An Air Quality Forecasting tool over Italy

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The WRF-CHIMERE-AODEM regional modelling system is implemented over Italy.

WRF (Wheather Research and Forecast system, Shamarock et al., (2008)) meteorological model is run on three nested domains covering Europe and Italy at respectively 54, 18, km horizontal resolution.

The chemistry transport model CHIMERE (Bessagnet et al., 2008) is used to simulate gas and aerosol composition on the two domains at 0.54°, and 0.18° horizontal resolution. Anthropogenic hourly emissions of primary pollutants over Italy are derived from the CTN-ACE inventory developed by national environmental agencies. Biogenic volatile organic compound emissions are calculated with MEGAN model driven by WRF radiation and temperature fields.

AODEM (Aerosol Optical DEpth Module, T.C. Landi 2013) is a post-processing tool conceived for chemistry-transport models. AODEM computes particle number concentrations and extinction coefficients, and Aerosol Optical Depth (AOD) for each grid-cell, species, size bin and time, under the assumption of spherical particles.
 web site: http://www.i-amica.

Description of variables shown

T2 : WRF prediction of air temperature at 2 meter above the surface.

PM10 : CHIMERE prediction of Particulate Matter concentration - with aerodynamic diameter smaller then 10 μm - at ground level
(please see http://www.epa.gov/airtrends/aqtrnd95/pm10.html)

AOD : AODEM prediction of Aerosol Optical Depth
(please see http://daac.gsfc.nasa.gov/data-holdings/PIP/aerosol_optical_thickness_or_depth.shtml