Atmospheric System Research Program Update

Sally McFarlane
Ashley D. Williamson
ASR Program Managers

March 11, 2014

2014 ASR Science Team Principal Investigator Meeting
Rockville, MD

ASR Updates

- Workshop on High Resolution Modeling 5/19-20/2014
- Budgets new and old
- Full funding impact on ASR grants
- FOAs funded in FY14 and planned for FY15
- Research Highlights and Data Products
- Meeting logistics

Workshop on High Resolution Modeling

Two day Workshop to be held 5/19-20/14, Bethesda, MD

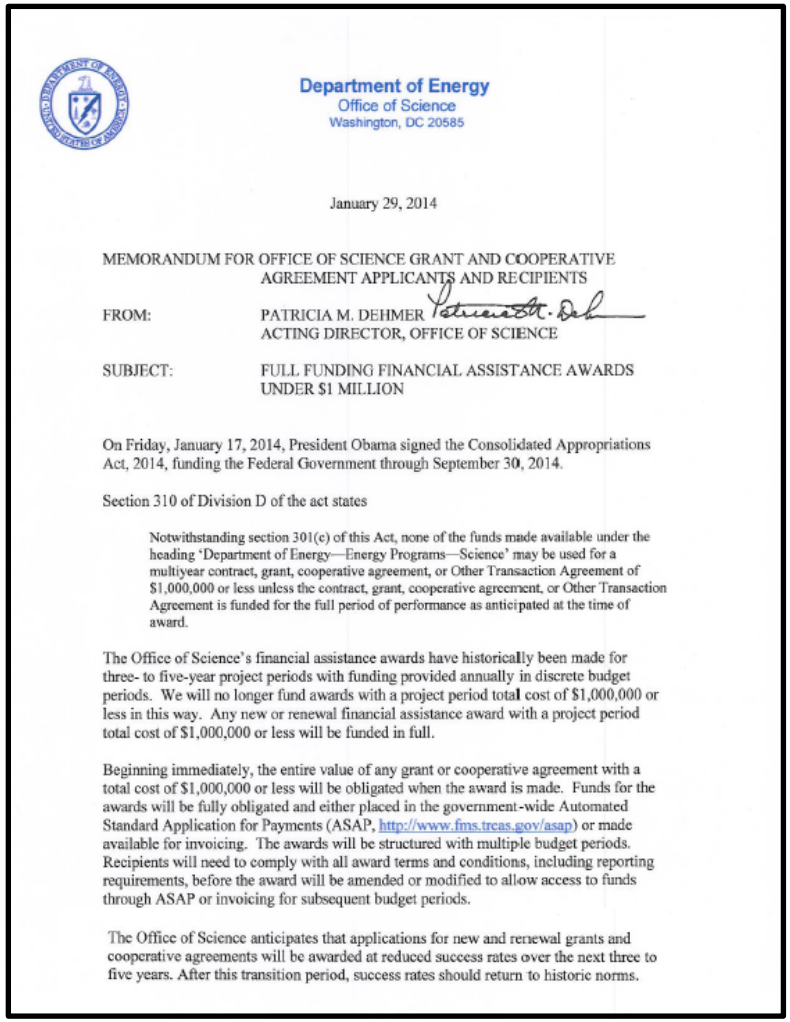
Co-chairs Jim Mather and Graham Feingold and ~25 invited experts in modeling and observations charged to address:

- scientific problems that would benefit from regular Large Eddy Simulation (LES), single column modeling (SCM) and perhaps cloud resolving modeling (CRM);
- ways to maximize the benefits of regular LES/SCM/CRM, confronted with observations;
- measurement and modeling strategies and needs to advance specific science problems;
- the computational challenges and potential solutions to those challenges.

ASR/ARM Budget Update:

- **FY2015 president's request released last week**
  - **Details still pending**
- **FY2014 (enacted): ASR $26.4M (~flat) ; ARM $68.4M**
- **Passage of Omnibus 2014 Appropriation allows funding of some new awards from last year's call (FOA0885)**
  - **Awards have been made from GOAmazon call (FOA0919); Selections in process for FOA0885.**
  - **Budget bill included full funding mandate that impacts awards and future operations of DOE/SC grants (next slides)**

SC Memo on Full Funding Financial Assistance Awards



Department of Energy
Office of Science
Washington, DC 20585

January 29, 2014

MEMORANDUM FOR OFFICE OF SCIENCE GRANT AND COOPERATIVE AGREEMENT APPLICANTS AND RECIPIENTS

FROM: PATRICIA M. DEHMER
ACTING DIRECTOR, OFFICE OF SCIENCE

SUBJECT: FULL FUNDING FINANCIAL ASSISTANCE AWARDS UNDER $1 MILLION

On Friday, January 17, 2014, President Obama signed the Consolidated Appropriations Act, 2014, funding the Federal Government through September 30, 2014.

Section 310 of Division D of the act states

> Notwithstanding section 301(c) of this Act, none of the funds made available under the heading 'Department of Energy—Energy Programs—Science' may be used for a multiyear contract, grant, cooperative agreement, or Other Transaction Agreement of $1,000,000 or less unless the contract, grant, cooperative agreement, or Other Transaction Agreement is funded for the full period of performance as anticipated at the time of award.

The Office of Science's financial assistance awards have historically been made for three- to five-year project periods with funding provided annually in discrete budget periods. We will no longer fund awards with a project period total cost of $1,000,000 or less in this way. Any new or renewal financial assistance award with a project period total cost of $1,000,000 or less will be funded in full.

Beginning immediately, the entire value of any grant or cooperative agreement with a total cost of $1,000,000 or less will be obligated when the award is made. Funds for the awards will be fully obligated and either placed in the government-wide Automated Standard Application for Payments (ASAP, http://www.fms.treas.gov/asap) or made available for invoicing. The awards will be structured with multiple budget periods. Recipients will need to comply with all award terms and conditions, including reporting requirements, before the award will be amended or modified to allow access to funds through ASAP or invoicing for subsequent budget periods.

The Office of Science anticipates that applications for new and renewal grants and cooperative agreements will be awarded at reduced success rates over the next three to five years. After this transition period, success rates should return to historic norms.

Section 310 of Division D of the act states

Notwithstanding section 30l(c) of this Act, none of the funds made available under the heading 'Department of Energy-Energy Programs- Science' may be used for a multiyear contract, grant, cooperative agreement, or Other Transaction Agreement of $1,000,000 or less unless the contract, grant, cooperative agreement, or Other Transaction Agreement is funded for the full period of performance as anticipated at the time of award.

Any new or renewal financial assistance award with a project period total cost of $1,000,000 or less will be funded in full.

Beginning immediately, the entire value of any grant or cooperative agreement with a total cost of $1,000,000 or less will be obligated when the award is made.

The Office of Science anticipates that applications for new and renewal grants and cooperative agreements will be awarded at reduced success rates over the next three to five years. After this transition period, success rates should return to historic norms.

http://science.energy.gov/grants/policy-and-guidance/full-funding/

Implementing Full Funding Financial Assistance Awards

- Beginning immediately, DOE/SC will implement full funding of multi-year grants and/or cooperative agreements with total cost of $1M or less. "Full funding" means funds for the *entire award* for the project period is obligated at the time the award is made, instead of funding year-by-year.
- Process for full funding applies to new, renewal, or supplemental grant awards. Grants and cooperative agreements with a total cost of more than $1M, integrated over the project period, are exempt from the full funding requirement.
- There will be no change to how an applicant applies for a grant or cooperative agreement, nor will there be changes to the merit review process.
- BER Program Managers will continue to have oversight of the research program by requiring PIs to submit an annual progress report that must be approved prior to any funds being accessed by the PI the following year.

Research Funding Opportunities

GOAmazon: DE-FOA-0000919

- Joint call with RGCM (PM: Renu Joseph) and TES (PM: Dan Stover) Programs: two awards from each program
- Collaborative with two Brazilian State agencies which are issuing their own funding calls for researchers in their respective States
  - FAPEAM: Amazonas Research Foundation (4 awards)
  - FAPESP: Sao Paulo Research Foundation (6 awards)
- NSF also funded two projects in campaign
- ASR funded awards are active and awardees participating in ARM GOAmazon 2014 campaign

GOAmazon Awards

Modifications by Anthropogenic Pollution of the Natural Atmospheric Chemistry and Particle Microphysics of the Tropical Rain Forest During the GoAmazon Intensive Operating Periods (IOPs)

Investigators
DOE: S. Martin (Lead PI), Harvard; J. Jimenez, Colorado; S. Kim, Calif-Irvine, subaward to J. Smith and A. Guenther, UCAR
FAPEAM: R. Souza (PI), Amazonas (UEA) including J. Tota
FAPESP: H. Barbosa (PI), São Paulo (USP), including subproject to L. Rizzo and T. Pauliquevis (UNIFESP)

Bridging Land-Surface Fluxes and Aerosol Concentrations to Triggering Convective Rainfall

Investigators: Chamecki (Penn State), Manzi (INPA), von Randow (INPE)
Other Institutions: UEA (Amazonas), Duke, SUNY-Albany, Montana State

Understanding the Response of Photosynthetic Metabolism in Tropical Forests to Seasonal Climate Variations (TES- PI, Dennis Dye, USGS)
Ecophysiological controls on Amazonian precipitation seasonality and variability (TES- PI, Jung-Eun Lee, Brown)
Multi-scale Processes Driving Tropical Convection and Influence of the Aerosol (RGCM - PI, C. R. Mechoso, UCLA)
Using the GoAmazon-CHUVA measurements to understand what causes the biases in the onset of the rainy season in Amazonia in climate models (RGCM - PI, Rong Fu, Texas - Austin)

Research Funding Opportunities
DE-FOA-0000885

- Application Due date 5/29/2013; Panel review 7/15-18
  - Review panel targeted for mid-July, selections by 9/30
  - Anticipated ~30 Awards (~$5.5 - 6M/yr total)
- Due to full funding mandate, available awards cut by ~2/3)
- Preliminary selections have been made for 10 projects
- Unsuccessful applicants have been notified; discussions ongoing with potentially successful applicants
- We are hoping for expeditious awards (i.e., before June)

Implementing Full Funding: ASR - Specific Changes

- We will issue another call this FY targeting selection and award early in FY2015.
- Instead of one “big” and one “medium” FOA in three-year cycles, there will be an FOA each year for ASR research funding.
  - FOA scope each year will become more focused on priority topic areas rather than “wide open” to all ASR Science topics
- We realize that this mandate will cause some short-term stress to our applicant and PI pool – we are working to reduce the impact on our community both as applicants, reviewers, and as awardees.
- Currently we have no single projects over $1M total. We will explore the possibility of soliciting some larger team projects in addition to the typically smaller ASR projects, as well as reviving the “exploratory” or high-risk topic format.

Upcoming Research Funding Opportunities

For FY2015 Funding

- "ASR research FOA"
  - Call for applications likely in summer, review early fall
  - Attempt to get future grant start dates earlier in year
- Next Generation Site Scientist FOA
  - Both DOE Labs and private sector entities eligible
  - Private entities fundable under Cooperative Agreement
  - Application and review likely in summer
- Technical questions can be addressed by Sally or Ashley, preferably after Science Team Meeting; neither FOA scope is written at this point.

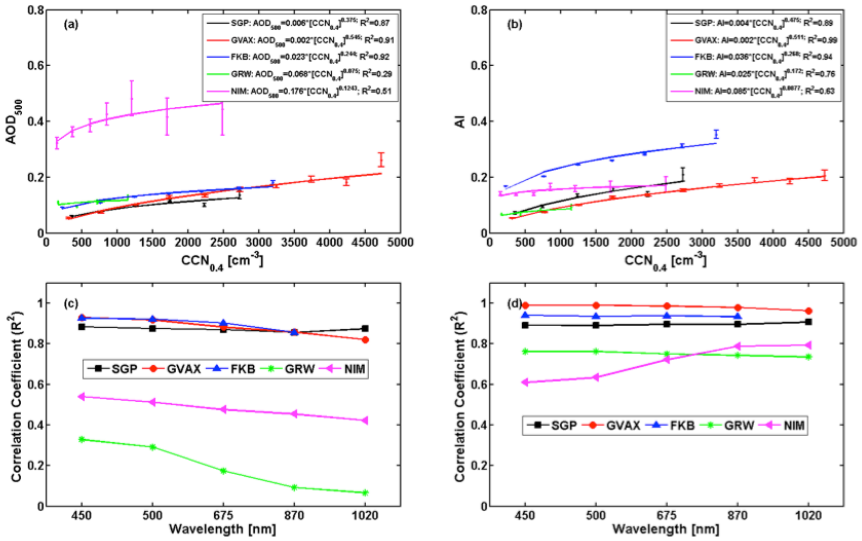
ASR Research Highlights

- http://asr.science.energy.gov/science/research-highlights
- Please submit highlights on journal articles **when they are accepted**
- Highlights should be less technical than a journal abstract
  - Should be understandable by a scientist from a different field
  - Explain the impact of your research; why does it matter?
  - Keep figures simple
- How do we use highlights?
  - Showcase the science being done in the program to DOE management and to the community
  - Subset are presented at BER Advisory Committee (BERAC) meetings
  - We are often asked for examples of research activities with short notice for various DOE or USGCRP needs – research highlights are our "database" for these requests

Thank you!!

- 22 highlights submitted to ASR website since WG Meetings

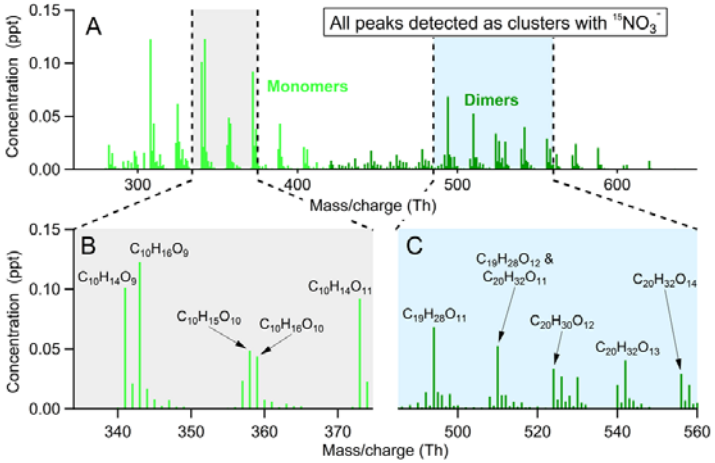
- CAPI Highlights:



- Improving Estimates of Cloud Condensation Nuclei Concentration
  Z. Li (U. Maryland)
- MBL Cloud Properties Derived from the Azores-AMF Observations
  X. Dong (U. North Dakota)
- Invisible Giants in the Sky
  E. Kassianov (PNNL)

ALWG Highlights

- Does Glyoxal Contribute Significantly to Regional SOA Formation? Knote, C., Hodzic A.
- Measured Parameterization of Fire Aerosol Single Scattering Albedo Using Combustion Efficiency - Dubey, M. K. (LANL)
- The Overambitious Other Carbon – Song, C.
- Effect of Dry Deposition of Condensable Organic Vapors on SOA Formation in the Urb Plume - Hodzic, A. (NCAR)



- Vapors on SOA Formation in the Urban Plume - Hodzic, A. (NCAR)
- Forecast Calls for Better Models: Examining the Core Components of Arctic Clouds to Clear Their Influence on Climate – Hiranuma and Brooks (Texas A&M)
- Organic Molecules Explain New Particle Growth in the Boreal Forest – Thornton (U. Washington)
- Spectro-microscopic Measurements of Carbonaceous Aerosol Aging in Central California – Moffet (U. Pacific) & Gilles (LBNL)

- CLWG Highlights
  - Automated Rain Rate Estimates Using the Ka-band ARM Zenith Radar (KAZR) – A. Chandra (McGill)
  - Marine Stratocumulus Clouds: Turbulence-Radiation-Thermodynamics Coupling - V. Ghate (U. Miami/ANL)
  - Evaluation of Gridded SACR Reflectivity Observations and Vertical Doppler Velocity Retrievals - Lamer, Kollias (McGill)
  - Arctic Multilayered Mixed-phase Cloud Processes – J. Verlinde (Penn State)
  - Cotton-Ball Clouds Contained – L. Berg (PNNL)
  - Most Systematic Errors in Climate Models Appear in Only a Few Days of Model Integration - H. Ma (LLNL)
  - Effect of Environmental Instability on the Sensitivity of Convection to the Rimed Ice Species – K. van Weverberg (BNL)
  - All Mixed Up—Probing Large and Small Scale Turbulence Structures in Continental Stratocumulus Clouds – Fang & Albrecht (U. Miami)
  - Digging Into Climate Models' Needs with SPADE – W. Gustafson (PNNNL)
  - Nailing Down Ice in a Cloud Model – J. Comstock (PNNL)
  - Is Cumulus Drag a Rayleigh Drag? – D. Romps (LBNL)

New PI Data Products

- Planetary Boundary Layer from AERI and MPL
  - Virginia Sawyer, U. Maryland
  - Data from SGP for 1996 – 2012
- Cloud property retrieval products and cloud base heights for Graciosa Island, Azores
  - Xiquan Dong, U. North Dakota
  - Cloud microphysical properties, such as cloud droplet effective radius, cloud droplet number concentration, and optical thickness
  - Data from the 2009-2010 AMF deployment to Graciosa
- Updated cloud property retrievals & radiative heating rates SGP, NSA, TWP
  - Jay Mace, U. Utah
  - Atmospheric thermodynamics, cloud properties, radiative fluxes and radiative heating rates at 5-min, 90-m resolution
  - Multiple years at all sites using 2008 algorithm

- Meeting Goals & Overview
  - Present and discuss key results and accomplishments from ASR funded research
  - Develop and sustain collaborative activities through discussions in poster and breakout sessions
- Meeting format
  - Mon – Working group sessions
  - Tues – Thurs
    - Morning plenary sessions
      - DOE updates, Working Group Highlights, PI Poster presentations
    - Afternoon poster sessions (Tues & Wed only)
    - Evening breakout sessions
      - Note room change: Tues ARM reorganization meeting will be in Ben Franklin room

Poster Sessions

- Posters can be up all week
  - Remove by Thursday at 3:00 pm
  - Schedule for presenting posters at the ARM registration table and in the poster rooms
- 4 poster sessions on Tues & Wed afternoon
  - Divided into topical sessions in each time slot
  - Provides more time to view posters
  - Foster discussion around activities and results in thematic science areas
- Note error in poster schedule: **Room 20 not Room 22**

Breakout Session Leads

- Provide presentations to Lynne Roeder or Andrew Flatness **before you leave the meeting**
- Provide a summary of breakout session (a few paragraphs or 1-2 slides) to Sally & Ashley in the next couple of weeks
  - Include key outcomes, recommendations, planned group activities

Finally …

- Do enjoy the meeting. The agenda is full as always, but there is always something for everyone – usually at the same time as something else that is equally fascinating!
- We will of course entertain questions …