I am a third-year physics student at Radford University, treasurer of the SPS chapter, and a student researcher on an ongoing Arctic sea ice project that was presented at the American Geophysical Union (AGU) 2014 Fall Meeting. The research began in an Arctic geophysics course offered every other year at Radford that takes students to the northernmost city of the United States: Barrow, Alaska. Here, the class conducts onsite research studying the correlation between the surface temperature of the Arctic sea ice and its thickness. The purpose of the trip is to establish whether or not a correlation is present. A correlation would enable researchers to study larger areas of the ice in shorter amounts of time and with more cost-effective methods and geophysical equipment.

This work brought two SPS members and three others from Radford to the AGU fall meeting, where we presented our research in the poster hall’s “Cryosphere” section. AGU is one of the largest conferences in the nation. Some 20,000 members attended to see presentations, keynote speakers, exhibitors, and university representatives, just to highlight a few attractions. Among these members were people from all over the world presenting their research. Many of the students were graduate students presenting research that pertained to their Ph.D. As for Radford University, we were one of the few schools that brought undergraduates and a couple of alumni (one graduated in May and the other just this fall semester).
I had the opportunity to speak with many people conducting research in many different fields. From radioactive elements to heliophysics to pollution in the Chesapeake Bay, people were talking about research on really everything under the sun (pun intended). I also had a chance to speak with people who are doing research similar to mine that was sometimes conducted in the same area. Being able to compare results and share data among other student researchers was new to me, and it was interesting to hear information about the Arctic sea ice that was unbeknown to me beforehand. As a scientist, being able to make changes to ongoing research in order to incorporate new information learned by other scientists is crucial. AGU can be a great place to do this.

An exhibit area held a variety of vendors including Google, NASA, Geometrics, Sandia National Laboratories, Amazon, Microsoft, and also universities such as Vanderbilt, China University of Geosciences, University of Utah, Johns Hopkins University, and Louisiana State University, just to name a few. These vendors showcased new technology, gave talks on topics like updated global climate models (NASA), shared new information and software, and provided possible career paths into graduate school or new careers. I was introduced to new software that was absolutely breathtaking. It was developed by NASA and is called “Eyes of the Solar System.” It is an accurate video game-like computer model of the solar system. Users can observe the solar system as it is in real time and view any occurrences within the solar system from 1950-2050, including tours of the past and present. Other features include a 3-D view of the software as well as tons of available information about any known object in the solar system. You can even view Voyager 1 in real time!

The meeting also featured a career center for younger scientists like myself where we could explore possible internship opportunities as well as future career paths. Programs like NASA’s DEVELOP had spokespeople there to encourage students to always seek new research opportunities.
Poster presentations took place consistently throughout the conference; thousands were set up at a time. I spoke with another undergraduate, Kathryn McKeough from Carnegie Mellon University, who did extensive research on the sun’s corona trying to create algorithms that can correctly and successfully define substructures of coronal loops involving nanoflares and Alfvén waves. Using the Hi-C (High Resolution Coronal Imager) can reveal visible substructures that may cause coronal heating. She focused mainly on the nanoflare heating process.

I sat in on a few talks that were about the atmosphere of Titan. Leading scientists working with the Cassini spacecraft had a plethora of data about Titan’s surface and atmosphere that involved the observation of the seasonal evolution of the vortices at either pole over a span of ten years. I also heard from two keynote speakers on Titan, Stephanie Le Mouelic and Batiste Rousseau of LPGN (Laboratoire de Planétologie et Géodynamique de Nantes) in France. They observed polar storms that enabled them to compute global maps of Titan. This study provides insight into the evolution of the north polar cloud that was not available before, and also provided new information on the active polar storm that is growing over Titan’s south pole.

This was the first AGU meeting I have attended and it was absolutely amazing to see scientists from all over the world networking and sharing data, new information, and ideas. There were thousands of people who had gathered to contribute various ideas and results that are shaping the future of science right now. The technology and knowledge that were spread at the meeting are constant reminders of how far humanity has come as an intelligent species. Conferences like this enable science to move forward in the rapidly changing and ever growing industry it has become. I look forward to future meetings that can further indulge me in the new and profound knowledge of the world that I gained from the 2014 fall meeting. I recommend and encourage every student to find opportunities like this that will nourish you in knowledge and experience and the company of colleagues and fellow scientists.

All photos courtesy of Jordan Eagle.