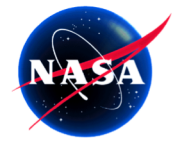


Potential Partnership NASA Ocean Data Analysis Portal

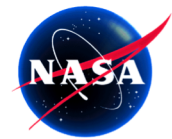
Shawn R. Smith
Presented to R2R Advisory Panel

24 October 2018



Motivation

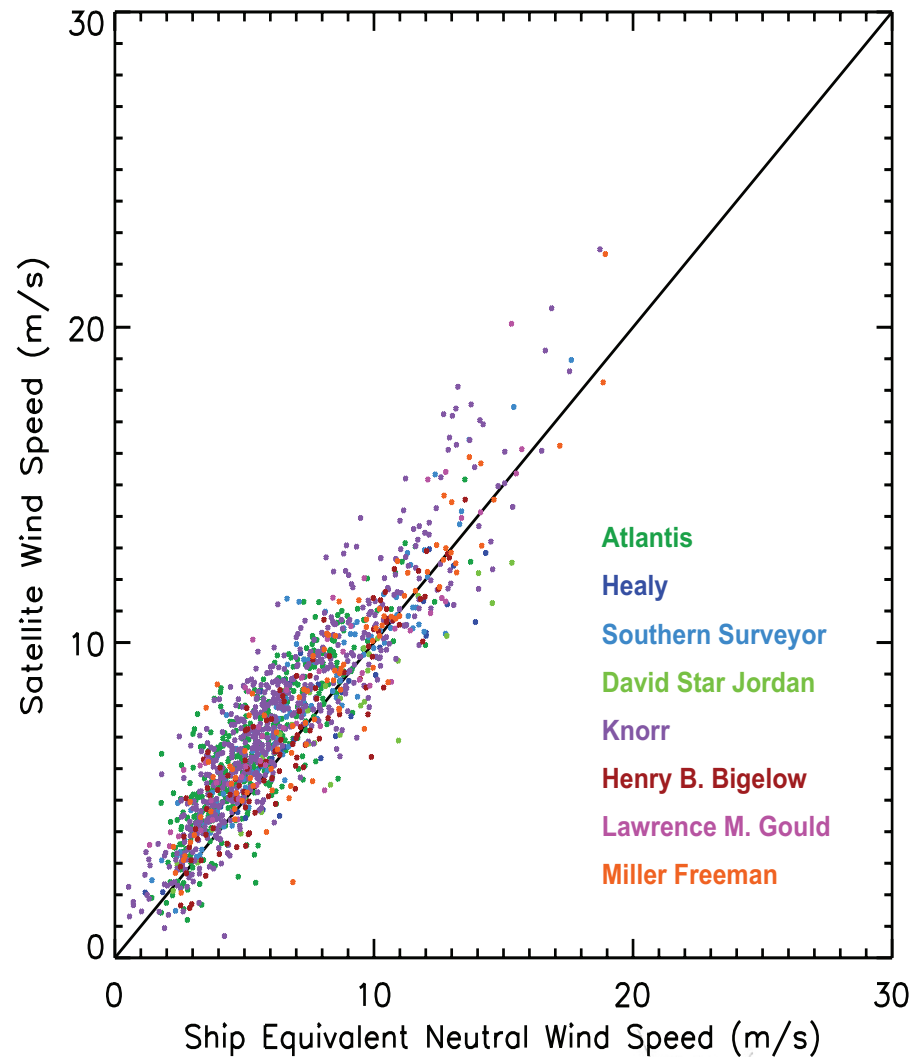
- Need for a tool to identify collocated satellite and in situ data has been recognized in the satellite, climate, and other research communities
 - Discussed at OceanObs' 09, MARCDAT3, CLIMAR4, etc.
- Typically data matching is done using one-off programs developed at multiple institutions
- Tool should reduce duplicate development and repeated man hours required to match satellite/in situ data
 - Remove the need for satellite and in situ data to be collocated on a single server
 - Systematically recreate matchups if either in situ or satellite products are re-processed (new versions), i.e., matchup archives are always up-to-date.

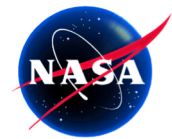


Use Cases for Data Matching Service

Defined Use Cases

- Satellite Cal/Val and algorithm development
 - Primary focus of DOMS prototype
- Decision support
 - Planning field campaigns
 - Real-time operational activities
- Scientific investigation
 - Process studies
 - Model assimilation services
 - User friendly interface to support student research
- Future matching capabilities
 - Satellite to satellite
 - Satellite/in situ to model



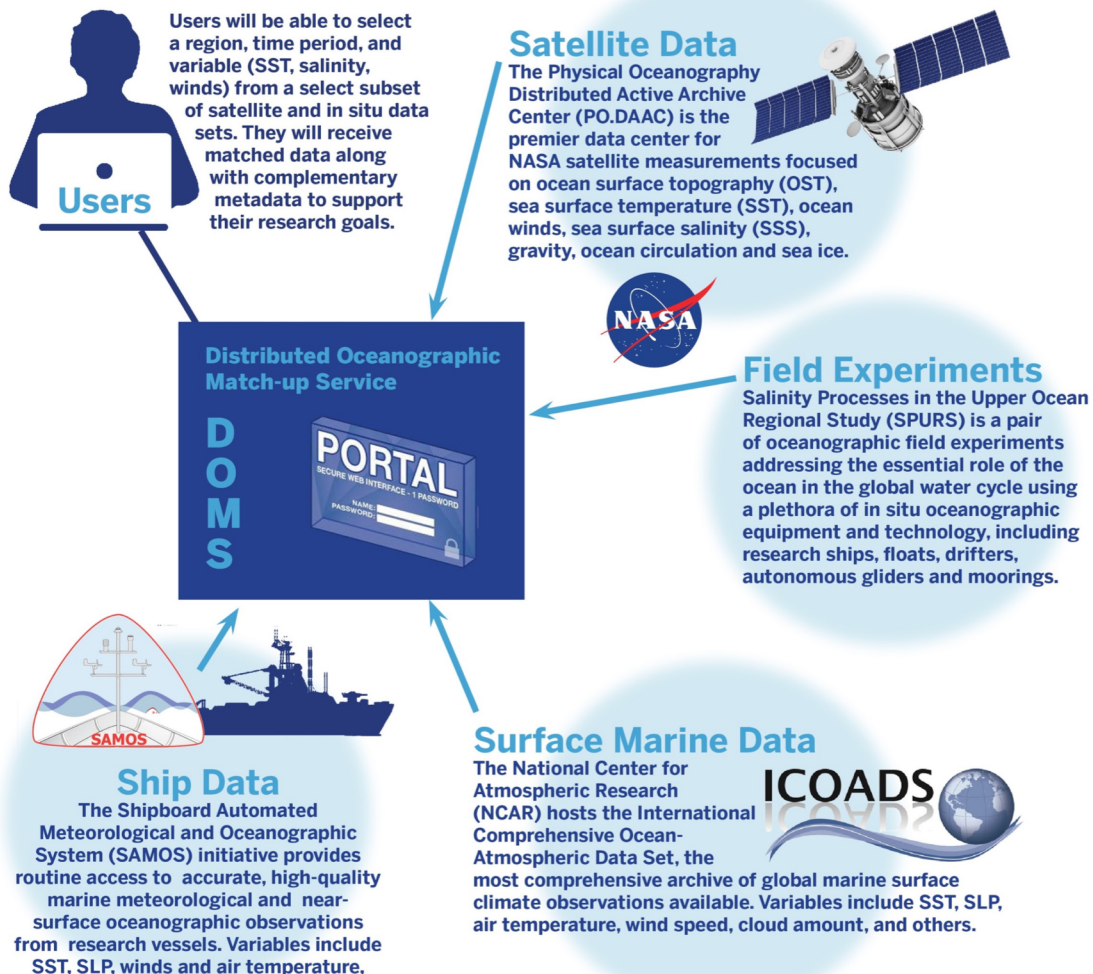


Distributed Ocean Data Matching

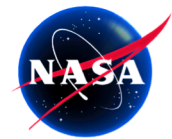
NASA funded development of the Distributed Oceanographic Match-Up Service (DOMS).

A web-accessible tool that reconciles satellite and in situ datasets.

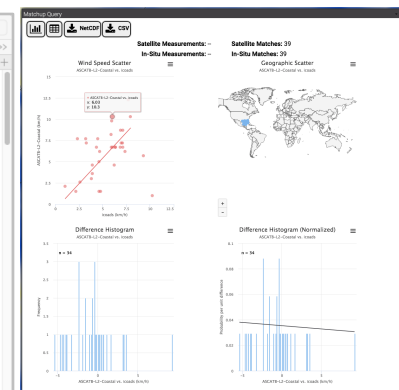
- Input a series of geospatial references for satellite observations (e.g., footprint location, date, and time).
- Return the in situ observations that are “matched” to the satellite data within a selectable temporal and spatial domain.



<https://mdc.coaps.fsu.edu/doms>; <https://doms.jpl.nasa.gov/>



DOMS UI, Workflow, and Webservice



- Use UI or API
- Export data subsets
- Export matched data
- Summary graphics

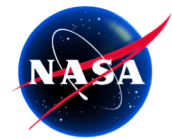
Primary Dataset

PARAMETER	DATASET	DESCRIPTION
Temperature	ASCATB-L2-Coastal	This dataset contains operational near real time Level 2 Coastal Scatter and Sea Surface Temperature from the Advanced Scatterometer (ASCAT) on MetOp at 12.5 km sampling resolution. The product is derived from the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Ocean and Sea Ice Satellite Application Facility (OSIF) Level 2 product. The coastal dataset covers from the innermost 1.5 and 25 km datasets on each satellite's swath. The coastal dataset is derived from a spatial area of the swath that is closest to the coast to provide a spatial analysis of the Swath-2 retrieval from the Level 2.

Match-up In-Situ

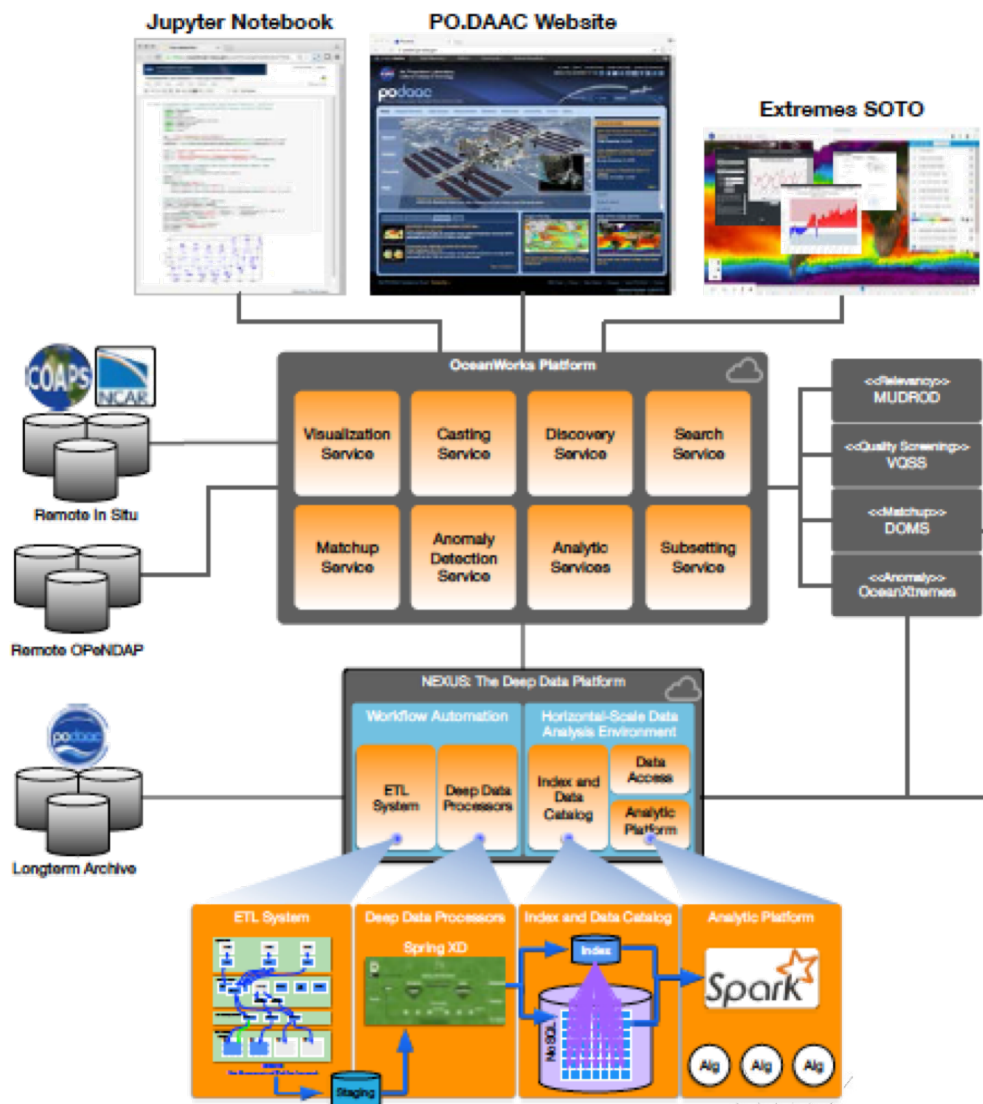
Optional Platform

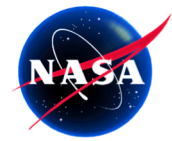




OceanWorks

- NASA funded extension that integrates several technologies into a ocean data analytics platform known as OceanWorks
 - DOMS
 - OceanXtremes
 - MUDROD
 - PO.DAAC data system
- Prototype integration with PO.DAAC's State of The Ocean (SOTO) – Extremes SOTO
- Strong interest in community to integrate additional in-situ data sources
 - R2R mentioned several times at Ocean Sciences, AGU and other meetings.





Questions?

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Disclaimer: Any opinions, findings, and conclusions or recommendations provided are those of the contributors to the DOMS project and do not necessarily reflect the views of NASA.