

Applications for Operations splinter recommendations

5 presentations (waves, air-sea interactions, high resolution ocean circulation)

11 posters

~45 participants

- 1. Jason-2 operations: Recommend prolonging the data stream as long as possible, having more coverage is better than less. Prevent and recover quickly from safe-holds to provide data as quickly as possible.**
 - a. Present operations result in safe-holds with prolonged data outages
 - b. Operating the satellite differently is a balance between possible reduction in safe-holds versus possible degradation in water vapor radiometer
 - c. A degradation is preferable to long outages
- 2. Near Real Time Products: Recommend consistency of accuracy, processing, and access of sea surface height anomaly across levels 2-4 and consideration of user applications.**
 - a. There is particular disparity in coastal data sets, though understandable since algorithm development has been under way. Coalescence processing and products.
 - b. We recognize that there is not a central source of consistency across satellite programs.
 - c. Input from end users is required. Recommend moving request for information to the GODAE RCOM. Reach out to users to compile requirements.
- 3. Data coverage requirements: There is demonstrated requirement for 4 coordinated accurate nadir altimeters to meet ocean applications based on recent understanding of ocean eddy fronts and impact on meteorological response to frontal positioning.**
 - a. Wave applications have demonstrated advancement from 2 to 4 nadir altimeters. Other data sources (Sentinel SAR) also add predictive skill.
 - b. Frontal positions are critical to hurricane path and intensification due to heat flux exchange.
 - c. Yann Drillet – experiments show advancement of 1 day in predictive skill as model resolution is increased and observation density increased from 2 to 4 satellites.
 - d. Accurate positioning enables targeted ocean observations during critical events.
 - e. Present constellation is not meeting the requirement for 4 coordinated accurate nadir altimeters. Future prospects with coordinated Sentinel-3A and Sentinel-3B along with Sentinel-6/Jason-CS are positive. Developing future observations is required.

Pierre-Yves Le Traon, G Dibarboure, G Jacobs, M Martin, E Rémy, and A Schiller, J. Benjamin, L K. Shay, and J K. Brewster, **Use of Satellite Altimetry for Operational Oceanography**, CRC book on satellite altimetry, in press (2017).

Jaimes, Benjamin, Lynn K. Shay, and Jodi K. Brewster, **Observed air-sea interactions in tropical cyclone Isaac over Loop Current mesoscale eddy features**, Dynamics of Atmospheres and Oceans 76 (2016): 306-324.

Jaimes, Benjamin, Lynn K. Shay, and Eric W. Uhlhorn, **Enthalpy and momentum fluxes during Hurricane Earl relative to underlying ocean features**, Monthly Weather Review 143, no. 1 (2015): 111-131.

Jacobs, G., J. G. Richman, J. D. Doyle, P. L. Spence, B. P. Bartels, C. N. Barron, R. W. Helber, and F. L. Bub. **Simulating conditional deterministic predictability within ocean frontogenesis**, *Ocean Modelling* 78 (2014): 1-16.

Pascual, A., Faugère, Y., Larnicol, G. and Le Traon, P.Y., 2006, **Improved description of the ocean mesoscale variability by combining four satellite altimeters**, *Geophysical Research Letters*, 33(2).

4. **SWOT applications** – Recommend bringing this issue to the GODAE DA task team. Increase coordination of SWOT assimilation efforts to understand impact of ocean processes on applications.
 - a. Several groups are involved in SWOT OSSEs, though there is not significant coordination.
 - b. John Wilkin will introduce the topic to the GODAE DA task team secretary to invigorate efforts over the coming year.

We must build experiments over the coming year in a coordinated manner to ensure applications for SWOT are addressed, which can aid in extending cal/val plans.