NOAA Research During the COVID-19 Crisis

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Main Themes

1. **NOAA Science discoveries during the global hiatus: Observing and modeling environmental changes**

2. **NOAA Science can aid a broad community of stakeholders, including the public health community and decision makers.**

All data collections will be provided to NCEI for community access.

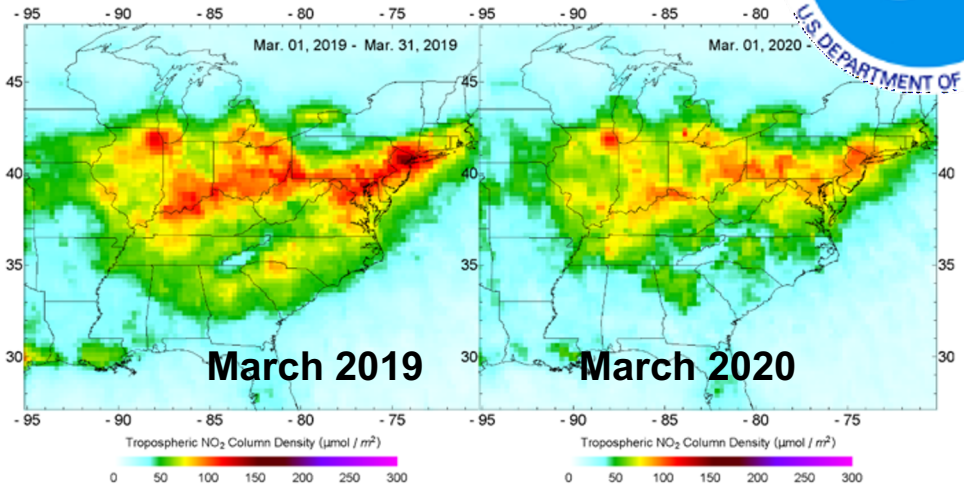
1. NOAA Science discoveries during the global hiatus

Atmospheric Impacts

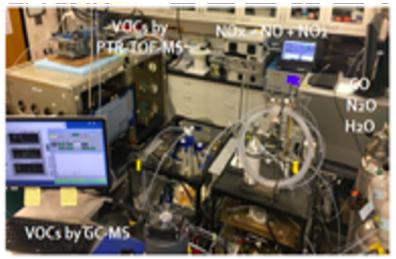
Satellites and ambient observations are observing major changes in atmospheric composition due to social disruption associated with COVID-19.

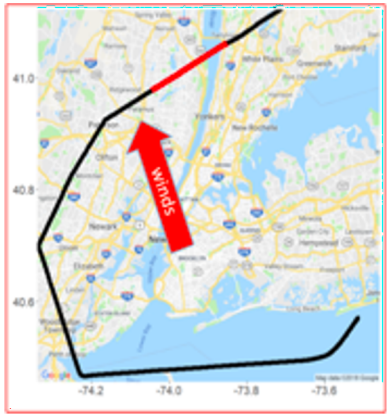
Additional ambient observations from NOAA research are underway to understand these impacts.

Information will be used to improve NOAA's weather and air quality forecasts by capturing changes from Business As Usual (BAU) conditions



NOAA satellite data showing column density of nitrogen dioxide, a precursor to ground-level smog

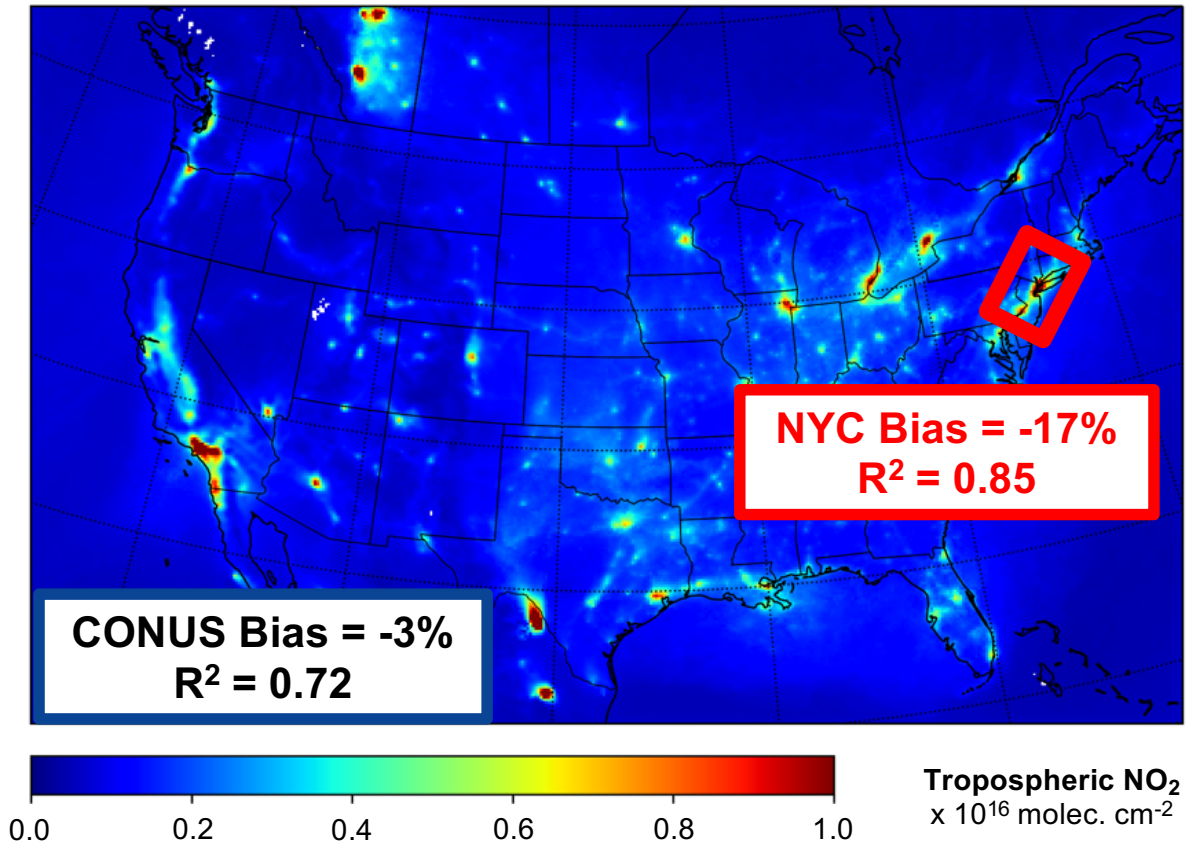




NOAA is sampling air quality on the ground and using small aircraft in cities around the nation

Satellite Evaluation of Inventories with NO_2 and Formaldehyde Retrievals

WRF-Chem (12 km x 12 km) – July, 2018



WRF-Chem Modeling w/ updated NOAA CSD emissions through 2018

Strong agreement with TROPOMI NO_2

(Li et al. in preparation for *Environ. Sci. & Technol.*)

Model Pre-COVID and continuously during COVID-19 outbreak

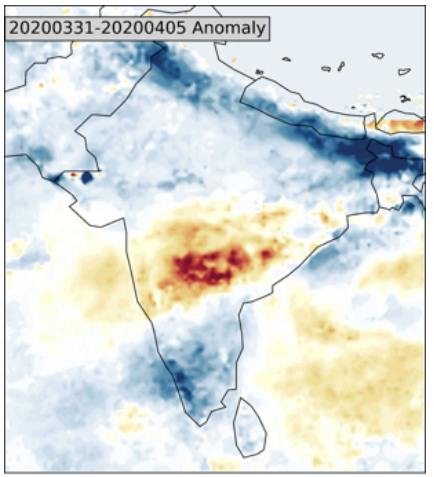
Plan including use satellite observations to validate updates to emission inventories

COVID-19 NESDIS Projects

Includes Cloud Computing to reprocess all JPSS data (SNPP & N20)

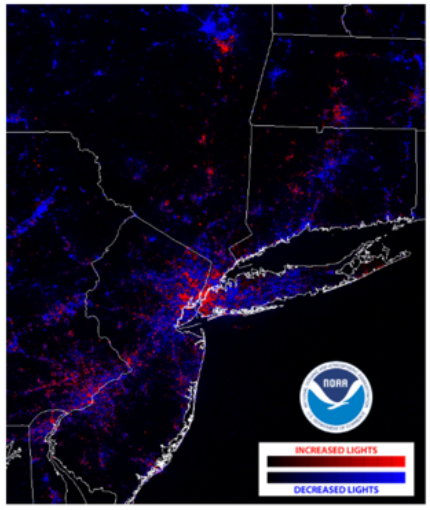
Analysis of VIIRS Aerosol Optical Depth and NO2 from TROPOMI and OMPS

STAR - Shoba Kondragunta, Istvan Lazslo



Analysis of VIIRS Night Time Lights to Monitor Social and Economic Impacts

CIRA/STAR – Steve Miller, Chris Elvidge, Don Hillger



https://www.nesdis.noaa.gov/content/suomi-npp-detects-changes-nighttime-lights-nyc-metro

Use of Synthetic Aperture Radar to Monitor Vessel Activity for Emission Inventory Calucations

STAR – Sean Helfrich

https://www.nesdis.noaa.gov/content/noaa%E2%80%99s-polar-orbiting-satellites-see-drop-us-air-pollution

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NOAA's Polar-Orbiting Satellites See Drop in U.S. Air Pollution

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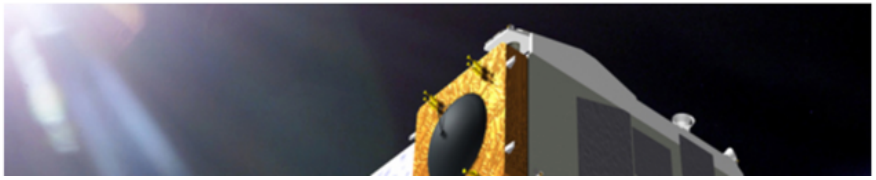
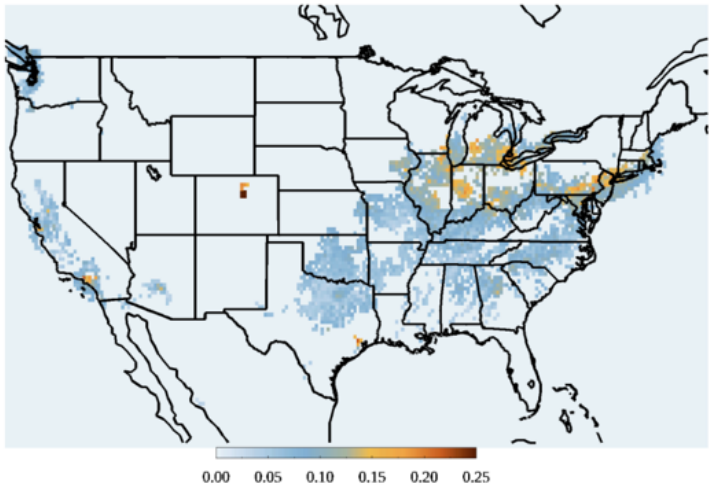
Monday, May 4, 2020

NOAA's new generation polar-orbiting satellites are seeing a dramatic reduction in the amount of air pollution in the U.S., as the COVID-19 pandemic creates an economic and societal slowdown.

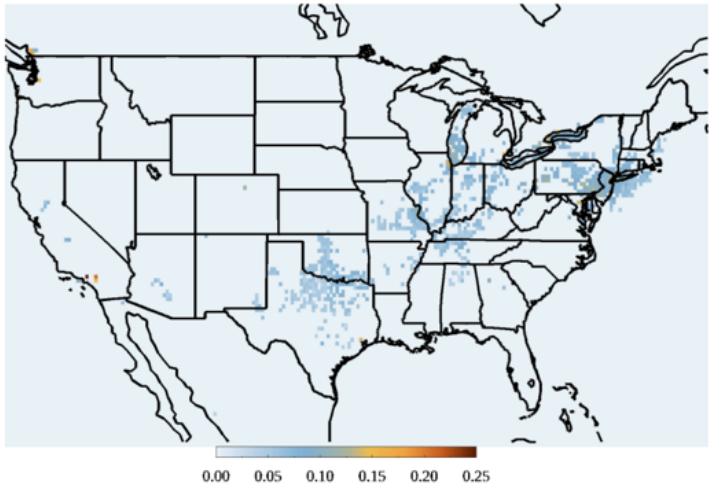


March 01-31,2019



Airborne particulate pollution as seen from the Suomi-NPP satellite in March 2019.

March 01-31,2020

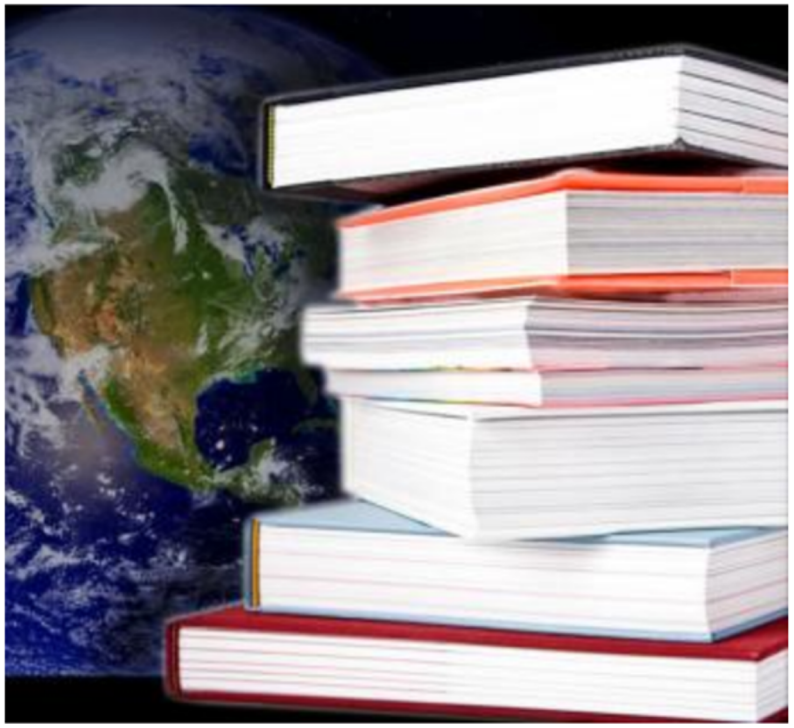


Airborne particulate pollution as seen from the Suomi-NPP satellite in March 2020.

Communication

Disseminate information to the public (e.g., NOAA's State of the Climate Report)

NOAA is coordinating with other Federal agencies to share data and leverage existing resources



NCEI publishes numerous assessments and reports each year with collaborators all over the world