



ILMATIETEEN LAITOS  
METEOROLOGISKA INSTITUTET  
FINNISH METEOROLOGICAL INSTITUTE

# IGACO-Ozone: Improving global access to Ozone observations

**Anssi Mälkki**

**Coordinator**

**IGACO-O3 secretariat, FMI**

22 August 2006





## What is IGACO?

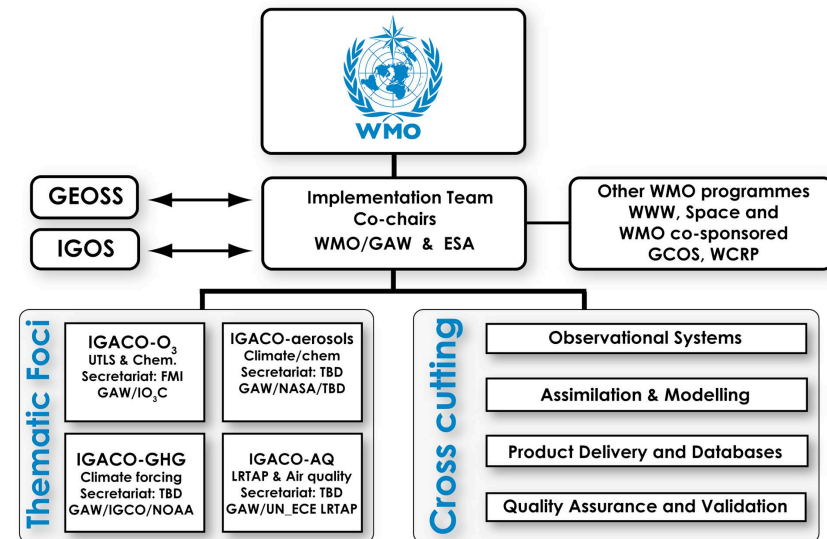
- **IGACO: Integrated Global Atmospheric Chemistry Observations**
- **Theme in the IGOS (Integrated Global Observing System), which is a partnership of international organisations concerned with global environmental-change issues.**
- **Led by the World Meteorological Organisation (WMO) through its Global Atmospheric Watch (GAW) programme.**
- **IGACO theme report: 12 general and 7 specific recommendations**



# IGACO Goals and Structure

- I. To ensure accurate, comprehensive global observation of key atmospheric gases and aerosols;
- II. To establish a system for integrating ground-based, in-situ and satellite observations using atmospheric models;
- III. To make the integrated observations accessible to users.

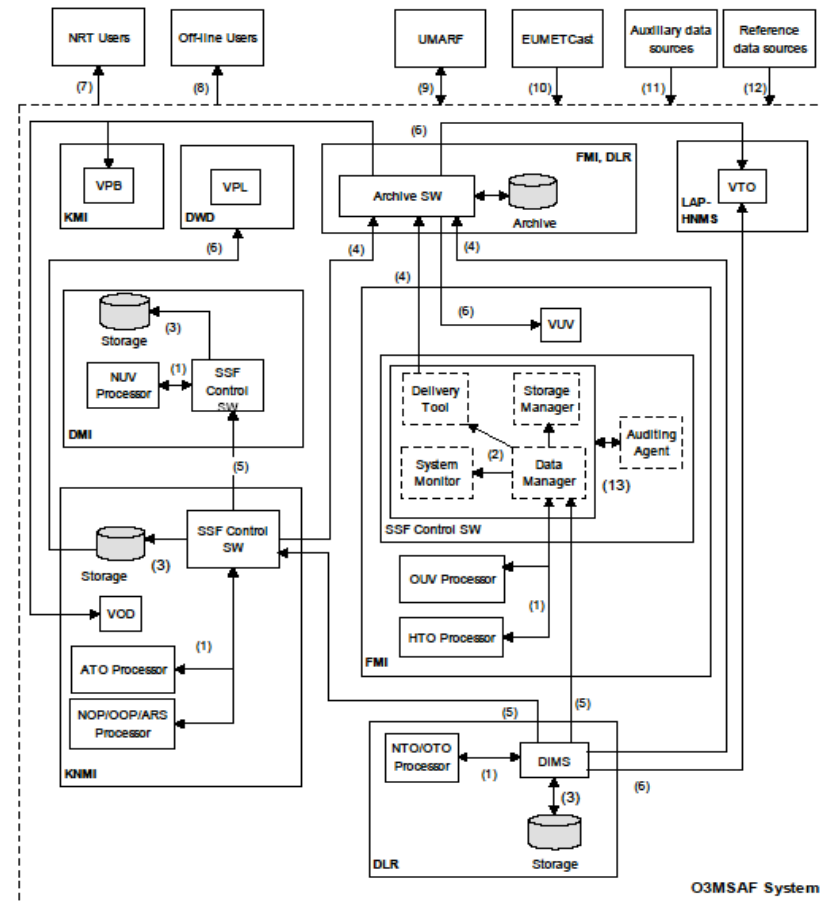
## The IGACO structure





# IGACO-O3 Objectives - 1

- **Improve access to O3 data worldwide.**
  - In addition to Data Centres such as WOUDC and GAWSIS there exist numerous data repositories and web pages where ozone data can be retrieved
  - Especially satellite data is distributed in many places.
  - A well-organised portal with summary information of data resources would be a useful first step towards this goal.





## IGACO-03 Objectives - 2



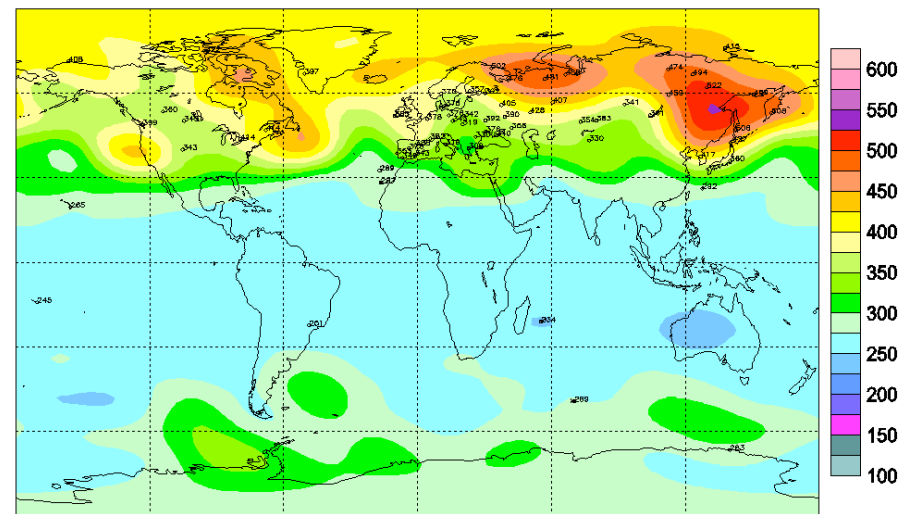
- **Work on promoting the use of homogeneous quality control and documentation in order to guarantee homogeneous quality of data.**
  - Due to different standards, quality parameters may differ which hinders data intercomparisons.
  - Documentation and metadata are also often difficult to find or do not exist.



## IGACO-O3 Objectives - 3

- **Develop modelling and assimilation capabilities that can be used for combining data from various sources.**
  - Integrated data products are not optimal for all kinds of studies, but it is foreseen that the use of such products - even in near-real-time - will be more common in the future.

Total ozone (DU) / Ozone total (UD), 2006/03/28



Integrated total column ozone image provided by WOUDC.  
(<http://es-ee.tor.ec.gc.ca/e/ozone/ozoneworld.htm>)



# IGACO-03 Objectives - 4

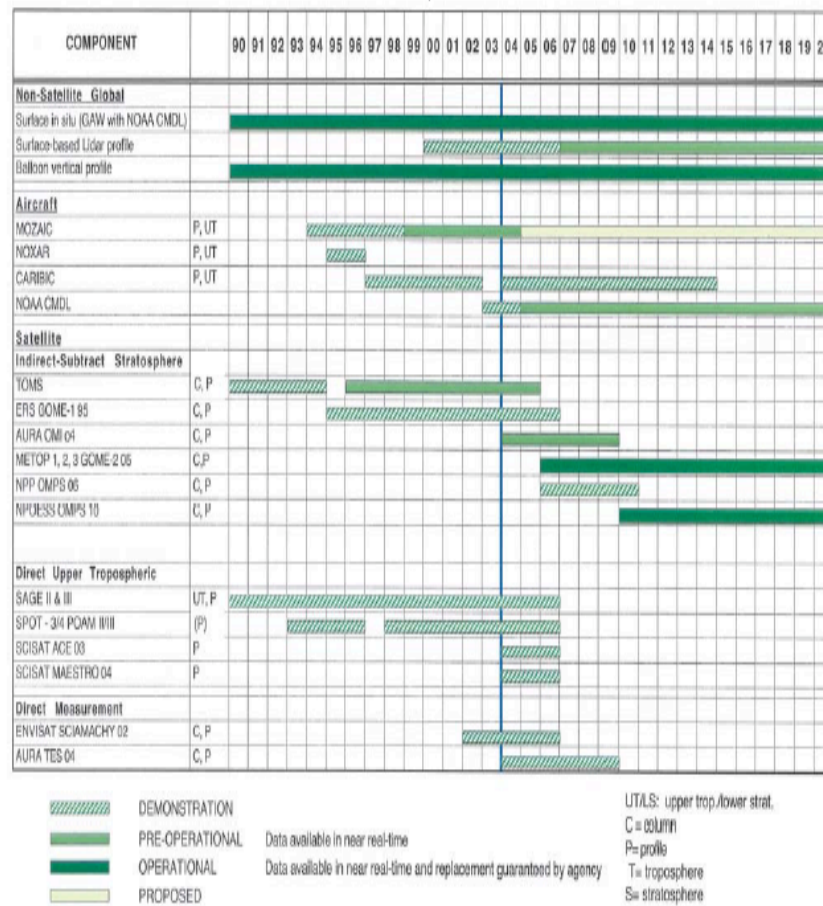


Figure 4.1. An overview of satellite, ground-based and aircraft measurements for tropospheric O<sub>3</sub>

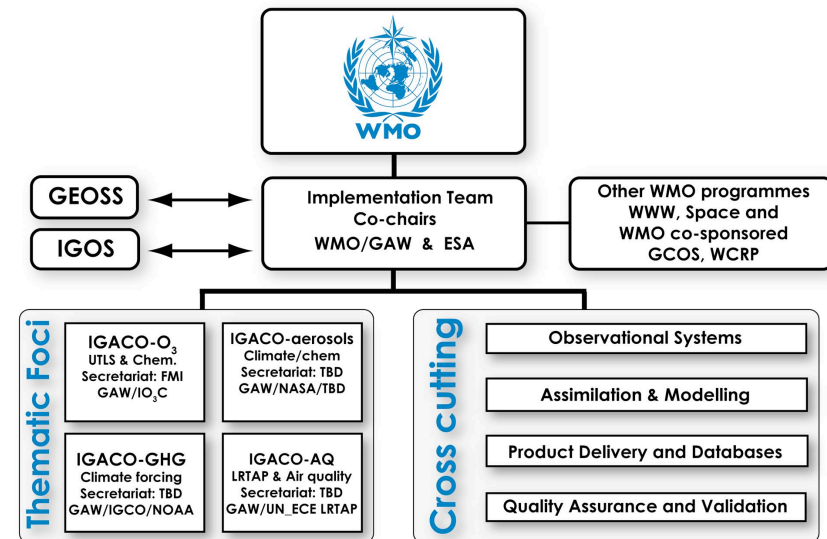
- **Work for ensuring continuity of observations of Ozone, related atmospheric constituents and UV radiation fields. This is a task where also political support is needed.**
  - Discussions with entities that work on similar tasks (the GAW, WMO Space Programme, CEOS), as well as agencies who run the observation stations and implement space missions is needed (ESA, EUMETSAT, NASA, NOAA).



# IGACO Goals and Structure

- I. To ensure accurate, comprehensive global observation of key atmospheric gases and aerosols;
- II. To establish a system for integrating ground-based, in-situ and satellite observations using atmospheric models;
- III. To make the integrated observations accessible to users.

## The IGACO structure

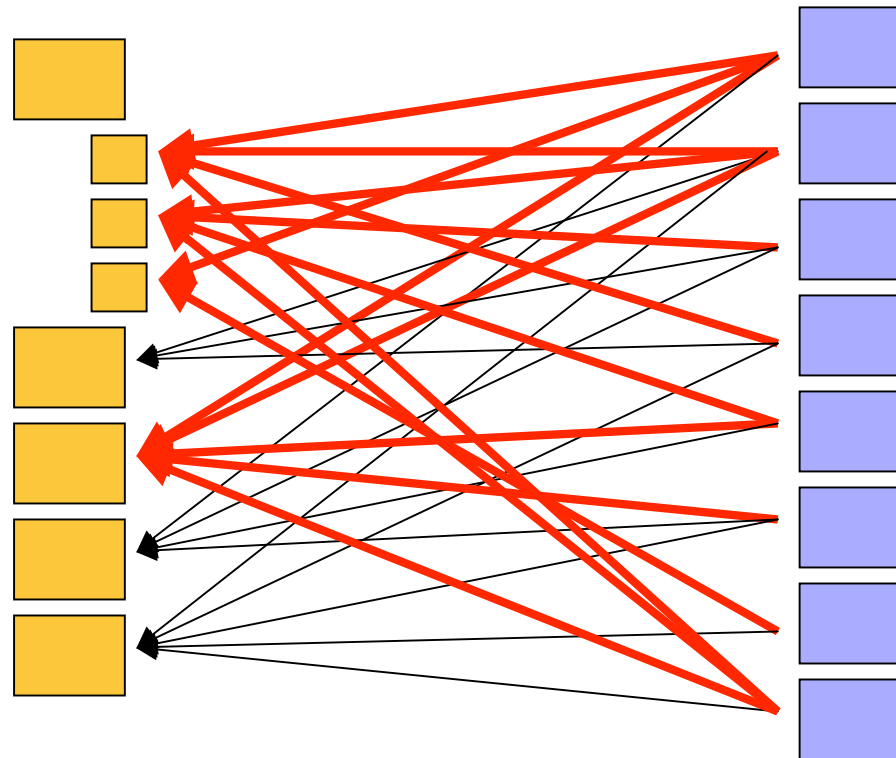






# Current situation

**data providers**  
(e.g. ESA, NASA, NASDA, ECMWF, NCEP, station networks, individual stations, field campaign data centers, ...)



**data users**  
(individual research groups)

← bureaucratic procedure, i.e., submission of proposal, annual reports, final report, etc.

← simple registration or free access

Slide courtesy of M.Rex, AWI Potsdam



# Example: Arctic ozone research

## Arctic winter 2005: Implications for stratospheric ozone loss and climate change, submitted to GRL, April 2006

M. Rex<sup>1</sup>, R.J. Salawitch<sup>2</sup>, H. Deckelmann<sup>1</sup>, P. von der Gathen<sup>1</sup>, N.R.P. Harris<sup>3</sup>, M.P. Chipperfield<sup>4</sup>, B. Naujokat<sup>5</sup>, E. Reimer<sup>5</sup>, M. Allaart<sup>6</sup>, S.B. Andersen<sup>7</sup>, R. Bevilacqua<sup>8</sup>, G.O. Braathen<sup>9</sup>, H. Claude<sup>10</sup>, J. Davies<sup>11</sup>, H. De Backer<sup>12</sup>, H. Dier<sup>13</sup>, V. Dorokov<sup>14</sup>, H. Fast<sup>11</sup>, M. Gerding<sup>15</sup>, S. Godin-Beekmann<sup>16</sup>, K. Hoppel<sup>8</sup>, B. Johnson<sup>17</sup>, E. Kyrö<sup>18</sup>, Z. Litynska<sup>19</sup>, D. Moore<sup>20</sup>, H. Nakane<sup>21</sup>, M.C. Parrondo<sup>22</sup>, A.D. Risley, Jr.<sup>23</sup>, P. Skrivankova<sup>24</sup>, R. Stübi<sup>25</sup>, P. Viatte<sup>26</sup>, V. Yushkov<sup>14</sup> and C. Zerefos<sup>27</sup>

(1) AWI, Germany, (2) JPL, CalTech, USA, (3) EORCU, Univ. of Cambridge, UK, (4) Univ. Leeds, UK, (5) Met. Inst., FU Berlin, Germany, (6) KNMI, Netherlands, (7) DMI, Denmark, (8) Naval Res. Lab., USA, (9) NILU, Norway, (10) DWD, Germany, (11) Met. Service of Canada, (12) RMI, Belgium, (13) MOL, Germany, (14) CAO, Russia, (15) IAP, Germany, (16) CNRS, France, (17) NOAA, USA., (18) SMO, Finland, (19) MWM, Poland, (20) Met. Office, UK, (21) NIES, Japan, (22) INTA, Spain, (23) SAIC, USA, (24) Czech Hydrometrical Institute, (25) Swiss Meteorological Aerological Station, (26) SMI, Switzerland, (27) Lab. of Climatology and Atmos. Env., University of Athens, Greece.

- **combination of data from:**
  - 35 individual ground stations
  - POAM III
  - SAGE III
  - SLIMCAT
  - ECMWF, NCEP
  - FU-Berlin Met. Analyses
  - **Data from ACE-FTS (via ESA) would have been valuable for the study**

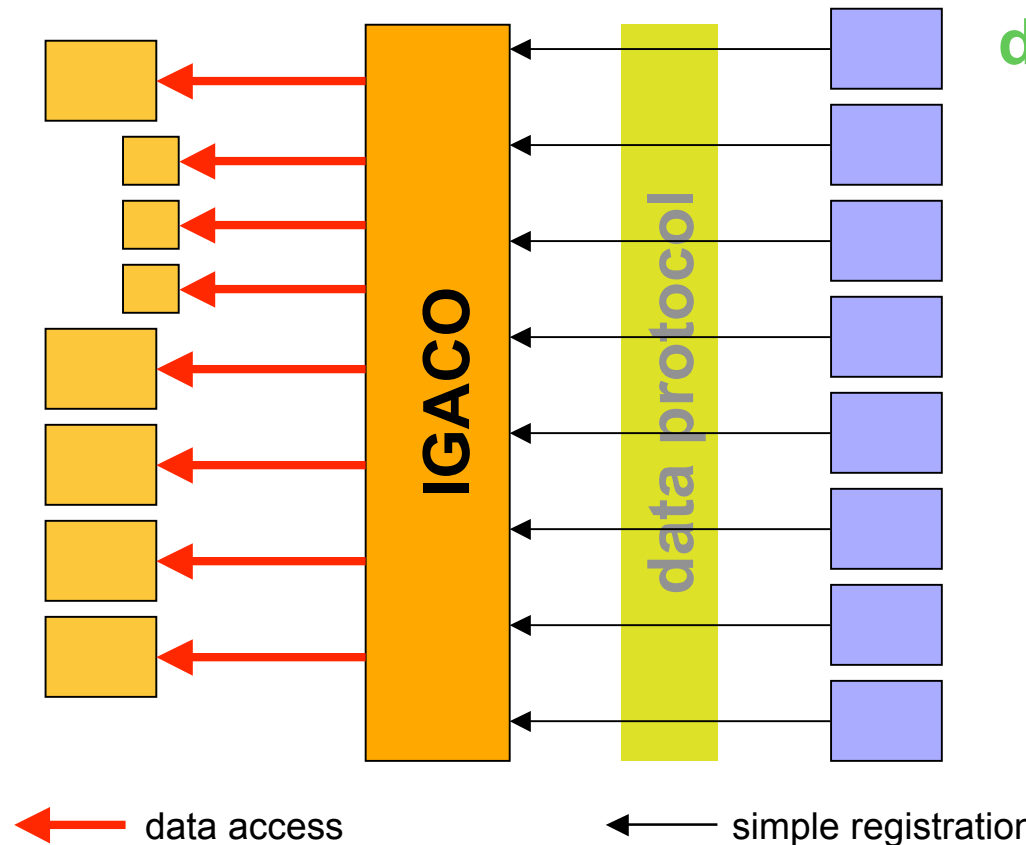
**Slide courtesy of M.Rex, AWI Potsdam**



# A scientist's dream

## data providers

(e.g. ESA, NASA, NASDA, ECMWF, NCEP, station networks, individual stations, field campaign data centres, ...)



## data users

(individual research groups)

- Each user has to establish just one link to IGACO get access to all atmospheric data, including a complete overview over all data sets

Slide courtesy of M.Rex, AWI Potsdam



## Current status

- **IGACO-O3 Established in October 2005**
- **First User meetings in February and May 2006**
- **13 tasks approved for implementation**
  - 1 of the tasks is improved access to data
- **User consultation and requirements definition workshop planned for mid-November 2006**
- **Timescale for implementation: incremental activities over the coming 5 (to 10) years.**



IGACO-o3 - Mozilla Firefox

Tiedosto Muokkaa Näytä Siirry Kirjanmerkit Työkalut Ohje

http://www.igaco-o3.fi/en/index.html

Google Saunalahti webmail Elisa HelpNET Dynamicum intra fmi takaovi HS Kotisivu - HS.fi

IGACO-o3 VS Screen Capture - XvsXP.com, Mac OS X vs. ...

IGOS FINNISH METEOROLOGICAL INSTITUTE

Home Sitemap Search

**Introduction**

**Programme status**

**Contacts**

**IGACO-03 - Ozone and UV radiation**

IGACO (International Global Atmospheric Chemistry Observations) is a strategy for bringing together ground-based, aircraft and satellite observations of 13 chemical species in the atmosphere. IGACO will be implemented through the [Global Atmospheric Watch \(GAW\)](#) programme of the [World Meteorological Organization \(WMO\)](#).

The implementation will be organised in four focus areas: Ozone, Aerosols, Greenhouse gases and Air Quality / Long-range transport. Activities in each focus area will be coordinated by a WMO, jointly with a secretariat hosted by a research institution in the field. The IGACO-Ozone secretariat is hosted by the [Finnish Meteorological Institute](#).

**Latest News:**

The scope and goals of IGACO-03 were discussed in Consultation Workshop in Anavyssos, Greece on 14-15 May 2006. The participants of the meeting were invited representing all communities working on Ozone measurements and modelling, and included members of the International Ozone Commission and GAW Ozone and UV SAGs. [Read more »](#)

Print

GOS/GAW CEOS



ILMATIETEEN LAITOS  
METEOROLOGISKA INSTITUTET  
FINNISH METEOROLOGICAL INSTITUTE



Thank you for your attention.