

Session 11: Trace Gases

***Chairs: Antonia Gambacorta and Monika Kopacz
NCWCP 2552-53***

Agenda:

8:30 – 12:10 **NUCAPS**

12:10 – 13:20 Lunch

13:20 – 14:45 **Applications (carbon, methane, HCHO, NO₂)**

14:45 – 15:30 Break (no posters)

15:30 – 17:00 **SO₂ presentations**

AC4 Program and JPSS

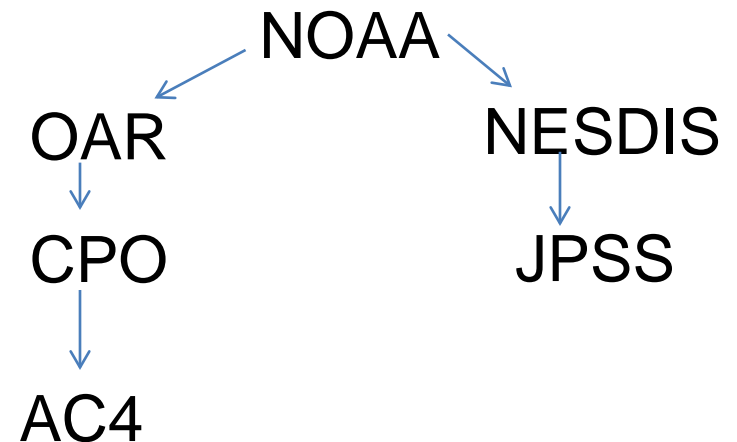
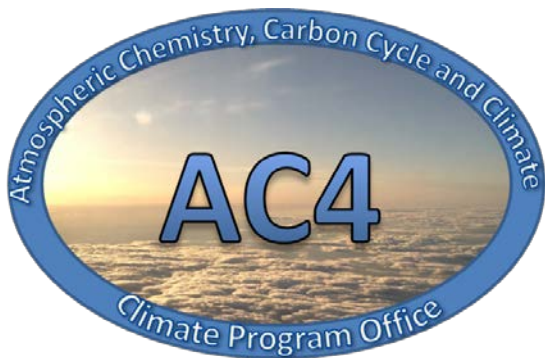
Monika Kopacz, Kenneth Mooney
AC4 Program Managers

August 11, 2016

Atmospheric Chemistry, Carbon Cycle and Climate (AC4) Program

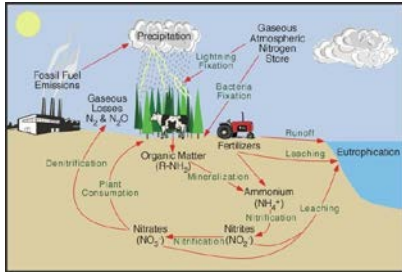
AC4 is a competitive research program which manages a portfolio of multi-year projects

AC4 Goal: Determine the processes governing atmospheric concentrations of greenhouse gases and aerosols in the context of the Earth System and climate



FY13-FY16 Atmospheric Chemistry, Carbon Cycle, and Climate (AC4) Research Portfolio

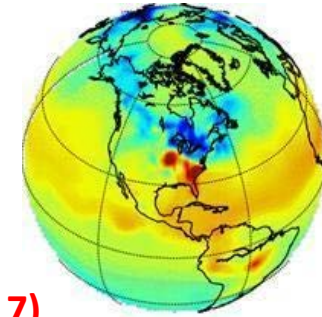
Nitrogen Cycle (FY13,15)



Atmospheric composition from space (FY16)



CarbonTracker (FY13)



Emissions and Chemistry of Wildfires (FY16-17)

Urban Emissions (FY13,14,17)



Oil & Gas Emissions (FY 14,17)



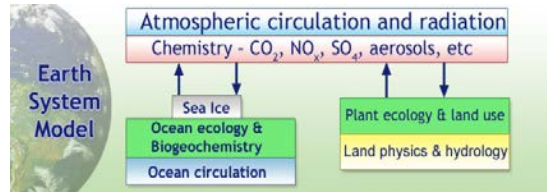
ESRL/CSD, PMEL, ARL Field Campaigns



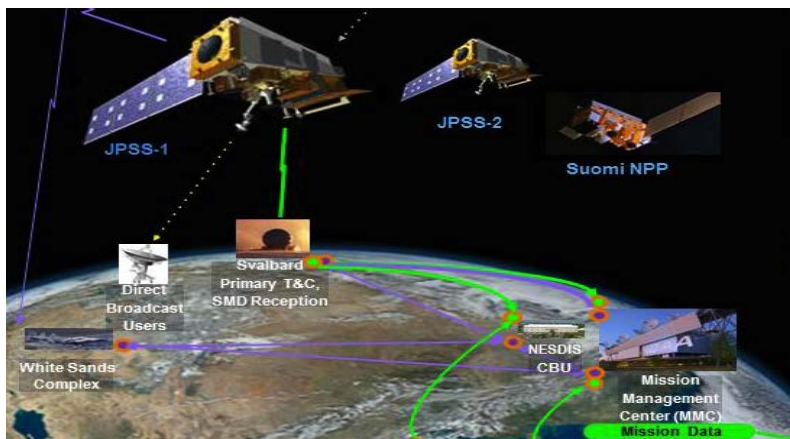
ESRL/GMD Monitoring



GFDL Nitrogen Modeling



Atmospheric Composition from space

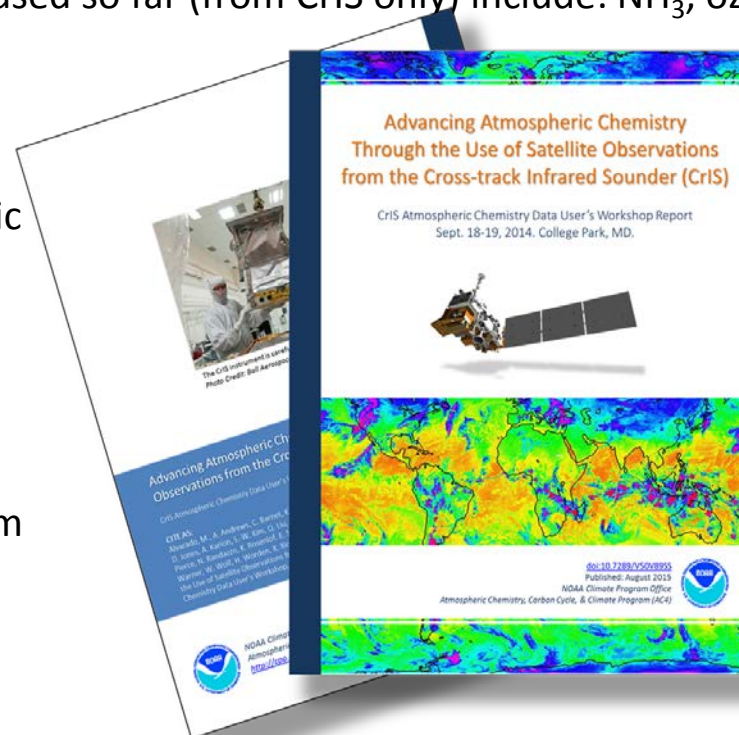


Data from JPSS instruments and AC4 program science:

- AC4 typically supports field and laboratory data, which can be complemented by JPSS data
- CrIS, OMPS and VIIRS composition products (trace gases and aerosols) can all supply relevant products
- Retrievals are used in connection with global and Earth System models
- Data used so far (from CrIS only) include: NH_3 , ozone

AC4 current and future activities:

- CrIS data users workshop, focused on atmospheric composition took place September 18-19, 2014; [report published August 2015](#)
- Three projects include NH_3 data product development, validation and application
- Upcoming project on CrIS/OMPS ozone retrieval
- Ongoing interest in atmospheric composition from space, with special emphasis on monitoring and field campaign support/complement



Thank you.

ATMOSPHERIC COMPOSITION FROM SPACE

Useful tropospheric observations have been obtained from space since 1999. In 2011, NOAA-NASA partnership resulted in a launch of SNPP satellite, the first in the JPSS series. Aboard SNPP, and later also JPSS-1 and JPSS-2, there are several instruments relevant to atmospheric chemistry: CrIS, VIIRS, ATMS and OMPS. Together, they can provide data on trace gases (e.g. CO, O₃, CH₄, NH₃, CO₂ etc.) and aerosols.



CrIS instrument focus in AC4:

- CrIS is an infrared sounder, similar in observing characteristics to MOPITT, AIRS and TES instruments that have provided data since 1999, 2002 and 2004, respectively
- Mid-tropospheric data from CrIS include: CO, CH₄, O₃, CO₂, NH₃, dust
- Scheduled to be launched on SNPP, JPSS-1 and JPSS-2, CrIS can provide at least 20 years of continuous measurements

NOAA NESDIS activities:

- Development and validation of composition products from CrIS: CO, CO₂ and CH₄ so far
- JPSS call for proposals (LOIs due January 12, 2015) for proving ground included atmospheric chemistry focus

AC4 current and future activities:

- CrIS data users workshop, focused on atmospheric composition took place September 18-19, 2014; [report published August 2015](#)
- Two projects funded include NH₃ data product development, validation and application
- Future plans: inclusion in program announcement(s) CrIS data applications

