## Hands On

# Working with sea level and NGDC data

#### Ocean Teacher Global Academy (OTGA)

Training Course on Geospatial Techniques for Coastal Mapping and Monitoring (using QGIS) 26 – 30 November, 2018

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DE International Oceanographic Data and Information Exchange



**ITCOocean** 



### Overview

- Plotting sea level data
- Visualising sea level tide gauge stations in QGIS
- Plotting sea level data in QGIS
- •Working with NCEI(NGDC) historical tsunami data

Data credits

www.naturalearthdata.com https://www.ngdc.noaa.gov/hazard/tsu\_db.shtml https://www.gloss-sealevel.org/data

#### Plotting sea level data

• Go to Exercise folder and open paradip\_annual\_sea\_level.csv & vskp\_annual\_sea\_level.csv in MS-EXCEL

•Select year and sea level columns  $\rightarrow$  Go to Insert menu and create scatter plot with trend line and equation

•Save plots as image files





#### Visualising sea level tide gauge station locations

• Go to Layer  $\rightarrow$  Add Layer  $\rightarrow$  Add Delimited Text layer  $\sim$ 

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• Browse to Exercise folder and Select the below vector layers and add them to canvas

paradip\_annual\_sea\_level.csv vskp\_annual\_sea\_level.csv INDIA.shp

- Label each feature by Right click on Layer  $\rightarrow$  Properties  $\rightarrow$ Single Labels  $\rightarrow$  Label with Station Name  $\rightarrow$  OK
- Open attribute table of added layers and check the sea level and year columns representing annual sea level data.



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• Go to Plugins menu  $\rightarrow$  DataPlotly  $\rightarrow$  click on **Dataplotly** 



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• Check the sea level plot created on the Plot Canvas



• Let us add another sea level plot to the canvas

• Go

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• Check the sea level plots created on the Plot Canvas



•Copied HTML code and plot images saved in EXCEL will be used to visualise Plots while composing sea level maps.



#### Working with NCEI(NGDC) historical tsunami data

• Go to Layer  $\rightarrow$  Add Layer  $\rightarrow$  Add Raster layer



- 🔇 \*Untitled Project QGIS Project Edit Layer Settings Plugins View Raster Database SCP Help Vector Weh Processing Data Source Manage Ctrl+L Create Layer Add Layer Add Vector Layer. Ctrl+Shift+V Embed Layers and Groups.. Add Raster Laver.. Ctrl+Shift+R
- Browse to Exercise folder and Select the Natural\_earth.tif

• Go to Layer  $\rightarrow$  Add Layer  $\rightarrow$  Add Delimited Text layer  $|_{2}$ 



• Browse to Exercise folder and Select the Historical\_Tsunami\_Events.csv

#### Working with NCEI(NGDC) historical tsunami data



• Let us categorise the symbols using Primary Magnitude field

#### Working with NCEI(NGDC) historical tsunami data

• Double-click the **Historical\_tsunami\_Events** layer  $\rightarrow$  Go to Symbology







#### Compose map of historical tsunamis using QGIS print layout