

Norway - NRT data

- Components in hourly resolution
 - NO₂,
 - NO,
 - PM₁₀,
 - SO₂,
 - O₃
- Number of sites: 5-10 main southern cities
- NRT: data collected between D-1 18UTC and D 18UTC Collected every 24h.
- Additional request for hourly data for 2003 and 2004
- Compiled by NILU and available on internet. NOTE also EUSAAR
- Once the text of the MOU is agreed, we will proceed with negotiations with NILU and the Environment Department.

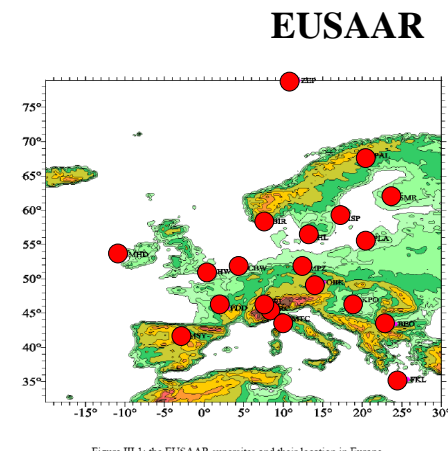
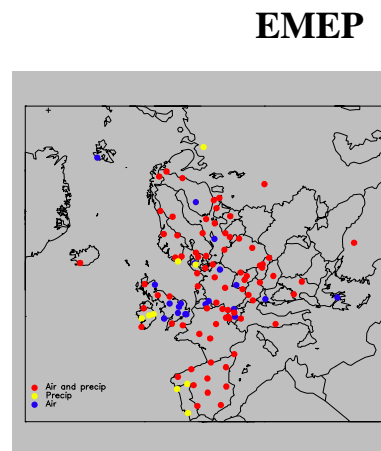
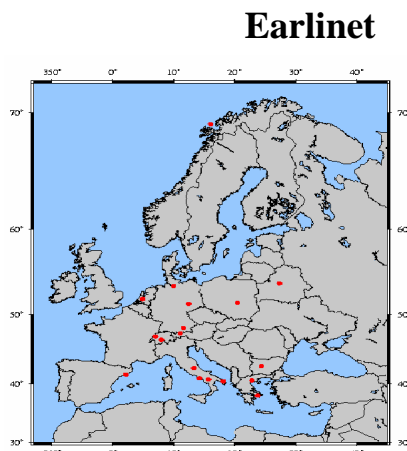
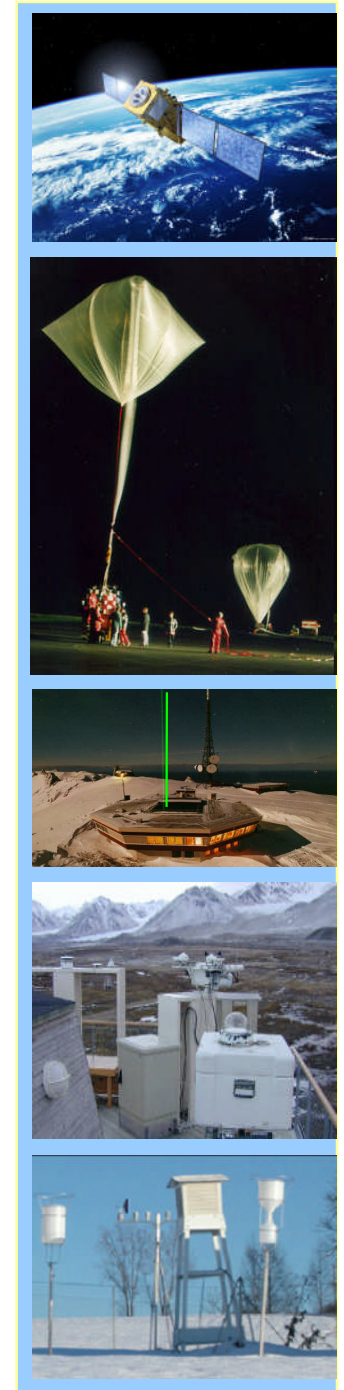


Figure III.1: the EUSAAR supersites and their location in Europe



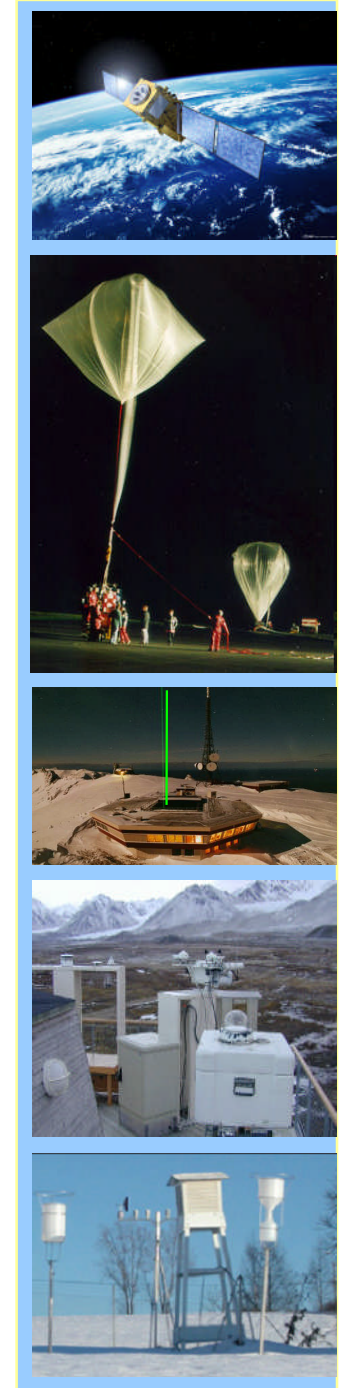
GEMS air quality database

Potential sources of observational data and the efforts needed to make them accessible

*Kjetil Tørseth and Aasmund Fahre Vik
EMEP Chemical Coordinating Centre (EMEP/CCC)
Leonor Tarrason (EMEP/MSC-W)*

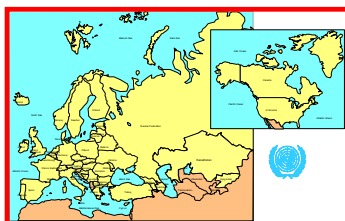
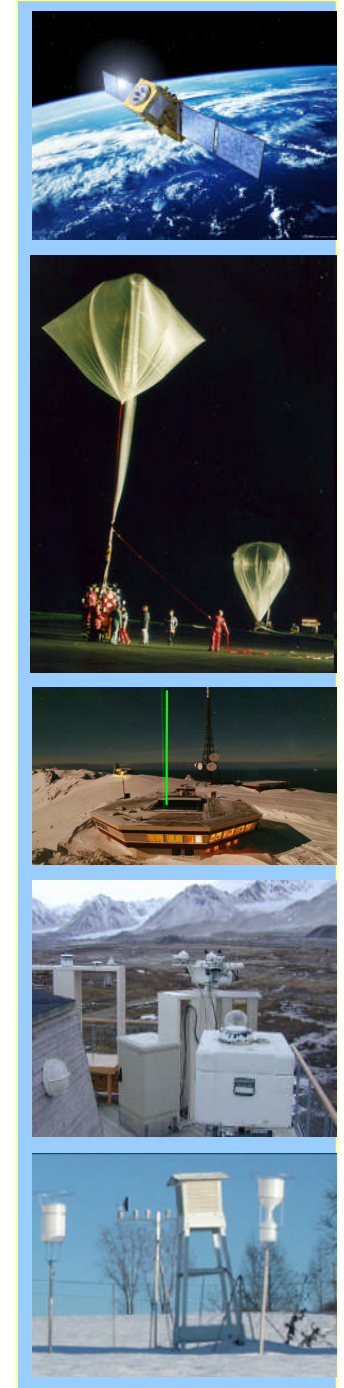
*Based on EMEP-CCC presentation at
Workshop under the EMEP Task Force on Hemispheric Transport
of Air Pollutants
Washington DC. 30. – 31. January 2006*

GEMS ASSEMBLY 2006



Key points

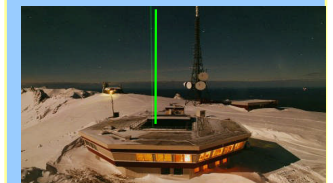
- Large regional differences in the availability of observations (site density, parameters, representativity)
- Data quality and intercomparability a major issue
- Many processes towards data integration in progress
- Monitoring getting more complex and sophisticated
- Significant additional information from dedicated research campaigns available for process studies. New capabilities emerging (flux-based monitoring – LIDAR- satellite rs.....)
- Snapshot databasing is "easy" – long term integration is extremely challenging
- Rapid development (past and future monitoring capacities, capacity building etc.....).



EC FP6 - 4. Call
European atmospheric
observation systems

Specific considerations for a Snapshot database

- Make use of long-term monitoring efforts (programmes)
- National involvement
- Quality assurance and intercomparability across networks
- Rational data archival
- Make use of existing "snapshot" databases (RETRO, TRADEOFF, QUANTIFY, AEROCOM, others) Link to GEMS AER and GRG databases
- Combine in-situ, vertical profiles, aircraft, satellite, multimedia
- Build up towards NRT-data provision for chemical data assimilation



Types of data

Surface in-situ

Air Quality networks

Human exposure focus (high conc.), incomplete list of parameters for process understanding, site representativity highly variable, many sites

Background chemical composition networks

S-R relationships, trends, international framework

Supersites

process oriented, more complex to assess, often limited access

Vertical in-situ

Balloon soundings

free troposphere, stratosphere

Aircraft based

mainly free troposphere (commercial aircrafts and campaigns)

Remote sensing (active or passive), vertical profiles, total coloumn

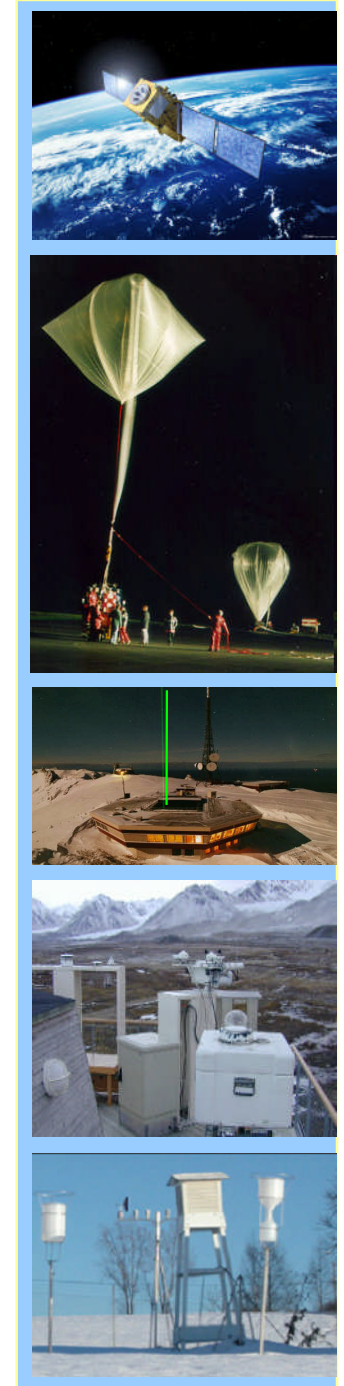
Surface based

Aircraft based

Satellite based

Multi-media concentrations and bi-directional fluxes

biota, water, soil, ice



Quality assurance and quality control issues

Methodology

Intercomparisons (laboratory, field)

Site Audits

Data quality objectives

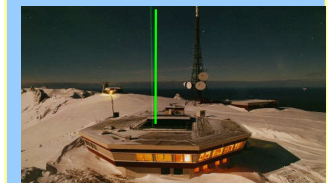
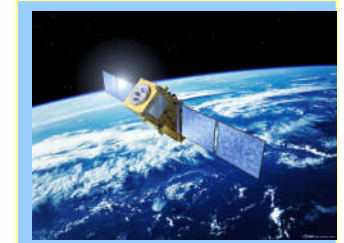
Data flagging

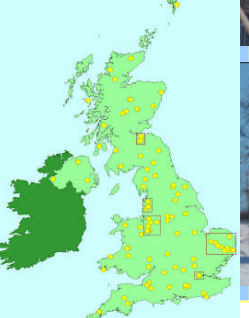
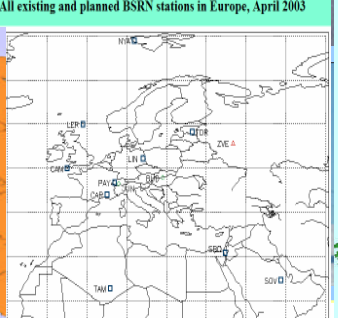
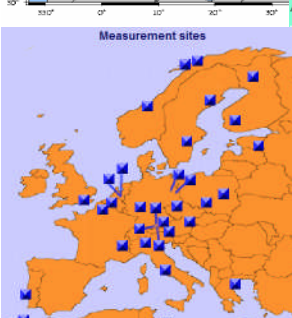
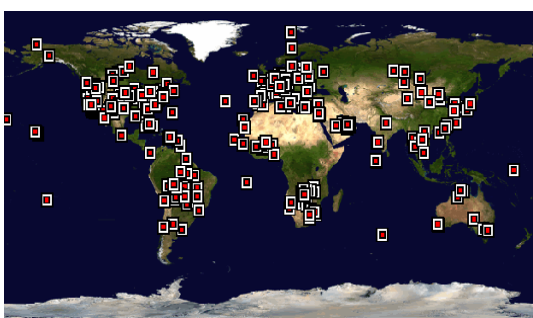
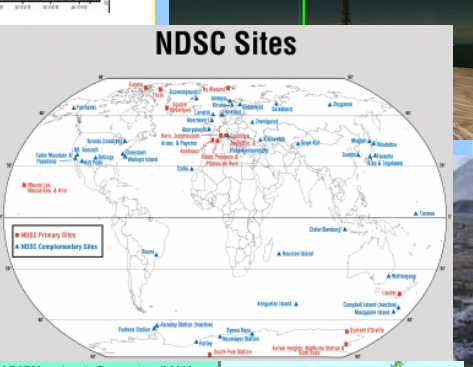
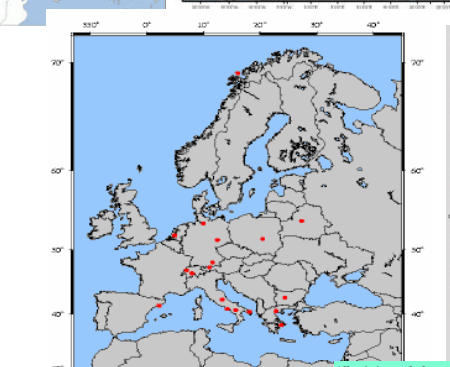
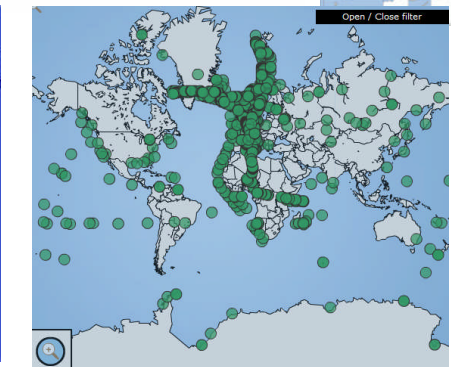
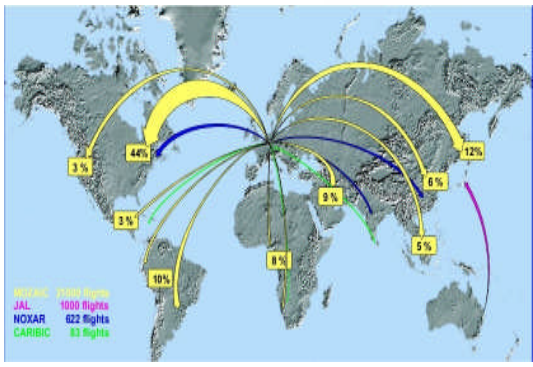
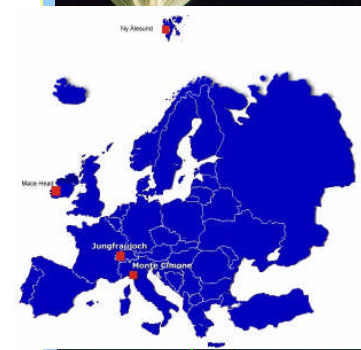
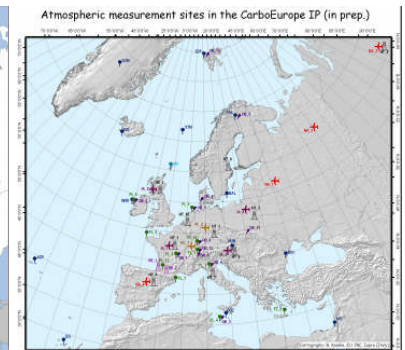
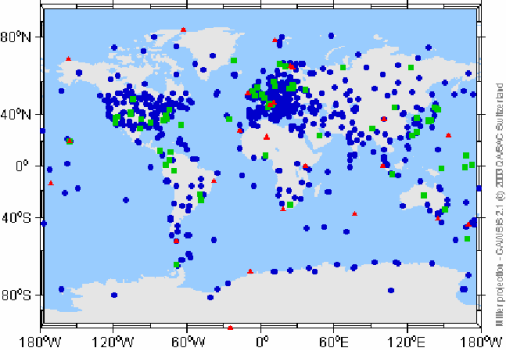
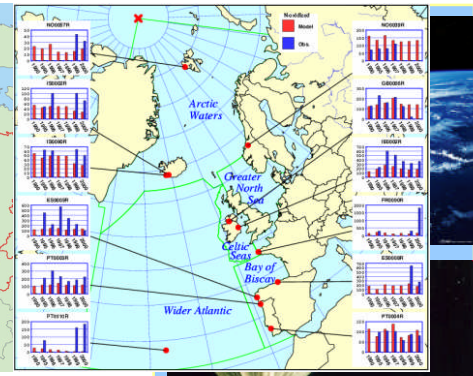
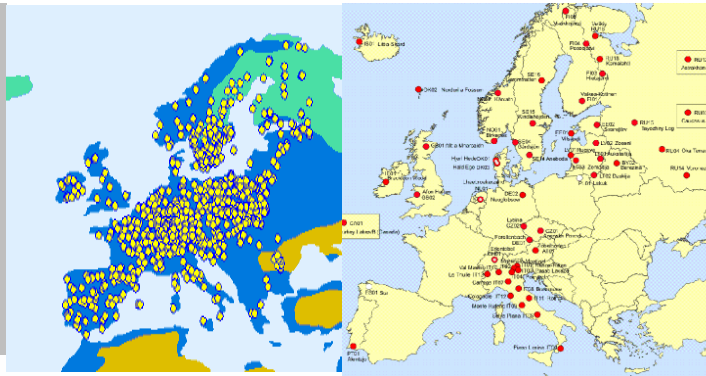
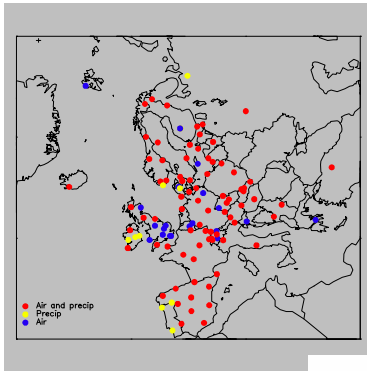
Joint assessment of data

(observation based or model based)

Fairly well developed collaboration between the regional chemical composition networks (EMEP, CAPMON, NADP, GAW, EANET...).

The WMO-GAW has played a very important role through the (SAGs, WCCs, SOPs, DQOs, flags...)





All existing and planned BSRN stations in Europe, April 2003

AEROCOM (from Michael Schultz)

AERONET sun photometer network

[-->AERONET website](#)

contact Stefan Kinne @ dkrz - . - de

GAW network

[The World Data Centre for Aerosols](#) is one of five recognised World Data Centres which are part of the Global Atmosphere Watch website

contact Julian Wilson @ jrc - it

EMEP network

[EMEP website](#)

contact kjetil.torseth @ ni

IMPROVE network

[IMPROVE website](#)

contact see IMPROVE we

PSI

[Paul Scherrer Institute / J](#)

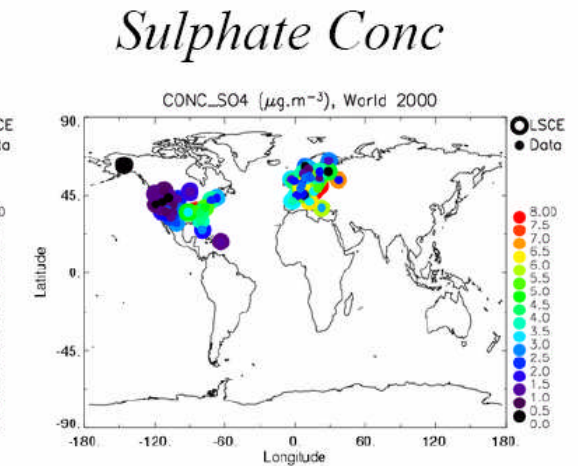
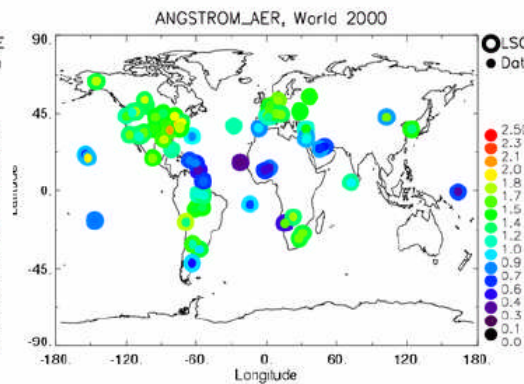
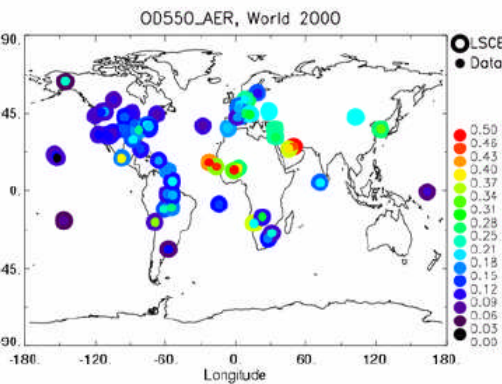
contact Urs Baltensperger

AEROCE

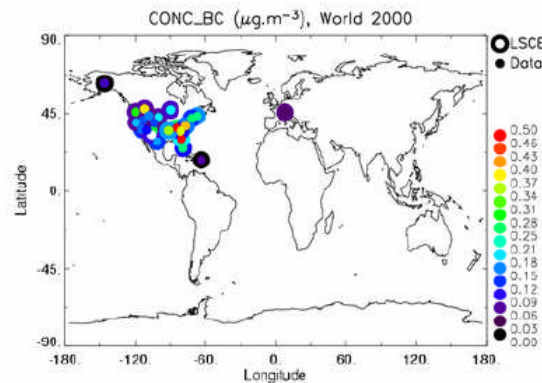
[The Atmosphere-Ocean C](#)

contact Joe Prospero

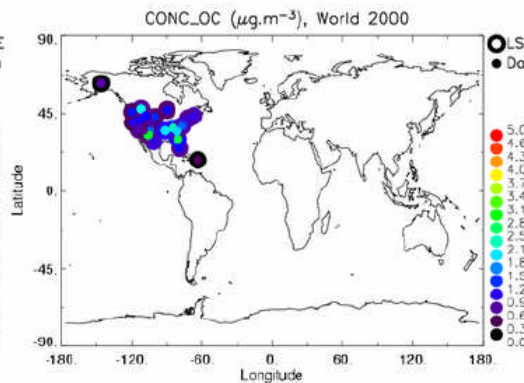
ONE MODEL – DIFFERENT DATA SETS



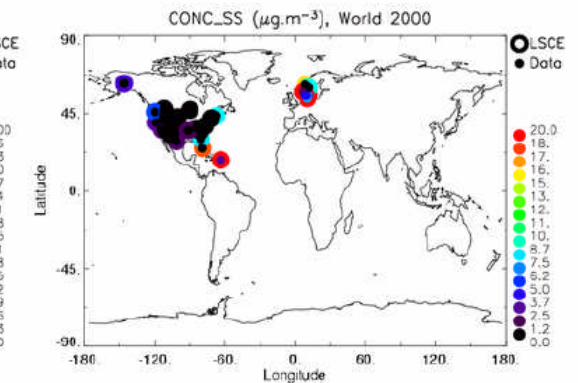
Black Carbon Conc.

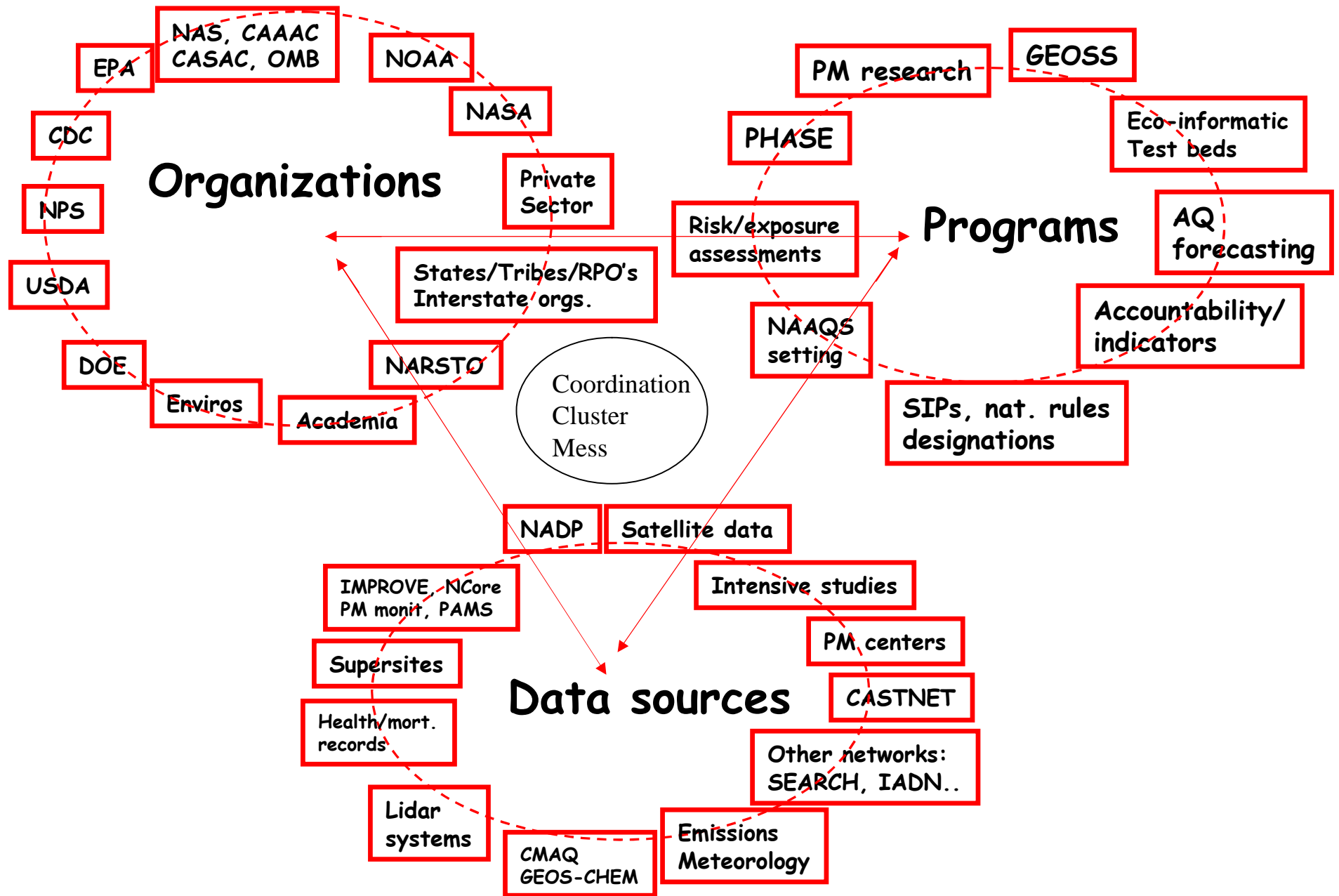


Organic Carbon Conc.



Sea Salt Conc.




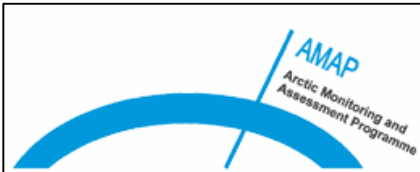


From R. Scheffe

OECD-LRTAP



OSPAR Commission
for the Protection of the Marine Environment
of the North-East Atlantic

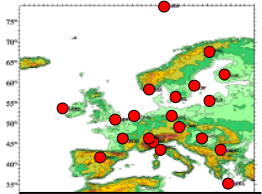
AirBase - the European Air quality dataBase 



*S*econd *E*uropean *S*tratospheric *A*rctic and *M*id-latitude *E*xperiment

THESEO

Third European Stratospheric Experiment on Ozone




EUSAAR



ASOS

EC FP6 - 4. Call
European atmospheric
observation systems

EC FP6 - 4. Call
Aerosols and Climate

ies **World Data Centre for Aerosols** 
Global Aerosol phenomenology

Europe

More than 40 different European projects ~ 25 ongoing, ~ 15 archive data or web projects, Data from 1972 --> present ~ 14 – 15 data series longer than 10 year ~ 25 new projects after 2000

The data can be grouped in: 7 sets of campaign data, 6 sets of forecast data, 28 sets of national data, 10 sets of international data (some of the sets are appearing in more than one group);

32 Air Quality, 11 Meteorology, 6 Tropospheric chemistry, 3 Stratospheric, 6 Aerosol, 6 Heavy Metals, 4 POPs

9 databases includes global sites, 33 include regional sites and 26 include urban sites

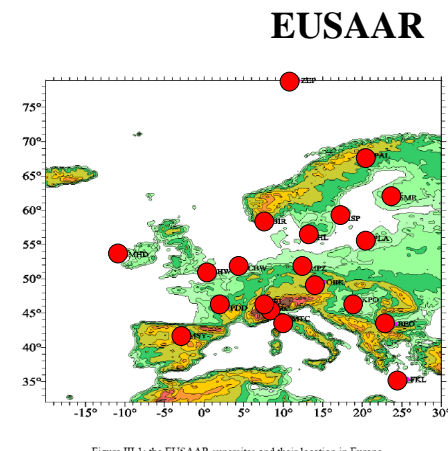
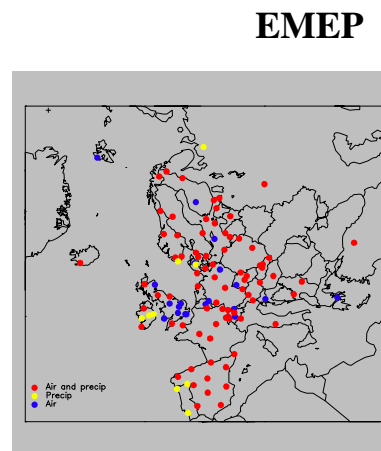
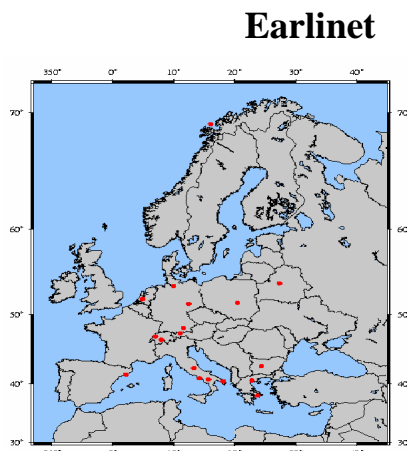
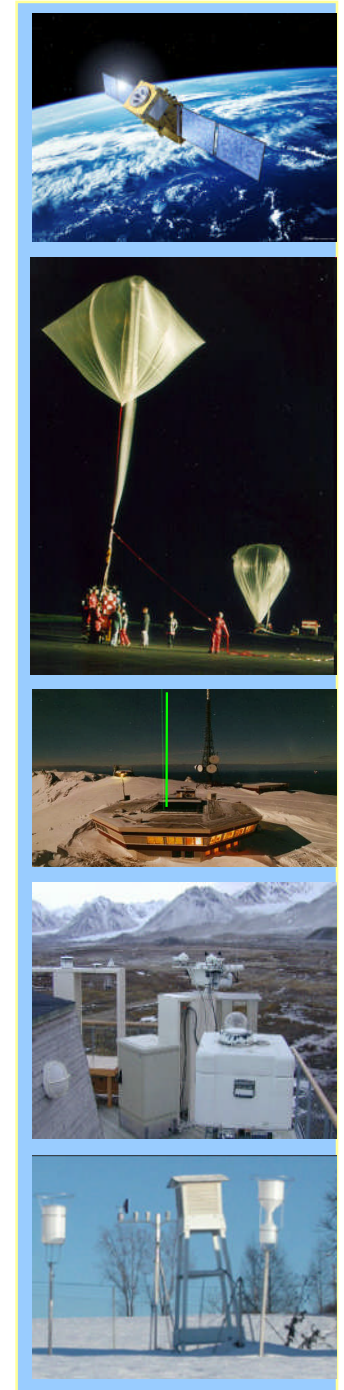


Figure III.1: the EUSAAR supersites and their location in Europe



Aircraft data

ACE-Asia, TRACE-P, ITCT, ICARTT, Mozaic/IAGOS, CARIBIC,

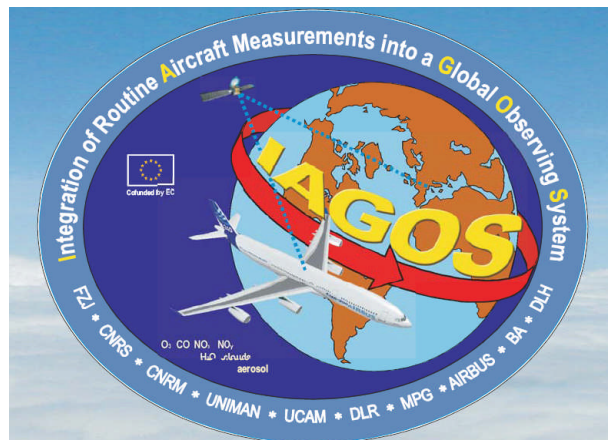
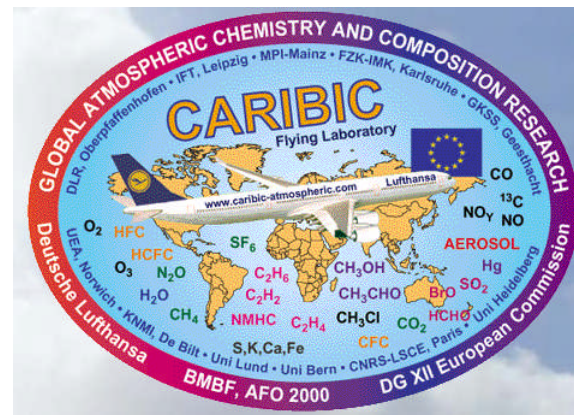
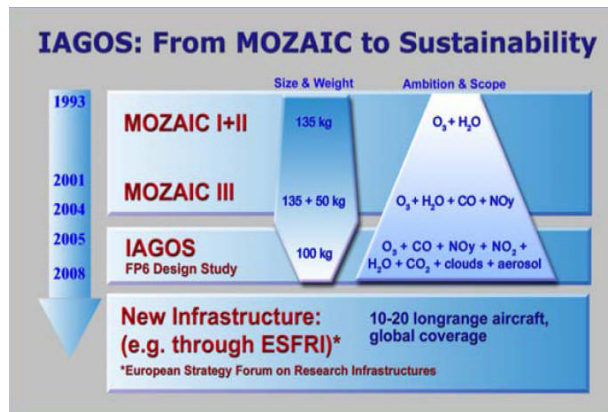
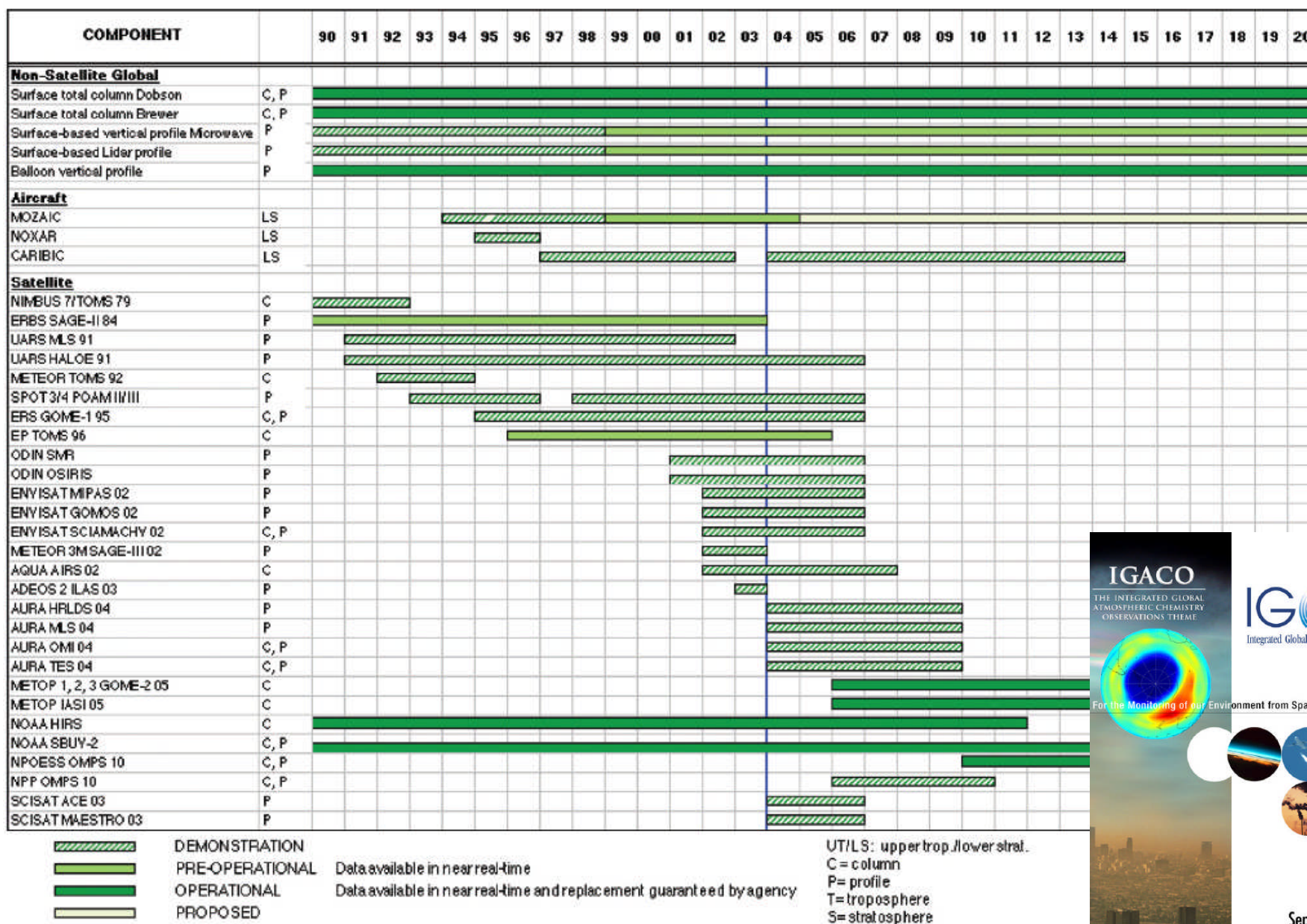
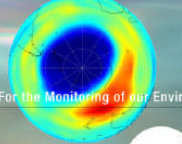


Figure 4.1. An overview of satellite, ground-based and aircraft measurements for tropospheric O₃



For the Monitoring of our Environment from Space and from Earth



September 2004
An international partnership for cooperation in Earth observations

Data availability

Emphasis on the use of "public" data

Data aggregation level

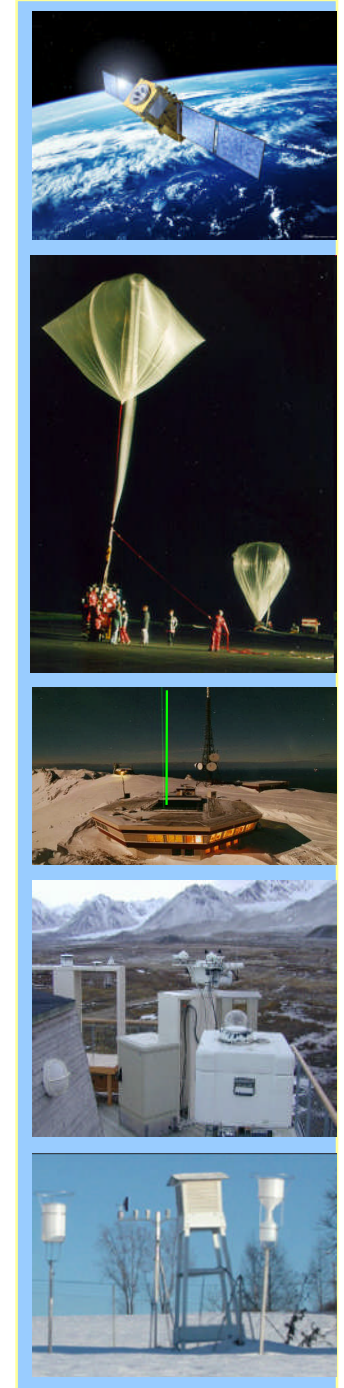
Time resolution of individual observations or integrated to daily, weekly, monthly

Database issues

Data exchange formats

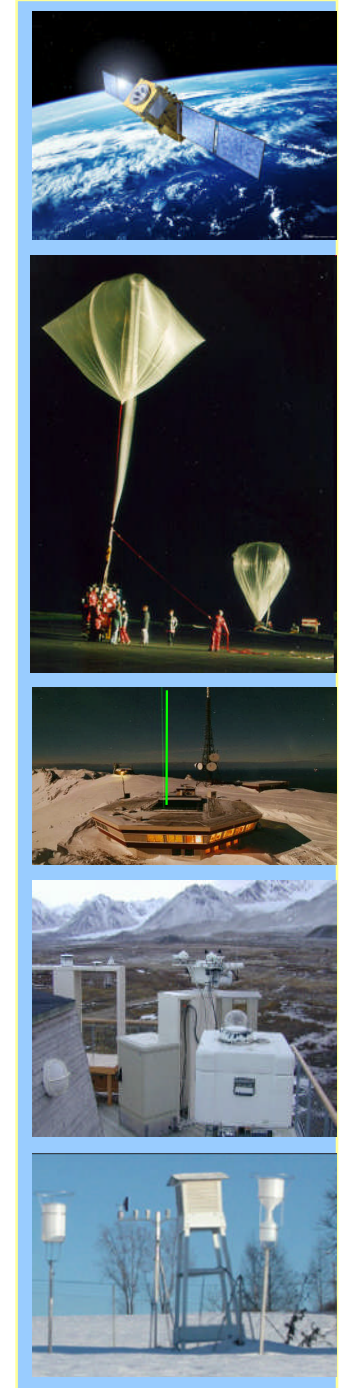
Meta-database harmonisation

Access restrictions



Organising common use of observations

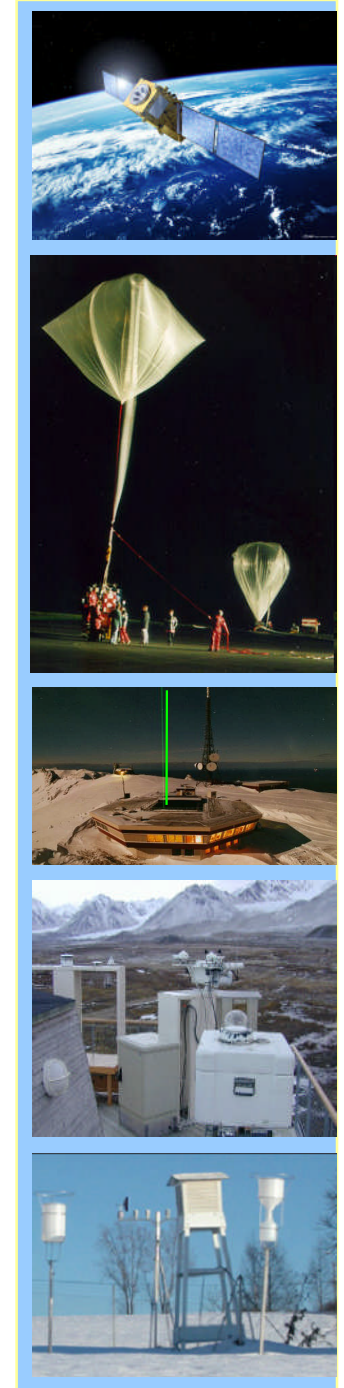
- All modellers download data from an agreed list of data centres
 - Advantage: Easy to set up
 - Drawback: Lot of work and duplication of work for model groups
- All needed data are downloaded to a central archive “SNAPSHOT”
 - Advantage: Easy to find data
 - Disadvantage: Data may become outdated. Little control of metadata and data formats
- Virtual database with data in common formats
 - Advantage: Easy to use data. More control of metadata. Data updated directly from data providers
 - Disadvantage: More work for holder of data archive.



Proposed solution

GEMS SNAPSHOT database for 2003-2004

- Collection of all data to be used in a common database at ECMWF
- Proper data version control
- Data should be reformatted to a standardized format by ECMWF. Extended BUFR, netCDF. Multiple formats still allowed ?
- Database should be searchable and available through web browser
- Metadata on data availability to be extracted for model sampling



Questions for discussion

What is the main purpose of the GEMS database for 2003-2004?

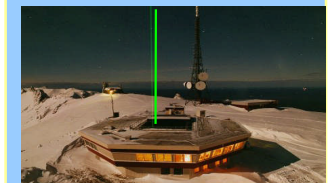
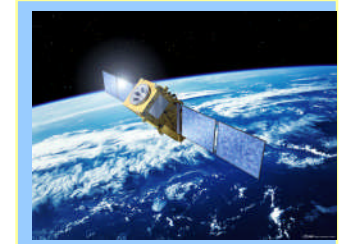
- Calibration of skillscores – need to include data use in the NRT data assimilation
- Evaluation of skill for additional data to be assimilated
- Model evaluation

Which data should we compiled depends on this purpose. How do we proceed to compile this data ?

- AEROCOM
- GEMS AER and GRC
- NRT for calibration of skillscores
- Compile a set of observations from "suitable" sites (outflow, inflow, regional representative, known quality, completeness of parameters)

What is the proposed structure of the "snapshot" data base ?

Does everybody agree to the extended BUFR format?



Documentation available

EMEP/CCC-reports 2005

EMEP monitoring strategy

IGACO strategy report

GCOS 2nd report

GMES-GATO report

EANET Data Report on the 'Acid Deposition in the East Asian Region'

ACCENT meta-database print-out

AMBIO special issue "International and National abatement strategies for transboundary air pollution"

GEOSS 10yr implementation plan

NARSTO assessment on PM

EPA reports; "The particle pollution report" - "the EPA PM research program" – "The ozone report"

PROMOTE; "Protocol monitoring for the GMES service element for atmosphere"

EC-JRC; "Atmospheric chemistry research in the new EU countries"

CAPACITY – "Operational Atmospheric Chemistry Monitoring Missions"

