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# Vocabulary Mapping for the Distributed Oceanographic Match-Up Service

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# DOMS Overview



Users will be able to select a region, time period, and variable (SST, salinity, winds) from a select subset of satellite and in situ data sets. They will receive matched data along with complementary metadata to support their research goals.

## Satellite Data

The Physical Oceanography Distributed Active Archive Center (PO.DAAC) is the premier data center for NASA satellite measurements focused on ocean surface topography (OST), sea surface temperature (SST), ocean winds, sea surface salinity (SSS), gravity, ocean circulation and sea ice.



## Field Experiments

Salinity Processes in the Upper Ocean Regional Study (SPURS) is a pair of oceanographic field experiments addressing the essential role of the ocean in the global water cycle using a plethora of in situ oceanographic equipment and technology, including research ships, floats, drifters, autonomous gliders and moorings.

Distributed Oceanographic Match-Up Service

DOMS



## Ship Data

The Shipboard Automated Meteorological and Oceanographic System (SAMOS) initiative provides routine access to accurate, high-quality marine meteorological and near-surface oceanographic observations from research vessels. Variables include SST, SLP, winds and air temperature.

## Surface Marine Data

The National Center for Atmospheric Research (NCAR) hosts the International Comprehensive Ocean-Atmospheric Data Set, the most comprehensive archive of global marine surface climate observations available. Variables include SST, SLP, air temperature, wind speed, cloud amount, and others.



- Parameters
  - Sea temperature
  - Salinity
  - Winds
- In Situ Datasets
  - SAMOS
  - ICOADS
  - SPURS
- Satellite Datasets
  - ASCAT winds
  - Aquarius salinity
  - MUR sea temperature
  - MODIS sea temperature



# Vocabulary Mapping Using NVS

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- Standard vocabulary terms between DOMS nodes
  - Consistent representation in software and output format
  - Familiar terms for user community
- Quickly settled on Climate and Forecast Standard Names for parameters
  - SAMOS parameters mapped during ODIP I
- Used NERC Vocabulary Server search tool to find platform and device vocabularies
  - [https://www.bodc.ac.uk/data/codes\\_and\\_formats/vocabulary\\_search/](https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/)
  - SeaVoX Platform Categories
  - SeaDataNet device categories



# Parameters

- Climate and Forecast Standard Names  
<http://vocab.nerc.ac.uk/collection/P07/current/>
  - ISO8601 (time)
  - latitude
  - longitude
  - sea\_water\_temperature
  - sea\_water\_salinity
  - wind\_speed
  - eastward\_wind
  - northward\_wind
- Selected broadest terms
- Each node homogenized parameters, reference frames, and units



# Platform Categories

- SeaVoX Platform Categories

<http://vocab.nerc.ac.uk/collection/L06/current/>

Platform Category	FSU	NCAR	JPL
ship	X	X	X
moored_surface_buoy		X	X
drifting_surface_float		X	X
drifting_subsurface_profiling_float		X	X
autonomous_underwater_vehicle		X	X
offshore_structure		X	
coastal_structure		X	
towed_unmanned_submersible		X	X
orbiting_satellite			X



# Device Categories

- SeaDataNet device categories

<http://vocab.nerc.ac.uk/collection/L05/current/>

Device Category	FSU	NCAR	JPL
bathythermographs		X	
discrete water samplers		X	
CTD		X	X
current profilers			X
radiometers			X
scatterometers			X



# Vocabulary Challenges

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- Quality flags
- Creating CF-like terms (e.g., wind\_speed\_height, wind\_speed\_quality)
- DOMS Linked Data



# Summary

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- Creating service to deliver matched in situ and satellite oceanographic data to users according to customized queries
- Couldn't be done without mappings to standard vocabularies
  - Using NVS
  - Building on previous ODIP work
- Next vocabulary challenge – quality





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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.