



# **Accessing Remote Sensing Data using Live Access Server**

**TVS Udaya Bhaskar**  
**ITCOOcean, 30<sup>th</sup> July 2021**

# Live Access Server

- The Live Access Server (LAS) is a highly configurable web server designed to provide flexible access to geo-referenced scientific data. It can present distributed data sets as a unified virtual data base through the use of DODS networking.
- Ferret is the default visualization application used by LAS, though other applications (Matlab, IDL, GrADS, ...) can also be used.
- Limitation: It is capable of only accessing data in NetCDF format.

# **LAS enables the web user to:**

- **visualize data with on-the-fly graphics.**
- **request custom subsets of variables in a choice of file formats.**
- **access background reference material about the data (metadata).**
- **compare (difference) variables from distributed locations.**

# **LAS enables the data provider to:**

- **unify access to multiple types of data in a single interface**
- **create thematic data servers from distributed data sources**
- **offer derived products on the fly**
- **remedy metadata inadequacies (poorly self-describing data)**
- **offer unique products (e.g. visualization styles specialized for the data)**



# Over view of LAS

## INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES

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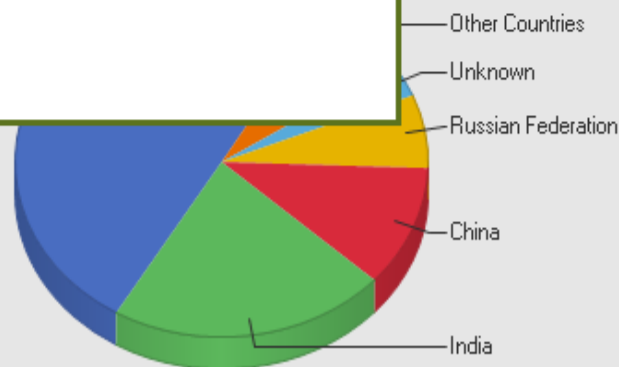
OUT INCOIS| |OPENDAP(FTD-S)| |FEED BACK| |CONTACT US|

to Desktop Application Save As ... Link To ... Print

Close

Select a dataset category.

- + AMSRE OCEAN DATASETS
- + ARGO DATA PRODUCTS
- + ASCAT DATA Products
- + Data Products from INCOIS Ground Station
- + MLD Climatology
- + NOAA High Resolution SST (data provided by the NOAA OAR ESRL)
- + Objectively Analyzed Air-sea Fluxes Products (OAflux Project by oaflux.whoi.edu)
- + OCEAN ANALYSIS
- + OCEAN COLOR MONITOR 1(Chlorophyll)
- + QUICKSCAT DATA PRODUCTS
- + TMI OCEAN DATASETS



# INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES

ment of India)

OUT INCOIS| |OPENDAP(FTD-S)| |FEED BACK| |CONTACT US|

to Desktop Application Save As ... Link To ... Print

Close

Select a dataset category.

☐ AMSRE OCEAN DATASETS

☐ 3Day Composite

- ☐ Cloud Liquid Water
- ☐ Rain Rate
- ☒ Sea Surface Temperature
- ☐ Surface Wind Speed
- ☐ Atmospheric Water Vapour

☐ Monthly Composite

☐ ARGO DATA PRODUCTS

☐ ASCAT DATA Products

☐ Data Products from INCOIS Ground Station

☐ MLD Climatology

☐ NOAA High Resolution SST (data provided by the NOAA OAR ESRL)

☐ Objectively Analyzed Air-sea Fluxes Products (OAFlux Project by oaflux.whoi.edu)

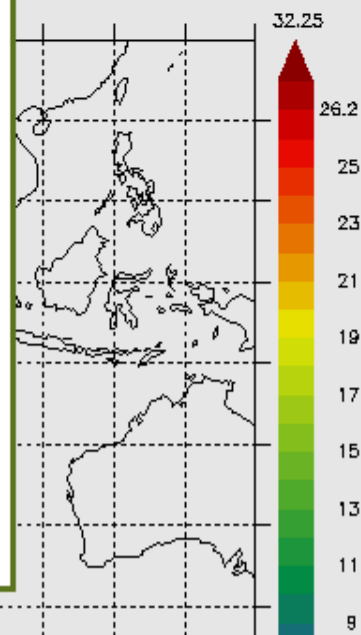
☐ OCEAN ANALYSIS

☐ OCEAN COLOR MONITOR 1(Chlorophyll)

☐ QUICKSCAT DATA PRODUCTS

☐ TMI OCEAN DATASETS

SET: AMSRE OCEAN DATA PRODUCTS  
(3 Day composite)



Choose

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MAPS

☒ Lat

HOVM

☐ Lon

☐ Lat


LINE

☐ Time

☐ Longitude

40°S

☐ ? ☐ ☐ ☐ ☐ ☐



29.91 N  
 20 E 140 E  
 70.06 S

**MAPS**

☒ Latitude-Longitude

**HOVMOLLER PLOTS**

☐ Longitude-Time  
☐ Latitude-Time

**LINE PLOTS**

☐ Time Series  
☐ Longitude  
☐ Latitude

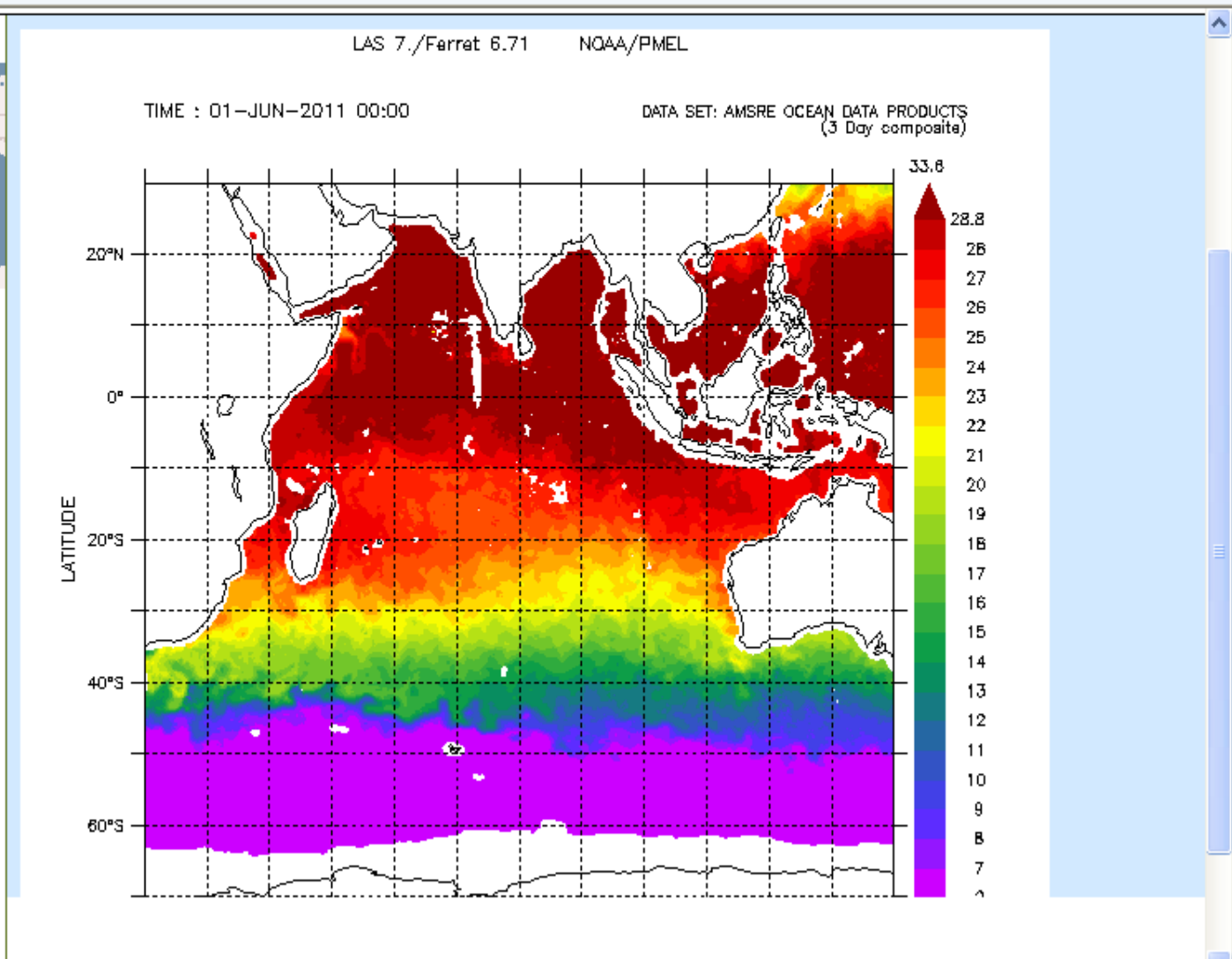
**SCATTER PLOTS**

☐ Property-Property

**Date:**

Jun 01 2011

[Apply analysis](#)





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Choose dataset Update Plot ☒ Set plot options Animate Compare Google Earth Show Values Export to Desktop Application Save As ... Link To ... Print

AMSRE OCEAN DATASETS / 3Day Composite

+ Sea Surface Temperature



29.91 N  
20 E 140 E  
70.06 S

**MAPS**

☒ Latitude-Longitude

**HOVMOLLER PLOTS**

☐ Longitude-Time

☐ Latitude-Time

**LINE PLOTS**

☐ Time Series

☐ Longitude

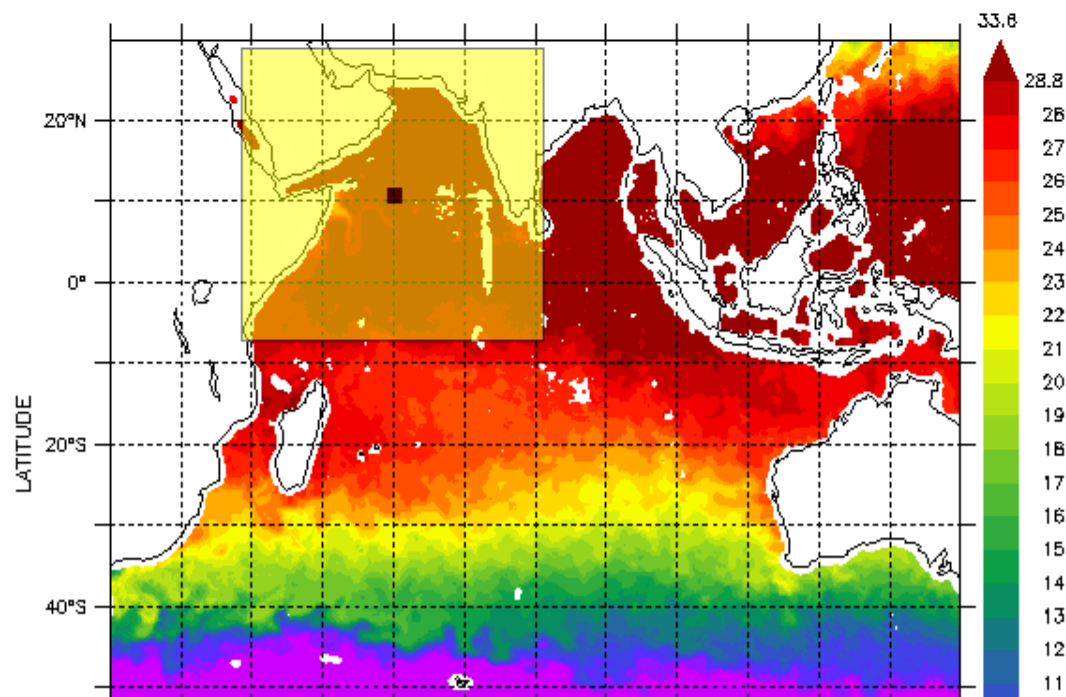
☐ Latitude

**SCATTER PLOTS**

LAS 7./Ferret 6.71 NOAA/PMEL

TIME : 01-JUN-2011 00:00

DATA SET: AMSRE OCEAN DATA PRODUCTS  
(3 Day composite)



Ocean Surface Temperature



29.42 N  
37.93 E 79.72 E  
5.97 S

**MAPS**

☒ Latitude-Longitude

**HOVMOLLER PLOTS**

☐ Longitude-Time

☐ Latitude-Time

**LINE PLOTS**

☐ Time Series

☐ Longitude

☐ Latitude

**SCATTER PLOTS**

☐ Property-Property

Date:

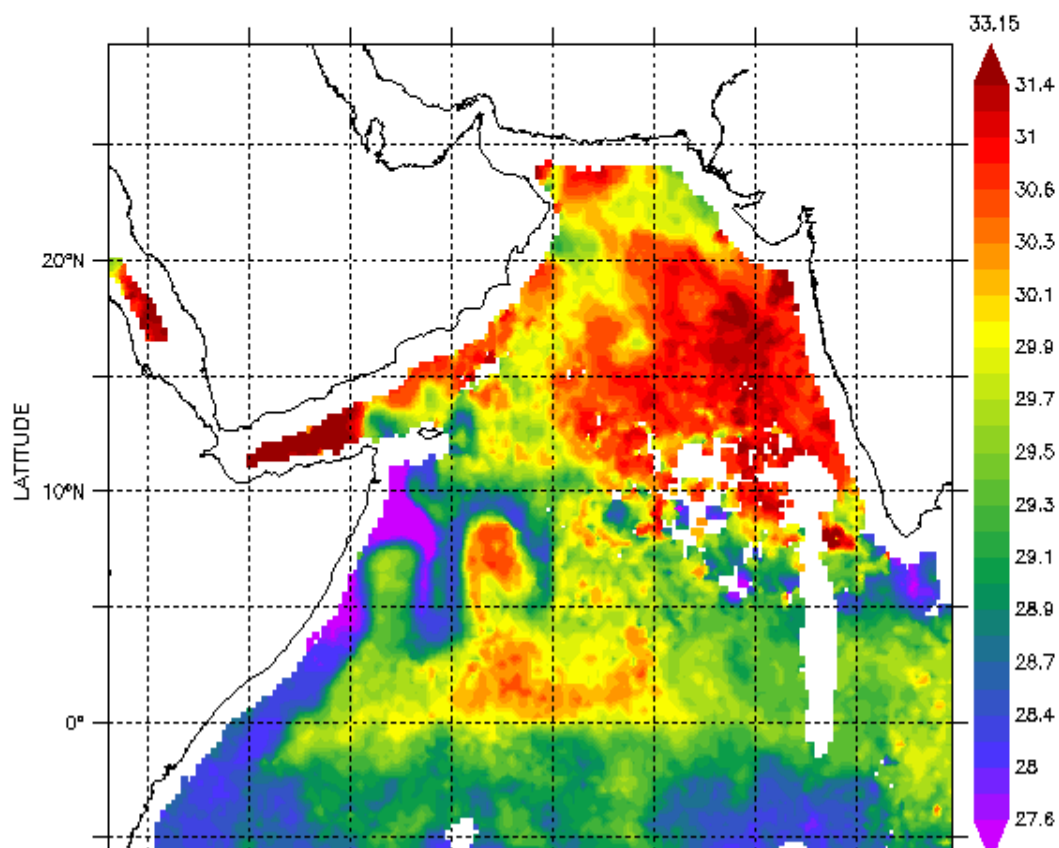
Jun 01 2011

[Apply analysis](#)

LAS 7./Ferret 6.71 NOAA/PMEL

TIME : 01-JUN-2011 00:00

DATA SET: AMSRE OCEAN DATA PRODUCTS  
(3 Day composite)



# Functionalities



- **Choose datasets**
- **Update plot**
- **Set plot options**
- **Animate**
- **Compare**
- **Google earth**
- **Show value**
- **Export to desktop application**
- **Save as**
- **Link to**
- **Print**

# Set plot option

INCOIS LIVE ACCESS SERVER - Windows Internet Explorer

http://las.incois.gov.in/las/getUI.do

File Edit View Favorites Tools Help

Google Search

INCOIS LIVE ACCESS SERVER

Home Feeds (1) Read Mail Print Page Safety Tools Help

## INDIAN NATIONAL CENTRE FOR OCEAN INFORMATION SERVICES

Ministry of India

ABOUT INCOIS | OPENDAP(FTD-S) | FEED BACK | CONTACT US

to Desktop Application Save As ... Link To ... Print

SET: AMSRE OCEAN DATA PRODUCTS  
(3 Day composite)

33.8

28.8

26

27

26

25

24

23

22

21

20

19

18

16

15

14

OK Reset Cancel

Evaluate expression

Interpolate normal to plot Off

Image format Default

Plot size default

Show graticule Default

Margins Default

Degrees/Minutes axis labels Default

Palette Default

Contour style Default

Color fill levels

Contour levels

Mark grid points No

Match aspect ratio of plot to aspect ratio of region Default

Land fill style Default

20 E

MAPS

Latitude-Longitude

HOVMOLLER PLOTS

Longitude-Time

Latitude-Time

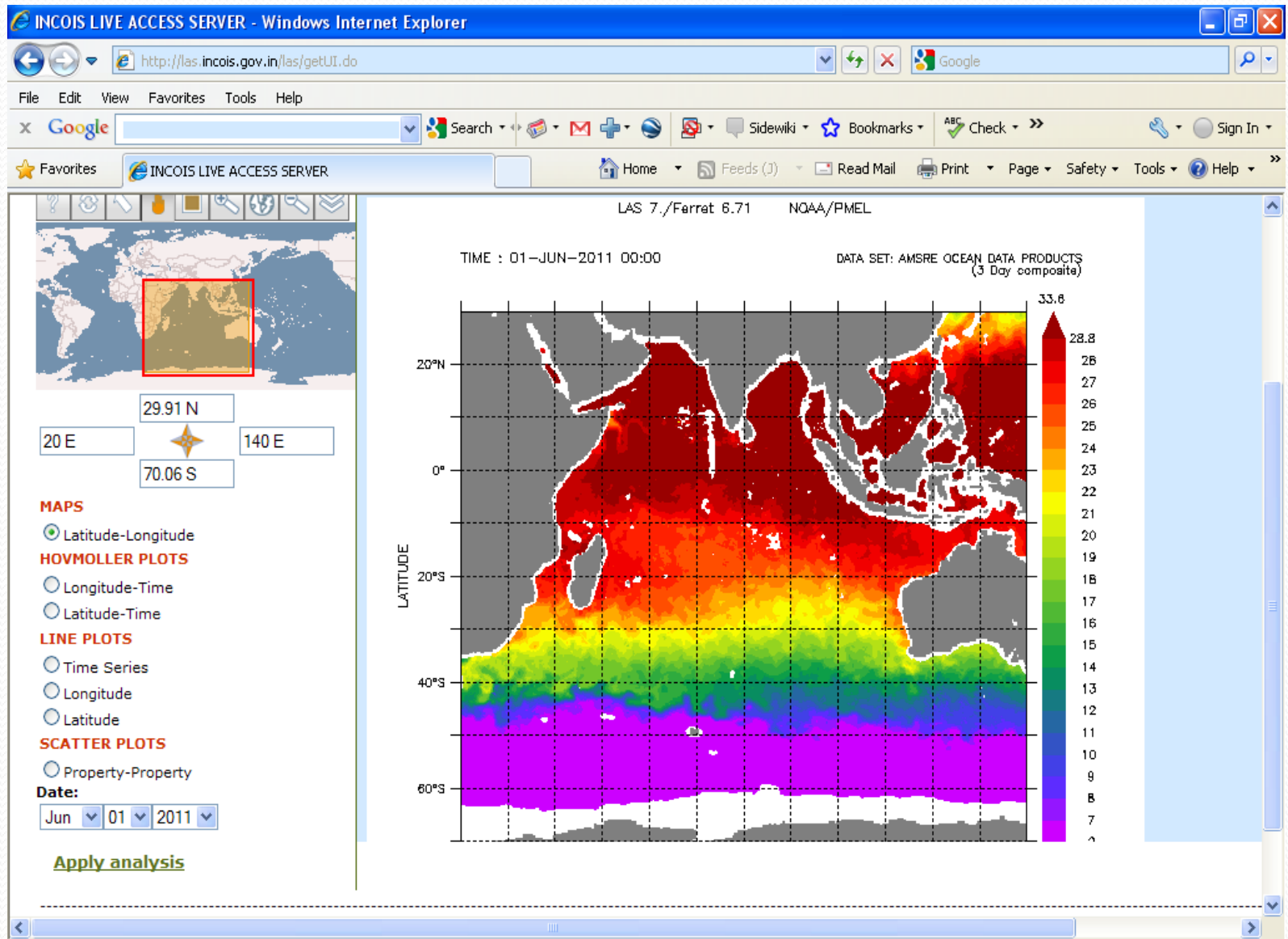
LINE PLOTS

Time Series

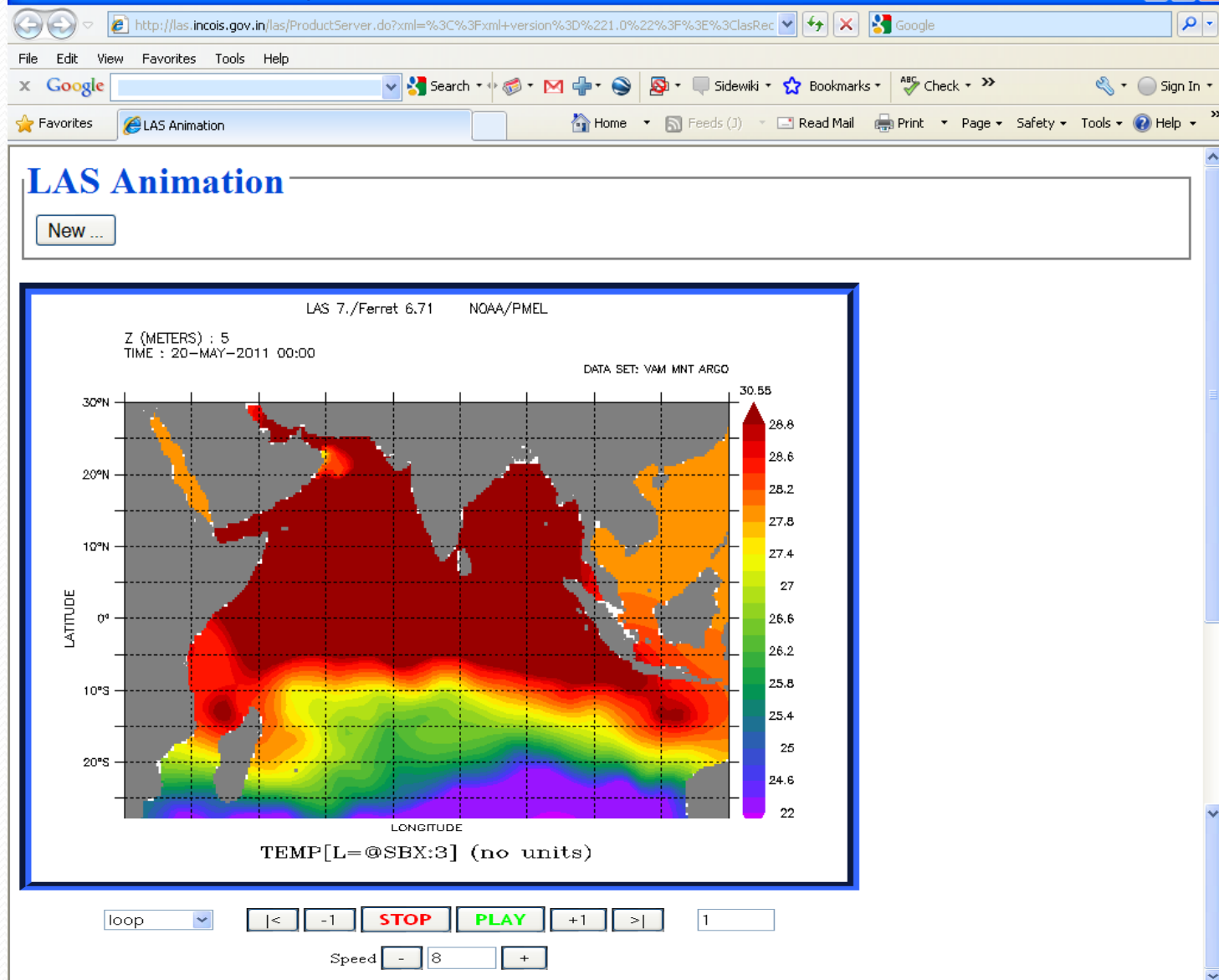
LATITUDE 20°S

The screenshot shows a web browser window displaying the INCOIS LIVE ACCESS SERVER interface. A dialog box is open, allowing users to configure plot options. The dialog box includes buttons for 'OK', 'Reset', and 'Cancel'. It lists various options such as 'Evaluate expression', 'Interpolate normal to plot', 'Image format', 'Plot size', 'Show graticule', 'Margins', 'Degrees/Minutes axis labels', 'Palette', 'Contour style', 'Color fill levels', 'Contour levels', 'Mark grid points', 'Match aspect ratio of plot to aspect ratio of region', and 'Land fill style'. Each option has a corresponding dropdown menu or input field. The background of the browser shows the INCOIS website header, navigation links, and a map of the Indian Ocean region with a color scale ranging from 14 to 33.8. The map is titled 'SET: AMSRE OCEAN DATA PRODUCTS (3 Day composite)'.

# Land filled

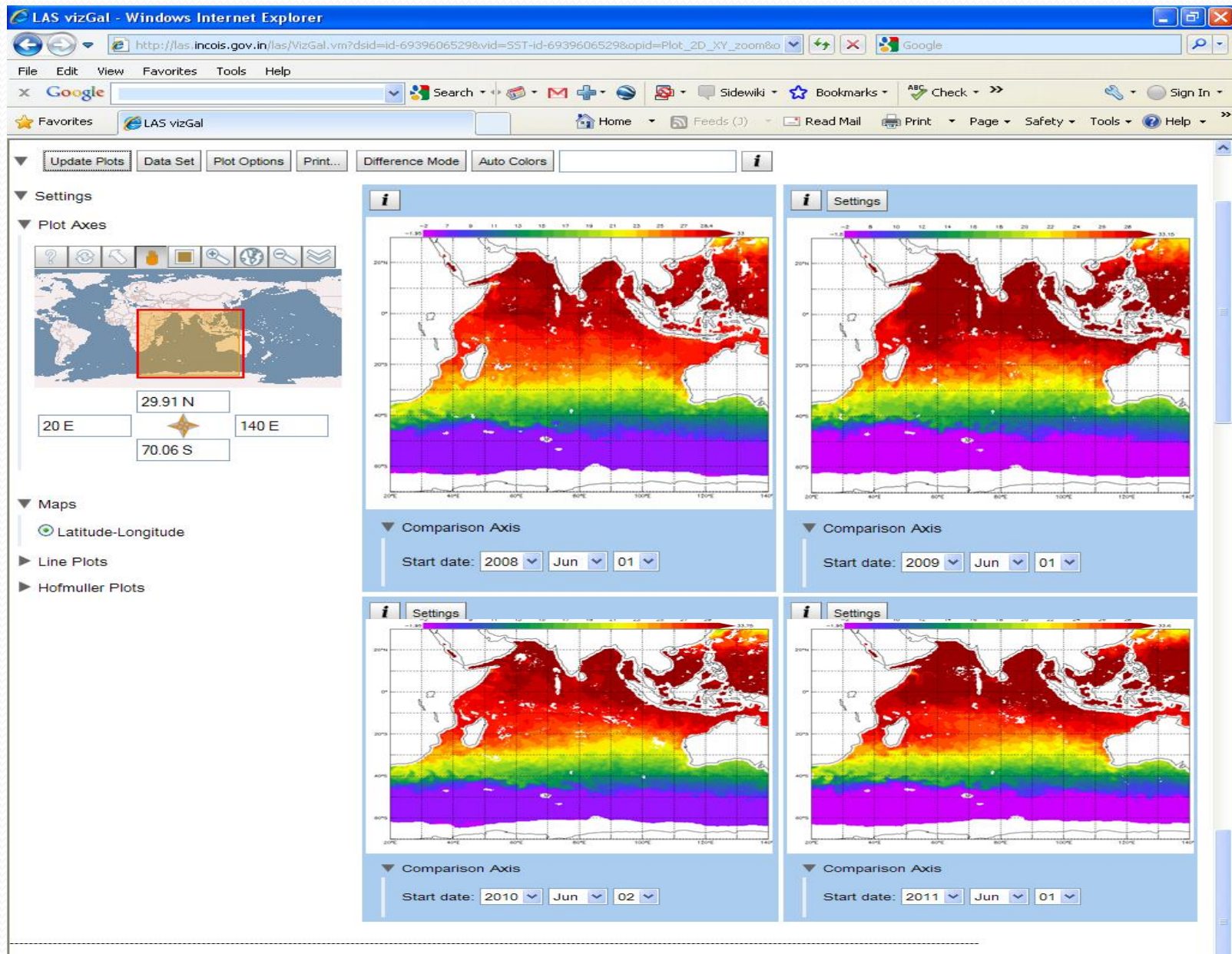


 LAS Animation - Windows Internet Explorer





# compare



# Google earth

INCOIS LIVE ACCESS SERVER - Windows Internet Explorer

http://las.incois.gov.in/las/getUI.do

File Edit View Favorites Tools Help

Google Search Sidewiki Bookmarks Check Sign In

Favorites INCOIS LIVE ACCESS SERVER Home Feeds (1) Read Mail Print Page Safety Tools Help

(An Autonomous Body under the Ministry of Earth Sciences, Government of India)

Choose dataset Update Plot Set plot options

AMSRE OCEAN DATASETS

Sea Surface Temperature

29.91 N 20 E 140 E 70.06 S

MAPS

- Latitude-Longitude

HOVMOLLER PLOTS

- Longitude-Time
- Latitude-Time

LINE PLOTS

- Time Series
- Longitude
- Latitude

AMSRE OCEAN DATA PRODUCTS (3 Day composite)

32.25 26.2 25 23 21 19 17 15 13 11 9

File Download

Do you want to open or save this file?

Name: las\_product.kml  
Type: Google Earth.kmlfile  
From: las.incois.gov.in

Open Save Cancel

☒ Always ask before opening this type of file

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. [What's the risk?](#)



▼ Search

Fly To Find Businesses Directions

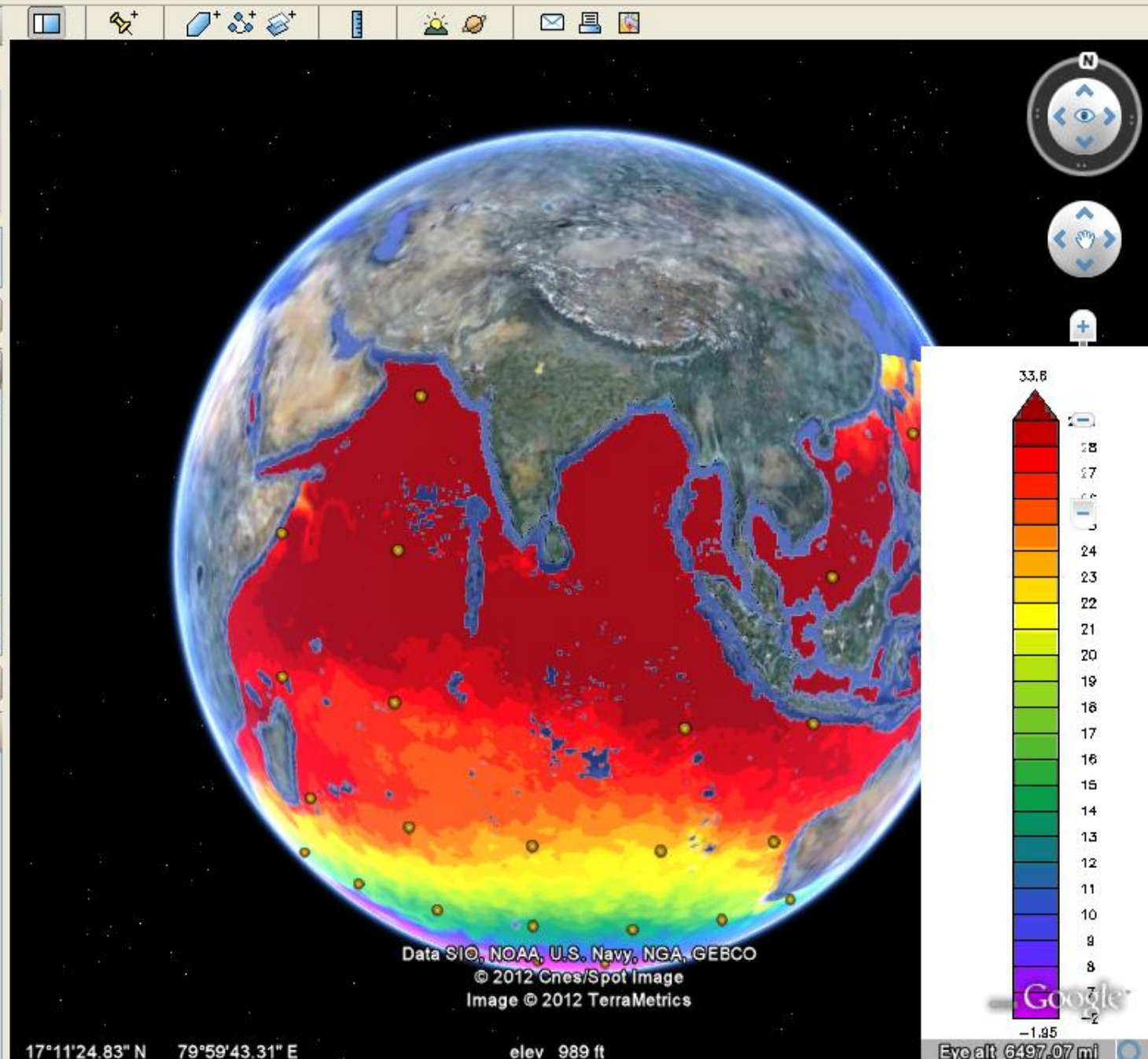
Fly to e.g., 37 25' 19.1"N, 122 05' 06"W

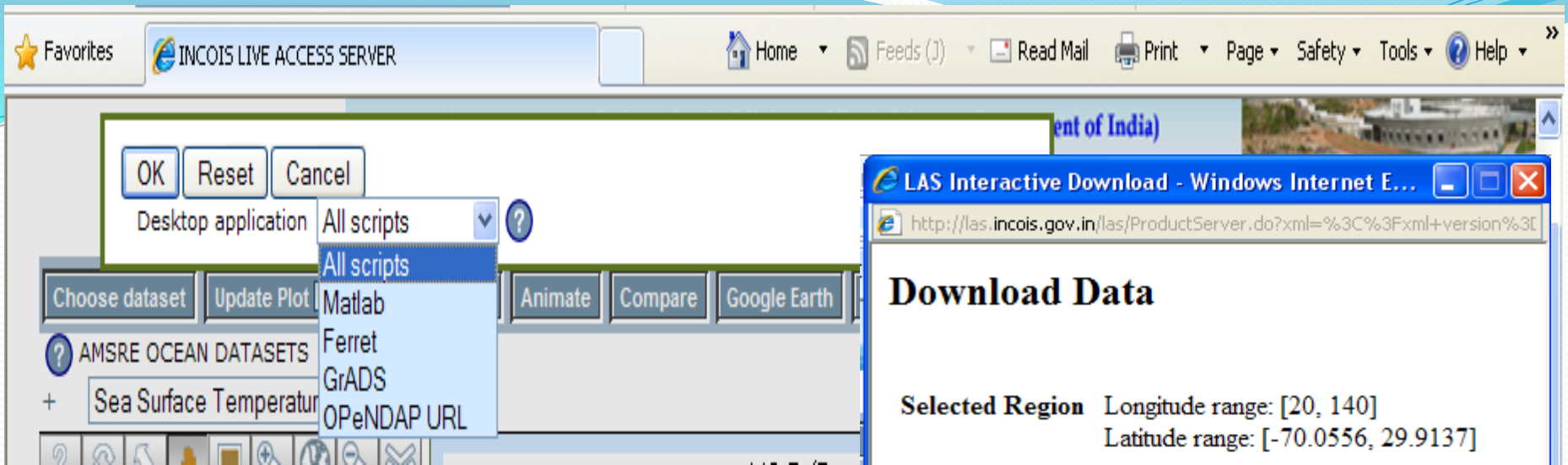
▼ Places Add Content

- My Places
  - Starting Location
  - [Sightseeing](#)  
Select this folder and click on the 'Play' button below, to start the
- Temporary Places
  - [id-6939606529: SST-](#)  
static overlay
- Plot

▼ Layers

- Primary Database
  - Borders and Labels
  - Places
  - Photos
  - Roads
  - 3D Buildings
  - Weather
  - Gallery
  - Global Awareness
  - More
  - Terrain

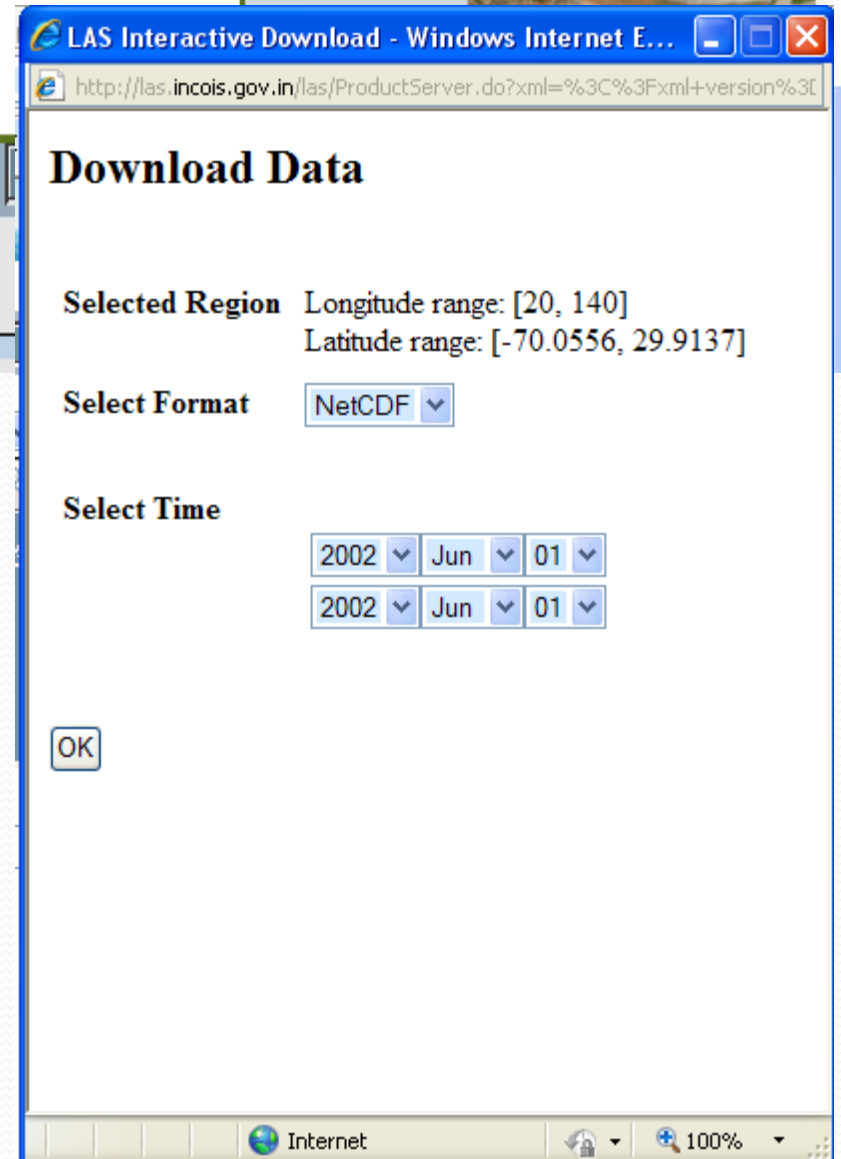




## Export to Desktop Application

### Save As

- NetCDF
- ASCII
- CSV
- ArcGrid



# OpenDAP links of LAS

Catalog <http://las.incois.gov.in/thredds/catalog/las/catalog.html>

Dataset	Size	Last Modified
---------	------	---------------

- |   |  |    |
|---|--|----|
| <input type="checkbox"/> Data form LAS            |  | -- |
| <input type="checkbox"/> quick daily/             |  |    |
| <input type="checkbox"/> ocean atlas subset/      |  |    |
| <input type="checkbox"/> levitus climatology cdf/ |  |    |
| <input type="checkbox"/> id-fc9c23a761/           |  |    |
| <input type="checkbox"/> id-fb3cc8cf20/           |  |    |
| <input type="checkbox"/> id-fac37509c8/           |  |    |
| <input type="checkbox"/> id-f42b348d24/           |  |    |
| <input type="checkbox"/> id-f083dcca54/           |  |    |
| <input type="checkbox"/> id-eb44c1cc7e/           |  |    |

☐ Initial TDS Installation

## Initial TDS Installation

### THREDDS Data Server

Catalog [http://las.incois.gov.in/thredds/catalog/las/ocean\\_atlas\\_subset/catalog.html](http://las.incois.gov.in/thredds/catalog/las/ocean_atlas_subset/catalog.html)

Dataset: ocean\_atlas\_subset/data\_ocean\_atlas\_subset.jnl

- Data size: 26.0 bytes
- Data type: GRID
- testDatasetScan/ocean\_atlas\_subset/data\_ocean\_atlas\_subset.jnl

#### Access:

1. OPENDAP: [thredds/dodsC/las/ocean\\_atlas\\_subset/data\\_ocean\\_atlas\\_subset.jnl](http://thredds/dodsC/las/ocean_atlas_subset/data_ocean_atlas_subset.jnl)

#### Dates:

- 2011-09-23 04:08:33Z (modified)

#### Viewers:

- [Integrated Data Viewer \(IDV\) \(webstar\)](#)
- [NetCDF-Java ToolsUI \(webstart\)](#)

## OPeNDAP Dataset Access Form

Tested on Netscape 4.61 and Internet Explorer 5.00.

Action:

Data URL: [http://las.incois.gov.in/thredds/dodsC/las/ocean\\_atlas\\_subset/data\\_ocean\\_atlas\\_subset.jnl](http://las.incois.gov.in/thredds/dodsC/las/ocean_atlas_subset/data_ocean_atlas_subset.jnl)

#### Global Attributes:

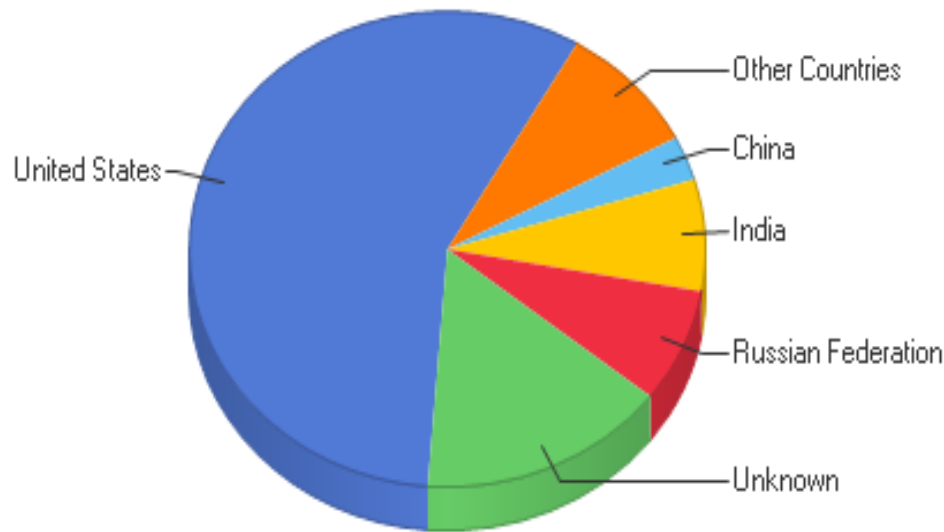
Conventions: COARDS

Variables: ☐ XAX\_SUBSET: Array of 64 bit Reals [XAX\_SUBSET = 0..179]  
XAX\_SUBSET:

dataset: /home0/ferret/fer\_dsets/data/ocean\_atlas\_subset.nc  
axis: X  
infile\_datatype: DOUBLE  
start: 20.5  
direction: I

☐ YAX\_SUBSET: Array of 64 bit Reals [YAX\_SUBSET = 0..89]  
YAX\_SUBSET:

# INCOIS Live Access Server – User Statistics



**URL:** <http://las.incois.gov.in>

**Contact:**

[dmg@incois.gov.in](mailto:dmg@incois.gov.in)

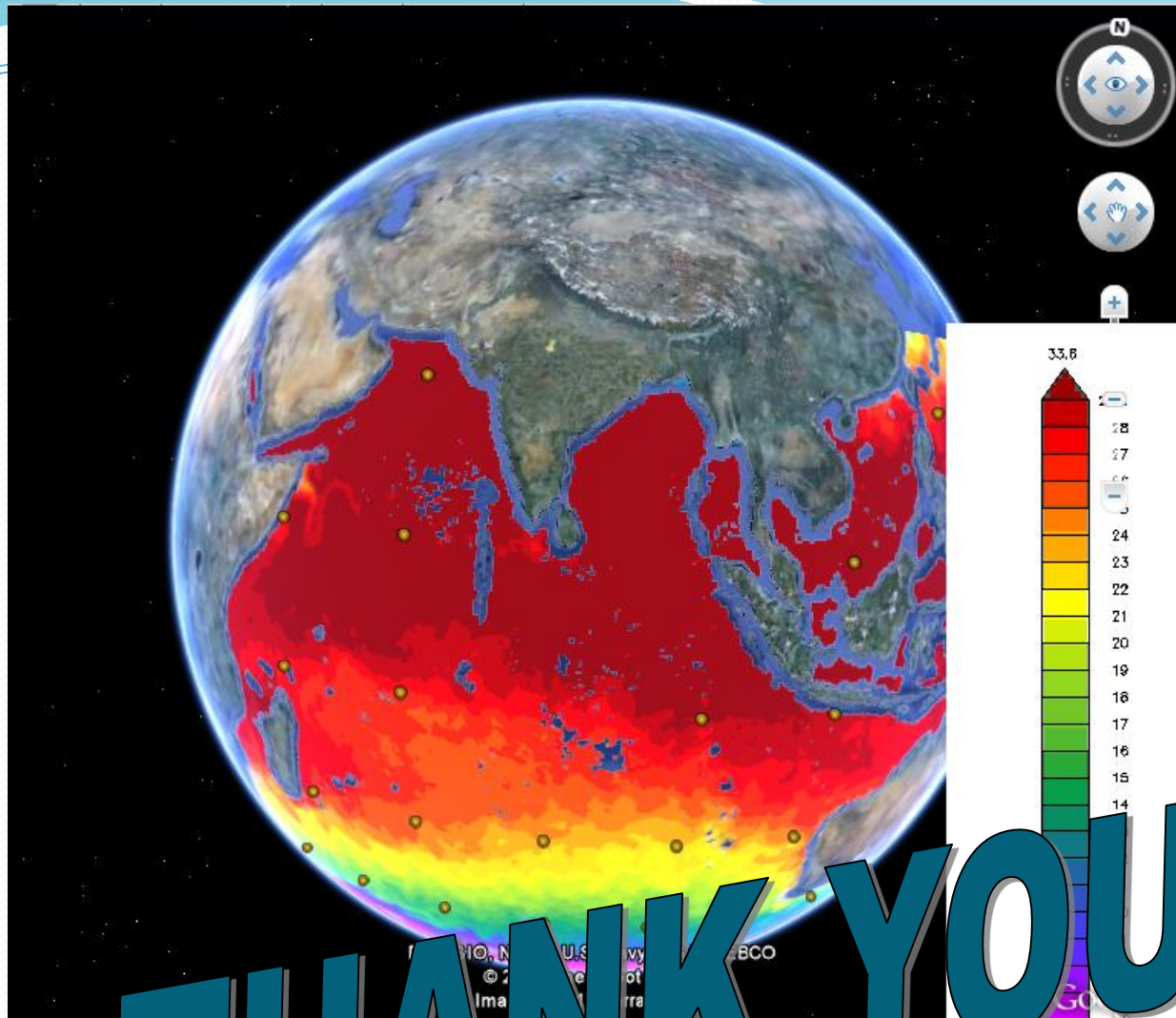
**Data and information  
Management Group, INCOIS**

	Country	Hits	Visitors	% of Total Visitors
1	United States	19,215	5,630	57.12
2	Unknown	44,542	1,533	15.55
3	Russian Federation	875	770	7.81
4	India	30,956	751	7.62
5	China	3,703	297	3.01
6	Germany	455	77	0.78
7	Japan	470	75	0.76
8	Korea, Republic of	36,089	63	0.64
9	Canada	235	62	0.63
10	France	1,632	52	0.53
11	Taiwan	174	45	0.46
12	United Kingdom	714	41	0.42
13	Mauritius	1,793	37	0.38
14	Malaysia	41	37	0.38
15	Hong Kong	121	36	0.37
16	South Africa	107	35	0.36
17	Australia	560	24	0.24
18	Indonesia	464	24	0.24
19	Brazil	776	21	0.21
20	Ireland	27	16	0.16
21	Latvia	16	16	0.16
22	Sweden	118	15	0.15



**Thank You**





THANK YOU