A short introduction to scientific programming and PYTHON

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Syllabus and Agenda

Course will be on Ocean Campus at NMU (Weaver Inn Cafeteria).
Morning courses : 09H00 to 12H00
Afternoon courses : 13H00 to 15H00

- Day 1 : Basics
  - Python 3, packages and the jupyter notebook environment
  - List and Numpy arrays
  - Loops and functions
  - Efficient programming
  - Simple plots
- Day 2 : Read and write some data
  - text files - example with TSG or CTD or NMEA files
  - netcdf files
  - julian and gregorian dates
  - Handle time axis on plots
- Day 3 : Some more elaborate plots :
  - maps
  - double axes plots
  - example of basic data analyses

Prerequisites

- A laptop with a recent version of Linux, Windows or OSX
- A working WiFi connection to EDUROAM or the university network
- PYTHON 3 installed on your computer with the following packages : *numpy*, *scipy*, *matplotlib*, *cartopy*, *netCDF4*, *gsw*, *panda*, *jupyter*

How to install Python ?

I highly recommend users to install Python through Anaconda. Linux users could use lighter version that uses less memory just installing the miniconda package. Conda makes it easy to manage and install packages. In case, you need help yto install pythoin on your computer, please come and see Sarah or Steven before the class starts.

Installing python with WINDOWS as Operating System

https://docs.anaconda.com/anaconda/install/windows/

Installing Python on Windows

To avoid many trouble shootings, we recommend you to install and use the Anaconda environment :
https://docs.anaconda.com/anaconda/install/windows/
Please, follow all steps carefully, especially step 6. Step 12 is optional, you can skip it. Make sure, you install Python just for you and not for all users of your computer, as you may not have the administrative privileges.

Installing python with WINDOWS as Operating System

https://docs.anaconda.com/anaconda/install/windows/

Complete your installation by adding packages

To install the packages “netCDF4”, “cartopy” and “gsw”, select “Anaconda Prompt” from your windows Start menu. In the prompt, run the following lines :

- conda install netCDF4
- conda install cartopy
- conda install -c conda-forge gsw

Help Desk

Contacts

You are welcome to send your questions to Sarah or Steven, before, during and after the course starts. If you would like any particular aspect to be covered during the course, please contact us :

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