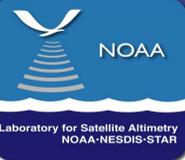


# CHARACTERISATION OF CURRENT OPERATIONAL ALTIMETRY APPLICATIONS



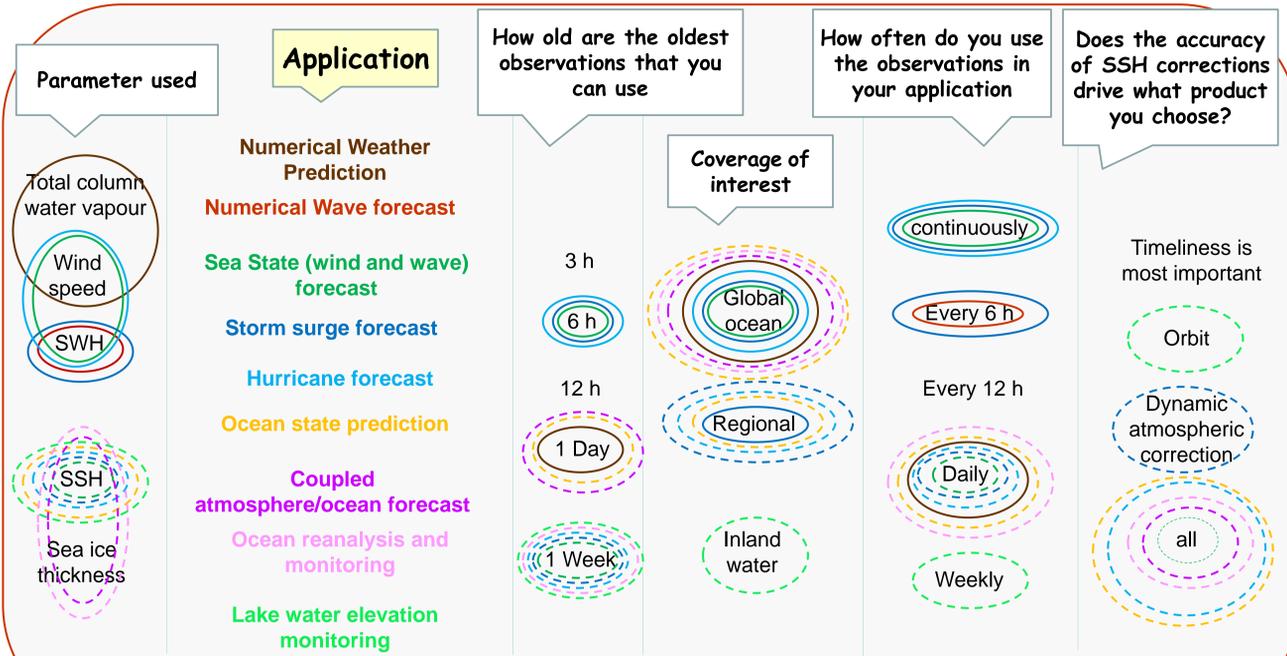
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## Motivation for this analysis: the diversity within the NRT OSTST applications splinter

Near Real-Time (NRT) Ocean Surface Topography products, and their incorporation into meteorology and oceanography forecast systems, have seen extensive development with the availability of NRT altimeter data. Many of these products have become operational data services for applications ranging from search and rescue to environmental management. The different applications and their need for different geophysical content, accuracy and timeliness requirements have driven the current operational data services catalogue and its evolution through the Jason1, OSTM/Jason2 and SARAL/AltiKa missions. The continuity of state of the art NRT operations is also a driver in the data services definition for coming missions such as Sentinel-3/SIRAL and Jason-CS.

The accuracy limitations of NRT altimeter data have evolved in the recent years, and so has the multi-mission inter-calibration capability in NRT. In that process, it is fair to reflect at this point on whether the current operational altimeter product suite is the optimum one and where it can be best improved. Upon consultation with key operational users, this paper attempts to provide insight into those aspects by characterising the different operational NRT applications according to their needs in terms of parameter(s), age of the observations, revisit time, geographical coverage, data access constraints and main accuracy limitations. By matching the characteristics of each application with the currently existing products (OGDR/IGDR/GDR/Multi-mission), it should be possible to assess how those satisfy the operational applications needs at present and in which direction should the current altimeter product suite evolve in the coming years.

## Mapping parameters, operational application needs and products: what are the basic questions?



The ovals are coloured according to the different applications. Dashed lines refer to the mapping of SSH needs, while those of wind speed and SWH needs are marked with solid lines.

Only applications already operational or considered in an operational context are included.

In the context of numerical forecast or prediction, operational output validation is also included as an operational activity.

## NRT versus OPERATIONAL

'Operational' does not mean 'NRT', instead it is about sustainability and reliability. 'NRT' means different things for different operational applications. In operational applications, 'NRT' refers in general terms to a timeliness requirement, which for sea state forecast may be of 6 hours, for operational oceanography may be of a day, and for climate monitoring may be of several months!

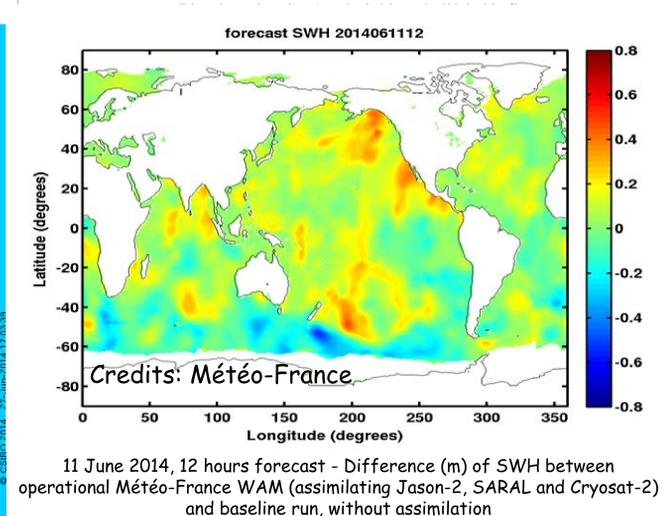
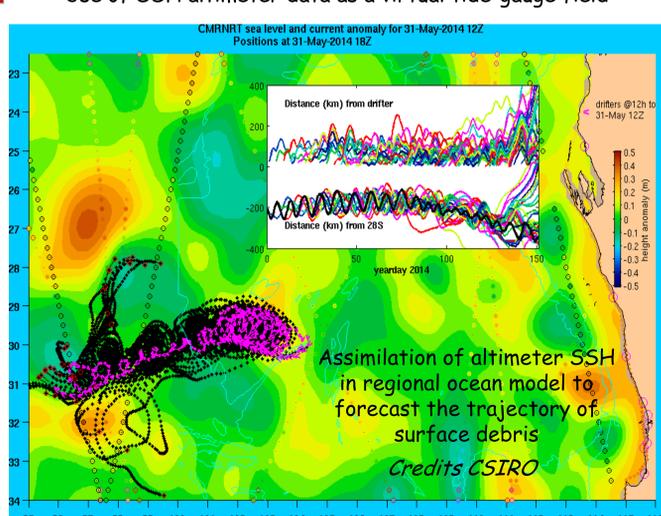
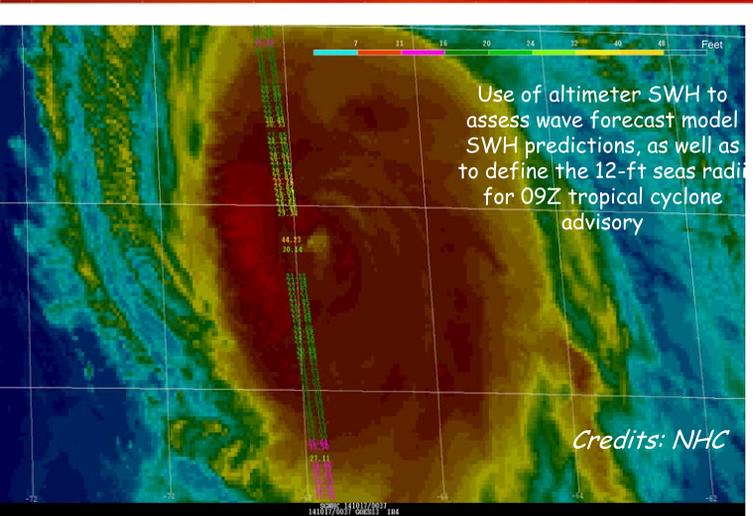
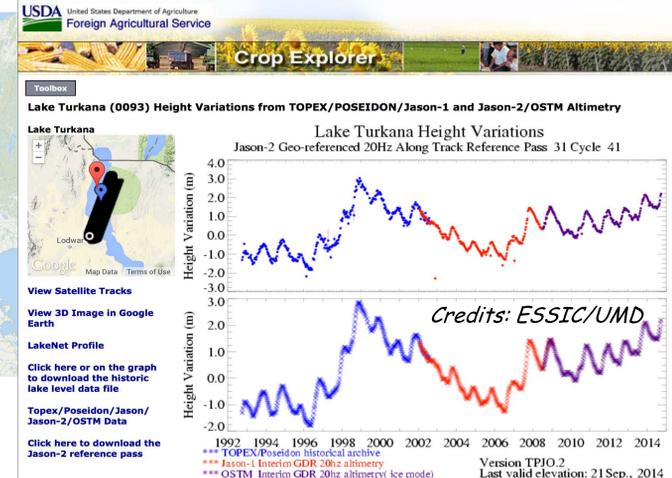
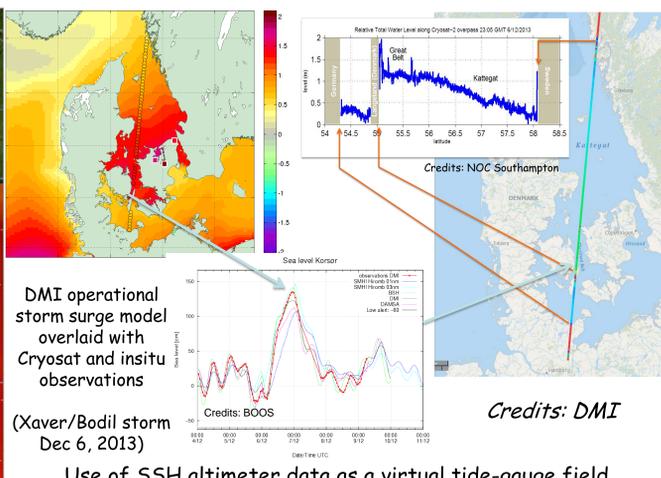
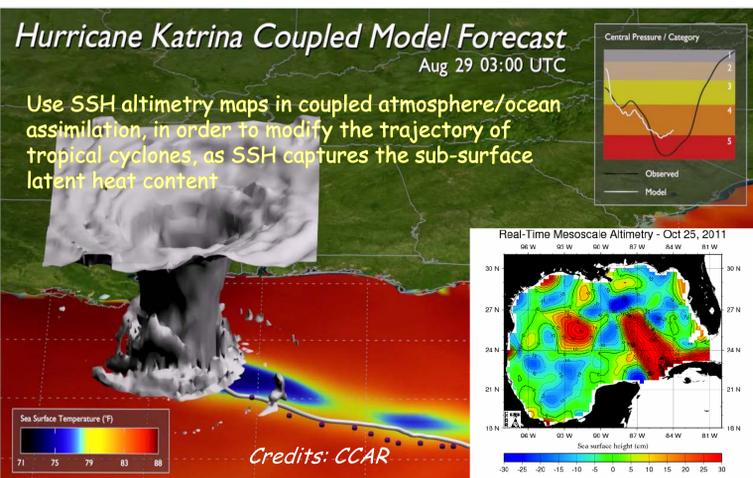
Should we discuss climate monitoring in the NRT applications splinter?

## Multi-mission blended vs. along track data

SWH and wind speed along-track data, or even single observations, are used comfortably in sea state forecast and model assimilation/validation.

With respect to SSH, multi-mission products are used operationally, where the priority is on consistency of processing, range corrections and reference surfaces.

Multi-mission SSH products are essential particularly for operational ocean circulation monitoring, due to a consistent and accurate handling of the orbit correction.



Help us elaborate our understanding!  
 what do you think?  
 do you agree?

What makes the difference between 'routine' and 'operational': robust processing? 24x7 support? sustainable observation availability? Timeliness needs are different for SWH and SSH, would it make sense to add the DAC and GPS orbit corrections to the OGDR? For most applications the need for SSH accuracy drives the choice of product type, rather than the timeliness. Does the philosophy behind the design of the current altimeter product family (OGDR/IGDR/GDR) still correspond or map into the data needs of the operational altimeter community? Reasons for using 'other' product sources than the formally operational ones: need for customisation? lack of a unified altimeter data portal?

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