Questions & Answers Session 3

Please type your questions in the Question Box. We will try our best to get to all your questions. If we don't, feel free to email Pawan Gupta (pawan.gupta@nasa.gov) or Melanie Follette-Cook (melanie.cook@nasa.gov).

Question 1: The measurement of the behavior of NO2, CH4 or PM2.5 at the surface level as we correlate it with the satellite data?
Answer 1: Not sure I understand. A refinement would help.

Question 2: The TROPOMI data in molecules/m2 can be transformed to ppm?
Answer 2: Not really, but I am not sure. The data is in moles/m2. You might be able to, but further research is needed.

Question 3: Can you also show some trend analysis and how to interpret those aerosol and NO2 values and some correlations to other parameters like population growth?
Answer 3: This question is beyond the scope of the webinar, but a future webinar on this may be available.

Question 4: When I saved my maps as .png, the scale on the right shows up chopped up. Where in the code do you manage size and resolution?
Answer 4: See demo.

Question 5: Do these plots that you just produced already have any quality flags applied, to remove flagged data?
Answer 5: No, there are no quality flags applied. You can make the modifications in the code.

Question 6: What is the difference between "aerosol_index_354_388_precision" and "aerosol_index_354_388"?
Answer 6: The first is showing precision value and second is showing actual value.

Question 7: What is the difference between "aerosol_index_354_388" and "aerosol_index_340_380"?

Answer 7: This is tied in with historical records of aerosol index. 354 & 388 was adopted with OMI. Both can be compared and used. There is some difference with wavelength.

Question 8: What are the units of the values averaged for NO2 data?
Answer 8: Molecules/m2

Question 9: Why the aerosol_index_340_380 values so low i.e 1.32e-01?
Answer 9: If there are no absorbing aerosol, value is low.

Question 10: Tropospheric vertical column in which units? molec/cm^-2? Could you please remind where to look at the units?
Answer 10: Yes. Two units for vertical column. Moles/m2 and units can be looked up using Panoply.

Question 11: Extracting data in points: does this script takes consideration of pulling the centroid pixel value with 3x3 neighborhood concept?
Answer 11: Yes. First script finds nearest pixel to ground location. No interpolation of the data.

Question 12: In CSV file, why do we see months beyond 12? How do we need to understand them?
Answer 12: That was a bug in the code. Correction will be made.

Question 13: In terms of computing and memory processing what is the difference between .netcdf and hdf5 files format (which is more useful and better)?
Answer 13: I'm not sure. NetCDF4 and HDF5 are essentially same format with marginal differences. NetCDF4 is more popular and widely used.

Question 14: How can I modify the code to Map TROPOMI aerosols for a small region like a county?
Answer 14: You will have to change lat long boundary for the map. It will ask for upper lat long and lower lat long and boundaries can be changed.

Question 15: QGIS is useful for NetCDF to csv conversion?
Answer 15: It might be possible, but not sure.

Question 16: what are the units of NO2 in the csv files we output?
Answer 16: It is the same unit as in the map. Moles/m2

Question 17: Can we map on specific location?
Answer 17: Yes. See previous questions.

Question 18: Where can we change the attributes of the .png maps to handle font size, etc?
Answer 18: Towards the end of the code.

Question 19: Should the magnitude of OMI and TROPOMI no2` be comparable for a same lat-long grid?
Answer 19: Yes. You can compare them and see how well they compare based on grid and/or algorithms.

Question 20: when I tried to run TROPOMI, showed "from netCDF4 import Dataset ModuleNotFoundError: No module named 'netCDF4'" why?
Answer 20: It means that NetCDF is not installed properly.

Question 21: Could this data analysis be performed on any earth observation imaging tool product?
Answer 21: I'm not sure I understand. You can modify codes to read different datasets.