

Centre de Topographie des Océans et de l'Hydrosphère *

Established in 1989, the Centre for Topographic studies of the Oceans and Hydrosphere (CTOH) is a French national observational service dedicated to satellite altimetry studies. The principal objective of the CTOH is to develop and maintain altimetric data bases with homogeneous, up-to-date corrections for the long term monitoring of sea level, lake and river levels, and the cryosphere for use in climate studies.



1) Spatial coverage of Jason -2 vs Jason-1 close to the coasts

Mediterranean CALVAL
Hilly Coast

Amazone CALVAL
Flat Coast

Labrador Sea CALVAL
Presence of Sea Ice

Figure: Example of IGDR coastal data coverage for the Jason-2 calibration phase, based on Jason-2 cycles 5-19 and Jason-1 cycles 244-259: Jason-2 (red) and Jason-1 (blue) superposed. Map colors used in this study: Blue for Open ocean, Turquoise for Shelf < 1000 m and Green for distances < 50 km from coast.

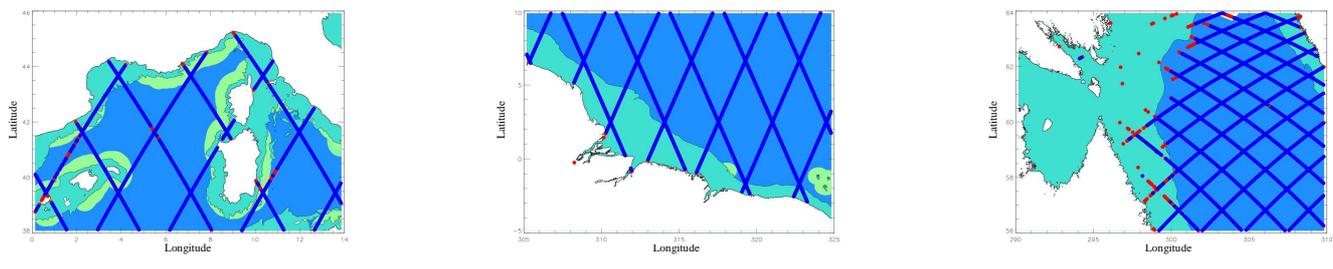
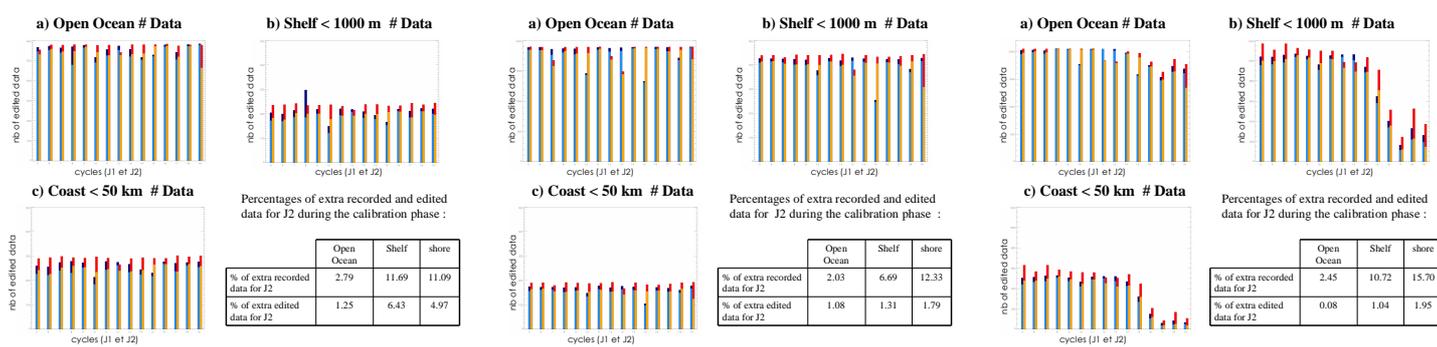


Figure: Comparison of the number of edited and non-edited data between J1 and J2 over J2 cycles 5 to 19 for each area: open ocean, shelf and shore. Bar plot color use: ■ J1 noedit □ J1 +edit ■ J2 noedit ■ J2 +edit



Jason-2 has more data available before editing, especially in the coastal zones. This extra J2 data is largely eliminated after standard editing is applied. Note the large differences in data coverage when sea ice is present (Labrador Sea, cycles 15-19).

2) Impact of Standard Editing : Editing on rms sigma0 in the Ku band

Figures below : upper panel: Example of standard editing for the J2 track 187 in the western Mediterranean. Black line shows SLA. Green line is dsla/dx.

- Standard Editing applied (Jason-2 Handbook (without Radiometric terrain mask)) :**
- range_numval_ku 10 ≤ x
 - range_rms_ku 0 ≤ x (mm) ≤ 200
 - altitude - range_ku -130 000 ≤ x (mm) ≤ 100 000
 - model_dry_tropo_corr -2 500 ≤ x (mm) ≤ -1 900
 - rad_wet_tropo_corr -500 ≤ x (mm) ≤ -1
 - iono_corr_alt_ku -400 ≤ x (mm) ≤ 40
 - sea_state_bias_ku -500 ≤ x (mm) ≤ 0
 - ocean_tide_soil -5 000 ≤ x (mm) ≤ 5 000
 - solid_earth_tide -1 000 ≤ x (mm) ≤ 1 000
 - pole_tide -150 ≤ x (mm) ≤ 150
 - swh_ku 0 ≤ x (mm) ≤ 11 000
 - sig0_ku 7.5 ≤ x (dB) ≤ 30
 - wind_speed_alt 0 ≤ x (m/s) ≤ 30
 - off_nadir_angle_wf_ku -0.2 ≤ x (deg) ≤ 0.64
 - sig0_rms_ku x (dB) ≤ 1
 - sig0_numval_ku 10 ≤ x

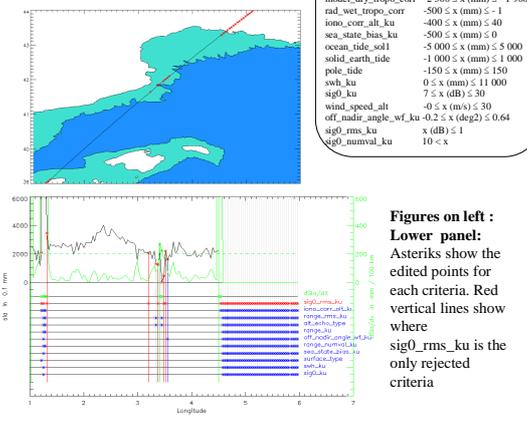
Mediterranean CALVAL
Hilly Coast

Labrador Sea CALVAL
Presence of Sea Ice

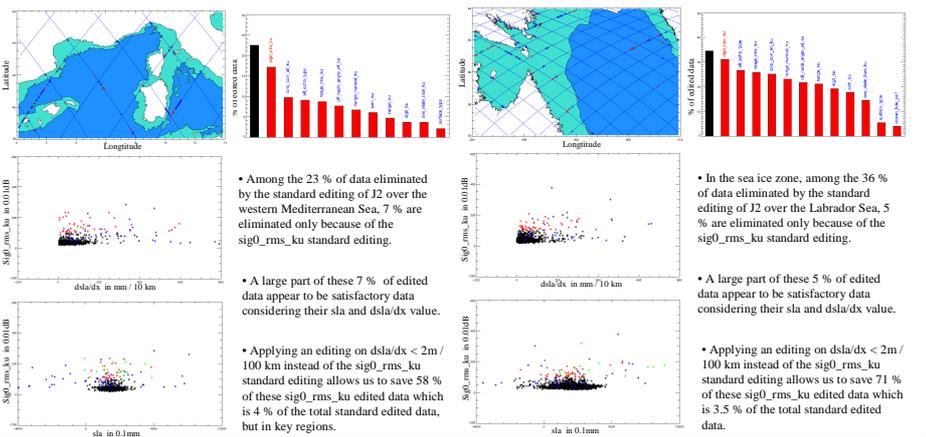
Figures : (upper panels) : Analysis of data eliminated for cycle 17 of Jason2, using the standard editing listed (see panel on left). (lower panels) Impact of using a dsla/dx editing criteria instead of a sig0_rms_ku criteria.

Figures : Same analysis but for data eliminated for cycle 6 of Jason2 in the Labrador Sea

Data color code used: * : non-edited data; : data edited by any of the standard editing criteria except sig0_rms_ku
 * : data only edited by sig0_rms_ku standard editing; : data edited by sig0_rms_ku standard editing and dsla/dx < 2 m/100km



Figures on left : Lower panel: Asterisks show the edited points for each criteria. Red vertical lines show where sig0_rms_ku is the only rejected criteria



- Among the 23 % of data eliminated by the standard editing of J2 over the western Mediterranean Sea, 7 % are eliminated only because of the sig0_rms_ku standard editing.
- A large part of these 7 % of edited data appear to be satisfactory data considering their sla and dsla/dx value.
- Applying an editing on dsla/dx < 2m/100 km instead of the sig0_rms_ku standard editing allows us to save 58 % of these sig0_rms_ku edited data which is 4 % of the total standard edited data, but in key regions.

- In the sea ice zone, among the 36 % of data eliminated by the standard editing of J2 over the Labrador Sea, 5 % are eliminated only because of the sig0_rms_ku standard editing.
- A large part of these 5 % of edited data appear to be satisfactory data considering their sla and dsla/dx value.
- Applying an editing on dsla/dx < 2m/100 km instead of the sig0_rms_ku standard editing allows us to save 71 % of these sig0_rms_ku edited data which is 3.5 % of the total standard edited data.

Conclusion: In the CTOH alongtrack data processing, we will now be applying alongtrack changes in ocean parameters, in addition to cutoff criteria for extreme individual points.

Contact:
 CTOH/LEGOS, 18 Avenue Belin 31401 Toulouse France
 Tel : 05 61 33 29 03 Fax: (33) 5 61 25 92 05
<http://www.legos.obs-mip.fr/en/observations/ctoh/>
 Email : [ctoh_products@notos.cnes.fr](mailto:ctoh_products@notos.cst.cnes.fr)
ctoh_products@legos.obs-mip.fr

Applying an editing on dsla/dx (dsla/dx < 2m/100km) instead of the standard sig0_rms_ku editing allows us to gain several % of J2 edited data, and in key shelf circulation regions.