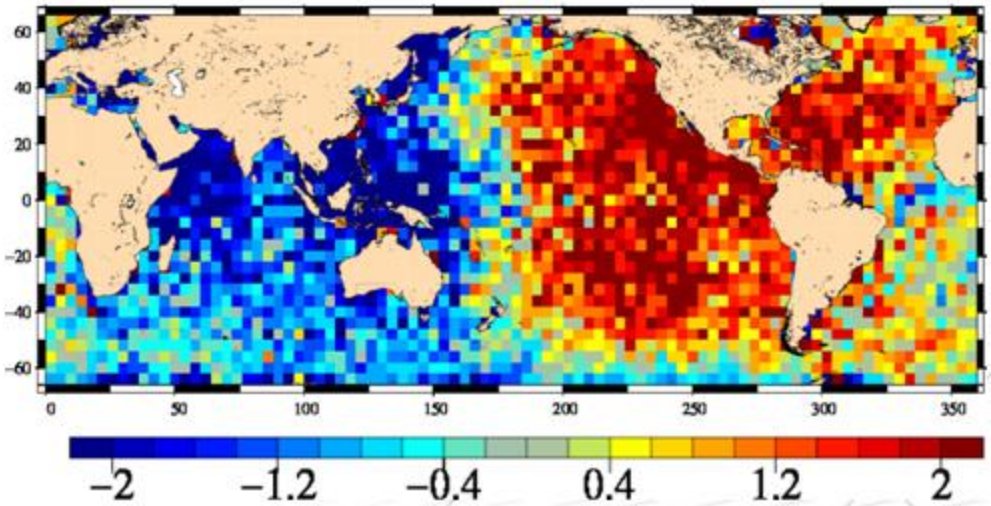
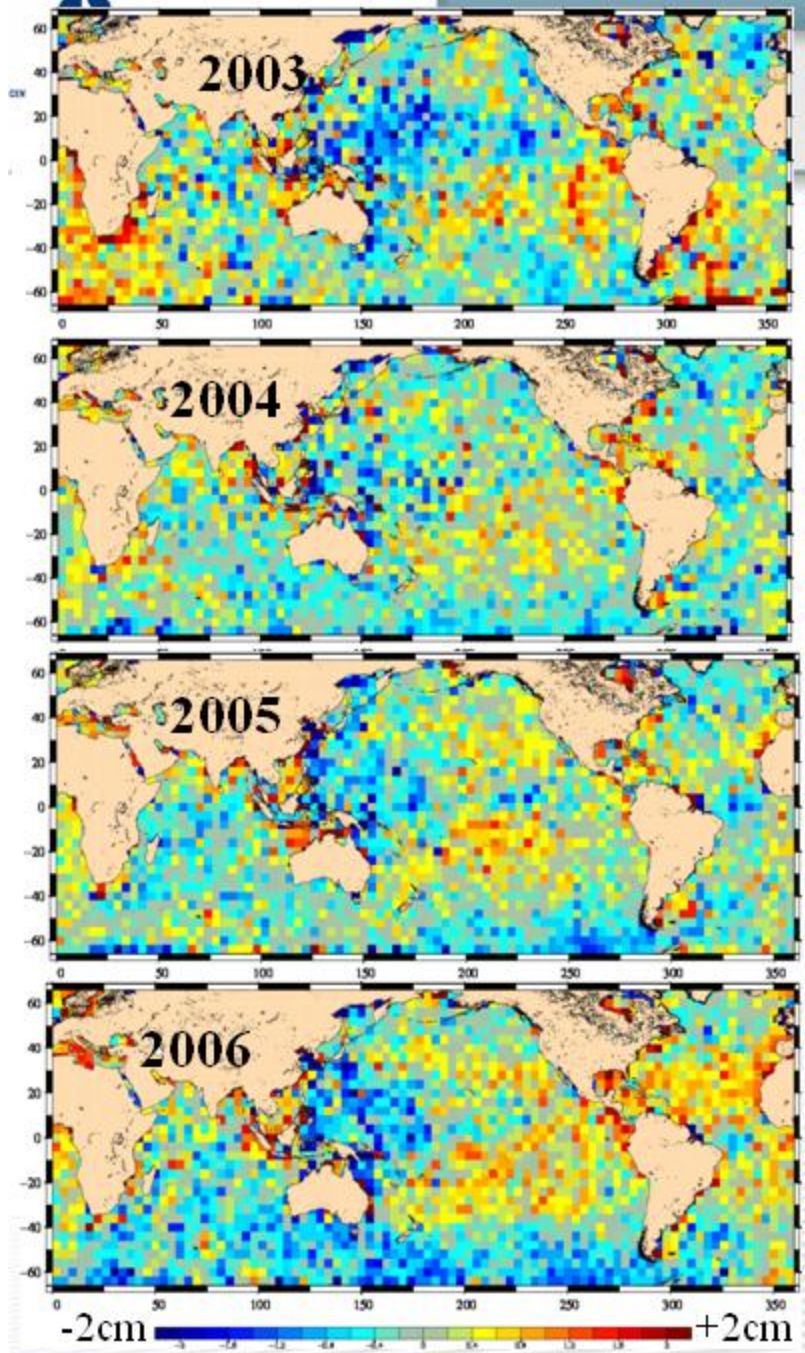
Remaining Est/West bias explained

- In 2010, several authors showed an East/West signature drifting in time on the Jasons and Envisat data (using GDR-C orbit standard)
- This discrepancy highlighted a **strong sensibility to the gravity field model** used as an input of orbit solutions

Mean SSH difference at crossovers (2010)
EN GDR-C / J1 GDR-C (cm)

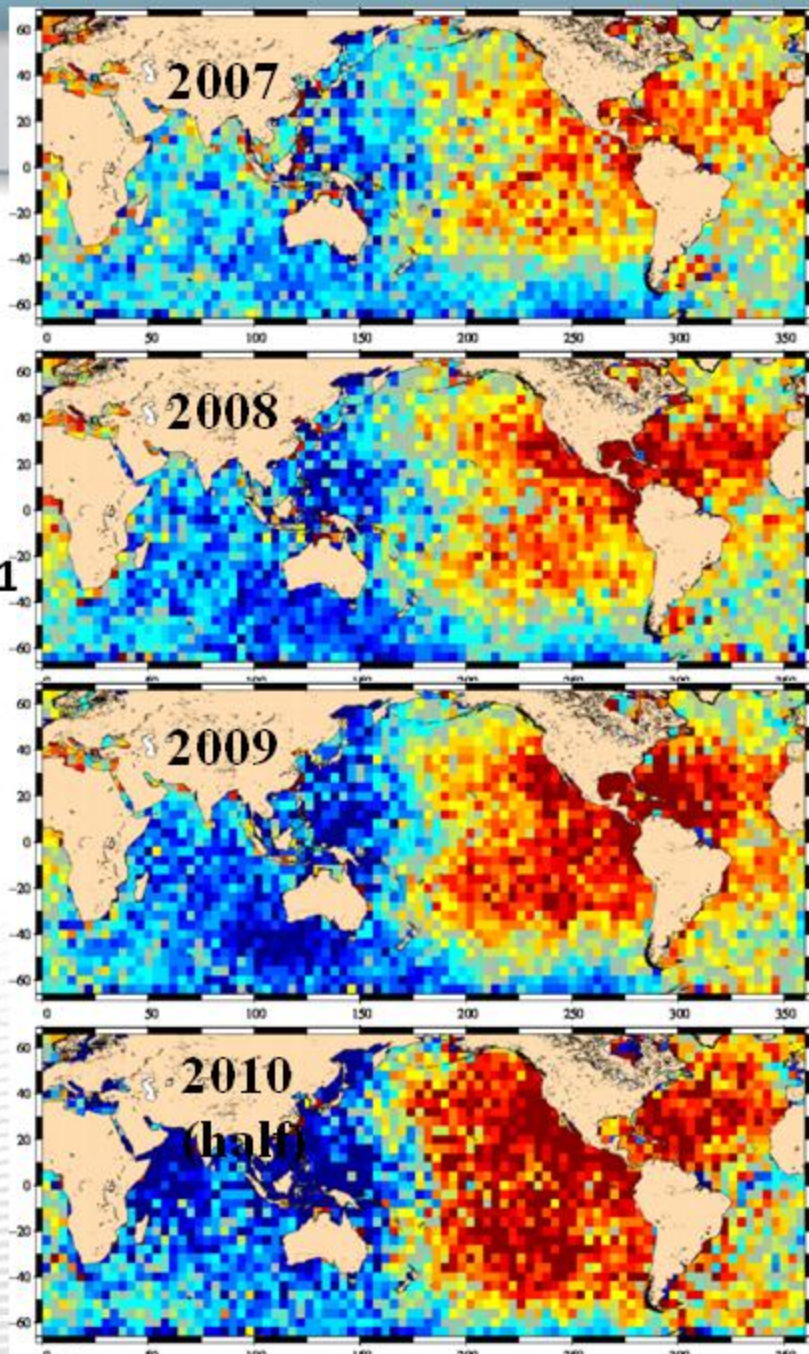


- New CNES orbit with **GDR-D standards** (as well as the **V7 ESOC** solution) have been tested
  - EIGEN_GRACE_RELEASE2Bis Gravity field estimated over 2002-2010 instead of 2003-2005
  - Additional drift component
  - ITRF2008 instead of ITRF 2005



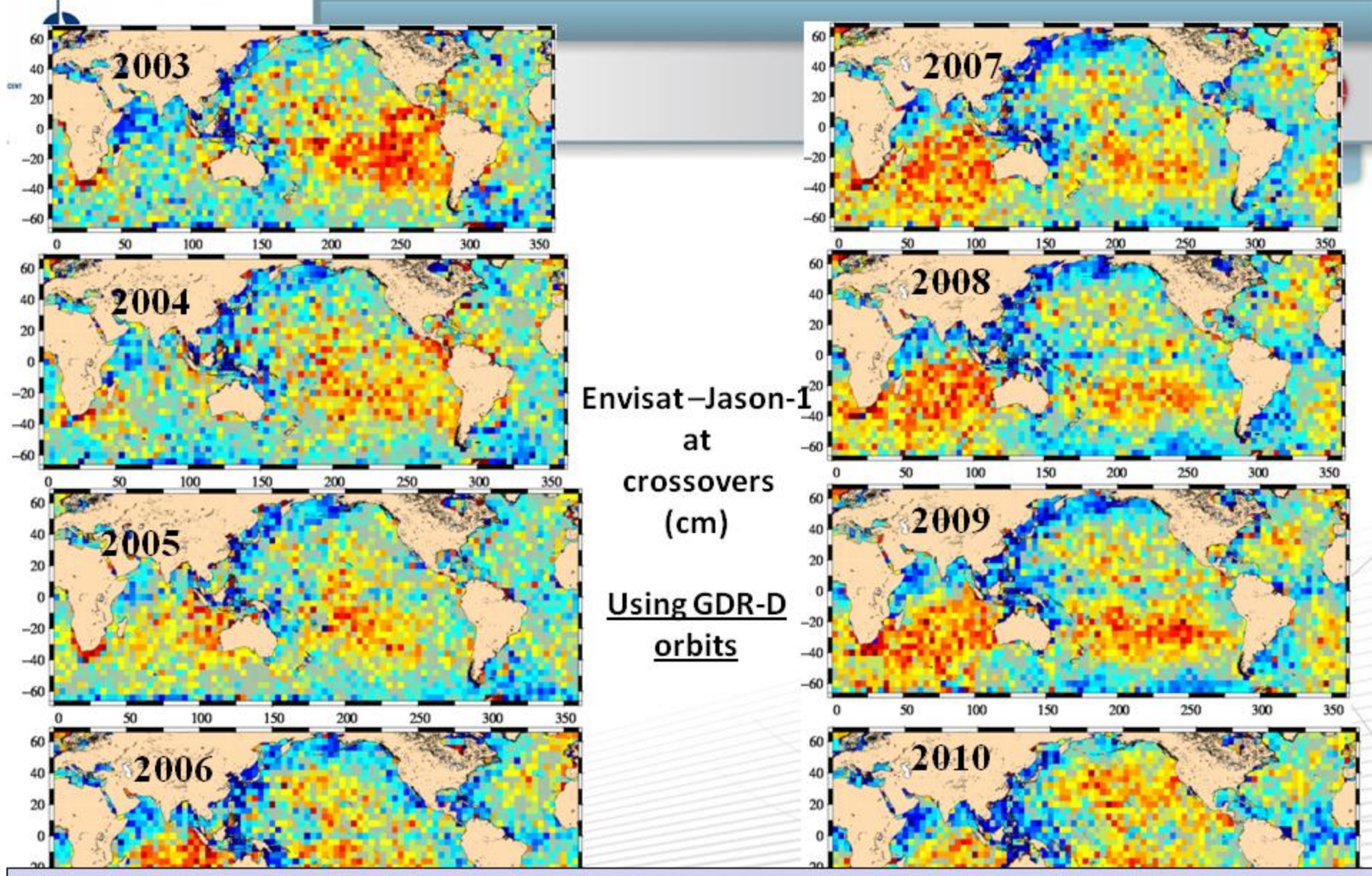
Envisat –Jason-1
at
crossovers

Using GDR-C
orbits



Centered Maps

Author: A. Ollivier

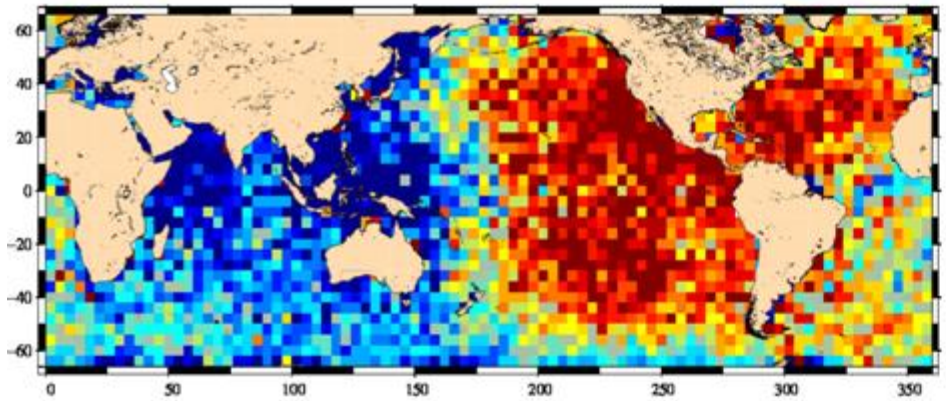


Great improvement of GDR-D standards: removes the East-West discrepancy and its temporal variation! Remaining errors are likely to be due to a mix of errors on both missions

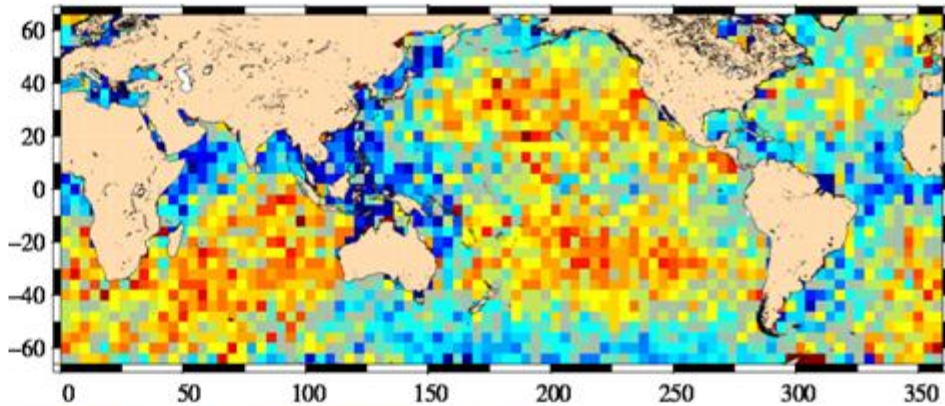
Impact of GDR-D orbit on EN/J1 crossovers

2010

EN GDR-C / J1 GDR-C



EN GDR-D / J1 GDR-D



Using GDR-D orbit for Envisat and Jason-1 removes the East/West Bias.

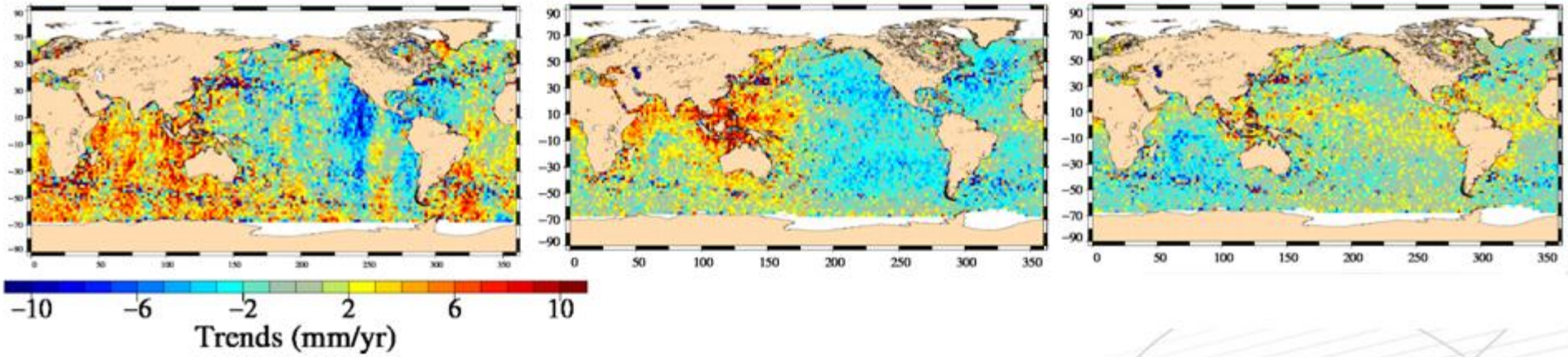
Author: A. Ollivier

Regional Mean Sea Level trend differences Jason-1-Envisat and orbit standard impact

EN-J1 MSL differences using GDR-A-B Orbits

EN-J1 MSL differences using GDR-C Orbits

EN-J1 MSL differences using GDR-D Orbits



- Thanks to multimision analysis, Geographically correlated bais were observed on Envisat and Jasons missions.
- Notably, the gravity field used in the orbit solution was shown to have a great impact on the long term drift for all missions. With the latest standard (futur GDR-D), regional consistency between mission is largely improved.
- See also talk from M. Ablain (Regional MSL), S. Philipps (Orbit) and Poster from JF Legeais (In situ)

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