Day 1

Sunday, 16th October 2011

Seed questions.

Day 1: Sunday, 16th October 2011

14:50	**16:20**	**Session 1: Error Budget, Key Areas of Improvement and Draft Recommendations**	**Chairs:**	**D. Griffin - R. Ray**

1) Are we happy with the situation with re-tracking? Does the number of algorithms present the user with too much choice, or is it manageable?

2) Similarly, have we settled on a single best approach to wet path delay, or are there still rival schemes of unknown relative merit?

3) Is the future of coastal altimetry getting rosier or more uncertain? Are the challenges technical or financial/political?

Day 2

Monday, 17th October 2011

Seed questions.

Day 2: Monday, 17th October 2011
and
Day 3: Tuesday, 18th October 2011

08:30	**09:10**	**Session 2 : Application Highlights**	**Chairs:**	**X. Deng - V. Kourafalou**
08:30	**08:50**	**Session 2 : Application Highlights (continued Day 3)**		

1) What range of processes is observable with coastal altimetry? (can we use it to describe medium to high frequency variability?)

2) Is coastal altimetry useful in data assimilation (DA)?

3) How does coastal altimetry compare with in situ "classical" measurements in the DA framework?

4) Are there any specific attributes needed for coastal/regional models that would utilize coastal altimetry data?

5) What would be a reasonable error budget for DA?

Day 2: Monday, 17th October 2011

09:10 11:00	**10:30 12:00**	**Session 3 : Trends and Variability in Coastal Sea Level and Currents**	**Chairs:**	**G. Han - J. Hausman**

1) How best should land motion be accounted for in satellite measurements of coastal sea level?

2) What impact does interannual, decadal and multidecadal variability have on trends and variability of coastal sea level and currents?

3) Are we confident enough about ongoing sea level trends and observations of sea level variability that we can help decision and policy makers make future decisions that impact coastal areas? If not, what other information do we need?

4) Are all the physics resulting from bathymetry, topography and tides fully removed from the data?

5) How to make an appropriate validation of coastal altimetry for trends and variability of sea level and currents?

6) How to quantify errors associated with estimated sea level and currents?

Day 2: Monday, 17th October 2011

14:00	15:20	Session 4 : Synergy of Coastal Altimetry and Modelling	Chairs:	K. Ichikawa - J. Wilkin

1) How do you distinguish geostrophic and ageostrophic components in each observation?

2) By the aid of the other observations and models, to what extent can the coastal altimeter's measurements be sparse (both in time and space)?

3) Are satellite, in situ, and model sea level consistent with respect to datum, mean, and/or high frequencies?

4) Is the accuracy and resolution of existing estimates of Mean Dynamic Topography adequate in the coastal ocean?

5) Can data assimilative modeling significantly improve upon the space and time resolution of coastal altimetry?

6) What in situ observations most complement altimetry?

7) Are coastal altimeter data adequately documented and accessible to modelers through existing services?

Day 2: Monday, 17th October 2011

16:10	17:10	Session 5 : Extreme Events and other Applications	Chairs:	E. Coelho - M. Saraceno

Predicting and evaluating extreme events over the ocean, along with the planning of mitigation activities resulting from their impacts or from other incidents at sea, can benefit from any data source that:

*1 – Provides information on a **timely** manner;*
*2 – Resolves **relevant** phenomena;*
*3 – Produces an **impact** in either characterizing dominant events or constraining background fields.*

*Within this scope and pertaining to **Altimetry Sensors** the following questions are to be discussed:*

1) Satellite altimetry algorithms were not designed to retrieve data during extreme events such Tropical Cyclo-nes. How far we can go re-tracking waveforms during this kind of extreme events?
2) Significant main modes of variability extracted from satellite altimetry data are not able to represent short-scale (less than 24hs) events like storm surges. Which statistical techniques are suitable / robust for extreme event detection using satellite altimetry data?
3) Can airborne measurements help real-time forecast during extreme events?
4) What will be the advantages and best strategies to combine altimetry observations with other in-situ and remote data for assimilation into model analysis and forecasts of extreme events and/or coastal environments? *(e.g. will it be better to keep altimetry observations to constrain background large scale fields only while allowing other local high resolution observations to constrain the smaller scales? What are the time constraints of along track height or slope data for real-time applications?)*

Day 3

Tuesday, 18th October 2011

Seed questions.

Day 3: Tuesday, 18th October 2011

08:30	**08:50**	**Session 2 : Application Highlights (continued)**	**Chairs:**	**X. Deng - V. Kourafalou**

1) What range of processes is observable with coastal altimetry? (can we use it to describe medium to high frequency variability?)

2) Is coastal altimetry useful in data assimilation (DA)?

3) How does coastal altimetry compare with in situ "classical" measurements in the DA framework?

4) Are there any specific attributes needed for coastal/regional models that would utilize coastal altimetry data?

5) What would be a reasonable error budget for DA?

Day 3: Tuesday, 18th October 2011

08:50	09:30	Session 6 : Retracking	Chairs:	L. Fenoglio - W. Smith

1) Waveform retracking of Pulse-limite satellite altimetry.

1.1 Which have been the main achievements in retracking in the last five years? (in terms of contamination reduction, retracking of particular echos shapes-peaky waveforms).

1.2 Can we identify a „most successfull“ methodology? Is it globally/regionally applicable? Is intercalibration of retrackers still an issue?

1.3 What about the validation of retracking techniques? Have new validation methods been identified? Are the statistics of validation parameters near coast significantly improved?(e.g. distance to coast, agreement with in-situ data)

1.4 What are the main results of two dedicated studies (PISTACH and COSTALT)? Is the available (PISTACH) product improving the SSH near coast? Which are the remaining difficulties in the development of other global or regional products (e.g. COSTALT)?

1.5 What improvements are still feasible and what would be needed (algorithms, what else?)

2) Retracking waveforms in SAR mode

High-resolution coastal altimetry with SAR (Cryosat, Sentinel-3, Jason-CS) promises to bring improved spatial resolution (footprint focus) and range precision to satellite altimetry, perhaps to 1 km from shore with along-track resolution of about 300 meters.

2.1 What are the lessons learned from the SAR Altimetry Mode Studies and Applications (SAMOSA) project that can help in developing novel algorithms and products to fully exploit Cryosat near the coast ?

2.2 What are the expected improvements using the SAR/SARIn modes? What new algorithms are needed?

2.3 What kind of SAR mode does coastal altimetry need from Sentinel-3 and Jason-CS? (In case it is not too late to suggest requirements for these systems)

Day 3: Tuesday, 18th October 2011

09:40	**10:20**	**Session 7 : Path Delay**	**Chairs:**	**J. Gomez-Enri - P. Thibaut**

1) The role of the Wet Tropospheric Correction in the new altimeter missions (Altika, Cryosat, etc.), with especial emphasis in the coastal areas.

Day 3: Tuesday, 18th October 2011

11:00	**12:20**	**Session 8 :** **CryoSat and SAR Altimetry in the Coastal Zone**	**Chairs:**	**O. Andersen - J. Fernandes**

1) How the availability of Cryosat data with higher spatial resolution in the coastal regions establish new requirements for
   - the geophysical corrections (ionosphere, troposphere)? What about SSB?
   - for MSS and MDT models in these regions?

2) Can we make recommendations on how Cryosat data from different processing modes shall be available in a friendly format for users to explore?

3) What will be the future limitations/possibilities for using Cryosat in coastal regions bearing in mind that Cryosat-2 does not have a radiometer.

4) How can this be problem be handled and how can Cryosat SAR altimetry be made "more available".

5) What should be a preferred resolution (Hz or km) of Cryosat of SAR data in the coastal zone.

6) Cryosat vs Jason/Envisat altimetry. What's the accuracy in coastal regions.

7) Recommendations for Jason-CS Mission Requirement Document

Day 3: Tuesday, 18th October 2011

14:00	14:40	Session 9: Data Processing and Products	Chairs:	F. Birol - W. Emery

1) How can we validate the new data sets produced by the different (re)processing exercises (PISTACH, CASTALT, REAPER, CTOH, ...)? Do we have enough in-situ data? What about their availability?
2) How can we quantify the progress made today in coastal altimetry?
3) Would it be possible and/or useful to draw intercomparison exercises between data sets produced by the different projects?
4) Are the challenges facing coastal altimetry the same everywhere?
5) What further improvements in coastal altimetry can we expect from the COASTALT project? Where does the project go from here?
6) Can the COASTALT procedures be transitioned to other areas also in need of coastal altimetry improvements?
7) Does the Gulf of Mexico represent a typical coastal regime or is it unique due to its limited connection to the major oceans?
8) How do methods proven successful in the Gulf of Mexico relate to those applied in open ocean coastal boundaries?
9) How large are the improvements in geostrophic current mapping in the Gulf of Mexico due to intense regional mapping?

Day 3: Tuesday, 18th October 2011

14:50	15:50	Session 10: Cal/Val	Chairs:	R. Scharroo - S. Labroue

1) How important is consistency of data and data sets for users in coastal areas?
   Have we reached sufficient consistency so no additional measures have to be taken?

2) How important is an absolute sea level reference?
   For example, in tide gauge comparisons we tend to throw out any bias.
   Does this impact or limit possible uses of coastal altimetry data?

3) Do products currently provide the necessary "tools" (corrections, validation reports, documentation) to take all benefits of the data?
   What additional data would be useful? Regional tide models, improved regional mean sea surfaces, …

4) What data have users available to aid the data producers with their cal/val efforts?
   Like GPS-collocated tide gauge records, regional meteo products, regional tide models, …

5) What are the metrics available using only altimetry for validating coastal data sets (when no in-situ data available)?
   Indeed, we usually use statistics with SLA and crossovers on a global scale to assess altimetry quality and performance but this approach cannot be used over limited regions.

6) What are the external sources available that allow validating and more difficult comparing altimetry coastal data sets?
   Radar HF, Tide gauges, current meter, SAR, Ocean color, SST...
   What are the scales reachable with these external data sets? Are there reliable for validating altimetry (quality vs statistics) ?