

Science is not a  
Republican, Democrat,  
Conservative or Liberal  
issue. It's an American,  
world and public issue ”

# AGU: Sharing science for a sustainable future

Since joining the American Geophysical Union (AGU) as Chief Executive and CEO in 2010, **Christine McEntee** has been building on its international relationships, moving its journals towards open access and promoting the importance of research in informing government policy. Christine met up with *Research Features* to talk about how the skills and knowledge of the AGU's membership, with its open exchange of ideas and information, can help to tackle many of the problems facing our planet and perhaps lead to a more sustainable future.

*Can you tell us about the American Geophysical Union (AGU) and what attracted you to the organisation?*

The American Geophysical Union (AGU) is an international non-profit scientific association with 60,000 members in some 138 countries and its purpose is to promote discovery in Earth and space science. It was established in 1919 by bringing together the American National Committee of the International Union of Geodesy and Geophysics (IUGG) and the Committee on Geophysics of the National Research Council. In its early days, most of the work of the organisation was related to small-scale geophysics. However, as the knowledge and spheres of geophysical investigation have expanded, so has our ability to understand Earth and space.

As an organisation, the AGU's interests are broad and deep across all fields of Earth and space science. Its members study not only what is considered the core of geophysics – the Earth, its water systems and the Earth's near atmosphere – but also the Sun, space, soil science and the intersection between human health, ecological health and Earth and space science. A unique aspect of the AGU is the sheer number of disciplines and the amount of interdisciplinary work that takes place among its members.

I wanted to work with the AGU because of its mission and vision: promoting discovery in Earth with space science for the benefit of humanity. With the various challenges facing the planet today, it seemed like a wonderful and exciting opportunity.

*What is your vision of the future of the AGU and what are your strategies for achieving it?*

We aim to be indispensable to the everyday workflow of the research scientists and to provide the tools and resources for them to accelerate and advance their work and to communicate their results. This benefits not only the scientific research enterprise but also policy makers and the wider public. We want to make sure that we have a diverse and inclusive talent pool for the future by encouraging undergraduates and graduates

**G**eophysics is a broad subject that encompasses many of the major sciences – physics, astronomy, planetary science, geology, environmental science, oceanography and meteorology, among others. Studies in this field help us to understand the Earth and how it works for and against us. For example, motion in the Earth's deep core gives rise to our magnetic field, which protects us from harmful solar radiation, while earthquakes and volcanic eruptions can cause great damage. Geophysics addresses the needs of society – it is essential in

finding energy sources, water and mineral resources, monitoring environmental impact and change and assessing natural and manmade hazards. Under the umbrella of the American Geophysical Union (AGU), an international membership of Earth and space scientists work collaboratively to advance and communicate science, influencing governments and policy makers to ensure a more sustainable future for our planet. *Research Features* spoke to Christine McEntee, Executive Director and CEO of the AGU, to find out more about the work of the Union.



Exhibit Hall at AGU's Annual Fall Meeting



to enter careers in Earth and space science, whether that's in research, academia, government or in the private sector.

An increasingly important role for us is to make sure we have a culture that is free of bias and harassment, and is inclusive and welcoming of a broad, diverse community of the best and brightest among us. We are constantly conducting collaborative work with other scientific societies around the world. For example, we have relationships with the European Geosciences Union and the Japanese Geoscience Union. One of our goals is to improve the AGU's ability to influence international and national agenda on significant issues, including climate change, natural resources and natural hazards.

#### *What progress has been made so far?*

We are building on our core strengths. We have an extensive publishing arm where we provide avenues for international engagement, enabling authors – many of whom live outside of the US – to publish novel and interesting findings in Earth and space science in our journals. We promote the exchange of ideas and information and are active among a worldwide coalition of scientific societies, publishers and data repositories in publishing data in the area of Earth and space sciences.

We also hold the world's largest Earth and space science meeting every year – another international collaboration – with 40% of the 25,000 participants coming from outside the US. From that meeting, we make available on-demand and virtual content for those who can't physically attend, widening our reach as far as possible.

We have several awards aimed at nurturing young researchers based outside the US and we are also starting joint meetings with other societies internationally. We will hold our first fully joint meeting with the Japanese Geoscience Society in Chiba, Japan, in May, and plans are underway to hold a meeting in China with the Chinese Academy of Sciences on the growing problem of air particle pollution from carbon emissions. Periodically

**Public health, national security, economic growth and innovation rely on government maintaining a commitment to federally supported research and development** ”



AGU CEO/Executive Director Chris McEntee

we hold a meeting of the Americas – a collaboration with North, Central and South America. In addition, we hold smaller conferences all around the world and we're actively involved in the March for Science – a worldwide day of marches to support the value of investment in scientific research.

#### *The March for Science sounds interesting. Can you tell me more about it?*

March for Science is a global movement about defending the role of science in policy and society. The AGU is proud to support it and we actively encourage our members to support it too. On April 22<sup>nd</sup> 2017 in 600 cities around the world, marches took place involving organisations and individuals to raise government awareness of the value of science and to call for more investment. Science is critical to our health, economies, food security and safety, and this was a great opportunity to engage the scientific community and work with them on how they can be a positive voice for science. Science is

not a Republican, Democrat, Conservative or Liberal issue. It's a global issue that affects us all.

#### *You mentioned that the AGU gives awards to young researchers. What are these prizes for?*

Yes, the AGU has an Honours Program of awards, medals and prizes that recognises individuals who have made significant contributions to the Earth and space sciences through scientific research, education, communication, outreach and sustained impact. Each year we award several exceptional individuals at our annual fall meeting. This year, we gave awards to two young researchers in Africa, where there is a great pool of talent but not the resources and infrastructure that we enjoy in the US.

The Africa Award for Research Excellence in Earth or Ocean Sciences and the Africa Award for Research Excellence in Space Science are given annually to early career scientists from the African continent in recognition of completing significant work that shows the focus and promise of making outstanding contributions to research in Earth or ocean sciences or space science. These awards are important as they recognise that talent and brain power are everywhere and we have to find ways to unleash that for the benefit of society.

We are interested in using the knowledge and expertise in the AGU's membership to be a resource to media, policy makers and other stakeholder organisations.

#### *Why is this important and how are you going about it?*

Only federal governments, US and non-US, have the resources to invest in the fundamental research that the private sector can then use to drive innovation and commercialisation. The AGU works directly with US Congress and the US administration, communicating each day about new research published in our journals, posting daily blogs, making media statements and harnessing social media to give voice to the importance and value of research. This is even more relevant right now while Congress is wrestling with long-standing budget challenges.

Our Sharing Science programme can help our members communicate the value of their research to their individual elected representatives – whether that's at a local, state or national level – to community groups and local media. The programme offers tools and resources that are available on our website and holds communications workshops and training at different places around the country, as well as courses and sessions at our meetings.

Even if we didn't have the threat of budget cuts here in the US, messages on the importance of our research are necessary because of what is happening to the planet – climate change for example. The knowledge that exists within our membership is the knowledge that is needed to tackle these planetary challenges.

#### *What do you think the repercussions will be of Trump's budget for the Earth and space sciences?*

If President Trump's budget proposal – although it is still short on details – was enacted by Congress, we think it could be devastating for the Earth and space science enterprise, but more importantly we think it could be devastating for the public and the private sector. Public health, public safety, robust infrastructure, national security, economic growth and innovation rely on the federal government maintaining a strong commitment to federally supported research and development. Through communication with the administration and Congress, we hope we can continue to help policy makers fully understand that a key enabler of the priorities they care about – economic growth,

national security, public safety, clean water, clean air, robust infrastructure – is research, which gives them the knowledge that will inform policy solutions that will give us the biggest bang for our buck.

The kind of data generated and research that is carried out at NASA, USCS, COE, EPA and NOAA work in synergy, allowing us to respond to disasters appropriately. Let me give you just one example of this. You might recall the BP oil spill in the Gulf of Mexico in 2010. NASA's Earth Observing System allowed us to track the extent and spread of the spill over time. NOAA researchers were important in understanding the chemistry of the water and how it might impact the fish population – a major commercial sector in the Gulf. USGS researchers understand water flow in the Mississippi Delta in terms of where it might pollute plant life and freshwater life – again, an economically significant area to the local community.

#### *The AGU has a strong publishing presence, how does the organisation find a balance between maintaining its publishing output while adapting to an ever-evolving marketplace?*

We are moving in the direction of open science and open access publishing. The AGU has four fully open access journals (out of a total of 20) – three of which have been launched in the past two years. All its other journals have an open access option that allows authors to provide full access to their papers immediately upon publication if they wish. However, all AGU journal publications become fully open access 24 months after online publication. We are very active in these open access and open science movements, and in recent years, we have put in place data policies that say if you want to publish in AGU journals, unless there is a good proprietary reason, that data must be in a repository and accessible to others to fuel research.

#### *Do you find there is resistance to open access from researchers?*

Researchers are generally supportive of open access. They want to have current information on what other research is going on and to be able to consult with those colleagues and use their data and information to advance their own research interests. We want to go a step further. Before researchers publish, they often present some of their results at a meeting. At our fall meeting in December we will be experimenting with iPosters. With the permission of researchers, iPosters will allow us to archive data and information from poster

sessions that we can make openly available to the research community.

#### *You've received many awards for leadership. What are the qualities needed to do what you do and how did you discover you had them?*

There are perhaps two basic attributes required for a leader. First, do unto others as you would like others to do unto you. This covers things like having respect for a diversity of opinions and not being afraid to make a mistake or ask for help. The second quality is to see your role as being a conductor of talented people who have knowledge, skills and capabilities, and being able to figure out how to unleash that talent in a coordinated way.

I discovered my skills through trial and error – I think a lot of people do that. I had opportunities to try things out in other leadership roles. Some things went extremely well, but I also learned some hard lessons. I have a Master's degree in administration and I spent some time at the Kellogg School of Management at Northwestern University on the Advanced Executive Programme. I do a lot of reading and talking to colleagues, and I learn a lot from them. I try my very best to help others in their roles. I think that being a leader is enabling other people to be successful around a common mission.

• *If you would like to find out more information about the AGU and their strategic plan to promote discovery in Earth and space science for the benefit of humanity, please visit their website at <http://sites.agu.org/>*



## Contact

American Geophysical Union (AGU)  
2000 Florida Avenue  
N.W. Washington, DC 20009-1227  
United States

**E:** [service@agu.org](mailto:service@agu.org)  
**T:** +1 202 462 6900  
**W:** [sites.agu.org/](http://sites.agu.org/)

