# MATLAB TOOLBOX FOR MODEL VALIDATION USING STOQS AND OPENDAP


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More information about STOQS: **http://code.google.com/p/stoqs/**

**Our goal :**
Get the *in situ* measurement available in STOQS server for the time, depth and variable of the model output in an easy way

We must know:

**Url of the OPeNDAP model output:**

*http://ourocean.jpl.nasa.gov:8080/thredds/dodsC/MBNowcast/mb_das_2011062021.nc*

**Depth Range:** *+- X m of the selected depth. Ex: +-1m of 5 m*

4 m
-1 m
5 m
+1 m
6 m

***Date Range:*** *+- X hours of model date. Ex: +-2 hours of 2011/06/20 21:00*

*2011/06/20 19:00 <-> 2011/06/20 23:00*

## **STOQS** (Spatial Temporal Oceanographic Query System)

**Manage all the in situ information and allow query the data easily**

### Architecture

HTML5 | jQuery & AJAX | OpenLayers | Flot | Twitter Bootstrap

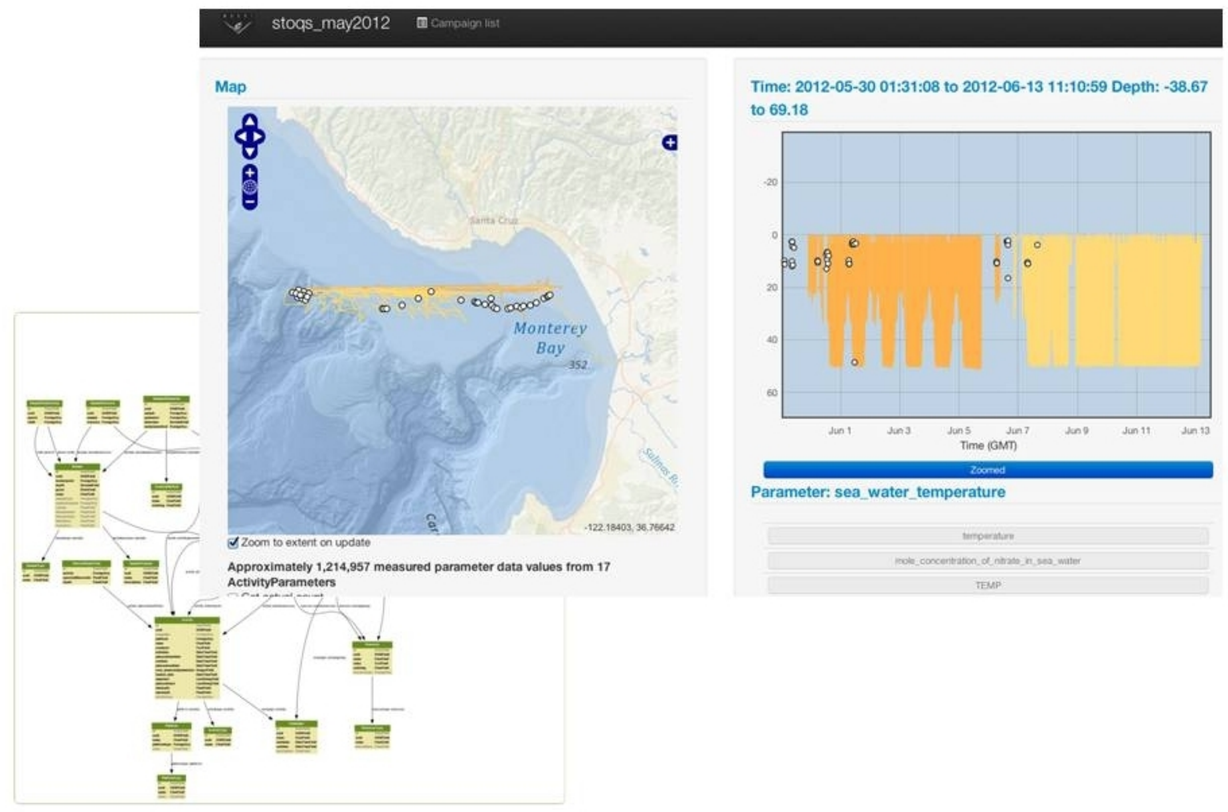
Client

Server

Python with pydap, numpy, etc. | Minnesota Mapserver | GeoDjango ORM & web framework

Postgres + PostGIS

## **STOQS** web interface




### Why a Matlab STOQStoolbox and not use STOQS web interface?

**Less friendly more efficiency for a lot of different kinds of queries.**

**Allow the user to have all the data in one workplace:**

- **OPeNDAP**
- **STOQS**
- **Local files.**

### Why Matlab?

**Use a well-known and widely used software.**

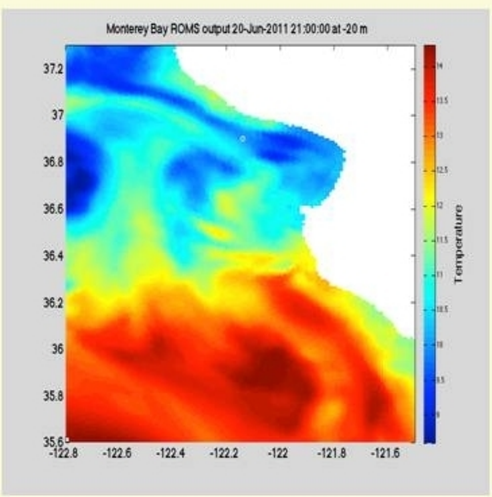
### How it's done?

**Thanks to capabilities of STOQS to give *json* and *csv* response.**

## A real case

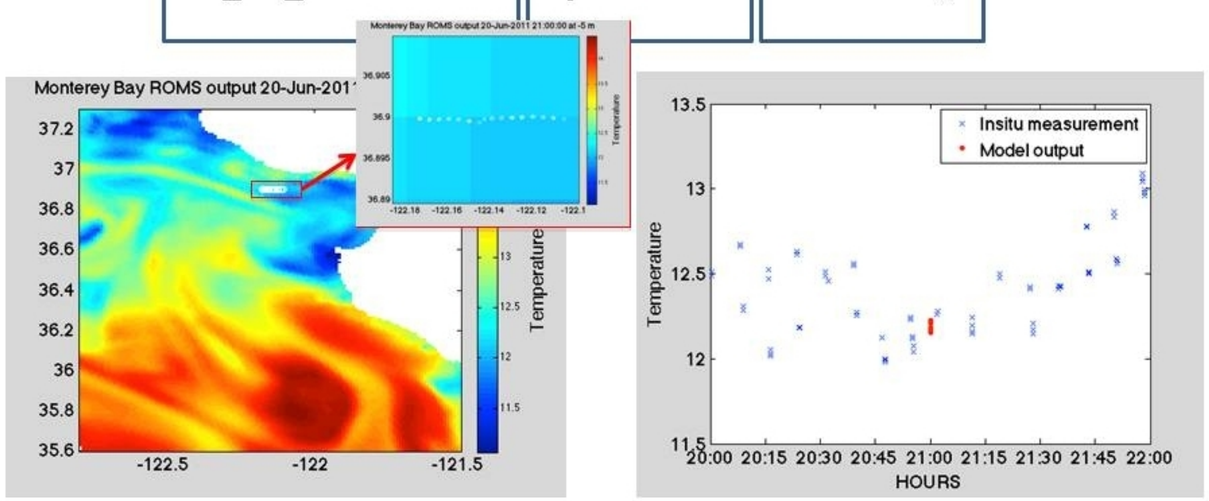
Get the data needed for model validation. **A DEMOSTRATION**

**The JPL Monterey Bay (MB) ocean forecasting system is based on the Regional Ocean Modeling System (ROMS). The ROMS configuration consists of three-level nested domains covering the U.S. West coast, central California coast, and Monterey Bay at 15-km, 5-km and 1.6-km, respectively.**




## Simple query

| Model output file | Depth Range | Date Range |
|---|---|---|
| mb_das_2011062021.nc | depth=5+-0.1 | date +-1 hour; |
| mb_das_2011062021.nc | depth=30+-0.1 | date +-4 hour; |
| mb_das_2012060221.nc | depth=5+-0.1 | date +-2 hour; |




## Complex query

Get all the *in situ measurement* for every model output in our date range.

**Date range= '01 Jun 2012 03:00:00' and '03 Jun 2012 21:00:00'**
**Depth=5 m**
**Depth_range=0.1 m**
**Time_range=3 hours**