



Report on DWD activities and plans

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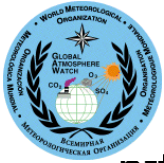
Outline

- Activities in months 1-12
- Evaluation: selection of events
- Plans for months 13-30 (AER, GRG)
- Needs & open questions

Activities



- Established/configured **access to ECMWF** data server MARS
- **Introduced GEMS** during GMES-, GAW-, NDSC-, and CO-Workshops
- **Requested data** from networks and stations
- Data survey → **compiled tables** of coverage of AOD and selected gases in GAW data bases
- **Retrieved 2003 data** from GAW data bases
- Set up data handling **routines**



GAW Data Centres

<http://www.woudc.org>

<http://wdca.jrc.it>

Introduction
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Contact WDCA
IES Links

Table of Contents:
How to Use the Data Archive

- General Data Submission Information
- The Nordic Data Exchange Standard for Data Submission
- Data Flags
- Data Submission - Procedure
- Data Set Security Issues
- Data Retrieval
- Further Information

Contents of the WDCA Aerosol Data Archive

- The GAW aerosol program
- Aerosol Optical Depth
- Aerosol Light scattering and backscattering
- Aerosol Chemistry
- Aerosol Light absorption
- Condensation nuclei concentration
- Aerosol Size distributions

Structure of the Data Archive

- Non-NMISTO format data sets
- NMISTO archive
- Non-NMISTO archive
- Link to Data Archive

<http://www.empa.ch/gaw/gawsis>

by QA/SAC Switzerland

GAWSIS

STATION INFORMATION SYSTEM

- Find Information
- Edit/Add Information
- Provide Feed-back

Home Extended Search Edit/Add Information Feed-back FAQs & Glossary About Logout

QuickFind

Select by Station type
 Global Regional Contributing

Select by Parameter

Stations by Country

Individual Station Report

Contact Information

GO! Clear

GAW World Data Centres

- WDCCG (Gases)
- WRDC (Radiation)
- WOUDC (Ozone/UV)
- WDCA (Aerosols/AOD)
- WDPCP (Precipitation)

What's New

2005-11-07 Registered users of GAWSIS can click on **Edit/Add Information** to request their password and have it sent to their registered e-mail address.

2005-03-09 GAWSIS synchronized with WRDC (as of 2004-10-09) and WDCCG (as of 2004-10-19). As a result, some duplicate data series exist for now. Note: Not all entries could be synchronized due to ambiguities.

31-Jan-2006

Filter: GAW World Data Centres - GAWSIS 2.1 © JRC/JRC/SAC Switzerland

coords="240,163,5" href="reports.asp?StationID

Using the Data Archive

- How to Register, Submit and Retrieve Data from the WOUDC Archive
- Documentation (File Formats, Utility Software Notes etc.)
- Utility and Analysis Software
- ISO 3166 Country Codes

Archive

- Data Set Security Issues
- Data Archive Search Form
- Link to Data Archive
- Recent Data Submissions
- Browser Data Management System (BDMS)

Summaries and Reports

- Annual Data Report on CD-ROM
- Revised Data Sets - Information and History
- Total Ozone Summary Data - Daily and Monthly Means
- Spectral UV Monthly Summaries and Plots
- Total Ozone Trend Assessments

Maps and Graphs

- Station Maps
- Total Ozone Maps
- Time-Series Graphs

WRDC database

You are visitor no. 4801

Welcome to WRDC database!

Regions: ASIA, WMO: 2

Show non-active

WMO Global Atmosphere Watch

World Data Centre for Greenhouse Gases

CO2 concentration

The World Data Centre for Greenhouse Gases (WDCGG) is established under the Global Atmosphere Watch (GAW) programme to collect, archive and provide data for greenhouse (CO2, CH4, N2O, HFC, PFC and mixed GHG), SO2, SO2, TOC, AOD, aerosol and surface ozone in the atmosphere and ocean, measured under GAW and other programmes.

From this web site, you can obtain information including WDCGG publications and measurement data that have been contributed by participating and individual researchers in the world. Please note that you should properly reference the data, when you use and publish them, by using the contributor and the name of the data set that any information on this web site should be used only for accessible programmes.

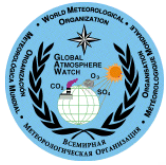
Introduction: An explanation of WDCGG
 Data: Single description of the present status of greenhouse gases and related gases (retrieved from Data Summary 2002)
 Station: Inventory station directory and archive
 Data: All the data collected by WDCGG to be downloaded and to be used in a graph (update: more a month)
 Publications: "Global Data Report", "WDCGG Data Summary" and present publications list ("Global Data Report" update: more a month)
 Reporting: Data reporting guidelines

If you have any requests or comments on this web site, please contact us as follows:

WMO World Data Centre for Greenhouse Gases
 WMO Global Meteorological Agency
 1-3-4 Otsuashi, Chiyoda-ku
 Tokyo 100-8542, Japan
 Tel: +81-3-3295-3100
 Fax: +81-3-3295-3101
 E-mail: wdcgg@wmo.ch

<http://wrdc.mgo.rssi.ru>

<http://gaw.kishou.go.jp/wdcccg.html>



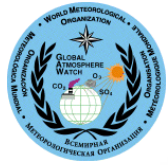
Data Overview - GRG I



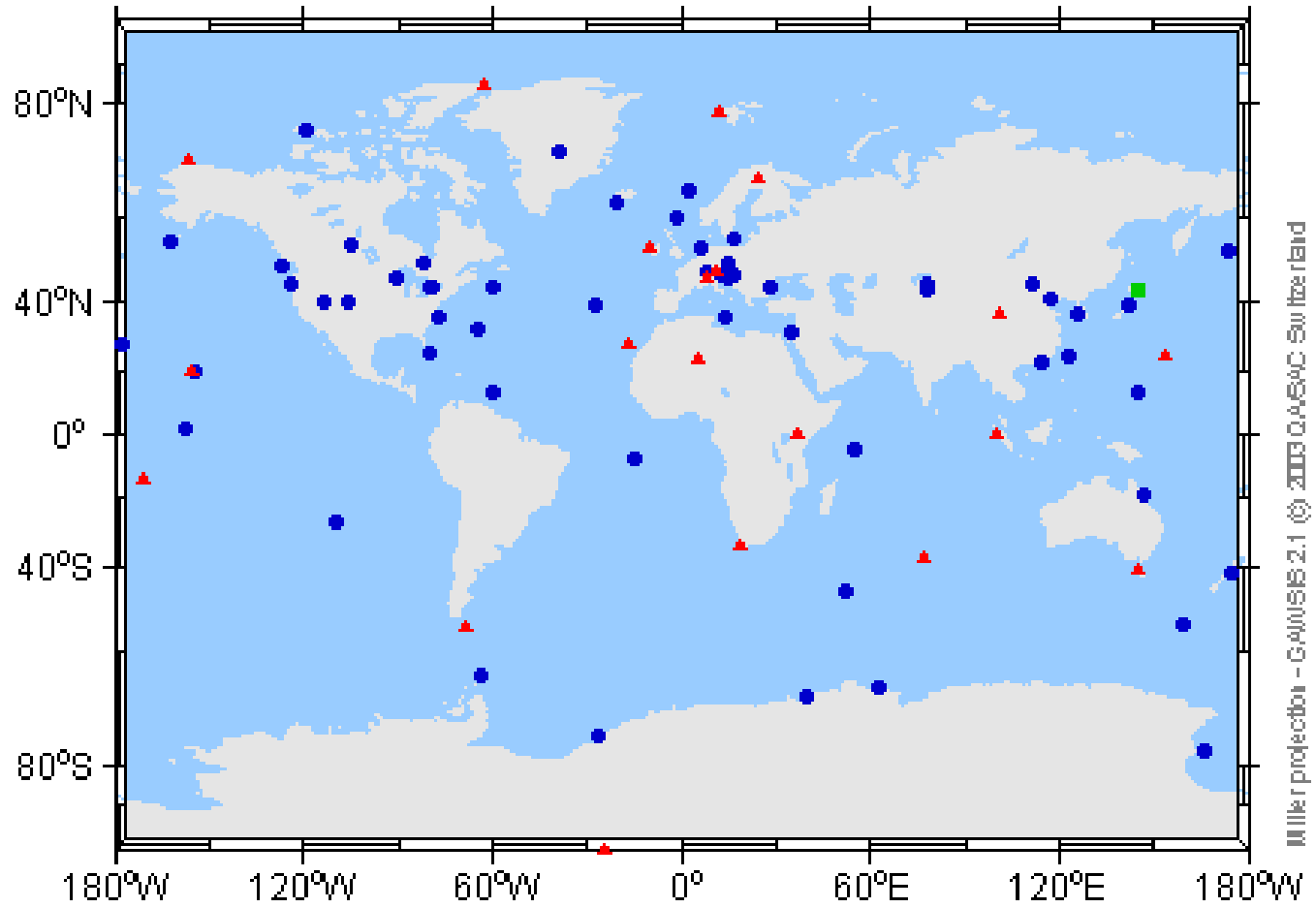
Number of Stations by Parameter and Region

	Region I	Region II	Region III	Region IV	Region V	Region VI	Antarctica	Mobile	Total
Station	12	30	8	62	33	117	21	29	312
Country	8	10	5	6	7	31	8	3	66
O₃	4	6	2	17	5	47	4		85
CO	6	9	3	16	14	21	8	3	80
NO₂				1	2	42			45
NO						11			11
NO_x						6			6
NO_y						3			3
SO₂					2	46			48

Region I: Africa, II: Asia, III: South America, IV: North/Central America, V: South-West Pacific, VI: Europe



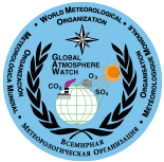
CO



Mollweide projection - GAW/SIS 2.1 © 2003 GAW/SAC Switzerland

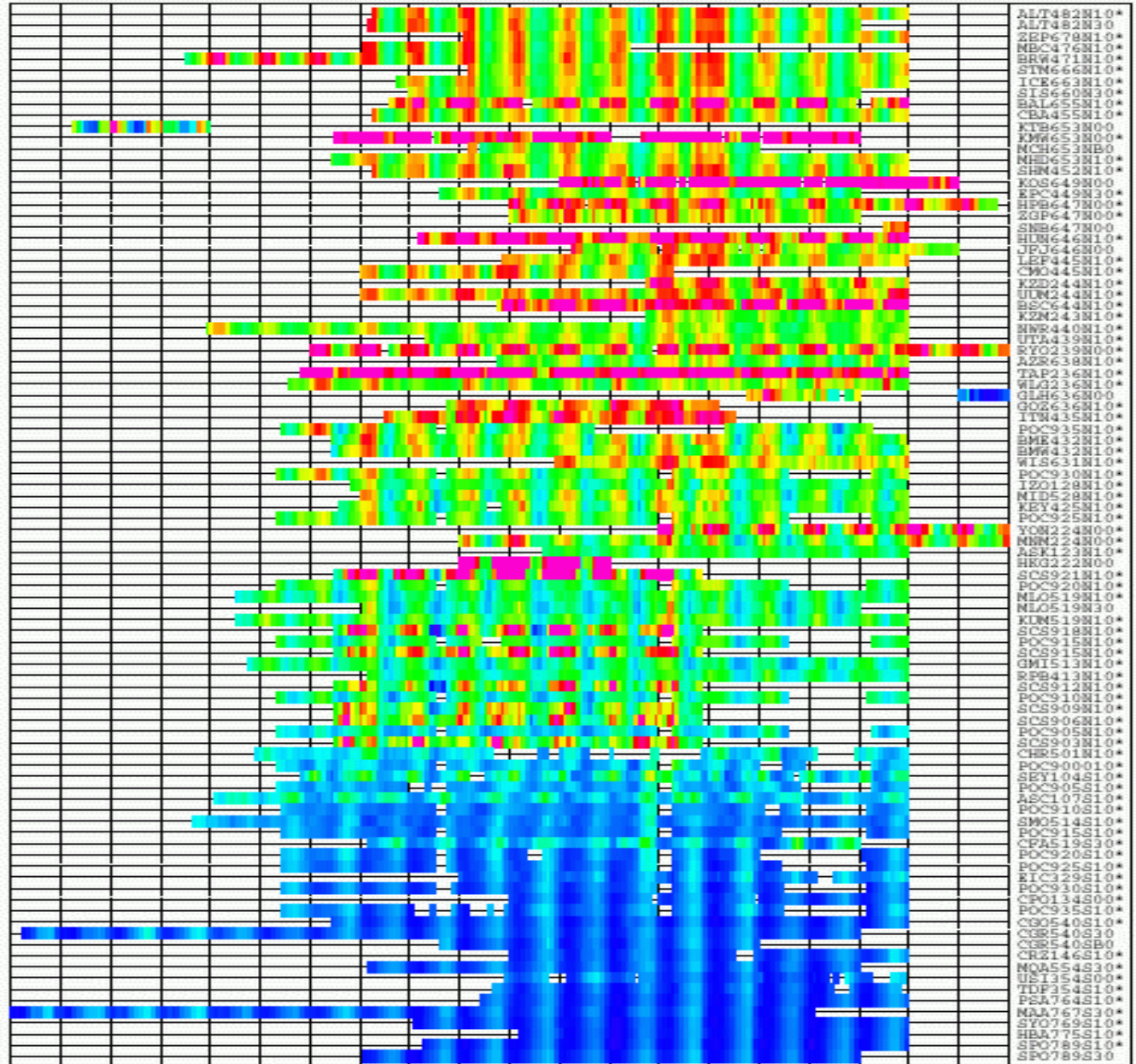


- GAW Regional Station
- Contributing Station
- ▲ GAW Global Station



CO

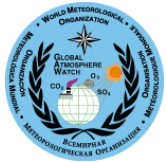
CO Monthly Data



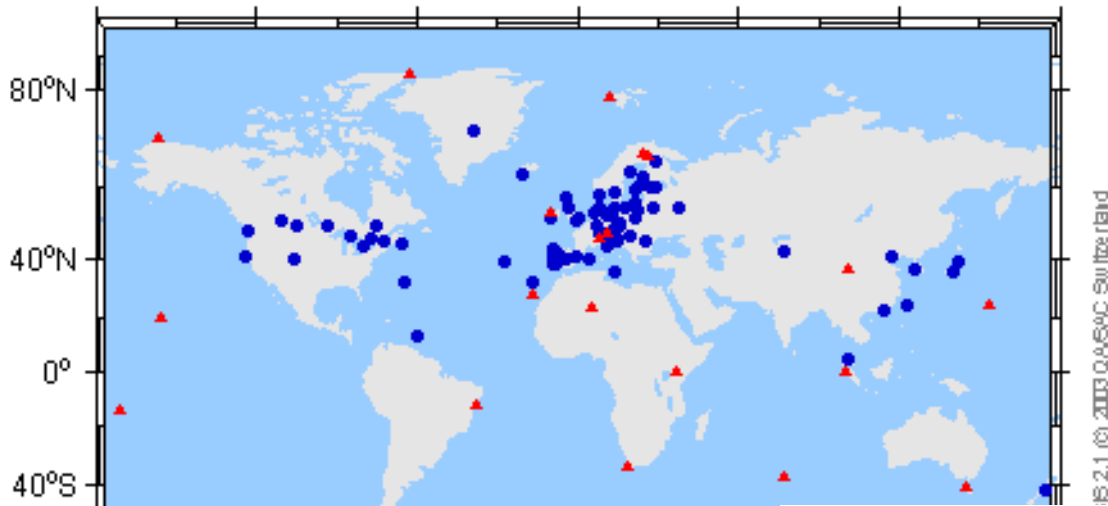
1990

2000-01

2003

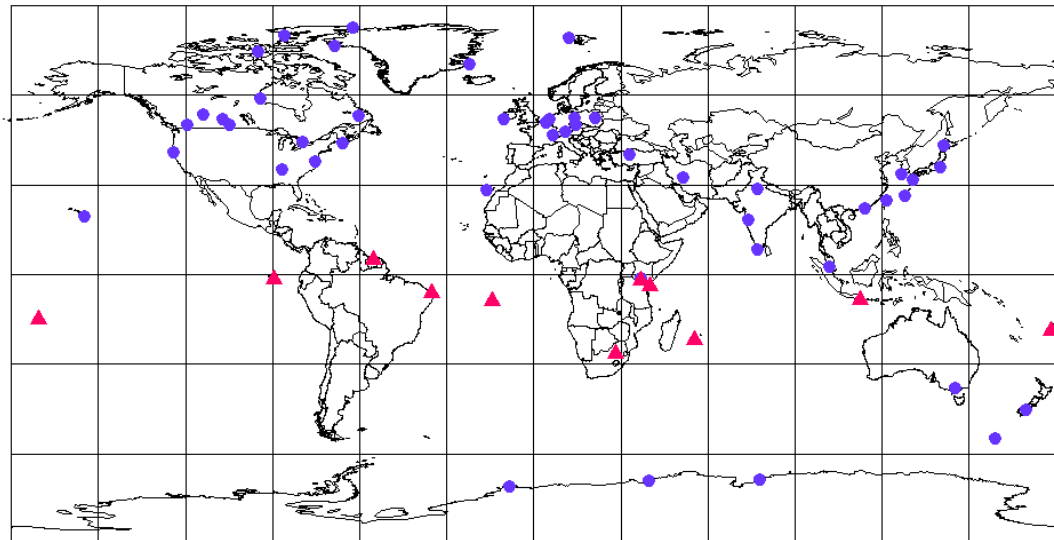


Surface Ozone



16.2.1 © 2003 GAW/SC Switzerland

WOUDC Ozonesonde Platforms - Data years 2002 - 2005



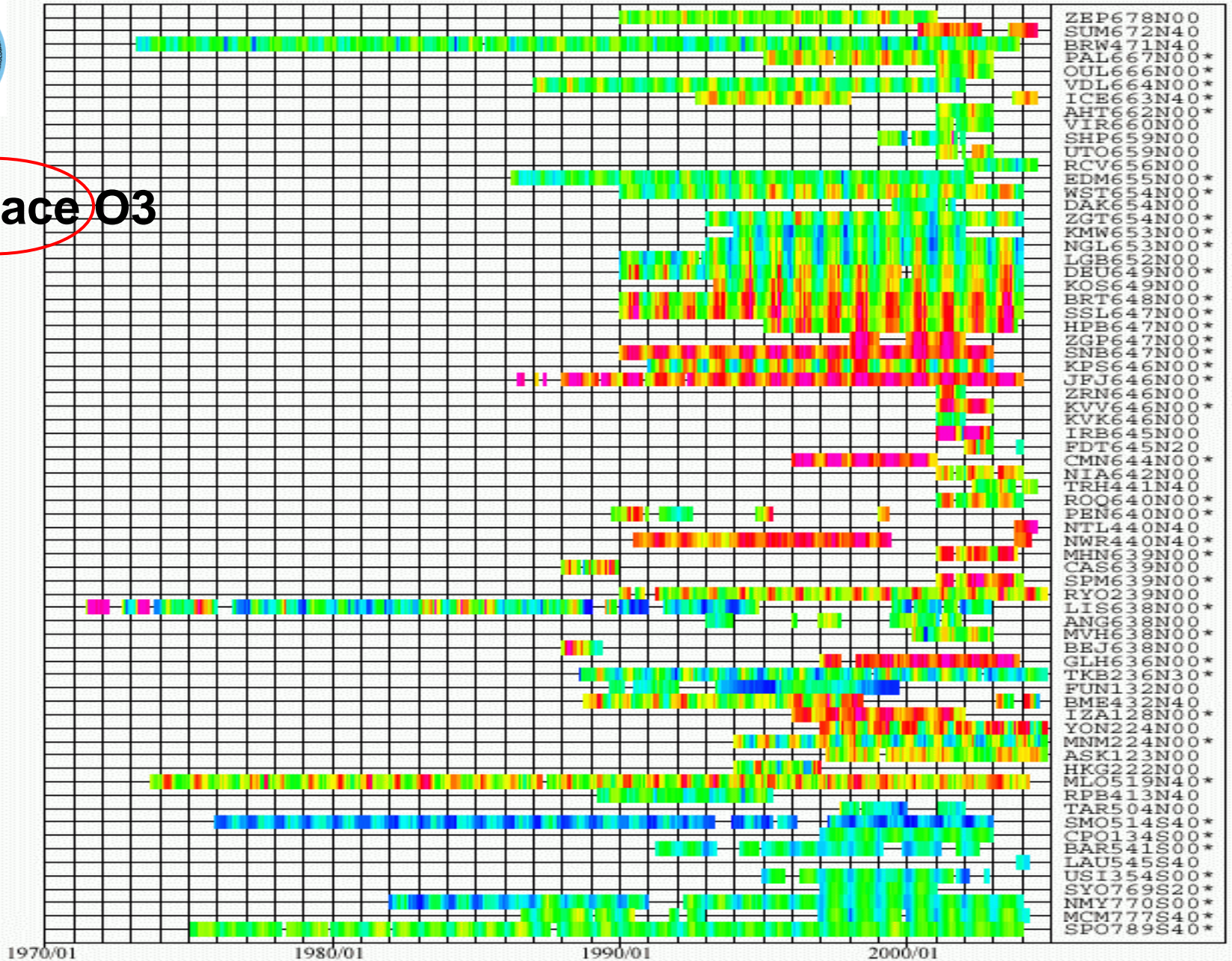
● GAW Regional Station ▲ GAW Global Station

● WMO-GAW and Other Network Sites ▲ SHADOZ Sites

O₃ Monthly Data



Surface O₃



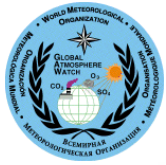
1970/01

1980/01

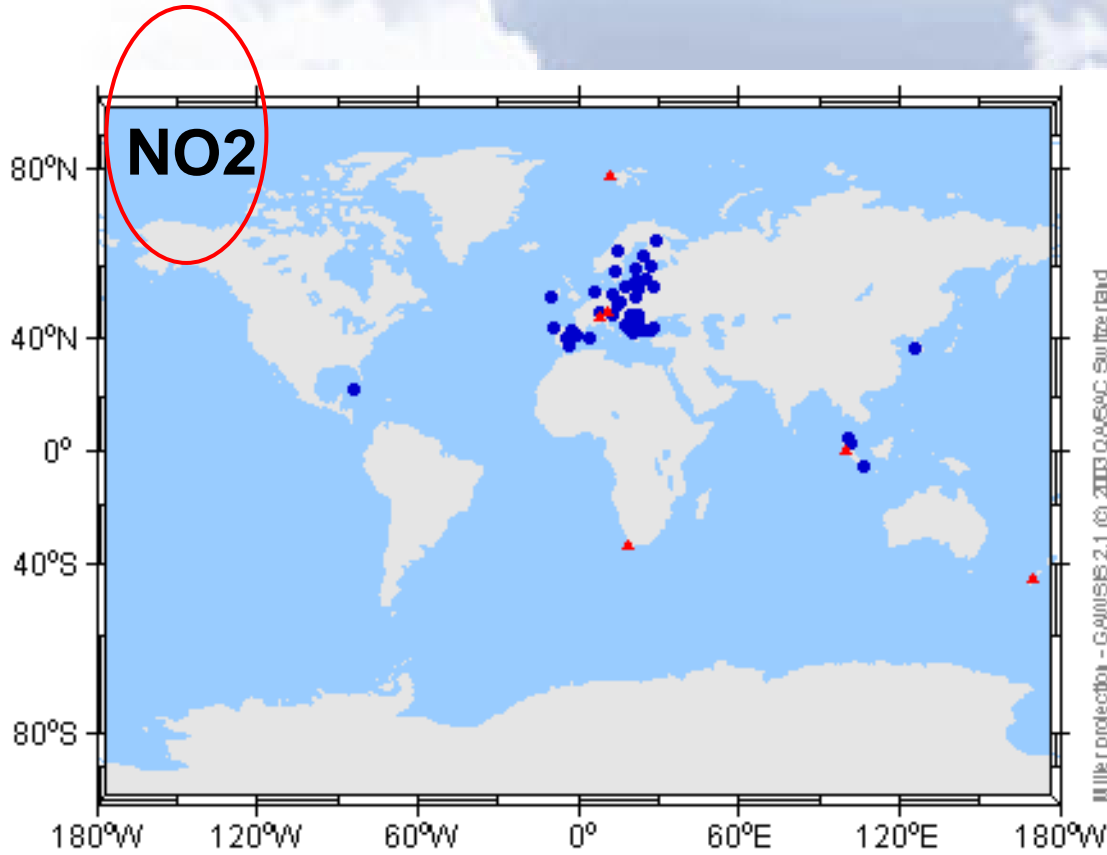
1990/01

2000/01

2003

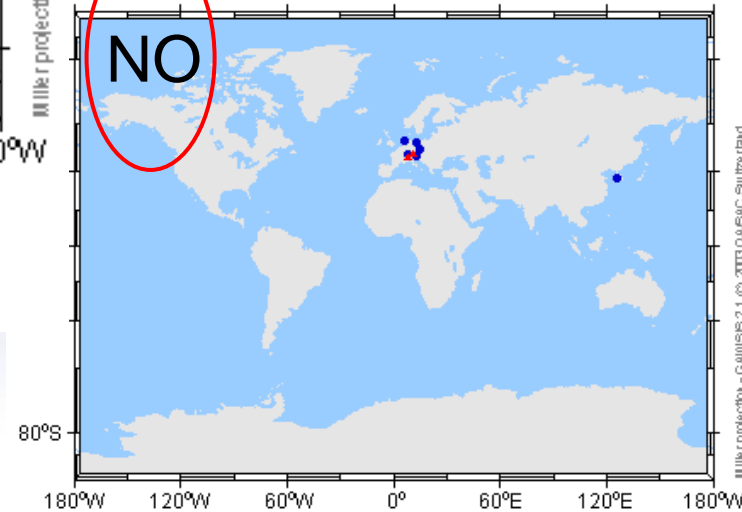


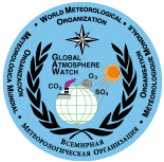
NOx



● GAW Regional Station ▲ GAW Global Station

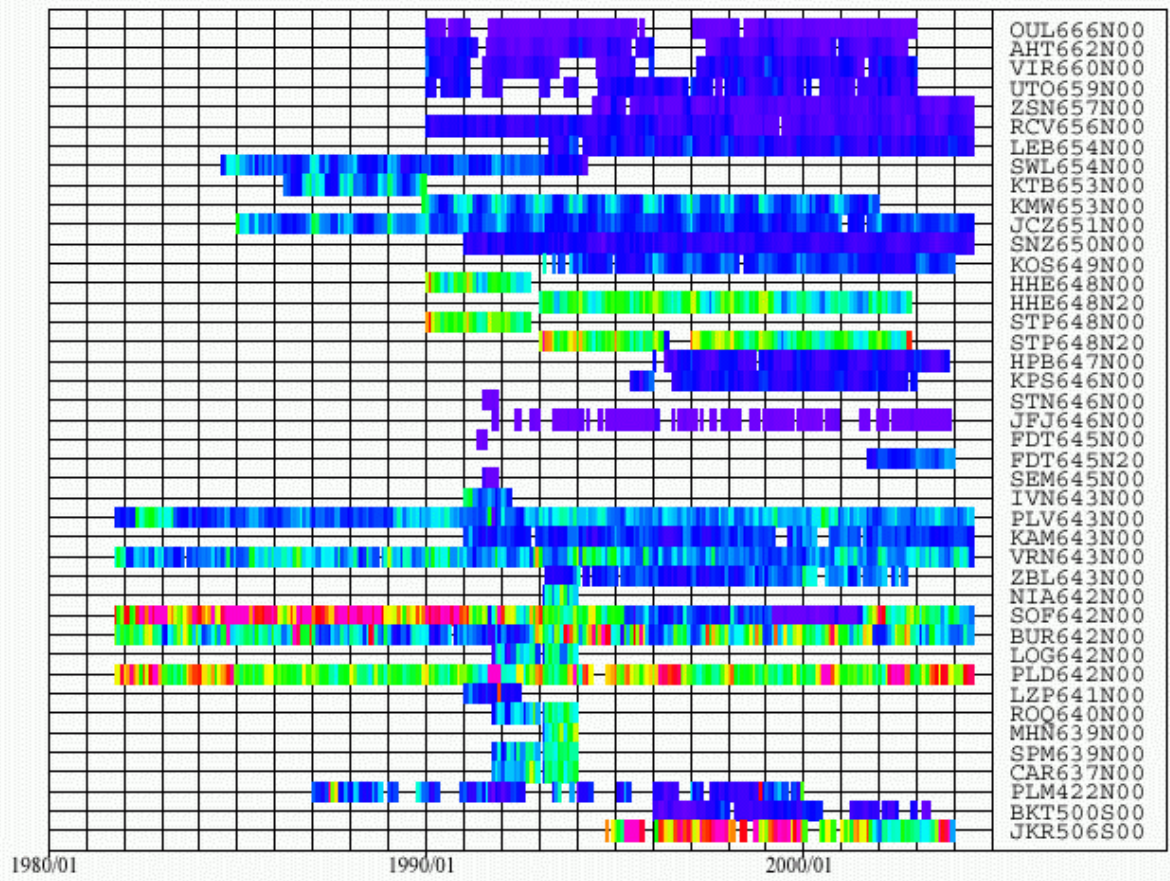
[Reactive Gas] NO 30-Jan-2006





NO₂

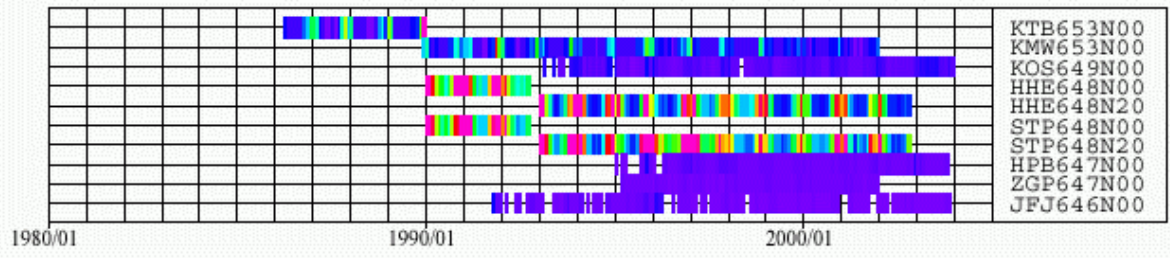
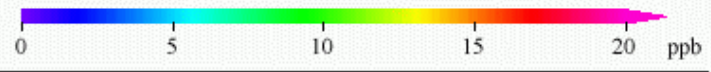
(a) NO₂ Monthly Data



- OUL666N00
- AHT662N00
- VIR660N00
- UTO659N00
- ZSN657N00
- RCV656N00
- LEB654N00
- SWL654N00
- KTB653N00
- KMW653N00
- JCZ651N00
- SNZ650N00
- KOS649N00
- HHE648N00
- HHE648N20
- STP648N00
- STP648N20
- HPB647N00
- KPS646N00
- STN646N00
- JFJ646N00
- FDT645N00
- FDT645N20
- SEM645N00
- IVN643N00
- PLV643N00
- KAM643N00
- VRN643N00
- ZBL643N00
- NIA642N00
- SOP642N00
- BUR642N00
- LOG642N00
- PLD642N00
- LZP641N00
- ROQ640N00
- MHN639N00
- SPM639N00
- CAR637N00
- PLM422N00
- BKT500S00
- JKR506S00



(b) NO Monthly Data



- KTB653N00
- KMW653N00
- KOS649N00
- HHE648N00
- HHE648N20
- STP648N00
- STP648N20
- HPB647N00
- ZGP647N00
- JFJ646N00

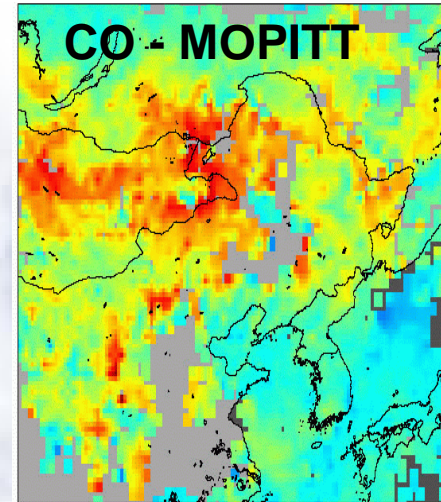
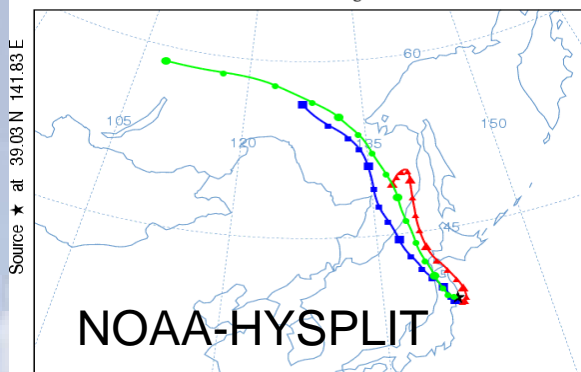
NO

Episode I

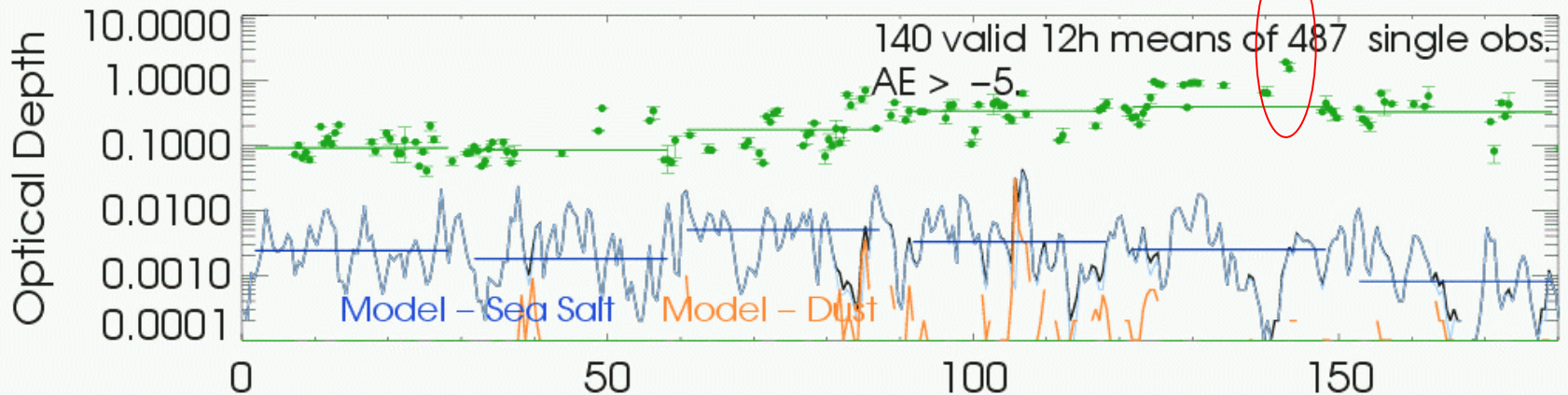


Forestfire plume at Ryori GAW station on 23 May 2003

Searching for events with signatures in AOD, CO, NO_x



Ryori (Jan–Jun 2003)
Aerosol OD

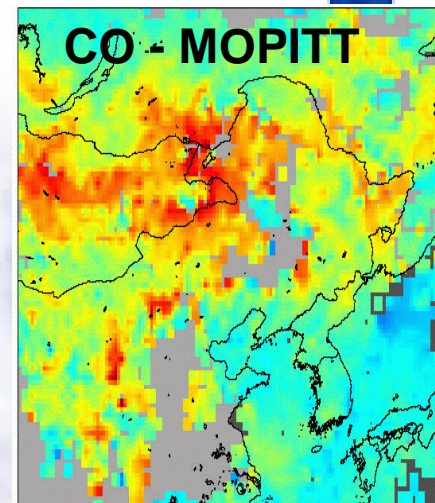
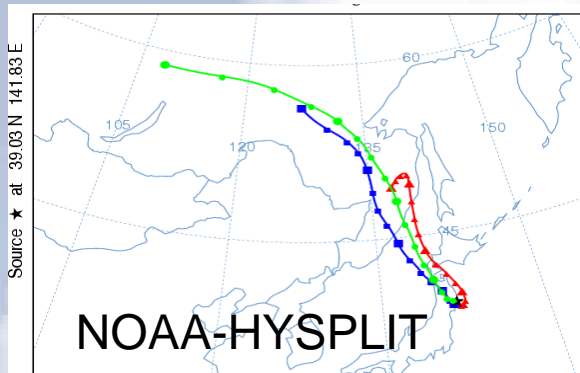


Episode II



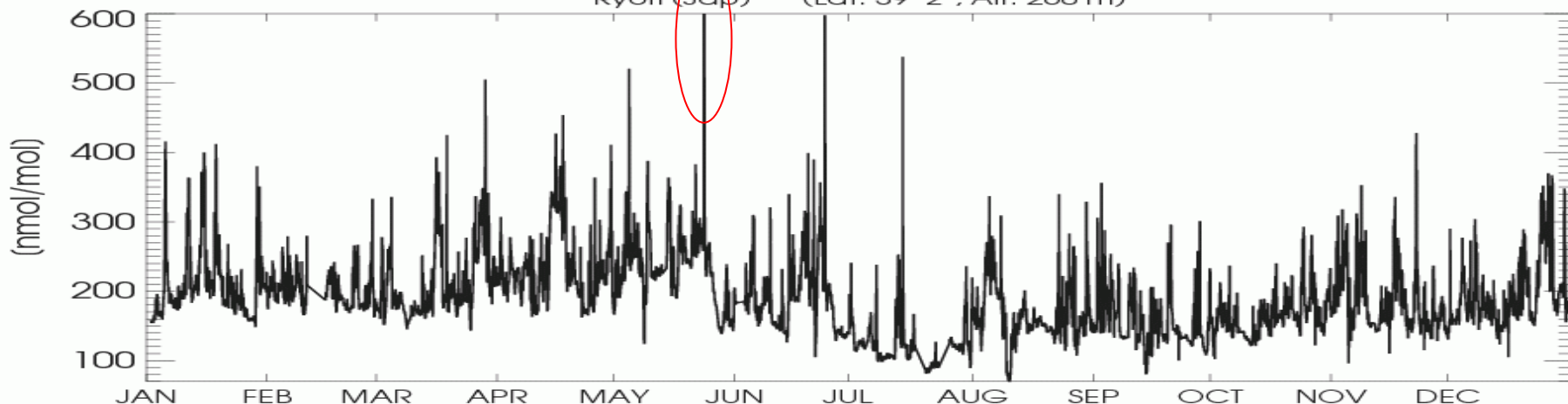
Forestfire plume at Ryori GAW station on 23 May 2003

Searching for events with signatures in AOD, CO, NO_x



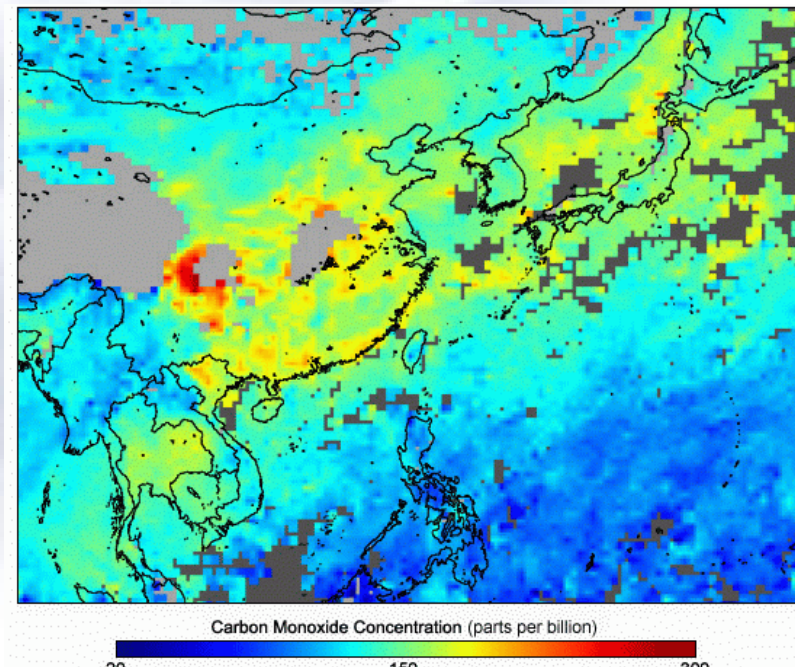
Carbon Monoxide in 2003

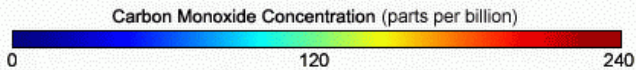
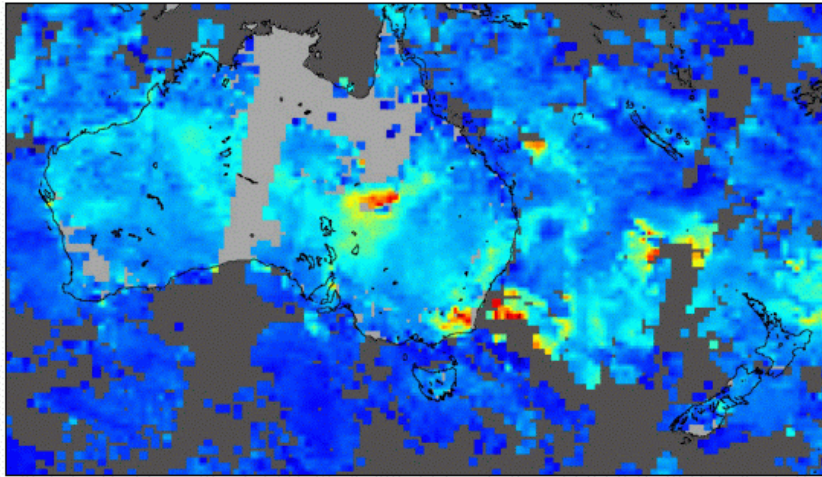
Ryori (Jap) (Lat: 39 2', Alt: 260 m)



CO Long-range transport episodes

1-12 Jan	Pollution over China
15-20 Jan	Bushfires in SE-Australia
27 Jan–3 Feb	Fires in N-Africa
27 Jan–2 Feb	Pollution over China
20–25 Feb	Fires in SE-Asia
13 Feb–4 Mar	Fires in northern S-America SE-Asia, W-Africa
18–22 Mar	Fires in central America
3–13 Apr	Fires in SE-Asia
...	





[Click here to view high-resolution version](#) (620.3KB)
Image Acquired: January 20, 2003

Bushfires Raging in Southeast Australia

Bushfires continue to burn in southeast Australia. This false-color image shows the resulting concentrations of carbon monoxide (CO) at an altitude of roughly 3 km (700 millibars) in the atmosphere over Australia and New Zealand. Data taken by the Measurements Of Pollution In The Troposphere (MOPITT) instrument aboard NASA's Terra satellite have been combined for 6 days from January 15-20, 2003. The colors represent the mixing ratios of carbon monoxide in the air, given in parts per billion by volume. In this scene, values range from as high as 250 ppbv (purple pixels) to as low as 50 ppbv (blue pixels). The white areas show where no data were collected, either due to persistent cloud cover or gaps between satellite viewing swaths.

Carbon monoxide is produced as a result of incomplete combustion during burning processes, and is important due to its impact on chemistry in the lower atmosphere. It is a good indicator of atmospheric pollution, and its presence adversely affects the atmosphere's ability to cleanse itself. Because carbon monoxide is persistent for several weeks, it clearly shows the propagation of pollution plumes from the region of the Australian fires out thousands of kilometers into the usually pristine atmosphere of the southern Pacific Ocean. The distribution of pollution over Australia corresponds closely with satellite observed [aerosol emitted by the fires](#) as observed by TOMS.

Where in the World



Image Posted

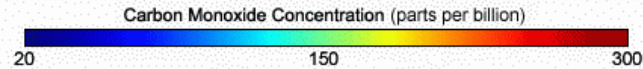
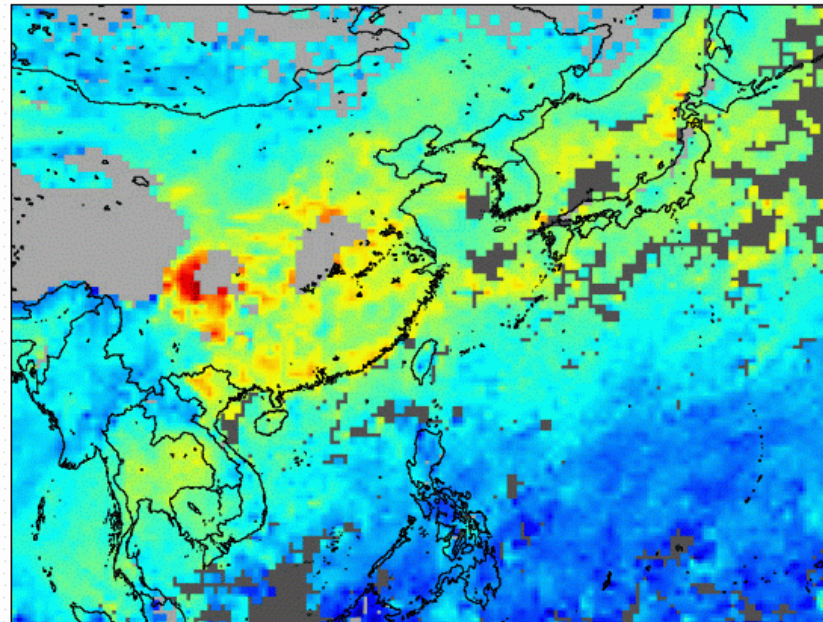
January 30, 2003

Satellite & Sensor

Terra- MOPITT

Other Images for this Event

Posted: [Mar 07, 2003](#)
Posted: [Feb 07, 2003](#)
Posted: [Feb 06, 2003](#)
Posted: [Feb 04, 2003](#)
Posted: [Feb 04, 2003](#)
Posted: [Feb 03, 2003](#)
Posted: [Jan 31, 2003](#)
Posted: [Jan 29, 2003](#)



[Click here to view high-resolution version](#) (1.05MB)
Image Acquired: January 20, 2003

Pollution over China

This false-color image shows concentrations of carbon monoxide at an altitude of roughly 18,000 feet (500 millibars) in the atmosphere off the coast of Asia and out over the Pacific Ocean. This image represents a composite of data collected over a 20-day period, from January 1-20, 2003, by the Measurements Of Pollution In The Troposphere (MOPITT) instrument aboard NASA's Terra satellite. The colors represent the mixing ratios of carbon monoxide in the air, given in parts per billion by volume. In this scene, values range from as high as 220 ppbv (purple pixels) to as low as 40 ppbv (blue pixels). The white areas show where no data were collected, either due to persistent cloud cover or gaps between viewing swaths.

During the early part of the year, there is considerable outflow of pollution from China and southeast Asia. Carbon monoxide is a good tracer of this pollution since it is produced by incomplete combustion processes such as the burning of fossil fuels in urban and industrial areas, the use of biofuels in developing countries, and by biomass burning in the tropics. The Asian

Where in the World



Image Posted

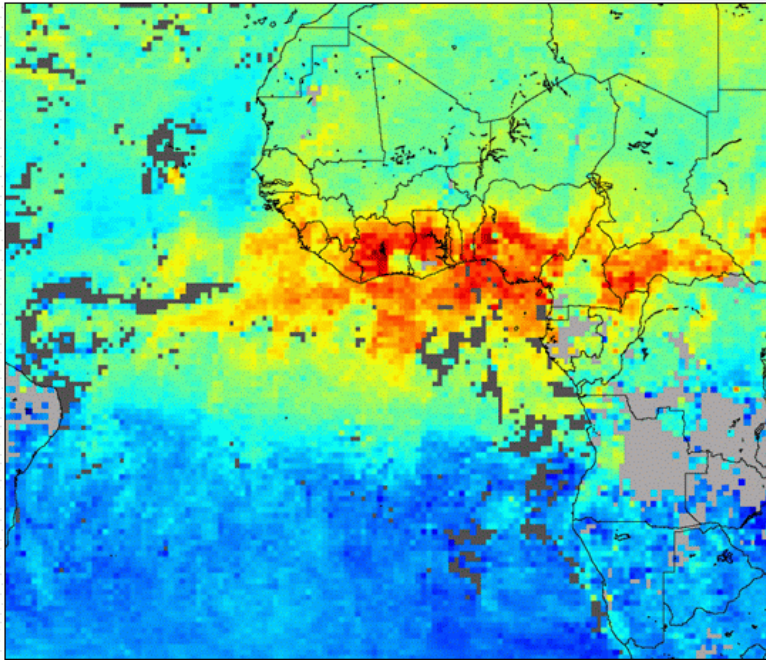
January 30, 2003

Satellite & Sensor

Terra- MOPITT

Other Images for this Event





Carbon Monoxide Concentration (parts per billion)
0 90 180 270

[Click here to view high-resolution version](#) (522.32KB)
Image Acquired: February 02, 2003

Widely Scattered Fires across North Africa

Satellite remote sensing provides a useful way to investigate the impact of intense local pollution sources, such as widespread wildfires or biomass burning, on regional air quality. This false-color image shows carbon monoxide plumes at an altitude of roughly 3 km (700 millibars) in the atmosphere over northwestern Africa and extending westward well out over the Atlantic Ocean. This image represents a composite of data collected from January 27 through February 2, 2003, by the Measurements Of Pollution In The Troposphere (MOPITT) instrument aboard NASA's Terra satellite. The gray areas show where no data were collected, either due to persistent cloud cover or gaps between viewing swaths.

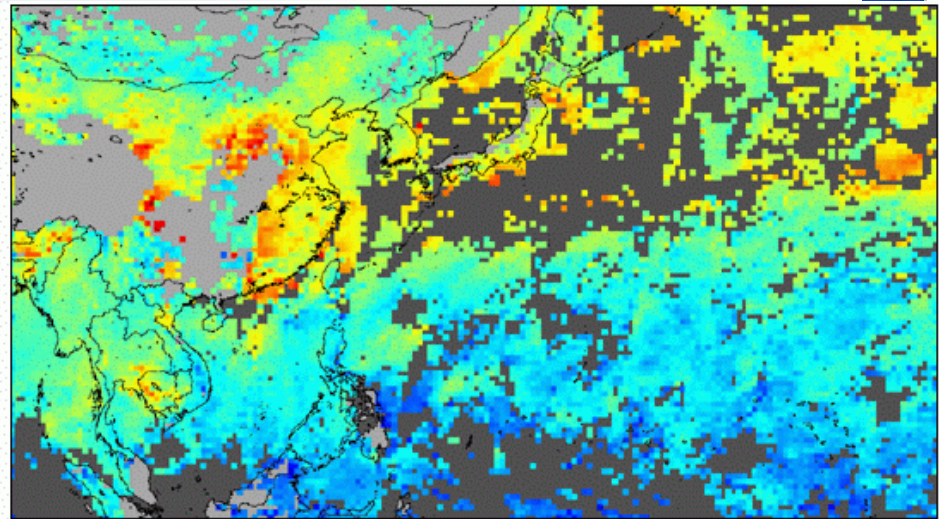
Carbon monoxide is a good tracer of pollution since it is produced by incomplete combustion processes, such as those associated with electricity generation, petrochemical processing, and biomass burning.

Where in the World



Image Posted
February 06, 2003

Satellite & Sensor



Carbon Monoxide Concentration (parts per billion)
0 90 180 270

[Click here to view high-resolution version](#) (620.93KB)
Image Acquired: February 02, 2003

Pollution over China

Satellite remote sensing provides a useful way to investigate the impact of intense local pollution sources, such as urban and industrial emissions, on regional air quality. This false-color image shows carbon monoxide plumes at an altitude of roughly 3 km (700 millibars) in the atmosphere over eastern Asia and extending eastward well out over the Pacific Ocean. This image represents a composite of data collected from January 27 through February 2, 2003, by the Measurements Of Pollution In The Troposphere (MOPITT) instrument aboard NASA's Terra satellite. The white and gray areas show where no data were collected, either due to persistent cloud cover or gaps between viewing swaths.

Carbon monoxide is a good tracer of pollution since it is produced by incomplete combustion processes, such as those associated with electricity generation and petrochemical processing in the region.

Where in the World

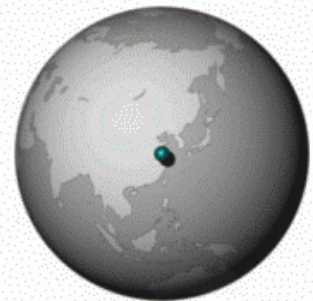
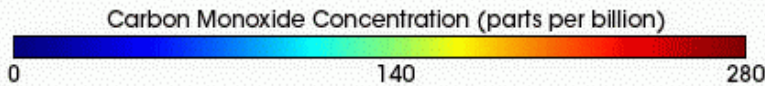
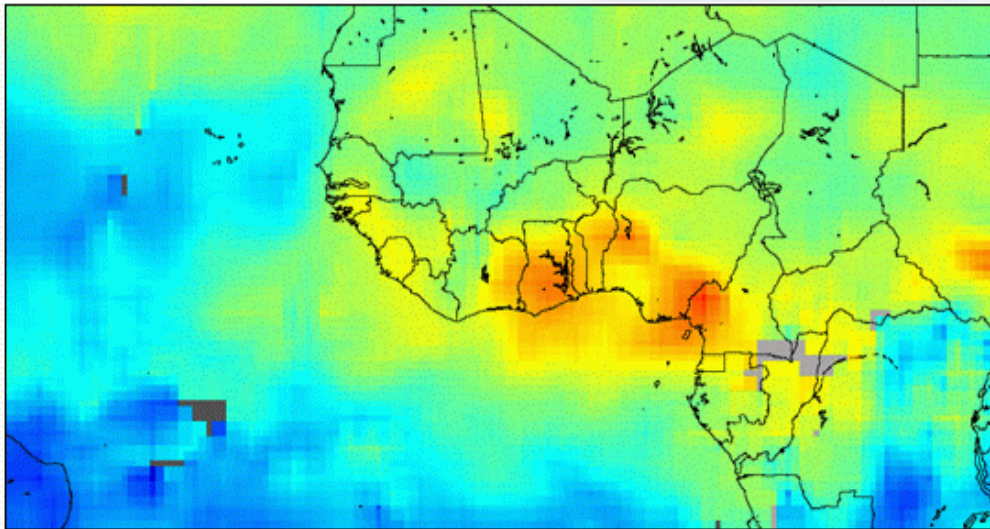


Image Posted
February 06, 2003

Satellite & Sensor
Terra- MOPITT



[Click here to view high-resolution version](#) (229.36KB)

Image Acquired: March 18, 2003

Fires in West Africa

Fires burning in West Africa during are producing high concentrations of carbon monoxide (CO) which is being measured by the Measurements of Pollution in The Troposphere (MOPITT) instrument on NASA's Terra satellite. This false-color image shows the mixing ratio of CO at an altitude of roughly 3 km (700 hPa) averaged over March 13-18, 2003. The location of the highest mixing ratios correlates well with the location of the [West African fires](#) detected by MODIS on the Aqua satellite.

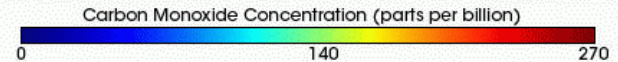
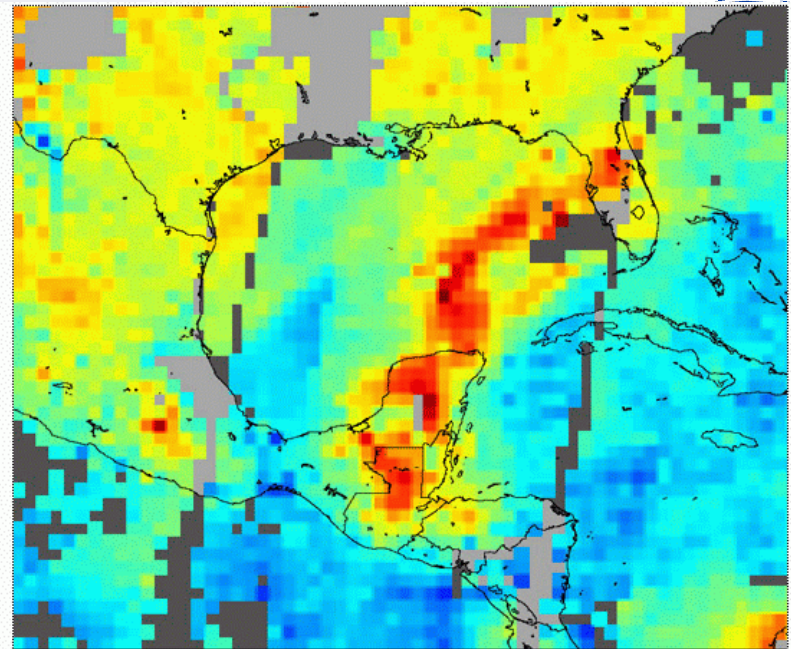
Carbon monoxide is produced by combustion processes and has a lifetime in the atmosphere of several weeks. It is a good indicator of the influence of pollution on downwind regions. This image shows CO being carried to the west over the tropical Atlantic Ocean.

Where in the World



Image Posted

March 24, 2003



[Click here to view high-resolution version](#) (294.55KB)

Image Acquired: March 22, 2003

Fires in Mexico and Central America

Measurements of carbon monoxide (CO) from the Measurements of Pollution in The Troposphere (MOPITT) instrument on NASA's Terra satellite show the pollutants from wildfires in southern Mexico being carried towards Florida. This image shows the mixing ratio of CO at about 3 km (700 km) above the surface for March 18-22, 2003. An [image from SeaWiFS](#) shows the smoke from the fires in the same region. There were [numerous fires](#) burning during this period on the Yucatan Peninsula.

Carbon monoxide is a good tracer of pollution since it is produced as a by-product of the combustion associated with wildfires and agricultural fires. The reds in this image show the highest levels of CO and blues show the lowest levels. The gray areas show where no data were collected, either due to persistent cloud cover or gaps between viewing swaths.

Image courtesy the NCAR and University of Toronto [MOPITT](#)

Where in the World



Image Posted

March 31, 2003

Satellite & Sensor

Terra- MOPITT



Plans for Project Months 13 - 30



- continue (spectral) AOD validation based on GAW global and regional database (target year 2003), identify / select specific events suitable for model evaluation
- extend validation of reanalysis runs from year 2003 to longer period (e.g., 1996-2005) incl. validation of modelled aerosol radiative effects on surface irradiance
- continue to complete GAW aerosol optical properties database (station contacts) and begin with transition to real-time data flow (DWD as GAW/GEMS interface)
- establish / improve quality level characterization of station AOD data incl. station characteristics
- collaborate with RMIB on AOD validation
- merge task 4.2 validation results to support overall validation by NUIG
- collaborate with modellers to identify model deficits and improve model(s)



Plans for Project Months 13 - 30



- **Evaluate GRG model runs** with GAW global and regional database (target year 2003)
- Identify / select specific **events** suitable for model evaluation
- Extend validation of reanalysis runs from year 2003 to longer period (e.g., 1996-2005)
- Continue to **complete GAW trace gas database** (station contacts) and begin with transition to real-time data flow (DWD as GAW/GEMS interface)
- Establish / improve **quality level characterization** of station trace gas data incl. **station characteristics**
- Collaborate with modellers to **identify model deficits and improve model(s)**



Questions & Needs

- **Redundant data in different data bases → co-ordination**
- **“Real time“ (tbd.) data flow**
- **Data format and delivery**
 - reanalysis data
 - real time data in operational phase
- **Regular meetings/telcons between observers and evaluators**
- **Evaluate models on basis of periods with existing measurement data**