WHIPS
Wisconsin Horizontal Interpolation Program for Satellites

http://www.sage.wisc.edu/download/WHIPS/WHIPS.html

WHIPS (the Wisconsin Horizontal Interpolation Program for Satellites)

36 x 36 km Lambert conic conformal   12 x 12 km Lambert conic conformal

10^{15} Molcules / cm^2
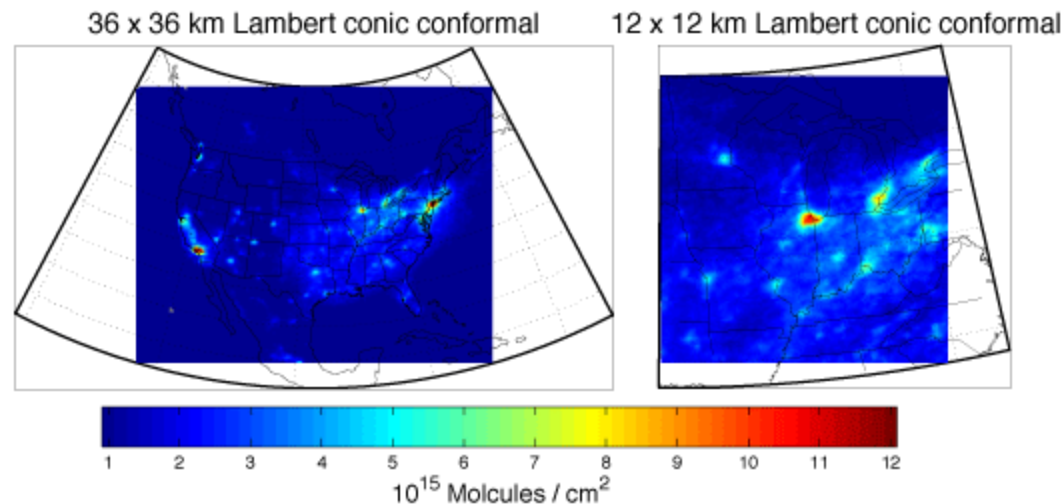
As a command-line tool usable in either Linux or Unix environments

WHIPS

Wisconsin Horizontal Interpolation Program for Satellites

Output is provided in the netCDF format.

Output is flexible in resolution and projection

Can be used to

- Validate models or compare ground based measurements against satellite measurements
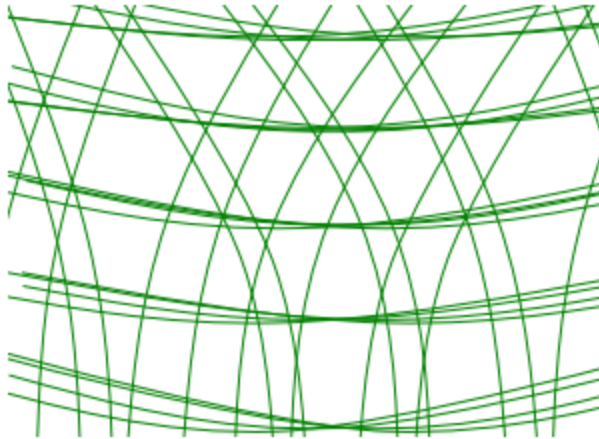
- Need to compare multiple satellites on a common grid

Currently, WHIPS can process the following data products:

- OMI NO2 (NASA retrieval)

- OMI NO2 (KNMI retrieval)
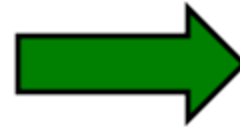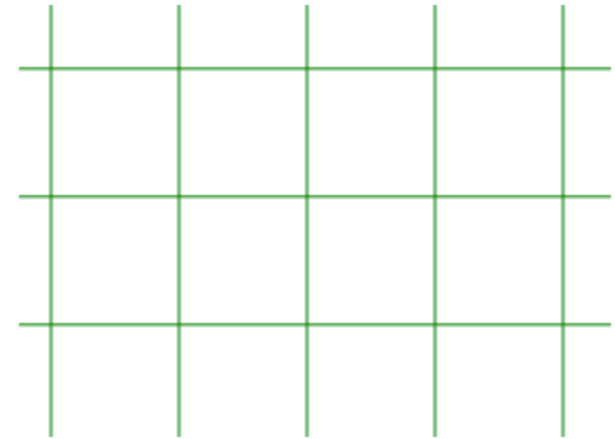
- MOPITT CO (NASA retrieval)

- MODIS AOD (NASA retrieval)

10^{15} Molecules / cm^2
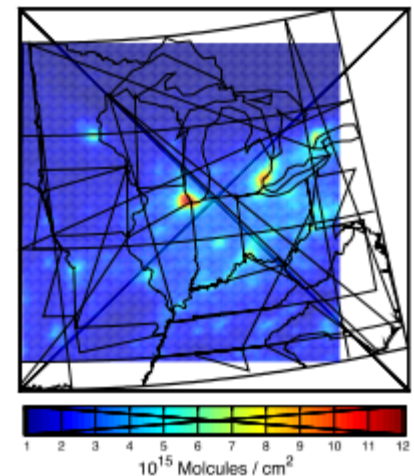
Aligning Satellite & Model Data

Satellite

Fixed grid

Allows comparison across satellites, from satellite to model, satellite to ground-based measurements, etc.

Standard grid approach

Process raw radiances into useful metrics (creates Level 2 data)

↓

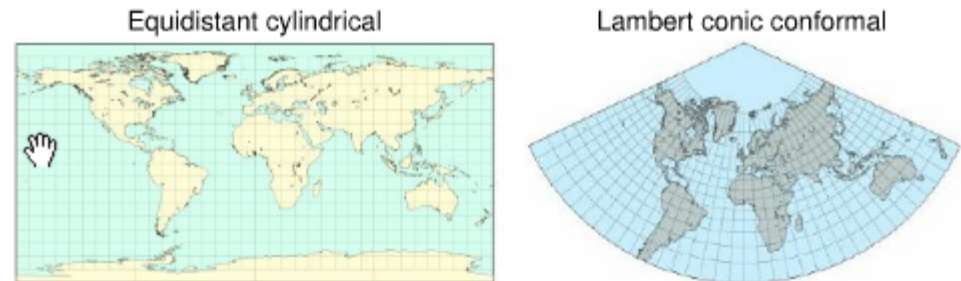Grid Level 2 data to a standardized grid (creates Level 2g or Level 3)

DATA ↓ LOSS!

Perform grid to grid interpolation to compare to model, other satellite, etc.

Step 1: Acquiring the data

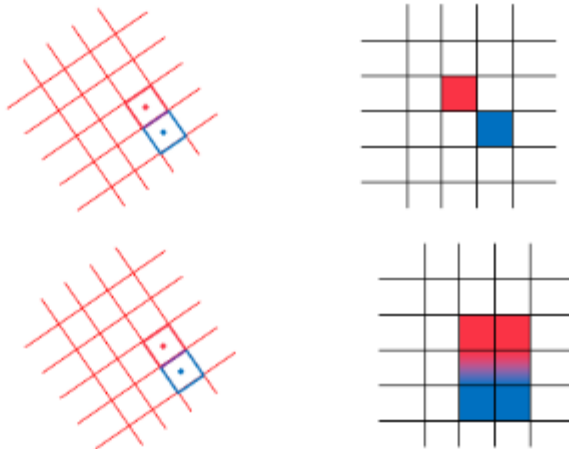- Data is available from the groups that processed it to Level 2.

Step 2: Selecting a grid

Equidistant cylindrical   Lambert conic conformal

- Select the projection and projection parameters to match the model

Step 3: Choosing an interpolation method

Method 1:
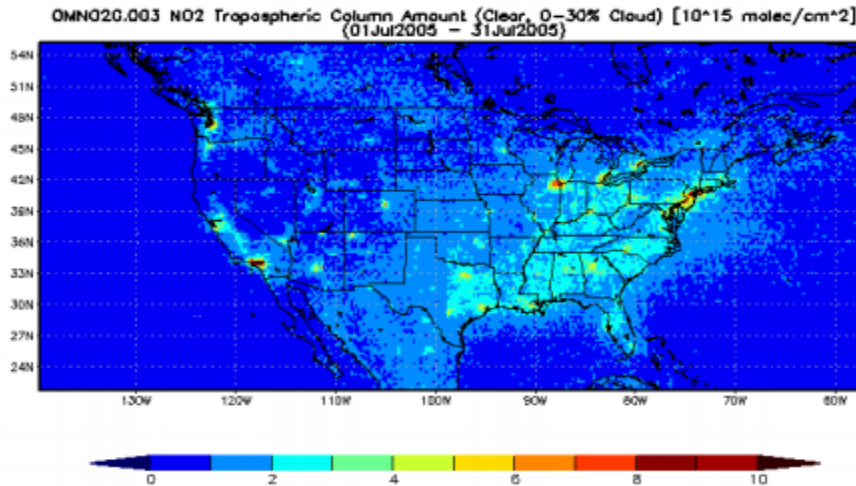nearest neighbor

Method 2:
regional intersection

Step 4: Following NASA methodology

- WHIPS uses the formulas developed by NASA for averaging pixels to create a "Level 3" product.
- WHIPS will automatically select the appropriate formula to apply for a given product.
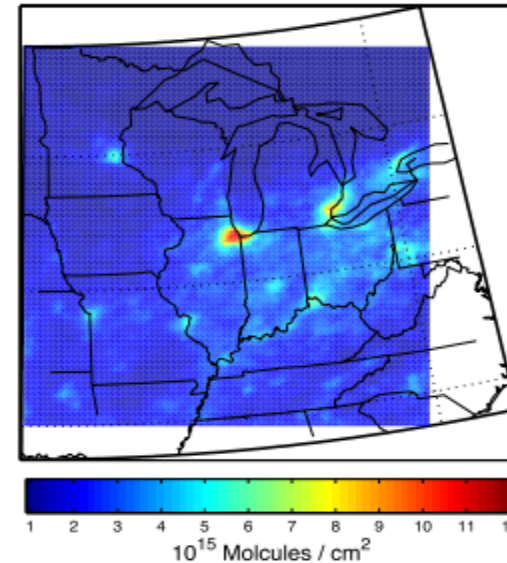
Standard Level-3 Grid

0.25° x 0.25° lat/lon grid

Only available on the single grid specified for that product.

WHIPS Output Grids

12 km x 12 km example grid

Flexible in resolution/projection; (Lambert Conic Conformal)