Engaging Teachers within the AMS Community

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The AMS supports K–12 teacher professional development in weather, water, and climate science and creates opportunities for teachers to participate in the AMS community. AMS offers a K–12 teacher membership category, provides charters for K–12 student local chapters, and encourages participation in meetings and education-specific symposia and conferences. The Certified AMS Teacher program (CAT), launched in 2020, was established by the AMS to recognize and support educators actively engaged in raising Earth science literacy. CAT connects K–12 educators to AMS, which strengthens their relationships with the atmospheric science community and its resources (see sidebar 1).

In an effort to further engage teachers, the AMS is committed to providing K–12 educators with the opportunity to collaborate with and learn from scientists by immersing teachers in the vast array of scientific experiences during annual meetings. In 2019, AMS established the Teacher Travel Grant (TTG), a unique program that offers K–12 teachers—most of whom have never been involved with AMS—formalized support to attend the AMS Annual Meet-

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**Fig. 1.** Teacher Travel Grant recipients attend the 2020 AMS Annual Meeting in Boston.

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The AMS Education Conference is one of the primary learning opportunities for teachers at the Annual Meeting. Interested educators complete a brief application in the summer/fall prior to the meeting in winter. All disciplines are welcome, though most applicants are connected to the STEM fields. Applications are then reviewed by AMS and recipients are notified. The grant includes complimentary registration for the Annual Meeting, hotel accommodation, travel reimbursement, mentorship, and a stipend to offset incidental costs. From 2019 to 2021 a total of 25 teachers/mentors participated. Due to the pandemic, the program was not offered in 2022.

Once at the Annual Meeting, TTG recipients are given opportunities for periodic collaboration with TTG mentors, who include professional scientists, representatives from sponsor organizations, and other K–12 educators with AMS experience. Mentors offer support as teachers learn to navigate the meeting schedule, conferences, sessions, and additional activities. Mentors also provide expertise when recipients have questions about how to integrate newly learned scientific concepts into grade-appropriate lesson plans. Most importantly, mentors encourage and cultivate opportunities for teachers to network one-on-one with professional scientists across all sectors of the weather, water, and climate enterprise. Throughout the week, mentors schedule several opportunities for teachers to gather, discuss, and reflect upon their experiences. This collaborative time is essential to brainstorm how to implement in their classrooms what teachers are learning during the meeting.

Today’s K–12 Science Teacher
According to the National Academies of Sciences, Engineering, and Medicine (2015), “Although most high school science teachers have completed a science major, fewer than half of middle school science teachers and only 5 percent of elementary science teachers have done so.” And through 30 years of offering graduate-level courses for teachers, the AMS Education Program knows that many of those teachers have degrees in physics and biology, not the Earth sciences. In addition, while over 40,000 educators and professionals belong to the National Science Teachers Association (National Science Teacher Association 2021), very few belong to a science organization.
The conference is scheduled for several days and features science from an educational point of view. The first day of the Education Conference is solely devoted to precollege education. TTG recipients are also encouraged to attend technical talks as well. The teachers always express excitement about getting to learn cutting-edge science content directly from the scientists who study it. Teachers also describe returning to the classroom with renewed energy, an expanded professional network, exciting collaboration opportunities, and a plethora of lesson ideas to use with their students. See TTG alumni testimonials in sidebar 2.

Teacher Travel Grant sponsors Ball Aerospace, Midland Radio, and Lockheed Martin have been essential to the program’s success. Through their financial commitments and presenter support, TTG recipients have been able to immerse themselves in the AMS Annual Meeting experience and participate in meaningful, comprehensive professional development. To increase the number of TTG teachers and ultimately the number of students who will be directly impacted by lessons and projects created by those teachers, additional sponsors, and support from the AMS community are needed. The AMS Development Program is committed to working with new and existing sponsors to continue funding this impactful program (Fig. 1).

AMS Education Resources
AMS helps to enhance a teacher’s knowledge of Earth system science and provides graduate credit through AMS Education’s teacher professional development courses. Nearly 23,000 teachers have boosted their confidence in STEM curricula and have impacted millions of students across the nation through these initiatives!

Project Atmosphere (www.ametsoc.org/ams/index.cfm/education-careers/education-program/k-12-teachers/project-atmosphere/)
Project Ocean (www.ametsoc.org/index.cfm/ams/education-careers/education-program/k-12-teachers/project-ocean/)
DataStreme program (www.ametsoc.org/index.cfm/ams/education-careers/education-program/k-12-teachers/datastreme-program/)
Certified AMS Teacher Program (CAT; www.ametsoc.org/index.cfm/ams/education-careers/education-program/k-12-teachers/certified-ams-teacher-program-cat/)
Educational materials (www.ametsoc.org/index.cfm/ams/education-careers/education-program/k-12-teachers/education-materials/)

Teacher Travel Grant Alumni Testimonials
Staci DeSchryver, Cherokee Trail High School, Colorado: “AMS has done more for advancing my career and opening doors for my students than any other organization I have been a part of, and I am grateful that I can bring atmospheric sciences right into my classroom for future generations.”

Heidi Beatty, Northeast Nodaway R-V School District, Missouri: “That first meeting was mind-blowing: so many scientists came together for a common cause. I came back to rural Missouri with so many ideas and then was able to bring the learning into my classroom and beyond my walls to reach other teachers. The next year I focused on making contacts with organizations that could show my third-grade students what opportunities lie ahead for them. I am grateful to the AMS Education Branch as well as those companies who sponsor and believe enough in teachers to make a difference in our next generation!”

Dave Chapman, Okemos High Schools, Michigan: “Support to attend an AMS Annual Meeting dramatically changed my teaching. I acquired resources, teaching strategies, and understanding of important concepts. I also found a professional community that valued and supported what I was doing [in the classroom].”

FOR FURTHER READING