

# Atmospheric Composition Constellation (ACC) Used at WGCV-30

**Ernest Hilsenrath**  
NASA/HQ

**Claus Zehner**  
ESA/ESRIN



## ACC Objectives

- **Establish a framework for long term collaboration among the CEOS agencies where the “Constellation” will identify specific opportunities for meeting science and application requirements**
- **Collect and deliver data to improve predictive capabilities for coupled changes in the *Ozone Layer, Air Quality, and Climate Forcing* associated with changes in the environment.**
- **Demonstrate Constellation capability through demonstration projects for future operational use**
- **Consider future opportunities to provide added value to SBA through synergy of combined satellite data**

## Progress to Date -1

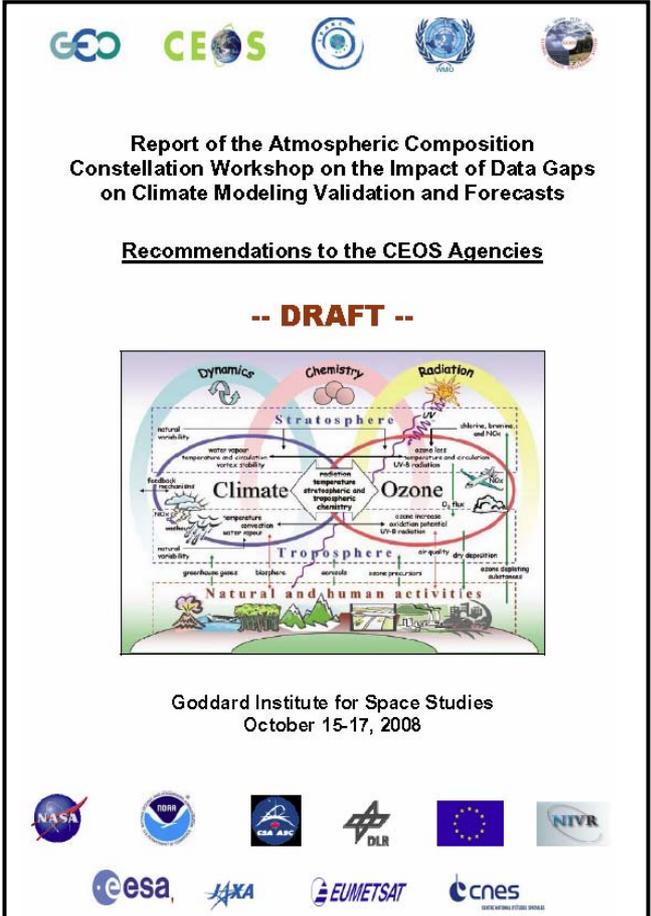
- Established three projects employing multiple satellites and CEOS members
  - Air quality *NOAA/Eumetsat/NASA*
    - *Metop and Aura intercalibration is more of a challenge than expected, but will be completed in June (HE-09-03a\_3)*
  - Smoke and dust forecasts *NOAA/NASA*
    - *Demonstration complete, funding requested to make operational (HE-09-01\_2)*
  - Volcanic alerts *ESA/DLR/NASA*
    - *Operational with improvements underway. Workshop in Rome 6-7 April 2009 (DI-09-02a\_2)*
- Conducted Requirements and Gap Analysis (R&GA)
  - Draft posted on CEOS website for agency feedback (AR-09-02a\_14)

## Progress to Date - 2

- **First meeting (December 2008) with JAXA on establishment of International Working Group on GHG**
  - *Presented at SIT – 23*
- **NO<sub>2</sub> Intercomparison campaign – Netherlands Jun 2009 (SIT-22-5 Action)**
  - <http://www.knmi.nl/samenw/ceosgeomon/>
  - *Working with WGCV/ACSG*
  - *Envisat, Metop, Aura*
  - *Establish accuracy of ground measurements*
- **First meeting with DLR on establishment of AC Portal. (AR-09-02b\_2)**
  - *Working with WGISS and the WMO*
  - *DLR agrees to support*
  - *Requirements and specifications underway*
- **Conducted workshop on the “Implication of AC Data Gaps on Climate Modeling” at NASA/GISS, 15-17 October 2008 (CL-09-02a\_13)**
  - *Workshop sponsored by WCRP(SPARC), WMO, and GCOS*
  - *Attended by 45 scientists from Europe, Japan, and US*
  - *Draft report being reviewed by attendees*
  - *Includes recommendations to CEOS members*

# Summary of GISS Workshop-1

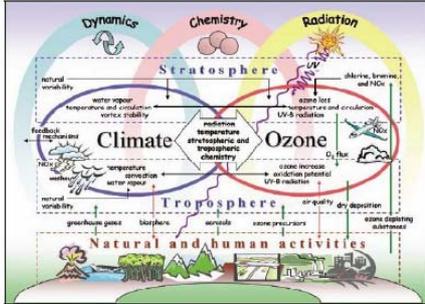
- Review of existing AC data sets and those under development
- Discussion of observational requirements and gap analysis
- Discussion of the status and requirements of chemistry/climate models
- Panel discussion
- Recommendations and priorities based on data gaps
- Workshop report (under review). Final version expected by March 13. (CL-06-01c\_20).
- Next AC workshop planned for June 2009 with a focus on air quality. (CL-06-01c\_21)



Report of the Atmospheric Composition Constellation Workshop on the Impact of Data Gaps on Climate Modeling Validation and Forecasts

Recommendations to the CEOS Agencies

-- DRAFT --

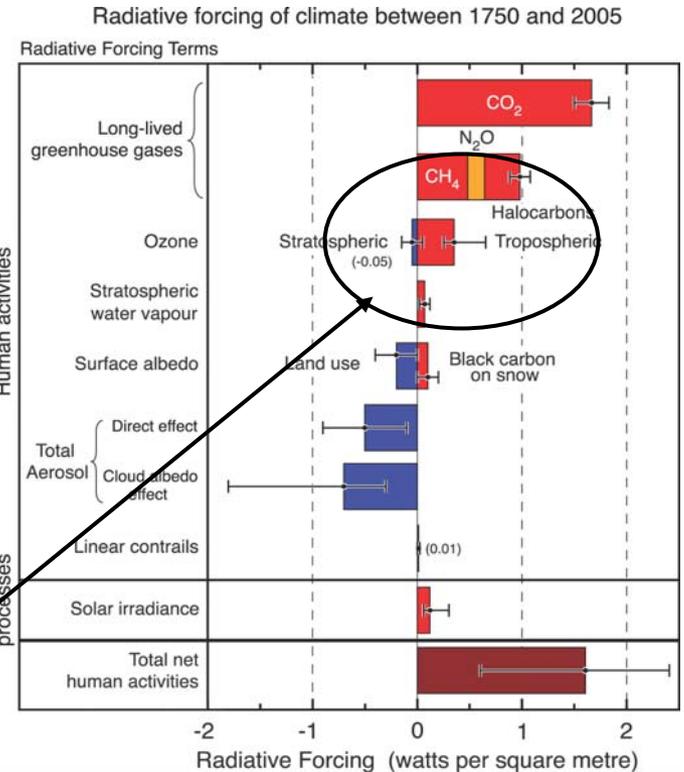


Goddard Institute for Space Studies  
 October 15-17, 2008



# Summary of GISS Workshop-2

- **Chemistry/Climate models need high resolution vertical profiles of ozone, chemically and radiatively active constituents, and aerosols in both the troposphere and stratosphere.**
- **Data are needed for IPCC predictions, Montreal Protocol Assessments, and US Congressional Mandates**
- **R&GA reveal gaps in crucial data from ~2014 to 2028 from all planned missions**



Mission	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Odin	Green																												
ENVISAT	Green																												
SCISAT	Green																												
Aura	Green																												
NPP	Green																												
ALTIUS	Green																												
PREMIER	Green																												
Sentinel-5 Post-EPS	Green																												
GACM-1	Green																												

Legend:

- Green: Current baseline
- Yellow: Current extended
- Light Green: Future Planned
- Grey: Future Consideration

## Summary of Recommendations

- **Ozone profiles – Restore OMPS Limb Sensor on NPOESS**
- **Chemically active constituents and ozone – Re-fly SciSat and include SAGE for stratospheric aerosols**
- **Optimum global coverage for climate/chemistry – Fly PREMIER**
- **Global coverage for climate/chemistry – Include limb sounding on Sentinel 5**
- **Air Quality/Climate connections – Coordinate GEO-CAPE and Sentinel 4**
- **Chemically active constituents and ozone – Move up launch of GACM**