**Scripts for Mass Inversion – by ALESSANDRO TADINI**

* Check whether all the python and .sh files are into the working directory
* In the “parameters\_range\_inversion.py” you have to set the ranges of the parameters to invert
* In the “sample\_locations” and “mass\_loadings” files you have to insert the coordinates (in decimal degrees) of the sampling locations and the values (in kg/m2) of the mass loadings at each location, respectively.
* In the “input\_file\_template\_inversion.py” you can edit the fixed parameters.
* The executable is the “run\_inversion.sh”:
  + It checks the number of iterations and if it has to do inversion with respect to Mass Flow Rate or with respect to Plume Height (given into the parameters\_range\_inversion.py with the “flag\_plumeheight”)
  + It creates a new input\_file choosing between “input\_file\_generator\_1.py” (Mass Flow Rate) or “input\_file\_generator\_2.py” (Plume Height)
  + It runs PLUME-MoM+HYSPLIT (lines 10-86)
  + It calculates the chi squares (“python chi\_square.py” at line 87)
  + It writes the output\_inversion.txt file inserting either the Mass Flow Rate (“python create\_output\_1.py” at line 88) or the Plume Height (“python create\_output\_2.py” at line 88)
  + It cleans all the unnecessary files (“python clean\_all\_inversion.py” at line 91)