GEOmon

Global Earth Observation and Monitoring

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The GEOmon Project

- Integrated Project of the 6th EC Framework Programme

- 38 consortium members

- duration of 4 years (started in February 2007)

- coordinated by the Commissariat à l'Energie Atomique CEA, F (Philippe Ciais)

Objectives

➢ Integrate satellite observations with ground-based and airborne observations of atmospheric composition

➢ Quantify variability & trends over Europe related to emissions

➢ Quantify global trends and reduce uncertainties related to climate change

➢ Build an integrated pan-European atmospheric information system of greenhouse gases, reactive gases, aerosols, and stratospheric ozone.

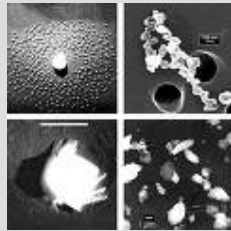# GEOmon Project structure
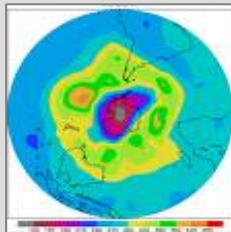
Modeling and Integration
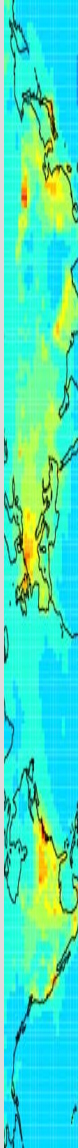
Greenhouse Gases

Reactive Gases & Pollutants

Aerosols & Climate

Stratospheric Ozone

Surface & profile in-situ observations

Surface, profile, column remote sensing observations

Integration & Harmonization

Modeling

Selecting representative sites

Processing & Trend Analysis

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Data dissemination

GEOmon Data Center

Outreach

User Interfaces
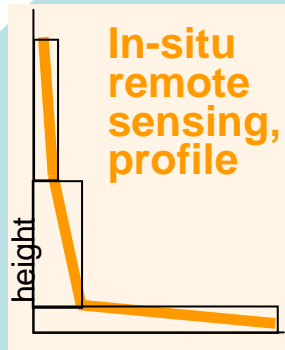
Projects

Organizations

Policy

GEOMON activities
related to Air Quality

- Develop **integrated and harmonized data products** for **gases and particles** combining ground-based data and remote sensing fields with assimilation model results

- Provide and sustain quality assured **long-term datasets** for the composition of the European boundary layer

- **Analyze long-term trends** in the observed atmospheric composition

- Develop new **Near Real Time** data products

- **Optimize measurement networks** through comparisons between observed and modeled tracer distributions

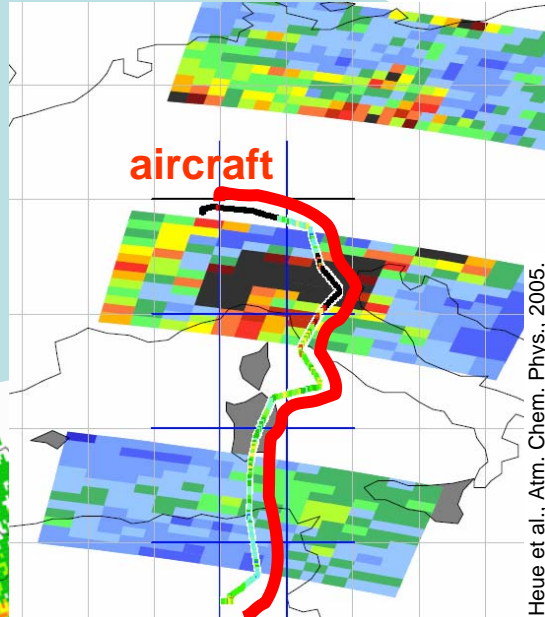- **Evaluate** global & regional **models** with GEOMON data
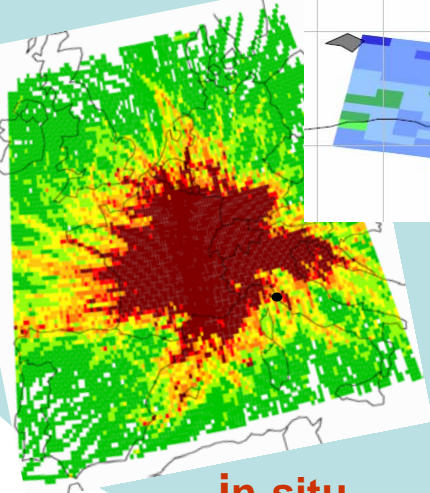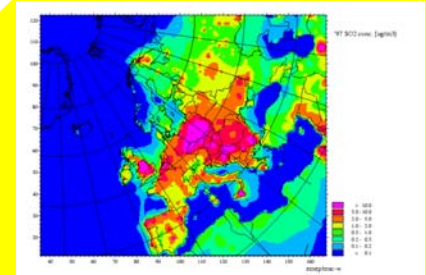
Reactive Gases & Pollutants

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satellite

In-situ remote sensing, profile

aircraft
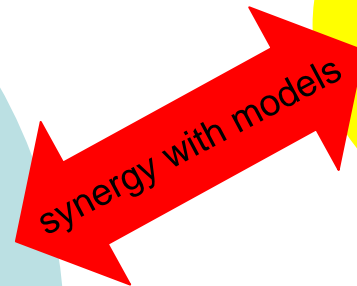
Heue et al., Atm. Chem. Phys., 2005.

synergy with models

Modeling

Observations

in-situ

Harmonize and quality-check observational data

Link existing ground-based remote sensing networks and passenger aircraft programs to satellite measurements

Integrate chemical composition measurements and models

Long-term consistent, <u>representative</u> datasets for the European boundary-layer

GEOmon: link to GEO

The overarching aim of GEOMON is to construct a **prototype system for atmospheric composition monitoring** for climate applications, by the combination of ground-based with satellite observations

… that will form the backbone of a new **European component to the international** atmospheric composition monitoring **network.**"

Many observational data sets …
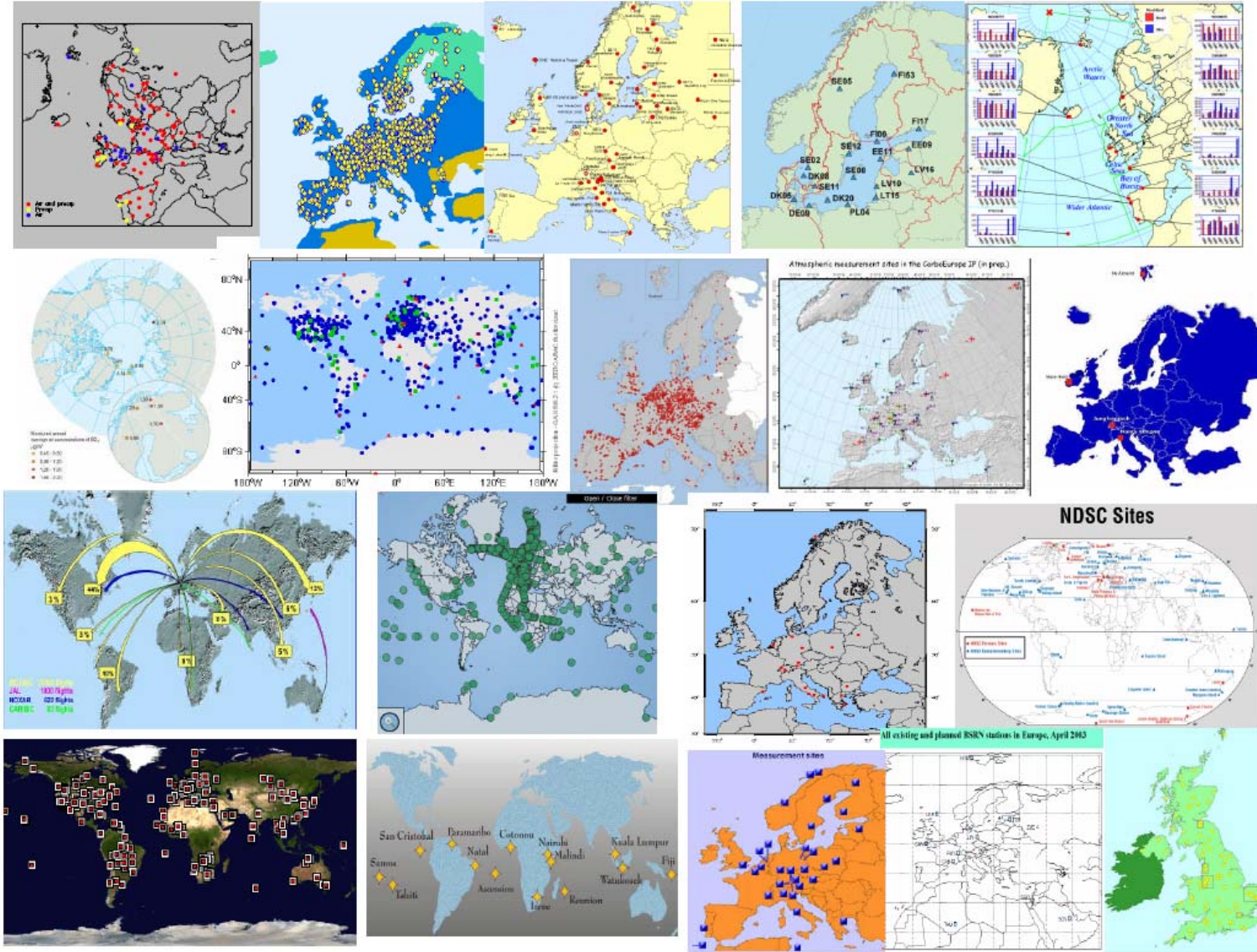
GEOMON: Towards a "one-stop shop" for
European atmospheric composition observations

The GEOMON data center

> ➢ allow access to data through a <u>common data centre</u>,
> ➢ interact with user and providers to develop requirements, common standards for meta-data, and file formats
> ➢ handle data archiving, processing and dissemination (incl. NRT)

GEOSS

GEMS

GAW-WDCs & GAWSIS

external

internal

Others

EMEP

User interphase

GEOMON data centre

Observations performed through GEOMON

GHGs
-AGAGE,
-ESRL
-CarboEurope
-IMECC
-Soge
-Eurohydros
-WDCGG
-Others

Reactive Gases
-EMEP
-AirBase (AQFD, EIONET)
-NitroEurope
-WDCGG
-Others…

Aerosols
-EMEP
-EUSAAR
-AirBase (AQFD, EIONET)
-EARLINET ASOS
-AERONET
-WDCA
-Others

Ozone/UV
-NDACC
-WOUDC
-WRC
-BSRN
-others