CCISI Algorithm Review

Summary

Legos

4. 5. 2012
General Remarks (1)

• Many (!!!) thanks to the referees for the excellent input, spend energy, demonstrated interest in the project and the subject at large.

• In principle this should be a multi-agency international OSTST effort with partners and involvements on both side of the Atlantic as a minimum.
General Remarks (2)

• There remain many (!!!!) open.

• Not surprising for many of us! After all, we are dealing with many difficult and open science questions. There is no turn-key ready solution available. It needs to be an ongoing effort.

• The ultimate goals needs to be a merged homogenized sea level data record from all altimeter missions. Involves US participation.

• Therefore: Extend the CCI-SL project to also improve the climate reference missions T/P Jason-1/2.

• Strong concern about contribution from France to extension of CCI-SL and about continuity of altimetric constellation.
Orbit Computations

- How to account for time-varying gravity fields?

- J2 remains an issue (presently modeled through linear function plus 6/12 months sin waves).

- However, it is not linear (laser ranging result). Why not using the SLR-based J2(t)? Similar for other low-order/degree terms.

- Different gravity models, reference frames, etc are used for different missions. Shouldn’t those be the same (no consensus reached).
Ionosphere

• Consensus to reach CLS recommendation.
Instrumental Correction

• 59 day oscillation remains a problem. Cause and impact on climate analysis not clear (at least to me).
• SWH is still a problem with “climate consequences”.
• I found the statement useful: “CCISI is helpful”. Many problems are research problems without answers on the table.
• ERS-1/2 work not proposed – at this point just ENVISAT.
Sea State Bias

- Recommended: no change at this point, which seems reasonable.
- Intense work required to see what SSB model is an improvement vs. just reducing variance.
- Again a research topic.
Wet Tropo

- Recommendation: use GPD; use ERAinterim to analyze quality of radiometers.
- Wet tropo analysis/correction needs a common analysis/approach between different communities. Requires joint meeting.
- Better instruments should be constructed …
Atmosph. Correction

- Recommendation: use DAC correction with 20-day highpass filtered DAC component.
- Many research aspects remain!
Regional Sea Level Bias

- Should be corrected in the reference missions.
- But: we need to understand where it comes from and correct it there.
- Should be done also for ERS-1/2 and ENVISAT (part of mapping procedure?).
- Also: climate studies are not just global sea level; regional sea level is a VERY important aspect of it.
• What is the CCISI product?
• In my view first of all corrected GRDs for ENVISAT, ERS1/2 – ultimately also T/P, Jasons1,2,3…
• Level 3 and 4 products are then a next step but should not be the only or ultimate product.
• Recommendation: besides maps provide time series of global mean separately. For assimilation purposes, the trend should not be in the maps!
Tidal Models

• Recommendation:
• GOT4.8 for global ocean
• DTU10 for Arctic; transition between both models needs to be worked out.
• LP tides: not clear if it should be removed or not. But having it as a correction would be useful for assimilation purposes.
High latitudes

- DTU10 MSS for high latitude.
- Closer analysis of data (including EMB) which might lead to a much better data coverage in the arctic. Might apply also to other parts of the world. What about Antarctic?
- Reprocessing/retracking over sea ice?
Coastal Areas

- GPD wet tropo correction is good for coastal areas.
- Along-track data should contain the data in coastal waters (at least 1Hz).
Closing Remark

• There are parameters that should be used by all all missions; others might be mission specific.

• Thanks again to all!!