

Integration of satellite imagery and emissions data into the AIRPACT-3 regional air quality forecast system

REU Mentors: Joe Vaughan and Brian Lamb

Project Description:

Several possibilities exist for incorporating satellite imagery or satellite-derived data into AIRPACT (<http://lar.wsu.edu/airpact-3/>) for testing as operational enhancements.

OMI NO₂:

AIRPACT vs. OMI NO₂ comparisons have been made already, using offline (non-automated) approaches. Creating a fully automated version of this capability would be a valuable system enhancement.

MODIS aerosol:

MODIS imagery could be used to correct the PM_{2.5} aerosol initial conditions in AIRPACT used for the next day's run initial conditions.

AIRS or MOPPIT CO:

Collaborators at NCAR are running the global MOZART model, integrating satellite observations of CO from MOPPIT (<http://www.acd.ucar.edu/mopitt/>) and or AIRS on the Aqua satellite. These model results could be used for chemical boundary conditions for the AIRPACT model daily forecasts.
AIRS CO

GASP aerosol optical depth (AOD):

- a) the GASP product that is available daily on the web daily
- b) Dr. Chung has developed scripts to output AOD
- c) multiple AOD products are available at different wavelengths