

NDACC (formerly NDSC) focuses largely on observations of atmospheric changes in the altitude range from 0–50 km, their causes, and their effects

### For further information:

This document and other information are available on the NDACC Website: <http://www.ndacc.org>

In particular, the NDACC Newsletter, available on the website, provides detailed information on a broad range of Network activities.



### CONTACTS

#### NDACC Co-Chairs:

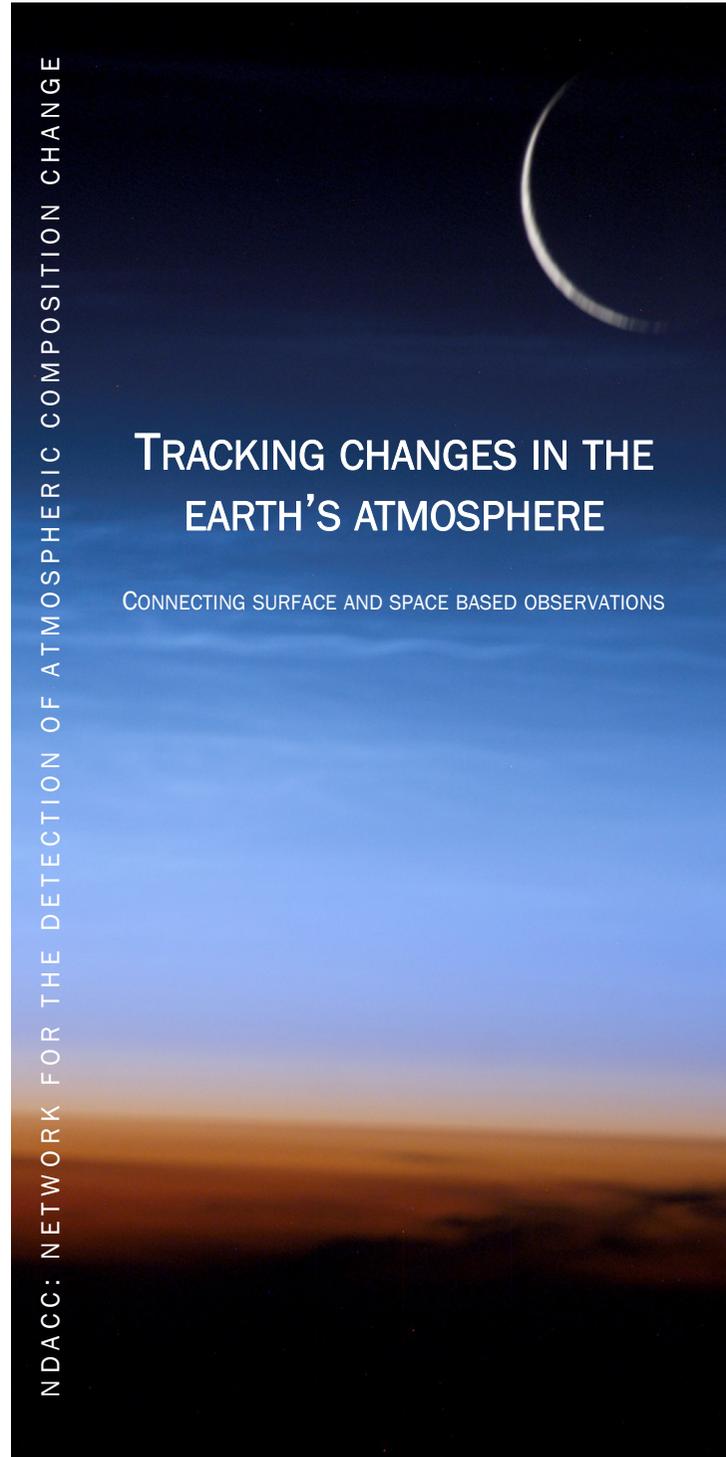
Dr. Michael J. Kurylo  
Goddard Earth Sciences and Technology Center  
University of Maryland Baltimore County  
NASA Goddard Space Flight Center  
Greenbelt, MD USA  
E-mail: [Michael.J.Kurylo@nasa.gov](mailto:Michael.J.Kurylo@nasa.gov)

Dr. Geir O. Braathen  
Atmospheric Environment Research Division (AER)  
Research Department (RES)  
World Meteorological Organization  
Geneva, Switzerland  
E-mail: [GBraathen@wmo.int](mailto:GBraathen@wmo.int)

#### For data access, contact:

Dr. Jeannette D. Wild  
NOAA/National Center for Environmental Prediction  
5200 Auth Road  
Camp Springs, MD 20746 USA  
E-mail: [Jeannette.Wild@noaa.gov](mailto:Jeannette.Wild@noaa.gov)

**Endorsement:** NDACC is a major component of the international atmospheric research effort and has been endorsed by national and international scientific agencies, including the United Nations Environment Programme (UNEP) and the International Ozone Commission of the International Association of Meteorology and Atmospheric Sciences. Since its inception in the early nineties, NDACC (formerly NDSC) is a major contribution to the Global Atmosphere Watch (GAW) Programme of the World Meteorological Organization (WMO).



## TRACKING CHANGES IN THE EARTH'S ATMOSPHERE

CONNECTING SURFACE AND SPACE BASED OBSERVATIONS

## The Earth's atmosphere is changing rapidly



Space-based measurements of the spectrum of the Sun as it sets and rises are analyzed to provide information about pollutants in the atmosphere.

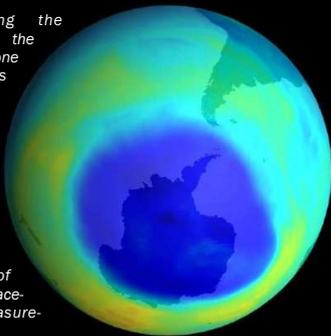
These changes began in the 19th century and are due mainly to human activities. Major examples of these changes include long-term declines in stratospheric ozone, and the resulting increases in UV radiation, increases in

carbon dioxide and other greenhouse gases, acid rain, degradation of air quality and changes in the self-cleansing capacity of the atmosphere. Environmental and health issues arising from these developments have led to the emergence of international agreements and protocols, such as the Montreal Protocol on Substances that Deplete the Ozone Layer and the Kyoto Protocol on greenhouse gases.

Understanding and quantifying atmospheric processes is essential to improve climate predictions, to mitigate detrimental impacts, and to continue developing and verifying environmental treaties.

NDACC addresses these fundamental issues with essential atmospheric observations and research, and through active participation in international scientific assessments that supply guidance to policy-makers.

Understanding the changes in the Antarctic ozone hole (as visualized with satellite data) depends on NDACC surface-based observations which ensure the accuracy of long-term space-based measurements.



## The Network for the Detection of Atmospheric Composition Change (NDACC)

NDACC is a major contributor to the worldwide atmospheric research effort. It consists of a set of globally distributed research stations providing consistent, quality-assured, long-term measurements of atmospheric trace gases, particles, spectral UV radiation reaching the Earth's surface, and physical parameters, centered around the following priorities:

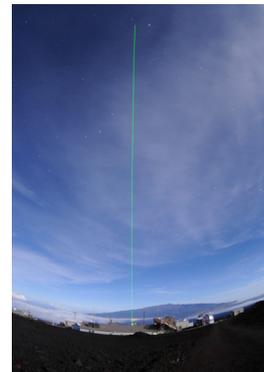
- Detecting changes and trends in atmospheric composition and understanding their impact on the stratosphere and troposphere.
- Investigating scientific links and feedbacks between climate change and atmospheric composition.
- Validating atmospheric measurements from satellites.
- Supporting process-focused scientific field campaigns.
- Testing and improving theoretical models of the atmosphere.

For further information: see website

Space-based measurements are crucial for tracking changes in our atmosphere. NDACC surface-based measurements ensure space-based instruments are providing accurate long-term data.



The Mauna Loa lidar observation set is the longest record of atmospheric aerosol altitude profiles available.



## A comprehensive, coordinated, and sustained global atmospheric observations

The establishment of a global long-term atmospheric measurement and analysis capability requires the use of complementary satellite, airborne and surface-based (in situ and remote sounding) systems.



Some atmospheric constituent data series from the Jungfraujoch station in Switzerland are the longest and most accurate records available.

The Integrated Global Atmospheric Chemistry Observation (IGACO) theme report aims at establishing an integrated observing system to insure improvement, continuity and integration of global atmospheric observations. As such, IGACO integrates major terrestrial and space-based measurement systems to assess environmental concerns and to address global atmospheric issues.

NDACC, a key component of the IGACO initiative, is a surface-based measurement network with a long-term heritage of conducting essential and quality assured atmospheric observations, and providing correlative and validation data for satellite missions.

## Outreach & Education

NDACC provides comprehensive atmospheric measurements and databases to support scientific research, to provide information to national and international decision-makers, and to increase public awareness of key issues affecting the atmosphere.

## Who are NDACC data users and stakeholders?

- The scientific community (i.e. satellite experiment and validation teams, data assimilation and modeling teams, and field campaign teams).
- National and international organizations, governments, and research programmes.
- Decision-makers.
- The media and the general public.