AIPG/AGI Summer Interns: Rockin’ and Rollin’ in Washington DC

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The AIPG/AGI summer 2011 interns came to Washington DC to experience the slow deliberative process of the U.S. Congress and ended their semester with a little shake, rattle and roll when a Mw 5.8 earthquake popped off near Mineral, Virginia. Like Thomas Jefferson and John Quincy Adams before them, they experienced a strenuous shaking from a rare and surprising earthquake near the nation’s capital. Unlike the former presidents; however, instead of writing about what they felt in their diaries, the interns took to the web and filled out a U.S. Geological Survey “Did You Feel It?” report. Thinking the temblor was a fitting ending to their last week, the interns packed up to leave - one by land and two by plane. Then NOAA began alerting the DC area of the impending arrival of hurricane Irene by web, twitter and television as NASA sent snapshots of the massive storm from space (not quite the same as Paul Revere’s midnight ride to warn the colonists of the approaching British Army). The one by land got out a few days early while the two by plane got the last flights out of DC on the morning before the storm’s visit to the White House.

Before the two hazards rolled in, the interns experienced the hot debates and last minute compromises of a contentious summer in Congress. They followed the drawn-out process of the debt ceiling discussions. They attended hearings and events about the BP Deepwater Horizon oil spill, the Japanese nuclear power plant problems in the wake of the earthquake and tsunami, the future of U.S. nuclear power and nuclear waste disposal, the supply-demand concerns of critical minerals, the role of the Environmental Protection Agency in climate change and many other topics. They met with their congressional delegations – the senators and representatives from their home states. Beyond Capitol Hill, they visited the USGS in Reston, the National Science Foundation in Ballston, NASA Goddard Space Flight Center in Greenbelt, the Smithsonian National Museum of Natural History and the Carnegie Institution of Washington’s Geophysical Laboratory.

The American Geological Institute and the three interns are very grateful to the American Institute of Professional Geologists Foundation for providing financial support for the internships. Thanks to the AIPG Foundation, the internships really rocked their world, flooded them with new experiences, and reminded them that while some disasters are immediate, there is always time for debate and compromise within the halls of Congress.

Below are brief biographies of the three AIPG/AGI summer interns:

Victoria Bierwirth will be graduating with her Bachelor’s of Science degree in Geological Engineering with a minor in Geospatial Technology in May 2014 from the South Dakota School of Mines and Technology. Her interests in politics and natural resources led her to work in former Congresswoman Stephanie Herseth Sandlin’s field office in Rapid City and as a park guide at Jewel Cave National Monument. She came to AGI after completing an internship at NASA’s Goddard Space Flight Center.

Erica Dalman, SA-5047, is a rising senior at Grand Valley State University (GVSU), where she will graduate with a B.S. in Geology and a minor in International Business. In 2010, she participated in an ExxonMobil/GSA undergraduate field course and presented a joint geoscience education research poster at the Geological Society of America Annual Meeting. She recently completed field camp in the Republic of South Africa.

Lauren Herwehe received a B.S. in Geosciences and a B.A. in Geography in May 2011 from Pennsylvania State University. She graduated from the Schreyer Honors College and completed her senior thesis on the use of electrical resistivity imaging to model the flow of acid mine drainage. She spent a summer in Germany as a research assistant studying landscape development during the Holocene. She studied abroad for a semester in Ghana and has done research projects in West Philadelphia, Bulgaria, and India.

What Makes a National Park Awesome? The Geology of Course

By: Victoria A. Bierwirth

Traveling through the maze of passageways, appreciative of the installed lights and paved pathways, visitors step into the Formation Room. Then, absolute darkness engulfs the group to simulate how the remainder of the 155 miles of cave appears at the world’s second longest cave, Jewel Cave National Monument. An occasional drip of water breaks the silence as the group waits in natural darkness. I point out soda straws, flowstone, draperies, and other speleothems as the “oohs” and “ahhs” emanate from the crowd. Everyone is intrigued by the splendor of the geology. Millions have visited the country’s national parks, monuments, and other NPS units to experience the many historical, archaeological, and geological wonders the NPS has to offer. As the
NPS approaches its centennial in 2016, it is time to reflect on the foundation of the NPS; its geology.

In the early 1800s, explorers described the mud pots, geysers, and fumaroles of the Yellowstone area which attracted the attention of other explorers and interested tourists. Congress was urged to preserve the “Great Geyser Basin” because of its volcanic origins and in 1872 Yellowstone was established as the first national park. Later laws enacted by Congress have furthered the protection and preservation of the most beautiful, unique, and historic places in America. The Antiquities Act of 1906 granted authority to the president to declare “historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States” as national monuments. On August 25, 1916, the NPS Organic Act established the NPS within the Department of the Interior to conserve land, cultural objects, and wildlife for future generations as well as provide opportunities for public enjoyment. Additional acts, such as the National Parks Omnibus Management Act of 1998 to encourage scientific research in the parks and the Paleontological Resources Preservation Act of 2009 for the protection of paleontological resources on public lands, have contributed to the mission of the NPS.

The NPS mission continues “...to promote and regulate the use of...National parks...[by] conserv[ing] the scenery and the natural and historic objects and the wild life therein and ...provid[ing] for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” Over the past 100 years, legislators have continued to protect the nation’s public lands. The 112th Congress has demonstrated this with bills to engage the nation’s youth in becoming more involved within national parks and help restore the nation’s resources. In maintaining our national parks and creating a safe atmosphere, it is vital to understand and educate others in the geologic processes that created the stunning scenery within the NPS.

Understanding the geology of the parks is fundamental to park management, public education and public enjoyment. Park managers need to know about potential hazards such as floods, rock falls and landslides as well as resources such as water supply, soil characteristics and mineral resources to effectively manage these outstanding natural wonders. The public is hungry for information about the geology around them and need more education and outreach about the earth systems science processes in the parks.

Although the NPS has been around for almost 100 years, an NPS geologic division was just established in 1984. The Energy, Mining, and Minerals Division was the first program and focused primarily on mining claims and oil and gas development. Later in 1998, the program underwent a name and function change. The Geologic Resources Division (GRD) was established to provide geologic information about the geology of the parks for the public. The Geologic Resource Inventory (GRI) is administered by GRD and funded through the NPS Inventory and Monitoring Division; it was created in 1998 to raise awareness of geology in 270 natural resource related NPS units and provides the NPS with information for management decisions. To provide a meaningful interpretation of the National Park’s geology, the GRD identified three necessary components of the GRI - a scoping meeting, a geologic map, and a geologic report. As of June 2011, 263 of the 270 parks have completed scoping meetings, 189 parks have geologic maps, and 93 parks have geologic reports. I find it amazing that the NPS is only beginning to inventory its geologic resources after nearly 100 years, but I am heartened by the progress of the GRI to date.

Unfortunately there are not enough geoscientists working in the NPS. Of the almost 22,000 individuals employed in the NPS, only 107 work in geologic positions and this is a lower number compared to about 130 geologic positions in the 1980s. There are 270 NPS natural resource units and the 107 individuals are not evenly distributed, so many units have no geologic expertise at all. The NPS is limited in the number of geoscientists it can hire due to funding. Geoscience organizations sponsor geoscientists or geoscience students to work in the parks through programs such as Geologist-in-the-Parks and GeoCorps. I think these are excellent programs that should be continued, however, the NPS needs to find the resources to hire more full time geoscientists to help manage the parks and provide education and outreach to the public.

I have seen firsthand how the geology of the parks has inspired visitors in my park service as well as in recent activities such as geologic park icons on quarters and in advertising. The geology of the parks has been the foundation of the park service throughout history and remains the most recognized symbols of America. President Theodore Roosevelt said, “The Bad Lands [at Theodore Roosevelt National Park] grade all the way from [buttes] that are almost rolling in character to [pinnacles] that are so fantastically broken in form and so bizarre in color as to seem hardly properly to belong to this earth.” The geology of the parks continues today to captivate people through the extreme rock formations and gigantic waterfalls of Yosemite, the geysers and colorful hot pools of Yellowstone, the glaciers of Glacier National Park, the fossils of Florissant Fossil Beds, the formations of Mammoth Cave and the rock record of the Grand Canyon. As we look to the future, I know that more geoscientists are needed to manage, interpret and highlight the foundation of our national parks: the unique, unfamiliar, and ever-changing geology within the NPS.