Integrated Climate Data Center

How to use our data center?

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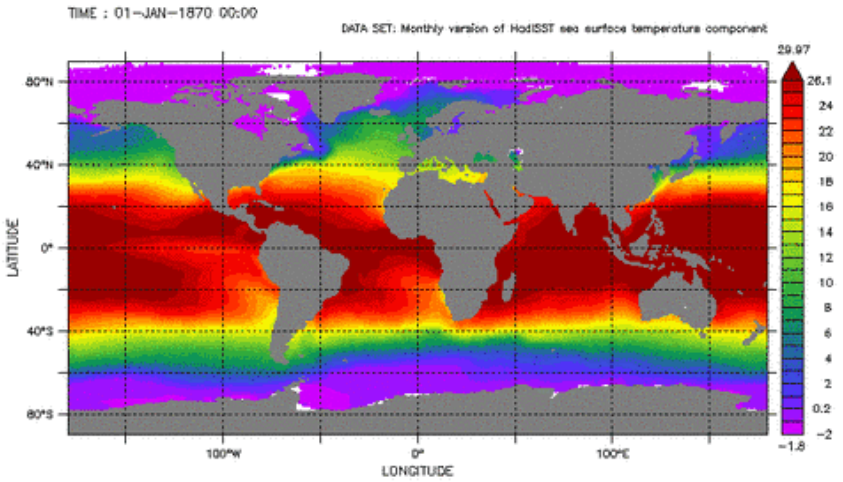
UHH > MIN-Fakultät > CEN > ICDC Data Center > Data > Ocean > Sea surface temperature (HadISST1)

Integrated Climate Data Center - ICDC

Sea surface temperature (HadISST1)



Monthly 1 degree resolution SST (degC)

Access

UNRESTRICTED

This data set is only available for a restricted user group, please contact us if you want to access these data.

RESTRICTED only accessable in ZMAW net or via CliSAP login What does that mean?

- Atmosphere
- Ice and snow
- Land
- **Ocean**
  - KLIWAS North Sea Climatology (hydrographic part)
  - AR5 Sea Level Rise
  - Ocean tides obtained by data assimilative HAMTIDE model
  - AVISO Sea Surface Heights (SSH)
  - Geostrophic Surface Velocity Anomaly
  - Sea surface temperature (AVHRR)
  - Sea surface temperature (Reynolds-SST)
  - Sea surface temperature (MODIS)
  - **Sea surface temperature (HadISST1)**
  - Subsurface Temperature And Salinity Analyses by Ishii et al.
  - Global Ocean Heat and Salt Content (Levitus et al., 2012)
  - Sea surface temperature (AMSR-E)
  - Sea surface salinity (SMOS)
  - Chlorophyll-a concentration via GlobColour
  - Chlorophyll-Concentration (MODIS)
  - Mechanical bathythermograph (MBT)
  - Expendable bathythermograph (XBT)

How to use the ICDC?

Contents

- **Which Data Formats do we offer?**
- **Which Tools do we provide?**
- **What is the Structure of our data center?**

How to use the ICDC?

Data Formats

Integrated Climate Data Center - Remon Sadikni - remon.sadikni@uni-hamburg.de

How to use the ICDC?

Data Formats

- **ASCII** (American Standard Code for Information Interchange)
  - Text Format with 128 characters

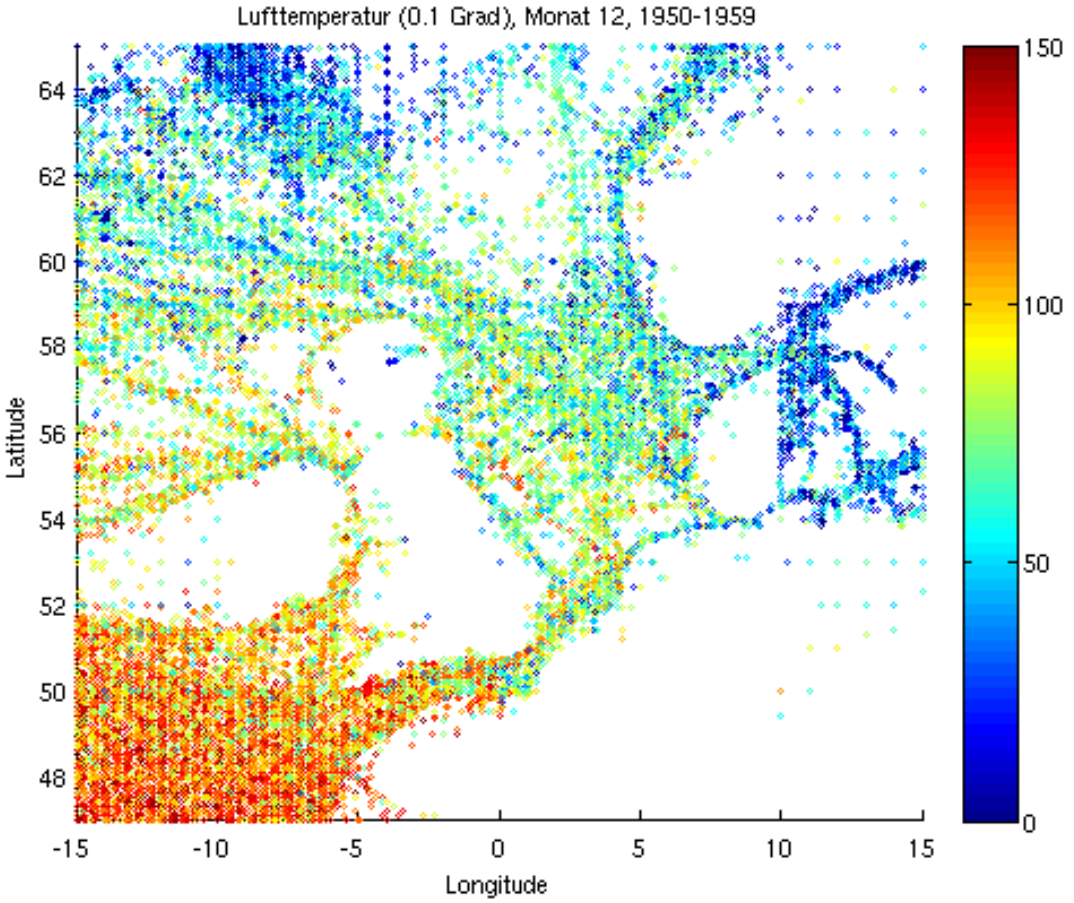
How to use the ICDC?

Data Formats

- **ASCII** (American Standard Code for Information Interchange)
  - Text Format with 128 characters
- **netCDF** (Network Common Data Form)
  - self-describing, machine-independent data format
  - array-oriented scientific data

How to use the ICDC?

ASCII example



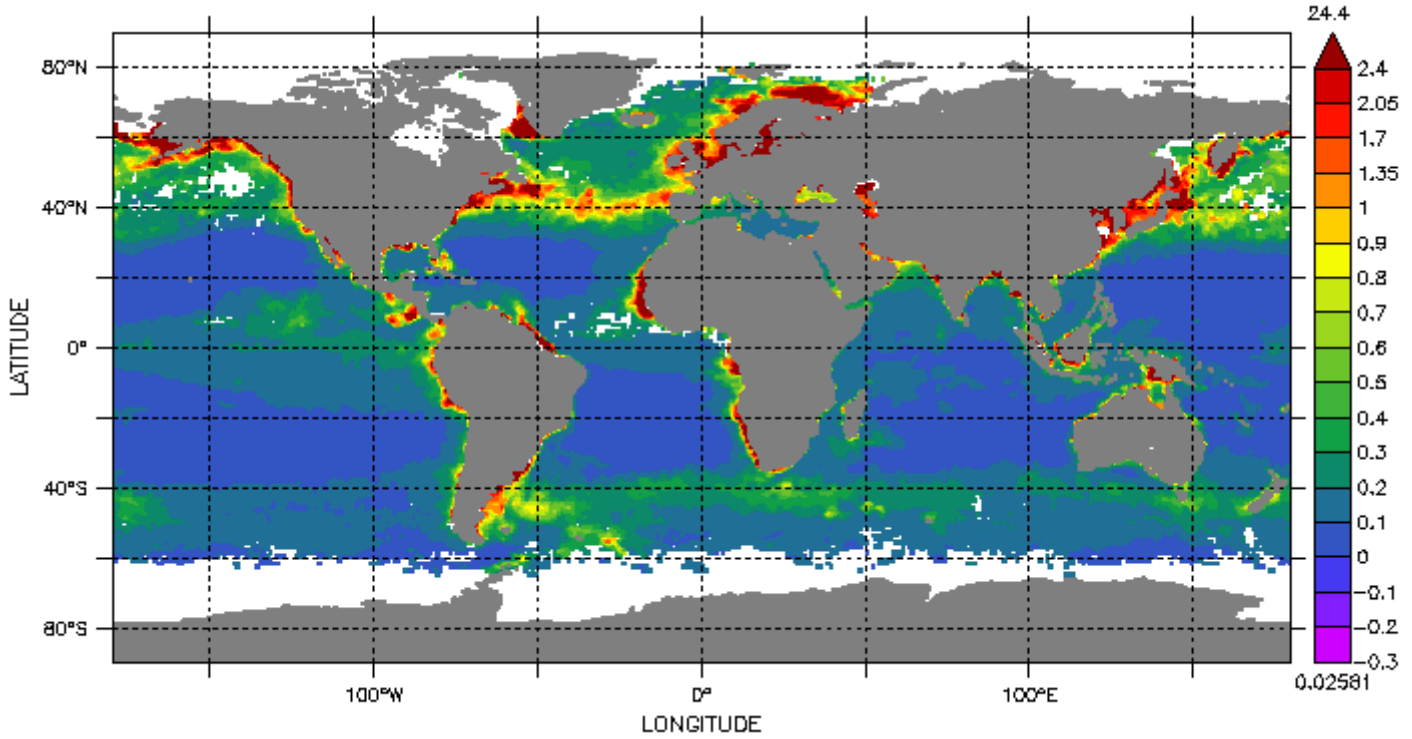
How to use the ICDC?

ASCII example

```
90009061409075GTSDAT055  $00000011988121318000F 4710C  -340C5B3B X3B0B3B1B0B0B4B X
X  X 0B 0B0B0B 4B 10G 3B 120G  91G0B  63G 69F10340G4B  0B97B 2F2F1B 140G5B8B8B5B0B
X 1B 1B34B 2B 1B  X  X  X X  X     X   X  X  X      X X X  X X X X X X X X X X X
X X X   X   X  X  X   X   X   X    X X X       X
90009061431375GTSDAT055  $00000021988121506000F 4710C  -410C2B4B X3B0B3B1B0B0B4B X
X  X 0B 0B0B0B 6B  3G 1B 135G  97G0B  63G 62F10335G7B 10B97B 2F2F2B 130G4B8B7B5B X
X 2B 1B  X  X  X  X  X  X X  X     X   X  X  X      X X X  X X X X X X X X X X X
X X X   X   X  X  X   X   X   X    X X X       X
90009061347375GTSDAT055  $00000031988121000000F 4720C  -450C4B4B X3B0B3B1B0B0B4B X
X  X 0B 0B0B0B36B 11G 4B 124G  98G0B  75G 73F10352G4B  5B98B 2F2F2B 140G4B7B7B5B X
X 3B 1B  X  X  X  X  X  X X  X     X   X  X  X      X X X  X X X X X X X X X X X
X X X   X   X  X  X   X   X   X    X X X       X
90009061412475GTSDAT055  $00000041988121400000F 4740C  -400C7B3B X3B0B3B1B0B0B4B X
X  X 0B 0B0B0B 5B  7G 3B 120G 110G0B 102G 89F10350G4B  0B94B10F2F1B 110G3B8B8B6B0B
X 1B 1B  X  X  X  X  X  X X  X     X   X  X  X      X X X  X X X X X X X X X X X
X X X   X   X  X  X   X   X   X    X X X       X
90006328834570IE9008051IL$00000061988123112000F 4740C  -610C X X X3B0B3B1B1B0B4B X
X  X 0B 0B0B0B10B  9G 3B 102G  95G0B  90G 92F10375G X   X98B  X X X    X5B8B8B5B X
X 3B 2B30B 8B 3B  X  X  X X  X     X   X  X  X      X X X  X X X X X X X X X X X
X X X   X   X  X  X   X   X   X    X X X       X
```

How to use the ICDC?

netCDF example



chlorophyll-a concentration (mg/m3)

How to use the ICDC?

netCDF example: header

```
netcdf L3m_20110501-20110531__GLOB_25_AVW-MERMODSWF_CHL1_MO_00 {
dimensions:
     lat = 720 ;
     lon = 1440 ;
variables:
     float lat(lat) ;
          lat:long_name = "latitude" ;
          lat:units = "degrees_north" ;
     float lon(lon) ;
          lon:long_name = "longitude" ;
          lon:units = "degrees_east" ;
     float CHL1_mean(lat, lon) ;
          CHL1_mean:long_name = "Chlorophyll-a concentration. Mean of the binned pixels" ;
          CHL1_mean:_FillValue = -999.f ;
          CHL1_mean:units = "mg/m3" ;
     short CHL1_flags(lat, lon) ;
          CHL1_flags:long_name = "Chlorophyll-a concentration. Flags" ;
          CHL1_flags:_FillValue = 0s ;
     short CHL1_error(lat, lon) ;
          CHL1_error:long_name = "Chlorophyll-a concentration. Error estimation" ;
          CHL1_error:_FillValue = -32768s ;
          CHL1_error:units = "0.01%" ;

// global attributes:
          :Conventions = "CF-1.4" ;
          :title = "GlobColour monthly merged MERIS/MODIS/SeaWiFS product" ;
          :product_version = "2.1" ;
          :institution = "ACRI" ;
          :references = "http://www.globcolour.info" ;
}
```

How to use the ICDC?

netCDF example: data body

```
data:
lat = 89.875, 89.625, 89.375, 89.125, 88.875, 88.625, 88.375, 88.125,
    87.875, 87.625, 87.375, 87.125, 86.875, 86.625, 86.375, 86.125, 85.875,
    85.625, 85.375, 85.125, 84.875, 84.625, 84.375, 84.125, 83.875, 83.625,
    83.375, 83.125, 82.875, 82.625, 82.375, 82.125, 81.875, 81.625, 81.375,
    81.125, 80.875, 80.625, 80.375, 80.125, 79.875, 79.625, 79.375, 79.125,
     ...
lon = -179.875, -179.625, -179.375, -179.125, -178.875, -178.625, -178.375,
    -178.125, -177.875, -177.625, -177.375, -177.125, -176.875, -176.625,
    -176.375, -176.125, -175.875, -175.625, -175.375, -175.125, -174.875,
    -174.625, -174.375, -174.125, -173.875, -173.625, -173.375, -173.125,
    -172.875, -172.625, -172.375, -172.125, -171.875, -171.625, -171.375,
    -171.125, -170.875, -170.625, -170.375, -170.125, -169.875, -169.625,
    ...
CHL1_mean =  _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, 0.1188156, _,
    _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _,
    _, _, _, _, _, _, _, _, _, _, 0.09290412, 0.08750831, 0.07340334,
    0.07375506, 0.06540351, 0.06451838, _, 0.06928304, 0.07303791,
    0.06147115, 0.09587683, 0.08953606, 0.09024717, 0.09009086, 0.1717191,
    0.19743, 0.1933303, 0.1840222, 0.3219287, 0.3715845, 0.3347433,
    0.2823112, 0.2459948, 0.2646204, 0.2853627, 0.26911, 0.2433607, 0.225599,
    0.1699737, _, _, 0.3340223, 0.2563284, 0.2353233, 0.2488389, 0.2377462,
    0.2132049, 0.192851, 0.1744124, 0.149518, 0.1386719, 0.1360403, _, _, _,
    _, _, _, _, _, _, _, _, 0.1254896, 0.1346682, 0.1337209, 0.1449482,
    0.1484452, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _, _,
    ...
```

How to use the ICDC?

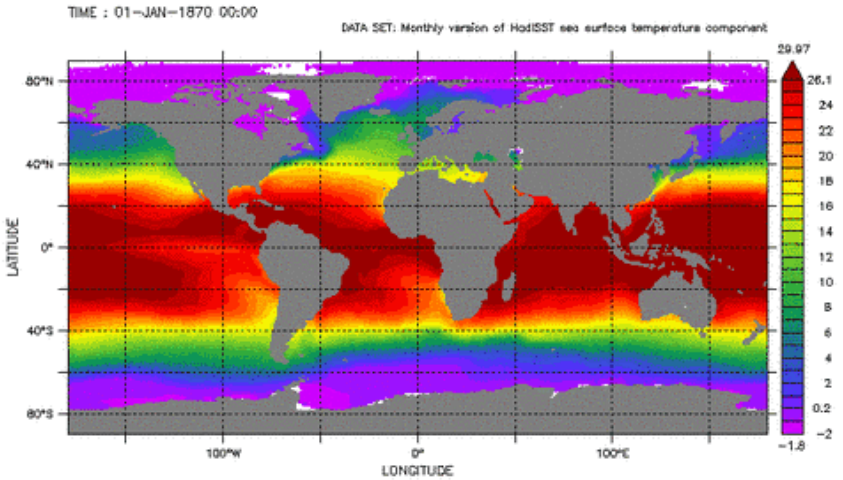
Our Tools

How to use the ICDC?

Website icdc.cen.uni-hamburg.de

Integrated Climate Data Center - ICDC

Sea surface temperature (HadISST1)



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How to use the ICDC?

Website icdc.cen.uni-hamburg.de

- **content base and entry point of our data center**

- **provides**
  - data information
  - links to data downloads, visualizations and references
  - support and tutorials

How to use the ICDC?

Tools

- **FTP Server**
  - data download

How to use the ICDC?

Tools

- **FTP Server**
  - data download
- **Live Access Server (LAS)**
  - quick visualizations: Maps, Time Series, Sections, Profiles
  - download data subsets

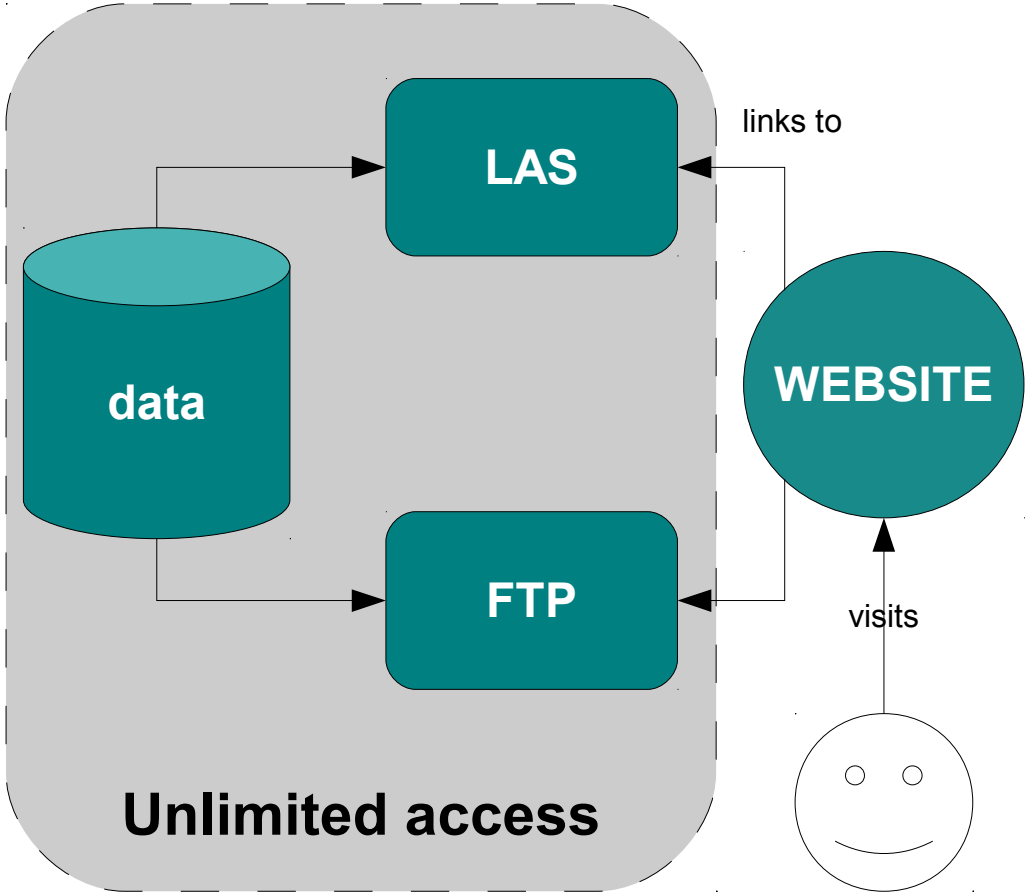
How to use the ICDC?

Tools

- **FTP Server**
  - data download
- **Live Access Server (LAS)**
  - quick visualizations: Maps, Time Series, Sections, Profiles
  - download data subsets
- **File access**
  - for CEN/MPI users via /data/icdc
  - mounted on every Linux / Unix system in CEN/MPI network
  - no need to download / copy the data

How to use the ICDC?

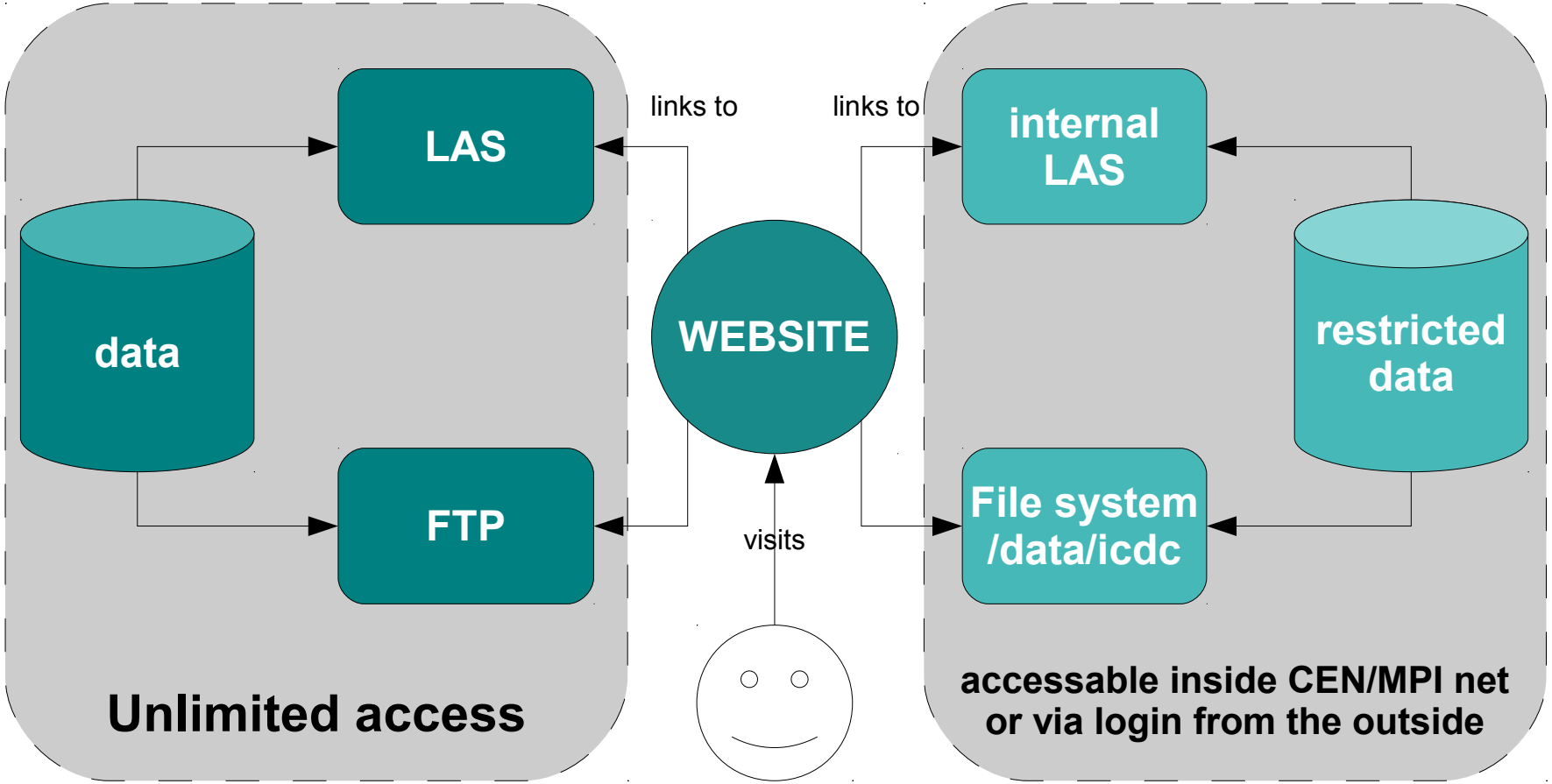
Structure: External Access



External User

How to use the ICDC?

Structure: Internal Access



How to use the ICDC?

Live Access Server (LAS)

Integrated Climate Data Center - Remon Sadikni - remon.sadikni@uni-hamburg.de

How to use the ICDC?

LAS: Features

- **provides visualizations of geo-referenced data**
  - interactive maps
  - time series
  - sections
  - profiles
  - comparisons

How to use the ICDC?

LAS: Interactive Map

Ozean Synthesen | Integrated Climate Data Cent...

Live Access Server

Integrated Climate Data Center

Link to this page | Help | ICDC Website

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

GECCO State Estimation | POTENTIAL TEMPERATURE

79.5 N

0.5 E | 0.5 W

79.5 S

MAPS

- (•) Latitude-Longitude

LINE PLOTS

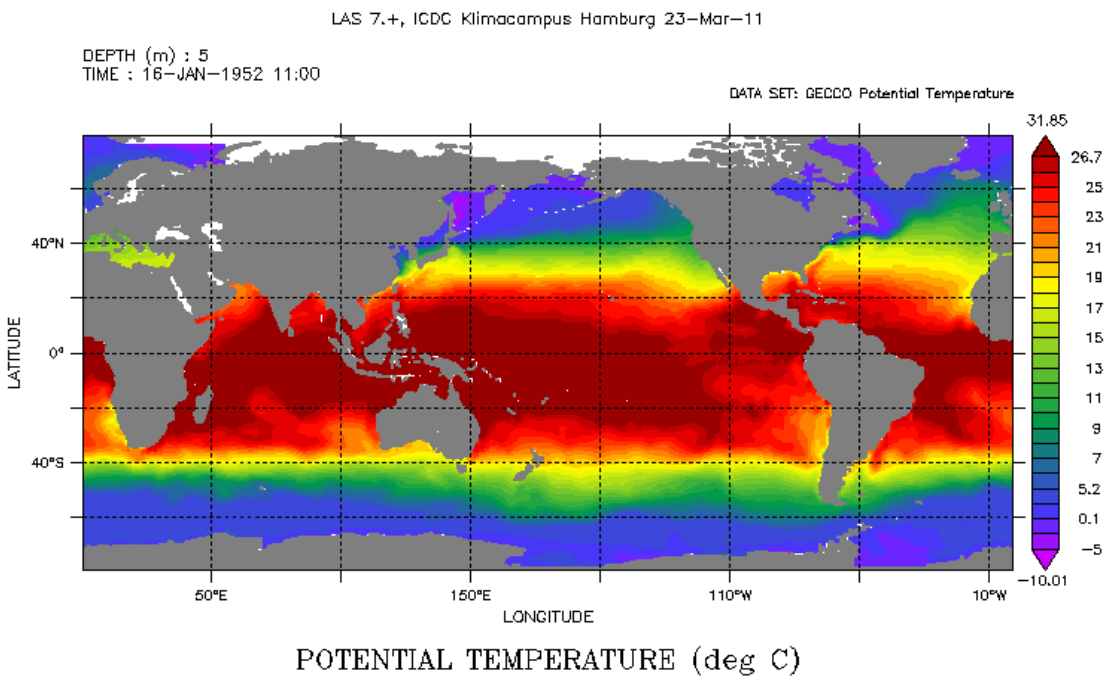
- ( ) Time series
- ( ) Depth
- ( ) Longitude
- ( ) Latitude

VERTICAL SECTION PLOTS

- ( ) Longitude-depth
- ( ) Latitude-depth

Date : Jan | 1952

Depth (meters) : 5



Done

How to use the ICDC?

LAS: Time Series

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Live Access Server

Integrated Climate Data Center

Link to this page | Help | ICDC Website

Choose dataset | Update Plot | Set plot options | Compare | Show Values | Export to Desktop Application | Save As ... | Print

GECCO State Estimation | SEA SURFACE HEIGHT

0 S

180 E | 180 E

0 S

MAPS

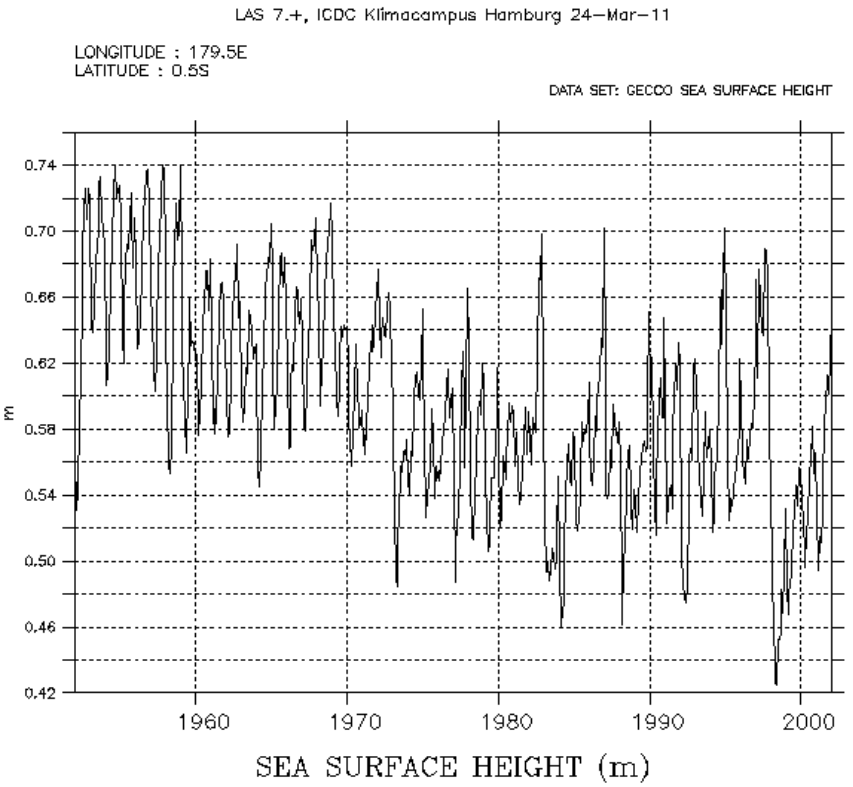
- Latitude-Longitude

LINE PLOTS

- Time series
- Longitude
- Latitude

Start Date : Jan 1952

End Date : Dec 2001



Link to this plot.

Done

How to use the ICDC?

LAS: Section

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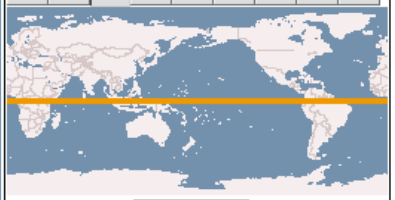
Integrated Climate Data Center

Link to this page | Help | ICDC Website

Choose dataset | Update Plot | Set plot options | Compare | Show Values | Export to Desktop Application | Save As ... | Print

GECCO State Estimation | SALINITY



0 S

0.5 E | 0.5 W

0 S

MAPS

- Latitude-Longitude

LINE PLOTS

- Time series
- Depth
- Longitude
- Latitude

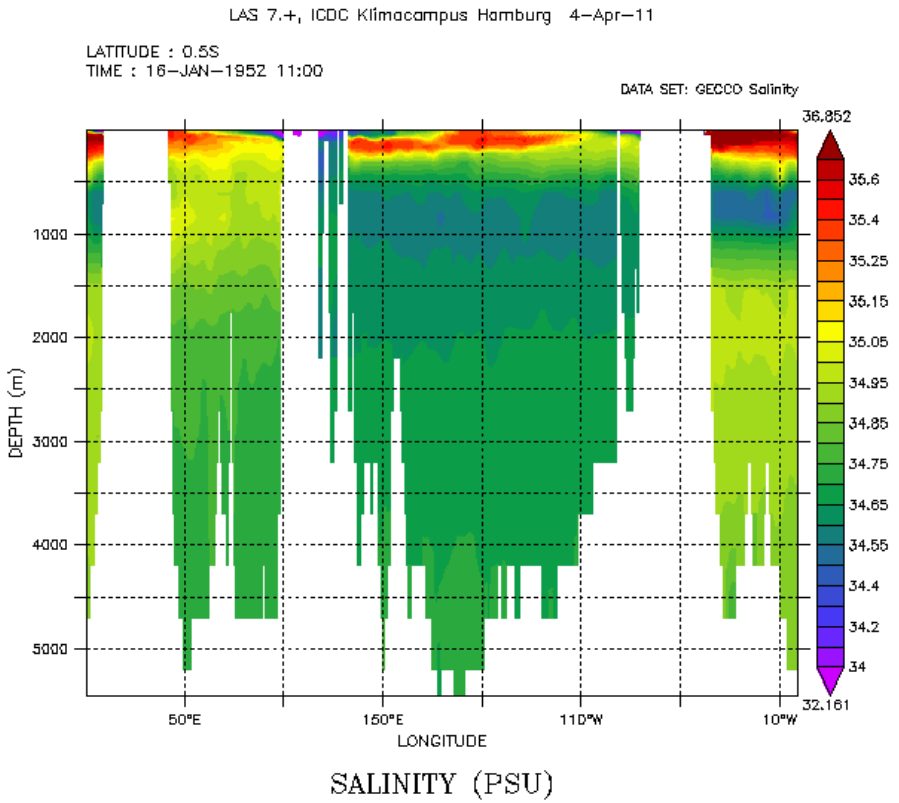
VERTICAL SECTION PLOTS

- Longitude-depth
- Latitude-depth

Date : Jan | 1952

Minimum Depth (meters) : 5

Maximum Depth (meters) : 5450



Link to this plot.

Done

How to use the ICDC?

LAS: Profile

The Matlab-Structs Comman... | Integrated Climate Data Cent...

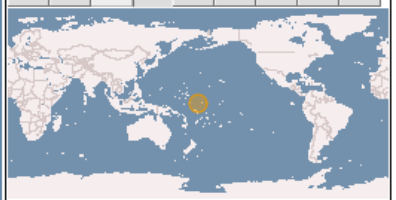
Live Access Server

Integrated Climate Data Center

Link to this page | Help | ICDC Website

Choose dataset | Update Plot | Set plot options | Compare | Show Values | Export to Desktop Application | Save As ... | Print

GECCO State Estimation | POTENTIAL TEMPERATURE



0 S

180 E | 180 E

0 S

MAPS

- Latitude-Longitude

LINE PLOTS

- Time series
- Depth
- Longitude
- Latitude

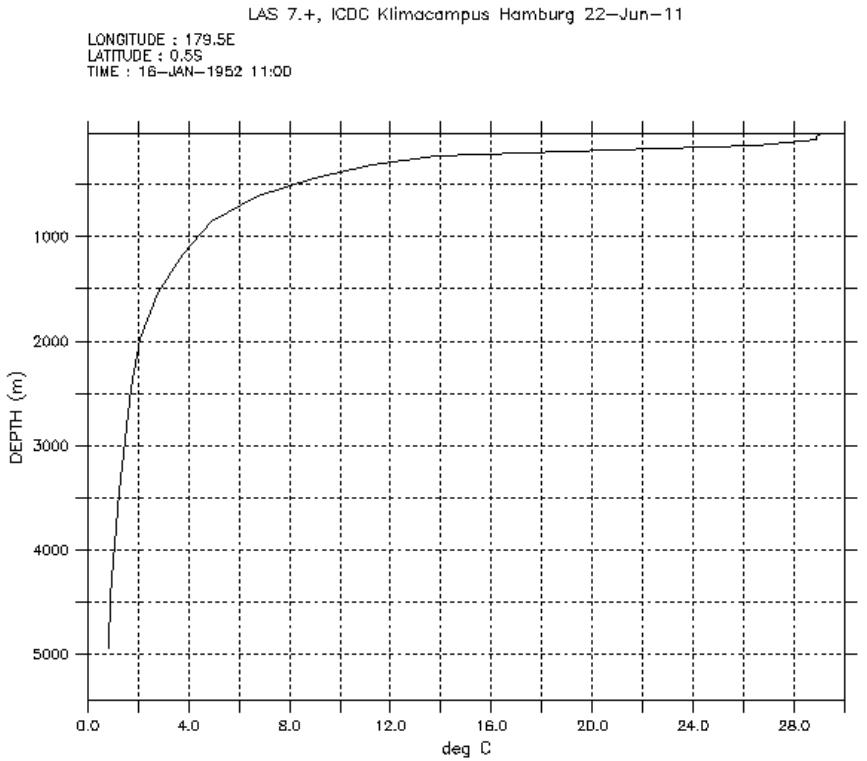
VERTICAL SECTION PLOTS

- Longitude-depth
- Latitude-depth

Date : Jan | 1952

Minimum Depth (meters) : 5

Maximum Depth (meters) : 5450



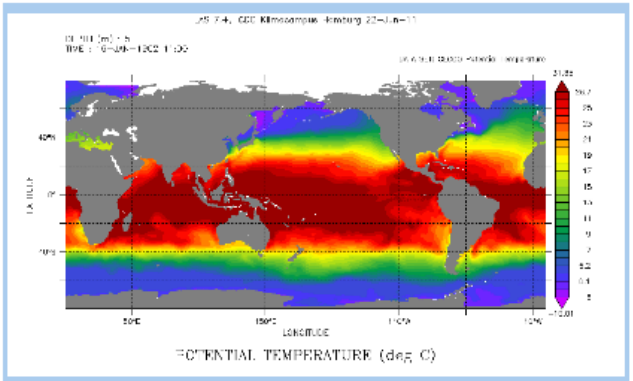
Link to this plot.

How to use the ICDC?

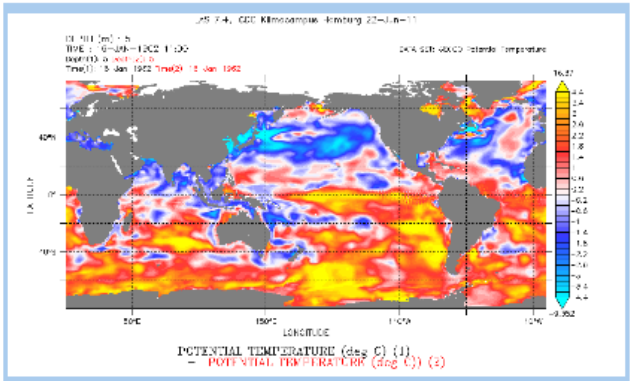
LAS: Comparisons

Integrated Climate Data Cent... | LAS vizGal

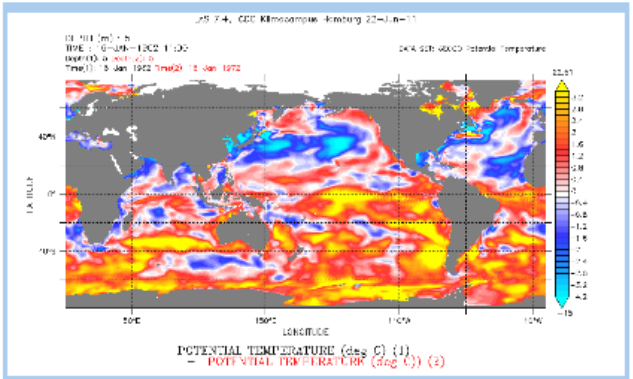
Difference Mode | Select Axis to Vary in Panels | Z (meters): 5 | Start date: 1952 Jan | Auto Set Color Fill Levels for Gallery | Image zoom: 40%



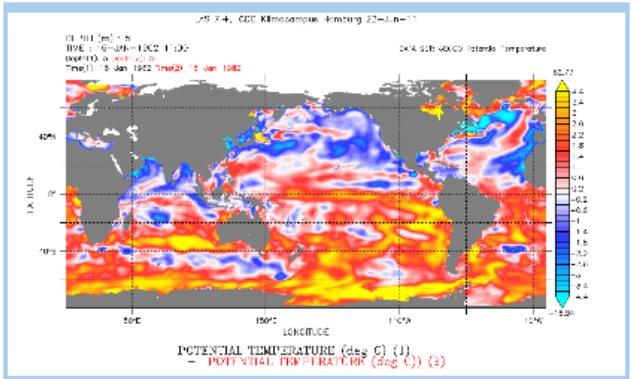
Start date: 1952 Jan



Start date: 1962 Jan



Start date: 1972 Jan



Start date: 1982 Jan

How to use the ICDC?

LAS: Features

- **provides visualizations of geo-referenced data**
  - interactive maps
  - time series
  - sections
  - profiles
  - comparisons

- **data downloads**
  - ASCII
  - netCDF
  - Google Earth

How to use the ICDC?

Practical Session

Integrated Climate Data Center - Remon Sadikni - remon.sadikni@uni-hamburg.de

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette
    - Save the image to your computer

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette
    - Save the image to your computer
    - Zoom into the North Atlantic

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette
    - Save the image to your computer
    - Zoom into the North Atlantic
    - Show values of this region

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette
    - Save the image to your computer
    - Zoom into the North Atlantic
    - Show values of this region
  - produce a time series plot at 36°N, 45°W from 1982-2012

How to use the ICDC?

Practical Session

- Find the HadISST Sea Surface Temperature data set on our website
  - read the information on the webpage

- Visualize it via LAS
  - produce a map of April 2012
    - Change the Color Palette
    - Save the image to your computer
    - Zoom into the North Atlantic
    - Show values of this region
  - produce a time series plot at 36°N, 45°W from 1982-2012
  - Save the values as netCDF

How to use the ICDC?

Practical Session

- Open a Terminal Console
- Look for the HadISST files data set in **/data/icdc**

How to use the ICDC?

Practical Session

- Open a Terminal Console
- Look for the HadISST files data set in **/data/icdc**
- We will produce together a map plot with the Tool **ferret**

How to use the ICDC?

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- Open a Terminal Console
- Look for the HadISST files data set in **/data/icdc**
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```
> ferret
    NOAA/PMEL TMAP
    FERRET v6.71
yes?
```

How to use the ICDC?

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- We will produce together a map plot with the Tool **ferret**

```
> ferret
    NOAA/PMEL TMAP
    FERRET v6.71
yes? use HadISST_sst.nc
```

How to use the ICDC?

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- We will produce together a map plot with the Tool **ferret**

```
> ferret
    NOAA/PMEL TMAP
    FERRET v6.71
yes? use HadISST_sst.nc
yes? show data
     currently SET data sets:
    1> ./HadISST_sst.nc  (default)
 name     title                                I          J          K          L
 SST      Monthly 1 degree resolution SST  1:360      1:180      ...      1:1708
```

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 name     title                                I          J          K          L
 SST      Monthly 1 degree resolution SST  1:360      1:180      ...      1:1708

yes? shade/l=1708 sst
```

How to use the ICDC?

Practical Session