

ARM Aerosol Measurement Science Group Charter

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Acronyms and Abbreviations

AMSG	ARM Aerosol Measurement Science Group
ARM	Atmospheric Radiation Measurement
ASR	Atmospheric System Research
DOE	U.S. Department of Energy

Contents

Acronyms and Abbreviations	iii
1.0 Committee Function and Objectives	1
2.0 Membership	2
2.1 Committee Composition	2
2.2 Committee Selection Process	3
2.3 Terms of Service and Committee Leadership	3
3.0 Committee Activities and Duties	3
3.1 Frequency and Structure of Meetings	3
3.2 Meeting Participation	3
3.3 Quorum	4

1.0 Committee Function and Objectives

The Atmospheric Radiation Measurement (ARM) user facility's Aerosol Measurement Science Group (AMSG) is an ARM constituent group that has been formed to enhance communications between ARM and the aerosol science community. The group was originally formed in 2015 following a period of informal but ongoing engagement between the science community and the ARM infrastructure. In the years immediately following its formation, the group was particularly focused on identifying and helping to address operational issues associated with aerosol measurements and working to establish uniformity in how aerosols were being measured across the ARM facility and how parameters were being reported in data products as new Aerosol Observing Systems were being developed and deployed. This striving for uniformity in aerosol measurements and associated data products was referred broadly as the "harmonization" of ARM aerosol measurements. More recently, as this harmonization has advanced, there has been a shift to challenge the AMSG to address broader questions related to enhancing the science impact of ARM aerosol measurements. This updated AMSG charter reflects this shift toward a science-focused perspective.

The AMSG reports to the ARM Technical Director and its primary purpose is to provide timely input to improve the operational performance, characterization, and science impact of aerosol and trace gas measurements along with the development, processing and delivery of aerosol data products. Specific activities of the group could include making recommendations in the following areas:

- For the development, implementation, operations, configuration, and operational support of aerosol and trace gas measurements including recommendations for new measurements and observational approaches.
- To ensure that the ARM user facility aerosol and trace gas measurements are operated uniformly across the program to effectively meet the scientific needs of the users.
- To improve the quality, characterization, calibration, measurement confidence, availability, and harmonization and accessibility of aerosol and trace gas measurements and associated higher-order data products for both the analysis and modeling communities.
- To ensure efficient data processing approaches to provide timely, high-quality, and relevant data products to the ARM Data Center and users.

Achieving this evaluation of science needs and providing actionable recommendations to address these and related issues requires a knowledge of both the science needs and operational constraints. Therefore, the AMSG is comprised of representatives from the aerosol science community and ARM staff members who support aerosol and trace gas measurements and the processing and analyses of data obtained from these measurements.

The AMSG fulfills the need for an integrated oversight to the planning, coordination, and leadership of aerosol instrumentation selection and deployment, measurement strategy and quality, and data product development from both science and operations perspectives.

2.0 Membership

2.1 Committee Composition

The AMMSG will include scientists representing sectors of the ARM research community and ARM staff. Scientists spanning aerosol-related themes will be invited by the ARM Technical Director to represent a range of research themes. At least five and up to seven members will be selected to represent the following research areas (note that individuals may represent multiple areas):

- Aerosol life cycle processes
- Aerosol measurements
- Aerosol modeling
- Ice nucleating particles
- Aerosol radiative effects
- Cloud-aerosol interactions.

Additionally, the committee will include ARM staff who represent the following functions:

- ARM aerosol observing system mentor(s)
- ARM mentor for the Raman or high-spectral-resolution lidar
- A member of the aerial facility team involved with aerosol measurements
- ARM Aerosol Data Translator(s)
- Representative from the ARM Data Quality Office.

Finally, the following roles are designated ex-officio members of the committee:

- The ASR aerosol process working group co-chairs
- ARM Technical Director
- The Associate Director for Operations
- The Engineering and Process Manager.

The ASR working group chairs are included as ex-officio members to maintain strong communications between ARM and the U.S. Department of Energy (DOE)'s Atmospheric System Research (ASR) program. The additional ex-officio members represent the group of ARM stakeholders who will be responsible for reviewing, prioritizing, and implementing recommendations from the AMMSG and function primarily as observers on the committee.

The group should also, to the extent possible, include representation from within and without ASR, especially in representing other DOE programs. If subject-matter experts outside of the committee are deemed necessary to address particular issues, they may be invited to meetings by the co-chairs.

2.2 Committee Selection Process

The members of the AMSG will be chosen by the ARM Technical Director, with the input and approval of the ARM and ASR Program Managers. The ARM Technical Director may solicit recommendations for the science positions from the ASR working group chairs or the ARM User Executive Committee. The AMSG should contain practical and diverse expertise in aerosol science, measurement, and modeling and should be able to provide objective instruction that serves the best interest of the ARM facility and its users. Science members are expected to be current or recent users of the ARM facility, although a representative may be a non-ARM user, if expertise outside the ARM community is needed.

2.3 Terms of Service and Committee Leadership

Terms for science committee members will be two years and may be renewed for up to one additional consecutive term upon review by the ARM Technical Director. A committee chair and a vice-chair will be selected from the committee science members through election by the members of the committee. The chair and vice-chair will serve for a period of two years. An individual may not serve more than two consecutive terms as chair or vice-chair.

The chair and vice-chair will develop the agenda for AMSG meetings, lead meetings, and provide written reports from meetings to the Technical Director. They may also extend invitations to individuals needed to represent specific themes during particular meetings.

3.0 Committee Activities and Duties

3.1 Frequency and Structure of Meetings

Committee members will participate in virtual meetings at least quarterly by telephone or videoconference. The AMSG may also conduct face-to-face meetings at the annual ARM/ASR Principal Investigator meeting. At intervals of approximately 3-4 years, the AMSG will hold a longer-format meeting that may be held virtually or face to face to review progress and develop in-depth plans. Additional meetings may be conducted as needed and agreed upon by the group. A formal agenda will be prepared and distributed by the chair or vice-chair before meetings. Members of the science community may propose agenda items and may be asked to present a suggested topic if that is considered useful by the chair and the Technical Director. On at least an annual basis, a report of AMSG activities will be made available to the science community.

3.2 Meeting Participation

Virtual meetings will generally be confined to members of the committee; however, non-members may be invited by the chair, vice-chair, or Technical Director to represent a particular topic as noted in section 3.1. Extended-format meetings will be open to the public; however, the committee chair or the ARM Technical Director may call a closed session if there is a need to discuss sensitive or proprietary information. It is expected that committee members will make a sincere effort to attend meetings. If a member is unable to participate repeatedly, the Technical Director may choose to replace him/her prior to

the end of their term to ensure representation for their subject area. Ex-officio members are not under the same expectation of regular participation but are free to participate in any meetings.

3.3 Quorum

The committee may conduct business when a quorum of its members is present; such quorum shall consist of at least 50 percent of the members (excluding ex-officio members) and shall include the committee chair or vice-chair.



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