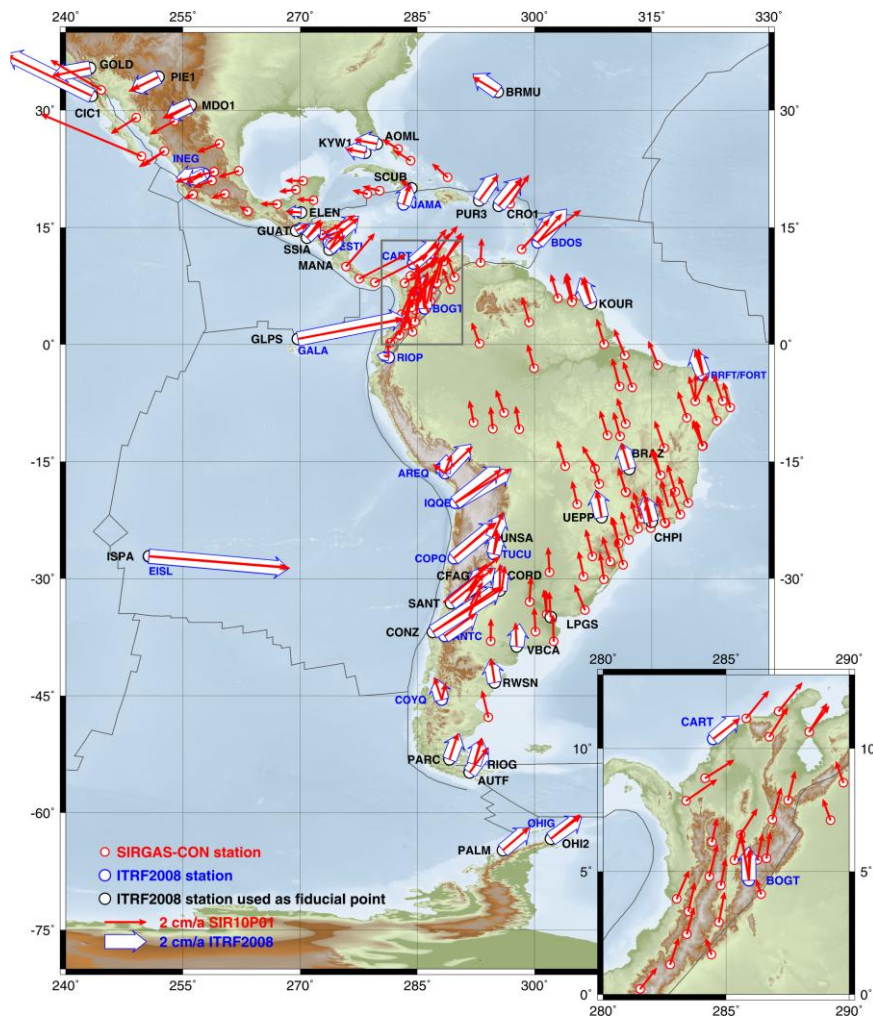


# DGFI Report No. 86

## The Position and Velocity Solution SIR10P01 of the IGS Regional Network Associate Analysis Centre for SIRGAS (IGS RNAAC SIR)

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## 1. Introduction

Terrestrial reference frames supporting precise positioning based on global navigation satellite systems (GNSS) must be consistent with the reference frame in which the GNSS orbits are determined. At present, the conventional reference frame is the ITRF (International Terrestrial Reference Frame, <http://itrf.ensg.ign.fr/>), which is computed and maintained by the International Earth Rotation and Reference Systems Service (IERS, [www.iers.org](http://www.iers.org)). According to the IERS conventions (IERS, 2004), the International GNSS Service (IGS, [www.igs.org](http://www.igs.org)) determine and provide the GNSS satellite ephemeris referring to the ITRF (Dow et al. 2009). Users applying IGS orbits for processing GNSS positioning have to introduce terrestrial reference stations referring also to the ITRF. The accessibility to this reference frame at regional and local levels is guaranteed through

- 1) Regional (continental) densifications of the global frame, and
- 2) National densifications of the continental frames.

Following this hierarchy, SIRGAS (Sistema de Referencia Geocéntrico para las Américas, [www.sirgas.org](http://www.sirgas.org)) is realized by a regional densification of the ITRF in Latin America and the Caribbean (Brunini et al. 2010), and it is further extended to each country by the national reference networks, e.g. SIRGAS2000 in Brazil (Costa et al. 2005), MAGNA-SIRGAS in Colombia (Martínez, Sánchez 2009), SIRGAS-ES2007 in El Salvador (Figueroa et al. 2010), SIRGAS-REGVEN in Venezuela (Drewes et al. 1998), etc.

Initially, SIRGAS was realized by means of two continental GPS campaigns:

- 1) SIRGAS95 including 58 stations distributed over South America observed for ten days in May 1995 and resulting in station positions referred to the ITRF94, epoch 1995,4 (SIRGAS, 1997).
- 2) SIRGAS2000 with 184 stations including the SIRGAS95 points and additional stations located in the Caribbean, Central, and North America. It was measured during ten days in May 2000 and its station positions refer to ITRF2000, epoch 2000,4 (Drewes et al. 2005).

Today, SIRGAS is realized by a network of about 230 continuously operating GNSS stations. This so-called SIRGAS-CON network replaces the first two SIRGAS realisations and allows for permanent monitoring of the reference frame. The SIRGAS-CON network is processed week by week by the SIRGAS analysis centres, who generate weekly solutions for station positions. Based in these weekly solutions, cumulative (multi-year) solutions are computed every year to estimate the kinematics of the SIRGAS reference frame, providing epoch positions and constant velocities of stations operating for more than two years. New SIRGAS-CON stations (operating less than two years and therefore, not included in multi-year solutions) can be used as reference points only, if their coordinates referring to the ITRF are known. According to this, the connection of SIRGAS with the ITRF is carried out in two ways (Brunini et al. 2010): by aligning the loosely constrained weekly solutions to the reference stations used for the computation of the GNSS satellite orbits, and by computing the multi-year solutions referred to the positions and velocities of selected ITRF stations.

The Deutsches Geodätisches Forschungsinstitut (DGFI), as the IGS Regional Network Associate Analysis Centre for SIRGAS (IGS RNAAC SIR, Seemüller and Drewes 2008), yearly computes a cumulative solution containing all available weekly solutions delivered by the SIRGAS analysis centres. These cumulative solutions include those models, standards, and strategies widely applied at the time in which they were computed and cover different time spans depending on the availability of the weekly solutions. Table 1 summarizes the characteristics of the cumulative solutions computed since 2000 for the SIRGAS-CON reference frame.

**Table 1.** Multi-year solutions computed by the IGS RNAAC SIR for the SIRGAS reference frame.

Solution	No. Stations	ITRF	PCC*	Data start	Data end	Reference
DGF01P01	48	ITRF97, 2000.0	Rel	1996-06-30	2001-04-14	Seemüller et al. 2002
DGF02P01	53	ITRF2000, 2000.0	Rel	1996-06-30	2002-07-31	Seemüller, Drewes 2002
DGF04P01	69	ITRF2000, 2003.0	Rel	1996-06-30	2004-07-31	Seemüller et al. 2004
DGF05P01	95	ITRF2000, 2004.0	Rel	1996-06-30	2005-09-17	Seemüller 2005
DGF06P01	96	ITRF2000, 2004.0	Rel	1996-06-30	2006-06-17	Seemüller 2009
DGF07P03	106	IGS05, 2004.5	Abs	2002, 01/05-2005, 2006, 01/08-2007		Seemüller et al. 2007
DGF08P01	126	IGS05, 2004.5	Abs	2002-01-02	2008-03-31	Seemüller et al. 2008
SIR09P01	128	IGS05, 2005.0	Abs	2000-01-02	2009-01-03	Seemüller et al. 2009

\* Antenna phase center corrections.

This report describes the computation of the latest multi-year solution of the SIRGAS-CON network. It is called SIR10P01 and encompasses all the weekly solutions provided by the SIRGAS analysis centres from January 2, 2000 (GPS week 1043) to June 5, 2010 (GPS week 1586). It refers to the ITRF2008 at epoch 2005,0 and provides positions and velocities for 183 SIRGAS-CON stations. Its precision was estimated to be  $\sim\pm 0,5$  mm (horizontal) and  $\sim\pm 0,9$  mm (vertical) for the station positions at the reference epoch, and  $\sim\pm 0,2$  mm/a (horizontal) and  $\sim\pm 0,4$  mm/a (vertical) for the linear velocities.


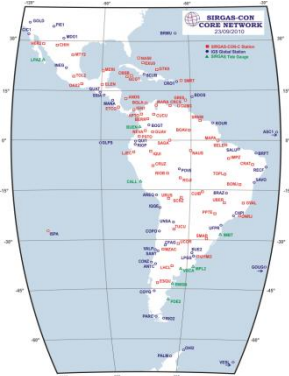







## 2. Weekly analysis of the SIRGAS-CON reference frame

The processing strategy of the SIRGAS-CON network is based on the combination of individual solutions of different clusters of stations (Brunini et al. 2010). For this purpose, the SIRGAS-CON network is divided in (Figure 1):

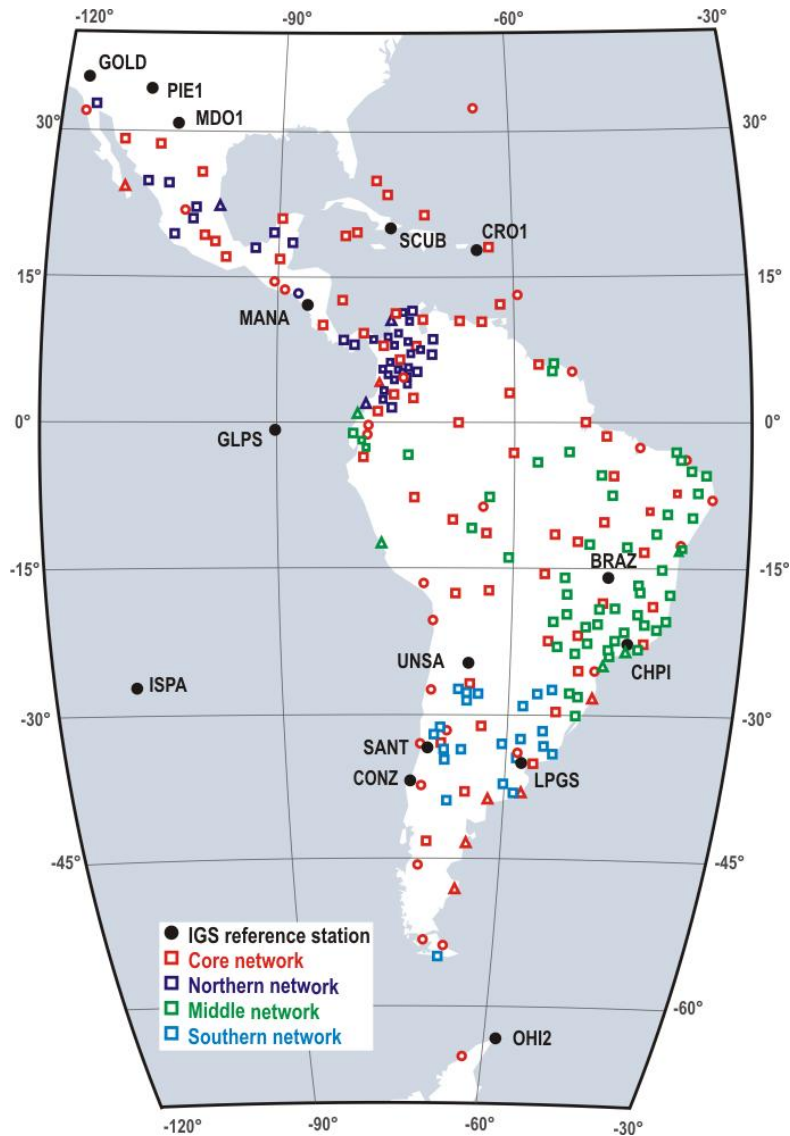
- 1) One core network with about 100 stations distributed over the whole continent, and
- 2) Different densification sub-networks distributed regionally on the northern, middle, and southern part of the continent.

The core network is processed by DGFI as IGS RNNAC SIR, and the densifications sub-networks are processed by the SIRGAS local analysis centres in different clusters (Table 2). All of them apply a common procedure established by SIRGAS (in agreement with the IGS standards, Kouba 2009) to generate loosely constrained weekly solutions for station positions (see Annex 1 and e.g. Natali et al. 2009, Seemüller and Sánchez 2009).

**Table 2.** SIRGAS processing centres and distribution of the SIRGAS-CON stations in different clusters.

<b>CIMA</b>	<b>DGFI</b>	<b>IBGE</b>
		
<p>Centro de Procesamiento Ingeniería-Mendoza-Argentina, Universidad Nacional de Cuyo, Argentina. Southern network and selected sites of the middle network, 110 stations.</p>	<p>Deutsches Geodätisches Forschungsinstitut, Germany. Core network, 111 stations.</p>	<p>Instituto Brasileiro de Geografia e Estatística, Brazil. Middle network and selected sites of the southern network, 141 stations.</p>
<b>IGAC</b>	<b>IGM-Ec</b>	<b>LUZ</b>
		
<p>Instituto Geográfico Agustín Codazzi, Colombia. Northern network and selected sites of the middle network, 111 stations.</p>	<p>Instituto Geográfico Militar, Ecuador. Selected sites of the northern and middle networks, 74 stations.</p>	<p>Laboratorio de Geodesia Física y Satelital, Universidad del Zulia, Venezuela. Northern network and selected sites of the middle network, 111 stations.</p>
<b>SGM-Uy</b>	<b>INEGI</b>	<b>IGN-Ar</b>
		
<p>Servicio Geográfico Militar, Uruguay. Southern network and selected sites of the middle network, 74 stations.</p>	<p>Instituto Nacional de Estadística y Geografía, México. Selected sites of the northern network, 26 stations.</p>	<p>Instituto Geográfico Nacional, Argentina. Southern network, 60 stations.</p>

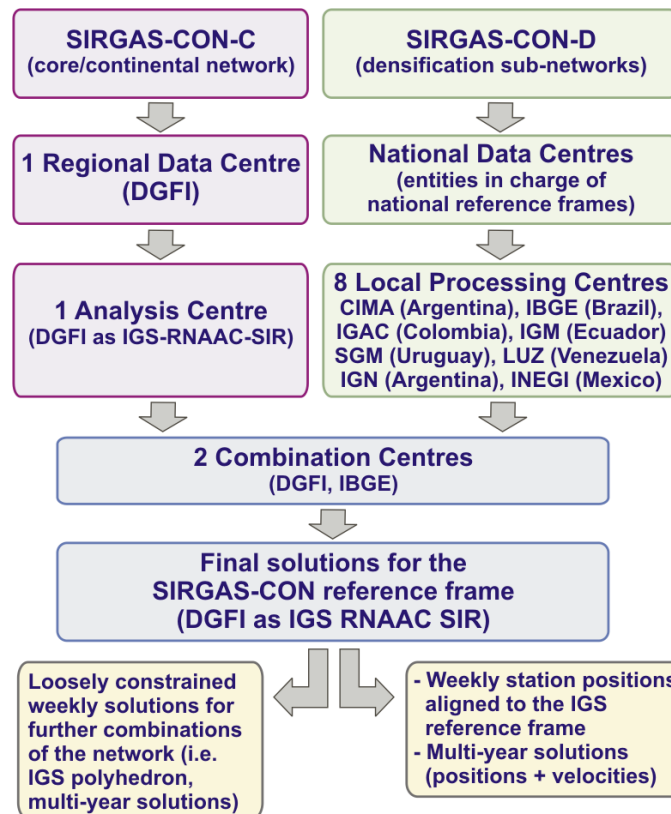
In these solutions satellite orbits, satellite clock offsets, and Earth orientation parameters are fixed to the final weekly IGS solutions (Dow et al. 2009) and all station positions are loosely constrained with  $\pm 1$  m. The distribution of the SIRGAS-CON stations into the different clusters guarantees that each station is computed by three analysis centres.



**Figure 1.** SIRGAS reference frame (status Sept. 2010)

The individual contributions are integrated in a combined solution by the SIRGAS combination centres DGFI and IBGE (Figure 2). The DGFI combinations are provided to the users as the SIRGAS final products (Sánchez et al. 2010a), while the IBGE combinations assure redundancy and control for those products (Costa et al. 2009). Before combining the individual solutions, the constraints included in the delivered normal equations are removed and the solutions are separately aligned to the ITRF to evaluate their quality and in order to identify possible outliers. If it is necessary to compensate differences in the stochastic models of the processing centres, variance (scaling) factors are determined from the standard deviations obtained after solving the individual normal equations with respect to the ITRF (Sánchez et al. 2008). Once inconsistencies and outliers are reduced from the individual free normal equations, a combination for a loosely

constrained weekly solution for station positions (all of them constrained with  $\pm 1$  m) is computed. This solution is submitted in SINEX format ([http://www.iers.org/IERS/EN/Organization/AnalysisCoordinator/SinexFormat/sinex\\_cont.html](http://www.iers.org/IERS/EN/Organization/AnalysisCoordinator/SinexFormat/sinex_cont.html)) to the IGS for the global polyhedron (<http://igsb.jpl.nasa.gov/organization/accc charter.html>) and it is stored to be included in the next multi-year solution of the SIRGAS-CON network. A solution aligned to the IGS reference frame (used for the GPS orbit determination) is also computed to provide weekly positions of all SIRGAS-CON stations (Annex 2). At present, the IGS reference frame is the IGS05 (<http://igsb.jpl.nasa.gov/network/refframe.html>). Once the IGS applies the new ITRF2008 ([http://itrf.ensg.ign.fr/ITRF\\_solutions/2008/](http://itrf.ensg.ign.fr/ITRF_solutions/2008/)) for generating its products, the SIRGAS-CON weekly station positions will also refer to it.



**Figure 2.** Data flow in the analysis of the SIRGAS reference frame

This operational infrastructure is possible since August 2008 thanks to the active participation of many Latin American and Caribbean institutions, who not only make available the measurements of their stations, but also are operating SIRGAS analysis centres in charge of computing the observational data on a routine basis. Before August 2008, the SIRGAS-CON network was entirely processed in only one block by the DGFI.

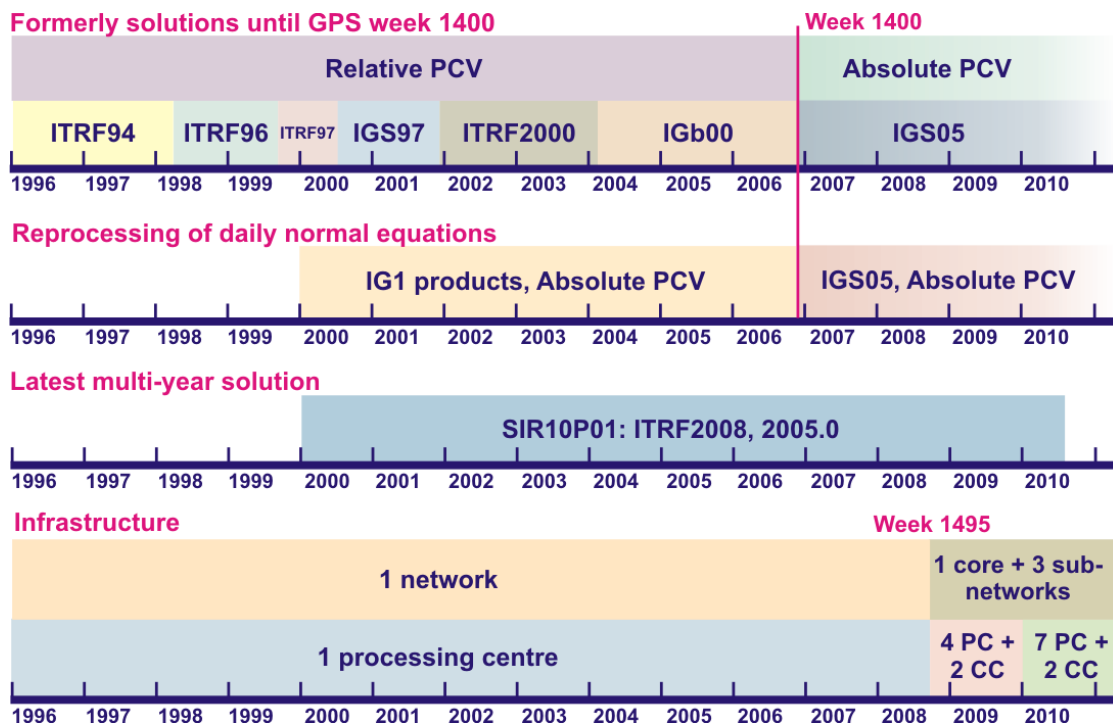
### 3. Input data for the multi-year solution SIR10P01

The input data for the generation of the multi-year solution SIR10P01 are the loosely constrained weekly solutions of the SIRGAS-CON network between January 2, 2000 and June 5, 2010. As already mentioned, these weekly solutions were computed by DGFI in only one adjustment for the entire network containing data up to August 31, 2008 (GPS



week 1495). The loosely constrained weekly solutions for the later weeks are the combined solutions of the different clusters processed by the SIRGAS analysis centres.

Weekly solutions from January 2000 (GPS week 1043) to November 2006 (1399) formerly computed with relative antenna phase centre corrections and referring to previous ITRF solutions have been reprocessed based on absolute phase centre corrections provided by the IGS (model igs05\_1525.atx, see: [http://igsceb.jpl.nasa.gov/igsceb/station/general/pcv\\_archive/](http://igsceb.jpl.nasa.gov/igsceb/station/general/pcv_archive/)) and the IGS05 as reference frame (see strategy in Annex 1). This reprocessing provides homogeneously computed weekly solutions for the complete time span covered by the SIR10P01 solution and allows to improve reliability and accuracy of station positions and velocities. Figure 3 shows timetable and infrastructure used for processing and reprocessing the loosely constrained weekly solutions included in SIR10P01. Reprocessed solutions are identified with the name SI1##### to be distinguished from the old weekly solutions.



**Figure 3.** Timetable and infrastructure applied for processing and reprocessing the weekly solutions included in the multi-year solution SIR10P01.

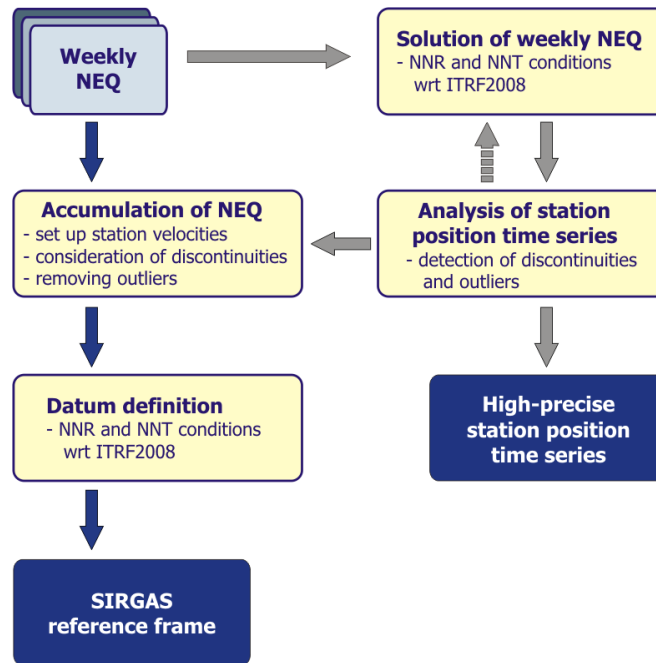
#### 4. Processing strategy

The processing strategy for the SIRGAS reference frame SIR10P01 is given as a flow chart in Figure 4. It is realized using the Bernese GPS Software V5.0 (Dach et al. 2007).

The main parts of the analysis are:

- 1) Computation of time series and time series analysis to identify outliers and discontinuities in station positions (see grey arrows in Figure 4);
- 2) Combination of weekly normal equations (NEQ) to compute the SIRGAS reference frame (see blue arrows in Figure 4).

Before starting with the computation preparative steps are necessary. Unconstrained (free) normal equations are reconstructed from the weekly solutions stored in SINEX format. Thereby, the station information, e.g. antenna and receiver types, is compared to the log files and corrected if necessary in order to guarantee consistency of the station information. So, the input data for computation are unconstrained (non-deformed) normal equations and correct station information.



**Figure 4.** Processing strategy for the computation of the SIRGAS reference frame.

#### 4.1 Computation of time series and time series analysis

The weekly normal equations are solved separately applying no-net-rotation (NNR) and no-net-translation (NNT) conditions with respect to ITRF2008. To generate residual position time series, the weekly solutions are transformed to an a priori SIRGAS reference frame (i.e. the actual SIRGAS reference frame SIR09P01, Seemüller et al. 2009) by a 7-parameter similarity transformation. The residual time series of station positions (Annex 4) are analysed and the detected discontinuities and outliers are taken into account for the computation of the SIRGAS reference frame (see section 4.2).

The chosen thresholds for outliers are 15 mm for north and east and 30 mm in height (about fourfold the mean RMS). If outliers appear sporadically (without pattern), the station is reduced from the normal equation for the corresponding week. If outliers correspond to a discontinuity, a new position is set up for the station. According to these criteria, discontinuities for 20 stations were identified (Table 3). Changes caused by the recent earthquakes in Chile (Figure 5) and Baja California, Mexico (Figure 6) were excluded, i.e. SIRGAS-CON stations moved by these two events were reduced from the weekly normal equations after GPS weeks 1572 and 1578, respectively. To determine the long-term effect of these earthquakes on the reference frame, it is necessary to analyse cumulative solutions of more than two years after their occurrence.

## 4.2 Combination of weekly normal equations

According to Figure 4, the weekly normal equations are combined to a multi-year solution setting up station velocities. Seasonal (e.g. loading) signals are not considered up to now. In this way, stations with observation time spans of less than 2 years of data are excluded (reduced) as the velocity estimation would be strongly affected by seasonal variations. The geodetic datum is realized by applying no-net-rotation and no-net-translation conditions with respect to the ITRF2008 using a set of reliable stations for datum realisation (Figure 7). After solving the first SIRGAS reference frame, step (1) and (2) are iterated: new station position residual time series are generated by transforming the weekly solutions to the computed SIRGAS reference frame. Discontinuity and outlier detection are repeated and the new information is introduced into the computation of a refined reference frame. The final solution refers to the same epoch as the ITRF2008, i.e. 2005.0.

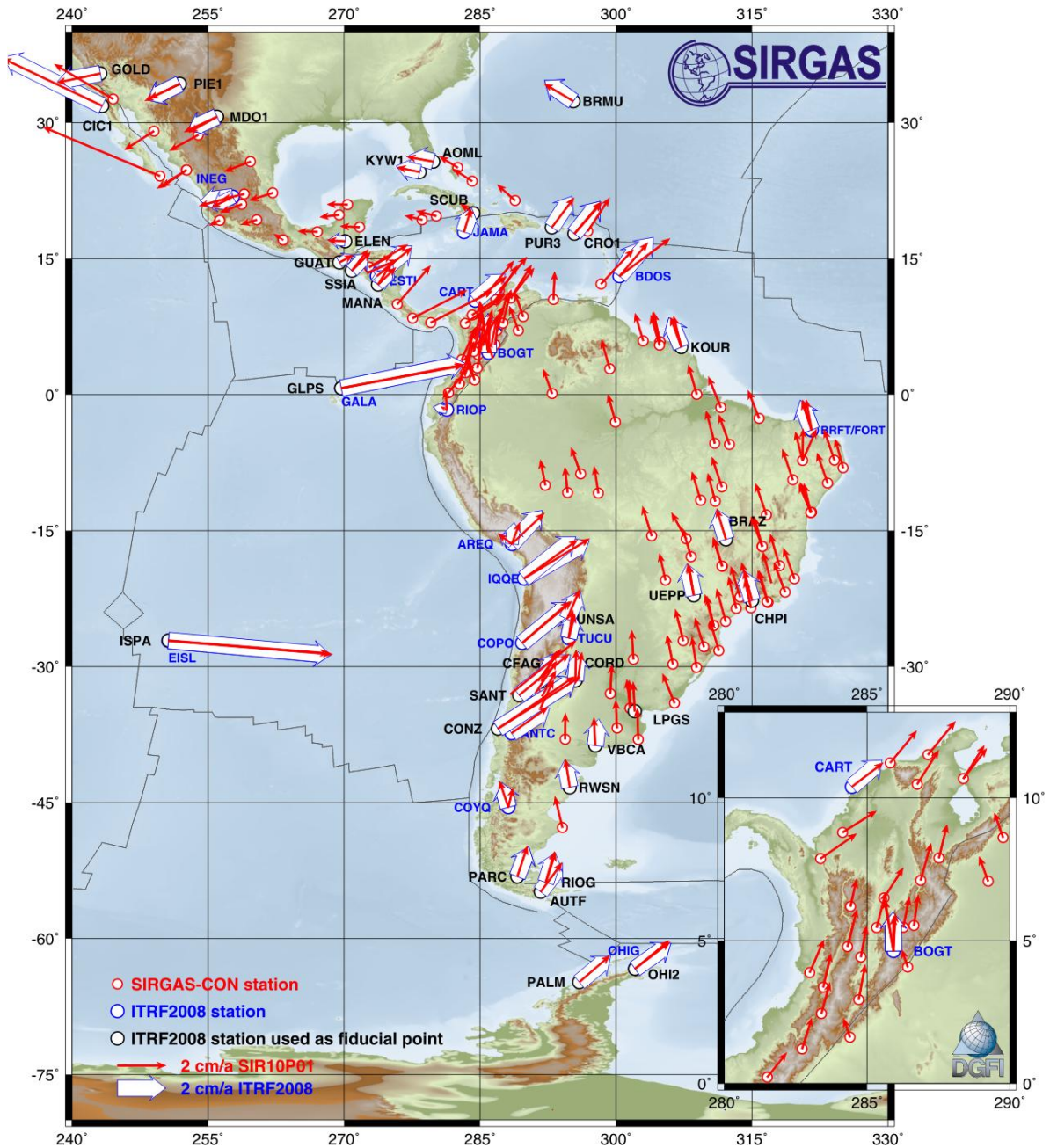
**Table 3.** Discontinuities identified in the computation of SIR10P01.

Station	ID in SINEX	Start	End	Comments
AREQ 42202M005	A 0001	2000-01-01	2001-06-24	Arequipa earthquake (7,2)
AREQ 42202M005	A 0005	2002-08-26	2007-12-03	Cable change
AREQ 42202M005	A 0006	2007-12-04	2099-12-31	-
BDOS 43401M001	A 0002	2004-06-12	2007-12-01	Martinique earthquake (7,4)
BDOS 43401M001	A 0003	2007-12-02	2010-06-05	-
BOGA 41901M002	A 0001	2000-02-09	2005-04-20	Change of trend in vertical velocity
BOGA 41901M002	A 0002	2005-04-23	2010-06-05	-
BOGT 41901M001	A 0003	2002-05-23	2005-07-06	Antenna swap
BOGT 41901M001	A 0005	2005-07-12	2010-06-05	-
CONZ 41719M002	A 0001	2002-06-10	2005-05-13	Antenna & receiver change
CONZ 41719M002	A 0002	2005-05-18	2010-02-26	-
COPO 41714S001	A 0001	2002-07-01	2006-04-30	Copiapo earthquake (5,3)
COPO 41714S001	A 0002	2006-05-03	2010-06-05	-
COYQ 41715S001	A 0001	2000-01-02	2004-09-07	Receiver change
COYQ 41715S001	A 0002	2007-12-06	2010-06-05	-
CRAT 41619M001	A 0001	2001-08-20	2005-06-29	Jump
CRAT 41619M001	A 0002	2005-08-16	2008-01-26	Jump
CRAT 41619M001	A 0003	2008-03-07	2010-06-05	-
CRO1 43201M001	A 0002	2000-01-02	2005-01-19	Antenna & receiver change
CRO1 43201M001	A 0003	2005-08-04	2010-05-22	-
INEG 40507M001	A 0004	2000-05-05	2002-03-22	Change of trend in vertical velocity
INEG 40507M001	A 0005	2004-11-15	2010-06-05	-
IQQE 41708S002	A 0001	2002-07-01	2005-06-11	Tarapaca earthquake (7,8)
IQQE 41708S002	A 0002	2005-06-14	2010-06-05	-
KOUR 97301M210	A 0002	2000-01-02	2006-07-01	Jump
KOUR 97301M210	A 0003	2006-06-22	2010-06-05	-
MANA 41201S001	A 0001	2000-05-14	2004-10-10	Managua earthquake (6,9)
MANA 41201S001	A 0002	2004-10-11	2010-06-05	-
MARA 42402M001	A 0001	2000-01-21	2008-05-26	Antenna change
MARA 42402M001	A 0002	2008-07-16	2010-06-05	-
MDO1 40442M012	A 0001	2000-01-02	2004-12-02	Receiver change
MDO1 40442M012	A 0003	2004-12-08	2010-06-05	-
PIE1 40456M001	A 0004	2000-01-02	2006-09-04	Antenna change
PIE1 40456M001	A 0005	2007-01-24	2010-06-05	-
PMB1 43702S001	A 0001	2005-12-30	2007-10-21	Antenna & receiver change
PMB1 43702S001	A 0002	2007-12-19	2010-06-05	-
RIOP 42006M001	A 0001	2000-01-02	2001-12-28	Antenna & receiver change
RIOP 42006M001	A 0002	2007-04-29	2010-06-05	-
SSIA 41401S001	A 0003	2001-02-13	2003-12-28	Jump
SSIA 41401S001	A 0004	2005-06-16	2010-06-05	-
TUCU 41520S001	A 0001	2002-01-01	2006-01-23	Change of trend in vertical velocity
TUCU 41520S001	A 0002	2006-08-31	2010-06-05	-

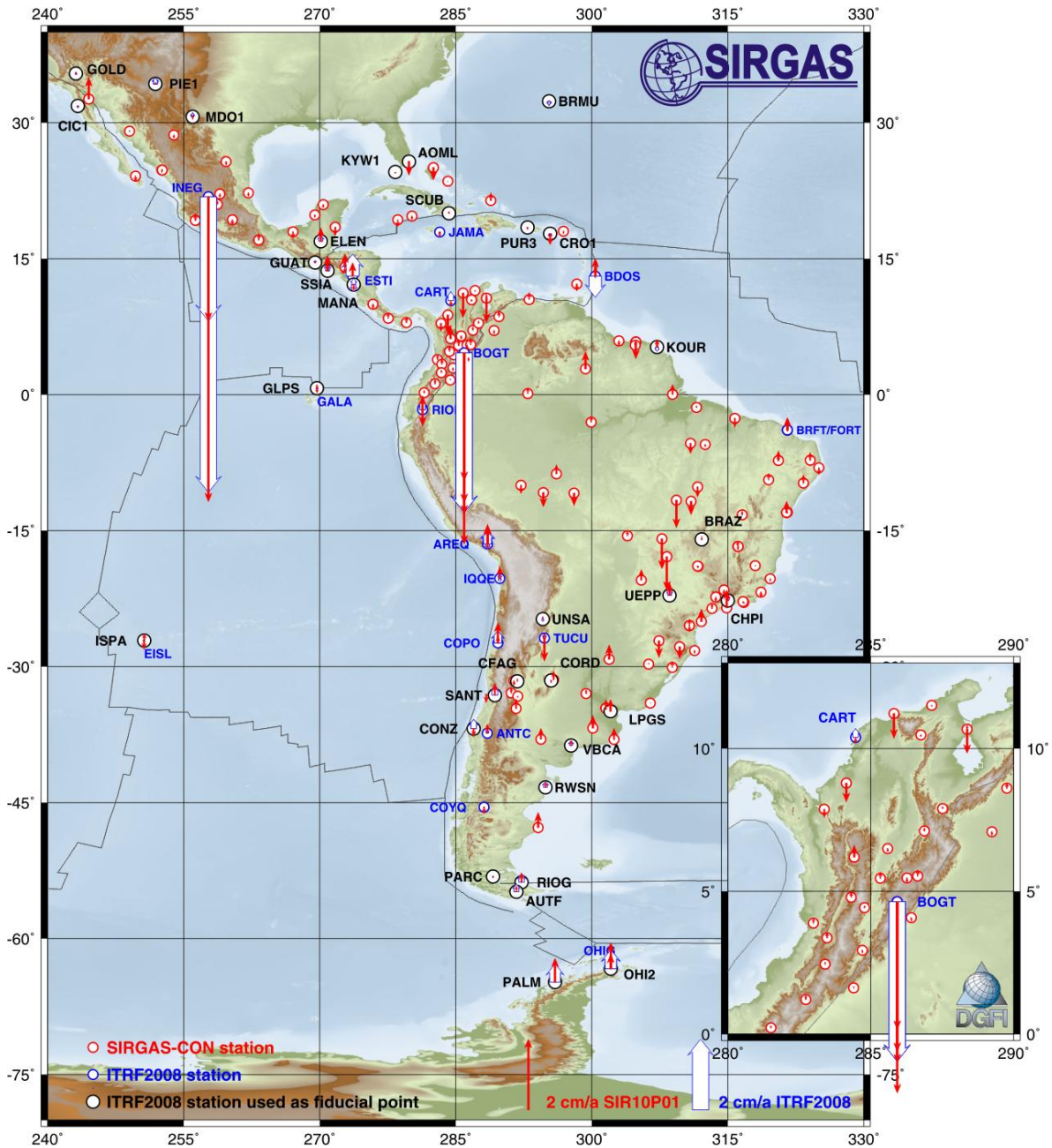




The SIR10P01 solution (coordinates, velocities, and SINEX file) is available at [www.sirgas.org](http://www.sirgas.org). Please note that the reference epoch in the SINEX file is the epoch of the first included GPS observation. Additionally, as mentioned above, the standard deviations included in the SINEX file are not reliable. Realistic precision estimations are included together with the coordinates in Annex 3, as well as in the SIRGAS web site.



**Figure 7.** Horizontal velocities of the SIR10P01 multi-year solution. Velocities of ITRF2008 stations are included for comparison.



**Figure 8.** Vertical velocities of the SIR10P01 multi-year solution. Velocities of ITRF2008 stations are included for comparison.

## 6. Sustainability of the SIRGAS reference frame

The former SIRGAS realisations (SIRGAS95 and SIRGAS2000) as well as the multi-year solutions of the SIRGAS-CON network include those models, standards, and strategies widely applied at the time in which they were computed; e.g. different ITRF solutions, ocean tide loading, a priori ionosphere models for ambiguity resolution, relative corrections for the phase centre variations until 2006 and absolute corrections afterwards, etc. In order to evaluate the sustainability of the SIRGAS realisations, the following steps are carried out (Sánchez et al. 2010b):



- 1) The SIRGAS95 and SIRGAS2000 realisations are compared with the latest SIRGAS-CON multi-year solution (SIR10P01). This comparison is done in the ITRF2008 reference frame and at the conventional epochs of the former realisations, i.e. 1995.4 and 2000.4
- 2) The different SIRGAS multi-year solutions are compared with the latest ITRF solution (ITRF2008). For this purpose, the multi-year solutions are transformed to ITRF2008 and the coordinate comparison is done for epoch 2000.0. Transformation parameters given in <http://itrf.ensg.ign.fr/> are applied.

In all cases, stations affected by earthquakes are excluded.

Results (Tables 4 and 5) show a very good consistency between the different SIRGAS realisations. The largest discrepancies ( $\sim 2$  cm) were detected for the SIRGAS realisations referring to ITRF94 and ITRF97. Realisations referring to ITRF2000 and IGS05 have an agreement better than  $\pm 5$  mm. This reflects the expected improvement of the reference frame as consequence of longer time series of station positions and the better new models, standards, and analysis strategies applied today.

Although the reliability of the estimated positions and velocities of the SIRGAS reference stations as well as its compatibility through time are demonstrated, it is necessary to give special care to the reference frame deformations caused by seismic events. This implies the permanent monitoring of the (continental and national) reference networks by means of continuously operating GNSS stations and the consequent modelling of the deformations caused by this kind of events (Sánchez et al. 2010b).

**Table 4.** Comparison of SIRGAS95 and SIRGAS2000 with the multi-year solution SIR10P01

Comparison with SIR10P01				
Realization	Common stations	Position deviations: Offsets $\pm$ RMS		
		N[mm]	E[mm]	h[mm]
SIRGAS95	19	-21,3 $\pm$ 4,9	-18,7 $\pm$ 4,2	5,8 $\pm$ 18,3
SIRGAS2000	53	-0,3 $\pm$ 8,6	0,1 $\pm$ 7,5	-6,2 $\pm$ 10,3

**Table 5.** Comparison of the different SIRGAS-CON multi-year solutions with the ITRF2008

Solution	Comparison with the ITRF2008						
	Common stations with ITRF2008	Position deviations: Offsets $\pm$ RMS			Velocity deviations: Offsets $\pm$ RMS		
		N[mm]	E[mm]	h[mm]	VN[mm/a]	VE[mm/a]	Vh[mm/a]
DGF01P01	27	-16,3 $\pm$ 8,0	7,2 $\pm$ 19,5	27,9 $\pm$ 16,2	-0,4 $\pm$ 2,6	3,1 $\pm$ 4,7	1,3 $\pm$ 4,5
DGF02P01	24	-2,4 $\pm$ 3,7	-2,5 $\pm$ 5,8	4,0 $\pm$ 13,9	1,1 $\pm$ 1,6	1,4 $\pm$ 2,1	-3,7 $\pm$ 6,7
DGF04P01	35	-0,4 $\pm$ 4,3	-3,4 $\pm$ 5,0	1,3 $\pm$ 14,9	1,9 $\pm$ 2,3	1,3 $\pm$ 2,1	0,1 $\pm$ 3,6
DGF05P01	34	0,2 $\pm$ 3,8	-2,0 $\pm$ 5,0	0,1 $\pm$ 13,1	1,8 $\pm$ 2,1	1,1 $\pm$ 2,1	1,2 $\pm$ 3,6
DGF06P01	32	0,0 $\pm$ 3,9	-1,7 $\pm$ 4,9	1,1 $\pm$ 12,3	2,0 $\pm$ 2,2	1,0 $\pm$ 1,9	0,8 $\pm$ 3,0
DGF07P03	22	-1,3 $\pm$ 5,1	0,9 $\pm$ 6,2	-4,4 $\pm$ 19,5	0,5 $\pm$ 1,3	-0,4 $\pm$ 1,3	0,5 $\pm$ 2,7
DGF08P01	28	-3,2 $\pm$ 5,1	1,1 $\pm$ 8,9	-8,0 $\pm$ 10,0	0,5 $\pm$ 1,3	-0,5 $\pm$ 1,6	1,0 $\pm$ 2,3
SIR09P01	34	0,3 $\pm$ 4,0	-0,6 $\pm$ 6,7	-5,1 $\pm$ 12,0	0,3 $\pm$ 1,0	0,0 $\pm$ 1,1	-0,2 $\pm$ 1,9
SIR10P01	74	0,8 $\pm$ 5,0	0,3 $\pm$ 3,6	-4,9 $\pm$ 8,6	-0,1 $\pm$ 1,1	-0,1 $\pm$ 1,1	0,0 $\pm$ 2,2

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## **Annex 1: Procedure to generate loosely constrained weekly solutions for the SIRGAS-CON sub-networks**

- 1) Elevation mask and data sampling rate are set to 3° and 30 s, respectively;
- 2) Absolute calibration values for the antenna phase centre corrections published by the IGS are applied;
- 3) Satellite orbits, satellite clock offsets, and Earth orientation parameters are fixed to the combined IGS weekly solutions;
- 4) The quasi ionosphere free (QIF) strategy is applied for solving the L1 and L2 phase ambiguities;
- 5) Periodic site movements due to ocean tide loading are modelled according to the FES2004 ocean tide model (Letellier 2004). The corresponding values are provided by M.S. Bos and H.-G. Scherneck at <http://129.16.208.24/loading/>;
- 6) Zenith delay due to the tropospheric refraction (~ wet part) is estimated at a 2 hours interval within the network adjustment and it is mapped using the Niell (1996) wet mapping function. The a priori zenith delay (~ dry part) is modelled using the Saastamoinen model (1973) and it is mapped with the Niell (1996) dry mapping function;
- 7) Daily free normal equations are computed and combined to get a loosely constrained weekly solution for station coordinates (all station coordinates are loosely constrained with  $\pm 1$  m);
- 8) Stations with large residuals in the weekly combination (more than 20 mm in the N and E components, and more than 30 mm in the height) are reduced from the normal equations. Steps (7) and (8) are iterative;
- 9) These loosely constrained solutions in SINEX format are identified with the name CCCwww7.SNX, CCC identifies the corresponding processing centre (i.e. CIM, DGF, ECU, GNA, IBG, IGA, INE, LUZ, URY), www stands for the GPS week, and 7 for including the seven days of the week. The individual solutions delivered by the SIRGAS processing centres are available at <ftp.sirgas.org/pub/gps/SIRGAS/>.

## **Annex 2: Procedure to combine the loosely constrained weekly solutions for the SIRGAS-CON sub-networks**

The SIRGAS processing centres deliver loosely constrained weekly solutions for the assigned SIRGAS-CON clusters. In these solutions, satellite orbits, satellite clock offsets, and Earth orientation parameters are fixed to the final weekly IGS values and coordinates for all sites are loosely constrained with  $\pm 1$  m. These individual contributions are integrated in a combined solution by the SIRGAS combination centres: DGFI and IBGE. The processing strategy applied by DGFI for the combination of the individual SIRGAS-CON clusters applies the Bernese Software V.5.0 (Dach et al. 2007) and corresponds to (Sánchez et al. 2008, Sánchez et al. 2010a):

- 1) Individual solutions are reviewed/corrected for possible format problems, station inconsistencies, utilization of erroneous equipment, etc.;
- 2) Constraints included in the delivered normal equations are removed;
- 3) Individual normal equations are separately solved with respect to the same IGS stations used for the GPS orbit computation (the so-called IGS reference frame). In this case, the IGS reference station positions are constrained to the IGS weekly coordinates (igsyyPwwwww.snrx, for reprocessed products the prefix ig1 is used). At present, the IGS05 reference frame is applied. Once the IGS had included the new ITRF2008 as reference frame, we will use it, too.
- 4) Coordinates obtained in (3) for each processing centre are compared to the IGS weekly values and to each other to identify possible outliers;
- 5) Stations with large residuals (more than 10 mm in the north or east components, and more than 20 mm in the height) are reduced from the normal equations. Steps (3), (4), and (5) are iterative;
- 6) Variances obtained in the final computation of step (3) are analysed to estimate variance scaling factors for relative weighting of the individual solutions;
- 7) Once inconsistencies and outliers are reduced from the individual free normal equations, a combination for a loosely constrained weekly solution for station coordinates (all station coordinates constrained with  $\pm 1$  m) is computed. This solution is submitted to IGS for the global polyhedron and stored to be included in the next multi-year solution of the SIRGAS reference frame;
- 8) Additionally, a weekly solution aligned to the ITRF is computed. As in step (3), the geodetic datum is defined by constraining the coordinates of the IGS reference stations to their positions calculated within the IGS weekly combinations (igsyyPwwwww.snrx). The applied constraints guarantee that the coordinates of the IGS reference stations do not change more than 1,5 mm within the SIRGAS-CON adjustment;
- 9) Resulting files of these procedure are:
  - SIRwwwww7.SNX: SINEX file for the loosely constrained weekly combination.
  - SIRwwwww7.SUM: Report of weekly combination.
  - siryyPwwwww.snrx: SINEX file for the constrained weekly combination.
  - siryyPwwwww.crd: Final SIRGAS-CON coordinates for week *wwwww*.For reprocessed solutions the prefix SI1 is used.
- 10) The loosely constrained combinations as well as the weekly SIRGAS-CON coordinates are available at [ftp.sirgas.org/pub/gps/SIRGAS/](ftp:sirgas.org/pub/gps/SIRGAS/) or at [www.sirgas.org](http://www.sirgas.org).



**Annex 3: Station positions and velocities of the SIR10P01 multi-year solution.**  
*Geocentric Cartesian coordinates [X, Y, Z] are converted to ellipsoidal coordinates [ $\varphi$ ,  $\lambda$ , h] using the GRS80 ellipsoid.*

Station	ID-SWX	Start	End	Latitude [° ' " ] ± [m]	Longitude [° ' " ] ± [m]	Ellipsoidal height [m]	VN [m/a]	VE [m/a]	Vh [m/a]			
ALAR	41653M001	A 0001	2008-04-11	2010-05-08	9 44	57,206220 S ± 0,0006	36 39	12,311823 W ± 0,0012	266,1928 ± 0,0013	0,0125 ± 0,0002	-0,0044 ± 0,0005	0,0022 ± 0,0006
ANTC	41713S001	A 0001	2002-07-01	2009-07-10	37 20	19,329917 S ± 0,0003	71 31	55,378379 W ± 0,0003	745,3928 ± 0,0004	0,0108 ± 0,0001	0,0151 ± 0,0001	0,0025 ± 0,0002
AOML	49914S001	A 0001	2000-01-02	2004-04-05	25 44	4,890116 N ± 0,0003	80 9	43,917171 W ± 0,0004	0,0839 ± 0,0005	0,0020 ± 0,0002	-0,0109 ± 0,0001	-0,0038 ± 0,0003
APTO	41933S001	A 0001	2007-11-04	2010-01-11	7 52	40,033195 N ± 0,0008	76 37	56,609962 W ± 0,0008	45,2031 ± 0,0014	0,0103 ± 0,0002	0,0149 ± 0,0002	0,0022 ± 0,0006
ARCA	41909S001	A 0001	2008-08-05	2010-06-05	7 5	3,392577 N ± 0,0002	70 45	30,719434 W ± 0,0003	133,3250 ± 0,0012	0,0101 ± 0,0001	-0,0037 ± 0,0001	-0,0010 ± 0,0003
AREQ	42202M005	A 0005	2002-08-27	2007-12-01	16 27	55,861070 S ± 0,0008	71 29	34,067089 W ± 0,0013	2488,9117 ± 0,0010	0,0042 ± 0,0003	-0,0056 ± 0,0004	0,0055 ± 0,0007
AREQ	42202M005	A 0006	2007-12-02	2010-06-05	16 27	55,861346 S ± 0,0006	71 29	34,067944 W ± 0,0008	2488,9320 ± 0,0008	0,0089 ± 0,0001	0,0033 ± 0,0001	-0,0013 ± 0,0003
ASCI	30602M001	A 0001	2000-01-02	2007-09-03	7 57	4,368704 S ± 0,0005	14 24	43,460674 W ± 0,0005	105,1145 ± 0,0005	0,0116 ± 0,0001	-0,0054 ± 0,0001	-0,0017 ± 0,0002
AUIT	41515S001	A 0001	2002-01-10	2010-06-05	54 50	22,290436 S ± 0,0007	68 18	12,840980 W ± 0,0005	71,8899 ± 0,0004	0,0120 ± 0,0001	0,0088 ± 0,0001	0,0016 ± 0,0003
AZUE	41301M001	A 0001	2008-10-20	2010-06-05	7 57	20,473820 N ± 0,0007	80 25	57,058655 W ± 0,0008	55,1593 ± 0,0010	0,0131 ± 0,0002	0,0255 ± 0,0003	0,0017 ± 0,0009
AZUL	41529M001	A 0001	2007-08-30	2010-02-26	36 46	1,280556 S ± 0,0009	59 52	52,608403 W ± 0,0008	158,2975 ± 0,0015	0,0115 ± 0,0003	-0,0006 ± 0,0003	0,0035 ± 0,0003
BANS	42403M001	A 0001	2006-05-21	2009-12-12	8 36	45,546570 N ± 0,0008	70 14	19,233354 W ± 0,0008	204,9849 ± 0,0013	0,0102 ± 0,0001	-0,0036 ± 0,0003	0,0015 ± 0,0005
BDOS	4340JM001	A 0002	2004-06-12	2007-12-01	13 5	16,633391 N ± 0,0008	59 36	32,750283 W ± 0,0011	-38,6257 ± 0,0013	0,0155 ± 0,0002	0,0208 ± 0,0004	0,0049 ± 0,0004
BDOS	4340JM001	A 0003	2007-12-02	2010-06-05	13 5	16,633888 N ± 0,0008	59 36	32,749244 W ± 0,0012	-38,6185 ± 0,0013	0,0138 ± 0,0003	0,0117 ± 0,0006	0,0026 ± 0,0008
BELLE	41622M001	A 0001	2004-01-01	2010-06-05	1 24	31,661124 S ± 0,0001	48 27	45,178892 W ± 0,0004	9,0725 ± 0,0004	0,0127 ± 0,0001	-0,0051 ± 0,0001	0,0005 ± 0,0001
BERR	41910S001	A 0001	2007-05-25	2010-06-05	6 29	33,660192 N ± 0,0006	74 24	37,115047 W ± 0,0008	159,0684 ± 0,0014	0,0125 ± 0,0001	0,0080 ± 0,0003	-0,0009 ± 0,0006
BOAV	41636M001	A 0001	2007-09-05	2010-06-05	2 50	42,658657 N ± 0,0001	60 42	4,014963 W ± 0,0003	69,4829 ± 0,0008	0,0119 ± 0,0003	-0,0034 ± 0,0001	0,0048 ± 0,0002
BOGA	41901M002	A 0001	2000-02-09	2005-04-20	4 38	19,249175 N ± 0,0003	74 4	47,816228 W ± 0,0006	2610,3884 ± 0,0008	0,0213 ± 0,0001	-0,0038 ± 0,0002	-0,0423 ± 0,0005
BOGA	41901M002	A 0002	2005-04-23	2010-06-05	4 38	19,249260 N ± 0,0007	74 4	47,816295 W ± 0,0008	2610,3785 ± 0,0016	0,0213 ± 0,0001	-0,0035 ± 0,0003	-0,0541 ± 0,0005
BOGT	41901M001	A 0003	2002-05-23	2005-07-06	4 38	24,262155 N ± 0,0002	74 4	51,382376 W ± 0,0004	2576,7472 ± 0,0005	0,0143 ± 0,0001	0,0000 ± 0,0001	-0,0361 ± 0,0002
BOGT	41901M001	A 0005	2005-07-12	2010-06-05	4 38	24,262377 N ± 0,0005	74 4	51,382333 W ± 0,0003	2576,7314 ± 0,0008	0,0155 ± 0,0003	0,0008 ± 0,0001	-0,0456 ± 0,0002
BOMJ	41612M001	A 0001	2000-01-21	2010-06-05	13 15	20,007966 S ± 0,0005	43 25	18,247228 W ± 0,0004	419,3836 ± 0,0005	0,0130 ± 0,0001	-0,0045 ± 0,0001	0,0010 ± 0,0001
BRAZ	41606M001	A 0001	2000-01-02	2010-06-05	15 56	50,909190 S ± 0,0001	47 52	40,328727 W ± 0,0004	1106,0071 ± 0,0006	0,0127 ± 0,0001	-0,0038 ± 0,0001	0,0007 ± 0,0001
BRFT	41602M002	A 0003	2005-09-18	2010-06-05	3 52	38,808328 S ± 0,0007	38 25	31,934013 W ± 0,0008	21,6787 ± 0,0015	0,0119 ± 0,0001	-0,0040 ± 0,0003	-0,0003 ± 0,0004
BRMU	42501S004	A 0002	2000-01-02	2010-06-05	32 22	13,435670 N ± 0,0005	64 41	46,583247 W ± 0,0004	-11,6099 ± 0,0007	0,0072 ± 0,0001	-0,0120 ± 0,0002	0,0002 ± 0,0002
BUCA	41911S001	A 0001	2005-09-28	2009-05-09	7 7	8,163932 N ± 0,0003	73 7	9,409595 W ± 0,0008	1005,5501 ± 0,0009	0,0153 ± 0,0001	0,0043 ± 0,0002	0,0009 ± 0,0004
BUEN	41912S001	A 0001	2005-10-05	2010-06-05	3 52	55,281124 N ± 0,0001	77 0	37,514194 W ± 0,0003	57,7485 ± 0,0008	0,0136 ± 0,0001	0,0059 ± 0,0001	0,0013 ± 0,0002
CALI	41903S001	A 0001	2004-02-25	2010-06-05	3 22	32,831260 N ± 0,0005	76 31	57,232966 W ± 0,0007	1027,4935 ± 0,0008	0,0139 ± 0,0001	0,0031 ± 0,0001	0,0015 ± 0,0002
CAM2	40514M001	A 0001	2005-01-09	2008-12-13	19 50	39,937883 N ± 0,0009	90 32	24,595510 W ± 0,0004	12,1892 ± 0,0012	-0,0009 ± 0,0002	-0,0080 ± 0,0001	-0,0007 ± 0,0004
CART	41902M001	A 0002	2000-02-03	2008-08-19	10 23	28,803695 N ± 0,0002	75 32	1,873198 W ± 0,0003	4,0695 ± 0,0007	0,0099 ± 0,0002	0,0129 ± 0,0001	-0,0016 ± 0,0002
CEBS	80402M001	A 0001	2005-11-19	2010-06-05	19 42	43,230306 N ± 0,0007	79 49	58,983534 W ± 0,0004	-7,1670 ± 0,0008	0,0020 ± 0,0001	-0,0081 ± 0,0001	-0,0010 ± 0,0003
CEEU	41602M003	A 0001	2008-04-15	2010-06-05	3 52	39,173530 S ± 0,0006	38 25	31,946684 W ± 0,0012	21,7251 ± 0,0011	0,0127 ± 0,0001	-0,0023 ± 0,0005	0,0035 ± 0,0006
CEFE	41632M001	A 0001	2007-09-05	2010-06-05	20 18	38,858054 S ± 0,0006	40 19	10,037814 W ± 0,0008	14,2934 ± 0,0010	0,0126 ± 0,0002	-0,0045 ± 0,0003	-0,0007 ± 0,0003
CFAG	41517S001	A 0001	2000-01-02	2010-02-26	31 36	7,802177 S ± 0,0005	68 13	57,533064 W ± 0,0003	702,5447 ± 0,0004	0,0123 ± 0,0001	0,0062 ± 0,0001	0,0007 ± 0,0003
CHET	40526M001	A 0001	2005-01-09	2010-06-05	18 29	42,996319 N ± 0,0005	88 17	57,208044 W ± 0,0003	2,9676 ± 0,0008	0,0004 ± 0,0001	-0,0079 ± 0,0003	-0,0024 ± 0,0002



Station	ID-SNX	Start	End	Latitude [° ' "] ± [m]	Longitude [° ' "] ± [m]	Ellipsoidal height [m]	VN [m/a]	VE [m/a]	Vh [m/a]
CHIH 40525M001	A 0001	2005-01-11	2010-06-05	28 39 43,894370 N ± 0,0003	106 5 12,261614 W ± 0,0003	1413,1884 ± 0,0009	-0,0065 ± 0,0001	-0,0119 ± 0,0001	-0,0009 ± 0,0002
CHFI 41609M003	A 0001	2003-05-08	2010-06-05	22 41 13,724672 S ± 0,0002	44 59 6,570149 W ± 0,0007	617,4055 ± 0,0006	0,0127 ± 0,0003	-0,0033 ± 0,0001	0,0016 ± 0,0003
CIC1 40508M002	A 0002	2000-01-02	2009-12-13	31 52 14,441264 N ± 0,0001	116 39 56,739568 W ± 0,0004	64,3364 ± 0,0004	0,0197 ± 0,0001	-0,0413 ± 0,0002	-0,0003 ± 0,0002
COL2 40524M001	A 0001	2005-01-09	2010-06-05	19 14 39,994975 N ± 0,0003	103 42 6,781319 W ± 0,0007	528,7644 ± 0,0008	-0,0021 ± 0,0002	-0,0043 ± 0,0002	0,0020 ± 0,0004
CONZ 41719M002	A 0001	2002-06-10	2005-05-13	36 50 37,540313 S ± 0,0011	73 1 31,733215 W ± 0,0008	180,6988 ± 0,0010	0,0215 ± 0,0005	0,0316 ± 0,0002	-0,0021 ± 0,0005
CONZ 41719M002	A 0002	2005-05-18	2010-02-26	36 50 37,540469 S ± 0,0008	73 1 31,733310 W ± 0,0005	180,6983 ± 0,0012	0,0214 ± 0,0003	0,0341 ± 0,0002	0,0000 ± 0,0004
COPO 417145001	A 0001	2002-07-01	2006-04-28	27 23 4,296866 S ± 0,0007	70 20 17,651507 W ± 0,0004	479,0914 ± 0,0008	0,0171 ± 0,0001	0,0196 ± 0,0001	0,0056 ± 0,0002
COPO 417145001	A 0002	2006-05-03	2010-06-05	27 23 4,296651 S ± 0,0005	70 20 17,652139 W ± 0,0004	479,0861 ± 0,0006	0,0173 ± 0,0001	0,0206 ± 0,0001	0,0018 ± 0,0003
CORD 41511M001	A 0001	2000-01-02	2006-05-02	31 31 42,365202 S ± 0,0008	64 28 12,173886 W ± 0,0008	746,8414 ± 0,0012	0,0127 ± 0,0002	0,0003 ± 0,0002	-0,0007 ± 0,0003
COYQ 417155001	A 0001	2000-01-02	2004-09-07	45 30 51,627936 S ± 0,0007	71 53 31,490934 W ± 0,0004	476,1707 ± 0,0007	0,0108 ± 0,0002	-0,0036 ± 0,0001	0,0001 ± 0,0002
COYQ 417155001	A 0002	2007-12-06	2010-06-05	45 30 51,627783 S ± 0,0003	71 53 31,491178 W ± 0,0004	476,1817 ± 0,0004	0,0079 ± 0,0002	0,0019 ± 0,0001	-0,0018 ± 0,0002
CRAT 41619M001	A 0001	2001-08-20	2005-06-29	7 14 16,865046 S ± 0,0003	39 24 56,180004 W ± 0,0008	436,0266 ± 0,0008	0,0119 ± 0,0001	-0,0030 ± 0,0002	0,0006 ± 0,0003
CRAT 41619M001	A 0002	2005-08-16	2008-01-26	7 14 16,865086 S ± 0,0007	39 24 56,180245 W ± 0,0014	436,0312 ± 0,0009	0,0129 ± 0,0002	0,0057 ± 0,0008	0,0026 ± 0,0009
CRAT 41619M001	A 0003	2008-03-07	2010-06-05	7 14 16,865241 S ± 0,0006	39 24 56,180181 W ± 0,0011	436,0274 ± 0,0012	0,0131 ± 0,0002	0,0002 ± 0,0005	0,0015 ± 0,0006
CRCS 4240JM001	A 0001	2006-05-21	2010-06-02	10 30 9,107086 N ± 0,0003	66 54 48,657797 W ± 0,0008	913,0317 ± 0,0008	0,0115 ± 0,0001	0,0005 ± 0,0005	0,0019 ± 0,0005
CRO1 4320JM001	A 0002	2000-01-02	2005-01-19	17 45 24,833666 N ± 0,0007	64 35 3,551282 W ± 0,0008	-31,9505 ± 0,0008	0,0128 ± 0,0001	0,0113 ± 0,0002	-0,0031 ± 0,0003
CRO1 4320JM001	A 0003	2005-08-04	2010-05-22	17 45 24,833669 N ± 0,0002	64 35 3,551130 W ± 0,0004	-31,9449 ± 0,0008	0,0131 ± 0,0001	0,0110 ± 0,0002	-0,0012 ± 0,0003
CUCU 419045001	A 0001	2004-03-04	2010-06-05	7 53 54,448204 N ± 0,0001	72 29 16,583029 W ± 0,0004	311,1733 ± 0,0008	0,0139 ± 0,0001	0,0034 ± 0,0001	0,0006 ± 0,0002
CUIB 41603M001	A 0001	2000-01-21	2010-06-05	15 33 18,944790 S ± 0,0005	56 4 11,519947 W ± 0,0005	237,4317 ± 0,0005	0,0122 ± 0,0001	-0,0038 ± 0,0001	0,0014 ± 0,0002
CULC 40529M001	A 0001	2007-10-04	2010-06-05	24 47 42,308669 N ± 0,0006	107 24 45,345514 W ± 0,0008	36,1414 ± 0,0010	-0,0076 ± 0,0003	-0,0120 ± 0,0002	-0,0006 ± 0,0005
CULI 40523M001	A 0001	2005-01-09	2007-07-13	24 47 54,788639 N ± 0,0006	107 23 2,193451 W ± 0,0008	75,4036 ± 0,0010	-0,0070 ± 0,0004	-0,0103 ± 0,0003	0,0002 ± 0,0005
DAVI 41302M001	A 0001	2008-10-20	2010-05-30	8 25 31,699826 N ± 0,0006	82 26 1,696923 W ± 0,0008	67,2166 ± 0,0014	0,0116 ± 0,0002	0,0225 ± 0,0002	0,0016 ± 0,0010
DORA 419155001	A 0001	2006-02-16	2010-06-05	5 27 13,838943 N ± 0,0005	74 39 47,928117 W ± 0,0003	204,4863 ± 0,0009	0,0148 ± 0,0001	0,0038 ± 0,0001	0,0017 ± 0,0003
EISL 41703M003	A 0001	2000-01-02	2005-01-29	27 8 53,553698 S ± 0,0009	109 22 59,842229 W ± 0,0003	114,5275 ± 0,0008	-0,0056 ± 0,0004	0,0679 ± 0,0003	-0,0024 ± 0,0005
ELEN 409025001	A 0001	2001-12-08	2008-10-30	16 54 57,801733 N ± 0,0005	89 52 3,409131 W ± 0,0005	118,1241 ± 0,0006	0,0004 ± 0,0001	-0,0072 ± 0,0003	0,0038 ± 0,0002
ESTI 412025001	A 0001	2000-05-12	2003-02-26	13 5 58,330220 N ± 0,0005	86 21 43,658530 W ± 0,0005	852,6744 ± 0,0012	0,0118 ± 0,0002	0,0144 ± 0,0001	0,0038 ± 0,0006
ETCG 40602M001	A 0001	2003-02-11	2009-01-10	9 59 58,136936 N ± 0,0001	84 6 21,229769 W ± 0,0003	1193,6270 ± 0,0008	0,0159 ± 0,0001	0,0137 ± 0,0001	-0,0012 ± 0,0003
EXUO 43606M001	A 0001	2007-07-01	2009-09-08	23 33 50,576635 N ± 0,0012	75 52 24,245115 W ± 0,0008	-20,0520 ± 0,0013	0,0050 ± 0,0005	-0,0078 ± 0,0004	-0,0001 ± 0,0007
FLOR 419165001	A 0001	2006-11-02	2010-05-26	1 37 12,945352 N ± 0,0002	75 36 16,206975 W ± 0,0005	314,2535 ± 0,0008	0,0077 ± 0,0001	-0,0026 ± 0,0001	0,0003 ± 0,0003
FORT 41602M001	A 0002	2000-01-09	2006-04-08	3 52 38,802482 S ± 0,0003	38 25 32,205428 W ± 0,0008	19,4427 ± 0,0008	0,0124 ± 0,0001	-0,0037 ± 0,0003	0,0033 ± 0,0004
FQNE 419365001	A 0001	2007-09-30	2010-06-05	5 28 2,433980 N ± 0,0009	73 44 5,311420 W ± 0,0008	2602,0389 ± 0,0009	0,0125 ± 0,0001	0,0025 ± 0,0003	-0,0012 ± 0,0007
GALA 42005M001	A 0001	2000-02-03	2002-11-09	0 44 33,702073 S ± 0,0003	90 18 13,026216 W ± 0,0006	7,4262 ± 0,0008	0,0094 ± 0,0001	0,0505 ± 0,0002	-0,0013 ± 0,0007
GCGT 8040JM001	A 0001	2005-06-09	2010-06-05	19 17 34,614592 N ± 0,0003	81 22 46,008828 W ± 0,0007	8,4342 ± 0,0012	0,0017 ± 0,0001	-0,0070 ± 0,0001	-0,0019 ± 0,0002
GLPS 42005M002	A 0001	2003-01-07	2010-06-02	0 44 34,797798 S ± 0,0003	90 18 13,219655 W ± 0,0004	1,7869 ± 0,0004	0,0098 ± 0,0002	0,0509 ± 0,0001	0,0011 ± 0,0003
GOJA 41654M001	A 0001	2008-06-10	2010-06-05	17 52 59,802039 S ± 0,0009	51 43 33,992380 W ± 0,0011	755,3325 ± 0,0014	0,0117 ± 0,0003	-0,0035 ± 0,0005	-0,0094 ± 0,0005



Station	ID-SWX	Start	End	Latitude [° ' " ] ± [m]	Longitude [° ' " ] ± [m]	Ellipsoidal height [m]	VN [m/a]	VE [m/a]	Vh [m/a]
GOLD 404055031	A 0005	2000-07-01	2010-06-05	35 25 30,561974 N ± 0,0003	116 53 21,300375 W ± 0,0004	986,6617 ± 0,0006	-0,0038 ± 0,0001	-0,0180 ± 0,0004	0,0005 ± 0,0003
GOUJ 30608M001	A 0001	2000-01-02	2006-12-07	40 20 55,798380 S ± 0,0003	9 52 50,579093 W ± 0,0004	81,2642 ± 0,0004	0,0194 ± 0,0003	0,0208 ± 0,0001	0,0018 ± 0,0003
GREO 435015001	A 0001	2007-07-01	2010-06-05	12 13 18,418443 N ± 0,0008	61 38 25,636324 W ± 0,0008	16,6867 ± 0,0017	0,0143 ± 0,0001	0,0134 ± 0,0003	-0,0020 ± 0,0004
GTKO 436025007	A 0001	2000-07-01	2010-06-05	21 25 58,037988 N ± 0,0009	71 8 40,529744 W ± 0,0008	-31,0754 ± 0,0013	0,0065 ± 0,0002	-0,0073 ± 0,0002	0,0021 ± 0,0004
GUAT 409015001	A 0001	2007-07-30	2010-06-05	14 35 25,454938 N ± 0,0003	90 31 12,658470 W ± 0,0003	1519,8762 ± 0,0005	0,0031 ± 0,0002	0,0057 ± 0,0001	0,0004 ± 0,0001
GVAL 41623M001	A 0001	2004-06-22	2010-06-05	18 51 20,182954 S ± 0,0003	41 57 27,429419 W ± 0,0003	178,6484 ± 0,0009	0,0130 ± 0,0001	-0,0038 ± 0,0001	0,0001 ± 0,0003
HER2 40522M001	A 0001	2005-01-09	2010-06-05	29 5 33,169779 N ± 0,0003	110 58 1,973894 W ± 0,0004	186,9515 ± 0,0008	-0,0077 ± 0,0001	-0,0121 ± 0,0001	0,0000 ± 0,0002
IBAG 41918S001	A 0001	2006-02-18	2010-01-13	4 25 40,959271 N ± 0,0002	75 12 53,004919 W ± 0,0008	1216,0857 ± 0,0017	0,0129 ± 0,0001	0,0024 ± 0,0002	0,0005 ± 0,0006
IGM0 41505M002	A 0001	2000-01-21	2003-12-29	34 34 19,911411 S ± 0,0002	58 26 21,718828 W ± 0,0003	48,7840 ± 0,0007	0,0119 ± 0,0003	-0,0014 ± 0,0002	-0,0005 ± 0,0003
IGM1 41505M003	A 0001	2003-11-09	2010-02-26	34 34 20,077910 S ± 0,0001	58 26 21,549483 W ± 0,0005	50,6856 ± 0,0005	0,0116 ± 0,0001	-0,0004 ± 0,0001	0,0024 ± 0,0002
IMBT 41638M001	A 0001	2007-09-05	2010-06-05	28 14 5,420170 S ± 0,0009	48 39 20,597235 W ± 0,0008	31,3771 ± 0,0008	0,0124 ± 0,0002	-0,0037 ± 0,0003	-0,0008 ± 0,0003
IMPZ 41615M001	A 0001	2000-01-21	2010-06-05	5 29 30,356262 S ± 0,0005	47 29 50,044767 W ± 0,0007	104,9931 ± 0,0005	0,0123 ± 0,0003	-0,0044 ± 0,0001	-0,0007 ± 0,0001
INEG 40507M001	A 0004	2000-05-05	2002-03-22	21 51 22,153811 N ± 0,0001	102 17 3,130675 W ± 0,0004	1887,9152 ± 0,0009	-0,0038 ± 0,0007	-0,0138 ± 0,0005	-0,0863 ± 0,0012
INEG 40507M001	A 0005	2004-11-15	2010-06-05	21 51 22,153438 N ± 0,0007	102 17 3,130758 W ± 0,0007	1887,9908 ± 0,0012	-0,0044 ± 0,0001	-0,0086 ± 0,0004	-0,0352 ± 0,0002
IQQE 41708S002	A 0001	2002-07-01	2005-06-11	20 16 24,748844 S ± 0,0006	70 7 54,170238 W ± 0,0008	38,9422 ± 0,0008	0,0165 ± 0,0003	0,0271 ± 0,0003	0,0032 ± 0,0005
IQQE 41708S002	A 0002	2005-06-14	2010-06-05	20 16 24,749335 S ± 0,0008	70 7 54,172053 W ± 0,0008	38,9885 ± 0,0012	0,0160 ± 0,0001	0,0222 ± 0,0001	0,0003 ± 0,0003
ISPA 41703M007	A 0001	2004-02-14	2010-06-05	27 7 29,938081 S ± 0,0001	109 20 39,881708 W ± 0,0005	112,4883 ± 0,0008	-0,0054 ± 0,0001	0,0665 ± 0,0001	0,0019 ± 0,0001
JAMA 426015001	A 0001	2000-01-02	2007-08-17	17 56 20,484373 N ± 0,0005	76 46 51,139387 W ± 0,0004	-2,9457 ± 0,0004	0,0096 ± 0,0002	0,0029 ± 0,0002	-0,0014 ± 0,0005
KOUR 97301M210	A 0002	2000-01-02	2006-07-01	5 15 7,852673 N ± 0,0005	52 48 21,454801 W ± 0,0008	-25,7643 ± 0,0008	0,0123 ± 0,0001	-0,0044 ± 0,0001	0,0021 ± 0,0002
KOUR 97301M210	A 0003	2006-06-22	2010-06-05	5 15 7,852711 N ± 0,0002	52 48 21,454769 W ± 0,0007	-25,7609 ± 0,0004	0,0128 ± 0,0002	-0,0032 ± 0,0001	0,0011 ± 0,0002
KYWI 498525001	A 0002	2000-01-02	2007-10-10	24 34 56,181300 N ± 0,0005	81 39 10,918579 W ± 0,0006	-13,7877 ± 0,0007	0,0019 ± 0,0001	-0,0094 ± 0,0001	-0,0002 ± 0,0002
LHCL 41518S001	A 0001	2002-06-24	2010-02-26	38 0 9,574836 S ± 0,0005	65 35 42,889898 W ± 0,0004	404,5365 ± 0,0007	0,0107 ± 0,0001	0,0001 ± 0,0001	0,0030 ± 0,0001
LPZ 40521M001	A 0001	2005-01-09	2010-06-05	24 8 19,671971 N ± 0,0005	110 19 9,647391 W ± 0,0003	-6,8374 ± 0,0003	0,0203 ± 0,0001	-0,0484 ± 0,0001	-0,0015 ± 0,0002
LPGS 41510M001	A 0001	2000-01-02	2010-02-26	34 54 24,283030 S ± 0,0007	57 55 56,278181 W ± 0,0006	29,8666 ± 0,0007	0,0121 ± 0,0001	-0,0007 ± 0,0001	0,0033 ± 0,0001
MABA 41642M001	A 0001	2007-09-05	2010-06-05	5 21 44,561105 S ± 0,0005	49 7 20,271912 W ± 0,0003	79,8207 ± 0,0004	0,0135 ± 0,0001	-0,0036 ± 0,0003	-0,0028 ± 0,0003
MANA 412015001	A 0001	2000-05-14	2004-10-10	12 8 56,178867 N ± 0,0007	86 14 56,378053 W ± 0,0008	71,0373 ± 0,0010	0,0088 ± 0,0001	0,0054 ± 0,0003	-0,0006 ± 0,0004
MANA 412015001	A 0002	2004-10-11	2010-06-05	12 8 56,178290 N ± 0,0007	86 14 56,378296 W ± 0,0004	71,0440 ± 0,0008	0,0070 ± 0,0001	0,0074 ± 0,0002	-0,0017 ± 0,0002
MAPA 41629M001	A 0001	2006-01-13	2010-06-05	0 2 48,070732 N ± 0,0001	51 5 50,412674 W ± 0,0008	-4,2412 ± 0,0012	0,0121 ± 0,0001	-0,0035 ± 0,0002	0,0028 ± 0,0002
MARA 42402M001	A 0001	2000-01-21	2008-05-26	10 40 26,323595 N ± 0,0006	71 37 27,950244 W ± 0,0013	28,3865 ± 0,0017	0,0124 ± 0,0004	0,0096 ± 0,0005	0,0011 ± 0,0011
MARA 42402M001	A 0002	2008-07-16	2010-06-05	10 40 26,323484 N ± 0,0003	71 37 27,949956 W ± 0,0005	28,4047 ± 0,0006	0,0137 ± 0,0003	0,0086 ± 0,0001	-0,0068 ± 0,0002
MCLA 41624M001	A 0001	2004-06-22	2010-06-05	16 43 13,420353 S ± 0,0003	43 52 52,738647 W ± 0,0008	656,5396 ± 0,0009	0,0121 ± 0,0001	-0,0032 ± 0,0002	0,0015 ± 0,0002
MDO1 40442M012	A 0001	2000-01-02	2004-12-02	30 40 49,840475 N ± 0,0003	104 0 53,974986 W ± 0,0003	2004,5016 ± 0,0008	-0,0063 ± 0,0001	-0,0135 ± 0,0001	0,0005 ± 0,0002
MDO1 40442M012	A 0003	2004-12-08	2010-06-05	30 40 49,840580 N ± 0,0003	104 0 53,975089 W ± 0,0007	2004,4934 ± 0,0004	-0,0064 ± 0,0002	-0,0115 ± 0,0001	-0,0007 ± 0,0003
MECO 41526M001	A 0001	2006-10-19	2009-02-17	29 11 5,594286 S ± 0,0010	58 4 33,043065 W ± 0,0010	116,5045 ± 0,0010	0,0119 ± 0,0004	-0,0007 ± 0,0005	0,0040 ± 0,0005
MEDE 419215001	A 0001	2005-09-18	2008-11-22	6 11 57,854150 N ± 0,0003	75 34 44,100382 W ± 0,0008	1553,4096 ± 0,0013	0,0111 ± 0,0001	0,0024 ± 0,0002	0,0033 ± 0,0005



Station	ID-SMX	Start	End	Latitude [° ' " ] ± [m]	Longitude [° ' " ] ± [m]	Ellipsoidal height [m]	VH [m/a]	VE [m/a]	Vh [m/a]
MERI 40520M001	A 0001	2005-01-09	2010-06-05	20 58 48,163422 N ± 0,0003	89 37 13,141614 W ± 0,0003	7,8668 ± 0,0008	0,0001 ± 0,0001	-0,0085 ± 0,0002	-0,0009 ± 0,0002
MEXI 40519M001	A 0001	2005-01-09	2010-04-03	32 37 58,768918 N ± 0,0007	115 28 32,530460 W ± 0,0004	-22,4535 ± 0,0008	0,0144 ± 0,0001	-0,0243 ± 0,0001	0,0060 ± 0,0002
MGIN 41647M001	A 0001	2008-02-13	2010-06-05	22 19 6,821252 S ± 0,0007	46 19 40,886768 W ± 0,0016	883,6925 ± 0,0010	0,0126 ± 0,0003	-0,0038 ± 0,0004	-0,0013 ± 0,0004
MGMC 41624M002	A 0001	2008-04-06	2010-06-05	16 42 59,009628 S ± 0,0011	43 51 29,939918 W ± 0,0012	618,1473 ± 0,0009	0,0122 ± 0,0003	-0,0047 ± 0,0006	-0,0010 ± 0,0006
MGUB 41652M001	A 0001	2008-01-13	2010-06-05	18 55 8,985821 S ± 0,0006	48 15 21,777959 W ± 0,0012	869,2204 ± 0,0013	0,0119 ± 0,0002	-0,0038 ± 0,0003	-0,0003 ± 0,0003
MOTE 419225001	A 0001	2006-03-21	2008-04-27	8 47 31,073638 N ± 0,0008	75 51 38,410293 W ± 0,0016	33,2208 ± 0,0010	0,0088 ± 0,0004	0,0139 ± 0,0005	-0,0052 ± 0,0013
MPLA 41521M001	A 0001	2002-09-22	2008-02-03	38 2 8,173236 S ± 0,0003	57 31 52,110945 W ± 0,0006	20,1103 ± 0,0007	0,0129 ± 0,0002	-0,0005 ± 0,0001	0,0031 ± 0,0002
MSCG 41649M001	A 0001	2008-01-13	2010-03-23	20 26 27,240286 S ± 0,0013	54 32 26,529717 W ± 0,0016	676,4680 ± 0,0013	0,0110 ± 0,0004	-0,0025 ± 0,0006	0,0029 ± 0,0006
MTBA 41663M001	A 0001	2008-09-01	2010-06-05	15 53 23,894060 S ± 0,0009	52 15 53,033547 W ± 0,0013	322,8663 ± 0,0012	0,0107 ± 0,0003	-0,0060 ± 0,0005	-0,0085 ± 0,0005
MTSF 41655M001	A 0001	2008-04-06	2010-06-05	11 37 9,406962 S ± 0,0006	50 39 48,624900 W ± 0,0010	181,8737 ± 0,0010	0,0118 ± 0,0002	-0,0036 ± 0,0004	-0,0077 ± 0,0004
MTY2 40518M001	A 0001	2005-01-09	2010-06-05	25 42 55,824364 N ± 0,0002	100 18 46,460744 W ± 0,0006	521,7424 ± 0,0008	-0,0040 ± 0,0001	-0,0106 ± 0,0003	-0,0009 ± 0,0002
MZAC 41503M001	A 0001	2004-06-09	2010-02-26	32 53 42,550616 S ± 0,0002	68 52 32,065548 W ± 0,0005	859,8371 ± 0,0008	0,0133 ± 0,0001	0,0088 ± 0,0001	0,0014 ± 0,0002
MZAE 41530M001	A 0001	2007-05-20	2010-02-26	33 15 17,436053 S ± 0,0007	68 9 0,221271 W ± 0,0008	635,7189 ± 0,0008	0,0106 ± 0,0003	0,0057 ± 0,0002	-0,0002 ± 0,0004
MZAS 41528M001	A 0001	2007-01-17	2010-02-26	34 36 53,650949 S ± 0,0006	68 20 4,254617 W ± 0,0008	729,3561 ± 0,0008	0,0118 ± 0,0002	0,0054 ± 0,0001	-0,0026 ± 0,0003
NASO 436075001	A 0001	2007-07-01	2010-06-05	25 3 9,140204 N ± 0,0007	77 27 44,121447 W ± 0,0008	-21,2305 ± 0,0012	0,0046 ± 0,0002	-0,0075 ± 0,0001	-0,0035 ± 0,0004
NAUS 41614M002	A 0001	2006-01-01	2010-06-05	3 1 22,508775 S ± 0,0003	60 3 18,059898 W ± 0,0008	93,8765 ± 0,0008	0,0114 ± 0,0002	-0,0031 ± 0,0001	0,0016 ± 0,0002
NEIA 41620M002	A 0001	2006-01-05	2010-06-05	25 1 12,859631 S ± 0,0006	47 55 29,886651 W ± 0,0008	6,0524 ± 0,0008	0,0135 ± 0,0002	-0,0037 ± 0,0002	0,0035 ± 0,0002
NEVA 41923S001	A 0001	2005-11-19	2009-08-01	2 56 14,280162 N ± 0,0002	75 17 34,913649 W ± 0,0007	472,7352 ± 0,0008	0,0145 ± 0,0001	0,0027 ± 0,0001	-0,0008 ± 0,0003
OAX2 40517M001	A 0001	2005-01-09	2010-06-05	17 4 42,023290 N ± 0,0002	96 43 0,261517 W ± 0,0003	1607,2464 ± 0,0008	0,0023 ± 0,0001	-0,0037 ± 0,0001	0,0016 ± 0,0002
OH12 66008M005	A 0001	2002-02-15	2010-06-05	63 19 15,892364 S ± 0,0002	57 54 4,797354 W ± 0,0007	32,4654 ± 0,0006	0,0110 ± 0,0001	0,0144 ± 0,0002	0,0041 ± 0,0002
OHIG 66008M001	A 0001	2000-01-21	2002-02-19	63 19 14,601968 S ± 0,0007	57 54 1,218586 W ± 0,0005	30,7177 ± 0,0008	0,0116 ± 0,0007	0,0140 ± 0,0005	0,0073 ± 0,0011
ONRJ 41635M001	A 0001	2007-04-01	2009-10-10	22 53 44,520084 S ± 0,0009	43 13 27,594087 W ± 0,0008	35,6282 ± 0,0017	0,0130 ± 0,0002	-0,0037 ± 0,0004	-0,0003 ± 0,0004
PALM 66005M002	A 0001	2000-01-21	2010-06-05	64 46 30,324737 S ± 0,0001	64 3 4,040935 W ± 0,0006	31,0522 ± 0,0005	0,0109 ± 0,0003	0,0126 ± 0,0003	0,0067 ± 0,0002
PARA 41610M001	A 0001	2000-01-21	2007-05-07	25 26 54,124982 S ± 0,0003	49 13 51,437628 W ± 0,0005	925,7515 ± 0,0005	0,0122 ± 0,0001	-0,0028 ± 0,0001	0,0018 ± 0,0002
PARC 417165001	A 0002	2000-01-02	2009-06-20	53 8 13,037651 S ± 0,0005	70 52 47,575517 W ± 0,0003	22,2874 ± 0,0006	0,0127 ± 0,0001	0,0042 ± 0,0002	-0,0004 ± 0,0001
PBCG 41656M001	A 0001	2008-04-09	2010-06-05	7 12 49,237947 S ± 0,0007	35 54 25,695966 W ± 0,0012	534,0734 ± 0,0013	0,0126 ± 0,0001	-0,0043 ± 0,0004	0,0021 ± 0,0005
PDES 41524M001	A 0001	2005-05-05	2007-07-25	47 45 12,938510 S ± 0,0012	65 54 52,839952 W ± 0,0008	17,9990 ± 0,0017	0,0128 ± 0,0007	-0,0031 ± 0,0004	0,0042 ± 0,0007
PEPE 41650M001	A 0001	2008-01-13	2010-06-05	9 23 3,903443 S ± 0,0007	40 30 22,045354 W ± 0,0010	369,0854 ± 0,0017	0,0126 ± 0,0001	-0,0043 ± 0,0004	0,0018 ± 0,0005
PERA 41905S001	A 0001	2004-02-20	2010-06-05	4 47 32,983346 N ± 0,0001	75 41 22,234081 W ± 0,0007	1496,7365 ± 0,0008	0,0154 ± 0,0001	0,0039 ± 0,0001	0,0015 ± 0,0003
PIE1 40456M001	A 0004	2000-01-02	2006-09-04	34 18 5,421627 N ± 0,0008	108 7 8,137451 W ± 0,0003	2347,7338 ± 0,0008	-0,0070 ± 0,0002	-0,0144 ± 0,0001	0,0005 ± 0,0002
PIE1 40456M001	A 0005	2007-01-24	2010-06-05	34 18 5,421527 N ± 0,0005	108 7 8,137652 W ± 0,0005	2347,7280 ± 0,0004	-0,0061 ± 0,0001	-0,0126 ± 0,0001	0,0004 ± 0,0002
PMB1 43702S001	A 0001	2005-12-30	2007-10-21	5 49 41,379102 N ± 0,0008	55 8 41,508928 W ± 0,0013	-29,3199 ± 0,0014	0,0121 ± 0,0003	-0,0031 ± 0,0009	-0,0047 ± 0,0011
PMB1 43702S001	A 0002	2007-12-19	2010-06-05	5 49 41,378991 N ± 0,0008	55 8 41,508962 W ± 0,0012	-29,3654 ± 0,0009	0,0124 ± 0,0001	-0,0027 ± 0,0005	-0,0011 ± 0,0005
POAL 41616M001	A 0001	2000-01-21	2010-06-05	30 4 26,550915 S ± 0,0007	51 7 11,153338 W ± 0,0003	76,7321 ± 0,0004	0,0125 ± 0,0002	-0,0019 ± 0,0001	0,0018 ± 0,0001
POLI 41630M001	A 0001	2007-01-01	2010-06-05	23 33 20,330192 S ± 0,0008	46 43 49,123447 W ± 0,0008	730,6161 ± 0,0008	0,0130 ± 0,0002	-0,0032 ± 0,0003	0,0013 ± 0,0002



Station	ID-SNX	Start	End	Latitude [° ' "] ± [m]	Longitude [° ' "] ± [m]	Ellipsoidal height [m]	VN [m/a]	VE [m/a]	Vh [m/a]
POPA 419245001	A 0001	2006-06-19	2010-03-12	2 26 35,209151 N ± 0,0001	76 36 4,341757 W ± 0,0005	1782,2442 ± 0,0008	0,0129 ± 0,0001	0,0035 ± 0,0001	0,0007 ± 0,0003
POVE 41628M001	A 0001	2006-01-04	2010-06-05	8 42 33,609625 S ± 0,0005	63 53 46,751076 W ± 0,0008	119,5786 ± 0,0008	0,0108 ± 0,0001	-0,0039 ± 0,0001	0,0025 ± 0,0002
PPTF 41611M002	A 0001	2006-01-01	2009-09-05	22 7 11,654962 S ± 0,0009	51 24 30,722708 W ± 0,0008	431,0141 ± 0,0008	0,0126 ± 0,0001	-0,0021 ± 0,0002	0,0035 ± 0,0002
PSTO 41925S001	A 0001	2005-09-18	2010-06-05	1 12 42,159371 N ± 0,0003	77 16 37,489703 W ± 0,0008	2569,1057 ± 0,0014	0,0128 ± 0,0001	0,0040 ± 0,0002	0,0012 ± 0,0006
PUR3 82001S003	A 0001	2007-03-19	18 27 46,716128 N ± 0,0003	67 4 1,046495 W ± 0,0003	89,5469 ± 0,0004	0,0123 ± 0,0001	0,0123 ± 0,0001	0,0092 ± 0,0001	-0,0006 ± 0,0002
QUI1 42003S003	A 0001	2004-01-01	2009-08-01	0 12 54,565629 S ± 0,0003	78 29 36,989010 W ± 0,0005	2922,5367 ± 0,0008	0,0101 ± 0,0003	0,0080 ± 0,0003	0,0006 ± 0,0002
REFC 41617M001	A 0001	2000-01-21	2010-06-05	8 3 3,467567 S ± 0,0003	34 57 5,459394 W ± 0,0004	20,1449 ± 0,0005	0,0120 ± 0,0002	-0,0033 ± 0,0001	-0,0019 ± 0,0003
RIO2 41507M006	A 0001	2007-04-21	2010-06-05	53 47 7,699513 S ± 0,0006	67 45 4,024780 W ± 0,0008	32,0332 ± 0,0008	0,0124 ± 0,0023	0,0040 ± 0,0014	0,0002 ± 0,0017
RIOB 41645M001	A 0001	2007-09-05	2010-06-05	9 57 55,650213 S ± 0,0006	67 48 10,122358 W ± 0,0004	172,6267 ± 0,0008	0,0104 ± 0,0002	-0,0020 ± 0,0001	-0,0022 ± 0,0002
RIOD 41608M001	A 0001	2001-08-20	2010-06-05	22 49 4,237928 S ± 0,0007	43 18 22,596085 W ± 0,0008	8,6210 ± 0,0008	0,0129 ± 0,0002	-0,0039 ± 0,0003	-0,0002 ± 0,0003
RIOG 41507M004	A 0002	2000-01-02	2007-02-28	53 47 7,699520 S ± 0,0005	67 45 4,024503 W ± 0,0004	32,0351 ± 0,0006	0,0128 ± 0,0001	0,0036 ± 0,0001	0,0026 ± 0,0003
RIOH 41927S001	A 0001	2005-10-24	2008-08-19	11 30 47,576643 N ± 0,0005	72 52 10,928415 W ± 0,0003	12,4726 ± 0,0004	0,0138 ± 0,0001	0,0113 ± 0,0001	-0,0002 ± 0,0002
RIOF 42006M001	A 0001	2000-01-02	2001-12-28	1 39 2,145126 S ± 0,0002	78 39 3,985927 W ± 0,0008	2817,1889 ± 0,0010	0,0011 ± 0,0002	-0,0025 ± 0,0002	0,0038 ± 0,0005
RIOF 42006M001	A 0002	2007-04-29	2010-06-05	1 39 2,144780 S ± 0,0002	78 39 3,985383 W ± 0,0008	2817,2025 ± 0,0010	0,0082 ± 0,0001	-0,0005 ± 0,0001	-0,0045 ± 0,0004
RJCG 41657M001	A 0001	2008-04-11	2010-06-05	21 45 53,514885 S ± 0,0009	41 19 34,160889 W ± 0,0016	9,9357 ± 0,0010	0,0123 ± 0,0003	-0,0047 ± 0,0005	-0,0015 ± 0,0005
ROGM 41651M001	A 0001	2008-01-13	2010-06-05	10 47 3,273157 S ± 0,0008	65 19 50,187541 W ± 0,0008	157,7857 ± 0,0017	0,0105 ± 0,0001	-0,0011 ± 0,0002	-0,0040 ± 0,0004
ROJI 41658M001	A 0001	2008-04-04	2010-06-05	10 51 50,040836 S ± 0,0007	61 57 34,975987 W ± 0,0008	182,9047 ± 0,0016	0,0111 ± 0,0001	-0,0017 ± 0,0003	-0,0035 ± 0,0004
RWSN 41513M001	A 0001	2000-01-22	2010-02-26	43 17 55,971024 S ± 0,0002	65 6 26,093790 W ± 0,0004	27,3779 ± 0,0004	0,0117 ± 0,0001	-0,0018 ± 0,0002	0,0015 ± 0,0001
SAGA 41639M001	A 0001	2007-09-16	2010-06-05	0 8 37,873767 S ± 0,0002	67 3 28,011970 W ± 0,0008	94,8908 ± 0,0013	0,0101 ± 0,0001	-0,0037 ± 0,0003	0,0017 ± 0,0005
SALU 41640M001	A 0001	2007-09-05	2010-06-05	2 35 36,451746 S ± 0,0002	44 12 44,924299 W ± 0,0010	18,9921 ± 0,0010	0,0114 ± 0,0001	-0,0045 ± 0,0004	-0,0024 ± 0,0004
SALV 41618M001	A 0001	2000-01-21	2008-09-05	13 0 31,209600 S ± 0,0002	38 30 44,493289 W ± 0,0004	35,7405 ± 0,0004	0,0120 ± 0,0001	-0,0028 ± 0,0001	0,0022 ± 0,0002
SAMA 41928S001	A 0001	2006-05-04	2010-06-05	11 13 30,888460 N ± 0,0002	74 11 13,536938 W ± 0,0006	22,7363 ± 0,0008	0,0132 ± 0,0001	0,0109 ± 0,0001	-0,0069 ± 0,0003
SANT 41705M003	A 0003	2000-01-02	2010-02-26	33 9 1,037767 S ± 0,0005	70 40 6,794643 W ± 0,0007	723,0592 ± 0,0004	0,0170 ± 0,0001	0,0206 ± 0,0001	0,0032 ± 0,0003
SAVO 41643M001	A 0001	2007-09-06	2010-06-05	12 56 21,286500 S ± 0,0008	38 25 56,113623 W ± 0,0008	76,3089 ± 0,0008	0,0123 ± 0,0001	-0,0047 ± 0,0003	-0,0003 ± 0,0003
SCCH 41659M001	A 0001	2008-04-25	2010-06-05	27 8 15,234854 S ± 0,0014	52 35 58,224660 W ± 0,0012	744,2314 ± 0,0016	0,0129 ± 0,0004	-0,0032 ± 0,0004	-0,0046 ± 0,0005
SCLA 41660M001	A 0001	2008-04-04	2010-06-05	27 47 34,206613 S ± 0,0011	50 18 15,341020 W ± 0,0012	940,7022 ± 0,0010	0,0120 ± 0,0003	-0,0037 ± 0,0004	-0,0033 ± 0,0004
SCUB 40701M001	A 0002	2002-01-01	2010-06-05	20 0 43,428141 N ± 0,0005	75 45 44,338681 W ± 0,0007	20,9172 ± 0,0006	0,0038 ± 0,0002	-0,0052 ± 0,0001	0,0005 ± 0,0002
SLOF 41102S001	A 0001	2000-09-21	2002-08-04	13 25 26,106883 N ± 0,0002	87 26 11,400312 W ± 0,0006	11,9968 ± 0,0008	0,0055 ± 0,0005	0,0126 ± 0,0003	0,0006 ± 0,0014
SMAR 41621M001	A 0001	2002-07-19	2010-06-05	29 43 8,124311 S ± 0,0005	53 42 59,735580 W ± 0,0007	113,0990 ± 0,0004	0,0121 ± 0,0001	-0,0024 ± 0,0001	0,0003 ± 0,0003
SMRT 43102S001	A 0001	2007-05-25	2010-06-05	18 2 32,157613 N ± 0,0006	63 6 31,929667 W ± 0,0008	-32,4645 ± 0,0015	0,0138 ± 0,0002	0,0090 ± 0,0003	-0,0007 ± 0,0004
SRNW 43703M001	A 0001	2006-01-09	2010-06-05	5 56 42,302237 N ± 0,0002	56 59 30,946926 W ± 0,0008	-18,5178 ± 0,0008	0,0113 ± 0,0001	-0,0034 ± 0,0002	-0,0014 ± 0,0003
SRZN 43701S005	A 0001	2006-02-02	2010-06-05	5 27 20,314879 N ± 0,0005	55 12 11,074159 W ± 0,0008	-17,2581 ± 0,0008	0,0124 ± 0,0001	-0,0036 ± 0,0002	0,0011 ± 0,0002
SSA1 41644M001	A 0001	2007-09-05	2010-06-05	12 58 30,567490 S ± 0,0001	38 30 59,344930 W ± 0,0008	-2,1117 ± 0,0008	0,0117 ± 0,0002	-0,0049 ± 0,0006	0,0031 ± 0,0004
SSIA 41401S001	A 0003	2001-02-13	2003-12-28	13 41 49,505624 N ± 0,0006	89 6 59,743638 W ± 0,0016	626,6337 ± 0,0010	0,0087 ± 0,0002	0,0066 ± 0,0005	0,0042 ± 0,0004
SSIA 41401S001	A 0004	2005-06-16	2010-06-05	13 41 49,505653 N ± 0,0001	89 6 59,743918 W ± 0,0006	626,6336 ± 0,0008	0,0076 ± 0,0001	0,0077 ± 0,0004	0,0026 ± 0,0002



Station	ID-SHX	Start	End	Latitude [° ' " ] ± [m]	Longitude [° ' " ] ± [m]	Ellipsoidal height [m]	VN [m/a]	VE [m/a]	Vh [m/a]	
TAMP	40516M001	A 0001	2005-01-09	2010-06-05	22 16 41,955923 N ± 0,0001	97 51 50,497004 W ± 0,0006	21,0510 ± 0,0008	-0,0031 ± 0,0001	-0,0096 ± 0,0003	-0,0009 ± 0,0002
TEGI	4110IS002	A 0001	2001-10-25	2004-04-07	14 5 24,263266 N ± 0,0006	87 12 20,323233 W ± 0,0004	951,3508 ± 0,0010	0,0048 ± 0,0006	0,0093 ± 0,0003	0,0037 ± 0,0015
TEGU	4110IS001	A 0001	2000-07-18	2002-03-21	14 5 25,583256 N ± 0,0002	87 12 20,145296 W ± 0,0005	948,8026 ± 0,0008	0,0093 ± 0,0006	0,0159 ± 0,0003	-0,0017 ± 0,0016
TGCY	3960IS001	A 0001	2000-04-30	2004-12-26	16 45 17,184350 N ± 0,0006	22 58 57,924205 W ± 0,0016	35,2068 ± 0,0016	0,0141 ± 0,0006	0,0206 ± 0,0011	-0,0034 ± 0,0014
TOGU	4166IM001	A 0001	2008-04-16	2010-06-05	11 44 48,140196 S ± 0,0009	49 2 56,755249 W ± 0,0012	272,6047 ± 0,0010	0,0115 ± 0,0002	-0,0031 ± 0,0004	-0,0037 ± 0,0004
TOL2	40515M001	A 0001	2005-01-09	2010-06-05	19 17 35,643778 N ± 0,0007	99 38 36,499257 W ± 0,0003	2651,7278 ± 0,0008	-0,0020 ± 0,0001	-0,0065 ± 0,0002	-0,0015 ± 0,0002
TOPL	41648M001	A 0001	2008-01-02	2010-06-05	10 10 15,790483 S ± 0,0008	48 19 50,445025 W ± 0,0008	256,5551 ± 0,0010	0,0123 ± 0,0001	-0,0041 ± 0,0003	-0,0028 ± 0,0004
TUCU	41520S001	A 0001	2002-01-01	2006-01-23	26 50 35,718869 S ± 0,0007	65 13 49,265758 W ± 0,0003	485,0516 ± 0,0008	0,0116 ± 0,0002	0,0017 ± 0,0002	0,0013 ± 0,0003
TUCU	41520S001	A 0002	2006-08-31	2010-06-05	26 50 35,718779 S ± 0,0008	65 13 49,265725 W ± 0,0008	485,0596 ± 0,0016	0,0099 ± 0,0002	0,0026 ± 0,0002	-0,0065 ± 0,0003
TUNA	41930S001	A 0001	2005-10-18	2010-06-05	5 31 52,782501 N ± 0,0007	73 21 49,975478 W ± 0,0003	2831,8542 ± 0,0008	0,0126 ± 0,0001	0,0018 ± 0,0001	0,0018 ± 0,0002
UBAT	41627M001	A 0001	2006-01-02	2008-04-11	23 30 0,635453 S ± 0,0016	45 7 8,046964 W ± 0,0015	6,0509 ± 0,0013	0,0118 ± 0,0010	-0,0025 ± 0,0014	0,0050 ± 0,0013
UBER	41625M001	A 0001	2004-07-14	2010-06-05	18 53 22,326873 S ± 0,0001	48 19 1,097643 W ± 0,0003	791,7910 ± 0,0004	0,0115 ± 0,0001	-0,0035 ± 0,0001	-0,0004 ± 0,0002
UCOR	41502M001	A 0001	2004-04-05	2010-02-26	31 26 5,856855 S ± 0,0010	64 11 36,620273 W ± 0,0008	462,7710 ± 0,0010	0,0114 ± 0,0004	0,0016 ± 0,0004	0,0023 ± 0,0005
UEPP	4161IM001	A 0001	2000-01-21	2005-12-08	22 7 11,655046 S ± 0,0003	51 24 30,722457 W ± 0,0003	430,9350 ± 0,0004	0,0131 ± 0,0001	-0,0025 ± 0,0001	0,0009 ± 0,0002
UFRP	41610M002	A 0001	2007-09-05	2010-06-05	25 26 54,125073 S ± 0,0008	49 13 51,437483 W ± 0,0008	925,7880 ± 0,0008	0,0127 ± 0,0002	-0,0036 ± 0,0003	-0,0016 ± 0,0003
UGTO	40528M001	A 0001	2007-07-26	2010-06-05	21 0 9,754995 N ± 0,0006	101 16 17,990905 W ± 0,0008	2062,2689 ± 0,0010	-0,0033 ± 0,0003	-0,0088 ± 0,0001	0,0009 ± 0,0005
UNRO	41525M001	A 0001	2004-04-02	2010-02-26	32 57 33,671109 S ± 0,0001	60 37 42,330702 W ± 0,0004	66,8695 ± 0,0004	0,0119 ± 0,0001	0,0006 ± 0,0001	0,0011 ± 0,0001
UNSA	41514M001	A 0001	2000-01-02	2008-07-27	24 43 38,843358 S ± 0,0002	65 24 27,516125 W ± 0,0004	1257,7939 ± 0,0004	0,0121 ± 0,0001	0,0052 ± 0,0001	0,0007 ± 0,0003
UNSJ	41527M001	A 0001	2007-05-06	2010-02-26	31 32 28,528785 S ± 0,0006	68 34 37,419035 W ± 0,0008	708,9165 ± 0,0016	0,0131 ± 0,0003	0,0094 ± 0,0002	-0,0013 ± 0,0004
USLP	40530M001	A 0001	2008-09-01	2010-06-05	22 8 39,239216 N ± 0,0011	101 0 56,405743 W ± 0,0008	1892,8610 ± 0,0010	-0,0022 ± 0,0005	-0,0092 ± 0,0003	-0,0010 ± 0,0009
UYRO	42303M001	A 0001	2008-02-24	2010-06-05	34 0 3,618437 S ± 0,0010	53 33 17,372223 W ± 0,0012	58,9716 ± 0,0015	0,0121 ± 0,0004	-0,0049 ± 0,0004	-0,0001 ± 0,0004
VALL	41906S001	A 0001	2004-03-24	2009-11-04	10 28 26,276349 N ± 0,0003	73 15 7,092946 W ± 0,0005	208,4952 ± 0,0008	0,0141 ± 0,0001	0,0089 ± 0,0001	-0,0005 ± 0,0002
VALP	41712S001	A 0001	2000-05-11	2010-02-26	33 1 38,076762 S ± 0,0002	71 37 33,931736 W ± 0,0003	31,3746 ± 0,0005	0,0221 ± 0,0001	0,0271 ± 0,0002	-0,0023 ± 0,0001
VARG	41626M001	A 0001	2004-06-22	2009-09-06	21 32 33,662366 S ± 0,0006	45 26 5,552445 W ± 0,0008	958,6374 ± 0,0008	0,0114 ± 0,0002	-0,0027 ± 0,0003	-0,0013 ± 0,0002
VBCA	41512M001	A 0001	2000-03-08	2010-02-26	38 42 2,766002 S ± 0,0002	62 16 9,217585 W ± 0,0005	59,4652 ± 0,0004	0,0115 ± 0,0001	-0,0006 ± 0,0001	0,0014 ± 0,0003
VESL	66009M001	A 0001	2000-01-26	2010-06-05	71 40 25,666625 S ± 0,0003	2 50 30,417838 W ± 0,0005	862,3592 ± 0,0006	0,0107 ± 0,0001	0,0000 ± 0,0001	0,0004 ± 0,0002
VICO	41613M001	A 0001	2000-01-21	2010-06-05	20 45 41,399944 S ± 0,0002	42 52 11,962500 W ± 0,0003	665,9403 ± 0,0004	0,0127 ± 0,0001	-0,0034 ± 0,0001	0,0001 ± 0,0002
VIL2	40527M001	A 0001	2005-01-09	2010-06-05	17 59 25,478322 N ± 0,0003	92 55 51,953364 W ± 0,0004	27,7487 ± 0,0008	0,0002 ± 0,0001	-0,0080 ± 0,0001	-0,0018 ± 0,0002
VIV1	41931S001	A 0001	2005-09-18	2010-03-26	4 4 28,780816 N ± 0,0002	73 35 2,376202 W ± 0,0003	407,2774 ± 0,0008	0,0072 ± 0,0001	-0,0024 ± 0,0001	-0,0009 ± 0,0003



Station	ID-SMX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]	
ALAR	41653M001	A 0001	2008-04-11	2010-05-08	5043729,7015 ± 0,0029	-3753105,5463 ± 0,0023	-1072966,9947 ± 0,0009	0,0008 ± 0,0006	-0,0061 ± 0,0005	0,0120 ± 0,0002
ANTC	41713S001	A 0001	2002-07-01	2009-07-10	1608539,5702 ± 0,0002	-4816369,7117 ± 0,0004	-3847798,5372 ± 0,0003	0,0171 ± 0,0002	-0,0033 ± 0,0001	0,0071 ± 0,0003
AOML	49914S001	A 0001	2000-01-02	2004-04-05	982296,7179 ± 0,0001	-5664607,2093 ± 0,0004	2752614,4991 ± 0,0002	-0,0115 ± 0,0001	0,0024 ± 0,0003	0,0001 ± 0,0002
APTO	41933S001	A 0001	2007-11-04	2010-01-11	1460797,7995 ± 0,0009	-6147200,8328 ± 0,0029	868399,4418 ± 0,0007	0,0137 ± 0,0002	0,0069 ± 0,0006	0,0099 ± 0,0002
ARCA	41909S001	A 0001	2008-08-05	2010-06-05	2086018,6891 ± 0,0003	-5976299,5819 ± 0,0009	781400,4832 ± 0,0003	-0,0043 ± 0,0002	0,0009 ± 0,0003	0,0099 ± 0,0001
AREQ	42202M005	A 0005	2002-02-27	2007-12-01	1942826,2150 ± 0,0016	-5804070,3136 ± 0,0040	-1796894,2597 ± 0,0009	-0,0033 ± 0,0003	-0,0079 ± 0,0008	0,0025 ± 0,0002
AREQ	42202M005	A 0006	2007-12-02	2010-06-05	1942826,1963 ± 0,0006	-5804070,3378 ± 0,0016	-1796894,2736 ± 0,0006	0,0035 ± 0,0001	-0,0002 ± 0,0003	0,0089 ± 0,0001
ASCI	30602M001	A 0001	2000-01-02	2007-09-03	6118526,0529 ± 0,0005	-1572344,7367 ± 0,0002	-876451,0657 ± 0,0001	-0,0015 ± 0,0002	-0,0052 ± 0,0001	0,0117 ± 0,0003
AUTF	41515S001	A 0001	2002-01-10	2010-06-05	1360918,8683 ± 0,0001	-3420457,9182 ± 0,0003	-5191175,2218 ± 0,0005	0,0121 ± 0,0002	-0,0067 ± 0,0001	0,0056 ± 0,0002
AZUE	41301M001	A 0001	2008-10-20	2010-06-05	1049978,0685 ± 0,0012	-6229340,6575 ± 0,0045	876934,1654 ± 0,0011	0,0252 ± 0,0003	0,0044 ± 0,0009	0,0132 ± 0,0002
AZUL	41529M001	A 0001	2007-08-30	2010-02-26	2566993,1155 ± 0,0011	-4424962,7697 ± 0,0017	-3796807,7728 ± 0,0015	0,0043 ± 0,0002	-0,0087 ± 0,0004	0,0071 ± 0,0003
BANS	42403M001	A 0001	2006-05-21	2009-12-12	2132376,3733 ± 0,0008	-5935471,3255 ± 0,0020	948857,2327 ± 0,0005	-0,0034 ± 0,0002	-0,0012 ± 0,0005	0,0103 ± 0,0003
BDO5	43401M001	A 0002	2004-06-12	2007-12-01	3143382,1850 ± 0,0015	-5359714,8218 ± 0,0024	1434875,7847 ± 0,0008	0,0186 ± 0,0003	0,0094 ± 0,0005	0,0162 ± 0,0002
BDO5	43401M001	A 0003	2007-12-02	2010-06-05	3143382,2149 ± 0,0019	-5359714,8109 ± 0,0031	1434875,7922 ± 0,0010	0,0098 ± 0,0005	0,0064 ± 0,0009	0,0140 ± 0,0003
BELE	41622M001	A 0001	2004-01-01	2010-06-05	4228139,0392 ± 0,0005	-4772752,0879 ± 0,0005	-155761,3053 ± 0,0001	-0,0033 ± 0,0001	-0,0040 ± 0,0001	0,0127 ± 0,0002
BERR	41910S001	A 0001	2007-05-25	2010-06-05	1703223,6721 ± 0,0009	-6104502,3420 ± 0,0026	716436,9068 ± 0,0005	0,0071 ± 0,0002	0,0043 ± 0,0006	0,0123 ± 0,0003
BOAV	41636M001	A 0001	2007-09-05	2010-06-05	3117452,2090 ± 0,0003	-5555487,8246 ± 0,0010	314480,8069 ± 0,0002	-0,0009 ± 0,0002	-0,0053 ± 0,0002	0,0121 ± 0,0003
BOGA	41901M002	A 0001	2000-02-09	2005-04-20	1744517,3883 ± 0,0004	-6116051,5971 ± 0,0011	512580,8988 ± 0,0002	-0,0157 ± 0,0002	0,0411 ± 0,0005	0,0178 ± 0,0001
BOGA	41901M002	A 0002	2005-04-23	2010-06-05	1744517,3835 ± 0,0014	-6116051,5879 ± 0,0025	512580,9006 ± 0,0004	-0,0187 ± 0,0003	0,0526 ± 0,0005	0,0169 ± 0,0001
BOGT	41901M001	A 0003	2002-05-23	2005-07-06	1744399,0322 ± 0,0001	-6116037,5303 ± 0,0003	512731,7202 ± 0,0001	-0,0102 ± 0,0001	0,0357 ± 0,0002	0,0113 ± 0,0002
BOGT	41901M001	A 0005	2005-07-12	2010-06-05	1744399,0290 ± 0,0003	-6116037,5142 ± 0,0009	512731,7258 ± 0,0002	-0,0120 ± 0,0001	0,0451 ± 0,0002	0,0118 ± 0,0002
BOMJ	41612M001	A 0001	2000-01-21	2010-06-05	4510195,8260 ± 0,0003	-4268322,3339 ± 0,0003	-1453035,2266 ± 0,0001	-0,0002 ± 0,0002	-0,0060 ± 0,0001	0,0124 ± 0,0004
BRMZ	41606M001	A 0001	2000-01-02	2010-06-05	4115014,0793 ± 0,0002	-4550641,5602 ± 0,0002	-1741443,9550 ± 0,0001	0,0000 ± 0,0002	-0,0057 ± 0,0001	0,0121 ± 0,0003
BRFT	41602M002	A 0003	2005-09-18	2010-06-05	4985393,5371 ± 0,0017	-3954993,4188 ± 0,0014	-428426,7041 ± 0,0004	-0,0021 ± 0,0004	-0,0034 ± 0,0003	0,0119 ± 0,0001
BRMU	42501S004	A 0002	2000-01-02	2010-06-05	2304703,4773 ± 0,0001	-4874817,1824 ± 0,0003	3395186,9618 ± 0,0002	-0,0125 ± 0,0004	-0,0018 ± 0,0001	0,0062 ± 0,0002
BUCA	41911S001	A 0001	2005-09-28	2009-05-09	1838191,2874 ± 0,0005	-6057527,6738 ± 0,0014	785312,2029 ± 0,0003	0,0038 ± 0,0001	0,0022 ± 0,0004	0,0153 ± 0,0002
BUEN	41912S001	A 0001	2005-10-05	2010-06-05	1430383,8472 ± 0,0003	-6200818,1713 ± 0,0008	428933,9747 ± 0,0002	0,0058 ± 0,0001	0,0010 ± 0,0002	0,0136 ± 0,0004
CALI	41903S001	A 0001	2004-02-25	2010-06-05	1483099,9371 ± 0,0002	-6193060,1906 ± 0,0007	373124,0494 ± 0,0001	0,0032 ± 0,0001	0,0001 ± 0,0002	0,0140 ± 0,0002
CAM2	40514M001	A 0001	2005-01-09	2008-12-13	-56581,3328 ± 0,0002	-6001449,5704 ± 0,0013	2151509,1614 ± 0,0005	-0,0080 ± 0,0001	0,0004 ± 0,0004	-0,0011 ± 0,0002
CART	41902M001	A 0002	2000-02-03	2008-08-19	1567348,5984 ± 0,0001	-6075293,5222 ± 0,0004	1142850,8162 ± 0,0001	0,0117 ± 0,0003	0,0065 ± 0,0001	0,0094 ± 0,0002
CBSB	80402M001	A 0001	2005-11-19	2010-06-05	1060277,1915 ± 0,0003	-5912339,3952 ± 0,0011	-1377708,3880 ± 0,0005	-0,0083 ± 0,0001	0,0001 ± 0,0003	0,0015 ± 0,0002
CEEU	41602M003	A 0001	2008-04-15	2010-06-05	4985392,7361 ± 0,0027	-3954993,2824 ± 0,0022	-428437,8993 ± 0,0006	0,0020 ± 0,0006	-0,0045 ± 0,0005	0,0124 ± 0,0002
CEFE	41637M001	A 0001	2007-09-05	2010-06-05	4562488,4961 ± 0,0017	-3871935,8023 ± 0,0015	-2200001,5119 ± 0,0009	-0,0001 ± 0,0004	-0,0059 ± 0,0003	0,0121 ± 0,0002
CFAG	41517S001	A 0001	2000-01-02	2010-02-26	2016584,8745 ± 0,0001	-5050165,6339 ± 0,0002	-3323308,7624 ± 0,0001	0,0084 ± 0,0002	-0,0042 ± 0,0001	0,0101 ± 0,0002
CHET	40526M001	A 0001	2005-01-09	2010-06-05	179584,7815 ± 0,0002	-6048080,6724 ± 0,0009	2010447,3590 ± 0,0003	-0,0080 ± 0,0002	0,0022 ± 0,0002	-0,0004 ± 0,0003



Station	ID-SMX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]
CHIH 40525M001	A 0001	2005-01-11	2010-06-05	-1552307,7949 ± 0,0002	-5382771,9616 ± 0,0007	3041779,7985 ± 0,0004	-0,0120 ± 0,0002	0,0011 ± 0,0002	-0,0061 ± 0,0003
CHPI 41609M003	A 0001	2003-05-08	2010-06-05	4164613,8805 ± 0,0003	-4162456,8758 ± 0,0003	-2445028,8023 ± 0,0002	0,0022 ± 0,0002	-0,0068 ± 0,0001	0,0111 ± 0,0002
CIC1 40508M002	A 0002	2000-01-02	2009-12-13	-2433177,0944 ± 0,0001	4845044,8843 ± 0,0003	3348295,8767 ± 0,0002	-0,0322 ± 0,0004	0,0280 ± 0,0001	0,0166 ± 0,0001
COL2 40524M001	A 0001	2005-01-09	2010-06-05	-1427005,6229 ± 0,0003	5852976,0374 ± 0,0008	2089088,9665 ± 0,0005	-0,0047 ± 0,0002	-0,0015 ± 0,0004	-0,0013 ± 0,0002
CONZ 41719M002	A 0001	2002-06-10	2005-05-13	1492007,5824 ± 0,0009	-4887910,7205 ± 0,0023	-3803639,9341 ± 0,0023	0,0335 ± 0,0002	-0,0014 ± 0,0005	0,0185 ± 0,0005
CONZ 41719M002	A 0002	2005-05-18	2010-02-26	1492007,5792 ± 0,0003	-4887910,7180 ± 0,0008	-3803639,9376 ± 0,0006	0,0363 ± 0,0001	-0,0023 ± 0,0004	0,0171 ± 0,0003
COPO 41714S001	A 0001	2002-07-01	2006-04-28	1907040,7622 ± 0,0002	-5337379,0125 ± 0,0008	-2916334,8405 ± 0,0003	0,0228 ± 0,0001	-0,0055 ± 0,0002	0,0126 ± 0,0001
COPO 41714S001	A 0002	2006-05-03	2010-06-05	1907040,7453 ± 0,0002	-5337379,0168 ± 0,0005	-2916334,8322 ± 0,0004	0,0226 ± 0,0002	-0,0021 ± 0,0001	0,0145 ± 0,0001
CORD 41511M001	A 0001	2000-01-02	2006-05-02	2345503,8795 ± 0,0005	-4910842,8324 ± 0,0012	-3316365,3530 ± 0,0007	0,0029 ± 0,0001	-0,0053 ± 0,0003	0,0112 ± 0,0002
COYQ 41715S001	A 0001	2000-01-02	2004-09-07	1391587,1947 ± 0,0003	-4255574,4731 ± 0,0005	-4527925,9505 ± 0,0004	-0,0010 ± 0,0002	-0,0085 ± 0,0002	0,0075 ± 0,0003
COYQ 41715S001	A 0002	2007-12-06	2010-06-05	1391587,1931 ± 0,0001	-4255574,4853 ± 0,0003	-4527925,9551 ± 0,0003	0,0032 ± 0,0002	-0,0035 ± 0,0002	0,0068 ± 0,0002
CRAT 41619M001	A 0001	2001-08-20	2005-06-29	4888826,0204 ± 0,0004	-4017957,4489 ± 0,0009	-798308,9441 ± 0,0004	-0,0003 ± 0,0001	-0,0036 ± 0,0002	0,0118 ± 0,0002
CRAT 41619M001	A 0002	2005-08-16	2008-01-26	4888826,0191 ± 0,0032	-4017957,4574 ± 0,0027	-798308,9459 ± 0,0008	0,0069 ± 0,0009	0,0017 ± 0,0008	0,0125 ± 0,0002
CRAT 41619M001	A 0003	2008-03-07	2010-06-05	4888826,0169 ± 0,0026	-4017957,4531 ± 0,0022	-798308,9501 ± 0,0007	0,0025 ± 0,0006	-0,0019 ± 0,0005	0,0128 ± 0,0002
CRCS 42401M001	A 0001	2006-05-21	2010-06-02	2459721,8620 ± 0,0011	-5770508,8818 ± 0,0010	1155112,0326 ± 0,0003	0,0004 ± 0,0005	0,0004 ± 0,0005	0,0116 ± 0,0002
CRO1 43201M001	A 0002	2000-01-02	2005-01-19	2607771,2148 ± 0,0006	-5488076,6979 ± 0,0014	1932767,7924 ± 0,0004	0,0072 ± 0,0001	0,0110 ± 0,0003	0,0112 ± 0,0001
CRO1 43201M001	A 0003	2005-08-04	2010-05-22	2607771,2211 ± 0,0003	-5488076,7008 ± 0,0006	1932767,7942 ± 0,0002	0,0077 ± 0,0002	0,0094 ± 0,0003	0,0121 ± 0,0002
CUCU 41904S001	A 0001	2004-03-04	2010-06-05	1901228,7062 ± 0,0002	-6025504,3029 ± 0,0006	870700,4709 ± 0,0002	0,0028 ± 0,0001	0,0023 ± 0,0002	0,0138 ± 0,0003
CUJB 41603M001	A 0001	2000-01-21	2010-06-05	3430711,3991 ± 0,0002	-5099641,5746 ± 0,0003	-1699432,8687 ± 0,0001	-0,0006 ± 0,0001	-0,0060 ± 0,0001	0,0114 ± 0,0003
CUILC 40529M001	A 0001	2007-10-04	2010-06-05	-1733738,9714 ± 0,0008	-5528108,5909 ± 0,0023	2658500,5627 ± 0,0012	-0,0123 ± 0,0002	0,0011 ± 0,0005	-0,0072 ± 0,0003
CULI 40523M001	A 0001	2005-01-09	2007-07-13	-1730936,7044 ± 0,0007	-5528855,2526 ± 0,0019	2658865,6291 ± 0,0010	-0,0107 ± 0,0002	0,0001 ± 0,0006	-0,0063 ± 0,0003
DAVI 41302M001	A 0001	2008-10-20	2010-05-30	830823,7003 ± 0,0012	-6254882,4724 ± 0,0050	9288362,9878 ± 0,0012	0,0223 ± 0,0002	0,0031 ± 0,0010	0,0117 ± 0,0002
DORA 41915S001	A 0001	2006-02-16	2010-06-05	1679425,2181 ± 0,0004	-6123536,8684 ± 0,0012	602182,2426 ± 0,0002	0,0037 ± 0,0002	0,0007 ± 0,0003	0,0148 ± 0,0001
EISL 41703M003	A 0001	2000-01-02	2005-01-29	-1884951,2312 ± 0,0004	-5357596,0200 ± 0,0010	-2892890,5448 ± 0,0006	0,0656 ± 0,0003	-0,0181 ± 0,0006	-0,0039 ± 0,0004
ELEN 40902S001	A 0001	2001-12-08	2008-10-30	14103,7801 ± 0,0001	-6103995,0174 ± 0,0005	1843981,7423 ± 0,0002	-0,0072 ± 0,0003	-0,0035 ± 0,0002	0,0015 ± 0,0003
ESTI 41202S001	A 0001	2000-05-12	2003-02-26	394283,5438 ± 0,0001	-6201541,4114 ± 0,0006	1436325,8510 ± 0,0002	0,0145 ± 0,0001	-0,0001 ± 0,0006	0,0123 ± 0,0002
ETCG 40602M001	A 0001	2003-02-11	2009-01-10	645208,2373 ± 0,0002	-6249842,1966 ± 0,0008	1100399,4363 ± 0,0002	0,0133 ± 0,0002	0,0053 ± 0,0003	0,0155 ± 0,0001
EXU0 43606M001	A 0001	2007-07-01	2009-09-08	1427635,0868 ± 0,0011	-5672506,9017 ± 0,0035	2534091,6880 ± 0,0017	-0,0081 ± 0,0003	0,0001 ± 0,0008	0,0045 ± 0,0004
FLOR 41916S001	A 0001	2006-11-02	2010-05-26	1585141,1007 ± 0,0004	-6175731,4488 ± 0,0014	179144,8504 ± 0,0002	-0,0025 ± 0,0002	-0,0007 ± 0,0003	0,0077 ± 0,0001
FORT 41602M001	A 0002	2000-01-09	2006-04-08	4985386,5948 ± 0,0008	-3954998,6000 ± 0,0006	-428426,3737 ± 0,0001	0,0009 ± 0,0004	-0,0055 ± 0,0003	0,0122 ± 0,0003
FQNE 41936S001	A 0001	2007-09-30	2010-06-05	1779063,7800 ± 0,0011	-6097672,8933 ± 0,0032	603896,6873 ± 0,0006	0,0017 ± 0,0002	0,0030 ± 0,0007	0,0124 ± 0,0003
GALA 42005M001	A 0001	2000-02-03	2002-11-09	-33795,7056 ± 0,0002	-6377522,6299 ± 0,0006	-82120,8067 ± 0,0001	0,0505 ± 0,0002	0,0009 ± 0,0007	0,0094 ± 0,0001
GCGT 80401M001	A 0001	2005-06-09	2010-06-05	902661,6760 ± 0,0002	-5954125,6696 ± 0,0008	2093986,0159 ± 0,0003	-0,0073 ± 0,0001	0,0013 ± 0,0002	0,0009 ± 0,0002
GLPS 42005M002	A 0001	2003-01-07	2010-06-02	-33801,6544 ± 0,0001	-6377516,5231 ± 0,0004	-82154,3861 ± 0,0001	0,0509 ± 0,0002	-0,0015 ± 0,0001	0,0098 ± 0,0004
GOJA 41654M001	A 0001	2008-06-10	2010-06-05	3761502,4307 ± 0,0024	-4767353,0198 ± 0,0029	-1946325,9293 ± 0,0014	-0,0060 ± 0,0005	0,0020 ± 0,0006	0,0140 ± 0,0003



Station	ID-SWX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]
GOLD 404055031	A 0005	2000-07-01	2010-06-05	-2353614,3184 ± 0,0001	-4641385,3266 ± 0,0002	3676976,4367 ± 0,0002	-0,0172 ± 0,0002	0,0058 ± 0,0001	-0,0028 ± 0,0004
GOUQ 30608M001	A 0001	2000-01-02	2006-12-07	4795578,6683 ± 0,0005	-835299,3858 ± 0,0002	-4107633,9468 ± 0,0004	0,0173 ± 0,0003	0,0181 ± 0,0001	0,0136 ± 0,0003
GREO 43501S001	A 0001	2007-07-01	2010-06-05	2961421,0273 ± 0,0010	-5486288,7830 ± 0,0017	1341394,3248 ± 0,0006	0,0095 ± 0,0002	0,0108 ± 0,0004	0,0136 ± 0,0003
GTKO 43602S007	A 0001	2007-07-01	2010-06-05	1919596,6607 ± 0,0008	-5620954,2318 ± 0,0020	2316053,9326 ± 0,0009	-0,0070 ± 0,0002	-0,0019 ± 0,0004	0,0068 ± 0,0002
GUAT 40901S001	A 0001	2000-07-30	2010-06-05	-560663,5818 ± 0,0001	-6174978,6718 ± 0,0003	1596665,2711 ± 0,0001	0,0057 ± 0,0002	0,0003 ± 0,0001	0,0031 ± 0,0003
GVAL 41623M001	A 0001	2004-06-22	2010-06-05	4490200,8037 ± 0,0006	-4036984,9499 ± 0,0005	-2048288,3359 ± 0,0003	0,0007 ± 0,0002	-0,0057 ± 0,0001	0,0122 ± 0,0003
HER2 40522M001	A 0001	2005-01-09	2010-06-05	-1996003,9573 ± 0,0003	-5208674,5179 ± 0,0007	3082959,5846 ± 0,0004	-0,0126 ± 0,0002	0,0009 ± 0,0002	-0,0067 ± 0,0003
IBAG 41918S001	A 0001	2006-02-18	2010-01-13	1623166,6348 ± 0,0008	-6149837,6525 ± 0,0025	489244,1722 ± 0,0005	0,0022 ± 0,0002	0,0011 ± 0,0006	0,0129 ± 0,0001
IGMO 41505M002	A 0001	2000-01-21	2003-12-29	2751801,0632 ± 0,0002	-4479882,6988 ± 0,0004	-3598917,2172 ± 0,0003	0,0021 ± 0,0002	-0,0061 ± 0,0003	0,0101 ± 0,0003
IGM1 41505M003	A 0001	2003-11-09	2010-02-26	2751804,0369 ± 0,0003	-4479879,2931 ± 0,0005	-3598922,5209 ± 0,0004	0,0042 ± 0,0002	-0,0075 ± 0,0001	0,0082 ± 0,0001
IMBT 41638M001	A 0001	2007-09-05	2010-06-05	3714771,5527 ± 0,0013	-4221851,1015 ± 0,0015	-2999473,8766 ± 0,0011	0,0006 ± 0,0003	-0,0063 ± 0,0003	0,0113 ± 0,0002
IMPZ 41615M001	A 0001	2000-01-21	2010-06-05	4289656,4300 ± 0,0003	-4680884,9431 ± 0,0003	-606347,2625 ± 0,0001	-0,0029 ± 0,0001	-0,0033 ± 0,0001	0,0123 ± 0,0003
INEG 40507M001	A 0004	2000-05-05	2002-03-22	-1260435,6628 ± 0,0003	-5788547,1957 ± 0,0010	2360340,0783 ± 0,0004	0,0032 ± 0,0004	0,0798 ± 0,0013	-0,0357 ± 0,0006
INEG 40507M001	A 0005	2004-11-15	2010-06-05	-1260435,6810 ± 0,0002	-5788547,2678 ± 0,0007	2360340,0958 ± 0,0003	-0,0018 ± 0,0003	0,0321 ± 0,0002	-0,0172 ± 0,0002
IQQE 41708S002	A 0001	2002-07-01	2005-06-11	2034208,5023 ± 0,0005	-5629172,2694 ± 0,0013	-2196141,8495 ± 0,0006	0,0284 ± 0,0003	0,0010 ± 0,0006	0,0144 ± 0,0003
IQQE 41708S002	A 0002	2005-06-14	2010-06-05	2034208,4658 ± 0,0005	-5629172,3233 ± 0,0013	-2196141,8798 ± 0,0006	0,0228 ± 0,0001	0,0021 ± 0,0003	0,0149 ± 0,0001
ISPA 41703M007	A 0001	2004-02-14	2010-06-05	-1881703,6579 ± 0,0003	-5359979,7213 ± 0,0006	-2890599,2405 ± 0,0003	0,0630 ± 0,0001	-0,0213 ± 0,0001	-0,0057 ± 0,0001
JAMA 42601S001	A 0001	2000-01-02	2007-08-17	1388059,8267 ± 0,0001	-5909149,0365 ± 0,0005	1951963,8836 ± 0,0002	0,0018 ± 0,0002	0,0049 ± 0,0005	0,0087 ± 0,0002
KOUR 97301M210	A 0002	2000-01-02	2006-07-01	3839591,3859 ± 0,0007	-5059567,5616 ± 0,0008	579957,0449 ± 0,0002	-0,0029 ± 0,0001	-0,0035 ± 0,0002	0,0125 ± 0,0002
KOUR 97301M210	A 0003	2006-06-22	2010-06-05	3839591,3886 ± 0,0003	-5059567,5637 ± 0,0003	579957,0464 ± 0,0001	-0,0026 ± 0,0001	-0,0019 ± 0,0002	0,0129 ± 0,0002
KYWI 49852S001	A 0002	2000-01-02	2007-10-10	842464,4309 ± 0,0001	-5741929,0075 ± 0,0003	2637061,5226 ± 0,0002	-0,0094 ± 0,0002	-0,0004 ± 0,0001	0,0017 ± 0,0003
LHCL 41518S001	A 0001	2002-06-24	2010-02-26	2079355,6136 ± 0,0002	-4582903,4587 ± 0,0004	-3905925,6689 ± 0,0004	0,0038 ± 0,0001	-0,0081 ± 0,0001	0,0066 ± 0,0001
LPZ 40521M001	A 0001	2005-01-09	2010-06-05	-2022283,3323 ± 0,0003	-5461274,2454 ± 0,0007	2592317,0944 ± 0,0004	-0,0420 ± 0,0001	0,0259 ± 0,0002	0,0179 ± 0,0001
LPGS 41510M001	A 0001	2000-01-02	2010-02-26	2780102,9980 ± 0,0002	-4437418,9184 ± 0,0003	-3629404,5129 ± 0,0002	0,0045 ± 0,0001	-0,0085 ± 0,0001	0,0081 ± 0,0001
MABA 41642M001	A 0001	2007-09-05	2010-06-05	4156055,6547 ± 0,0001	-4801656,5232 ± 0,0006	-592100,5961 ± 0,0002	-0,0038 ± 0,0001	-0,0012 ± 0,0004	0,0137 ± 0,0003
MANA 41201S001	A 0001	2000-05-14	2004-10-10	407981,8417 ± 0,0016	-6222925,7044 ± 0,0019	1333528,9843 ± 0,0005	0,0052 ± 0,0003	0,0028 ± 0,0004	0,0085 ± 0,0003
MANA 41201S001	A 0002	2004-10-11	2010-06-05	407981,8351 ± 0,0002	-6222925,7151 ± 0,0009	1333528,9684 ± 0,0003	0,0072 ± 0,0004	0,0036 ± 0,0002	0,0065 ± 0,0001
MAPA 41629M001	A 0001	2006-01-13	2010-06-05	4005461,1420 ± 0,0008	-4963550,3120 ± 0,0009	5162,3014 ± 0,0002	-0,0010 ± 0,0002	-0,0044 ± 0,0002	0,0121 ± 0,0004
MARA 42402M001	A 0001	2000-01-21	2008-05-26	1976117,1510 ± 0,0020	-5948895,1559 ± 0,0057	1173592,2347 ± 0,0013	0,0087 ± 0,0004	0,0041 ± 0,0012	0,0124 ± 0,0003
MARA 42402M001	A 0002	2008-07-16	2010-06-05	1976117,1652 ± 0,0002	-5948895,1708 ± 0,0005	1173592,2347 ± 0,0001	0,0052 ± 0,0001	0,0114 ± 0,0002	0,0122 ± 0,0003
MCLA 41624M001	A 0001	2004-06-22	2010-06-05	4404519,5868 ± 0,0006	-4235798,4087 ± 0,0006	-1823409,1078 ± 0,0003	0,0013 ± 0,0002	-0,0057 ± 0,0001	0,0112 ± 0,0001
MDO1 40442M012	A 0001	2000-01-02	2004-12-02	-1329998,7768 ± 0,0002	-5328393,3762 ± 0,0007	3236504,1678 ± 0,0004	-0,0140 ± 0,0002	-0,0002 ± 0,0002	-0,0052 ± 0,0001
MDO1 40442M012	A 0003	2004-12-08	2010-06-05	-1329998,7774 ± 0,0001	-5328393,3671 ± 0,0004	3236504,1664 ± 0,0003	-0,0118 ± 0,0002	0,0002 ± 0,0003	-0,0058 ± 0,0002
MECO 41526M001	A 0001	2006-10-19	2009-02-17	2946968,5639 ± 0,0015	-4730056,9633 ± 0,0023	-3091865,0146 ± 0,0016	0,0043 ± 0,0004	-0,0082 ± 0,0006	0,0084 ± 0,0004
MEDE 41921S001	A 0001	2005-09-18	2008-11-22	1579608,4314 ± 0,0006	-6142783,8370 ± 0,0018	684352,2989 ± 0,0004	0,0028 ± 0,0002	-0,0014 ± 0,0005	0,0114 ± 0,0001



Station	ID-SWX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]
MERI 40520M001	A 0001	2005-01-09	2010-06-05	39480,7859 ± 0,0001	-5957733,1024 ± 0,0008	2269335,1276 ± 0,0004	-0,0085 ± 0,0002	0,0008 ± 0,0002	-0,0002 ± 0,0001
MEXI 40519M001	A 0001	2005-01-09	2010-04-03	-2312590,9054 ± 0,0004	-4853743,6620 ± 0,0007	3419740,4538 ± 0,0005	-0,0208 ± 0,0002	0,0129 ± 0,0002	0,0154 ± 0,0001
MGIN 41647M001	A 0001	2008-02-13	2010-06-05	4076879,9509 ± 0,0019	4270390,9320 ± 0,0020	-2407418,0676 ± 0,0012	-0,0003 ± 0,0004	-0,0051 ± 0,0004	0,0121 ± 0,0003
MGMC 41624M002	A 0001	2008-04-06	2010-06-05	4406284,9485 ± 0,0032	-4234092,8363 ± 0,0031	-1822973,7516 ± 0,0016	-0,0014 ± 0,0007	-0,0052 ± 0,0006	0,0120 ± 0,0003
MGSB 41652M001	A 0001	2008-01-13	2010-06-05	4019130,6123 ± 0,0017	-4504012,5573 ± 0,0018	-2055168,7355 ± 0,0010	-0,0004 ± 0,0003	-0,0052 ± 0,0004	0,0113 ± 0,0002
MOTE 41922S001	A 0001	2006-03-21	2008-04-27	1539876,9064 ± 0,0016	-6112744,6285 ± 0,0050	968435,2675 ± 0,0012	0,0119 ± 0,0004	0,0097 ± 0,0014	0,0079 ± 0,0003
MPLA 41521M001	A 0001	2002-09-22	2008-02-03	2700316,8327 ± 0,0003	-4243736,7161 ± 0,0005	-3908569,7386 ± 0,0005	0,0052 ± 0,0002	-0,0090 ± 0,0002	0,0083 ± 0,0002
MSCG 41649M001	A 0001	2008-01-13	2010-03-23	3468912,0659 ± 0,0024	-4870550,4266 ± 0,0032	-2213735,4543 ± 0,0017	0,0018 ± 0,0005	-0,0068 ± 0,0007	0,0093 ± 0,0004
MTBA 41663M001	A 0001	2008-09-01	2010-06-05	3755485,3062 ± 0,0022	-4852853,5442 ± 0,0027	-1735109,2004 ± 0,0013	-0,0080 ± 0,0005	0,0005 ± 0,0006	0,0126 ± 0,0003
MTSF 41655M001	A 0001	2008-04-06	2010-06-05	3960733,8593 ± 0,0017	-4832787,7522 ± 0,0021	-1276215,1155 ± 0,0008	-0,0061 ± 0,0004	0,0017 ± 0,0004	0,0131 ± 0,0002
MTY2 40518M001	A 0001	2005-01-09	2010-06-05	-1029483,4540 ± 0,0002	-5657637,2333 ± 0,0007	2750926,1216 ± 0,0004	-0,0106 ± 0,0002	0,0010 ± 0,0002	-0,0040 ± 0,0001
MZAC 41503M001	A 0001	2004-06-09	2010-02-26	1932262,6820 ± 0,0003	-5001226,5236 ± 0,0006	-3444667,8487 ± 0,0004	0,0112 ± 0,0002	-0,0046 ± 0,0001	0,0104 ± 0,0002
MZAE 41530M001	A 0001	2007-05-20	2010-02-26	1987261,2357 ± 0,0008	-4955975,7167 ± 0,0017	-3477976,9860 ± 0,0012	0,0074 ± 0,0002	-0,0031 ± 0,0004	0,0090 ± 0,0003
MZAS 41528M001	A 0001	2007-01-17	2010-02-26	1940230,1752 ± 0,0006	-4884145,4188 ± 0,0012	-3603203,7195 ± 0,0009	0,0083 ± 0,0002	-0,0062 ± 0,0003	0,0082 ± 0,0002
NASO 43607S001	A 0001	2007-07-01	2010-06-05	1255070,8192 ± 0,0006	-5643661,8859 ± 0,0020	2684338,9752 ± 0,0010	-0,0085 ± 0,0002	0,0034 ± 0,0004	0,0027 ± 0,0002
NAUS 41614M002	A 0001	2006-01-01	2010-06-05	3179409,3708 ± 0,0005	-5519130,6646 ± 0,0009	-334110,0997 ± 0,0002	-0,0016 ± 0,0001	-0,0034 ± 0,0002	0,0113 ± 0,0004
NEIA 41620M002	A 0001	2006-01-05	2010-06-05	3875254,9840 ± 0,0009	-4292588,7150 ± 0,0010	-2681108,7174 ± 0,0007	0,0031 ± 0,0002	-0,0091 ± 0,0002	0,0108 ± 0,0002
NEVA 41923S001	A 0001	2005-11-19	2009-08-01	1617259,9660 ± 0,0004	-6161575,1511 ± 0,0012	324674,6554 ± 0,0002	0,0022 ± 0,0001	0,0022 ± 0,0003	0,0144 ± 0,0002
OAX2 40517M001	A 0001	2005-01-09	2010-06-05	-713483,0346 ± 0,0002	-6058316,0823 ± 0,0007	1861594,6975 ± 0,0003	-0,0038 ± 0,0002	-0,0004 ± 0,0002	0,0027 ± 0,0002
OHIZ 66008M005	A 0001	2002-02-15	2010-06-05	1525811,8720 ± 0,0001	-2432478,2162 ± 0,0002	-5676165,5917 ± 0,0003	0,0184 ± 0,0004	-0,0022 ± 0,0002	0,0012 ± 0,0002
OHIG 66008M001	A 0001	2000-01-21	2002-02-19	1525872,6304 ± 0,0002	-2432481,3209 ± 0,0004	-5676146,0907 ± 0,0008	0,0191 ± 0,0004	-0,0041 ± 0,0006	-0,0014 ± 0,0012
ONRJ 41635M001	A 0001	2007-04-01	2009-10-10	4283638,3627 ± 0,0017	-4026028,8394 ± 0,0016	-2466096,7782 ± 0,0011	0,0010 ± 0,0004	-0,0060 ± 0,0004	0,0121 ± 0,0002
PALM 66005M002	A 0001	2000-01-21	2010-06-05	1192671,9104 ± 0,0001	-2450887,6112 ± 0,0001	-5747096,0340 ± 0,0002	0,0169 ± 0,0002	-0,0059 ± 0,0003	-0,0014 ± 0,0002
PARA 41610M001	A 0001	2000-01-21	2007-05-07	3763751,6536 ± 0,0002	-4365113,8187 ± 0,0003	-2724404,6364 ± 0,0002	0,0024 ± 0,0001	-0,0070 ± 0,0001	0,0103 ± 0,0002
PARC 41716S001	A 0002	2000-01-02	2009-06-20	1255992,4448 ± 0,0001	-3622975,1198 ± 0,0002	-5079719,2676 ± 0,0002	0,0072 ± 0,0002	-0,0080 ± 0,0001	0,0079 ± 0,0002
PBCG 41656M001	A 0001	2008-04-09	2010-06-05	5125899,4050 ± 0,0026	-3711505,6257 ± 0,0020	-795650,5503 ± 0,0007	0,0005 ± 0,0005	-0,0056 ± 0,0004	0,0123 ± 0,0002
PDES 41524M001	A 0001	2005-05-05	2007-07-25	1753203,6636 ± 0,0011	-3922031,1030 ± 0,0021	-4698513,5125 ± 0,0025	0,0022 ± 0,0003	-0,0125 ± 0,0007	0,0055 ± 0,0008
PEPE 41650M001	A 0001	2008-01-13	2010-06-05	4785329,9296 ± 0,0022	-4087942,4777 ± 0,0019	-1033193,9417 ± 0,0007	0,0001 ± 0,0005	-0,0058 ± 0,0004	0,0121 ± 0,0003
PERA 41905S001	A 0001	2004-02-20	2010-06-05	1571418,6737 ± 0,0004	-6160208,4174 ± 0,0011	529446,4021 ± 0,0002	0,0038 ± 0,0001	0,0008 ± 0,0003	0,0155 ± 0,0002
PIE1 40456M001	A 0004	2000-01-02	2006-09-04	-1640916,9035 ± 0,0004	-5014781,2019 ± 0,0009	3575447,1081 ± 0,0007	-0,0150 ± 0,0001	0,0004 ± 0,0002	-0,0055 ± 0,0002
PIE1 40456M001	A 0005	2007-01-24	2010-06-05	-1640916,9074 ± 0,0001	-5014781,1974 ± 0,0004	3575447,1023 ± 0,0003	-0,0131 ± 0,0001	0,0004 ± 0,0002	-0,0048 ± 0,0003
PMB1 43702S001	A 0001	2005-12-30	2007-10-21	3626394,1879 ± 0,0029	-5206998,1783 ± 0,0041	643353,1162 ± 0,0009	-0,0059 ± 0,0008	0,0030 ± 0,0012	0,0116 ± 0,0003
PMB1 43702S001	A 0002	2007-12-19	2010-06-05	3626394,1614 ± 0,0020	-5206998,1420 ± 0,0029	643353,1082 ± 0,0007	-0,0036 ± 0,0004	0,0004 ± 0,0006	0,0123 ± 0,0003
POAL 41616M001	A 0001	2000-01-21	2010-06-05	3467519,4110 ± 0,0002	-4300378,5498 ± 0,0002	-3177517,6743 ± 0,0002	0,0035 ± 0,0002	-0,0073 ± 0,0001	0,0099 ± 0,0002
POLI 41630M001	A 0001	2007-01-01	2010-06-05	4010099,5137 ± 0,0011	-4259927,3230 ± 0,0012	-2533538,7380 ± 0,0008	0,0020 ± 0,0002	-0,0068 ± 0,0003	0,0114 ± 0,0002



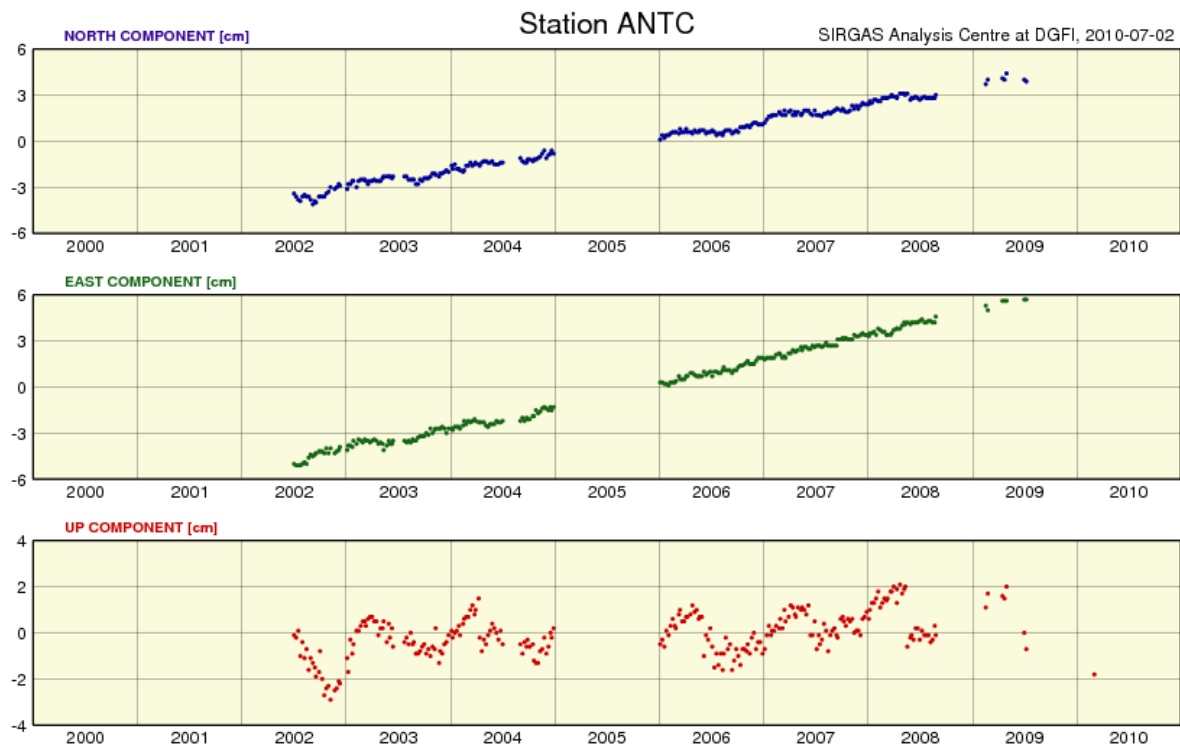
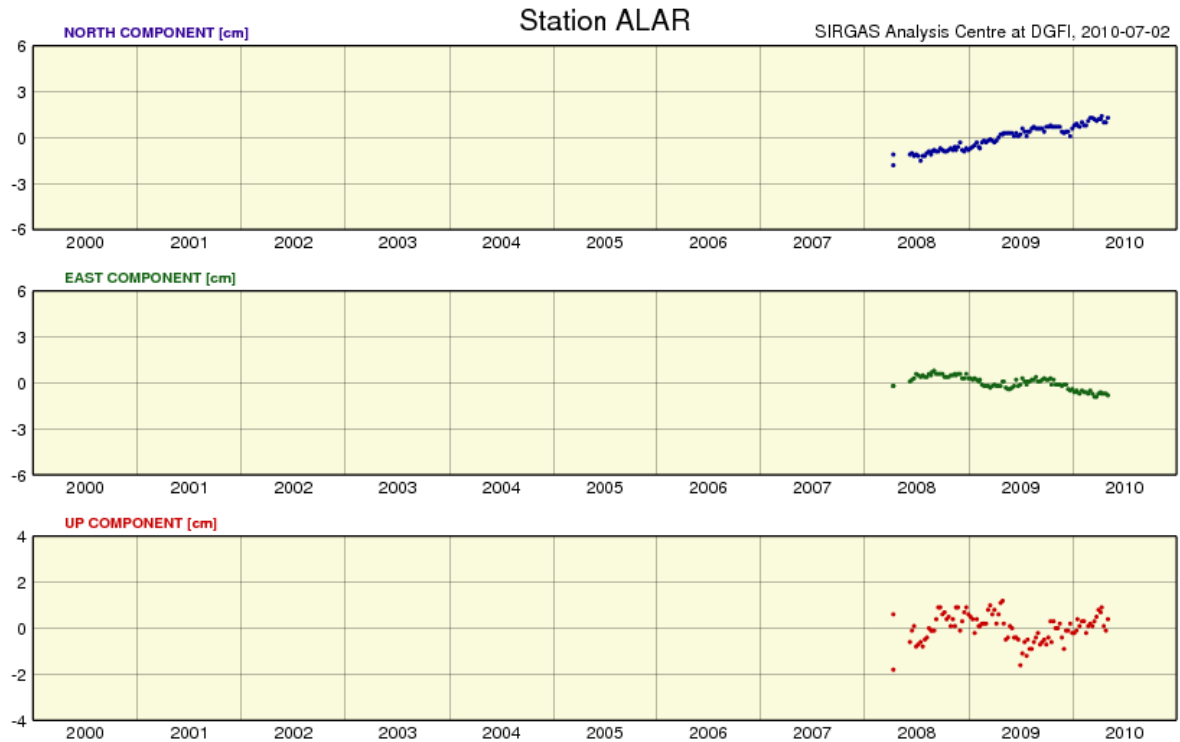
Station	ID-SWX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]
POPA 41924S001	A 0001	2006-06-19	2010-03-12	1477067,4395 ± 0,0004	-6200659,1057 ± 0,0013	270141,-2823 ± 0,0002	0,0034 ± 0,0001	0,0006 ± 0,0003	0,0129 ± 0,0003
POVE 41628M001	A 0001	2006-01-04	2010-06-05	2774265,6220 ± 0,0005	-5662060,1273 ± 0,0010	-959415,9206 ± 0,0003	-0,0017 ± 0,0001	-0,0054 ± 0,0002	0,0103 ± 0,0001
PSTE 41611M002	A 0001	2006-01-01	2009-09-05	3687624,3574 ± 0,0008	-4620818,6802 ± 0,0010	-2386880,3072 ± 0,0006	0,0034 ± 0,0002	-0,0076 ± 0,0003	0,0103 ± 0,0001
PSTO 41925S001	A 0001	2005-09-18	2010-06-05	1404951,7378 ± 0,0008	-6222655,0876 ± 0,0026	134028,6009 ± 0,0004	0,0041 ± 0,0002	0,0000 ± 0,0006	0,0128 ± 0,0001
PUR3 82001S003	A 0001	2000-01-02	2007-03-19	2358177,9109 ± 0,0002	-5573619,6423 ± 0,0004	2007083,9536 ± 0,0002	0,0067 ± 0,0001	0,0077 ± 0,0002	0,0114 ± 0,0001
QUII 42003S003	A 0001	2004-01-01	2009-08-01	1272867,3193 ± 0,0002	-6252772,1258 ± 0,0006	-23801,7625 ± 0,0001	0,0079 ± 0,0002	0,0010 ± 0,0002	0,0101 ± 0,0002
REFC 41617M001	A 0001	2000-01-21	2010-06-05	5176588,6273 ± 0,0003	-3618162,1558 ± 0,0002	-887363,8497 ± 0,0001	-0,0021 ± 0,0002	-0,0026 ± 0,0001	0,0122 ± 0,0002
RI02 41507M006	A 0001	2007-04-21	2010-06-05	1429907,7908 ± 0,0004	-3495354,8142 ± 0,0017	-5122698,6432 ± 0,0002	0,0076 ± 0,0008	-0,0078 ± 0,0030	0,0072 ± 0,0004
RI08 41645M001	A 0001	2007-09-05	2010-06-05	2373576,7896 ± 0,0004	-5817088,3824 ± 0,0008	-1096515,6987 ± 0,0011	-0,0020 ± 0,0002	-0,0004 ± 0,0002	0,0107 ± 0,0002
RI0D 41608M001	A 0001	2001-08-20	2010-06-05	4280294,8838 ± 0,0009	-4034431,2420 ± 0,0019	-2458141,3198 ± 0,0005	0,0009 ± 0,0002	-0,0061 ± 0,0004	0,0120 ± 0,0001
RI0G 41507M004	A 0002	2000-01-02	2007-02-28	1429907,7959 ± 0,0003	-3495354,8131 ± 0,0003	-5122698,6448 ± 0,0002	0,0078 ± 0,0002	-0,0096 ± 0,0001	0,0055 ± 0,0002
RI0H 41927S001	A 0001	2005-10-24	2008-08-19	1841101,0035 ± 0,0001	-5973351,3537 ± 0,0002	1264686,5418 ± 0,0002	0,0100 ± 0,0003	0,0062 ± 0,0001	0,0135 ± 0,0003
RI0P 42006M001	A 0001	2000-01-02	2001-12-28	1255144,9543 ± 0,0007	-6253609,4549 ± 0,0018	-182569,8527 ± 0,0005	-0,0017 ± 0,0002	-0,0043 ± 0,0005	0,0010 ± 0,0002
RI0P 42006M001	A 0002	2007-04-29	2010-06-05	1255144,9735 ± 0,0005	-6253609,4652 ± 0,0020	-182569,8424 ± 0,0003	-0,0013 ± 0,0002	0,0040 ± 0,0004	0,0084 ± 0,0001
RJCG 41657M001	A 0001	2008-04-11	2010-06-05	4450354,2597 ± 0,0025	-3913332,7968 ± 0,0022	-2350256,3236 ± 0,0014	-0,0007 ± 0,0005	-0,0056 ± 0,0005	0,0120 ± 0,0003
ROGM 41651M001	A 0001	2008-01-13	2010-06-05	2615472,4419 ± 0,0011	-5694455,9114 ± 0,0021	-1185599,8627 ± 0,0007	-0,0018 ± 0,0002	0,0013 ± 0,0004	0,0111 ± 0,0001
ROJI 41658M001	A 0001	2008-04-04	2010-06-05	2945010,5761 ± 0,0012	-5529377,0331 ± 0,0020	-1194259,2580 ± 0,0007	-0,0021 ± 0,0002	0,0004 ± 0,0004	0,0115 ± 0,0003
RWSN 41513M001	A 0001	2000-01-22	2010-02-26	1956973,4321 ± 0,0001	-4217335,3014 ± 0,0002	4351745,4924 ± 0,0002	0,0022 ± 0,0002	-0,0090 ± 0,0001	0,0075 ± 0,0003
SAGA 41639M001	A 0001	2007-09-16	2010-06-05	2486243,7690 ± 0,0012	-5873685,3204 ± 0,0025	-15906,7543 ± 0,0004	-0,0027 ± 0,0002	-0,0030 ± 0,0005	0,0101 ± 0,0001
SALLU 41640M001	A 0001	2007-09-05	2010-06-05	4566947,9100 ± 0,0017	-4443098,5105 ± 0,0017	-286674,7393 ± 0,0004	-0,0045 ± 0,0004	-0,0020 ± 0,0004	0,0115 ± 0,0001
SALV 41618M001	A 0001	2000-01-21	2008-09-05	4863495,7212 ± 0,0003	-3870312,3600 ± 0,0003	-1426347,7490 ± 0,0001	0,0020 ± 0,0002	-0,0052 ± 0,0001	0,0112 ± 0,0001
SAMA 41928S001	A 0001	2006-05-04	2010-06-05	1704996,1822 ± 0,0004	-6020152,3627 ± 0,0011	1233459,1972 ± 0,0003	0,0080 ± 0,0001	0,0119 ± 0,0003	0,0116 ± 0,0001
SANT 41705M003	A 0003	2000-01-02	2010-02-26	1769693,5214 ± 0,0001	-5044574,1640 ± 0,0002	-3468320,9415 ± 0,0001	0,0234 ± 0,0001	-0,0044 ± 0,0001	0,0124 ± 0,0003
SAVO 41643M001	A 0001	2007-09-06	2010-06-05	4870283,7558 ± 0,0016	-3864605,2875 ± 0,0013	-1418872,5580 ± 0,0006	-0,0010 ± 0,0003	-0,0052 ± 0,0003	0,0120 ± 0,0001
SCCH 41659M001	A 0001	2008-04-25	2010-06-05	3450305,4439 ± 0,0020	-4512731,6847 ± 0,0026	-2892128,2102 ± 0,0018	-0,0015 ± 0,0004	-0,0034 ± 0,0005	0,0136 ± 0,0004
SCLA 41660M001	A 0001	2008-04-04	2010-06-05	3606986,0615 ± 0,0019	-4345293,2571 ± 0,0023	-2956654,1525 ± 0,0016	-0,0011 ± 0,0004	-0,0044 ± 0,0005	0,0122 ± 0,0003
SCUB 40701M001	A 0002	2002-01-01	2010-06-05	1474538,0928 ± 0,0001	-5811243,2723 ± 0,0003	2168958,8273 ± 0,0002	-0,0052 ± 0,0002	-0,0005 ± 0,0001	0,0037 ± 0,0002
SLOR 41102S001	A 0001	2000-09-21	2002-08-04	277528,9875 ± 0,0002	-6198801,8005 ± 0,0012	1471065,6179 ± 0,0004	0,0126 ± 0,0003	0,0013 ± 0,0014	0,0055 ± 0,0004
SMAR 41621M001	A 0001	2002-07-19	2010-06-05	3280748,4136 ± 0,0003	-4468909,7589 ± 0,0004	-3143408,6338 ± 0,0003	0,0018 ± 0,0001	-0,0065 ± 0,0001	0,0104 ± 0,0002
SMRT 43102S001	A 0001	2007-05-25	2010-06-05	2743826,1914 ± 0,0009	-5410452,4885 ± 0,0017	1962822,9543 ± 0,0007	0,0058 ± 0,0002	0,0085 ± 0,0004	0,0129 ± 0,0002
SRNW 43703M001	A 0001	2006-01-09	2010-06-05	3455962,5038 ± 0,0008	-5320017,8945 ± 0,0012	656216,0424 ± 0,0003	-0,0042 ± 0,0002	0,0003 ± 0,0003	0,0111 ± 0,0001
SRZN 43701S005	A 0001	2006-02-02	2010-06-05	3623419,9934 ± 0,0008	-5214015,4443 ± 0,0011	602359,1927 ± 0,0003	-0,0030 ± 0,0002	-0,0020 ± 0,0002	0,0125 ± 0,0001
SSA1 41644M001	A 0001	2007-09-05	2010-06-05	4863840,3148 ± 0,0002	-3871158,6070 ± 0,0009	-1422726,7198 ± 0,0003	0,0014 ± 0,0001	-0,0074 ± 0,0007	0,0107 ± 0,0002
SSIA 41401S001	A 0003	2007-02-13	2003-12-28	95567,0017 ± 0,0022	-6197785,5863 ± 0,0018	1500590,5370 ± 0,0008	0,0066 ± 0,0005	-0,0019 ± 0,0004	0,0094 ± 0,0002
SSIA 41401S001	A 0004	2005-06-16	2010-06-05	95566,9933 ± 0,0002	-6197785,5861 ± 0,0010	1500590,5379 ± 0,0003	0,0078 ± 0,0004	-0,0006 ± 0,0002	0,0080 ± 0,0001



Station	ID-SWX	Start	End	X [m]	Y [m]	Z [m]	Vx [m/a]	Vy [m/a]	Vz [m/a]
TAMP 40516M001	A 0001	2005-01-09	2010-06-05	-807922,6345 ± 0,0002	-5849358,2543 ± 0,0009	2402967,6896 ± 0,0004	-0,0095 ± 0,0002	0,0009 ± 0,0002	-0,0032 ± 0,0001
TEGI 41101S002	A 0001	2001-10-25	2004-04-07	301692,7048 ± 0,0003	-6181037,6583 ± 0,0020	1542881,1753 ± 0,0006	0,0094 ± 0,0003	-0,0019 ± 0,0015	0,0055 ± 0,0005
TEGU 41101S001	A 0001	2000-07-18	2002-03-21	301697,4350 ± 0,0002	-6181025,0636 ± 0,0012	1542919,9081 ± 0,0004	0,0157 ± 0,0003	0,0047 ± 0,0016	0,0086 ± 0,0005
TGCV 39601S001	A 0001	2000-04-30	2004-12-26	5624175,6322 ± 0,0028	-2385323,5943 ± 0,0018	1826873,7723 ± 0,0010	0,0013 ± 0,0015	0,0218 ± 0,0010	0,0126 ± 0,0005
TOGU 41661M001	A 0001	2008-04-16	2010-06-05	4093503,2625 ± 0,0018	-4717194,8511 ± 0,0021	-1290037,7865 ± 0,0008	-0,0032 ± 0,0004	-0,0011 ± 0,0004	0,0120 ± 0,0002
TOL2 40515M001	A 0001	2005-01-09	2010-06-05	-1009229,1622 ± 0,0002	-5939511,4321 ± 0,0007	2094889,2369 ± 0,0003	-0,0063 ± 0,0002	0,0018 ± 0,0002	-0,0024 ± 0,0002
TOPL 41648M001	A 0001	2008-01-02	2010-06-05	4174345,6275 ± 0,0015	-4690236,7214 ± 0,0017	-1118921,3627 ± 0,0006	-0,0034 ± 0,0003	-0,0023 ± 0,0004	0,0126 ± 0,0003
TUCU 41520S001	A 0001	2002-01-01	2006-01-23	2386117,1879 ± 0,0004	-5171223,3041 ± 0,0008	-2862949,1218 ± 0,0005	0,0042 ± 0,0002	-0,0051 ± 0,0004	0,0097 ± 0,0002
TUCU 41520S001	A 0002	2006-08-31	2010-06-05	2386117,1922 ± 0,0009	-5171223,3114 ± 0,0019	-2862949,1230 ± 0,0011	0,0018 ± 0,0002	0,0023 ± 0,0004	0,0118 ± 0,0002
TUJA 41930S001	A 0001	2005-10-18	2010-06-05	1818373,1663 ± 0,0003	-6085596,9096 ± 0,0008	610964,9885 ± 0,0002	0,0019 ± 0,0001	0,0000 ± 0,0002	0,0127 ± 0,0002
UBAT 41627M001	A 0001	2006-01-02	2008-04-11	4129567,6817 ± 0,0050	-4146742,9565 ± 0,0050	-2527616,4333 ± 0,0032	0,0048 ± 0,0014	-0,0083 ± 0,0014	0,0088 ± 0,0009
UBER 41625M001	A 0001	2004-07-14	2010-06-05	4014997,2261 ± 0,0005	-4509022,4431 ± 0,0005	-2052040,6424 ± 0,0003	-0,0004 ± 0,0002	-0,0048 ± 0,0001	0,0110 ± 0,0002
UCOR 41502M001	A 0001	2004-04-05	2010-02-26	2371430,0381 ± 0,0012	-4904119,9720 ± 0,0023	-3307377,4587 ± 0,0016	0,0049 ± 0,0003	-0,0065 ± 0,0006	0,0086 ± 0,0004
UEPP 41611M001	A 0001	2000-01-21	2005-12-08	3687624,3167 ± 0,0003	-4620818,6177 ± 0,0003	-2386880,2798 ± 0,0002	0,0017 ± 0,0001	-0,0061 ± 0,0002	0,0118 ± 0,0002
UFPR 41610M002	A 0001	2007-09-05	2010-06-05	3763751,6774 ± 0,0013	-4365113,8401 ± 0,0014	-2724404,6547 ± 0,0010	-0,0001 ± 0,0003	-0,0054 ± 0,0003	0,0122 ± 0,0002
UGTO 40528M001	A 0001	2007-07-26	2010-06-05	-1164730,1285 ± 0,0006	-5843944,6781 ± 0,0022	2272414,2443 ± 0,0010	-0,0090 ± 0,0002	-0,0002 ± 0,0005	-0,0027 ± 0,0002
UNRO 41525M001	A 0001	2004-04-02	2010-02-26	2627448,1918 ± 0,0003	-4668383,1745 ± 0,0005	-3450213,4996 ± 0,0004	0,0041 ± 0,0001	-0,0062 ± 0,0001	0,0094 ± 0,0003
UNSA 41514M001	A 0001	2000-01-02	2008-07-27	2412830,4303 ± 0,0002	-5271936,7251 ± 0,0003	-2652209,0359 ± 0,0002	0,0071 ± 0,0001	-0,0030 ± 0,0001	0,0107 ± 0,0002
UNSJ 41527M001	A 0001	2007-05-06	2010-02-26	1987485,0143 ± 0,0008	-5065493,3483 ± 0,0019	-3317557,5067 ± 0,0013	0,0108 ± 0,0002	-0,0019 ± 0,0004	0,0119 ± 0,0003
USLP 40530M001	A 0001	2008-09-01	2010-06-05	-1129695,0447 ± 0,0012	-5803303,9064 ± 0,0046	2389927,0011 ± 0,0021	-0,0090 ± 0,0002	0,0019 ± 0,0010	-0,0024 ± 0,0004
UYRO 42303M001	A 0001	2008-02-24	2010-06-05	3144469,6617 ± 0,0017	-4258022,0635 ± 0,0022	-3546571,9703 ± 0,0019	0,0001 ± 0,0004	-0,0083 ± 0,0005	0,0101 ± 0,0004
VALL 41906S001	A 0001	2004-03-24	2009-11-04	1807579,7282 ± 0,0003	-6006678,3528 ± 0,0008	1151876,7912 ± 0,0002	0,0076 ± 0,0002	0,0055 ± 0,0002	0,0138 ± 0,0003
VALP 41712S001	A 0001	2000-05-11	2010-02-26	1687310,2832 ± 0,0002	-5079964,5229 ± 0,0005	-3456509,3405 ± 0,0003	0,0289 ± 0,0002	-0,0011 ± 0,0001	0,0198 ± 0,0003
VARG 41626M001	A 0001	2004-06-22	2009-09-06	4165518,2835 ± 0,0009	-4229235,7949 ± 0,0009	-2327739,5898 ± 0,0006	0,0002 ± 0,0002	-0,0040 ± 0,0003	0,0111 ± 0,0002
VBCA 41512M001	A 0001	2000-03-08	2010-02-26	2319240,8148 ± 0,0001	-4411743,9276 ± 0,0002	-3966484,1139 ± 0,0002	0,0033 ± 0,0002	-0,0076 ± 0,0001	0,0081 ± 0,0003
VESL 66009M001	A 0001	2000-01-26	2010-06-05	2009329,7900 ± 0,0001	-99741,4756 ± 0,0001	-6033158,4304 ± 0,0004	0,0103 ± 0,0002	-0,0005 ± 0,0004	0,0030 ± 0,0002
VTCO 41613M001	A 0001	2000-01-21	2010-06-05	4373283,3123 ± 0,0002	-4059639,0611 ± 0,0002	-2246959,6642 ± 0,0001	0,0011 ± 0,0002	-0,0057 ± 0,0001	0,0118 ± 0,0002
VTL2 40527M001	A 0001	2005-01-09	2010-06-05	-310300,6361 ± 0,0002	-6060324,0192 ± 0,0009	1957383,6102 ± 0,0003	-0,0079 ± 0,0002	0,0021 ± 0,0002	-0,0003 ± 0,0001
VTV1 41931S001	A 0001	2005-09-18	2010-03-26	1798110,7436 ± 0,0004	-6103160,6767 ± 0,0012	450209,5903 ± 0,0002	-0,0027 ± 0,0002	0,0007 ± 0,0003	0,0071 ± 0,0002

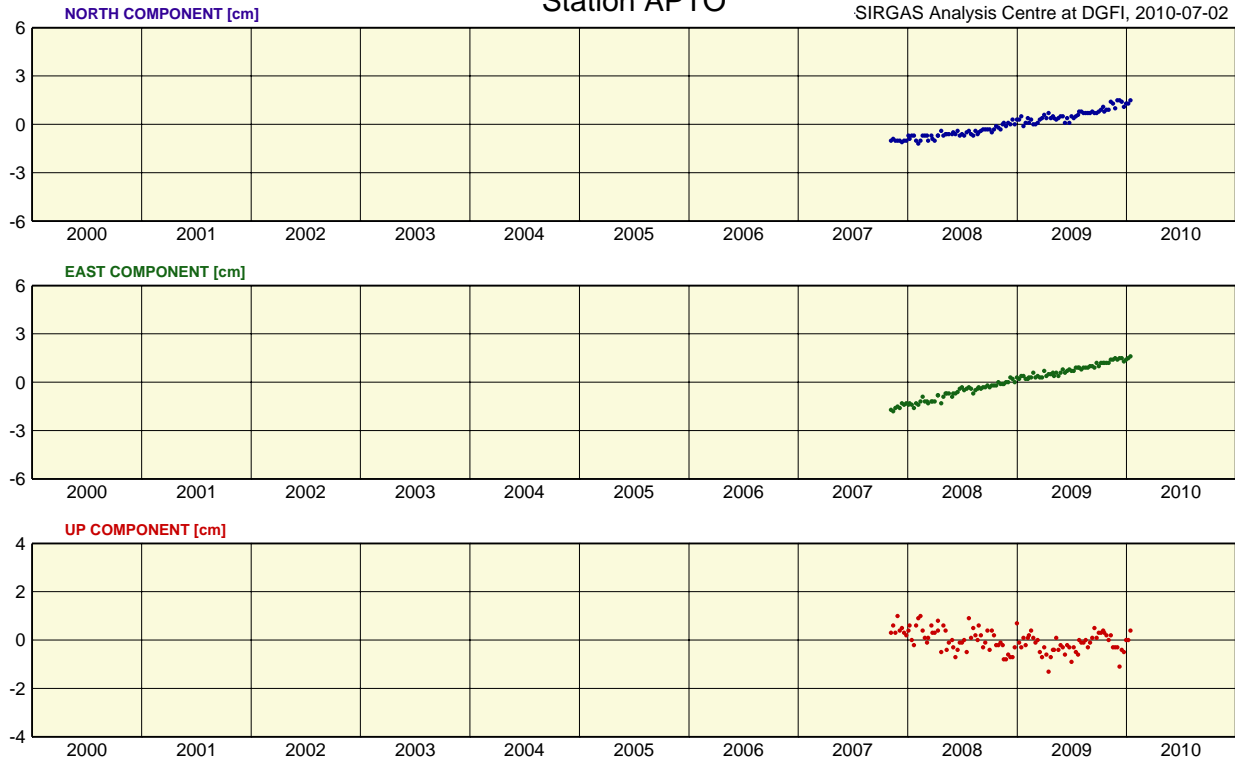
## Annex 4: Time series of station positions

The time series of the station coordinates for the time span covered by the SIR10P01 solution (i.e. January 2, 2000 till June 5, 2010) are presented in the following. Coordinate variations are given in centimetres and they are plotted on a weekly basis.



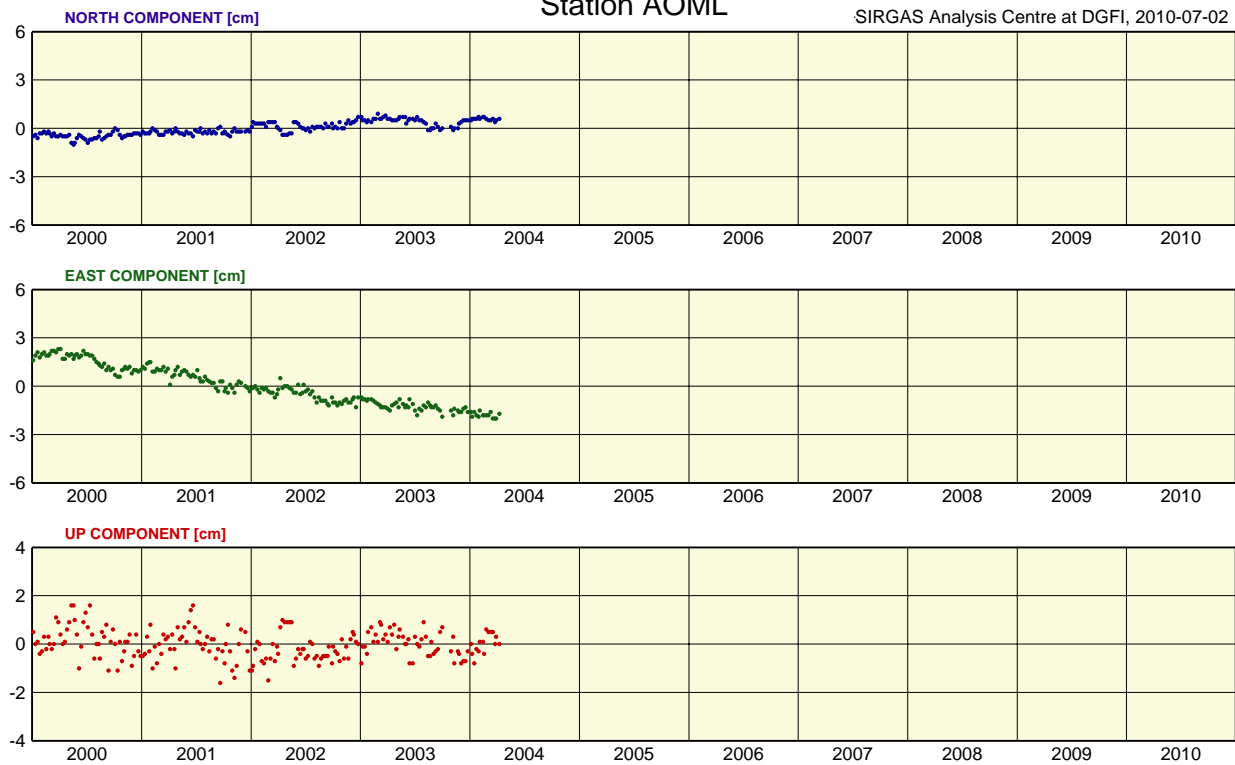
### Station APTO

SIRGAS Analysis Centre at DGFI, 2010-07-02



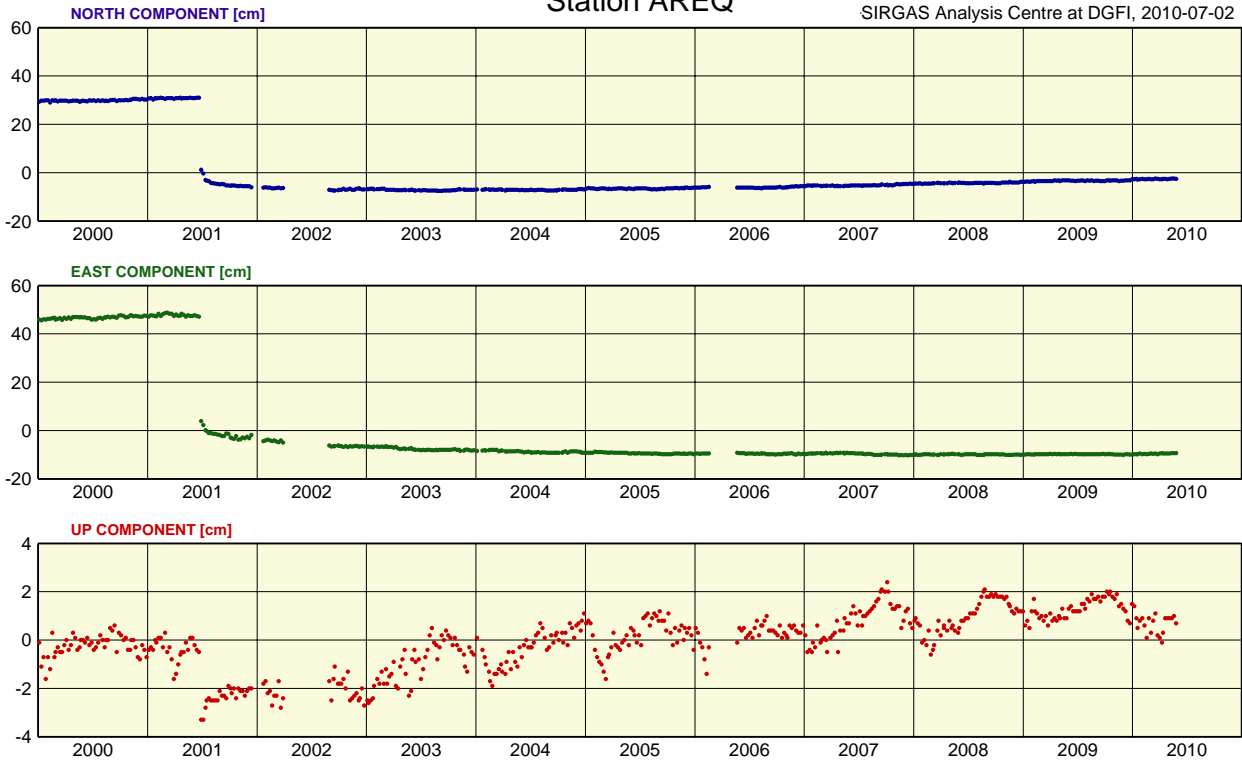
### Station AOML

SIRGAS Analysis Centre at DGFI, 2010-07-02



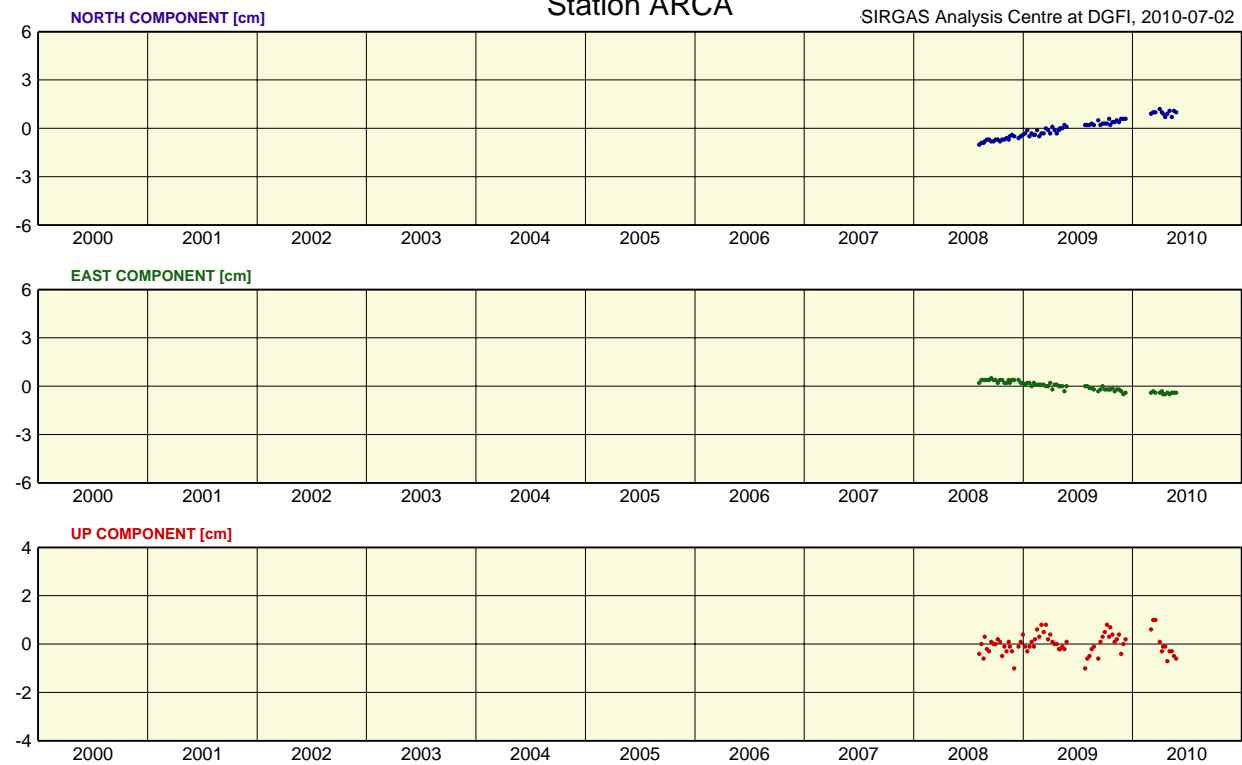
### Station AREQ

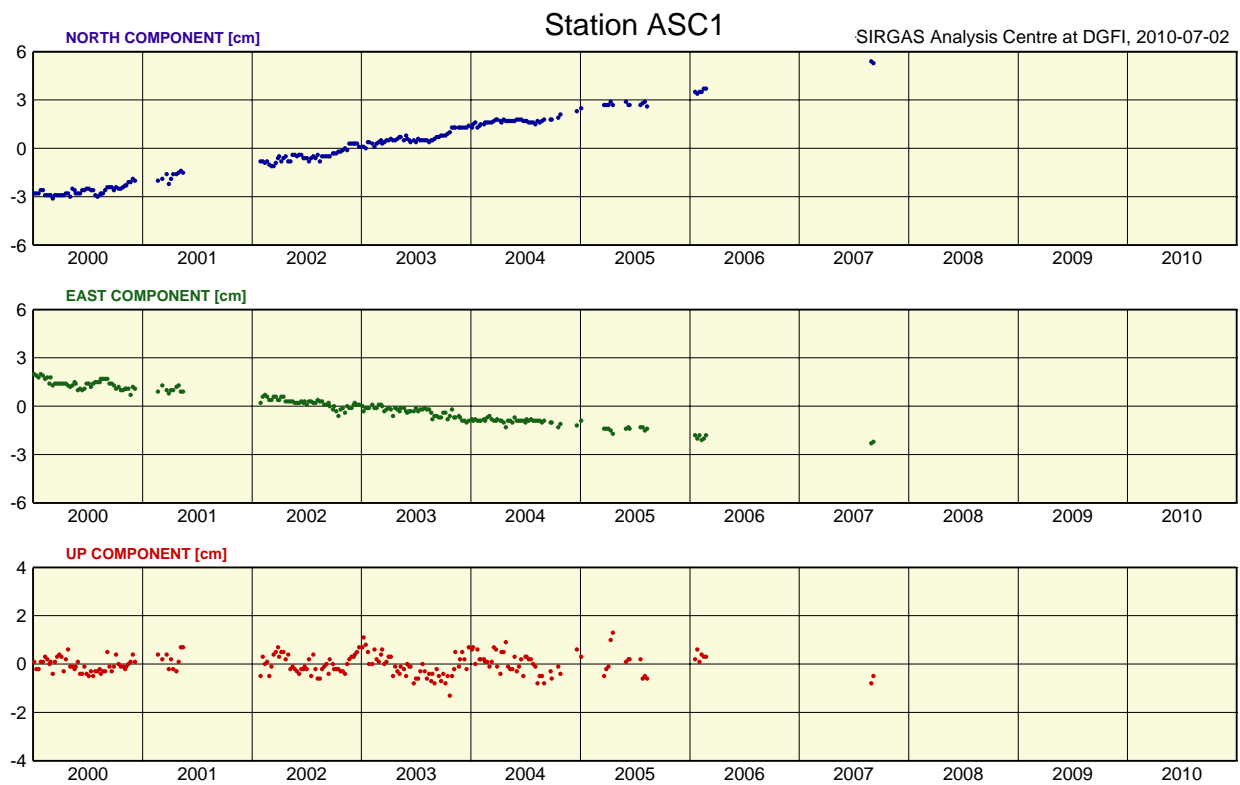
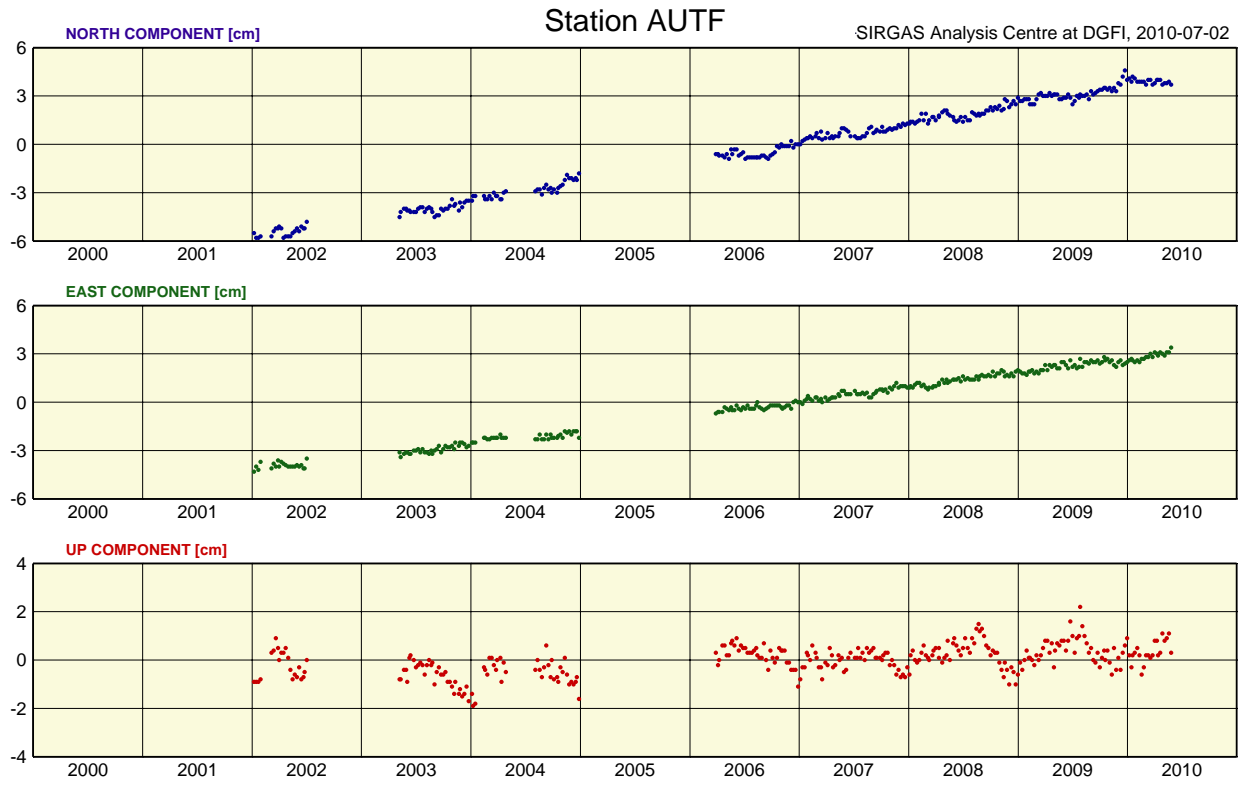
SIRGAS Analysis Centre at DGFI, 2010-07-02



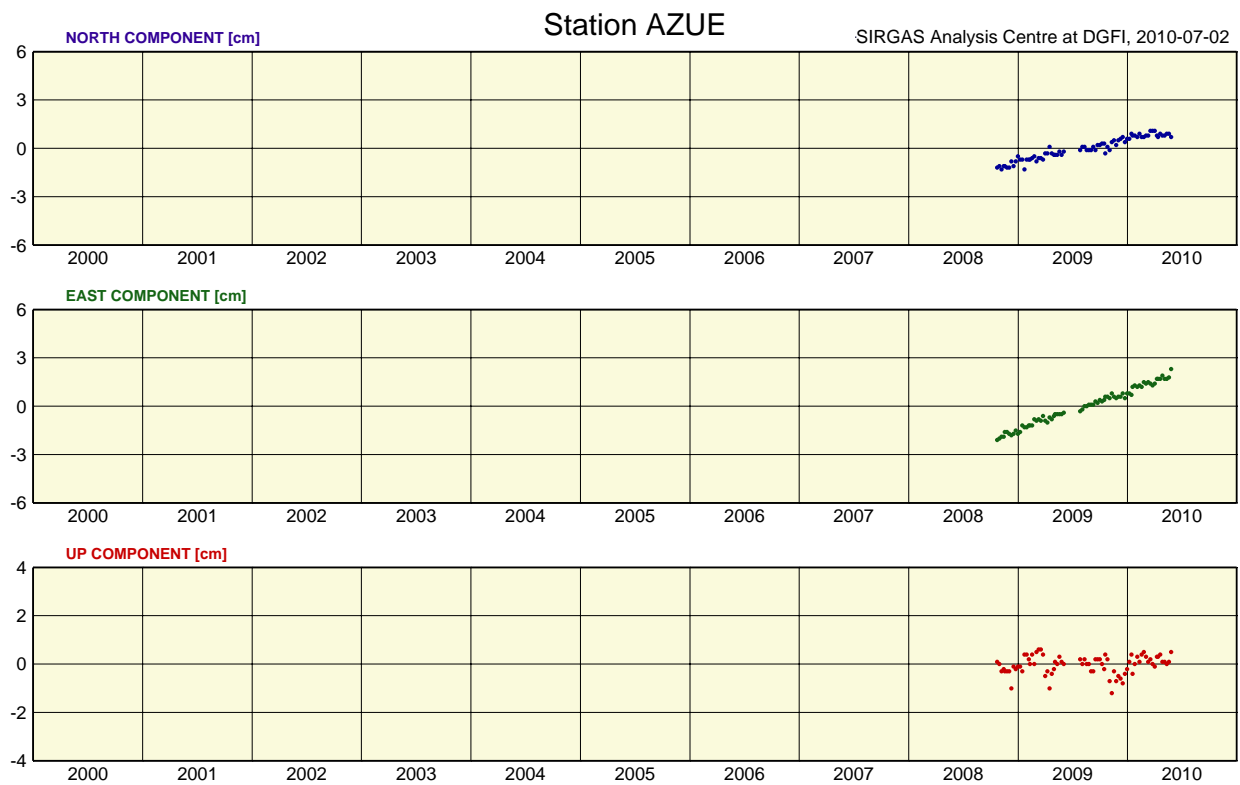
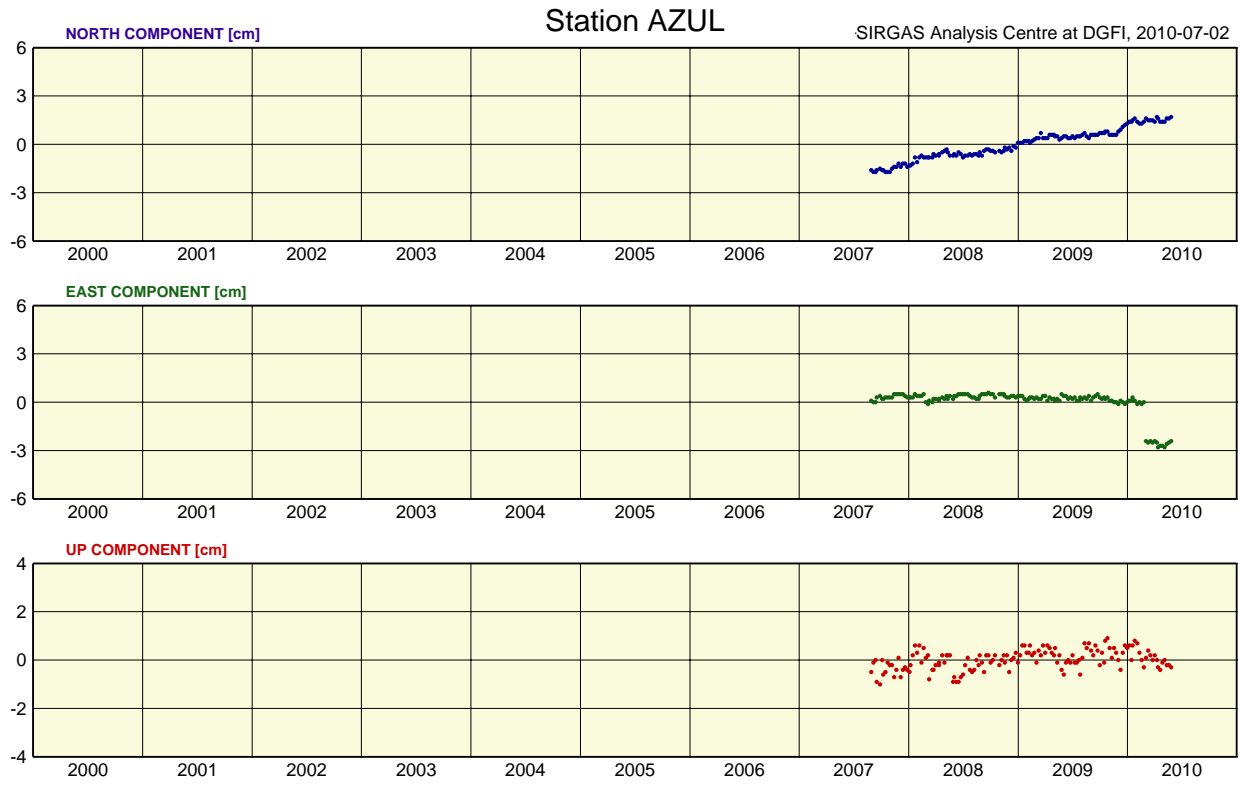
### Station ARCA

SIRGAS Analysis Centre at DGFI, 2010-07-02



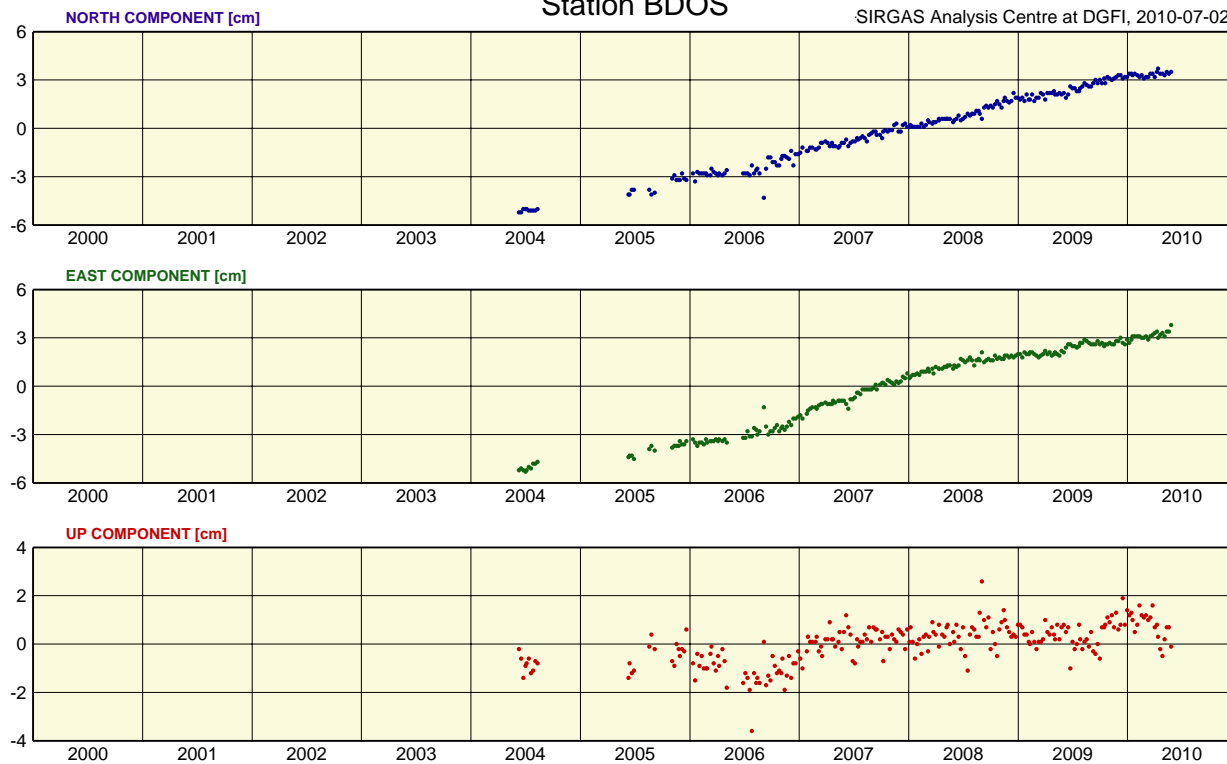






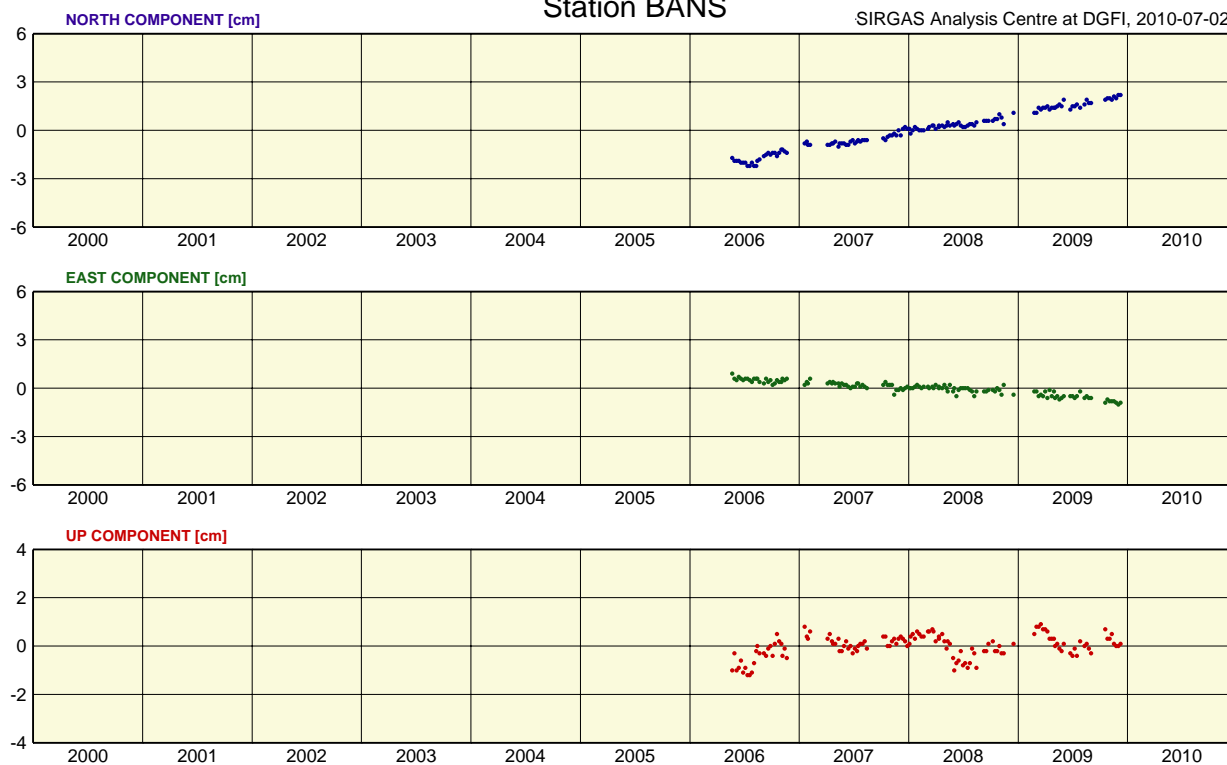
### Station BDOS

SIRGAS Analysis Centre at DGFI, 2010-07-02



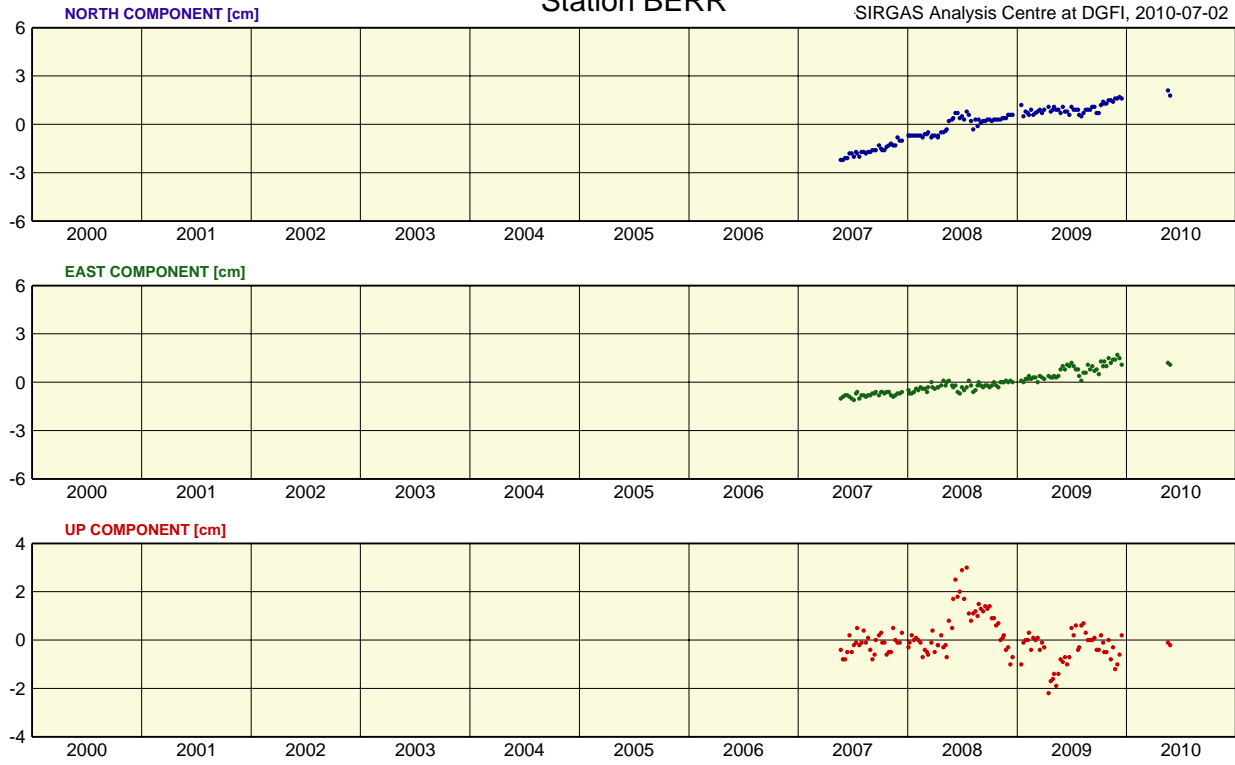
### Station BANS

SIRGAS Analysis Centre at DGFI, 2010-07-02



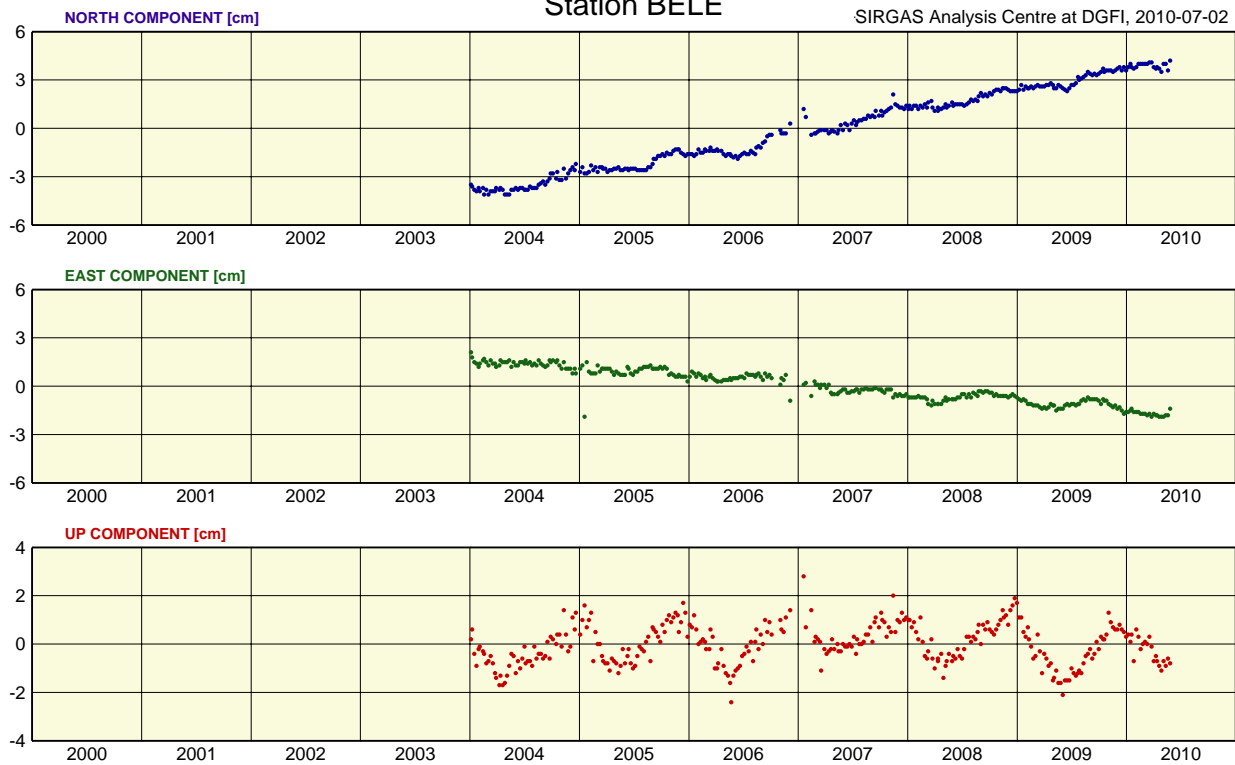
# Station BERR

SIRGAS Analysis Centre at DGFI, 2010-07-02



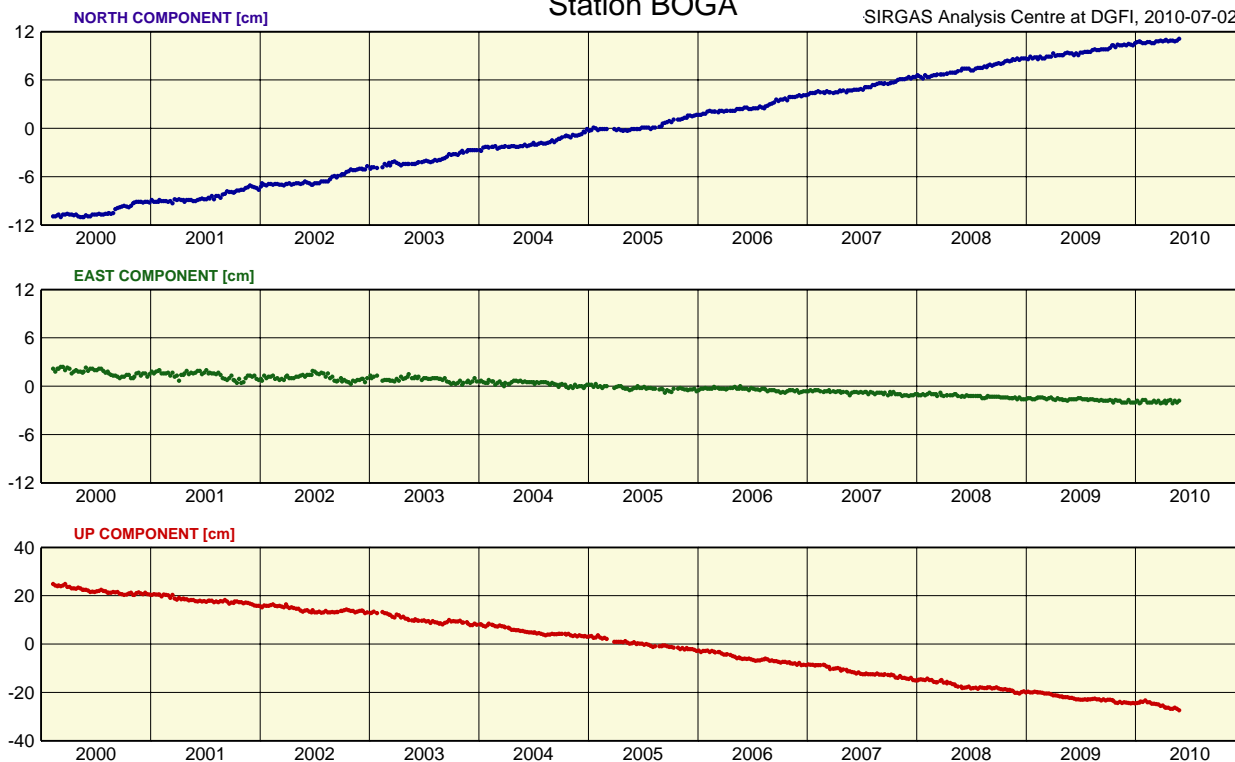
# Station BELE

SIRGAS Analysis Centre at DGFI, 2010-07-02



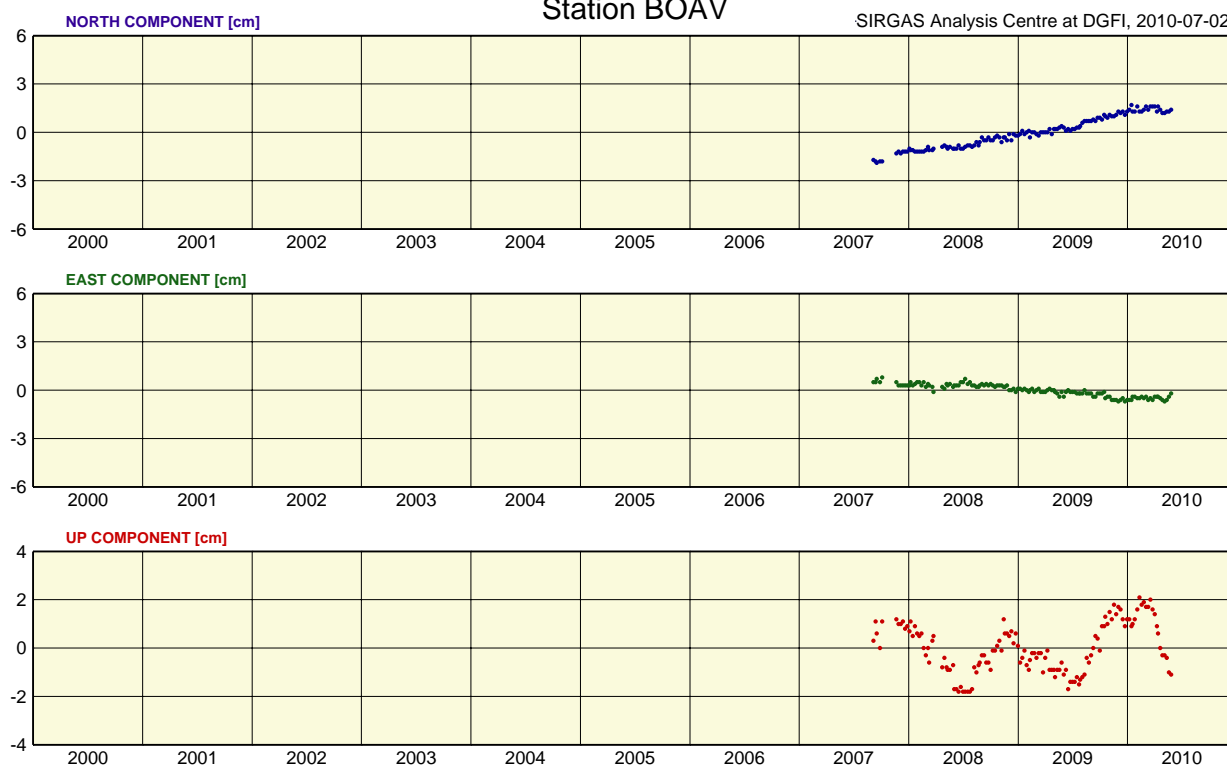
### Station BOGA

SIRGAS Analysis Centre at DGFI, 2010-07-02



### Station BOAV

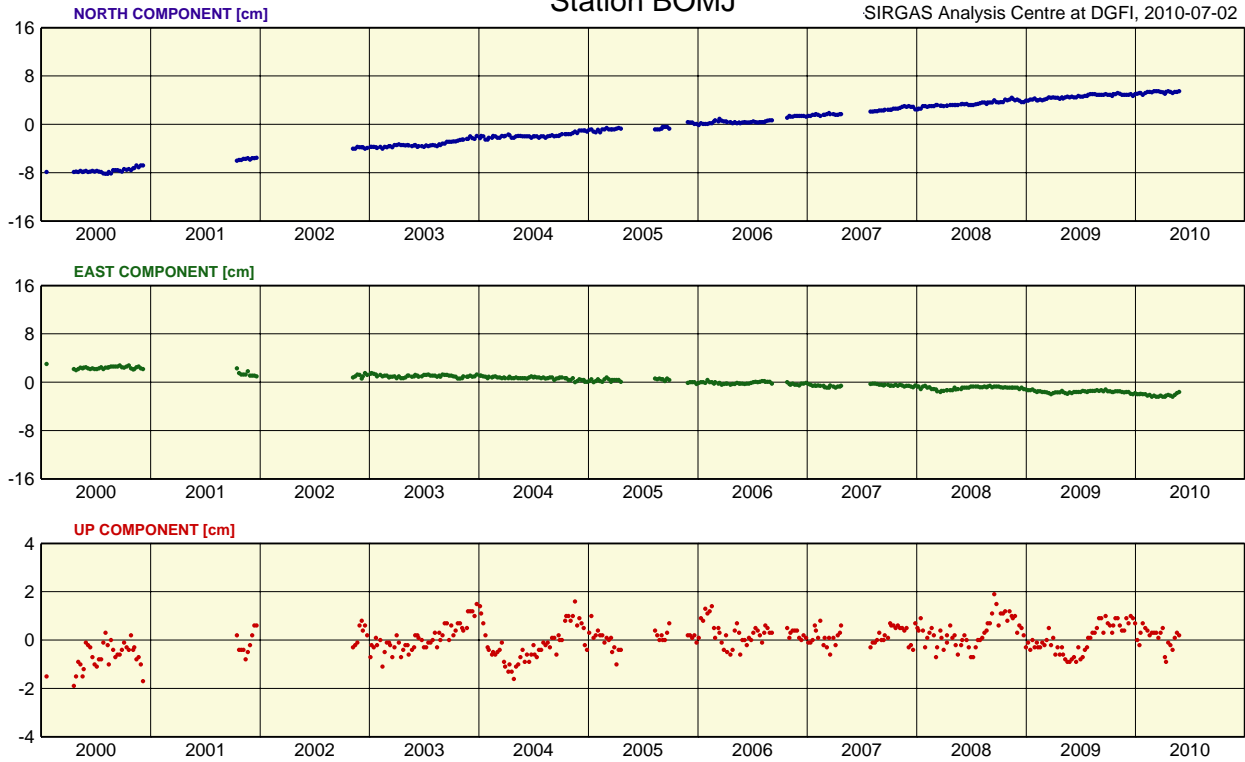
SIRGAS Analysis Centre at DGFI, 2010-07-02





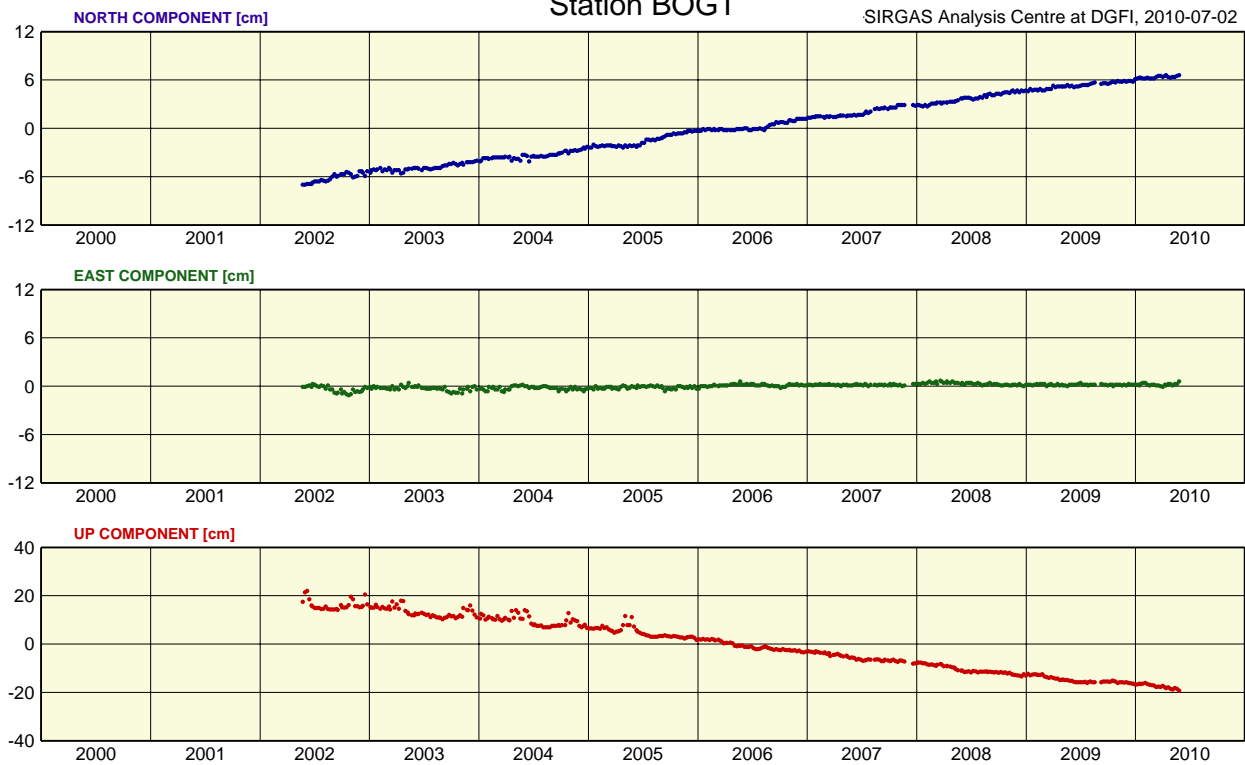
### Station BOMJ

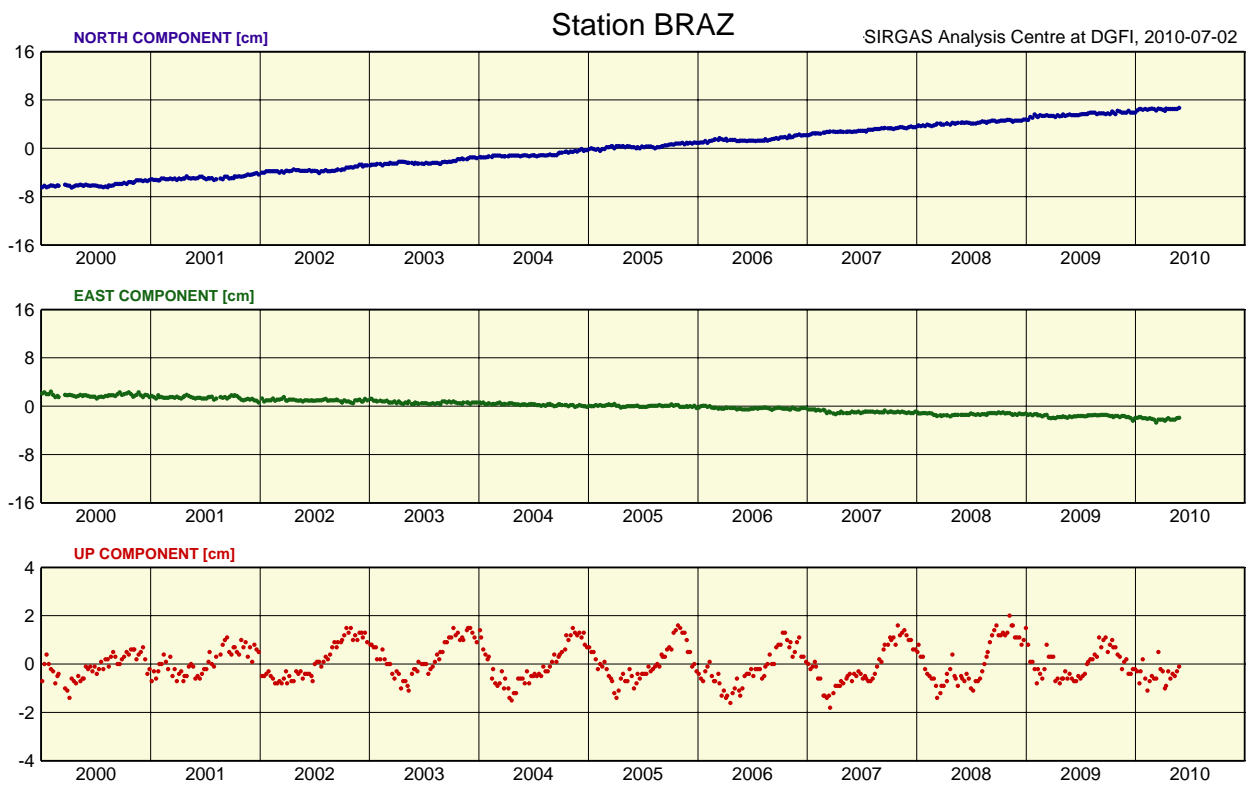
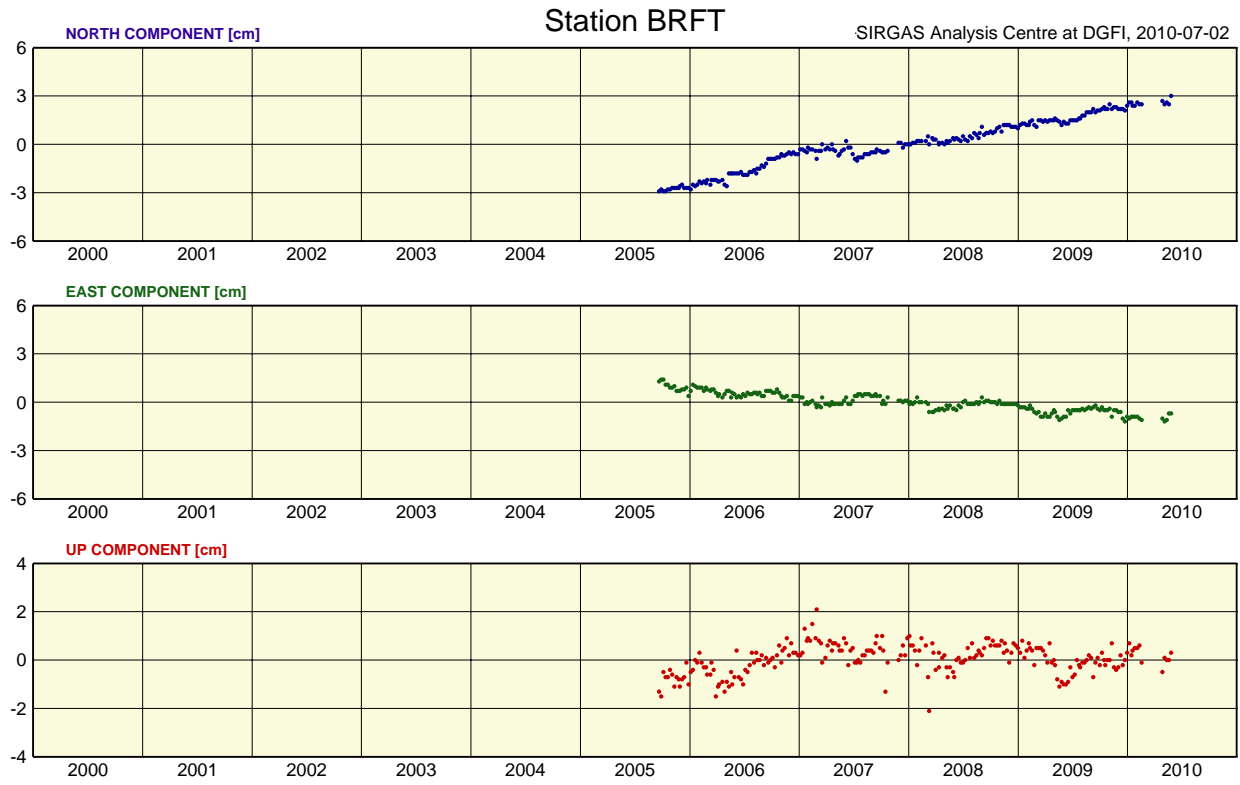
SIRGAS Analysis Centre at DGFI, 2010-07-02



### Station BOGT

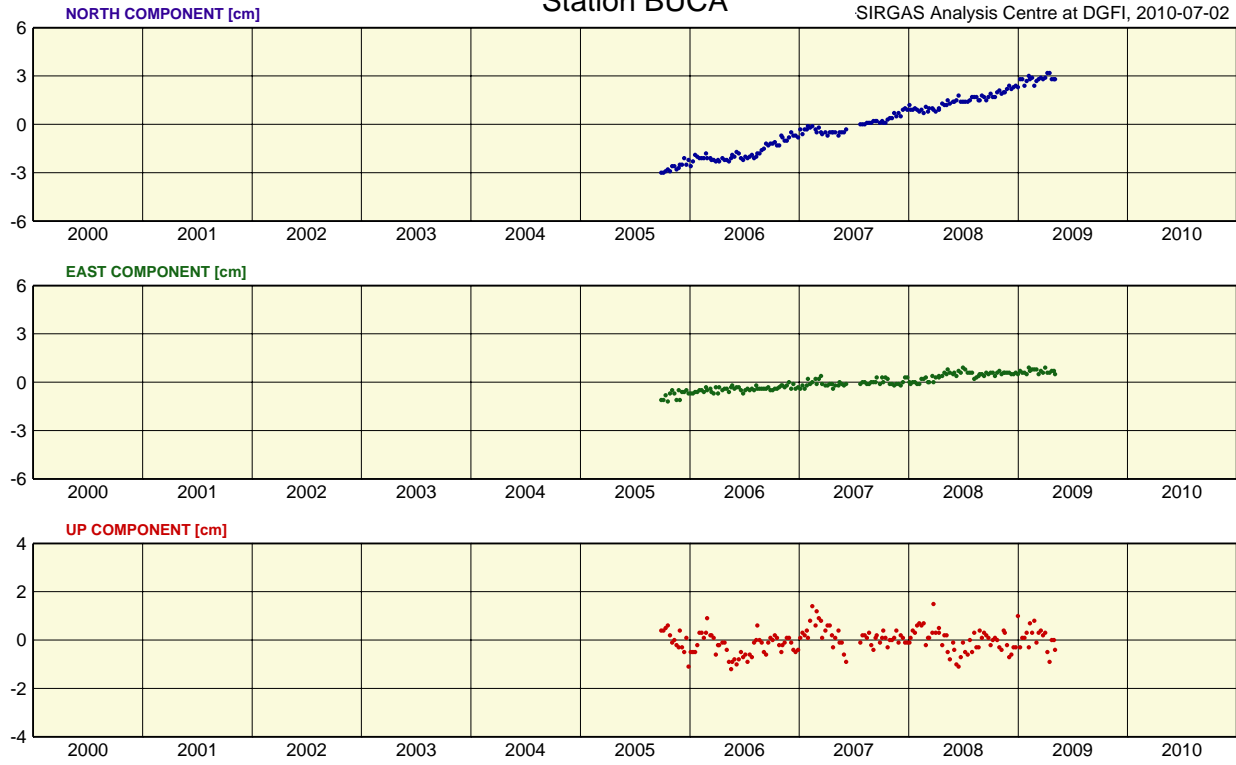
SIRGAS Analysis Centre at DGFI, 2010-07-02





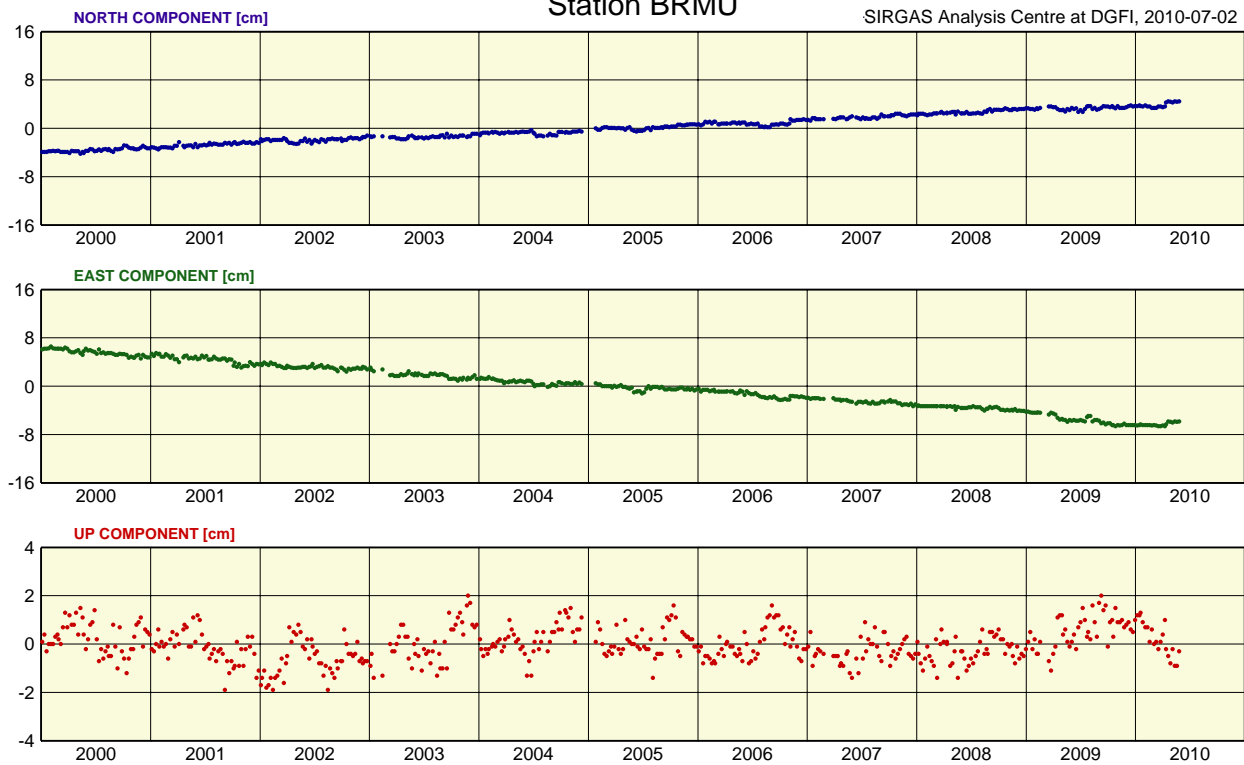
### Station BUCA

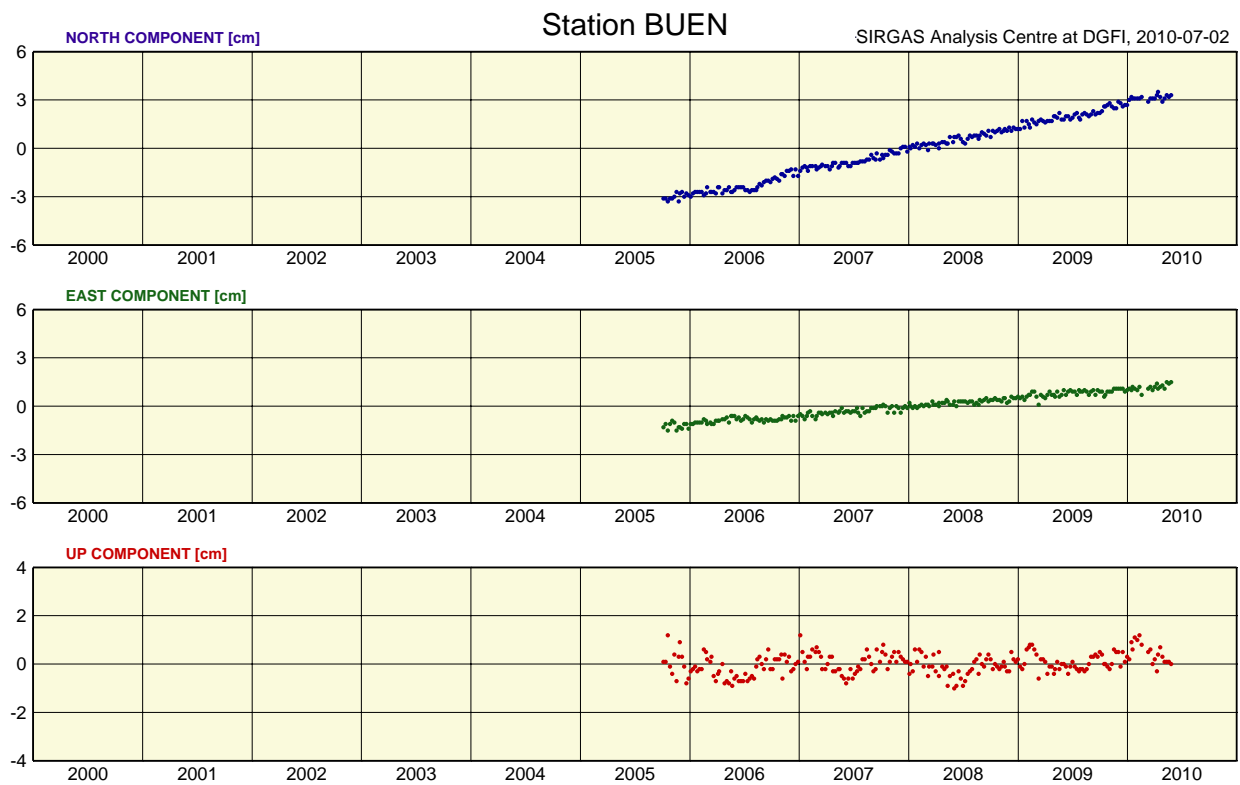
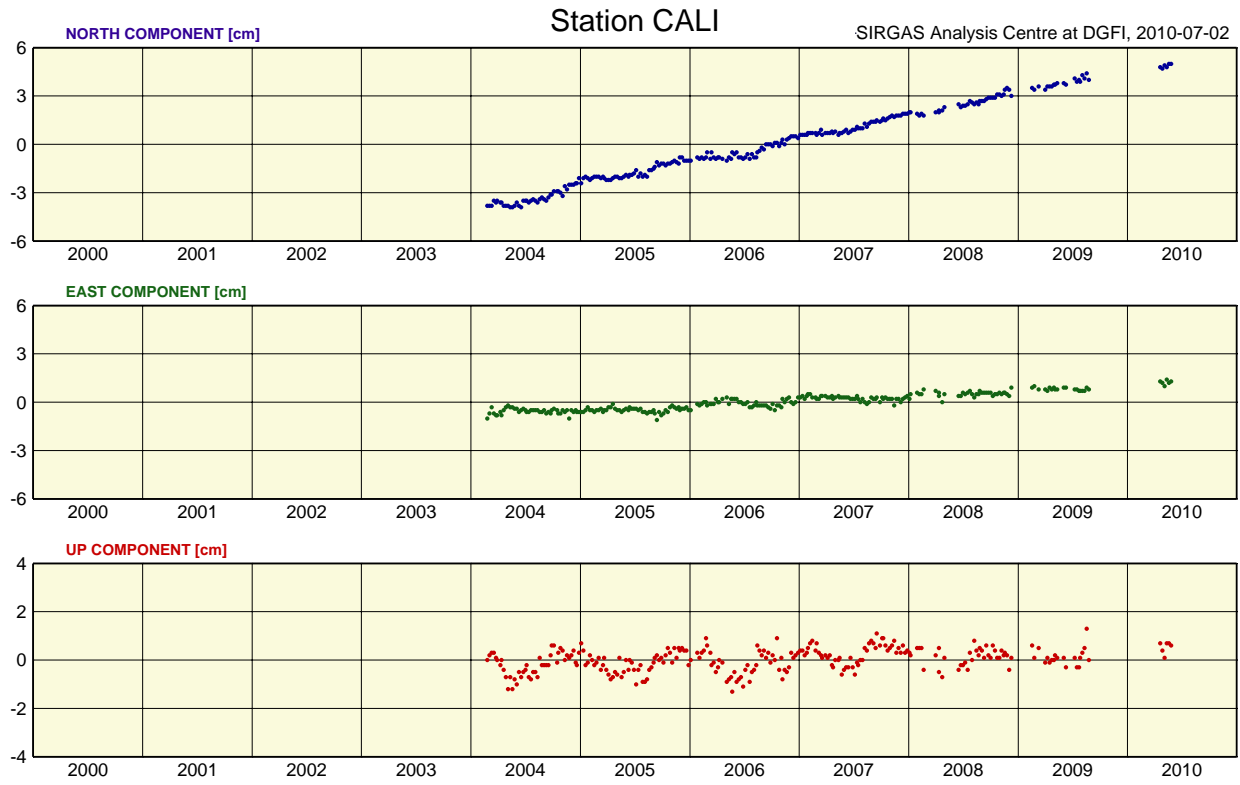
SIRGAS Analysis Centre at DGFI, 2010-07-02



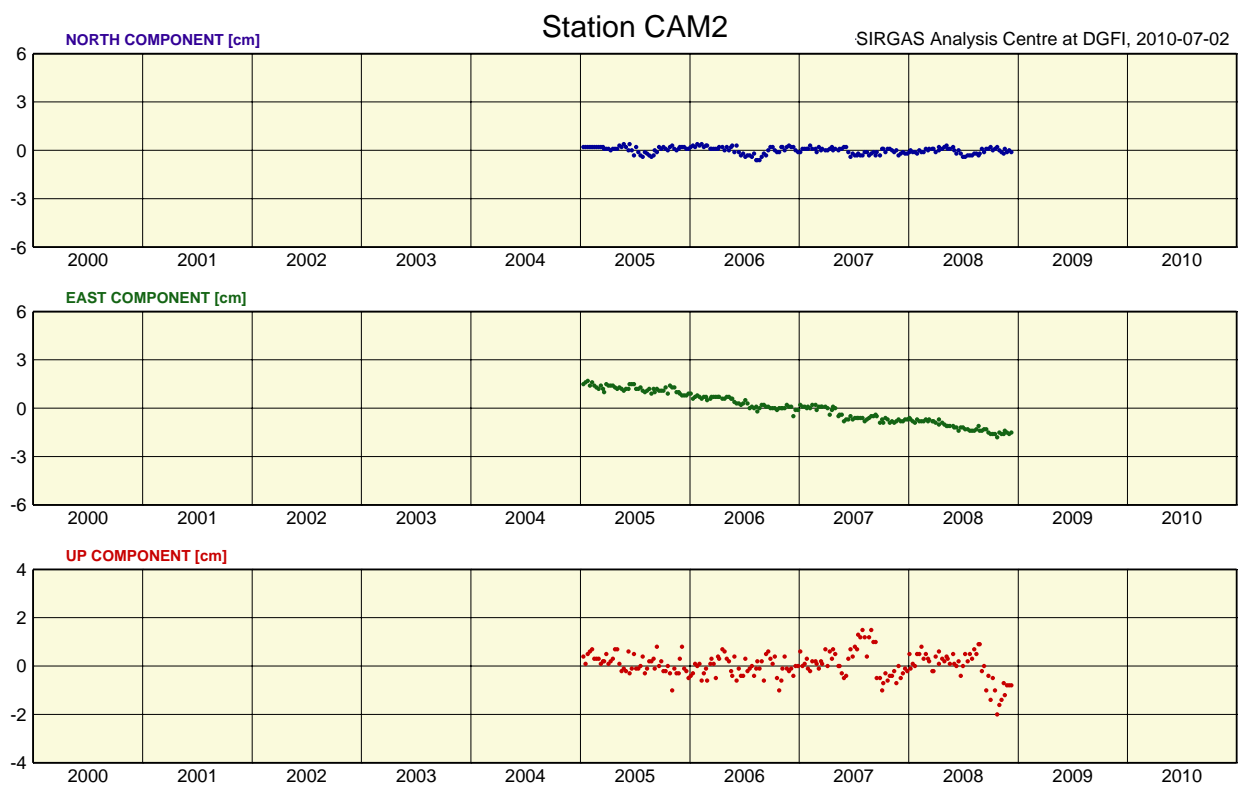
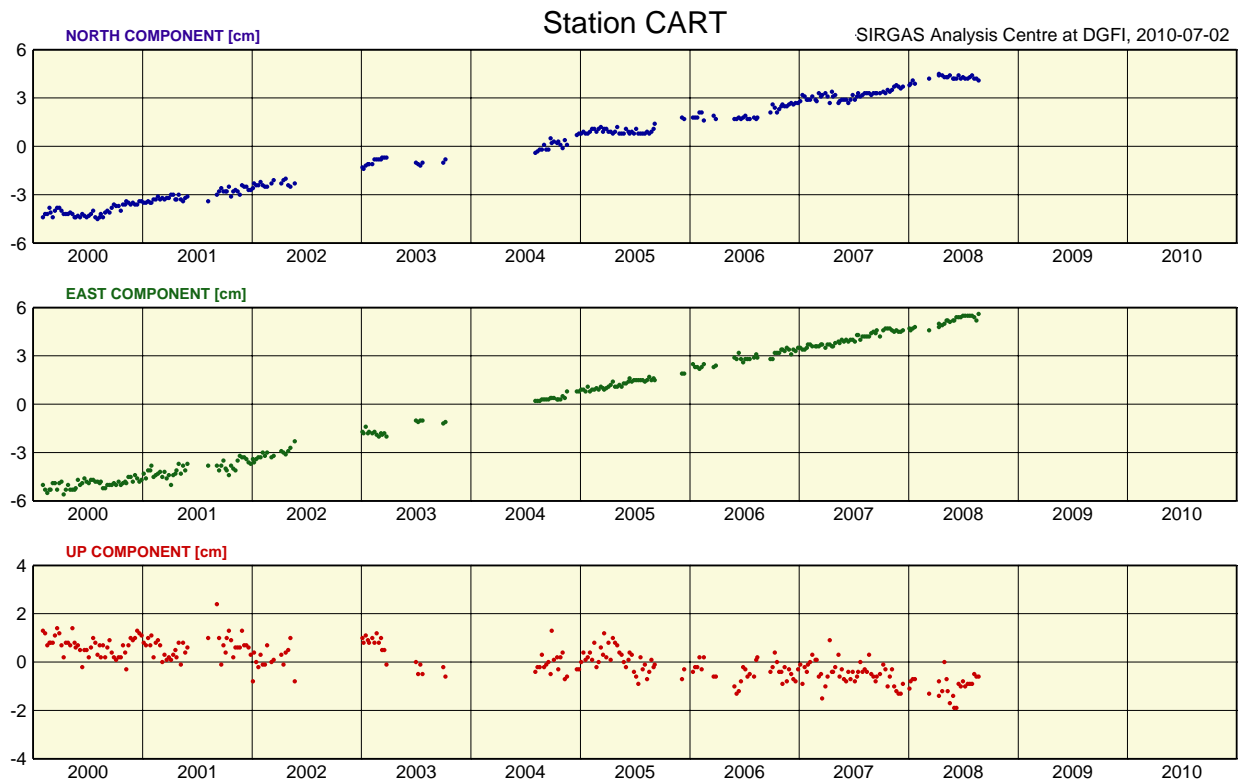
### Station BRMU

SIRGAS Analysis Centre at DGFI, 2010-07-02



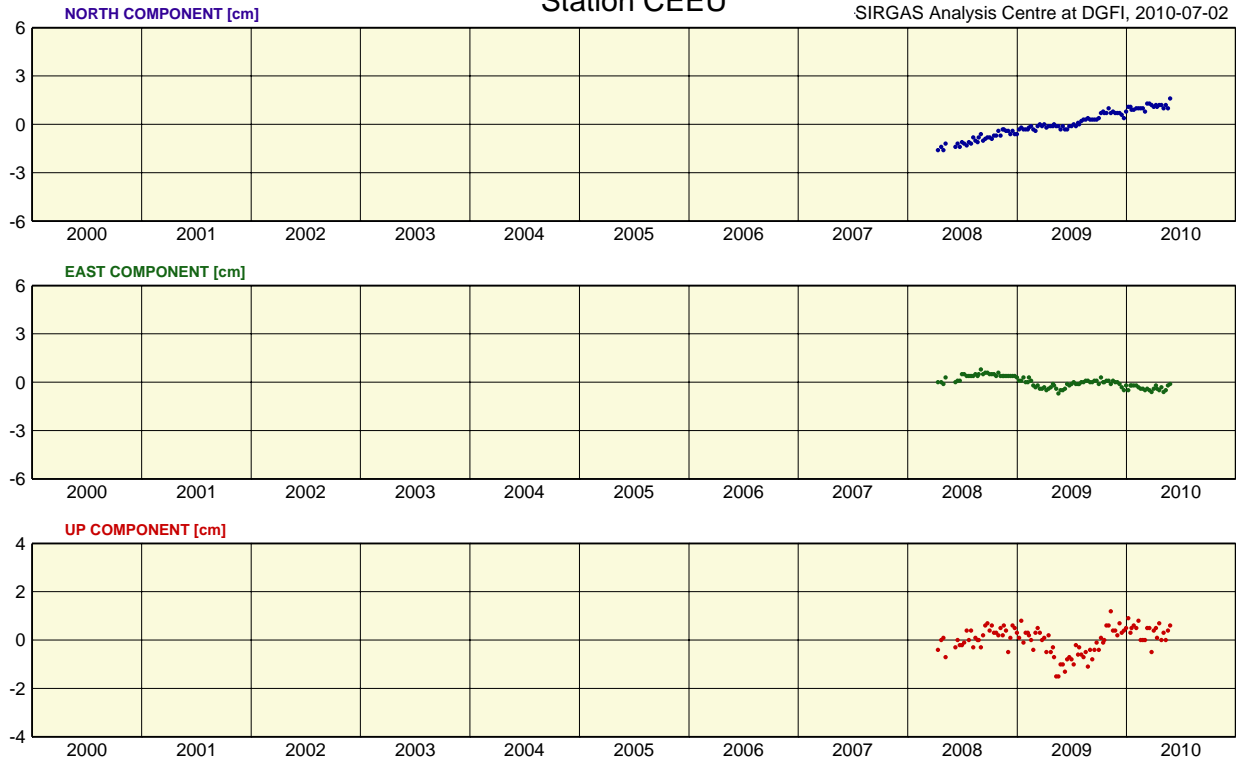






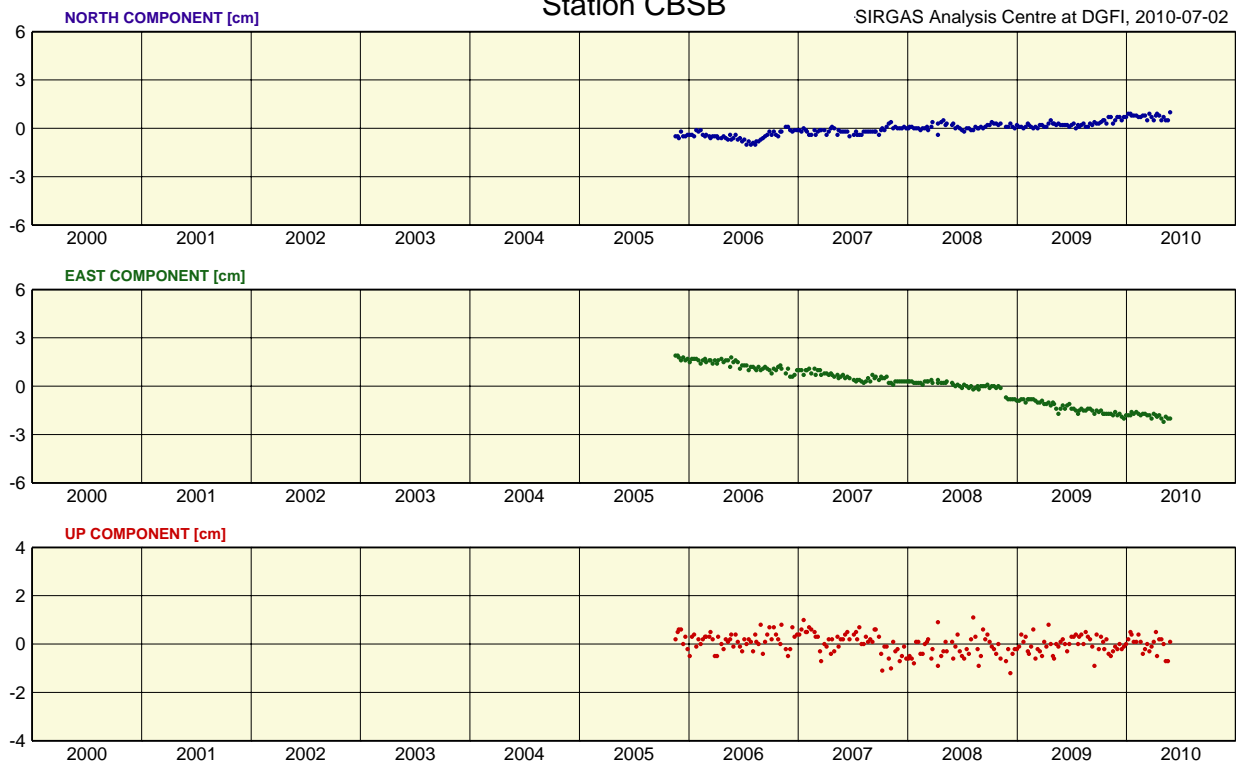
### Station CEEU

SIRGAS Analysis Centre at DGFI, 2010-07-02



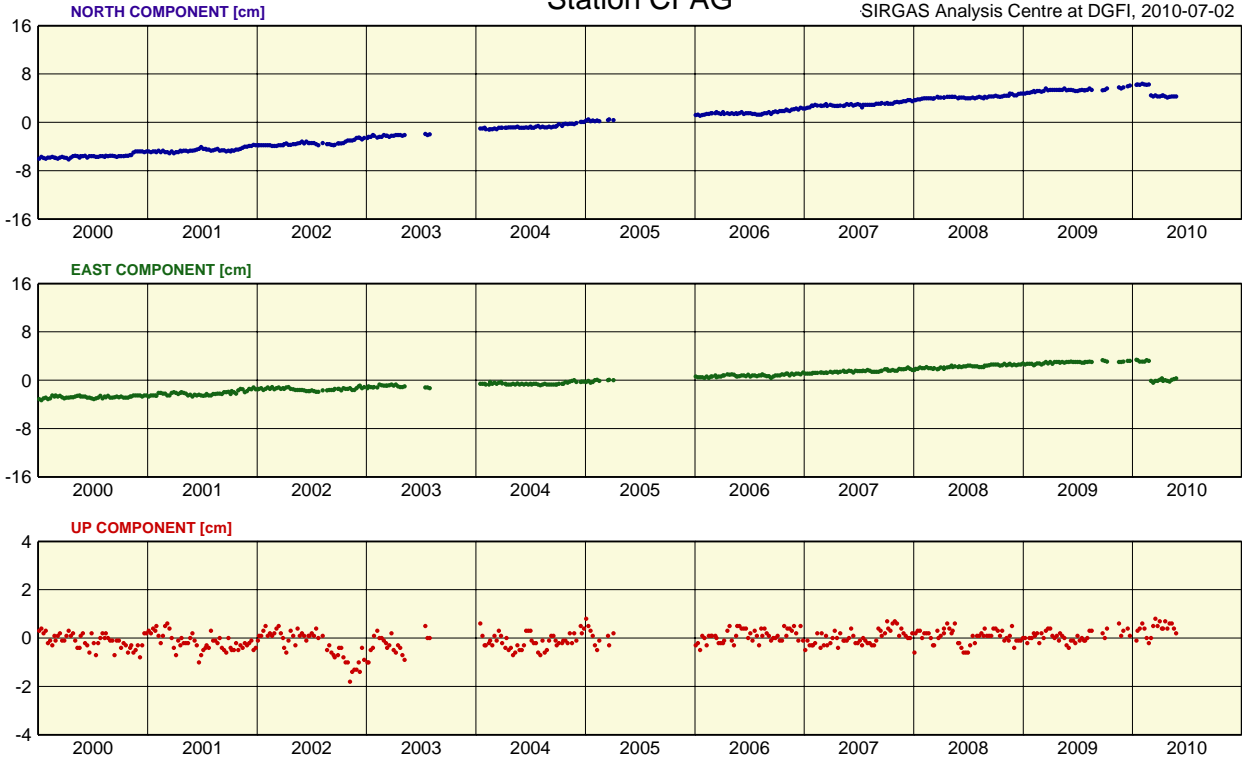
### Station CBSB

SIRGAS Analysis Centre at DGFI, 2010-07-02



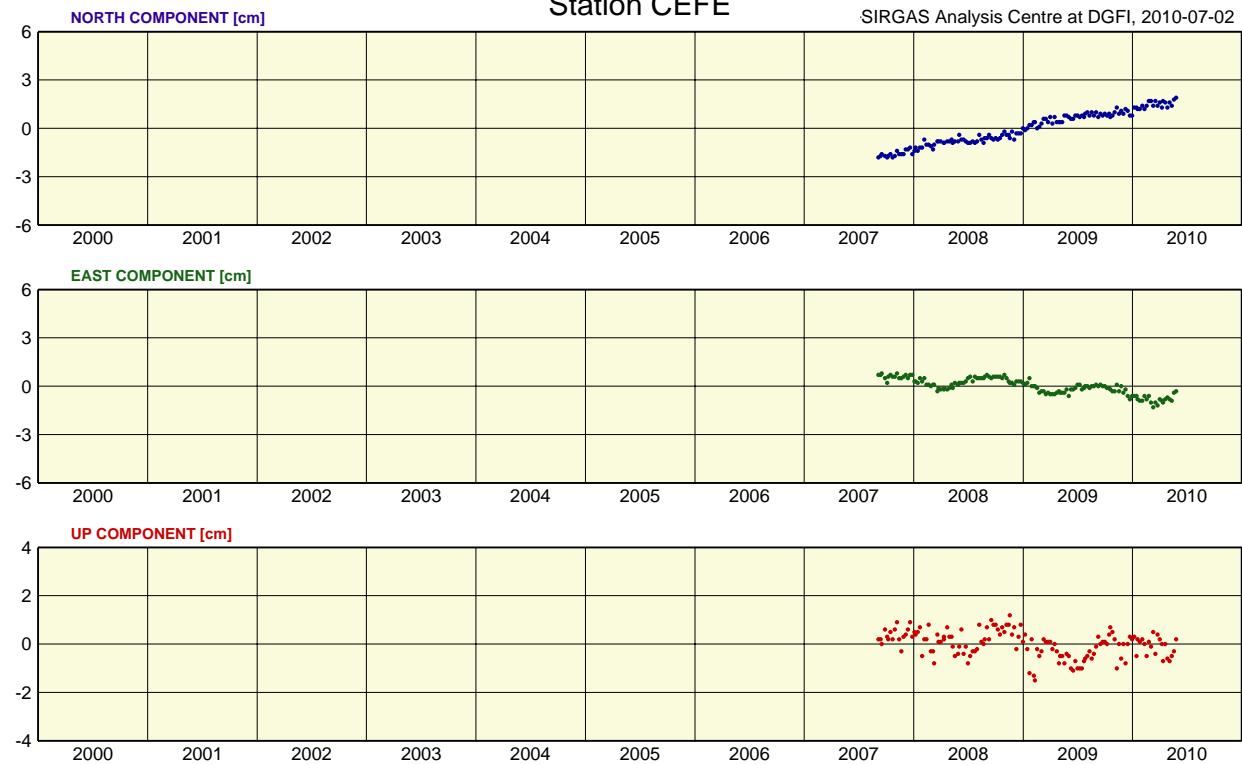
### Station CFAG

SIRGAS Analysis Centre at DGFI, 2010-07-02

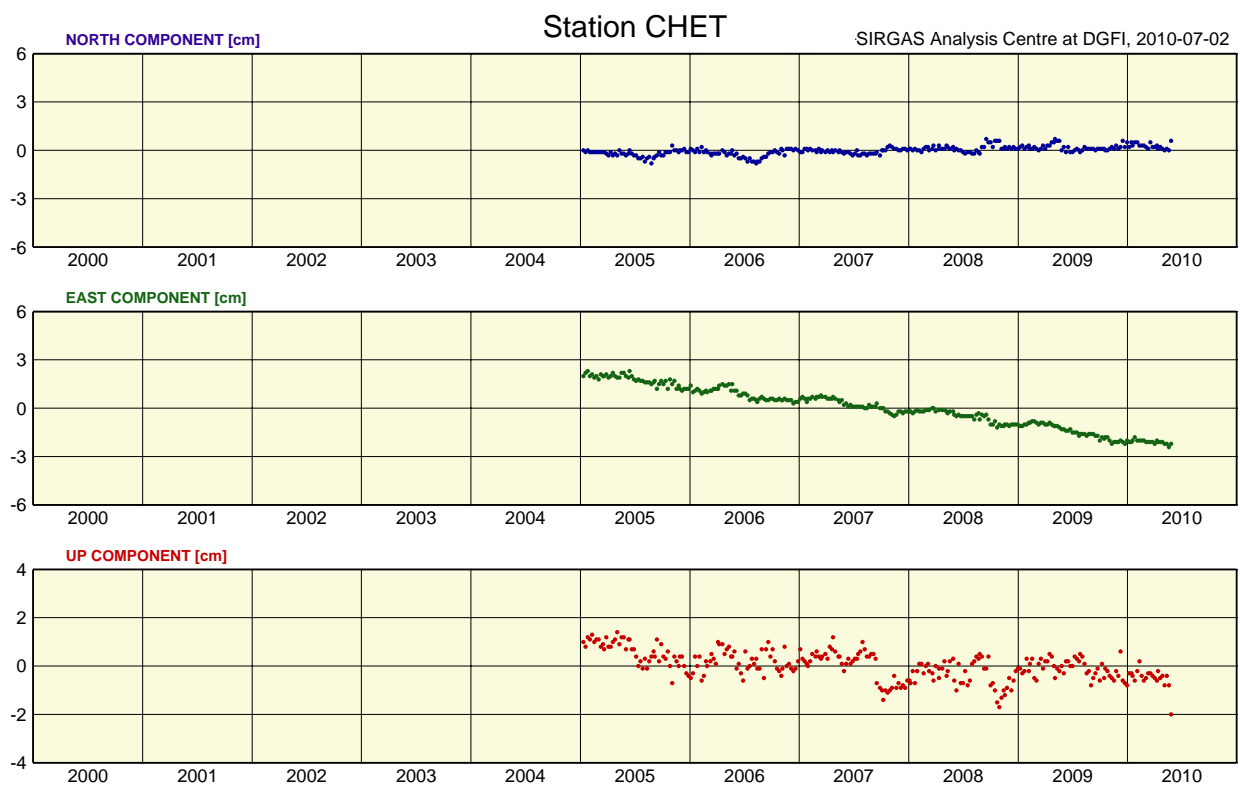
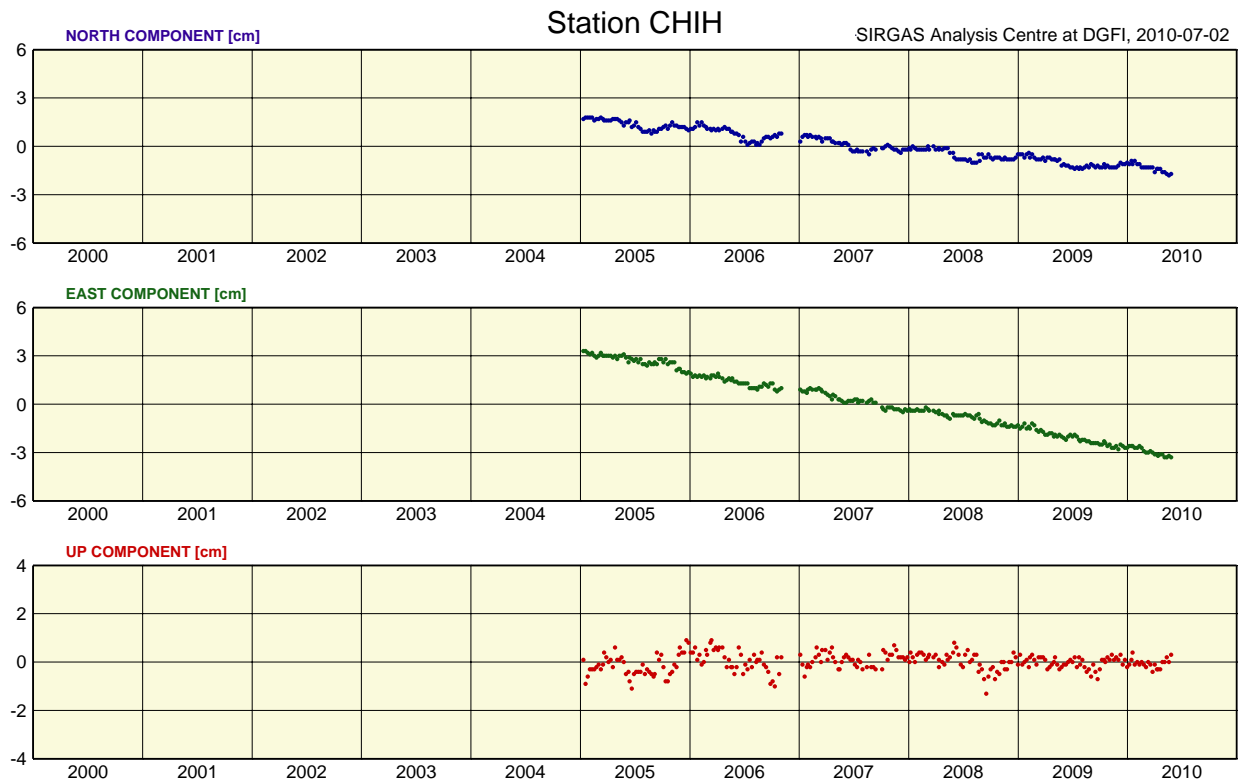


### Station CEFE

SIRGAS Analysis Centre at DGFI, 2010-07-02

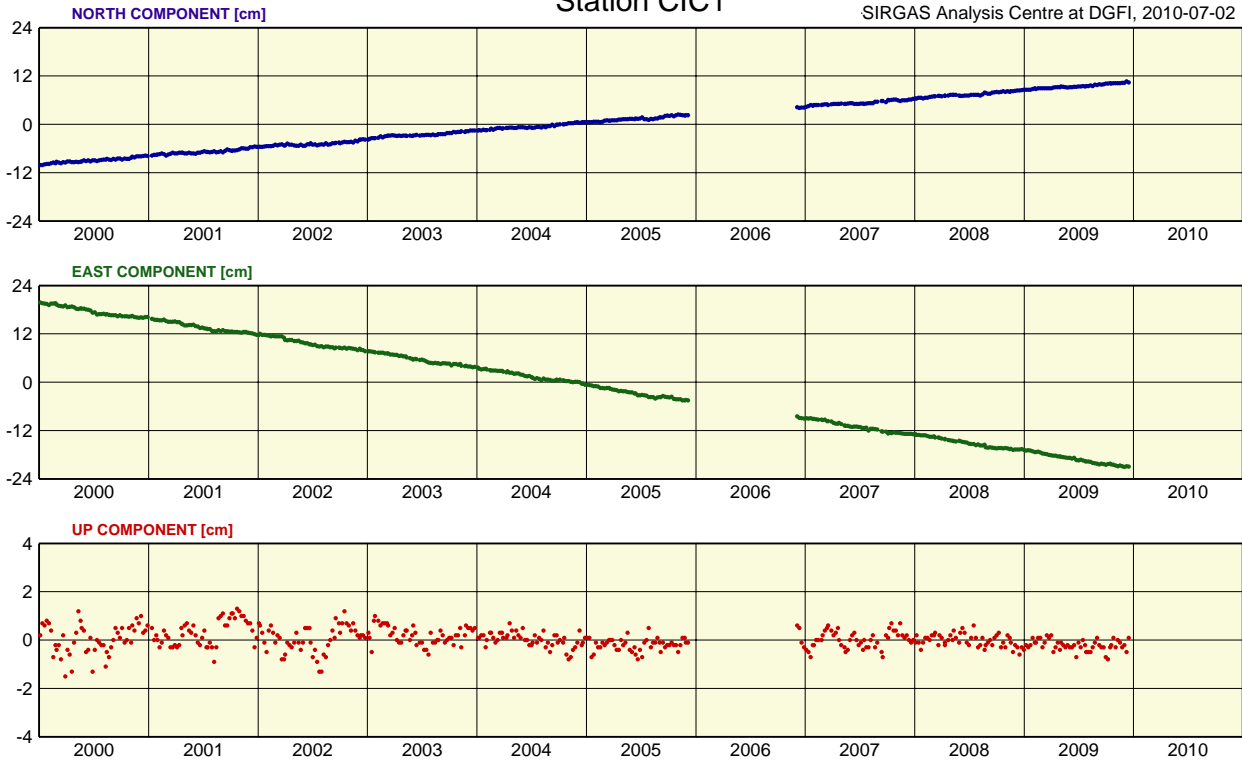






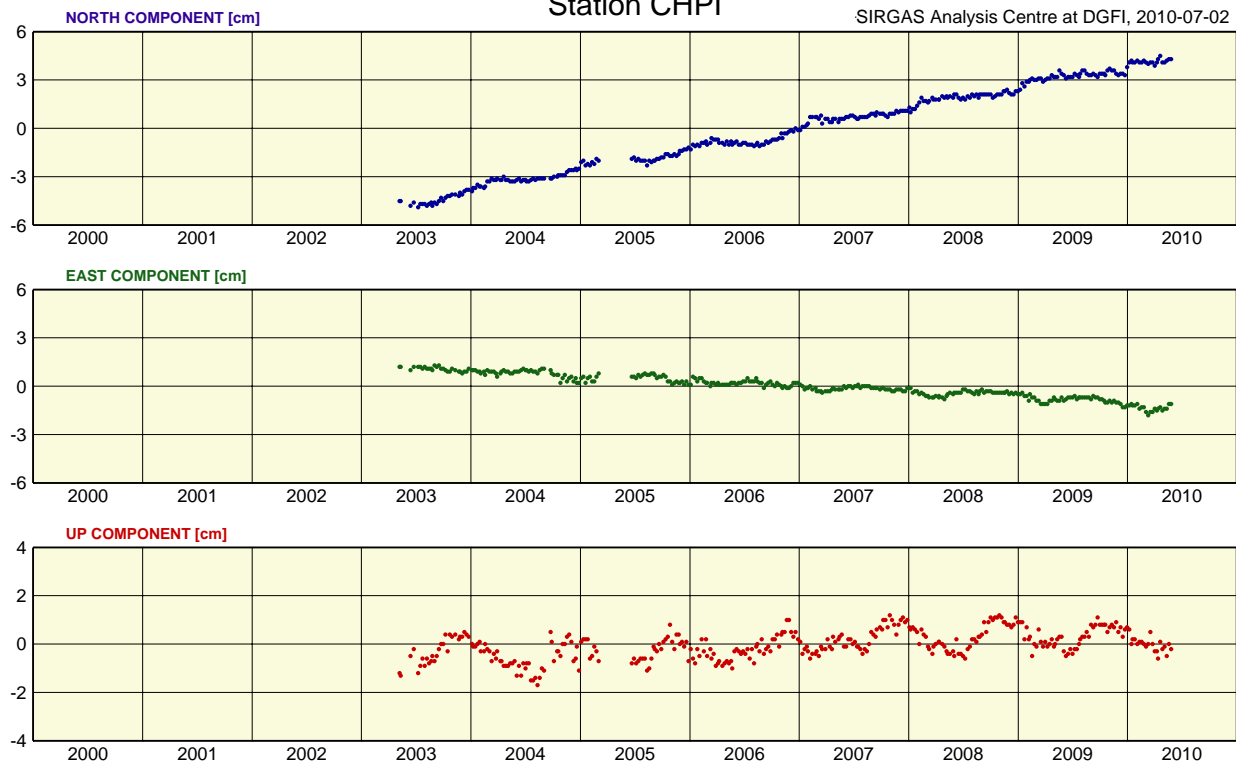
### Station CIC1

SIRGAS Analysis Centre at DGFI, 2010-07-02



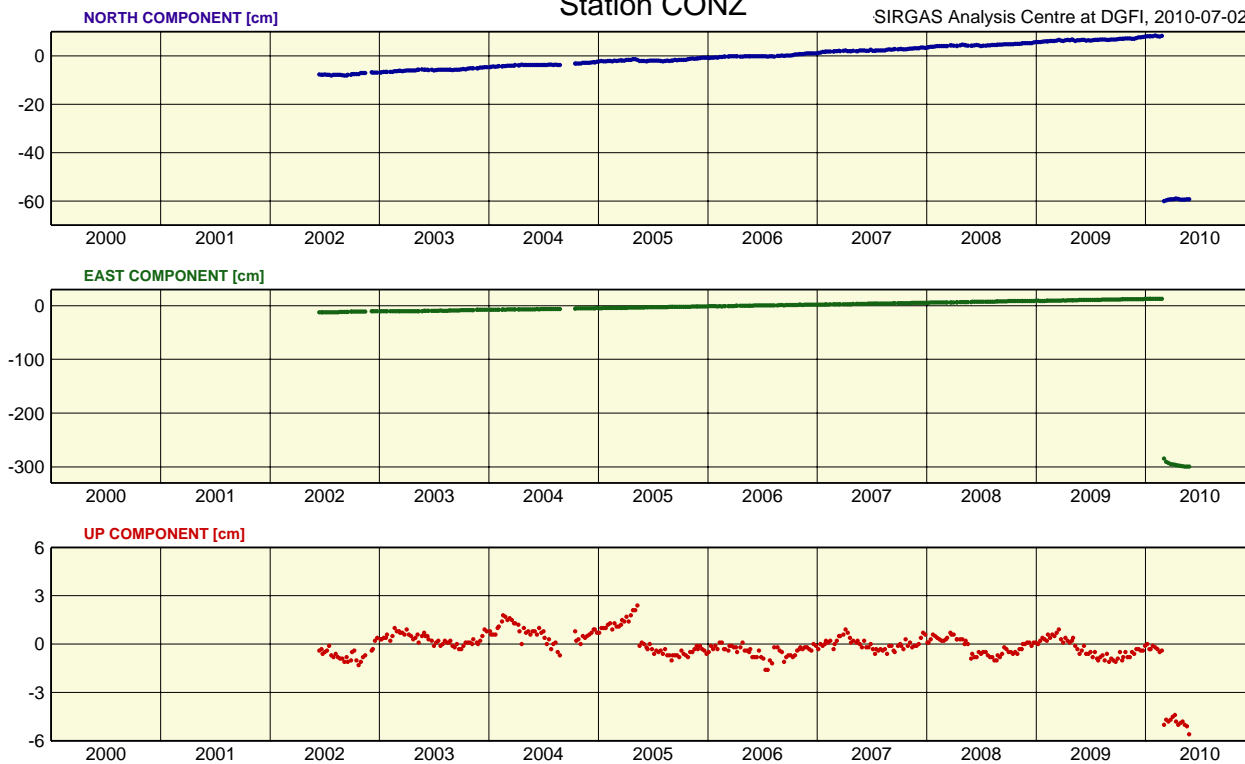
### Station CHPI

SIRGAS Analysis Centre at DGFI, 2010-07-02



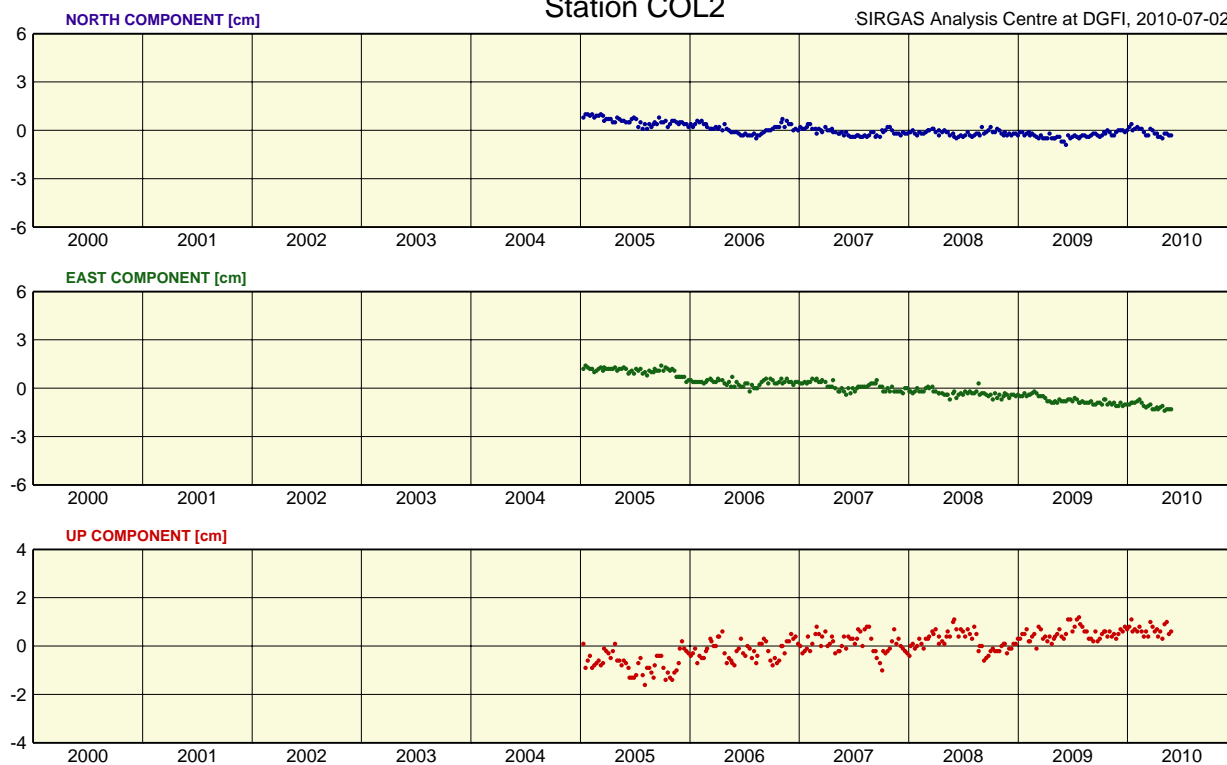
### Station CONZ

SIRGAS Analysis Centre at DGFI, 2010-07-02

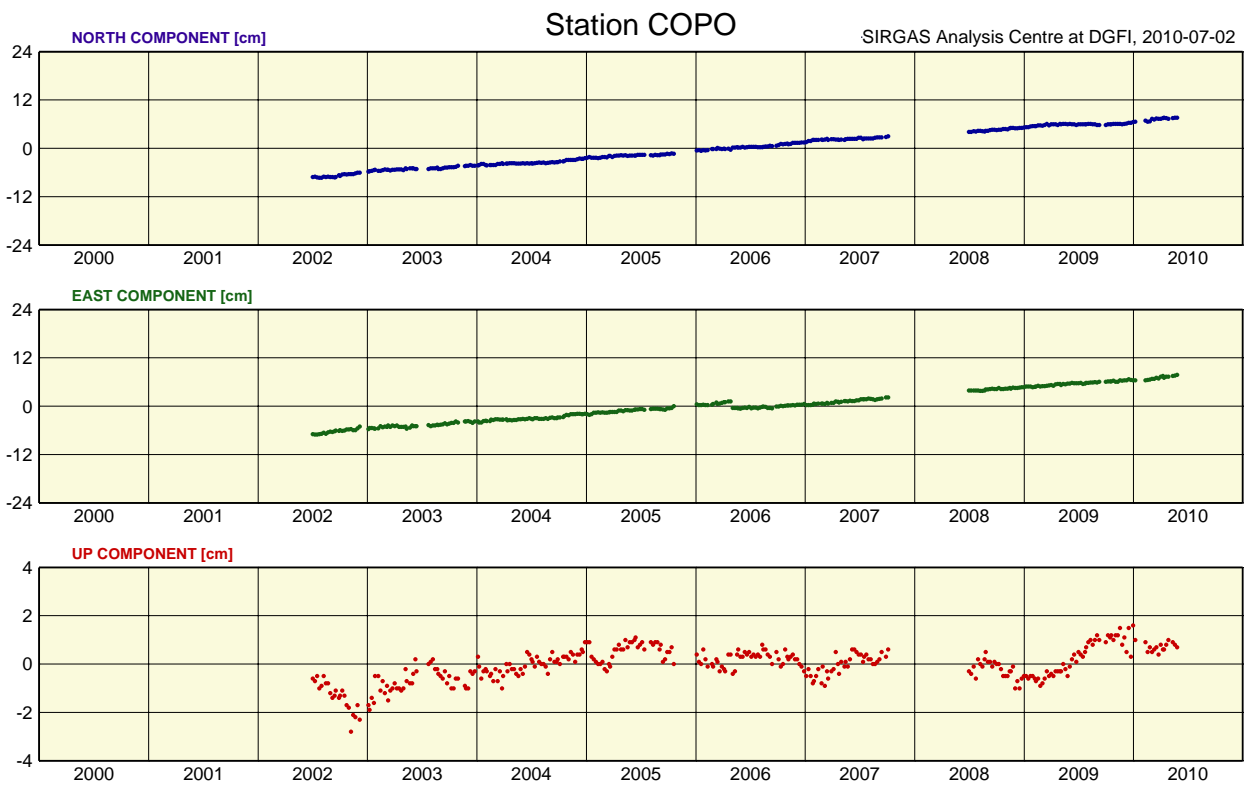
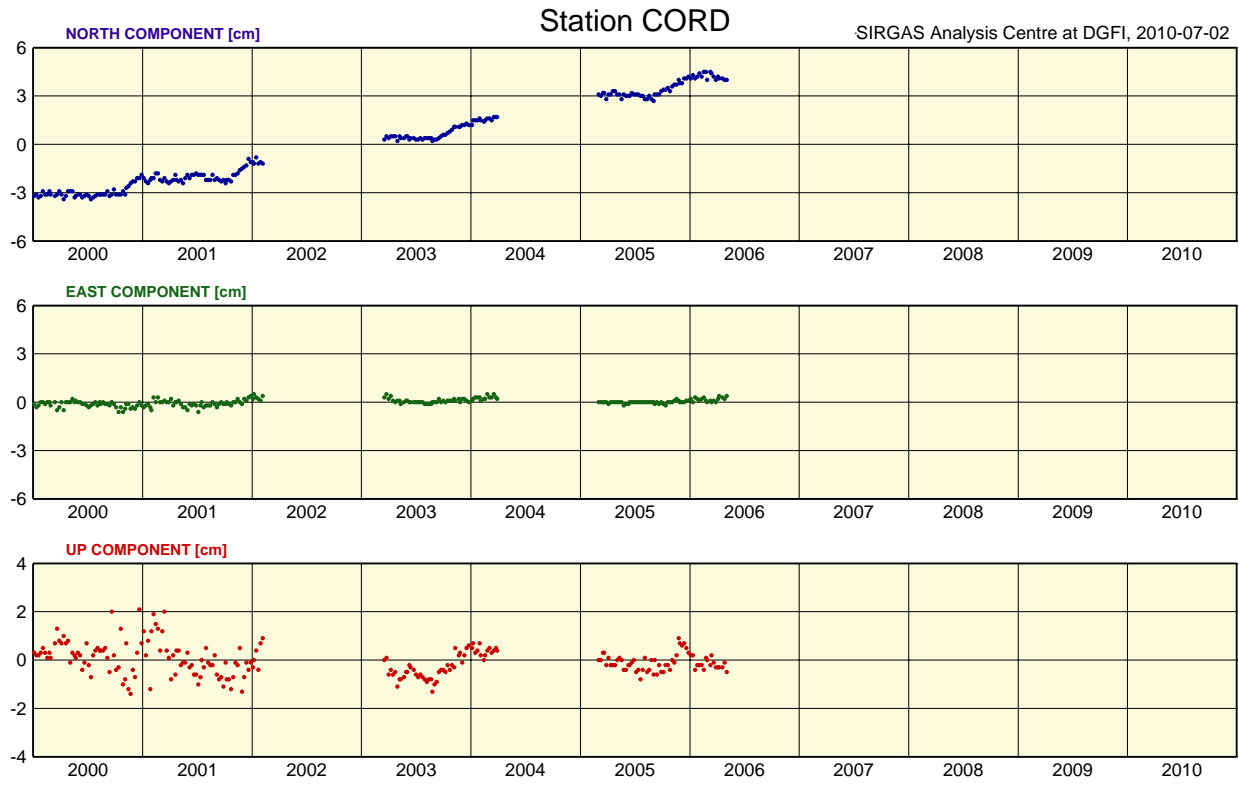


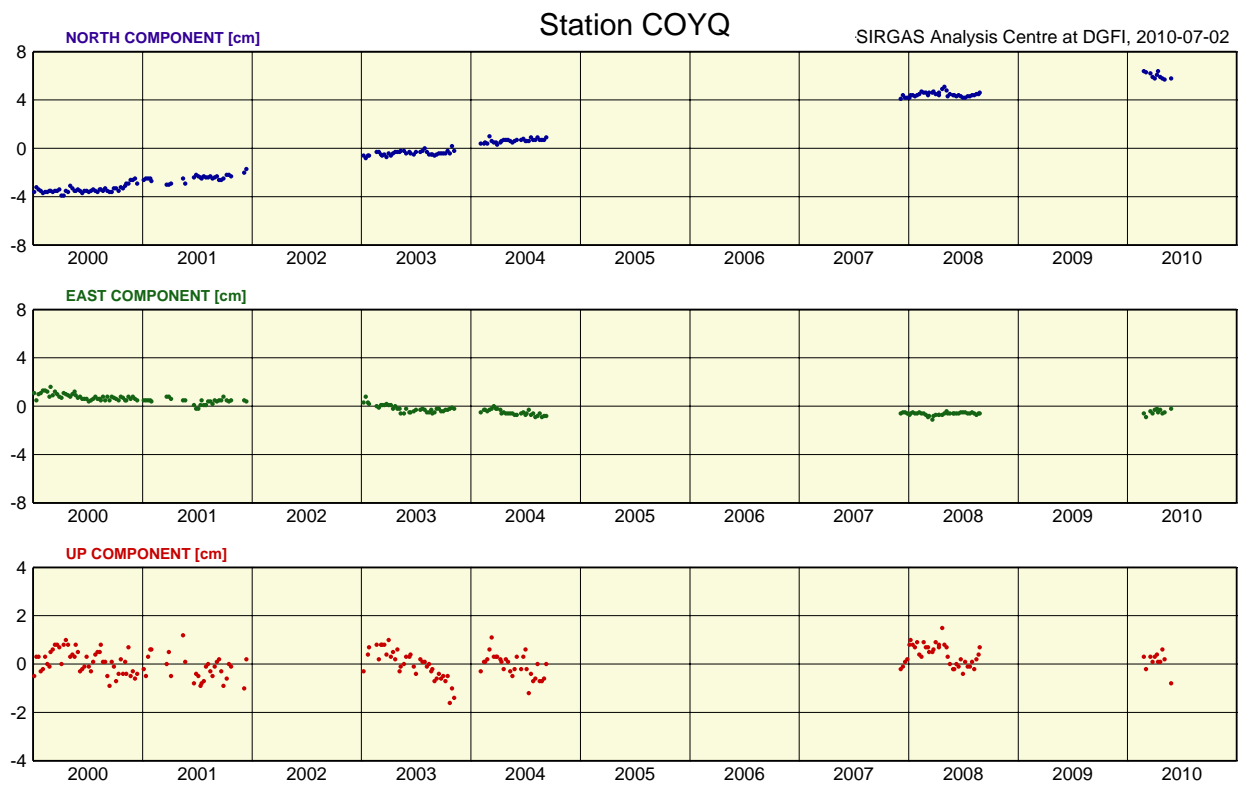
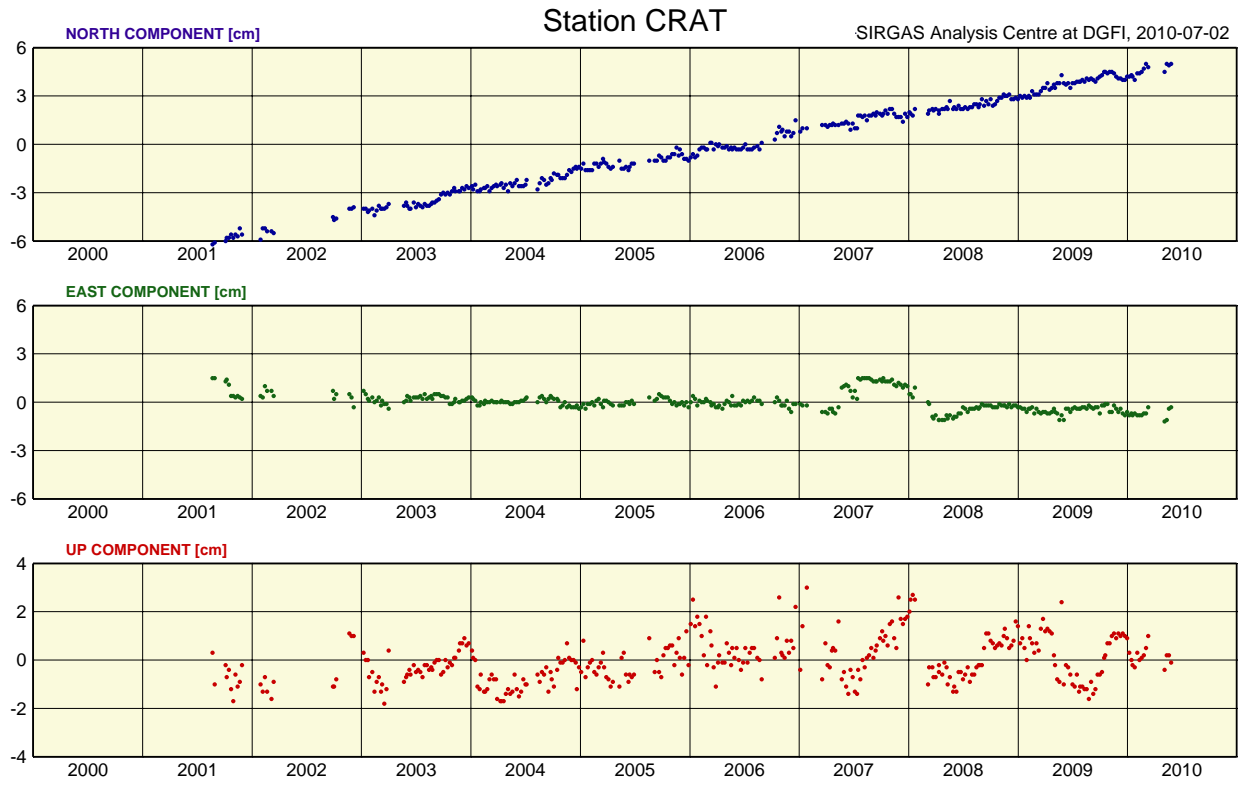
### Station COL2

SIRGAS Analysis Centre at DGFI, 2010-07-02



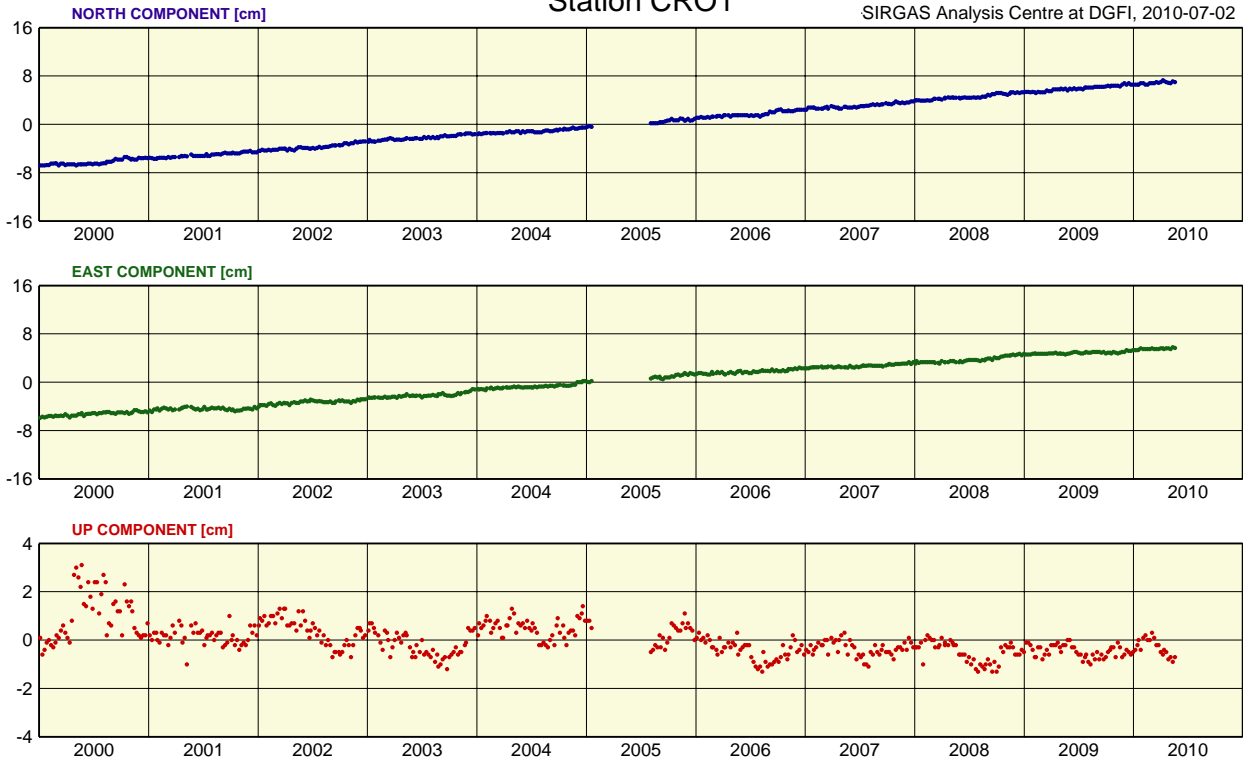






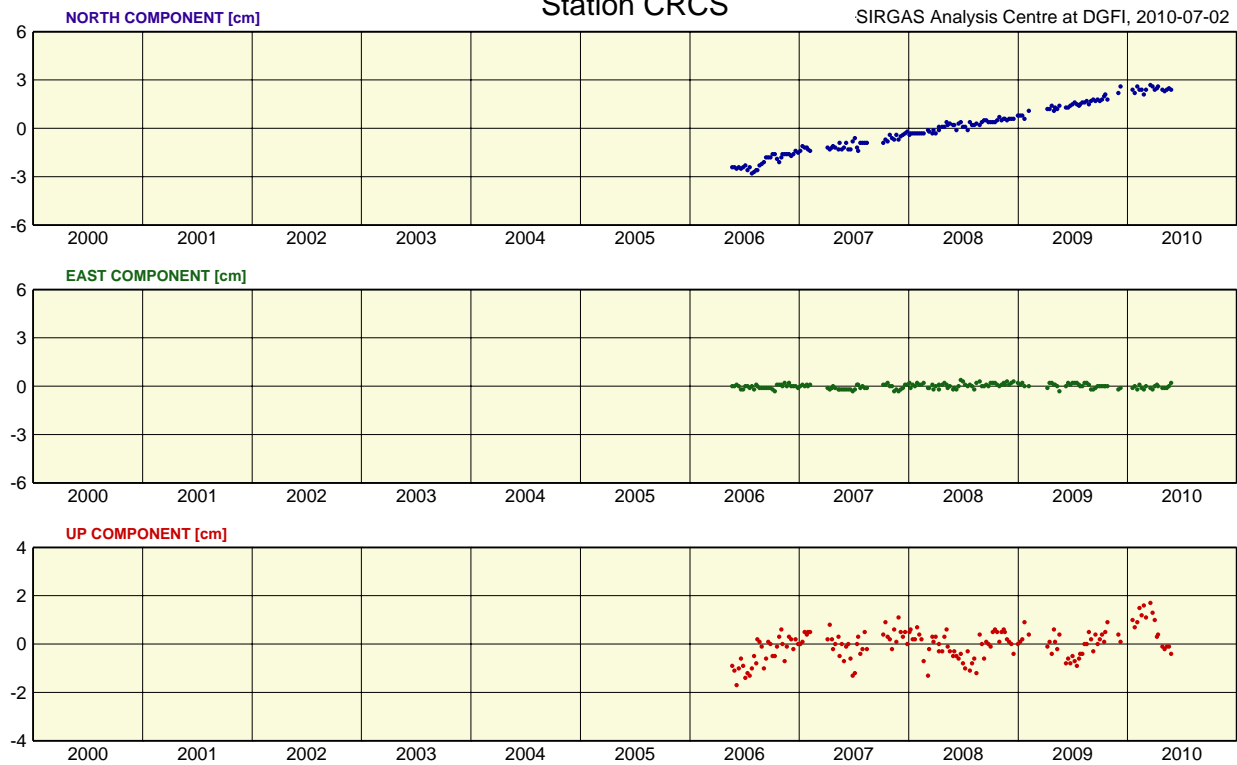
### Station CRO1

SIRGAS Analysis Centre at DGFI, 2010-07-02

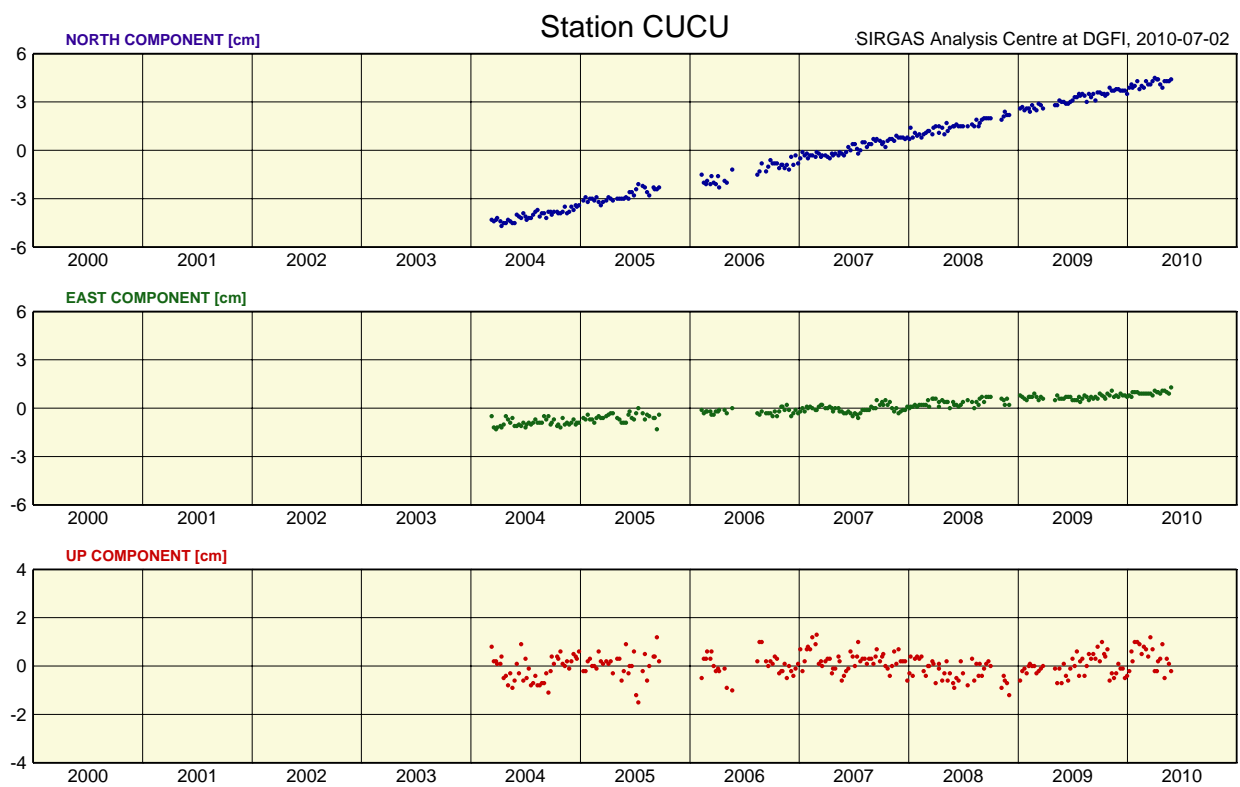
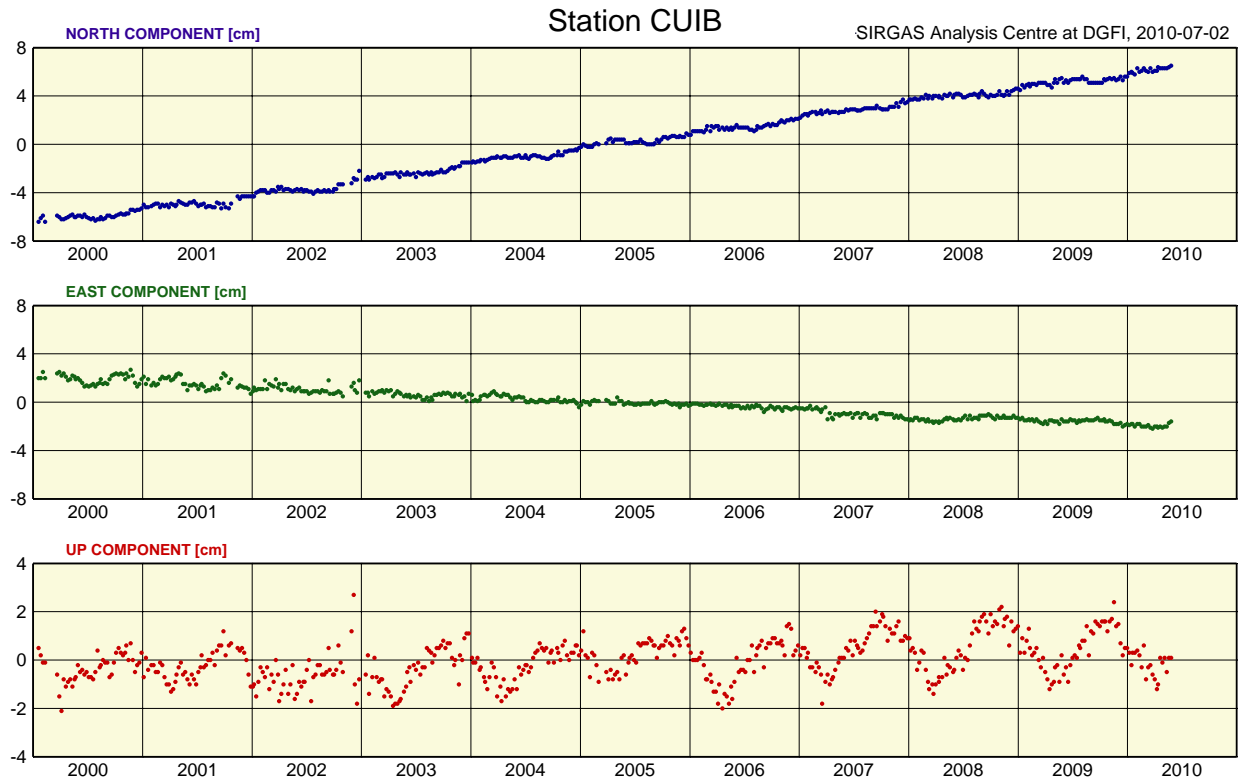


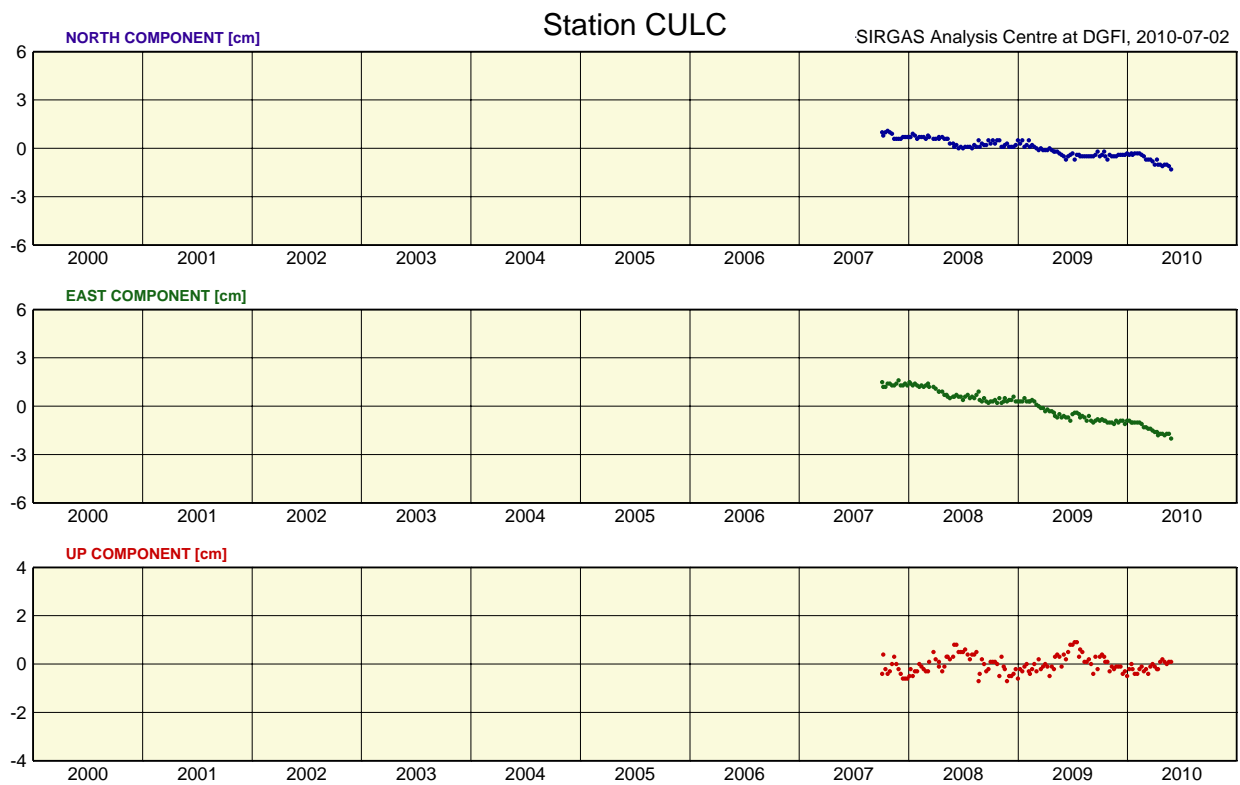
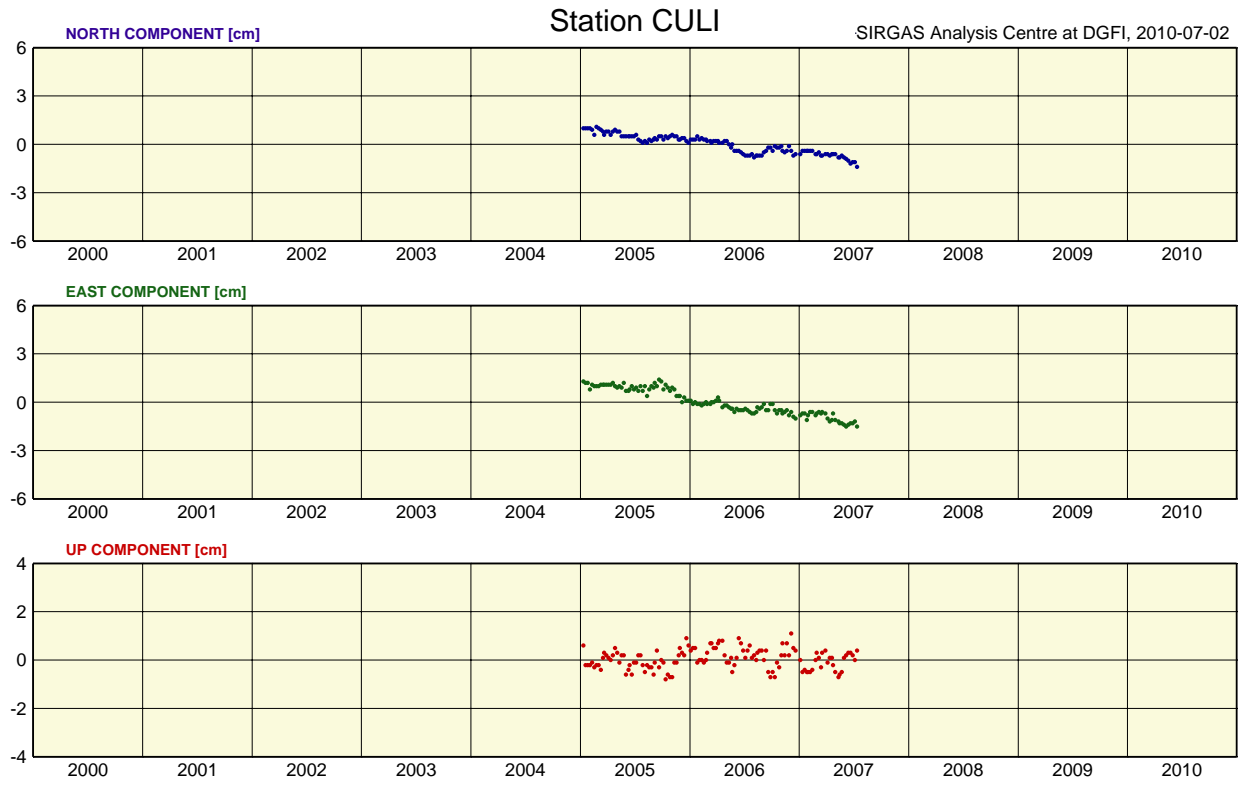
### Station CRCS

SIRGAS Analysis Centre at DGFI, 2010-07-02



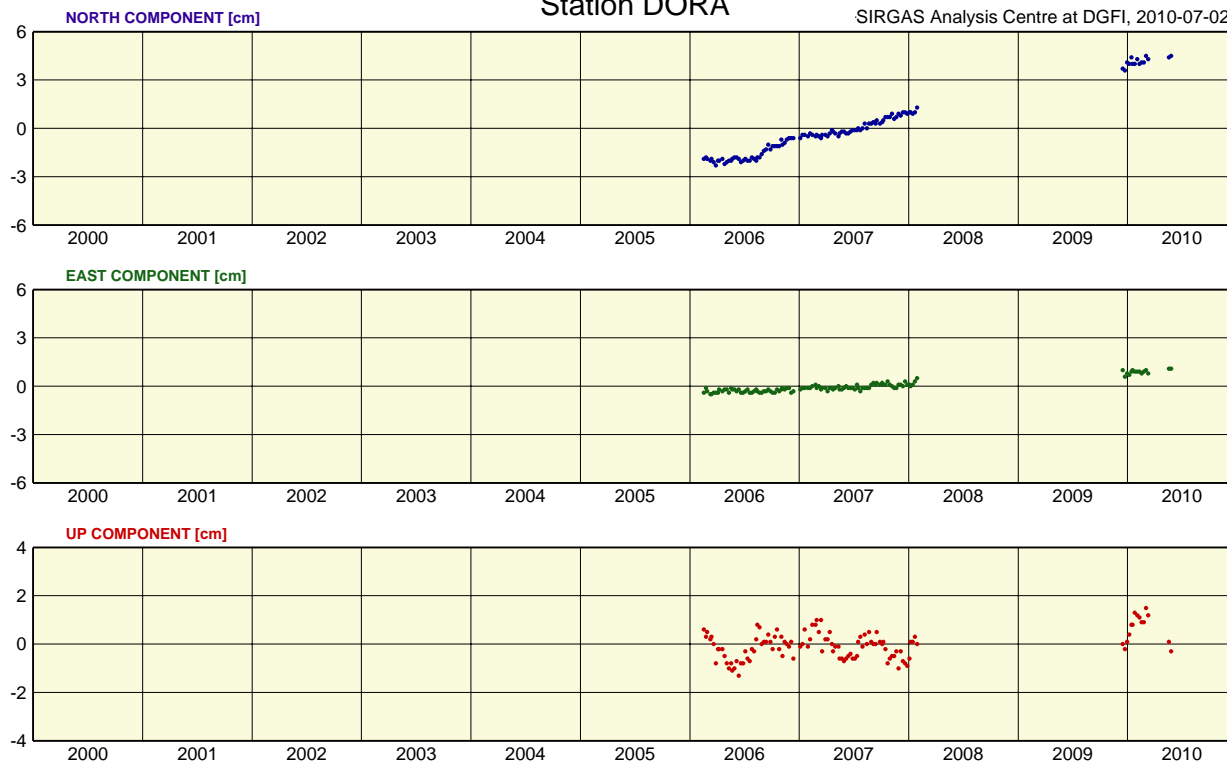






# Station DORA

SIRGAS Analysis Centre at DGFI, 2010-07-02



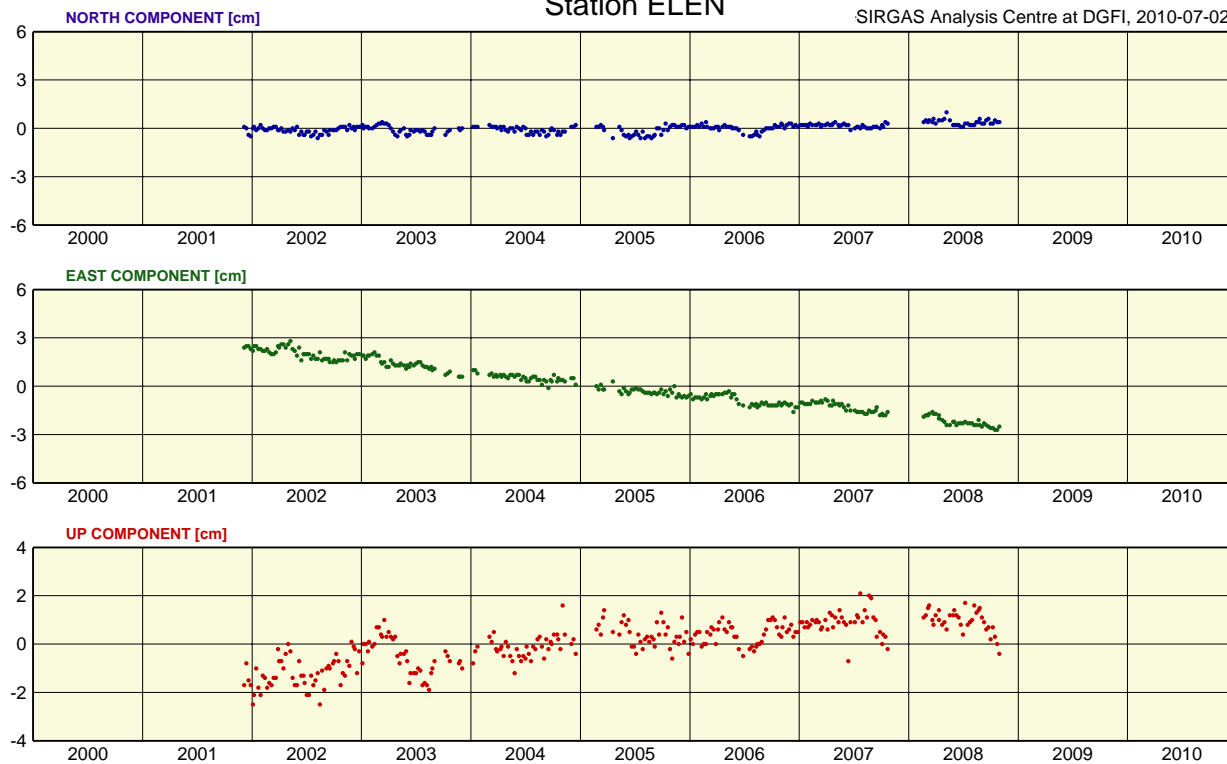
# Station DAVI

SIRGAS Analysis Centre at DGFI, 2010-07-02



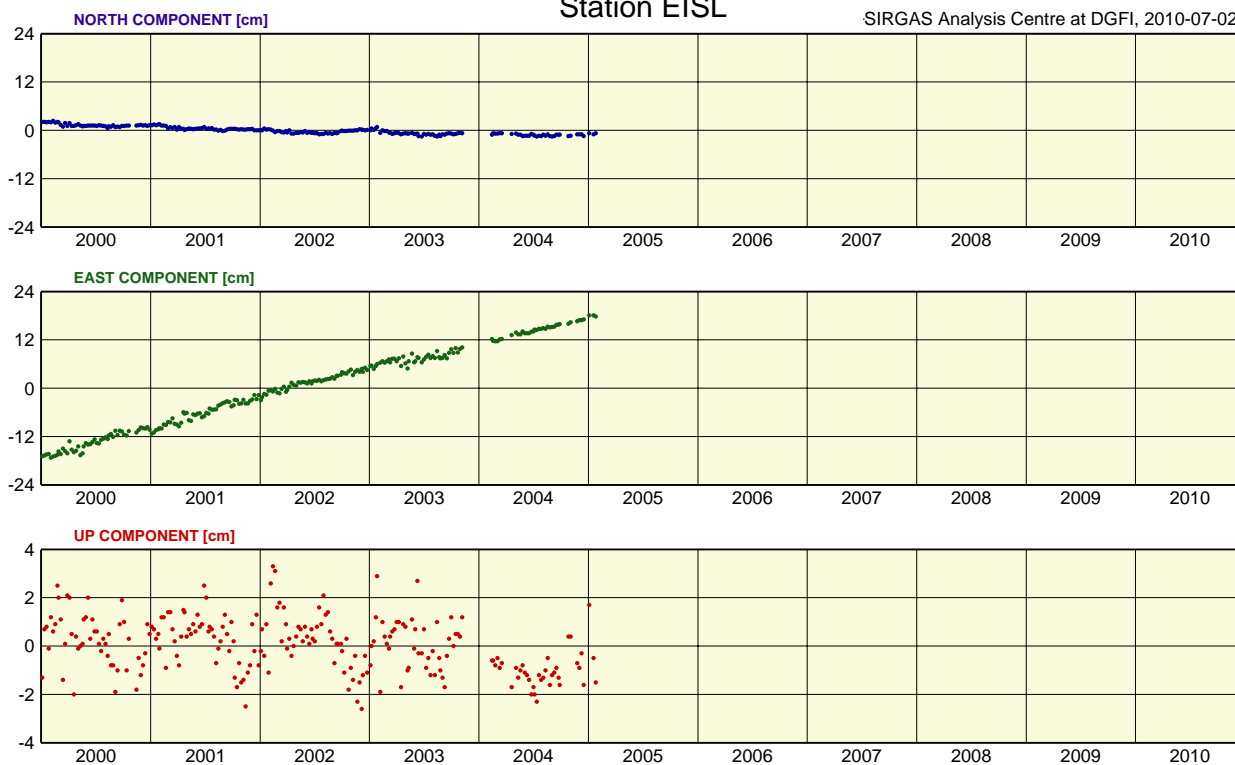
# Station ELEN

SIRGAS Analysis Centre at DGFI, 2010-07-02



# Station EISL

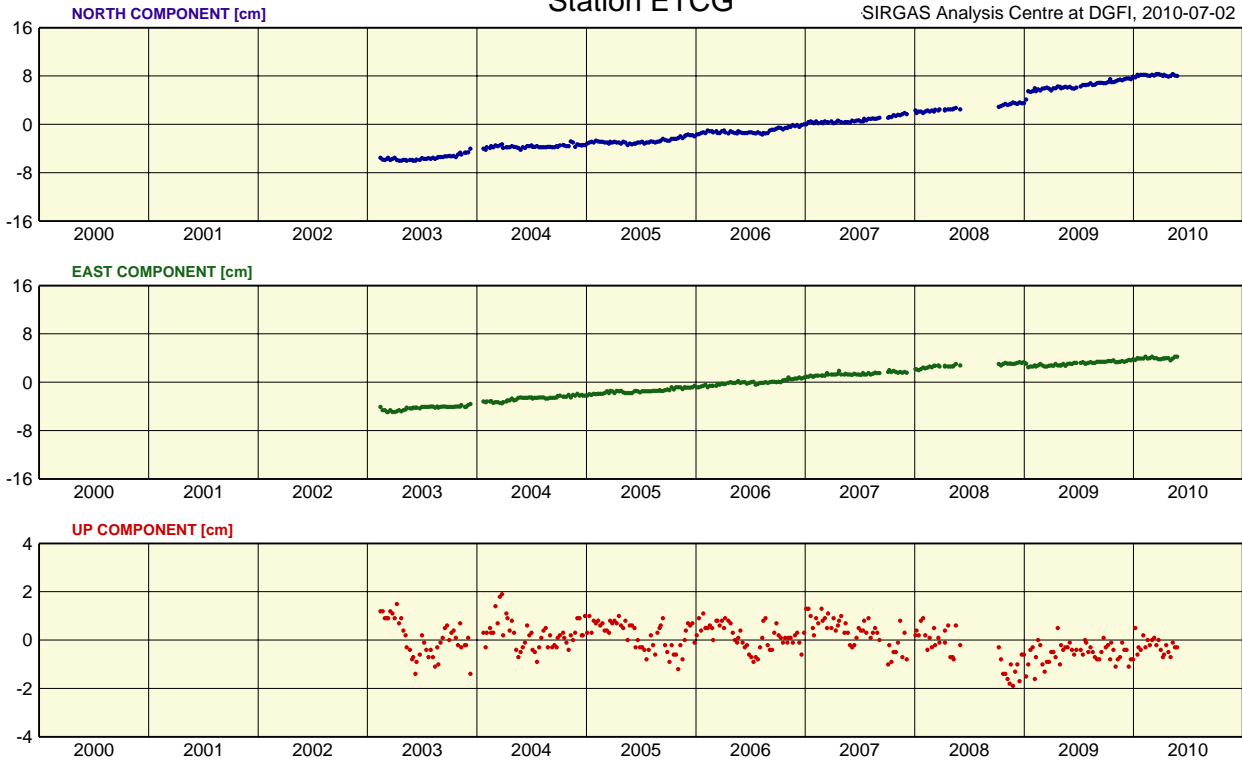
SIRGAS Analysis Centre at DGFI, 2010-07-02





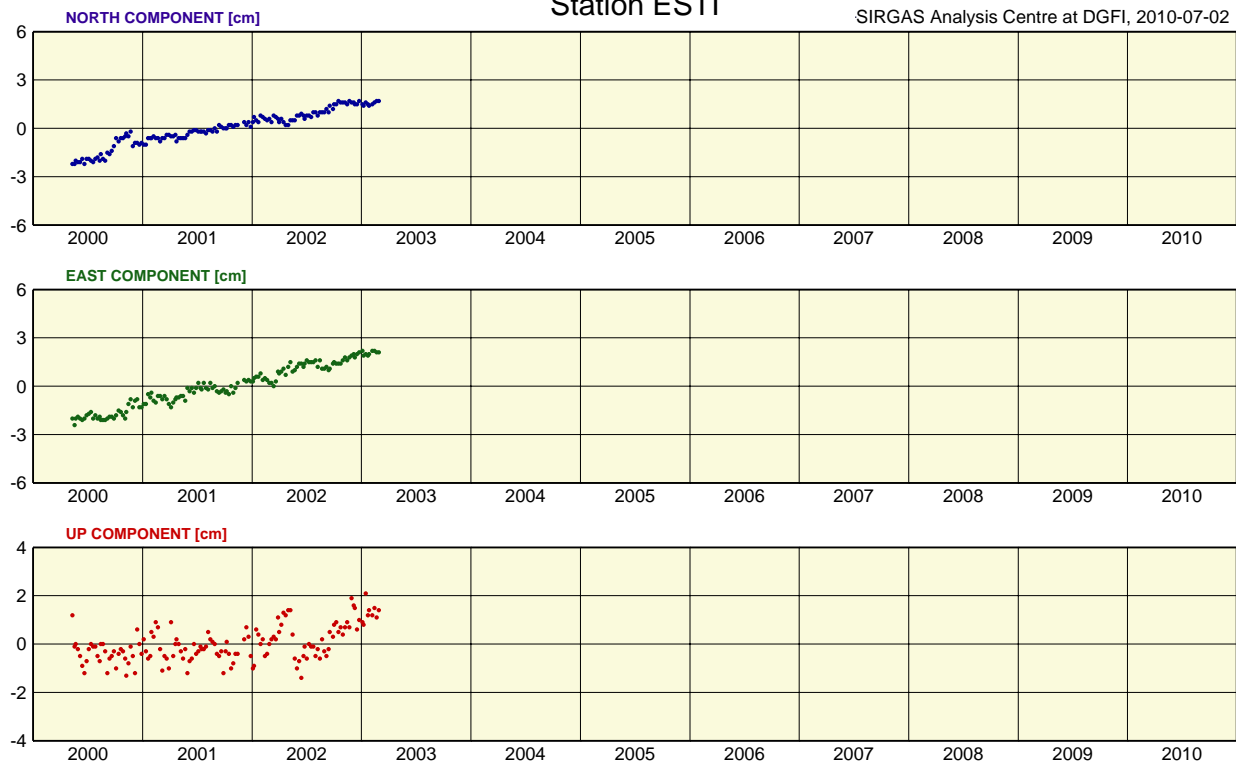
### Station ETCG

SIRGAS Analysis Centre at DGFI, 2010-07-02



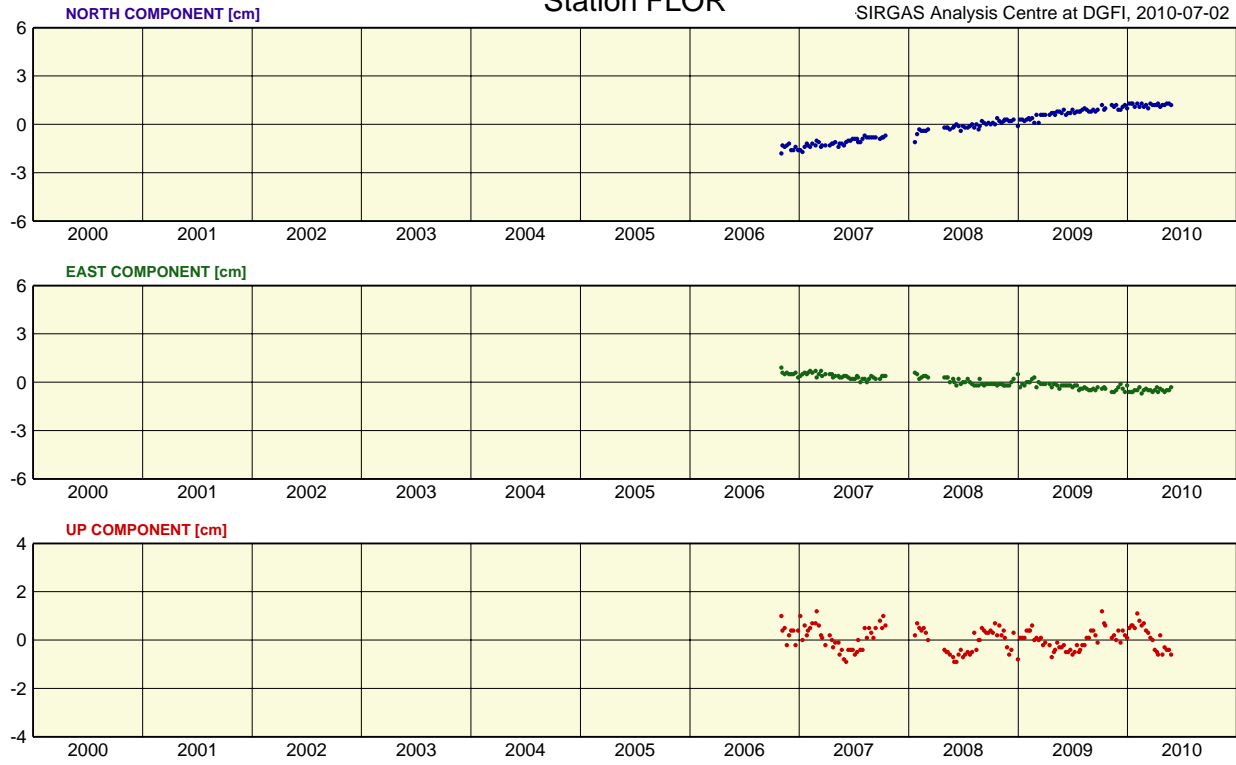
### Station ESTI

SIRGAS Analysis Centre at DGFI, 2010-07-02



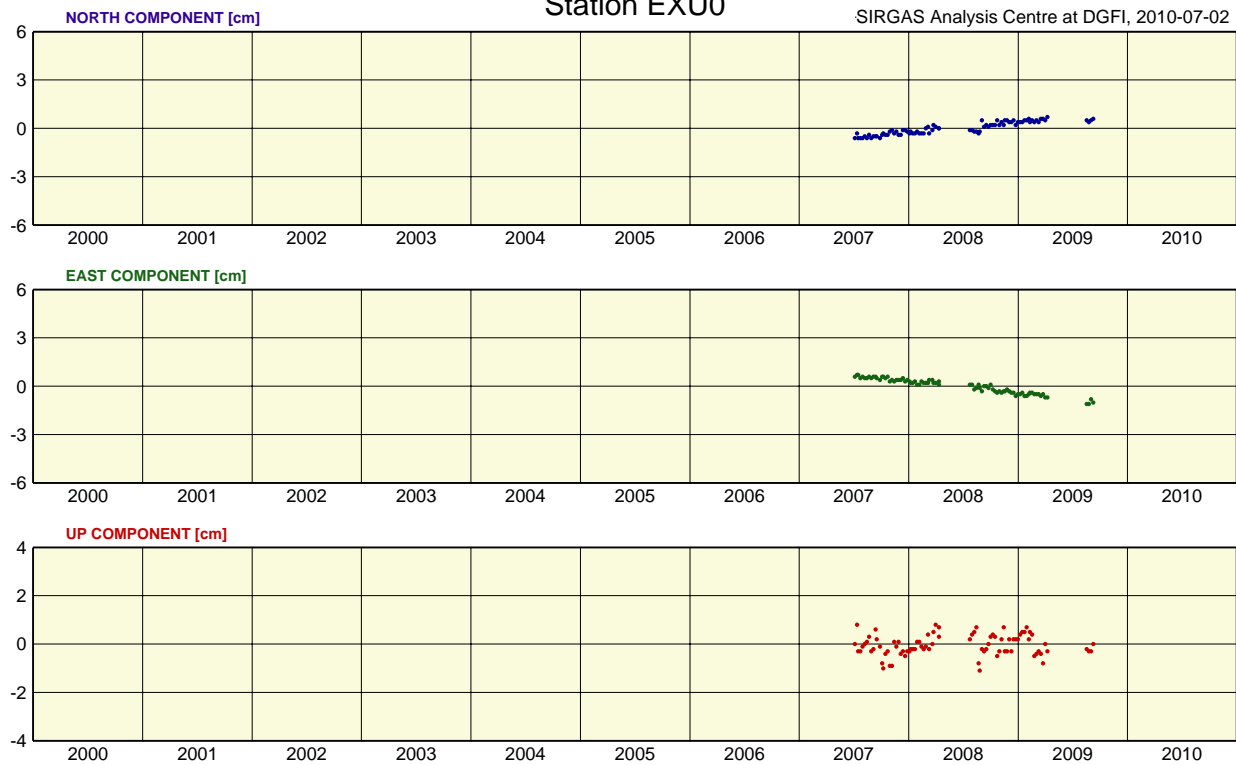
# Station FLOR

SIRGAS Analysis Centre at DGFI, 2010-07-02



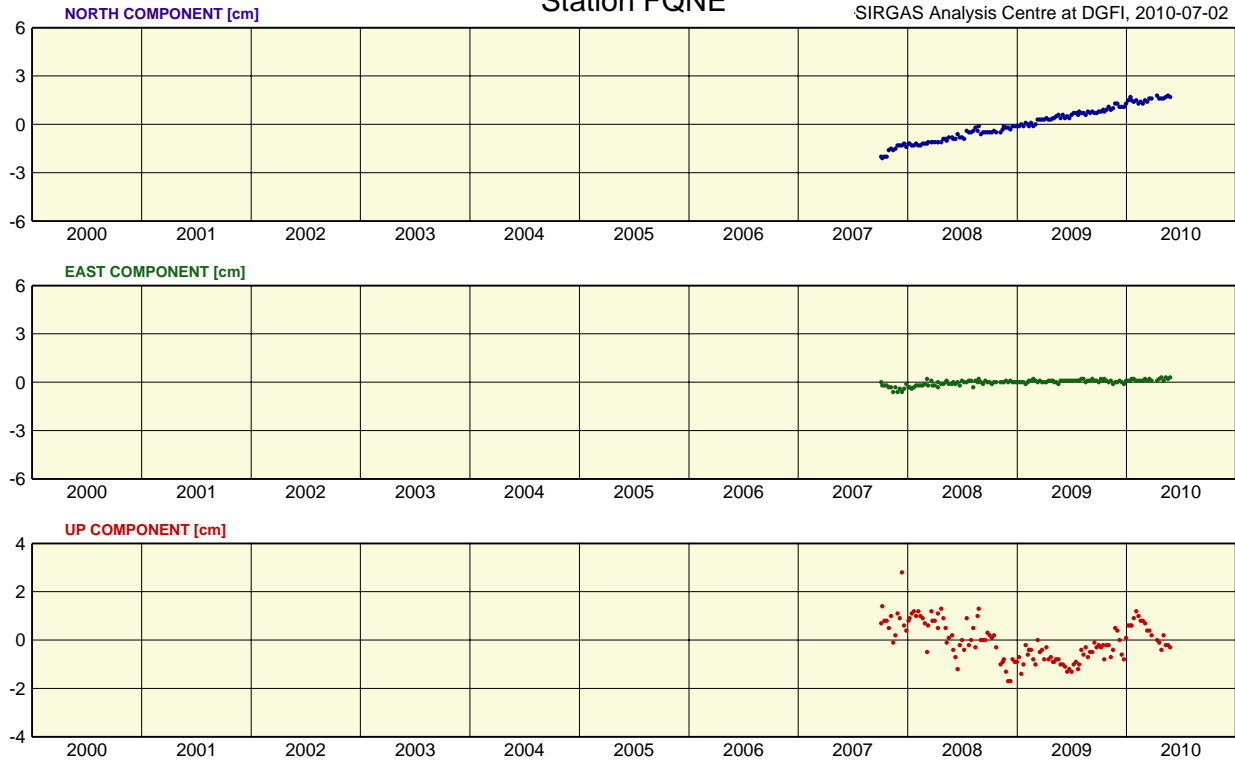
# Station EXU0

SIRGAS Analysis Centre at DGFI, 2010-07-02



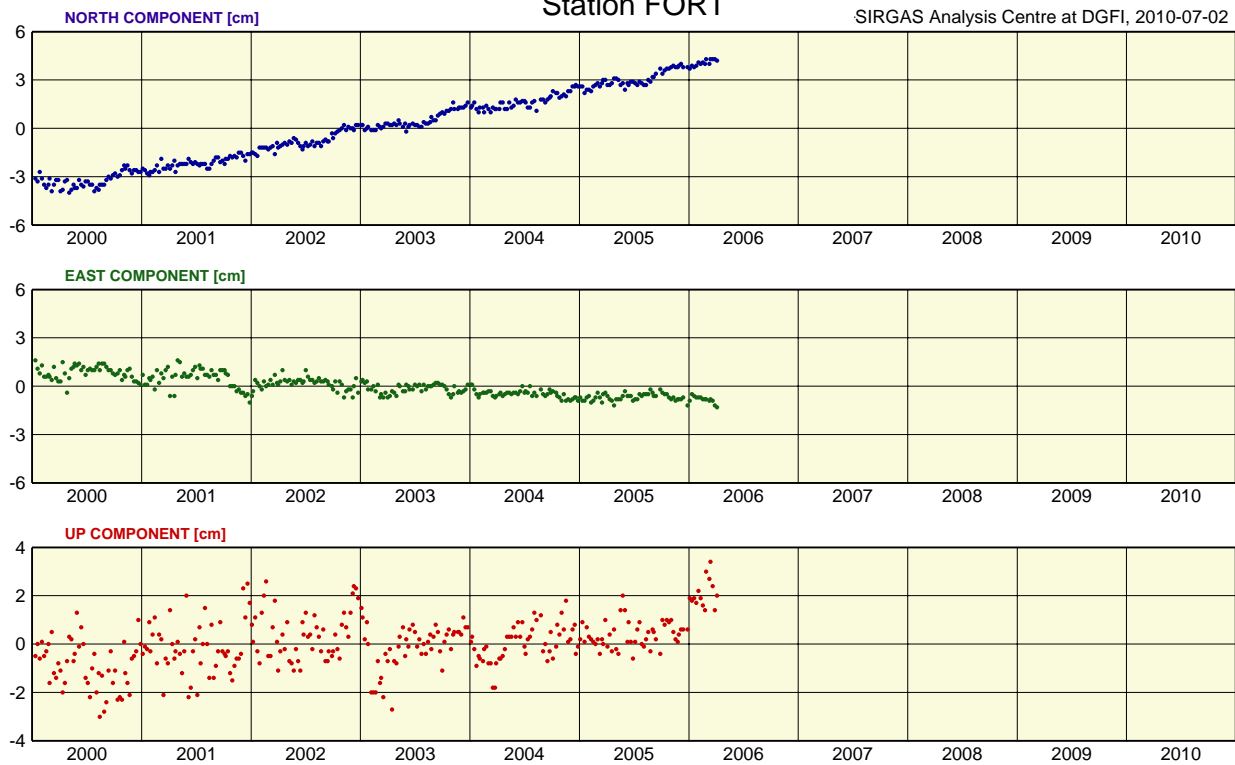
### Station FQNE

SIRGAS Analysis Centre at DGFI, 2010-07-02



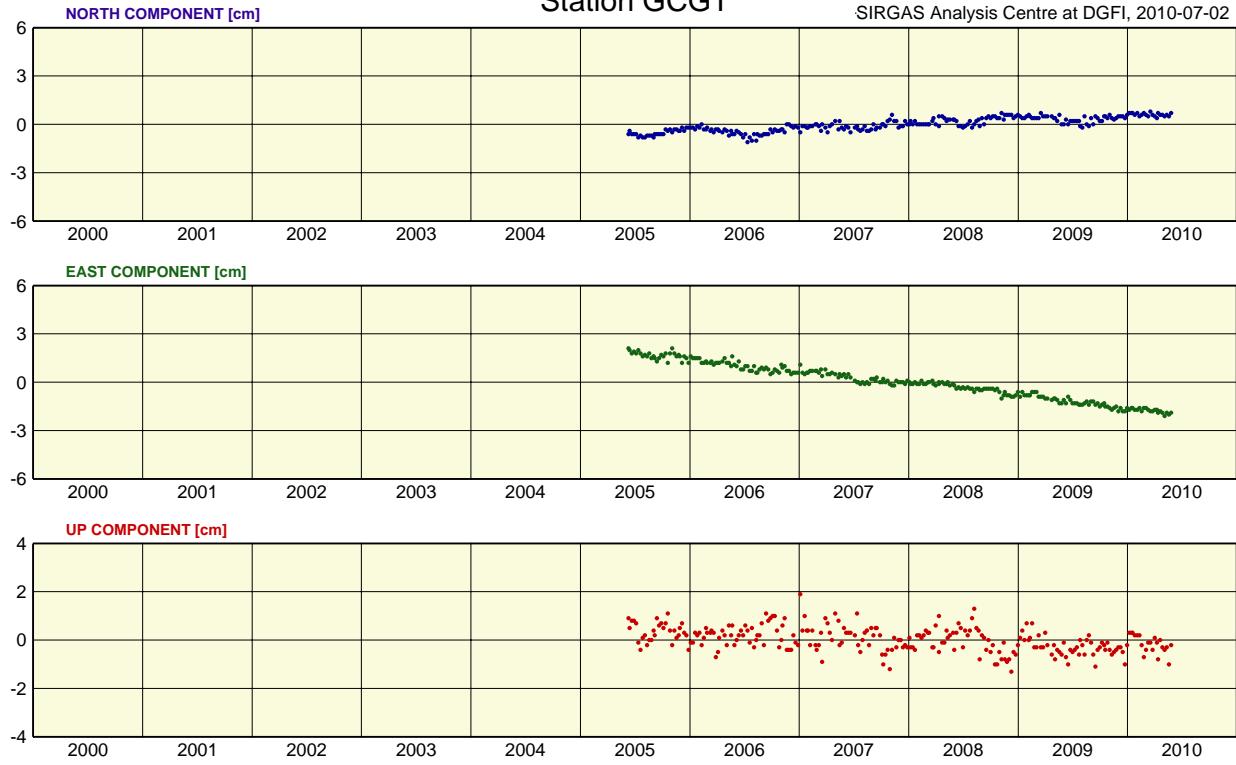
### Station FORT

SIRGAS Analysis Centre at DGFI, 2010-07-02



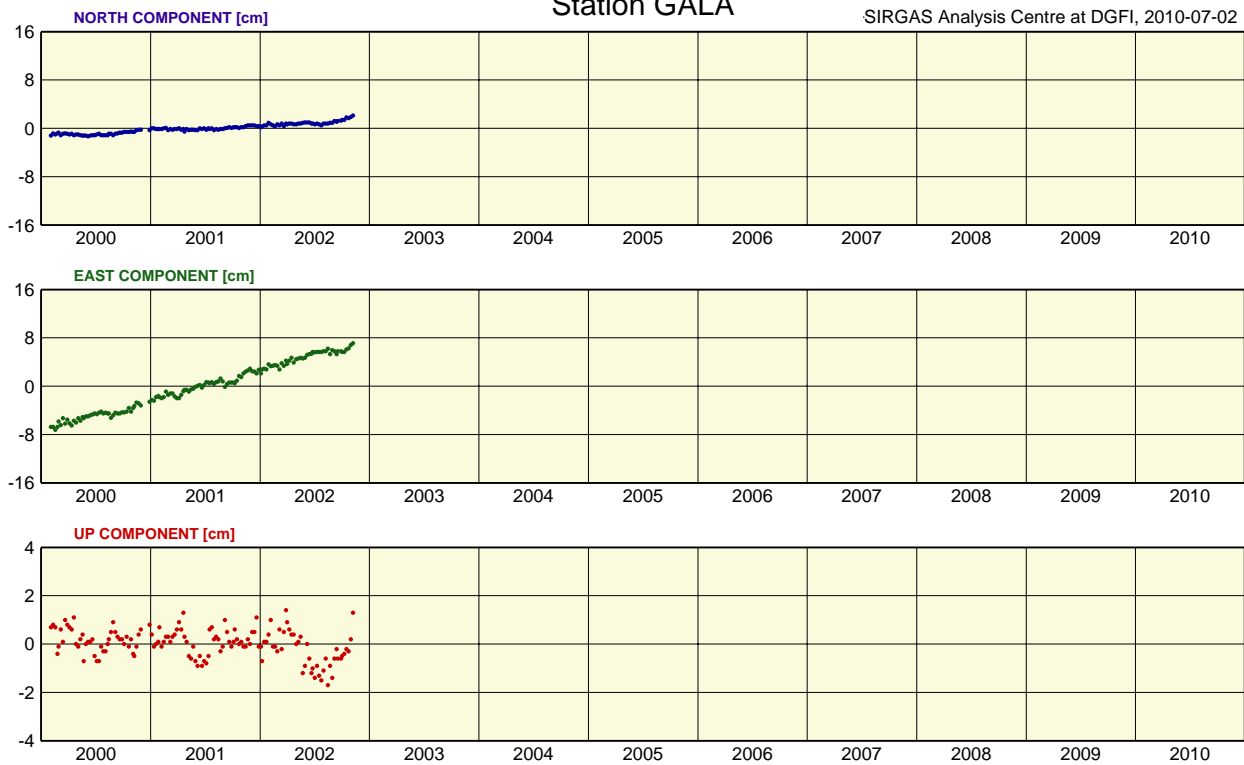
# Station GCGT

SIRGAS Analysis Centre at DGFI, 2010-07-02

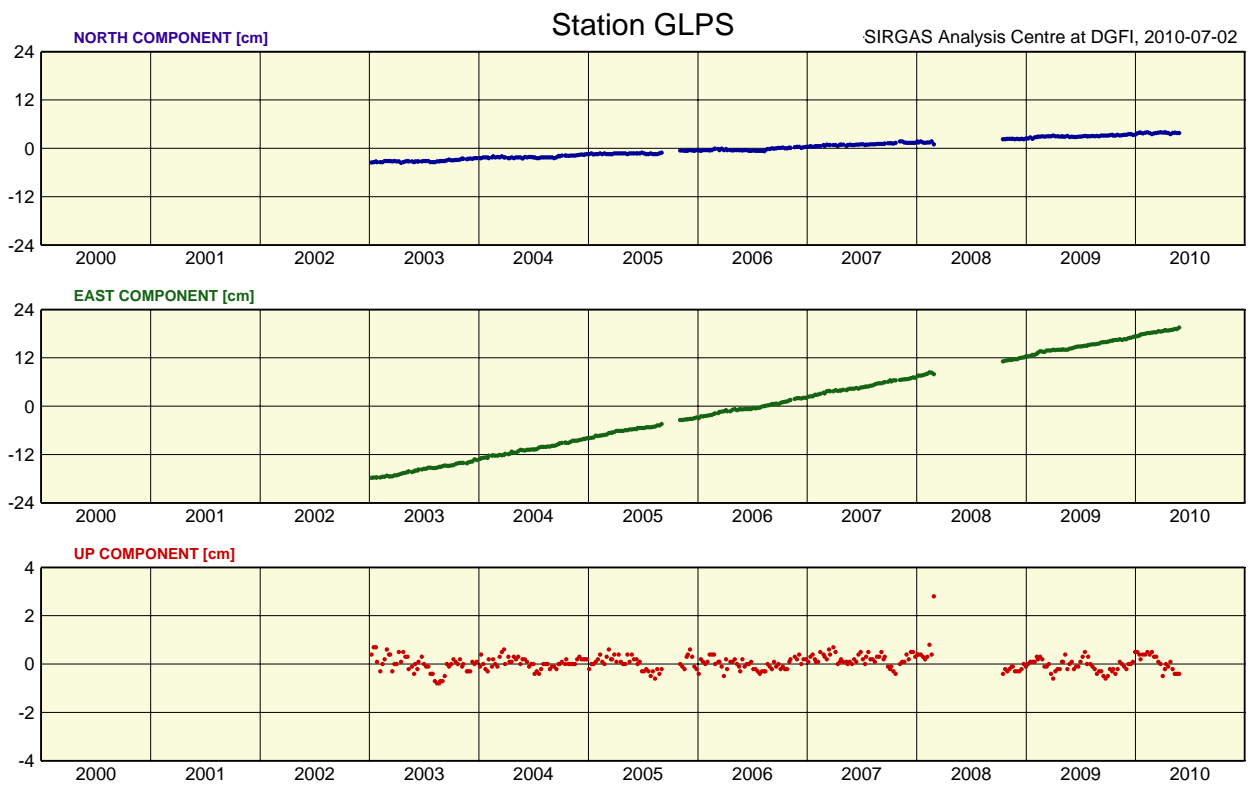
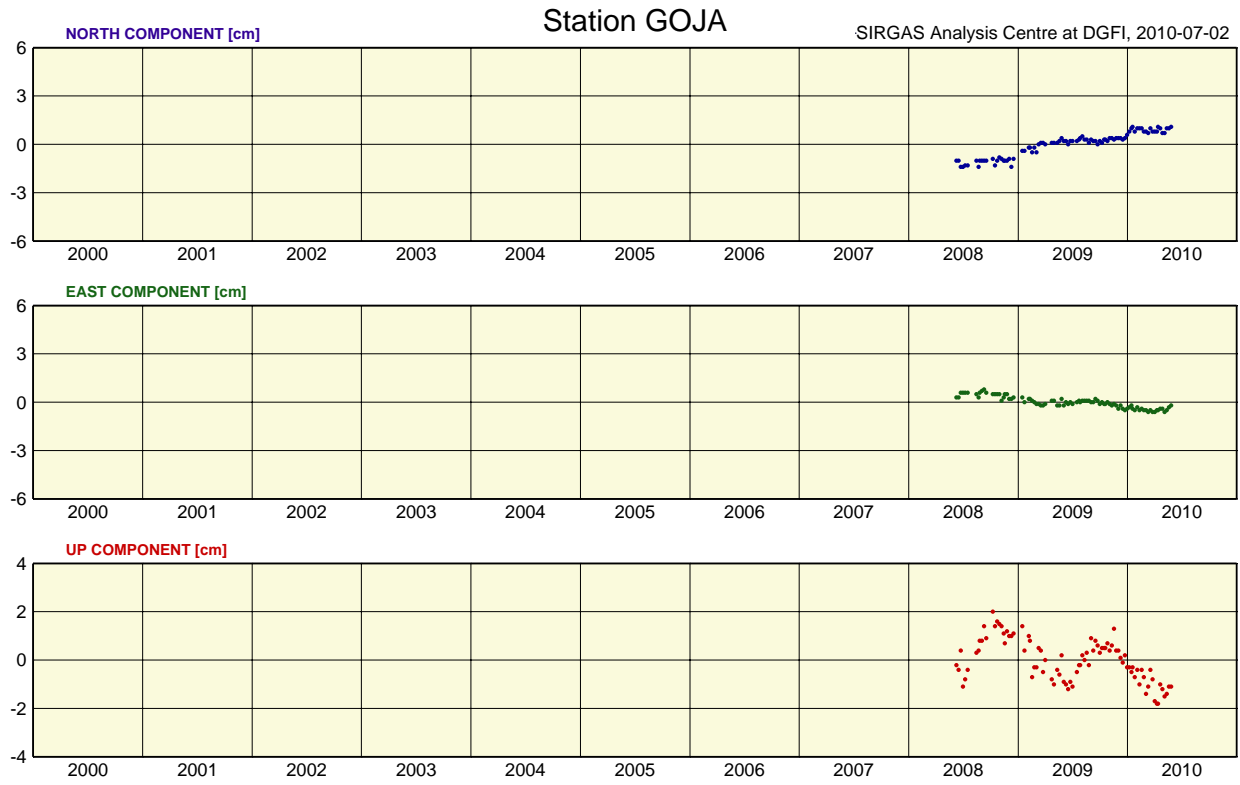


# Station GALA

SIRGAS Analysis Centre at DGFI, 2010-07-02

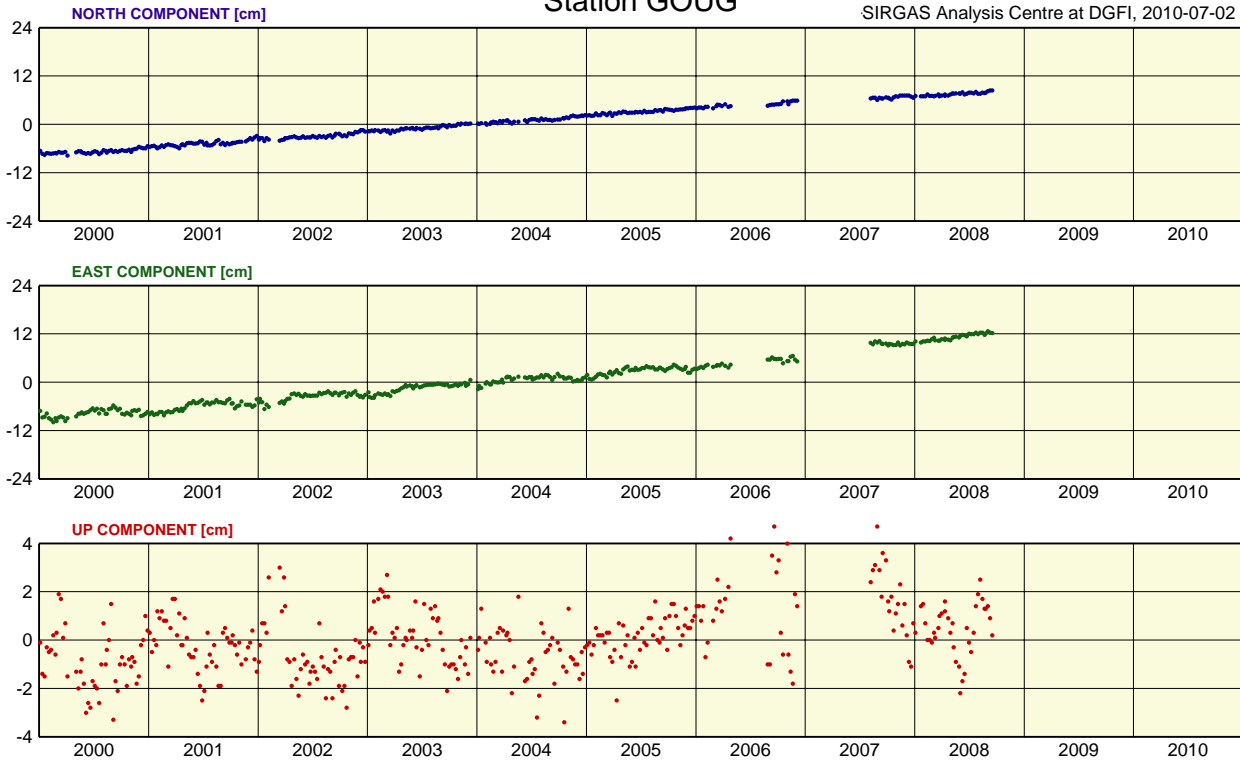






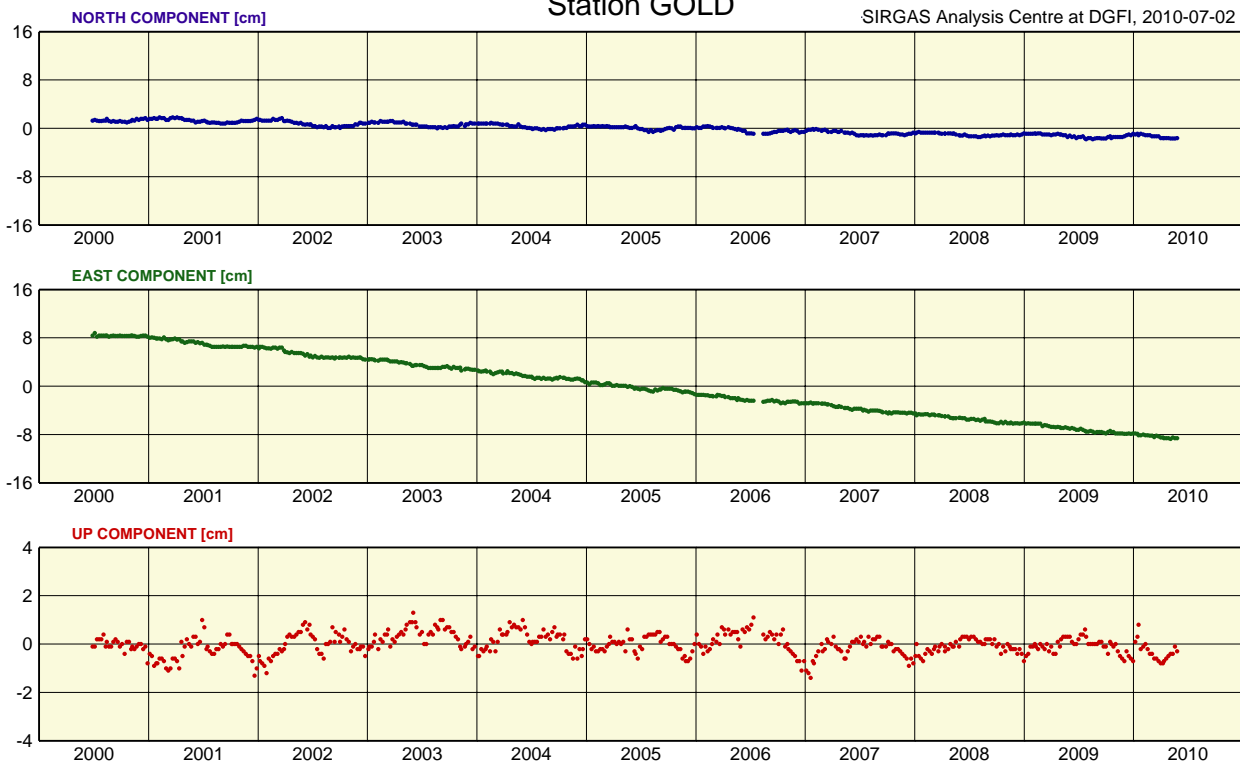
### Station GOUG

SIRGAS Analysis Centre at DGFI, 2010-07-02



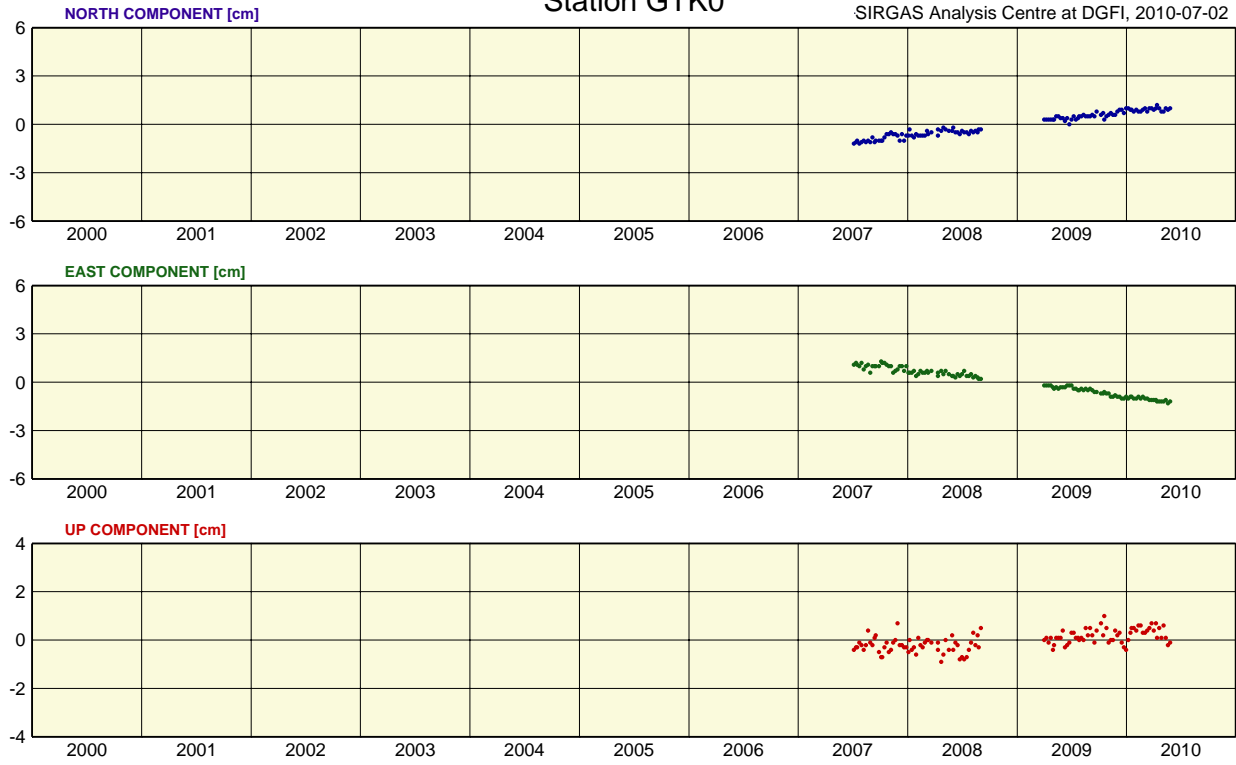
### Station GOLD

SIRGAS Analysis Centre at DGFI, 2010-07-02



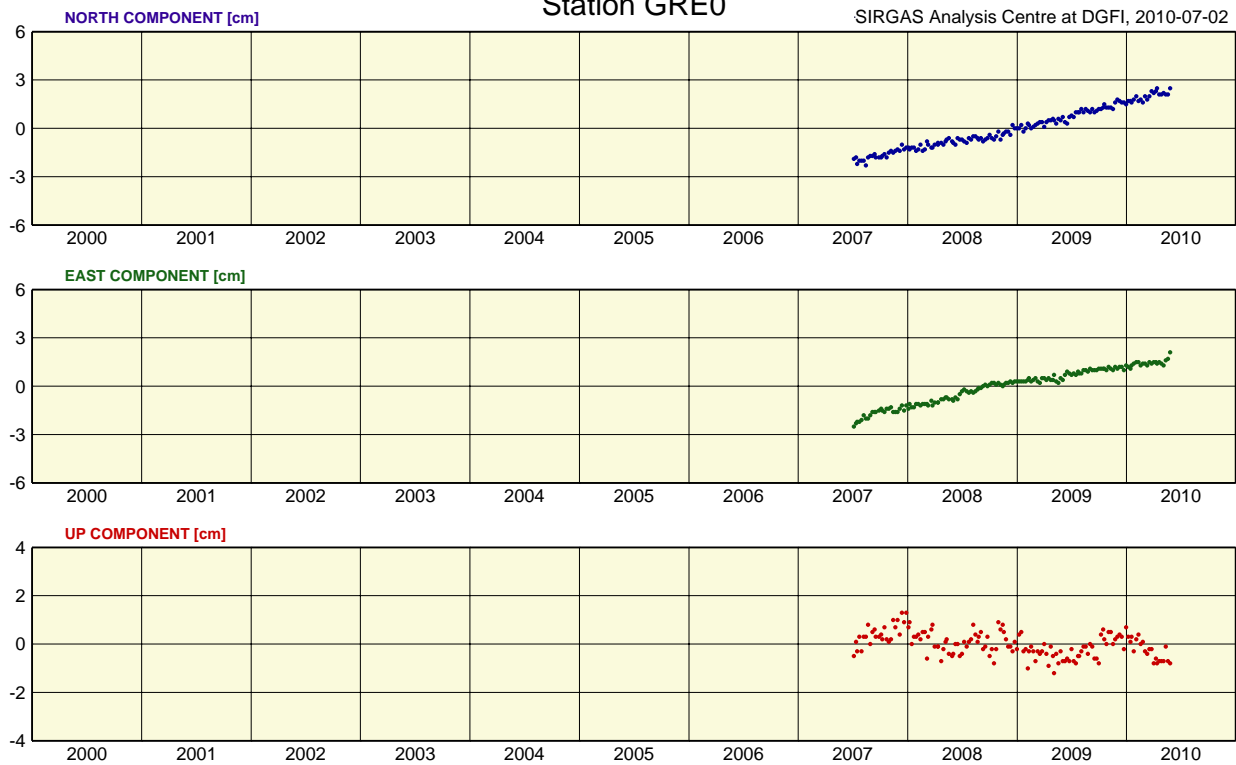
### Station GTK0

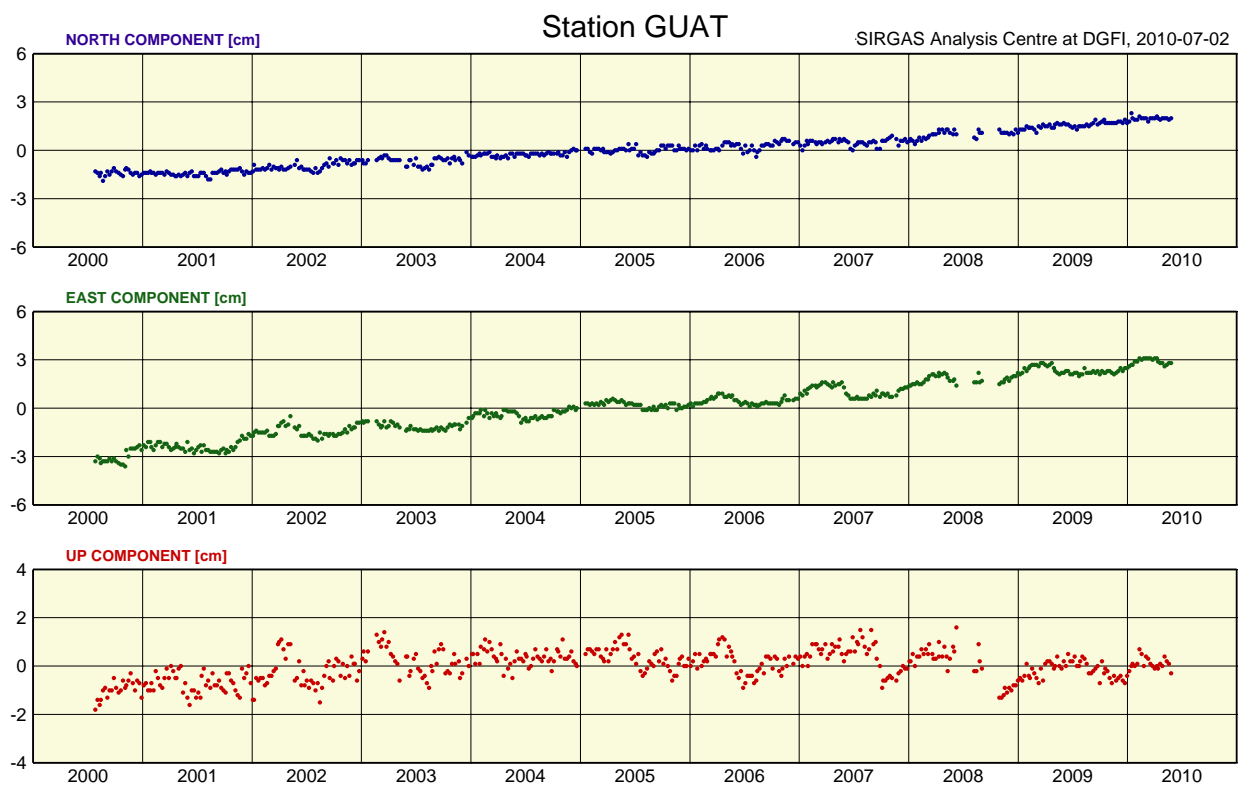
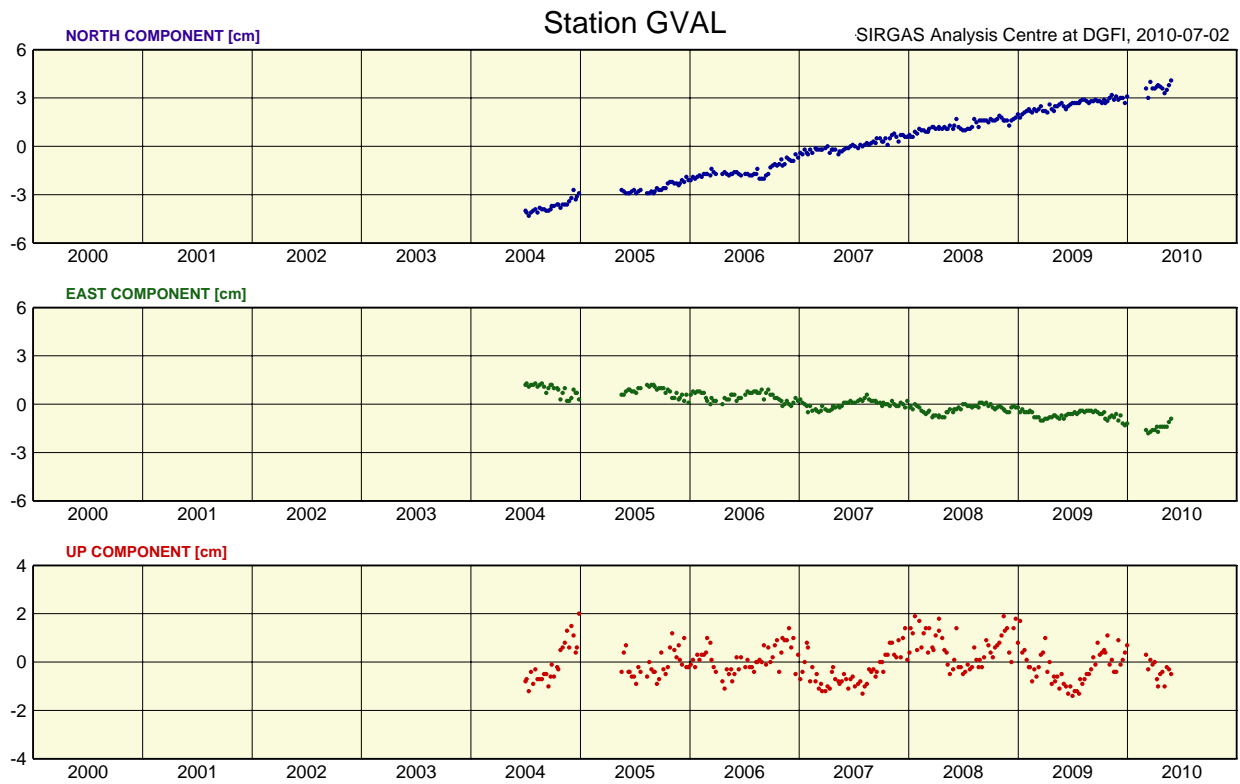
SIRGAS Analysis Centre at DGFI, 2010-07-02



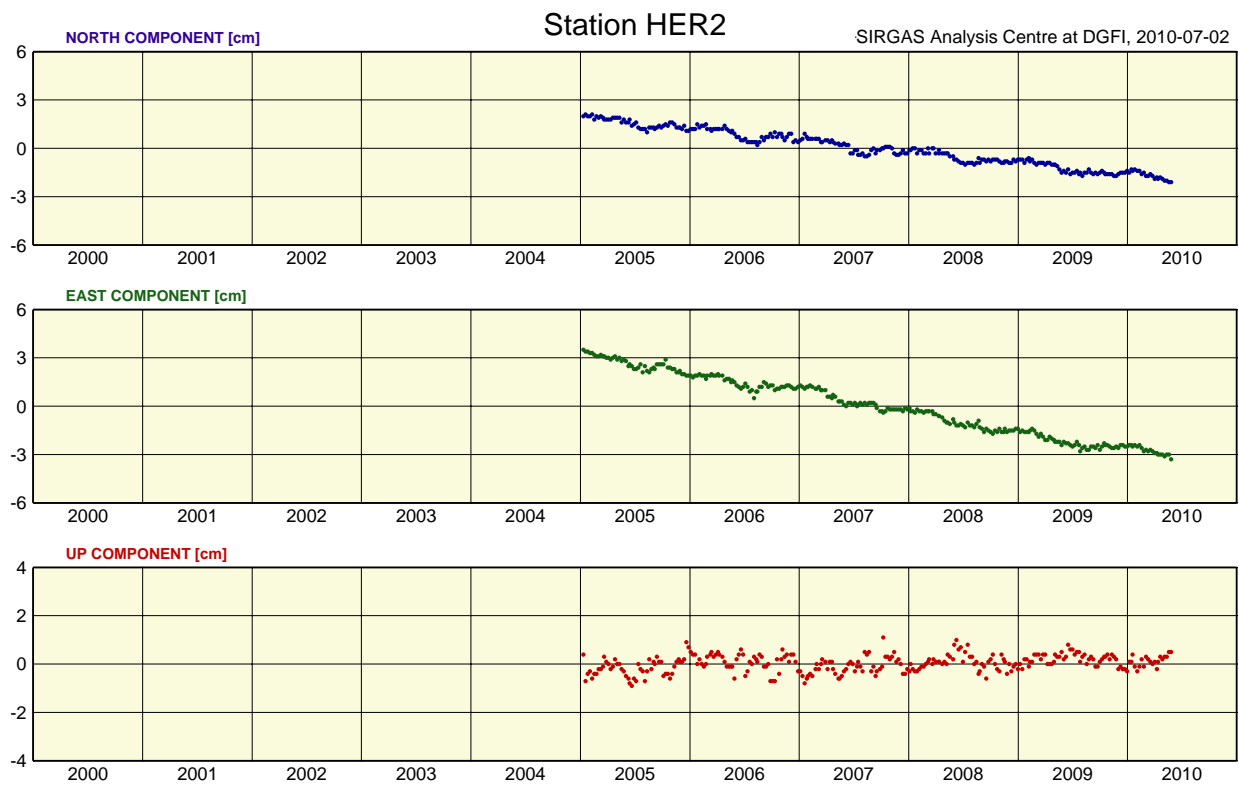
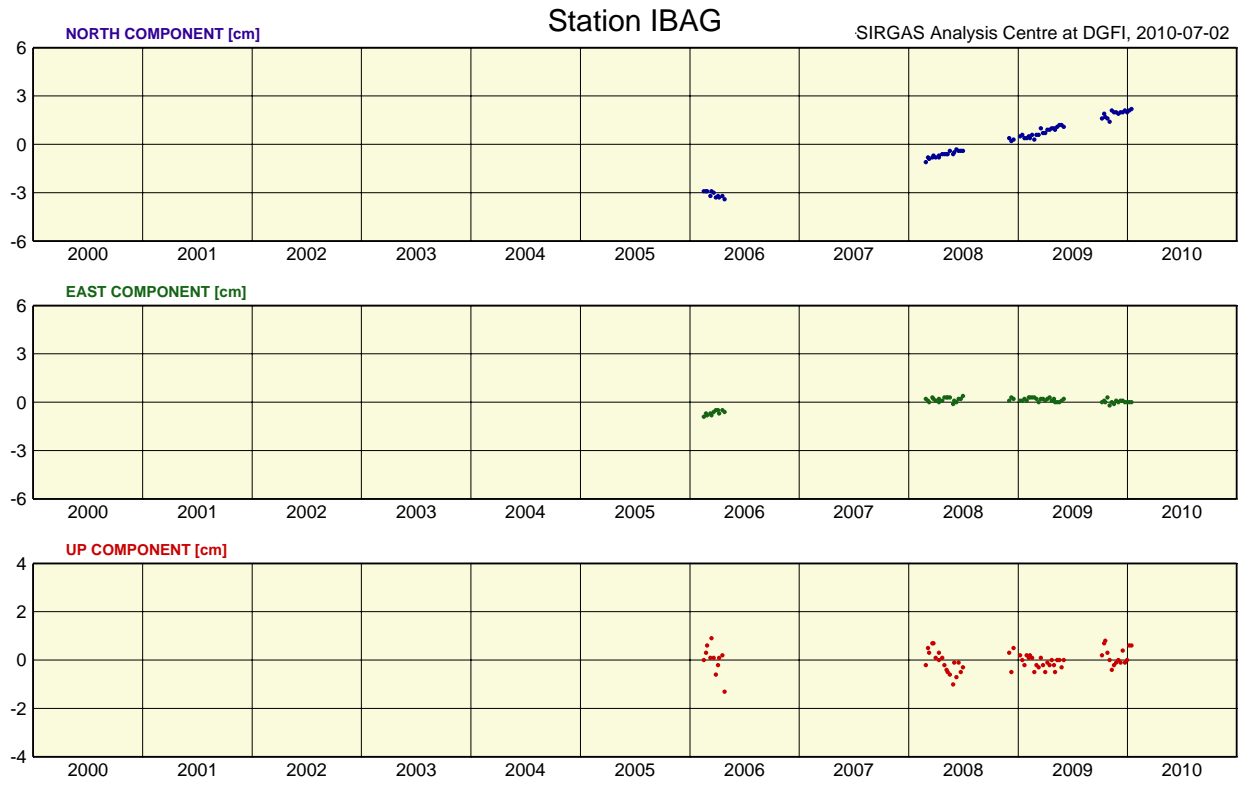
### Station GRE0

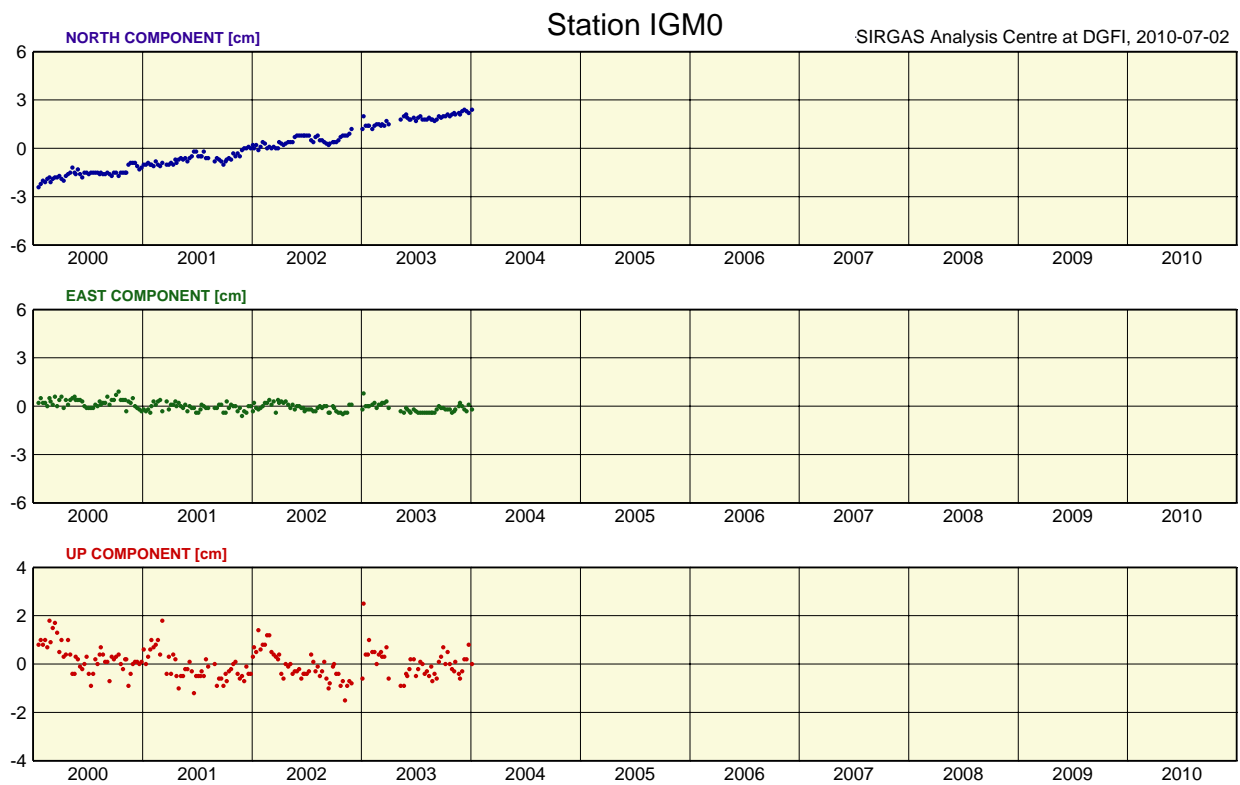
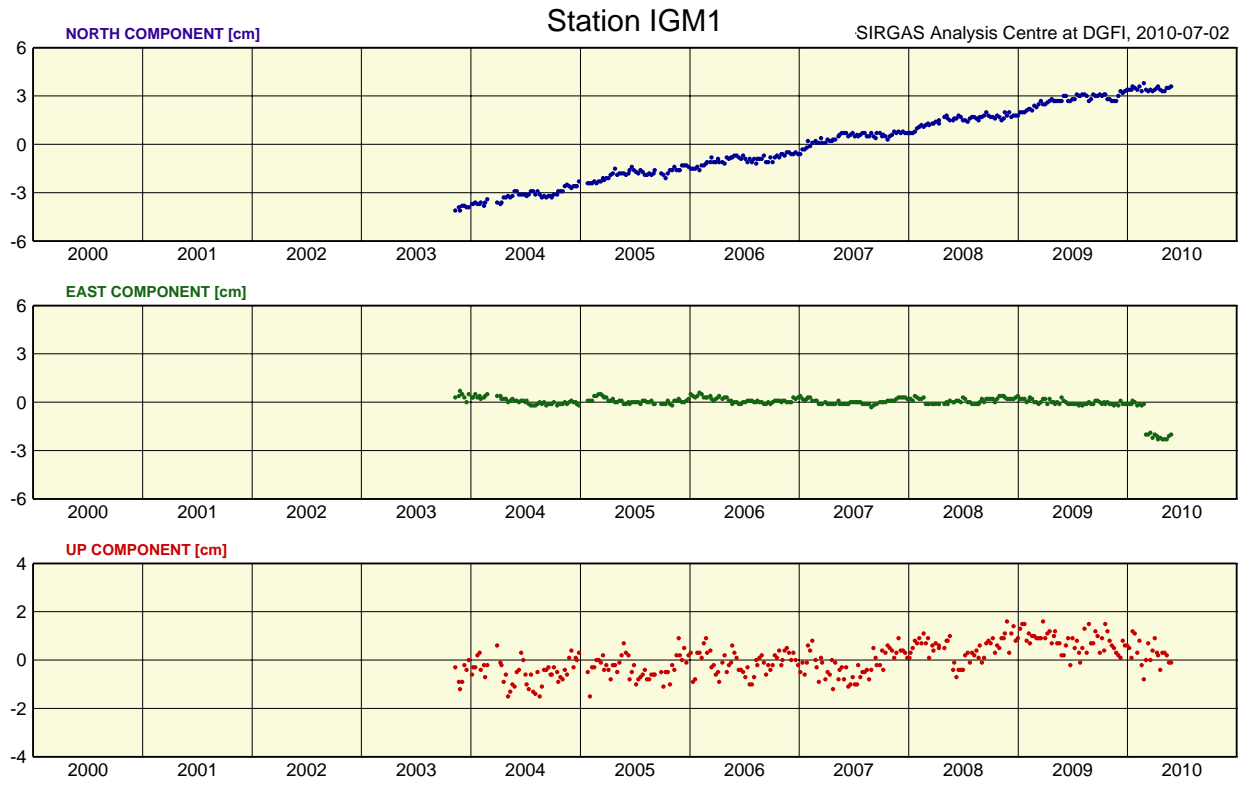
SIRGAS Analysis Centre at DGFI, 2010-07-02

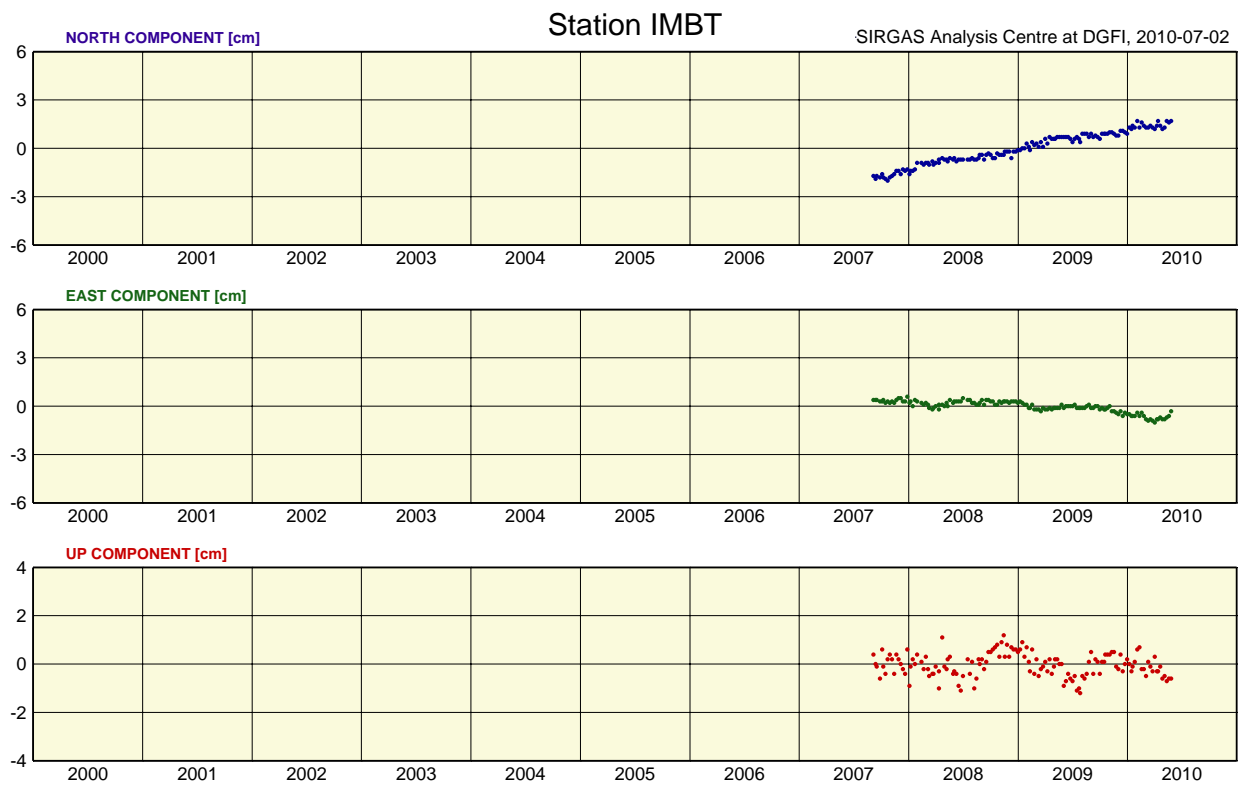
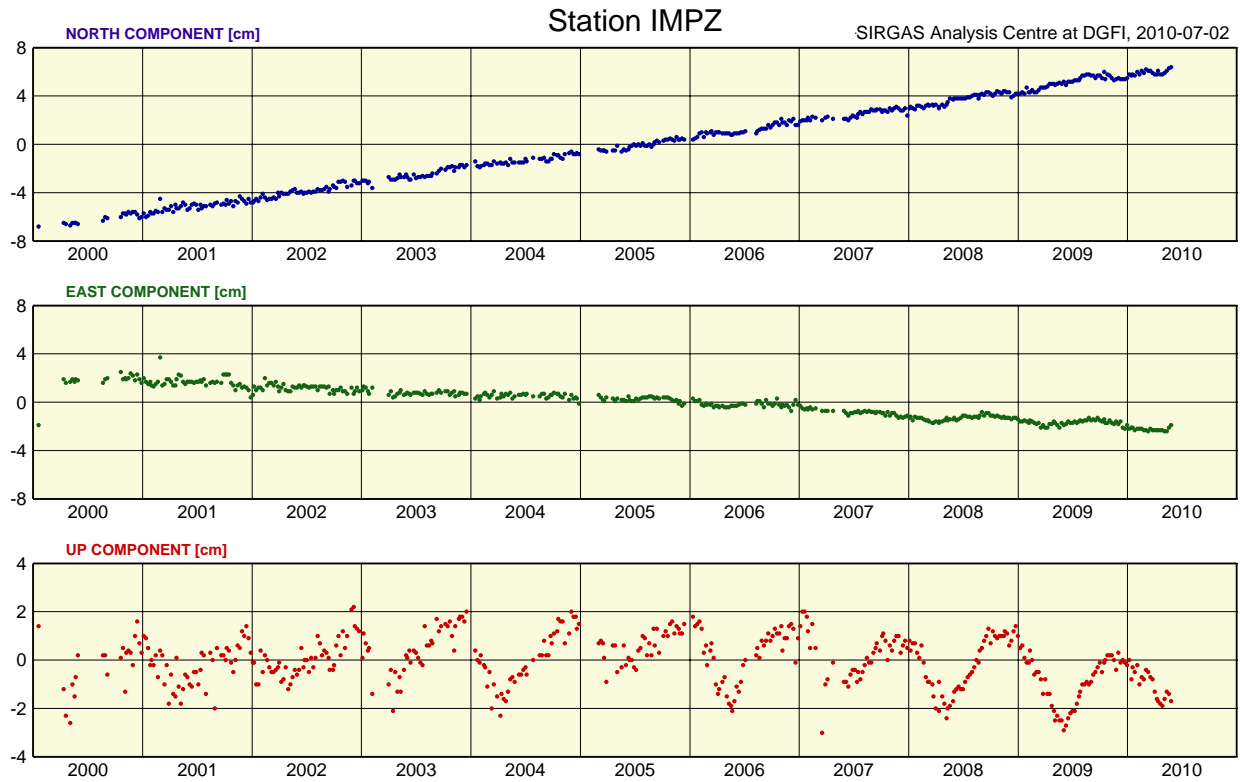


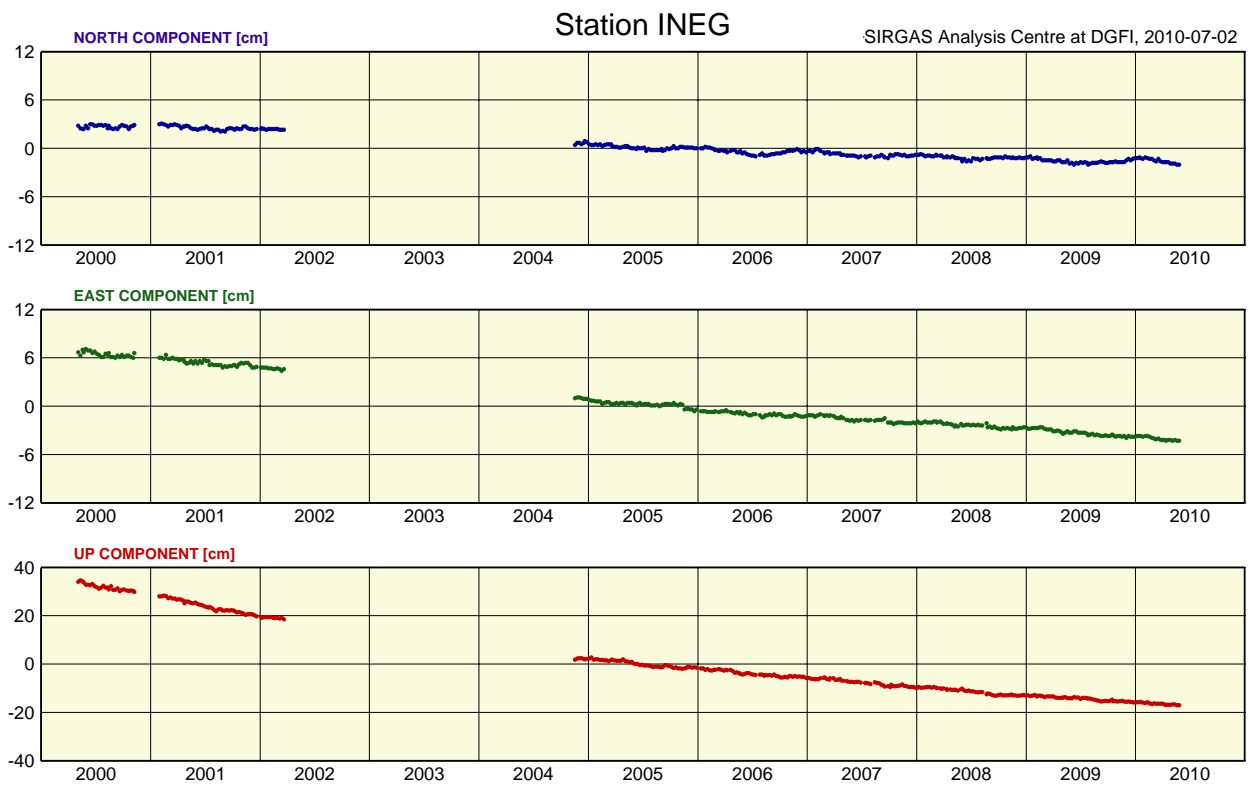
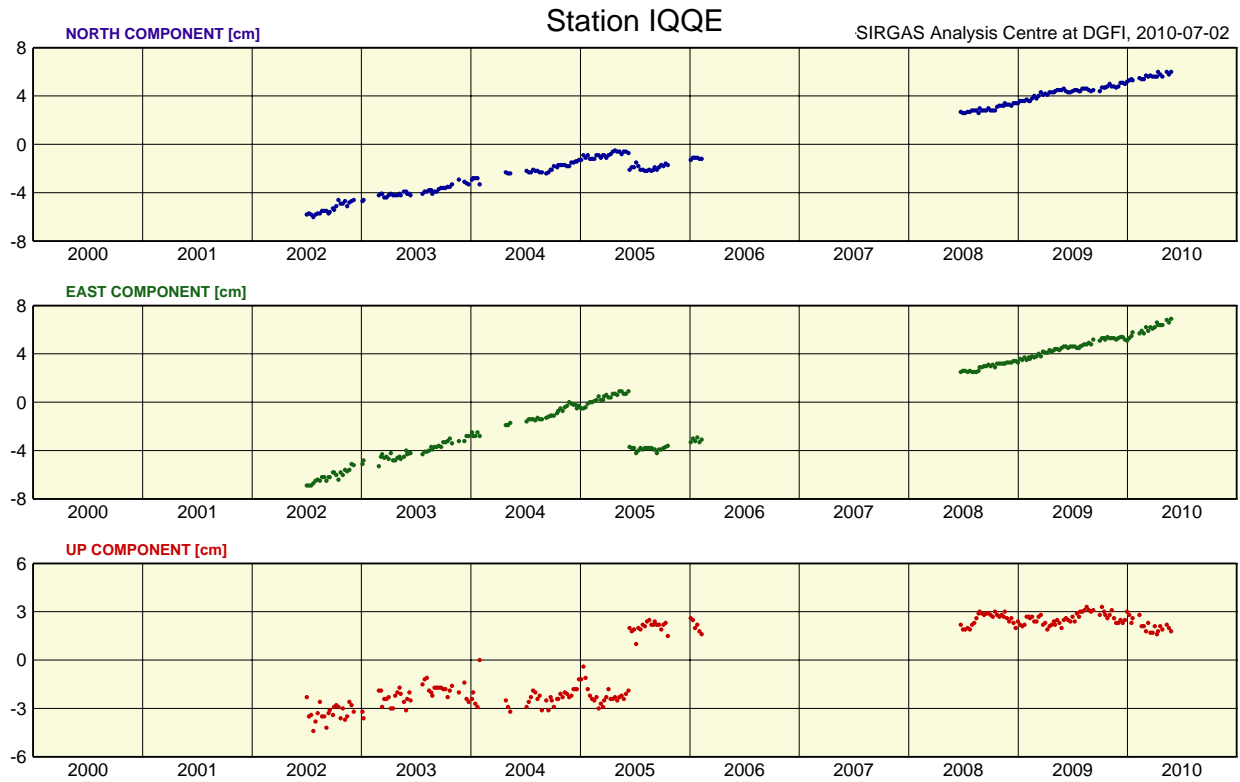






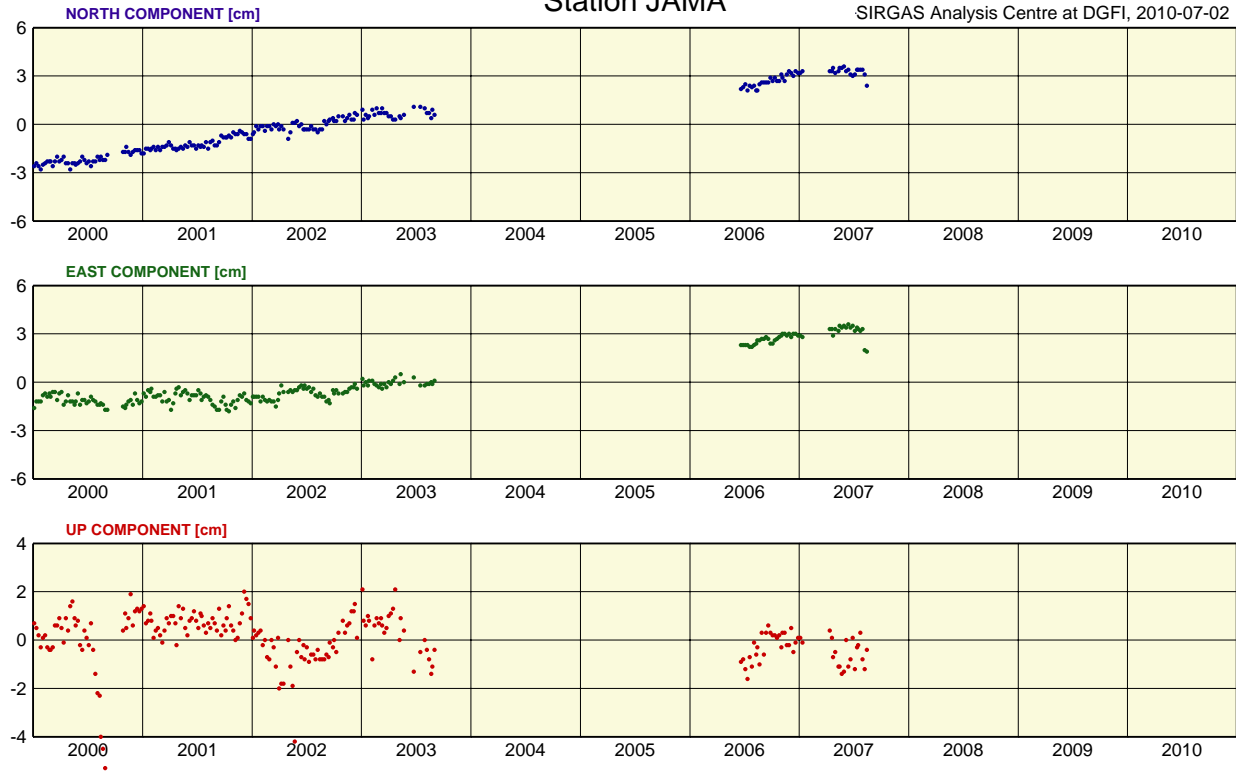






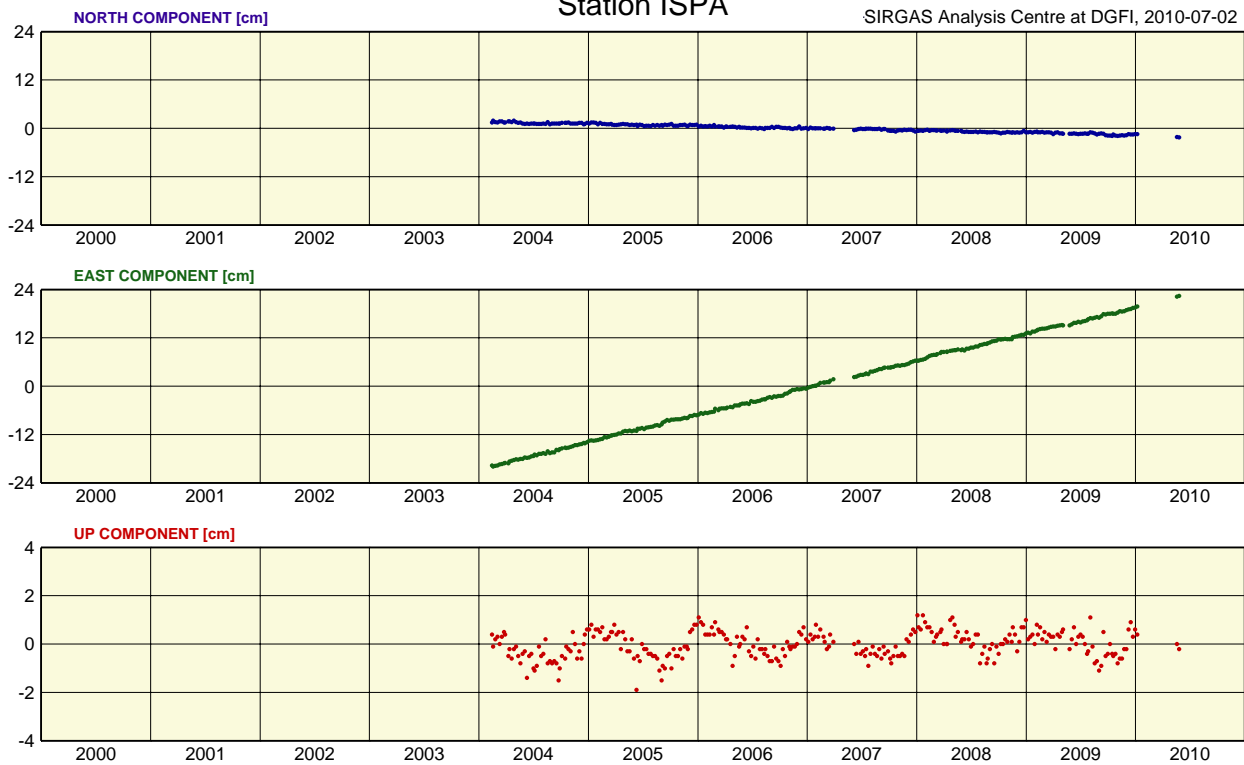
# Station JAMA

SIRGAS Analysis Centre at DGFI, 2010-07-02

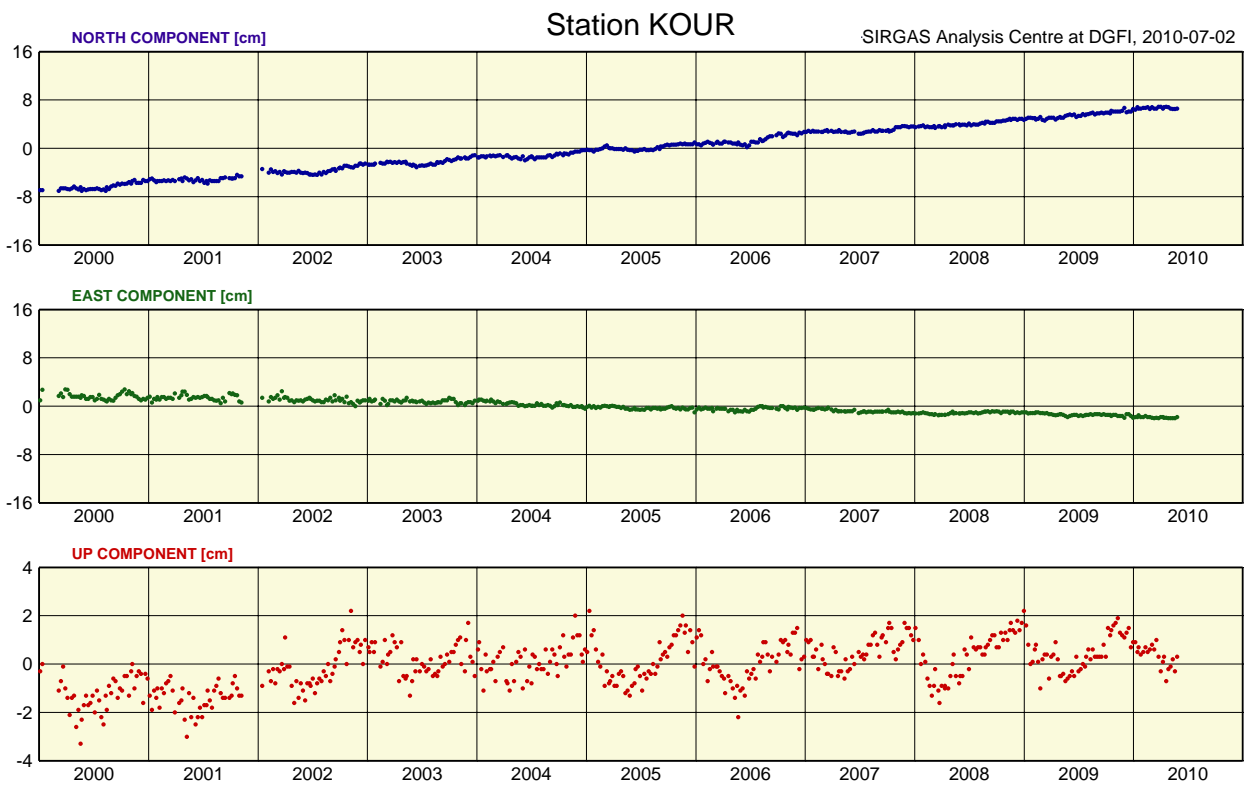
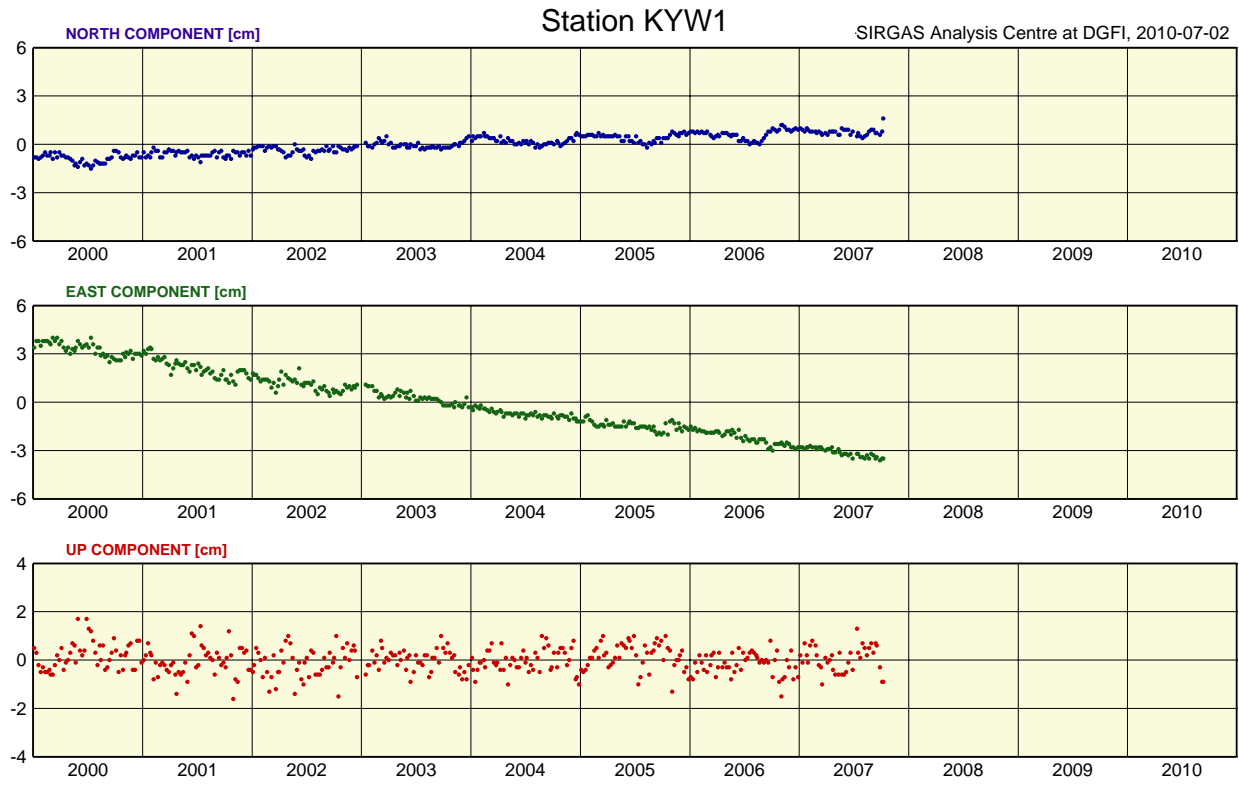


# Station ISPA

SIRGAS Analysis Centre at DGFI, 2010-07-02

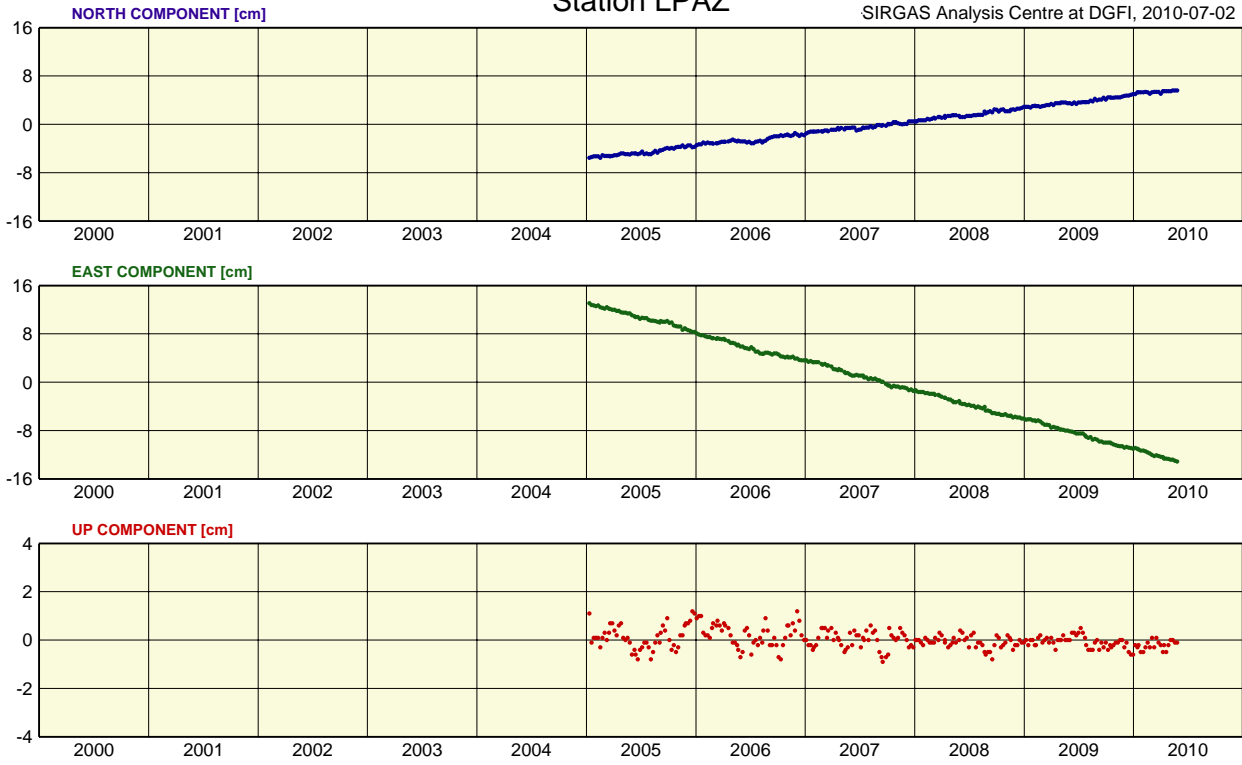






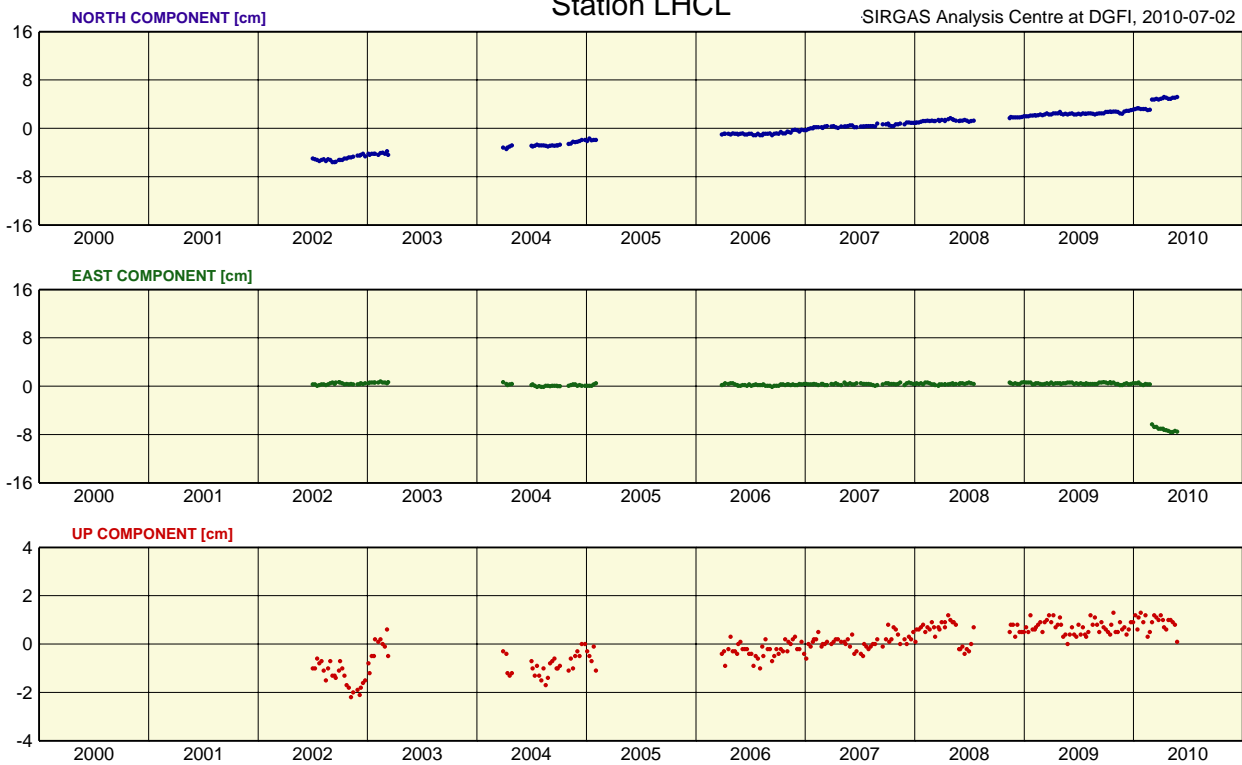
### Station LPAZ

SIRGAS Analysis Centre at DGFI, 2010-07-02



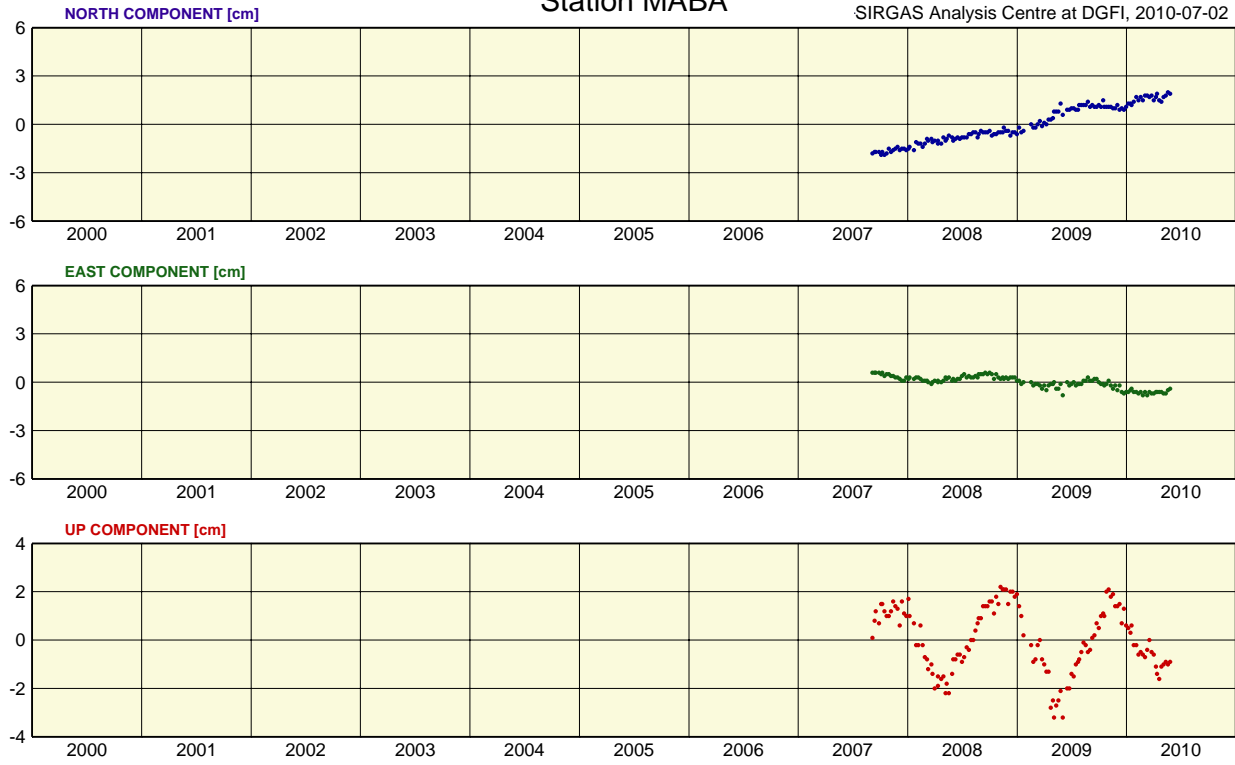
### Station LHCL

SIRGAS Analysis Centre at DGFI, 2010-07-02



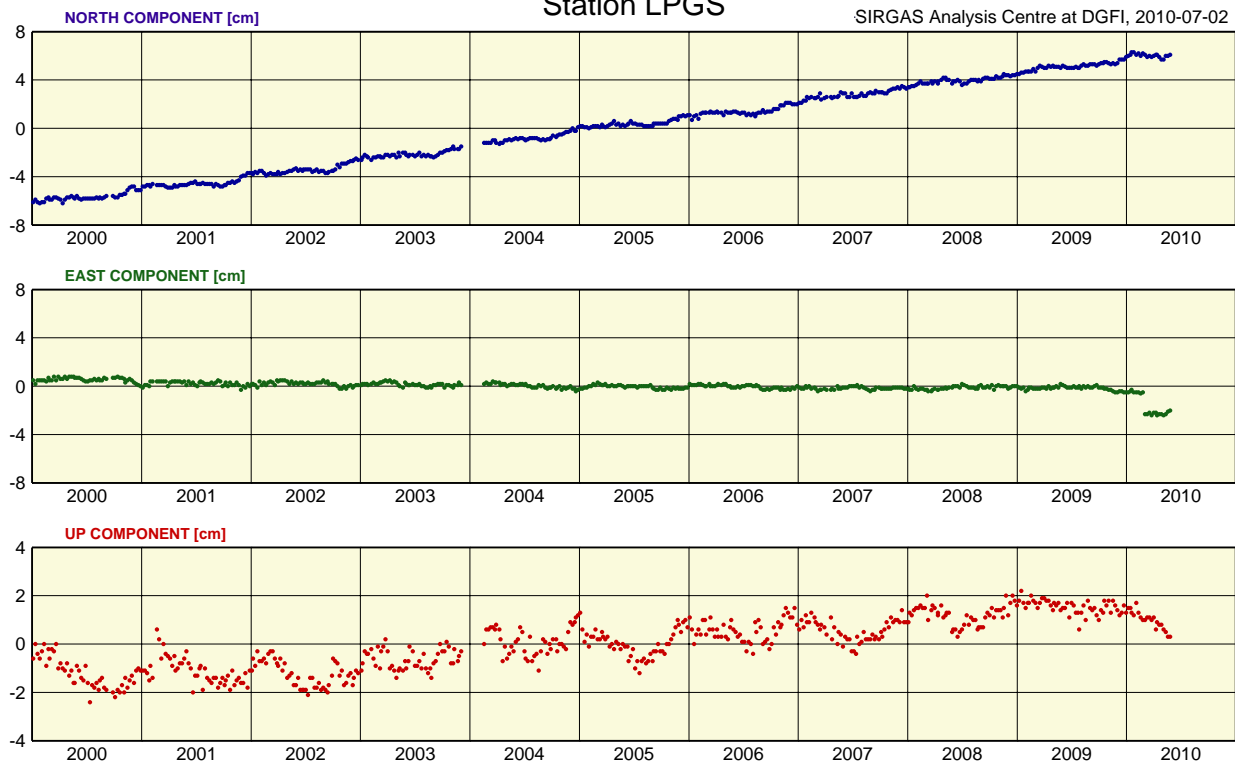
# Station MABA

SIRGAS Analysis Centre at DGFI, 2010-07-02



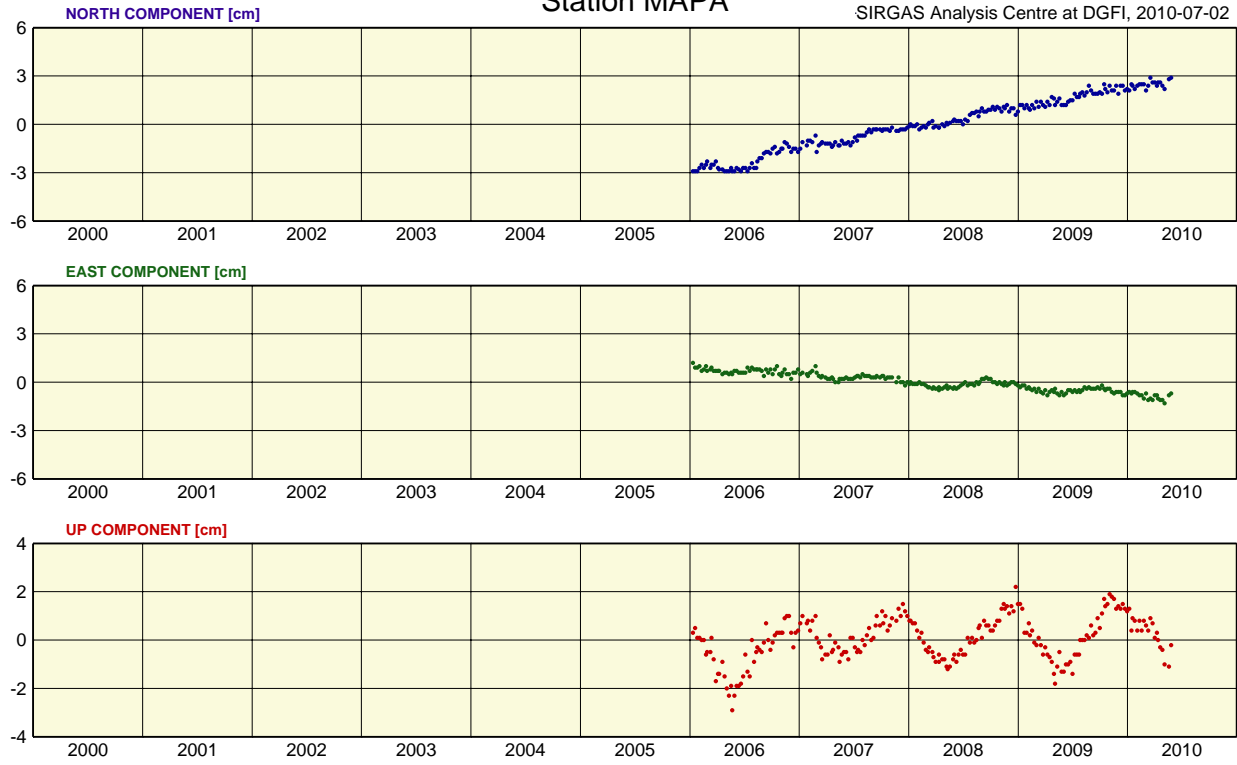
# Station LPGS

SIRGAS Analysis Centre at DGFI, 2010-07-02



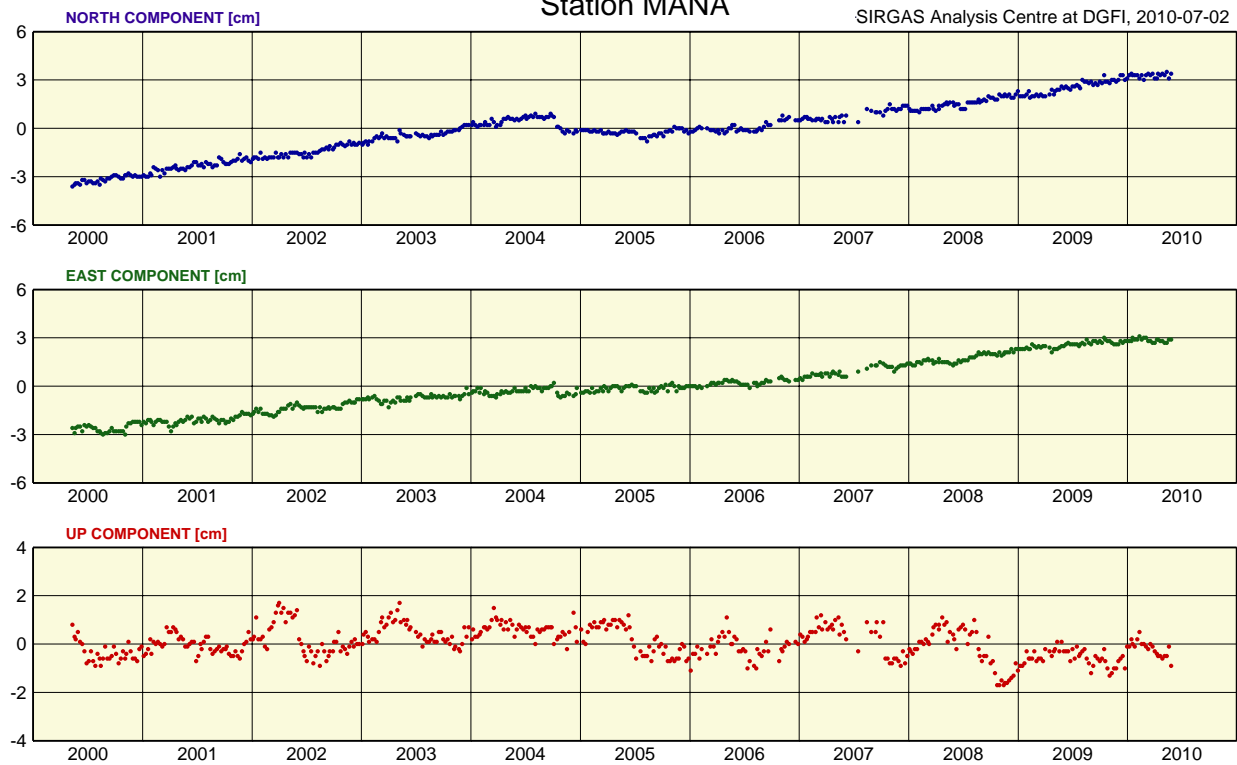
### Station MAPA

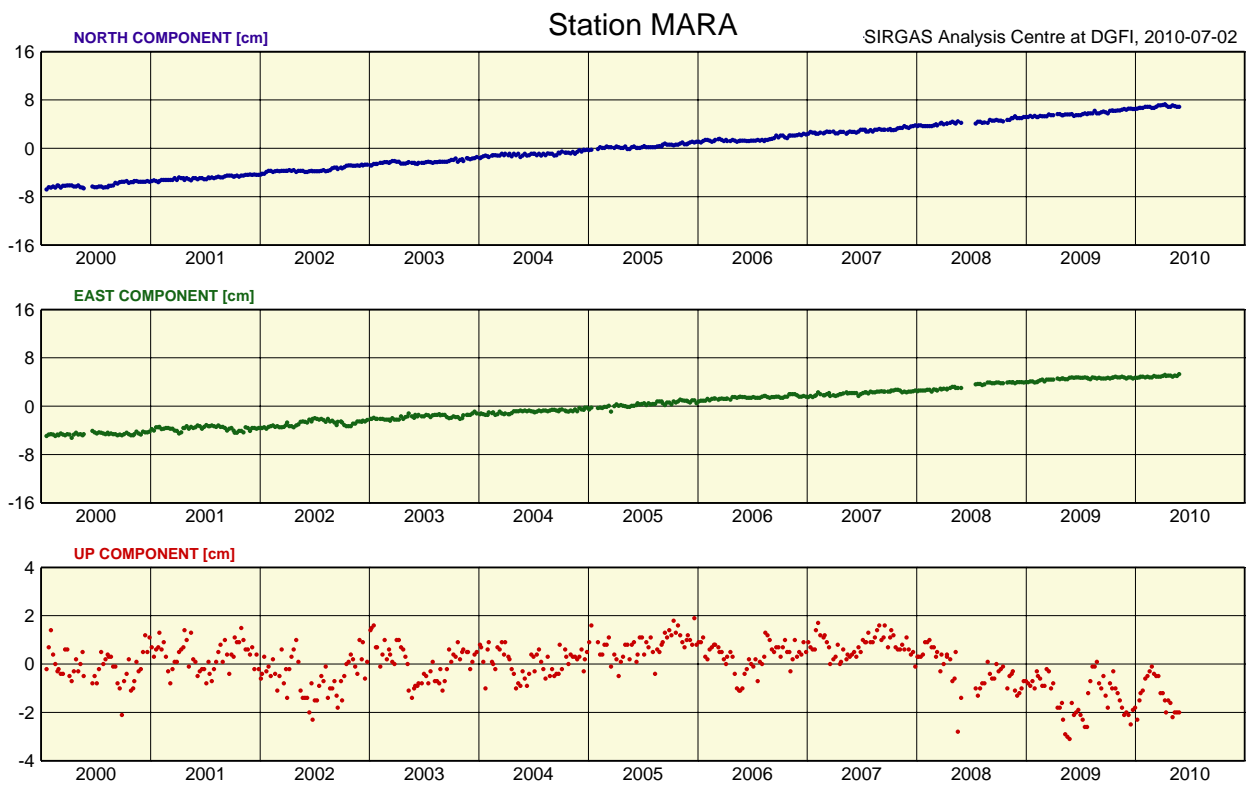
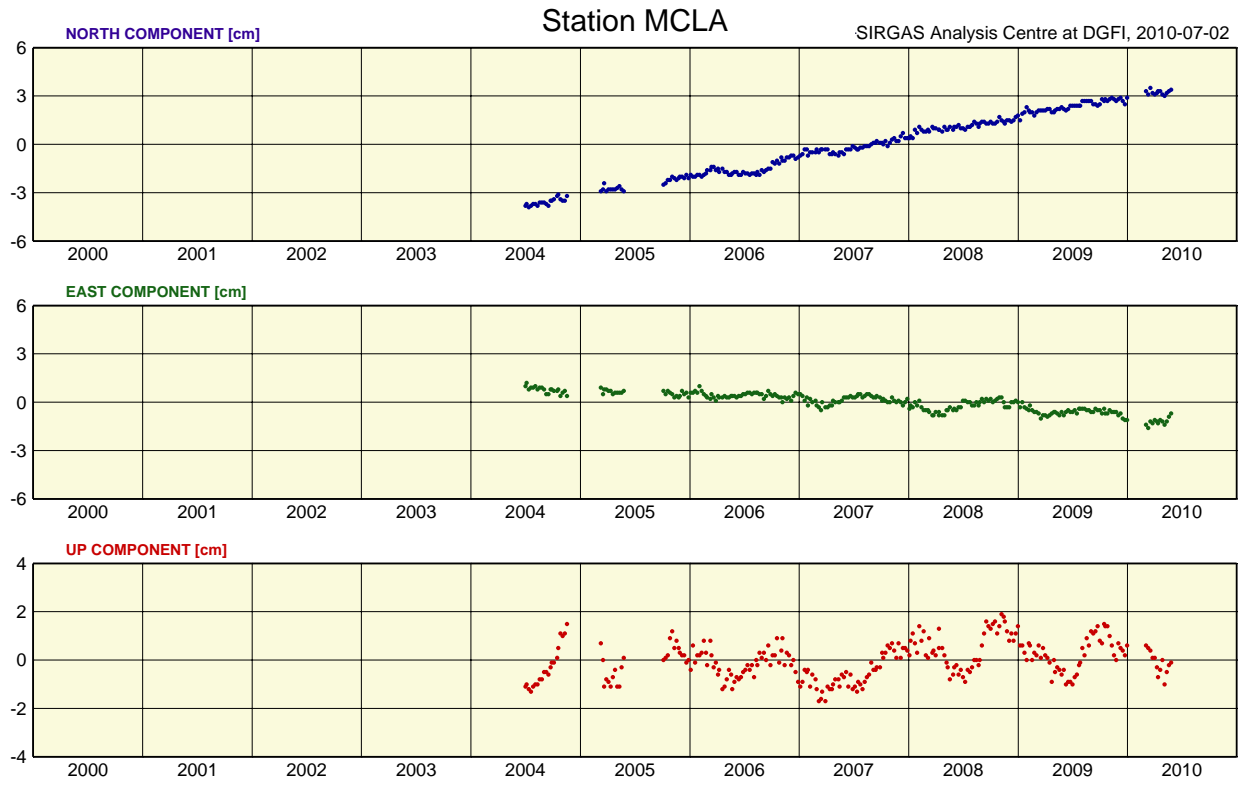
SIRGAS Analysis Centre at DGFI, 2010-07-02



### Station MANA

SIRGAS Analysis Centre at DGFI, 2010-07-02

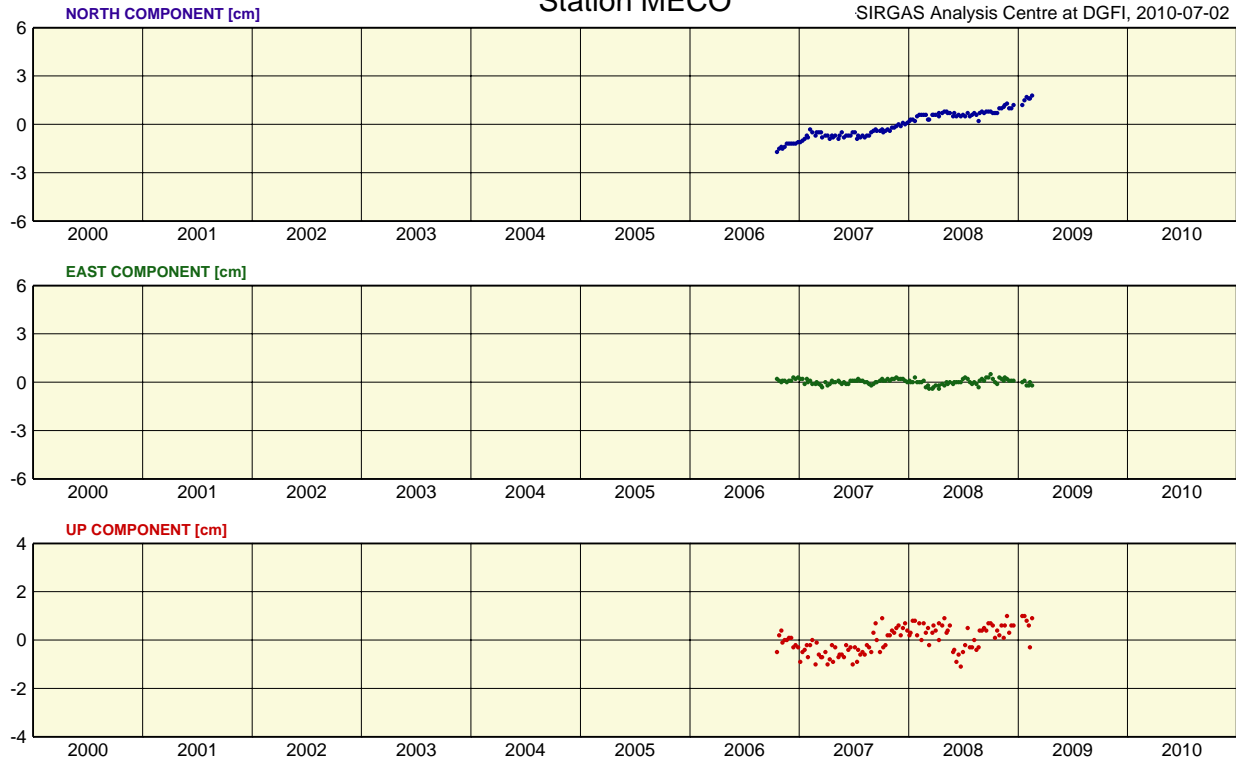






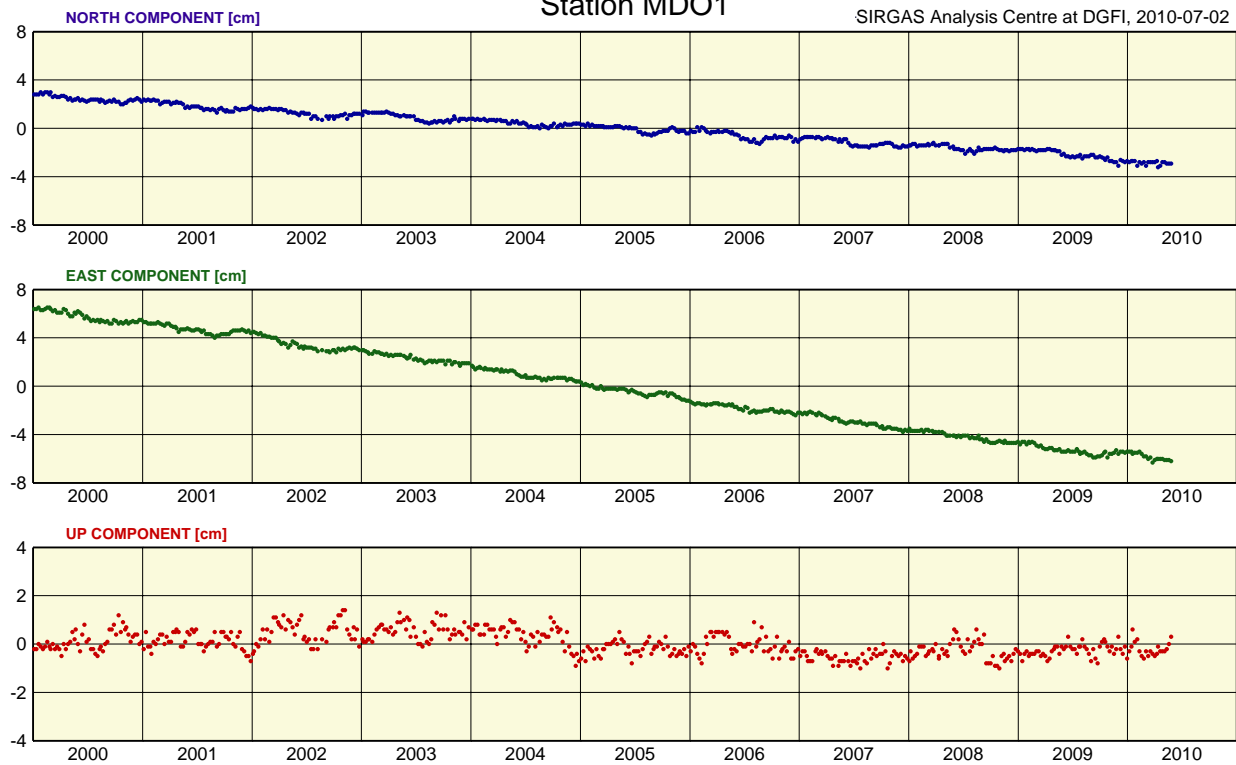
## Station MECO

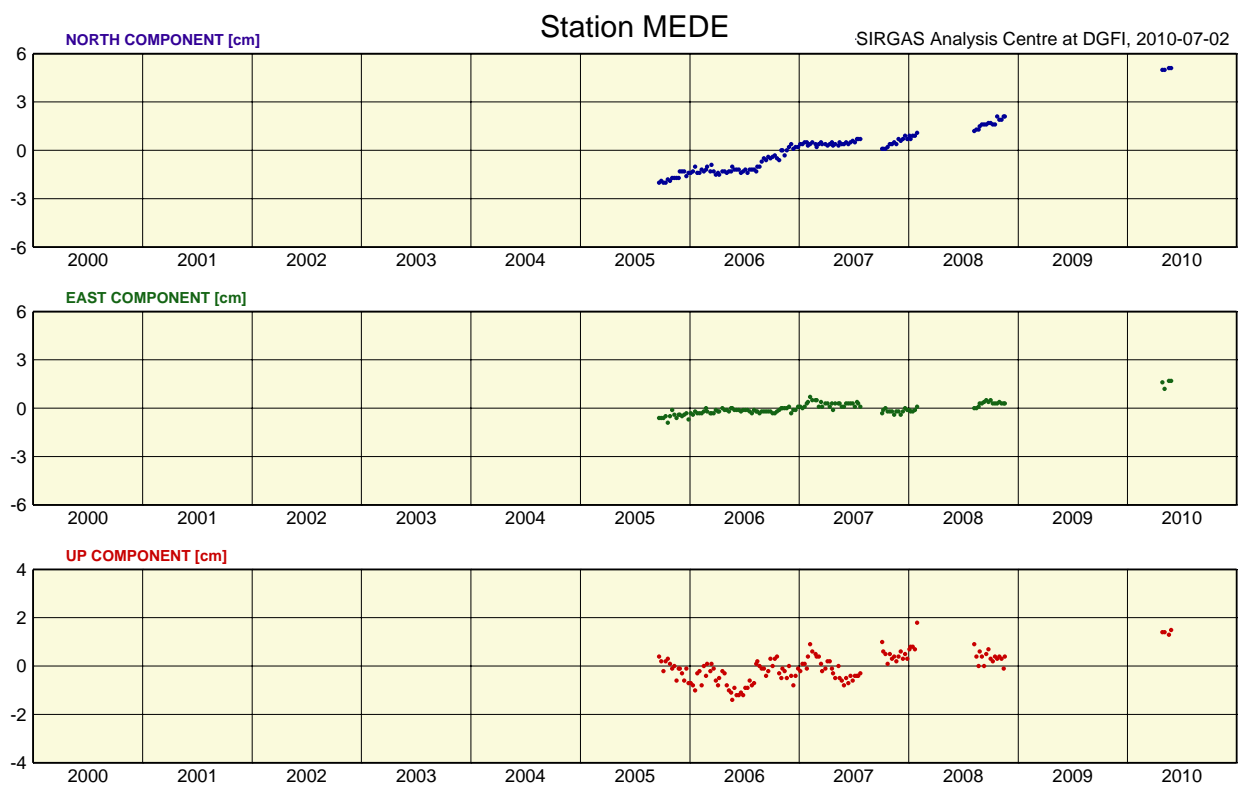
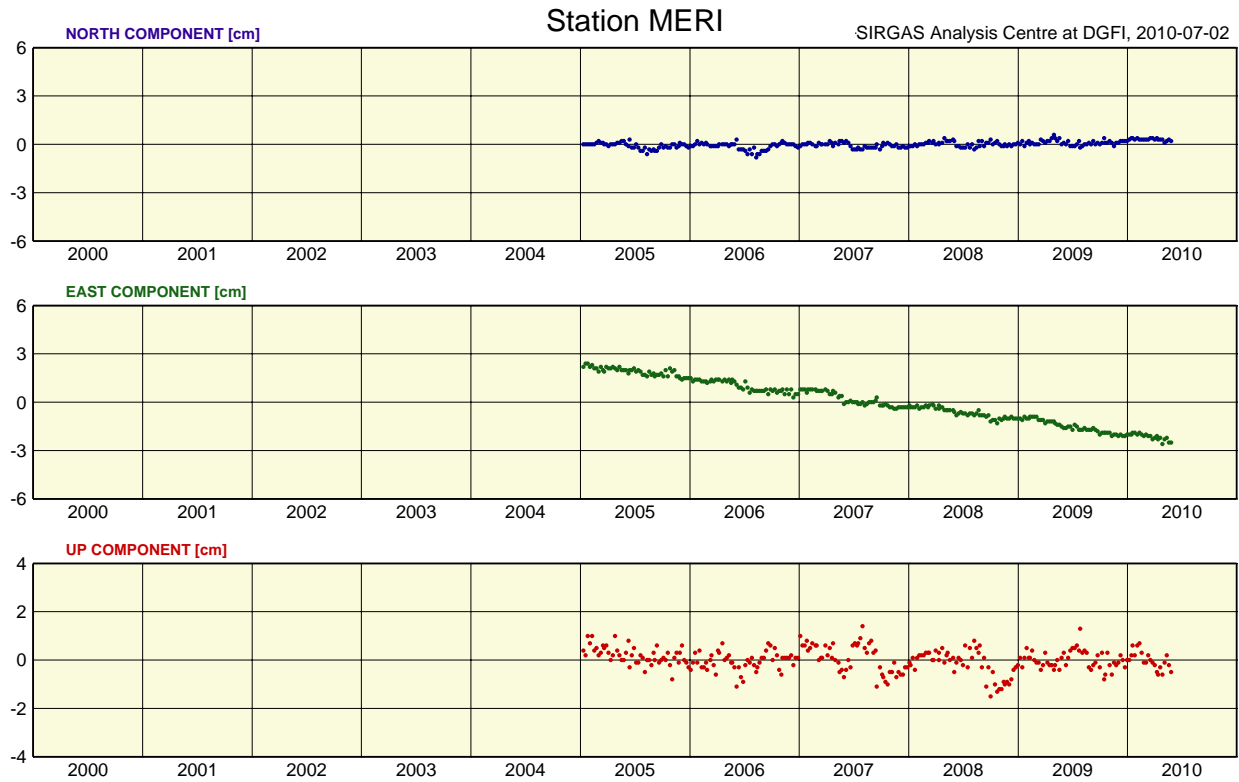
SIRGAS Analysis Centre at DGFI, 2010-07-02

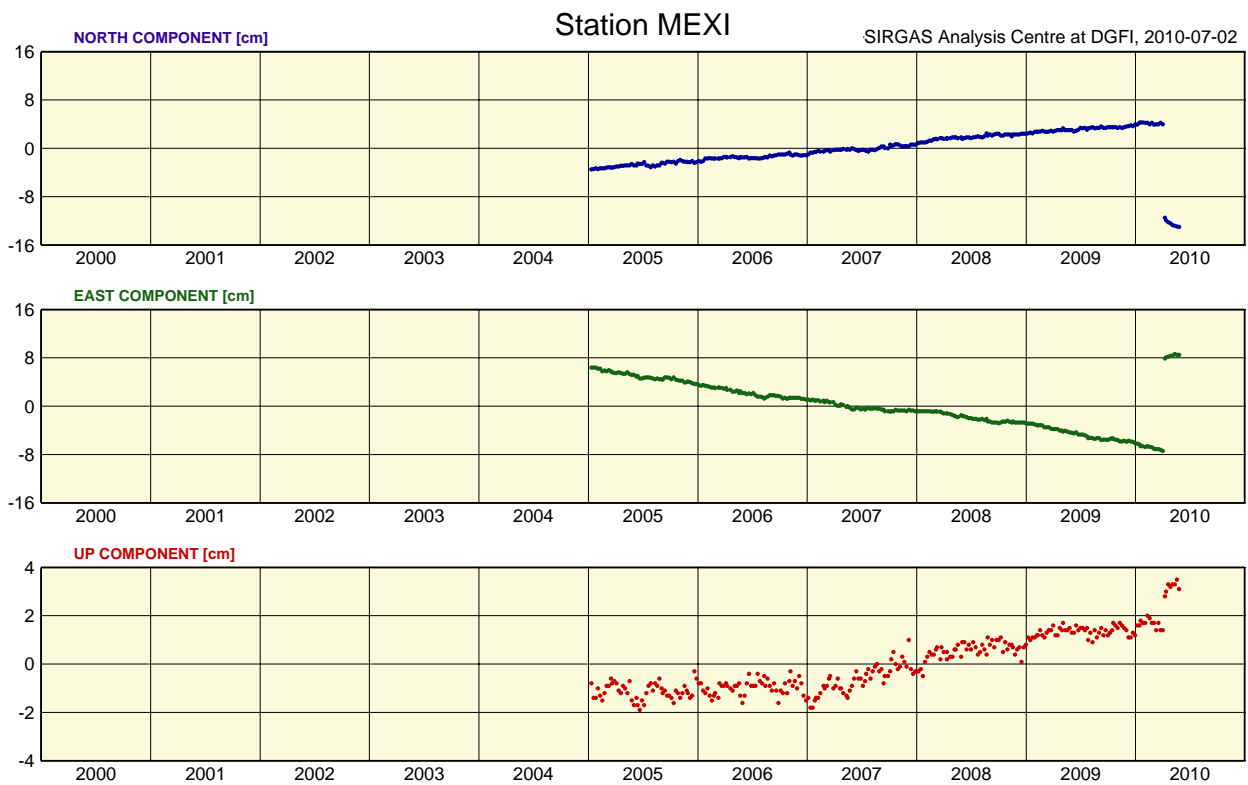
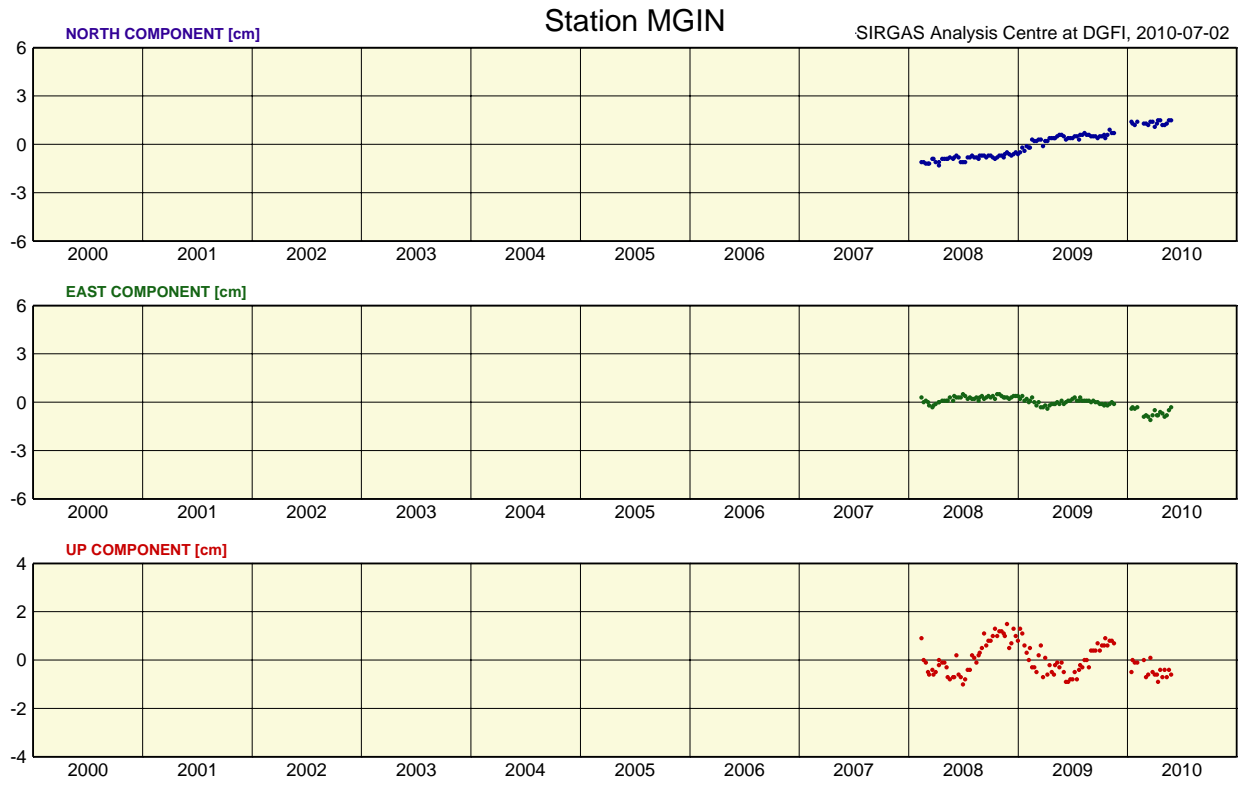


## Station MDO1

SIRGAS Analysis Centre at DGFI, 2010-07-02

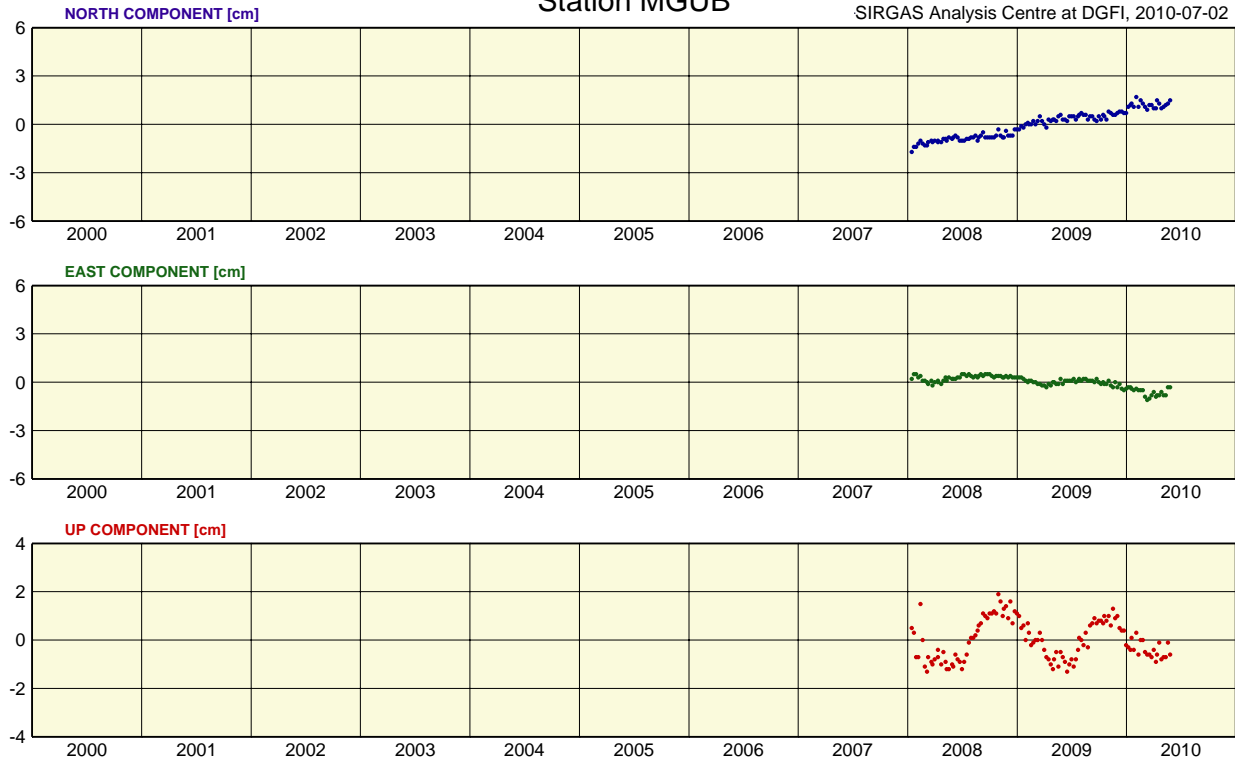






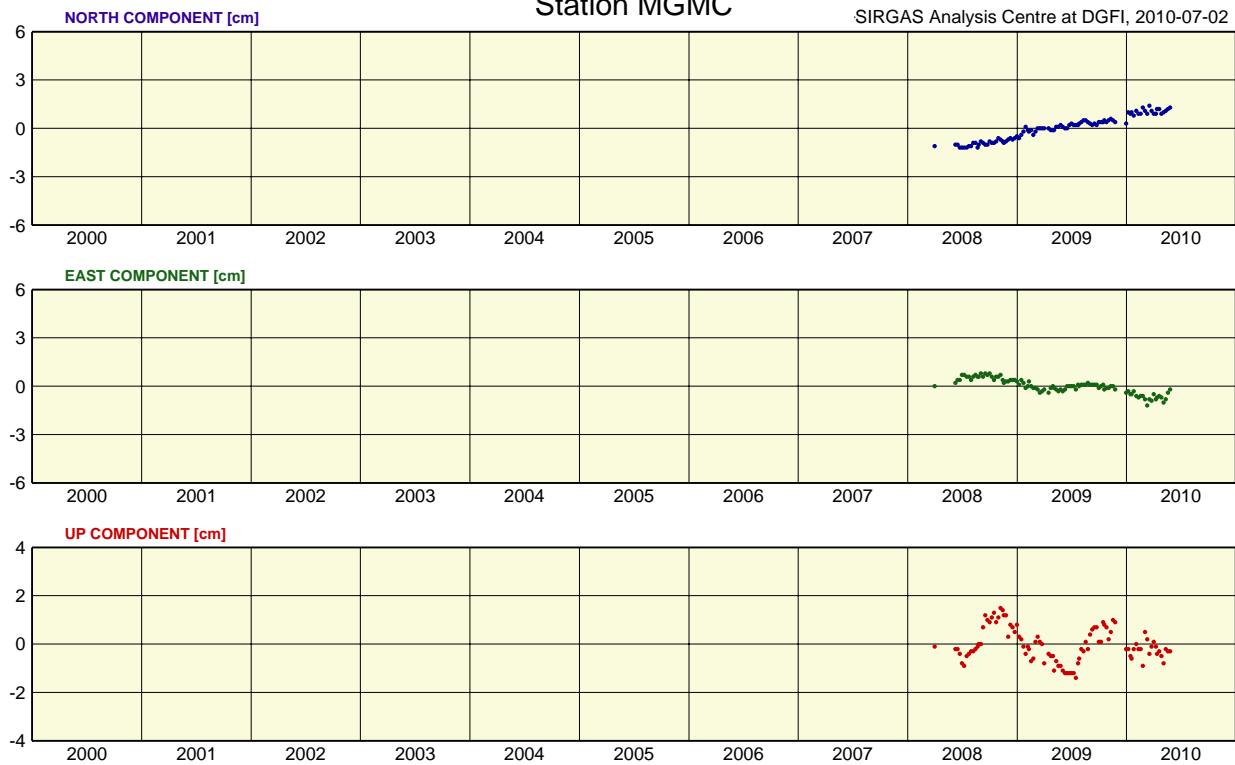
# Station MGUB

SIRGAS Analysis Centre at DGFI, 2010-07-02



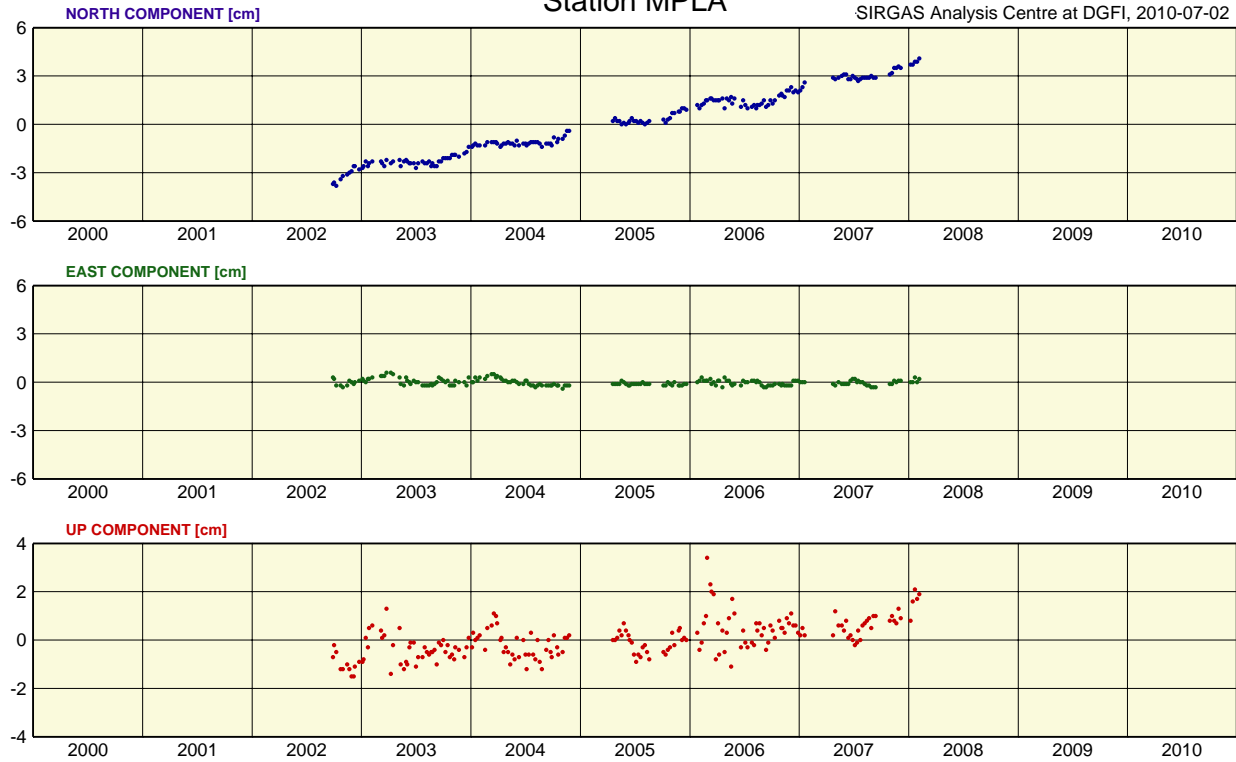
# Station MGMC

SIRGAS Analysis Centre at DGFI, 2010-07-02



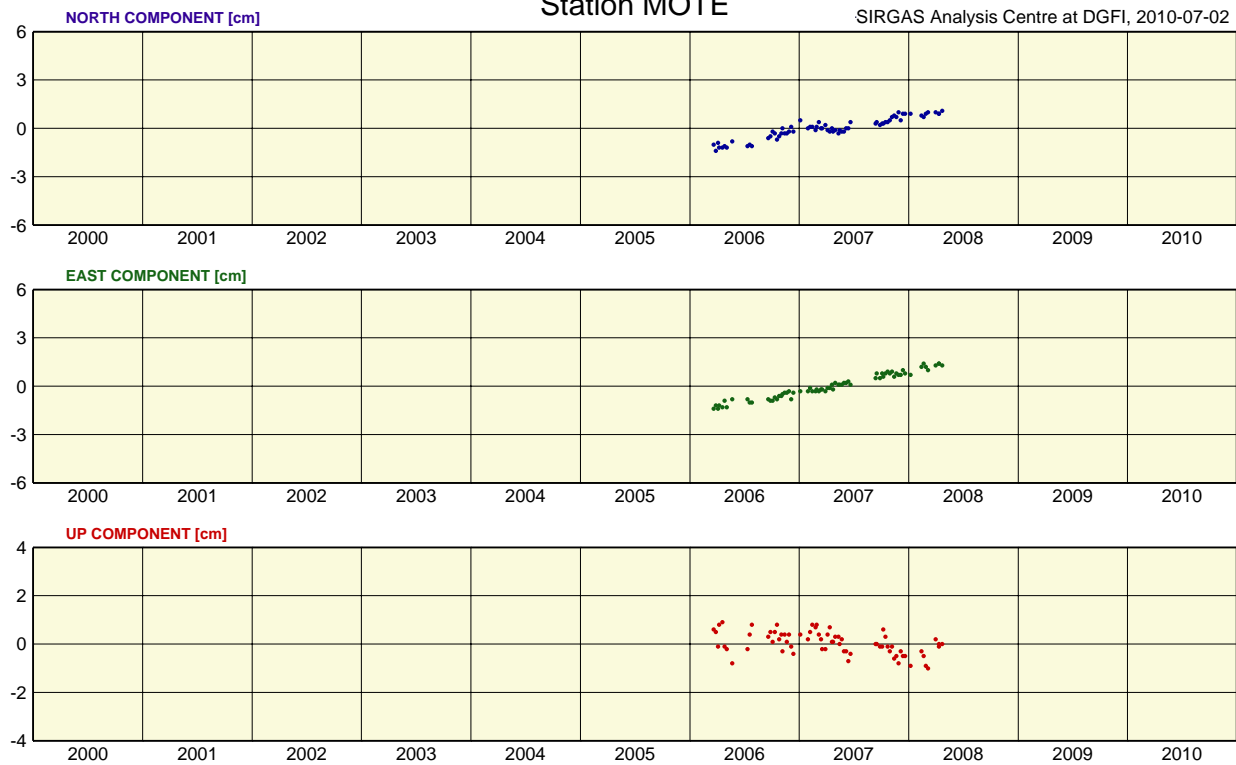
### Station MPLA

SIRGAS Analysis Centre at DGFI, 2010-07-02



### Station MOTE

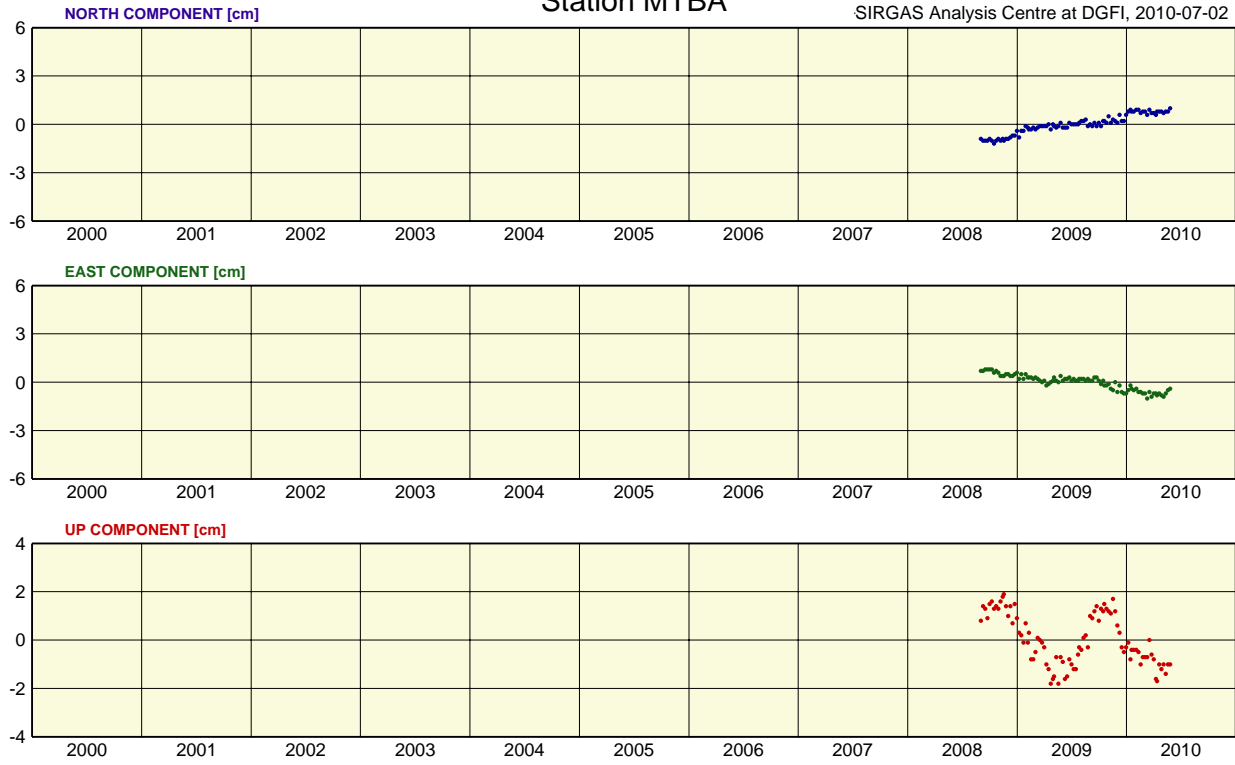
SIRGAS Analysis Centre at DGFI, 2010-07-02





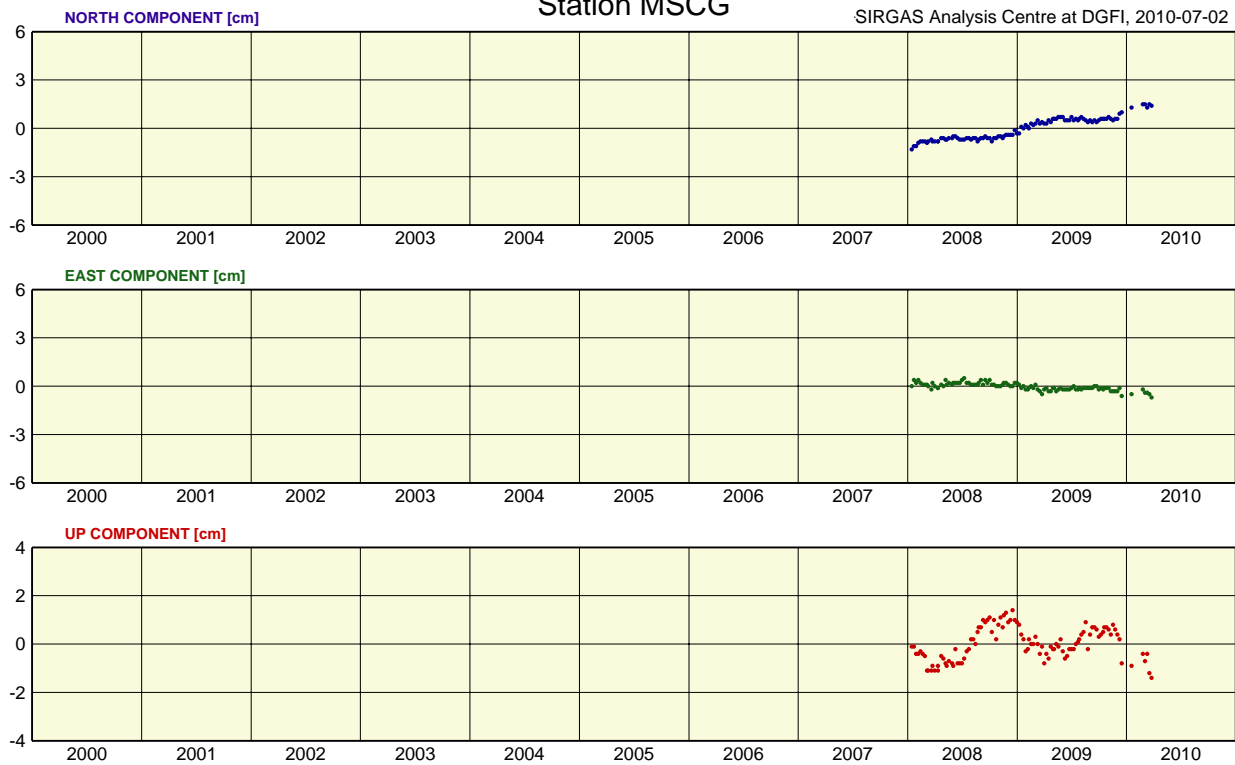
### Station MTBA

SIRGAS Analysis Centre at DGFI, 2010-07-02



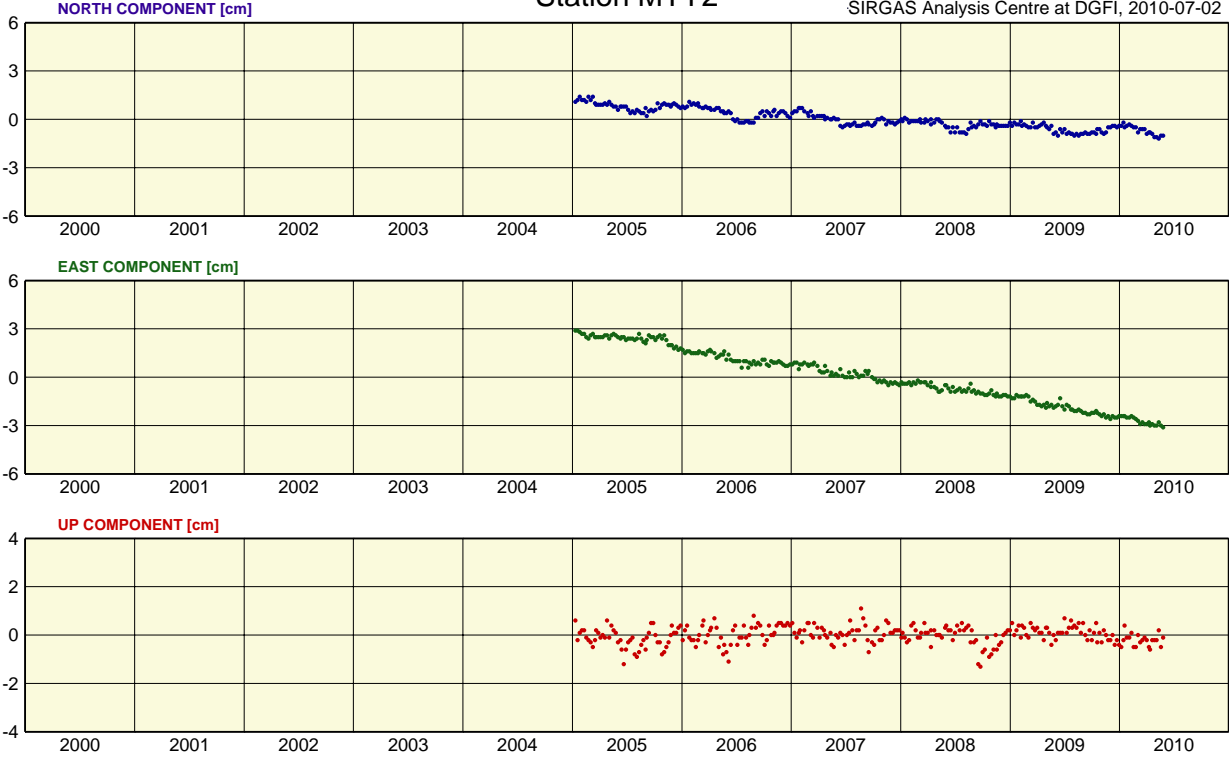
### Station MSCG

SIRGAS Analysis Centre at DGFI, 2010-07-02



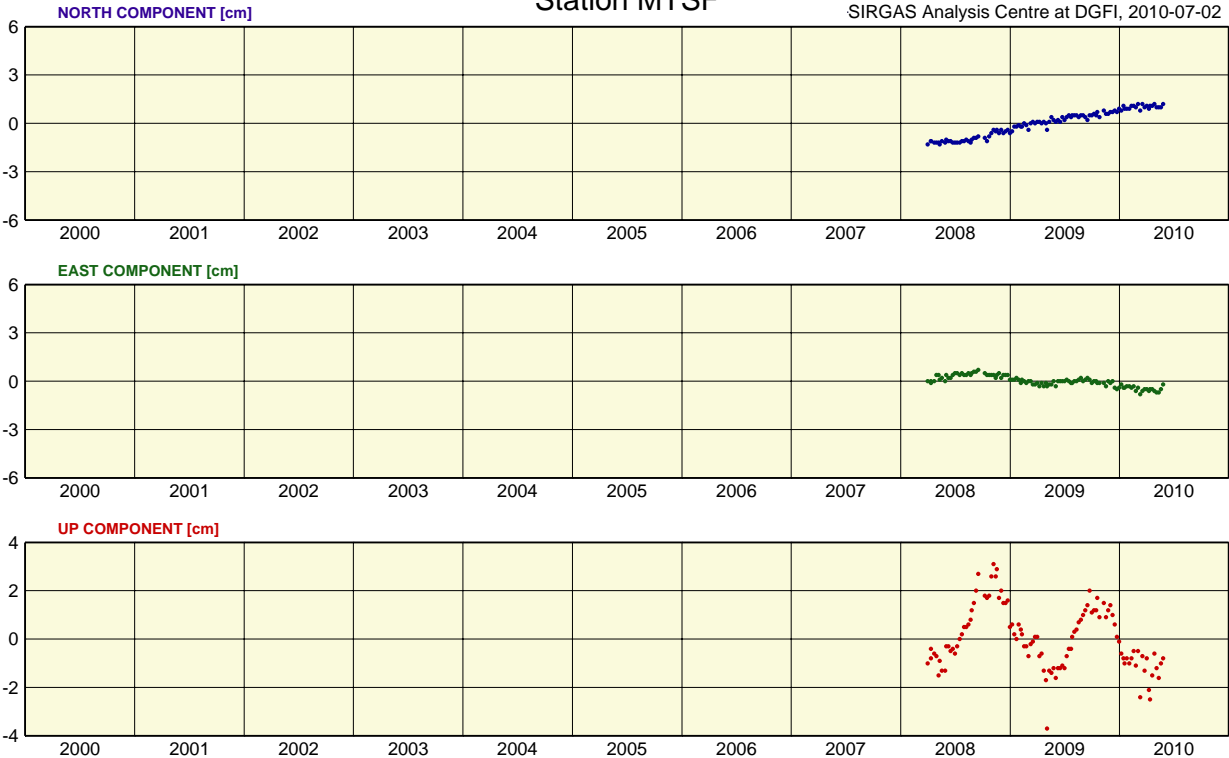
### Station MTY2

SIRGAS Analysis Centre at DGFI, 2010-07-02



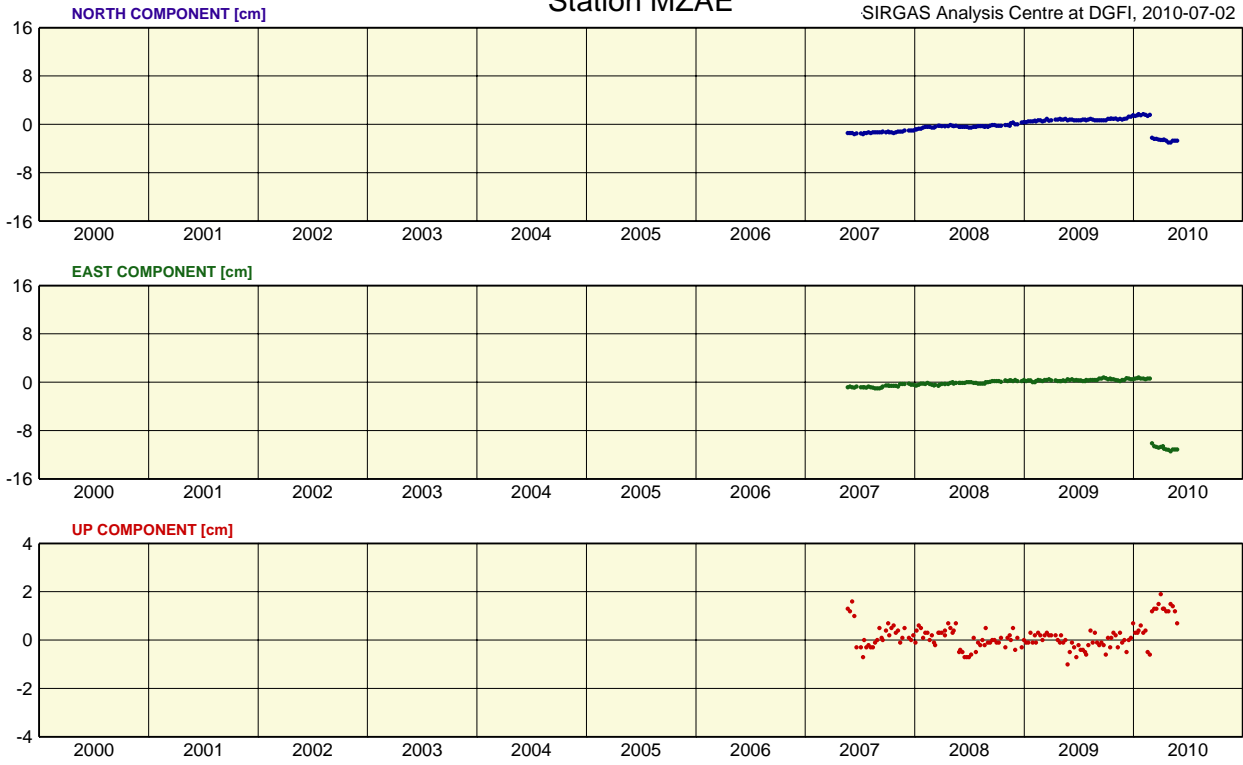
### Station MTSF

SIRGAS Analysis Centre at DGFI, 2010-07-02



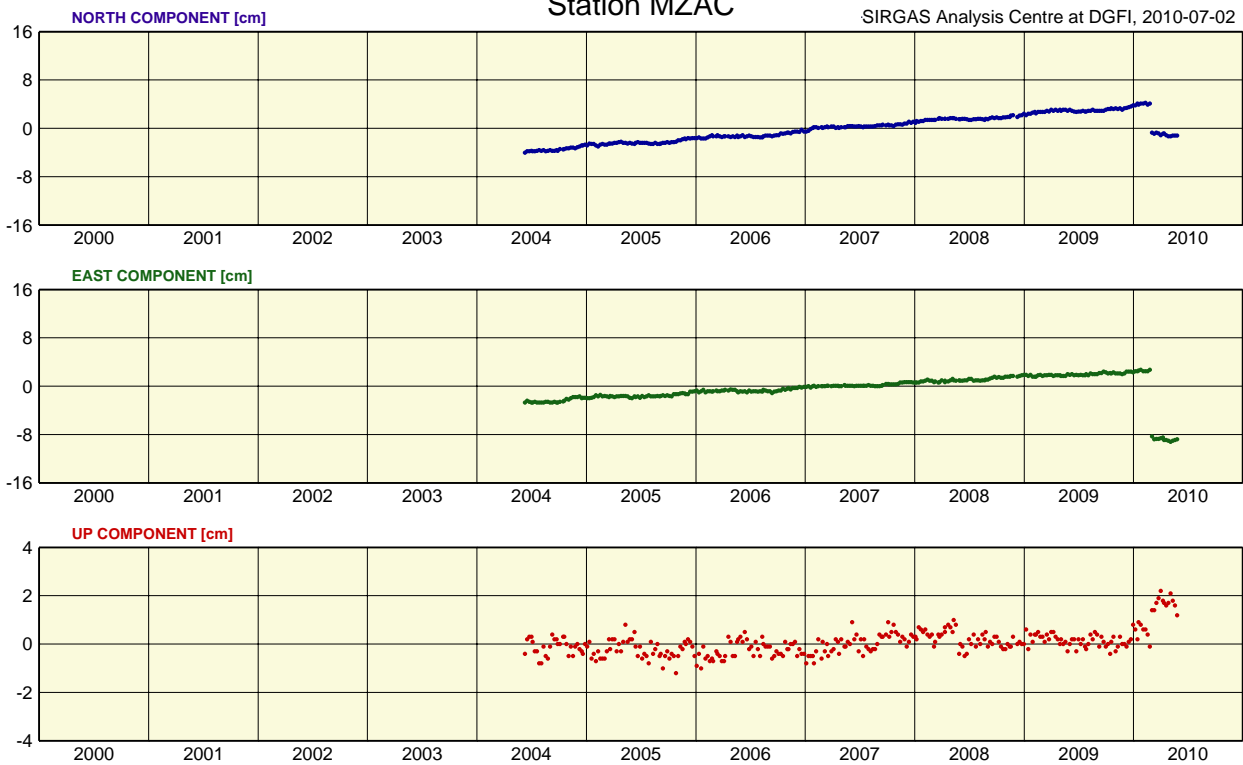
### Station MZAE

SIRGAS Analysis Centre at DGFI, 2010-07-02



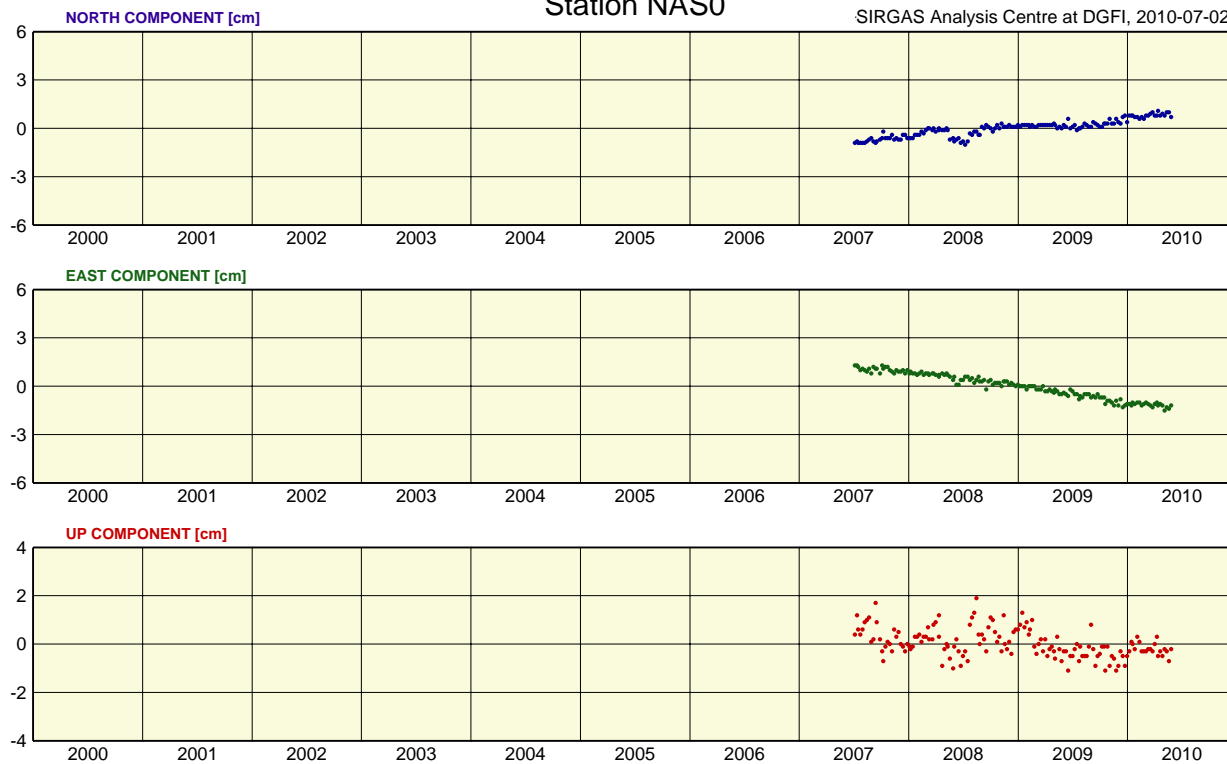
### Station MZAC

SIRGAS Analysis Centre at DGFI, 2010-07-02



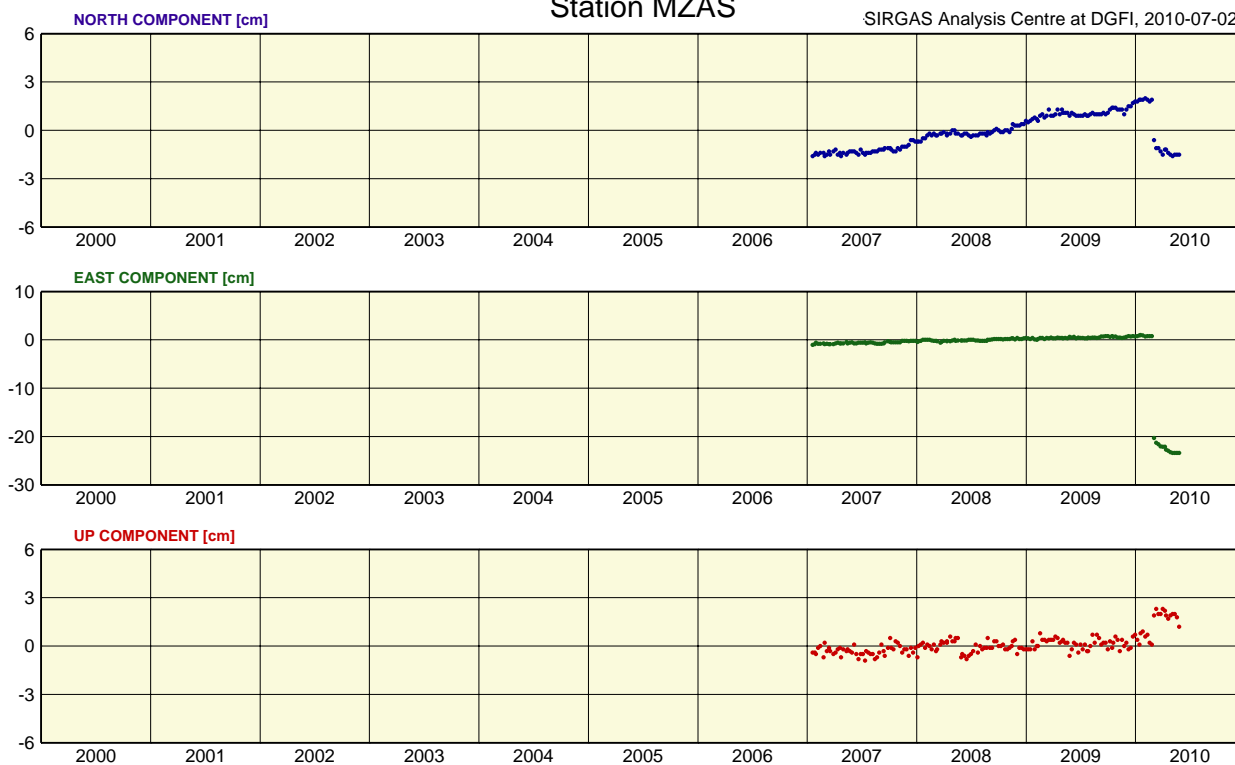
### Station NAS0

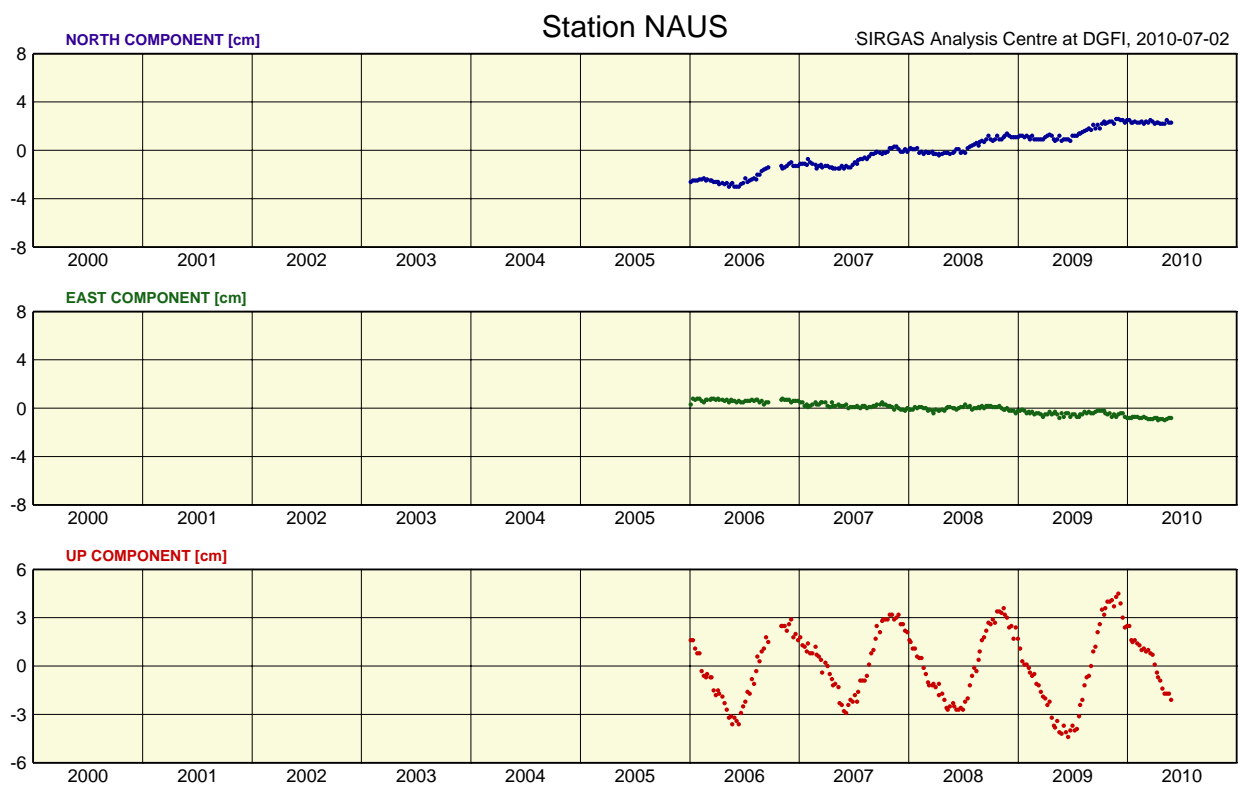
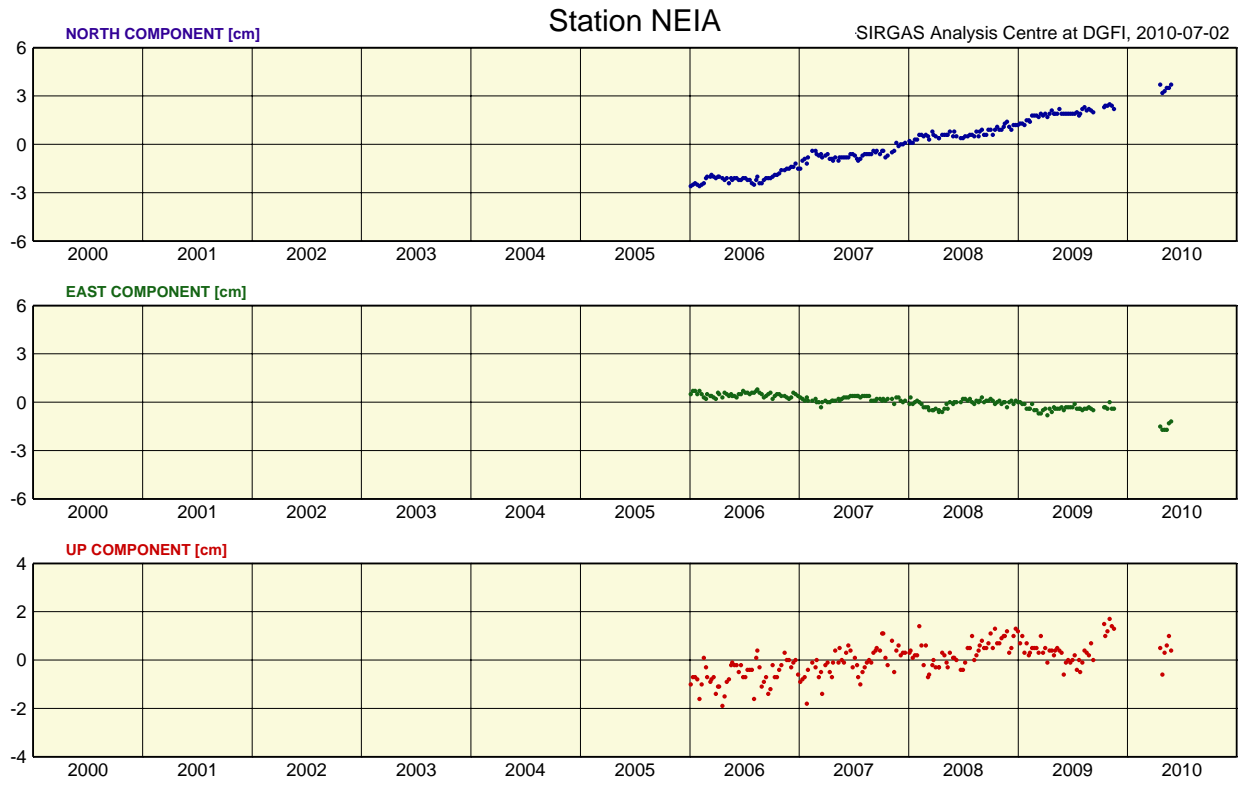
SIRGAS Analysis Centre at DGFI, 2010-07-02



### Station MZAS

SIRGAS Analysis Centre at DGFI, 2010-07-02

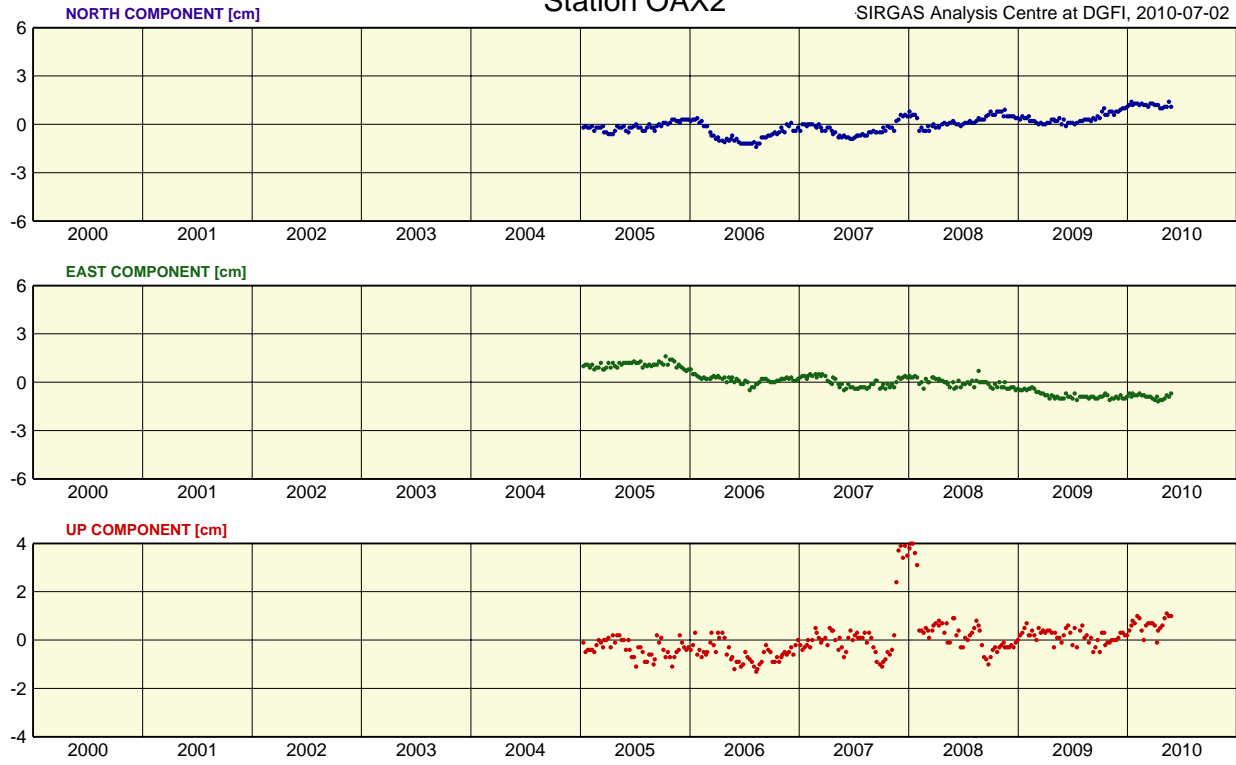






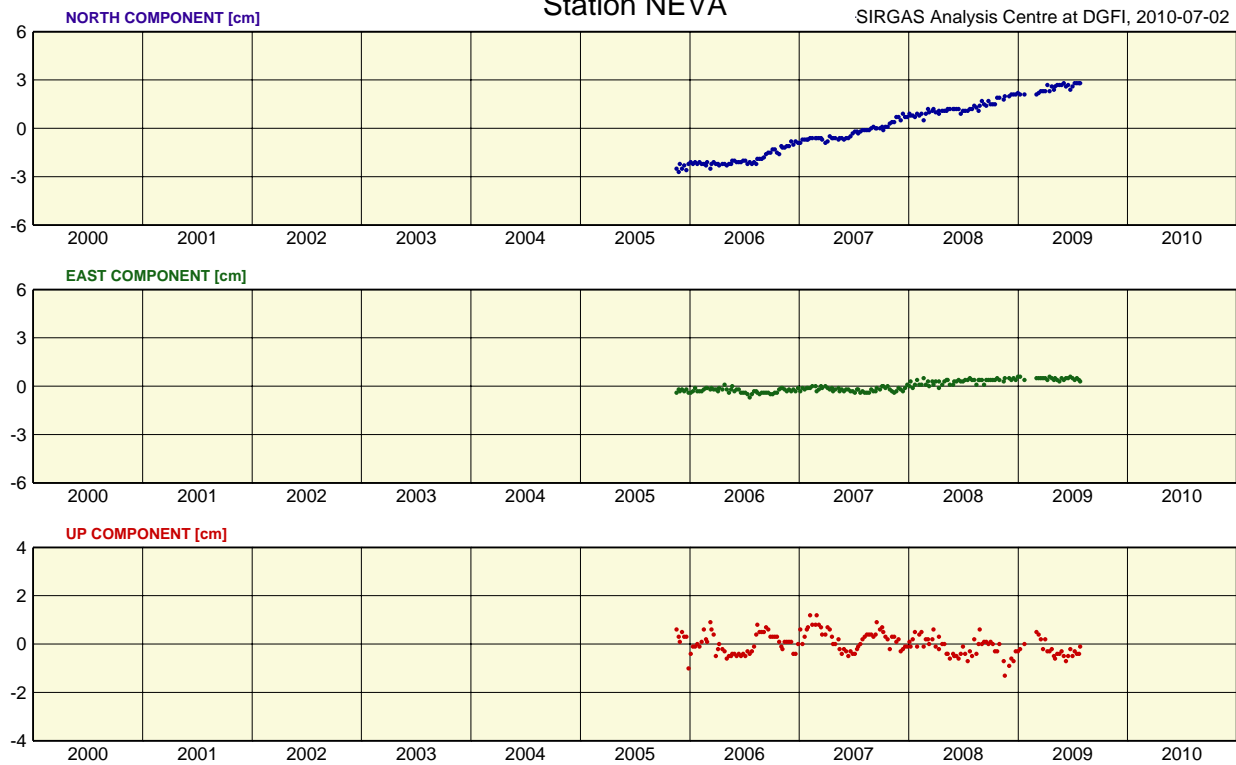
## Station OAX2

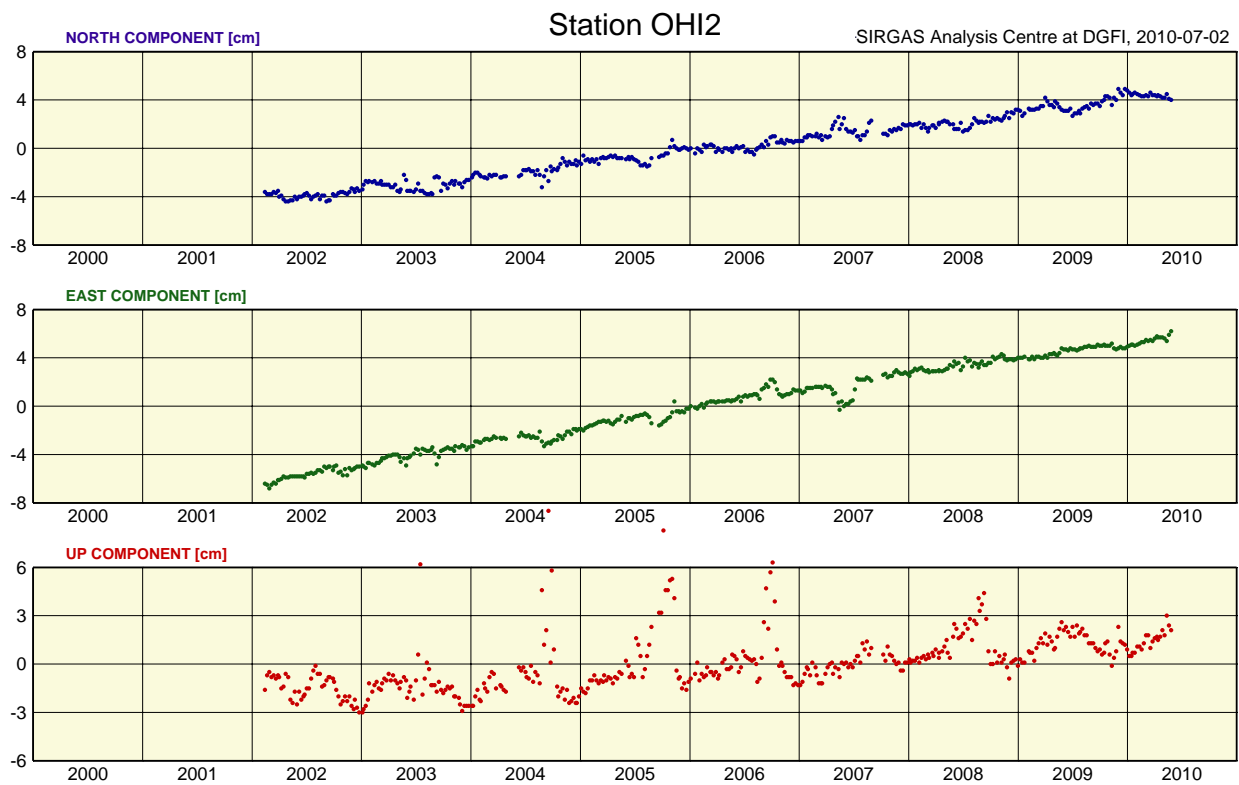
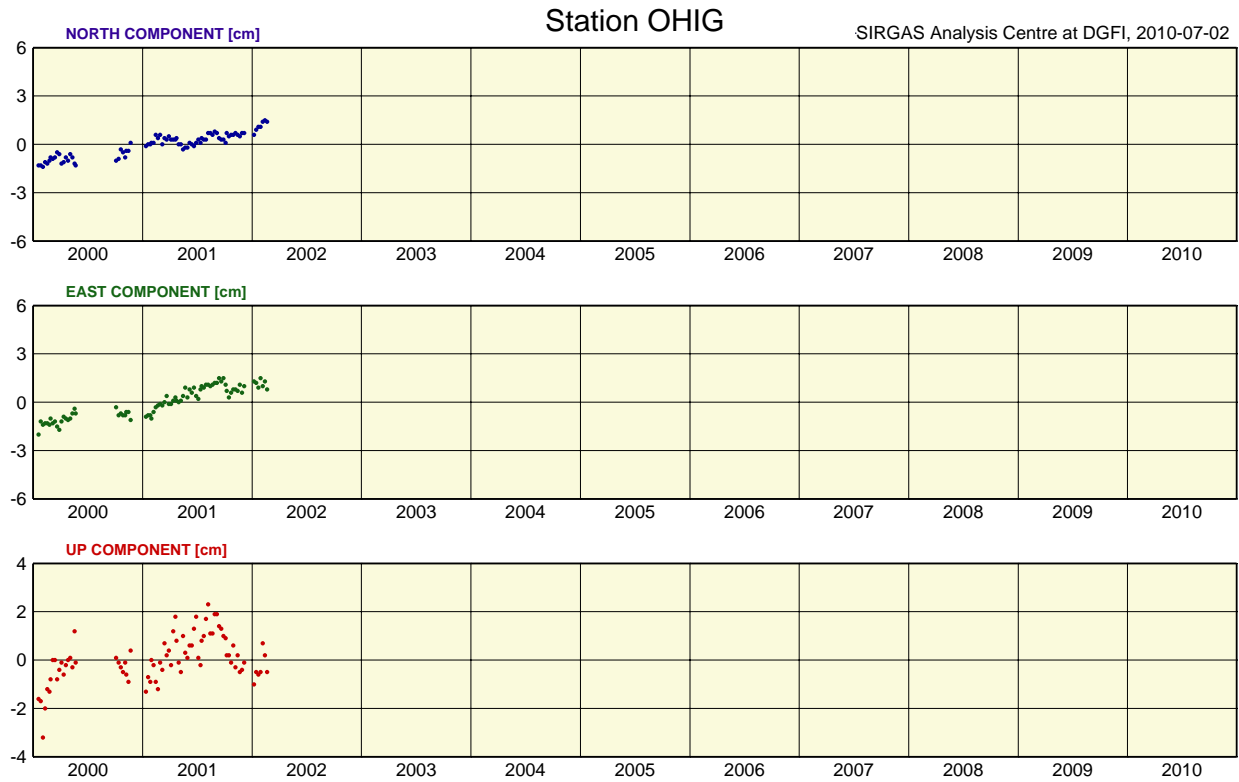
SIRGAS Analysis Centre at DGFI, 2010-07-02

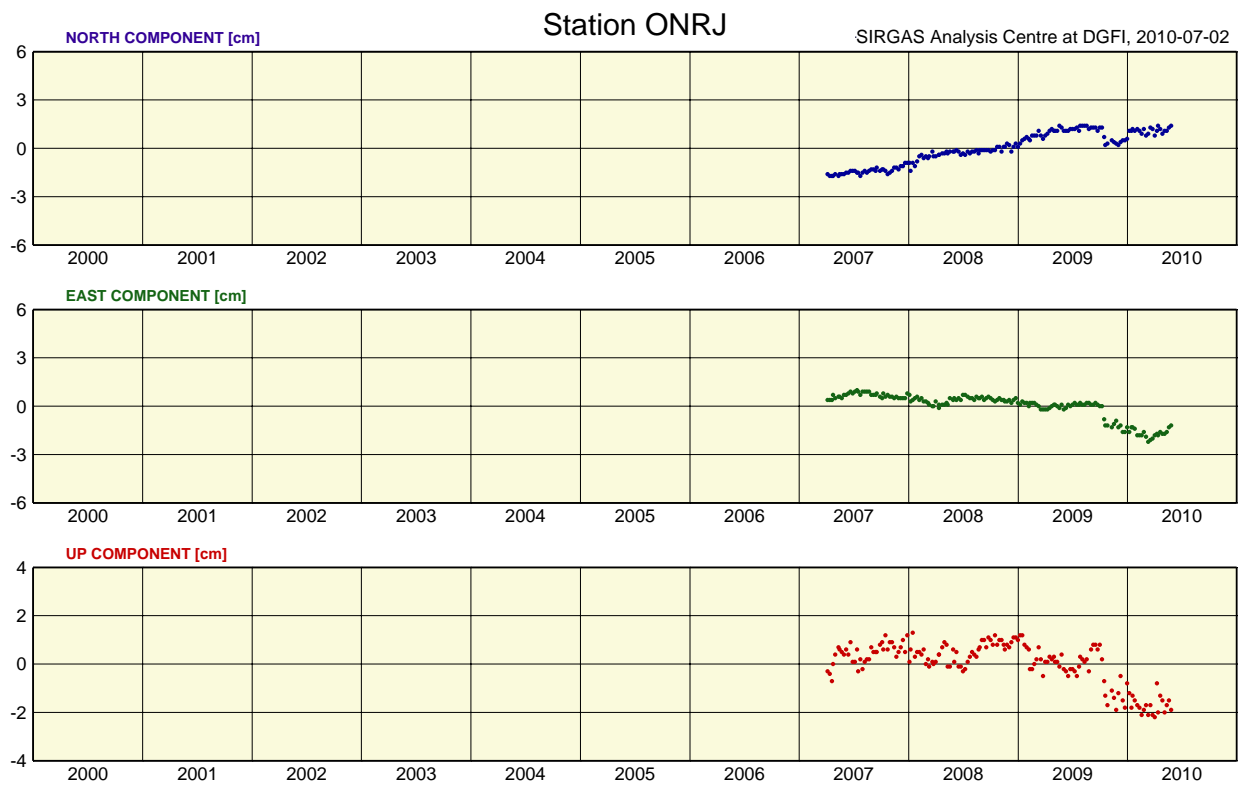
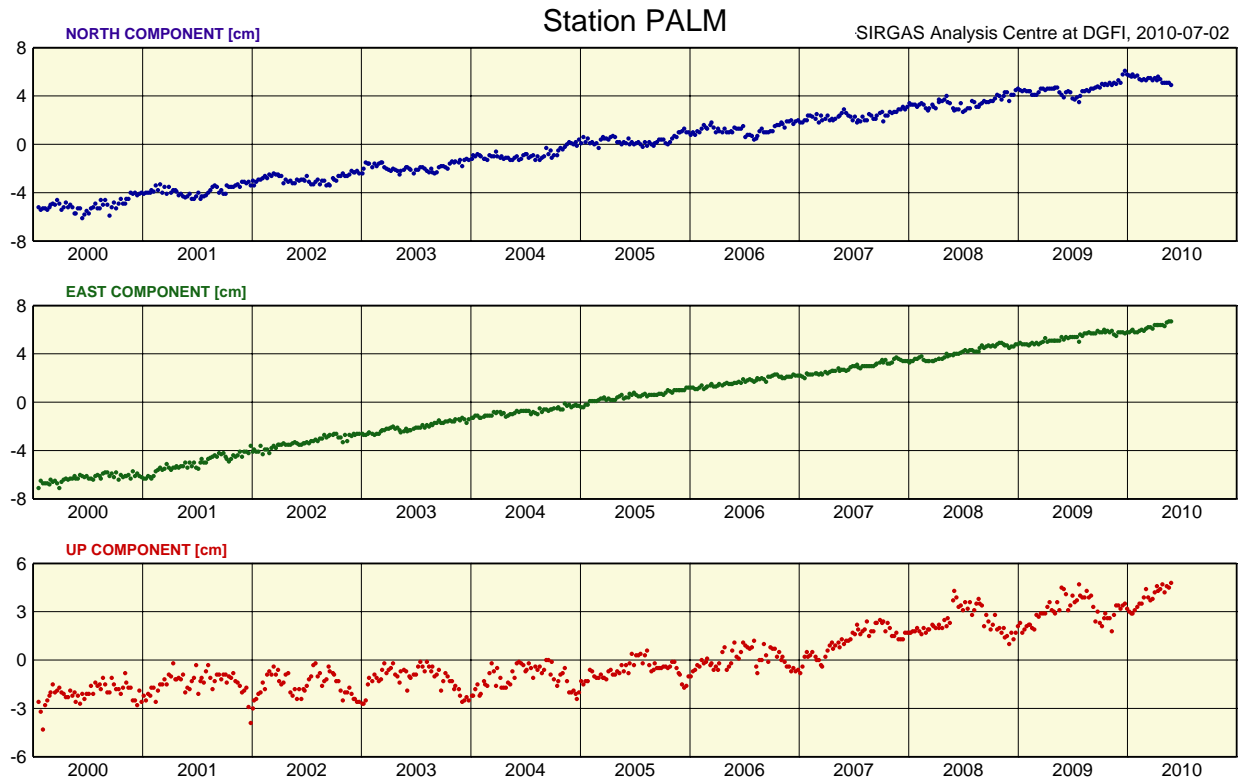


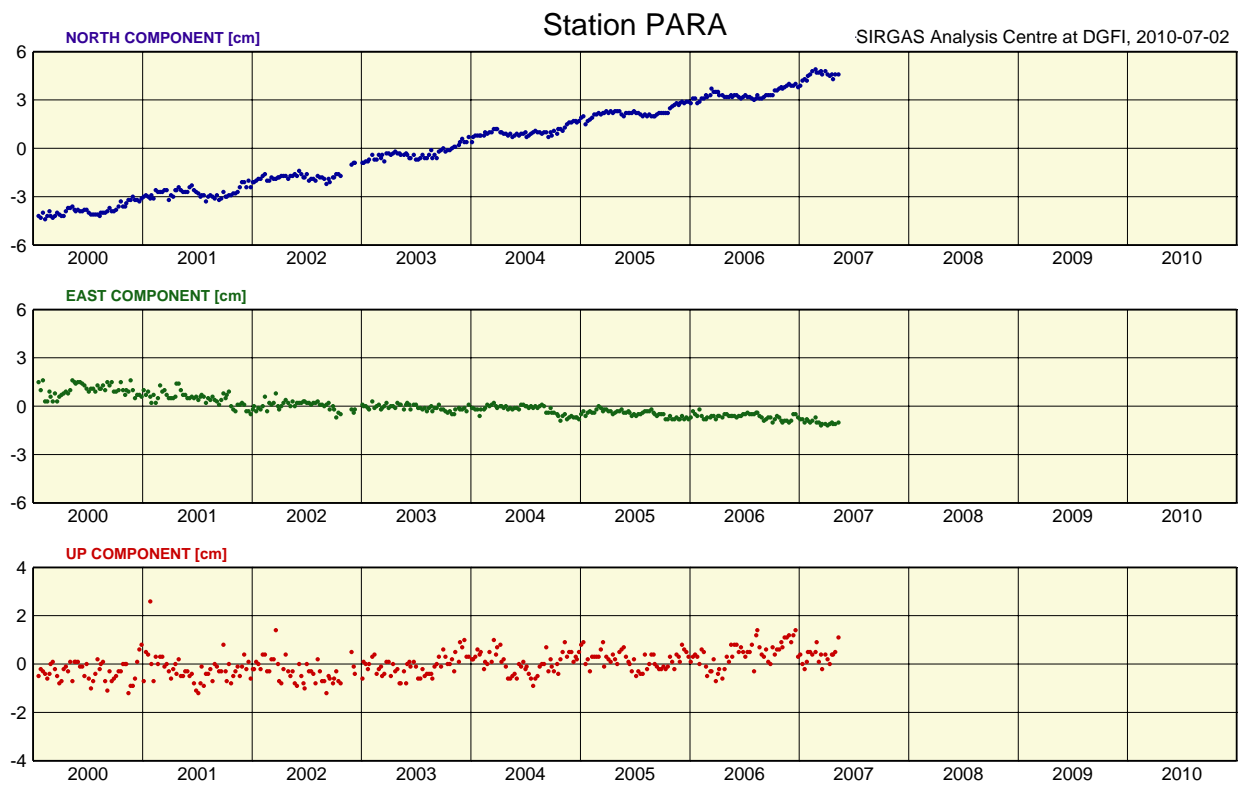
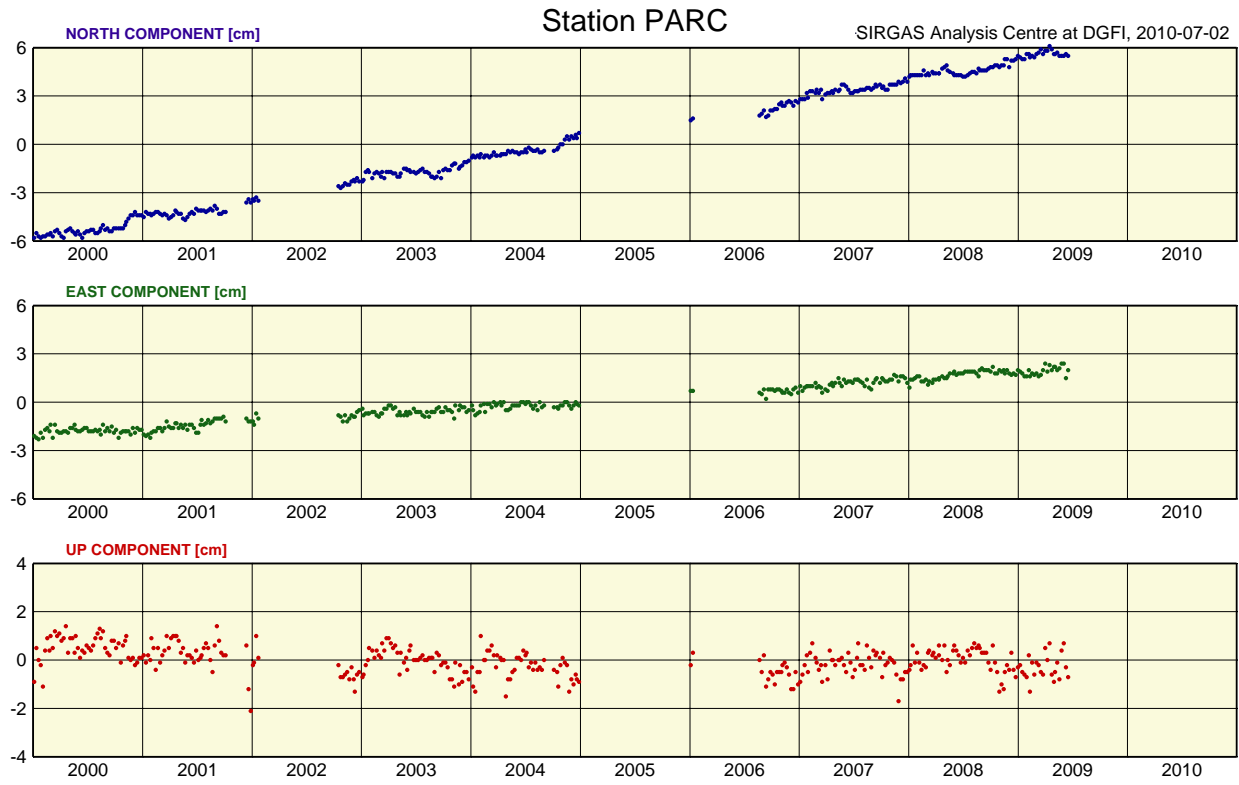
## Station NEVA

SIRGAS Analysis Centre at DGFI, 2010-07-02



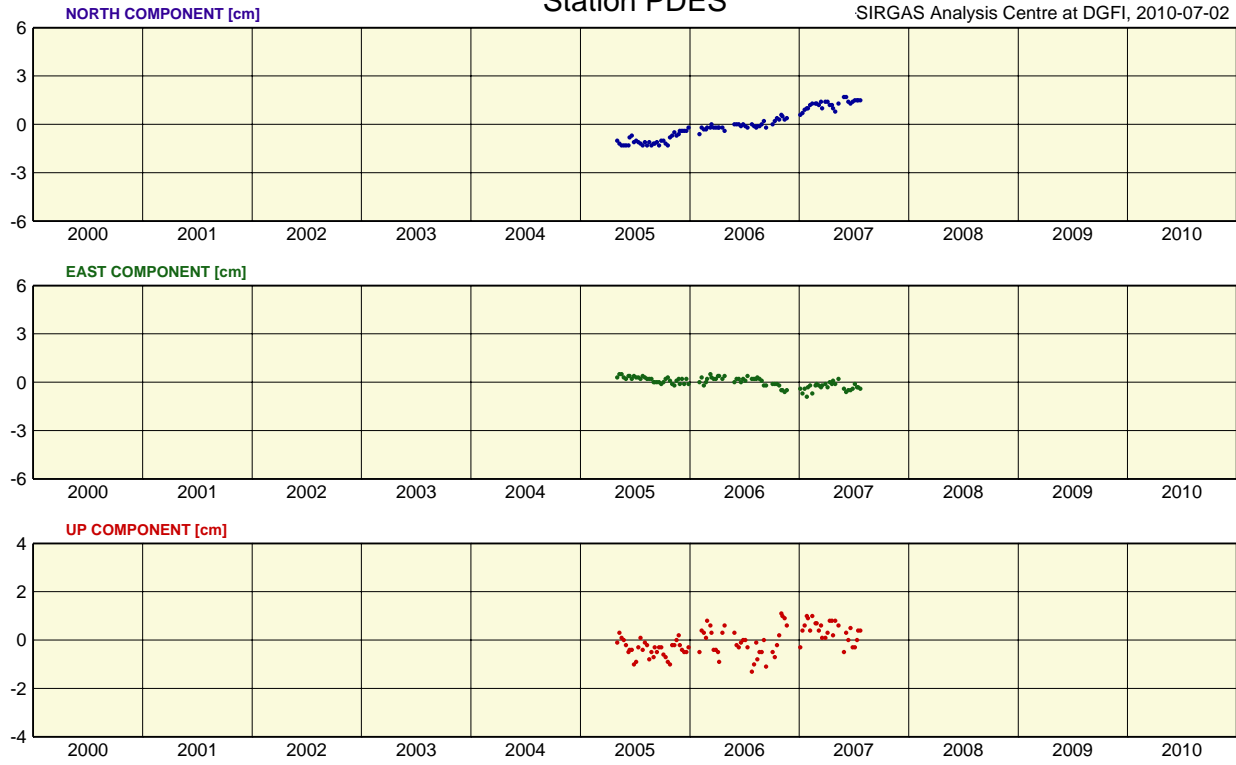






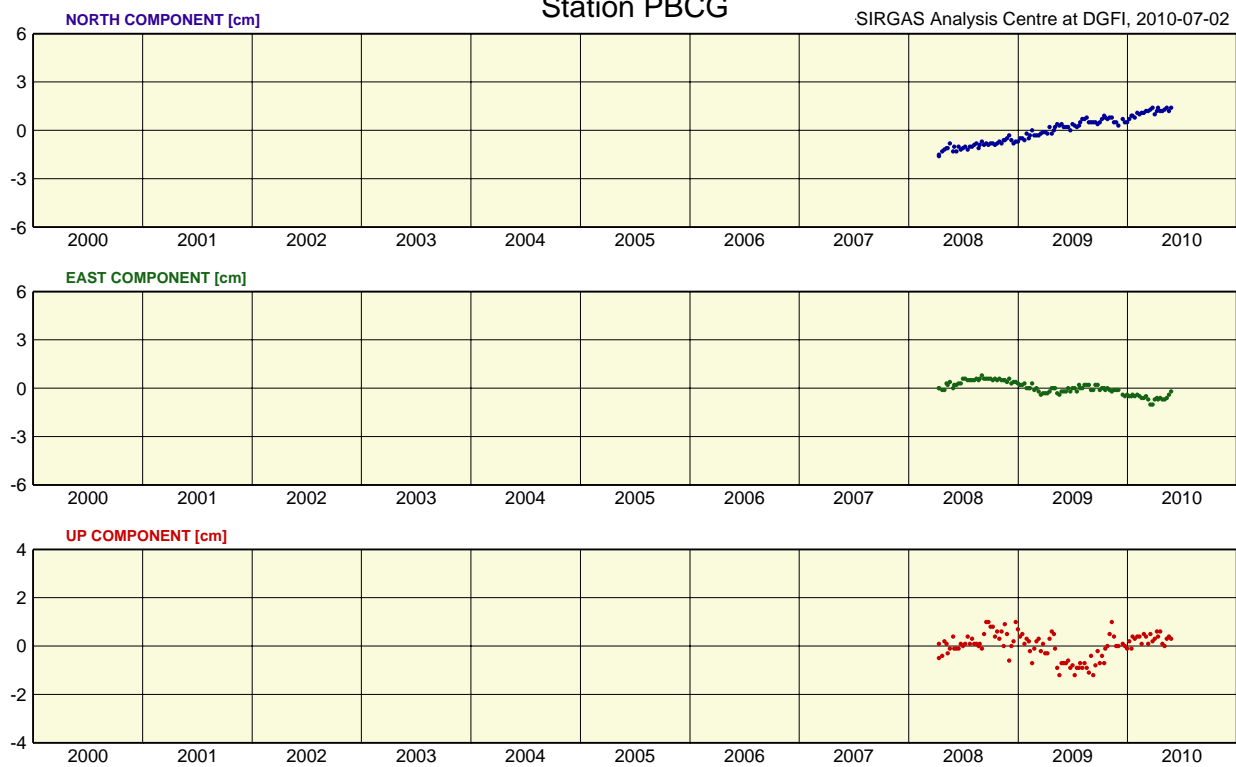
### Station PDES

SIRGAS Analysis Centre at DGFI, 2010-07-02



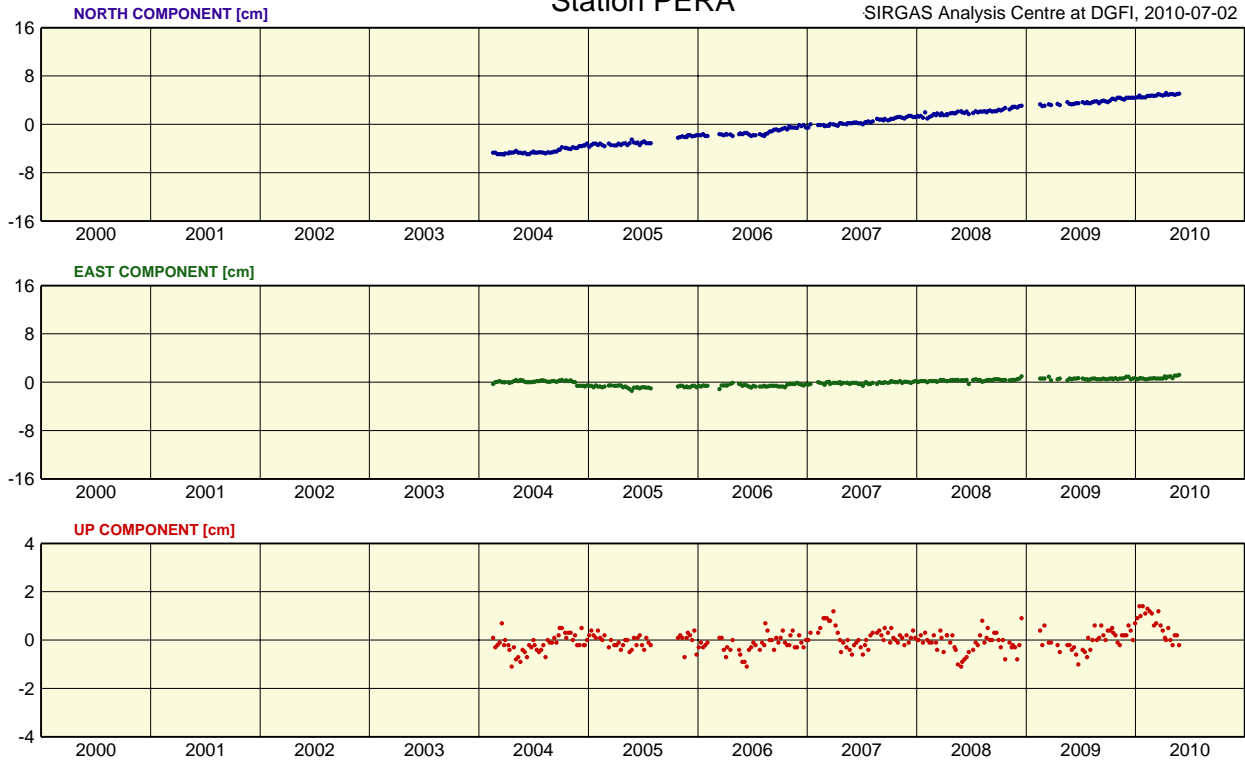
### Station PBCG

SIRGAS Analysis Centre at DGFI, 2010-07-02



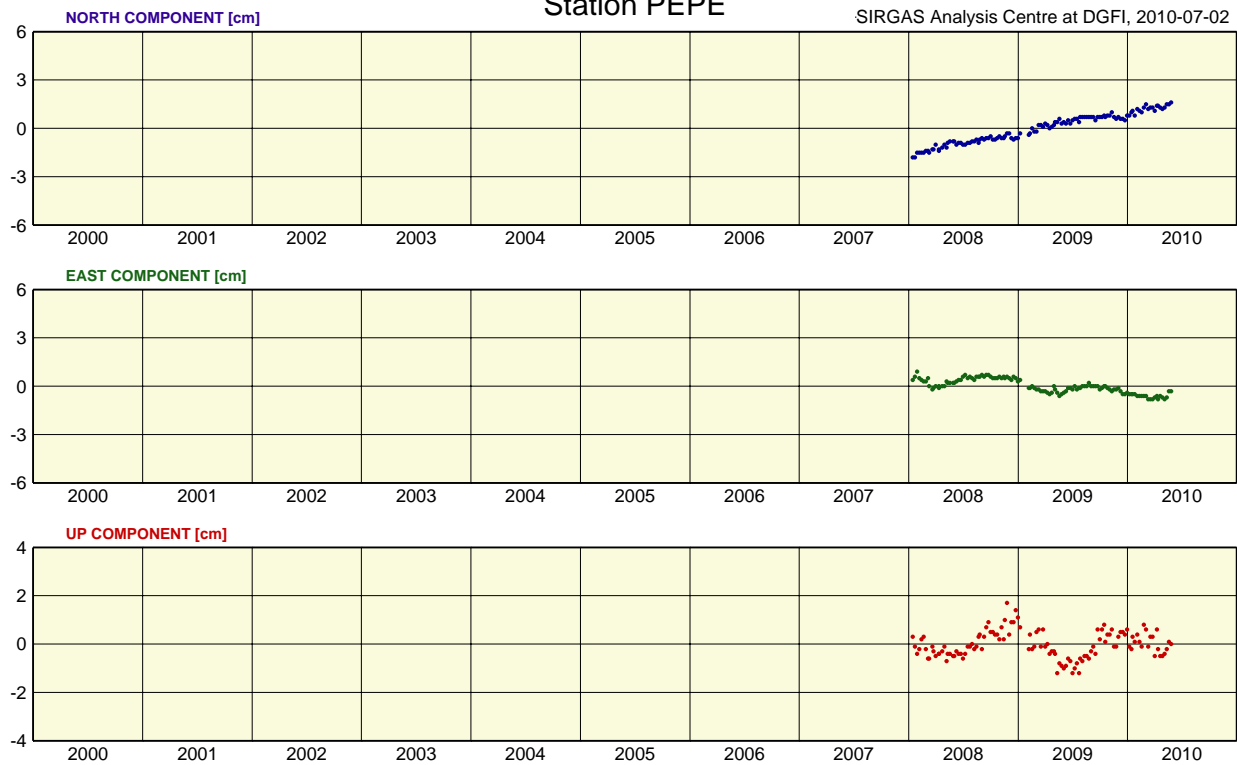
### Station PERA

SIRGAS Analysis Centre at DGFI, 2010-07-02

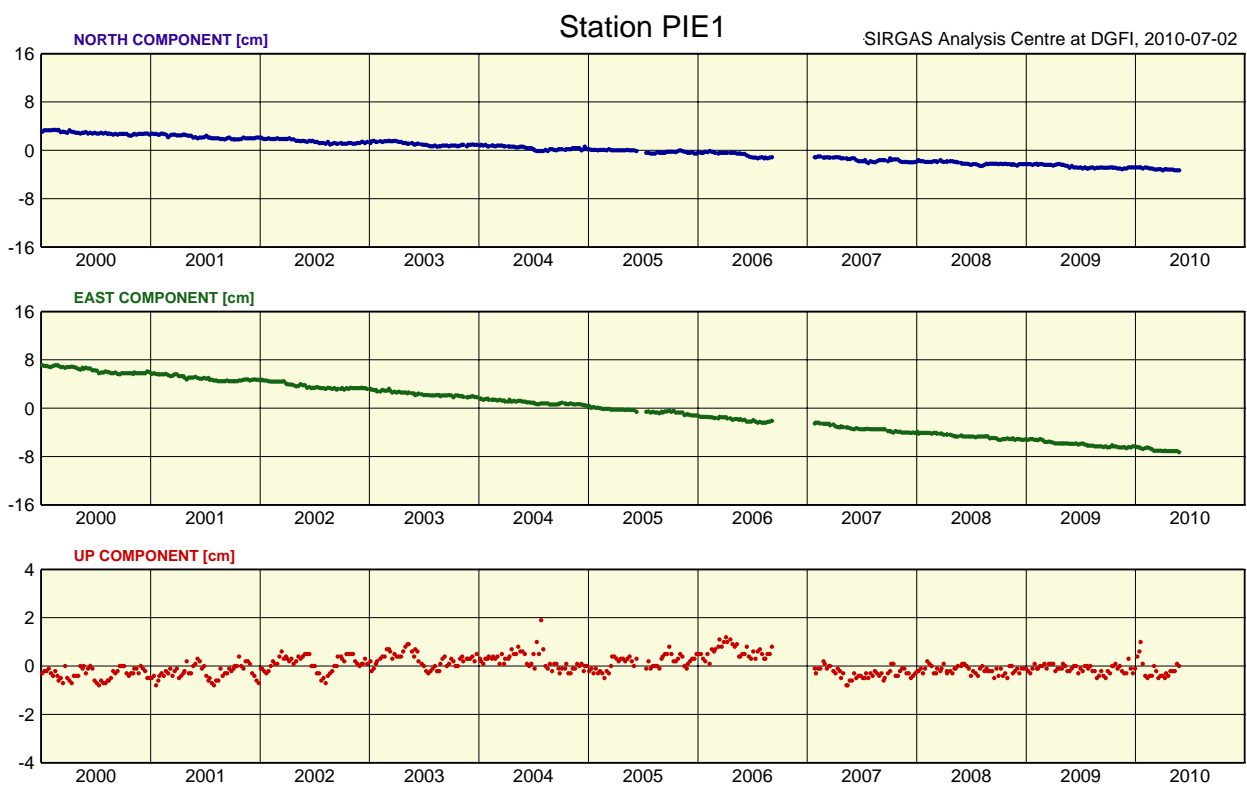
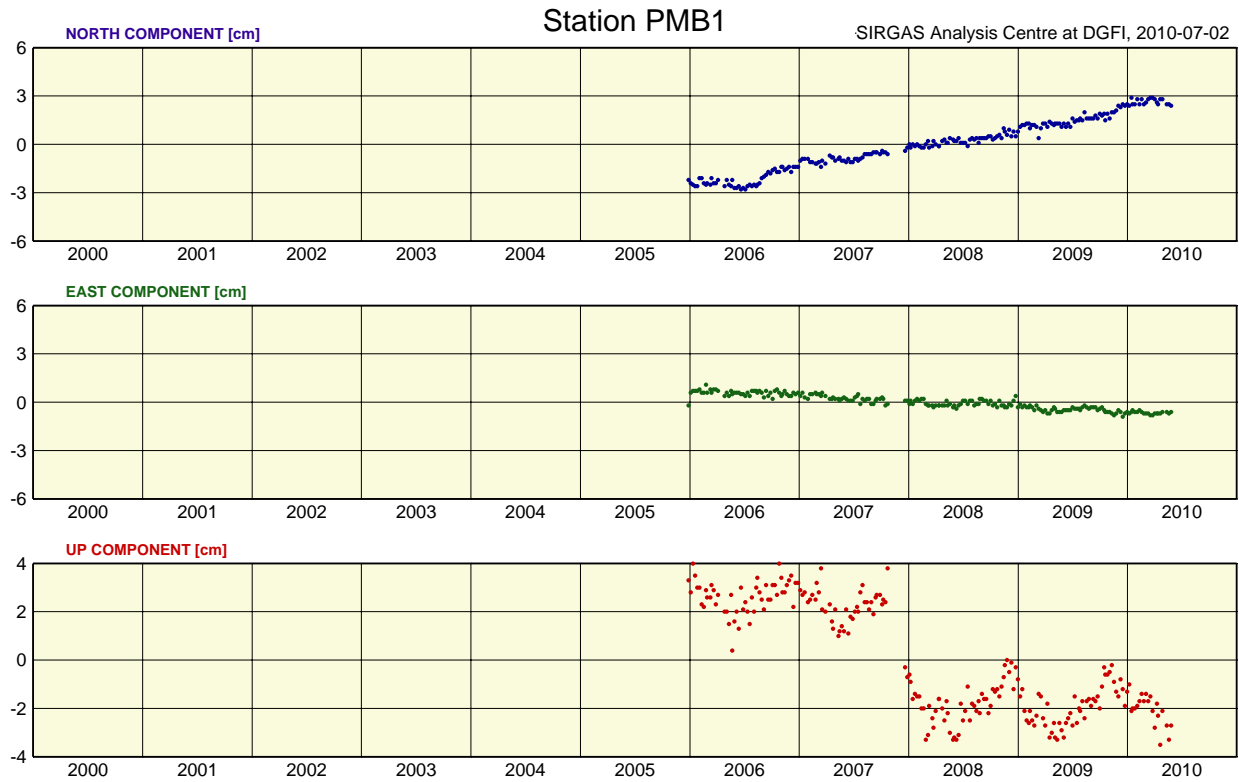


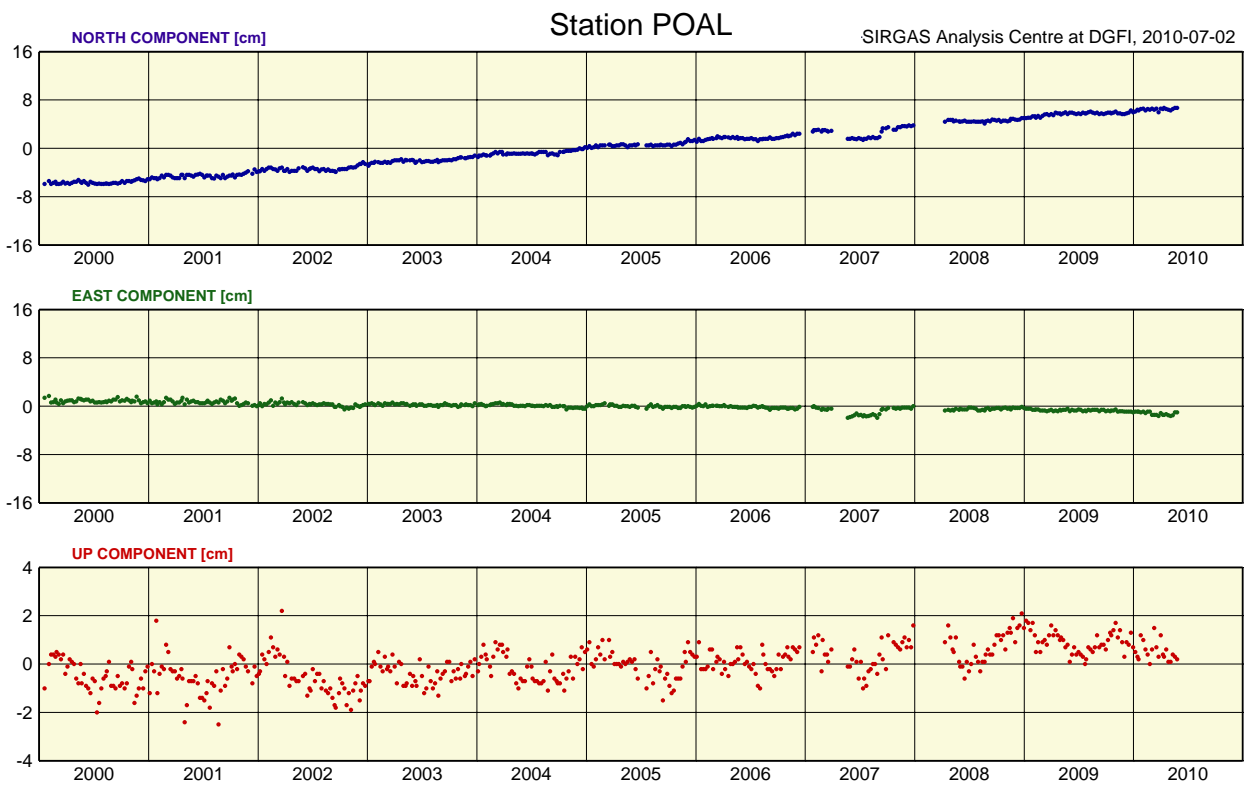
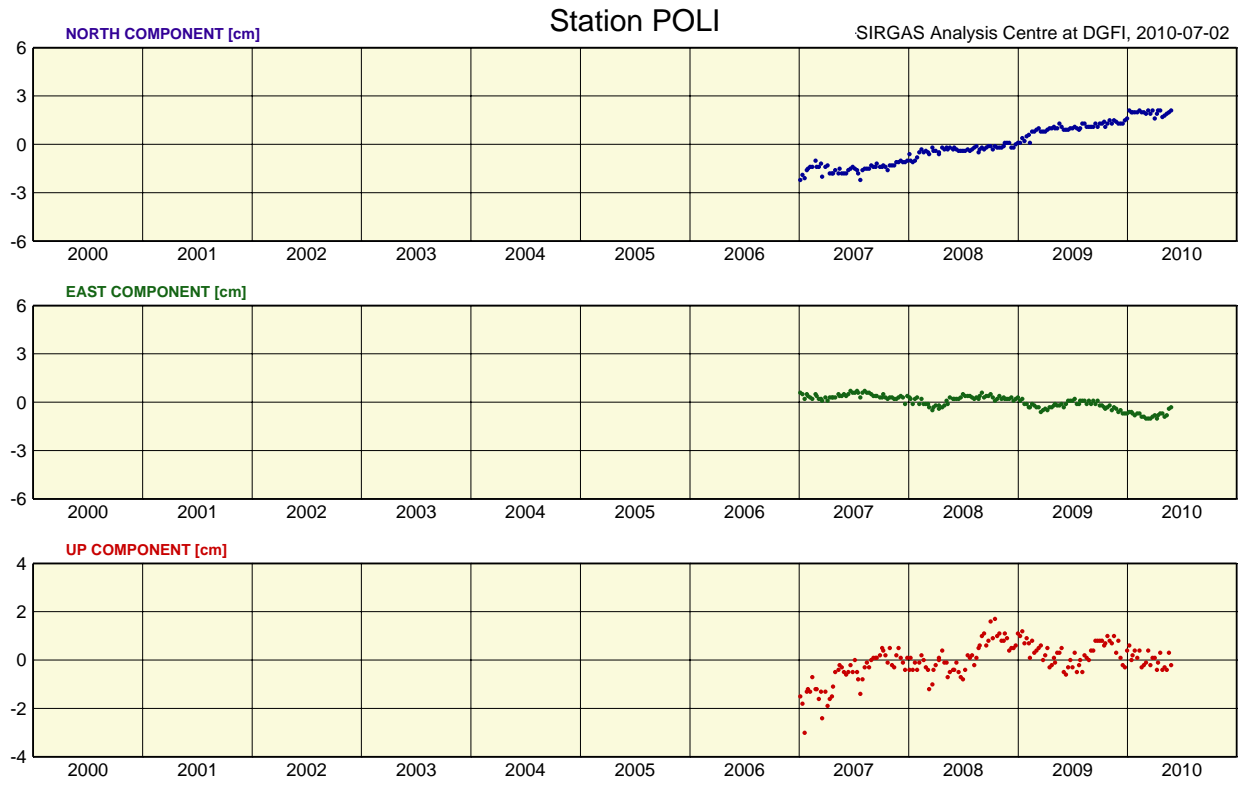
### Station PEPE

SIRGAS Analysis Centre at DGFI, 2010-07-02



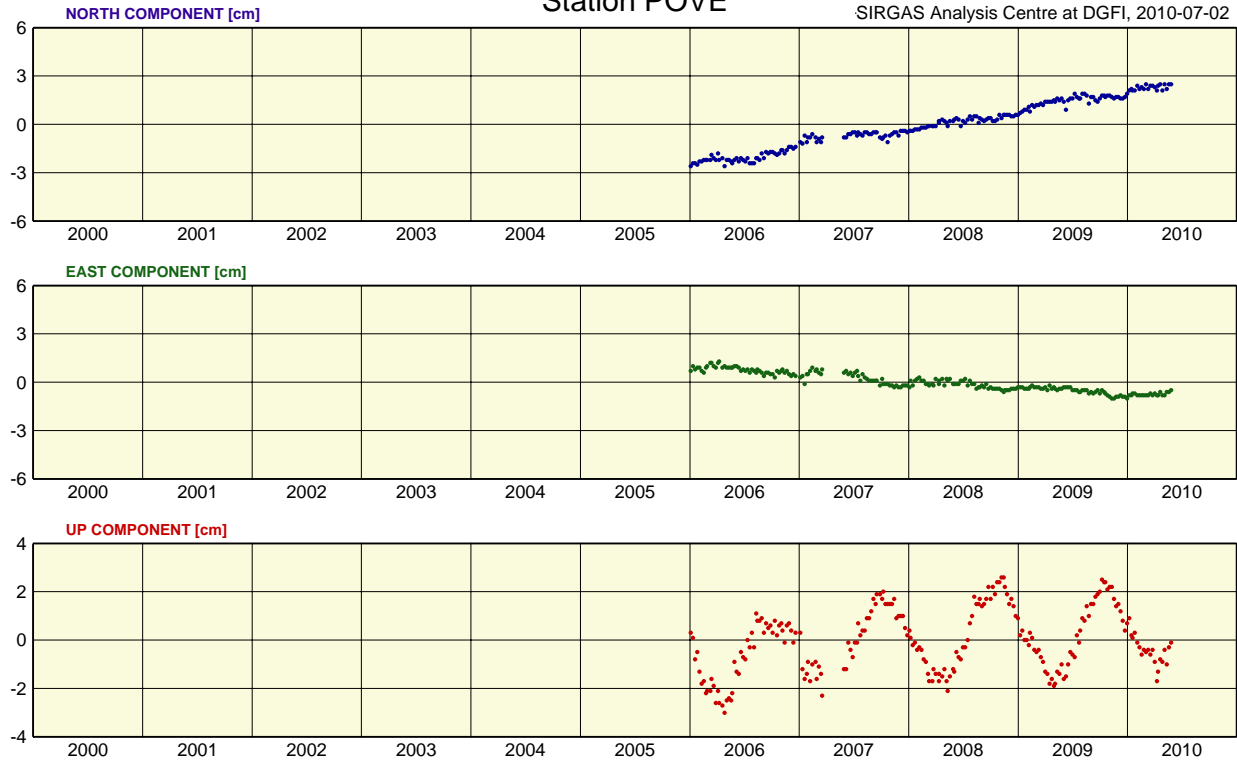






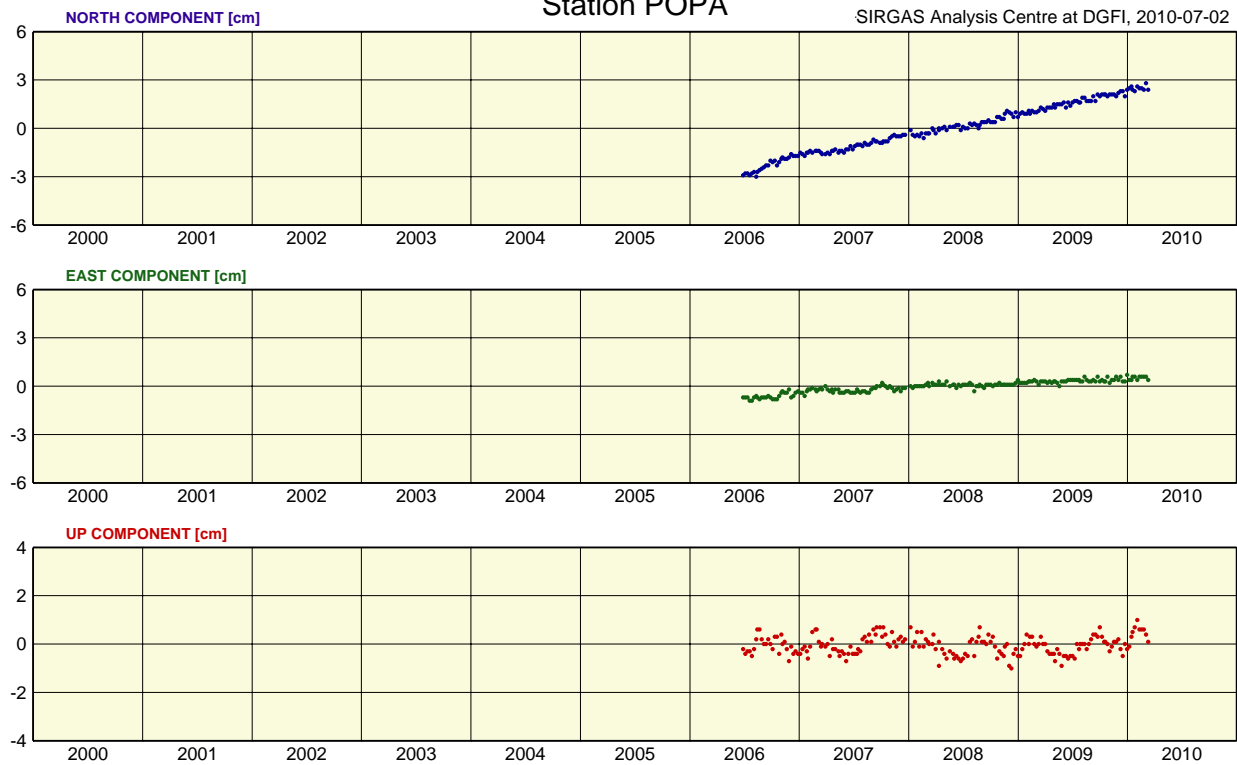
# Station POVE

SIRGAS Analysis Centre at DGFI, 2010-07-02



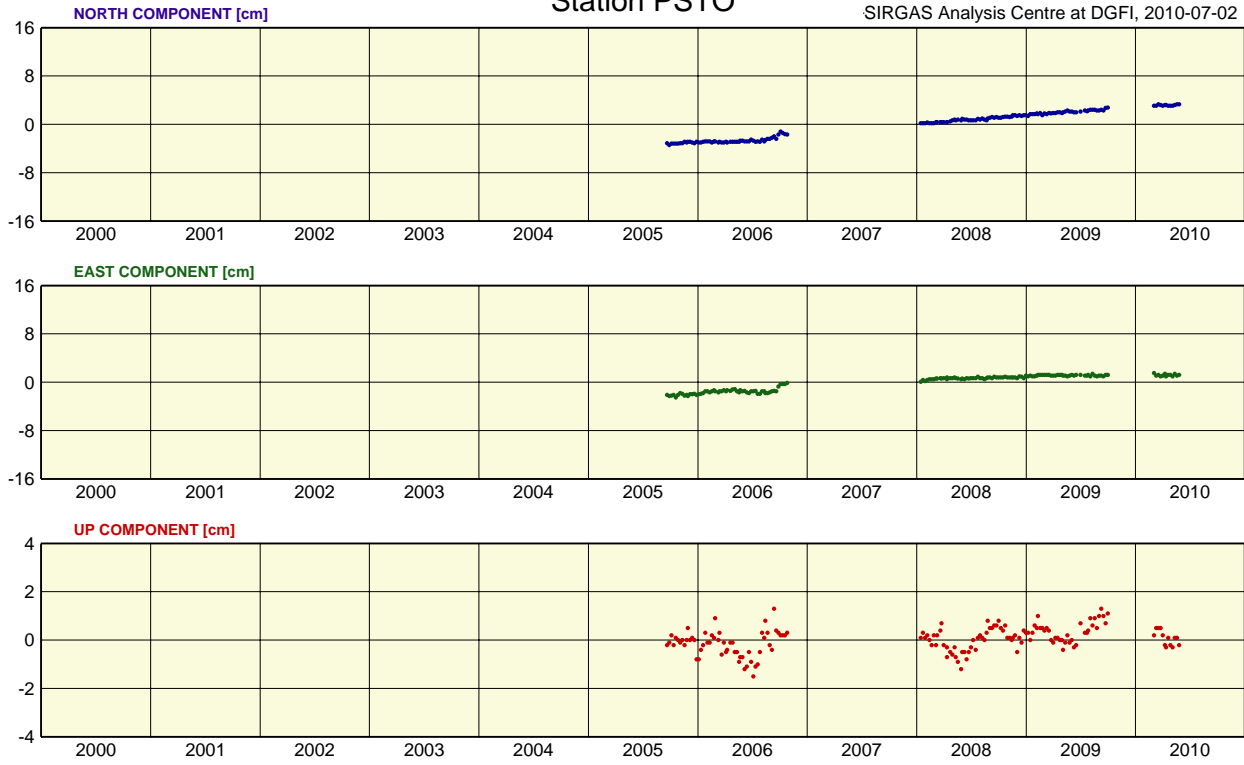
# Station POPA

SIRGAS Analysis Centre at DGFI, 2010-07-02



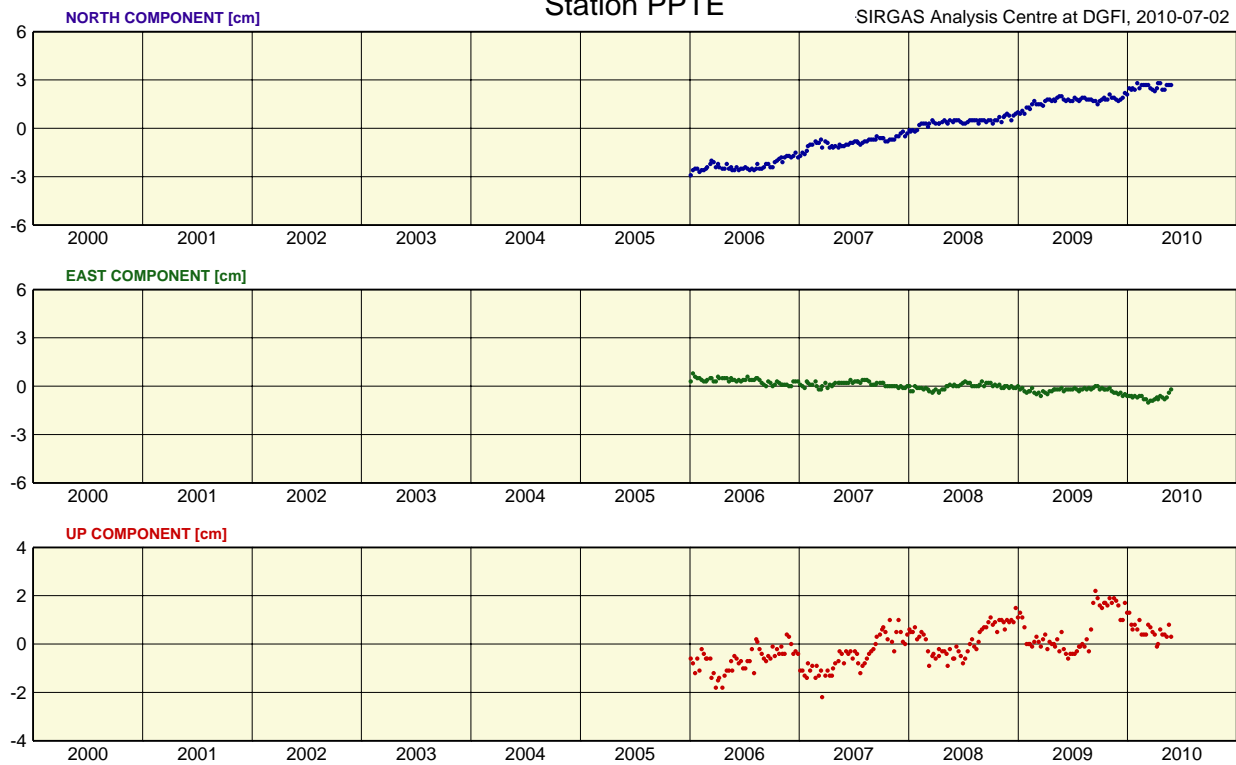
### Station PSTO

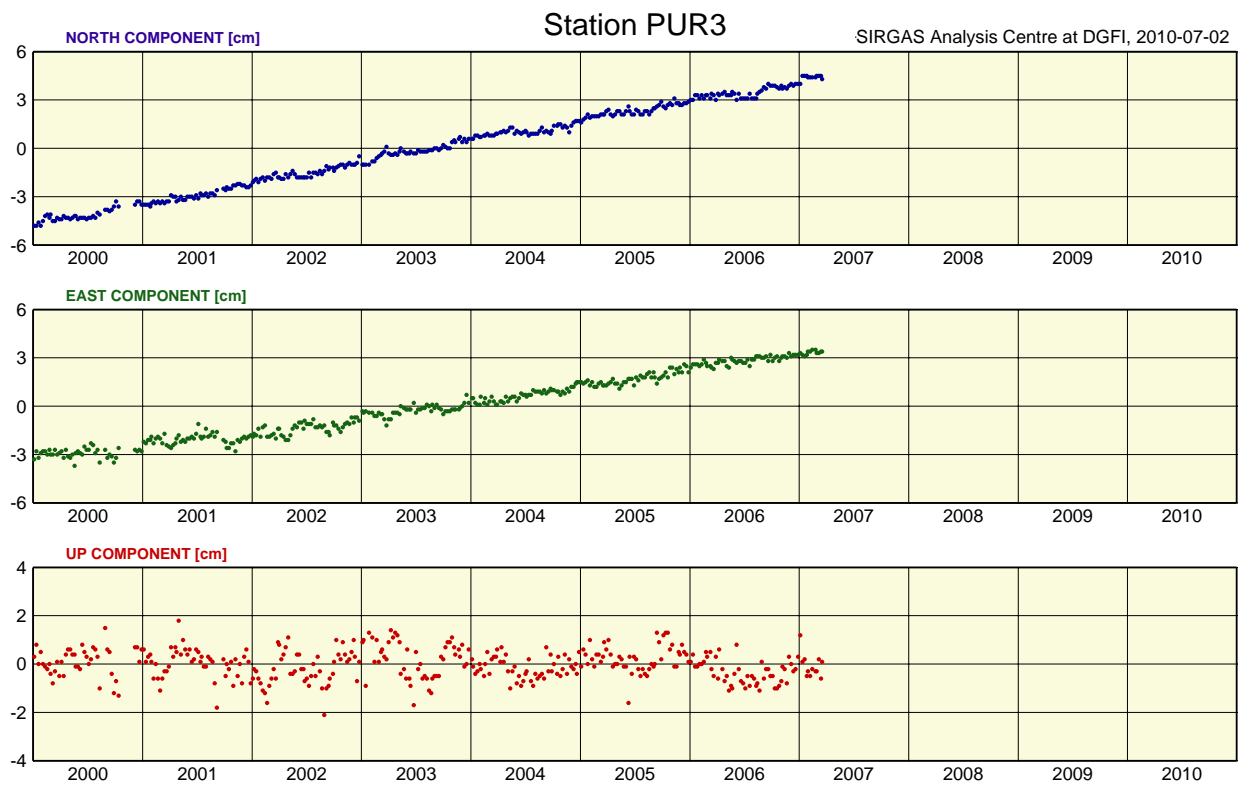
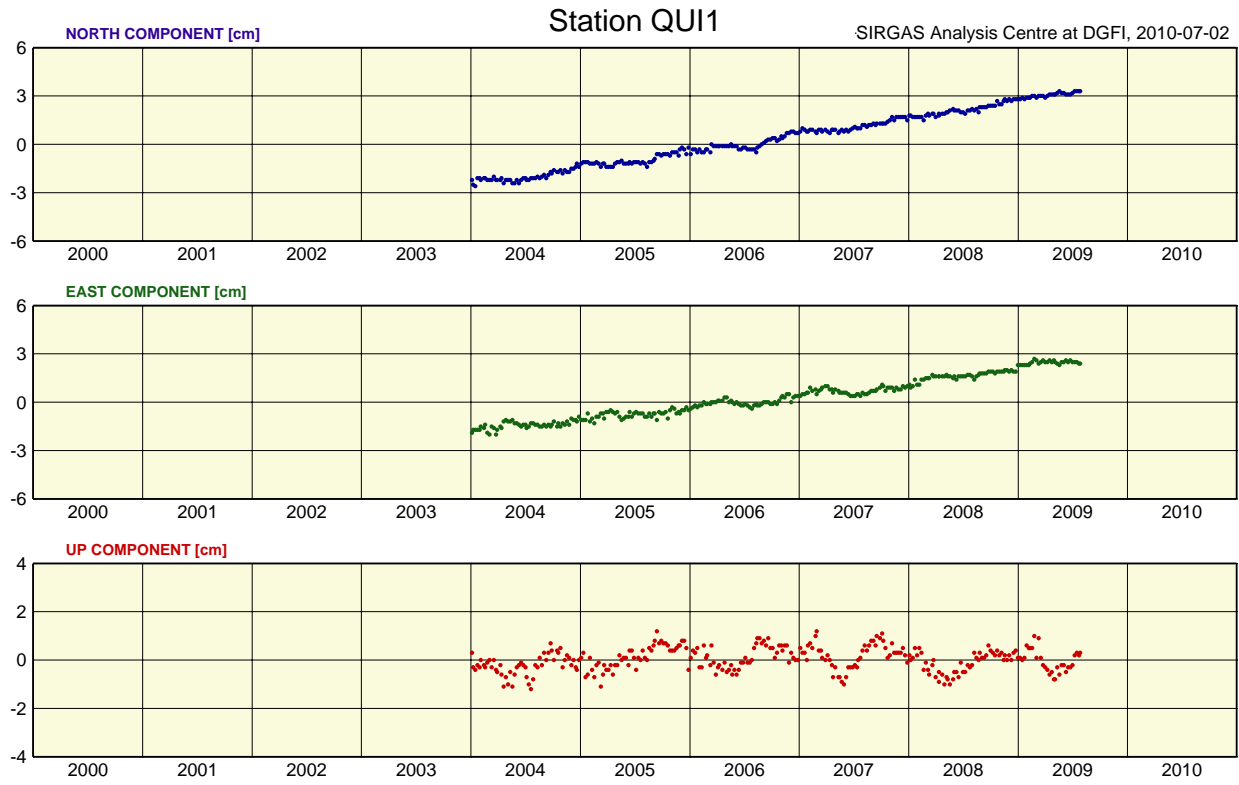
SIRGAS Analysis Centre at DGFI, 2010-07-02

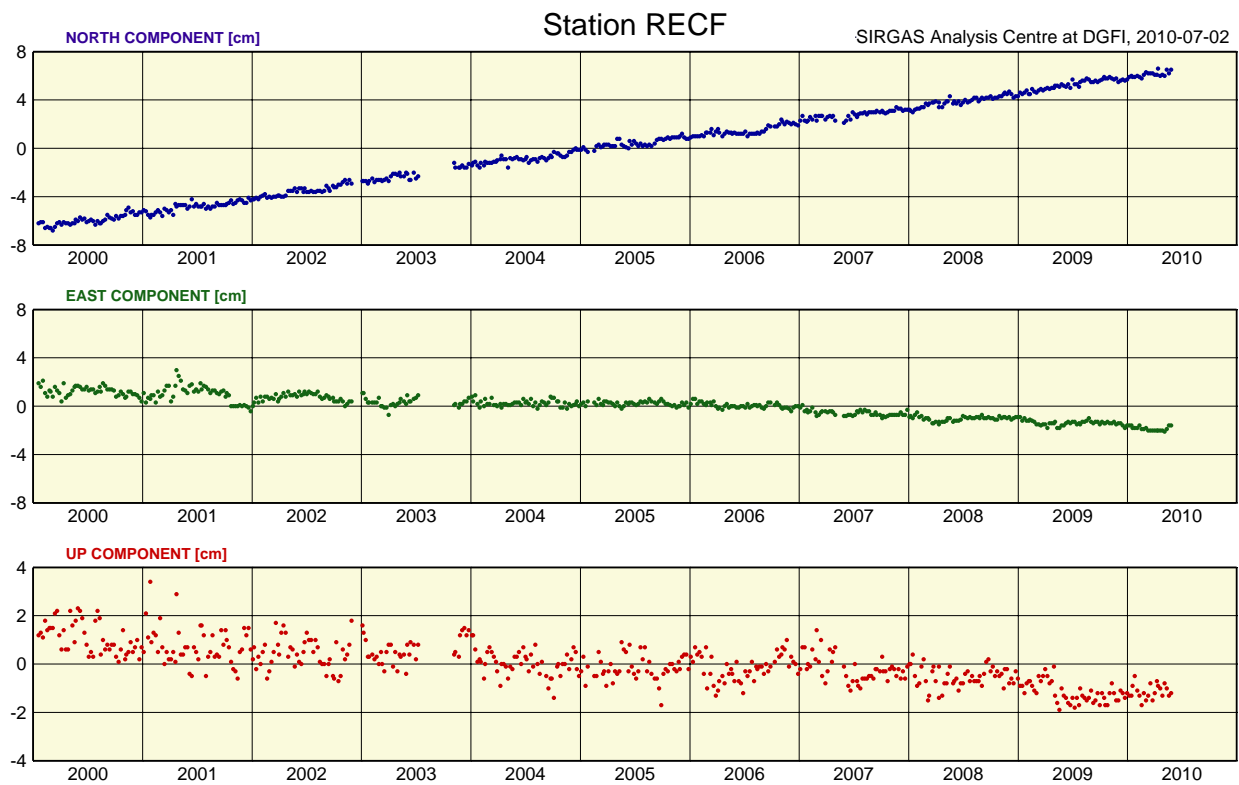
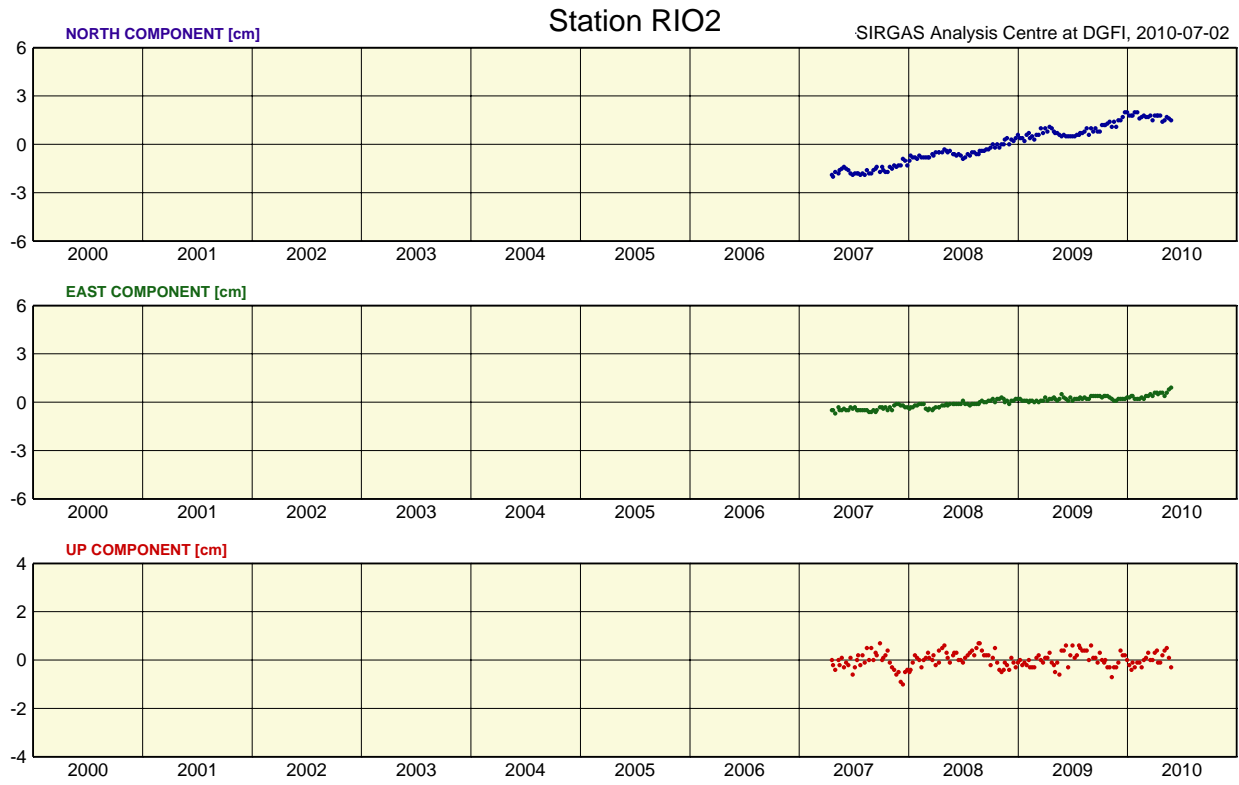


### Station PPTE

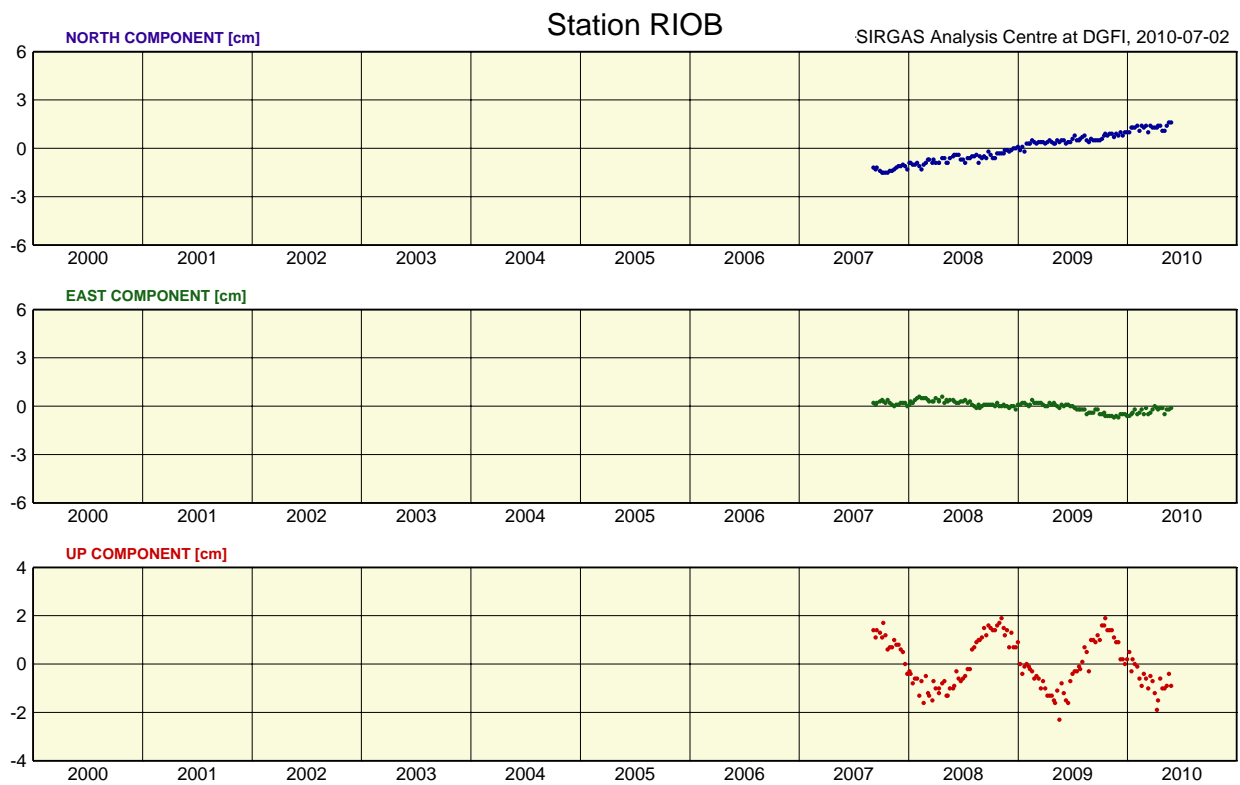
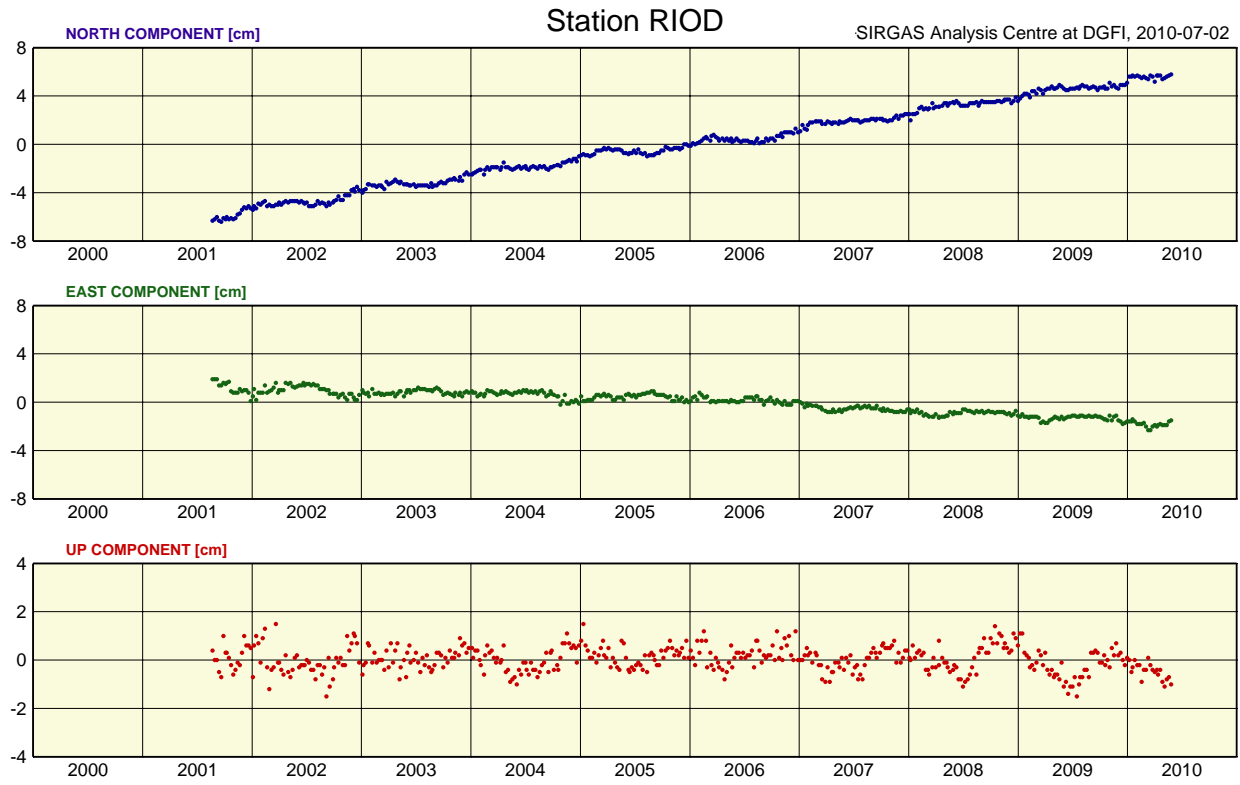
SIRGAS Analysis Centre at DGFI, 2010-07-02

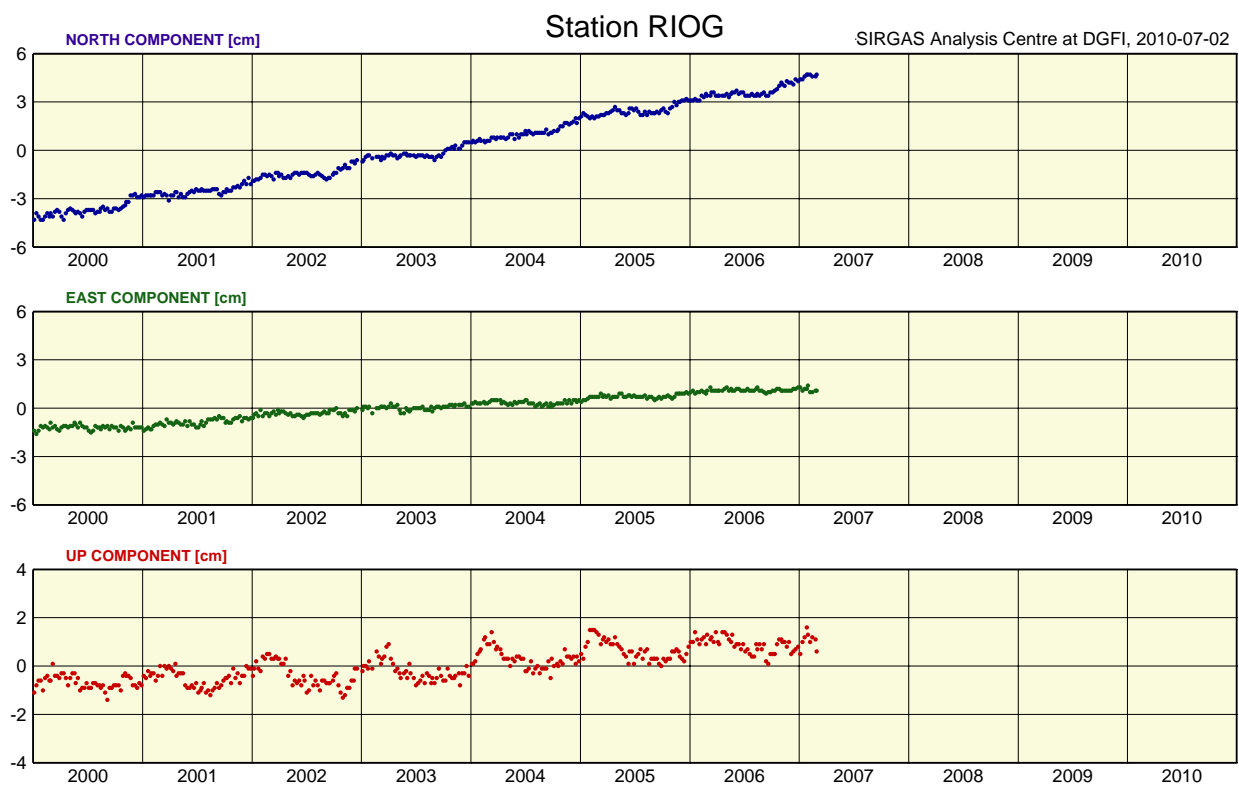
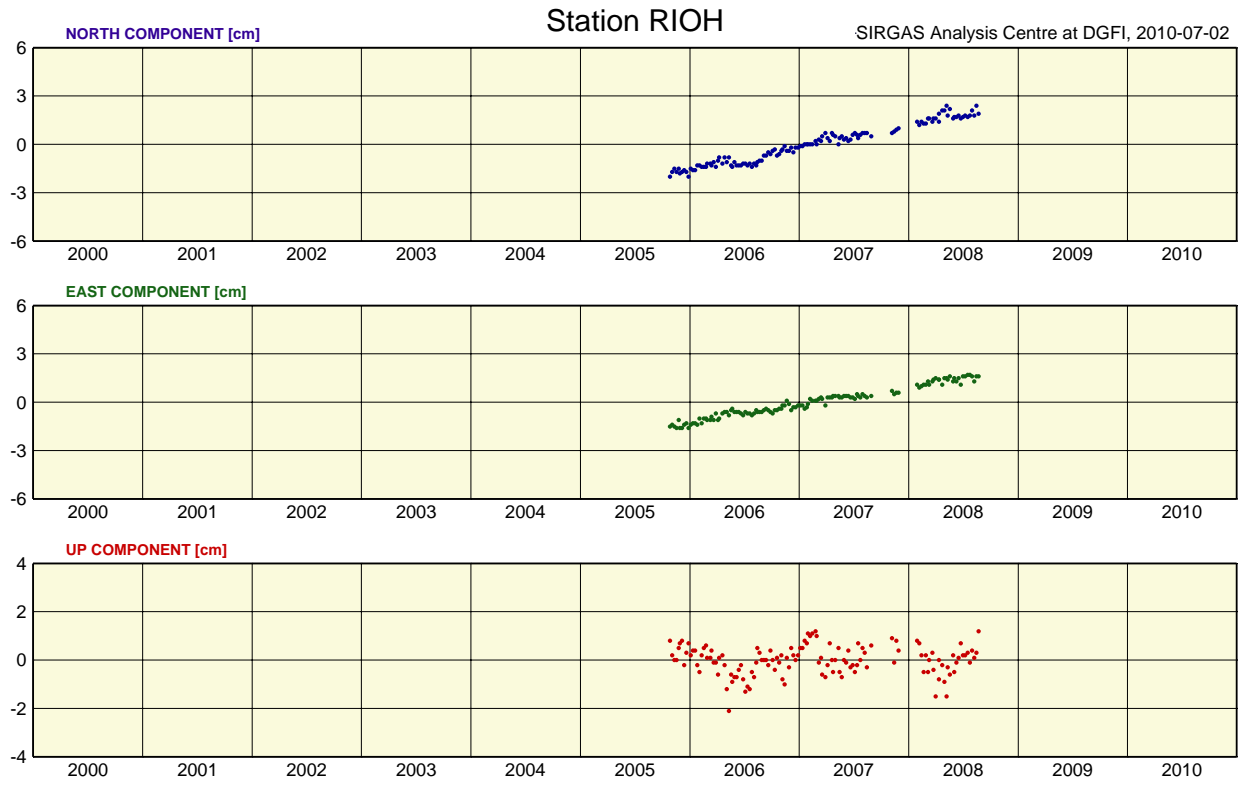






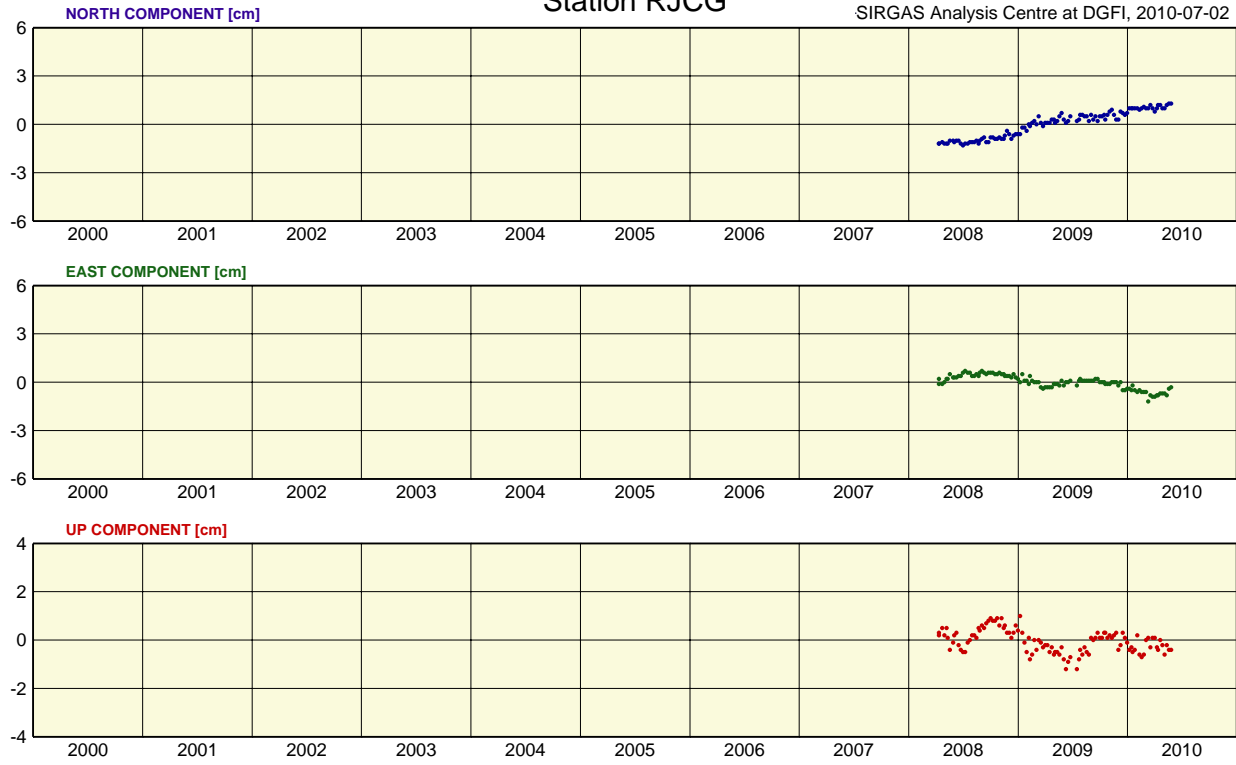






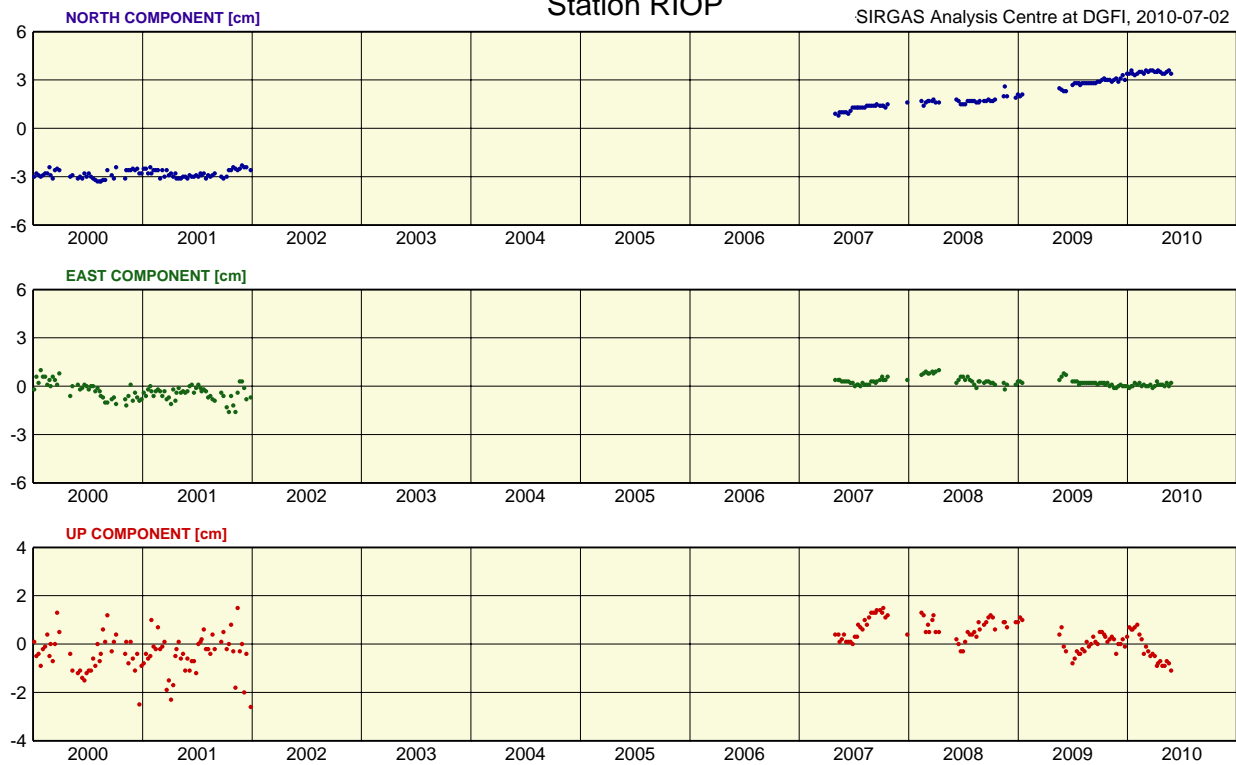
# Station RJCG

SIRGAS Analysis Centre at DGFI, 2010-07-02



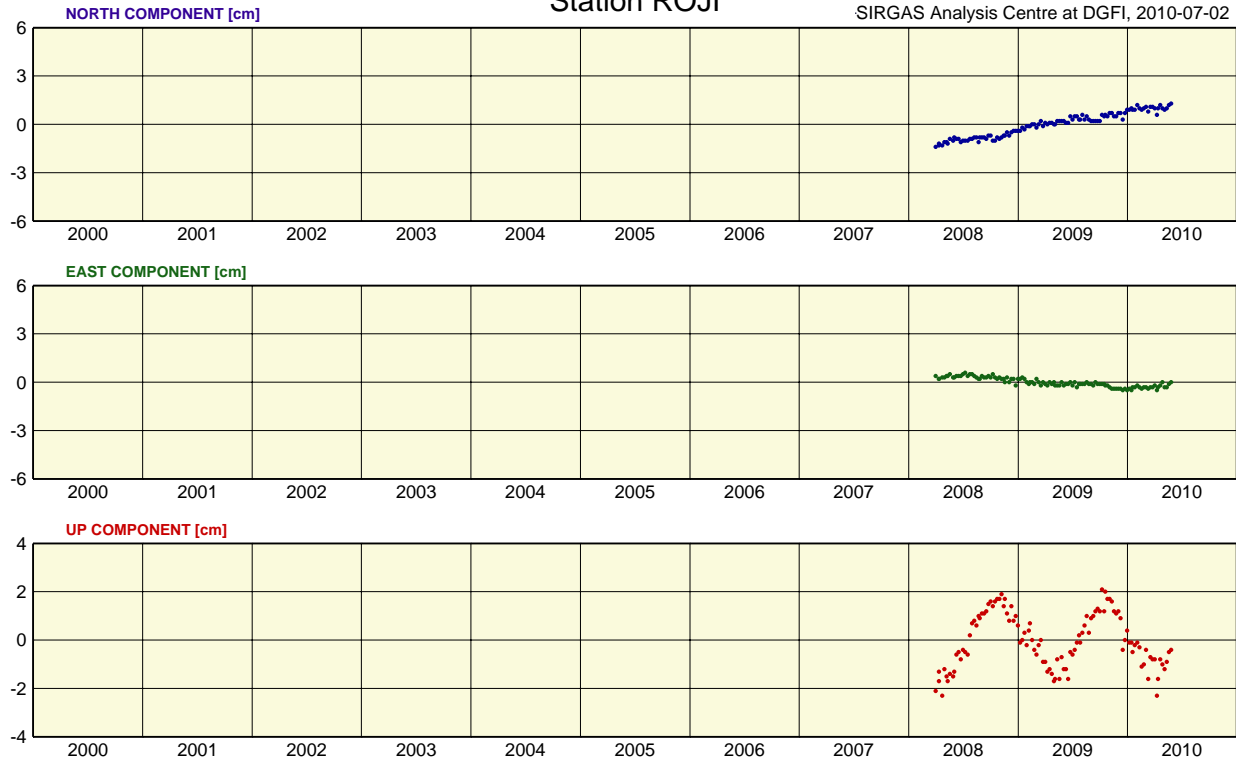
# Station RIOP

SIRGAS Analysis Centre at DGFI, 2010-07-02



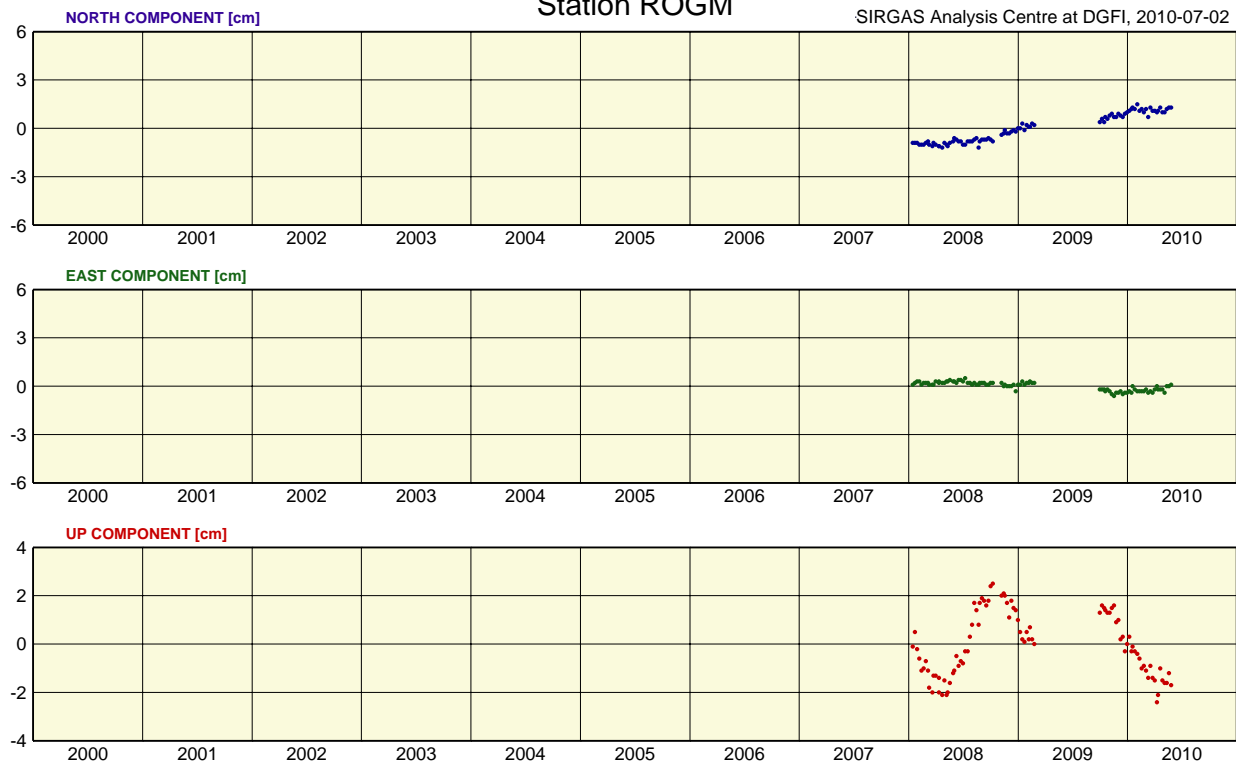
### Station ROJI

SIRGAS Analysis Centre at DGFI, 2010-07-02



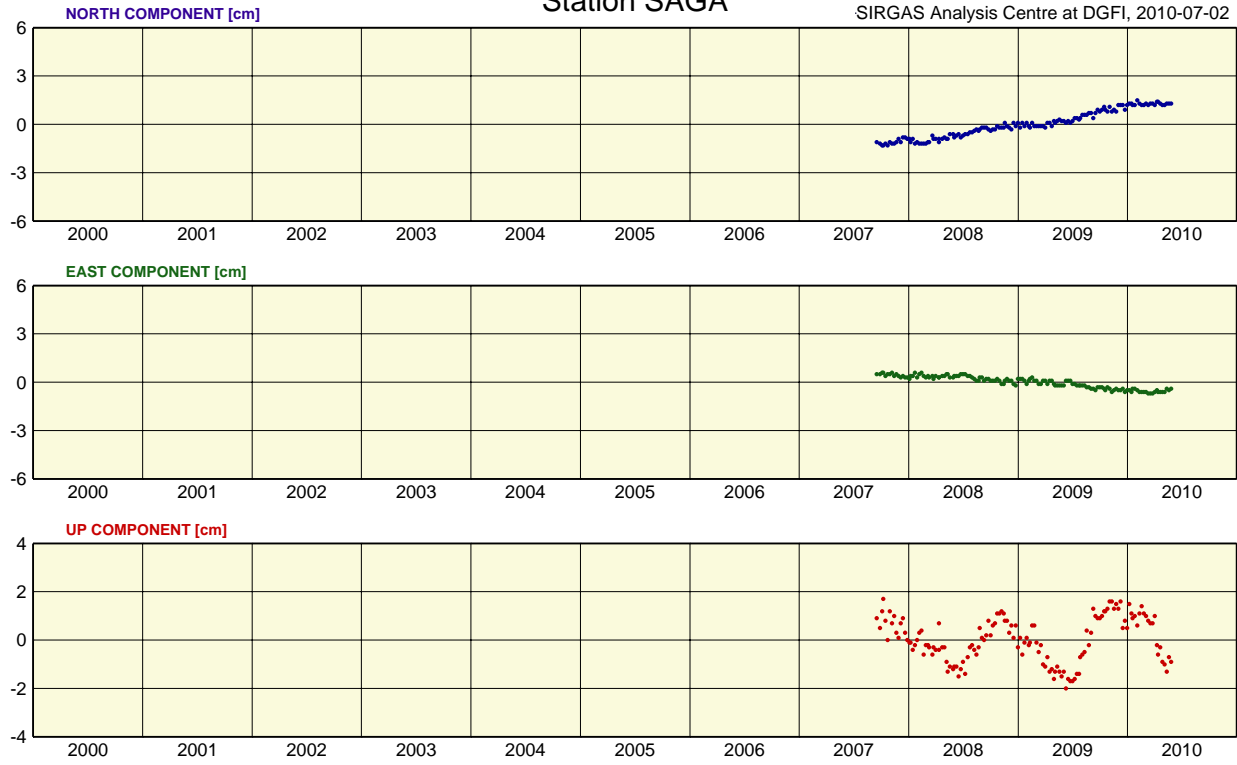
### Station ROGM

SIRGAS Analysis Centre at DGFI, 2010-07-02



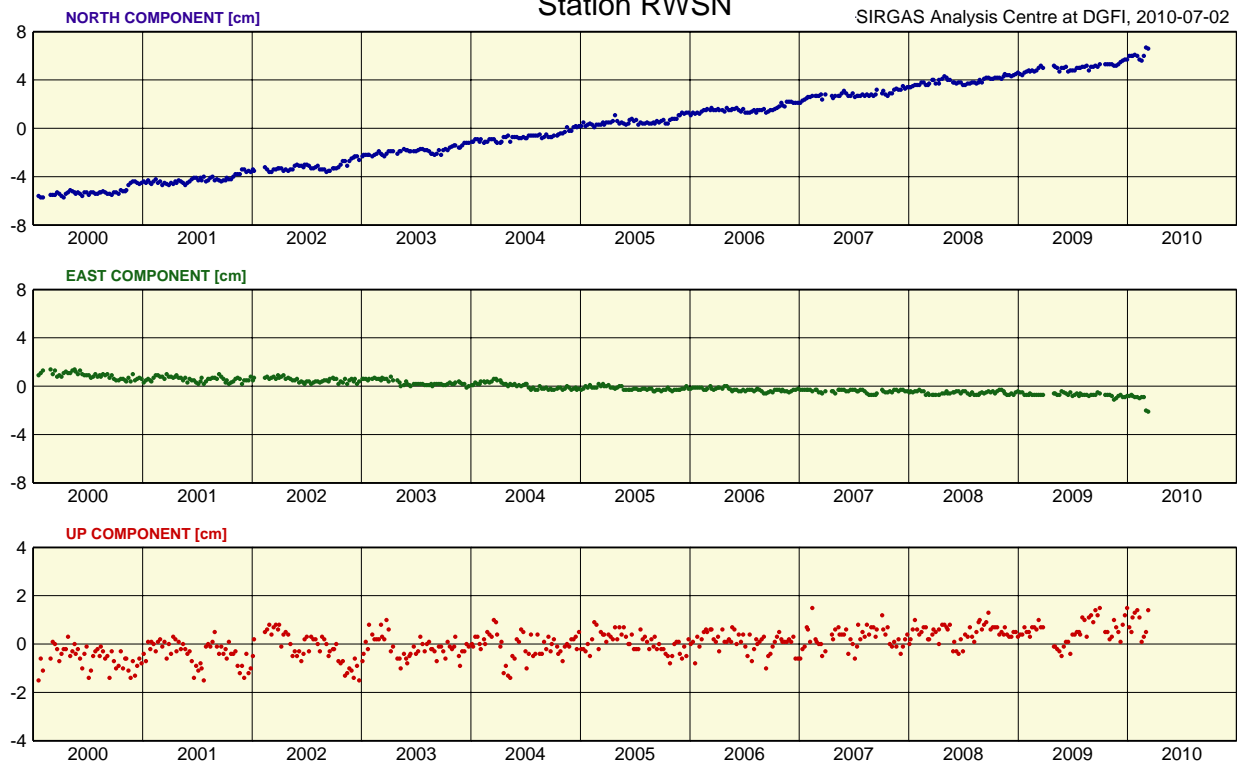
# Station SAGA

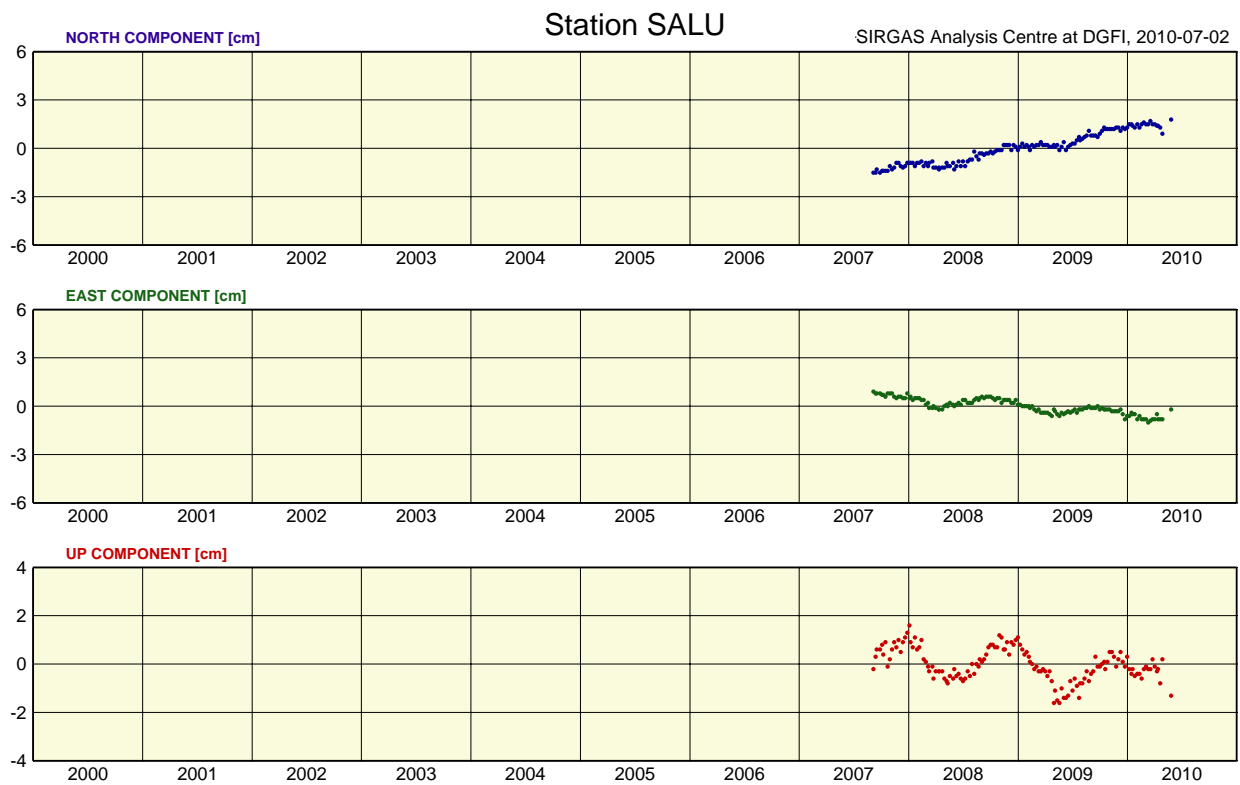
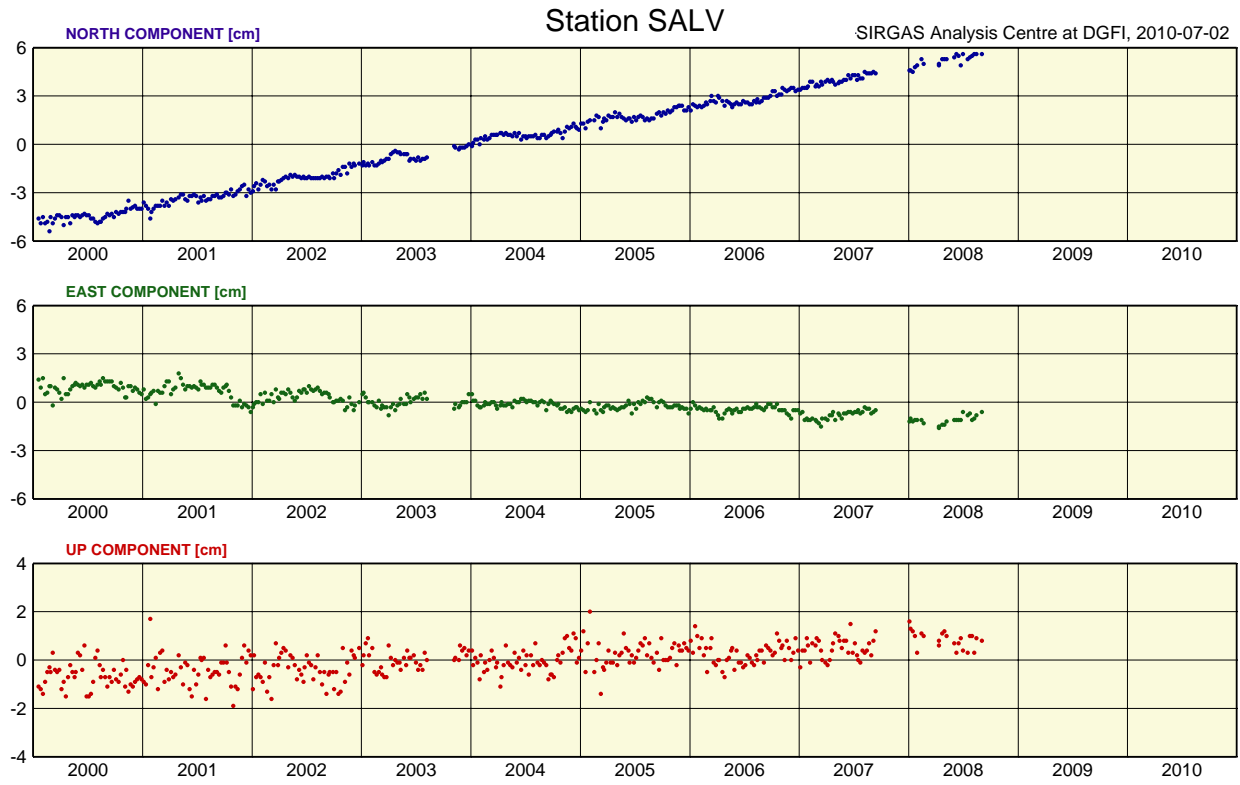
SIRGAS Analysis Centre at DGFI, 2010-07-02



# Station RWSN

SIRGAS Analysis Centre at DGFI, 2010-07-02

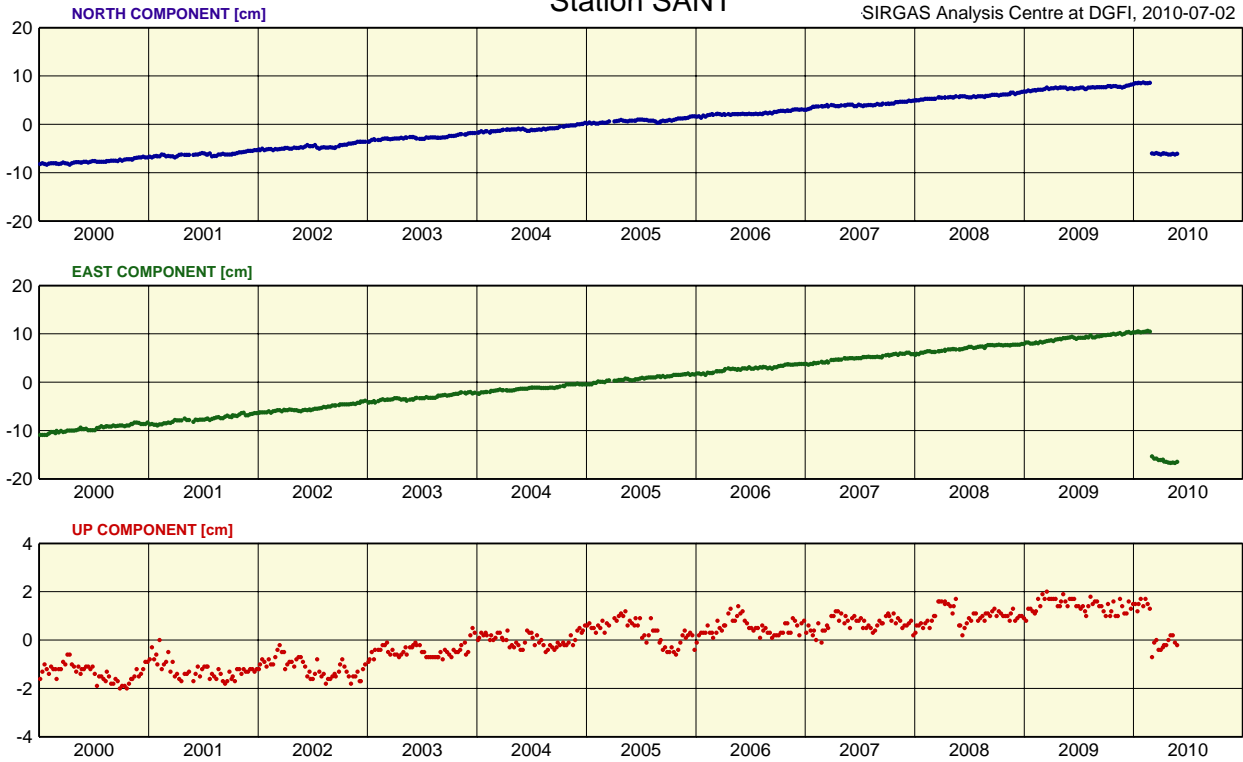






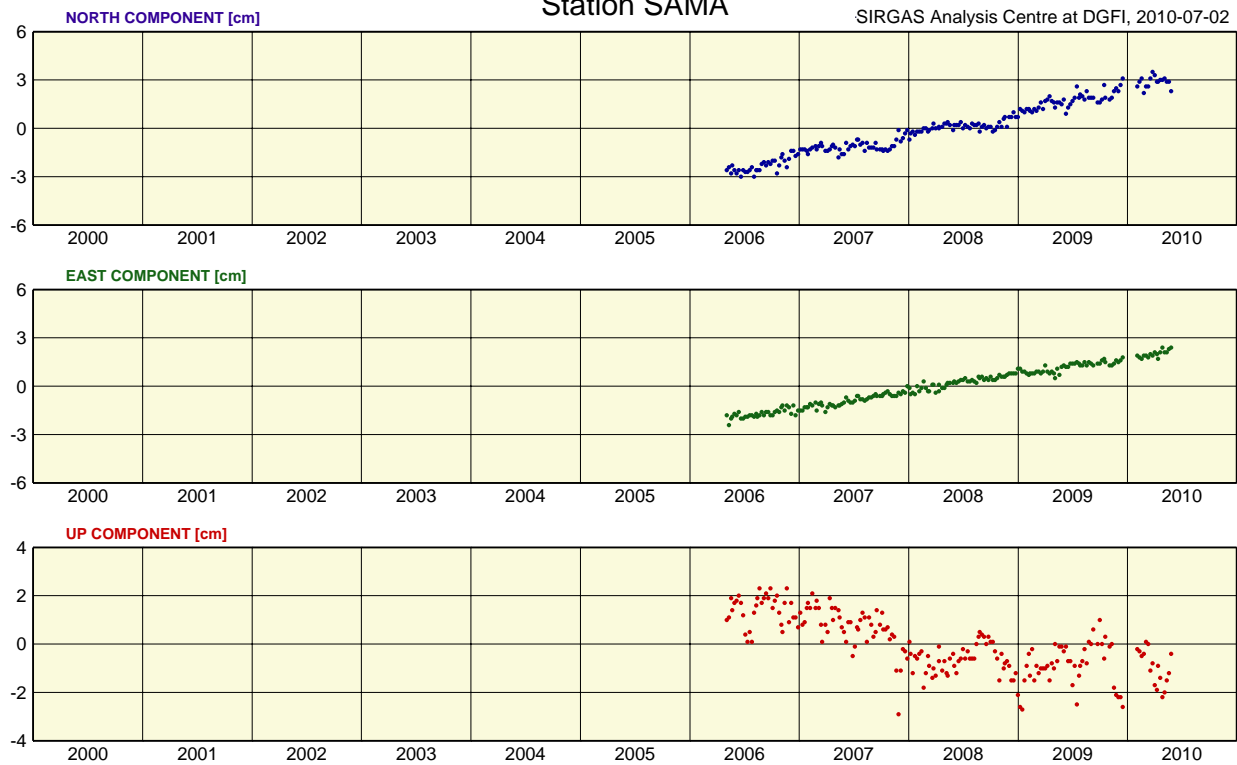
# Station SANT

SIRGAS Analysis Centre at DGFI, 2010-07-02



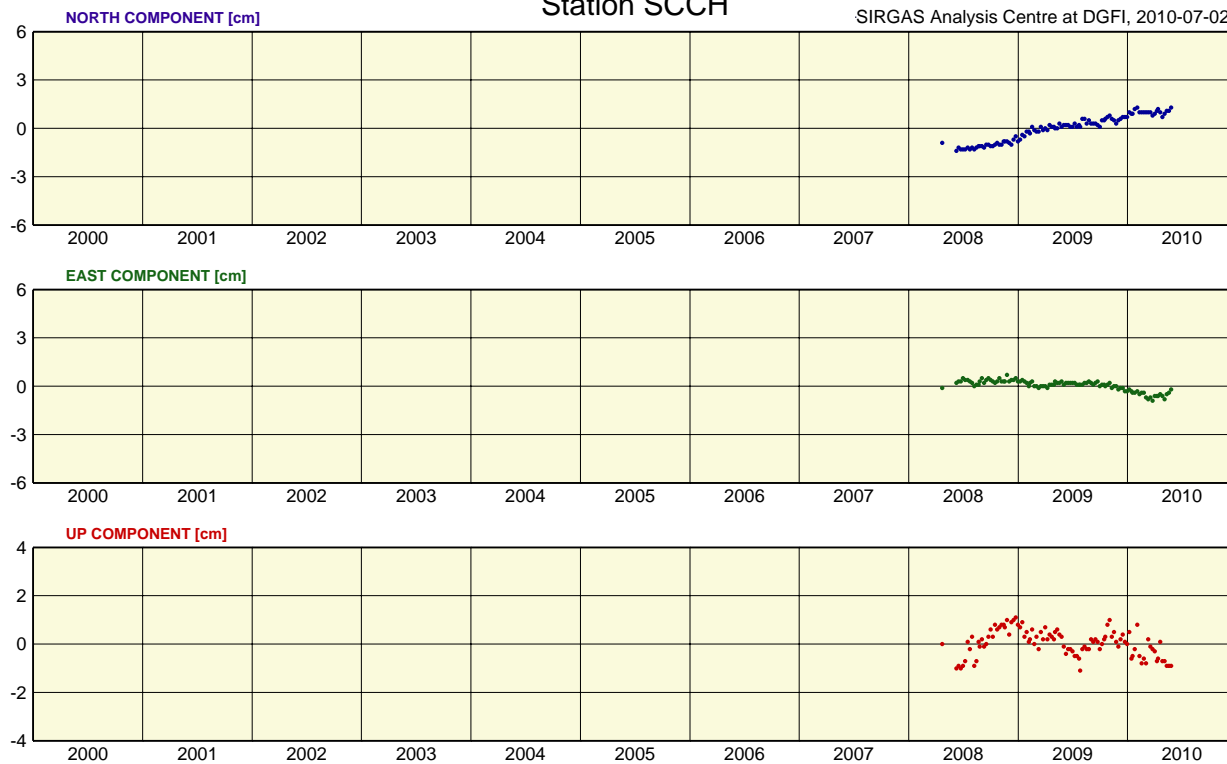
# Station SAMA

SIRGAS Analysis Centre at DGFI, 2010-07-02



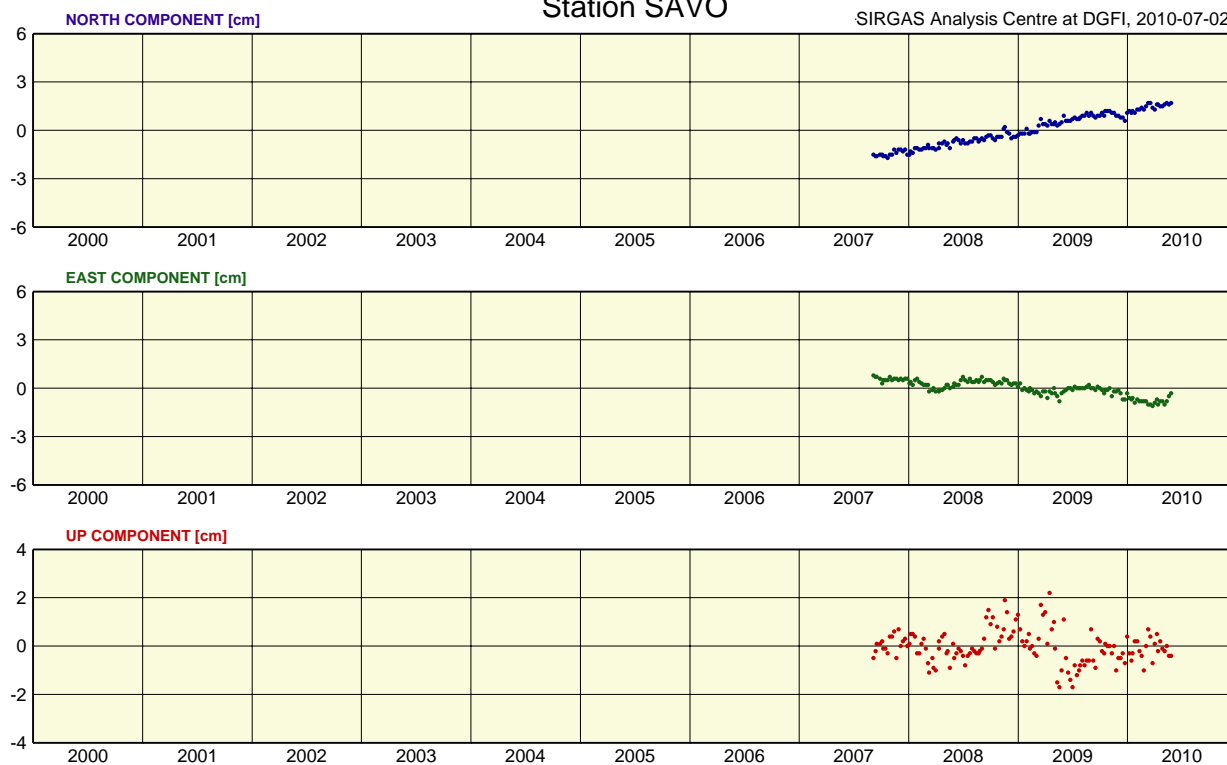
### Station SCCH

SIRGAS Analysis Centre at DGFI, 2010-07-02



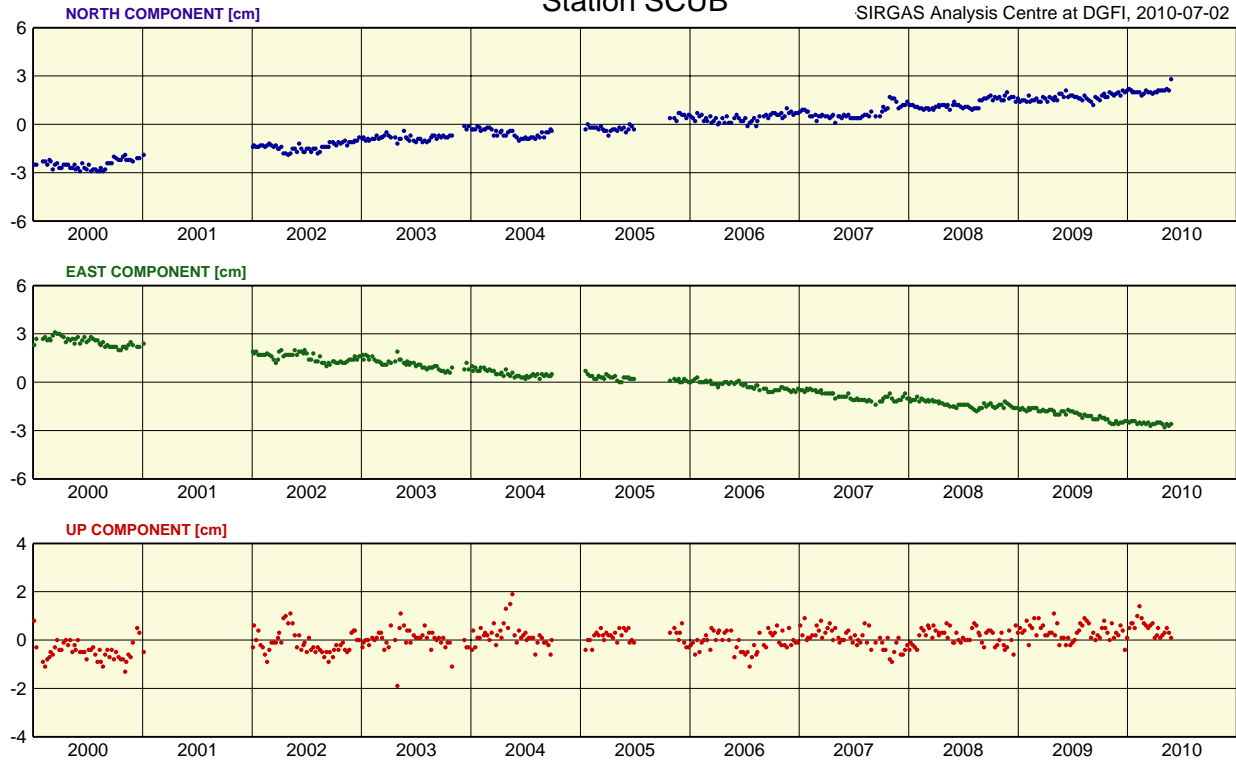
### Station SAVO

SIRGAS Analysis Centre at DGFI, 2010-07-02



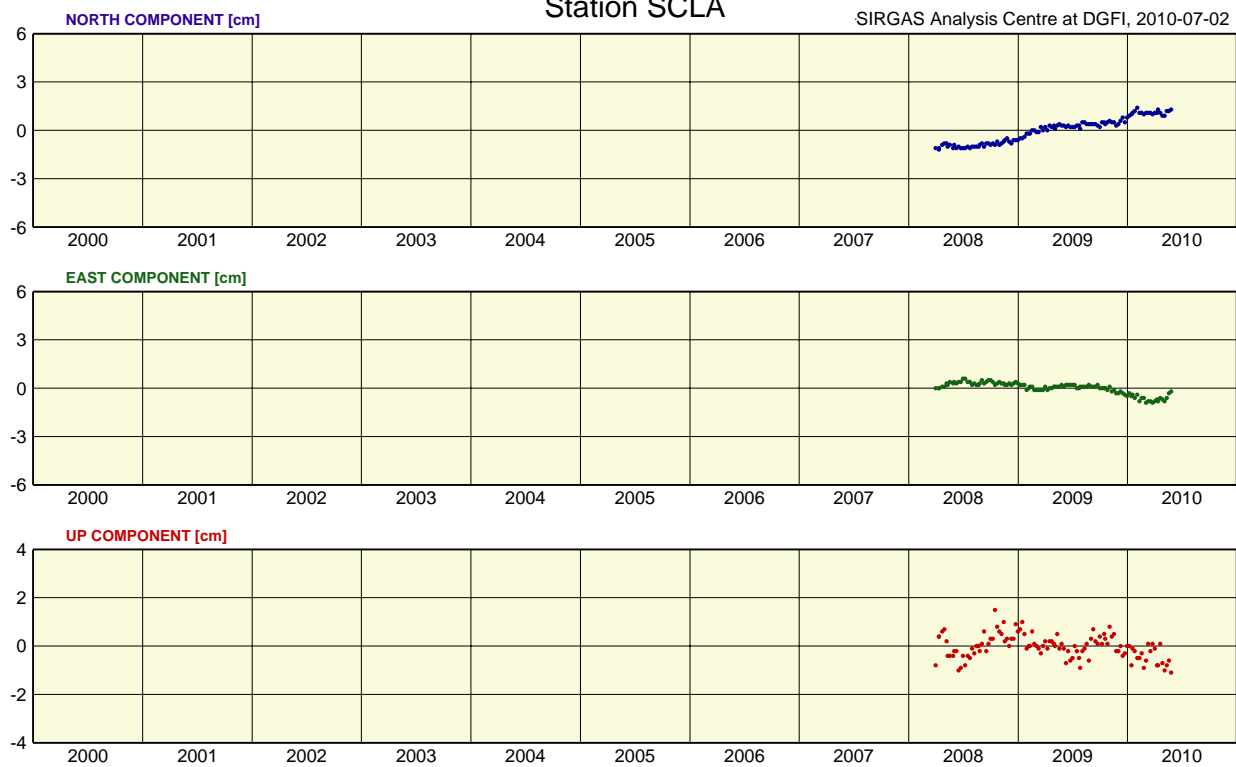
### Station SCUB

SIRGAS Analysis Centre at DGFI, 2010-07-02



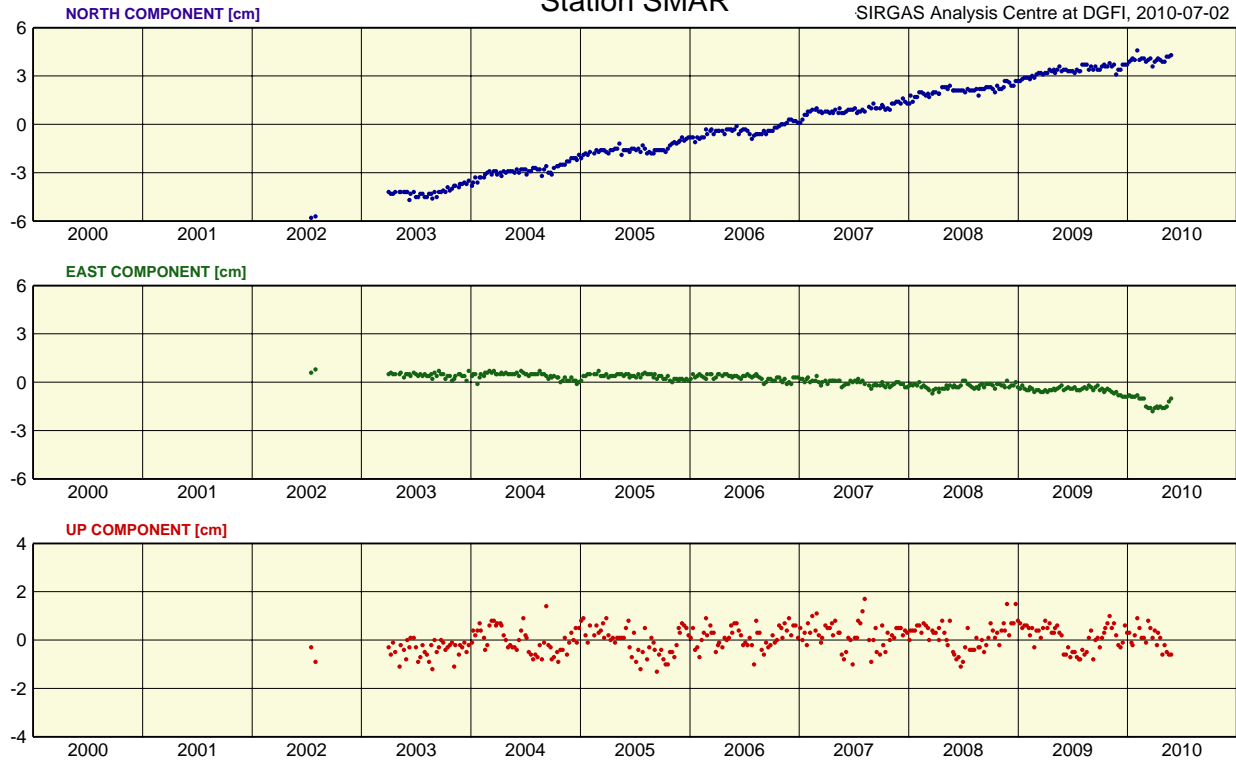
### Station SCLA

SIRGAS Analysis Centre at DGFI, 2010-07-02



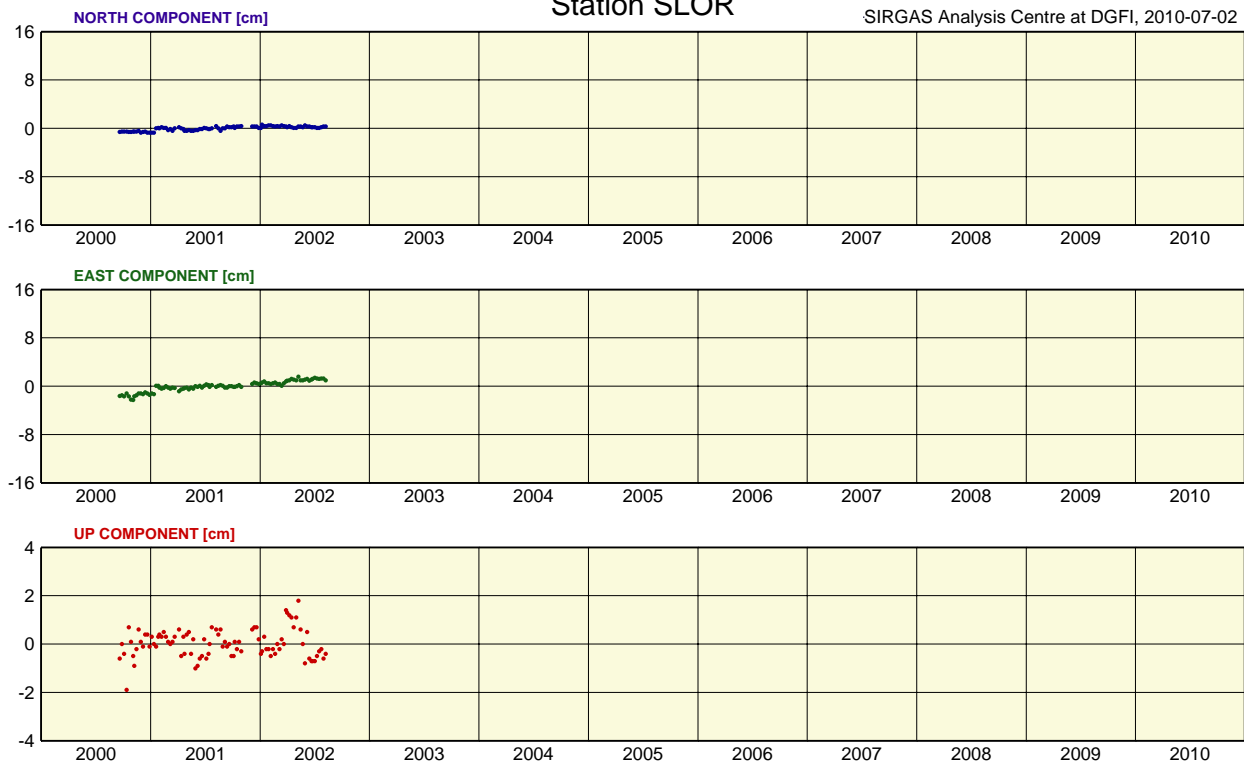
## Station SMAR

SIRGAS Analysis Centre at DGFI, 2010-07-02



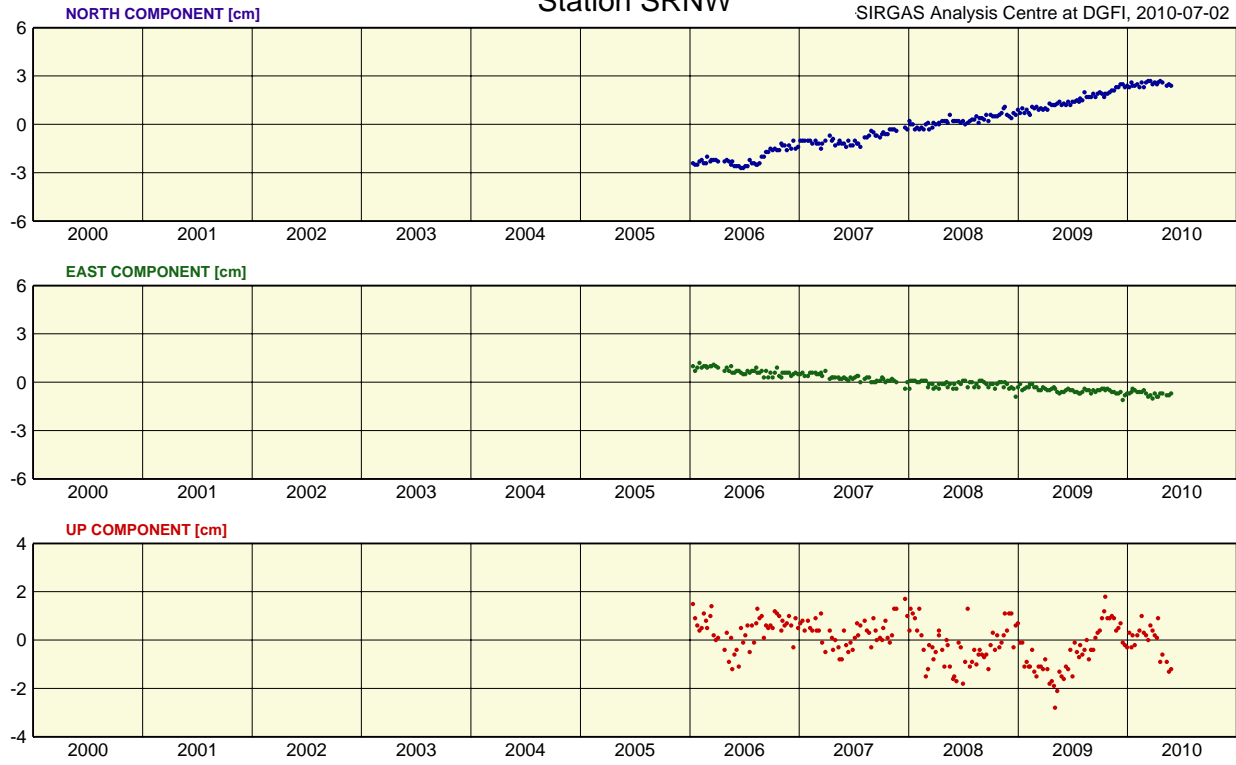
## Station SLOR

SIRGAS Analysis Centre at DGFI, 2010-07-02



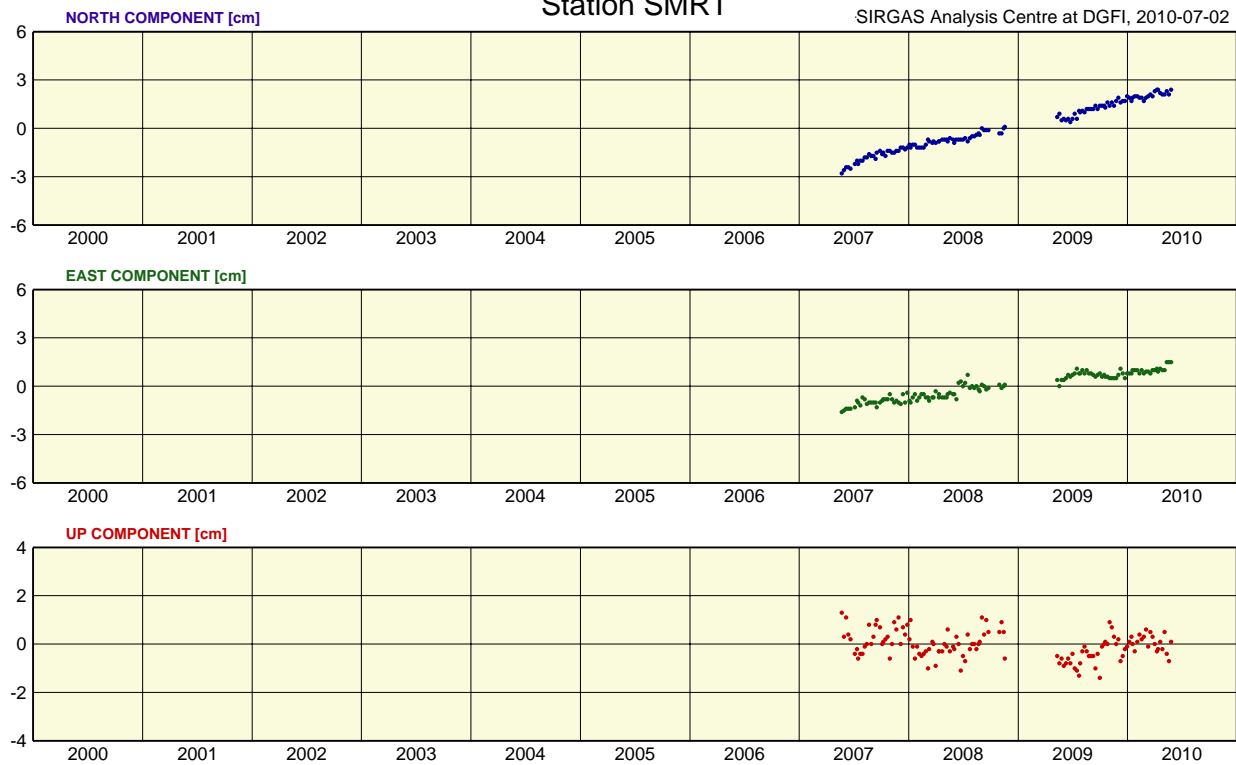
### Station SRNW

SIRGAS Analysis Centre at DGFI, 2010-07-02



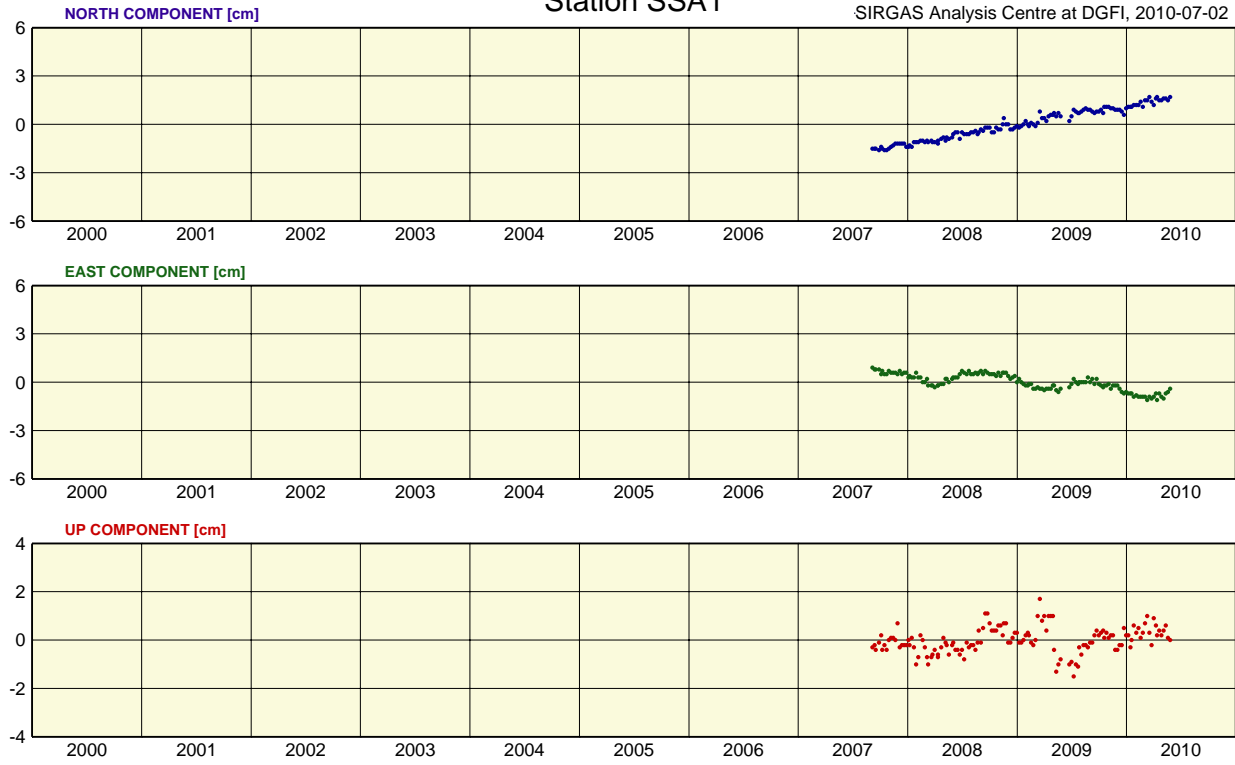
### Station SMRT

SIRGAS Analysis Centre at DGFI, 2010-07-02



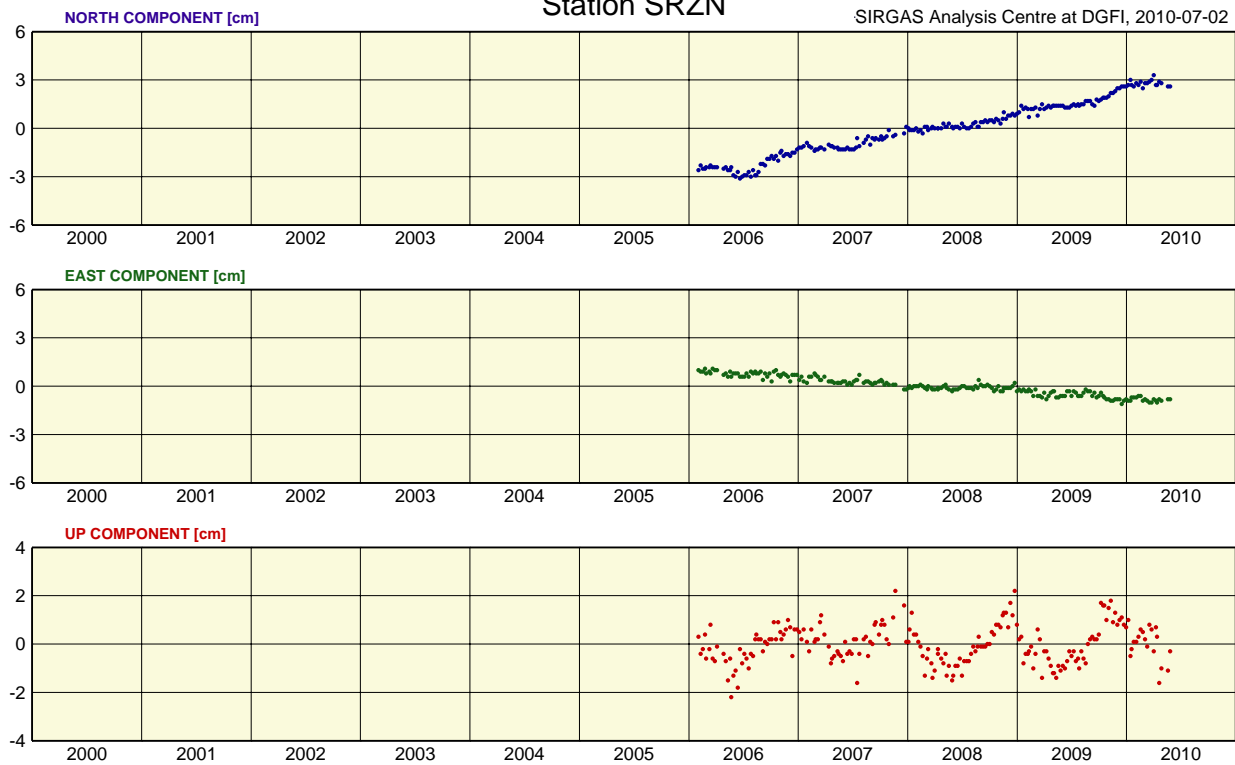
### Station SSA1

SIRGAS Analysis Centre at DGFI, 2010-07-02



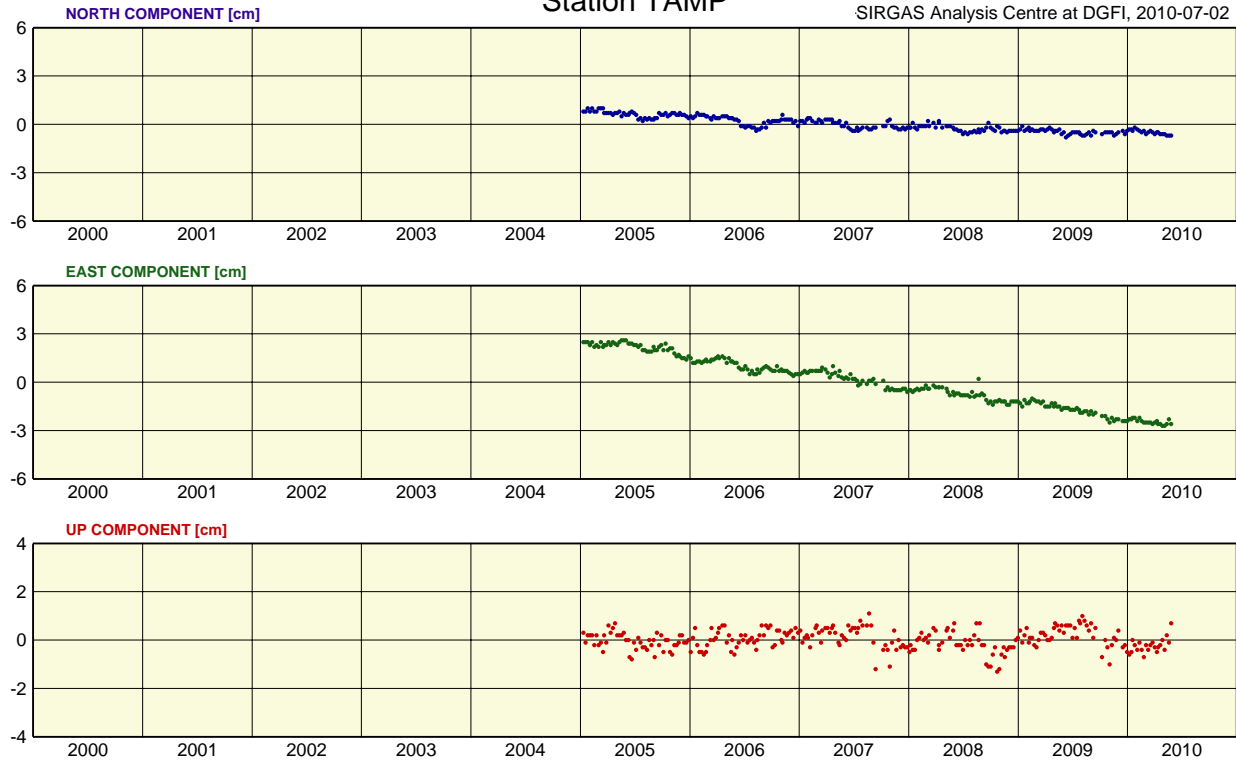
### Station SRZN

SIRGAS Analysis Centre at DGFI, 2010-07-02



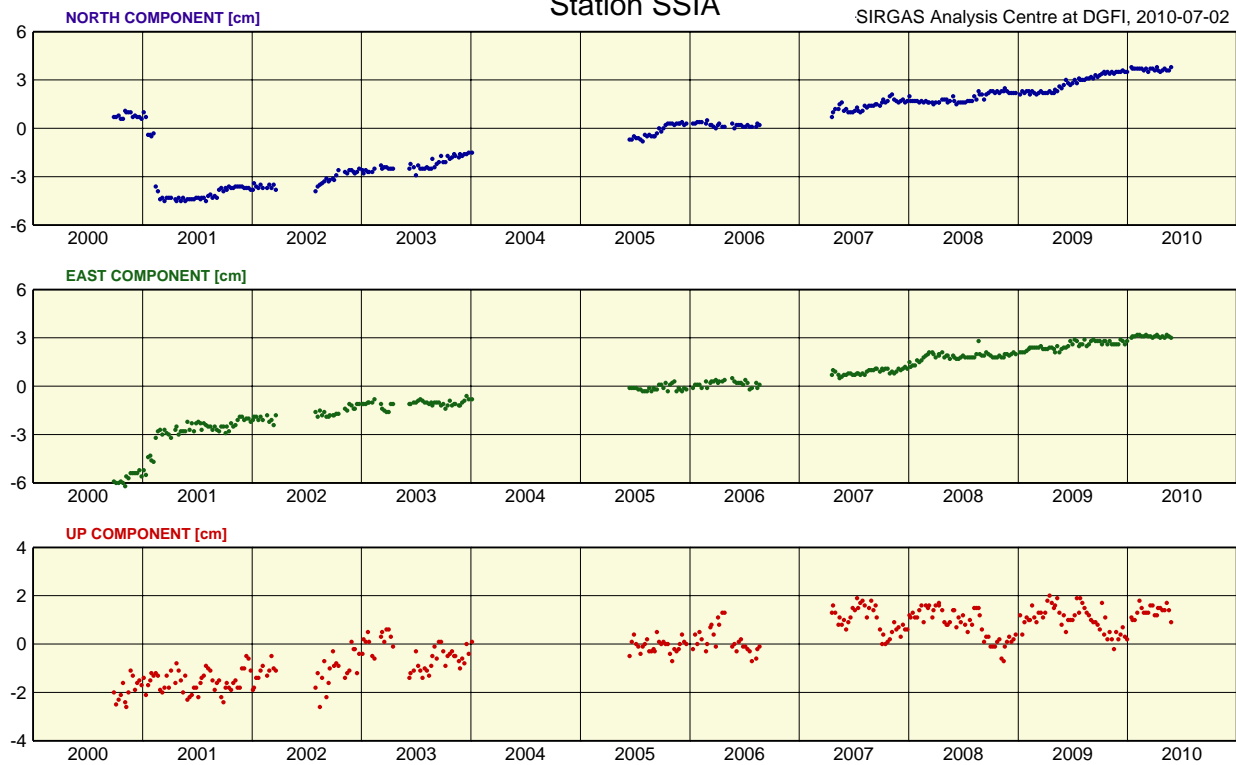
# Station TAMP

SIRGAS Analysis Centre at DGFI, 2010-07-02



# Station SSIA

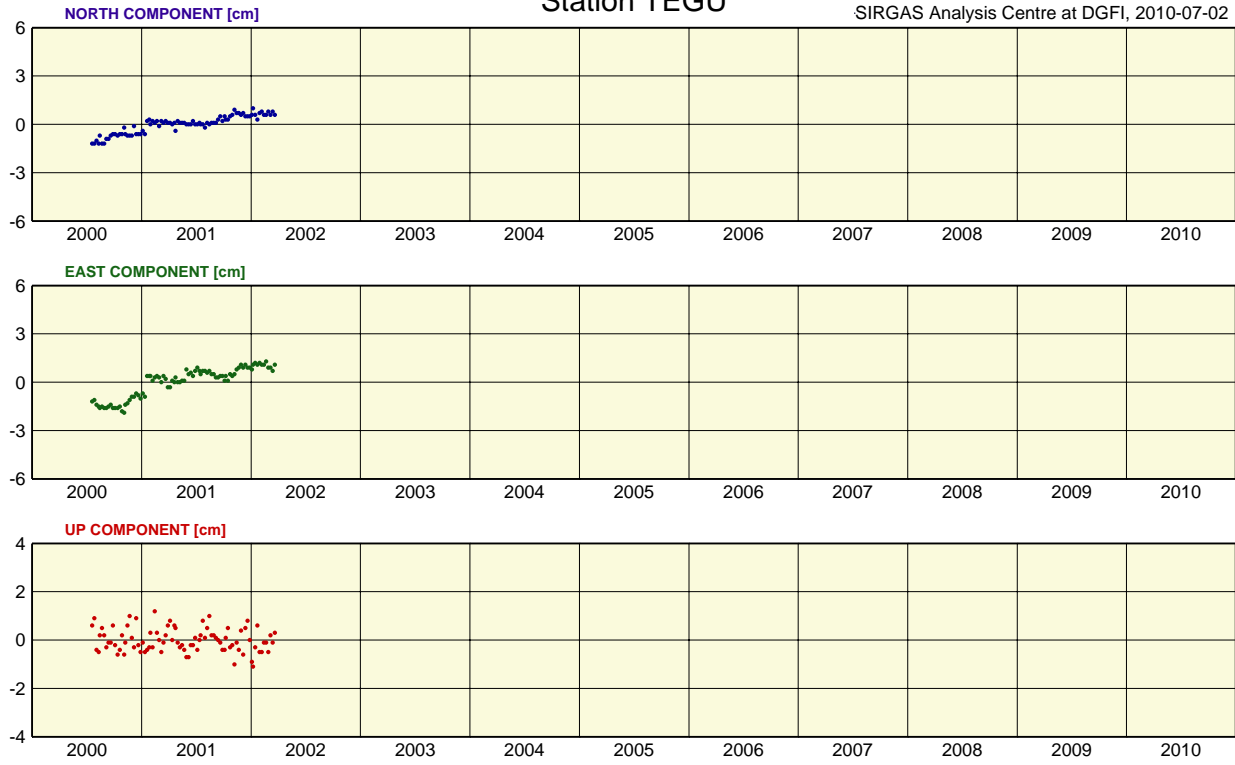
SIRGAS Analysis Centre at DGFI, 2010-07-02





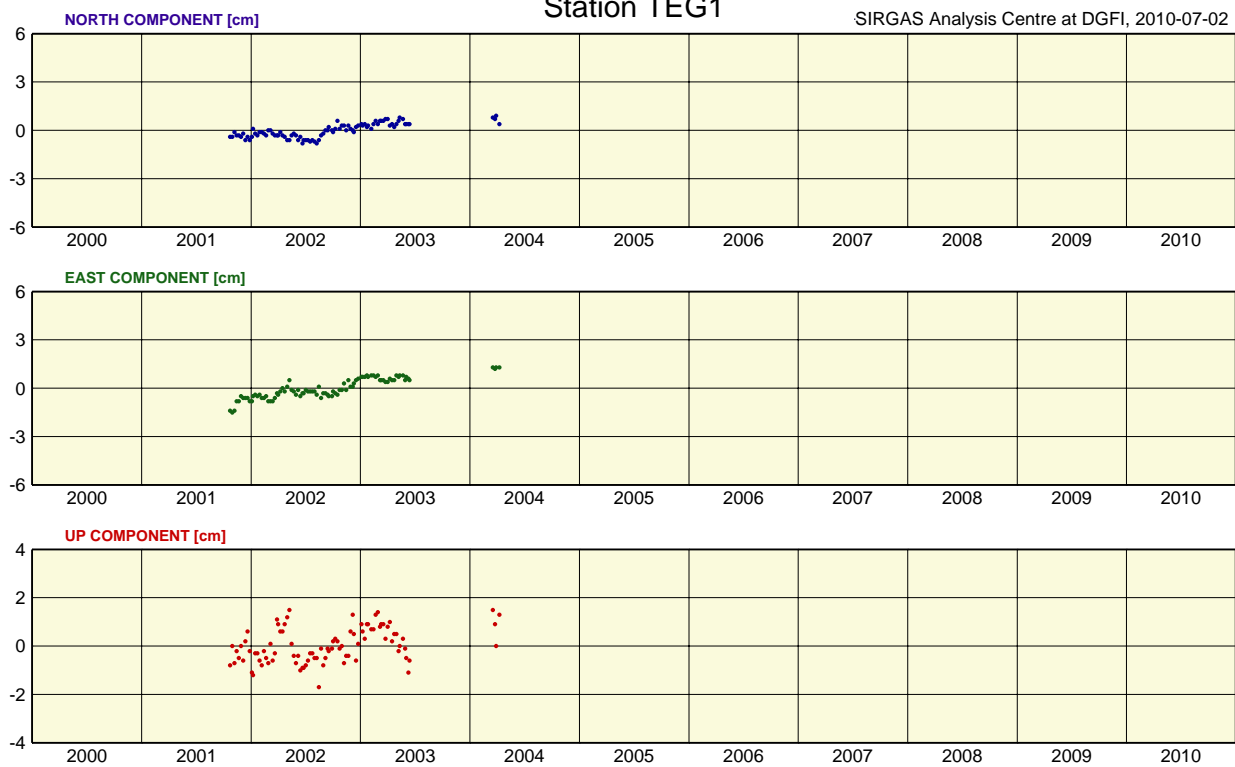
# Station TEGU

SIRGAS Analysis Centre at DGFI, 2010-07-02



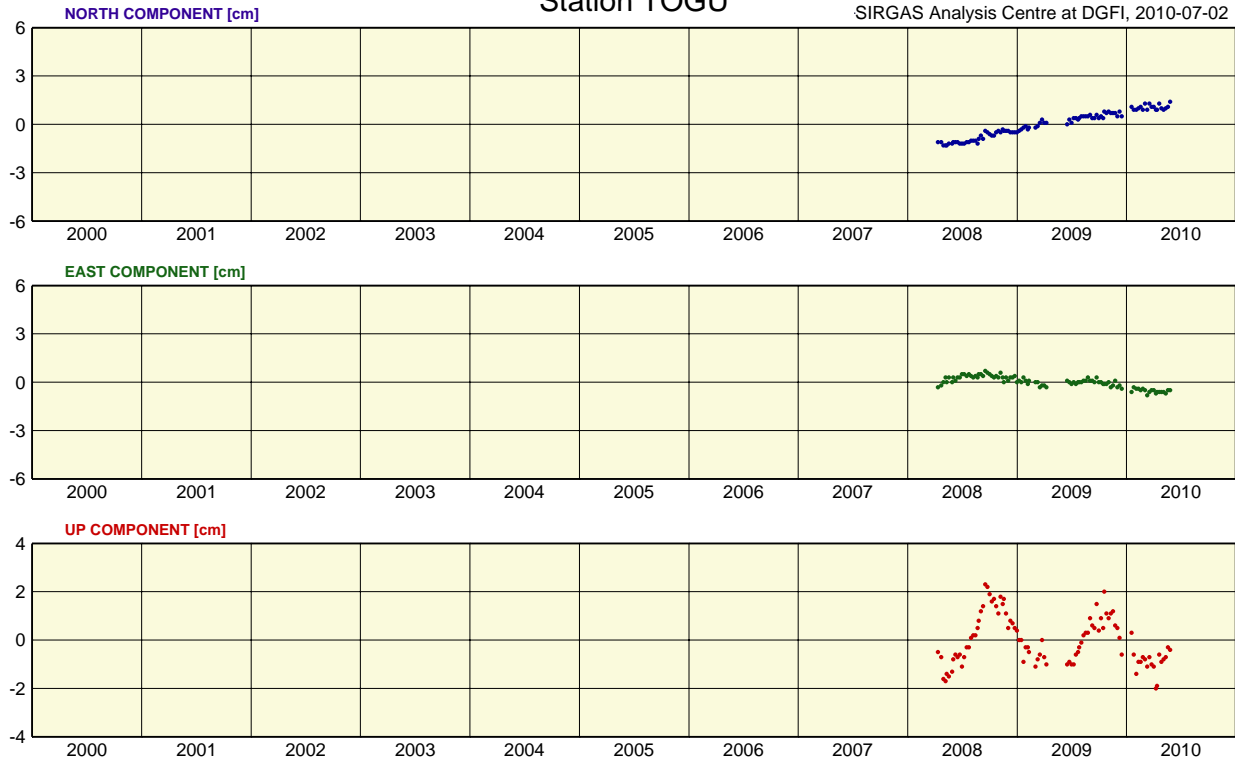
# Station TEG1

SIRGAS Analysis Centre at DGFI, 2010-07-02



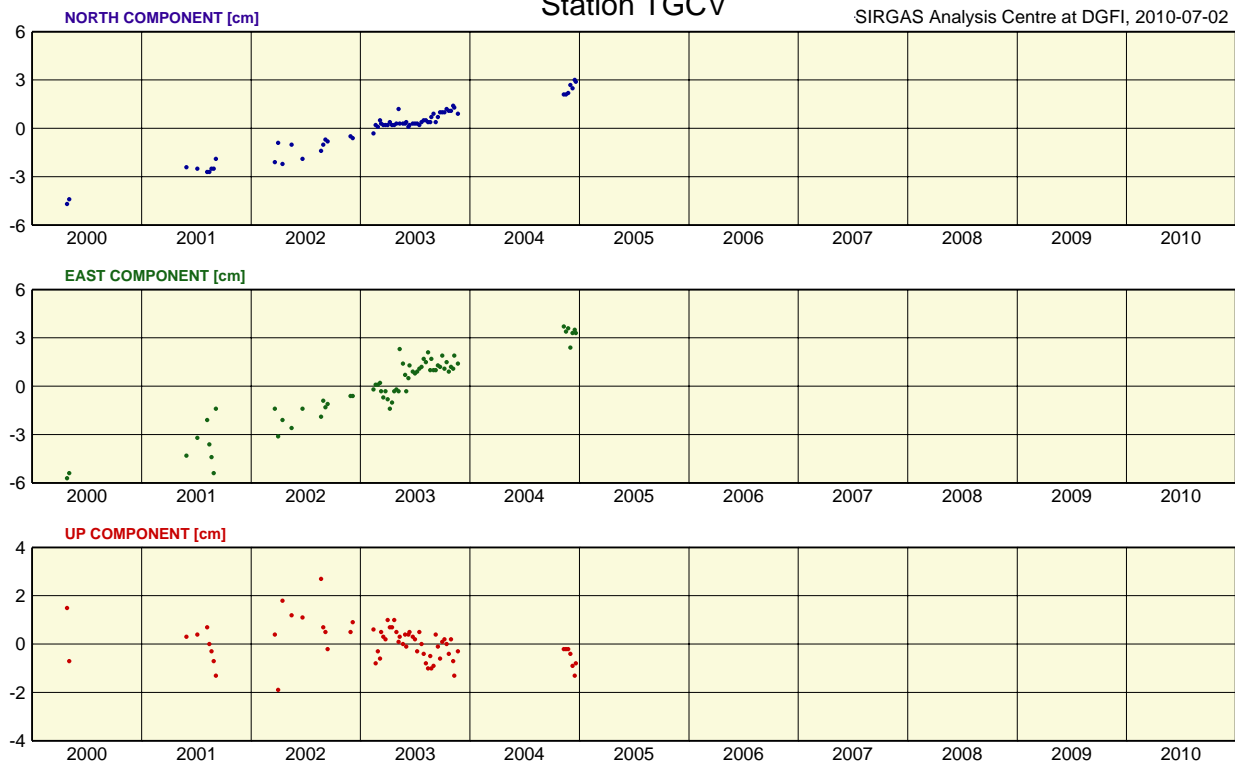
### Station TOGU

SIRGAS Analysis Centre at DGFI, 2010-07-02



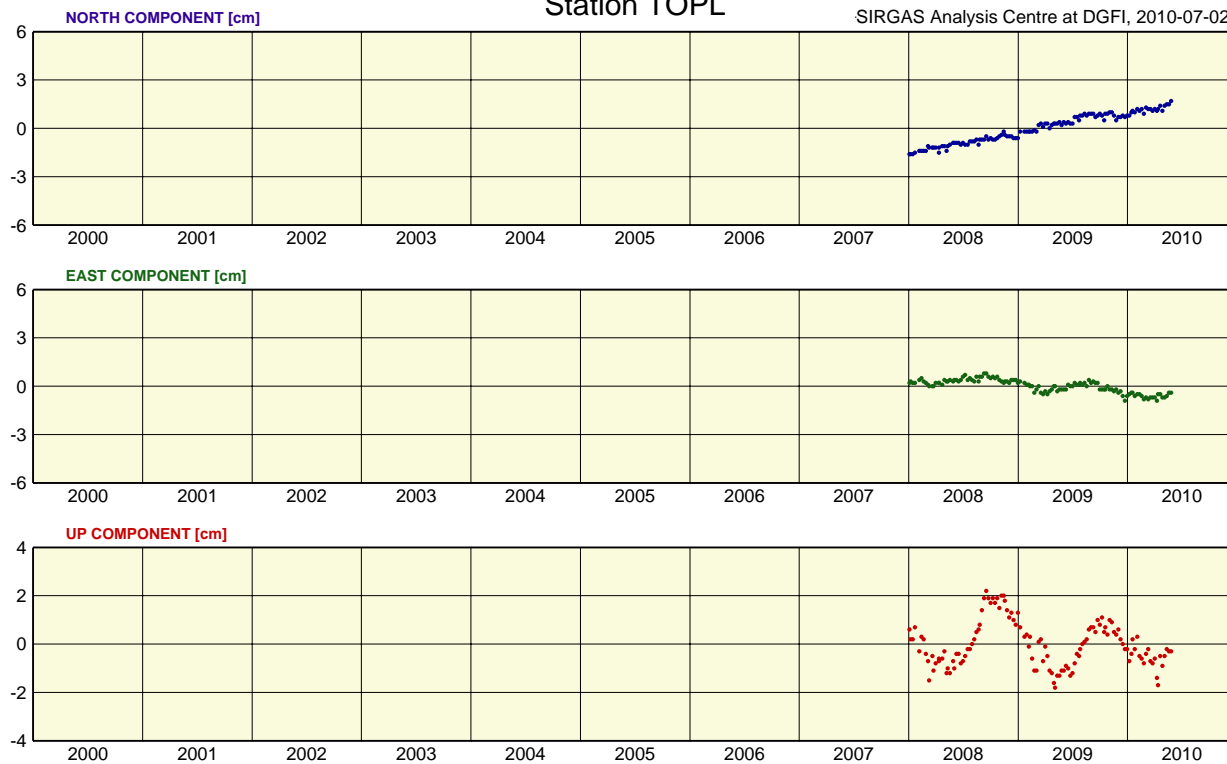
### Station TGCV

SIRGAS Analysis Centre at DGFI, 2010-07-02



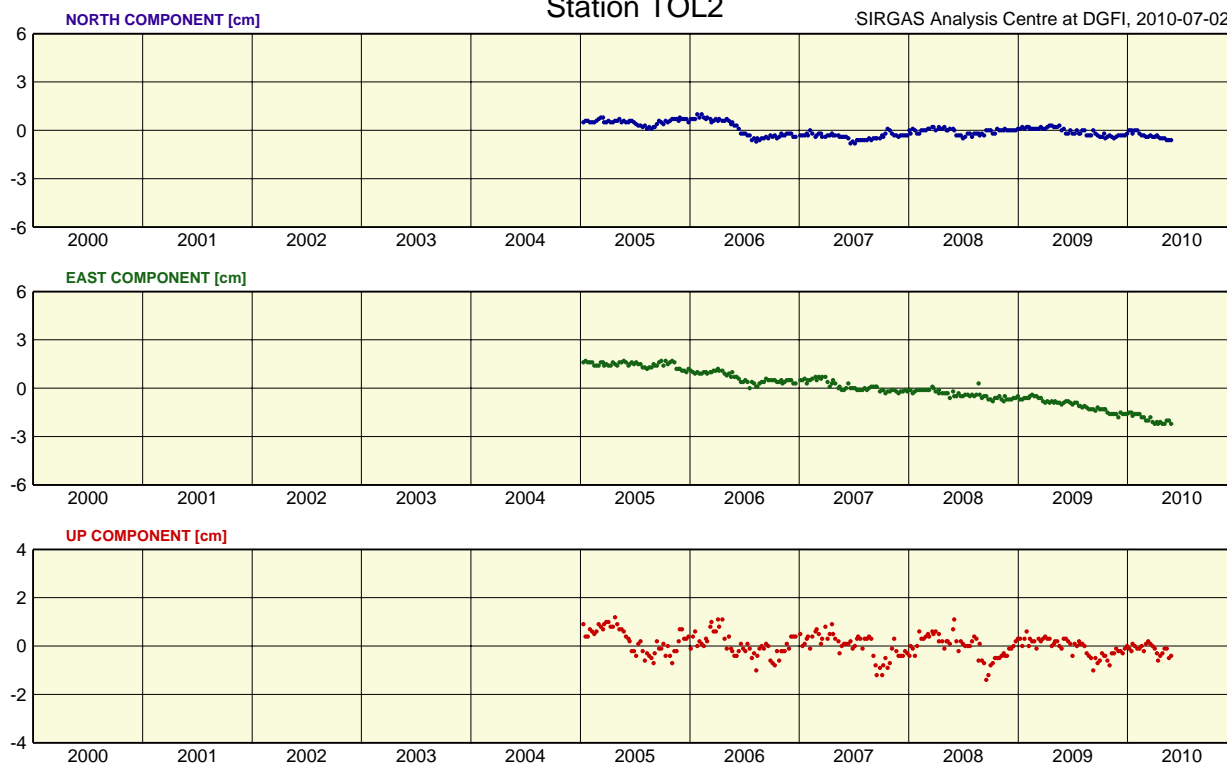
### Station TOPL

SIRGAS Analysis Centre at DGFI, 2010-07-02



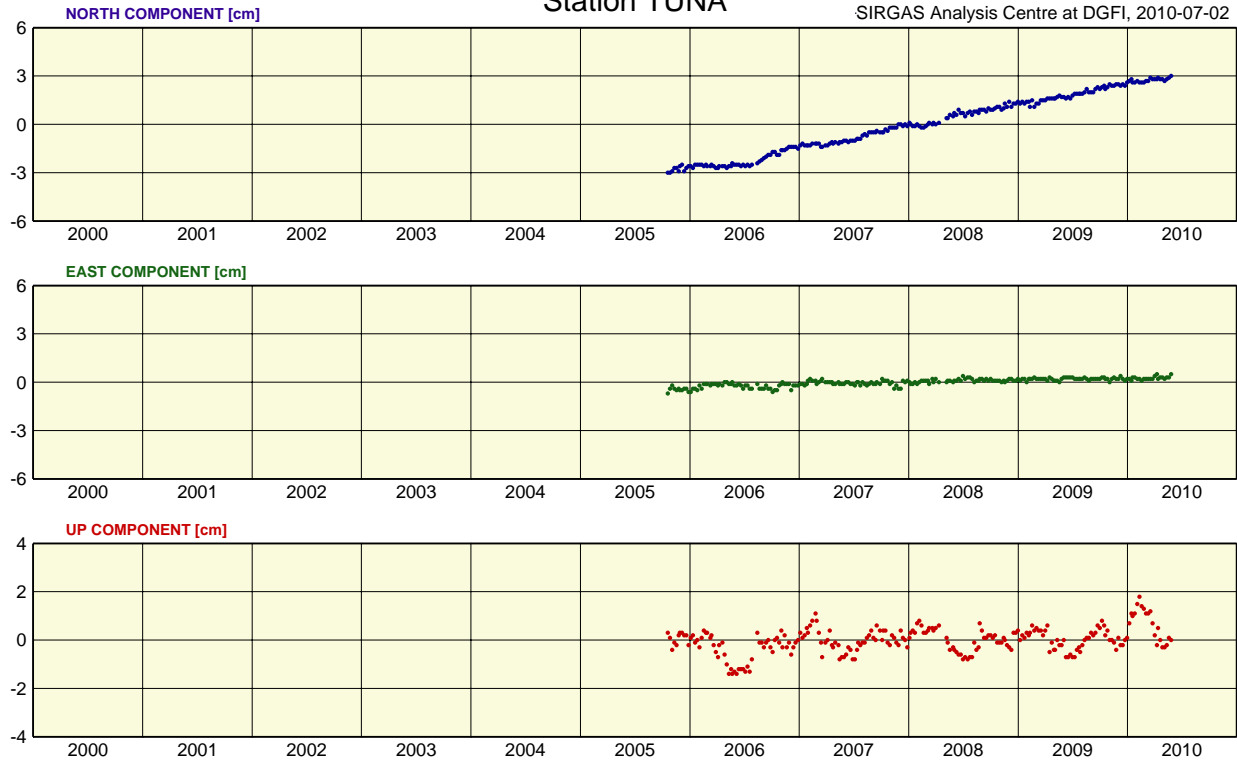
### Station TOL2

SIRGAS Analysis Centre at DGFI, 2010-07-02



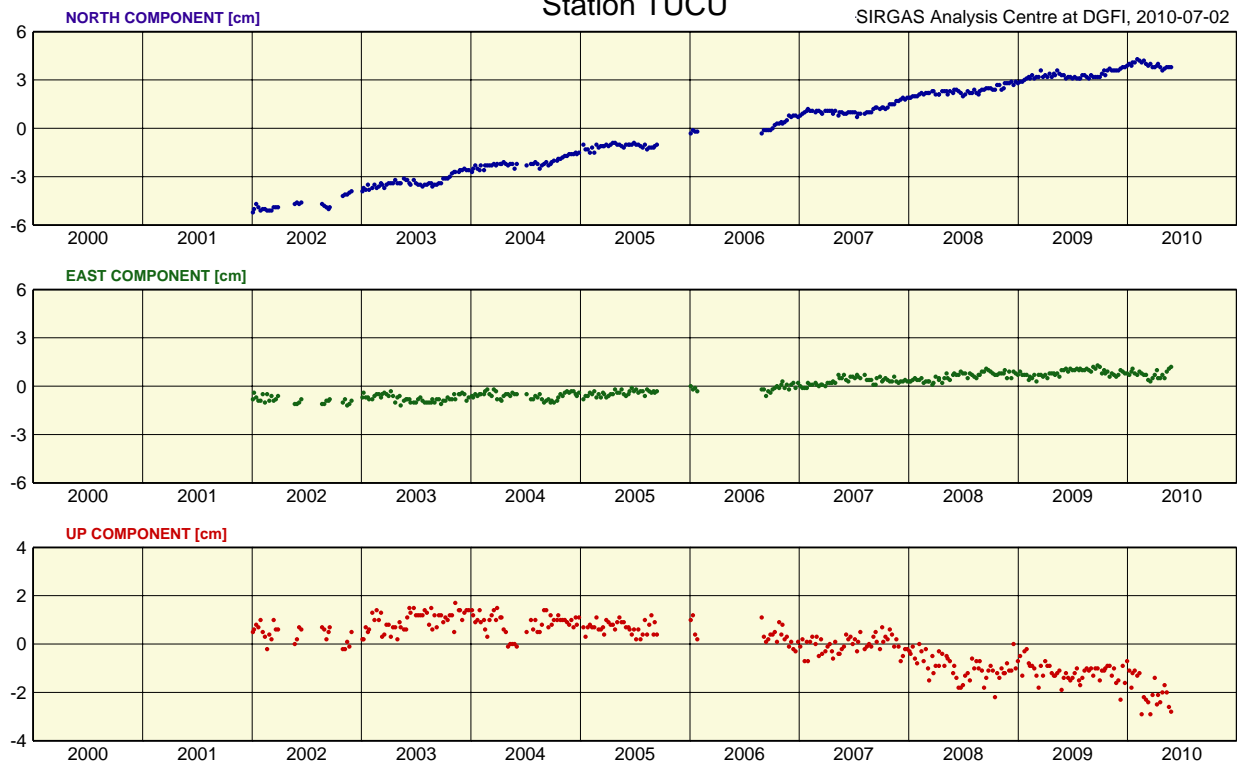
# Station TUNA

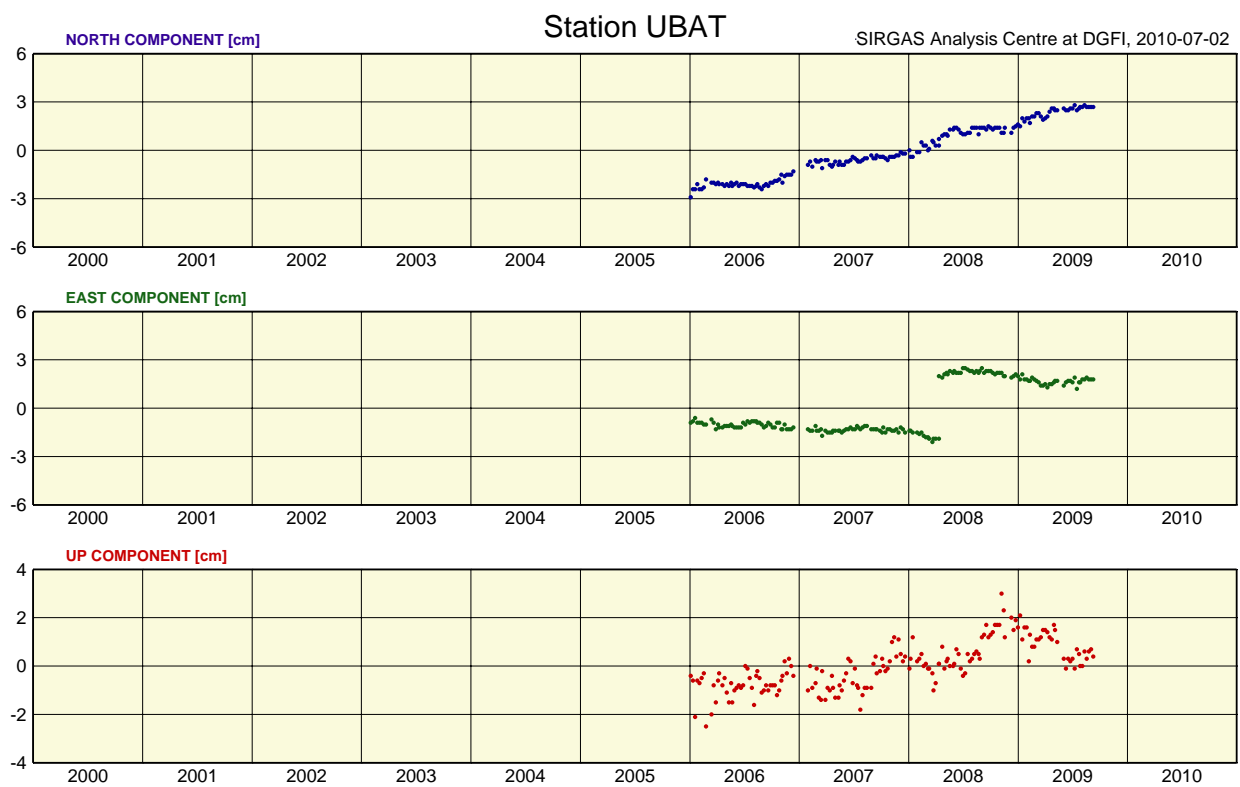
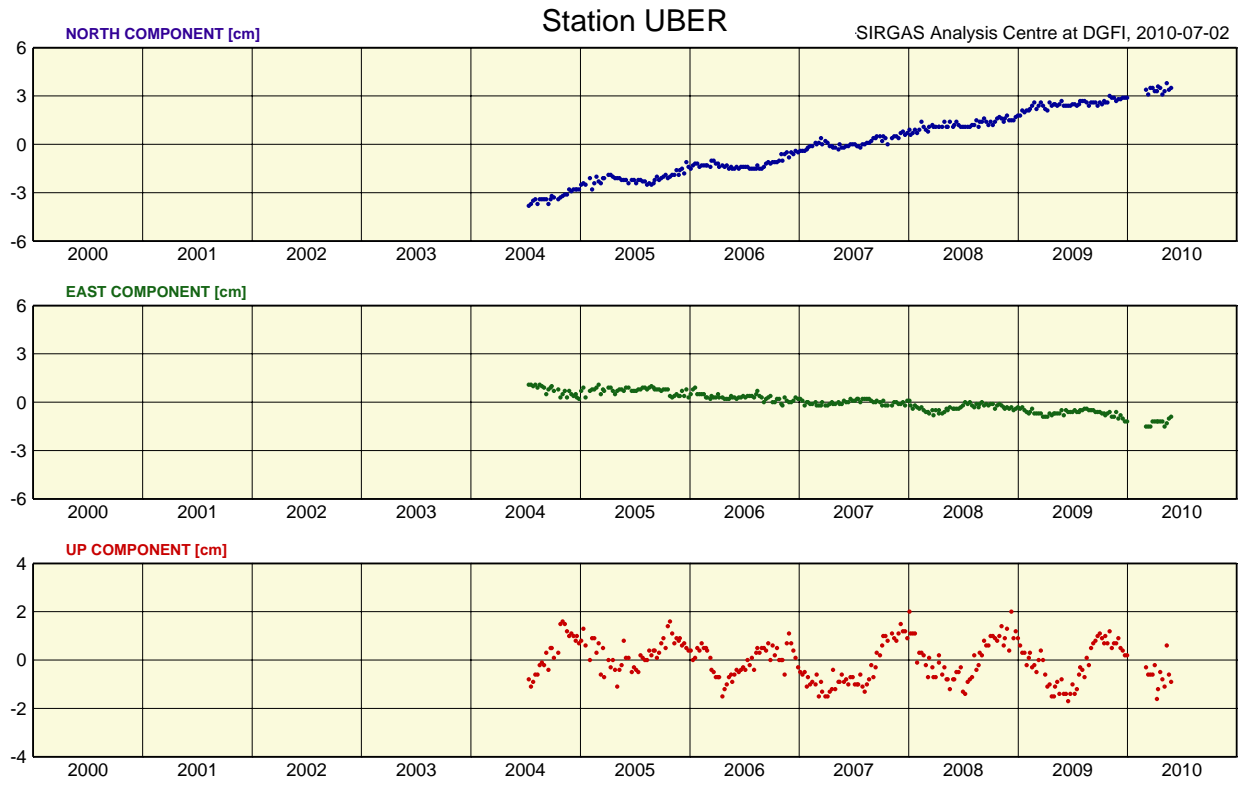
SIRGAS Analysis Centre at DGFI, 2010-07-02

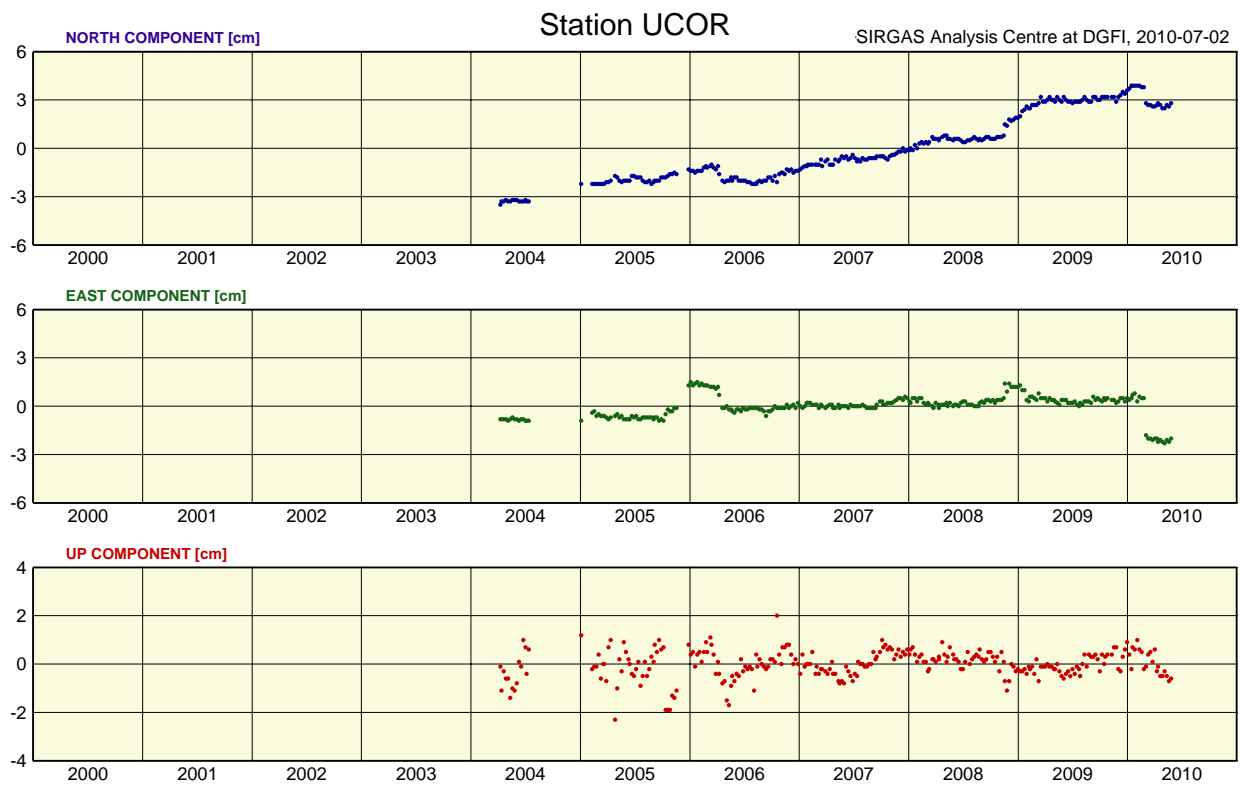
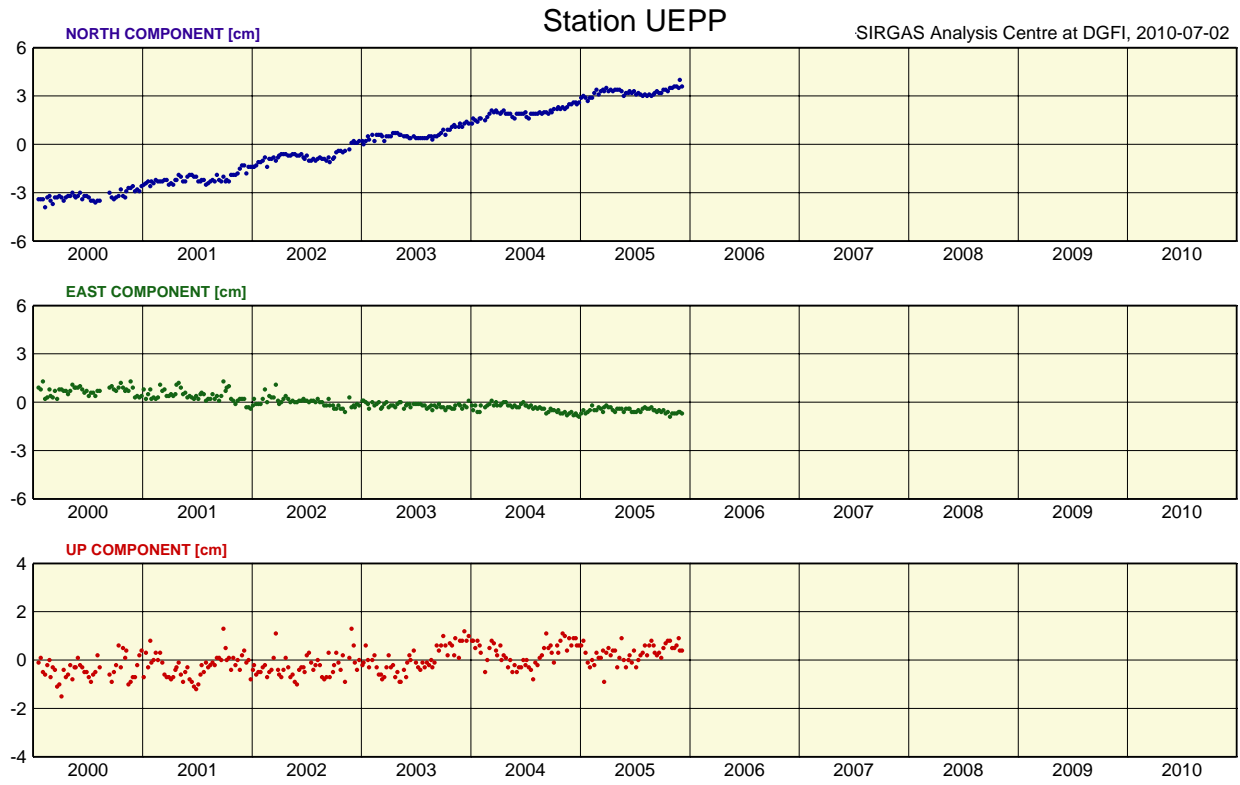


# Station TUCU

SIRGAS Analysis Centre at DGFI, 2010-07-02

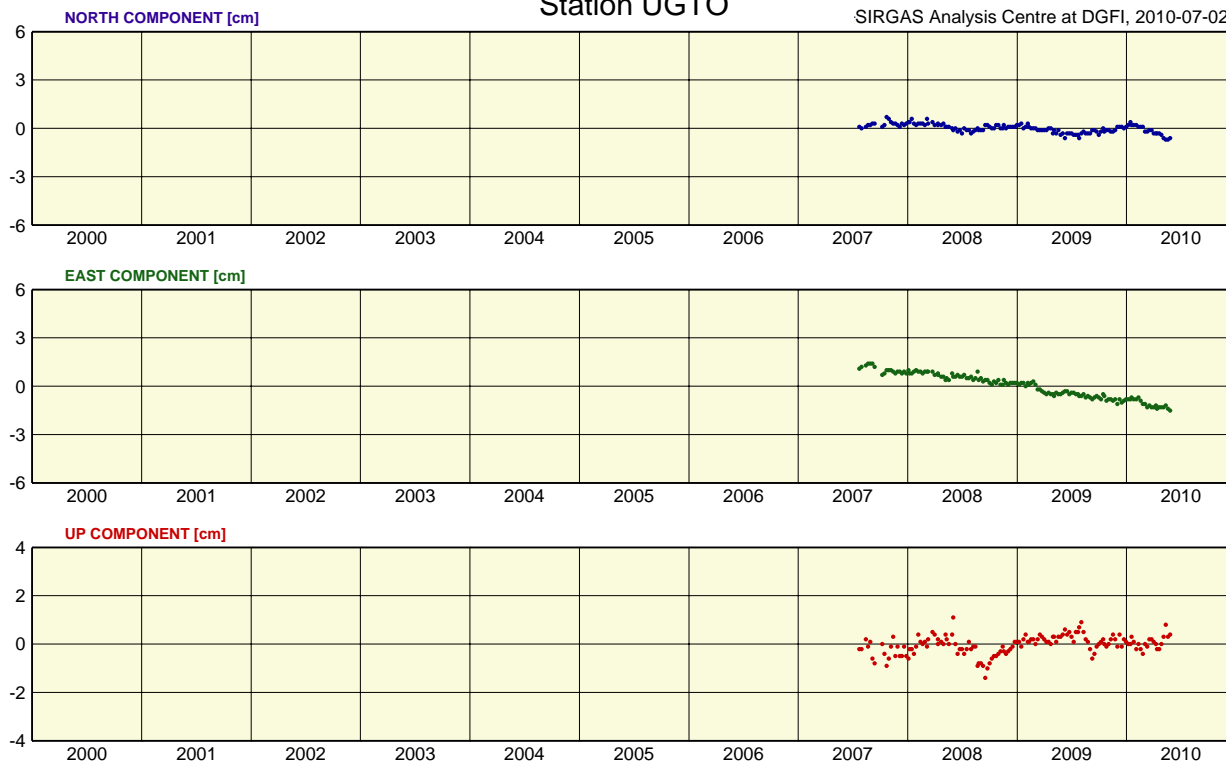






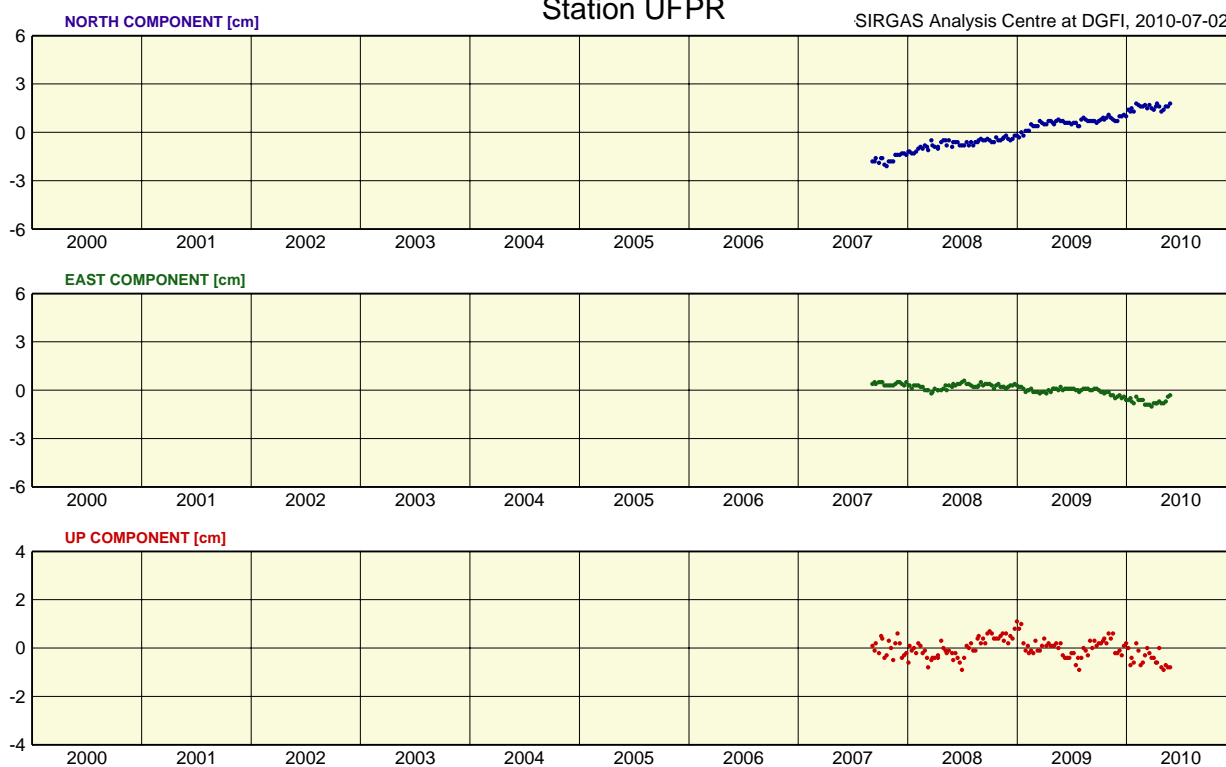
### Station UGTO

SIRGAS Analysis Centre at DGFI, 2010-07-02

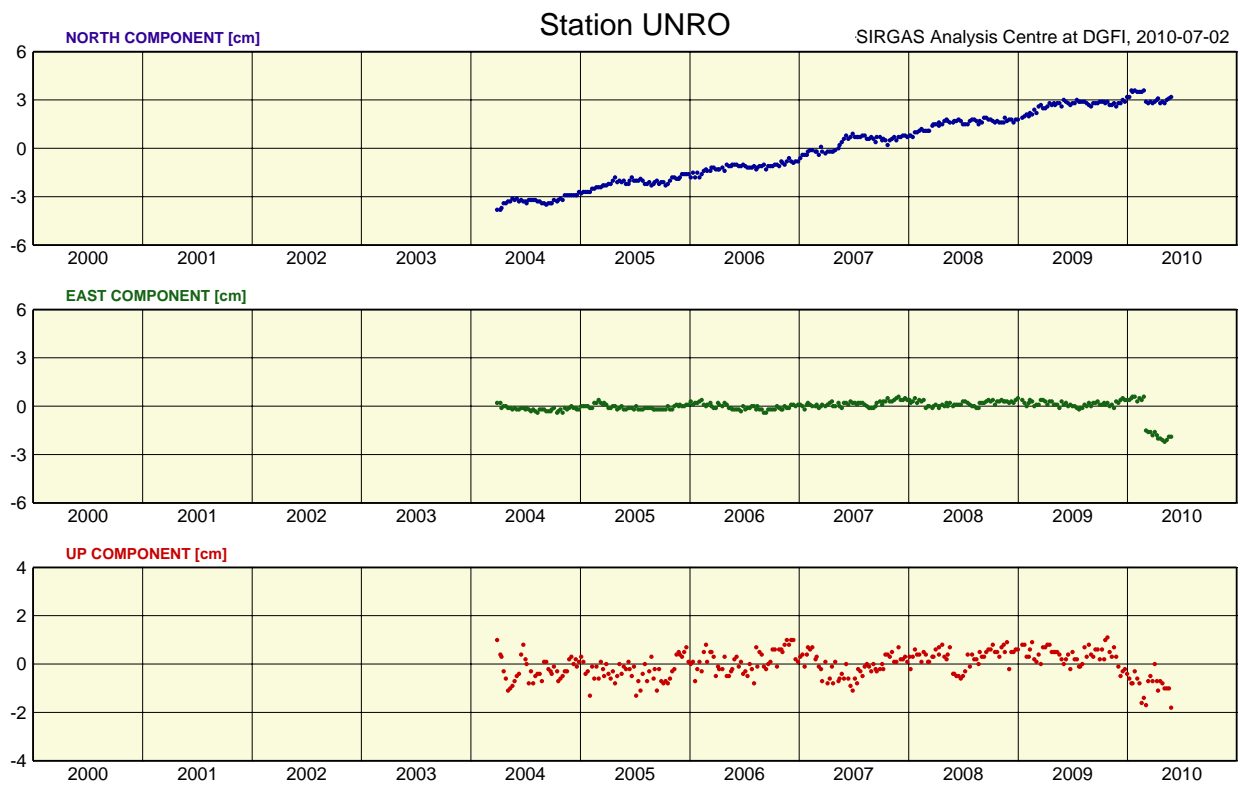
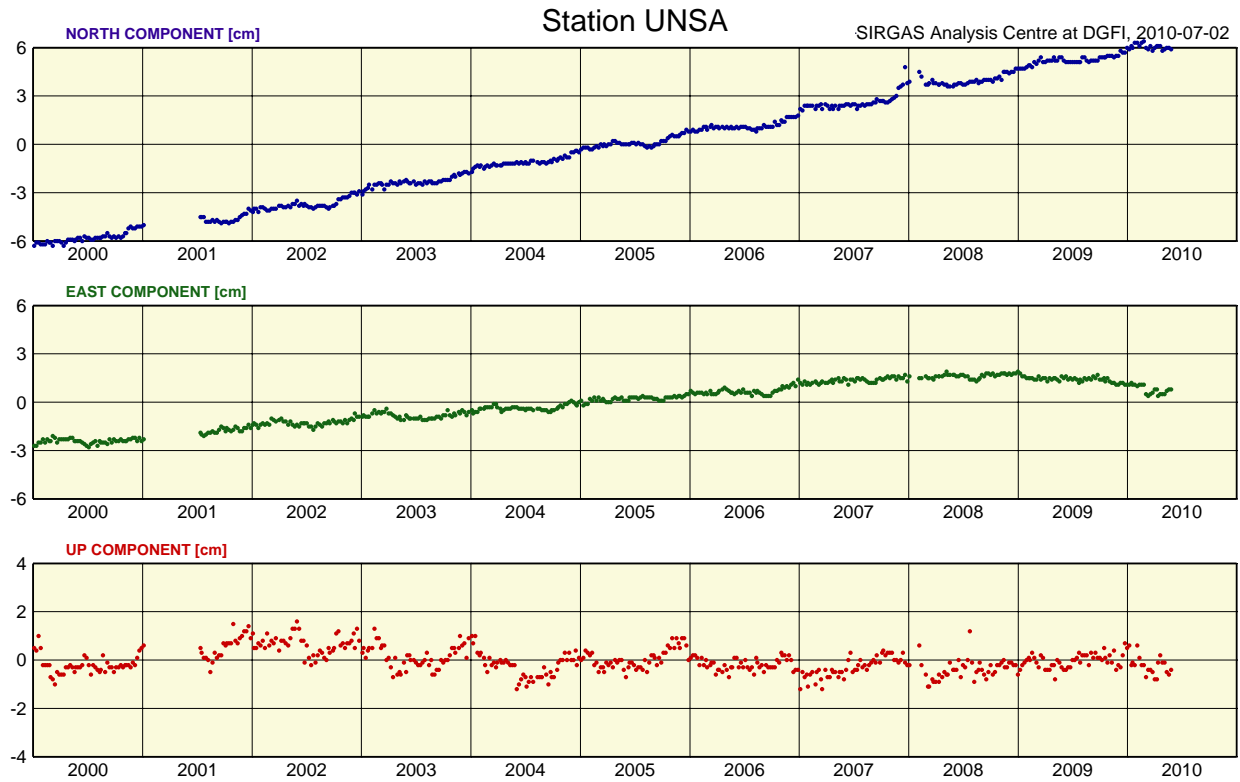


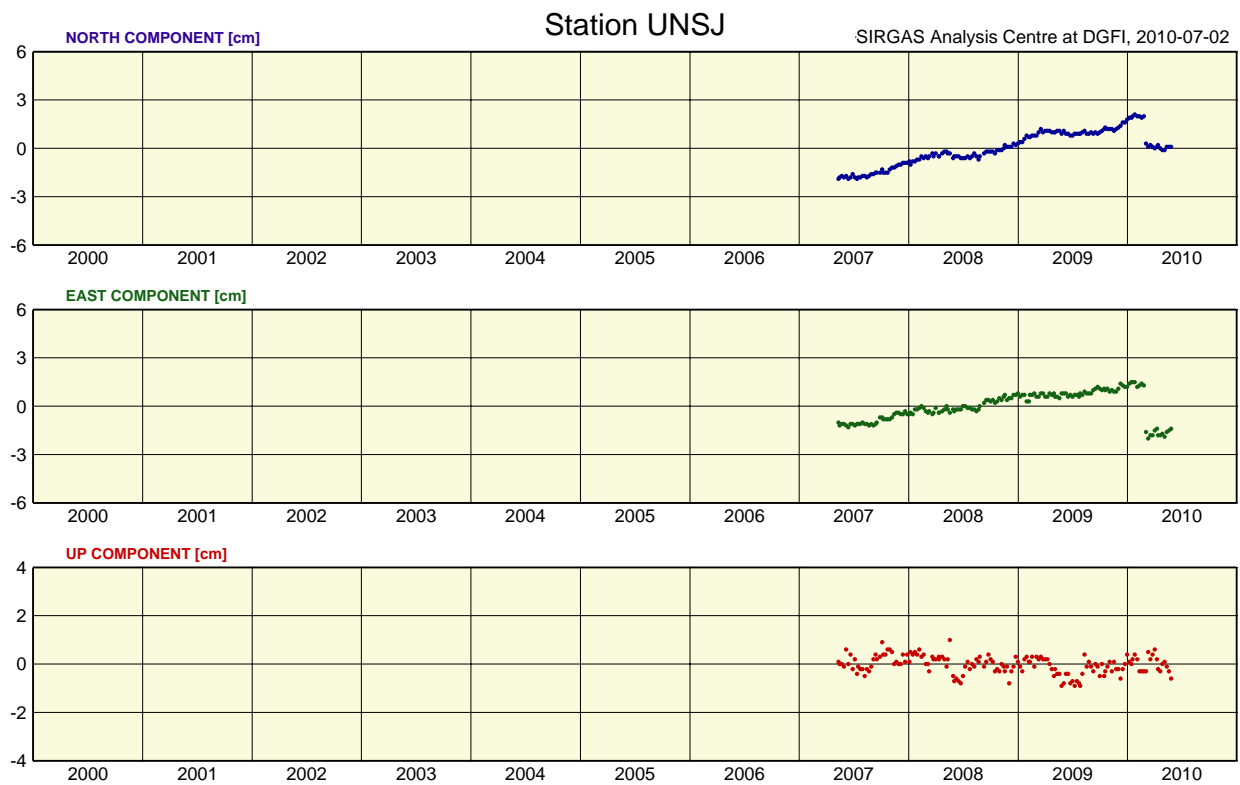
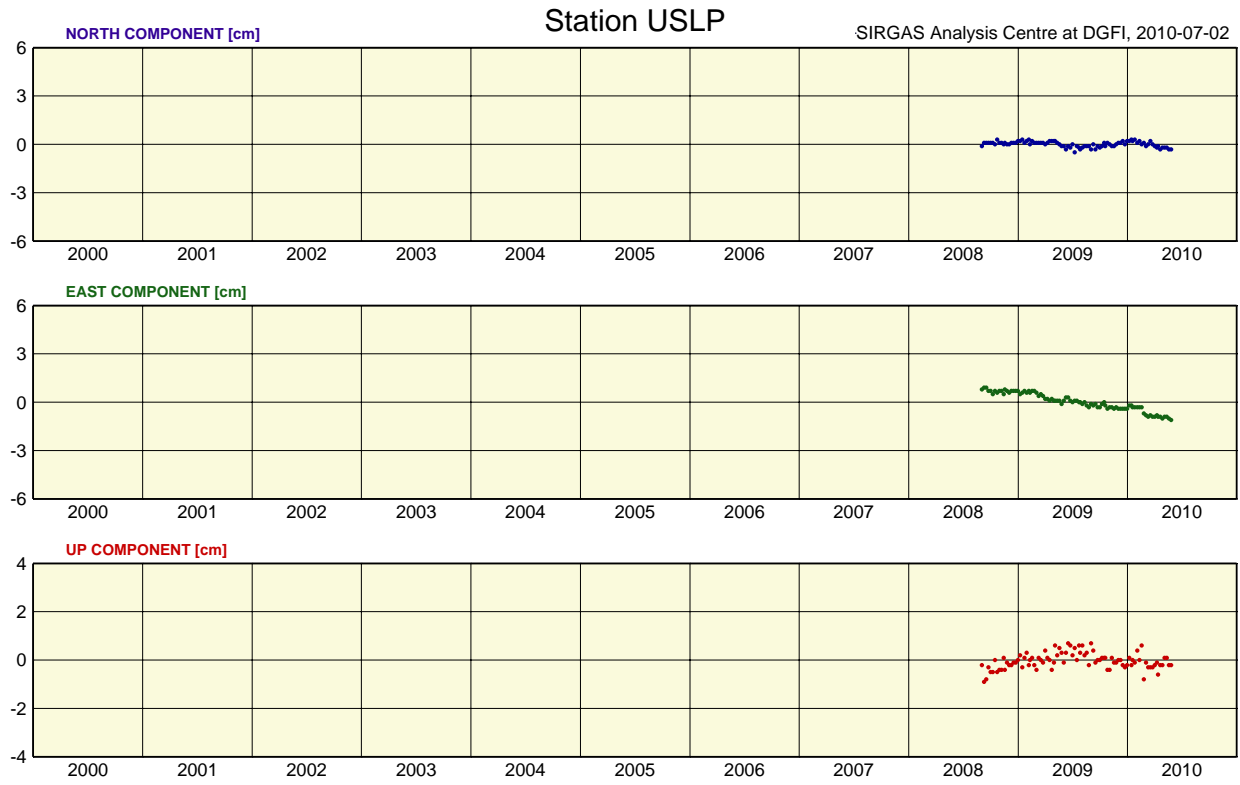
### Station UFPR

SIRGAS Analysis Centre at DGFI, 2010-07-02



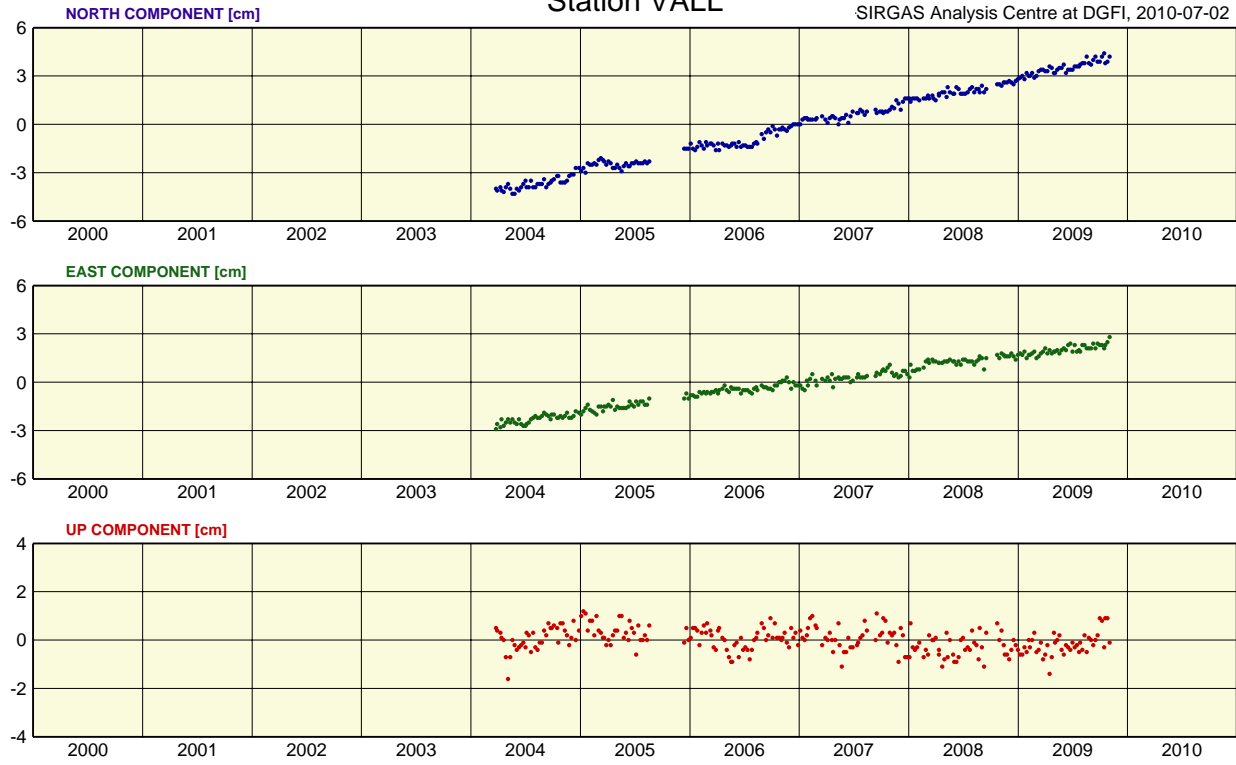






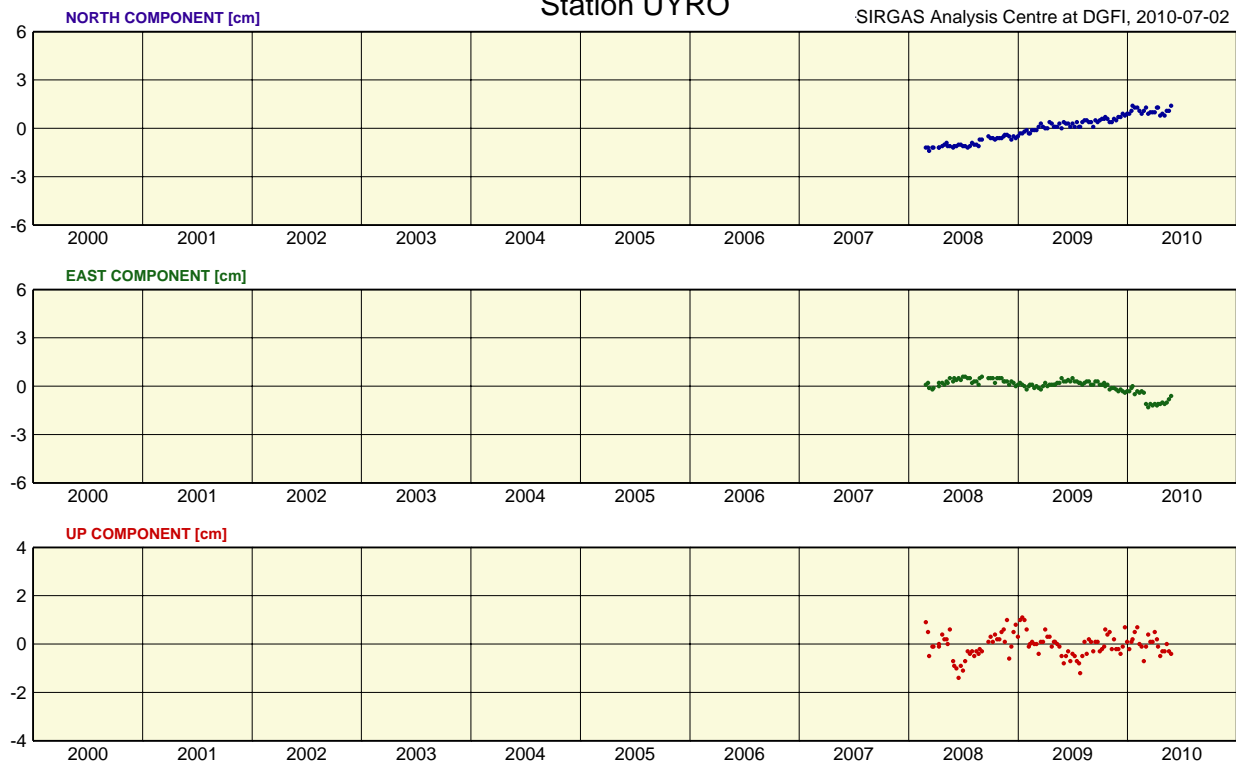
# Station VALL

SIRGAS Analysis Centre at DGFI, 2010-07-02



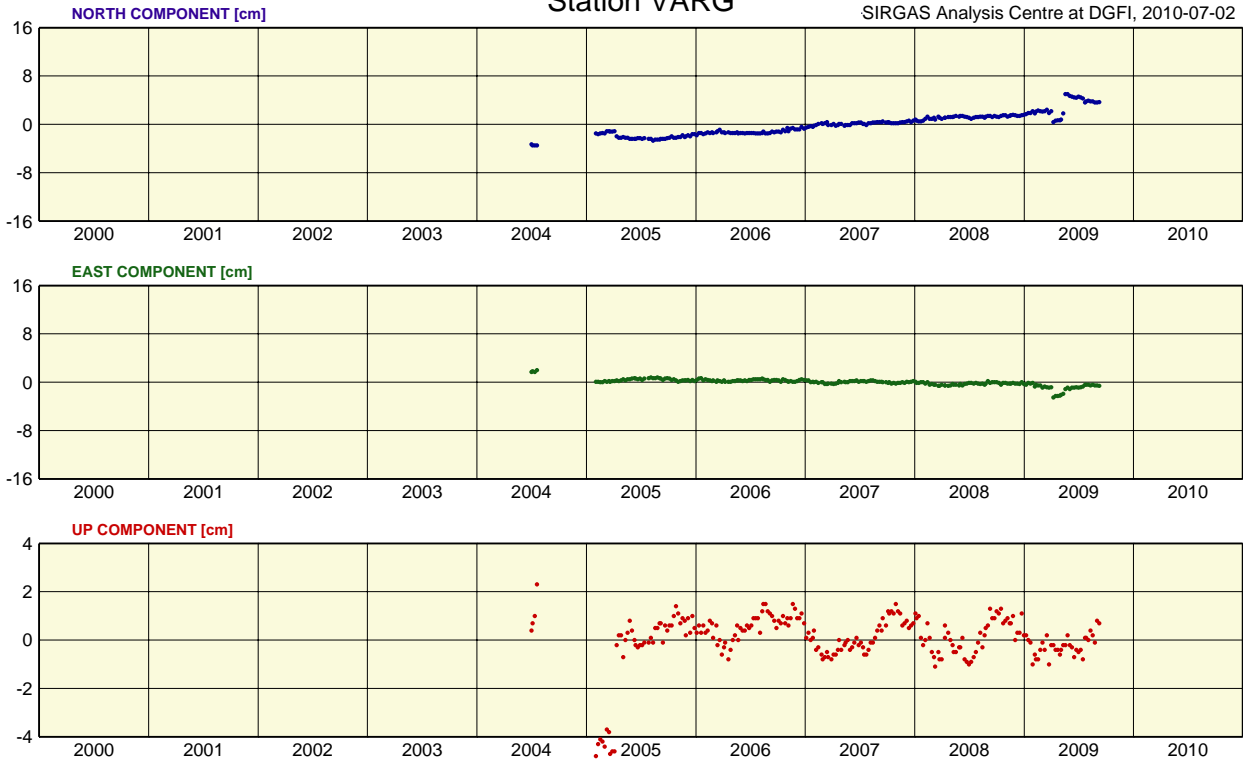
# Station UYRO

SIRGAS Analysis Centre at DGFI, 2010-07-02



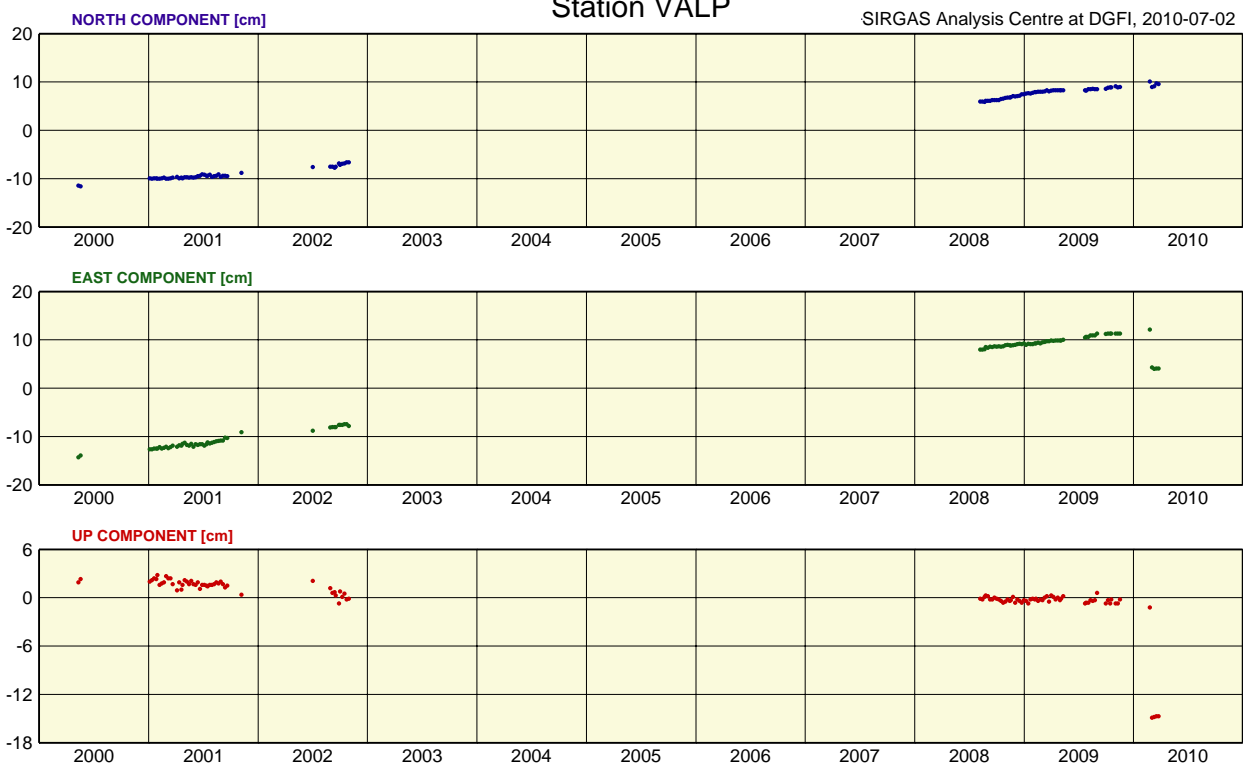
### Station VARG

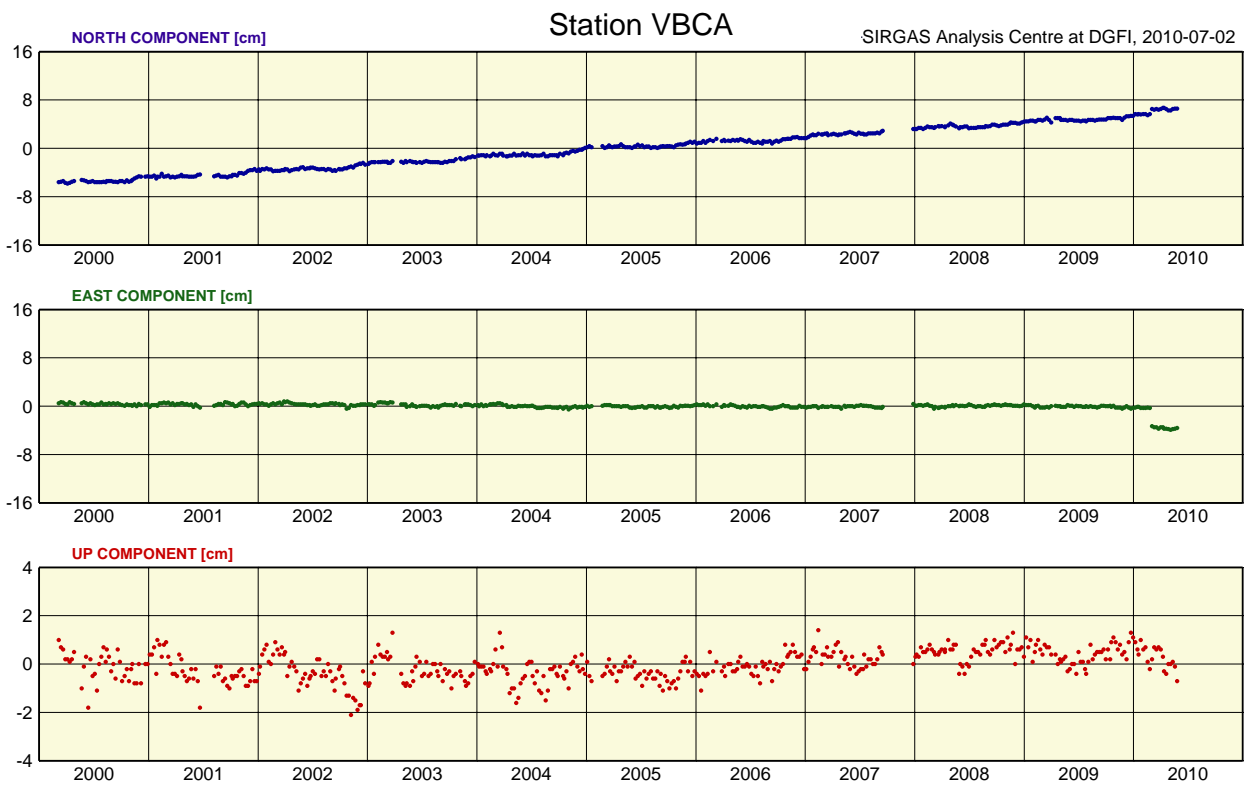
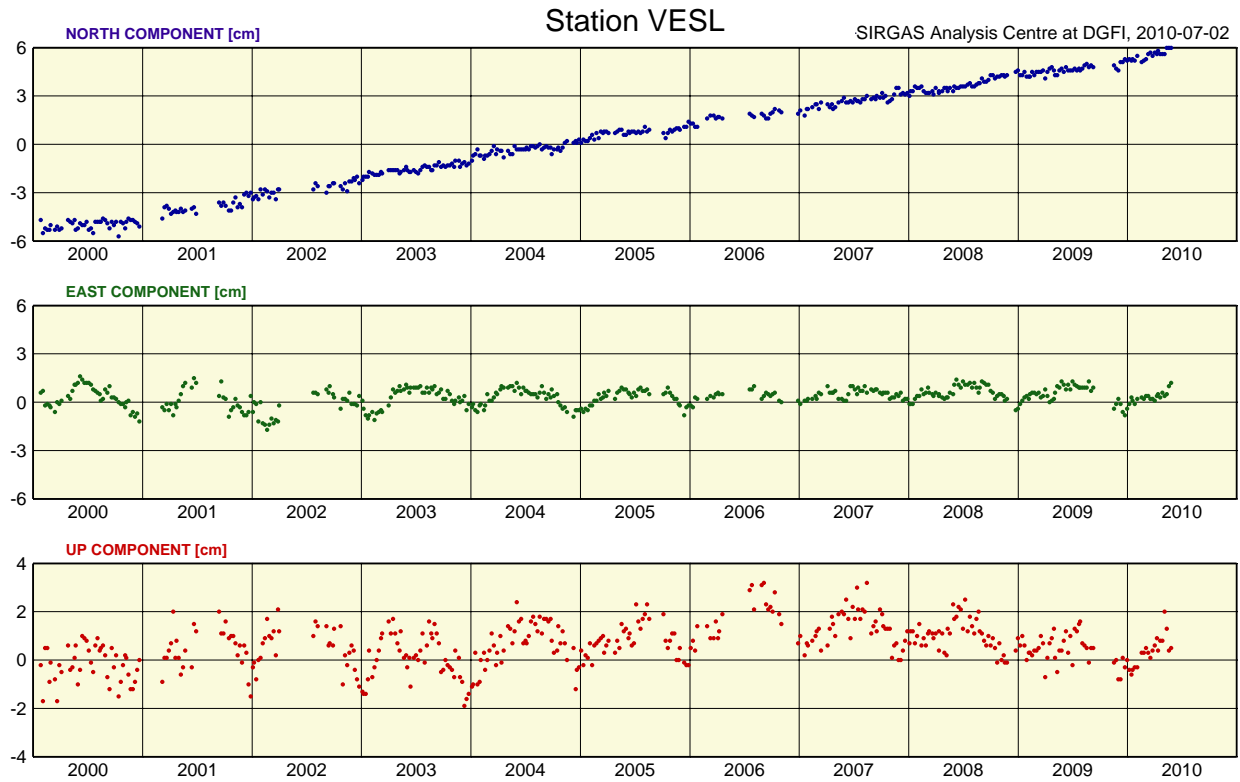
SIRGAS Analysis Centre at DGFI, 2010-07-02

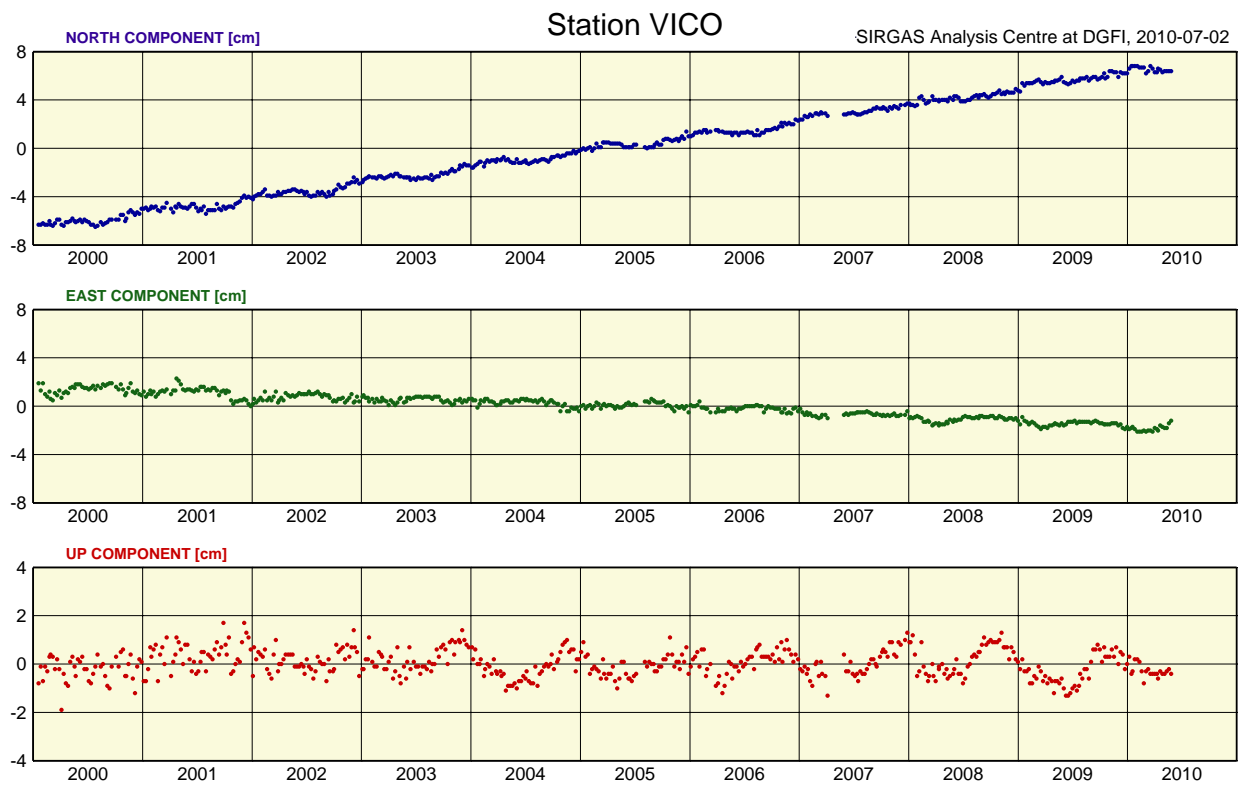
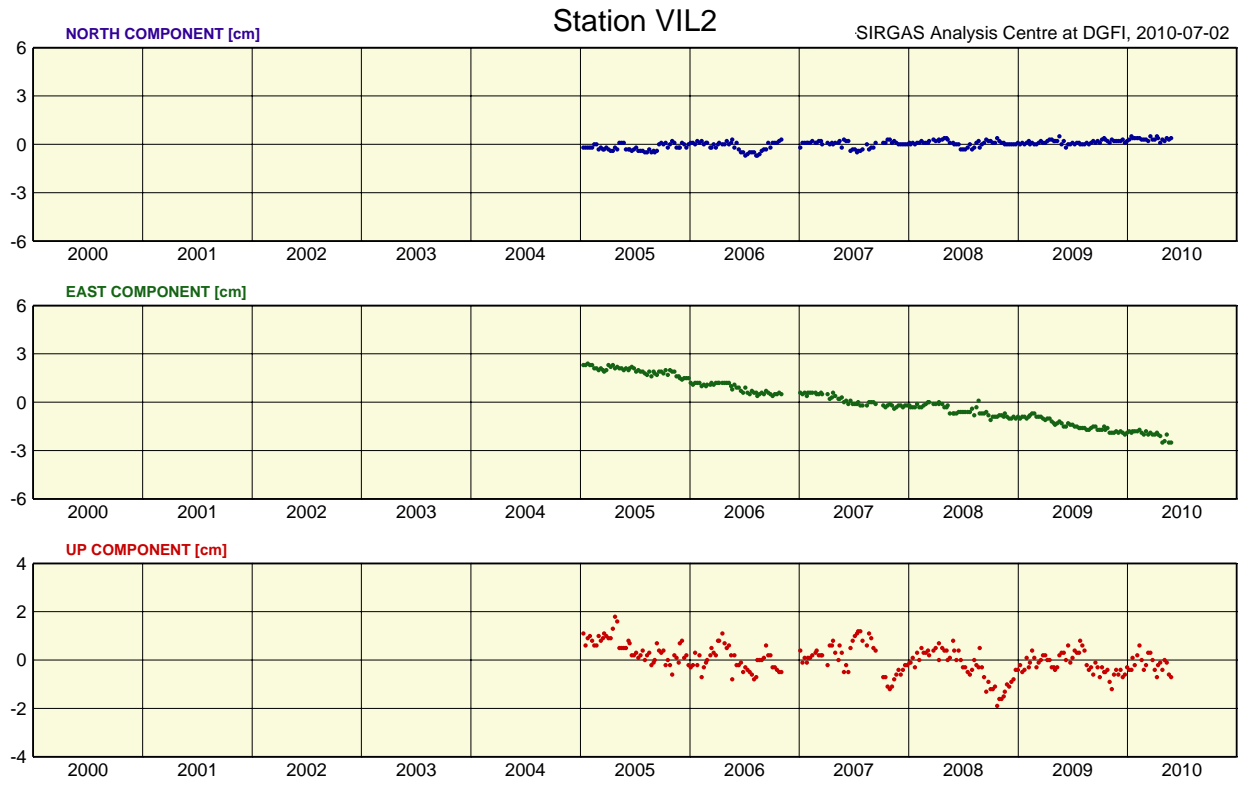


### Station VALP

SIRGAS Analysis Centre at DGFI, 2010-07-02







# Station VIVI

SIRGAS Analysis Centre at DGFI, 2010-07-02

