Status of the activities at the IDS Combination Center

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Content

- News on the Combination Center Processes

- What's new at IDS CC ?

- Cryosat-2 impact on station positions

- What's next ?

- **New version of the evaluation software**
  - Check and repair header block epochs and solution/epochs
  - Check and repair site/id blocks in case of stations which are not any more working
  - Generates evaluation reports
    - New summary table on main statistics of Helmert parameters
    - New table of DORIS missions per AC
  - Can move to weekly evaluations

- **New version of the evaluation software**
  - No weekly solution if less than 3 Acs weekly solutions
  - Rejects stations observed by less than 3 Acs
  - Generates combination reports
  - Outpout weekly SINEX include
    - ACs SINEXs list
    - Acs SINEXs download date (in case of several deliveries to the IDS DCs)
    - Acs solutions weights
  - Can move to weekly combinations

- ## IDS CC Outputs

  - ### Evaluation reports
    - wrt ITRF2008 (xxx_report_wrt_itrf_yydoy.txt)
    - wrt IDS combined solution (xxx_report_wrt_ids_yydoy.txt)

  - ### Plots of the Helmert parameters
    - wrt ITRF2008 (xxx_report_wrt_itrf_yydoy.gif)
    - wrt IDS combined solution (xxx_report_wrt_ids_yydoy.gif)

  - ### World maps of stations positions residuals
    - wrt ITRF2008 (xxx_residuals_wrt_itrf_yydoy.gif)
    - wrt IDS combined solution (xxx_residuals_wrt_wids_yydoy.gif)

  - ### Multi-Acs combined SINEXs

  - ### Acs networks
    - Maps (acs_network_yydoy.gif)
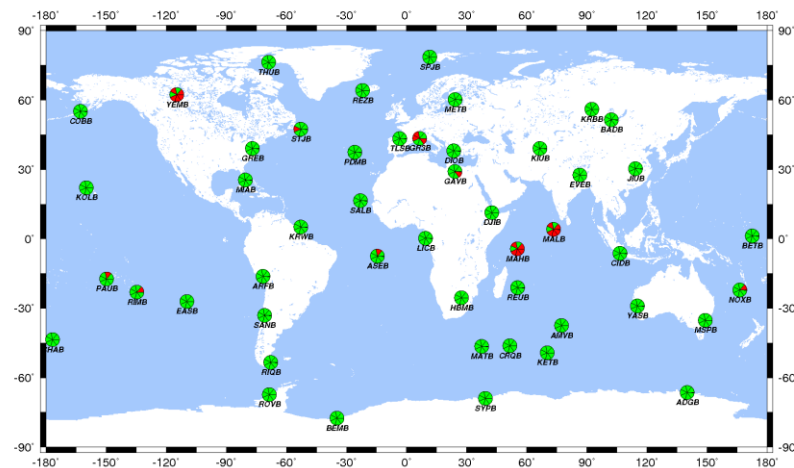   - Summary in table format (acs_network_yydoy.txt)

  xxx= AC name (esa, gau…)

  Should be available soon on IDS ftp site
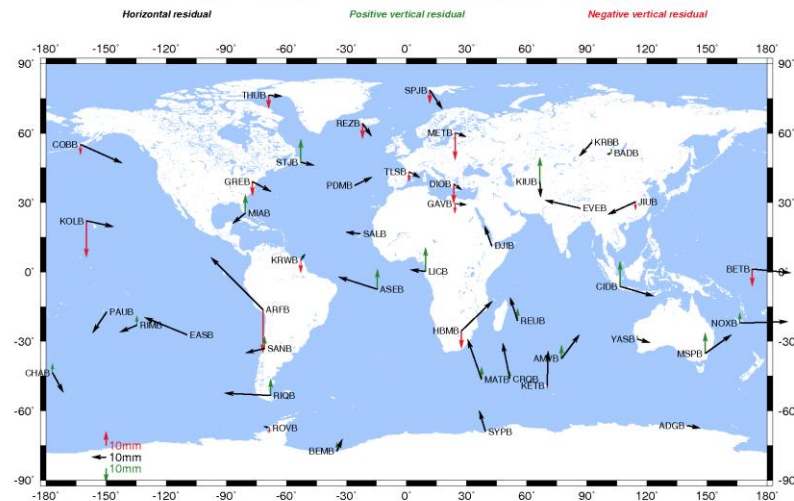

DORIS station network processed by ACs (day: 282 year: 2011)

DORIS station position residuals
Analysis Center: gop - Serie: 33 - Day: 282 - Year: 2011

Example of Acs network summary

```
----------------------------------------------------------------------------------------------------
Beacon | esawd05 | gauwd10 | gopwd33 | gscwd12 | ignwd08 | inawd07 | lcawd30
----------------------------------------------------------------------------------------------------
ADGB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
AMVB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
ARFB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
ASEB   |    X    |    -    |    X    |    X    |    X    |    X    |    X
BADB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
BEMB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
BETB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
CHAB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
CIDB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
COBB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
CRQB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
DIOB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
DJIB   |    X    |    X    |    X    |    X    |    X    |    X    |    X
```

Example of DORIS missions list from evaluation report

? means neither « satellite list » nor « solution doris » nor «solutions doris » block in the SINEX

```
List of DORIS missions per SINEX file
-------------------------------------

------------------------------------------------------------------------------------------------------
    SINEX     | Spot2 | Spot4 | Spot5 | Envisat | Jason-1 | Jason-2 | Cryosat-2 | HY-2A |
------------------------------------------------------------------------------------------------------
esa11282wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11289wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11296wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11303wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11310wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11317wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11324wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11331wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11338wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11345wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11352wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
esa11359wd05.snx |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |    ?    |
gau11282wd10.snx |    -    |    X    |    X    |    X    |    -    |    X    |    X    |    -    |
gau11289wd10.snx |    -    |    X    |    X    |    X    |    -    |    X    |    X    |    -    |
gau11296wd10.snx |    -    |    X    |    X    |    X    |    -    |    X    |    X    |    -    |
gau11303wd10.snx |    -    |    X    |    X    |    X    |    -    |    X    |    X    |    -    |
```

ACs weekly series status

	Satellites						Period
	Cryosat-2	Envisat	Jason-2	Spot2	Spot4	Spot5	
esa05	x	x	x		x	x	10.150→12.085
gau10	x	x	x		x	x	11.142→12.113
gop32		x	x	x	x	x	09.011→11.352
gop33	x	x	x		x	x	10.360→11.352
gsc11		x	x	x	x	x	09.004→11.359
gsc12	x	x	x		x	x	10.157→11.359
ign08	(x)$^{10.150}$	x	(x)$^{08.188}$	x	x	x	93.003→12.113
ina07	(x)$^{10.360}$	x	(x)$^{10.360}$	x	x	x	93.003→12.029
lca30	(x)$^{10.164}$	x	(x)$^{08.195}$	x	x	x	93.003→12.085

Status on may 29, 2012

Mean/std of Scale factor, Tx, Ty and Tz

Statistics on the Helmert parameters over time period 11282 11359 wrt ITRF2008

AC	#serie	#weeks	wrms [mm]		scale [mm]		Tx [mm]		Ty [mm]		Tz [mm]	
			mean	std	mean	std	mean	std	mean	std	mean	std
esa	05	12	14.150	0.994	-11.490	2.082	-1.025	4.682	-15.125	4.237	12.267	7.224
gau	10	12	15.242	1.156	-6.290	2.894	-6.942	5.307	-23.508	4.256	4.008	5.886
gop	33	11	15.864	1.333	-1.129	1.899	-5.936	4.849	-12.745	2.842	12.127	12.650
gsc	12	12	15.450	0.850	-13.620	1.785	-9.717	3.867	-23.225	3.925	19.242	7.547
ign	08	12	14.600	1.052	0.220	2.586	2.067	4.152	-19.158	6.758	-1.858	16.813
ina	07	12	14.050	0.940	4.915	2.360	0.100	5.431	-17.625	6.303	9.675	17.287
lca	30	12	12.933	1.326	3.030	1.861	-5.500	3.201	-10.742	3.486	-0.900	18.715

Statistics on the Helmert parameters over time period 11282 11359 wrt IDS

AC	#serie	#weeks	wrms [mm]		scale [mm]		Tx [mm]		Ty [mm]		Tz [mm]	
			mean	std	mean	std	mean	std	mean	std	mean	std
esa	05	12	8.775	0.808	-8.240	1.001	1.825	3.089	2.375	3.168	5.217	6.929
gau	10	12	11.525	2.143	-6.095	1.297	-0.883	5.657	-5.500	3.299	-1.400	6.351
gop	33	11	12.009	1.978	3.213	0.870	-2.682	4.116	3.545	3.150	5.227	12.567
gsc	12	12	12.100	0.647	-10.185	1.128	-1.475	2.776	-5.742	3.043	8.183	5.438
ign	08	12	9.500	1.135	3.960	1.391	5.025	2.662	-0.633	4.245	-9.967	10.673
ina	07	12	9.575	0.929	9.740	1.584	3.383	3.084	-0.733	4.788	1.167	11.737
lca	30	12	8.775	1.276	5.765	1.529	-2.108	2.273	7.350	3.274	-6.167	15.771

Evaluation of 11282-11359 wrt ITRF2008

Per week comparaison to ITRF2008
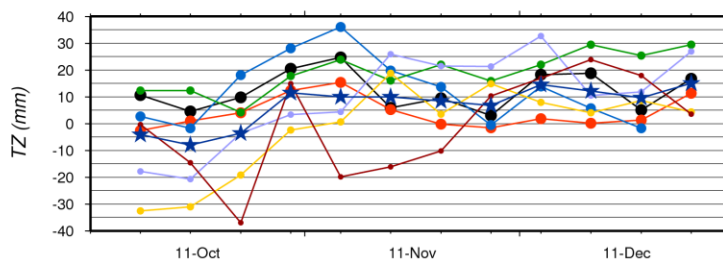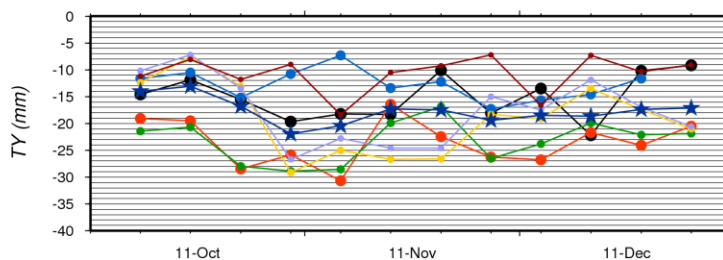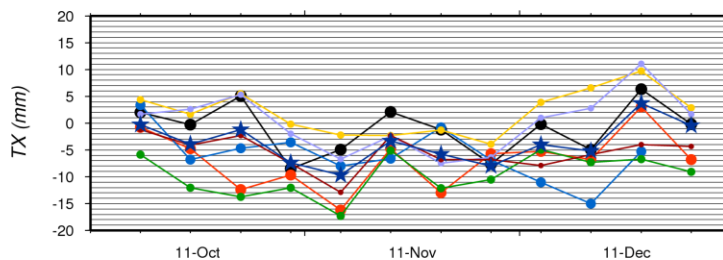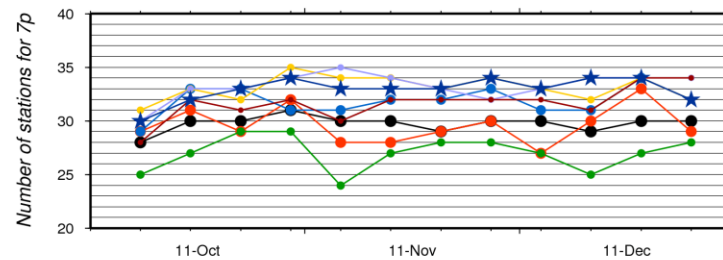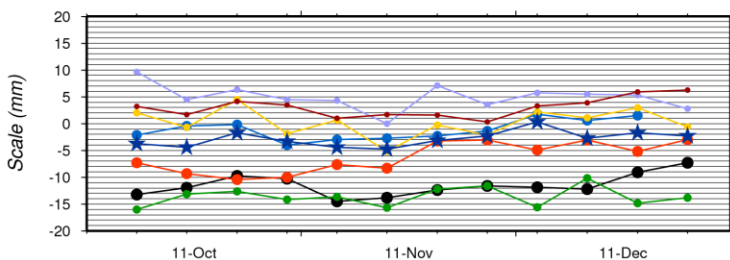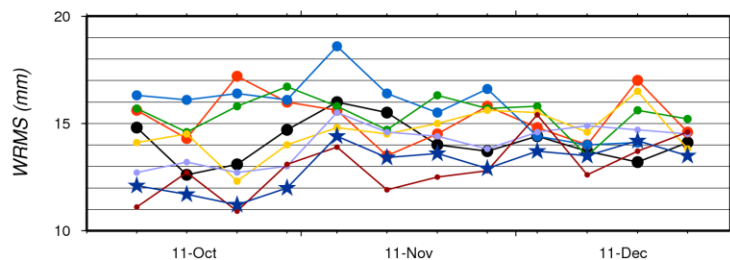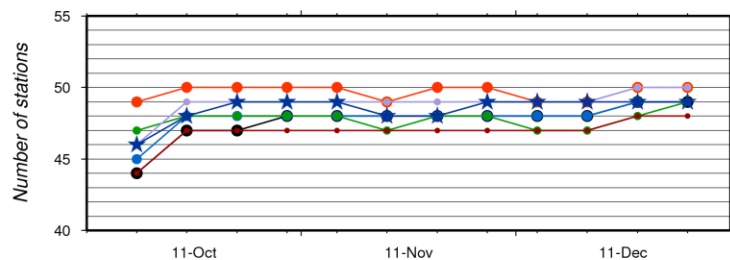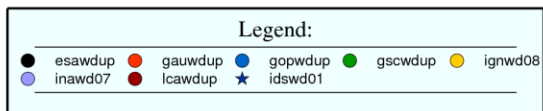
Evaluation of 2011 wrt ITRF2008
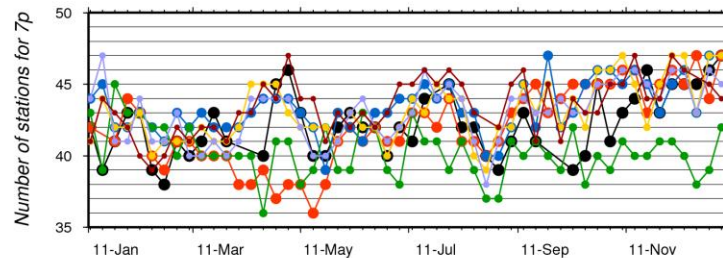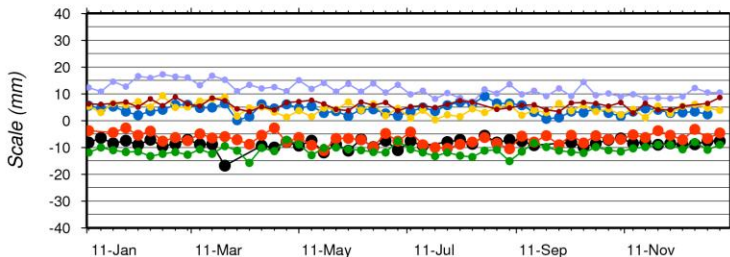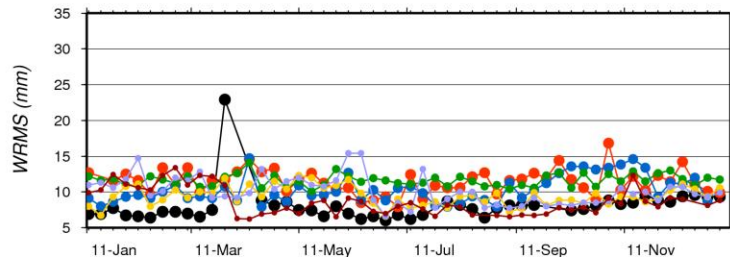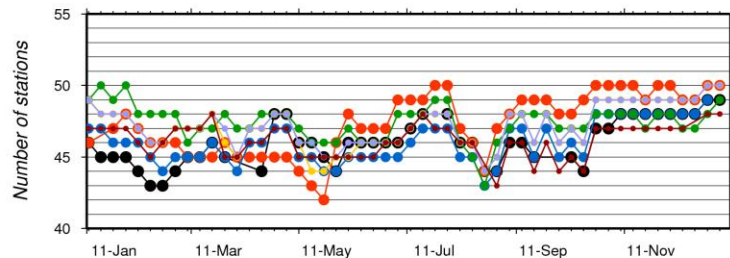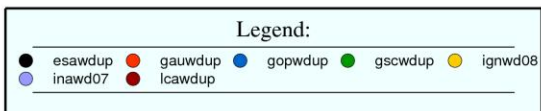
Per week comparaison to ITRF2008
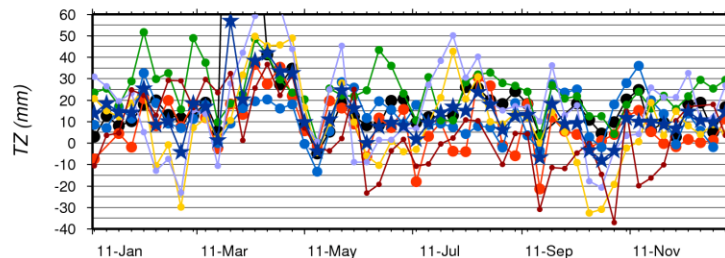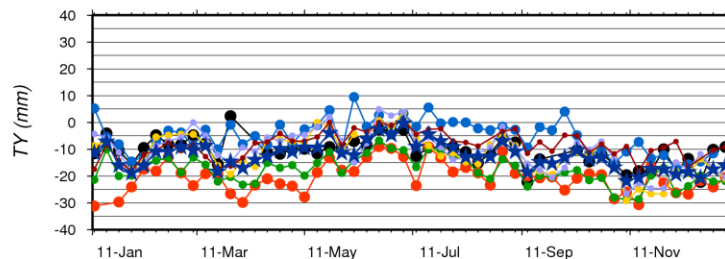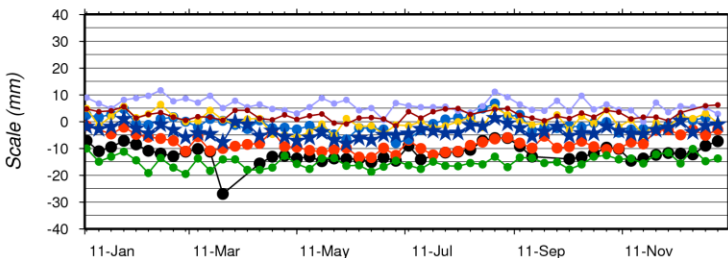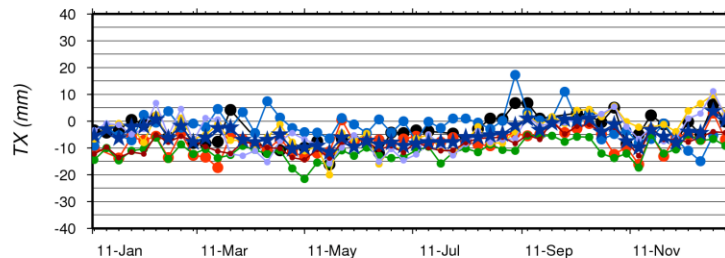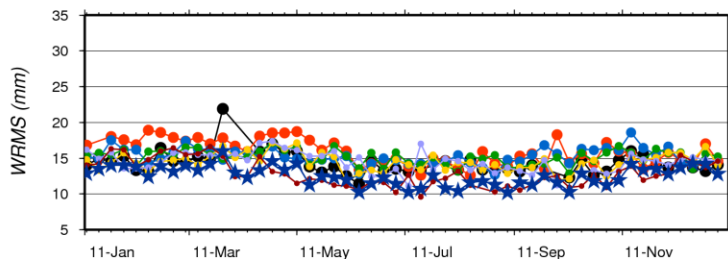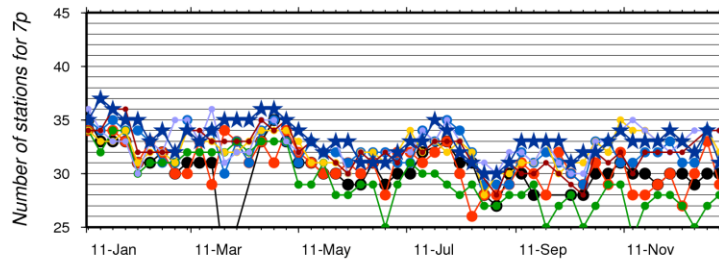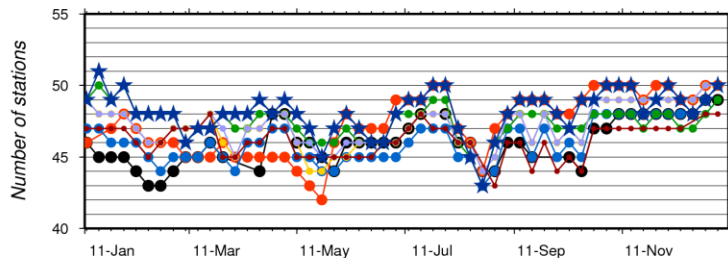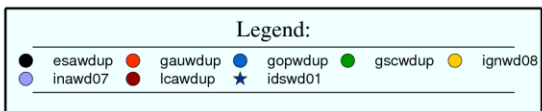
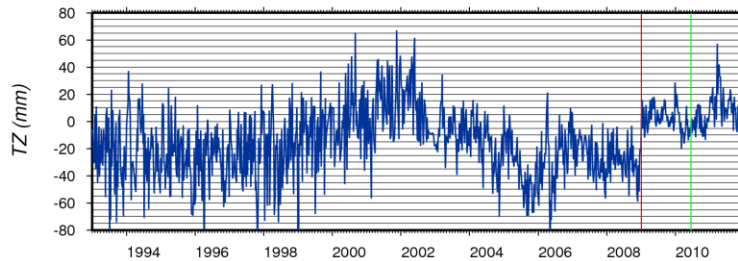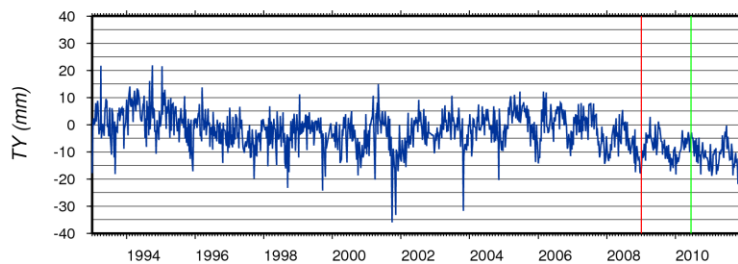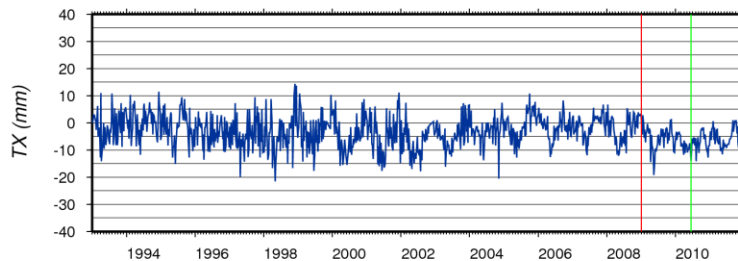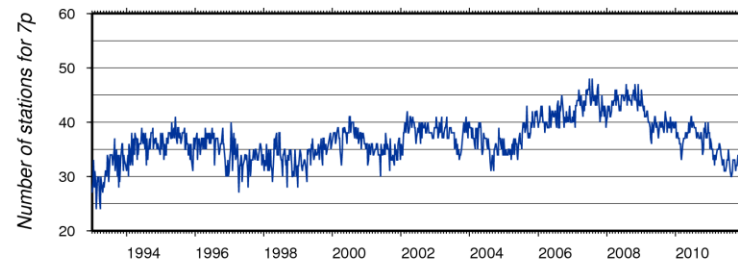Tz critical points around 11121-11128

Evaluation of 2011 wrt IDS

Per week comparaison to IDS CC weekly Solution

Per week comparaison to ITRF2008

Jason-2 included – Cryosat-2 included
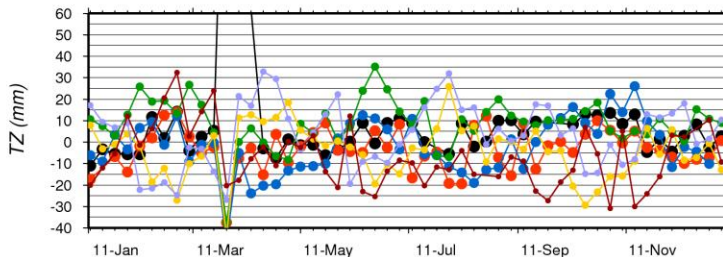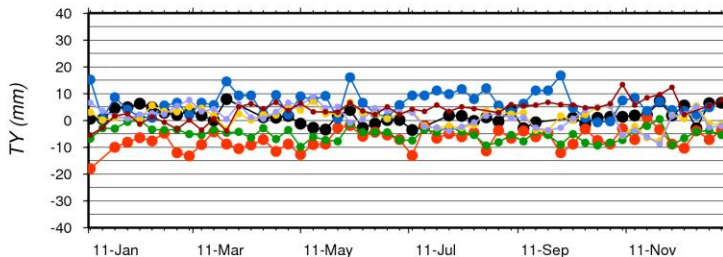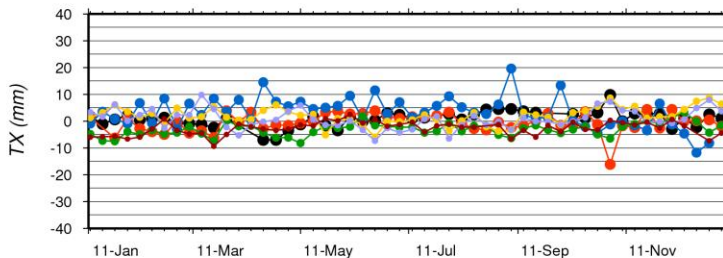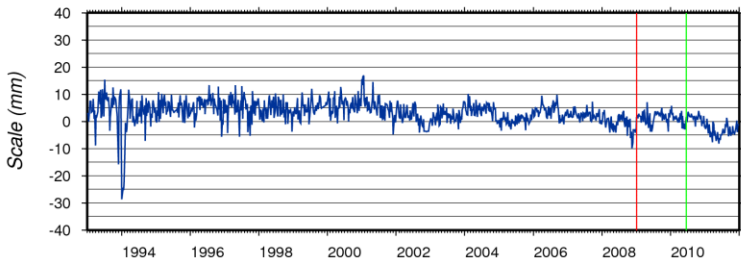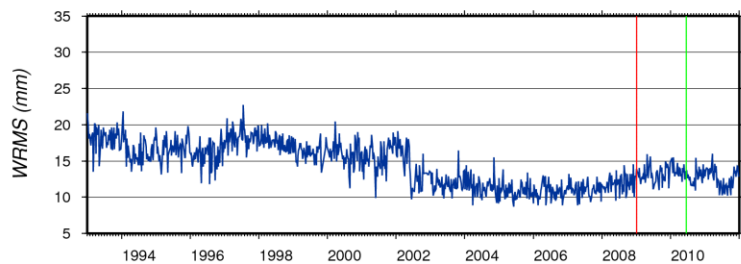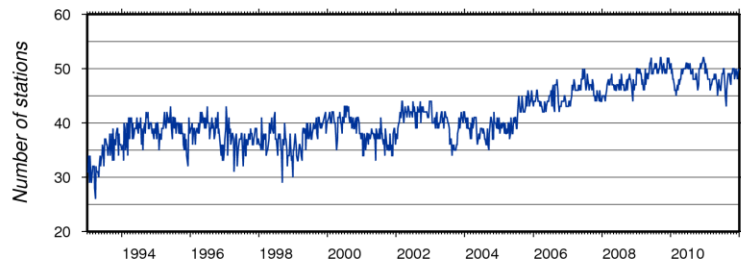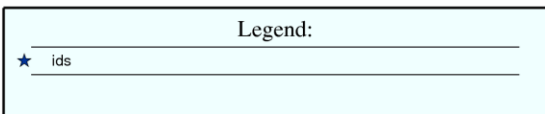
Impact of Cryosat-2 on station positions

- **3 series with and without Cryosat-2:**
  - gop 32 / gop 33 over time period 10360-11233
  - gsc 11 / gsc 12 over time period 10157-11086
  - lca 26 / lca 30 over time period 10164-11114

- Comparisons of mean (over time period) stations positions residuals wrt ITRF2008
- Comparisons (gain in %) of mean stations positions STD after projection in ITRF2008

Cryosat-2: positions residuals wrt ITRF2008

Cryosat-2: stations positions STDs
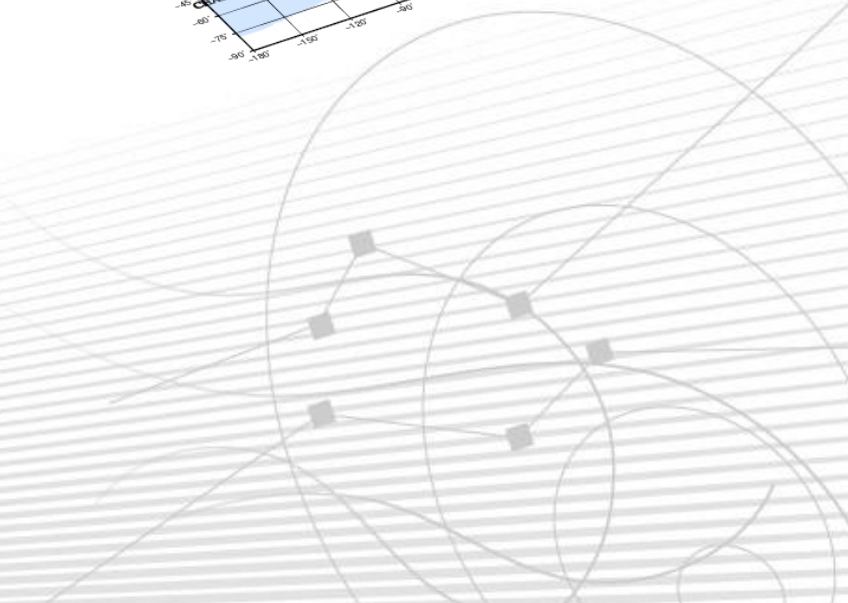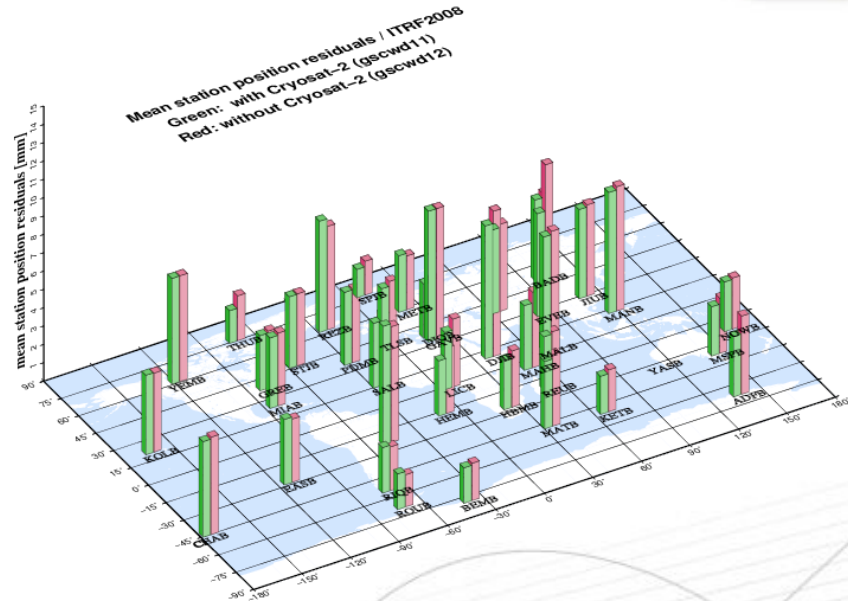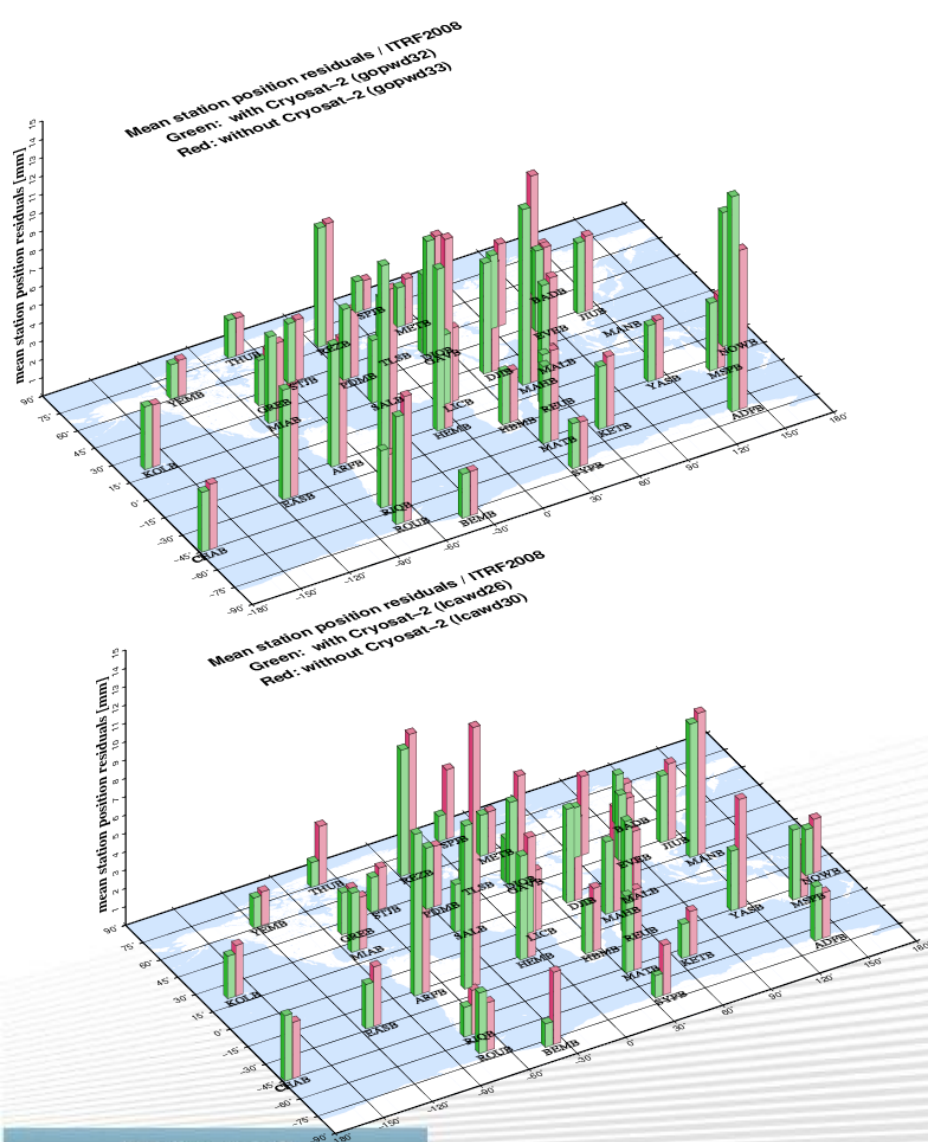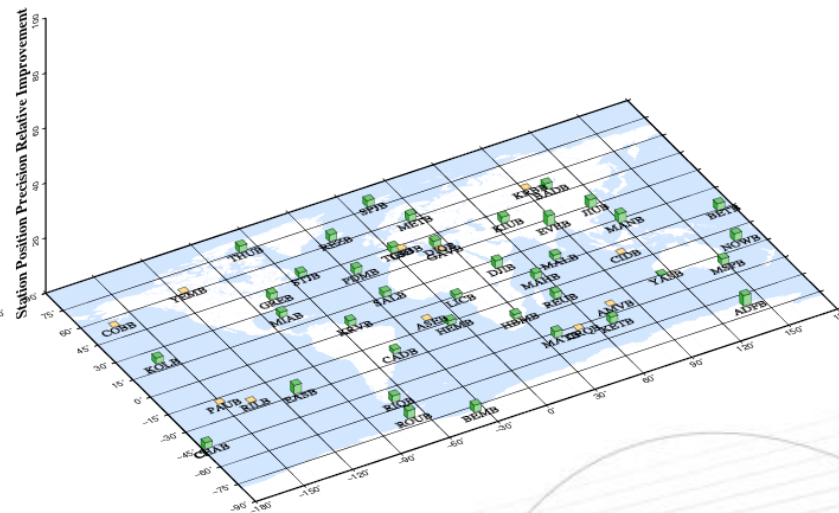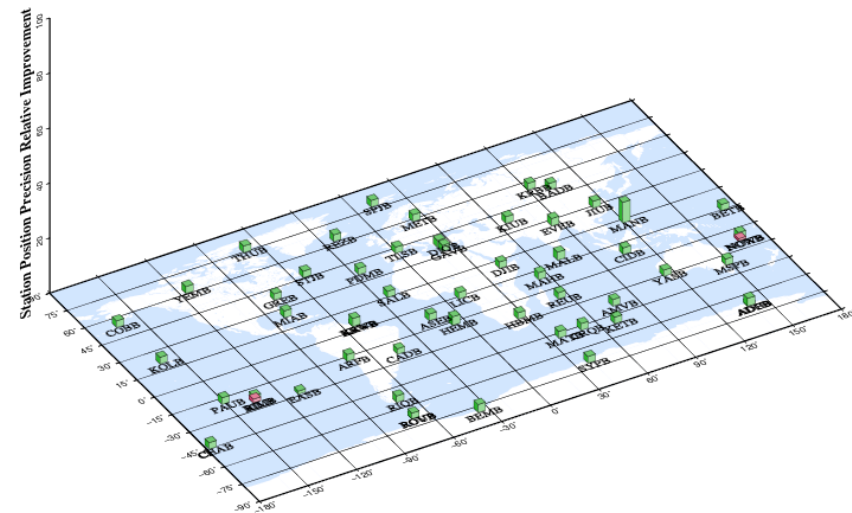
Conclusions:
1) Impact differs on stations and CAs
2) Small impact

(2) May be due to
- Low orbit ➔ max of 3-4 beacons received simultaneously onboard
- Inclination of CY-2 close to majority of DORIS satellites
- Cut-off

What's next ?

- Routine analysis of EOP solutions (AWG IDS action # 10_05)
- EOP analysis of IDS 2010 campaign ouputs

- Routine delivery of combination evaluation outputs to IDS FTP

- Computation of station velocities from combined solutions
- Preparation of ITRF2013

- Analyses of HY-2A impact

- Plottool version dedicated to Helmert parameters
- Abstract for AGU fall meeting
- …

AGU 2012 Fall Meeting

- So far, our session titled « Advances in DORIS Data Applications and Techniques » has been approved by AGU

➔ Next step: promotion of our session to be qualified for an oral slot.

  If less than 25 abstracts will be received from June until august 8th, we will either have to merge with other session(s), or create a poster-only.

➔ Promotion Actions
  - DORISmail
  - Advertisement on the IDS web site homepage
  - E-mails to authors who submitted abstracts to IDS Workshop