

Jason-1/2/3 and SARAL GDR Status

CNES, NASA, NOAA, EUMETSAT



DSTST meeting

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OSTM - OSTST - 2016



• Jason-1 GDR_E : reprocessing completed end April 2016

De: À: Cc:	Desai, Shailen D (335A) <shailen.d.desai@jpl.nasa.gov> ostst; ostst-users</shailen.d.desai@jpl.nasa.gov>	Date :	lun. 09/05/2016 17	7:25	
Objet :	Jason-1 Version E GDR Release Notice				
Dear OSTST,					
We are pleased to announce that reprocessing of all Jason-1 data, as version "E", is now complete and available for download. This release includes reprocessed data from primary, tandem, and geodetic mission phases, which spans 2002-2013 and includes repeat cycles 1-373, 500-537.					
This new relea Products from Products from	ase takes into account user and cal/val feedback from last year's beta release. this updated release have creation dates ("history" parameter on products) of January 2016 as the last year's beta release have creation dates in 2015, and should be discarded.	nd later.			
The reprocess ftp://avisoftp. ftp://podaac.j	ed data are now available as version "E" GDR data products at the AVISO and PODAAC ftp site cnes.fr/AVISO/pub/jason-1/ pl.nasa.gov/allData/jason1/L2/	s as follo	ows:		
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- One anomaly on the dry tropospheric (see next slides)
- Validation report will be issued by end 2016







> Oscillations in dry troposphere correction were clearly visible in Jason-1 GDR-B data when approaching coasts. The amplitude of these oscillations were more important before the change of ECMWF grids model on 2006-02-01 (corresponds to cycle 150)

> These oscillations were reduced but still visible before cycle 150 (and they disappeared after cycle 150) in GDR-C data thanks to the use of reprocessed ECMWF Surface Pressure files (update 'Met Script' no modifications of the





The use of the sea pressure fields over ocean allows to correct these oscillations (red curve)











➢ Oscillations that were visible on ECMWF minus ERA-Interim difference near coasts before cycle 150 (light blue) are no more visible

We propose to patch Jason-1 GDR-E netCDF with a recomputed dry troposphere correction solution, dry troposphere correction computed with:

✓ the surface pressure ECMWF fields over land

✓ the sea pressure ECMWF fields over ocean













Mission Product Status

- Jason-2 GDR_D since March 2013.
 - Jason-3 using the same standard :
 - O/IGDRs products named 'd' since installation of the corresponding Patch JA3_IPN_2PdP014_068_20160627_225602_20160627_23521 5.nc
 - GDRs products named 'T', modify the version to 'd'.
 - JA3 also available as prototype products (PEACHI)
 - Need to improve communication on DEM tables new web service development ongoing







 Thanks in particular to Ka and SAR modes new data sets, a very large number of proposals could be envisaged for future Jason standard. GDR-E/F could include Either in official data products and/or in a dedicated prototype. We need to consolidate the list of updated in the GDR-E official products

Altimeter Instrument processing :

- JA2 : Apply the 18 cms bias on all retracking estimates (currently done only for ocean retracking)
- Accounting for the CNG steps to improve sigma0 and wind stability
- Numerical retracking and/or Adaptative retracking (Peachi JA3) accounting for real antenna aperture (in addition to MLE4, only for GDRs ?)
- Accounting for SST impacts on sigma0 values (Ka band, but not null as well on Ku band)
- DCore and/or 2 pass retracker (but mostly for geodesic missions so lower priority → GDR-F for JA2 when on its geodetic orbit ?)
- Waveform classification (J.C. Poisson)











Altimeter Instrument processing :

- New SSB table on JA2 (inline with JA1 ..) and updated ionospheric correction (CLS JA1 poster), define the best way to fix the mean of the SSB tables (JPL 'Zero significance' method)
- SSB 3 parameters (Peachi SRL and JA3)
- Compute the SSB from SWH and sigma0 instead of SWH and wind
- 1Hz averaging (which degrades the data quality W. Smith)
- Filtering, editing including rain flag.

Radiometer Instrument processing :

- Fix the anomaly on the AMR land flag
- Try to improve the wet tropospheric correction for early JA3 cycles (remaining 2.4 mm drift noticed)
- Increase GDR latency to account for most accurate Cold Sky calibrations (impacts JA2/JA3 System







• <u>POD:</u>

- Just follow the improvements
- And provide tools to update past products with new POE standards (or different orbits : JPL, GSFC, ...)

Geophysical correction :

- New tides solutions (FES2014b GOT v4.10xx)
- New MSS (DTU15 and CNES&CLS_2015)
- New geoid model (same as JA1 GDR-E)
- New DAC/Mog2D/T-UGO (TBC using the grid from FES2014b)
- Distance to the coast, tentatively inline with SAR group expectation (along track cross track – angle of attack)
- Add the DAC in OGDR products
- Compute the wet and dry tropo correction from ECMWF 3D fields (for inland water and ice).
- New pole tide solution (S. DeSai and co).
- Add one internal tide solution, not applied on the SSHA field (M2 R. Ray)
- Review the tides variables in the Netcdf products











- SARAL GDR-D (Patch 2) since mid 2013
 - new version planned in 2017 TBC (GDR-E) including a full reprocessing of GDR products. Standard inline with the one applicable to Jason-2/3 with additional evolutions to account for SARAL additional objectives over land ice and sea-ice
 - Ice2 retracking accounting for the actual antenna apperture
 - DCore and/or 2 pass retracker
 - Updated radiometer wet tropospheric correction
 - Platform mispointing values
 - Arctic tide solution from Noveltis&co
 - We will provide a techn note to describe the foreseen evolutions in the coming weeks.
 - SARAL has also provide some waveforms at the altimeter PRF (1) second – about 1000 acquisitions performed yet).
 - Also available as prototype products (PEACHI)









• Proposes evolutions summarized below :

Category	Algorithms available	PEACHI Prototype / SARAL 'GDR-E'
Altimaton proceeding	Antenna Gain Pattern	PEACHI / SARAL 'GDR-E'
Animeter processing	DCORE retracker	PEACHI
Wind speed	2D wind speed	PEACHI / SARAL 'GDR-E'
Sea State Bias	2D Sea State Bias	PEACHI / SARAL 'GDR-E'
	3D Sea State Bias	PEACHI
Continental Ice	Snow Classification	PEACHI / SARAL 'GDR-E'
Cas Tas	Sea Ice Flag	PEACHI / SARAL 'GDR-E'
Sed Ice	Radar freeboard estimation	PEACHI
Radiometer algorithms	Updated Wet Tropospheric Correction	PEACHI / SARAL 'GDR-E'
Tide Models	FES2014	PEACHI / SARAL 'GDR-E'

- Mis Pointing values derived from platform STRs
- Artic Tide solution developed by Nolvetis and co
- 3D wet and dry tropospheric corrections

