CNES/CLS AC SATUS

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IDS AWG meeting, Delft 26-27 May 2016

Status of the routine DORIS data processing

Processing context

•We analyzed DORIS2.2 data with 3.5-day arcs and a cut-off angle of 12°

ITRF2014 configuration

From January 2015 to December 2015

Satellites: SPOT5, JASON-2, CRYOSAT2, HY-2A, SARAL

DORIS data processing results

• DORIS and SLR RMS of fit of the orbit determination

• OPR Acceleration Amplitude: Along-track and Cross-track / Radiation pressure coefficient

SATELLITE	RMS DORIS / SLR (mm/s) / (cm)	OPR amplitude average (10^{-9} m/s^2)		Solar radiation coefficient
		Along-track	Cross-track	
SPOT-5	0.35	2.6	1.5	1.05
JASON-2	0.32 / 1.1	2.6	1.6	0.97
CRYOSAT-2	0.35 / 1.2	3.3	2.4	1.0
HY-2A	0.34 / 1.3	0.5	1.7	0.86
SARAL	0.35 / 1.2	1.6	1.4	1.0

Status of the routine DORIS data processing

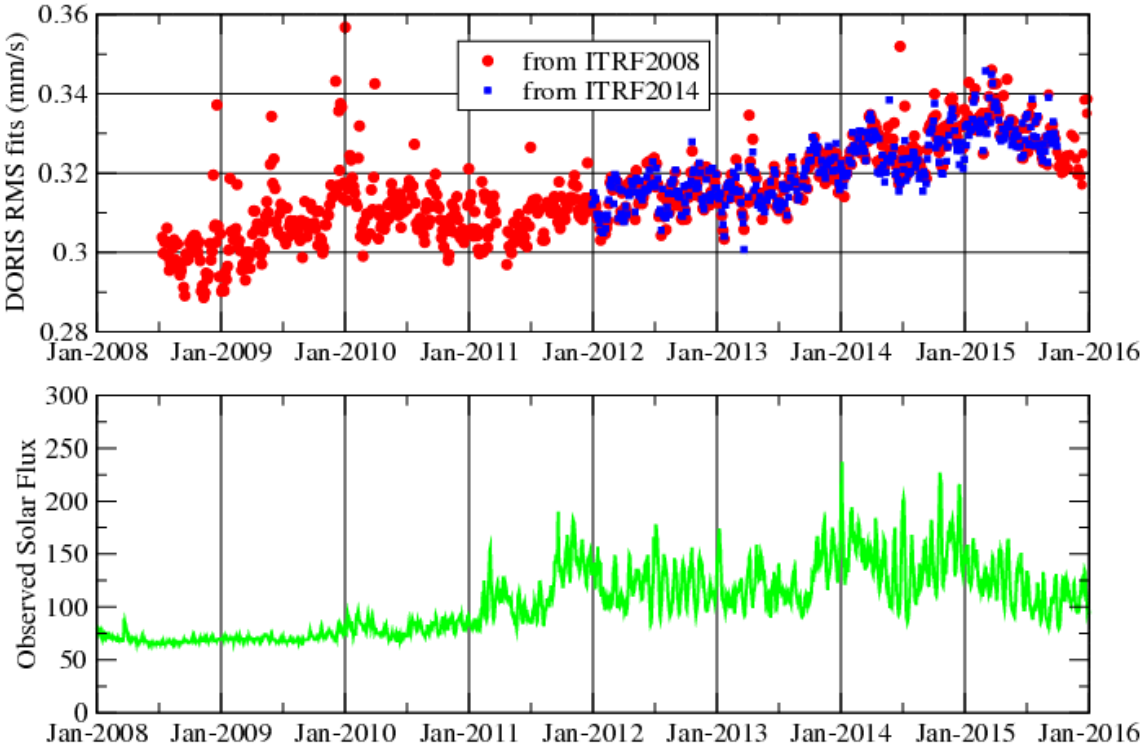
Increase of DORIS RMS of fit of the orbit determination

What is/are the cause(s) of the DORIS residuals increase?

- Use of ITRF/DPOD2008?
- Increase of the solar activity?
- All satellites impacted?

GRG Processing with DPOD2008 and ITRF2014 (with post seismic model)

Jason-2 DORIS residuals



The use of ITRF2014 leads to slightly reduce the RMS

DORIS residuals increase: is it correlated to solar activity? (solar flux)

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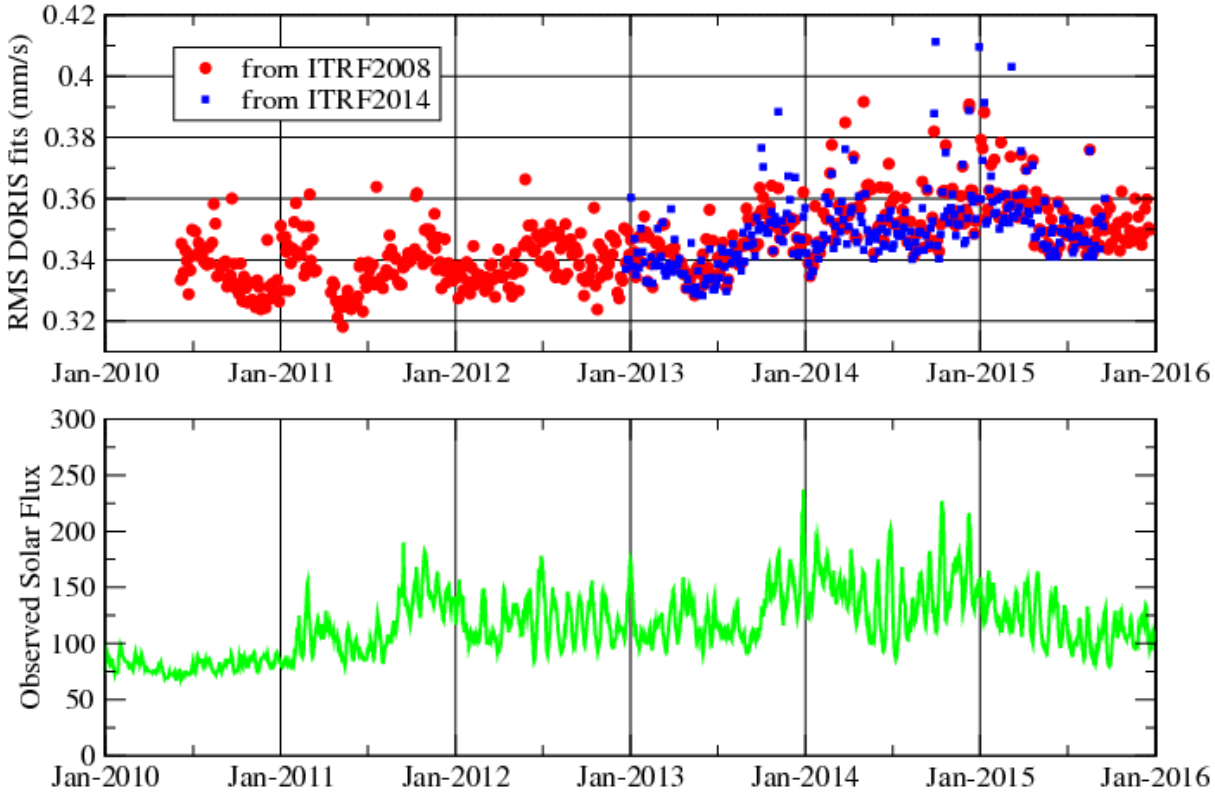
GRG Processing with DPOD2008 and ITRF2014 (with post seismic model)

Cryosat-2 DORIS residuals



There is also an increase of DORIS residuals for CRYOSAT-2

The use of ITRF2014 leads to slightly reduce the RMS

DORIS residuals increase: is it correlated to solar activity? (solar flux)

There is a decrease mid-2015

Status of the routine DORIS data processing

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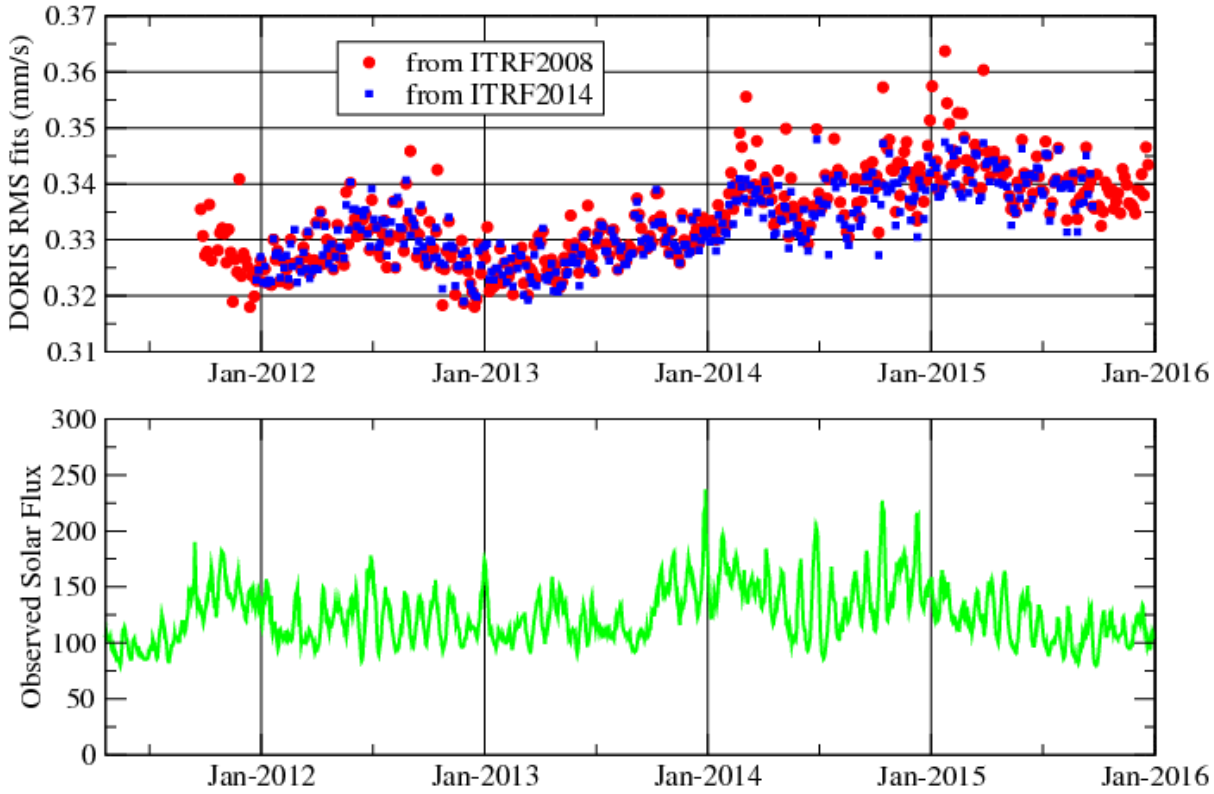
HY-2A DORIS residuals



There is also an increase of DORIS residuals for HY-2A

The use of ITRF2014 leads to slightly reduce the RMS

DORIS residuals increase: is it correlated to solar activity? (solar flux)

There is a decrease mid-2015

Conclusions and perspectives

Conclusions

Increase of DORIS residuals

- There is an increase of DORIS residuals for all DORIS satellites
- The use of ITRF2014 leads to slightly reduce the RMS
- DORIS residuals increase: is it correlated to solar activity (solar flux)
- There is a decrease mid-2015

Perspectives

Complete the study of the impact of tropospheric model / cutoff angle / low elevation data downweighting on the scale and Geocenter

Introduction of Jason-3 (done) and Sentinel-3A (in progress) in the GRG DORIS processing

Integration of data of Jason-3 and Sentinel-3A in the next delivery to CC

Evaluation of the DORIS/RINEX from PANDOR when the problem of time-tagging of the RINEX data will be corrected

Switch to the ITRF2014 (DPOD2014?)

Switch to news models (DTM2013, …)