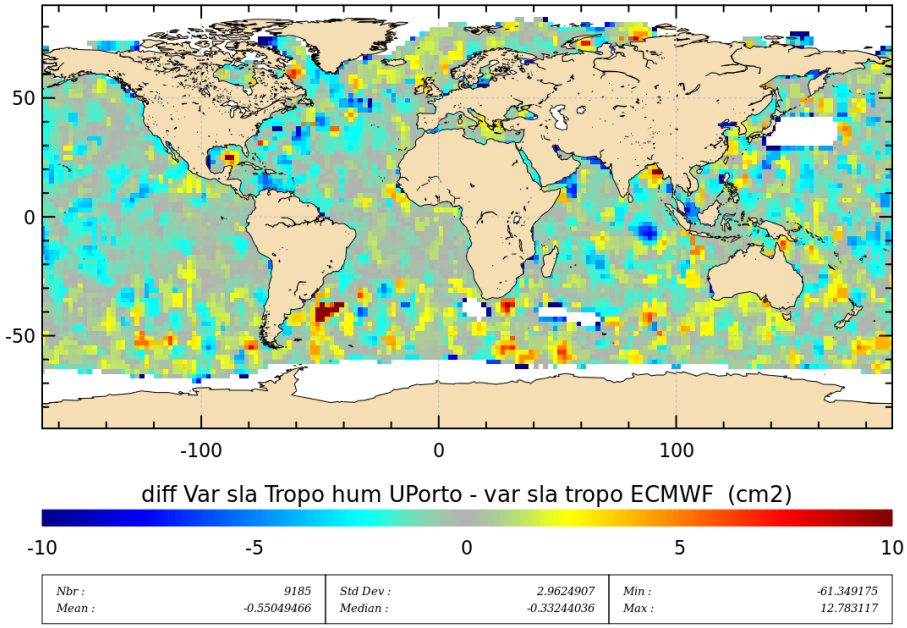
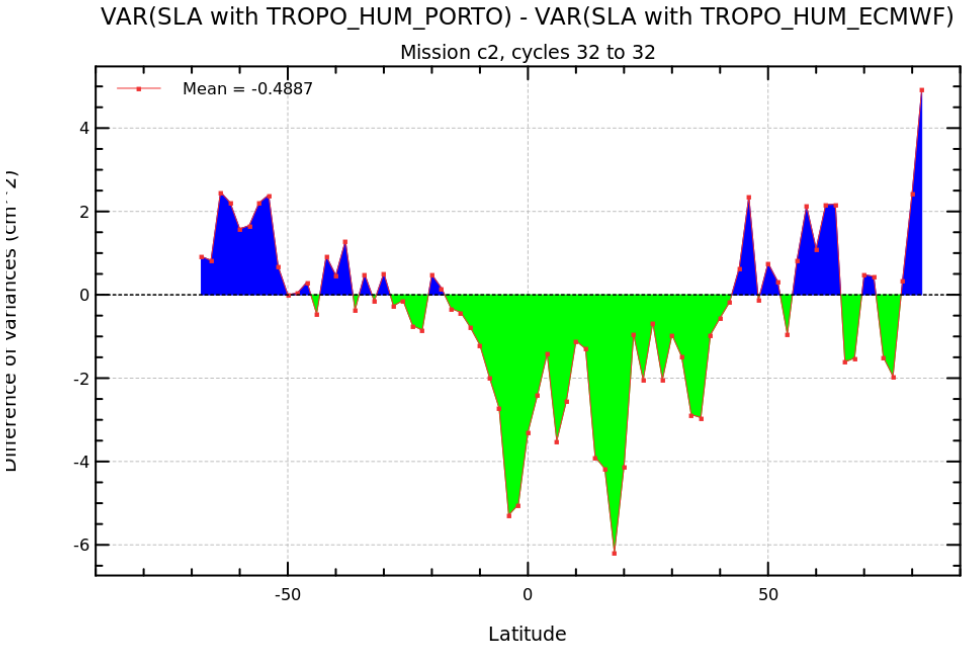
WP 5000
Assessment of Global DComb Wet Tropospheric correction (U.Porto) vs ECMWF model

M. Raynal, T. Moreau, S. Labroue, J. Fernandez, N. Picot, F. Boy

Dcomb Wet Tropospheric Correction

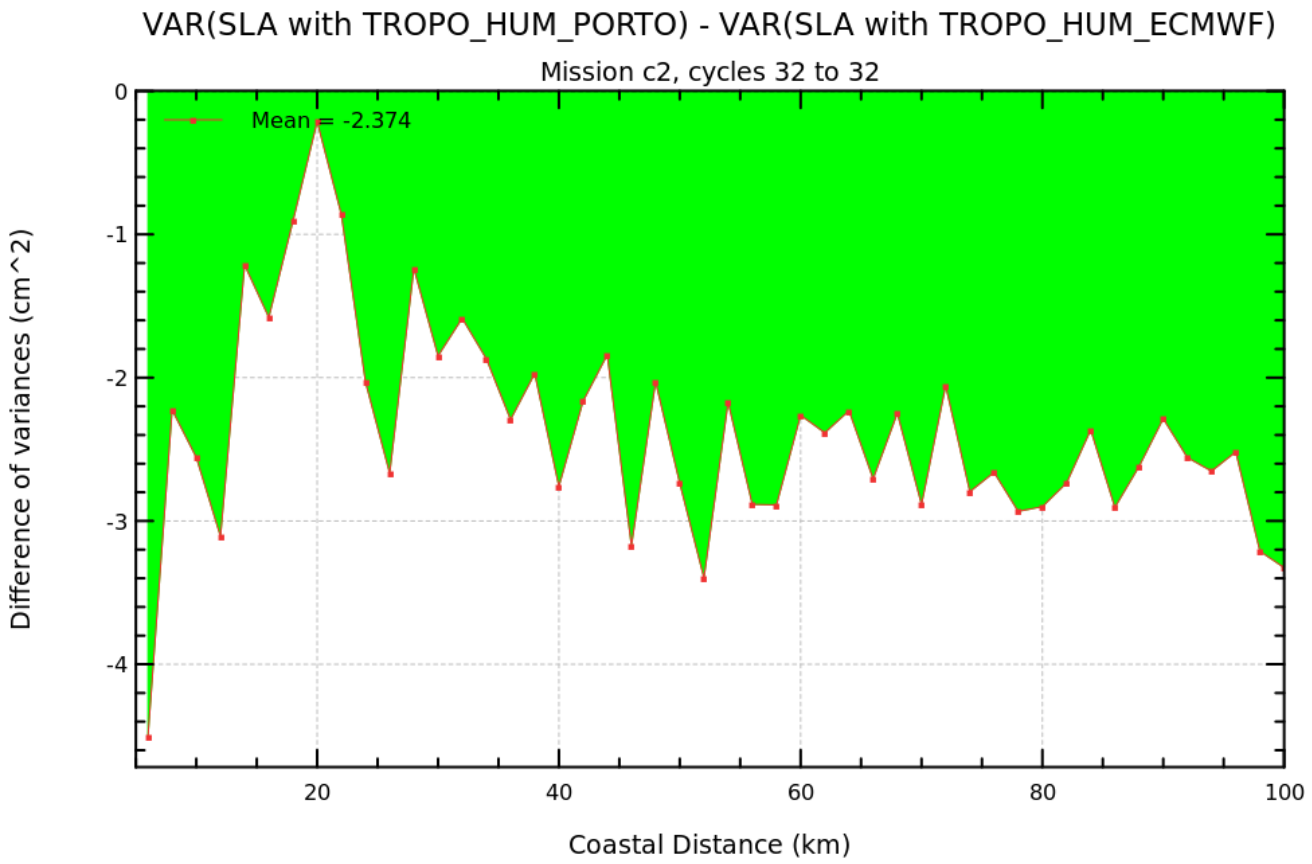
- **An appreciable improvement in the equatorial band and for middle latitudes**
- **Slight degradation for high latitudes above 50°**





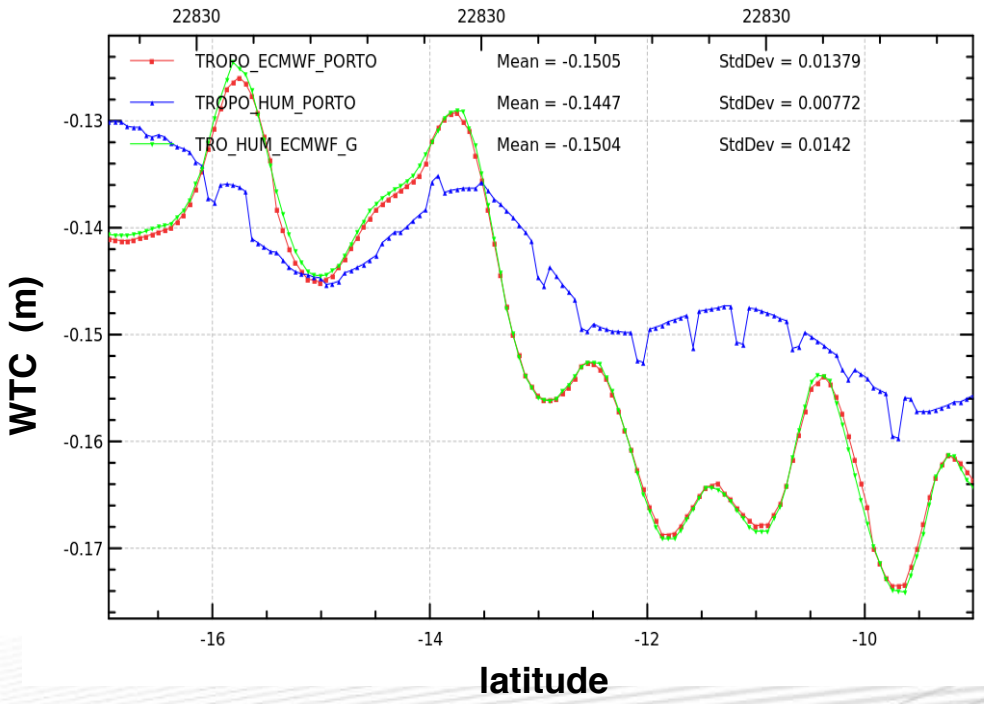
Dcomb Wet Tropospheric Correction

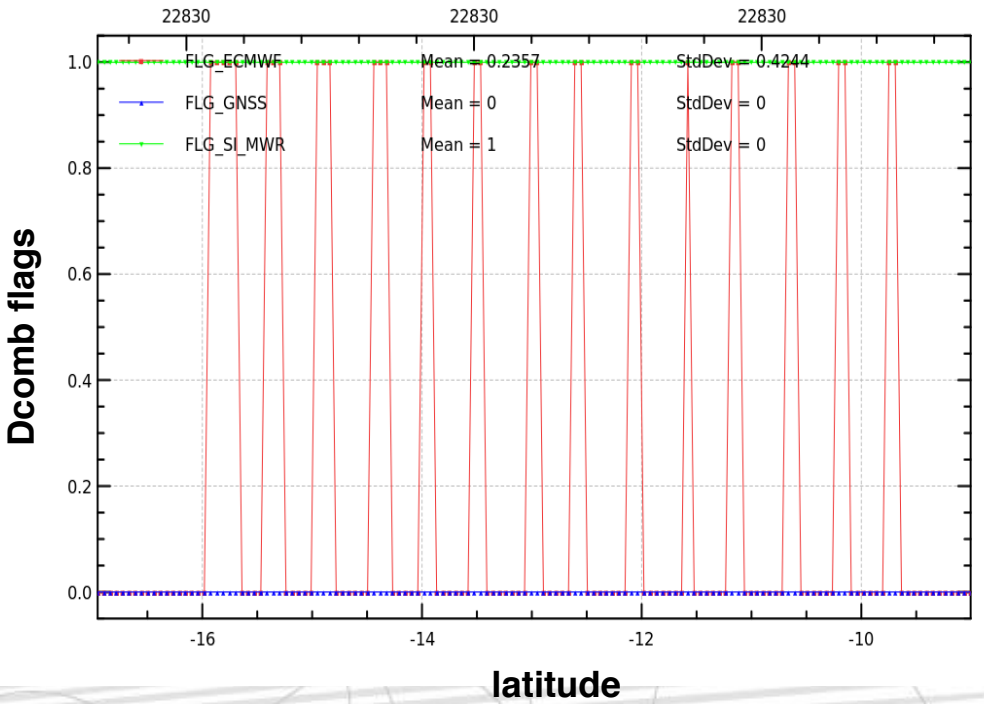
- **High improvement in coastal area**



Dcomb Wet Tropospheric Correction

- **Discontinuities are observed when ECMWF values are used to compute the Dcomb OA (number of radiometer observations < 4)**





Dcomb Wet Tropospheric Correction

To conclude:

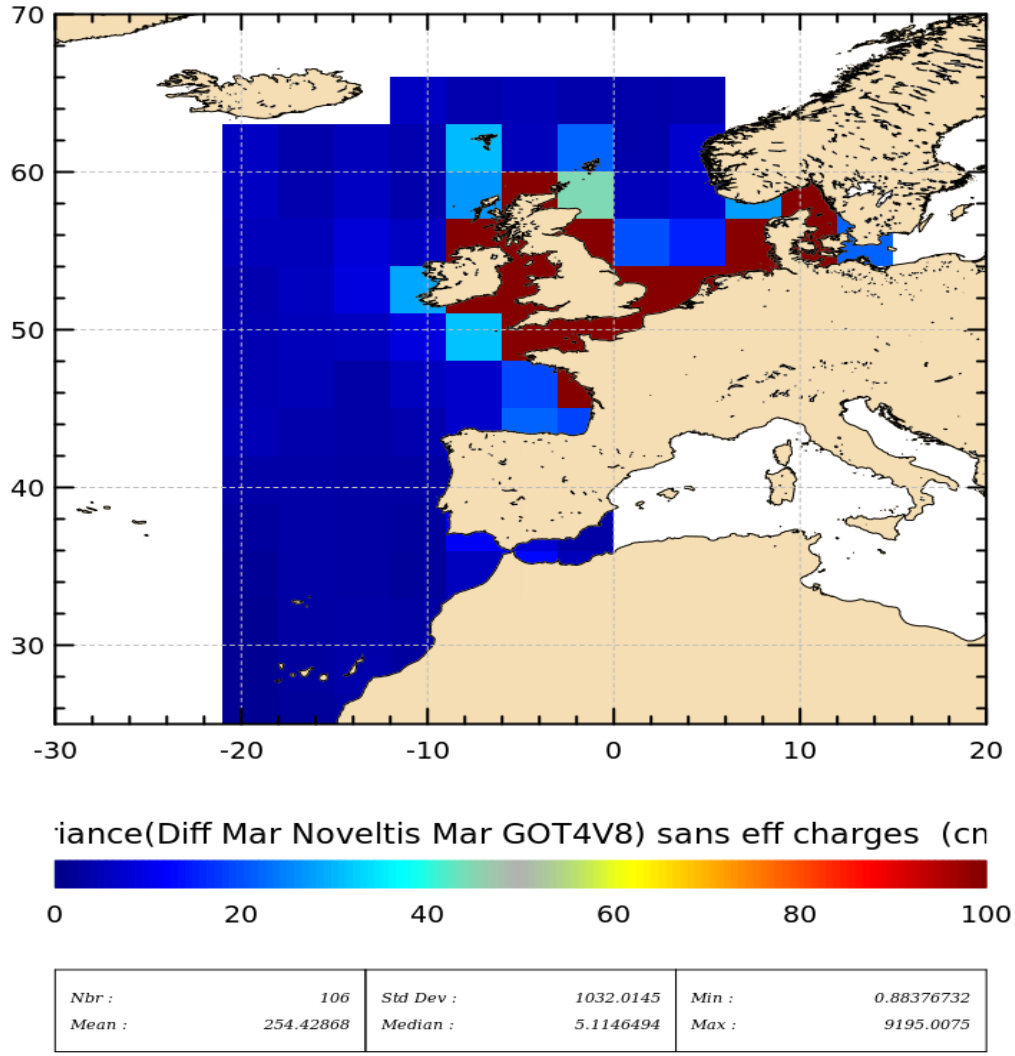
- **Appreciable improvement (around 2cm²) for latitudes <50°**
- **Good improvement in coastal area**
- **This study has reported some discontinuities that may have to be corrected for an operational use (under investigation on U.Porto side)**
- **To be confirmed with a longer time period**

WP 5000
Assessment of the Regional COMAPI Tidal model (Noveltis) vs GOT4.8

M. Raynal, T. Moreau, S. Labroue, M. Cancet, F. Boy, N. Picot

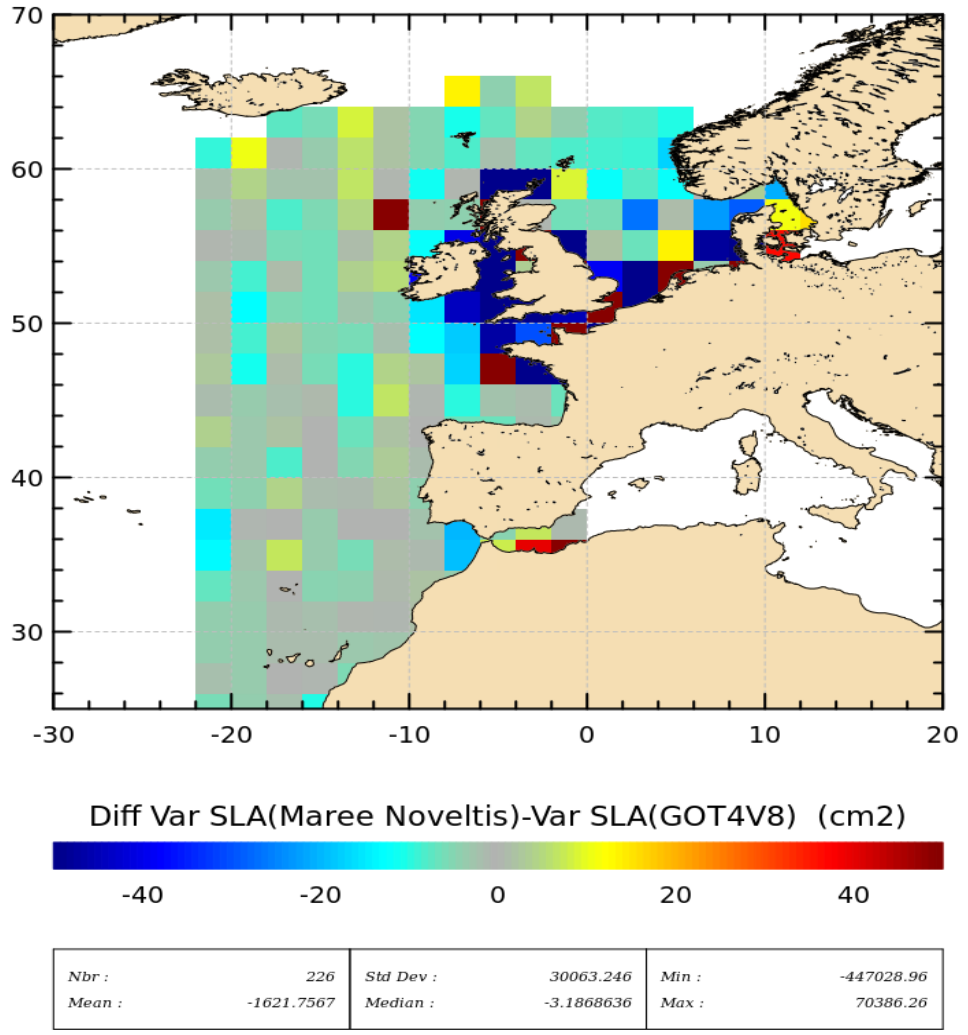
COMAPI Tidal Correction Model

- Variance of differences show few differences in open ocean between both models
- Differences are notably reported in the North East European shelf (Channel and North Sea)



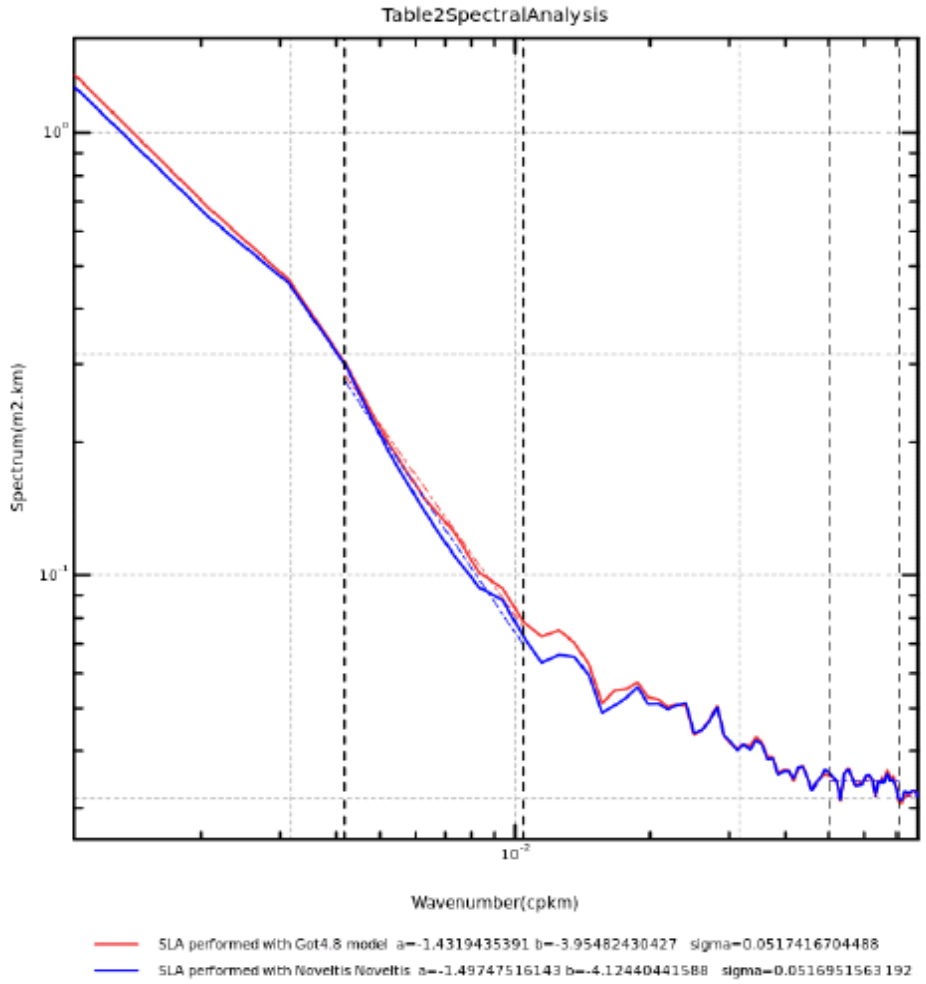
COMAPI Tidal Correction Model

- Slight improvement in the open ocean is observed with the Comapi model (few cm²)
- High improvement (over 25 cm²) in the North East european shelf
- These results are consistent with previous study performed by L. Carrere (CLS) with Jason-2 altimeter



COMAPI Tidal Correction Model

- **1Hz SLA spectra confirms previous results**
- **SLA scales from 50 to 200 km are better estimated with COMAPI model (NE Atlantic european shelf)**



Comapi Tidal Correction Model

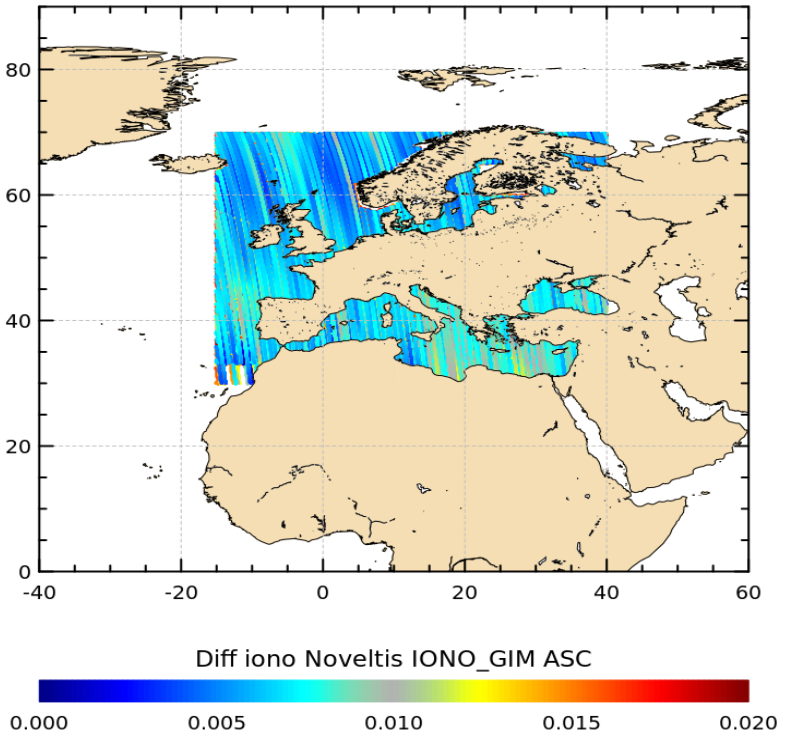
To conclude

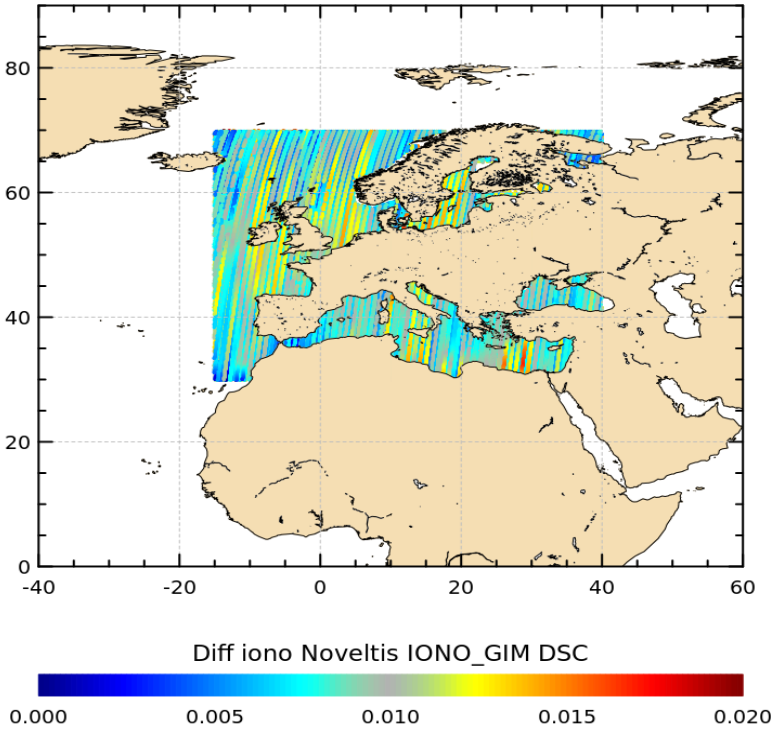
- **Models are equivalent in the open ocean (slight improvement with Comapi)**
- **Good improvement in the North East European shelf**
- **Spectral analysis confirms this improvement for scales from 50 to 200 kilometers**

WP 5000
Assessment of Regional SPECTRE Ionospheric correction (Noveltis) vs GIM

M. Raynal, T. Moreau, S. Labroue, F. Crespon, F. Boy, N. Picot

SPECTRE Ionospheric Correction Model

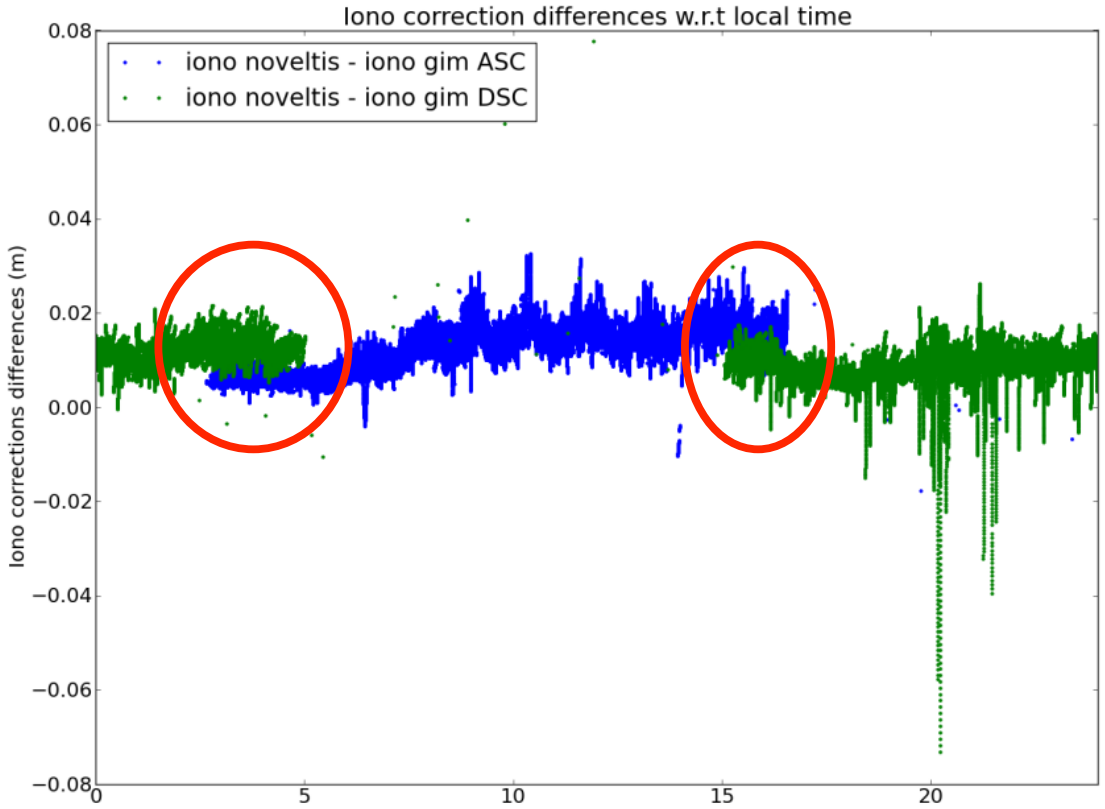




We essentially observe long scale patterns of differences between SPECTRE and GIM

Patterns of differences are not consistent between ascending and descending tracks

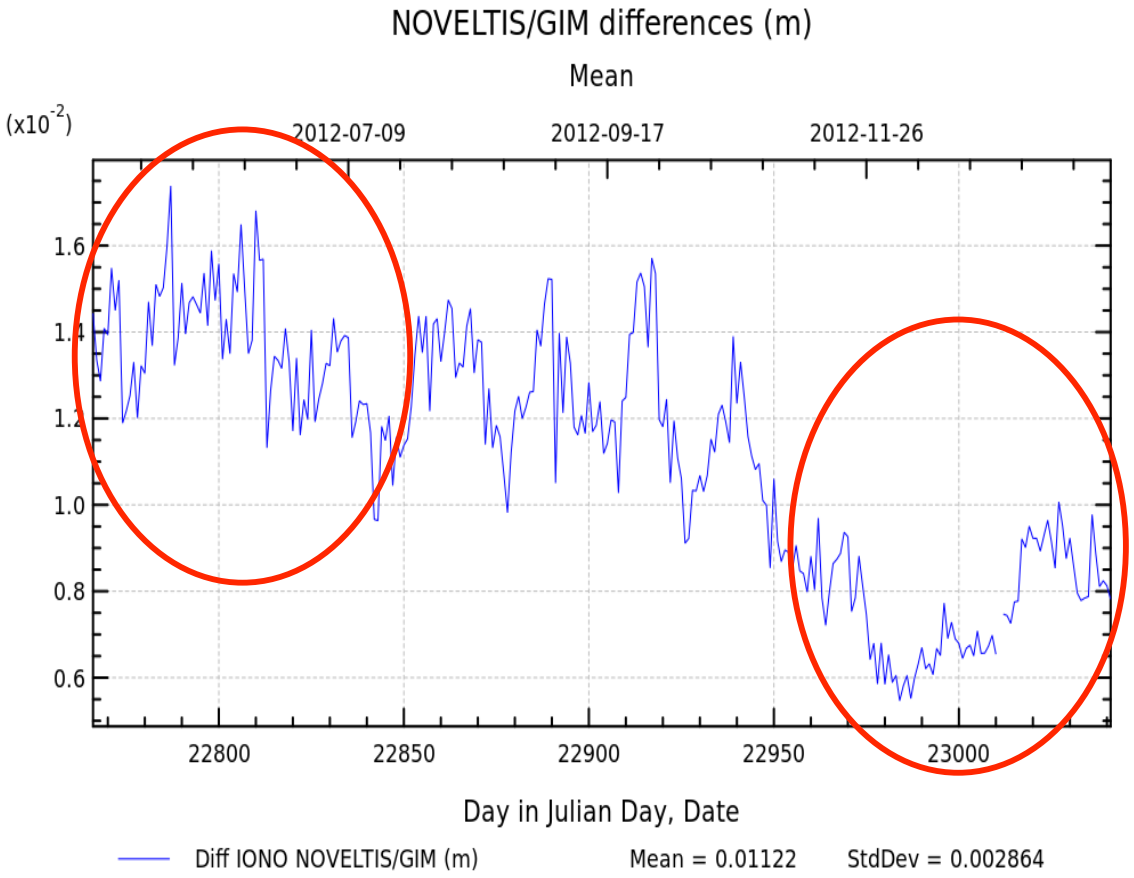
SPECTRE Ionospheric Correction Model



Differences vary with local time

Differences are observed between ascending and descending passes at the same local time but for different season

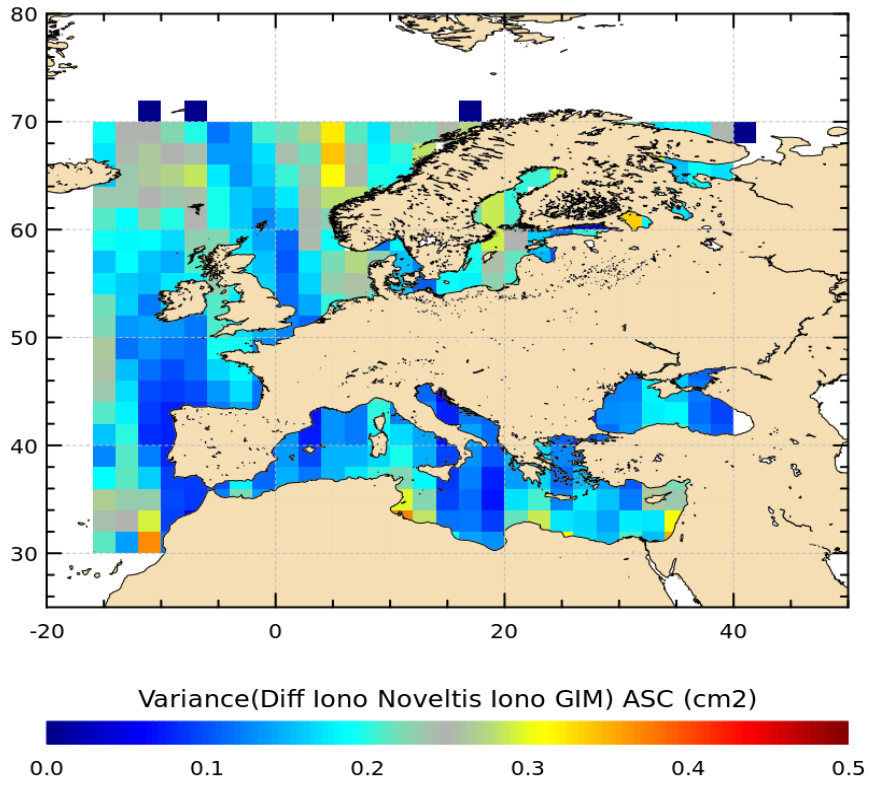
SPECTRE Ionospheric Correction Model

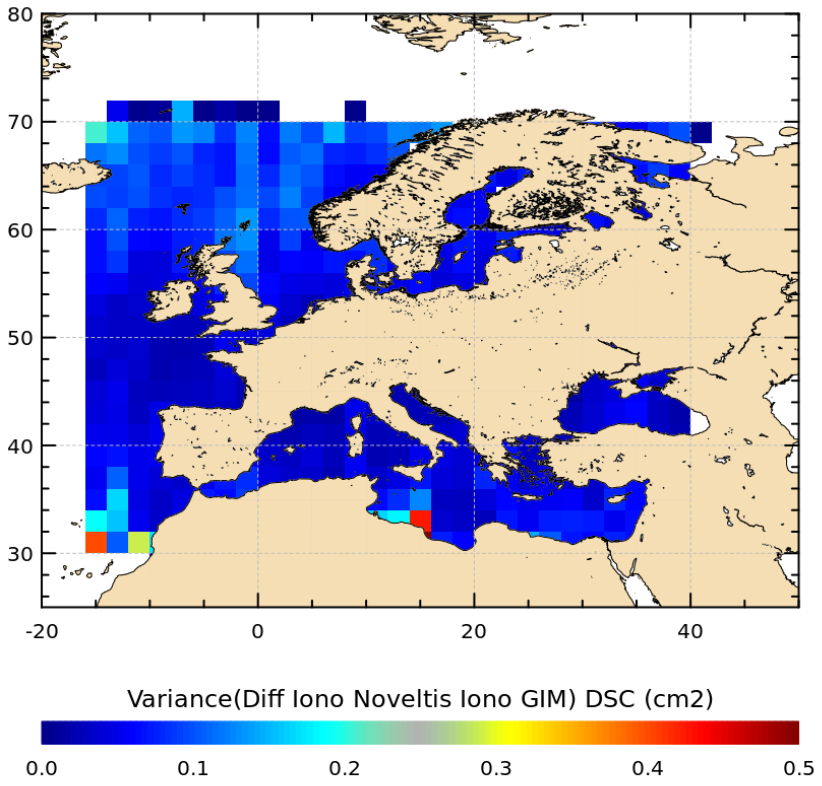


Differences evolve with local time but also with season

Summer : ~1.5 cm
Winter: 0.6cm

SPECTRE Ionospheric Correction Model

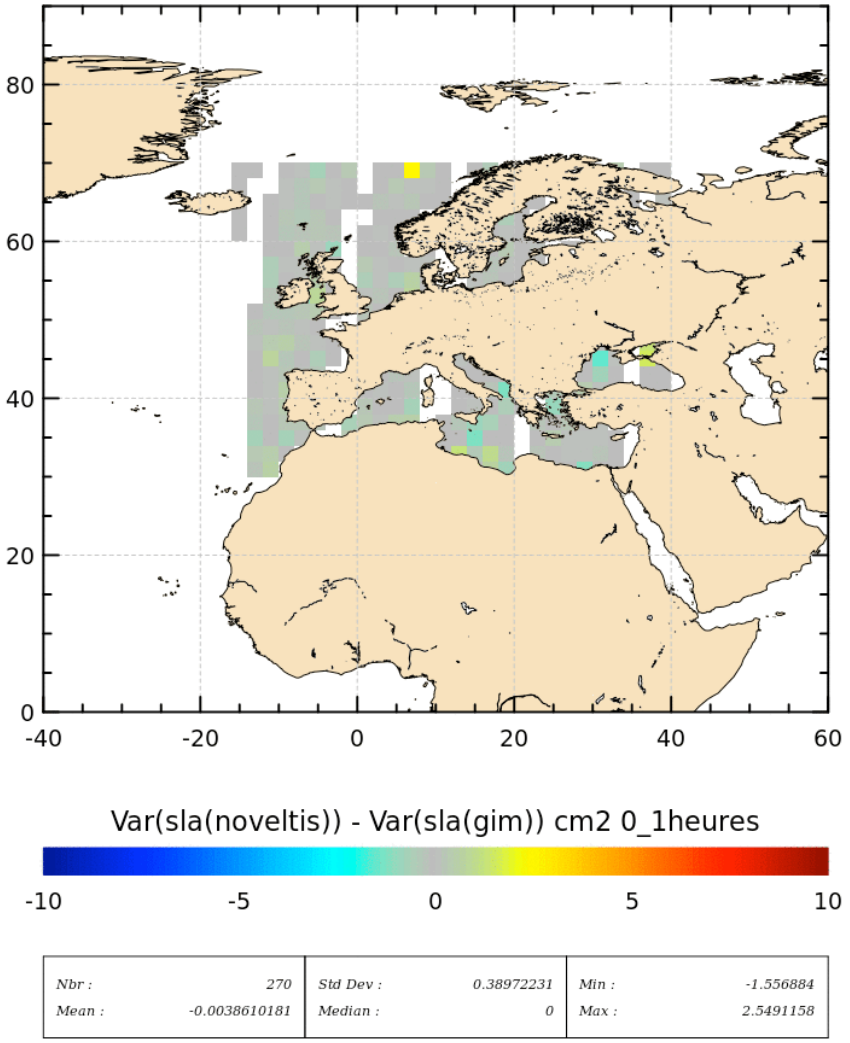




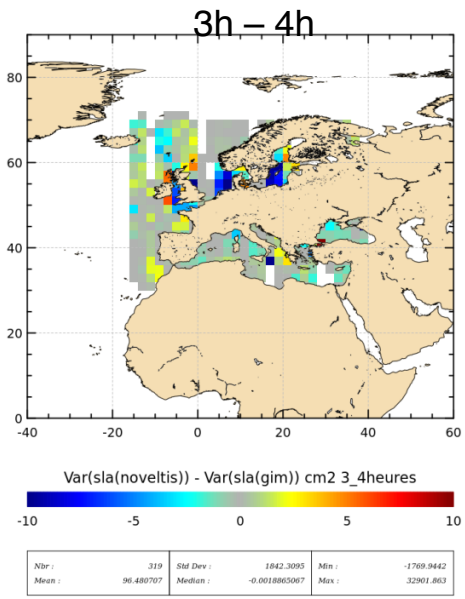
Variance of differences is negligible for descending passes (night time)
Higher variability for Ascending passes (related to the day time) is observed but quite small

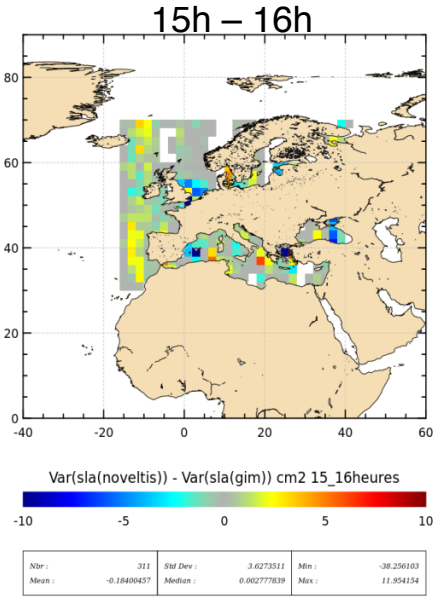
➔ **models are quite equivalent**

SPECTRE Ionospheric Correction Model

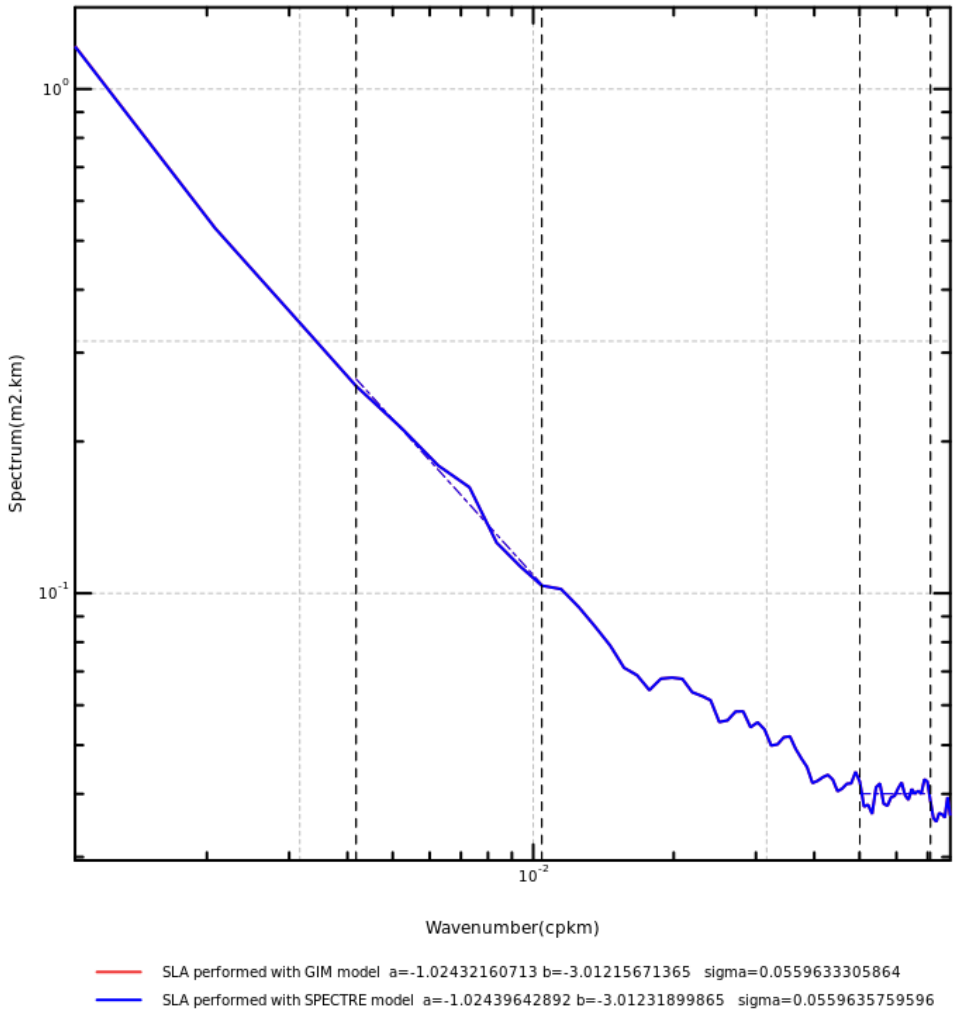


Gains of variances are closed to 0cm² except in the time periods 2h-5h and 15h-16h that are affected by seasonal effects





SPECTRE Ionospheric Correction Model



Data sets exhibit exactly same behaviour and confirm previous results

SPECTRE Ionospheric Correction Model

Differences between SPECTRE and GIM evolve with the local time and with seasons but diagnosis do not highlight any improvement.

A better way to quantify improvements would be to use crossover gain of variance diagnosis, however small number of crossovers does not permit to compute robust statistics in this area