Jason-3 GDR standard update to GDR-G

The GDR-G standard, presented at the 30 Years of Progress in Radar Altimetry Symposium in Montpellier (France) in September 2024, improves sea level retrievals and ensures better consistency between altimetry missions. This standard will be shared with Sentinel-3 and Sentinel-6 to achieve the best scientific data processing algorithms available.

The Jason-3 GDR-G processing baseline will be used in the operational stream from the beginning of the second tandem phase with Sentinel-6A in January 2025, so that (O/I)/GDR products produced thereafter will have been generated with this standard.

A full mission reprocessing is planned for early 2026, after an intermediate update in 2025 to improve low SWH management.

1. Model Changes

- Orbit model: POD standard upgrades to MOE/POE-G
- ocean and load tides model: FES upgrades to FES2022_B
- mean sea surface: MSS 1 upgrades to MSS Hybrid 2023
- mean sea surface: MSS 2 upgrades to MSS DTU21
- mean dynamic topography: MDT upgrades to CNES_CLS_MDT_2022

2. Processing Changes

- Equatorial band correction
- Correction of J3 AMR drift [JPL correction]
- Correction of AGC drift
- Harmonizing 1Hz datation with S6/S3
- Evolution of the filtering of the filtered bifrequency iono correction
- FES2022: The mass conservation is now included in the ocean_tide_eq computation

3. Format Changes

- Source global attribute « Processing Baseline G v1.00 »

- Filename change f→g
  JA3_<O/I/G>P<N/R/S>_2P<v><S/P><ccc>_<ppp>_<yyyymmdd_hhnnss>_<yyyymmdd_hhnnss>.nc with <v> updates from « f » to « g »

- variable name change
  - Mean_sea_surface
    - mean_sea_surface_cnescls → mean_sea_surface_sol1
    - mean_sea_surface_dtu → mean_sea_surface_sol2
    - mean_sea_surface_cnescls_interp_qual → mean_sea_surface_sol1_interp_qual
    - mean_sea_surface_dtu_interp_qual → mean_sea_surface_sol2_interp_qual
    -
  - ocean tide
    - ocean_tide_got → ocean_tide_sol1
    - ocean_tide_fes → ocean_tide_sol2
    - ocean_tide_got_interp_qual → ocean_tide_sol1_interp_qual
    - ocean_tide_fes_interp_qual → ocean_tide_sol2_interp_qual
  - load tide
    - load_tide_got → load_tide_sol1
    - load_tide_fes → load_tide_sol2
- Add new variables for accuracy
  - mean_sea_surface_sol1_acc
  - mean_sea_surface_sol_acc
  - mean_dynamic_topography_acc
- obsolete variables suppression
  - Alt_qual
  - geo_qual
  - rad_qual
- MLE3 retracker variables suppression

- o for all datasets: ssha_mle3, sea_state_bias_mle3, iono_cor_alt_mle3, iono_cor_alt_filtered_mle3, wind_speed_alt_mle3
  - o for SSHA dataset: range_ocean_mle3, swh_ocean_mle3, sig0_ocean_mle3, iono_cor_alt_mle3, iono_cor_alt_filtered_mle3
- Add adaptive retracker variables added
  - o in SSHA dataset: range_adaptive, swh_adaptive, sig0_adaptive, sea_state_biais_adaptive, iono_cor_alt_filtered_adaptive
  - o in all datasets: ssha_adaptive
- Change group from data_01 to data_01/ku for variables: wind_speed_alt, wind_speed_alt_adaptive
- Variables added in GDR dataset: wvf_main_class_score, wvf_second_class, wvf_second_class_score
- numval:valid_max = 21b for 1Hz compression
- Changes on "comment", "long_name", "flag_meanings" fields on several variables