Consistency between OSTM/Jason-2 and Jason-1 data: Results at Senetosa CalVal Site (Mediterranean Sea)

and 2008 improvements on the CalVal processing software

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Posters topic: 1 - CALVAL investigations, data consistency

See also related topic on poster **FOAM** : From Ocean Inland Waters Altimetry Monitoring (P. Bonnefond et al.)

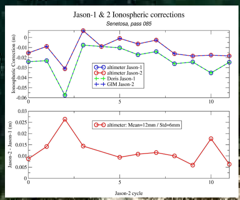
Jason-1, OSTM/Jason-2 Formation Flight Phase first results at Corsica CalVal site

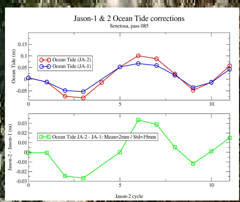
The products used are **IGDR-C for** Jason-1 (bin format) and OSTM/Jason-2 (NetCdf format). For cycles 0 to 11, 10 cycles are in common for both satellites. Cycle 2 has been rejected due to a sigma bloom and cycle 4 is not used because of Jason-1 lack of data (safehold mode from 2008/08/07 to 2008/08/13)

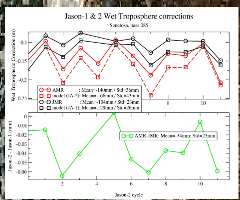
OSTM/Jason-2 – Jason-1 corrections:

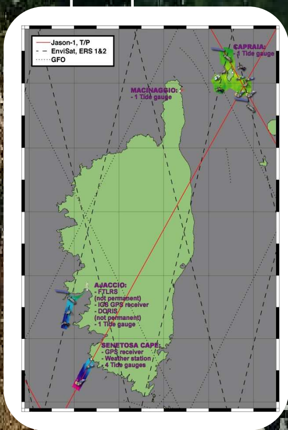
Jason-2 - Jason-1 Corrections	Mean(mm)	Std (mm)
Wet Tropo (model)	-37,74	-53,57
Wet Tropo (AMR-JMR)	-35,98	-41,91
Dry Tropo (model) ?	-436,26	-667,19
Iono (alt)	12,14	-3,80
SSB	-13,70	-2,05
Ocean Tide	-0,12	-19,59
Load Tide	-0,44	1,71
Solid Tide	-12,44	4,98
Polar Tide	-1,30	12,14
Inverse Barometer	-0,13	-2,48
Total Correction	-488,22	

Other parameters	Mean	Std
Orbite-Range(m) ?	8,68	-12,91
SWH(m)	0,25	-0,02
WindSpeedRad (m/s)	-10,02	-6,97
WindSpeedAlt (m/s)	-17,04	-30,81
Sigma0 (dB)	2,18	1,45

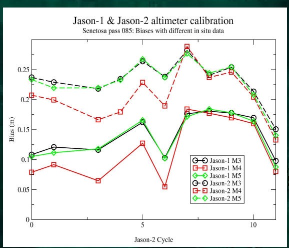


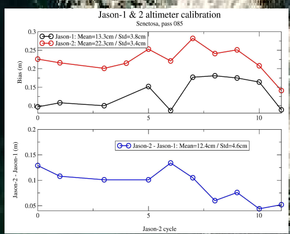






OSTM/Jason-2 – Jason-1 Biases:





Jason-1 GDR-B and GDR-C preliminary results at Corsica CalVal site

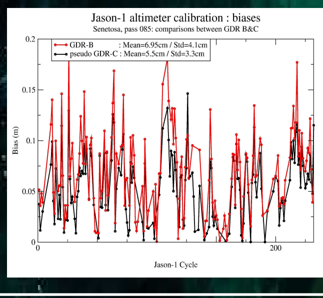
We compared here the two products **GDR-B and GDR-C** (bin format), with 127 cycles from 001 to 232.

GDR-C – GDR-B corrections:

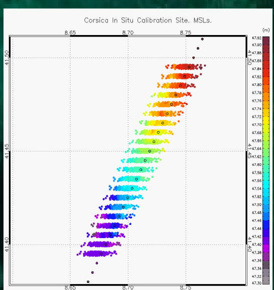
GDR-C - GDR-B Jason-1 Corrections	Mean(mm)
Wet Tropo (model)	-0,98
Wet Tropo (JMR)	-1,82
Dry Tropo (model) ?	-19,14
Iono (alt)	3,96
SSB ?	19,37
Ocean Tide	0,15
Load Tide	0,00
Solid Tide	-0,82
Polar Tide	-0,03
Inverse Barometer	-1,72
Total Correction	**-0,05**

Other parameters	
Orbite-Range(m)	0,37
SWH(m)	0,01
WindSpeedRad (m/s)	0,33
WindSpeedAlt (m/s)	-1,28
Sigma0 (dB)	0,10

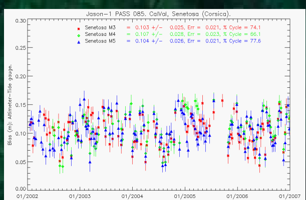
GDR-C – GDR-B Biases:



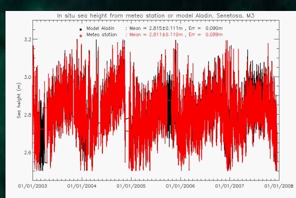
2008 improvements on calibration and validation method named ALCIOM



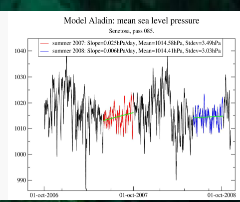
1/ Consideration of the cross track sea surface heights (SSH) slope in the measurement points inside the footprint of the radar spot.



2/ Increase of the number of the reference latitudes to compute SSH biases. It leads to a statistically more robust result.
In 2007 we used only 1 computation point (reference latitude) whereas in 2008 we use 50 computation latitudes.



3/ Addition of Aladin atmospheric model fields (Météo-France) in the processing software, in order to recover the possible lack of data in meteorological station in situ.
- First plot: we observe a good consistency between the in situ sea height computed with the meteo station and the one computed with the model. The mean difference is equal to 4mm.
- Second plot: the SSH bias is improved, with a larger number of valid cycles.



→ The latter development on ALCIOM software enabled to detect a particularity in 2008 atmospheric mean sea level pressure, at Senetosa. Seasonal summer cycle appears smoothed compared to the previous ones.

Aknowledgments Claude Gaillemin (P.E.M, Propriano) who insures the instruments turnover on the CNES calibration site. He solves practical problems on site.
He is in the CalVal team and participates to the CalVal project, making it possible. Background photo from Claude Gaillemain

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