

# Copernicus POD Service

## SENTINEL-6 COPERNICUS POD SERVICE

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# SENTINEL-6 CPOD SERVICE

## GOALS AND CONFIGURATION



- GOAL: To improve the orbit modelling of Sentinel-6A to enhance the quality of the precise orbital products.
- Configuration:
  - POD SW: NAPEOS
  - Observations: Galileo, GPS, Galileo + GPS; 30 seconds sampling
  - GNSS products: CODE Rapid orbit, clock (30 s), and phase biases 
  - Determination arc: 24 hours
  - Gravity field model: COST-G 2112 
  - Ambiguity fixed solutions
    - With GPS, no mixing of L1W/L2W and L1C/L2C ambiguities due to lack of temperature corrected biases in RINEX (TBD)
  - Estimated orbital parameters
    - State-vector
    - CD = 1.0 fixed
    - CR = 1.0 fixed
    - CPR (constant per revolution): 6 empirical parameter sets consisting of:
      - Along-track constant, sine and cosine
      - Cross-track constant, sine and cosine

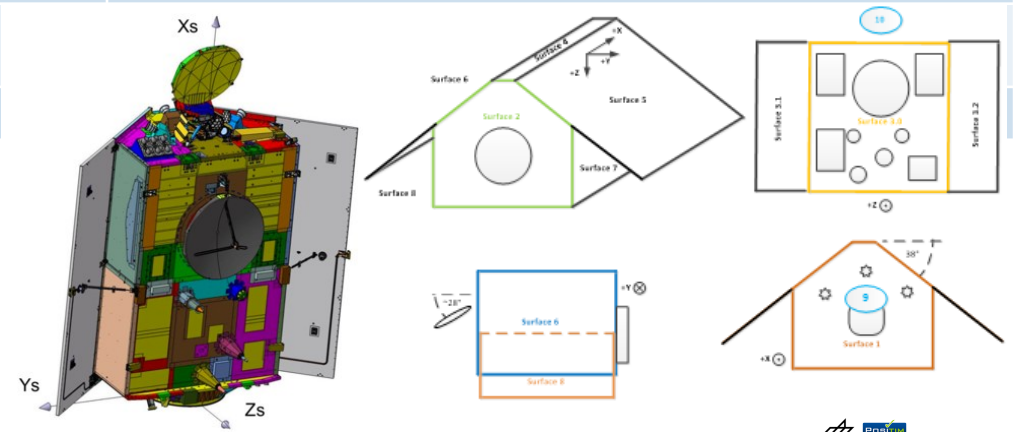
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## MACRO-MODEL CONFIGURATION

Original	New (S6A POD Context v2.0)
10 panels, but two of them are set to zero	12 panels, inner sides of solar panels are added <ul style="list-style-type: none"> <li>• Optical properties have changed for the panels</li> <li>• Areas are adopted</li> </ul>
+/- y areas are estimated with 1.03 m <sup>2</sup> , because most of the areas is shaded by solar panels	+/- y areas are still used/estimated with 1.03 m <sup>2</sup> , because most of the areas is shaded by solar panels (deviation from document)
+z area is considered as a plate covering the entire bottom of the satellite from one solar panel to the other => empty space below the solar panels is ignored	+z area is much smaller, because empty space is not ignored

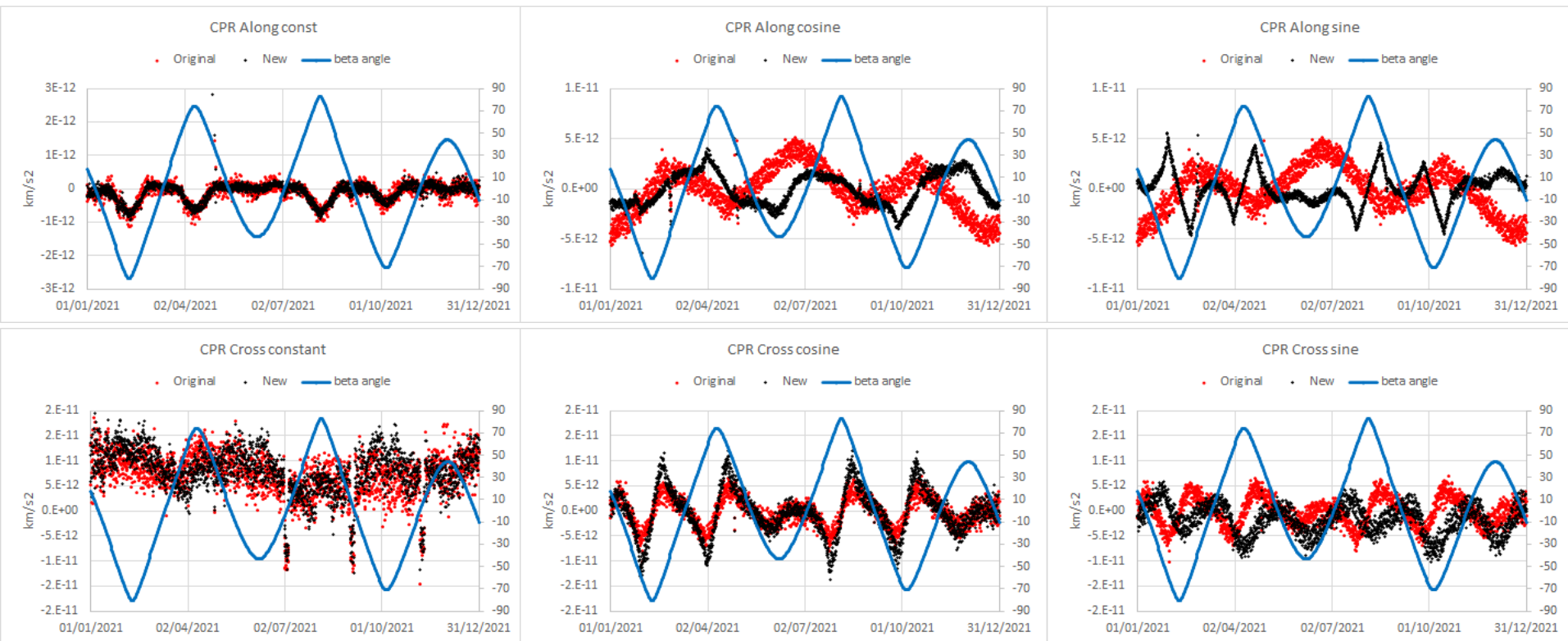
Area of AMR (instrument at the front of the satellite) is completely ignored (set to zero)

Re-radiation is active for all areas, including solar panels



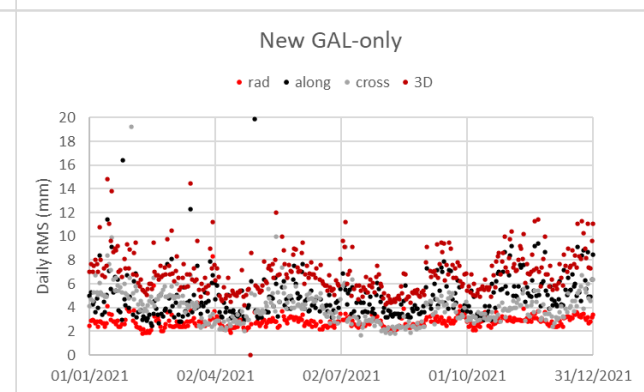
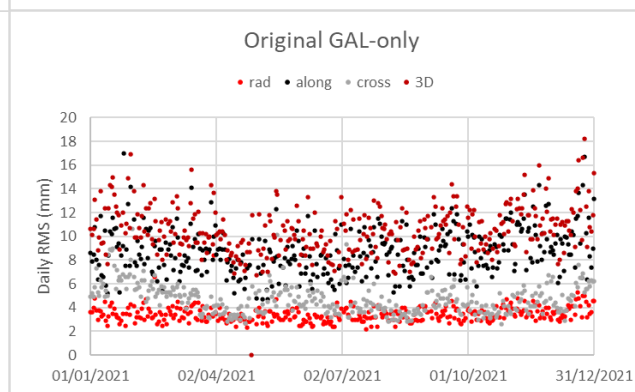
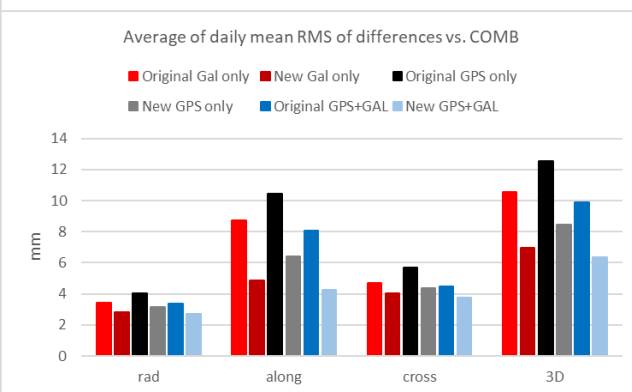
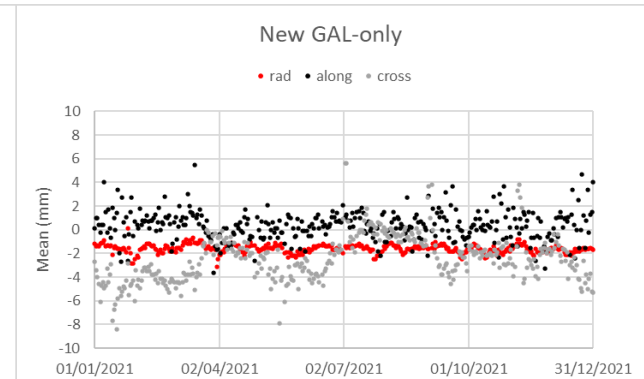
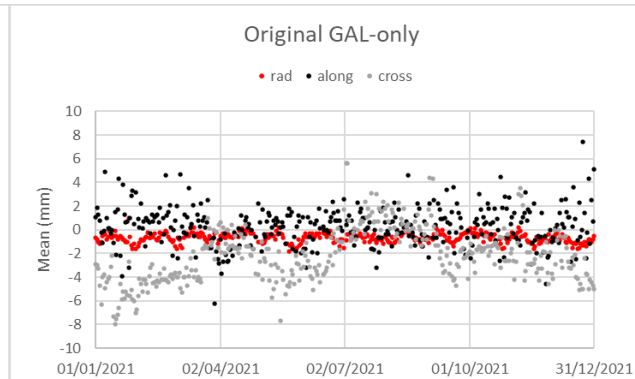
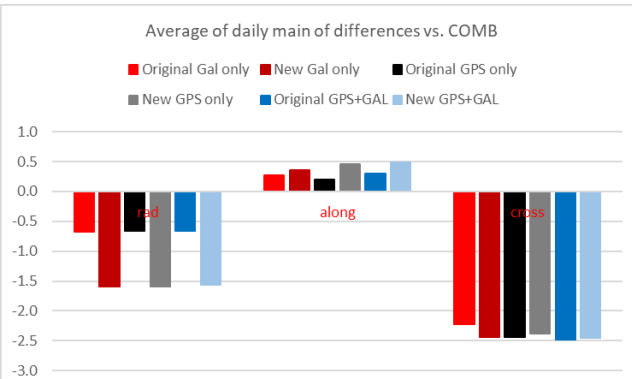
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## EMPIRICALS



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## ORBIT COMPARISONS VS. CPOD COMB SOLUTION



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## CONCLUSIONS

- New macro-model shows improvements on empiricals, and comparisons vs. the combined solution
- However there is still the need to improve the modelling, as there are still clear signals in the empirical
- There is a need to correct the RINEX observations to allow a GPS ambiguity fixing, mixing signals
- Once modelling is agreed among the CPOD QWG, a reprocessing is needed to generate a new combined solution



# Thank you

## Copernicus POD Service

Jaime Fernández (GMV)

Heike Peter (POSITIM)

Marc Fernández (GMV)

Pierre Féménias (ESA/ESRIN)

Yago Andres (EUMETSAT)

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