

MEMORANDUM OF AGREEMENT
ON COOPERATION IN FORECASTING AIR QUALITY
Between
U.S. ENVIRONMENTAL PROTECTION AGENCY
And
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
U.S. DEPARTMENT OF COMMERCE

Whereas, the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) recognize the serious health, welfare, and economic impacts of environmental pollution and, in particular, the urgent problems relating to ground-level ozone, regional haze, fine particles, acid deposition, nitrogen eutrophication, toxic air contaminants, and global climate;

Whereas, the missions of both agencies include stewardship of our natural resources and protection of the health of our citizens and the fragile ecosystems in the country, which are threatened by environmental pollution;

Whereas, they are convinced of the need for enhancing the scientific and technical underpinning for environmental policies;

Whereas, both agencies can enhance research, application, and interpretation efforts by utilizing the unique meteorological and air quality modeling expertise of each other in assessing the adverse effects of emissions on air quality, ecosystems, and public health, and in evaluating the efficacy of emission control strategies;

Whereas, the Administrators of EPA and NOAA believe a formal memorandum will provide the structure and basis for implementing/expanding the existing joint research, development, and application activities in the environmental field;

Whereas, they agree this common problem continues to require mutual collaboration; therefore, to facilitate the above goals, EPA and NOAA agree to the following:

I. PARTIES

This document constitutes an agreement between EPA and NOAA, U.S. Department of Commerce, to facilitate the routine preparation and dissemination of air quality forecasts.

II. AUTHORITIES

NOAA, through the National Weather Service, provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy as described in 15 U.S.C. § 313. NOAA data and products can be used by other governmental agencies, the private sector, the public, and the global community. NOAA, through the Office of Oceanic and Atmospheric Research (OAR) and the National Environmental Satellite Data and Information Service (NESDIS), provides scientific expertise in the areas of

numerical modeling of atmospheric dynamics, atmospheric chemistry, emissions modeling, and satellite observations for forecast applications to improve environmental forecast capabilities on daily to seasonal timescales, and to provide fate and transport analysis and forecasts for atmospheric pollutants through dispersion forecast and analysis models. NOAA/OAR and NOAA/NESDIS derive their authority from 33 U.S.C. § 883(d), which authorizes the Secretary of Commerce to undertake investigations and research into the geophysical sciences, and 33 U.S.C. § 883(e), which authorizes the Department of Commerce to enter into cooperative agreements, or any other agreements, with, and to receive and expend funds made available by, any state or subdivision thereof, any Federal agency, or any public or private organization, or individual, for surveys or investigations authorized by 33 U.S.C. § 883(d), and which authorizes the preparation and publication of the results thereof.

EPA, through the Office of Research and Development, Center for Environmental Measurement and Modeling, provides scientific expertise in the areas of numerical and physical modeling of the transport, transformation, deposition, and fate of atmospheric pollutants, to inform the development, application, and interpretation of air quality models. EPA, through the Office of Air Quality Planning and Standards, Office of Air and Radiation, utilizes this research to conduct air quality analysis, perform pollution prevention and modeling studies, develop pollution reduction strategies, and conduct other activities needed to implement the requirements of the Clean Air Act (CAA) and other environmental legislation. CAA sections relevant to a cooperative effort with NOAA include National Ambient Air Quality Standards (Section 109, codified at 42 U.S.C. § 7409), state implementation plans and interstate ozone transport (Section 110, codified at 42 U.S.C. § 7410), international and border area air pollution issues (Sections 115 and 179B, codified at 42 U.S.C. §§ 7415 and 7509a), air quality monitoring (Section 319, codified at 42 U.S.C. § 7619), and standardized air quality modeling (Section 320, codified at 42 U.S.C. § 7620).

This agreement is also proper pursuant to §§ 109, 110, 115, 179B, 319 and 320 of the CAA, codified at 42 U.S.C. §§ 7409, 7410, 7415, 7509a, 7619, and 7620, respectively.

III. PURPOSE

EPA and NOAA have cooperated over 60 years in conducting research programs related to the coupling of air chemistry and meteorology to develop and utilize scientifically credible air quality models. These models are employed by EPA, state and local agencies, and the general air pollution community in developing and implementing environmental policy and regulations, and in disseminating information on air quality and its potential health effects to the public.

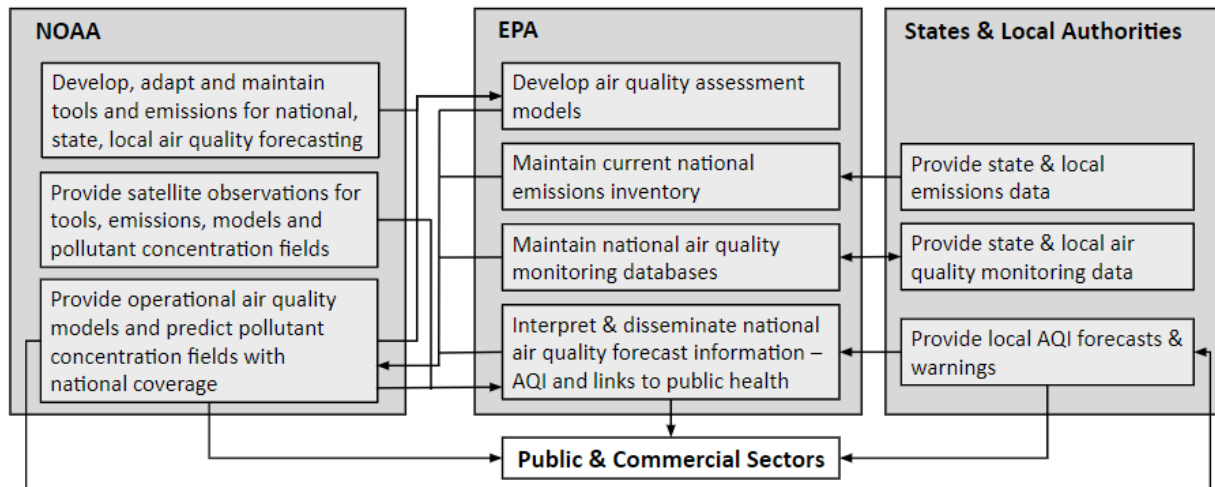
In light of the above, it is the purpose of this Memorandum of Agreement (MOA) to formalize and reaffirm the ongoing collaboration between EPA and NOAA with regard to the forecasting of air quality and related health effects.

IV. PARTNERSHIPS IN AIR QUALITY FORECASTING

The partnership between EPA and NOAA is diagrammed below. The diagram illustrates that neither agency alone has the capability to provide the Nation with air quality forecasts without replicating capabilities already resident in the other agency. In this regard, the parties agree to

joint activity reflected in the partnership as illustrated in the diagram. This agreement does not apply to or impose any obligations on states/locals and public and commercial sectors, both of whom are shown in the diagram as being part of the national air quality forecasting.

Partnerships in Air Quality Forecasting



V. RESPONSIBILITIES OF THE PARTIES

- A. NOAA and EPA agree to collaborate on scientific research, development and application activities as agreed by the parties to this MOA, including, but not limited to: developing air quality models and tools for integrating meteorology and air chemistry, including ozone and precursor species, aerosols and their properties such as size, composition, optical properties, as well as emissions, dispersion, chemical transformation and deposition of pollutants; inclusion of prediction of air quality into emerging Earth System Modeling capability through interactions with other system components such as atmospheric radiation, atmospheric microphysics and water quality; exploring use of satellite and in-situ observations for improving and evaluating sources, composition and transport needed in operational forecasting; and evaluating and improving the suite of air quality forecast products, services and observations, as client needs change or the state-of-the-science advances.
- B. NOAA agrees to use numerical weather prediction techniques, predictive emissions modeling techniques, numerical air quality prediction techniques, photochemical modeling techniques, and in-situ and remote-sensing observations as appropriate, to forecast air quality. These models will assimilate real-time meteorological and atmospheric chemistry observations, and may include EPA developed modeling components, EPA provided ambient air quality observations and pollution emission data adapted for forecast applications. NOAA will generate, on a routine basis, operational air quality forecasts, on a national scale, for various air quality parameters as determined by NOAA and EPA; and will provide those forecasts to end users including states, private sector interests, EPA and other clients determined by EPA and NOAA. NOAA will archive operational ozone, particulate matter (PM2.5),

- smoke and dust products.
- C. EPA agrees to develop air quality assessment models; to maintain national air quality monitoring databases and a current national emissions inventory; to provide timely ambient air quality data and emissions data, collected from state contributors and other data sources, to NOAA to support air quality forecasts; to interpret and incorporate the air quality forecasts provided by NOAA to facilitate the preparation and dissemination of regionally and locally specific forecasts of public health effects, public information indexes (e.g., Air Quality Index (AQI)), and statements of air quality; and to provide assistance to state and local agency clients who will generate air quality forecasts for their respective constituents.
- D. Other responsibilities shall be determined, as needs arise, by negotiation between the parties. Such additional responsibilities shall be documented and formalized through addenda to this MOA.

VI. DELIVERABLES

NOAA:

- Air quality forecast models for integrating meteorology and air chemistry.
- Ongoing improvements and modifications to air quality forecast models.
- Verification and validation of model output.
- Emission data and emissions modeling systems appropriate for forecasting applications.
- Requirements for national air quality forecasts.
- Research, development, and operational model forecasts of meteorological and air quality parameters as determined by EPA and NOAA, on a real-time, routine basis, and on a national scale.
- Research on use of near real-time satellite observations of atmospheric composition to improve air quality forecast model parameterizations and input data.

EPA:

- Air quality models for predicting ambient concentrations and deposition amounts.
- Emissions inventories and tools for the adjustment of annual emissions to the simulated daily emissions forecast applicable to the air quality simulation.
- Real-time ambient air quality monitoring data.
- Evaluation of regional and/or local forecasts of air quality based upon ambient air quality data, and assessment of satellite atmospheric composition products to improve air quality forecast products.
- Research on the health effects of air pollution, integrating public health messaging with environmental models and understanding their effectiveness to improve public health outcomes.
- Dissemination of regional and/or local air quality forecasts; interpretation of air quality forecast products (AQI and links to public health warnings) based upon output from NOAA numerical forecast models.

- Consultation and assistance to state and local agencies to prepare forecasts.
- Criteria for health effect advisories.

VII. TERMS AND CONDITIONS

- A. This MOA is to be construed in a manner consistent with all effective existing laws and regulations. This MOA neither expands nor detracts from those powers and authorities vested in NOAA and EPA by applicable laws, statutes, or regulations. All agreements herein are subject to, and will be carried out in compliance with all applicable laws, regulations, and other legal requirements.
- B. This MOA does not create any right or benefit, substantive or procedural, enforceable by law or equity, by persons who are not party to this agreement, against NOAA or EPA, their officers or employees, or any other person. This MOU does not apply to any person outside of NOAA and EPA.
- C. This MOA is neither a fiscal nor a funds obligation document. The obligations of NOAA and EPA under this MOA will be subject to the availability of appropriated funds for such purposes. Any transaction involving transfers of funds between the parties to this MOA will be handled in accordance with applicable laws, regulations, and procedures under separate written agreements.

VIII. PERIOD OF AGREEMENT AND MODIFICATION/TERMINATION

This agreement will be effective when signed by all parties, and shall have a duration of five (5) years from the date of execution. This agreement may be amended at any time by mutual consent of the parties. Any party may terminate this agreement by providing 90 days' written notice to the other party. In the event this agreement is terminated, each party shall be solely responsible for the payment of any expenses incurred. Funding for any activity between the parties will be implemented through interagency agreements.

This MOA constitutes the entire agreement between the parties for its stated purpose, and no modification or addition will be valid unless signed by the parties and appended to this agreement.

Any terms of this agreement found to be inconsistent with current NOAA or EPA directives or policies will be invalid, but the remaining terms will remain in effect.

Notices and other official communications between the parties will be delivered if hand delivered or if posted as registered U.S. mail.

Signed on behalf of:

U.S. Environmental Protection Agency



Karl Moor
Deputy Assistant Administrator
Office of Air and Radiation

January 19, 2021

Date

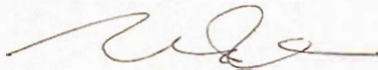


Dr. Jennifer Orme-Zavaleta
Principal Deputy Assistant Administrator for Science
Office of Research and Development

January 21, 2021

Date

National Oceanic and Atmospheric Administration



Neil A. Jacobs, Ph.D.
Assistant Secretary of Commerce for
Environmental Observation and Prediction
Performing the Duties of
Under Secretary of Commerce
for Oceans and Atmosphere

January 16, 2021

Date