Goddard's GEOS-CF Modeling System Assesses & Forecasts Air Quality in Africa

Poor air quality (AQ) is a major and growing global public health concern. Many areas, including most African nations, have not yet established AQ monitoring networks. This paper outlines NASA resources which support AQ estimation and forecasting globally. This includes existing products as well as NASA-funded projects combining models, satellite data, and ground measurements to better estimate and forecast local AQ which will be broadly applicable and accessible.

Each day, the NASA GEOS-CF modeling system produces global one-day estimates and five-day forecasts of many atmospheric constituents relevant to AQ.

The NASA GEOS-CF modeling system – with its global coverage high spatial and temporal resolution – can be an important tool for AQ estimation and forecasting. This is especially true in areas without reliable surface monitoring.

NASA is engaged in numerous partnerships to make its AQ data more broadly accessible, including a recent agreement with Google, which is now hosting GEOS-CF products (and others) in the Google Earth Engine Platform.
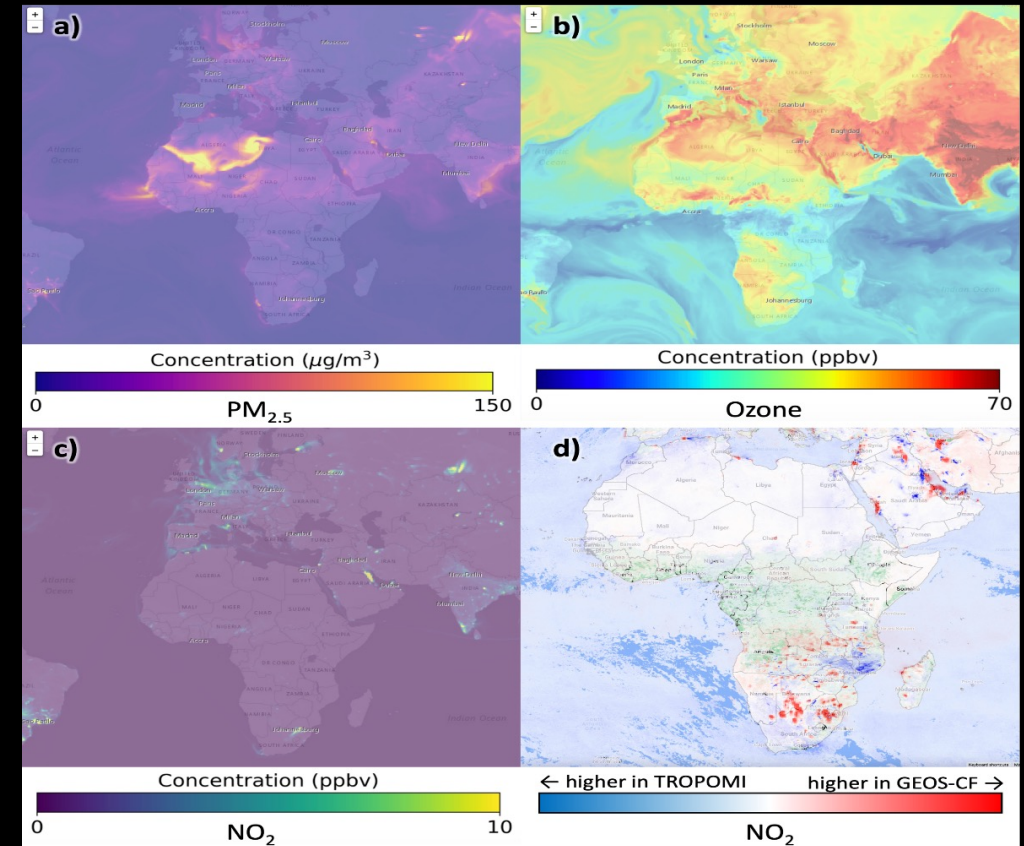
Visualizations of AQ information from the GMAO website's GEOS-CF Map Tool providing ground fine particulate matter (a), ozone (b), and nitrogen dioxide (c) forecasts, and a comparison of GEOS-CF with TROPOMI satellite data performed in GEE (d).

Paper: Forecasting with the GEOS-CF System and Other NASA Resources to Support Air Quality Management

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