



U.S. Department of Energy's
Office of Science

ARM Aerial Vehicle Workshop

Advances in Airborne Instrumentation Parameters

University of Illinois

Champaign, IL

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ARM Climate Research Facility (ACRF) - Mission

- The U.S. Department of Energy's (DOE's) ARM Climate Research Facility (ACRF) has been designated a national user facility for the purpose of providing this unique asset for the study of global change to the broader national and international research community. Research at this facility will include the study of alterations in climate, land productivity, oceans or other water resources, atmospheric chemistry, and ecological systems that may alter the capacity of the Earth to sustain life. Global change research also includes the study, monitoring, assessment, prediction, and information management activities to describe and understand:



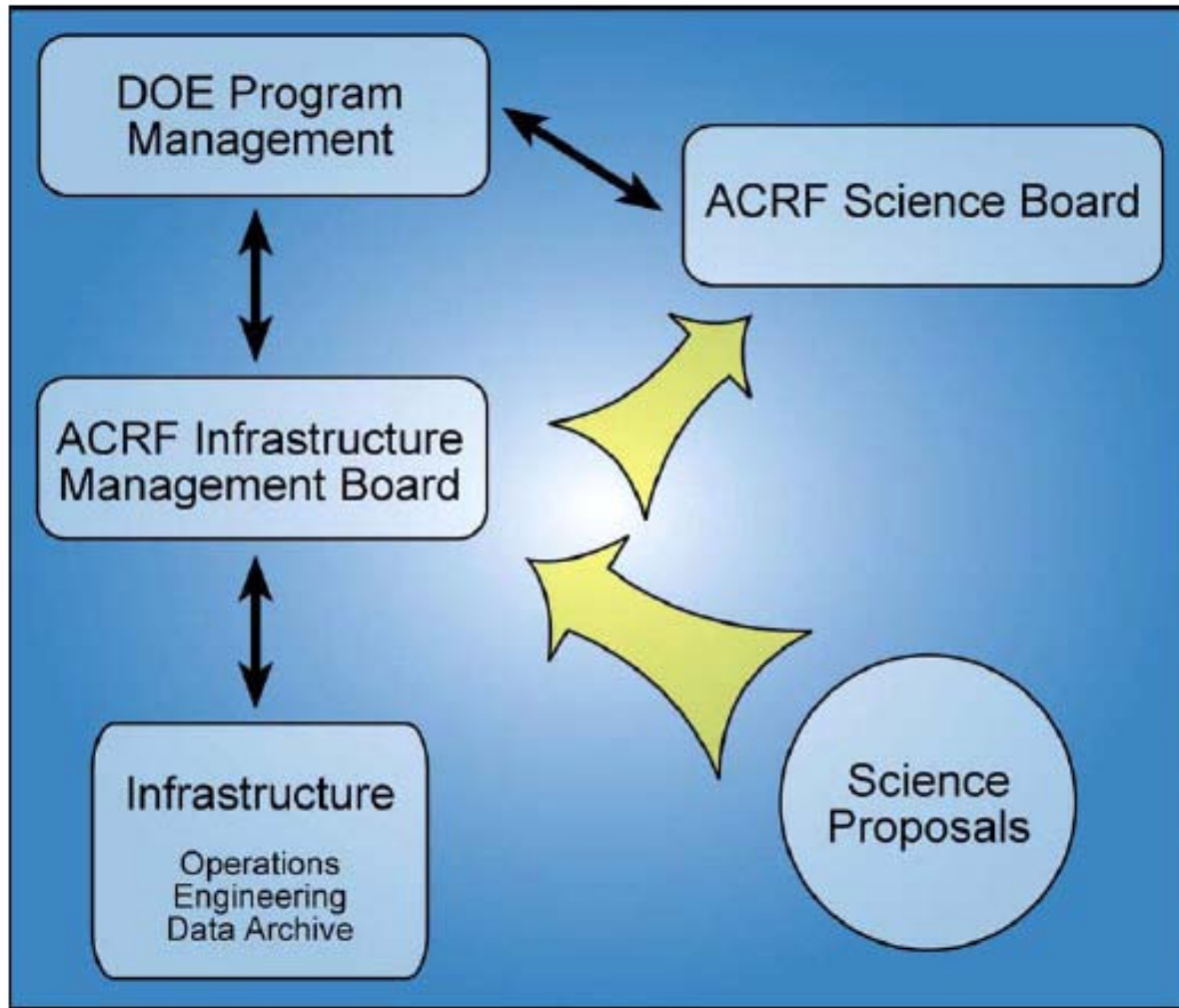
ACRF

- The interactive physical, chemical, and biological processes that regulate the total Earth system
- The unique environment that the Earth provides for life
- The changes that are occurring in the Earth system and the environment and how these changes are influenced by human actions.



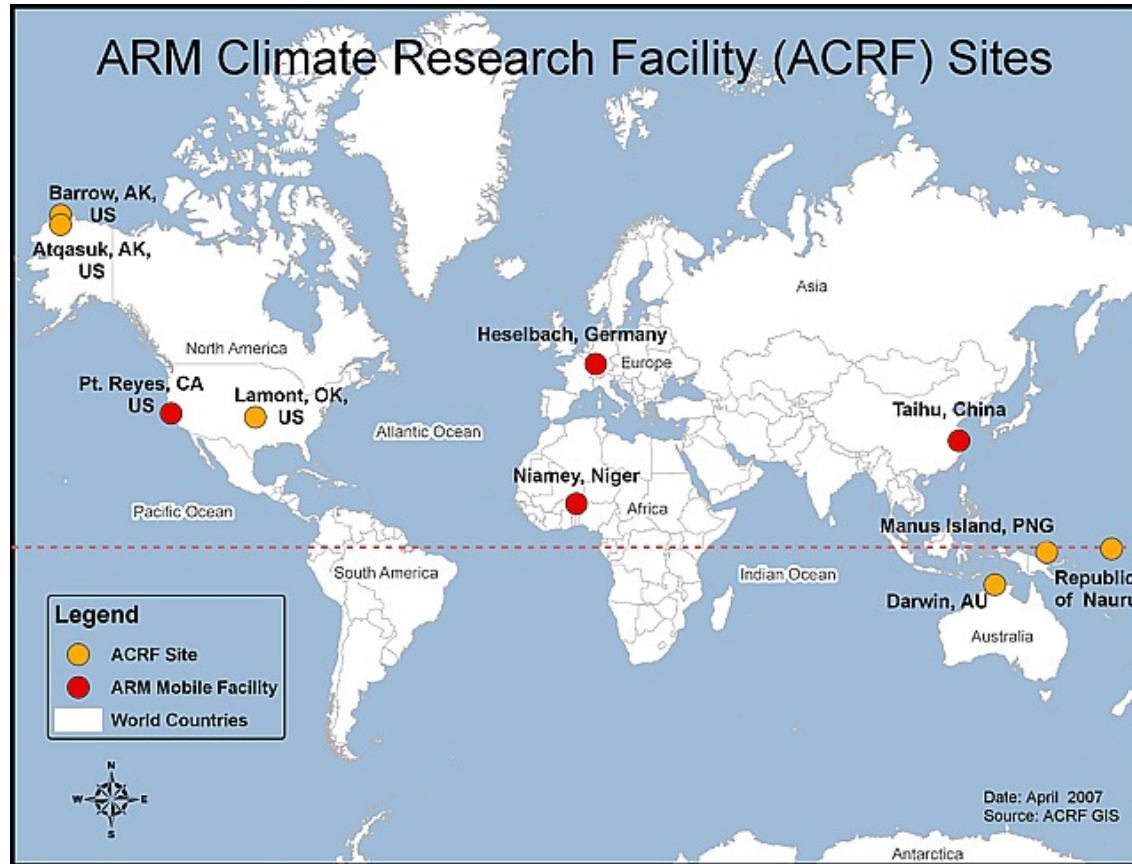
ACRF Mission and Structure

Management Structure





ARM World-Wide



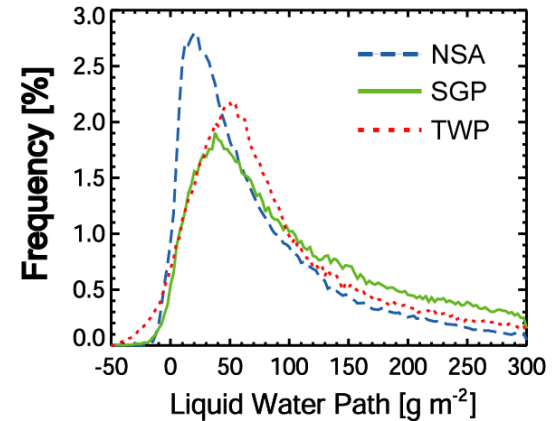
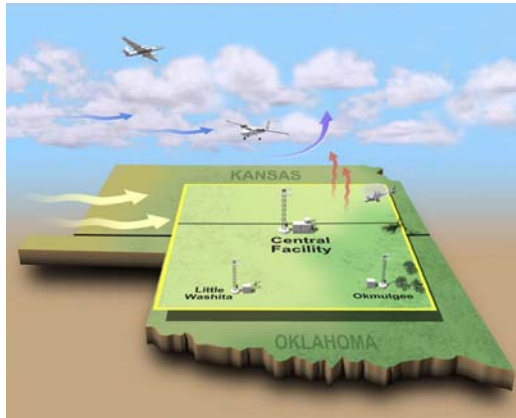


ACRF Aerial Vehicle Program (AVP)

- As an integral measurement capability of the ARM Climate Research Facility (ACRF), the ARM Aerial Vehicles Program (AVP) provides airborne measurements required to answer science questions proposed by the ARM Science Team and the external research community. Aircraft choice is dictated by science requirements—such as the required measurements and desired flight profile—and aircraft availability.
- Data obtained from the aircraft are documented, checked for quality, integrated into the ARM Archive, and made available in a timely and consistent manner for use by the scientific community.
- Develop airborne sensor interface format standards in coordination with other aerial platforms to promote maximum sensor portability between aircrafts increasing science yield from the sensors.



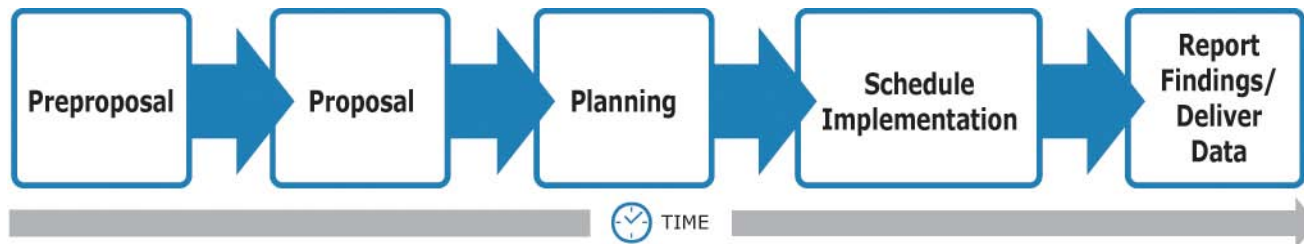
ARM Campaigns



- Cloud and Land Surface Interaction Campaign (CLASIC),
- Indirect and Semi-Direct Aerosol Campaign (ISDAC)
- Routine AVP Clouds with Low Optical Water Depths (CLOWD) Optical Radiative Observations (RACORO)

Annual ACRF Field Campaign Schedule

- ACRF/AVP Announcement- Call for Pre-Proposals; December for FY(n+3)
 - ARM-all, BAMS, EOS, and WebPage
- Pre-Proposals Call Closed; February
- Notifications sent for Full Proposal; March
- Full Proposals Due; Mid-May
- Infrastructure Costs and Logistics Analysis; Mid-May to Mid-July
- Field Campaign Proposals + Costs to Science Board; Mid-July
- Science Board Review; Mid-August
- Award for ACRF Fixed, AMF, and AVP Campaigns; End-September





2011 ACRF Call for Proposals

- AVP also will entertain proposals for the maturation of airborne instrumentation that can be made flight ready by the end of FY2011. As a result, FY2011 AVP flight proposals will have to be of smaller scope. Partnering with other agencies is encouraged.
- The due date for pre-proposals is February 1, 2009



Evaluation Criteria

- Scientific and/or technical merit of the project, including the likelihood that the research will lead to new discoveries or fundamental advances within its field, or have substantial impact on progress in that field or in other scientific fields.
- Appropriateness of the proposed method or approach.
- Applicant's performance in previous research.
- Reasonableness and appropriateness of the proposed budget, adequacy of proposed resources, and competency of applicant's research personnel.



ACRF IOPR Process

- New Instruments: ARM IOPR system located at:

<http://www.arm.gov/acrf/fc.stm>

- Field Campaign Guideline (PDF)
- Proposal Submission Form
- Instrument Support Requests
- IOP Request, Approval, & Implementation Flow Chart



ACRF IOPR Process

- Level 1: under \$25K; IMB & ARM Chief Scientist (ACS).
- Level 2: \$25K – \$ 100K; IMB, ACS, (if ARM Science-related=> 3 scientific peer review & appropriate ARM WG).
- Level 3: \$101K - \$300K, 3 reviews from ACRF Science Board.
- Level 4: > \$300 – ACRF Science Board



Backup Slides

BACKUP SLIDES



Information Required for AVP Use

- Instrumentation for science experiment
- Aircraft inlet (heated/air-pumped, etc.)
- Approved racks for installation
- Weight of instrumentation
- Power requirements (i.e. AC/DC, Amps, etc.)