

Tutorial 1

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Teaching Assistants for the course

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Introduction and Scope

Intro

Aim : Do not dress up your data, make it comprehensible

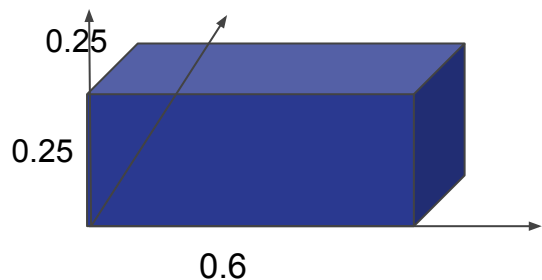
Remember : For their brain, not their eyes

Worth a watch : [David McCandless: The beauty of data visualization](#)

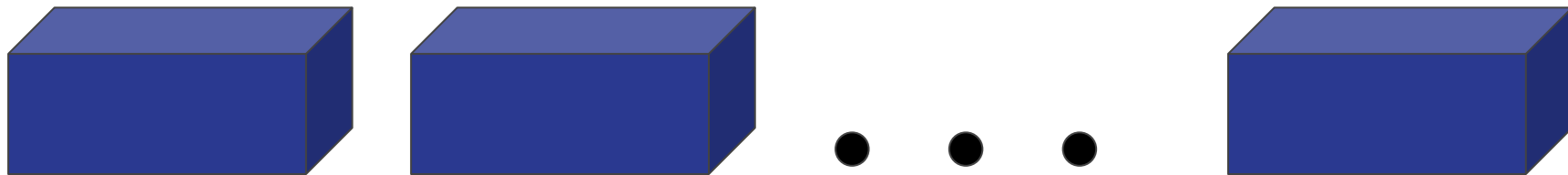
Applications

1. Presentation pitches/Research Papers
2. Data journalism
3. VIS datathons, challenges
4. Jobs : Tableau, Apple, PNNL, Novartis
5. Research : Jeffrey Heer, Jessica Hullman, Maneesh Agrawala

Dataset



1. Divided into small cubes of spacing 0.001 resulting in a mesh (600, 248, 248)
2. 200 timesteps



3. The X indices value changes most rapidly, then Y, then Z

(0, 0, 0), (1, 0, 0)....(599, 0, 0), (0, 1, 0), (1, 1, 0), (2, 1, 0)....(599, 1, 0), (0, 2, 0)....
(599, 247, 0), (0, 0, 1), (1, 0, 1)....(599, 0, 1), (0, 1, 1), (1, 1, 1), (2, 1, 1)....(599, 247, 247)

Note : You're supposed to work with only one plane across time slices.

4. Fields

Scalar - 10 space separated values

Vector - 3 space separated values

Data Download and Reading

Download

Refer to Data Download Page :

<http://sciviscontest.ieeevis.org/2008/download.html>

- `wget -r -nH --no-parent --cut-dirs=2`
https://cloud.sdsc.edu/v1/AUTH_sciviscontest/2008/data_files/multifield.XX.XX.txt

Reading

Make your own python parser or use their C parser :

https://cloud.sdsc.edu/v1/AUTH_sciviscontest/2008/Data/density_to_vtk.c

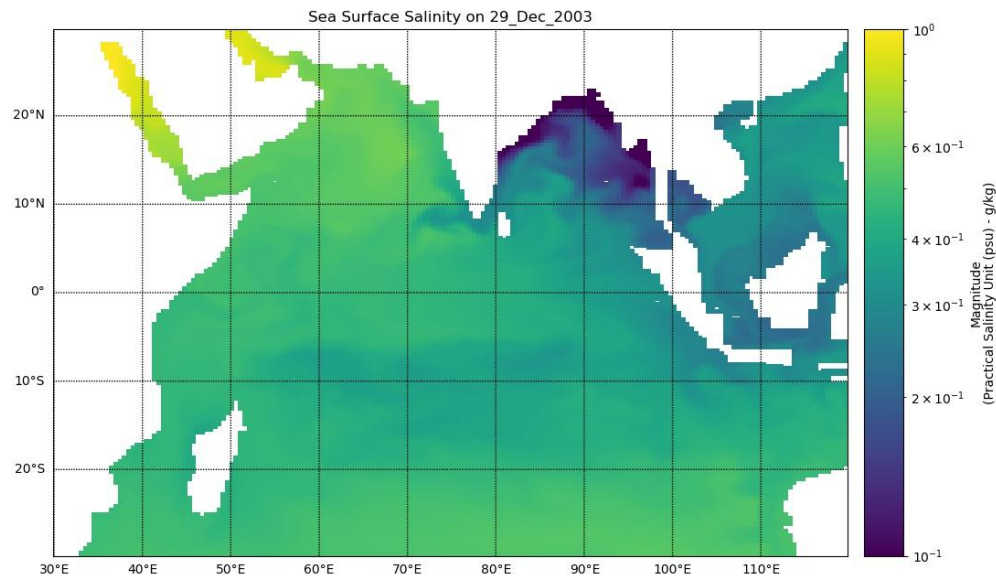
Libraries to use

Your assignment won't require more than:

1. Numpy
2. Pandas
3. Matplotlib
 - a. Color Mapping - pcolor, pcolormesh
 - b. Contour Mapping - contourf
 - c. Quiver/Arrow - quiver

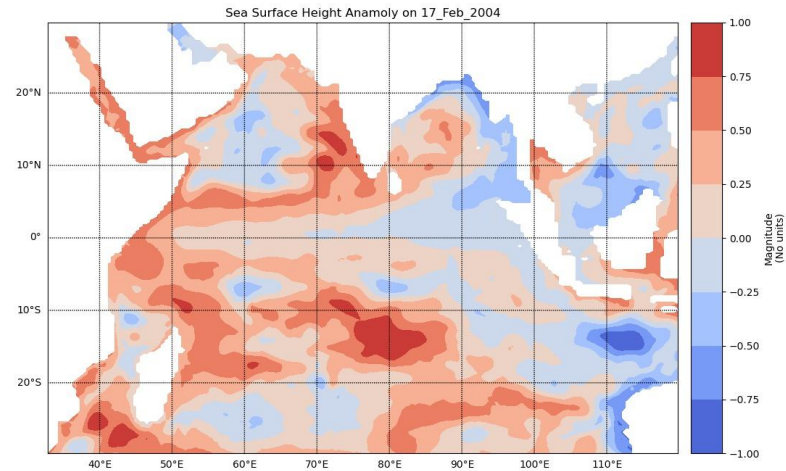
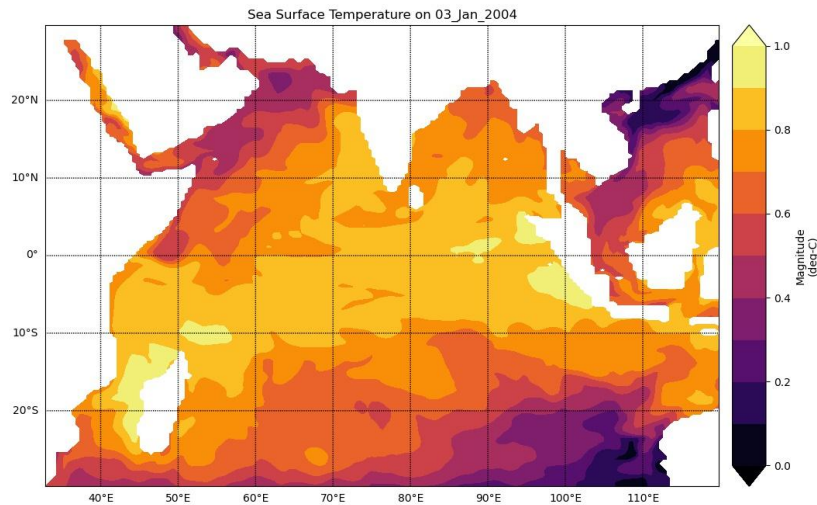
Sample Visualizations

Color Mapping



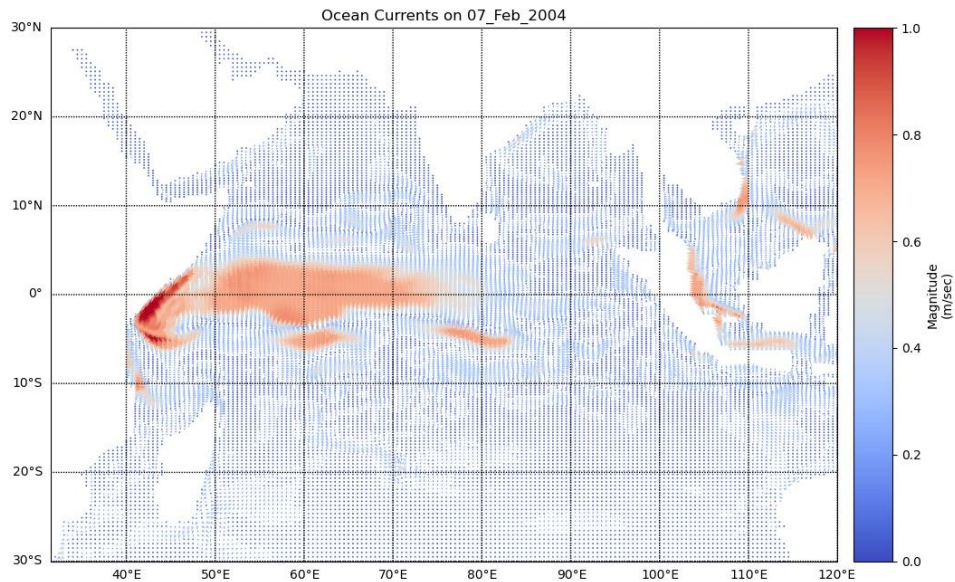
Sample Visualizations

Contour Mapping



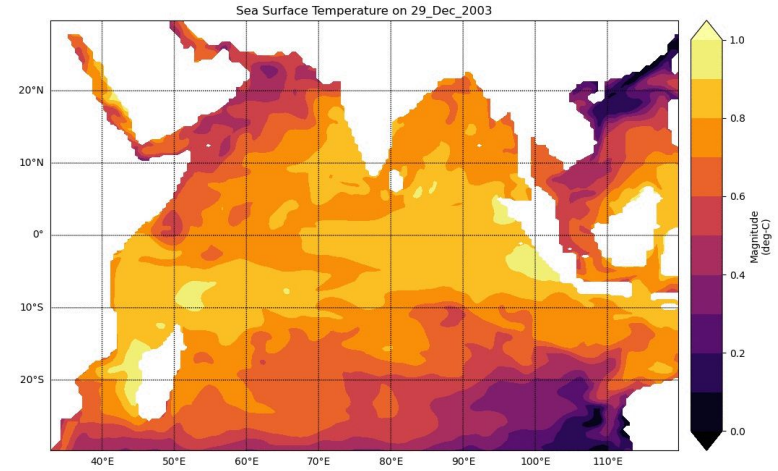
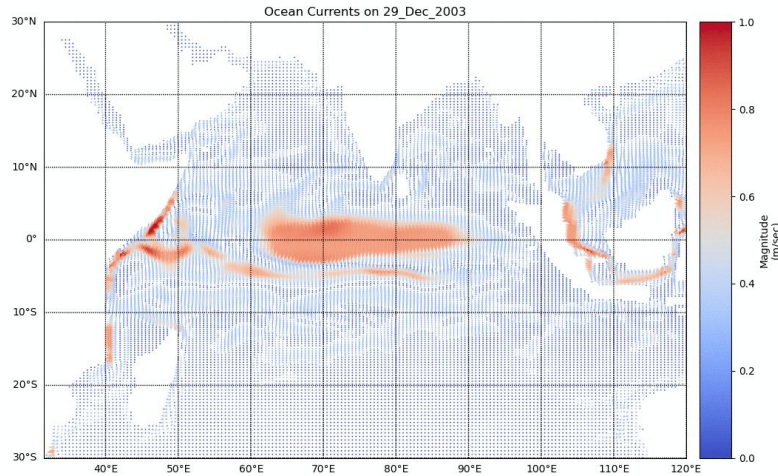
Sample Visualizations

Quiver Plots



Sample Visualizations

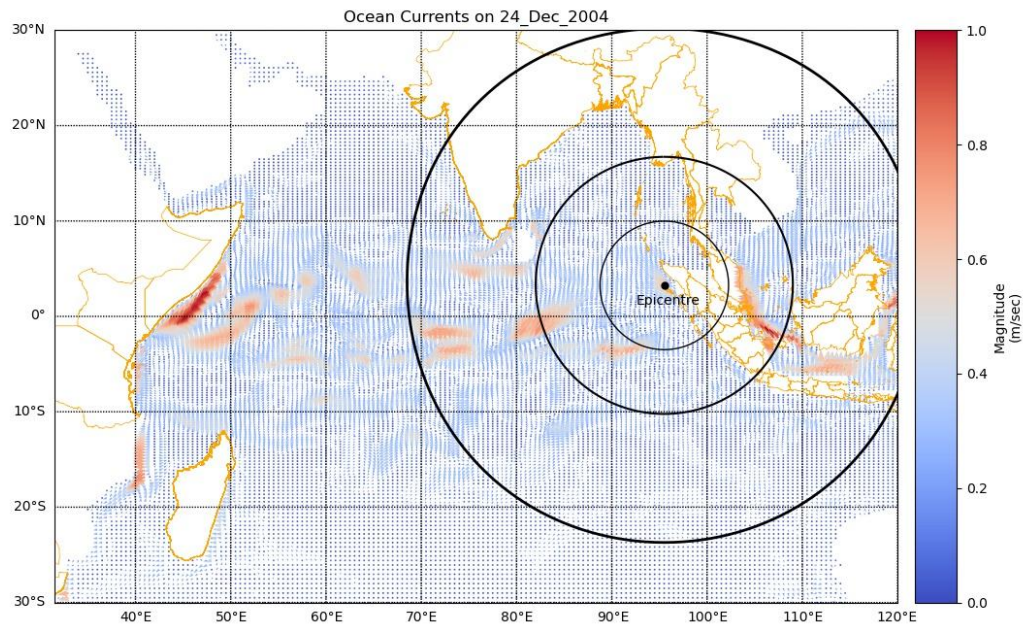
Animations



PIL library, Online gif generators

Sample Visualizations

Domain Study



Grading Scheme

- 15 marks for code + demo
 - 5 marks code overview
 - 5 marks for how the outputs look
 - 5 marks for video showing output generation and key code points elaboration
- 15 marks for report
 - 5 for methodology overview
 - 10 for the task answers and description

Total : 30 marks