DORIS/IGN Analysis Center Report

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OUTLINE

- IGN and INASAN developments
- Work done and work to be done
  - Data
  - Models
  - Estimation strategy
- Current problems
- Planned schedule for delivery

IGN and INASAN developments

- Both using GIPSY-OASIS
- Basic assumptions
  - Use different models when possible
  - Provide results of similar quality
- General plan
  - Finalize options for IGN first (namelists)
  - Derive INASAN options.
  - Start IGN (several CPUs) and INASAN (1 CPU) data processing in parallel

DORIS data

- Envisat new data set. Done
- Spot-5 new data set. Not done. Easy
- Jason-1 new data set. Not done. Easy

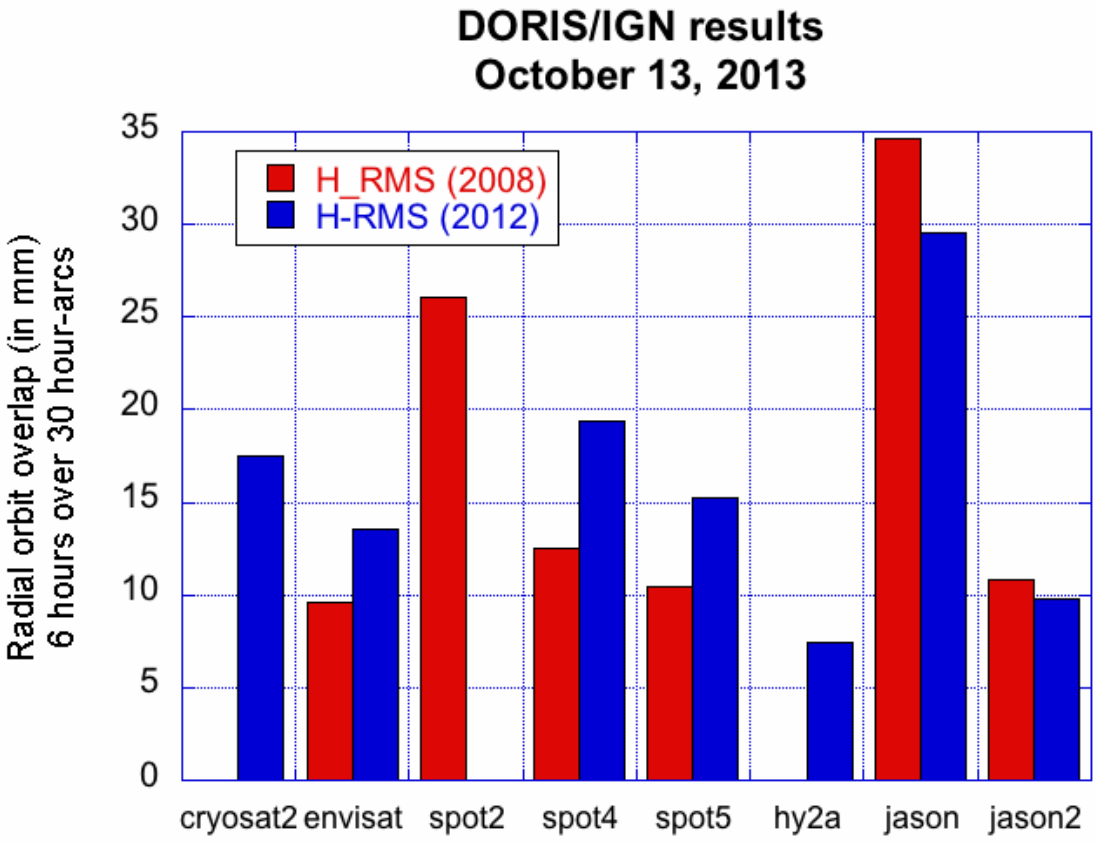
NB: suggestion to put these data in the public CDDIS and IGN data directories

DORIS models

- Gravity field (EIGEN-6S2). Done
- Phase law correction. Done but does not work
- Use of GPT as a priori. Partially done. Moderate
- Satellite physical models using overlaps and once-per-revolution statistics. Partially done. Moderate

NB: will use a second possible gravity field model for INASAN (from GSFC)

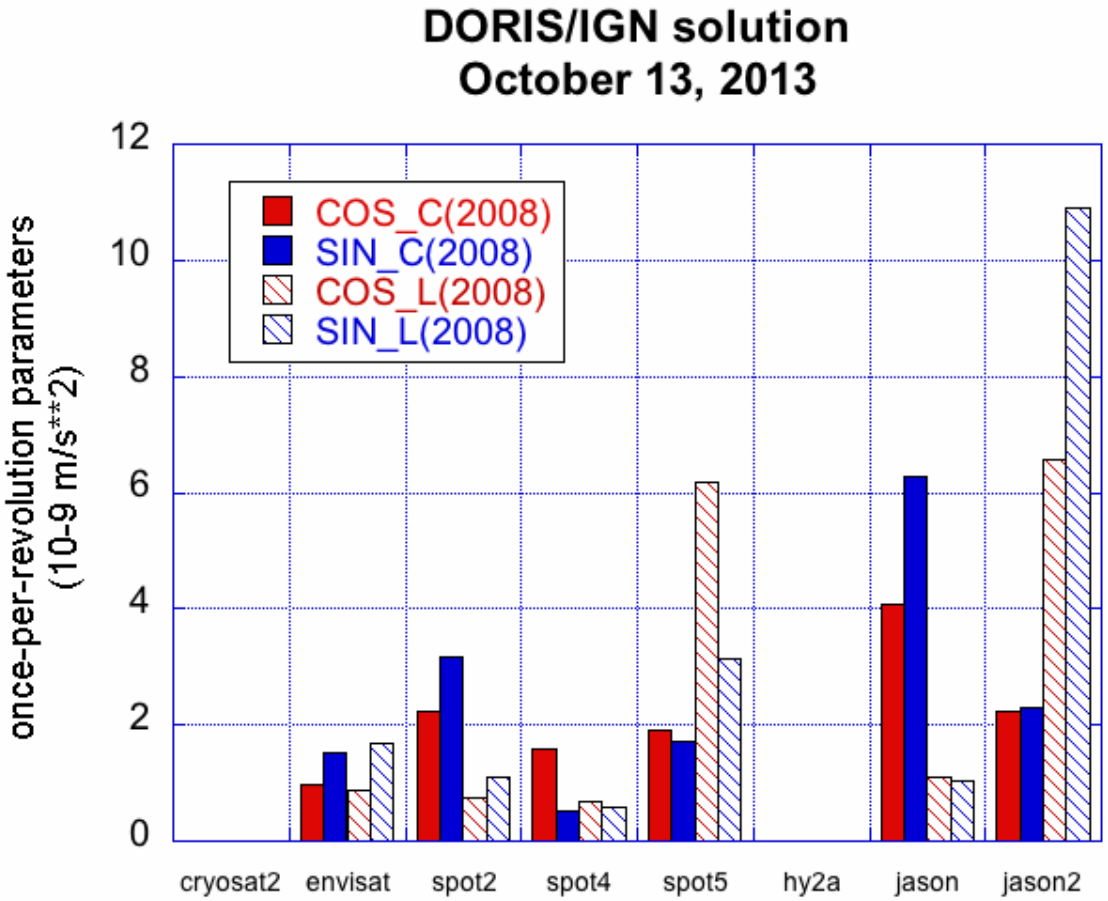
Satellite overlaps



Comments:
-using original data from CDDIS
- deleting Jason data from SAA stations

Conclusions:
-Jason-1 data processing is worse
-may need to recheck spot-2 physical models
- excellent results for hy2a (no tuning) → may consider it for ITRF2013?

Once-per-revolution parameters (2008)



Comments:
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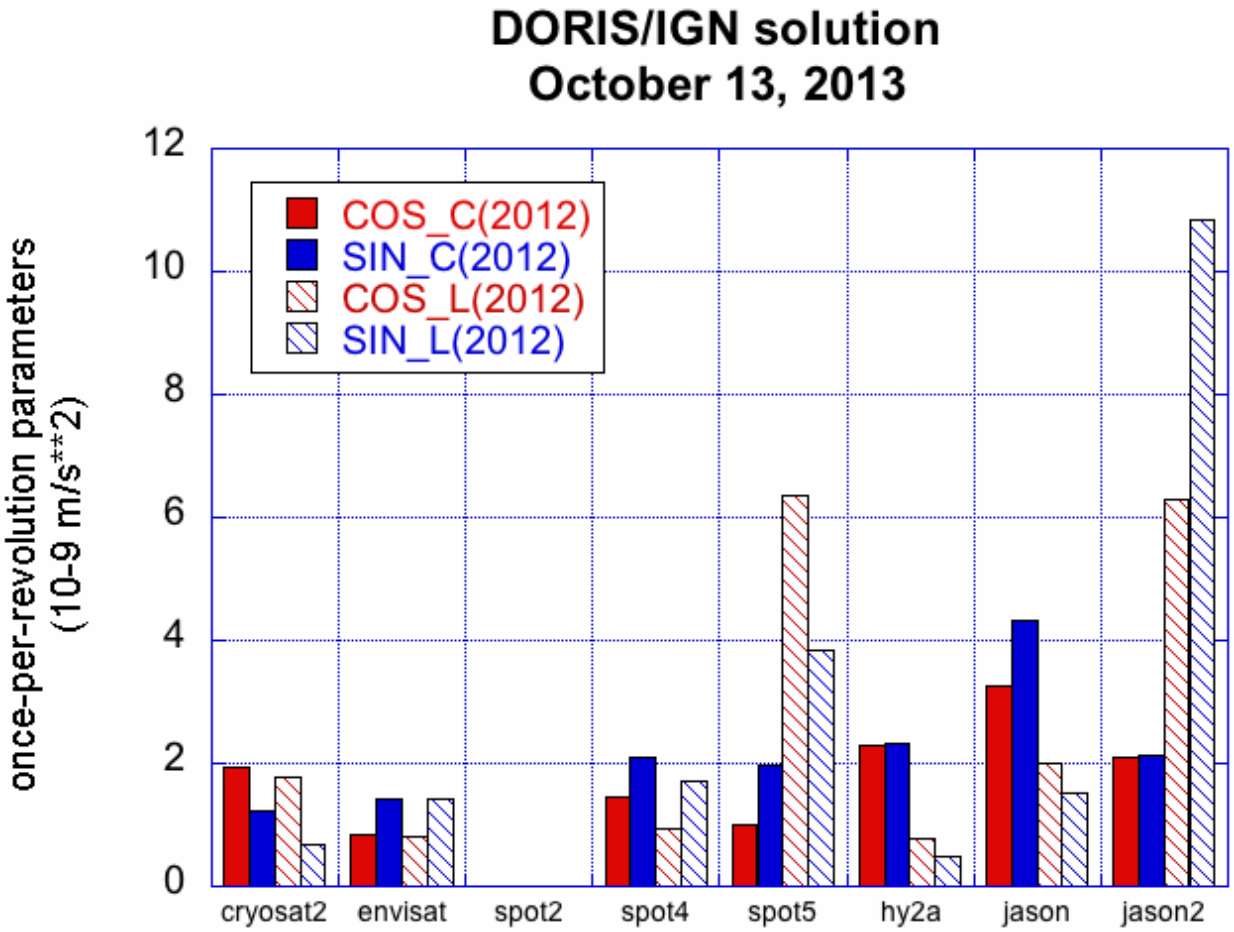
Conclusions:
-Jason-1 data processing is worse
-Jason2 and spot5 require more verifications
-Strong signal present in jason2 oprs
-Moderate signal is present in spot5 oprs

Once-per-revolution parameters (2012)



Comments:

-using original data from CDDIS

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Conclusions:

-Jason-1 data processing is worse

-Jason2 and spot5 require more verifications

-Strong signal present in jason2 oprs

-Moderate signal is present in spot5 oprs

-Good results for cryosat2 and hy2a

Other models

- Use quaternions or attitude models in multi-satellite solutions. Not done. Too difficult
- Troposphere: use VMF-1 or GMF. Done
- Atmospheric loading. Not done. Too difficult.
- Ocean tide model: FES2012. Not tested
- 2nd order ionospheric correction. Will not be done.

Estimation strategy

- Horizontal tropospheric gradients. Done
- Data weigh per satellite. Almost done
- Down-weighting at lower elevation. Almost done.
- Estimating or not cross-track oprs? To be discussed. Easy.

Current problems

- Phase law correction: difficult
- Use of GPT as a priori: may not be needed

Planned schedule

- Reprocessing: 1 year of data = 5.5 days 1 CPU
  - 1993-2013: INASAN (1CPU) = 4 months
  - 1993-2013: IGN (4CPUs) = 1 month
- Validation and transformation into SINEX
  - 2-4 weeks

- Proposal (to be discussed later)
  - Preliminary (incomplete with latest options?) solution in December
  - Updated (1993-2013 with final options) solution delivered on a year-by-year basis