

UB Geology students present research at AGU, plus an update from the (not so) solid Earth

David Hyman - January 23, 2017

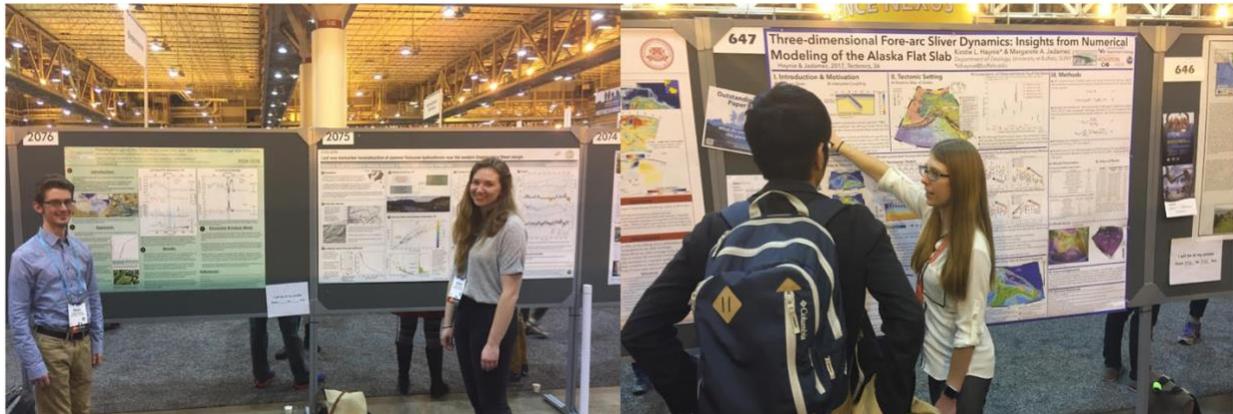
Last month, the American Geophysical Union (AGU) held its annual fall meeting in New Orleans, LA, a gathering of about 22,500 scientists from around the world, making it the largest meeting of Earth and space scientists in the world! The meeting is typically held in San Francisco, but due to conference center renovations, the meeting was held this year in 'The Big Easy,' a point of great excitement for nearly everyone with whom I spoke. Everyone likes to enjoy the local flavors and sounds at a conference and there may be no better venue than New Orleans. Indeed, during the poster sessions, I may have heard about as much about beignets, poboys, jazz clubs, and cafe au lait as non-Newtonian geodynamics, groundwater inverse modelling, leaf wax biomarkers, and the rest.

That is not to say that AGU was simply a big party: conferences of this type are critical foci for the discussions had in our own specific corners of the geosciences as well as bridges to inspiring disciplines that may be new to us. While the sheer volume of people amassed or the pace of these gatherings may be exhausting, it's hard not to come away from AGU with a notebook full of new ideas. It seems to me that at every level, the high value of presenting research at AGU is immediate and self-evident.

As has been typical for past AGU meetings, UB Geology made a strong showing. It was especially encouraging to see good representation across a range of departmental interests. Unfortunately, I did not personally get to see everyone's presentation; however, it wasn't for lack of trying and (I believe) points back to the large number of participants. By my count, ten UB Geology students were able to present their work; however, a quick search through the program reveals that as many as forty UB-affiliated scientists presented or co-authored thirty-four posters or talks! It's not just Geology: Geography, Civil and Environmental Engineering and Chemical Engineering sent students, postdocs and professors to AGU as well, covering a very wide range of topics from the deep Earth to surface processes. Perhaps in the future we could be better about reaching out to find out more about their studies.

As the only UB volcanologist in attendance, I'll admit some degree of non-comprehension of the other UB Geo presentations that I was able to see. However, it seemed like everyone did an outstanding job and effectively communicated their science to those that they needed to reach. Congrats to everybody who was able to attend! Here's several pictures from AGU in New Orleans:





Lastly, as a volcanologist, it would be remiss of me to not mention some important new and ongoing volcanic activity around the world. In that vein, I'd like to call your attention to the ongoing volcanic crisis at Mayon Volcano in the Philippines. Mayon is a nearly perfectly conical stratovolcano and has historically been the most active volcano in the Philippines. This most recent heightened activity began on Jan. 13th with a series of phreatic (steam) and phreatomagmatic (steam + lava) explosions followed by a series of small lava flows, fire fountaining, lava dome extrusions, and collapses that have generated several small pyroclastic density currents (PDCs) down the volcano flanks. As a result, The Philippine Institute of Volcanology and Seismology (PHIVOLCS) has raised the volcano alert level to a 4 (out of 5) meaning a state of "intense unrest" in which a "hazardous eruption is possible within days" and the implementation of an 8 km-radius exclusion zone, causing the evacuation of more than 40,000 people.



Most recently (as of Jan. 22), intermittent fire fountaining and explosions are continuing, with one large explosion that generated a 5 km-high eruption column (pictured). Additionally, small lava dome collapses are continuing, generating small PDCs (also pictured). This type of activity is only possible because the summit crater is relatively shallow, allowing the exposure of the lava dome at the surface where it may collapse, generating the PDCs. Due to the nature of this eruption (phreatic eruptions + lava dome growth), of particular concern is the possibility that gases may accumulate within the pore space of the lava dome which may weaken it or cause the dome to explode outright. This hazardous situation could result in the generation of very dense, mobile PDCs capable of reaching far down the volcanic slopes, putting people and key infrastructure at risk. Unfortunately, the preconditions in the lava dome that might engender such a situation are very difficult to predict; however, it is the focus of much

research these days, including my own PhD work. Events such as this remind everyone in the geohazards community that our research must always connect back to the real-world problems faced by vulnerable populations and the local civil defense authorities responding to these crises.

I want to thank the Geology Graduate Club for giving me the opportunity to write the January installment of this blog. I greatly look forward to seeing how it evolves in the coming months!

Lastly, I want to wish everyone a great start to 2018 and a hearty congratulations to all the students who presented at AGU!

~ *Dave*