

# FY21 AC4 & COM Program Information Sheet

## NOAA Climate Program Office

### Program Name

Atmospheric Chemistry, Carbon Cycle and Climate (AC4) Program

Climate Observations and Monitoring (COM) Program

### Program Missions

AC4 is a competitive research program that incorporates research on atmospheric chemistry and the carbon cycle. In collaboration with the NOAA Laboratories and the academic community, the AC4 program supports research to determine the processes governing atmospheric concentrations of trace gases and aerosols in the context of the Earth System. The program aims to contribute a process-level understanding of the Earth System through observation, modeling, analysis, and field studies to support the development and improvement of models, and to inform carbon and air pollution management efforts.

COM is a competitive research program that aims to increase the use of NOAA's observational assets, which include sustained observational networks, in-situ field studies, and satellites, through analyses and the development of value-add datasets. The program aims to provide datasets and products that support model improvements and monitoring efforts, advancing understanding of the Earth System.

### Focus for FY21

**Atmospheric impacts due to changes in anthropogenic activity during the COVID-19 pandemic**

### Funding for FY21

Proposals should budget for up to \$200K per year over 1-2 years

### Competition Information

Human activity has been profoundly altered by orders in numerous countries to shelter in place and other restrictions on business as usual. With restrictions in place for weeks or months at a time and the pace of recovery still uncertain, emissions of all trace gases and aerosols have decreased. It falls on careful curation and analysis of any existing measurements, either in situ or from satellites, to quantify the exact impact of the pandemic on atmospheric composition, including its place in a larger context of long-term trends, and its variability across the globe. The analysis of this extreme event in atmospheric composition will not only help to understand the episode itself, but could address fundamental questions in atmospheric transport and

chemistry and inform future mitigation strategies, especially as chemical regimes might be changing with drastic emissions reductions.

In response to this unique opportunity to study the atmospheric composition effects of the ongoing pandemic in FY21, AC4 and COM programs invite proposals focused on, but not limited to, one or more of the following:

- Analysis of pandemic-related impacts within individual cities or regions in the United States or impacts of changes in particular anthropogenic activity
- Comparative studies across different regions or sectors of varying characteristics
- The use of previously collected and existing in situ measurements
- Collection of complementary in situ data to fully document atmospheric changes after the pandemic
- Application of JPSS and GOES satellite products, including identification of best suite of products for assessing and monitoring impacts on national and global scales
- Development of observational-based datasets (inclusive of satellites, in-situ) or emission inventories, through compilation or integration, that enable analysis of pandemic impacts
- Identification of atmospheric constituents, which can serve as markers of particular human and/or economic activity – agriculture, shipping, air traffic etc. – as affected by the pandemic disruptions and assessment of its return to previous levels
- Assessment of the overall magnitude of the event (as measured in changes in emissions and concentrations), and its place in a long term and/or national/global context

Proposals making use of currently available or otherwise supported data through analysis and modeling are welcome. Some additional measurements can be proposed. Development of new or improvements to existing JPSS and GOES products are possible through this announcement, but those with NESDIS collaborators will be most relevant.

Proposals exploring areas outside of the United States could be considered if they employ satellite data or otherwise available data sets, and especially if they shed light on chemical regimes and emission source types using multiple species or other proxies, and draw comparisons with the United States.

**Contact:**

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**Data Archiving**

**Data Accessibility:** The AC4 Program requires that public access to grant/contract-produced data be enabled in the following way:

Funding recipients will establish their own data hosting capability (describe in proposal)

**Technical recommendations:** There is no specific technical guidance; however, proposals are to describe their proposed approach. Use of open-standard formats and methods is encouraged.

Resources: Proposals are permitted to include the costs of data sharing or archiving in their budgets.