

Web-based Tools for Accessing, Analyzing and Developing Environmental Data Products

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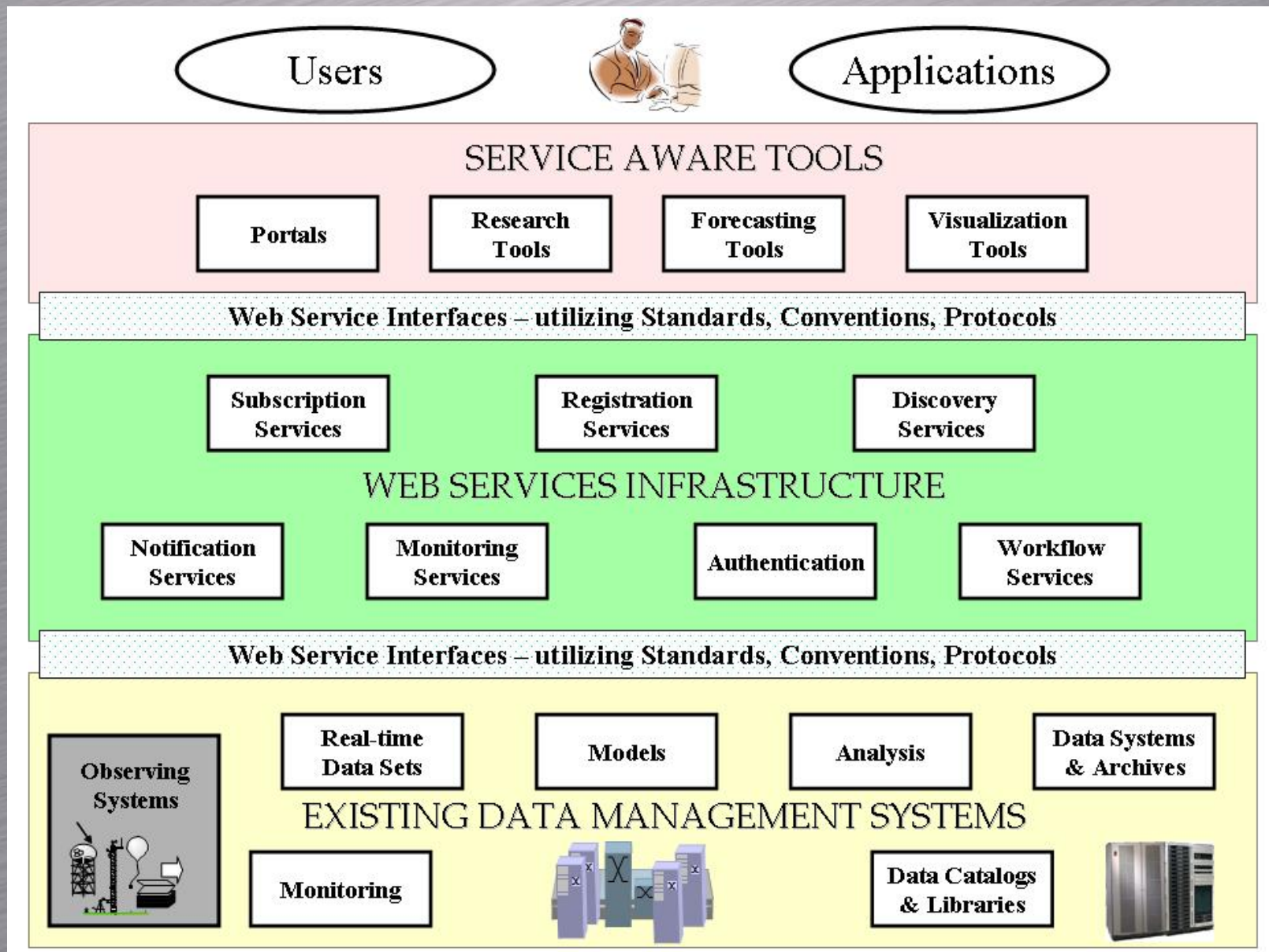
NOAA NODC

June 24, 2009

Web-based Tools for Accessing, Analyzing and Developing Environmental Data Products

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- Sharon Mesick, Rost Parsons, Eric Roby, Charles Carlton (NESDIS/NCDDC)
- Steve Hankin (OAR/PMEL)
- NOAA IOOS Program (Zdenka Willis, Becky Shuford)
- NOAA EGT (Steve Murawski, Mike Ford)

Service Oriented Architecture for GEO-IDE



ERDDAP - Web-based Data Access Program

<http://coastwatch.pfeg.noaa.gov/erddap/index.html>

ERDDAP provides a technological basis for translation between data transport protocols and the needs of data users

- Aggregates data from remote and local sources
- Search options
- Standardized requests
- Multiple format options
- E-mail/URL notification of dataset changes
- Web application (for humans)
- Web service (single URL brings data into R, matlab, etc.)

ERDDAP - Web-based Data Access Program

providing data to researchers

- *animal tagging and tracking*
- *chlorophyll bloom watches*
- *stock assessment*
- *ocean climate analysis*
- *California Current pelagic IEA*

used in Cyber Infrastructure of NSF-funded “Ocean Observatories Initiative”



ERDDAP

ERDDAP (the Environmental Research Division's Data Access Program) is a web service that helps humans and [computer programs](#) download scientific data in common file formats and make graphs and maps. This particular ERDDAP installation has oceanographic data (for example, data from satellites and buoys).

The Problems that ERDDAP Tries To Solve

Without ERDDAP, when a person (or a computer program) looks on the internet for a specific type of scientific data (for example, oceanographic data like satellite sea surface temperature data), there are problems ...

- The datasets of interest are hard to find because they are at many different web sites.
- Each site requires a different protocol to request the data (for example, HTTP GET, XML, SOAP+XML, DAP, WCS, WFS, SOS, or an HTML form).
- Each site returns the data in a different format (for example, XML, SOAP+XML, DAP binary data stream, ASCII text, HDF 4, HDF 5, NetCDF, ...) and it isn't the common file format that you want (for example, .html table, ESRI .asc, Google Earth .kml, .mat, .nc, .csv, .tsv, .json, .xhtml, WMS).
- Data from different sites is hard to compare because the dates+times are expressed in different formats (for example, "Jan 2, 1985", "02-JAN-1985", "1/2/85", "2/1/85", "1985-01-02", or days since has Jan 1, 1980, or ...).

ERDDAP's Solutions

- ERDDAP is a web service that aggregates data from diverse remote sources and offers a simple, consistent way to access the data.
 - ERDDAP offers different ways to search for datasets of interest (see options at right).
 - ERDDAP lets you make requests in a standardized way, regardless of the data source's request protocol.
 - Gridded data is available via the [DAP hyperslab protocol](#) and [WMS](#).
 - Tabular data is available via the [DAP constraint protocol](#).
- ERDDAP also provides Data Access Forms (web pages) which help humans create the DAP requests. [OPeNDAP's DAP](#) is the recommended [IOOS DMAC](#) data transport mechanism and a [NASA EOSDIS standard](#). (DAP is great!)
- ERDDAP lets you choose the file format for the results (for example, .html table, ESRI .asc, Google Earth .kml, .mat, .nc, .csv, .tsv, .json, .xhtml, .png).
 - ERDDAP standardizes the dates+times in the results, either as:
 - [UDUNITS](#)-compatible "seconds since 1970-01-01T00:00:00Z" numbers, or
 - [ISO 8601:2004 "extended" format](#) strings (YYYY-MM-DDThh:mm:ssZ, for example, "1985-01-02T00:00:00Z").

To avoid time zone and daylight savings confusion, time values are always converted to the UTC time

Get Started with ERDDAP: Search for Datasets of Interest

ERDDAP offers a couple of ways to search for datasets:

- [View a List of All Datasets](#)
- **Do a Full Text Search for Datasets**

- **Search for Datasets by Category**

Datasets can be categorized in different ways by the values of various metadata attributes.

Click on an attribute ([institution](#), [ioos_category](#), [long_name](#), [standard_name](#)) to see a list of categories (values) for that attribute.

Then, you can click on a category to see a list of relevant datasets.

- **Search for Datasets by Protocol**

Protocols are the standards which define how to request data. Different protocols are appropriate for different types of data and for different client applications. Click on a protocol to see a list of datasets which are available via that protocol in ERDDAP.

| Protocol | Description |
|--------------------------|--|
| griddap | griddap lets you use the DAP hyperslab protocol to request gridded data (for example, satellite data and climate model data) and graphs of gridded data. |
| tabledap | tabledap lets you use the DAP constraint protocol to request tabular data (for example, buoy data) and graphs of tabular data. |
| WMS | The Web Map Service (WMS) lets you request an image with data plotted on a map. |



ERDDAP > info

Pick a Dataset

| Grid DAP Data | Table DAP Data | Make A Graph | W M S | Title | Institution | Summary | Info | Background Info | Dataset ID |
|----------------------|----------------------|-----------------------|-------------------|---|----------------------------------|-------------------|----------------------|----------------------------|-----------------|
| | data | graph | | Argo Float Data from the PMEL DAPPER Server | NOAA PMEL | ? | info | background | pmelArgoAll |
| | data | graph | | BMDE - PRBO, SE Farallon Island Shorebirds | PRBO | ? | info | background | prbo05Bmde |
| | data | graph | | Buoy Data (Water Temperature) from the NOAA CSC microWFS | NOAA CSC | ? | info | background | cscWT |
| | data | graph | | Buoy Data from the GoMOOS SOS Server | GoMOOS | ? | info | background | gomoosBuoy |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Currents | NOAA NDBC | ? | info | background | ndbcSosCurrents |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Salinity | NOAA NDBC | ? | info | background | ndbcSosSalinity |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Water Level | NOAA NDBC | ? | info | background | ndbcSosWLevel |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Water Temperature | NOAA NDBC | ? | info | background | ndbcSosWTemp |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Waves | NOAA NDBC | ? | info | background | ndbcSosWaves |
| | data | graph | | Buoy Data from the NOAA NDBC SOS Server - Wind | NOAA NDBC | ? | info | background | ndbcSosWind |
| | data | graph | | Buoy Wind Data from the NOAA NOS SOAP+XML Server | NOAA NOS | ? | info | background | nosCoopsWind |
| | data | graph | | CalCOFI Fish Larvae Count | CalCOFI | ? | info | background | erdCalcofiBio |
| | data | graph | | CalCOFI Subsurface Physical Data | CalCOFI | ? | info | background | erdCalcofiSub |
| | data | graph | | CalCOFI Surface Physical Data | CalCOFI | ? | info | background | erdCalcofiSur |
| data | | graph | M | Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality (8 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMHchla8day |
| data | | graph | M | Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality (Monthly Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMHchlamday |
| data | | graph | M | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (Monthly Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMBchlamday |
| data | | graph | | Chlorophyll-a, Aqua MODIS, NPP, West US, EXPERIMENTAL (Monthly Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMWchlamday |
| data | | graph | | Chlorophyll-a, Aqua MODIS, OSU DB, West US (1 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMYchla1day |
| data | | graph | | Chlorophyll-a, Aqua MODIS, OSU DB, West US (14 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMYchla14day |
| data | | graph | | Chlorophyll-a, Aqua MODIS, OSU DB, West US (3 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMYchla3day |
| data | | graph | | Chlorophyll-a, Aqua MODIS, OSU DB, West US (8 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMYchla8day |
| data | | graph | | Chlorophyll-a, Aqua MODIS, OSU DB, West US (Hourly) | NOAA CoastWatch, West Coast Node | ? | info | background | erdMYchlahday |
| data | | graph | M | Chlorophyll-a, Orbview-2 SeaWiFS, Global (8 Day Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdSWchla8day |
| data | | graph | M | Chlorophyll-a, Orbview-2 SeaWiFS, Global (Monthly Composite) | NOAA CoastWatch, West Coast Node | ? | info | background | erdSWchlamday |

JAVA

```
[hyperwarp:/applications/ErdJava] rmendels% ./ConvertTable
```

```
"http://oceanwatch.pfeg.noaa.gov/opendap/GLOBEC/GLOBEC\_bottle?t0,oxygen&month
```

```
5" 2 result.nc 1 observation
```

```
[hyperwarp:/applications/ErdJava] rmendels% ncdump -h result.nc
```

```
netcdf result {
```

```
dimensions:
```

```
    observation = 190 ;
```

```
variables:
```

```
    double t0(observation) ;
```

```
        t0:long_name = "Temperature T0" ;
```

```
    double oxygen(observation) ;
```

```
        oxygen:long_name = "Oxygen" ;
```

```
// global attributes:
```

```
    :id = "result" ;
```

```
    :observationDimension = "observation" ;
```

```
}
```

Java-based browsers
Python web developers

CoastWatch Browser

www.pfel.noaa.gov/coastwatch/CWbrowser.jsp

CoastWatch Browser
Create custom maps and download data

Edit: The Map Station Data

1) Select a region: US+M MB

(or specify ...)

Min X: -110

(or ...)

Zoom: 10

2) Synchronize times:

3) Select a size: Standard

4) Download the map: .pdf

5) Animate: 7

SST Climatology, Pathfinder Ver 5.0, Day and Night, 0.05 degrees, Global, Science Quality

(None)

Bathymetry, ETOPO2v2, 0.033333 degrees, Global

Chlorophyll-a, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality*

Chlorophyll-a Climatology, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality

Chlorophyll-a Anomaly, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality*

Chlorophyll-a, Aqua MODIS, NPP, 0.025 degrees, Pacific Ocean, EXPERIMENTAL*

Chlorophyll-a, Aqua MODIS, NPP, 0.0125 degrees, West US, EXPERIMENTAL*

Chlorophyll-a, Aqua MODIS, OSU DB, 0.0125 degrees, West US*

Chlorophyll-a, Orbview-2 SeaWiFS, 0.04167 degrees, Alaska, Science Quality*

Chlorophyll-a, Orbview-2 SeaWiFS, 0.0125 degrees, West US*

Chlorophyll-a, Orbview-2 SeaWiFS, 0.1 degrees, Global*

Chlorophyll-a, Orbview-2 SeaWiFS, 0.04167 degrees, West US, Science Quality*

Chlorophyll-a Climatology, Orbview-2 SeaWiFS, 0.1 degrees, Global

Chlorophyll-a Anomaly, Orbview-2 SeaWiFS, 0.1 degrees, Global*

Chlorophyll-a, Terra MODIS, OSU DB, 0.0125 degrees, West US, EXPERIMENTAL*

Chlorophyll-a Deviation, Orbview-2 SeaWiFS, 0.0125 degrees, West US, EXPERIMENTAL*

Debris Likelihood, based on GhostNet, NASA Aqua MODIS, and GOES Imager, EXPERIMENTAL*

Diffuse Attenuation Coef. K490, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality*

Diffuse Attenuation Coef. K490 Climatology, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality

Diffuse Attenuation Coef. K490, Aqua MODIS, OSU DB, 0.125 degrees, West US, EXPERIMENTAL*

Diffuse Attenuation Coef. K490, Terra MODIS, OSU DB, 0.125 degrees, West US, EXPERIMENTAL*

Ekman Upwelling, QuikSCAT SeaWinds, 0.25 degrees, Global, Near Real Time*

Ekman Upwelling, QuikSCAT SeaWinds, 0.25 degrees, Global, Science Quality*

Ekman Upwelling Climatology, QuikSCAT SeaWinds, 0.25 degrees, Global, Science Quality

Ekman Upwelling Anomaly, QuikSCAT SeaWinds, 0.25 degrees, Global, Near Real Time*

Ekman Upwelling Anomaly, QuikSCAT SeaWinds, 0.25 degrees, Global, Science Quality*

Fluorescence, Aqua MODIS, NPP, 0.05 degrees, West US, Science Quality*

Fluorescence, Aqua MODIS, OSU DB, 0.125 degrees, West US, EXPERIMENTAL*

Fluorescence, Terra MODIS, OSU DB, 0.125 degrees, West US, EXPERIMENTAL*

Front Probability, NOAA GOES Imager, 0.05 degrees, Western Hemisphere, EXPERIMENTAL*

Ice Coverage, Aqua AMSR-E, 0.125 degrees, Global*

Primary Productivity, NASA Aqua MODIS and GOES Imager, 0.1 degrees, Global, EXPERIMENTAL*

Primary Productivity, NASA Aqua MODIS and Pathfinder, 0.1 degrees, Global, EXPERIMENTAL*

Primary Productivity Anomaly, SeaWiFS and Pathfinder, 0.1 degrees, Global, EXPERIMENTAL*

Sea Surface Height, Absolute, Aviso, 0.25 degrees, Global, Science Quality*

Sea Surface Height Deviation, Aviso, 0.25 degrees, Global, Science Quality*

Sea Surface Height Deviation Climatology, Aviso, 0.25 degrees, Global, Science Quality

Sea Surface Height Deviation Anomaly, Aviso, 0.25 degrees, Global, Science Quality*

Sea Surface Height Deviation, Jason-1 Altimeter, 0.25 degrees, Global*

SST, Aqua AMSR-E, 0.25 degrees, Global*

SST, Aqua MODIS, NPP, 0.05 degrees, Global, Daytime, Science Quality*

SST, Aqua MODIS, NPP, 0.025 degrees, Pacific Ocean, Daytime*

SST, Aqua MODIS, NPP, 0.0125 degrees, West US, Daytime*

BloomWatch 360

Create custom maps and download data

Edit:

- 1) Select a data set:
- 2) Select a time period:
- 3) Select a centered time (GMT):
- 4) View:
- 5) Select the units:
- 6) Select a palette:
- 7) Download the grid data:
- 8) Optional:

Home

on Vector Data Station Data 1

C2 C3 AN BB GG

st East

(It may take a minute to create it.)

CoastWatch West Coast Reg

[CWBrowser](#) | [Sites](#) | [Feedback](#)

tion Data 1 Station Data 2

of 'Time Period' averages.

Viewing Anomalies

BloomWatch 360 CoastWatch West Coast Reg

Create custom maps and download near-real-time oceanographic data. [\[Help\]](#) [Home](#) | [CWBrowser](#) | [Sites](#) | [Feedback](#)

Edit: The Map Grid Data Contour Data Vector Data Station Vector Data Station Data 1 Station Data 2

1) Select a data set: Chlorophyll-a, Aqua MODIS, NPP, 0.05 degrees, Global, Science Quality*

2) Select a time period: 5 day 8 day 1 month ↑ or choose anomaly dataset from list

3) Select a centered time (GMT): 2006-06-16 00:00:00 |< - + >| Or, 2006 | 06 | 16 | 00:00:00

4) View: Data Anomalies (Data - Climatologies)

5) Select the units: mg m⁻³

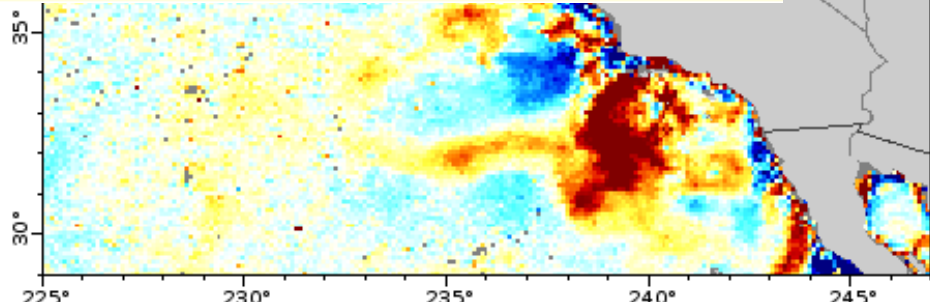
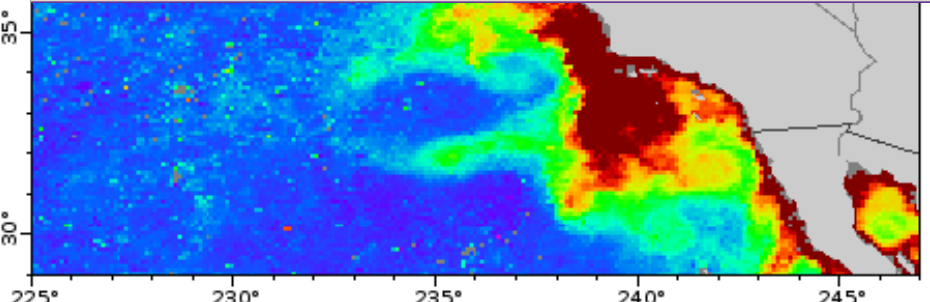
6) Select a palette: BlueWhiteRed | Scale: Linear | Min: -1.0 | - + | Max: 1.0 | - +

7) Download the anomaly data: [.asc](#) | [ESRI .asc](#) | [Google Earth](#) | [.grd](#) | [.hdf](#) | [.mat](#) | [.nc](#) | [.ncHeader](#) | [.tif](#) | [.xyz](#) | [FGDC](#)
[File Type Info](#) | [GET Queries](#) | [OPeNDAP](#) | [Data Set Info](#)

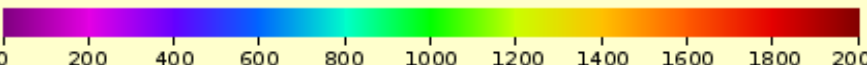
8) Optional: Enter a longitude and latitude or click on the map to see a time series of 'Time Period' averages.

9) Select a begin time (GMT): 2005-12-16 12:00:00 |< - + >| Or, 2005 | 12 | 16 | 12:00:00

10) Download time series: (No data is available for the current lat/lon range, Time Period and End Date.) | [Data Set Info](#)

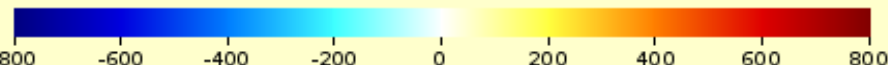


NOAA CoastWatch



Primary Productivity, SeaWiFS and Pathfinder, 0.1 degrees, Global, EXPERIMENTAL
(mg C m⁻² day⁻¹) 2007-08
Data courtesy of GSFC, GeoEye, NODC, CoastWatch West Coast

NOAA CoastWatch

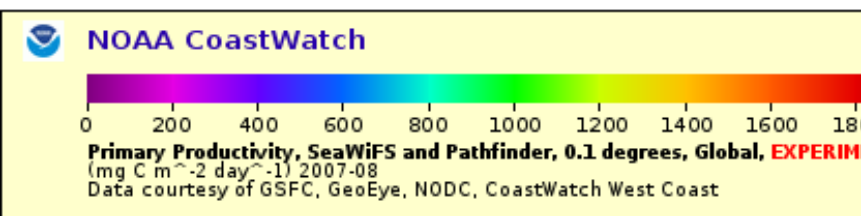
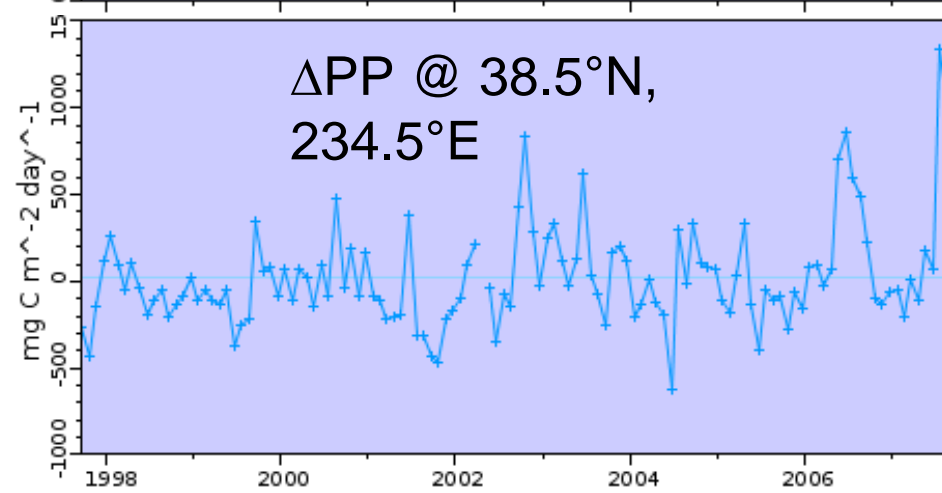
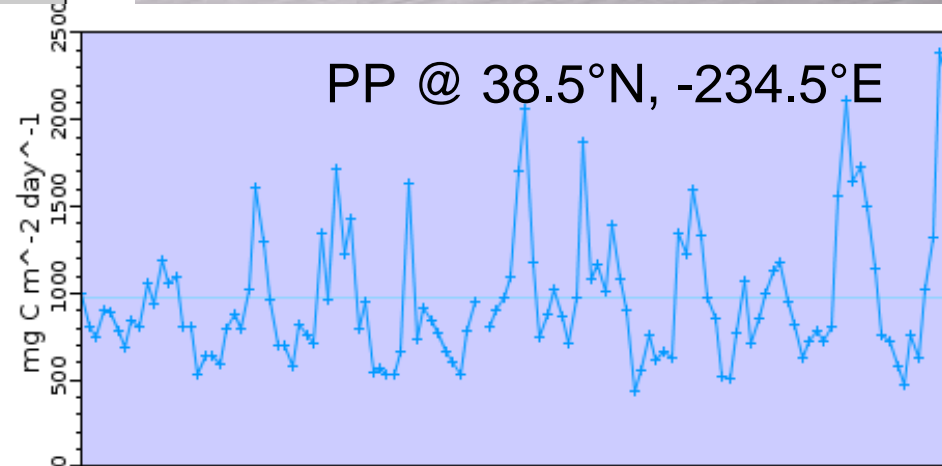
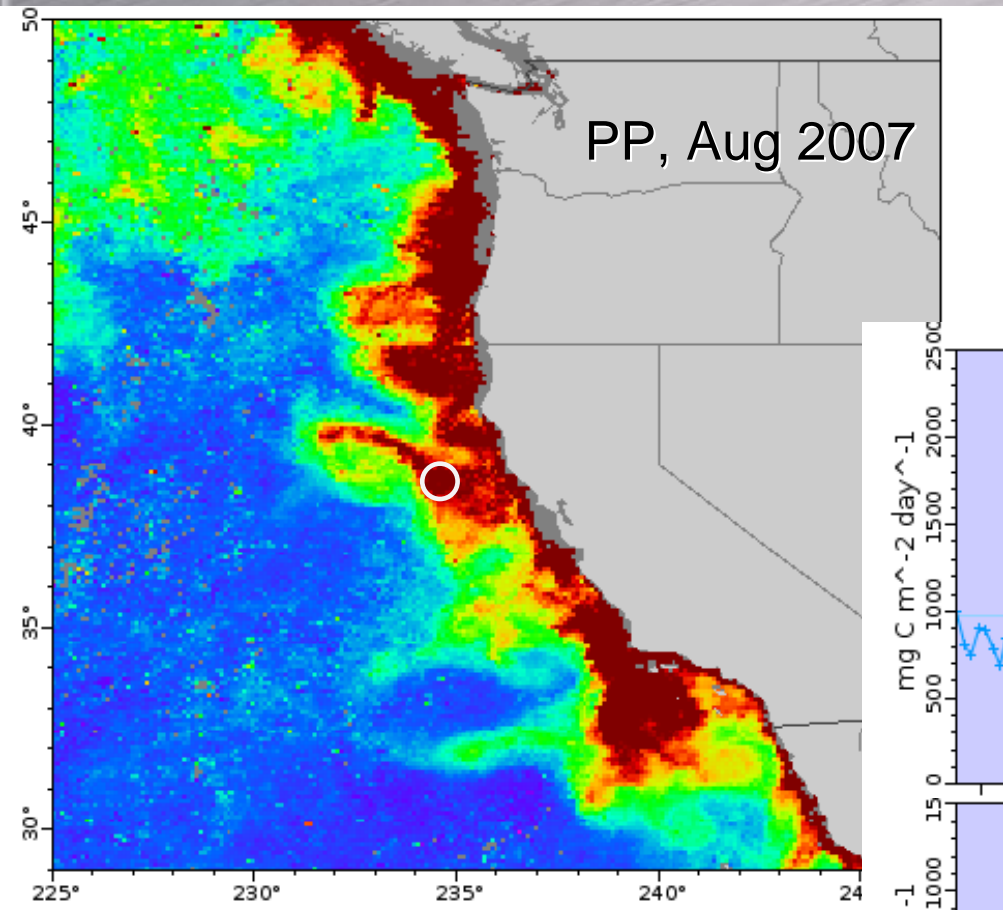


Primary Productivity, SeaWiFS and Pathfinder, 0.1 degrees, Global, EXPERIMENTAL
(mg C m⁻² day⁻¹) 2007-08
Data courtesy of GSFC, GeoEye, NODC, CoastWatch West Coast

Providing climatologies & anomalies made possible by NOAA's R&O program

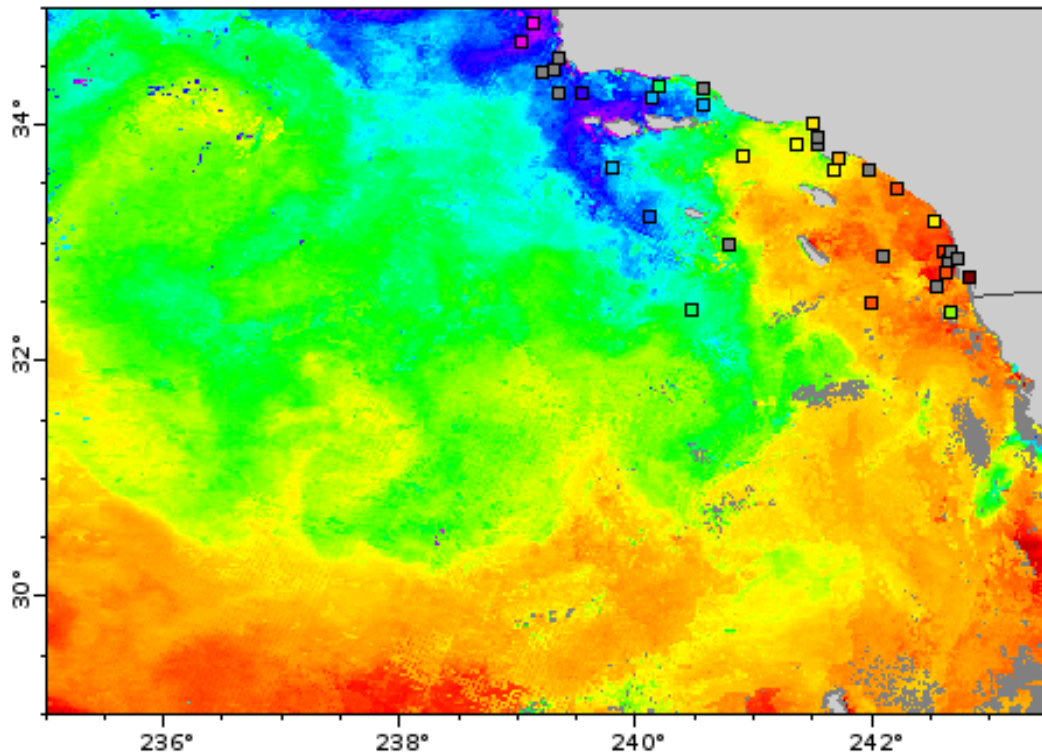
Viewing Time Series

Simply clicking on any point on the map will generate a timeseries at that location.



Science quality satellite timeseries are crucial to NMFS

Comparing Data Sets



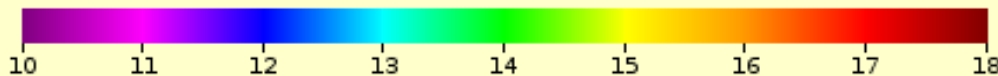
AVHRR SST from
4/27-5/04 2007

Overlay of in-situ
SST data from
NDBC buoys from
the same time
period

Ability created in
response to needs
of IOOS RAs



NOAA CoastWatch



SST, NOAA POES AVHRR, LAC, 0.0125 degrees, West US, Day and Night
(degree C) 2007-04-27 through 2007-05-04
Data courtesy of NOAA NWS Monterey and NOAA CoastWatch



□ **SST (NDBC)**
(degree C) 2007-04-27 through 2007-05-04. Depth = 0 meters.
Data courtesy of NOAA NDBC and Other Station Owners/Operators

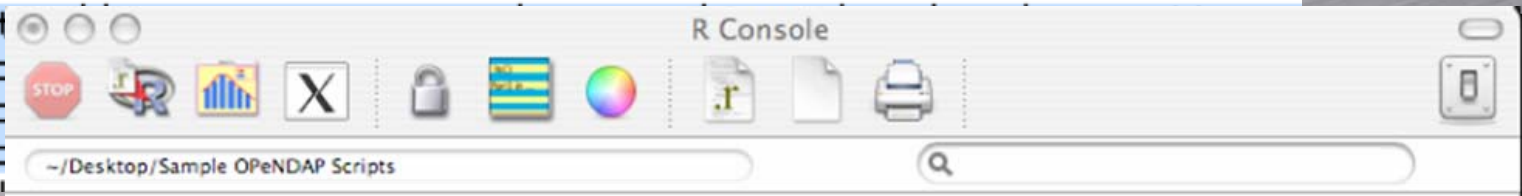

```
#get raw sst data for globe at first time period and draw an image
```

```
sst<-open.ncdf('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/GTS/sst.nc')  
sstdata<-get.var.ncdf(sst, 'SST_RAW', start=c(1,1,1), count=c(-1,-1,1))  
lonval<-get.var.ncdf(sst, 'LON', 1, -1)  
latval<-get.var.ncdf(sst, 'LAT', 1, -1)  
image(lonval, latval, sstdata, xlim=c(0, 360), ylim=c(90, -90))
```

R-based applications

```
#get raw sst data for globe at first time period and draw an image
```

```
sst<-open.ncdf('http://las  
sstdata<-get.var.ncdf(sst,  
lonval<-get.var.ncdf(sst,  
latval<-get.var.ncdf(sst,  
image(lonval,latval,sstdata
```



R : Copyright 2005, The R Foundation for Statistical Computing
Version 2.2.1 (2005-12-20 r36812)
ISBN 3-900051-07-0

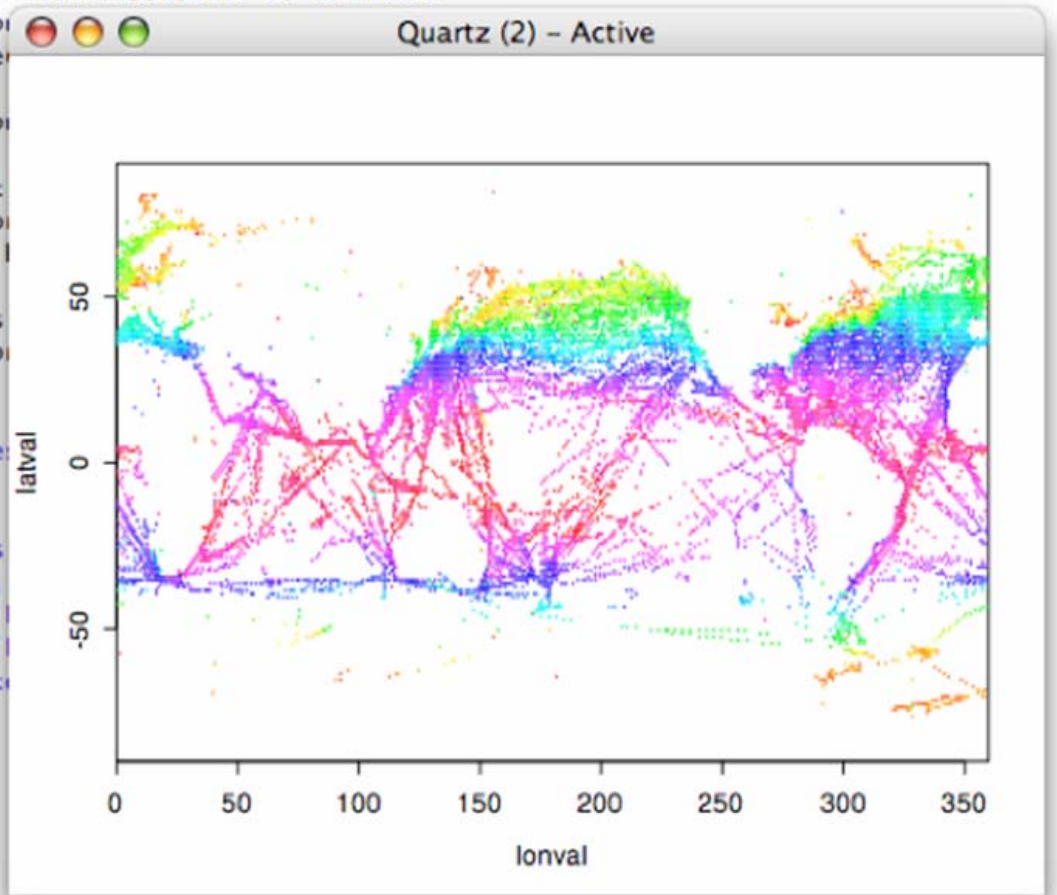
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support by importing packages

R is a collaborative project.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos in 'demo()' files
'help.start()' for an HTML browser interface to help
Type 'q()' to quit R.

```
> source("~/Users/rmendels/Desktop/Sample OPeNDAP Scripts/SST.R")  
> library(ncdf)  
> library(lattice)  
> sst<-open.ncdf('http://las  
> sstdata<-get.var.ncdf(sst,  
> lonval<-get.var.ncdf(sst,  
> latval<-get.var.ncdf(sst,  
> image(lonval,latval,sstdata  
>
```




```
# California landings - Halibut at San Diego
```

```
calCatch<-open.ncdf('http://las.pfeg.noaa.gov/ncdf/catch/catch.nc')  
halibutSD<-get.var.ncdf(calCatch, 'larval_hlbtsd')  
halibut=ts(halibutSD, frequency=12, start=c(1930, 1))
```

The image shows a screenshot of an R console window. The console displays the R logo, version information (R 2.2.1), and the R license text. Below the license, there are several prompts: 'Natural language support but running...', 'R is a collaborative project with many contributors...', and 'Type \'demo()\' for some demos...'. At the bottom of the console, a series of R code commands are visible, including the loading of 'ncdf' and 'lattice' libraries, the opening of a NetCDF file, the extraction of 'larval_hlbtsd' data, and the creation of a time series object 'halibut'. The final command is 'plot(fit_s)', which has triggered the appearance of a Quartz window.

The Quartz window, titled 'Quartz (2) - Active', displays a plot named 'fit_s'. The plot has three vertically stacked panels sharing a common x-axis labeled 'Time' with major ticks at 1940, 1960, 1980, and 2000. The top panel, labeled 'level', shows a time series with a y-axis from 0 to 20000. The middle panel, labeled 'slope', shows a time series with a y-axis from -30.22916 to -30.22916. The bottom panel, labeled 'sea', shows a time series with a y-axis from -5000 to 10000. The 'sea' plot shows high-frequency oscillations that decrease in amplitude over time.

```
% old eseal
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/eseal/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/eseal/BOPP_dep0.nc?NEWLON1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/eseal/BOPP_dep0.nc?NEWLAT1[158:1305]');

% Aviso SSH
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/1day?time');
%% the matlab array index for 1997-04-30 is 238
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/1day?lon');
loaddap('http://oceanwatch.pfeg.noaa.gov:8081/thredds/dodsC/satellite/TR/sshd/1day?lat');
%% lon of 230-240(roughly) is 921-961
%% lat of 35-40 is 442-462
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/1day?TRsshd[237:237][0:0][441:461][920
```

MATLAB applications


```
% old esead
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
```

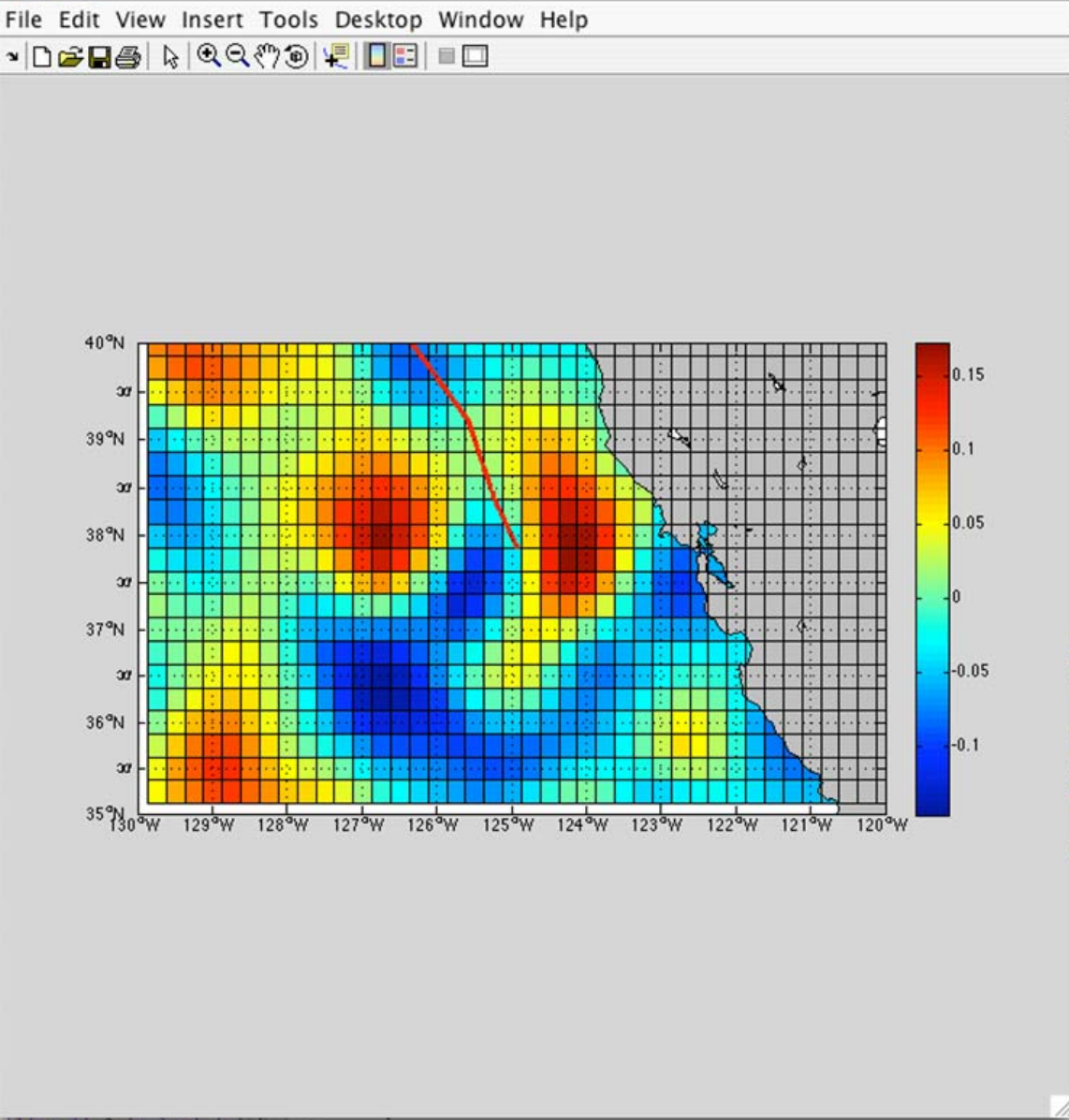
```
% Aviso SSH
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
```

| Name | Value |
|----------|-----------------|
| NEWLAT1 | <1148x1 double> |
| NEWLON1 | <1148x1 double> |
| NEWT1 | <1148x1 double> |
| TAsshd | <1x1 struct> |
| lat | <602x1 double> |
| lat1 | <21x41 double> |
| lon | <1440x1 double> |
| lon1 | <21x41 double> |
| mytime | <743x1 double> |
| secs | <743x1 double> |
| sshDates | <743x6 double> |
| start | 719529 |
| time | <743x1 double> |

```
Command History
5/10/07 1:09 PM
help svd
% old esead
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://las.pfeg.noaa.gov/thredds/dodsC/ERD/test/esead/BOPP_dep0.nc?NEWT1[158:1305]');
% Aviso SSH
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
%% the matlab array index for the SSH
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
%% lon of 230-240(roughly)
%% lat of 35-40 is 442-462
loaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/SSH/1970-2000/esead/BOPP_dep0.nc?NEWT1[158:1305]');
start=datetime(1970,1,1);
secs=mod(time,86400);
mytime=(time-secs)/86400;
sshDates=datevec(start+mytime,86400);
TAsshd.TAsshd(TAsshd.TAsshd);
lat1= repmat(TAsshd.lat,1,41);
lon1= repmat(TAsshd.lon'-360,1,41);
m_proj('mercator','lon',[-110 120]);
m_pcolor(lon1,lat1,TAsshd.TAsshd);
m_line(NEWLON1-360,NEWLAT1,'linewidth',3,'color','r');
m_grid('xtick',8,'ytick',10,'tickdir','in');
m_gshhs_i('patch',[.7 .7 .7]);
colorbar;
```

MATLAB 7.4.0 (R2007a)

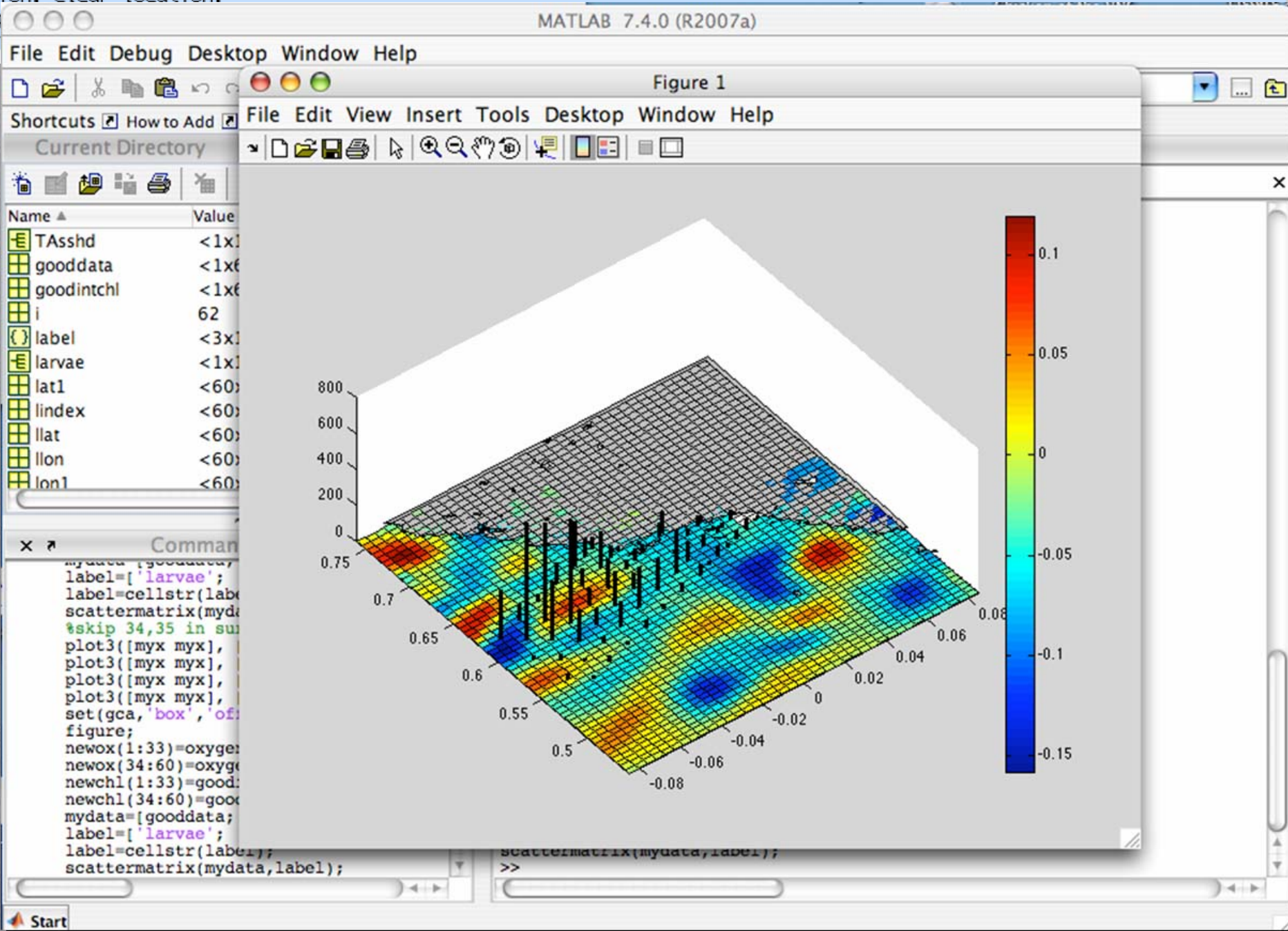
Figure 1



.../isreal.m has the same
.../assert.m has the same

```
.../BOPP_dep0.nc?NEWT1[158:1305]';
.../BOPP_dep0.nc?NEWLON1[158:1305]';
.../BOPP_dep0.nc?NEWLAT1[158:1305]';
.../day?time');
.../day?lon');
.../day?lat');
.../day?TAsshd[237:237]';
```

```
loadaddap('http://las.pfeg.noaa.gov/dods/CalCOFI/Biological.cdp?lat,lon,TotalFishLarvae&time>859987380000&time<861431040000');
ssha_loc=loadaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/mday?lat[401:1:460],lon[940:1:979]');
loadaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/mday?TRsshd[54:1:54][0:1:0][401:1:460][940:1:979]');
loadaddap('http://las.pfeg.noaa.gov/dods/CalCOFI/Surface.cdp?lat,lon,intchl&time>859987380000&time<861431040000');
mysurf=location; clear location;
loadaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TR/sshd/mday?TRsshd[54:1:54][0:1:0][401:1:460][940:1:979]');
subsurf=location;
```




```
loadaddap('http://las.pfeg.noaa.gov/dods/CalCOFI/Biological.cdp?lat,lon>TotalFishLarvae&time>859987380000&time<861431040000');  
ssha_loc=loadaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TA/sshd/mday?lat[401:1:460],lon[940:1:979]');  
loadaddap('http://oceanwatch.pfeg.noaa.gov/thredds/dodsC/satellite/TA/sshd/mday?TAsshd[54:1:54][0:1:0][401:1:460][940:1:979]');  
loadaddap('http://las.pfeg.noaa.gov/dods/CalCOFI/Surface.cdp?lat,lon,intchl&time>859987380000&time<861431040000');  
mysurf=loc  
loadaddap('ht  
subs surf=loc
```

MATLAB 7.4.0 (R2007a)

File Edit Debug Desktop Window Help

/Applications/MATLAB74

Shortcuts How to Add What's New

Current Directory Workspace

Command Window

To get started, select [MATLAB Help](#) or [Demos](#) from the Help menu.

Figure 2

File Edit View Insert Tools Desktop Window Help

scatermatrix(mydata,label);

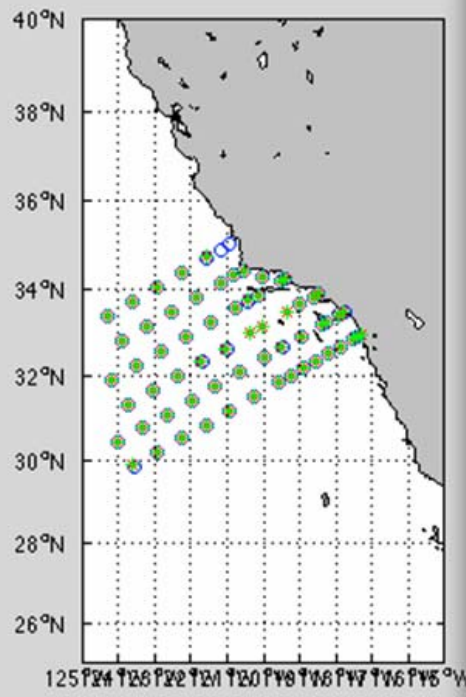
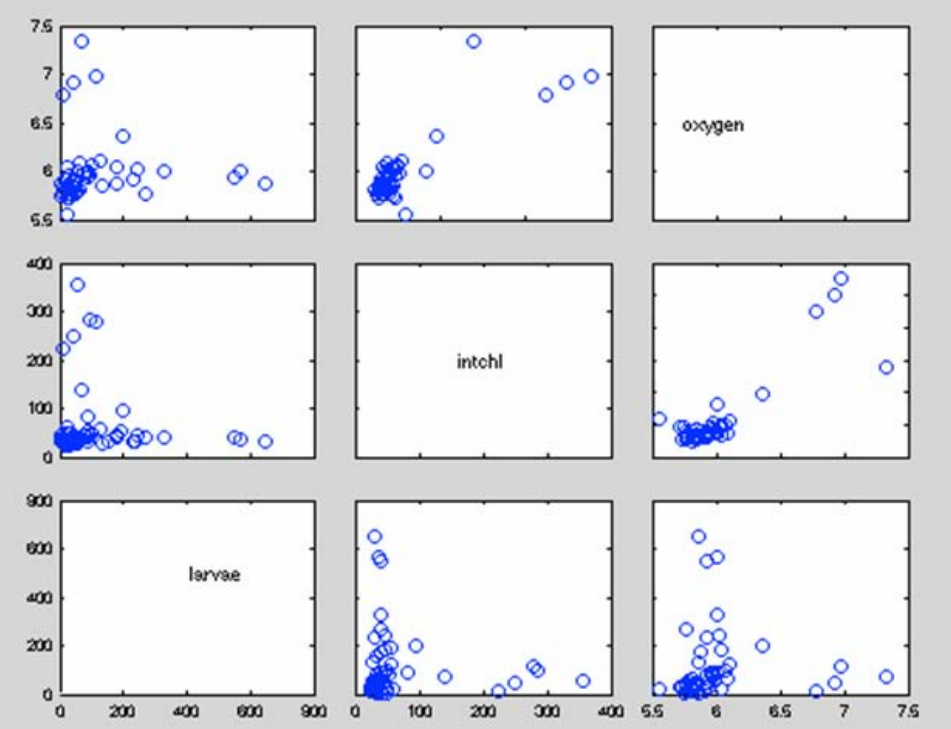


Figure 3

File Edit View Insert Tools Desktop Window Help

scatermatrix(mydata,label);



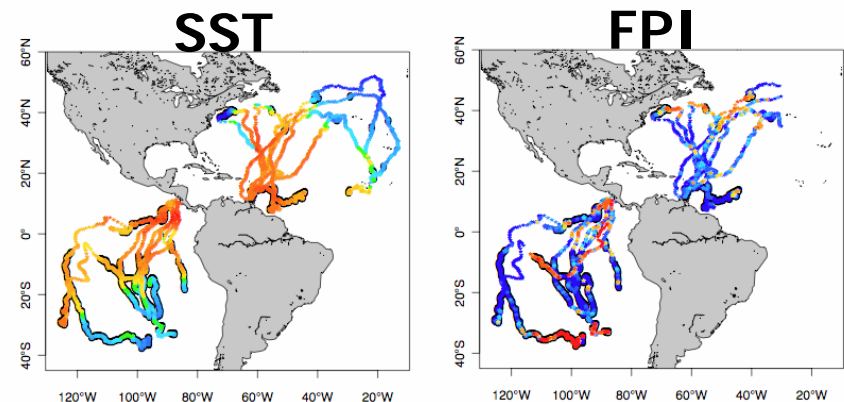
Start Click and drag to move Workspace...

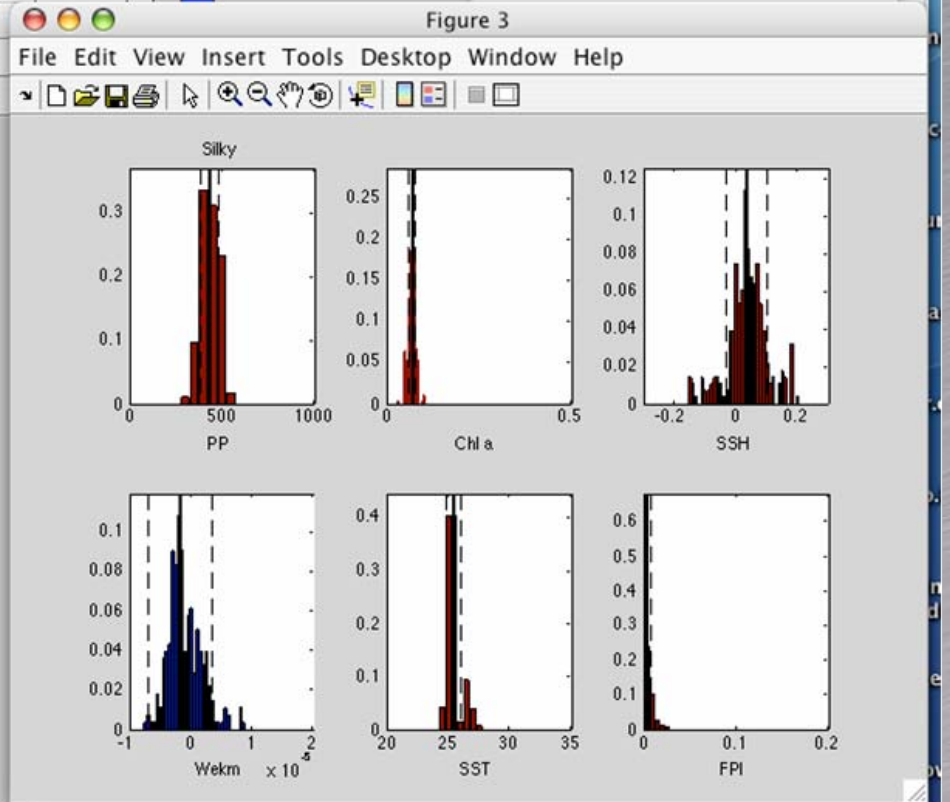
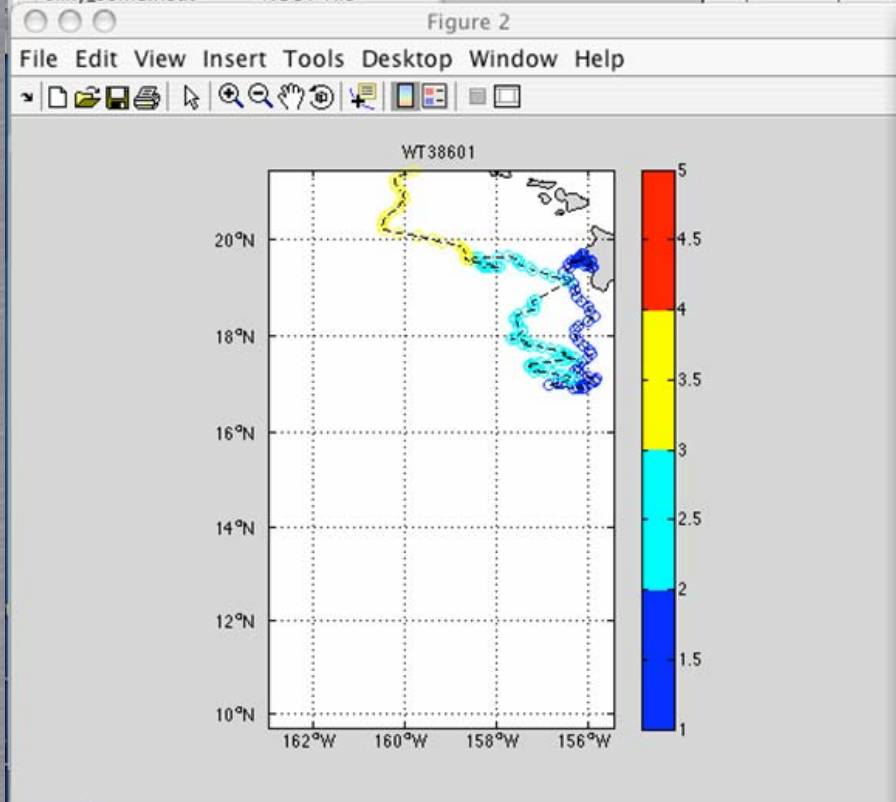
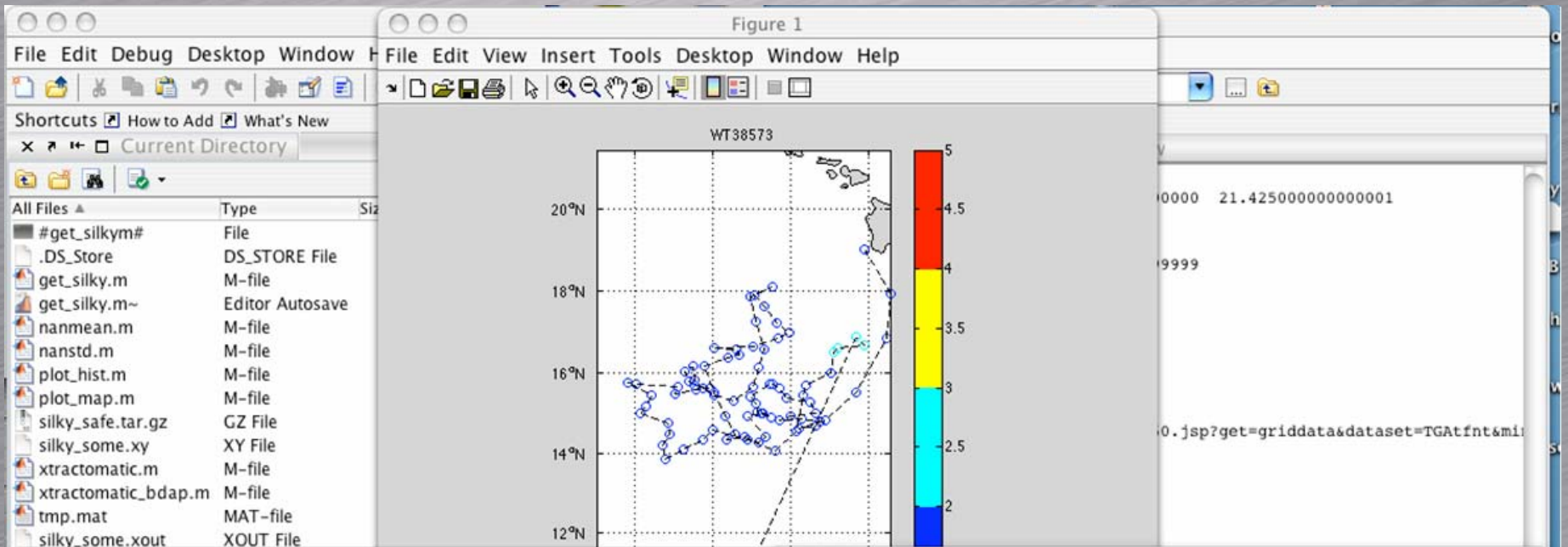
Xtract-O-Matic

- Client-based tool to import 4-dimensional environmental data from web directly into selected working environments, including Matlab, R and IDL
- Key features:
 - One option allows the selection of data in a user-selected region along arbitrary tracks. This allows the analyst to “swim” with the animals through data fields while reducing strain on bandwidth and other technical infrastructure.
 - No fuss, no muss with file formats: the data is imported as a variable in the given workspace.
 - Access to a variety of data is built in, but it can potentially access data served by any interoperable web service (e.g., WCS and OPeNDAP) as recommended by IOOS.

• <http://coastwatch.pfel.noaa.gov/xtracto>

Leatherback Turtles





```
loaddap('http://oceanwatch.pfeg.noaa.gov:8081/thredds/dodsC/satellite/PH/ssta/mday?lat[2200:1:2219],lon[4740:1:4759]');
lat1= repmat(lat,1,20);
lon1= repmat(lon,-360,20,1);
loaddap('http://oceanwatch.pfeg.noaa.gov:8081/thredds/dodsC/satellite/PH/ssta/mday?PHssta[0:252]');
%lon 4601-4800;
%starts in Jan 1984;
loaddap('http://oceanwatch.pfeg.noaa.gov:8081/thredds/dodsC/satellite/PH/ssta/mday?PHssta[0:252]');
```

MATLAB 7.4.0 (R2007a)

File Edit View Graphics Debug Desktop Window Help

/Applications/MATLAB74/toolbox/my_matlab_apps/imm3897

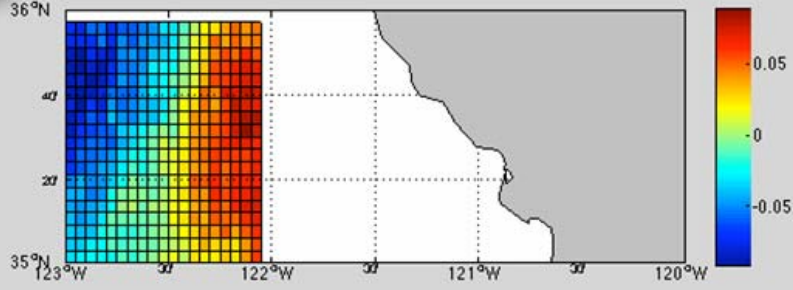
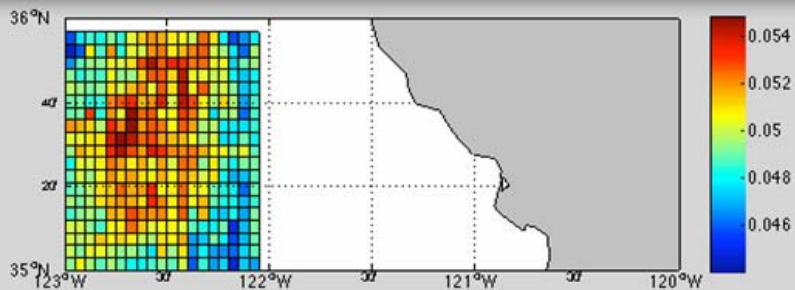
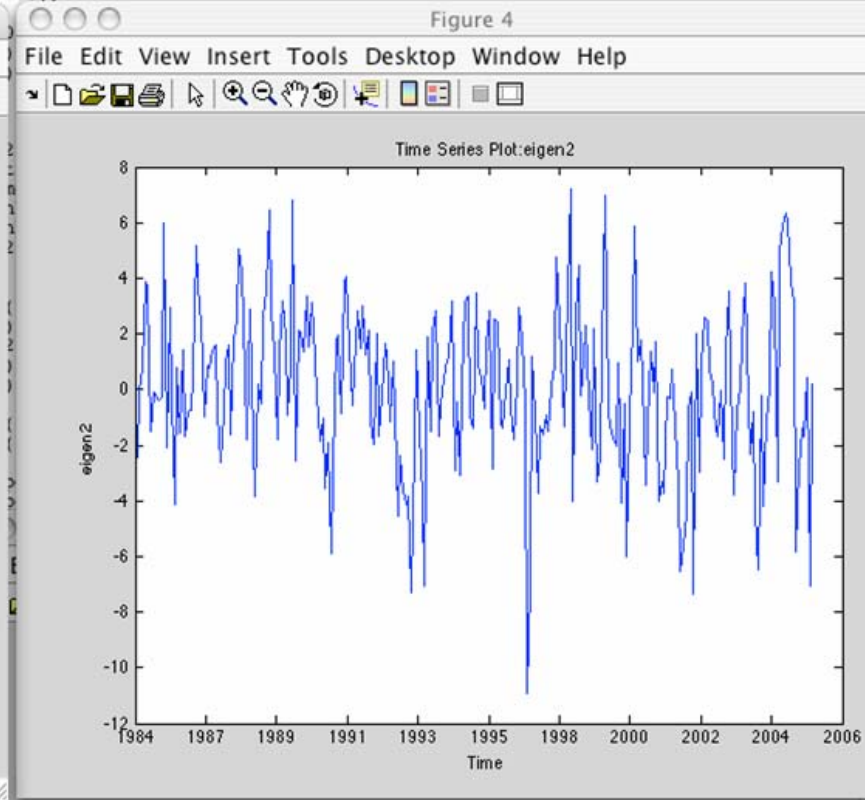
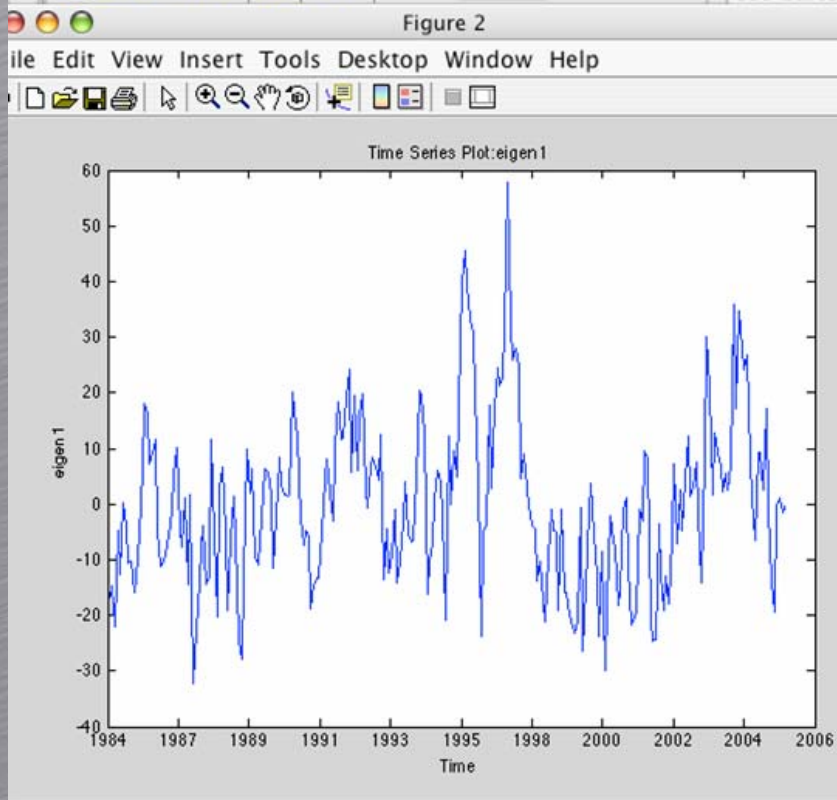
Shortcuts How to Add What's New

Current Directory Workspace

Stack: Base

Command Window

```
loaddap('http://oceanwatch.pfeg.noaa.gov:8081/thredds/dodsC/satellite/PH/ssta/mday?PHssta[0:252]');
sst=zeros(252,400);
```



PaCOOS Date Integration Demonstration Product

http://oceanwatch.pfeg.noaa.gov/PaCOOS1/ Phil DeMuth investment

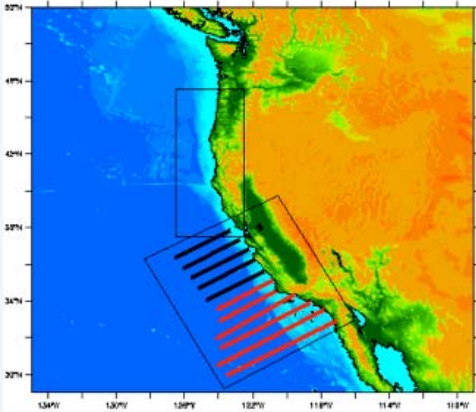
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Providing ocean information for the sustained use of the California Current Large Marine Ecosystem under a changing climate

Data Integration Demonstration

LAS DC HART THREDDS
 OPeNDAP DAPPER



CALCOFI

Physical Data L T DC D O
 Biological Data L DC D O
 Integrated Physical and Biological Data DC

GLOBEC NEP

VPT L T O
 MOCNESS L T O
 Bottle Data L T O
 Birds Data L T O
 Cetaceans Data L T O

Mid Water Trawl (SWFSC/Fisheries Ecology Division)

CTD Data L T O
 Thermosal Data L T O

Environmental Indices (SWFSC/Environmental Resources Division)

NOIx (Extratropical Northern Oscillation Index) L
 SOIx (Extratropical Southern Oscillation Index) L
 SOI (Southern Oscillation Index) L

PISCO ADCP & BUOY (PISCO, served by NOAA/NCDC)

ADCP PISCO Datasets L T

- San Miguel Island (BAY) (North side),CA
- Santa Rosa Island (BEA),CA
- San Miguel Island (SMS) (South side),CA
- Santa Rosa Island (SRS),CA
- Santa Cruz Island (PEL) (Pelican Bay),CA
- Santa Cruz Island (VAL) (Valley Anchorage),CA

Moored Temperature PISCO Datasets L T

- San Miguel Island (BAY),CA
- San Miguel Island (SMS),CA
- Santa Rosa Island (BEA),CA
- Santa Cruz Island (PEL),CA
- Santa Cruz Island (VAL),CA
- Point Ano Nuevo (ANO001),CA
- Big Creek (BIG001),CA
- Esalen (ESA001),CA
- Point Joe (JOE001),CA
- La Cruz Rock (LAC001),CA
- Lopez Rock (LOP001),CA

Web-based Data Services

Open "http://oceanwatch.pfeg.noaa.gov/thredds/catalog.html?cmd=subset&catalog=http://oceanwatch.pfeg.noaa.gov/thredds/PaCOOS/CalCOFI/catalog.xml&dataset=CalCOFI_data" in a new tab



Providing ocean information for the sustained use of the California Current Large Marine Ecosystem under a changing climate

Live Access Server

[OPeNDAP \(FDS\)](#) | [THREDDS](#) | [Index](#) | Search:

single
data
set

com-
pare
two

Datasets

Variables

Constraints

Previous Output

Define variable

About

Contact

LAS UI Version 6.5

Datasets

Welcome to LAS.

You must have pop-ups enabled for this site in order to see your output.

This session will expire after 180 minutes of inactivity.

Click on a dataset to continue or an [i](#) for information about a dataset.

[Help](#)

Select dataset:

[By Name](#)

[By Project](#)

[By Variable](#)

PaCOOS Data Integration Demonstration LAS

http://las.pfeg.noaa.gov/PaCOOS/PaCOOScnp.php

Google Scholar MacInTouch MacFixIt MacUpdate Versiontracker Apple Amazon News (6150) Yahoo! Apple (774) eBay

Ocean Surface Temperature
 AVHRR (composites)
 GOES (composites)
 GOES (individual images, 25hr ave)
 GOES (individual images)

Ocean Surface Chlorophyll-a
 MODIS on Aqua

Ocean Surface Winds
 QuikSCAT

Ocean Surface Height
 Jason-1

Multiple-Satellite Blended Products
 Wind Climatology
 Wind (daily & monthly)
 Wind (6-hourly)

Point Data: [Time Series Data:](#)

Ocean Temperature
 POES (interoperability demo)

Ocean Surface Currents
 HF Radar Monterey Bay
 Jason-1
 HF Radar SF Bay
 HF Radar SF Bay Outlet

Chlorophyll Fluorescence
 MODIS on Terra

Diffuse Attenuation Coefficient k490
 MODIS on Terra

Derived Quantities
 Frontal Probability Index
 Primary Productivity
 Optimum Interpolation SST

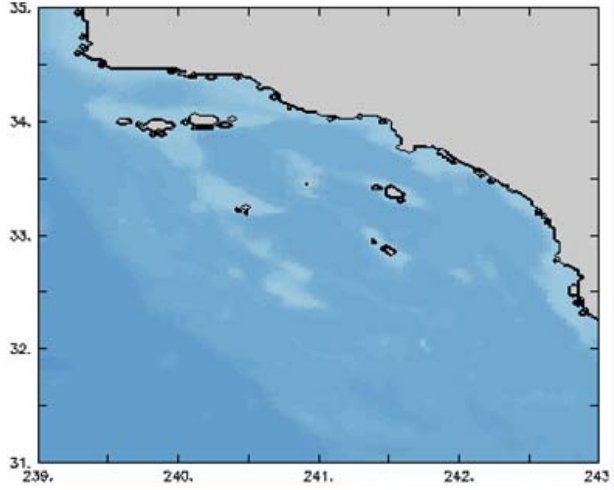
Ocean Subtidal Temperature
[Channel Islands National Park](#)

Title: [Channel Islands National Park](#) [Home Page](#)

Coverage: Time Series, 1993-2006

Resolution: Varies, hourly

Data courtesy of: Channel Islands National Park



Choose one or more locations: [\(Click on name to view location on map\) more help](#) [Information about this dataset](#)

| <p>Anacapa Island</p> <table border="0"> <thead> <tr> <th></th> <th>Start time</th> <th>End time</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> Admirals Reef</td><td>26-Aug-1993</td><td>08-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Black Sea Bass Reef</td><td>20-Oct-2005</td><td>09-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Cathedral Cove</td><td>01-Oct-1993</td><td>04-Aug-2006</td></tr> <tr><td><input type="checkbox"/> East Fish Camp</td><td>09-Sep-2005</td><td>23-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Keyhole</td><td>14-Sep-2005</td><td>17-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Landing Cove</td><td>01-Oct-1993</td><td>23-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Lighthouse</td><td>28-Sep-2005</td><td>21-Jul-2006</td></tr> </tbody> </table> <p>San Clemente Island</p> <table border="0"> <tbody> <tr><td><input type="checkbox"/> Boy Scout Camp</td><td>31-May-2003</td><td>23-Jun-2004</td></tr> <tr><td><input type="checkbox"/> Eel Point</td><td>29-May-2003</td><td>23-Jun-2004</td></tr> <tr><td><input type="checkbox"/> Horse Beach Cove</td><td>02-Jun-2003</td><td>26-Jun-2004</td></tr> <tr><td><input type="checkbox"/> Northwest Harbor</td><td>28-May-2003</td><td>24-Jun-2004</td></tr> </tbody> </table> | | Start time | End time | <input type="checkbox"/> Admirals Reef | 26-Aug-1993 | 08-Aug-2006 | <input type="checkbox"/> Black Sea Bass Reef | 20-Oct-2005 | 09-Jun-2006 | <input type="checkbox"/> Cathedral Cove | 01-Oct-1993 | 04-Aug-2006 | <input type="checkbox"/> East Fish Camp | 09-Sep-2005 | 23-Aug-2006 | <input type="checkbox"/> Keyhole | 14-Sep-2005 | 17-Aug-2006 | <input type="checkbox"/> Landing Cove | 01-Oct-1993 | 23-Aug-2006 | <input type="checkbox"/> Lighthouse | 28-Sep-2005 | 21-Jul-2006 | <input type="checkbox"/> Boy Scout Camp | 31-May-2003 | 23-Jun-2004 | <input type="checkbox"/> Eel Point | 29-May-2003 | 23-Jun-2004 | <input type="checkbox"/> Horse Beach Cove | 02-Jun-2003 | 26-Jun-2004 | <input type="checkbox"/> Northwest Harbor | 28-May-2003 | 24-Jun-2004 | <p>San Miguel Island</p> <table border="0"> <thead> <tr> <th></th> <th>Start time</th> <th>End time</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> Hare Rock</td><td>22-May-1993</td><td>21-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Wyckoff Ledge</td><td>14-Sep-1993</td><td>12-Sep-2006</td></tr> </tbody> </table> <p>Santa Barbara Island</p> <table border="0"> <tbody> <tr><td><input type="checkbox"/> Arch Point</td><td>18-Mar-1994</td><td>23-May-2006</td></tr> <tr><td><input type="checkbox"/> Cat Canyon</td><td>24-Jun-1993</td><td>19-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Graveyard Canyon</td><td>29-Jul-2005</td><td>22-May-2006</td></tr> <tr><td><input type="checkbox"/> SE Sea Lion Rookery</td><td>22-Jun-1993</td><td>24-May-2006</td></tr> <tr><td><input type="checkbox"/> Southeast Reef</td><td>28-Jul-2005</td><td>25-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Websters Arch</td><td>29-Jul-2005</td><td>25-Jul-2006</td></tr> </tbody> </table> | | Start time | End time | <input type="checkbox"/> Hare Rock | 22-May-1993 | 21-Jun-2006 | <input type="checkbox"/> Wyckoff Ledge | 14-Sep-1993 | 12-Sep-2006 | <input type="checkbox"/> Arch Point | 18-Mar-1994 | 23-May-2006 | <input type="checkbox"/> Cat Canyon | 24-Jun-1993 | 19-Jun-2006 | <input type="checkbox"/> Graveyard Canyon | 29-Jul-2005 | 22-May-2006 | <input type="checkbox"/> SE Sea Lion Rookery | 22-Jun-1993 | 24-May-2006 | <input type="checkbox"/> Southeast Reef | 28-Jul-2005 | 25-Jul-2006 | <input type="checkbox"/> Websters Arch | 29-Jul-2005 | 25-Jul-2006 | <p>Santa Cruz Island</p> <table border="0"> <thead> <tr> <th></th> <th>Start time</th> <th>End time</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> Cavern Point</td><td>18-Aug-2005</td><td>08-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Devils Peak Member</td><td>23-Sep-2005</td><td>14-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Frys Harbor</td><td>12-Aug-1993</td><td>06-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Gull Island South</td><td>27-Jul-1993</td><td>11-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Little Scorpion</td><td>31-Aug-2005</td><td>20-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Pedro Reef</td><td>26-Aug-2005</td><td>18-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Pelican Bay</td><td>16-Jul-1993</td><td>28-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Potato Pasture</td><td>01-Sep-2005</td><td>07-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Scorpion Anchorage</td><td>21-Jan-1994</td><td>25-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Yellow Banks</td><td>11-Aug-1993</td><td>11-Aug-2006</td></tr> </tbody> </table> <p>Santa Rosa Island</p> <table border="0"> <tbody> <tr><td><input type="checkbox"/> Chickasaw</td><td>25-Aug-2005</td><td>12-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Cluster Point</td><td>24-Aug-2005</td><td>27-Jul-2006</td></tr> <tr><td><input type="checkbox"/> Johnsons Lee North</td><td>30-Jul-1993</td><td>09-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Johnsons Lee South</td><td>29-Jul-1993</td><td>10-Aug-2006</td></tr> <tr><td><input type="checkbox"/> Rodes Reef</td><td>14-Sep-1993</td><td>22-Jun-2006</td></tr> <tr><td><input type="checkbox"/> South Point</td><td>20-Sep-2005</td><td>07-Jun-2006</td></tr> <tr><td><input type="checkbox"/> Trancion Canyon</td><td>21-Sep-2005</td><td>13-Jul-2006</td></tr> </tbody> </table> | | Start time | End time | <input type="checkbox"/> Cavern Point | 18-Aug-2005 | 08-Jun-2006 | <input type="checkbox"/> Devils Peak Member | 23-Sep-2005 | 14-Jul-2006 | <input type="checkbox"/> Frys Harbor | 12-Aug-1993 | 06-Jun-2006 | <input type="checkbox"/> Gull Island South | 27-Jul-1993 | 11-Jul-2006 | <input type="checkbox"/> Little Scorpion | 31-Aug-2005 | 20-Jul-2006 | <input type="checkbox"/> Pedro Reef | 26-Aug-2005 | 18-Aug-2006 | <input type="checkbox"/> Pelican Bay | 16-Jul-1993 | 28-Jul-2006 | <input type="checkbox"/> Potato Pasture | 01-Sep-2005 | 07-Aug-2006 | <input type="checkbox"/> Scorpion Anchorage | 21-Jan-1994 | 25-Aug-2006 | <input type="checkbox"/> Yellow Banks | 11-Aug-1993 | 11-Aug-2006 | <input type="checkbox"/> Chickasaw | 25-Aug-2005 | 12-Jul-2006 | <input type="checkbox"/> Cluster Point | 24-Aug-2005 | 27-Jul-2006 | <input type="checkbox"/> Johnsons Lee North | 30-Jul-1993 | 09-Aug-2006 | <input type="checkbox"/> Johnsons Lee South | 29-Jul-1993 | 10-Aug-2006 | <input type="checkbox"/> Rodes Reef | 14-Sep-1993 | 22-Jun-2006 | <input type="checkbox"/> South Point | 20-Sep-2005 | 07-Jun-2006 | <input type="checkbox"/> Trancion Canyon | 21-Sep-2005 | 13-Jul-2006 |
|--|-------------|-------------|----------|--|-------------|-------------|--|-------------|-------------|---|-------------|-------------|---|-------------|-------------|----------------------------------|-------------|-------------|---------------------------------------|-------------|-------------|-------------------------------------|-------------|-------------|---|-------------|-------------|------------------------------------|-------------|-------------|---|-------------|-------------|---|-------------|-------------|--|--|------------|----------|------------------------------------|-------------|-------------|--|-------------|-------------|-------------------------------------|-------------|-------------|-------------------------------------|-------------|-------------|---|-------------|-------------|--|-------------|-------------|---|-------------|-------------|--|-------------|-------------|---|--|------------|----------|---------------------------------------|-------------|-------------|---|-------------|-------------|--------------------------------------|-------------|-------------|--|-------------|-------------|--|-------------|-------------|-------------------------------------|-------------|-------------|--------------------------------------|-------------|-------------|---|-------------|-------------|---|-------------|-------------|---------------------------------------|-------------|-------------|------------------------------------|-------------|-------------|--|-------------|-------------|---|-------------|-------------|---|-------------|-------------|-------------------------------------|-------------|-------------|--------------------------------------|-------------|-------------|--|-------------|-------------|
| | Start time | End time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Admirals Reef | 26-Aug-1993 | 08-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Black Sea Bass Reef | 20-Oct-2005 | 09-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Cathedral Cove | 01-Oct-1993 | 04-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> East Fish Camp | 09-Sep-2005 | 23-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Keyhole | 14-Sep-2005 | 17-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Landing Cove | 01-Oct-1993 | 23-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Lighthouse | 28-Sep-2005 | 21-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Boy Scout Camp | 31-May-2003 | 23-Jun-2004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Eel Point | 29-May-2003 | 23-Jun-2004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Horse Beach Cove | 02-Jun-2003 | 26-Jun-2004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Northwest Harbor | 28-May-2003 | 24-Jun-2004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Start time | End time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Hare Rock | 22-May-1993 | 21-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Wyckoff Ledge | 14-Sep-1993 | 12-Sep-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Arch Point | 18-Mar-1994 | 23-May-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Cat Canyon | 24-Jun-1993 | 19-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Graveyard Canyon | 29-Jul-2005 | 22-May-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> SE Sea Lion Rookery | 22-Jun-1993 | 24-May-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Southeast Reef | 28-Jul-2005 | 25-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Websters Arch | 29-Jul-2005 | 25-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Start time | End time | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Cavern Point | 18-Aug-2005 | 08-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Devils Peak Member | 23-Sep-2005 | 14-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Frys Harbor | 12-Aug-1993 | 06-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Gull Island South | 27-Jul-1993 | 11-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Little Scorpion | 31-Aug-2005 | 20-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Pedro Reef | 26-Aug-2005 | 18-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Pelican Bay | 16-Jul-1993 | 28-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Potato Pasture | 01-Sep-2005 | 07-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Scorpion Anchorage | 21-Jan-1994 | 25-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Yellow Banks | 11-Aug-1993 | 11-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Chickasaw | 25-Aug-2005 | 12-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Cluster Point | 24-Aug-2005 | 27-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Johnsons Lee North | 30-Jul-1993 | 09-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Johnsons Lee South | 29-Jul-1993 | 10-Aug-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Rodes Reef | 14-Sep-1993 | 22-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> South Point | 20-Sep-2005 | 07-Jun-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Trancion Canyon | 21-Sep-2005 | 13-Jul-2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Choose a timespan:

Start: Jan 2005

End: Sep 2006

(Note: all times in GMT)

Select Output format:

Image

PaCOOS Data Integration Demonstration LAS

http://las.pfeg.noaa.gov/PaCOOS/PaCOOScnp.php

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POES (interoperability demo) Channel Islands National Park

Choose one or more locations: (Click on name to view location on map) [more help](#) [Information about this dataset](#)

| Location | Start time | End time |
|---|-------------|-------------|
| Anacapa Island | | |
| <input type="checkbox"/> Admirals Reef | 26-Aug-1993 | 08-Aug-2006 |
| <input type="checkbox"/> Black Sea Bass Reef | 20-Oct-2005 | 09-Jun-2006 |
| <input type="checkbox"/> Cathedral Cove | 01-Oct-1993 | 04-Aug-2006 |
| <input type="checkbox"/> East Fish Camp | 09-Sep-2005 | 23-Aug-2006 |
| <input type="checkbox"/> Keyhole | 14-Sep-2005 | 17-Aug-2006 |
| <input type="checkbox"/> Landing Cove | 01-Oct-1993 | 23-Aug-2006 |
| <input type="checkbox"/> Lighthouse | 28-Sep-2005 | 21-Jul-2006 |
| San Clemente Island | | |
| <input type="checkbox"/> Boy Scout Camp | 31-May-2003 | 23-Jun-2004 |
| <input type="checkbox"/> Eel Point | 29-May-2003 | 23-Jun-2004 |
| <input type="checkbox"/> Horse Beach Cove | 02-Jun-2003 | 26-Jun-2004 |
| <input type="checkbox"/> Northwest Harbor | 28-May-2003 | 24-Jun-2004 |
| San Miguel Island | | |
| <input type="checkbox"/> Hare Rock | 22-May-1993 | 21-Jun-2006 |
| <input type="checkbox"/> Wyckoff Ledge | 14-Sep-1993 | 12-Sep-2006 |
| Santa Barbara Island | | |
| <input type="checkbox"/> Arch Point | 18-Mar-1994 | 23-May-2006 |
| <input checked="" type="checkbox"/> Cat Canyon | 24-Jun-1993 | 19-Jun-2006 |
| <input type="checkbox"/> Graveyard Canyon | 29-Jul-2005 | 22-May-2006 |
| <input type="checkbox"/> SE Sea Lion Rookery | 22-Jun-1993 | 24-May-2006 |
| <input type="checkbox"/> Southeast Reef | 28-Jul-2005 | 25-Jul-2006 |
| <input type="checkbox"/> Websters Arch | 29-Jul-2005 | 25-Jul-2006 |
| Santa Cruz Island | | |
| <input type="checkbox"/> Cavern Point | 18-Aug-2005 | 08-Jun-2006 |
| <input type="checkbox"/> Devils Peak Member | 23-Sep-2005 | 14-Jul-2006 |
| <input checked="" type="checkbox"/> Frys Harbor | 12-Aug-1993 | 06-Jun-2006 |
| <input checked="" type="checkbox"/> Gull Island South | 27-Jul-1993 | 11-Jul-2006 |
| <input type="checkbox"/> Little Scorpion | 31-Aug-2005 | 20-Jul-2006 |
| <input type="checkbox"/> Pedro Reef | 26-Aug-2005 | 18-Aug-2006 |
| <input type="checkbox"/> Pelican Bay | 16-Jul-1993 | 28-Jul-2006 |
| <input checked="" type="checkbox"/> Potato Pasture | 01-Sep-2005 | 07-Aug-2006 |
| <input type="checkbox"/> Scorpion Anchorage | 21-Jan-1994 | 25-Aug-2006 |
| <input type="checkbox"/> Yellow Banks | 11-Aug-1993 | 11-Aug-2006 |
| Santa Rosa Island | | |
| <input type="checkbox"/> Chickasaw | 25-Aug-2005 | 12-Jul-2006 |
| <input type="checkbox"/> Cluster Point | 24-Aug-2005 | 27-Jul-2006 |
| <input type="checkbox"/> Johnsons Lee North | 30-Jul-1993 | 09-Aug-2006 |
| <input type="checkbox"/> Johnsons Lee South | 29-Jul-1993 | 10-Aug-2006 |
| <input type="checkbox"/> Rodes Reef | 14-Sep-1993 | 22-Jun-2006 |
| <input type="checkbox"/> South Point | 20-Sep-2005 | 07-Jun-2006 |
| <input type="checkbox"/> Trancion Canyon | 21-Sep-2005 | 13-Jul-2006 |

Choose a timespan:
 Start: Jan 2005
 End: Sep 2006
 (Note: all times in GMT)

Select Output format:
 Image

OPeNDAP Links:
 CatCanyon: [html](#) [info](#) [dds](#) [das](#) | [Thredds](#)
 FrysHarbor: [html](#) [info](#) [dds](#) [das](#) | [Thredds](#)
 GullIslandSouth: [html](#) [info](#) [dds](#) [das](#) | [Thredds](#)
 PotatoPasture: [html](#) [info](#) [dds](#) [das](#) | [Thredds](#)

Go to "http://las.pfeg.noaa.gov/PaCOOS/PaCOOSwcs.php"

PaCOOS Data Integration Demonstration LAS

http://las.pfeg.noaa.gov/PaCOOS/PaCOOS.php?dsetinit=AT1&varinit=ssta&cur

History Charter Governance Science Plan Meetings Selected Readings Presentations Committees Contact Home

Providing ocean information for the sustained use of the California Current Large Marine Ecosystem under a changing climate

Live Access Server Data Download

Available Datasets: (Start by selecting a dataset)

Gridded Data:

| | |
|---|---|
| Ocean Surface Temperature AVHRR (composites) GOES (composites) GOES (individual images, 25hr ave) GOES (individual images) | Ocean Surface Currents HF Radar Monterey Bay Jason-1 HF Radar SF Bay HF Radar SF Bay Outlet |
| Ocean Surface Chlorophyll-a MODIS on Aqua | Chlorophyll Fluorescence MODIS on Terra |
| Ocean Surface Winds QuikSCAT | Diffuse Attenuation Coefficient k490 MODIS on Terra |
| Ocean Surface Height Jason-1 | Derived Quantities Frontal Probability Index Primary Productivity Optimum Interpolation SST |

Multiple-Satellite Blended Products

- Wind Climatology
- Wind (daily & monthly)
- Wind (6-hourly)

Point Data:

| | |
|--|--|
| Ocean Surface Temperature POES (interoperability demo) | Time Series Data: Ocean Subtidal Temperature Channel Islands National Park |
|--|--|

Currently Selected Dataset:
Ocean Surface Temperature

Title: AVHRR (composites)

Coverage: North American West Coast

Resolution: 1.25 km

Data courtesy of: (also see Dataset Summary below)
NOAA NWS Monterey and NOAA CoastWatch

Most recent image:

SST (deg C)

Choose a variable: temperature

used for sub-variables

Choose a composite: 14 day

Choose a time: 13-JUN-2007 00:00

Used for time series

Choose a region: P. PaCOOS Region

or enter a region:

lat: 43

lon: -128.5 lon: -120

Available Datasets: (Start by selecting a dataset)

Gridded Data:

| | |
|---|--|
| Ocean Surface Temperature AVHRR (composites) GOES (composites) GOES (individual images, 25hr ave) GOES (individual images) | Ocean Surface Currents HF Radar Monterey Bay Jason-1 HF Radar SF Bay HF Radar SF Bay Outlet |
| Ocean Surface Chlorophyll-a MODIS on Aqua | Chlorophyll Fluorescence MODIS on Terra |
| Ocean Surface Winds QuikSCAT | Diffuse Attenuation Coefficient k490 MODIS on Terra |
| Ocean Surface Height Jason-1 | Derived Quantities Frontal Probability Index Primary Productivity Optimum Interpolation SST |
| Multiple-Satellite Blended Products | |
| Wind Climatology | |
| Wind (daily & monthly) | |
| Wind (6-hourly) | |

Point Data:

Ocean Surface Temperature
POES (interoperability demo)

Time Series Data:

Ocean Subtidal Temperature
Channel Islands National Park

Currently Selected Dataset:

Ocean Surface Temperature

Title: AVHRR (composites)

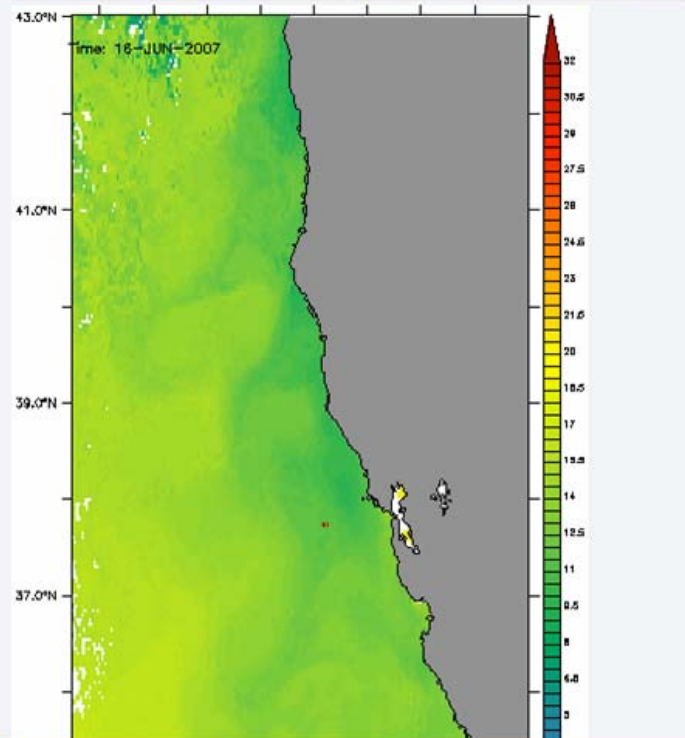
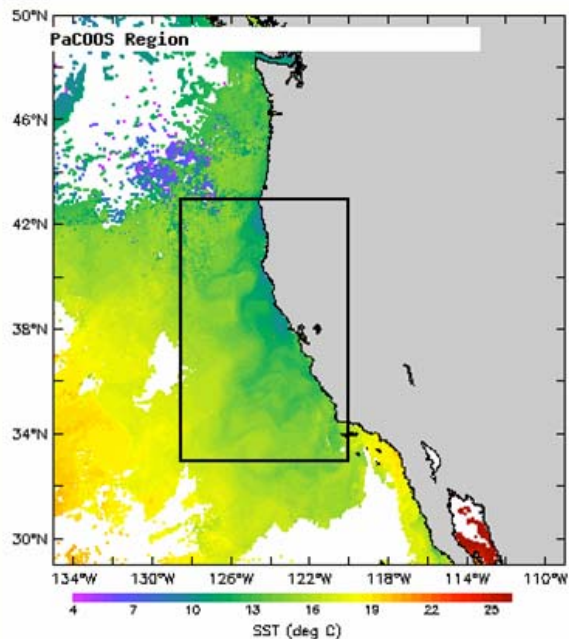
Coverage: North American West Coast

Resolution: 1.25 km

Data courtesy of: (also see Dataset Summary below)

NOAA NWS Monterey and NOAA CoastWatch

Most recent image:



Choose a variable:

temperature

used for sub-variables

Choose a composite:

8 day

Choose a time:

16-JUN-2007 00:00

Used for time series

Select Type of Download:

Map (xy shaded plot)

Select Output format:

Image

Choose a region:

P. PaCOOS Region

or enter a region:

lat: 43
lon: -128.5 lon: -120
lat: 33

Show Custom Region

or compare two or more regions, times, or variables

Compare

PaCOOS Data Integration Demonstration LAS

http://las.pfeg.noaa.gov/PaCOOS/PaCOOS.php?dsetinit=AT1&varinit=ssta¤t=...

Google Scholar MacInTouch MacFixIt MacUpdate Versiontracker Apple Amazon News (6150) Yahoo! Apple (774) eBay

Gridded Data:

| | |
|---|--|
| Ocean Surface Temperature AVHRR (composites) GOES (composites) GOES (individual images, 25hr ave) GOES (individual images) | Ocean Surface Currents HF Radar Monterey Bay Jason-1 HF Radar SF Bay HF Radar SF Bay Outlet |
| Ocean Surface Chlorophyll-a MODIS on Aqua | Chlorophyll Fluorescence MODIS on Terra |
| Ocean Surface Winds QuikSCAT | Diffuse Attenuation Coefficient k490 MODIS on Terra |
| Ocean Surface Height Jason-1 | Derived Quantities Frontal Probability Index Primary Productivity Optimum Interpolation SST |

Multiple-Satellite Blended Products
Wind Climatology
Wind (daily & monthly)
Wind (6-hourly)

Point Data: Ocean Surface Temperature
POES (interoperability demo)

Time Series Data: Ocean Subtidal Temperature
Channel Islands National Park

Ocean Surface Temperature
Title: AVHRR (composites)
Coverage: North American West Coast
Resolution: 1.25 km
Data courtesy of: (also see Dataset Summary below)
NOAA NWS Monterey and NOAA CoastWatch
Most recent image:

Choose a variable:
temperature
used for sub-variables

Choose a composite:
14 day

Choose a time:
13-JUN-2007 00:00
Used for time series

Select Type of Download:
Map (xy shaded plot)

Select Output format:
Image

Choose a region:
P. PaCOOS Region
or enter a region:
lat: 43
lon: -128.5, -120
lat: 33
Show Custom Region

or compare two or more regions, times, or variables
Compare

Get Now

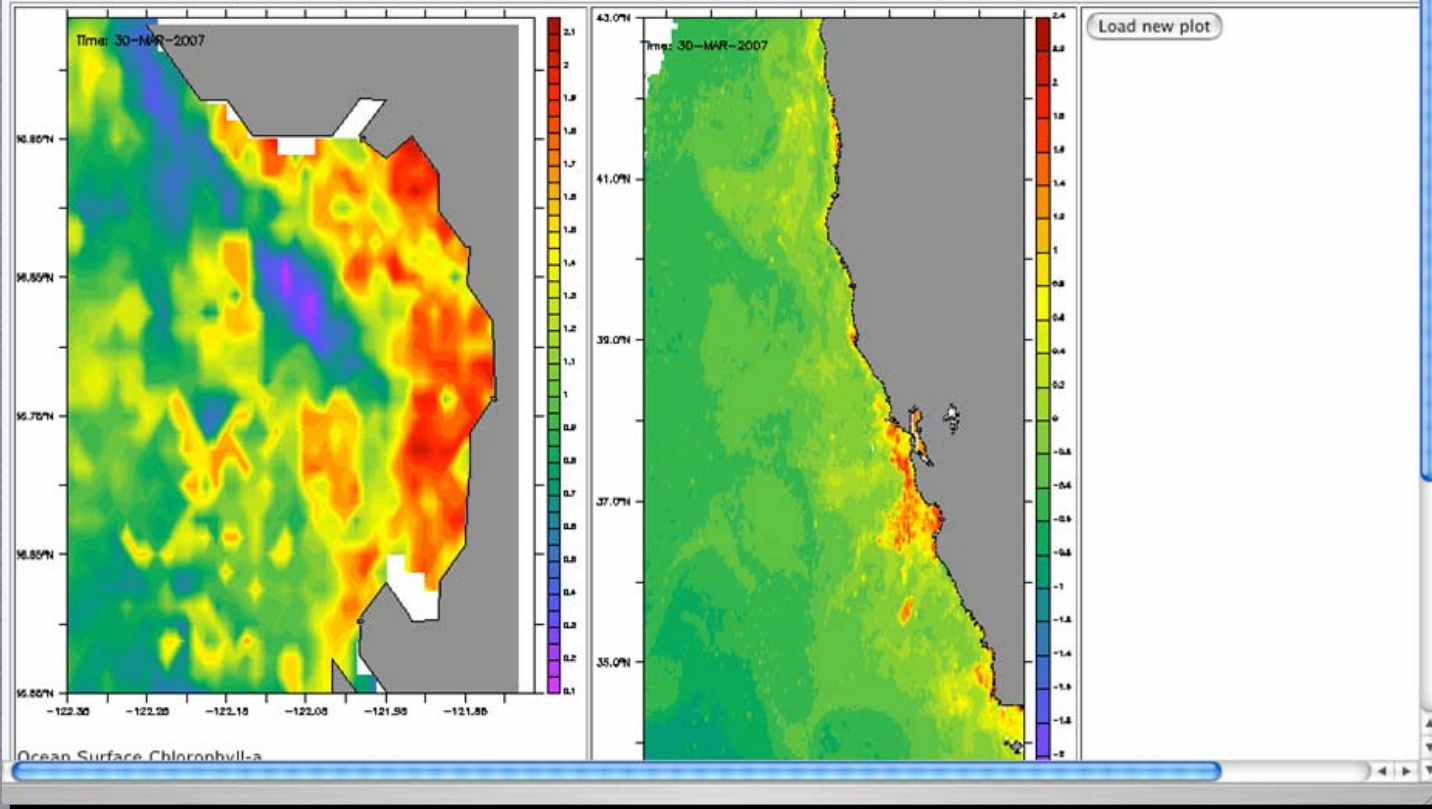
PaCOOS Data Integration Demonstration LAS

http://las.pfeg.noaa.gov/PaCOOS/compare.php?dsetinit=MW2&varinit=chl&curr

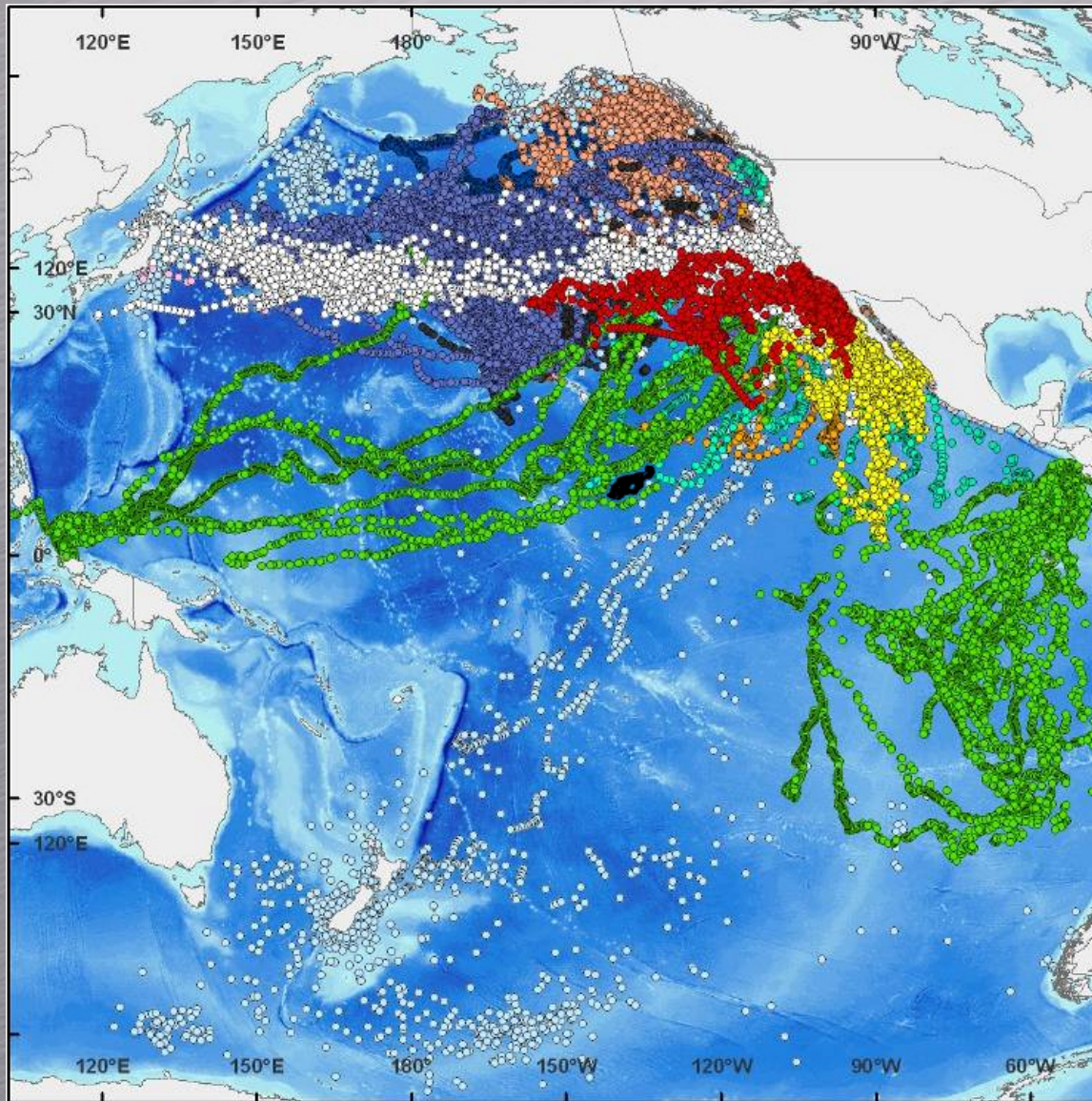
Google Scholar MacInTouch MacFixIt MacUpdate Versiontracker Apple Amazon News (6150) Yahoo! Apple (774) eBay

Currently Selected Dataset:
 Ocean Surface Chlorophyll-a
 MODIS on Aqua
 US West Coast
 Resolution: 1.25 km
 Data courtesy of:
 NASA GSFC (G. Feldman)

Map showing the selected region (P4. Monterey Bay) on the US West Coast. The map displays latitude from 30°N to 46°N and longitude from 134°W to 118°W.



Top Predator Exploration of the Pacific Ocean



- Black-footed Albatross
- Blue Whale
- California Sea Lion
- Humpback Whale
- Laysan Albatross
- Northern Elephant Seal
- Sooty Shearwater
- Albacore
- Blue Shark
- Humboldt Squid
- Leatherback Turtle
- Loggerhead Turtle
- Mako Shark
- Mola
- Pacific Bluefin
- Salmon Shark
- Thresher Shark
- White Shark
- Yellowfin Tuna

- 21 species; 4,000 tags; 2 Million profiles
- Tracking, conservation, ocean observation



TAGGING OF
PACIFIC
PELAGICS

Public access to latest animal tracks along with environmental data: <http://las.pfeg.noaa.gov/TOPP>

View by Zones:

CA Current
Pt. Conception
Monterey Bay
E.Equatorial
N.Pacific
S.Pacific
Hawaii
Eastern Pacific
Pacific
Full Region

View by Species:

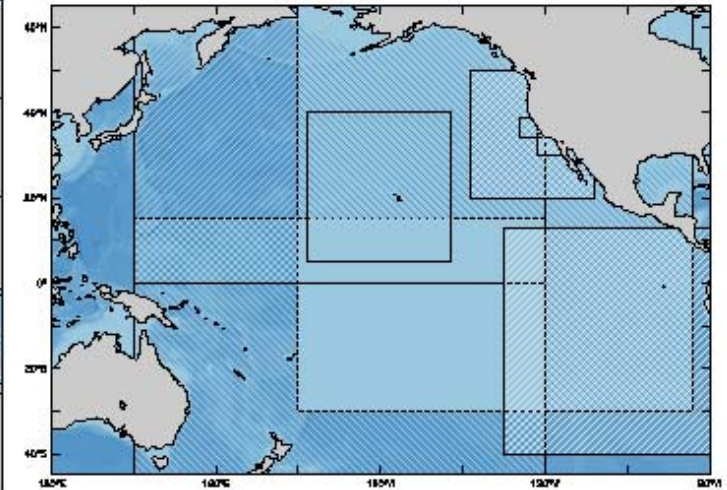
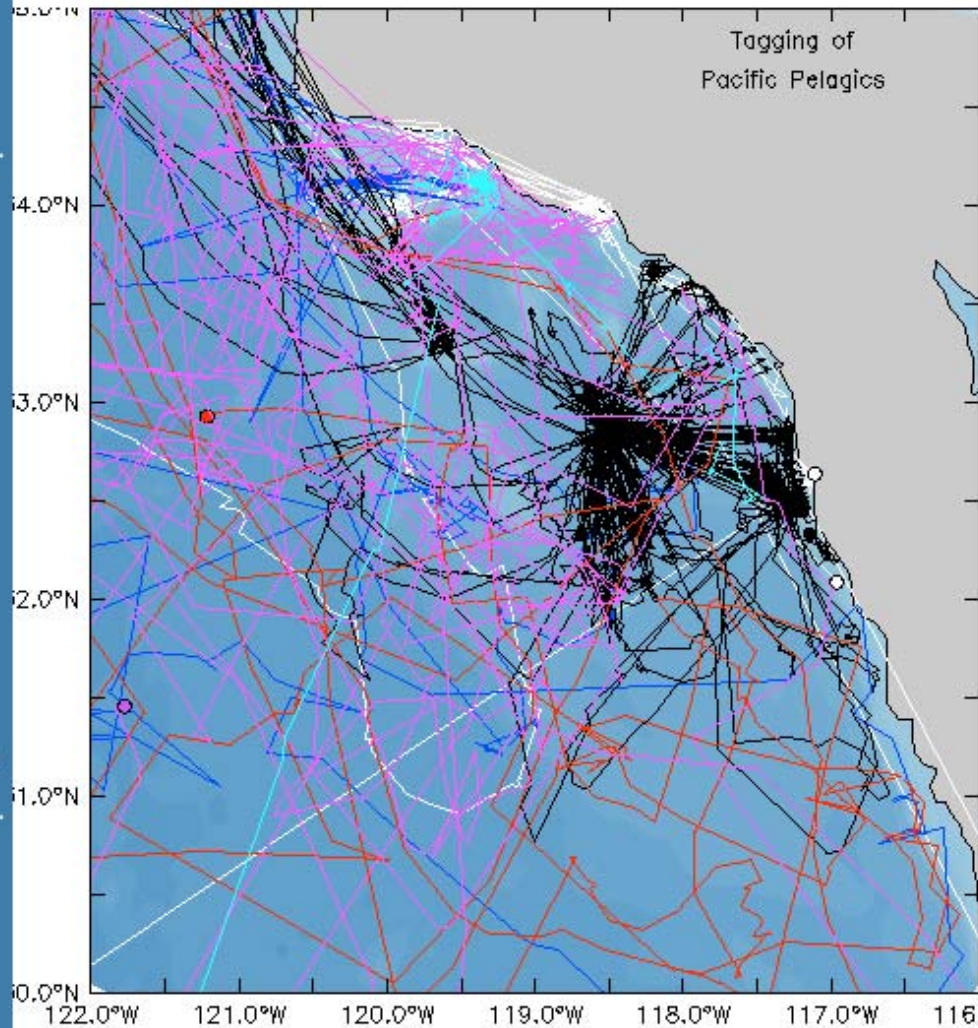
Sharks
Salmon Shark
Shortfin Mako Shark
Juvenile White Shark
Blue Shark
Pinnipeds
Northern Elephant Seal
California Sea Lion
Southern Elephant Seal
Cetaceans
Sperm Whale
Blue Whale
Sea Turtles
Leatherback Sea Turtle
Sea Birds
Black-footed Albatross
Laysan Albatross
Fish
New Zealand Bluefin Tuna
All Species

Tags reporting within the last:
10 days
30 days
60 days
180 days

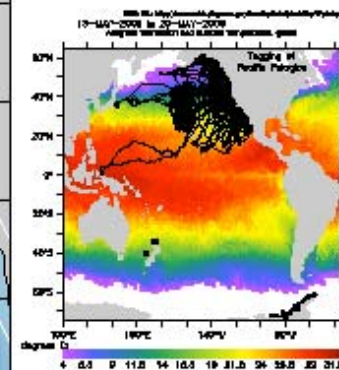
Tags reporting within the last 180 days

Roll mouse over end points to see animal and tag info. Click on end points or pttno in table for larger image

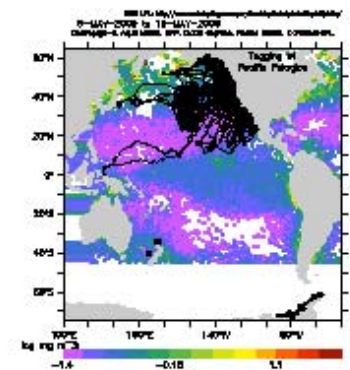
This tag information is for viewing only.
Please obtain [permission to use](#)



Sea Surface Temperature



Chlorophyll-a



Public access to latest animal tracks along with environmental data: <http://las.pfeg.noaa.gov/TOPP>

View by Zones:

- CA Current
- Pt. Conception
- Monterey Bay
- E.Equatorial
- N.Pacific
- S.Pacific
- Hawaii
- Eastern Pacific
- Pacific
- Full Region

View by Species:

- Sharks
 - Salmon Shark
 - Shortfin Mako Shark
 - Juvenile White Shark
 - Blue Shark
- Pinnipeds
 - Northern Elephant Seal
 - California Sea Lion
 - Southern Elephant Seal
- Cetaceans
 - Sperm Whale
 - Blue Whale
- Sea Turtles
 - Leatherback Sea Turtle
- Sea Birds
 - Black-footed Albatross
 - Laysan Albatross
- Fish
 - New Zealand Bluefin Tuna
- All Species

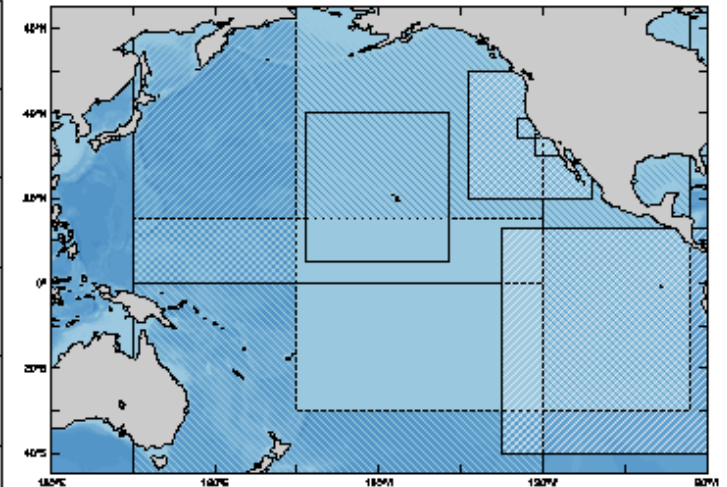
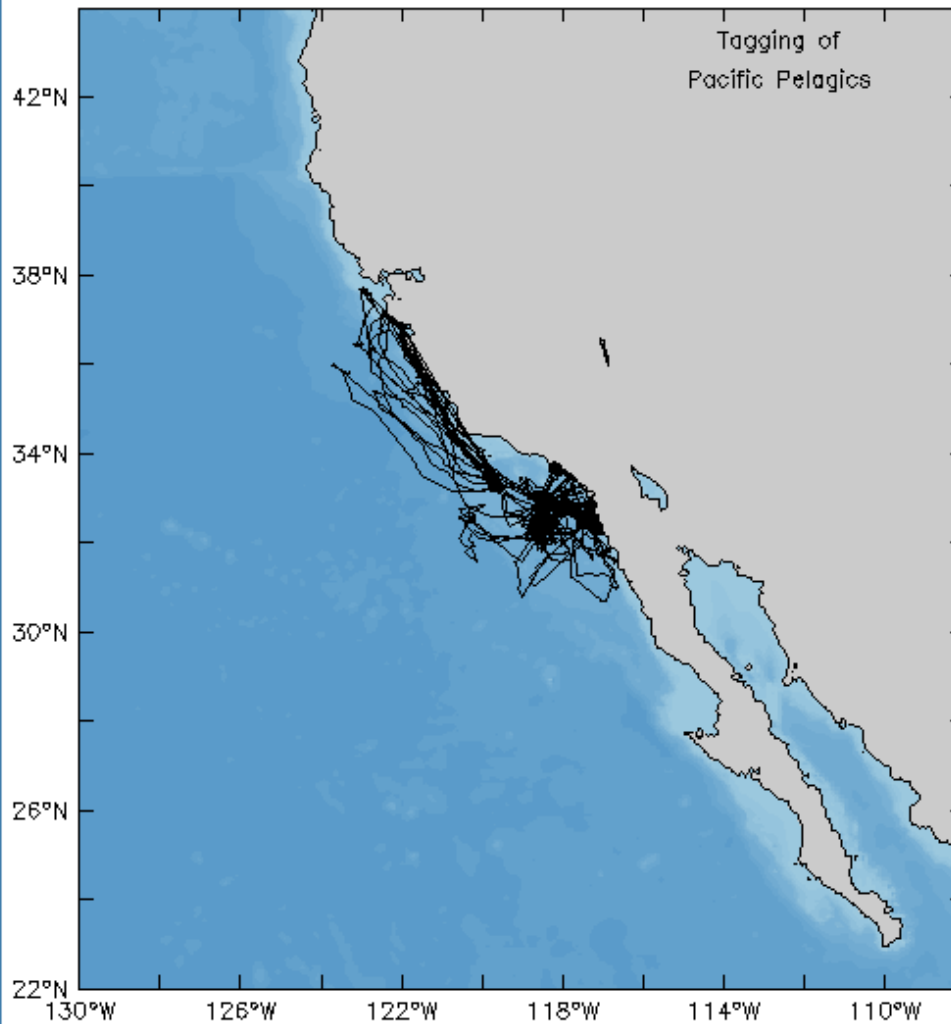
Tags reporting within the last:

- 10 days
- 30 days
- 60 days
- 180 days

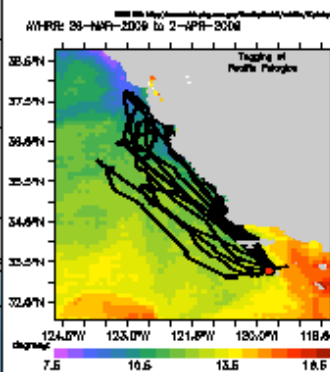
Tags reporting within the last 180 days

California Sea Lion 35661 2108001 31 Oct 2008 to 30 Mar 2009

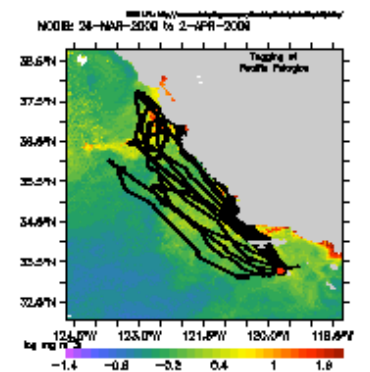
This tag information is for viewing only.
Please obtain permission to use



Sea Surface Temperature



Chlorophyll-a

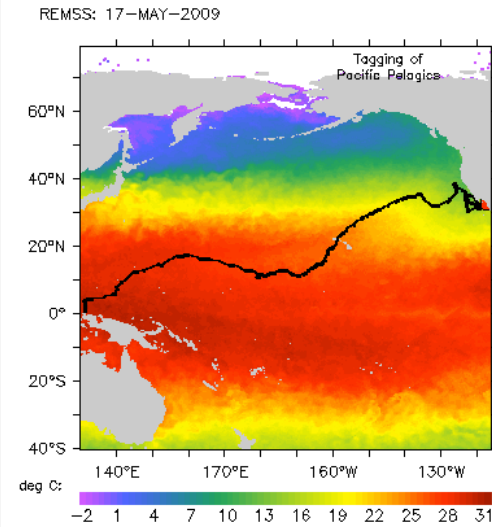


Public

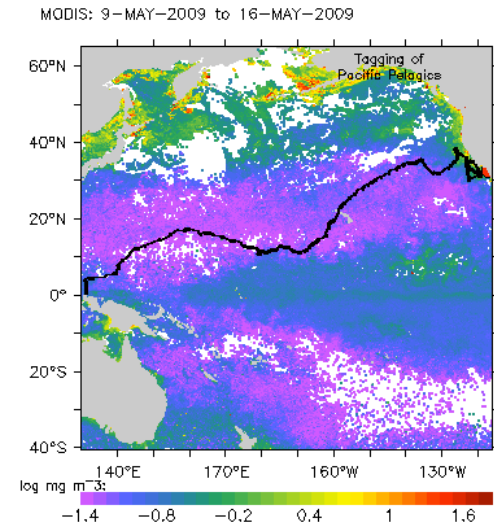
Leatherback Sea Turtle 44366 2605017 15 Jul 2005 to 18 May 2009

- View by Z
 - CA Current
 - Pt. Conception
 - Monterey Bay
 - E. Equatorial
 - N. Pacific
 - S. Pacific
 - Hawaii
 - Eastern Pacific
 - Pacific
 - Full Region
-
- View by Species
 - Sharks
 - Salmon Shark
 - Shortfin Mako
 - Juvenile White Shark
 - Blue Shark
 - Pinnipeds
 - Northern Elephant Seal
 - California Sea Lion
 - Southern Elephant Seal
 - Cetaceans
 - Sperm Whale
 - Blue Whale
 - Sea Turtles
 - Leatherback Sea Turtle
 - Sea Birds
 - Black-footed Albatross
 - Laysan Albatross
 - Fish
 - New Zealand Bluefin Tuna
 - All Species
-
- Tags reporting within the last:
 - 10 days
 - 30 days
 - 60 days
 - 180 days

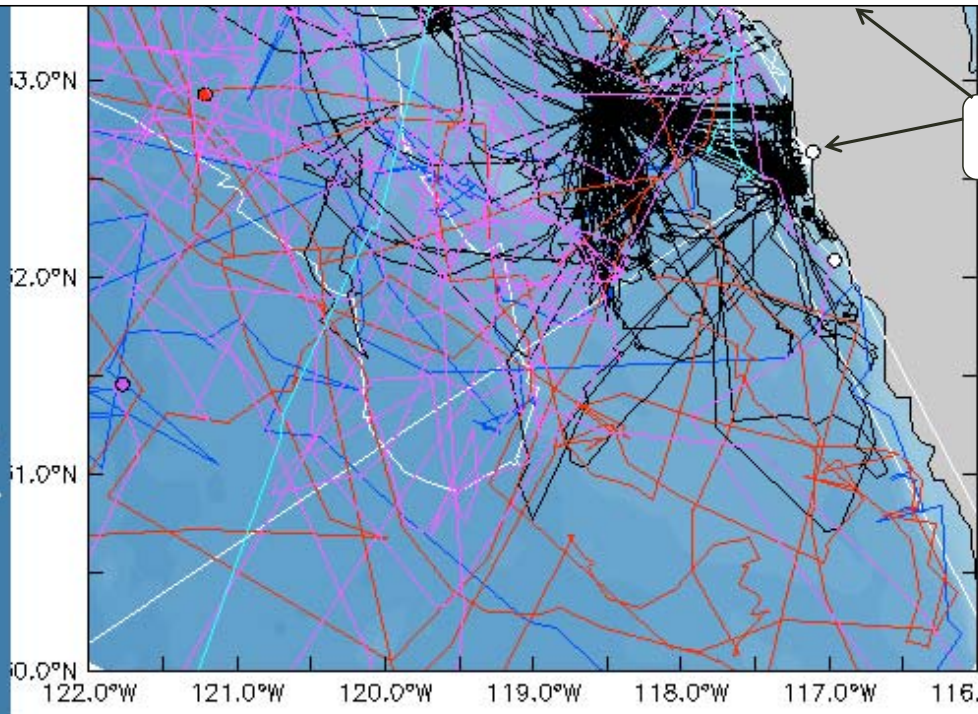
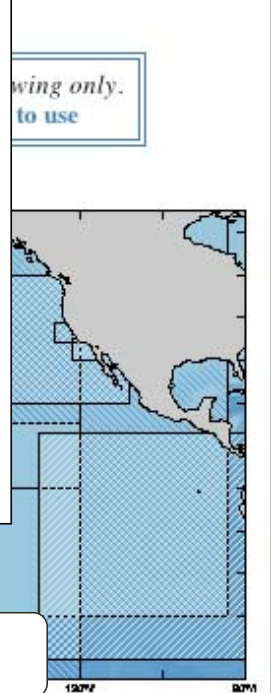
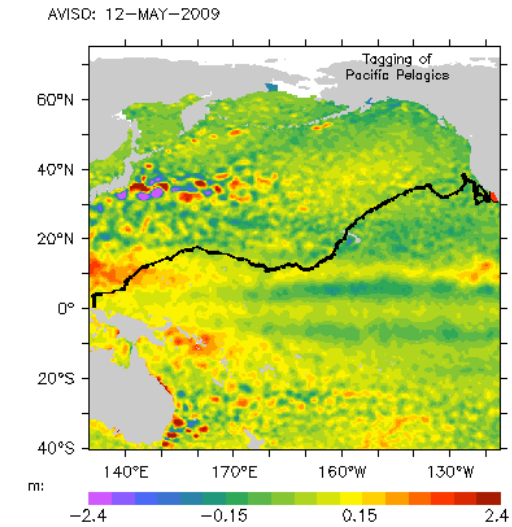
Sea Surface Temperature



Chlorophyll-a

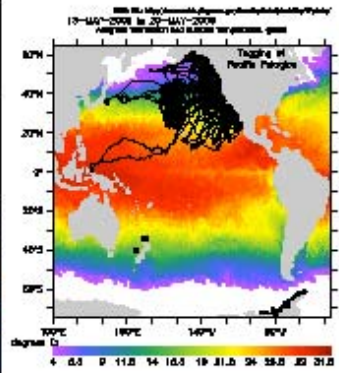


Sea Surface Height Deviation and Geostrophic Current

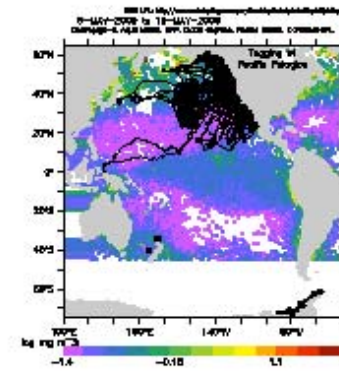


Leatherback Sea Turtle

Sea Surface Temperature



Chlorophyll-a



Private (PI) access to all animal tracks along with environmental data

110 leatherback turtle tags with tracks

Metadata and track download for each tag

Leatherback Sea Turtle | TOPP Tagging Of Pacific Pelagics | Cetaceans | Fish | Pinnipeds | Sea Turtles | Seabirds | Sharks | Squid | Computing | Oceanography | Outreach

Archives

Choose a turtle: 2607041-MK10
110 turtles
< Prev Next >
View as track

Choose which tags appear in the menu:
List in menu only quick help | List and plot warning!

Sort by deployment year:
 all
 2004
 2005
 2006
 2007
List in menu only | List and plot

Information: Help, FAQ, Inner Workings, Permission to use

Tags reporting within the last:
60 days
30 days
10 days

Data loaded for the following animal:
TOPPid: 2607041
ptt number: 37620
Start Date: 2007-09-23
End Date:
Actual Popup Date:
Tagnumber: 07A0290
Model name: MK10
Comment: dkohrsinput
Testing note:
Contact:
Project Name:
Owner:
Load more metadata
Track timespan:
23 Sep 2007 to 7 Sep 2008
Download filtered track

Species for user ldewitt:
Cetacean
Fish
Pinniped
Seabird
Shark
Squid
Turtle
Great Turtle Race
Leatherback
Leatherback Sea Turtle
Loggerhead Sea Turtle

Links:
Return to species list
(to view archival tags or change users)
TOPP Tags
Tracks
Pop-ups
Non-TOPP Tags
Tracks
Pop-ups
TOPP Partners

Logout

AS ON DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N DJ F M A M J J A S O N
2002 2003 2004 2005 2006 2007 2008 2009

TOPP ID: 2607041

Environmental Data (Best choice datasets) quick help

deployment timeline

Private (PI) access

Download a variety of environmental data along with the track as images or Text

Leatherback

TOPP

Da
the f

PPid: 26
number
art Date:
d Date:
tual Popu
gnumber:
del name
mment:
sting note
ntact:
ject Nam
Owner:
Load more
Track times
23 Sep 2007
Download

Species

Cetacean
Fish
Pinniped
Seabird
Shark
Squid
Turtle

Great Turtle Race
Leatherback
[Leatherback Sea Turtle](#)
Loggerhead Sea Turtle

Links

Return to species list
(to view archival tags or change users)

TOPP Tags
Tracks
Pop-ups

Non-TOPP Tags
Tracks
Pop-ups

TOPP Partners

Logout

Archives

Sharks Squid Computing Oceanography Outreach

Sort by deployment year

all
 2004
 2005
 2006
 2007

[List in menu only](#) [List and plot](#)

View in Google Earth

SOND JF M A M J J A S O N D J F M A M J J A S O N D
2008 2009

TOPP ID: 2687041

33
31
29
27
25
23
21
19
17
15
13
11
9
7
5
3
1
-1

20°N
0°
20°S
40°S

120°E 160°E 180°W 120°W 80°W



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2009 Europa Technologies
© 2009 Tele Atlas

Google

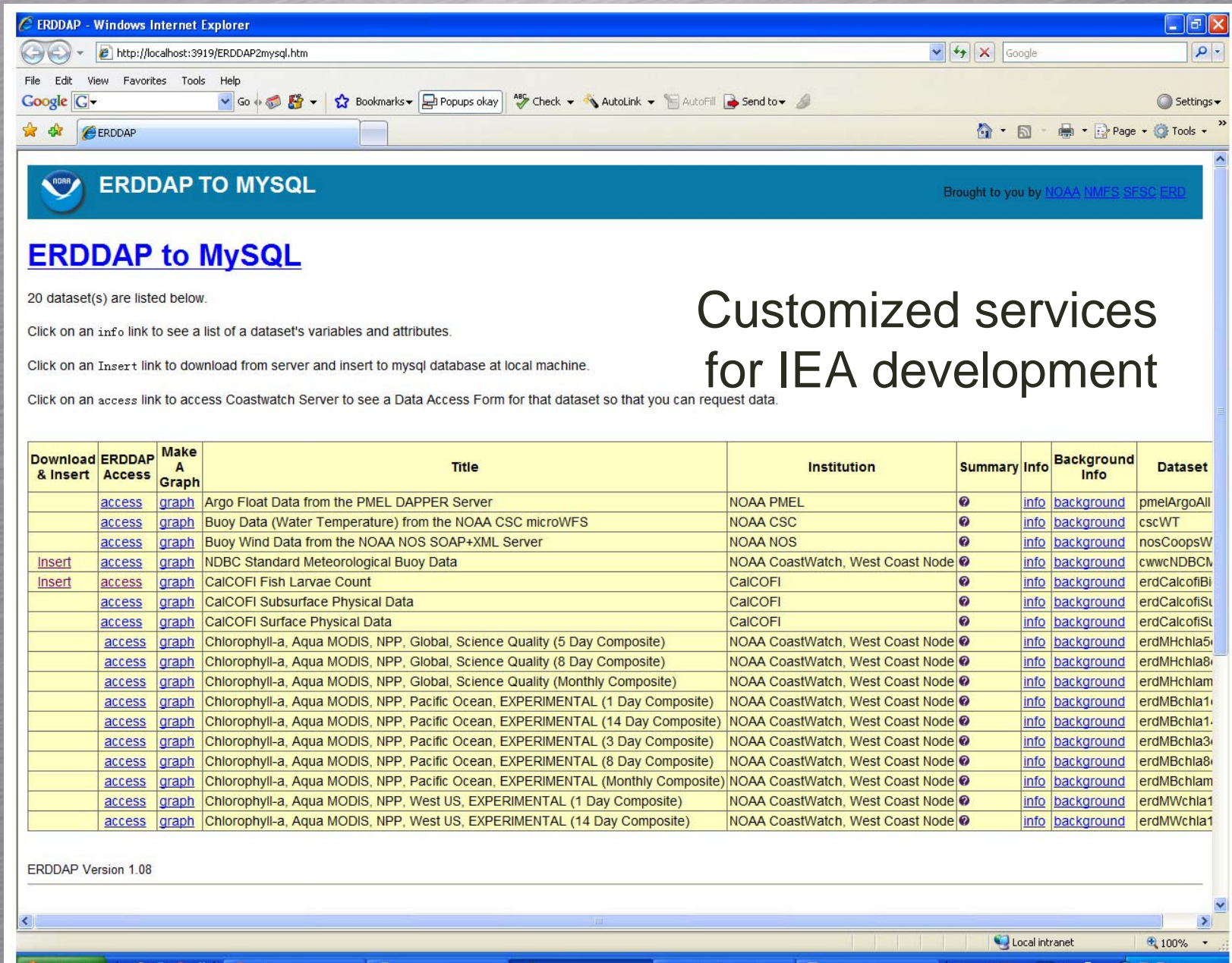
23 Sep 2007
7 Sep 2008

Environmental Data (Best choice datasets) [quick help](#)

Catalog <http://oceanwatch.pfeg.noaa.gov:8081/thredds/catalog.xml>

| Dataset | Size | Last Modified |
|---|------|---------------|
|  ERD THREDDS Data Server | | -- |
|  RDBMS PaCOOS Datasets | | -- |
|  <u>GLOBEC NEP Data/</u> | | -- |
|  <u>CalCOFI Data/</u> | | -- |
|  <u>Mid Water Trawl Juvenile Rockfish Survey/</u> | | -- |
|  <u>Protected Resources Division CTD data/</u> | | -- |
|  NWFSC Data | | -- |
|  <u>Hake Survey ADCP data/</u> | | -- |
|  <u>HUD data/</u> | | -- |
|  Satellite Datasets | | -- |
|  Color | | -- |
|  <u>Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality/</u> | | -- |
|  <u>Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL/</u> | | -- |
|  <u>Chlorophyll-a, Aqua MODIS, NPP, West US, EXPERIMENTAL/</u> | | -- |
|  <u>Chlorophyll-a, Aqua MODIS, OSU DB, West US/</u> | | -- |

THREDDS catalogs



ERDDAP TO MYSQL Brought to you by NOAA NMFS SFSC ERD

ERDDAP to MySQL

20 dataset(s) are listed below.

Click on an [info](#) link to see a list of a dataset's variables and attributes.

Click on an [Insert](#) link to download from server and insert to mysql database at local machine.

Click on an [access](#) link to access Coastwatch Server to see a Data Access Form for that dataset so that you can request data.

Customized services for IEA development

| Download & Insert | ERDDAP Access | Make A Graph | Title | Institution | Summary | Info | Background Info | Dataset |
|------------------------|------------------------|-----------------------|---|----------------------------------|---------|----------------------|----------------------------|--------------|
| | access | graph | Argo Float Data from the PMEL DAPPER Server | NOAA PMEL | | info | background | pmelArgoAll |
| | access | graph | Buoy Data (Water Temperature) from the NOAA CSC microWFS | NOAA CSC | | info | background | cscWT |
| | access | graph | Buoy Wind Data from the NOAA NOS SOAP+XML Server | NOAA NOS | | info | background | nosCoopsW |
| Insert | access | graph | NDBC Standard Meteorological Buoy Data | NOAA CoastWatch, West Coast Node | | info | background | cwwcNDBC |
| Insert | access | graph | CalCOFI Fish Larvae Count | CalCOFI | | info | background | erdCalcofiBi |
| | access | graph | CalCOFI Subsurface Physical Data | CalCOFI | | info | background | erdCalcofiSu |
| | access | graph | CalCOFI Surface Physical Data | CalCOFI | | info | background | erdCalcofiSu |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality (5 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMHchla5 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality (8 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMHchla8 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Global, Science Quality (Monthly Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMHchlamo |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (1 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMBchla1 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (14 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMBchla1 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (3 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMBchla3 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (8 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMBchla8 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, Pacific Ocean, EXPERIMENTAL (Monthly Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMBchlamo |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, West US, EXPERIMENTAL (1 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMWchla1 |
| | access | graph | Chlorophyll-a, Aqua MODIS, NPP, West US, EXPERIMENTAL (14 Day Composite) | NOAA CoastWatch, West Coast Node | | info | background | erdMWchla1 |

Simple MySQL Database Query - Windows Internet Explorer

http://localhost:3919/FishLarvae.aspx

File Edit View Favorites Tools Help

Google G Go Bookmarks Popups okay Check AutoLink AutoFill Send to Settings

Simple MySQL Database Query

Download dataset from ERDDAP and Insert it to MySQL database.

Dataset Title: **CalCOFI Fish Larvae Count** Dataset ID: erdCalcofiBio Institution: CalCOFI

| | Optional Constraint #1 | Optional Constraint #2 | Minimum | Maximum |
|---|-------------------------|-------------------------|----------------------|----------------------|
| longitude (degree_east) | >= <input type="text"/> | <= <input type="text"/> | 233.51 | 244.18 |
| latitude (degree_east) | >= <input type="text"/> | <= <input type="text"/> | 27.61 | 37.9467 |
| altitude (m) | >= <input type="text"/> | <= <input type="text"/> | -267.9 | -6.3 |
| time (UTC) | >= <input type="text"/> | <= <input type="text"/> | 1984-01-04T21:26:00Z | 2004-11-19T08:32:00Z |
| ID (sequence id) | >= <input type="text"/> | <= <input type="text"/> | | |
| line_number (CalCOFI Line Number) | >= <input type="text"/> | <= <input type="text"/> | | |
| station_number (CalCOFI Station Number) | >= <input type="text"/> | <= <input type="text"/> | | |
| ship | >= <input type="text"/> | <= <input type="text"/> | | |
| TotalFishEggs (count) | >= <input type="text"/> | <= <input type="text"/> | | |
| TotalFishLarvae (count) | >= <input type="text"/> | <= <input type="text"/> | | |
| TotalPlanktonVolume (count) | >= <input type="text"/> | <= <input type="text"/> | | |

Just Generate URL

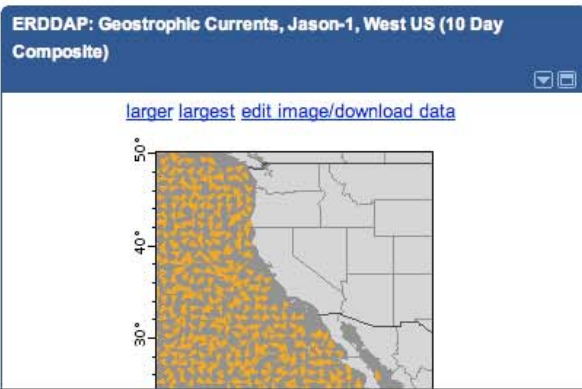
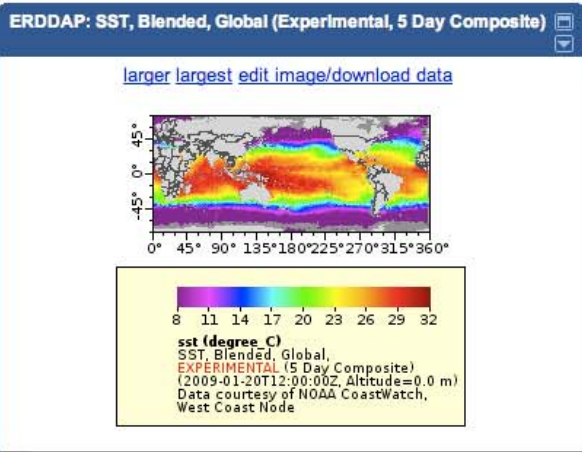
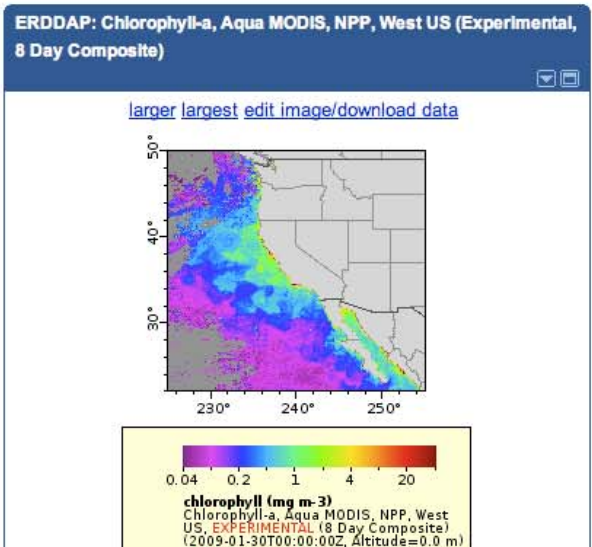
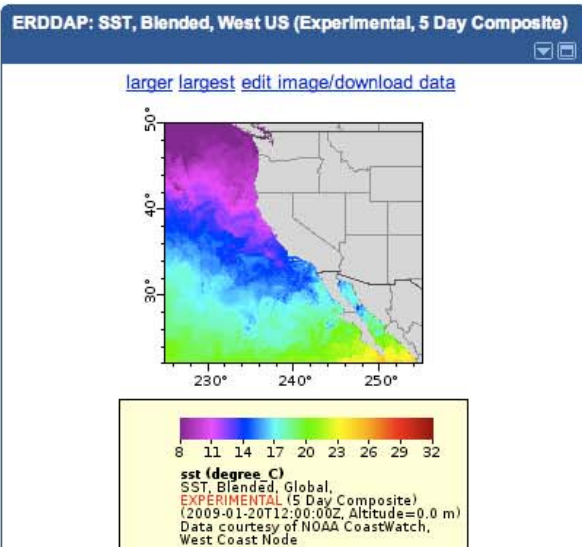
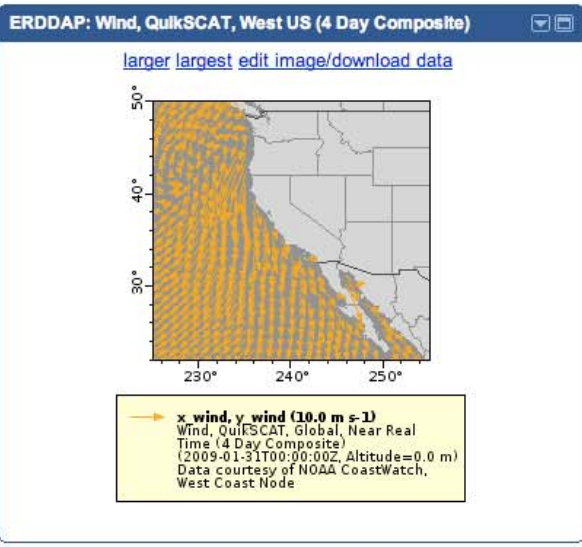
Download & Insert

Done Local intranet 100%

Next Steps

- Increase number of data sets served in a CC virtual Data Assembly Center (vDAC)
 - *Expand beyond IOOS core variables*
- Modify ERDDAP software to provide enhanced integration with selected IOOS DIF and Regional Ecosystem Data Management (REDM) data services
- Prototype implementation of services into IEA models for the California Current and Gulf of Mexico Regions
- Expand CC LME “tool box” and expand to GoMx
- Use integrated data system to develop specific regional IEAs
 - *Puget Sound, CA Current pelagics, No. GoMx*
- Dashboard features —> PDA apps

- Home
- Date & Time
- ERDDAP: SST, ...
- ERDDAP: Chlor...
- ERDDAP: SST, ...
- ERDDAP: Geost...
- ERDDAP: Wind...
- Live Weather
- Windbuoy - Buoy 46092



Windbuoy - Buoy 46092

Buoy 46092

WDIR: 180
 WSPD: 1.9 kts
 WGST: MM
 WVHT: MM
 ATMP: 54.7° F
 WTMP: 53.8° F

Last Report Recorded
 02/03/2009 @ 20:58 GMT
[Click here for recent reports](#)

<@/>TheDashcode

WDGTPROJ - IT'S ALL ABOUT DASHCODE Oct 1

[Download](#)

WDGTPROJ

Widgets without the wait! [Step 22](#)

Ever wish you could make your very own Dashboard widget? A handy RSS feed of your favorite blog, maybe. Or a miniature photocast of your iPhoto library. Something uniquely useful, uniquely you. Say hello to Dashcode. Now you can get a widget up and running in minutes, even if you've never written a line of code in your life.

Choose your widget.
Your Dashcode project starts life as a template designed specifically for the kind of [widgets](#) powered by Google



ERDDAP: SST, Blended, West US (Experimental, 5 Day Composite)

time (UTC)

altitude (m)

latitude

longitude

Color Bar:

Continuity:

Scale:

Min:

Max:

N Sections:

Draw land:

[Redraw the Graph](#)

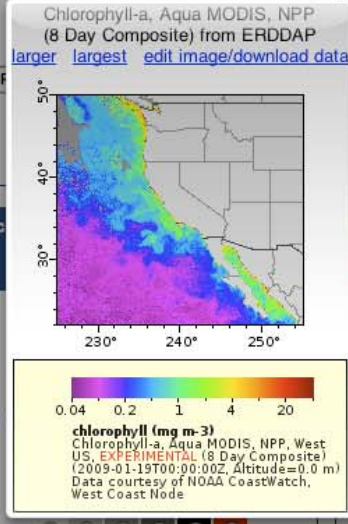
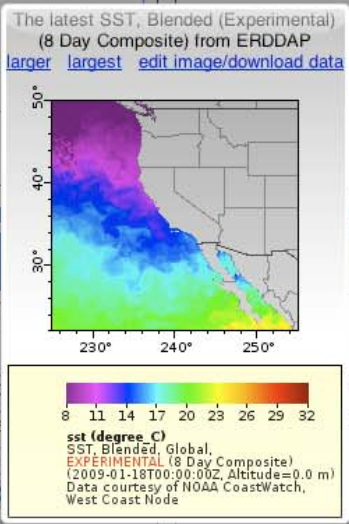


Windbuoy - Buoy 46092

Buoy 46092

WDIR: 30
WSPD: 5.8 kts
WGST: MM
WVHT: MM
ATMP: 44.1° F
WTMP: 53.4° F

Last Report Recorded
01/27/09 @ 13:58 GMT
[Click here for recent reports](#)

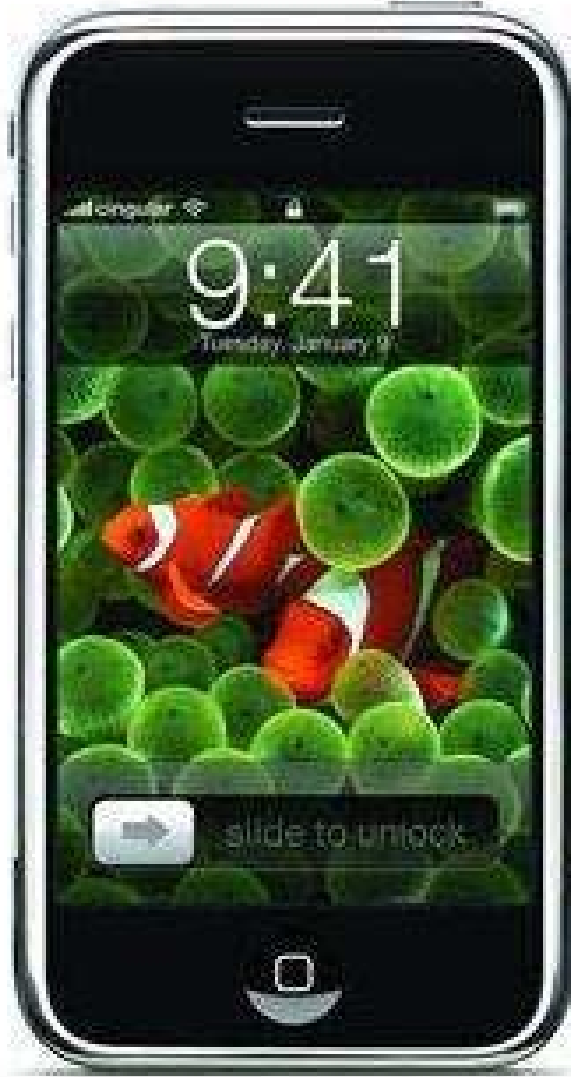



OSMC Three Day Summary

OCEAN PLATFORMS REPORTING LAST 3 DAYS:

SELECT A PLATFORM: SELECT A REGION:





Goal of an Integrated Data System

IEAs must provide an efficient, transparent means of summarizing the status of ecosystem components, screening and prioritizing potential risks, and evaluating alternative management strategies against a backdrop of environmental variability.

To accomplish this goal, need to access a wide-spectrum of ocean observing data, and transform these data into formats of use to the systems involved in the IEA analyses.

Rationale for an Integrated Data System

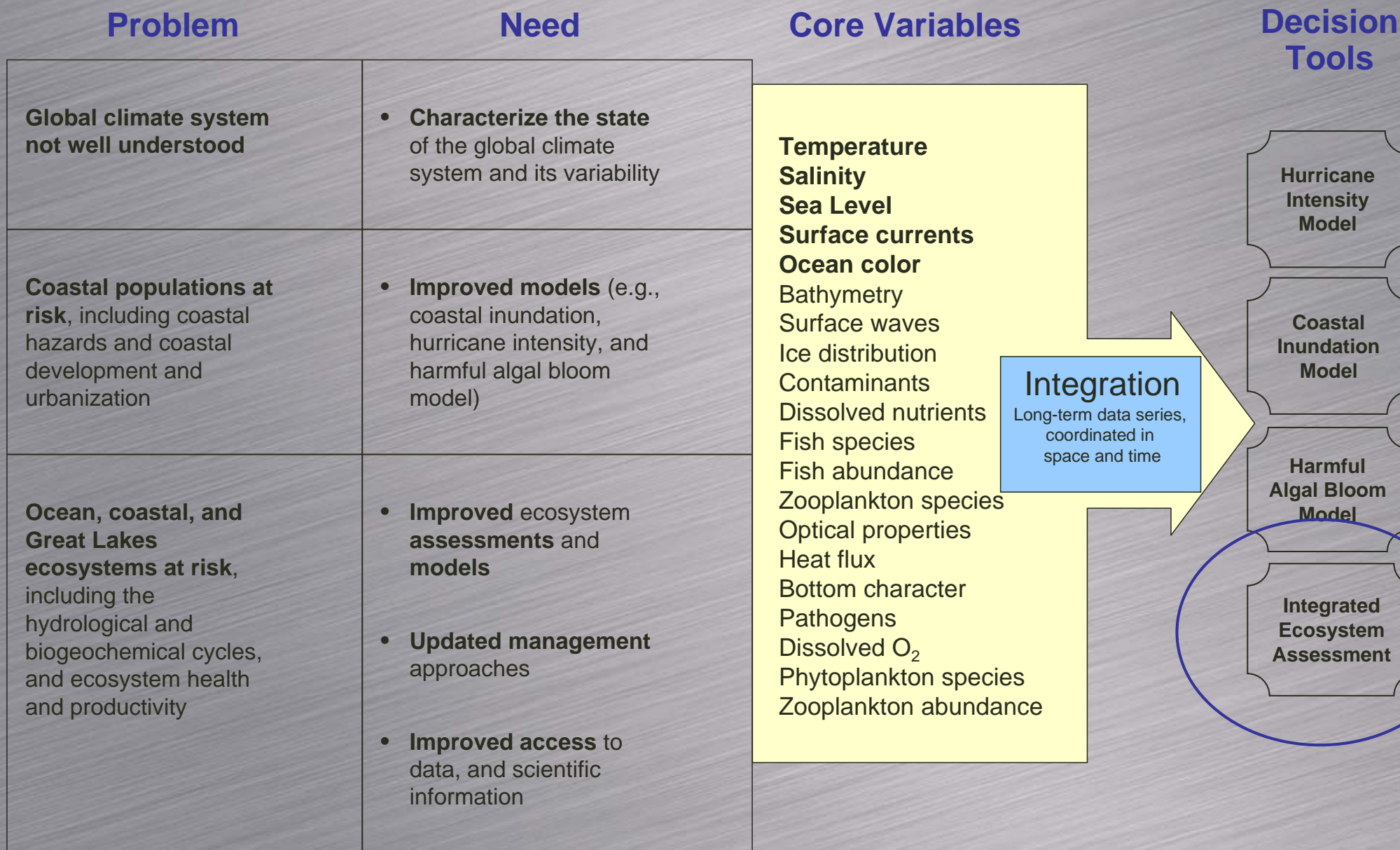
- Vast and diverse data holdings and observing systems
- Multiple partners/datasets/stakeholders/clients
- Efficient and effective management of distributed data
- Easy & customized access to/use of multi-disciplinary data sources
- Common tool box for visualization & analysis products and delivery in easy-use formats
- Need for a National Model (other regions, priorities)

Requirements for an Integrated Data System

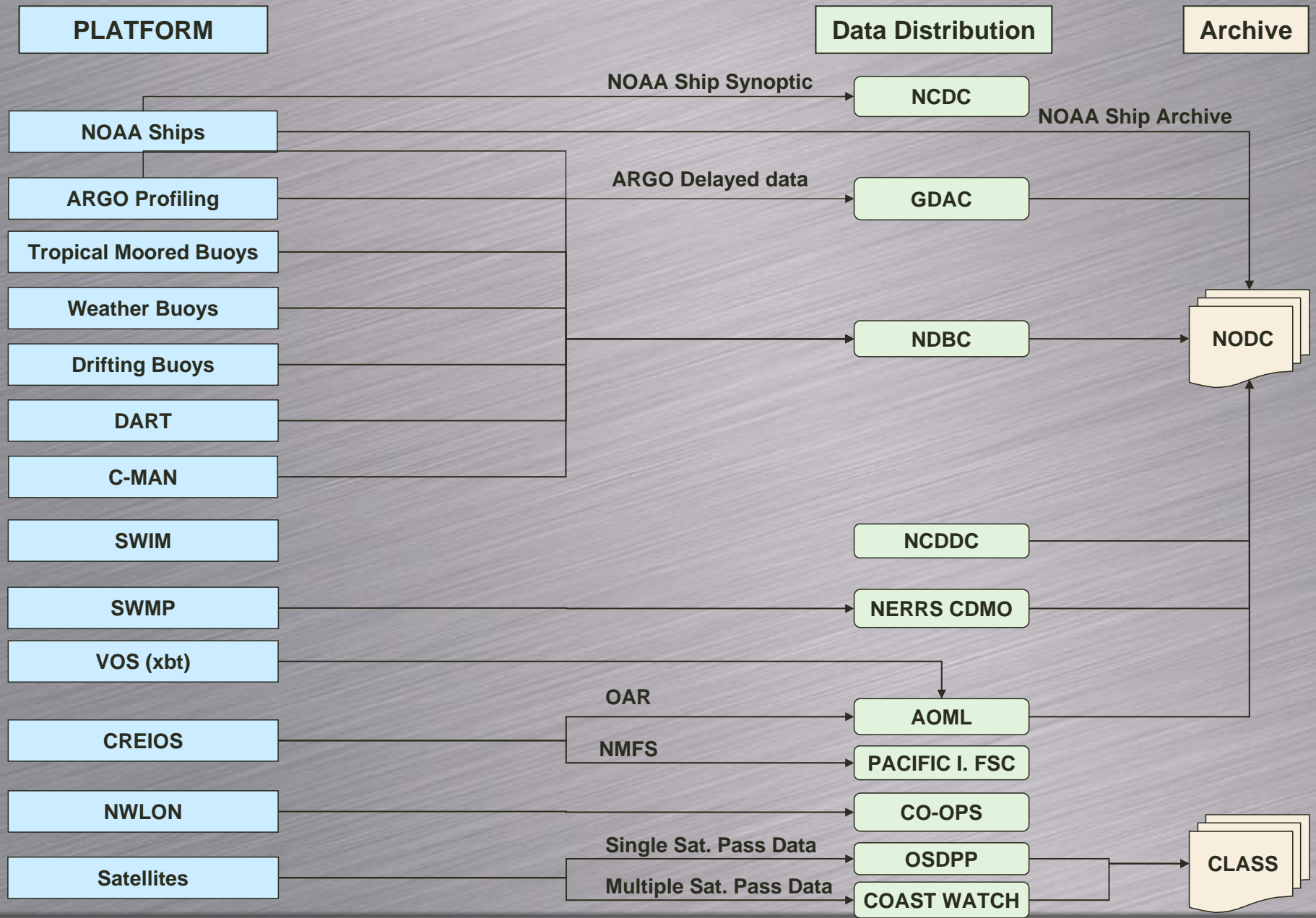
Large volumes of data in many formats and locations, many preferred applications and functions, serving a spectrum of users needs and abilities

Requires a cost-effective interoperable system that is standardized yet flexible, easy to use yet capable of meeting a myriad of complex needs, and delivering timely and synthesized information

A NOAA Need to Integrate Data

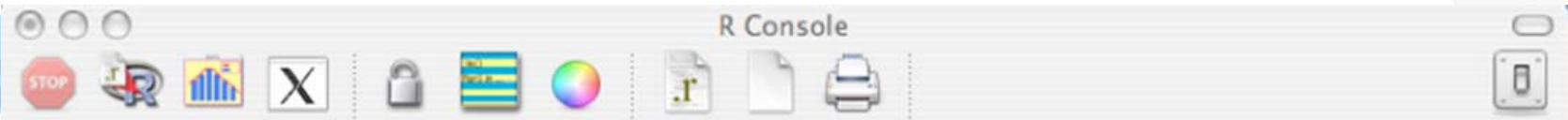


Core Variable Integration Problem: Temperature (Example)



```
# California landings - Halibut at San Diego
```

```
calCatch<-open.ncdf  
halibutSD<-get.var.  
halibut=ts(halibutS
```



~/Desktop/Sample OPeNDAP Scripts

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

```
> source("/Users/rmendels/Deskt  
> library(ncdf)  
> library(lattice)  
> sst<-open.ncdf('http://las.pf  
> sstdata<-get.var.ncdf(sst, 'SS  
> lonval<-get.var.ncdf(sst, 'LON  
> latval<-get.var.ncdf(sst, 'LAT  
> image(lonval,latval,sstdata,z  
> calCatch<-open.ncdf('http://l  
ca_fish_grouped_short.nc')  
> halibutSD<-get.var.ncdf(calCa  
> halibut=ts(halibutSD,frequenc  
> fit <- StructTS(halibut, type  
> fit_s<-tsSmooth(fit)  
> seas<-fit_s[,3]  
> seasm<-matrix(seas,nrow=12,nc  
> plot(fit_s)  
> tt.month<-rep(1:12,74)  
> tt.month<-tt.month[1:888]  
> tt.year<-rep(1929:2002, each=  
> tt.year<-tt.year[1:888]  
> wireframe(seasm~tt.month[1:88  
aspect=c(2,0.75), colorkey=list  
distance=c(1,1,1)), main="Sea  
col.regions=sst_color_scheme(15  
>
```

