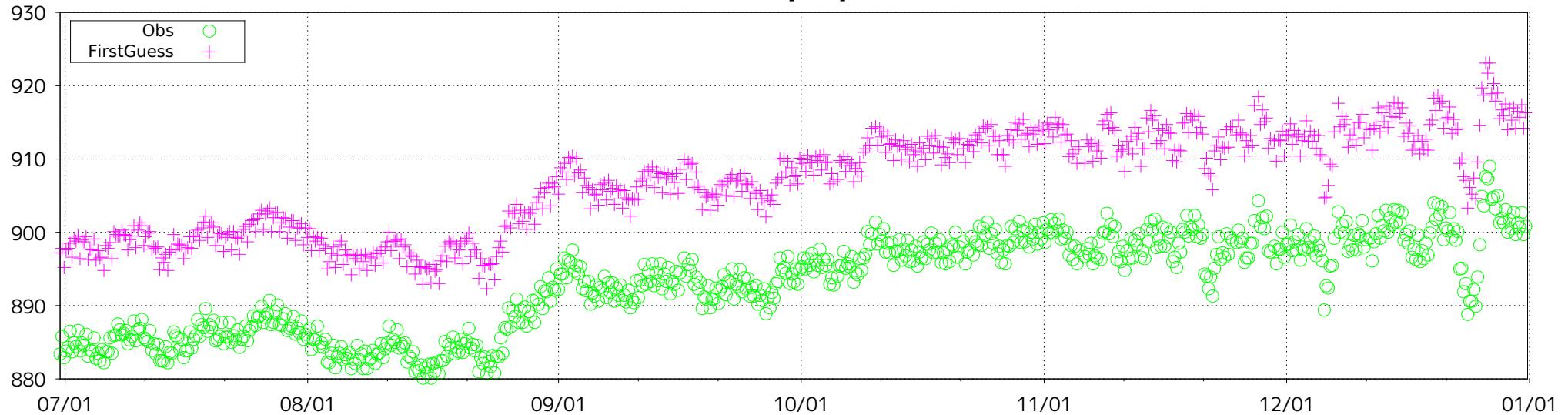
Figure 21 BIAS and SD of SLP for station 40854, 40877 (red) and surrounding stations (blue).

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)

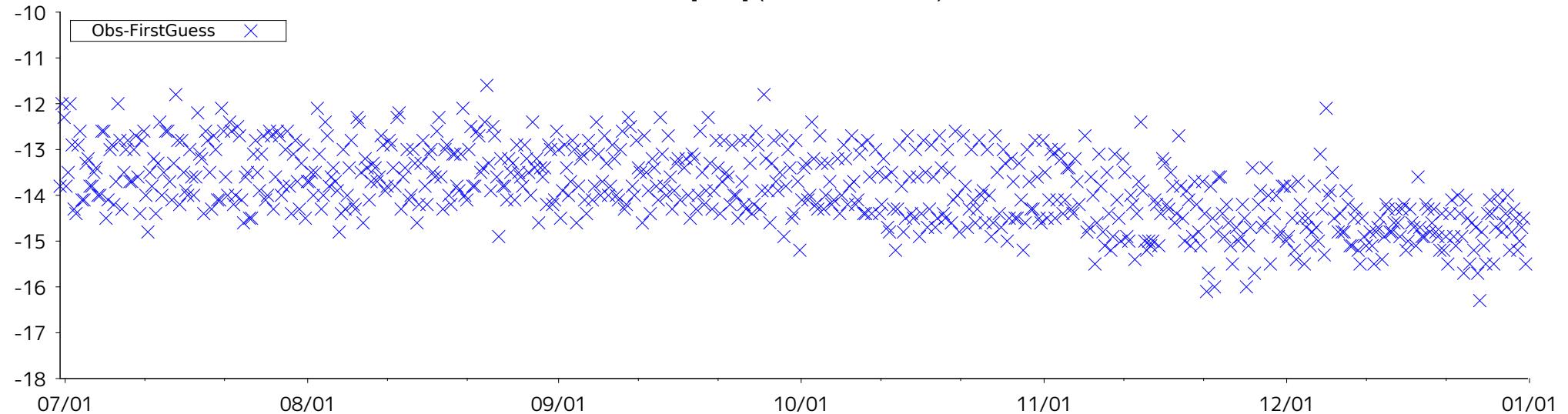
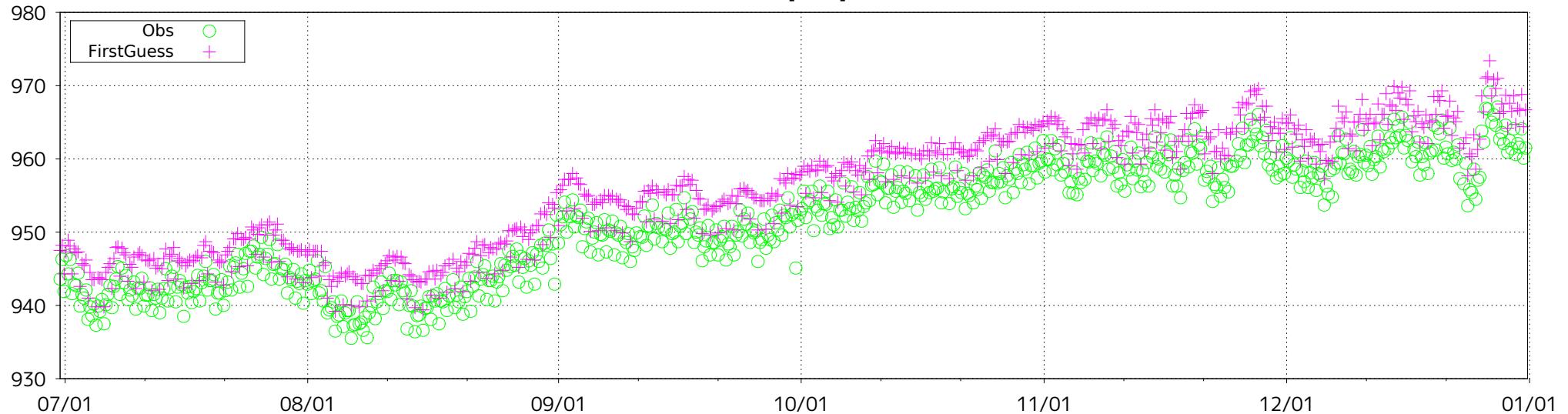


Figure 22 Time-series representation of SLP Obs minus FirstGuess for station 40854

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

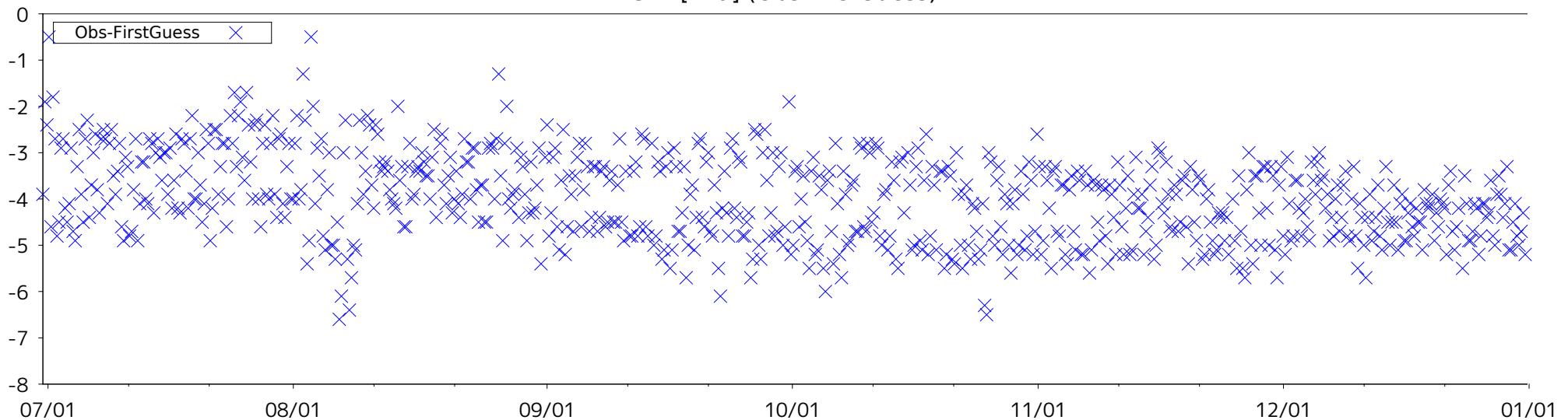
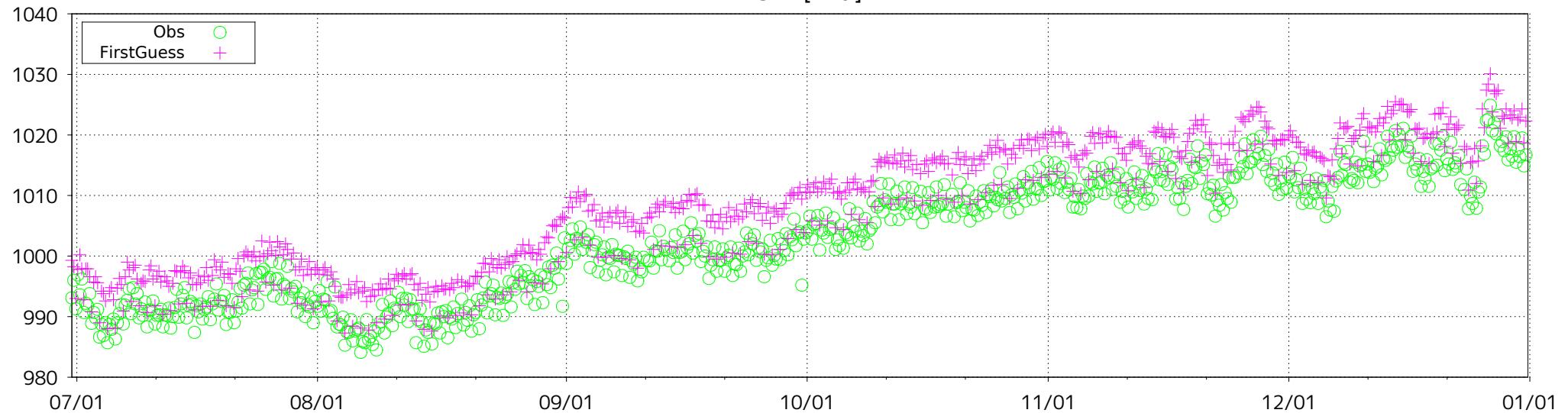


Figure 23(a) Time-series representation of SLP Obs minus FirstGuess for station 40877

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

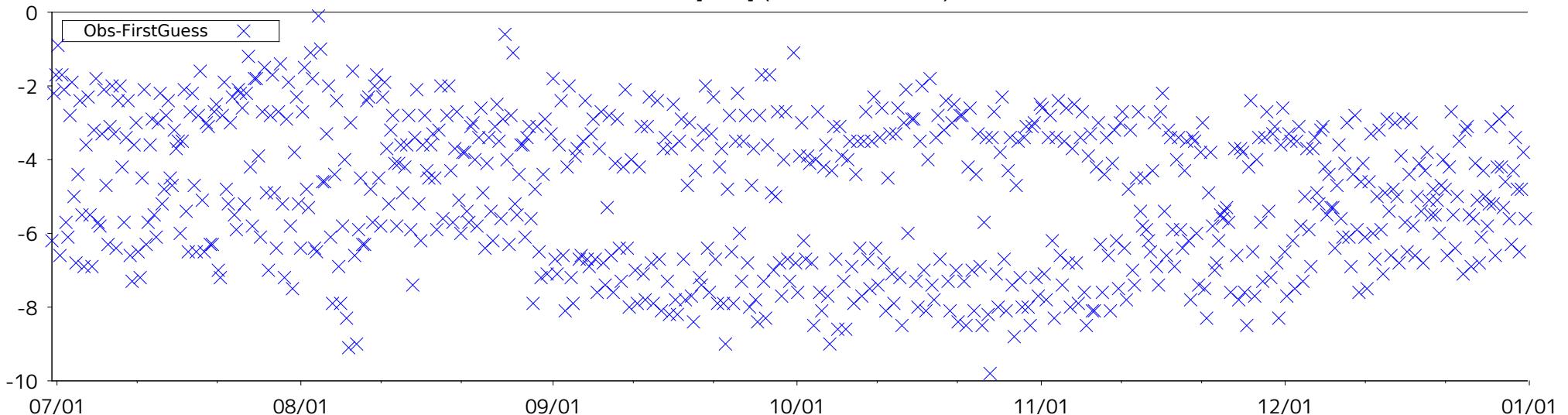


Figure 23(b) Time-series representation of MSLP Obs minus FirstGuess for station 40877

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

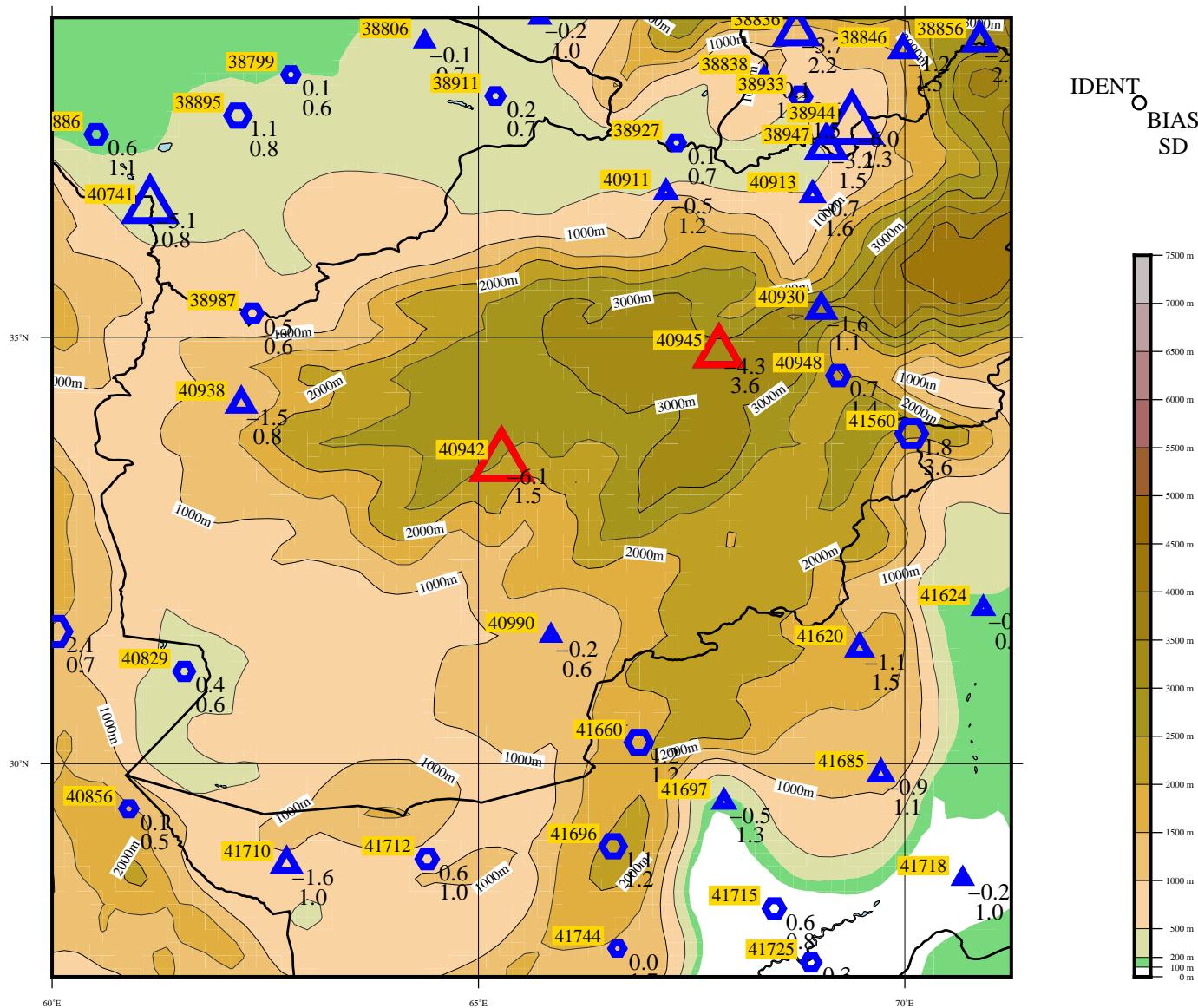


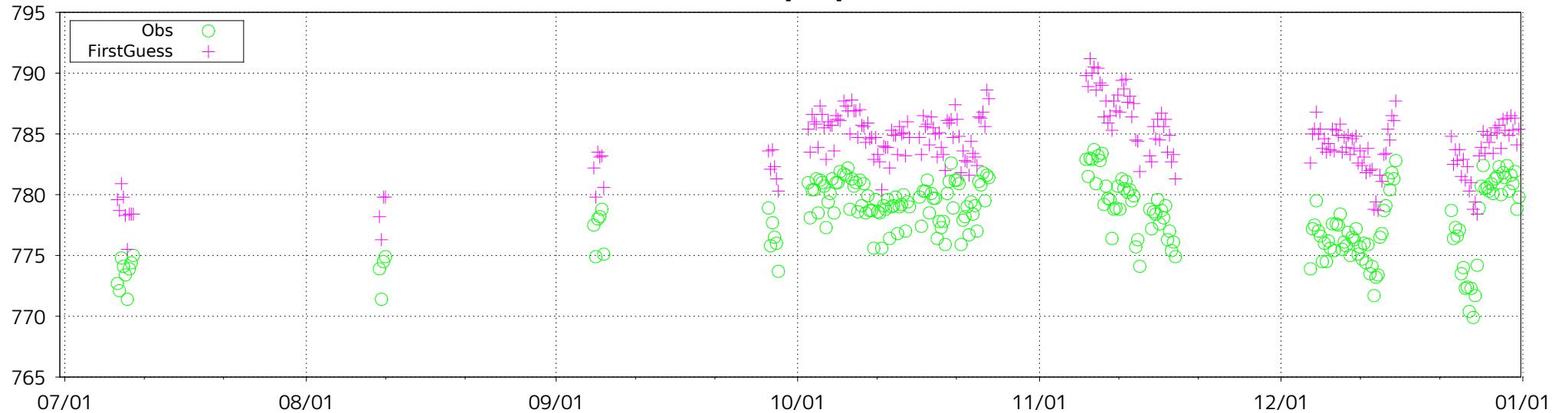
Figure 24 BIAS and SD of SLP for station 40942, 40945 (red) and surrounding stations (blue).

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

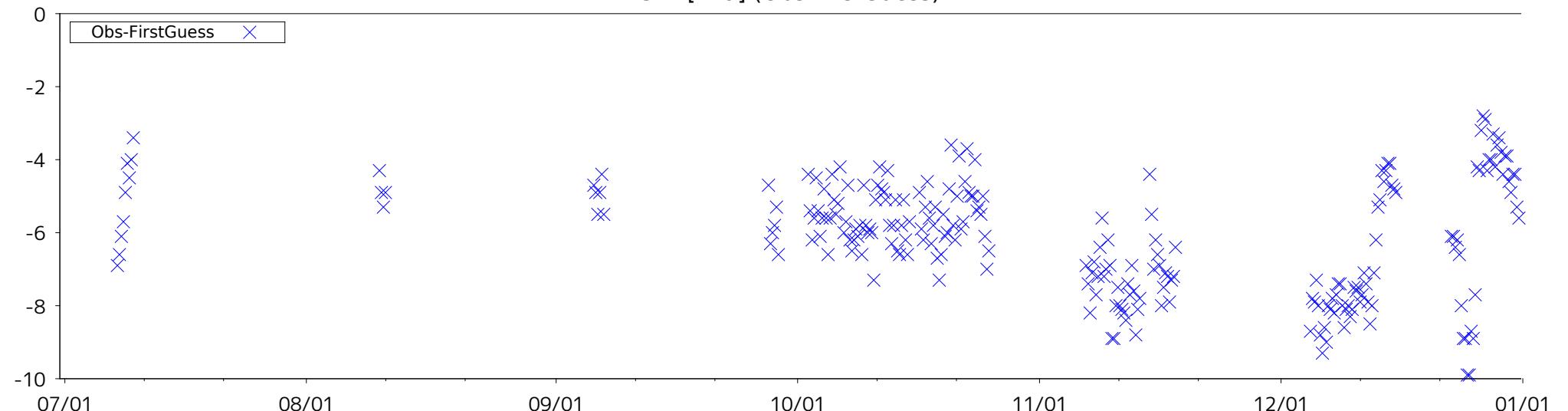
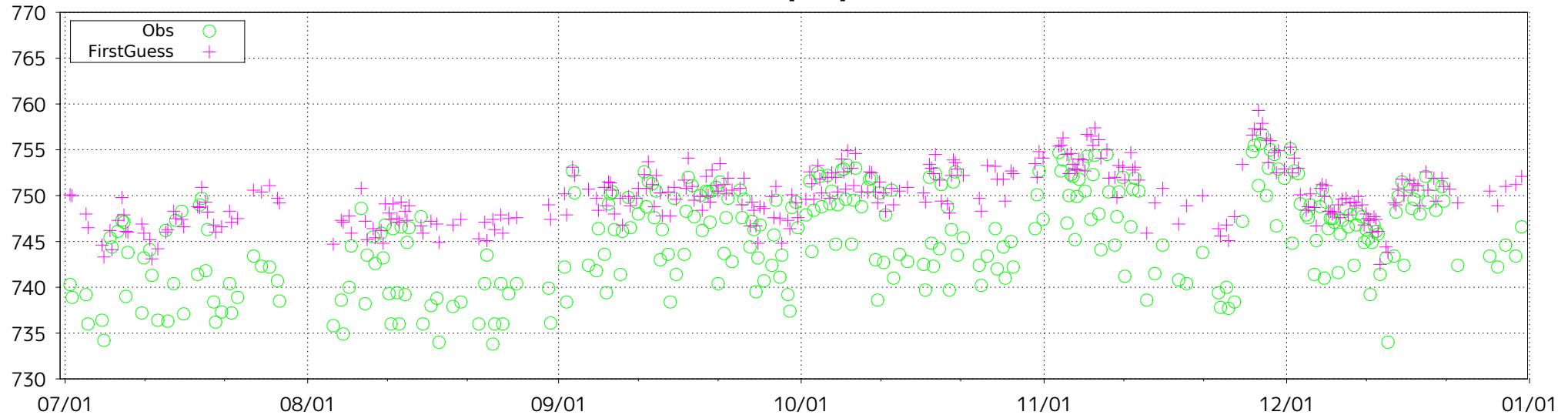


Figure 25 Time-series representation of SLP Obs minus FirstGuess for station 40942

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

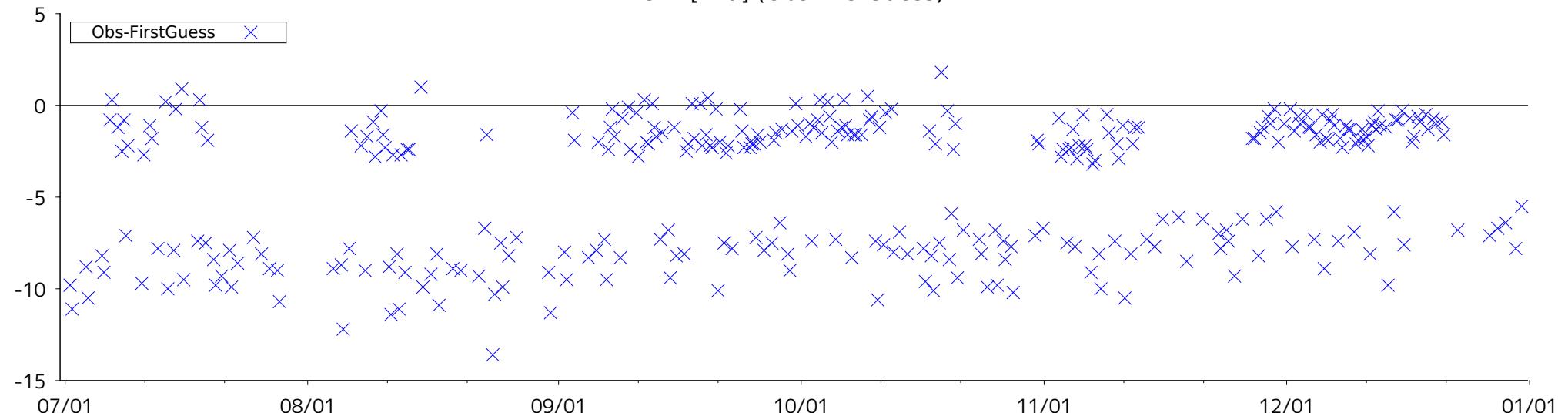
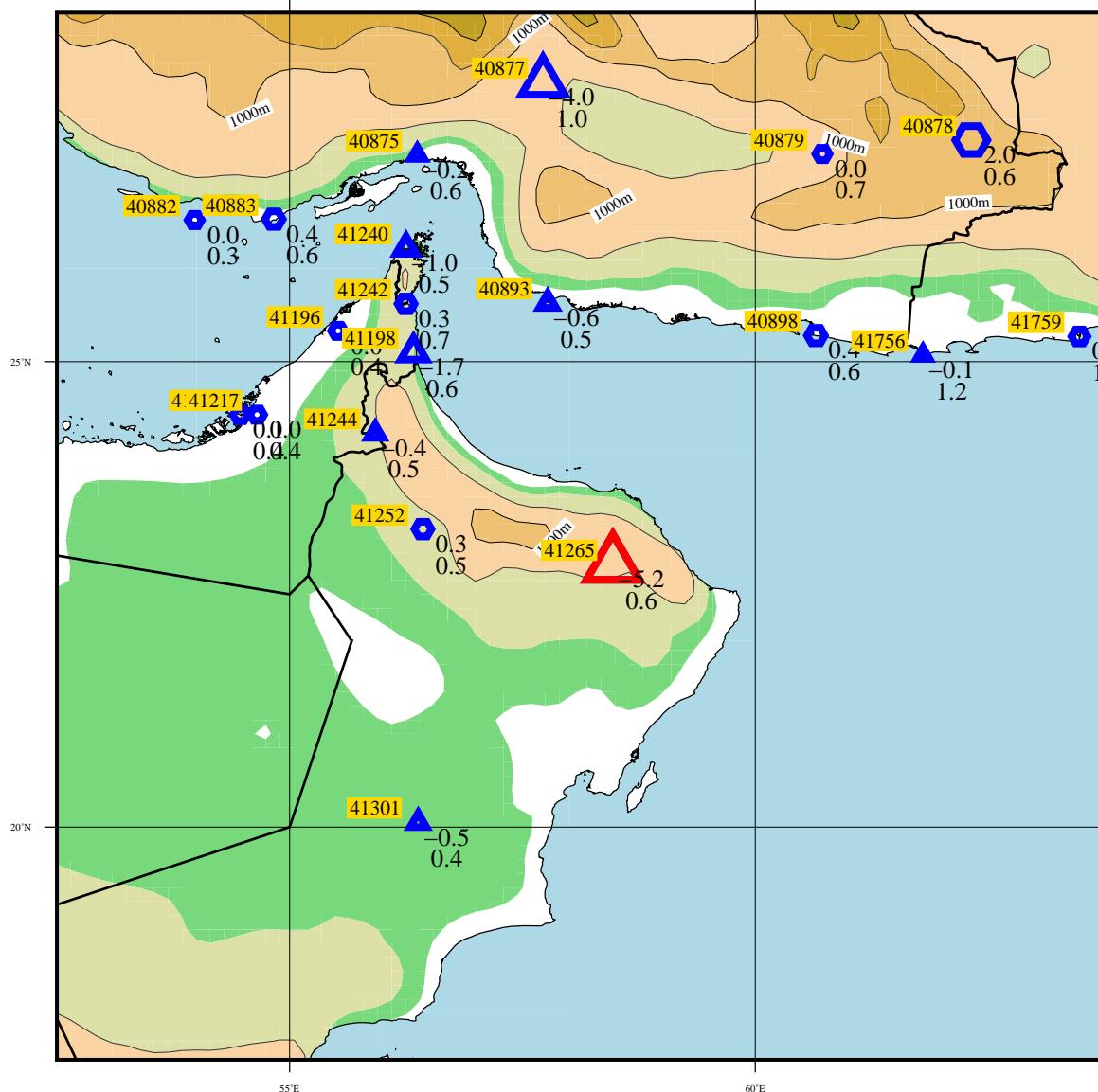


Figure 26 Time-series representation of SLP Obs minus FirstGuess for station 40945

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

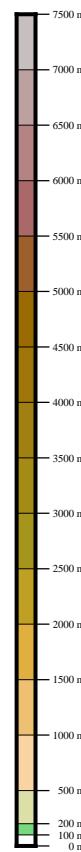


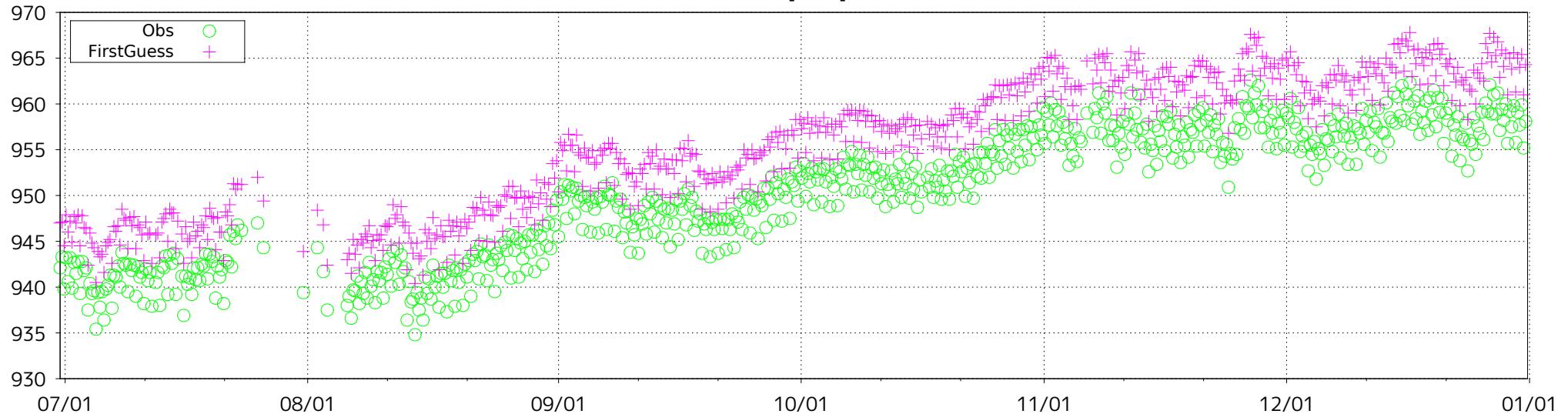
Figure 27 BIAS and SD of SLP for station 41265 (red) and surrounding stations (blue).

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)

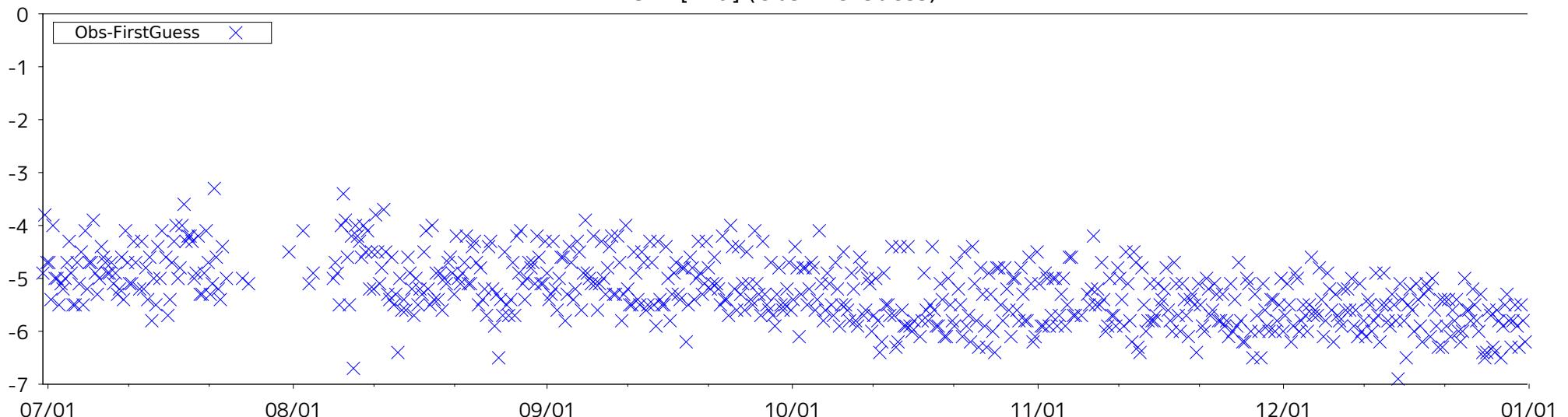
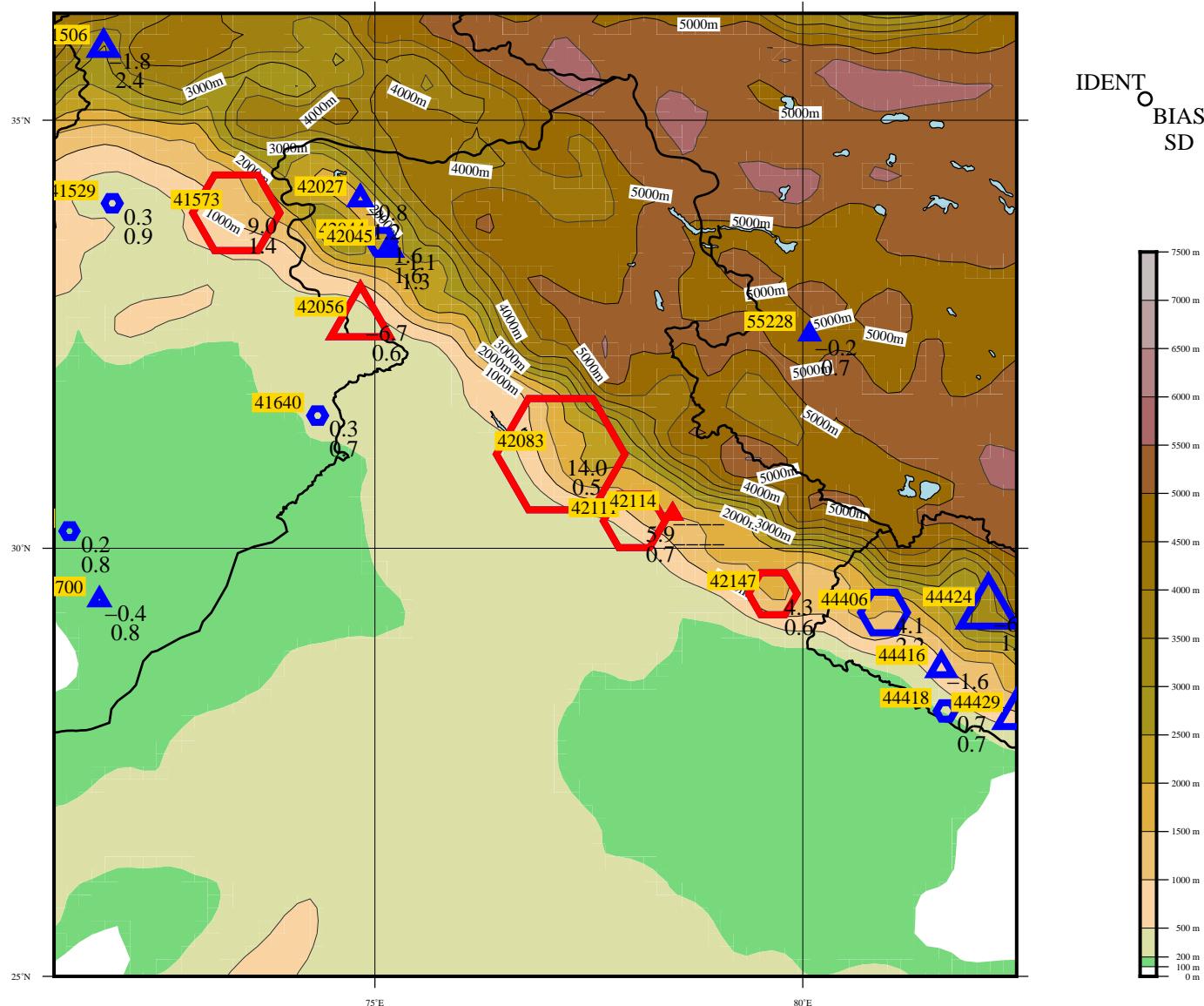


Figure 28 Time-series representation of SLP Obs minus FirstGuess for station 41265

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

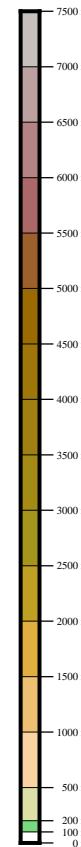


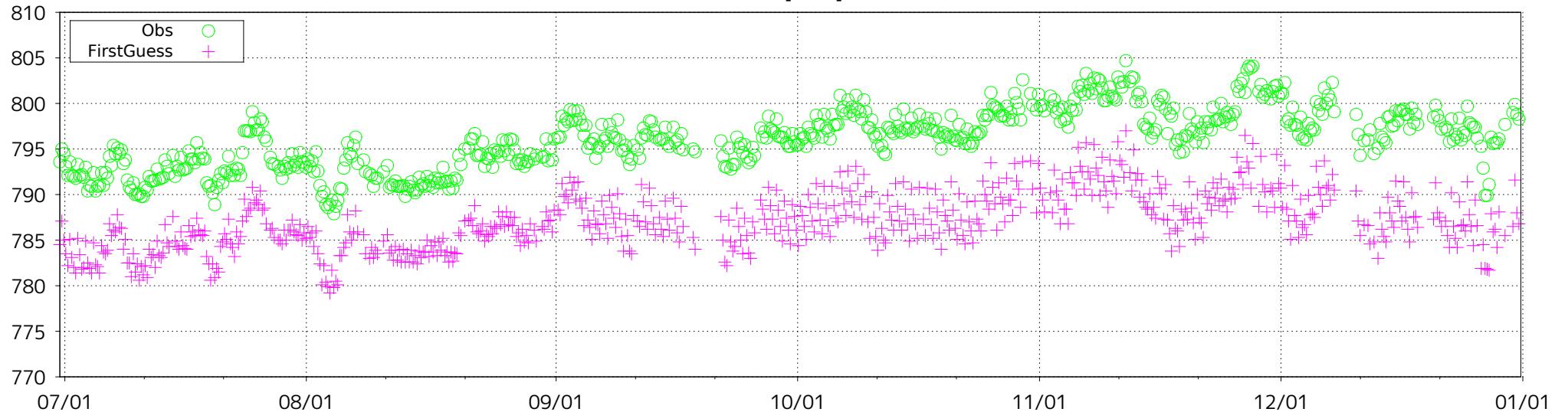
Figure 29 BIAS and SD of SLP for station 41573, 42056, 42083, 42111, 42114, 42147 (red) and surrounding stations (blue).

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)

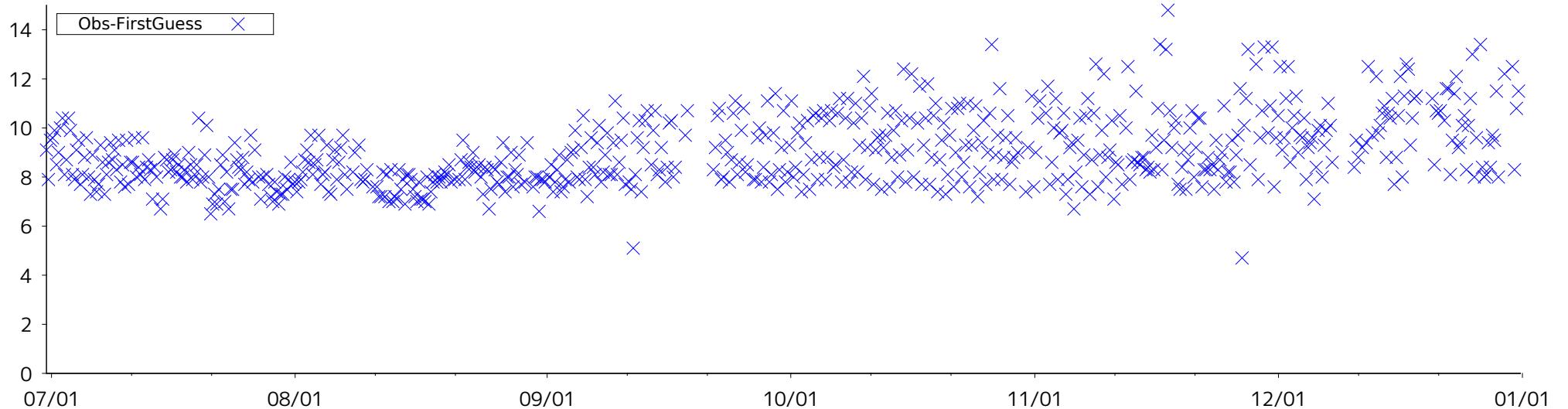
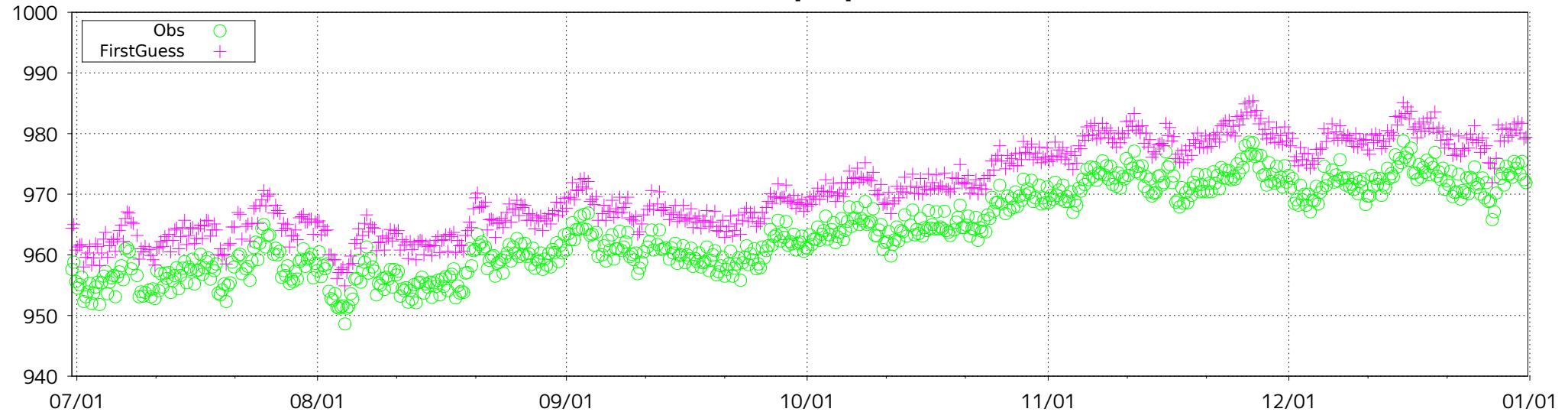


Figure 30 Time-series representation of SLP Obs minus FirstGuess for station 41573

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

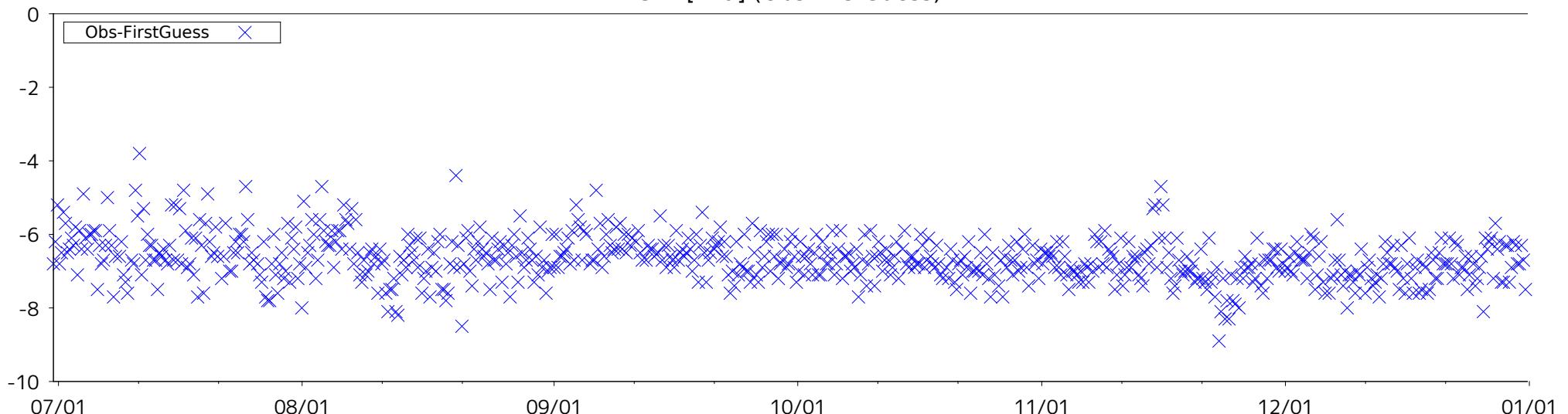
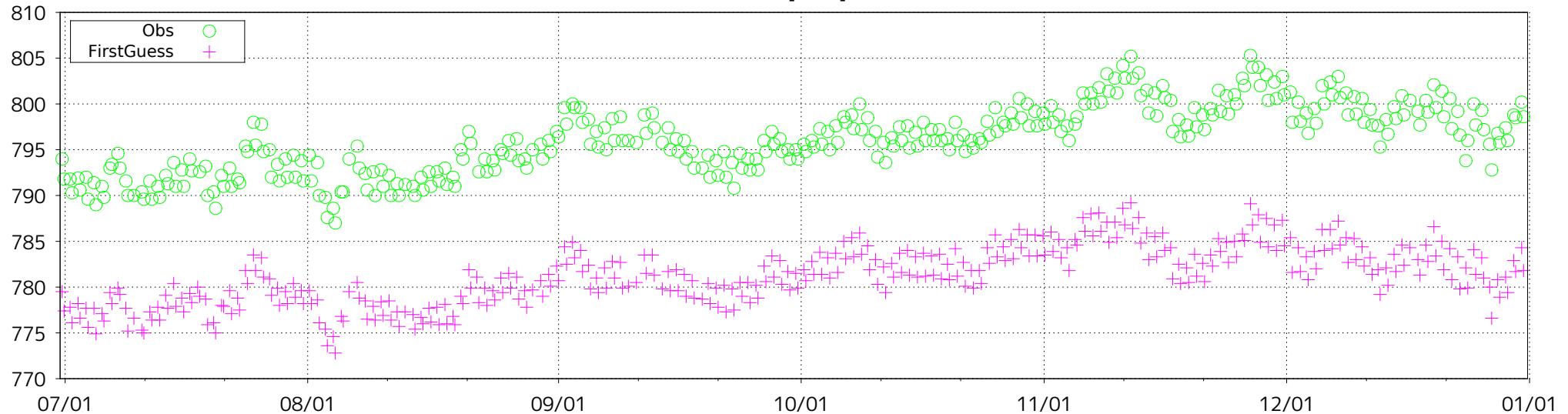


Figure 31 Time-series representation of SLP Obs minus FirstGuess for station 42056

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

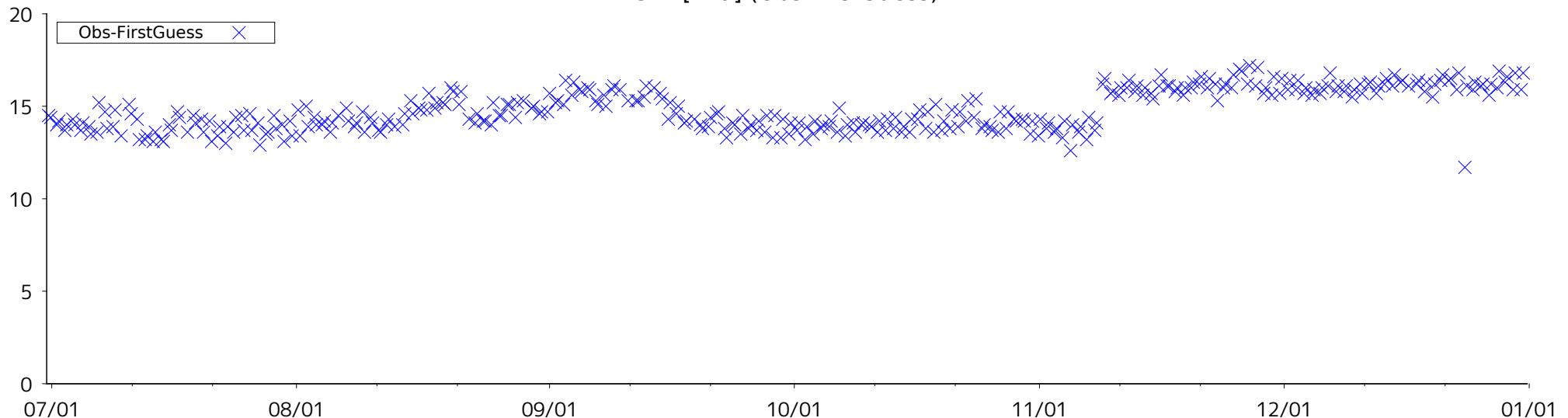
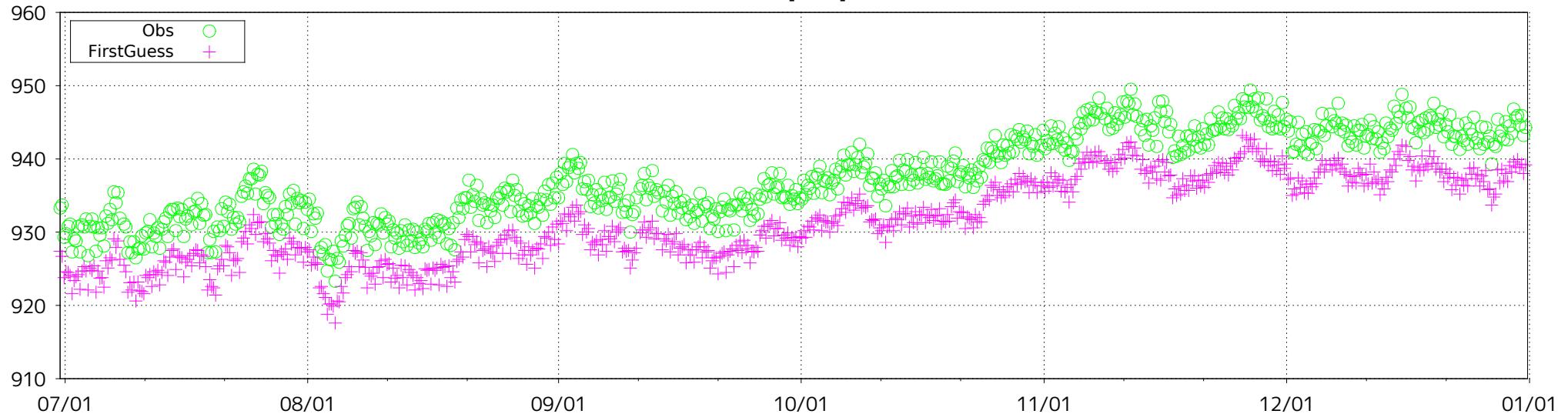


Figure 32 Time-series representation of SLP Obs minus FirstGuess for station 42083

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

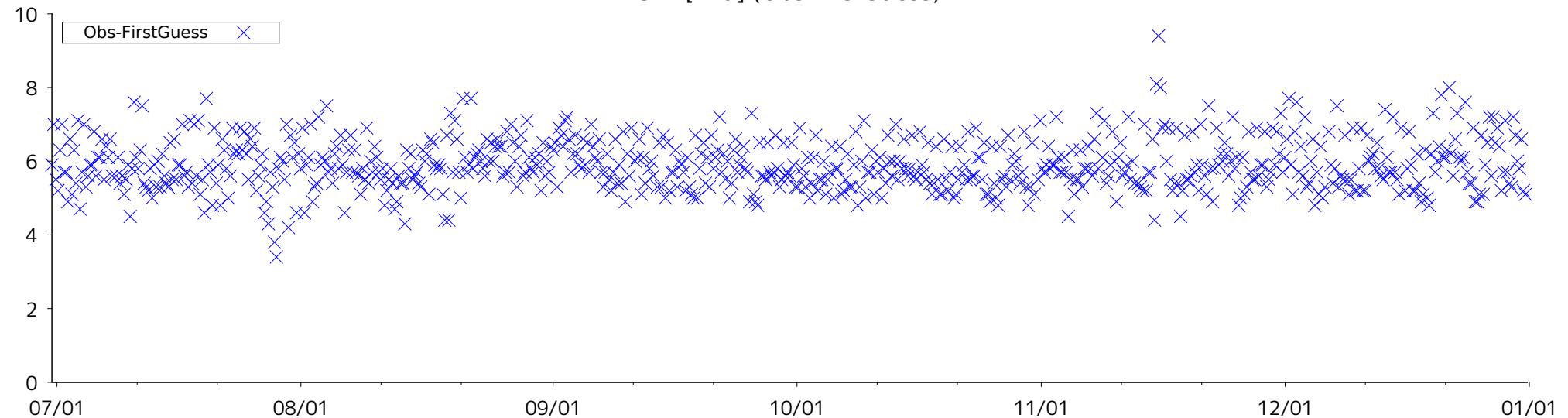
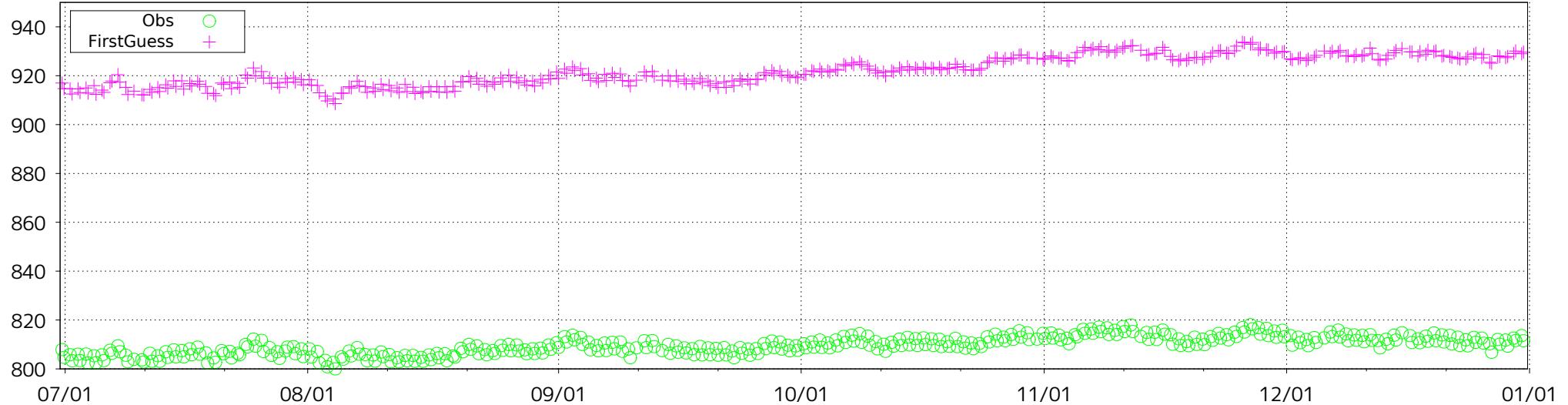


Figure 33 Time-series representation of SLP Obs minus FirstGuess for station 42111

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

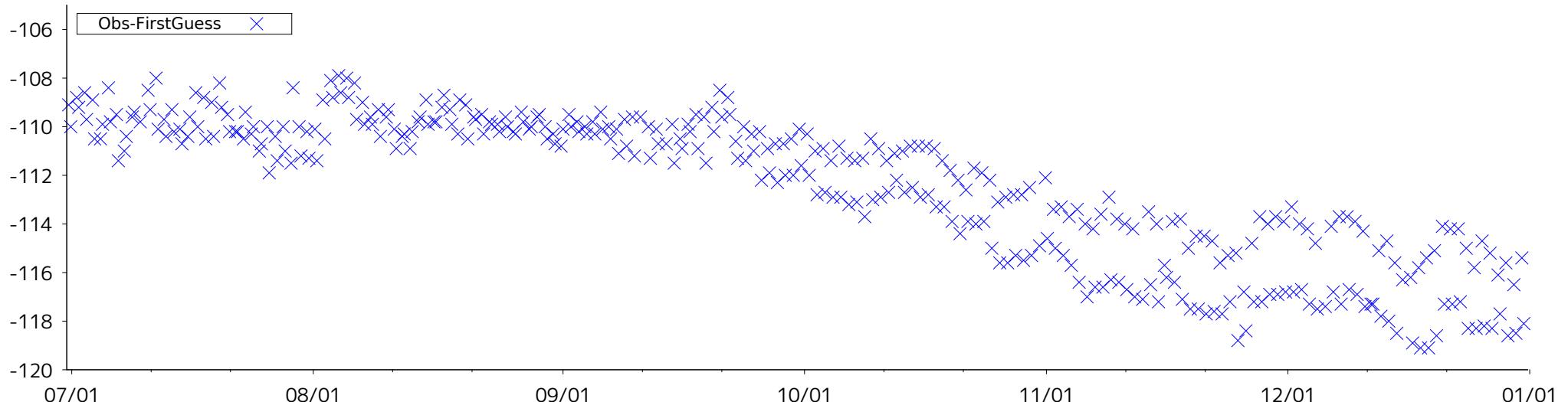
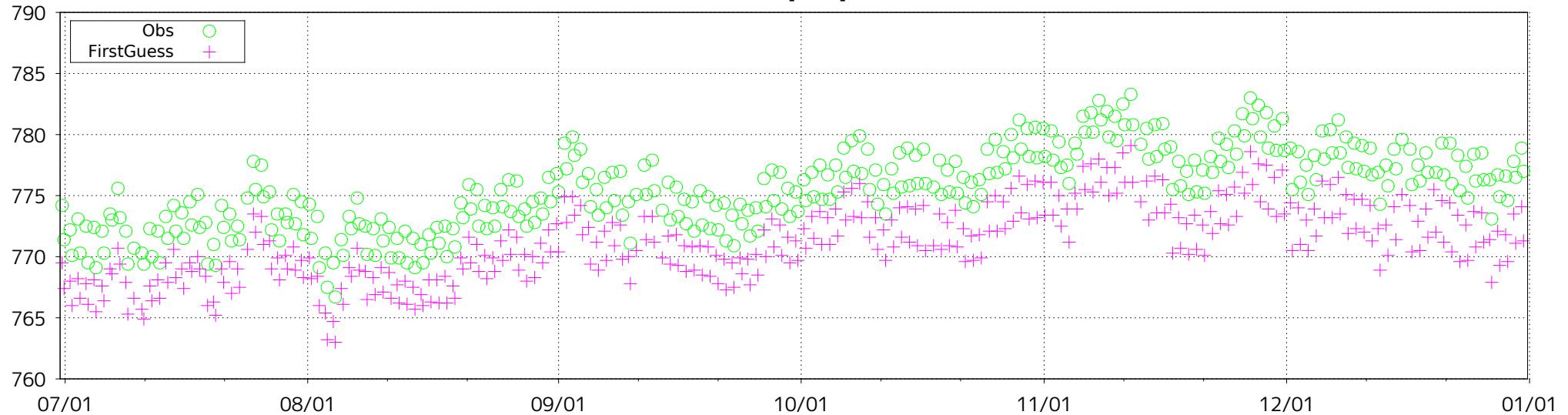


Figure 34 Time-series representation of SLP Obs minus FirstGuess for station 42114

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

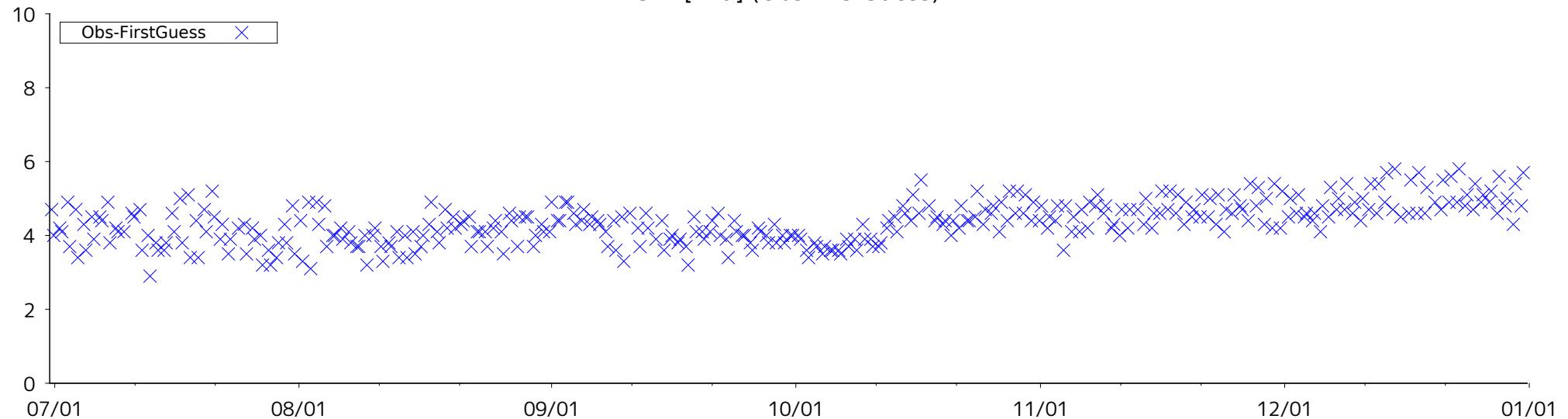
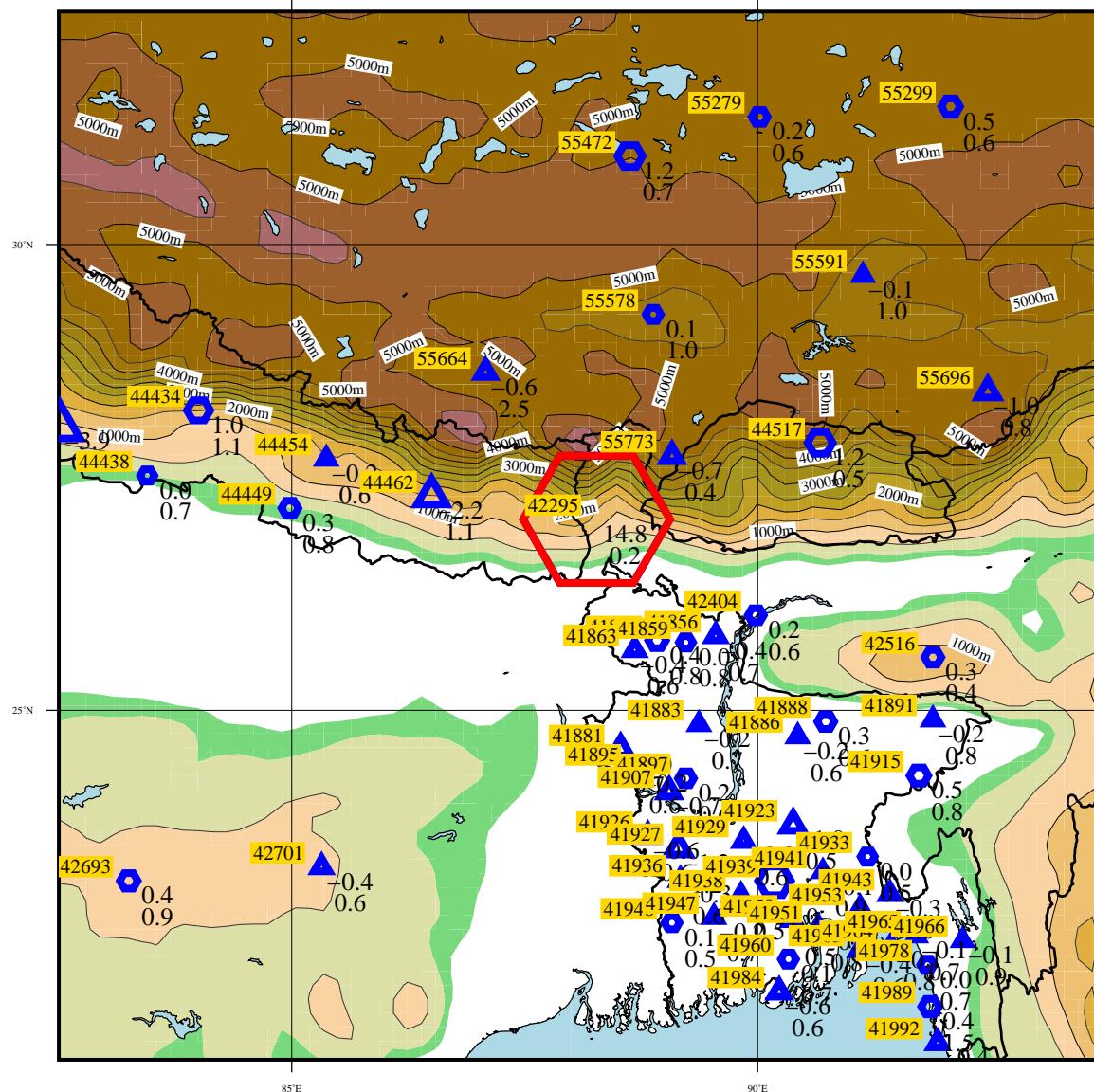


Figure 35 Time-series representation of SLP Obs minus FirstGuess for station 42147

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

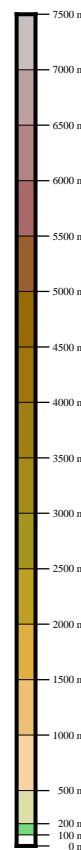


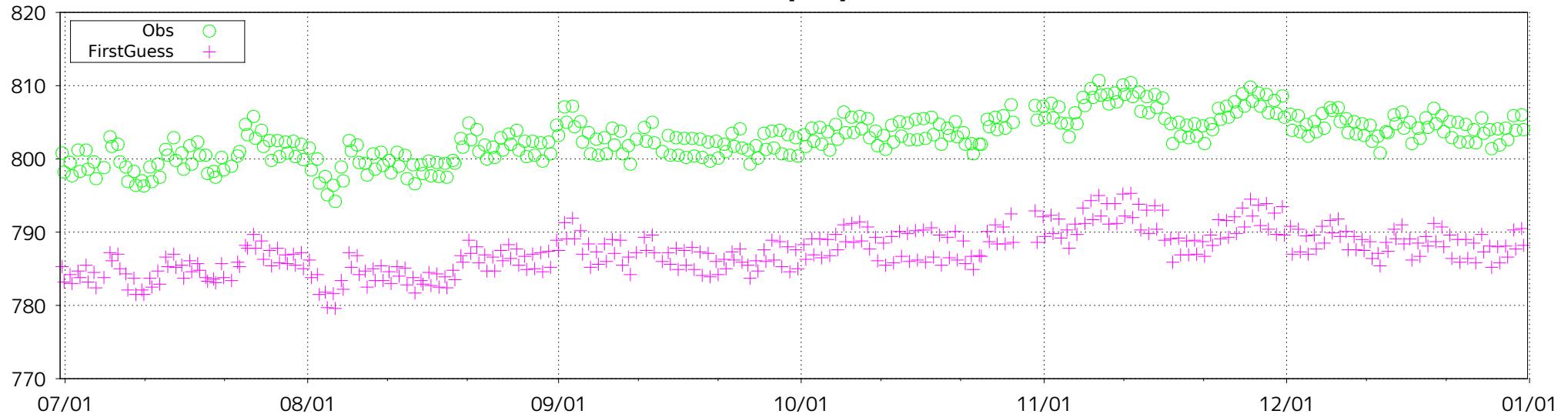
Figure 36 BIAS and SD of SLP for station 42295 (red) and surrounding stations (blue).

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

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

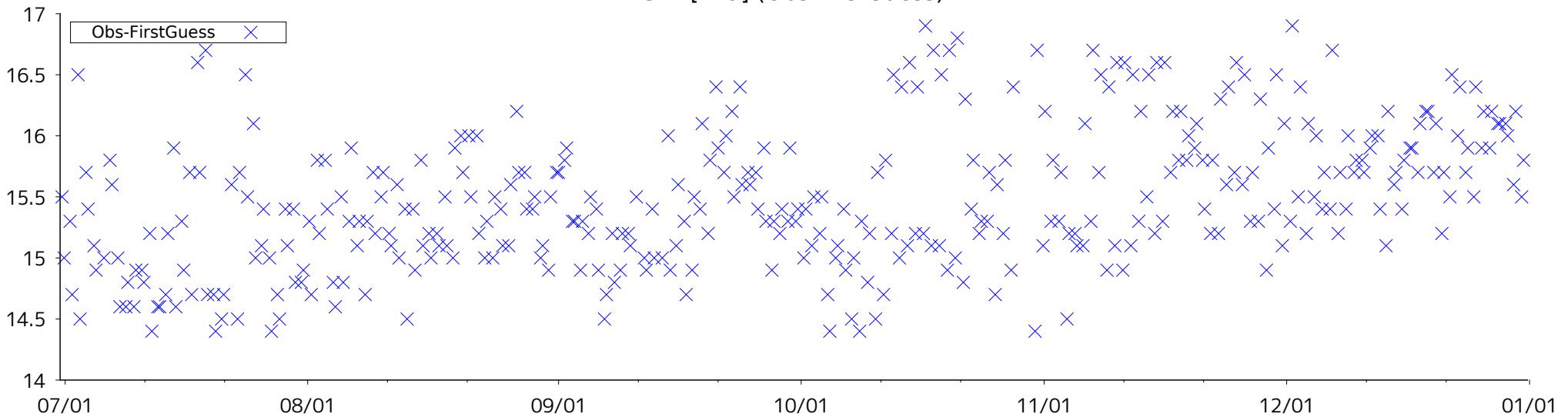
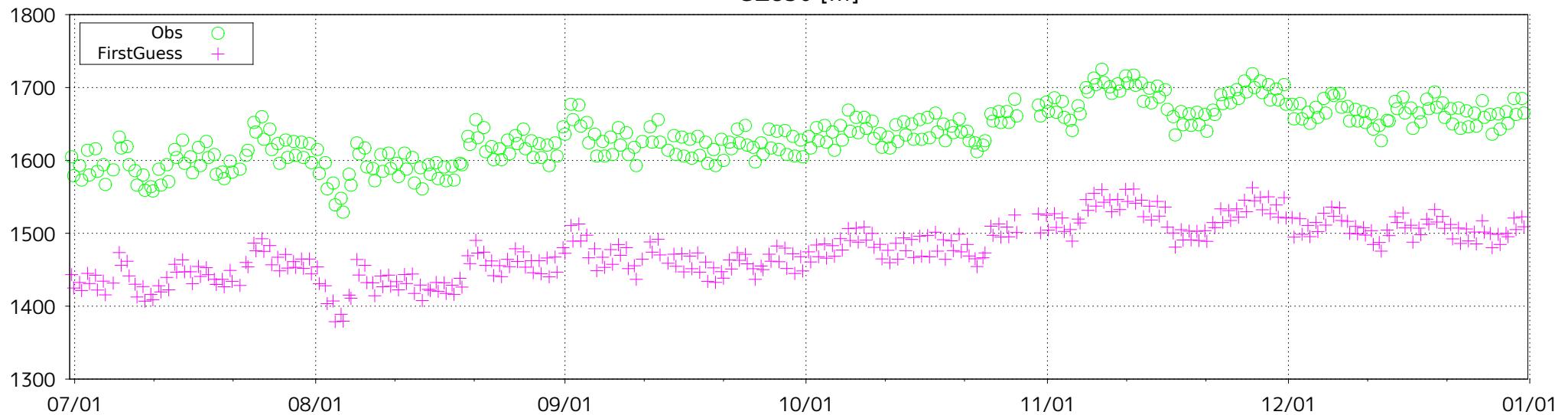


Figure 37(a) Time-series representation of SLP Obs minus FirstGuess for station 42295

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

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

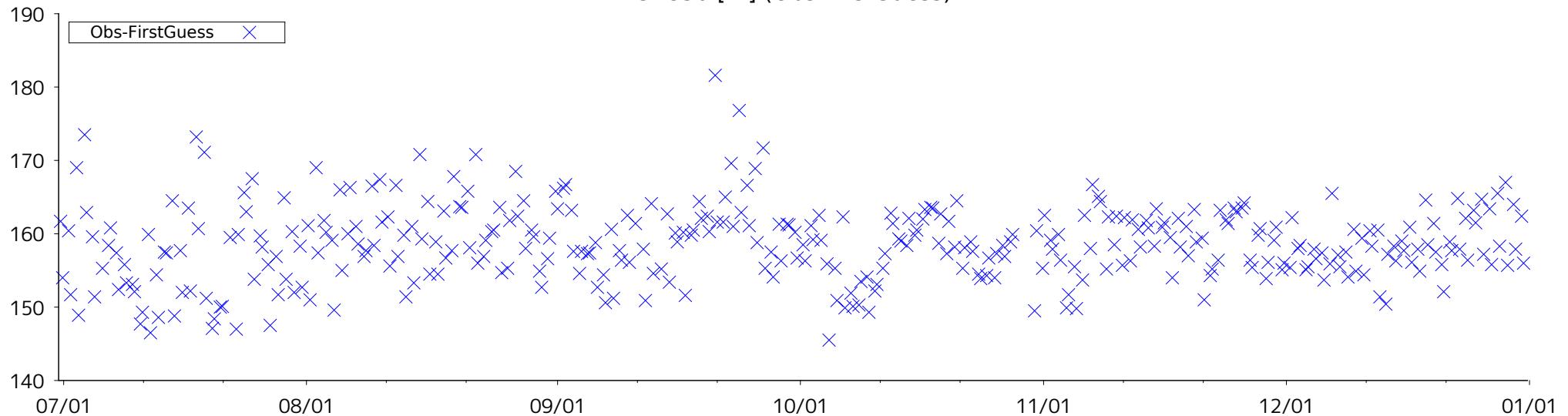
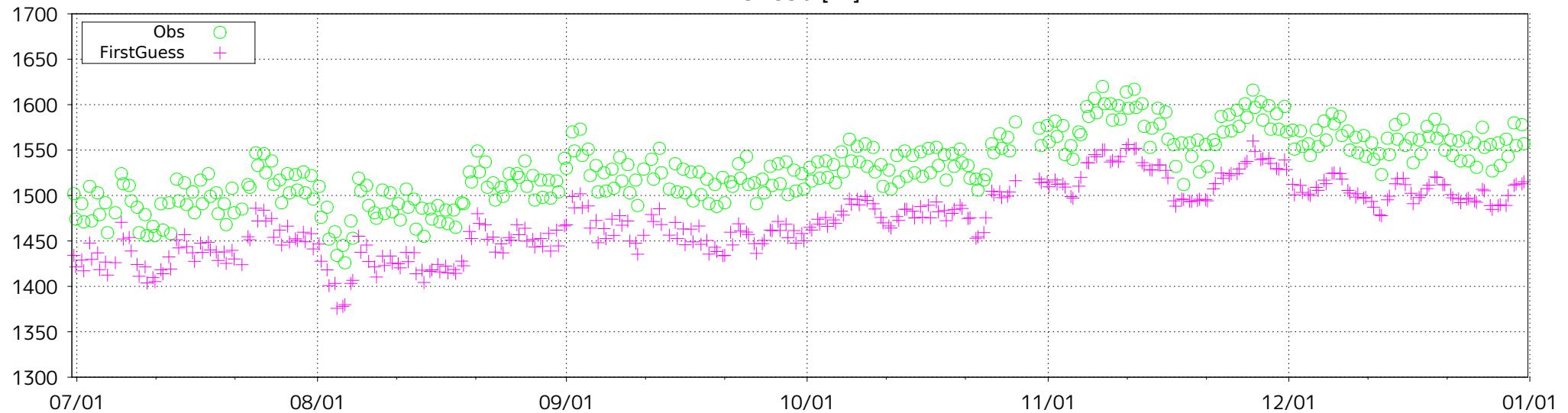


Figure 37(b) Time-series representation of GZ850 Obs minus FirstGuess for station 42295

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

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

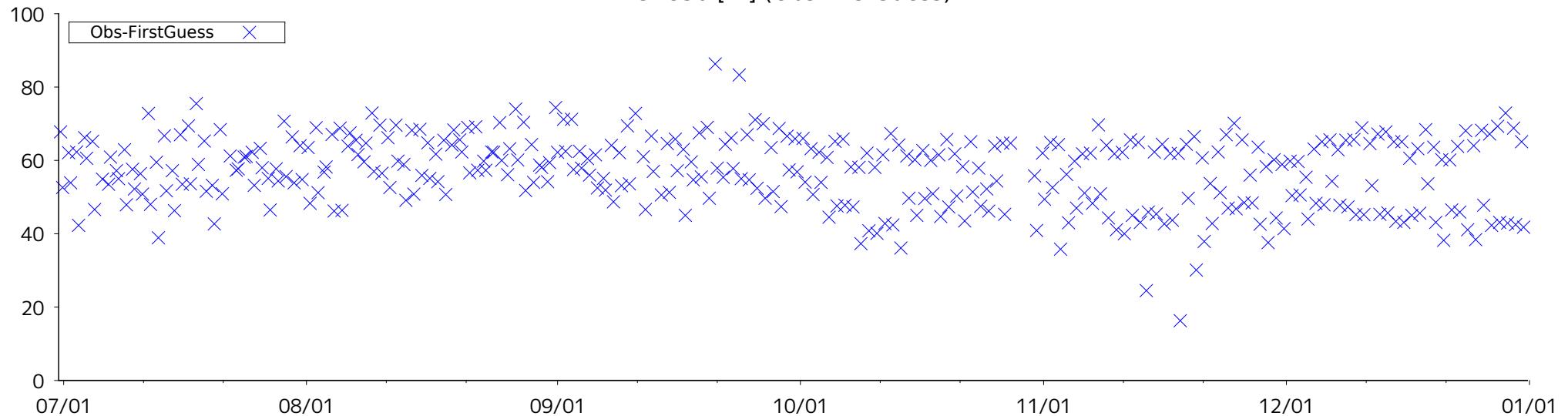
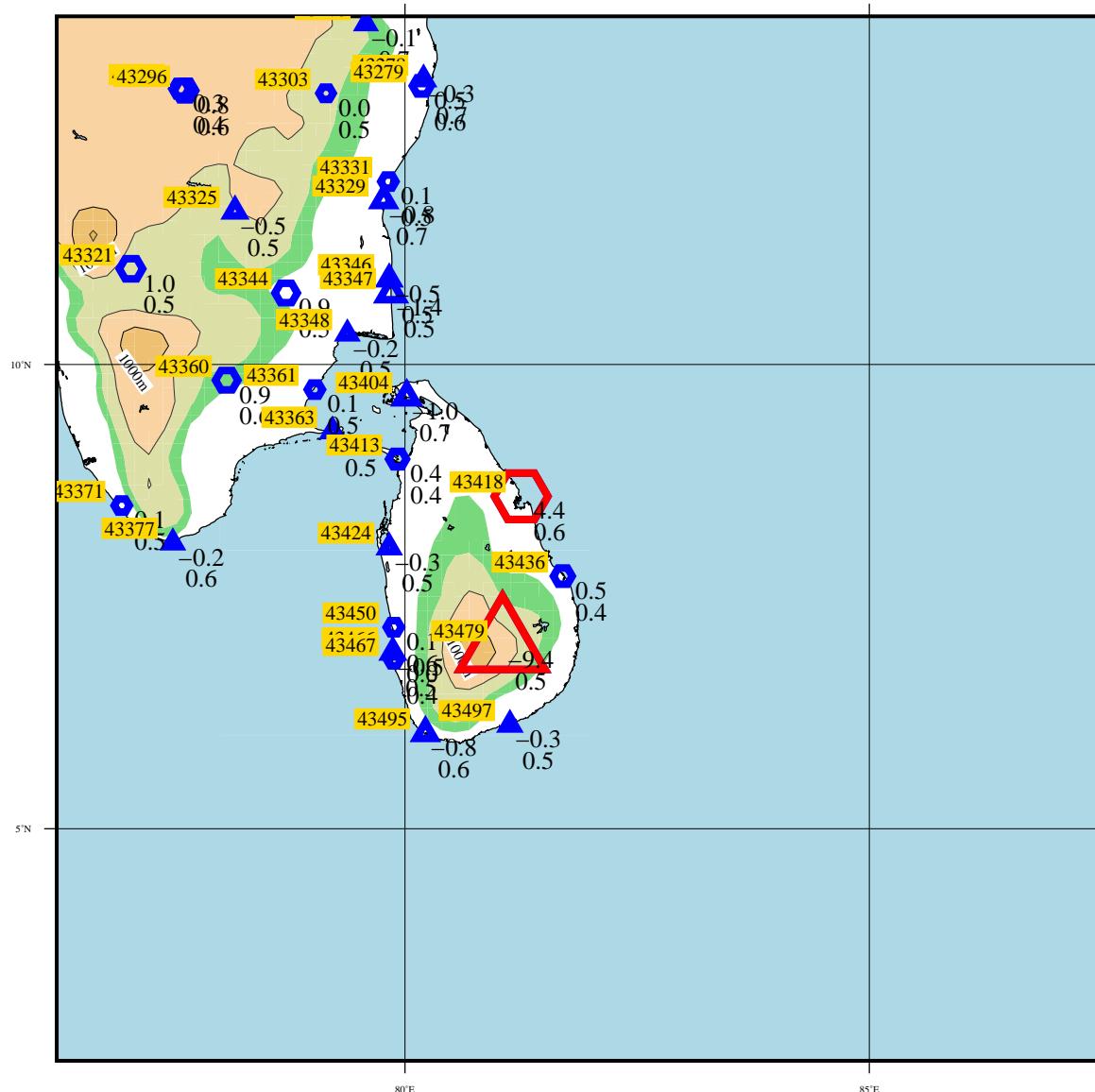


Figure 38 Time-series representation of GZ850 Obs minus FirstGuess for station 42299

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

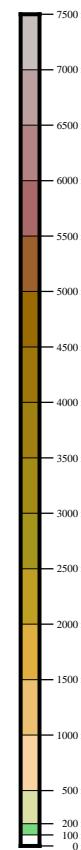


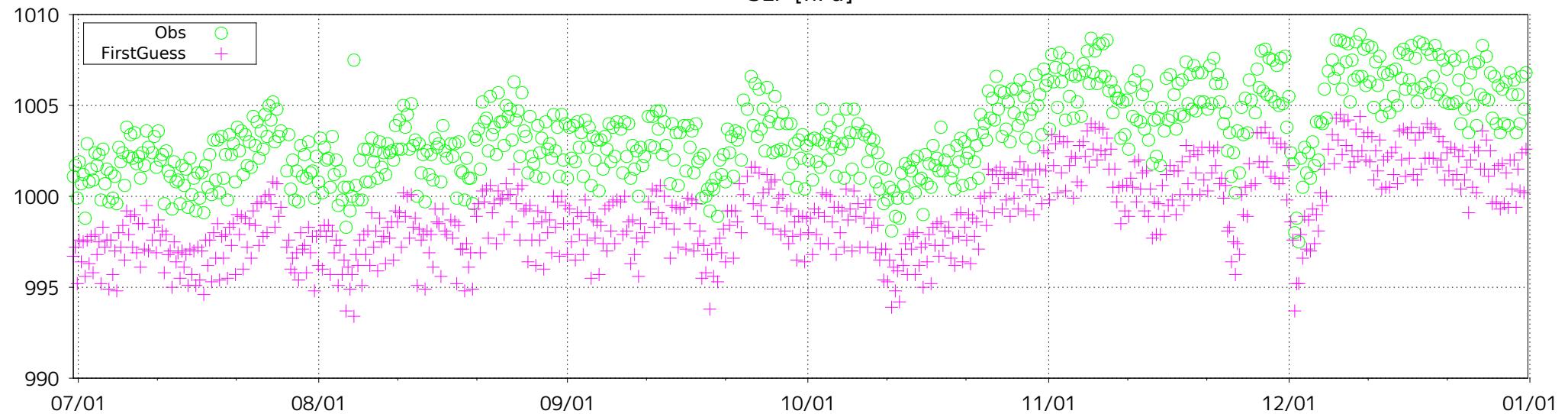
Figure 39 BIAS and SD of SLP for station 43418, 43479 (red) and surrounding stations (blue).

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)

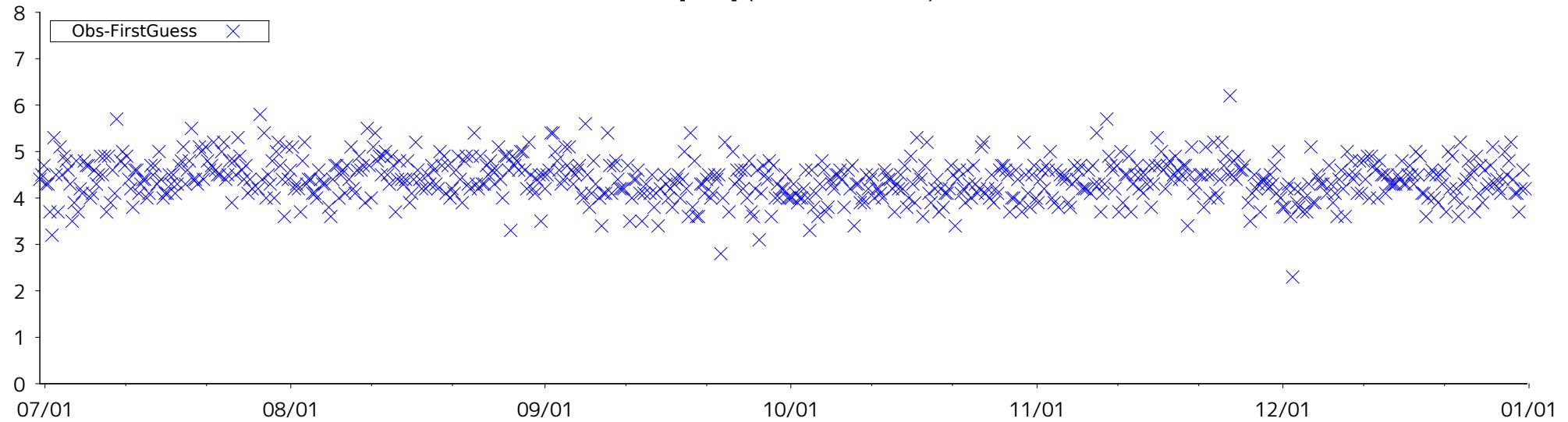
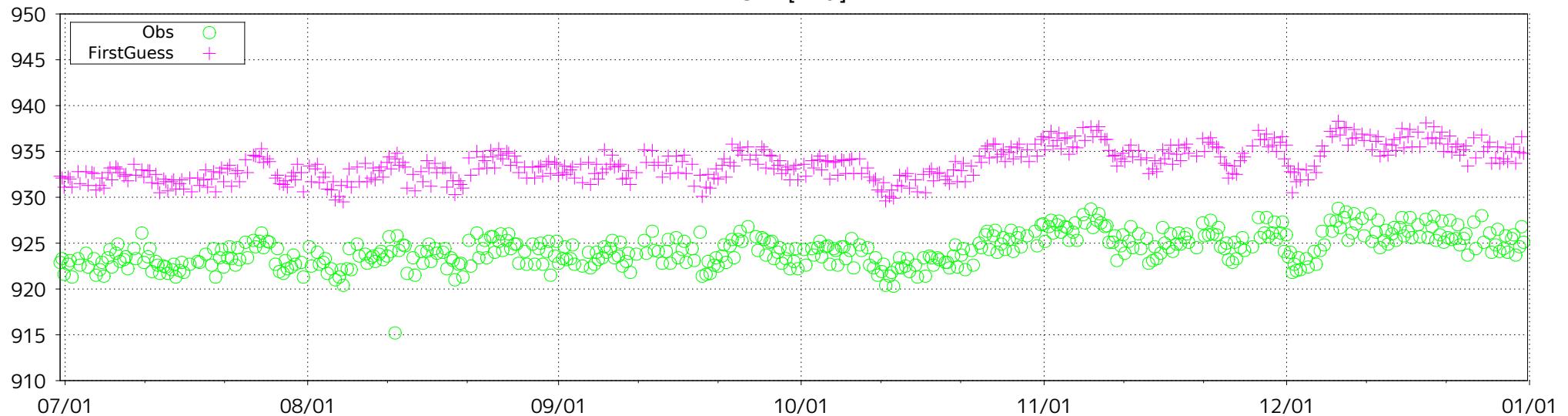


Figure 40 Time-series representation of SLP Obs minus FirstGuess for station 43418

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

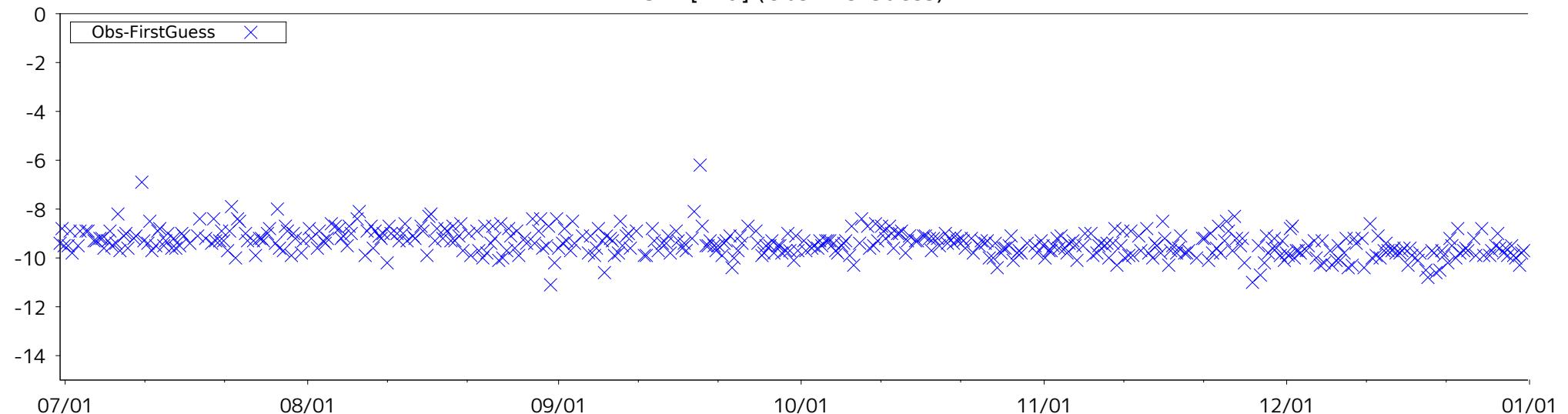


Figure 41 Time-series representation of SLP Obs minus FirstGuess for station 43479

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

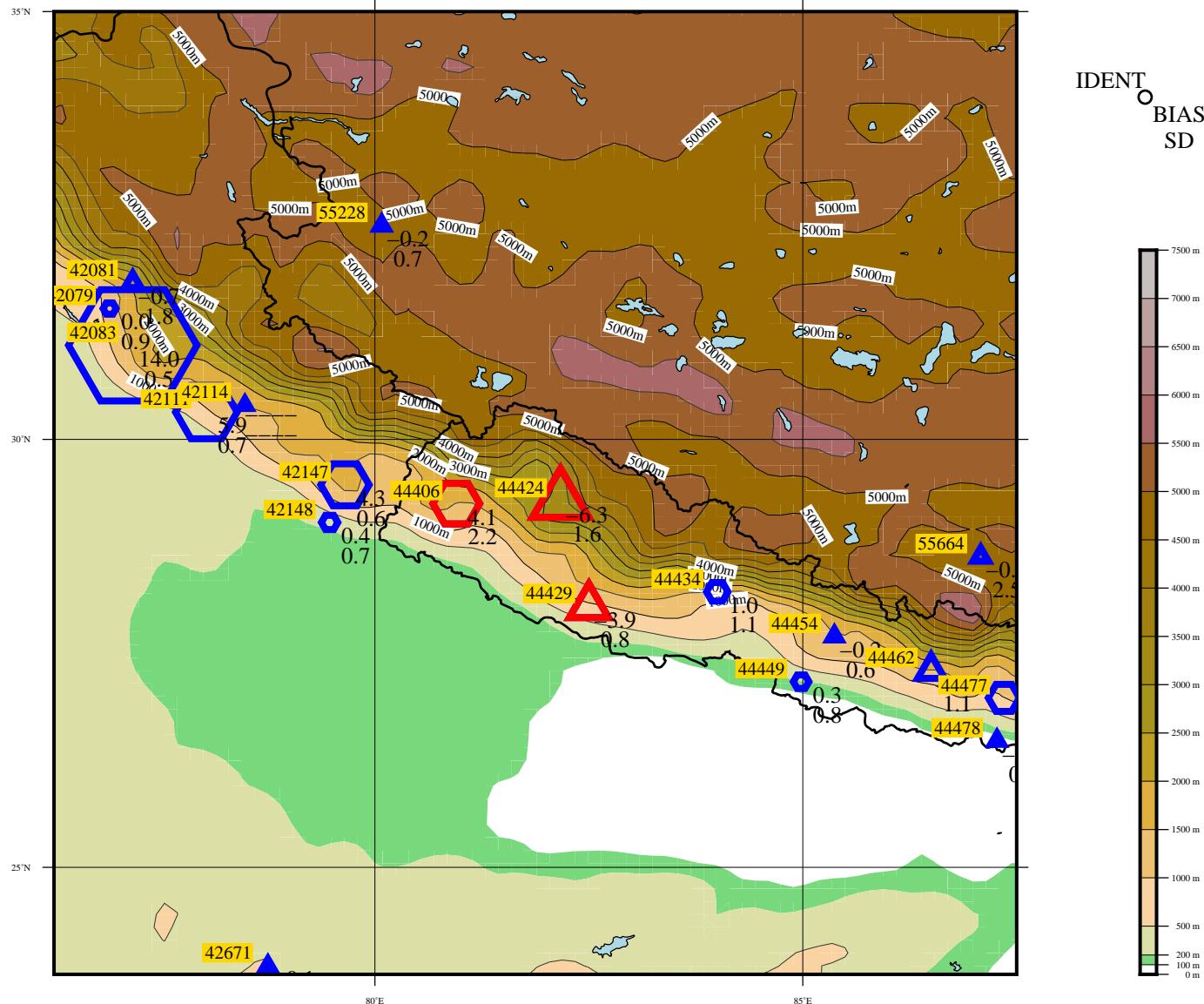


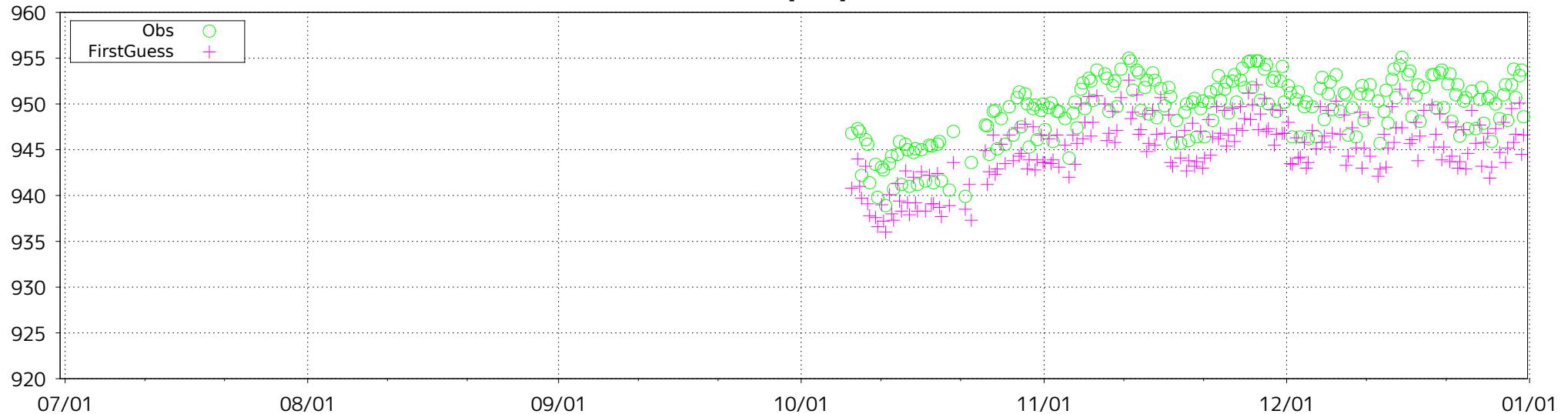
Figure 42 BIAS and SD of SLP for station 44406, 44424, 44429 (red) and surrounding stations (blue).

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

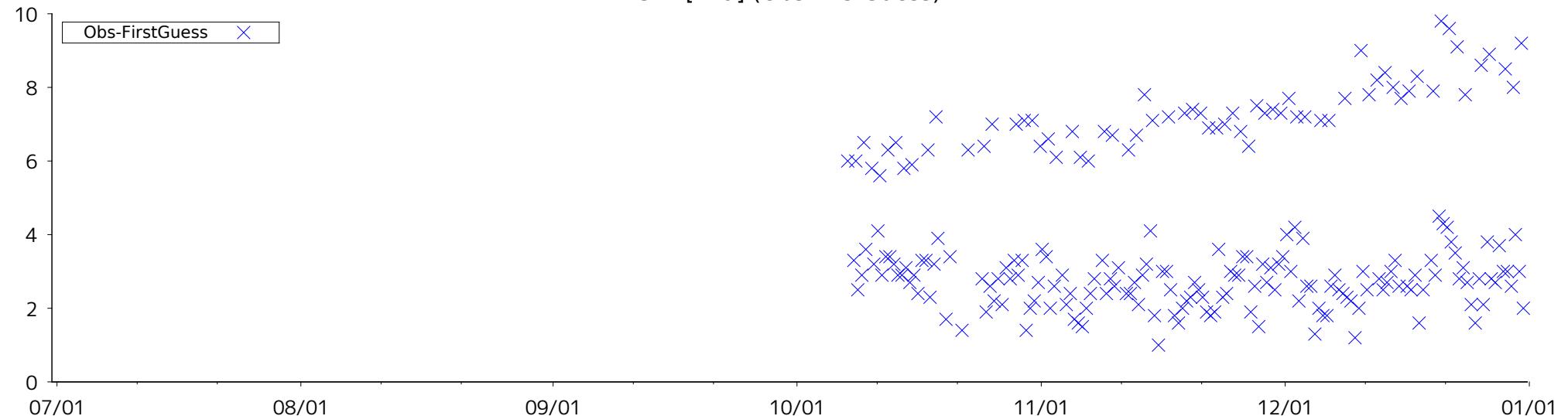
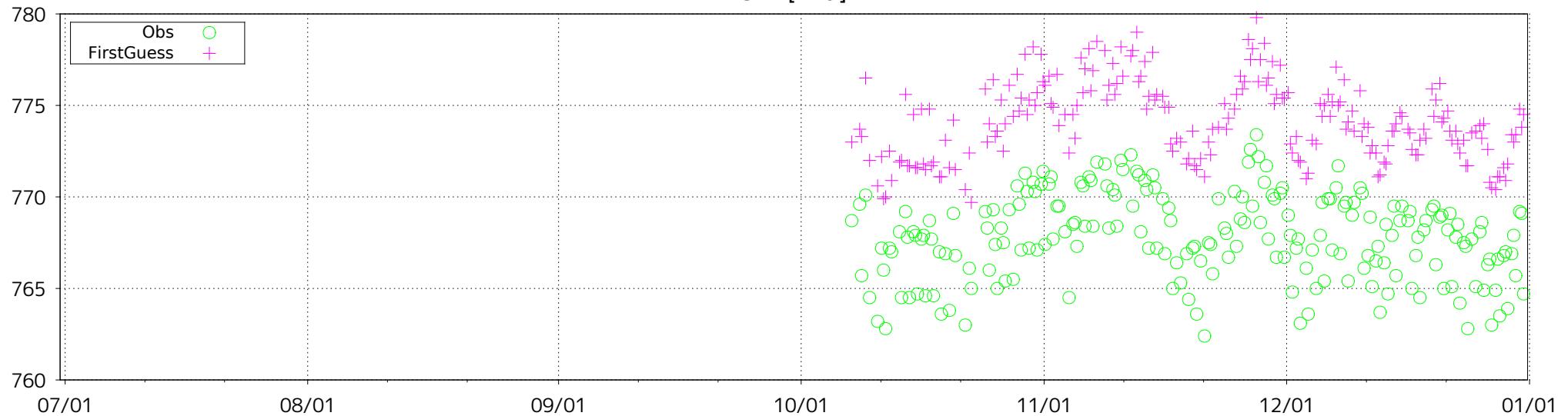


Figure 43 Time-series representation of SLP Obs minus FirstGuess for station 44406

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

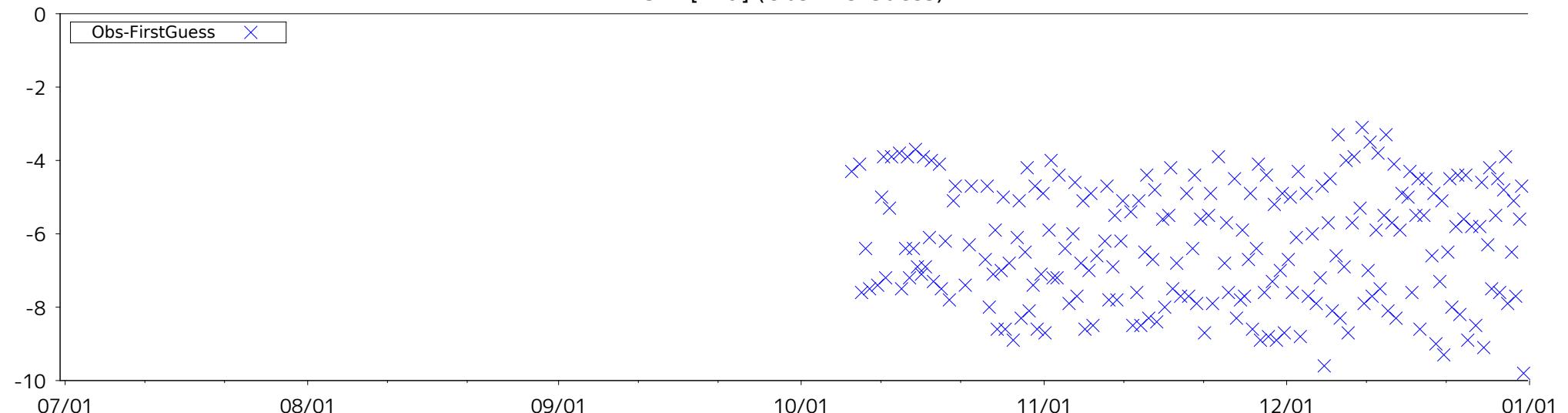
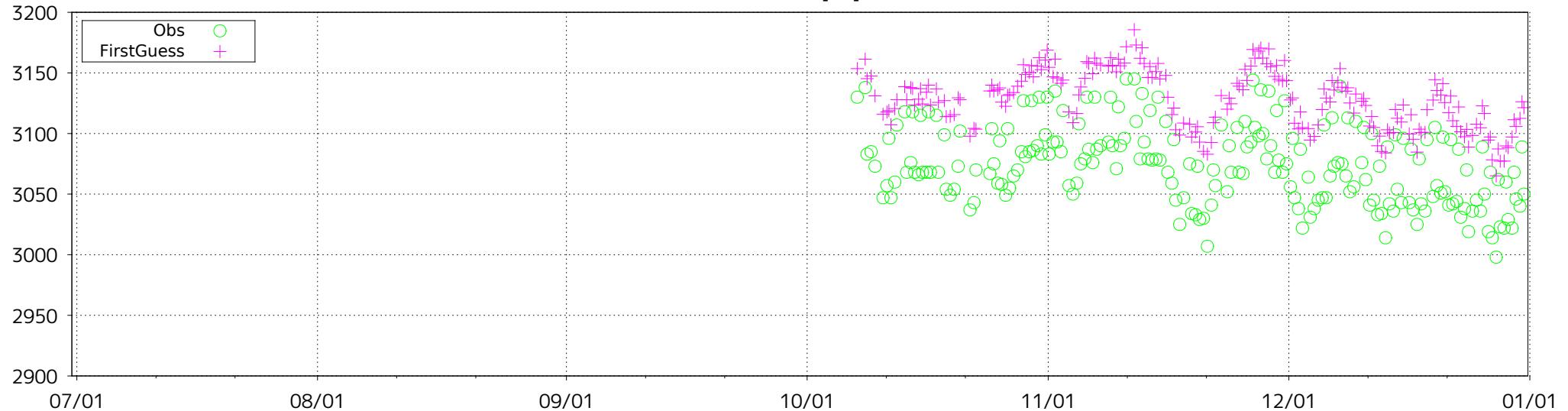


Figure 44(a) Time-series representation of SLP Obs minus FirstGuess for station 44424

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

GZ700 [m]



GZ700 [m] (Obs-FirstGuess)

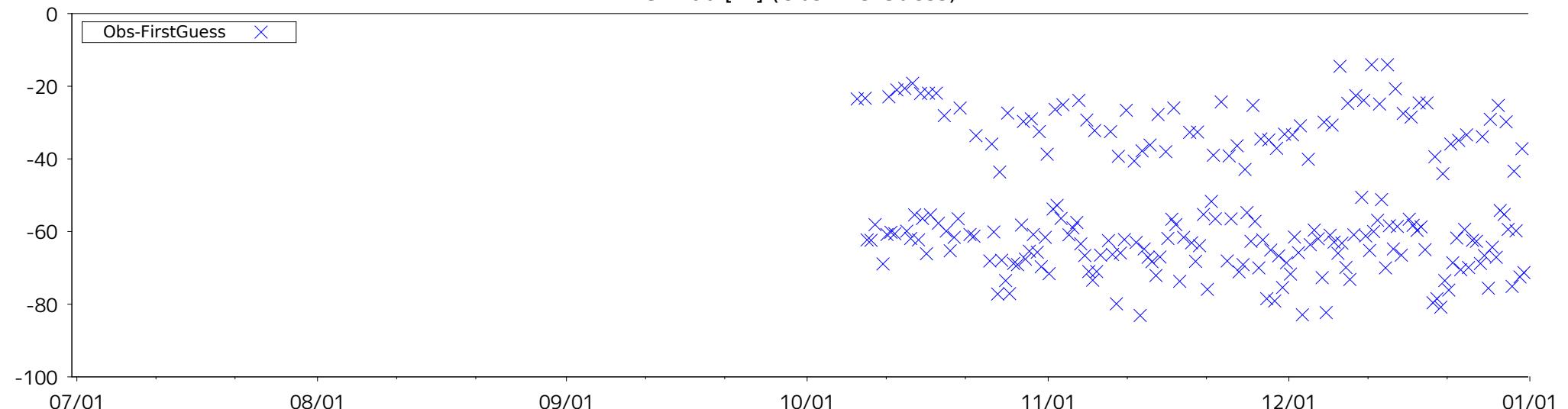
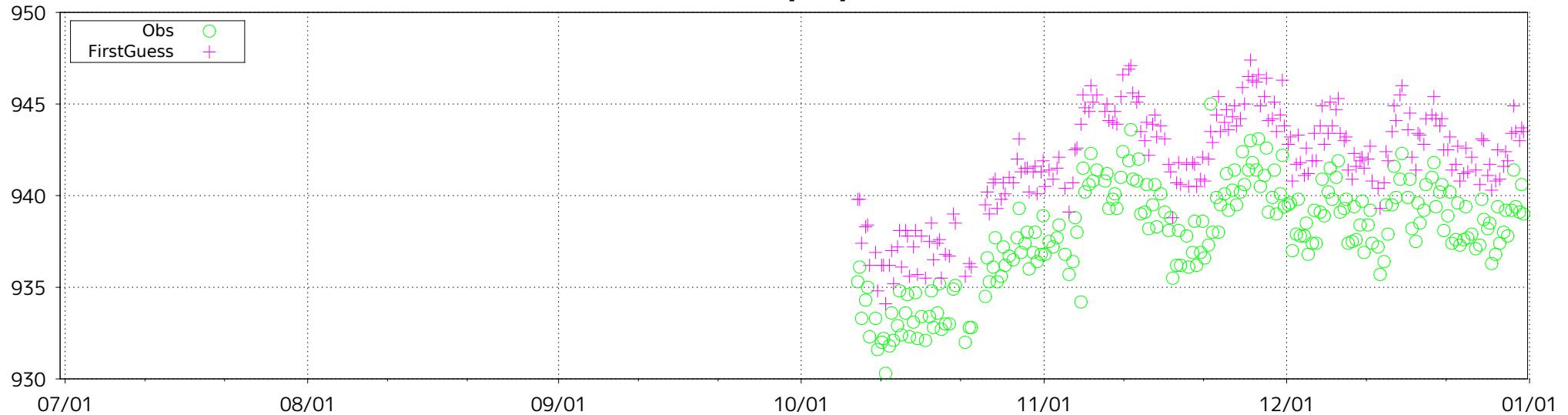


Figure 44(b) Time-series representation of GZ700 Obs minus FirstGuess for station 44424

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

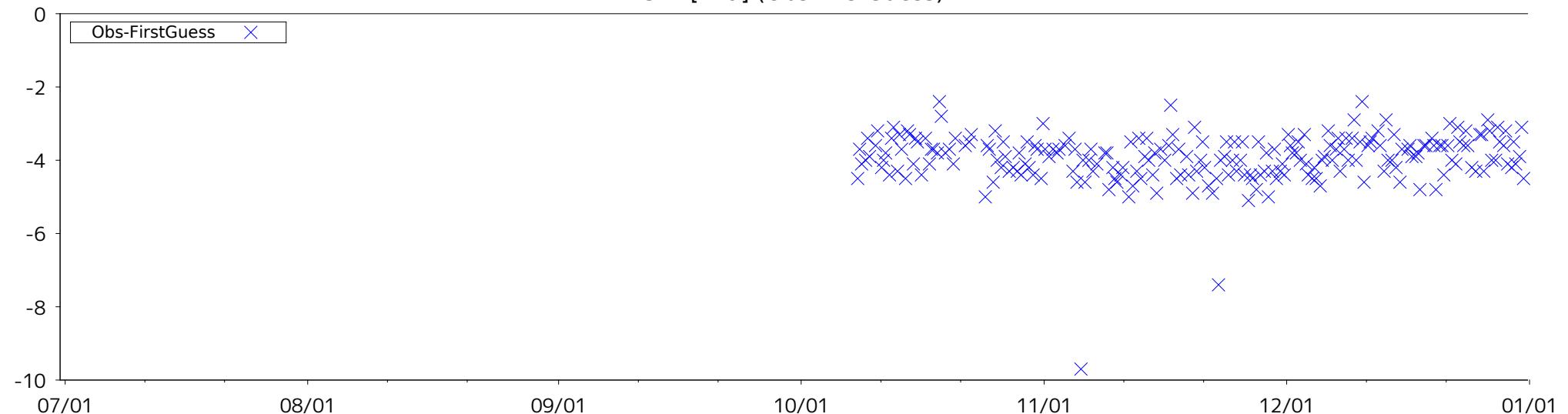
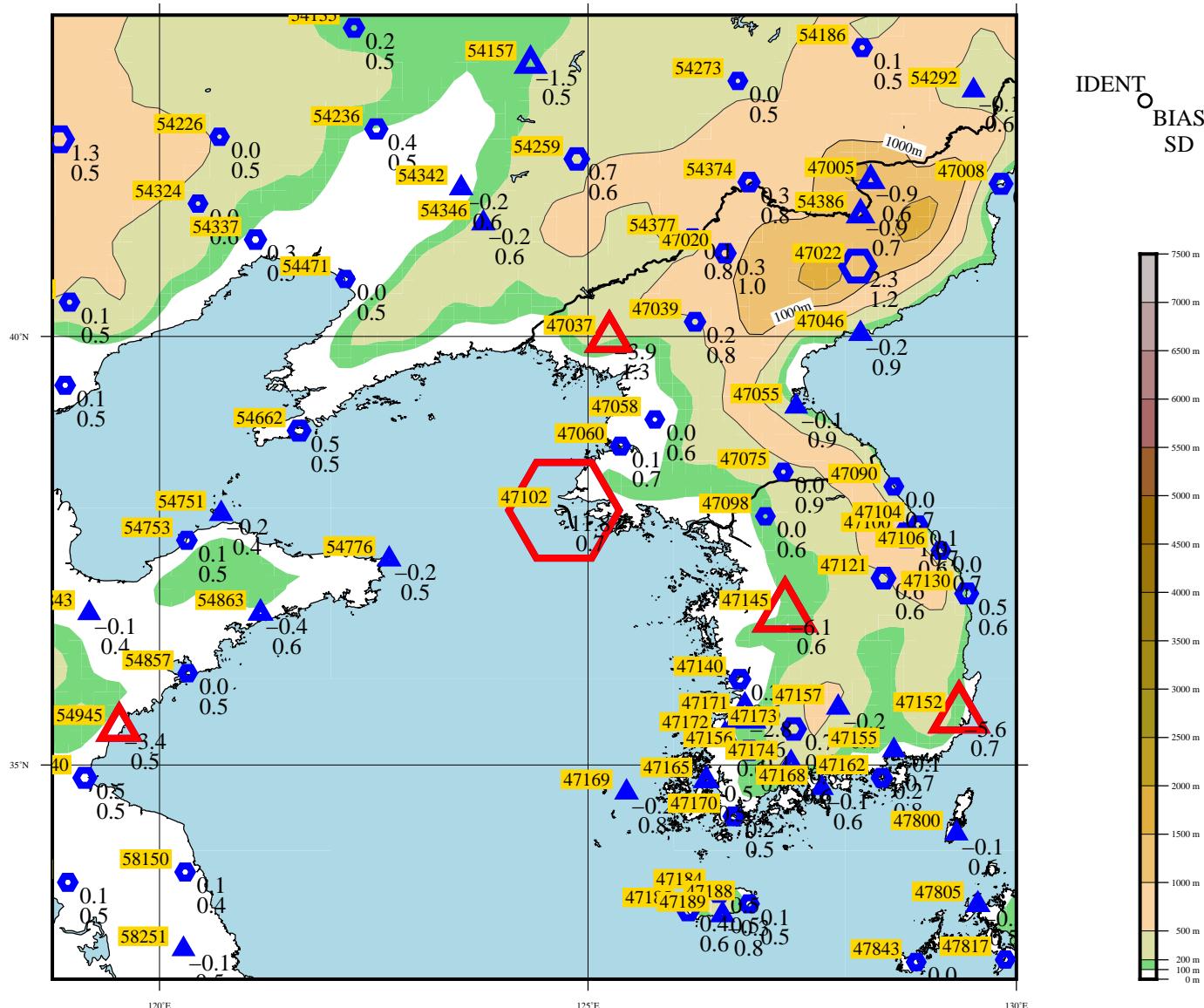


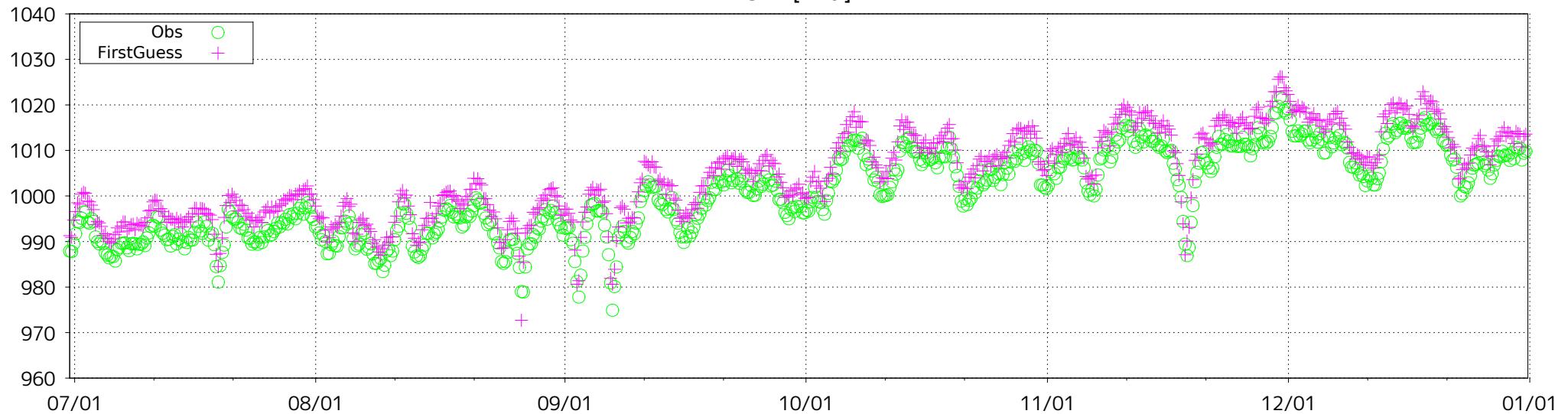
Figure 45 Time-series representation of SLP Obs minus FirstGuess for station 44429

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

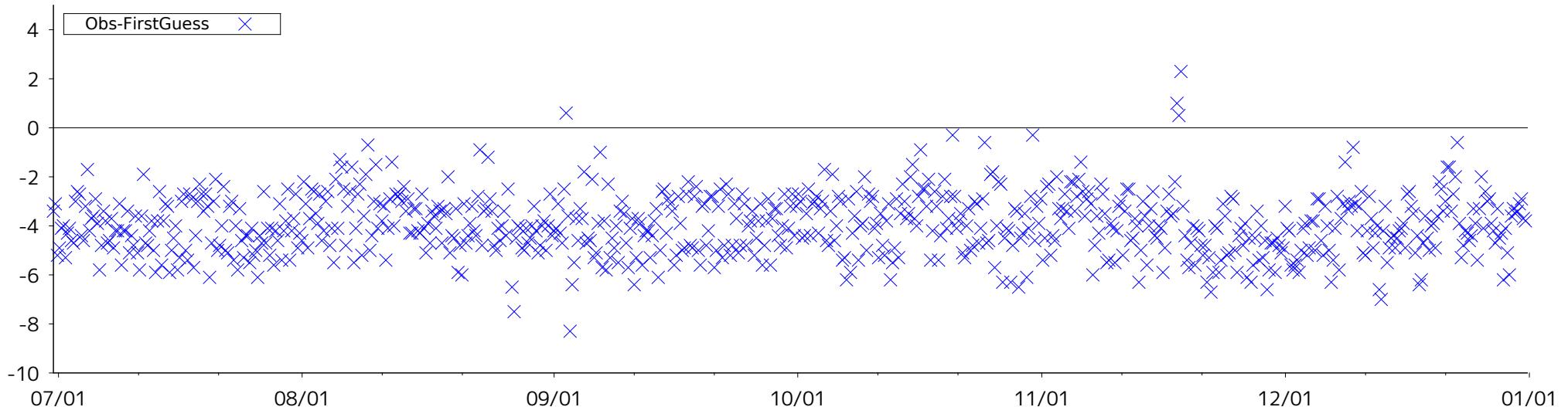
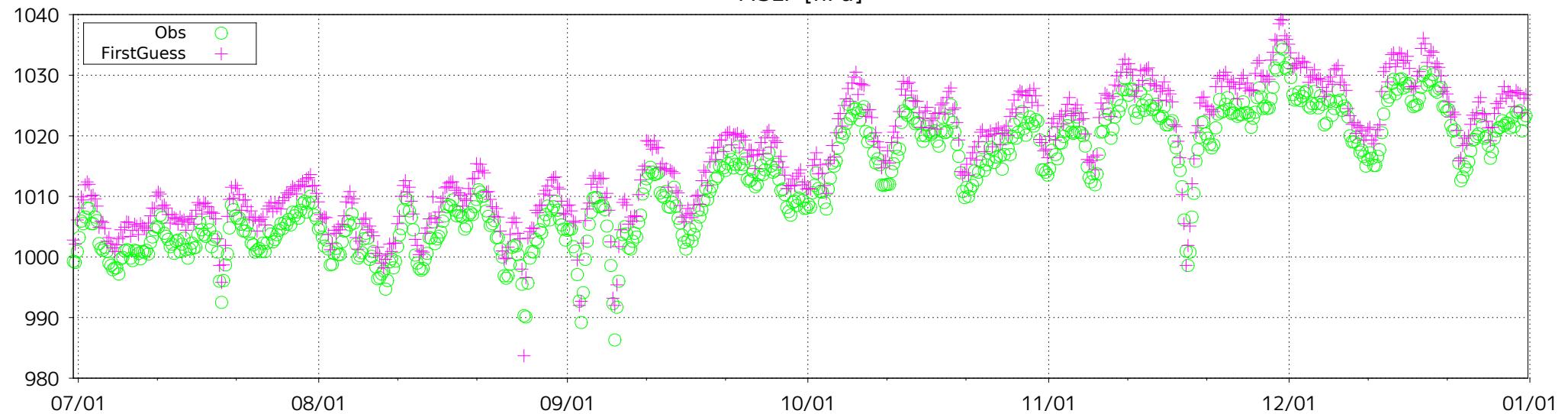


Figure 47(a) Time-series representation of SLP Obs minus FirstGuess for station 47037

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

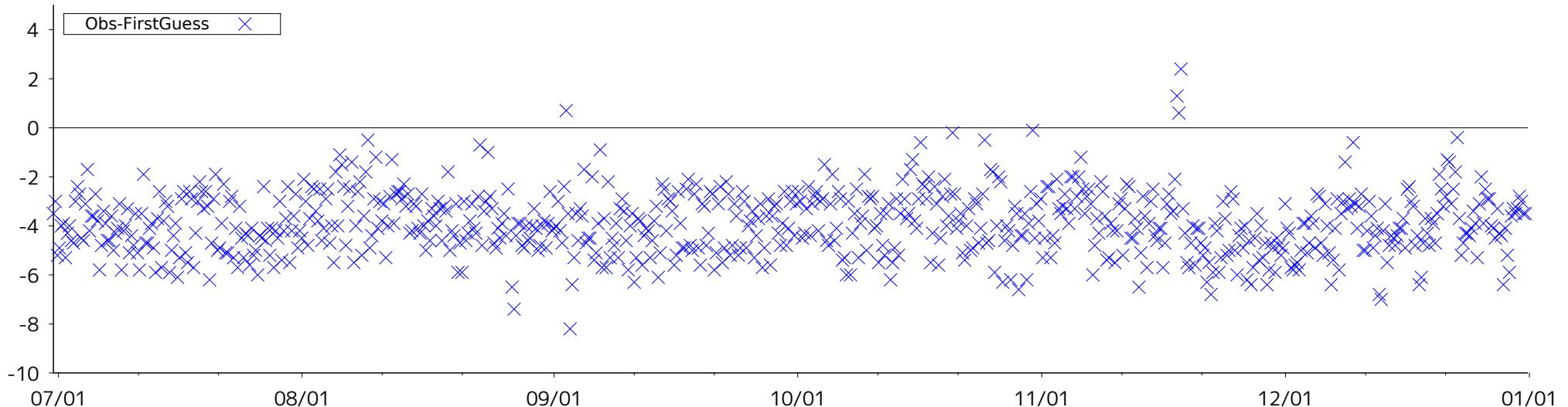
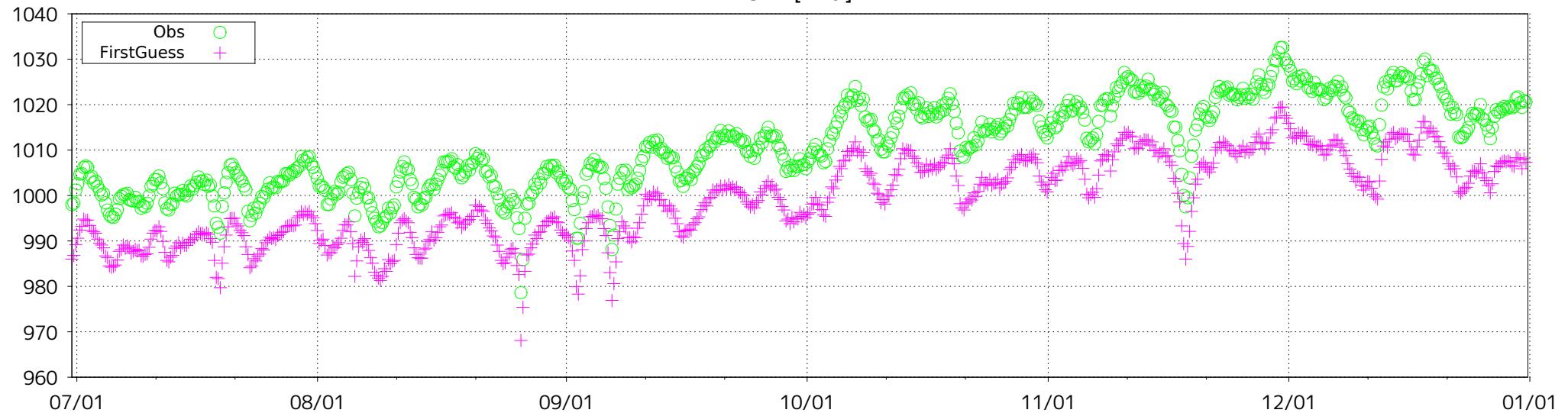


Figure 47(b) Time-series representation of MSLP Obs minus FirstGuess for station 47037

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

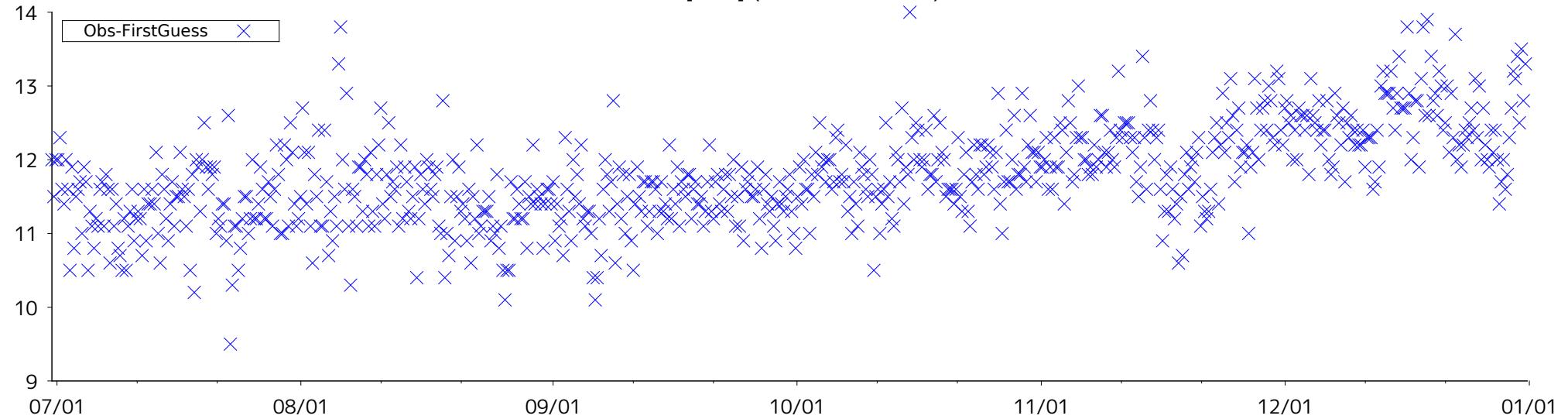


Figure 48 Time-series representation of SLP Obs minus FirstGuess for station 47102

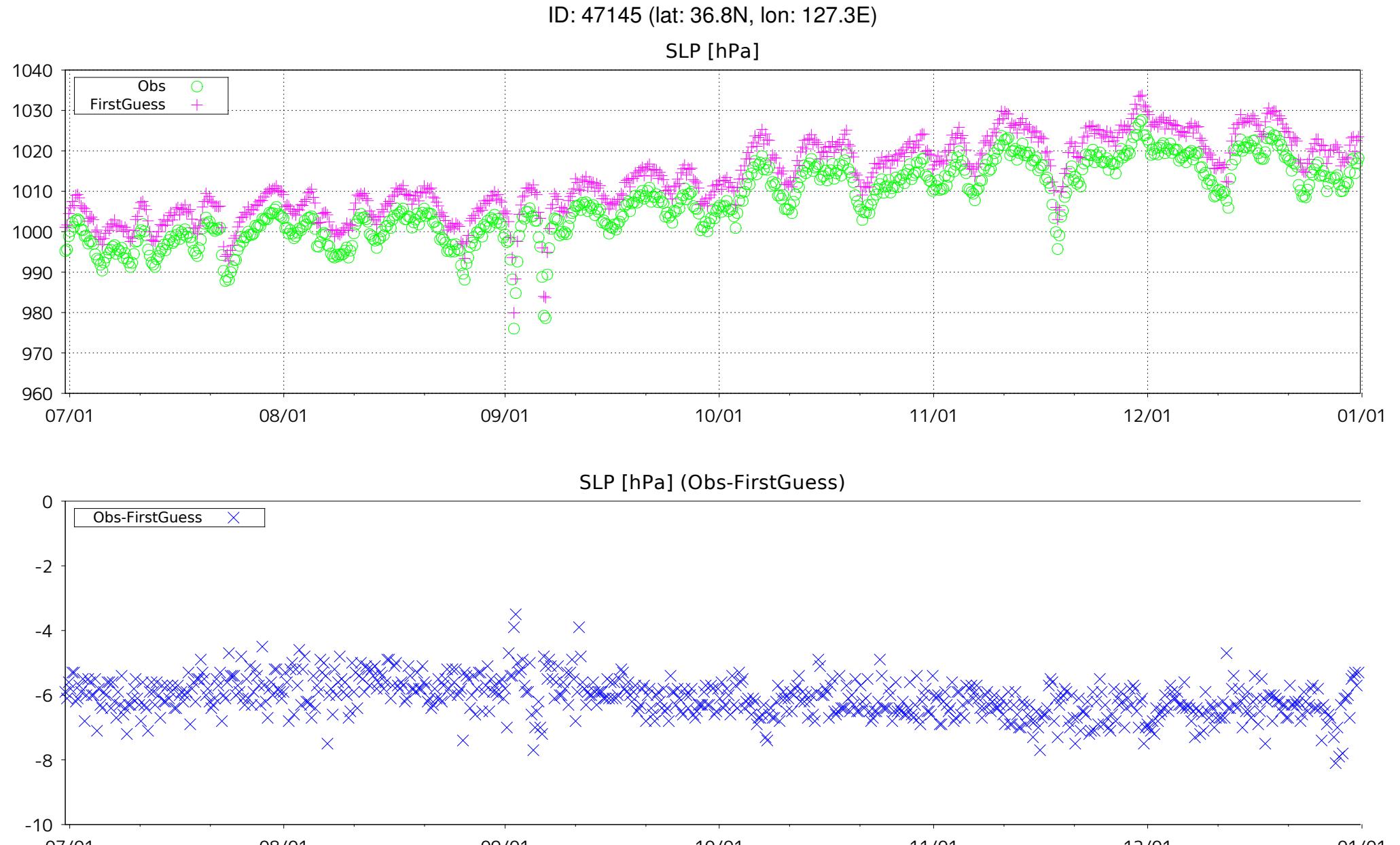


Figure 49 Time-series representation of SLP Obs minus FirstGuess for station 47145

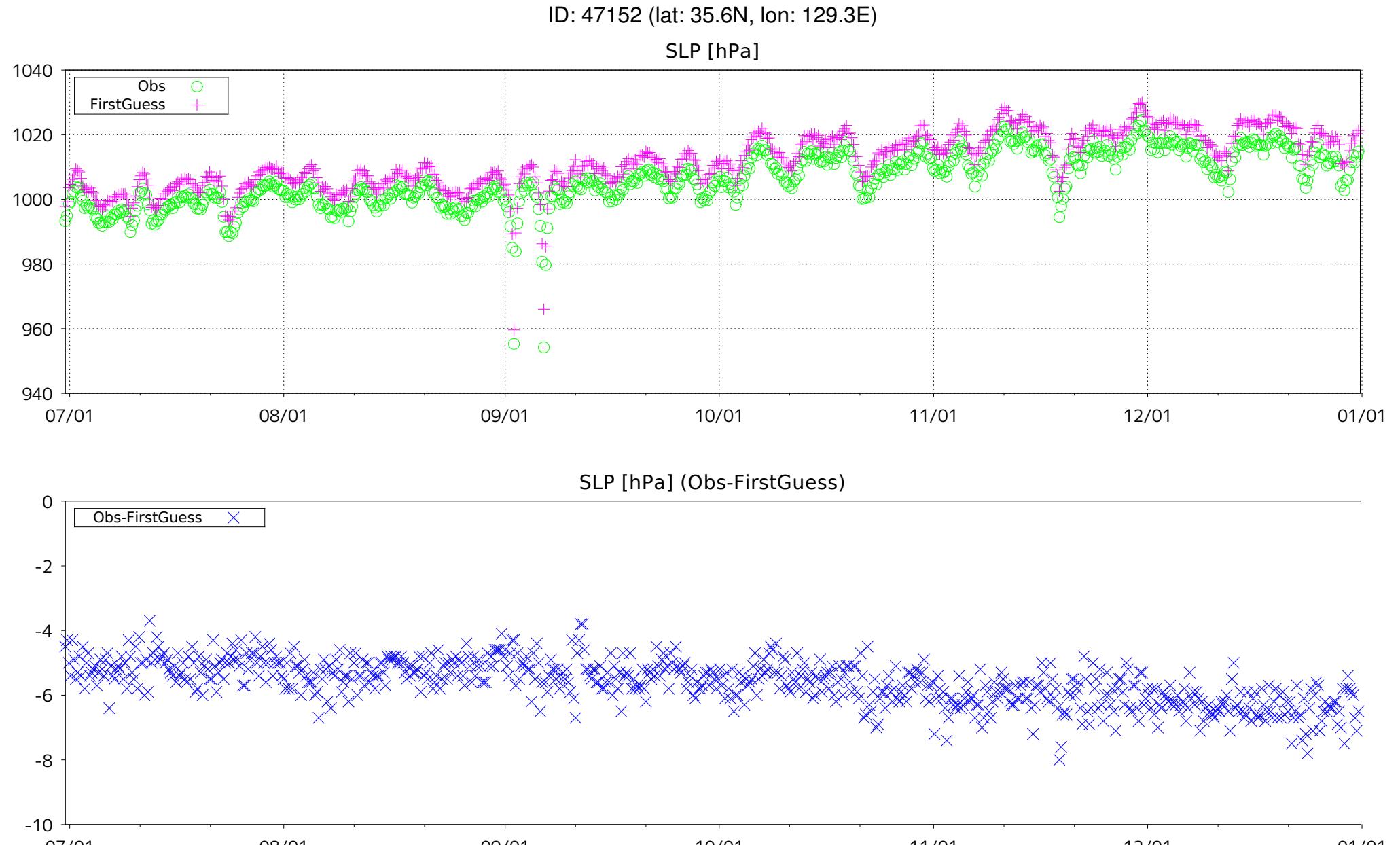
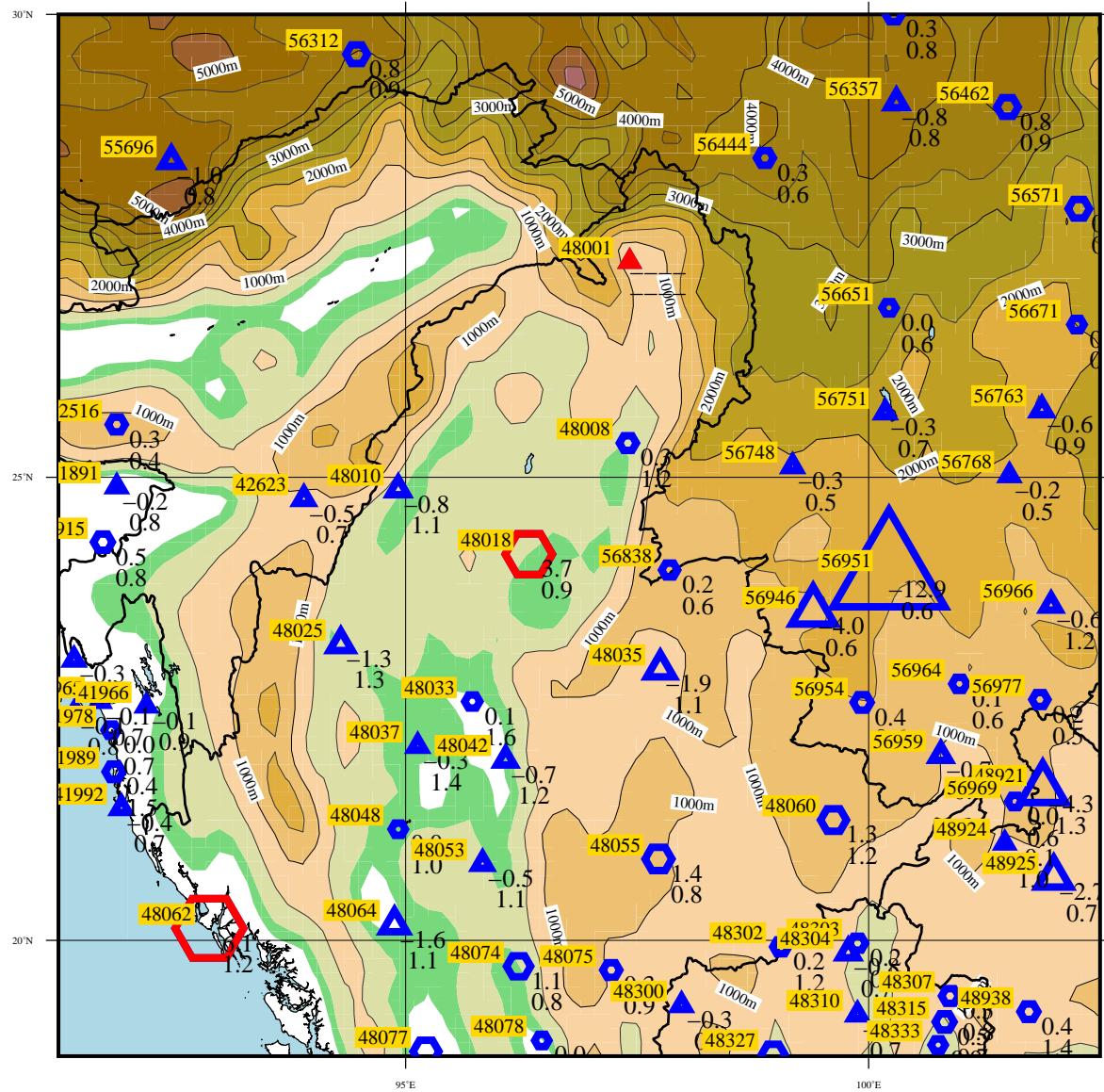


Figure 50 Time-series representation of SLP Obs minus FirstGuess for station 47152

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

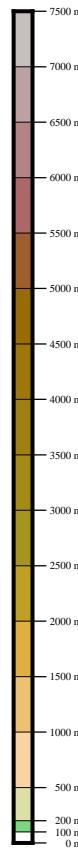


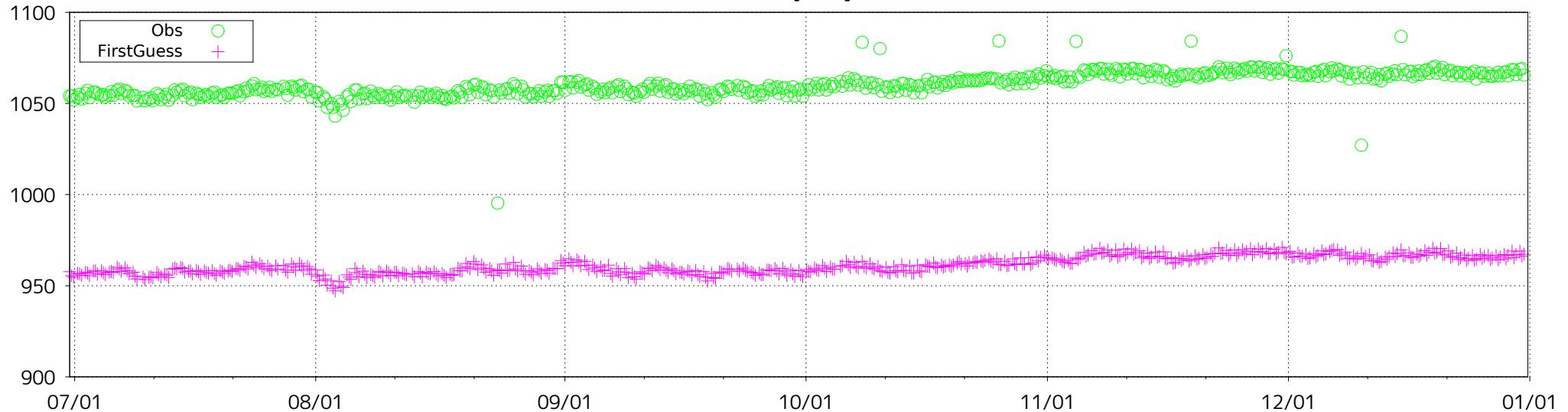
Figure 51 BIAS and SD of SLP for station 48001, 48018, 48062 (red) and surrounding stations (blue).

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

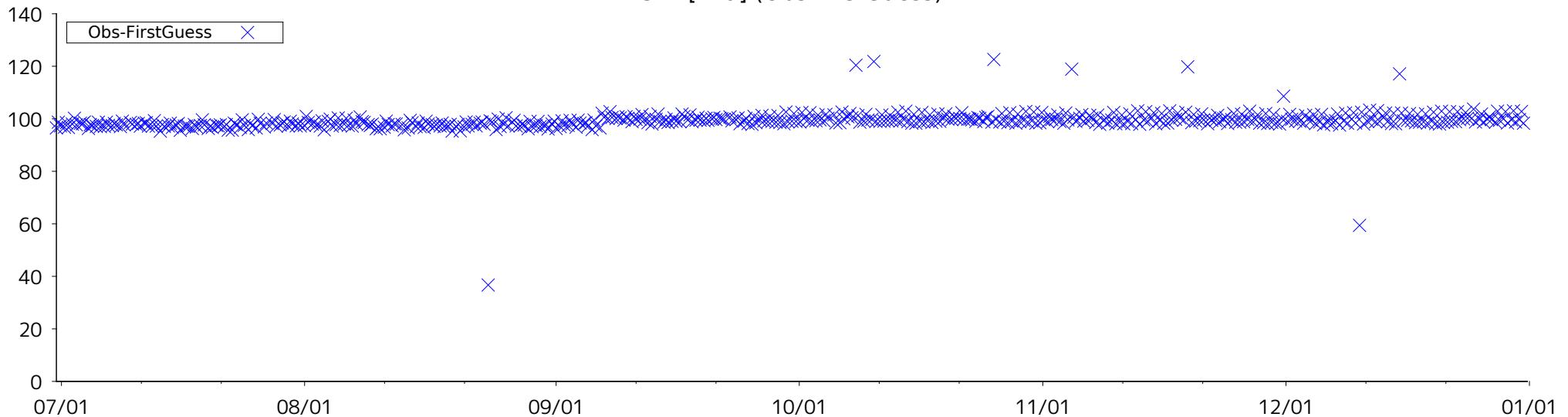
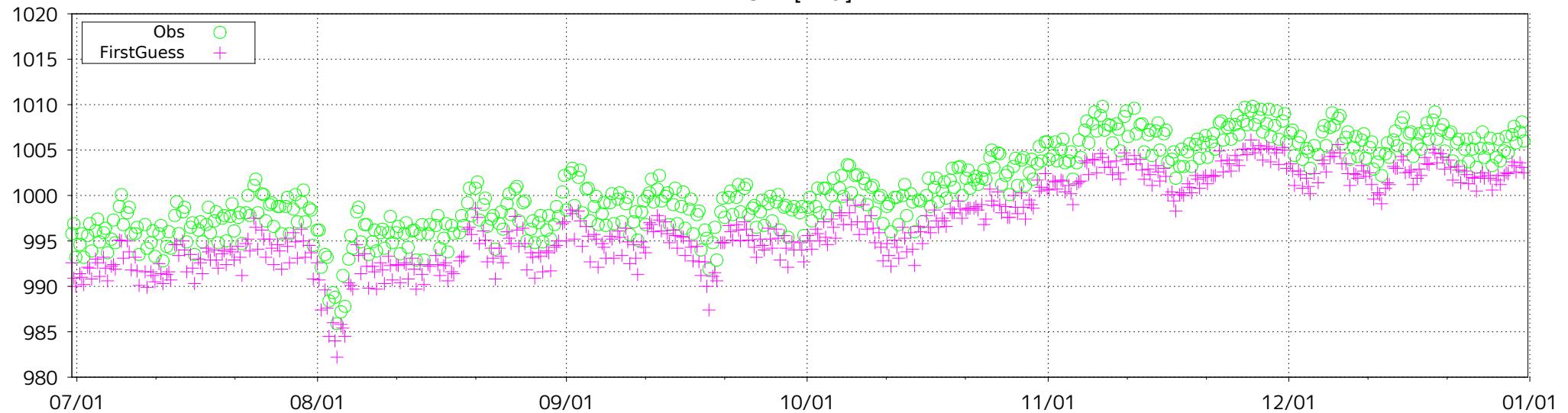


Figure 52 Time-series representation of SLP Obs minus FirstGuess for station 48001

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

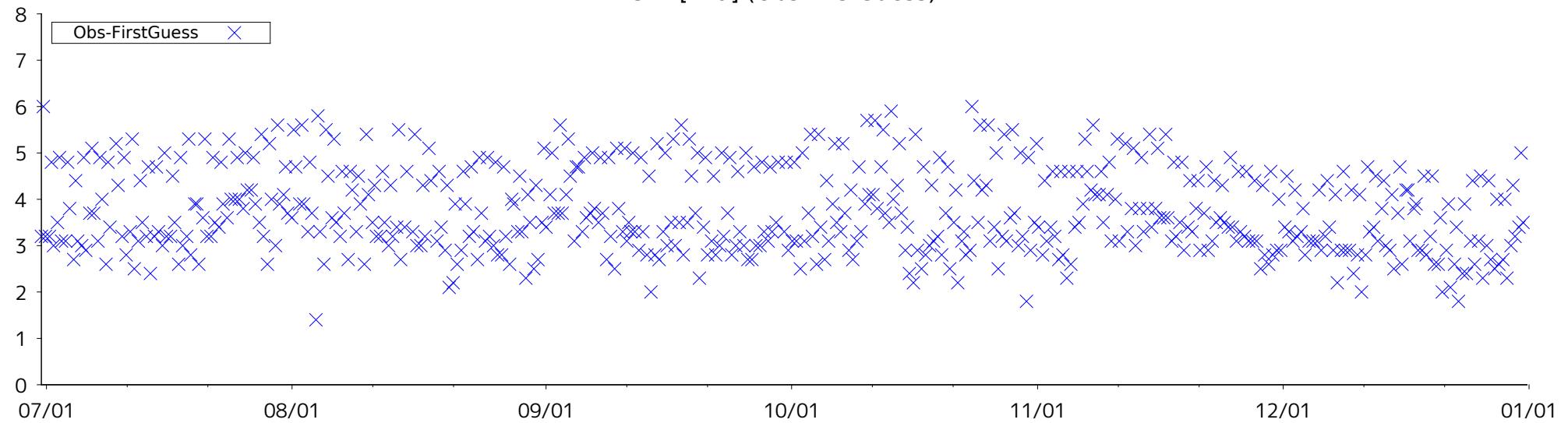
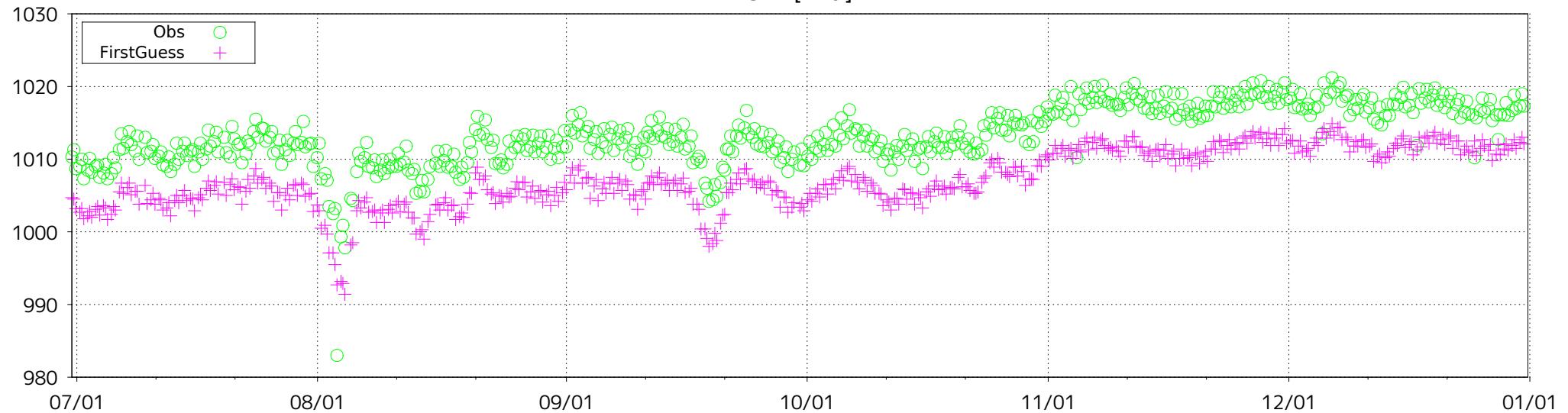


Figure 53 Time-series representation of SLP Obs minus FirstGuess for station 48018

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

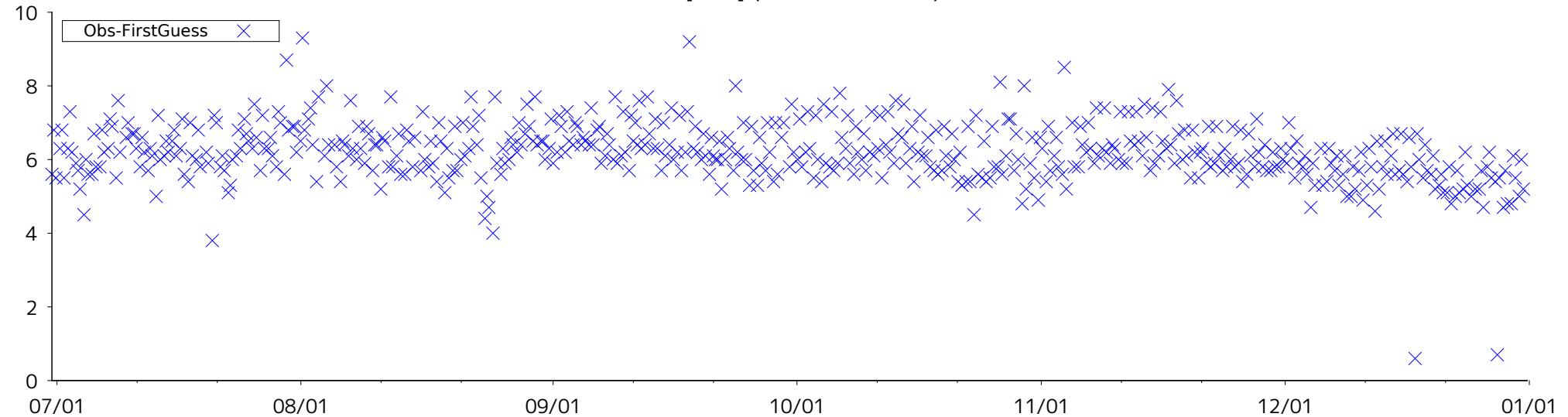


Figure 54 Time-series representation of SLP Obs minus FirstGuess for station 48062

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

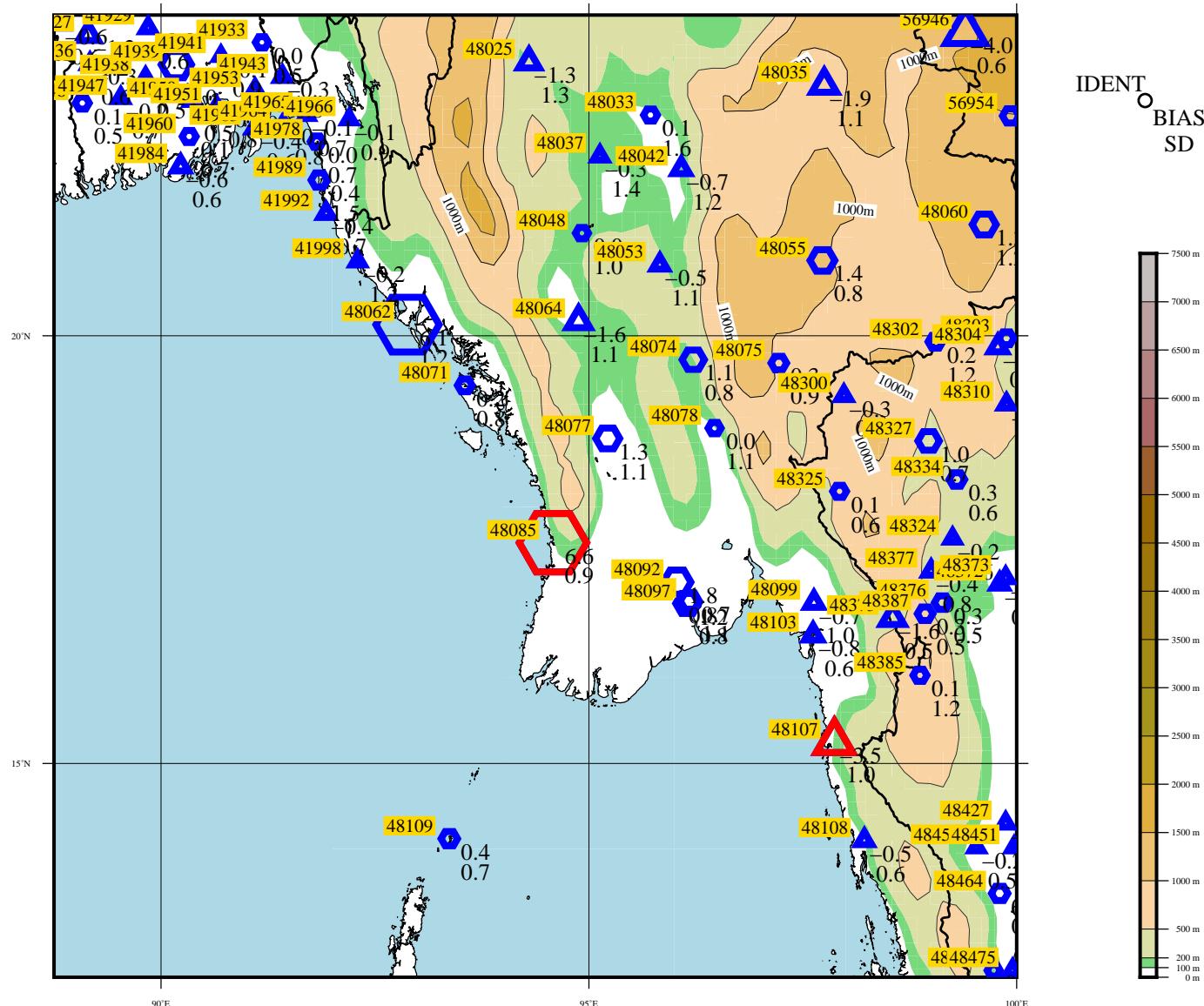


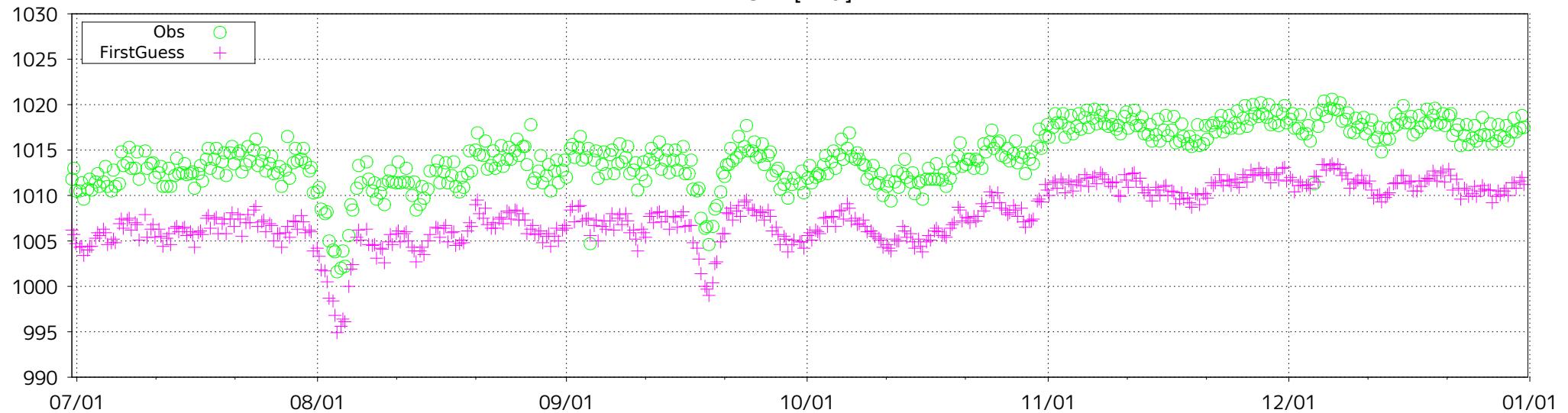
Figure 55 BIAS and SD of SLP for station 48085, 48107 (red) and surrounding stations (blue).

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)

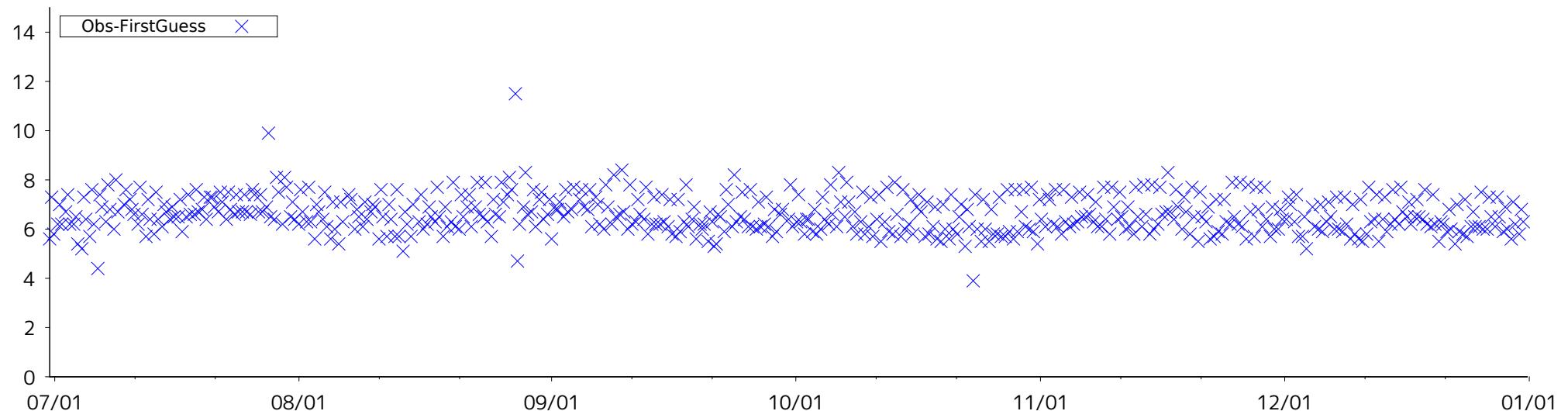
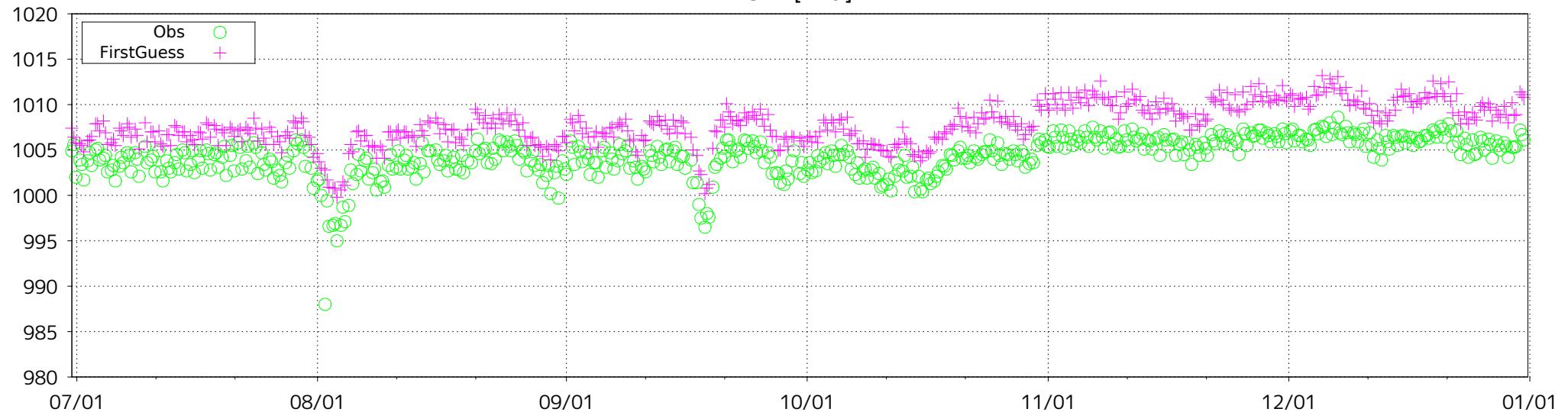


Figure 56 Time-series representation of SLP Obs minus FirstGuess for station 48085

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

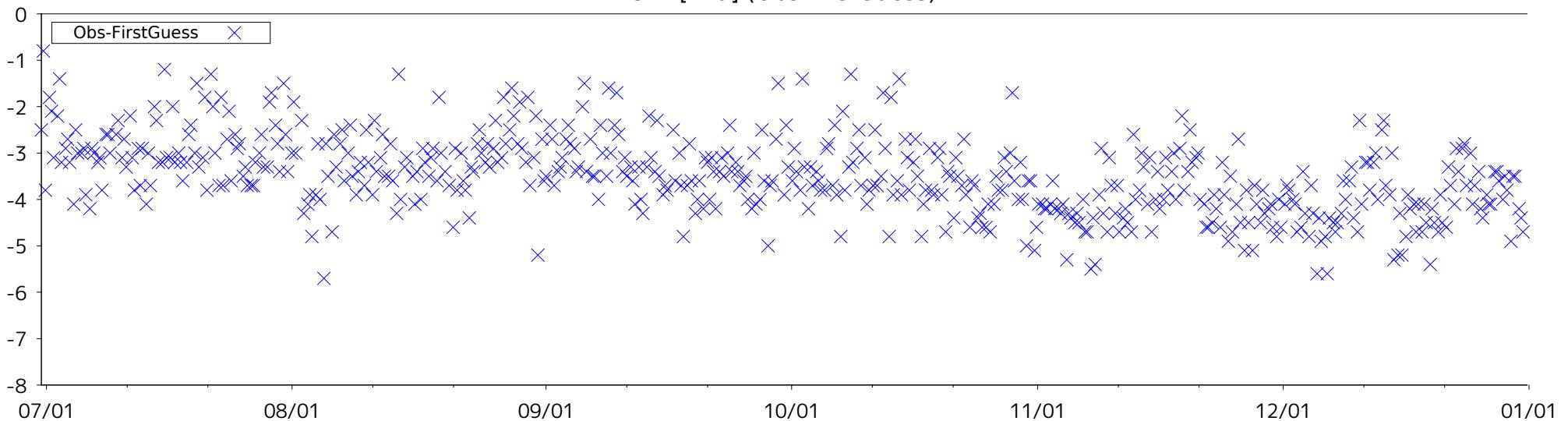


Figure 57 Time-series representation of SLP Obs minus FirstGuess for station 48107

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

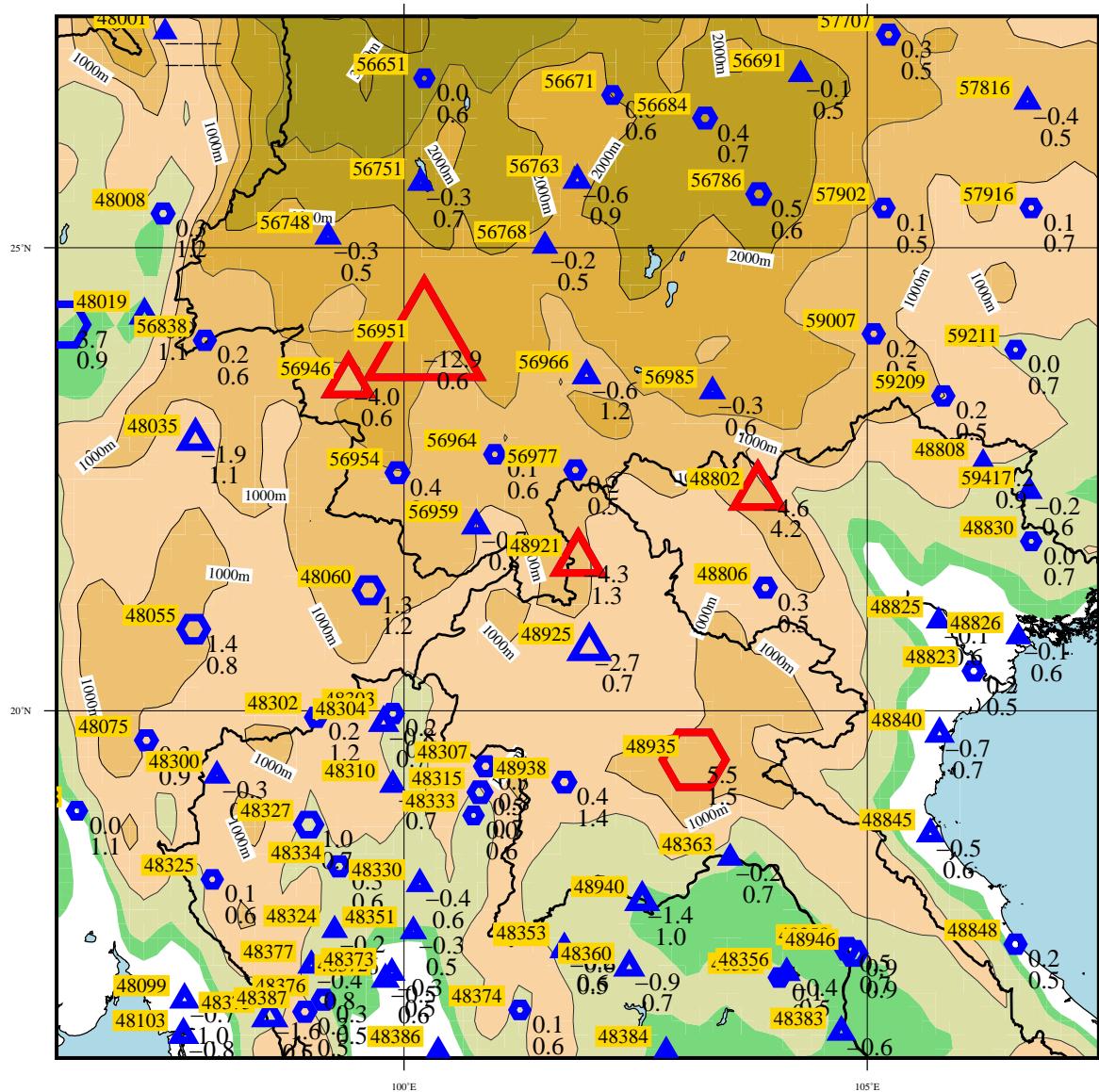


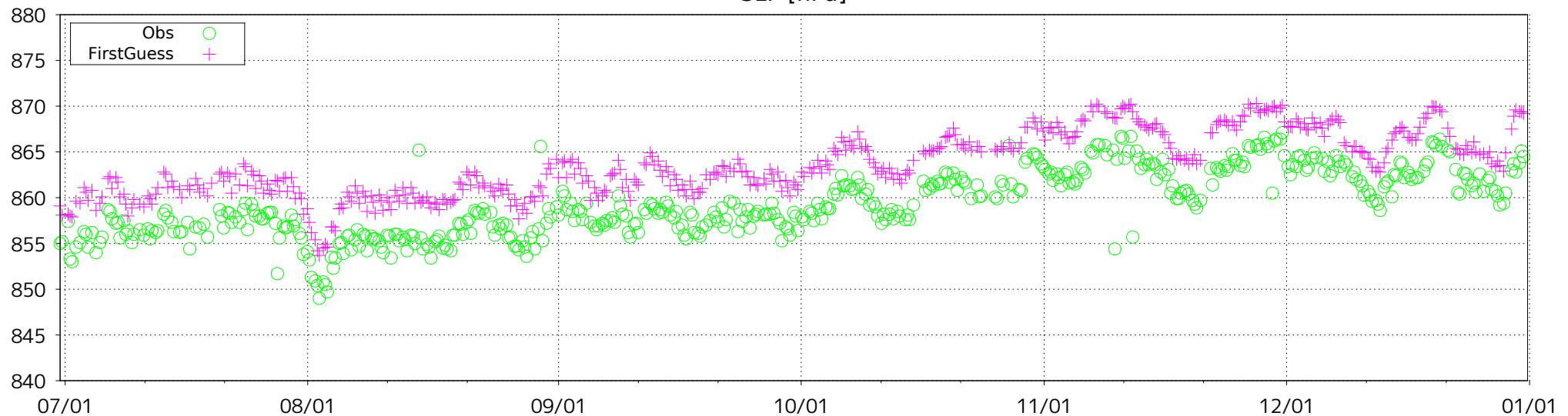
Figure 58 BIAS and SD of SLP for station 48802, 48921, 48935, 56946, 56951 (red) and surrounding stations (blue).

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)

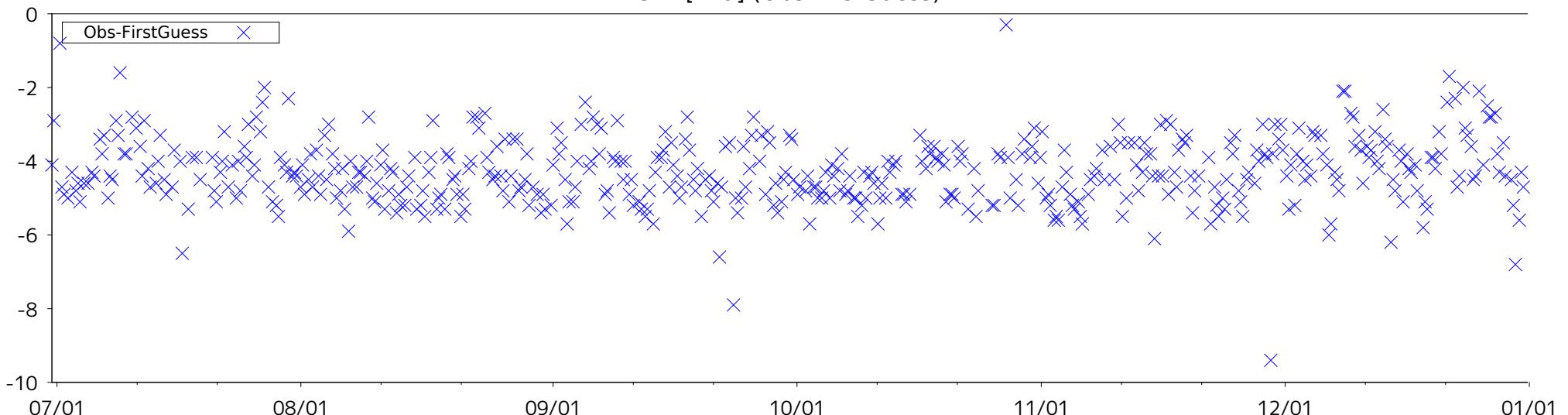
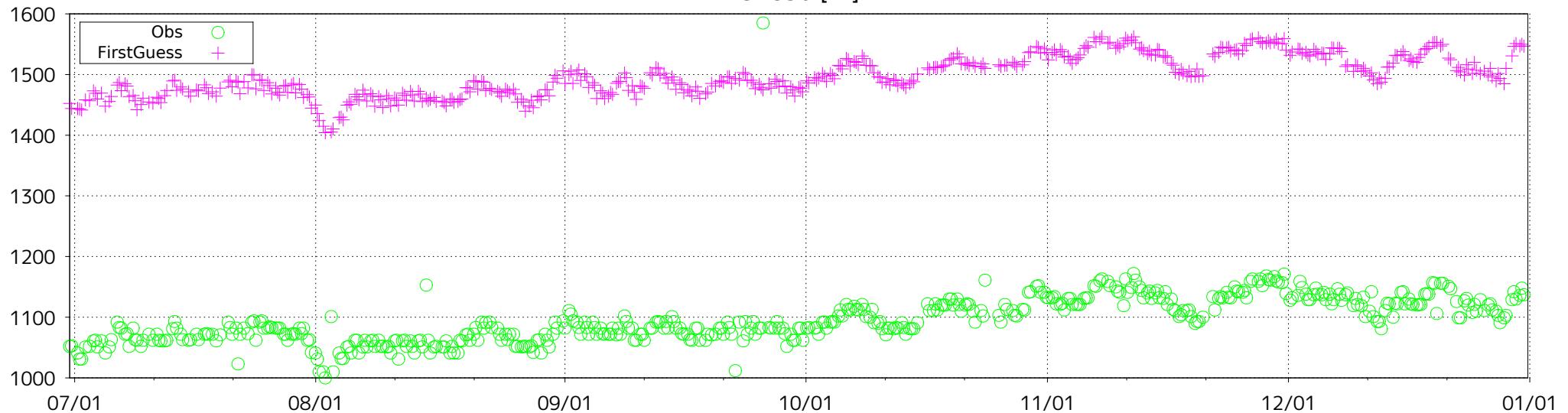


Figure 59(a) Time-series representation of SLP Obs minus FirstGuess for station 48921

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

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

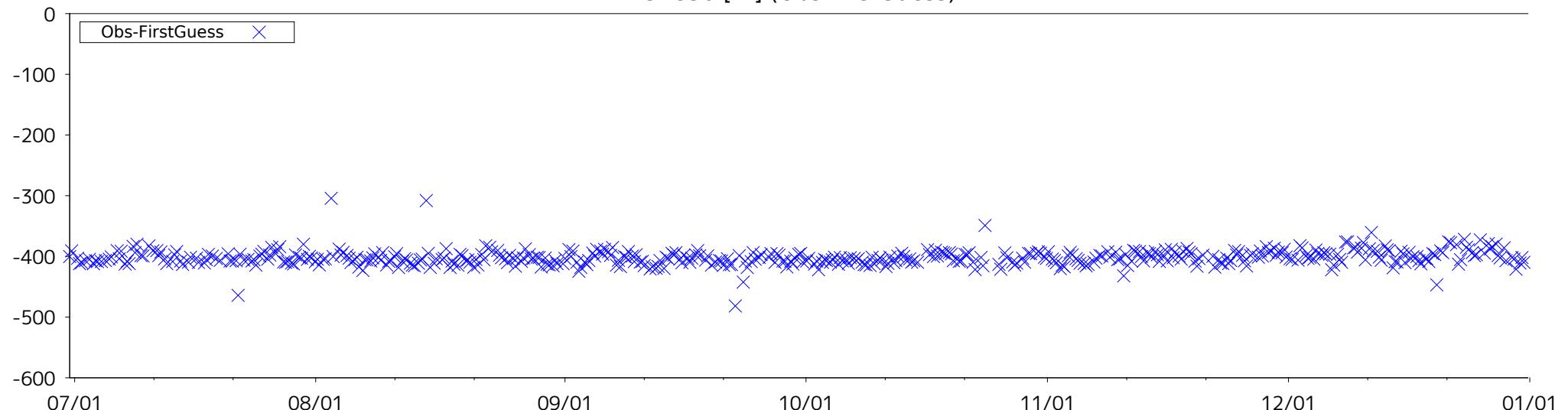
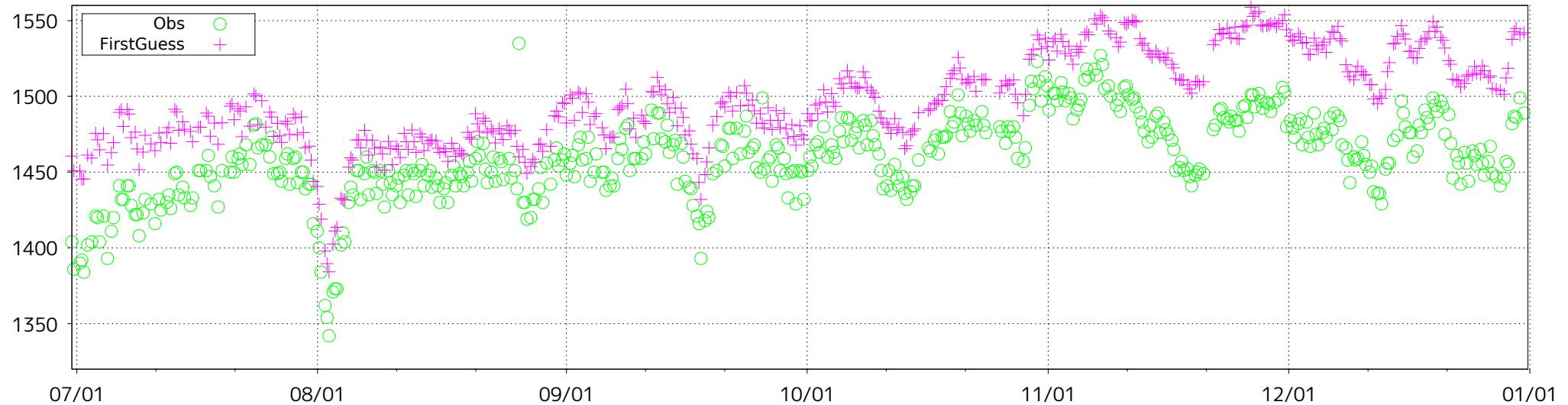


Figure 59(b) Time-series representation of GZ850 Obs minus FirstGuess for station 48921

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

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

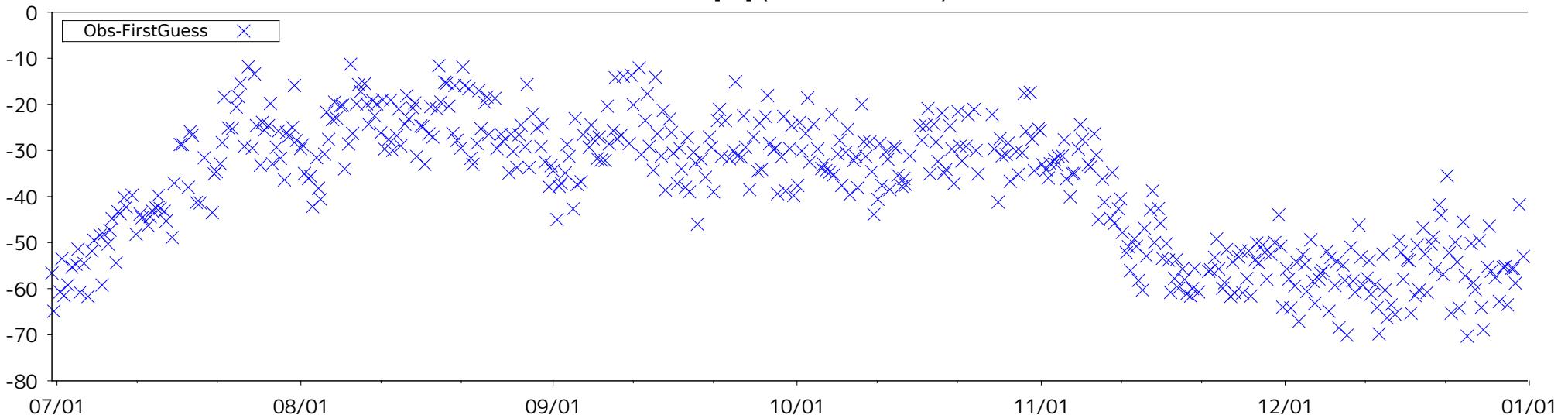
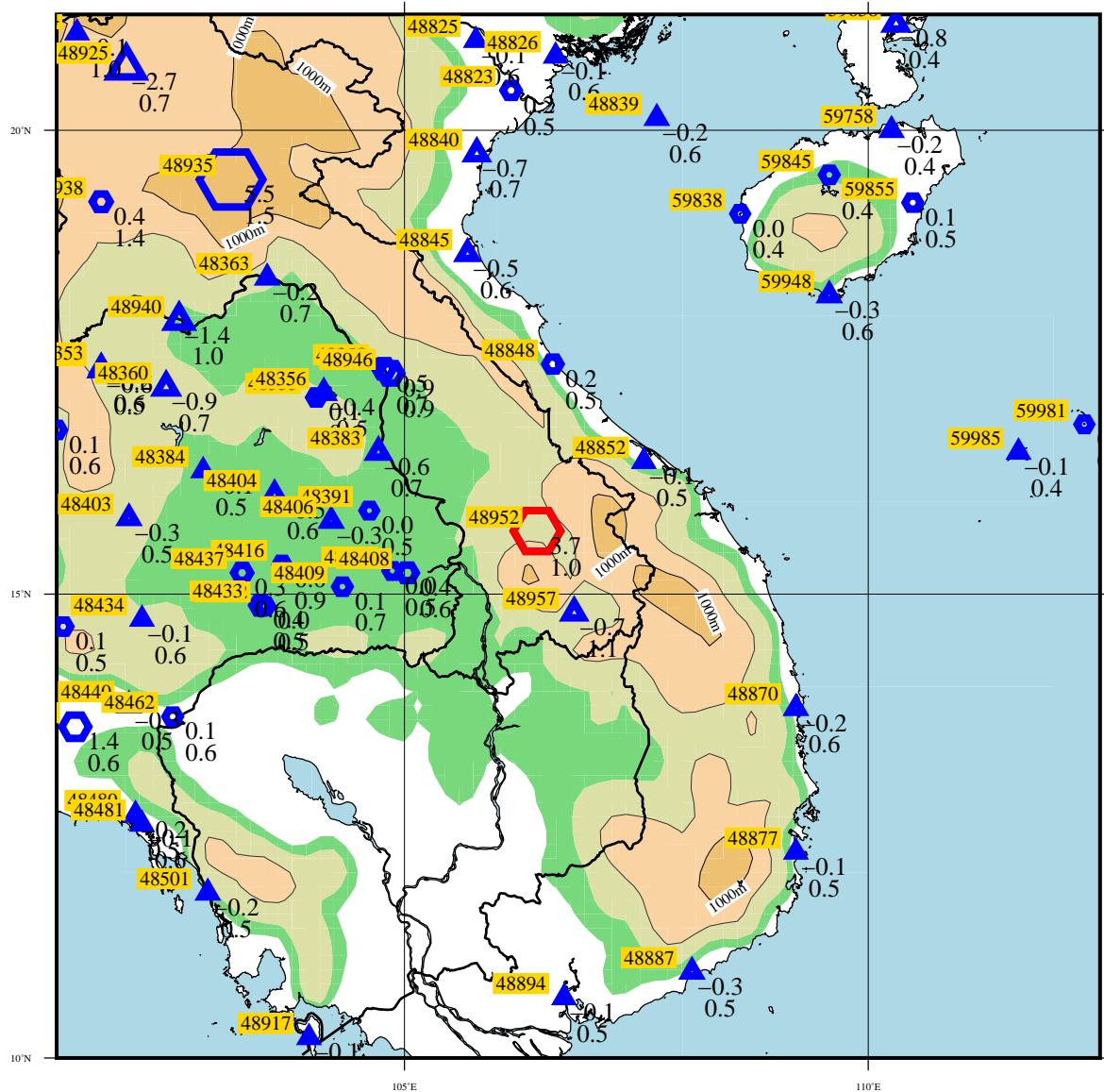


Figure 60 Time-series representation of GZ850 Obs minus FirstGuess for station 48935

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

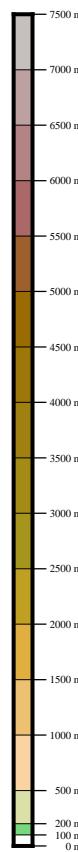


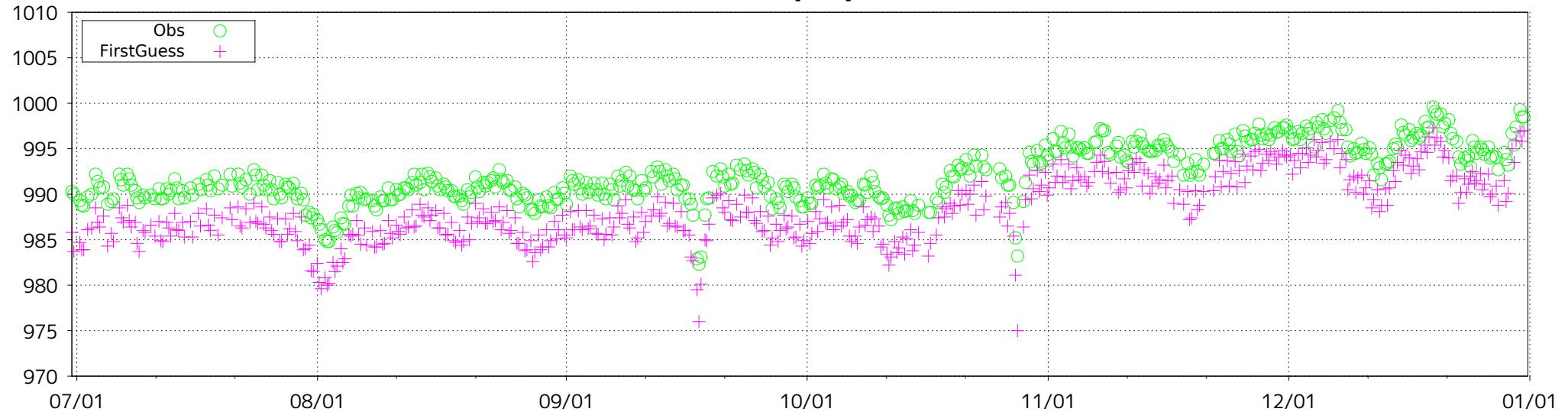
Figure 61 BIAS and SD of SLP for station 48952 (red) and surrounding stations (blue).

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

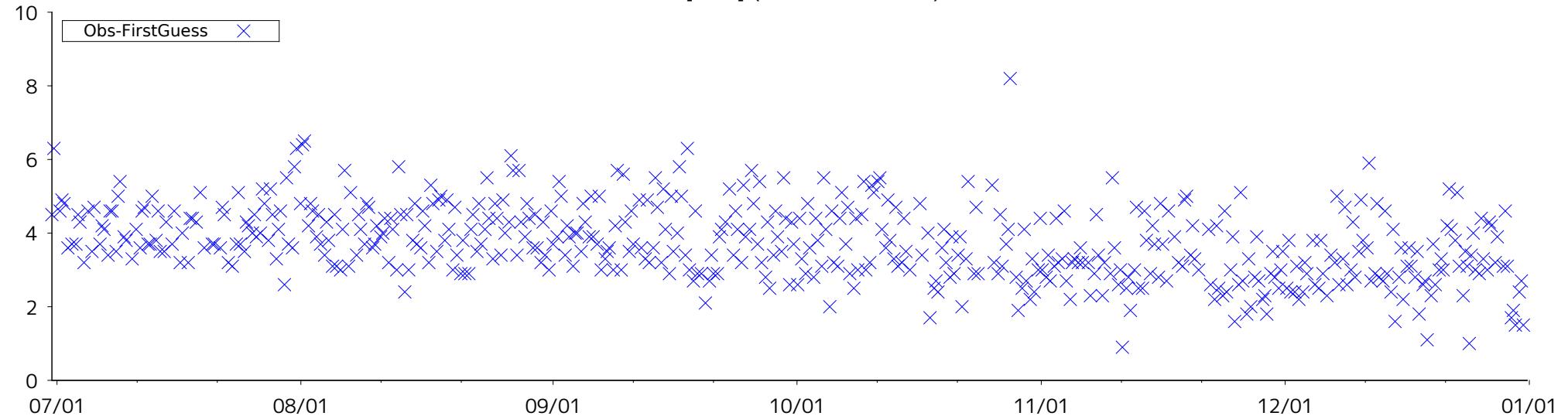
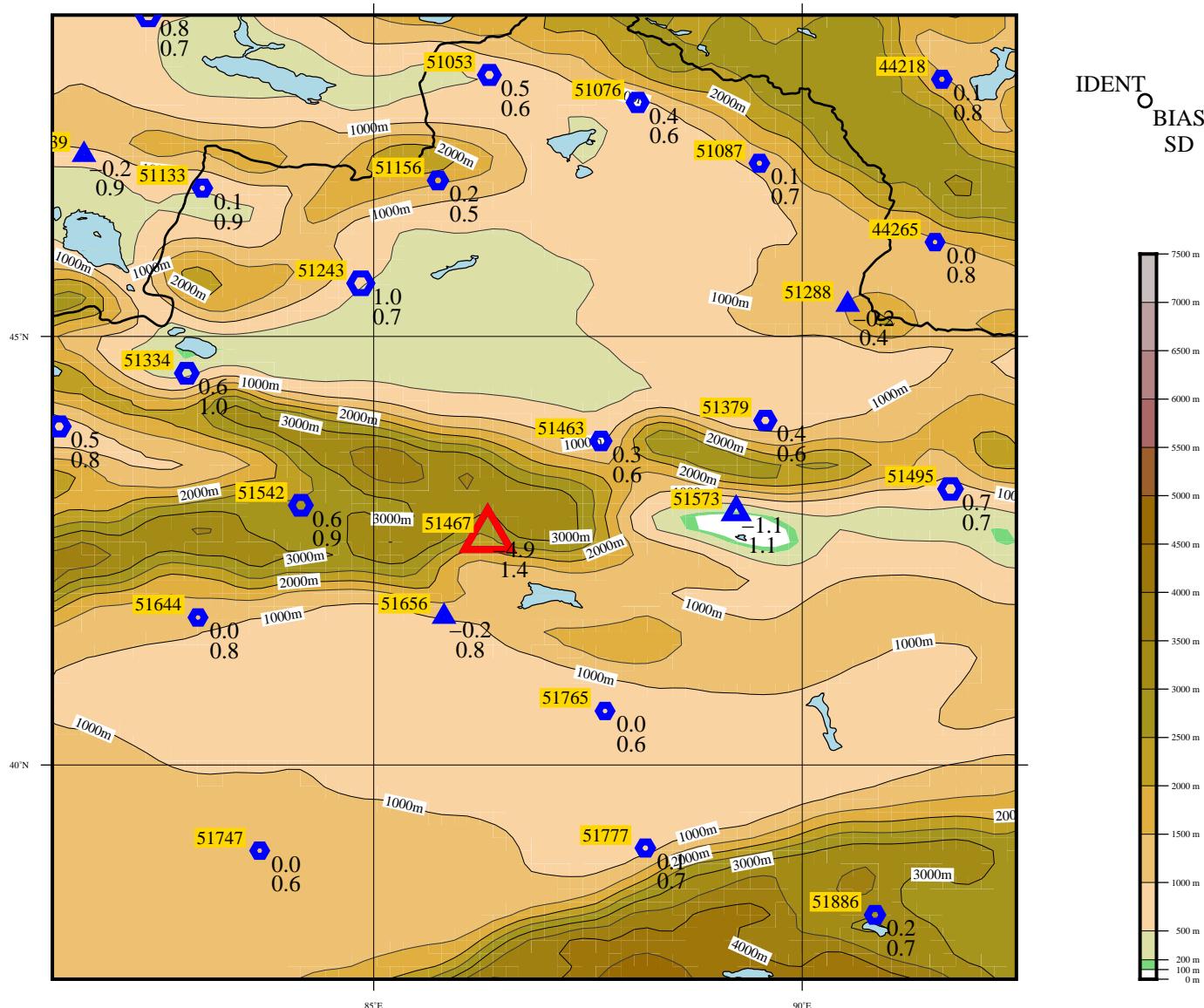


Figure 62 Time-series representation of SLP Obs minus FirstGuess for station 48952

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

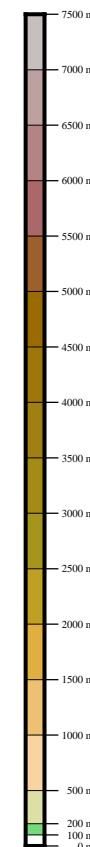


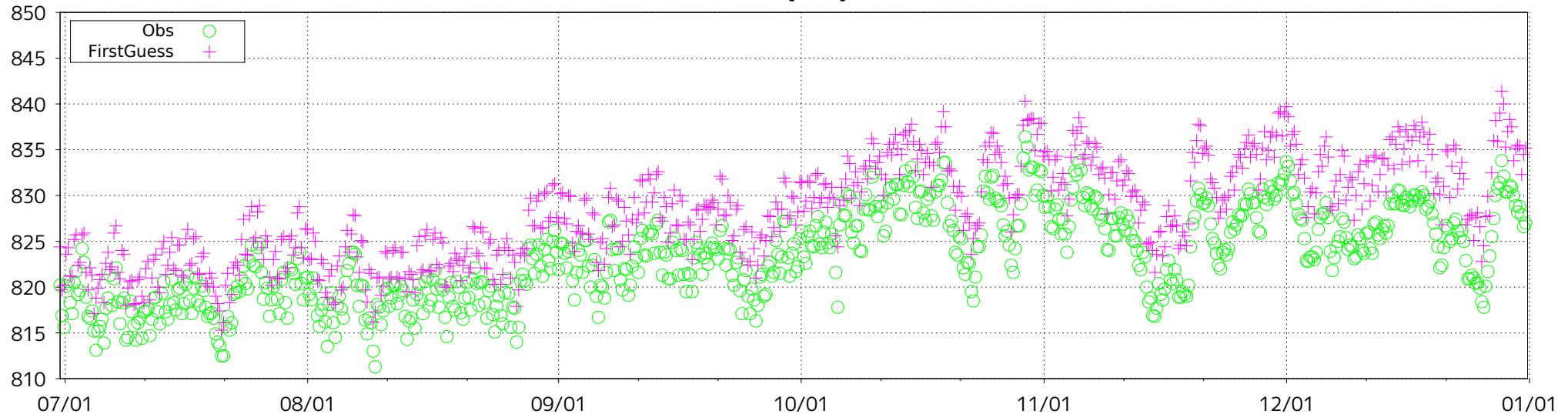
Figure 63 BIAS and SD of SLP for station 51467 (red) and surrounding stations (blue).

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)

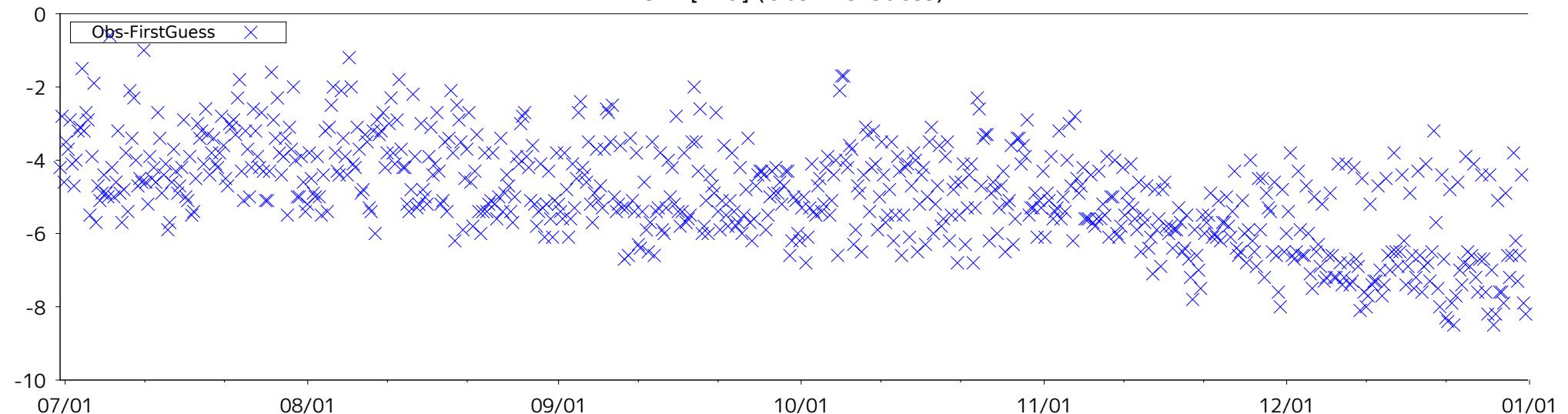
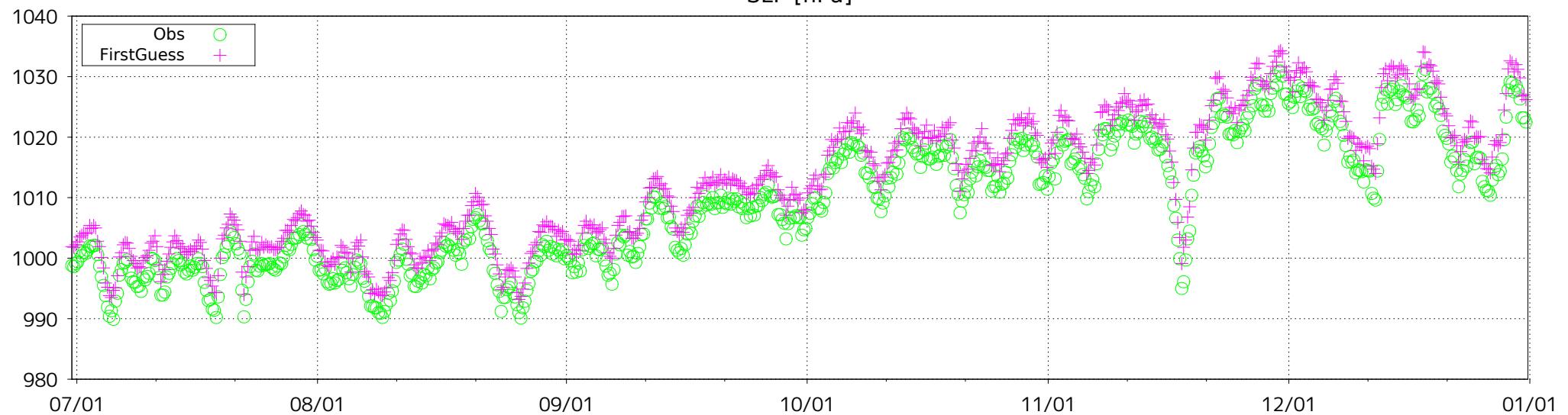


Figure 64 Time-series representation of SLP Obs minus FirstGuess for station 51467

ID: 54945 (lat: 35.4N, lon: 119.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

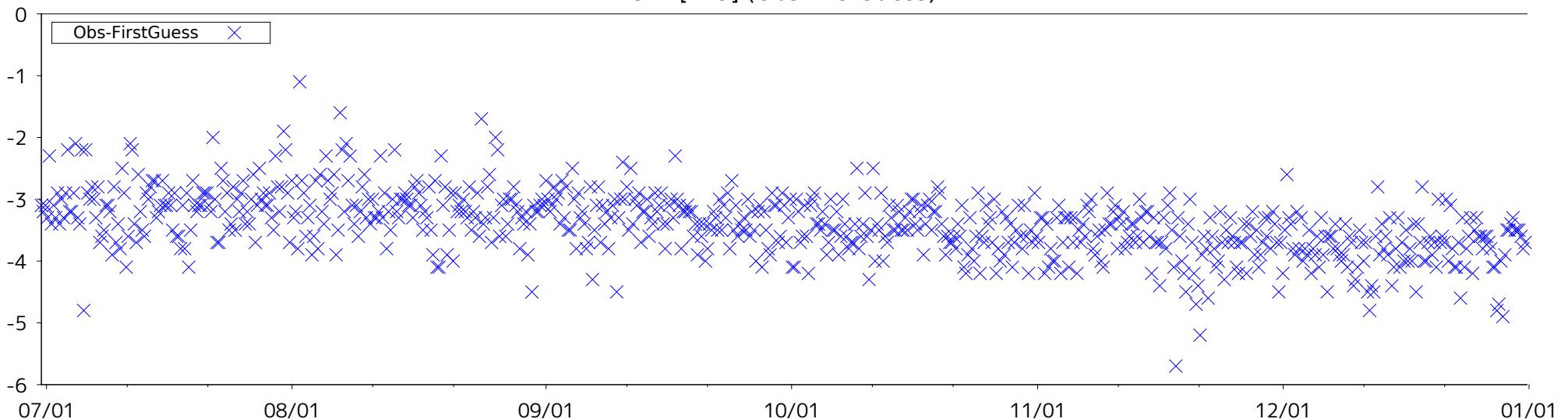
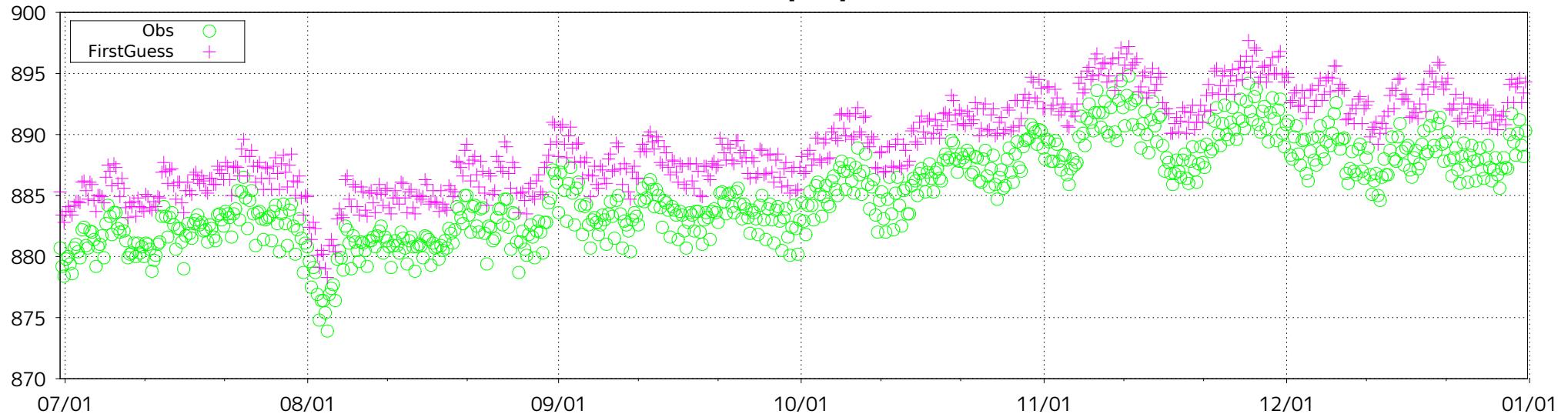


Figure 65 Time-series representation of SLP Obs minus FirstGuess for station 54945

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

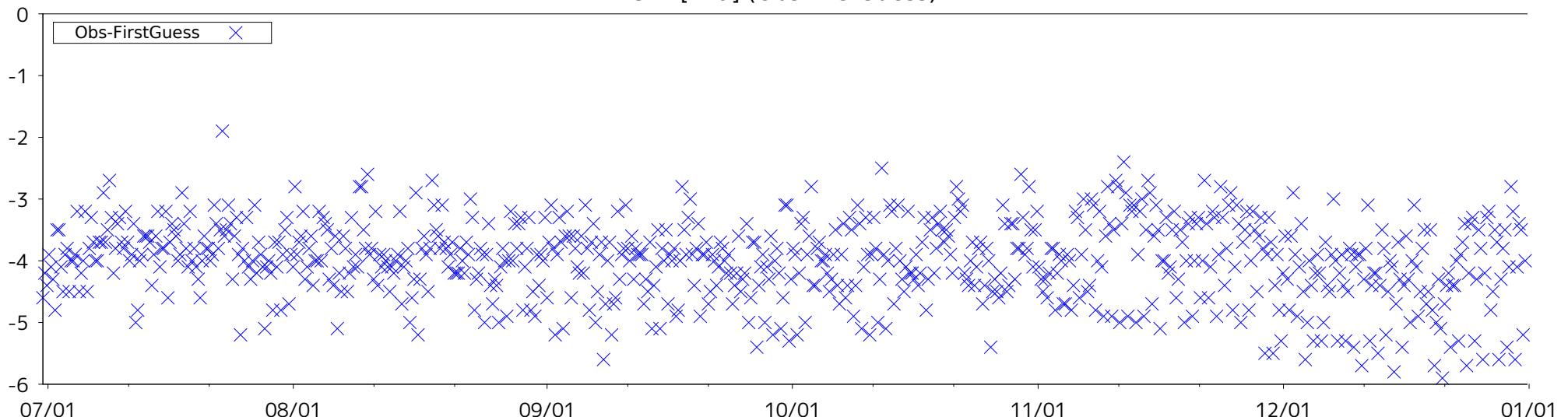
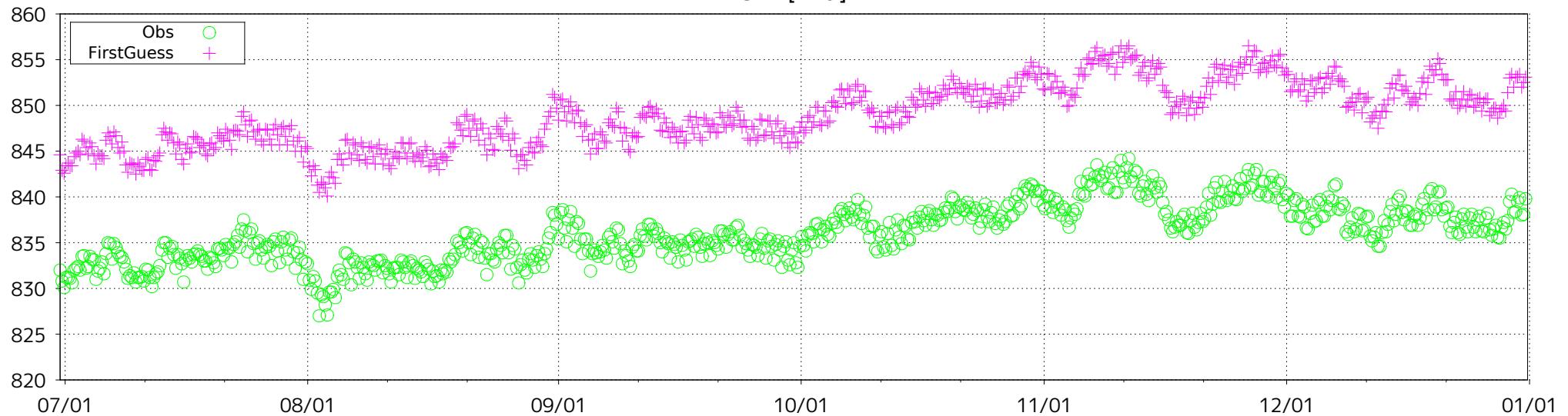


Figure 66 Time-series representation of SLP Obs minus FirstGuess for station 56946

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

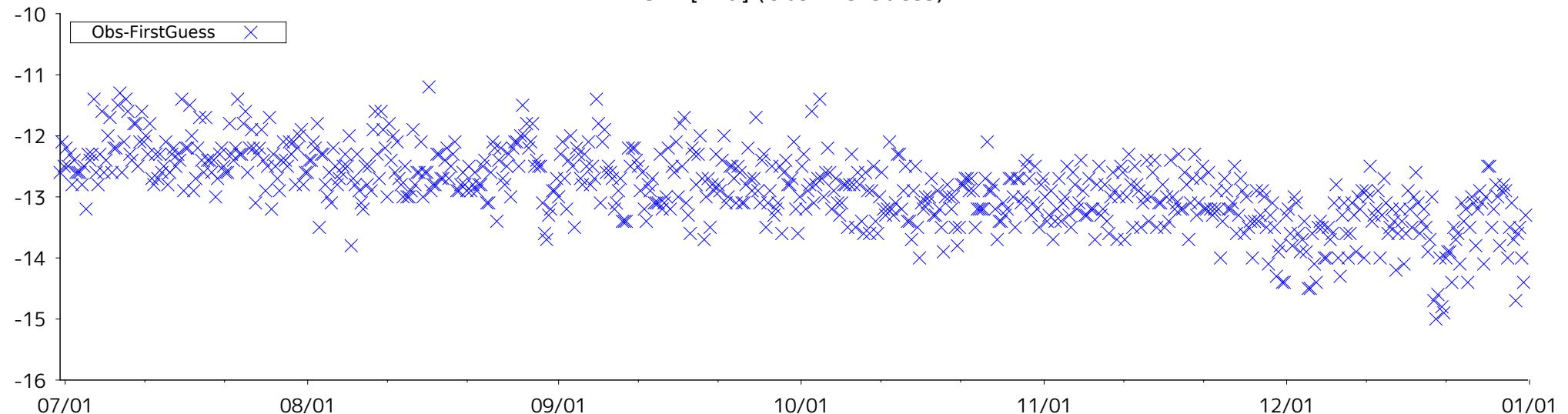
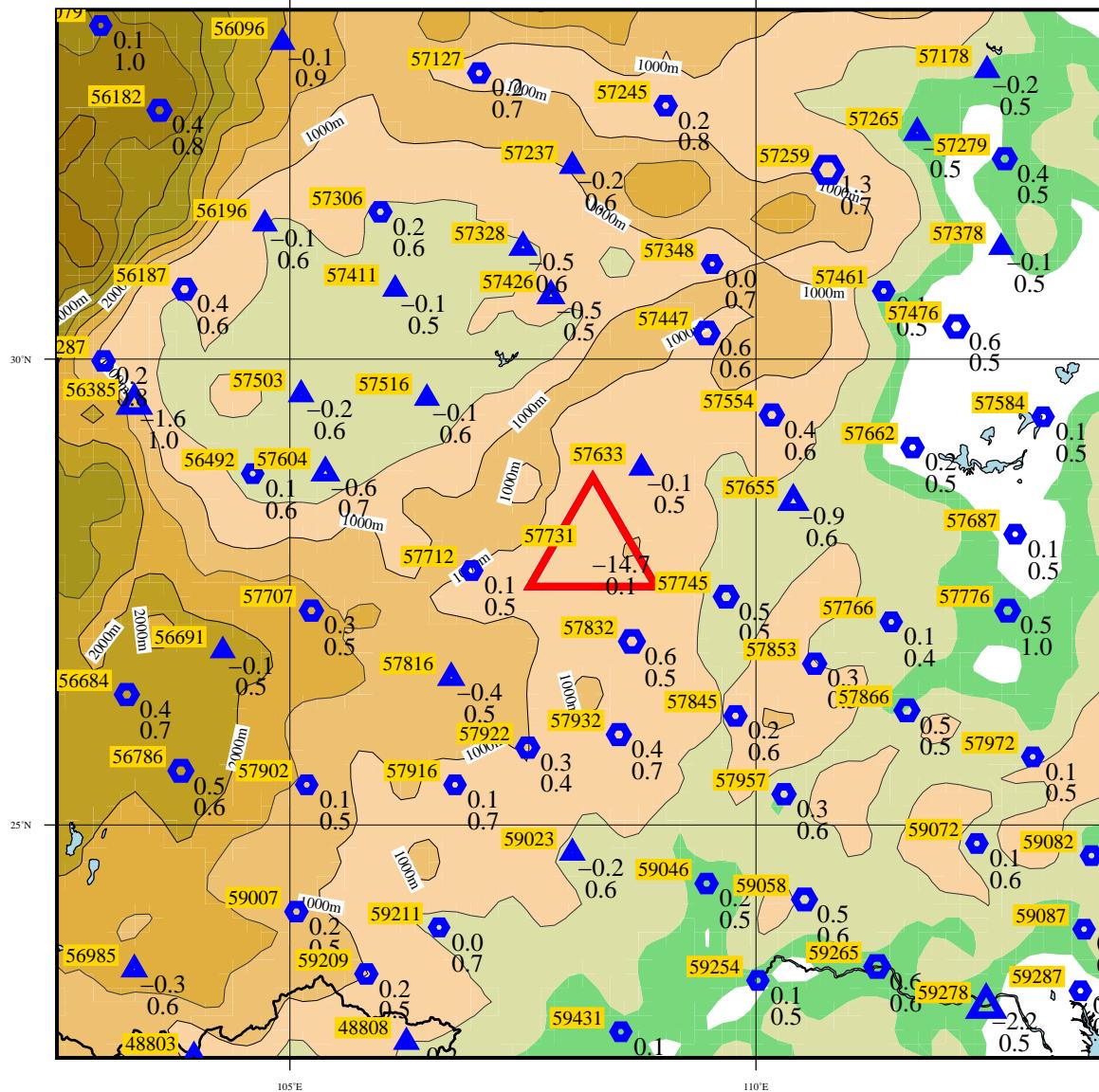


Figure 67 Time-series representation of SLP Obs minus FirstGuess for station 56951

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
BIAS
SD

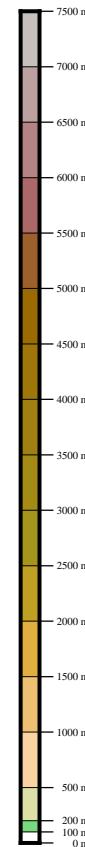


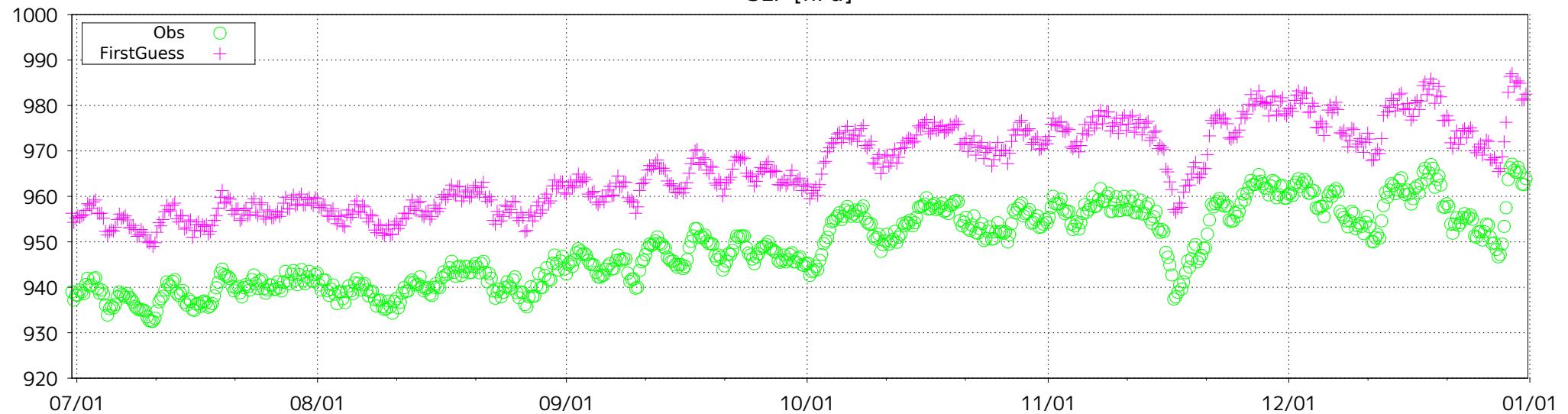
Figure 68 BIAS and SD of SLP for station 57731 (red) and surrounding stations (blue).

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 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)

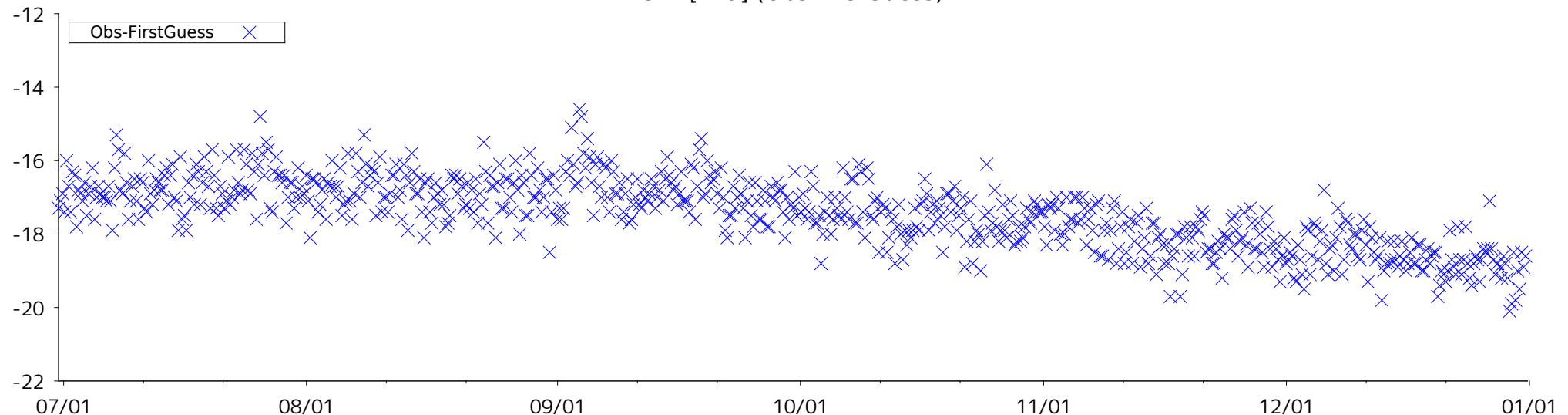


Figure 69 Time-series representation of SLP Obs minus FirstGuess for station 57731

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

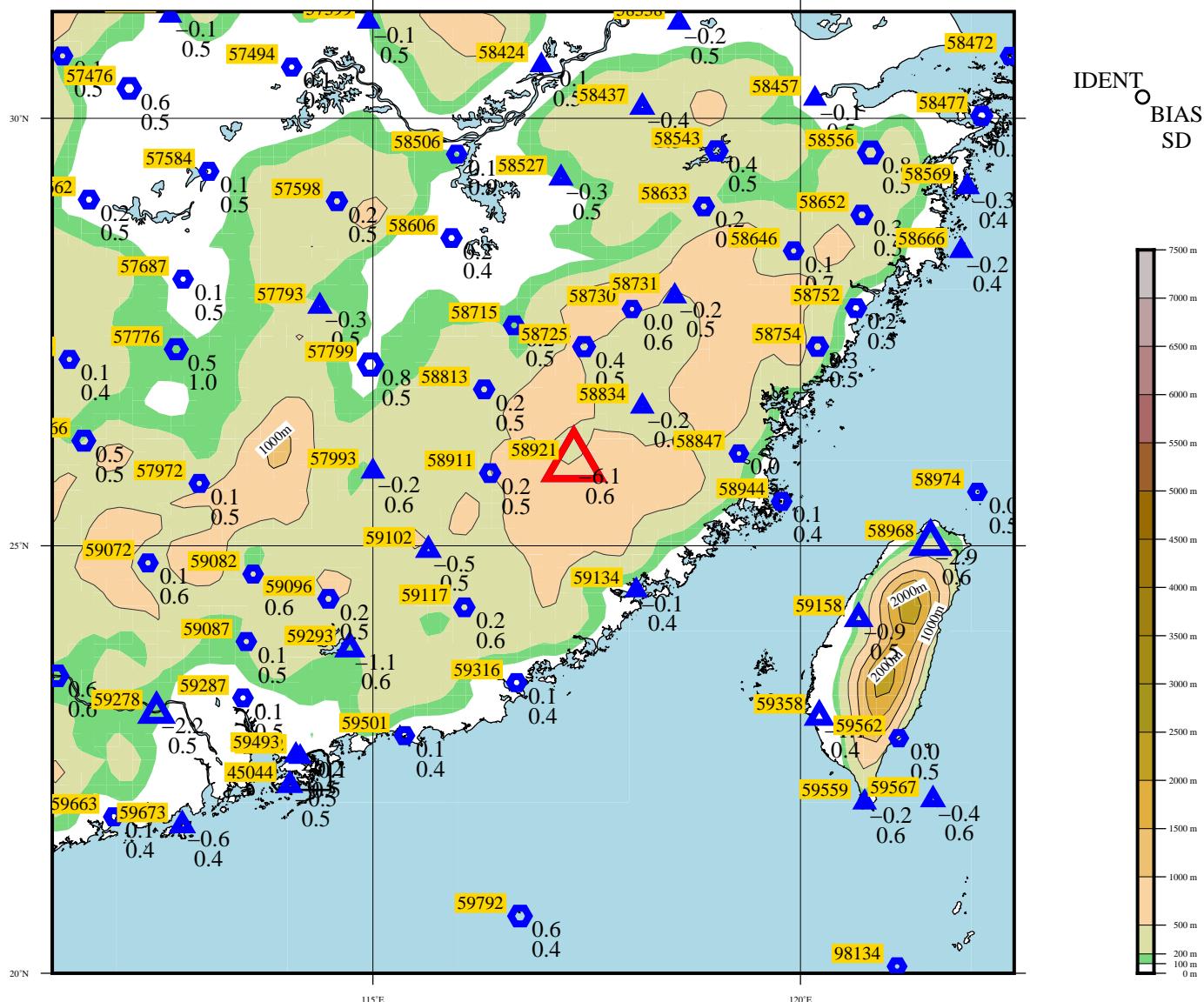


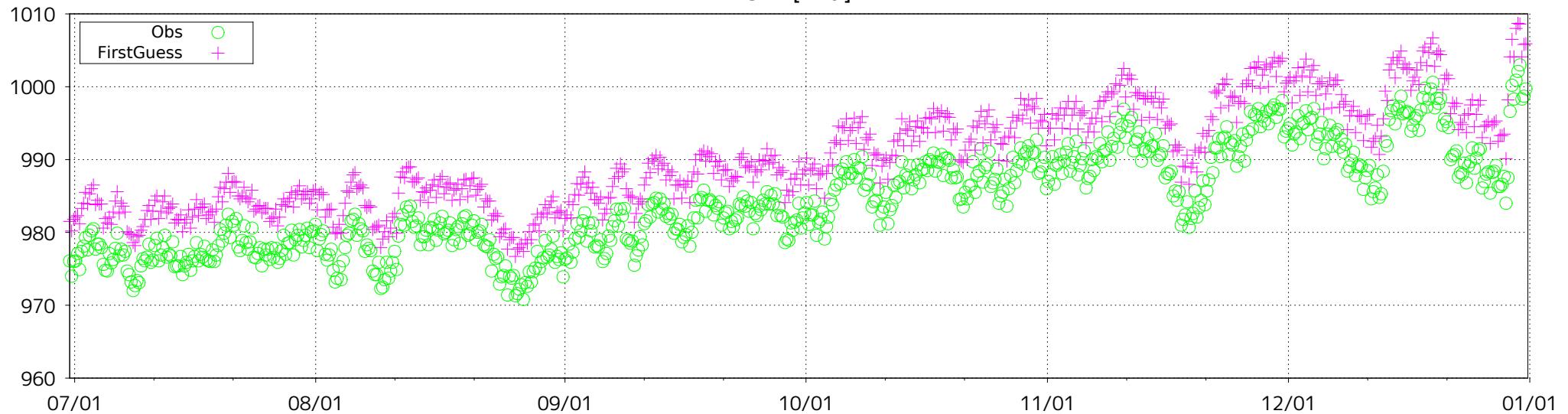
Figure 70 BIAS and SD of SLP for station 58921 (red) and surrounding stations (blue).

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)

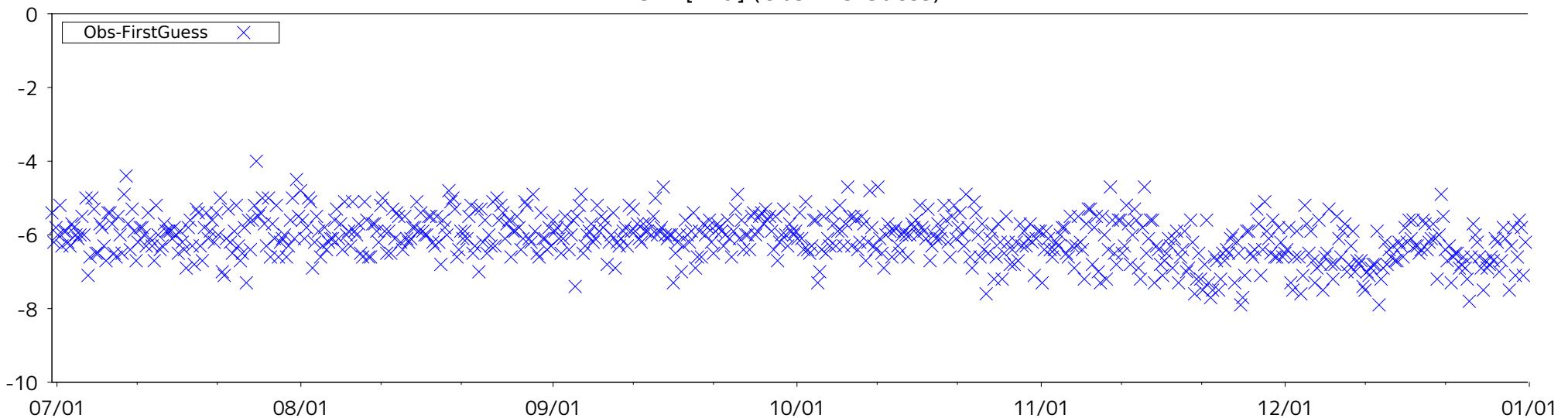
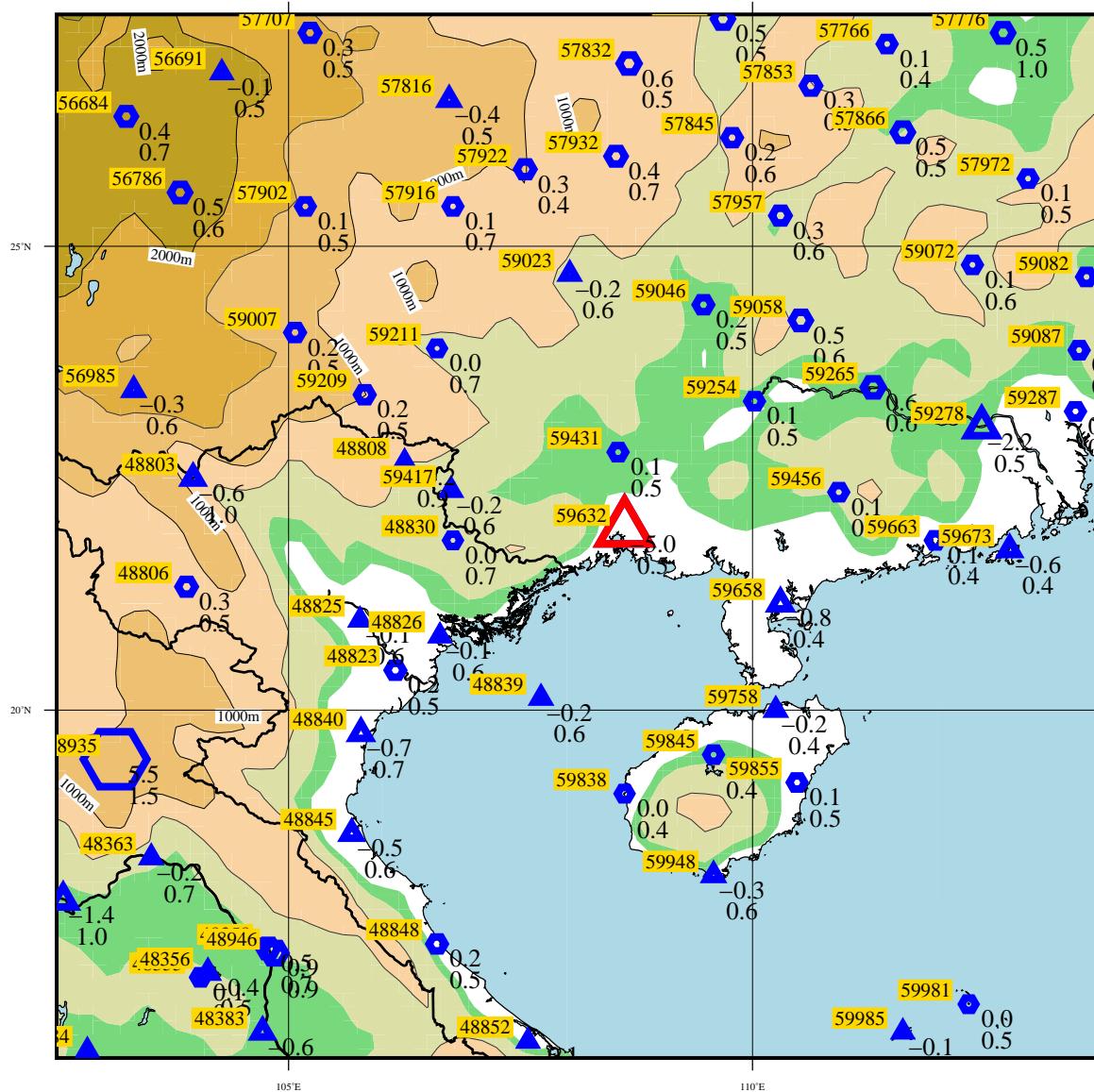


Figure 71 Time-series representation of SLP Obs minus FirstGuess for station 58921

LEVEL = SUR

ELEMENT = SLP

2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)



IDENT
O BIAS
SD

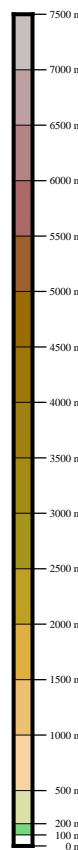


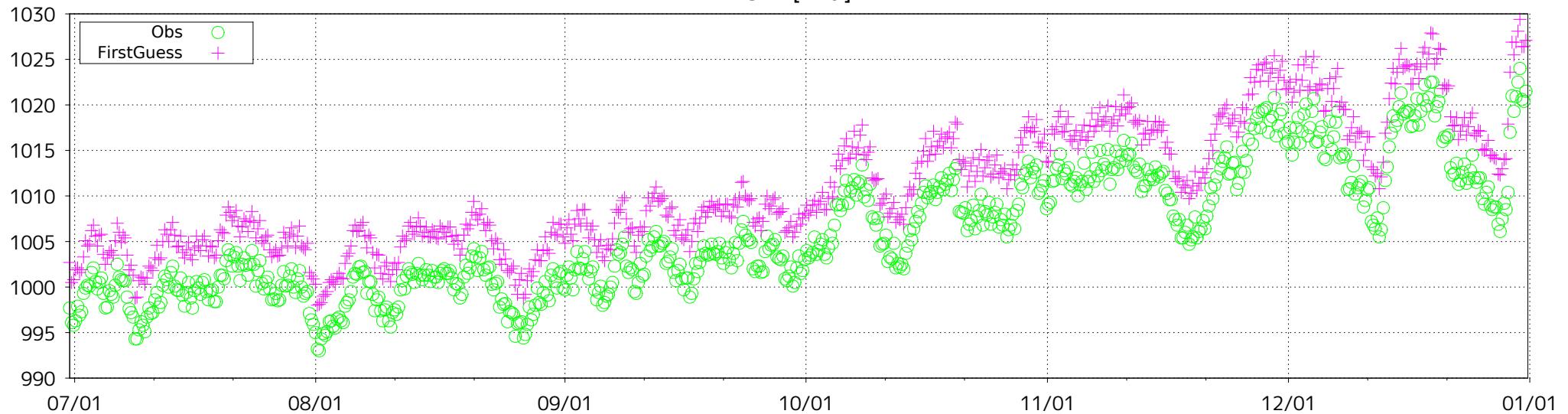
Figure 72 BIAS and SD of SLP for station 59632 (red) and surrounding stations (blue).

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)

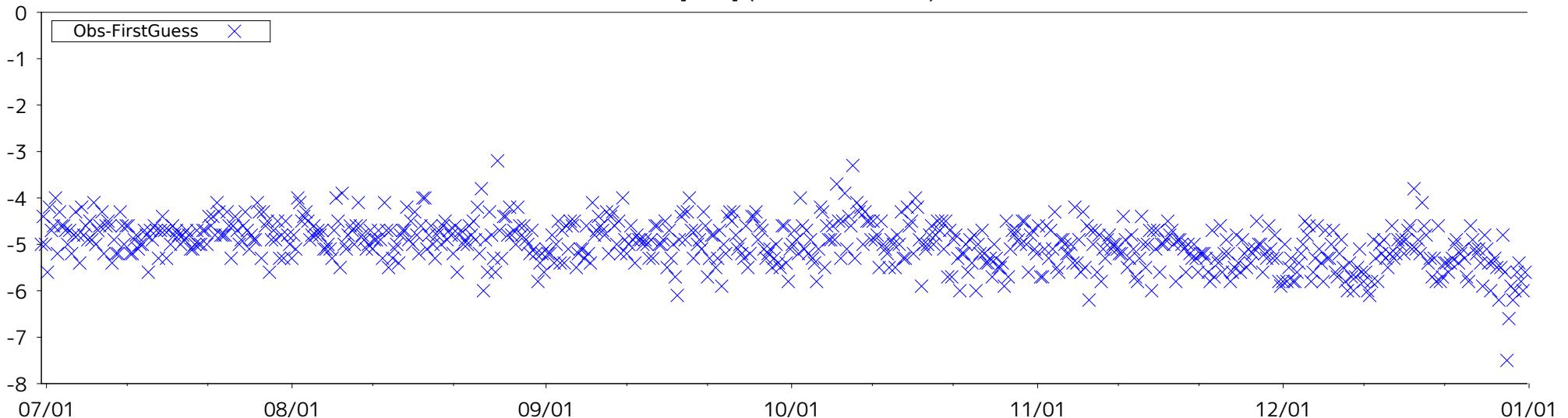
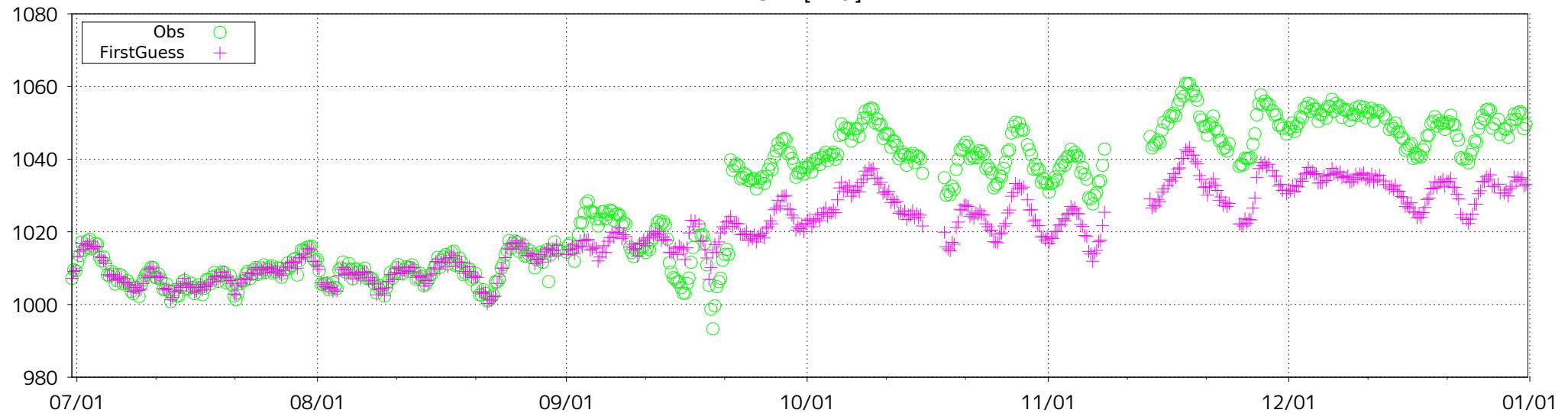


Figure 73 Time-series representation of SLP Obs minus FirstGuess for station 59632

ID: 38232 (lat: 43.0N, lon: 54.1E)

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

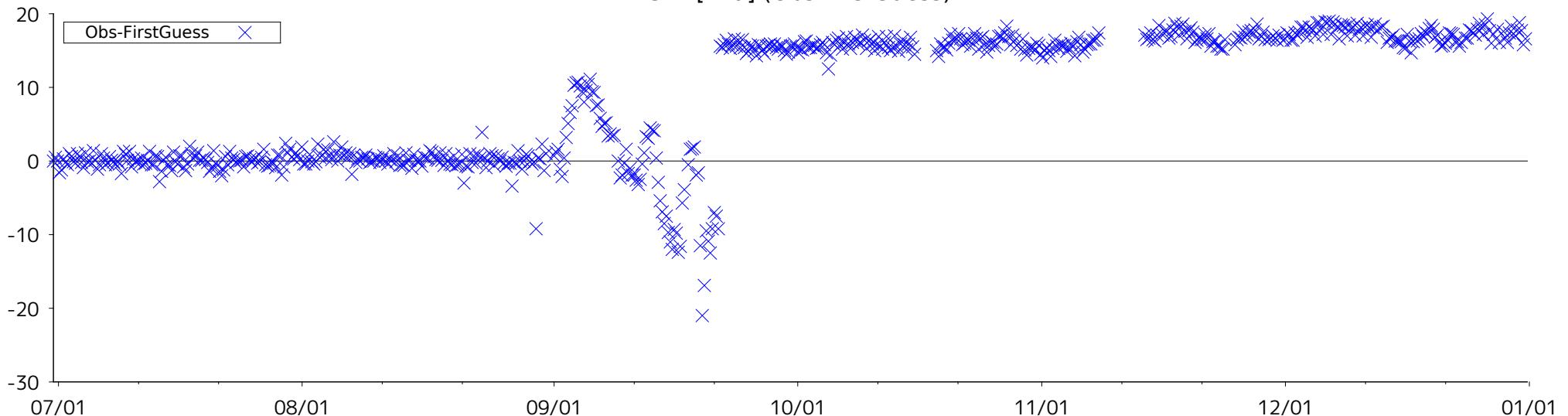
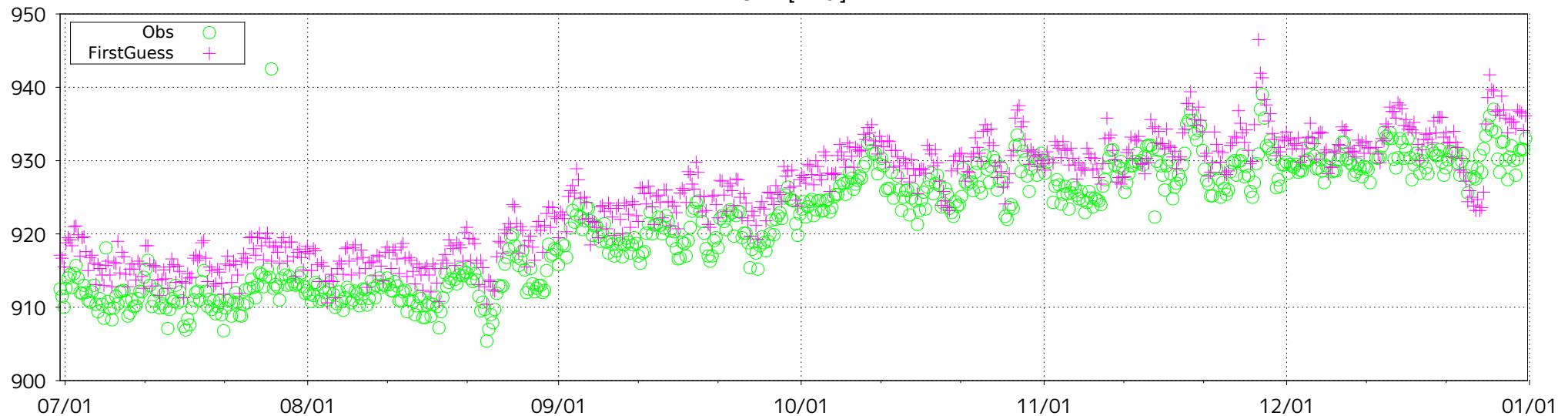


Figure 74 Time-series representation of MSLP Obs minus FirstGuess for station 38232

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

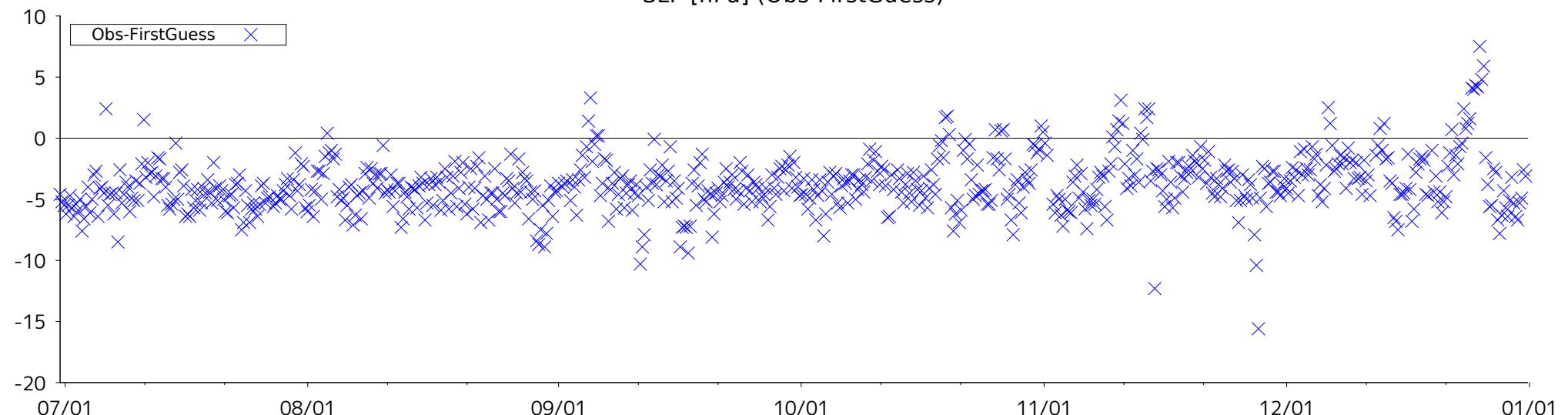
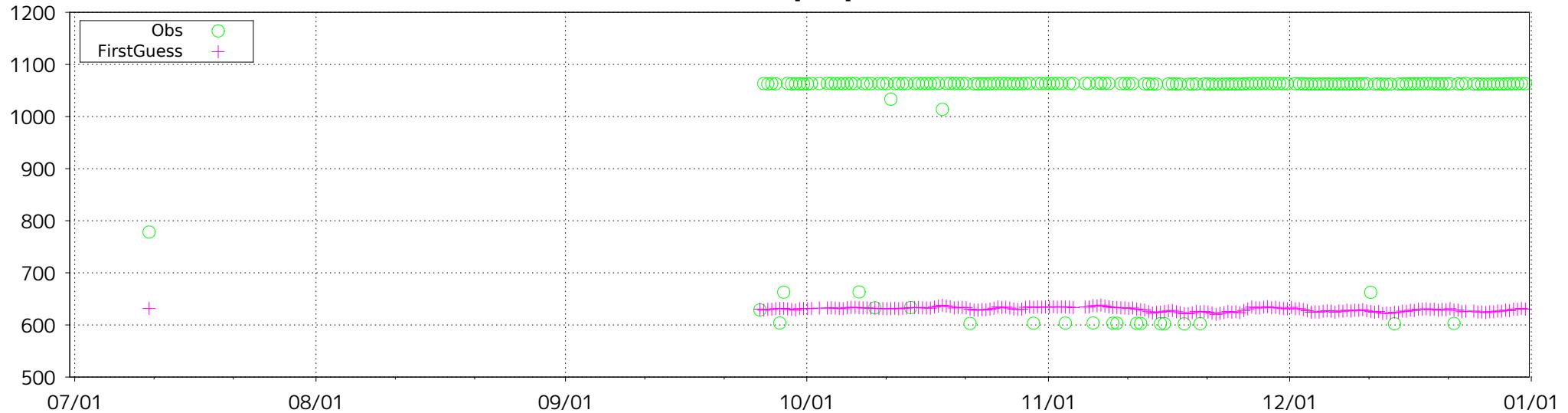


Figure 75 Time-series representation of SLP Obs minus FirstGuess for station 38836

ID: 38875 (lat: 39.0N, lon: 73.6E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

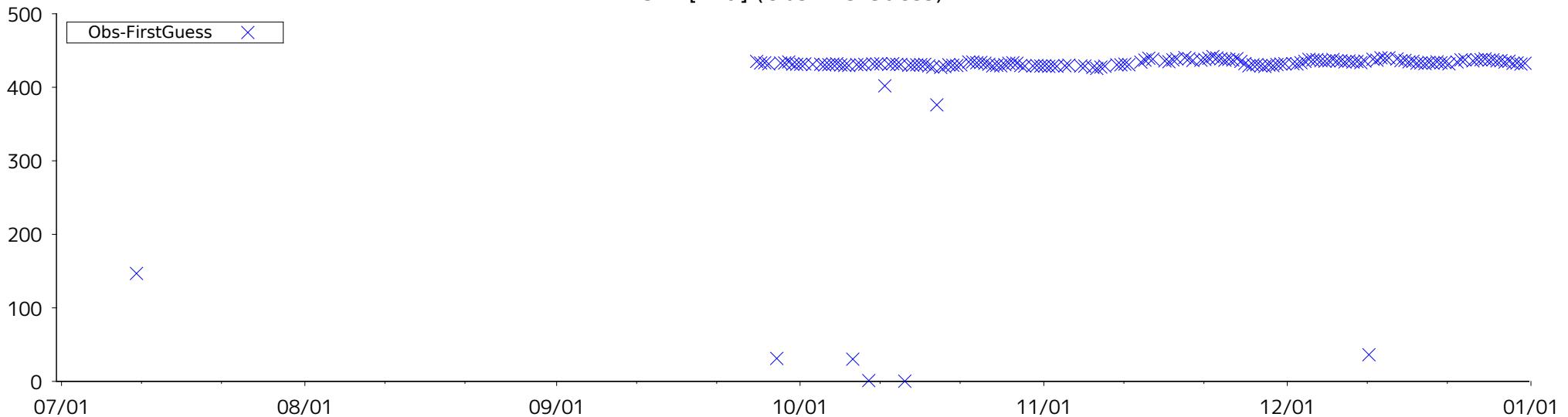
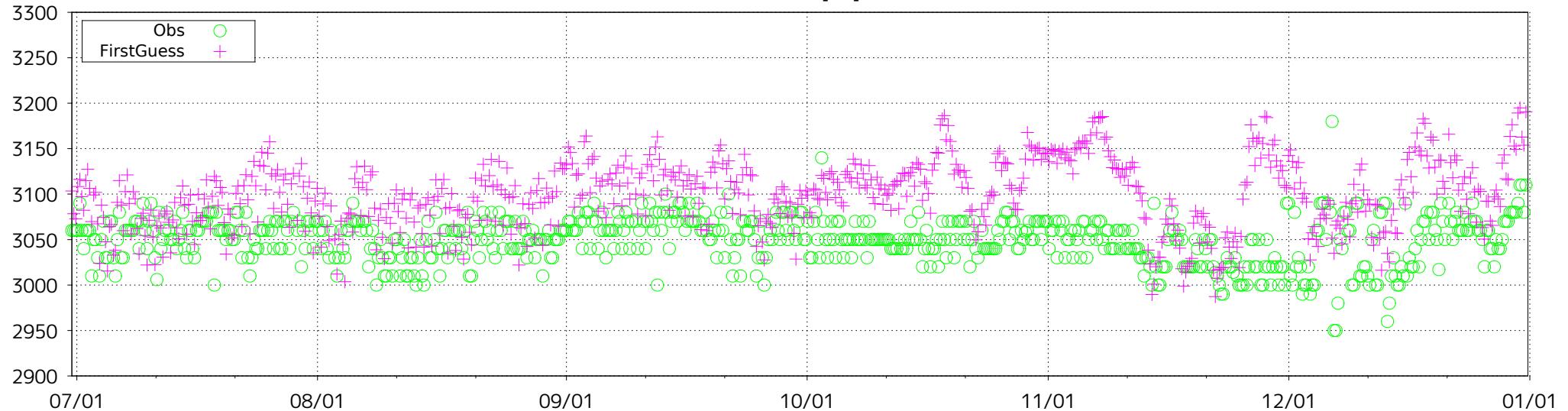


Figure 76 Time-series representation of SLP Obs minus FirstGuess for station 38875

ID: 38878 (lat: 38.2N, lon: 74.0E)

GZ700 [m]



GZ700 [m] (Obs-FirstGuess)

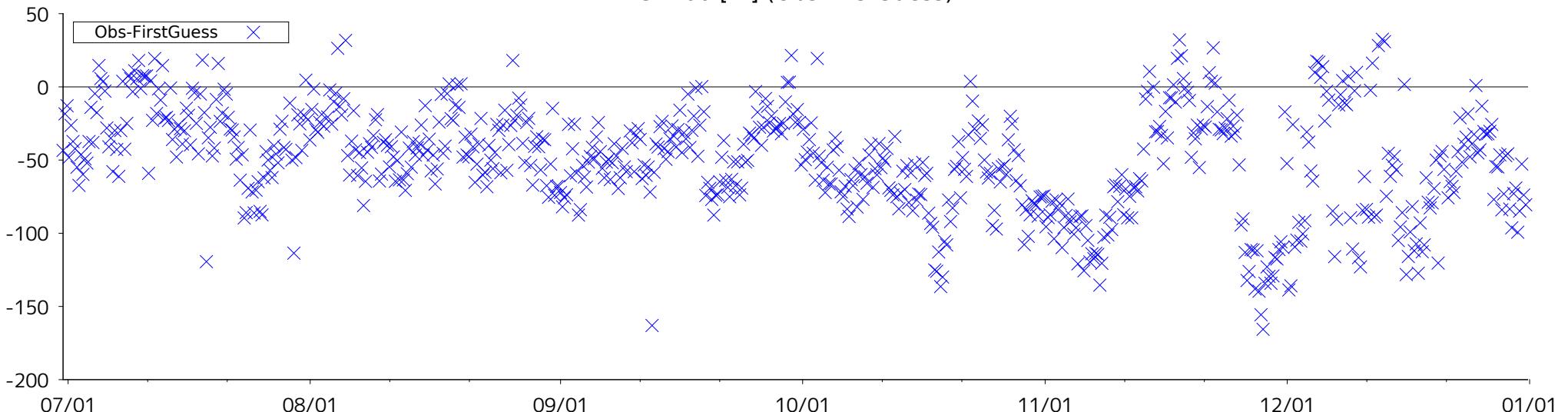


Figure 77 Time-series representation of GZ700 Obs minus FirstGuess for station 38878

LEVEL = SUR ELEMENT = SLP
 2020 07 01 00 UTC → 2020 12 31 18 UTC (184 DAYS)

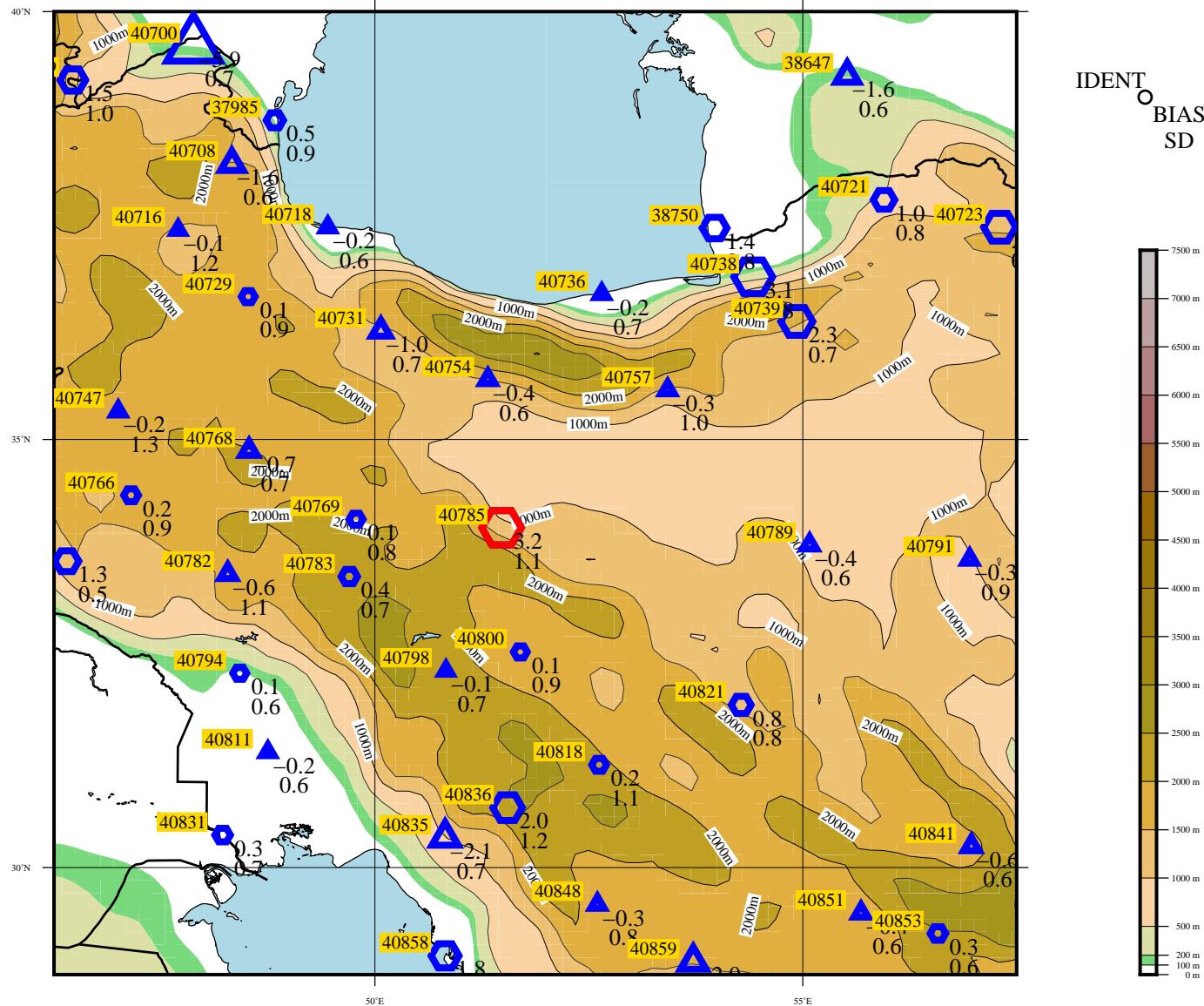


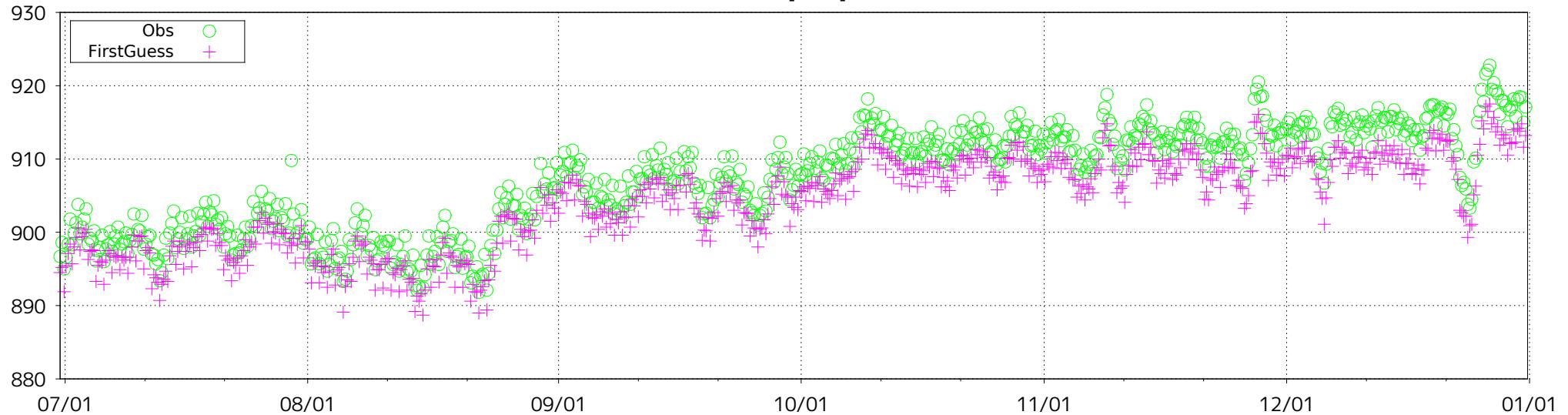
Figure 78 BIAS and SD of SLP for station 40785 (red) and surrounding stations (blue).

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: 40785 (lat: 34.0N, lon: 51.5E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

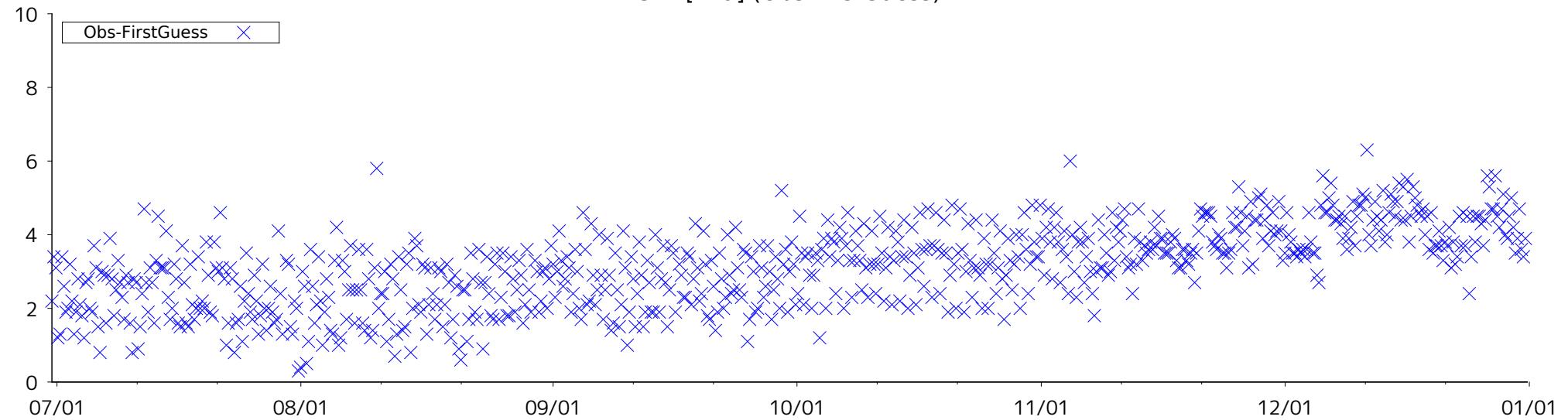
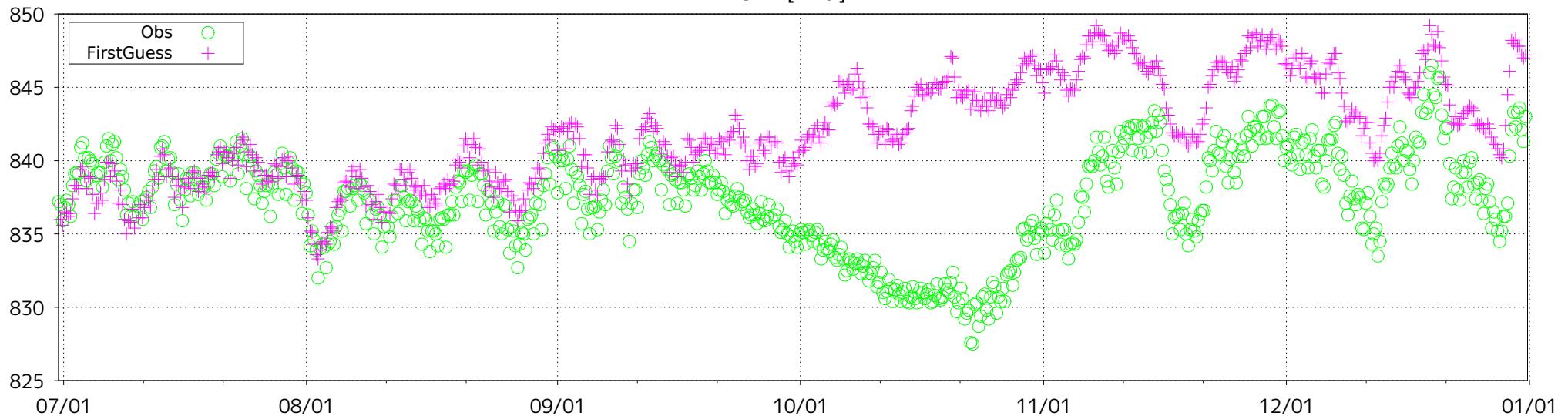


Figure 79 Time-series representation of SLP Obs minus FirstGuess for station 40785

ID: 48802 (lat: 22.4N, lon: 103.8E)

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

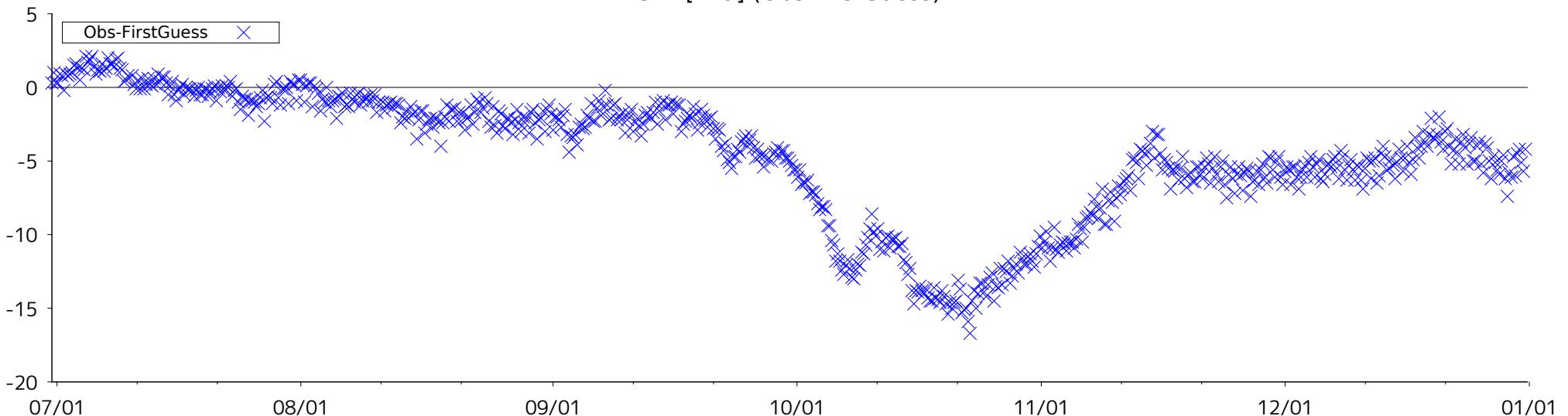
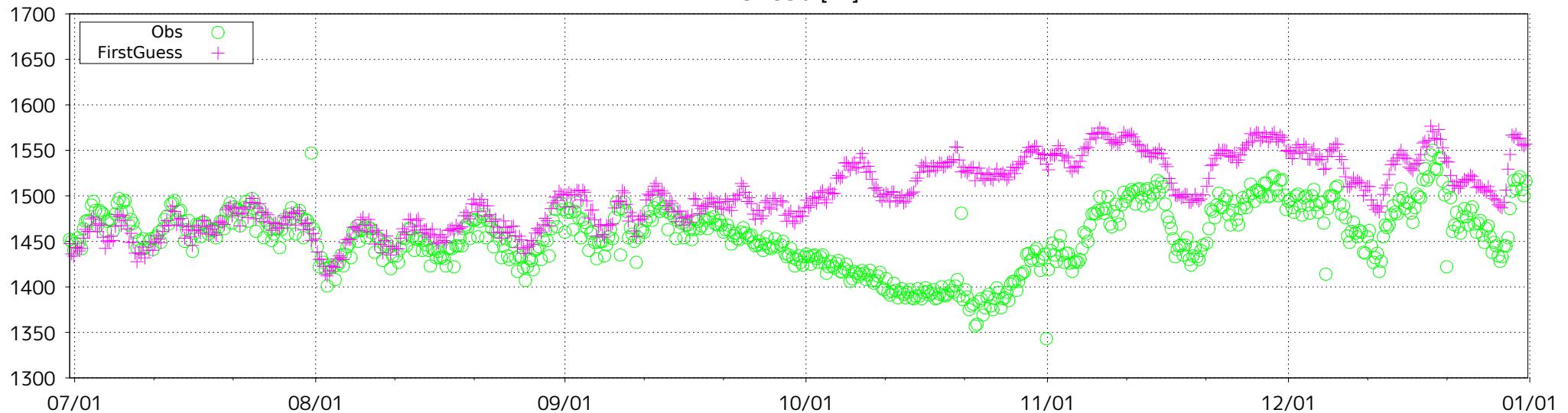


Figure 80(a) Time-series representation of SLP Obs minus FirstGuess for station 48802

ID: 48802 (lat: 22.4N, lon: 103.8E)

GZ850 [m]



GZ850 [m] (Obs-FirstGuess)

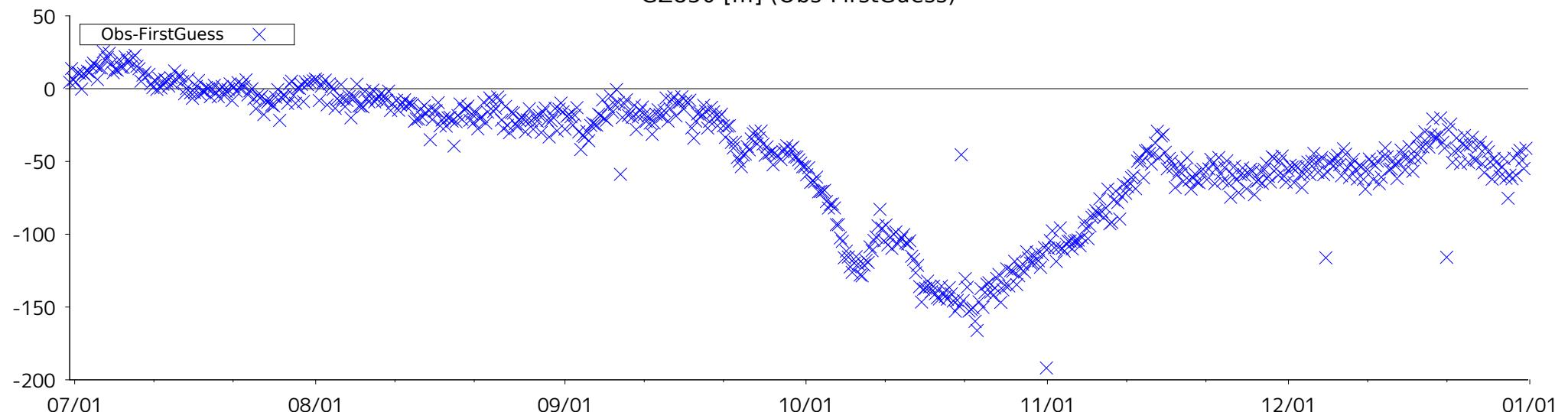
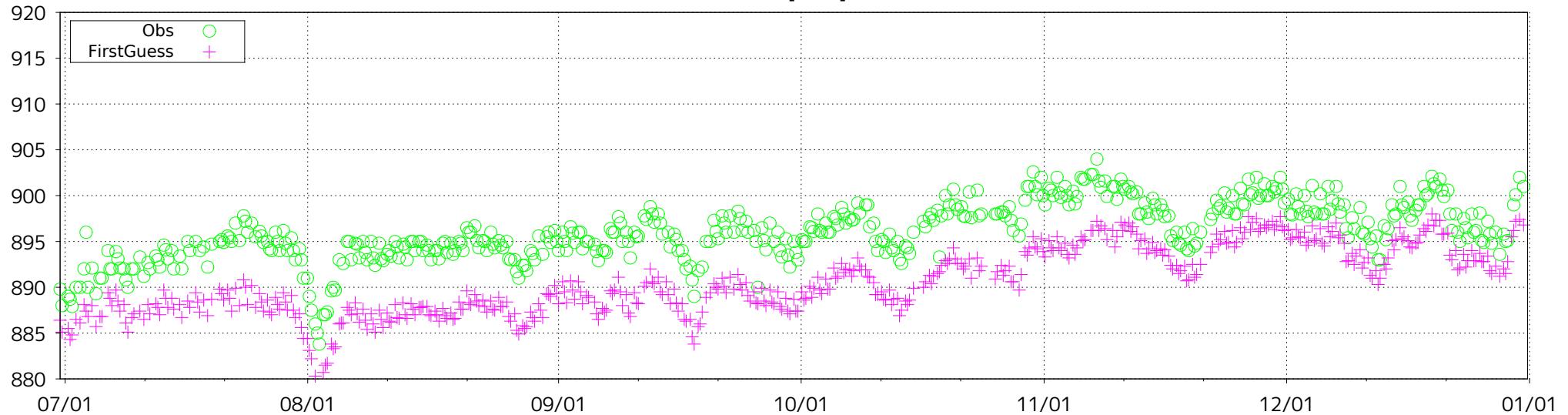


Figure 80(b) Time-series representation of GZ850 Obs minus FirstGuess for station 48802

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

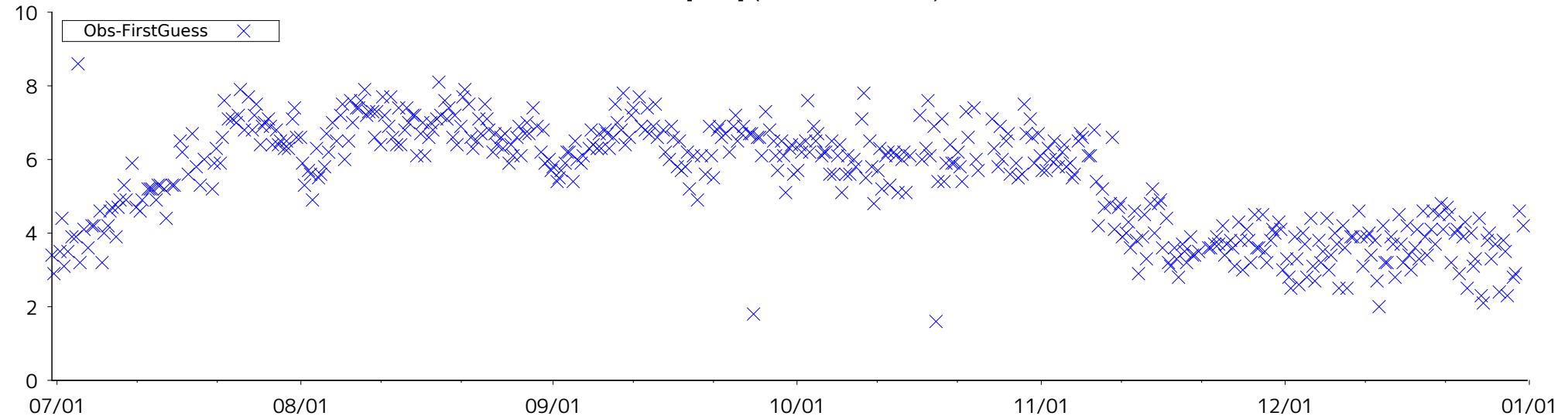
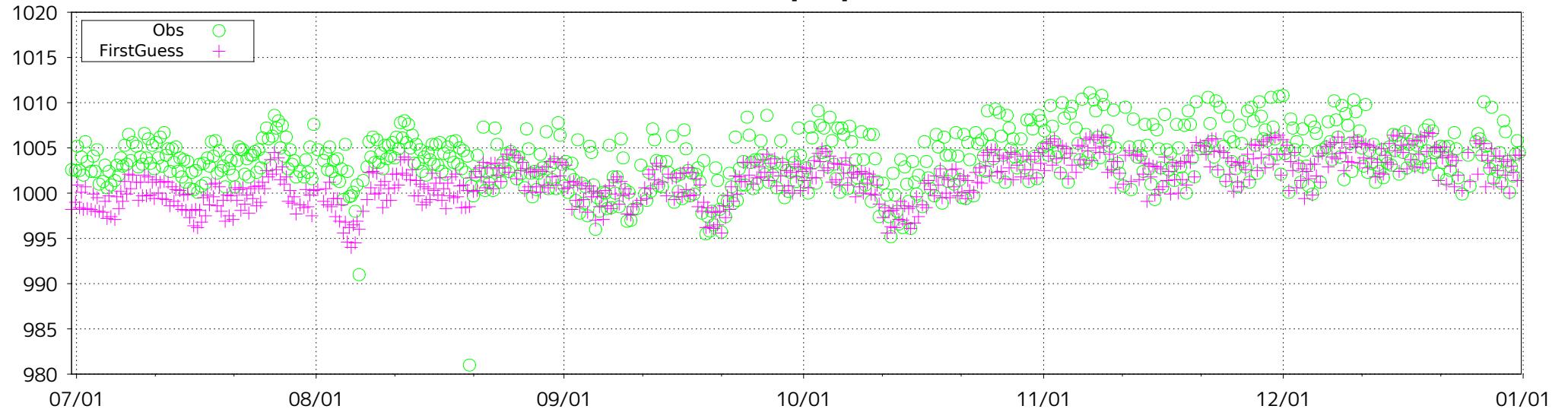


Figure 81 Time-series representation of SLP Obs minus FirstGuess for station 48935

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

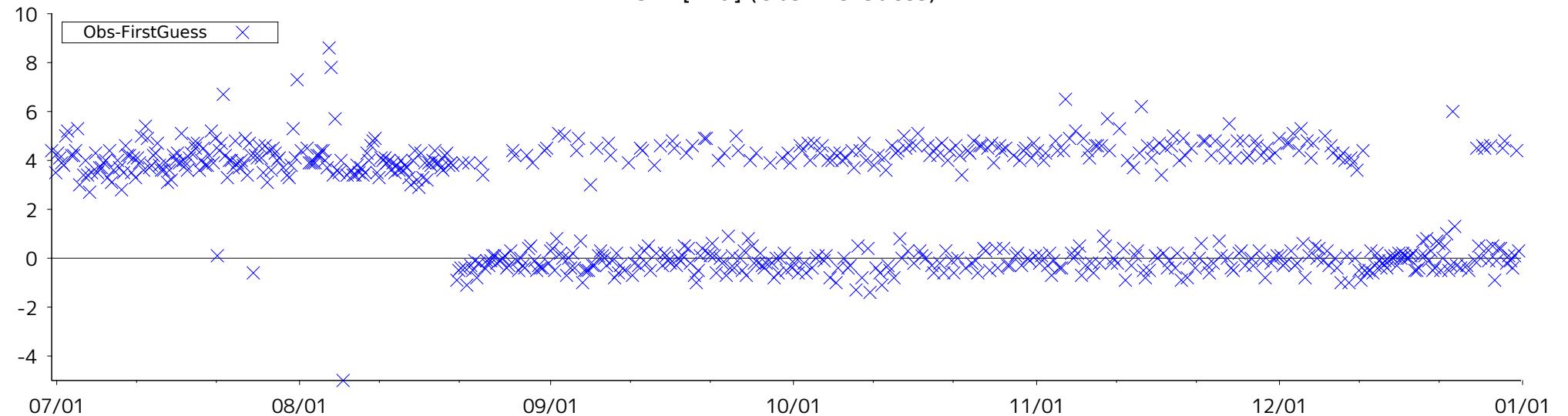
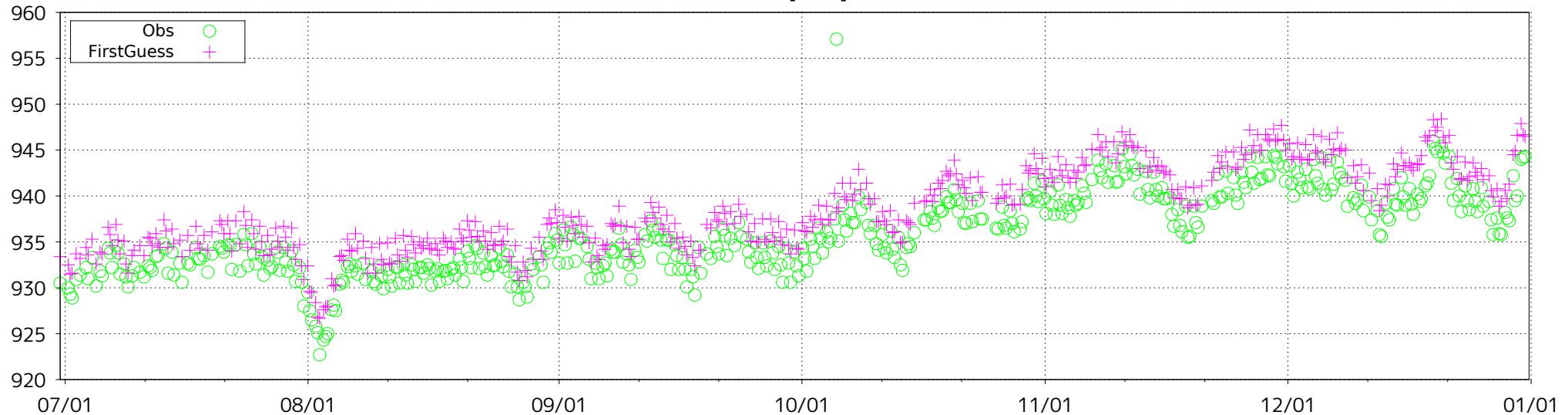


Figure 82 Time-series representation of SLP Obs minus FirstGuess for station 43226

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

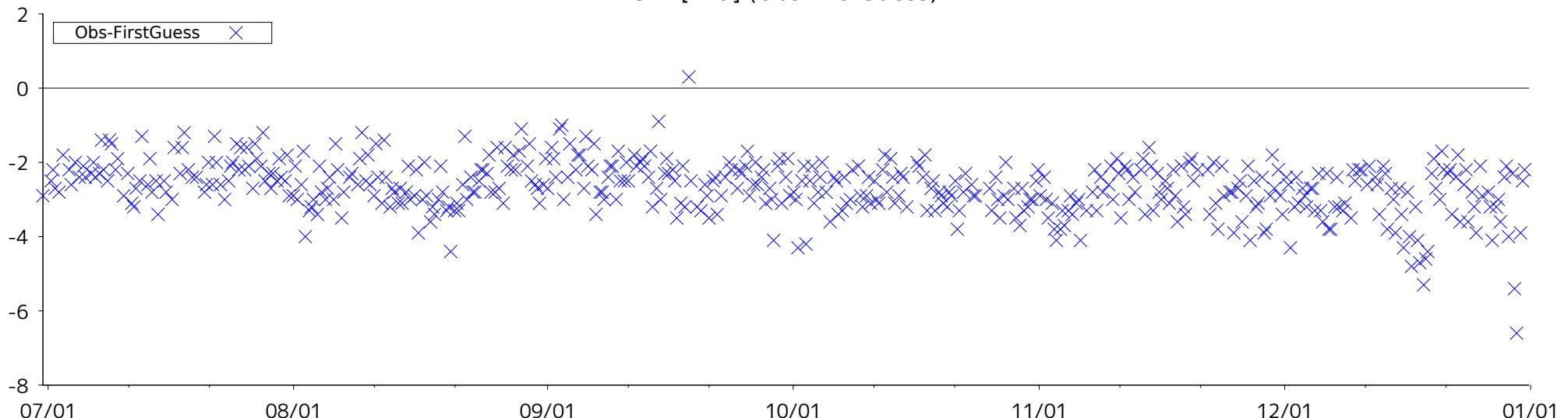
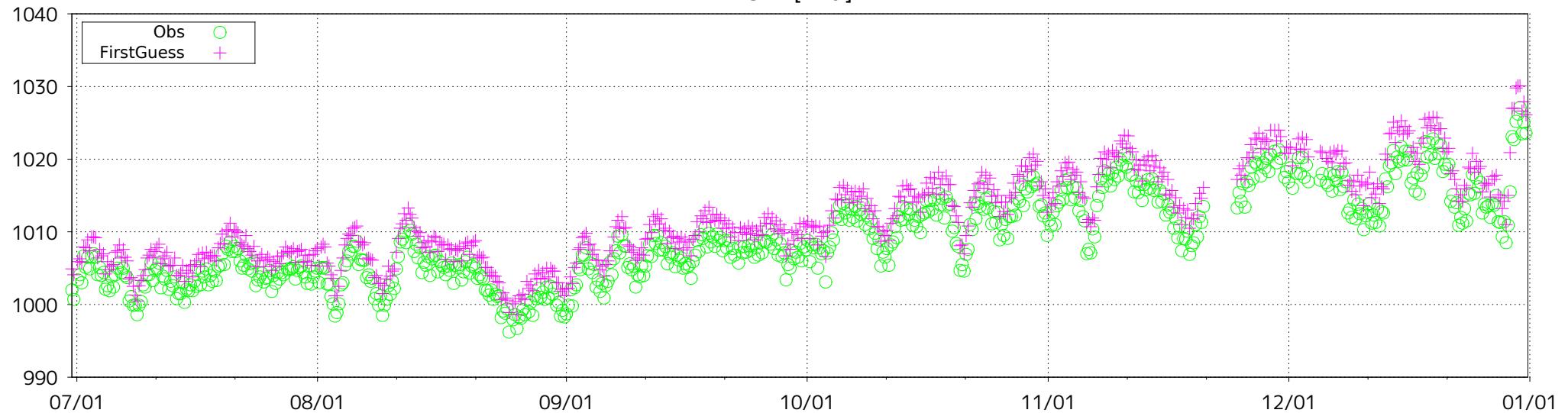


Figure 83 Time-series representation of SLP Obs minus FirstGuess for station 48925

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

SLP [hPa]



SLP [hPa] (Obs-FirstGuess)

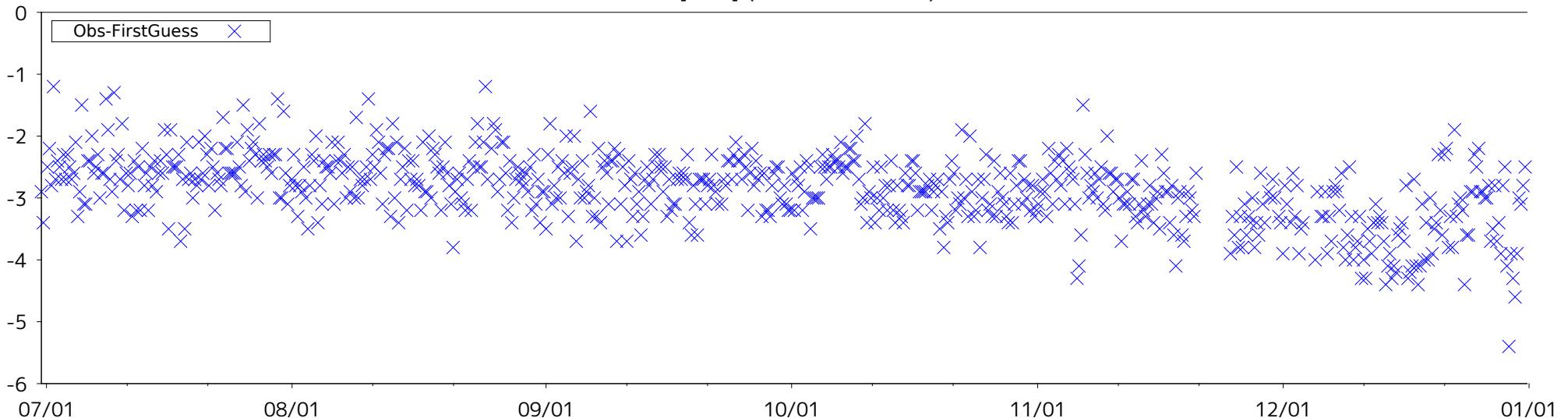
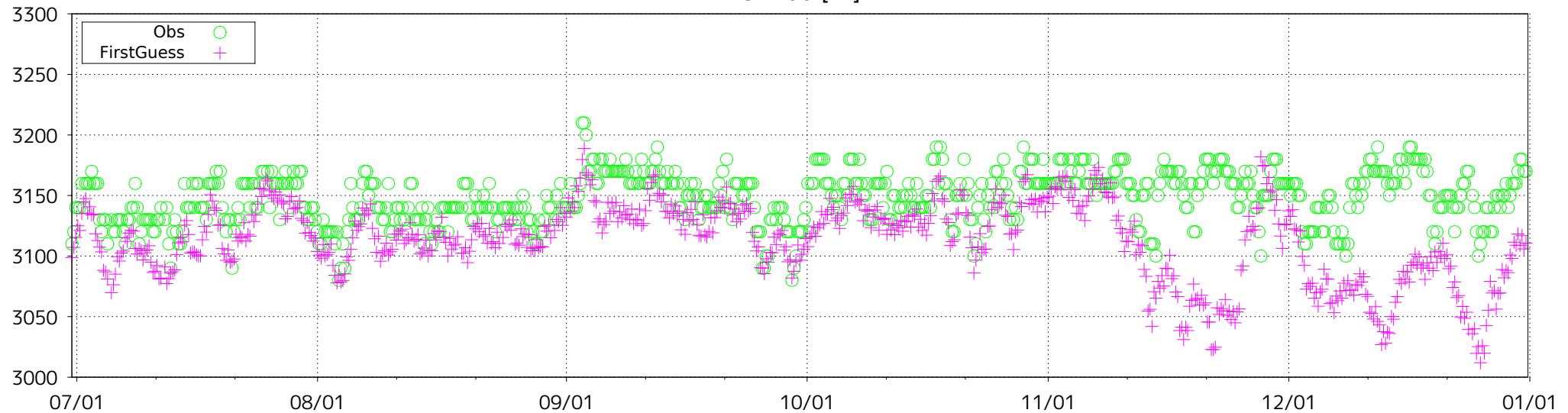


Figure 84 Time-series representation of SLP Obs minus FirstGuess for station 58968

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

GZ700 [m]



GZ700 [m] (Obs-FirstGuess)

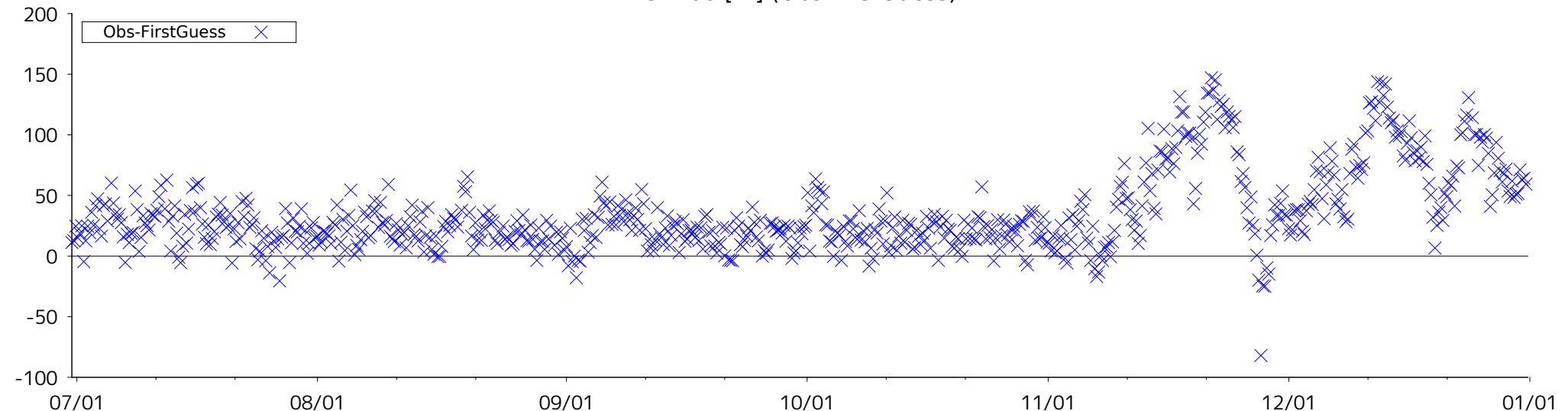
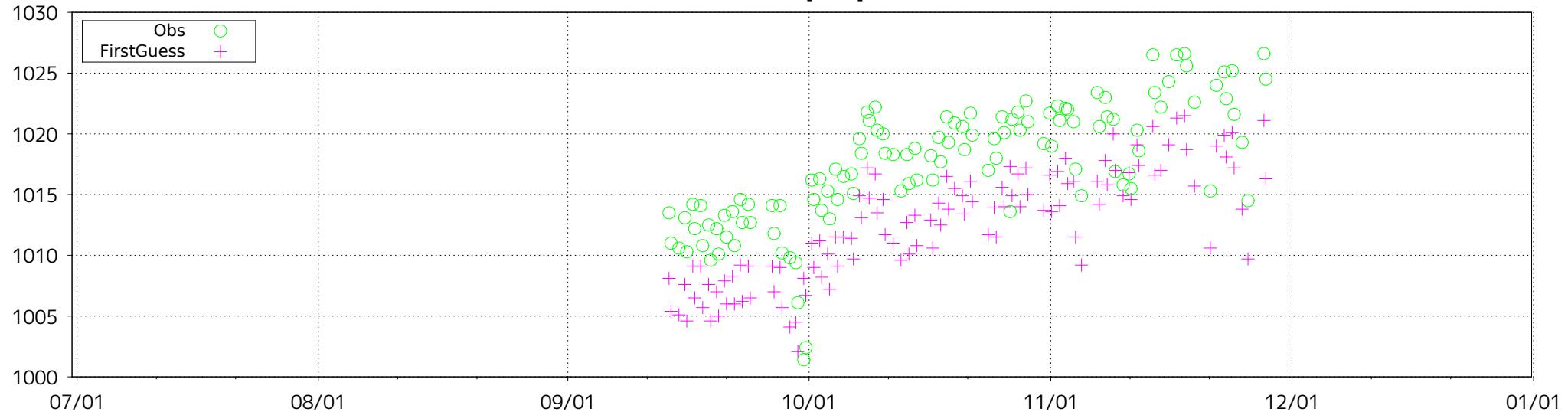


Figure 85 Time-series representation of GZ700 Obs minus FirstGuess for station 38719

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

MSLP [hPa]



MSLP [hPa] (Obs-FirstGuess)

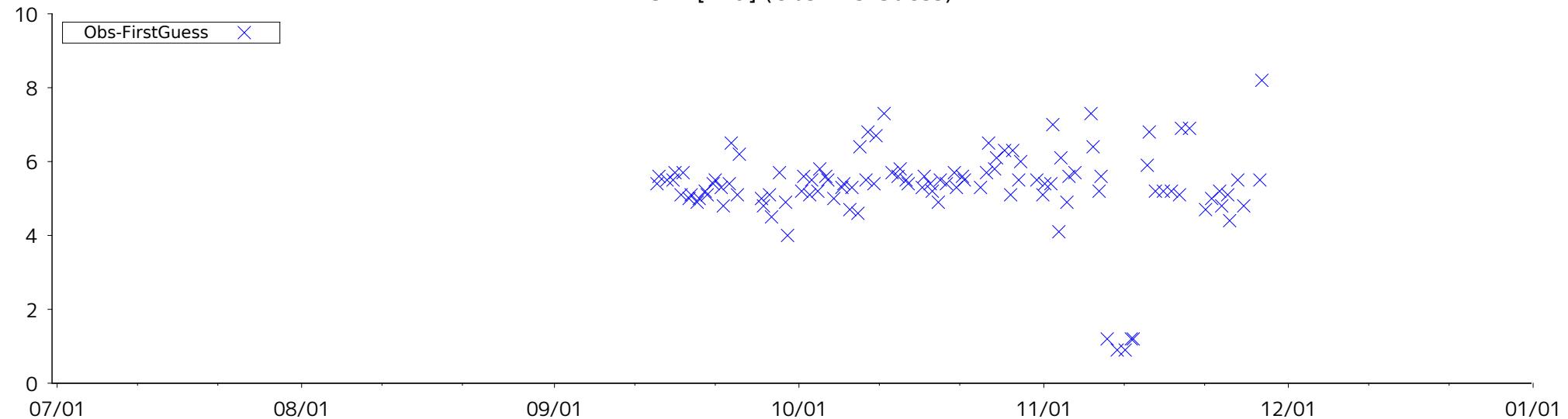


Figure 86 Time-series representation of MSLP Obs minus FirstGuess for station 40633