

Draft Minutes of the 1520th meeting of the Geological Society of Washington, May 3rd, 2017, Cosmos Club, Washington, D.C., John Wesley Powell Auditorium

President Bentley gently asked the 68 attendees of the 1520th meeting to please take their seats at 20:02 EDT.

As the first order of business, President Bentley surveyed the members as to who read the minutes. Five people raised their hands, including the President and meeting secretary, and no one found the Easter egg hidden by the meeting secretary. The minutes were approved as posted.

Thirteen guests were in attendance:

Earl and Ester Saxon, Rodrigo Oyole Zepete, Carl Seastrum, Adam Smith, Linda Gustafson, Mouloud Mendalim, Sarah Caplan, Dennis Askew, Daniel Ford, Tim Sain, Lany Ried, and Michelle (science fair winner, **secretary failed to catch her surname**).

Announcements

Mark Tyra thanked those who were in attendance of the March for Science the previous week, and their efforts to push for the agenda of scientists worldwide.

Two esteemed guests, Lany Ried and Michelle (surname needed), were in attendance to celebrate their achievement of winning local science fairs. President Bentley took this time to honor them and their achievements and gave a sweeping monologue extolling geology and earth sciences. At this time, President Bentley awarded the two young scientists with a goody bag and a choice of one rock from a selection displayed on the stage. Legend has it that one of the rocks bestows special scientific powers to who possesses it. Only time will tell if either Lany or Michelle chose wisely.

Formal Program 20:18

Hannah Wakeford of NASA Goddard
Exploring alien earths in the Trappist-1 system

The recent discovery of seven Earth-sized planets orbiting the small star TRAPPIST-1, has presented astronomers with a goldmine of worlds to explore. For the first time planets the same size as the Earth with desirable characteristics for atmospheric investigations are within the reach of our technology. These seven planets include three in the stars liquid water zone, which hosts the highest potential for life as we understand it, possibly similar to that here on Earth. Hannah will talk about preliminary studies being carried out with the Hubble Space Telescope and the potential future observations, which will occur following the launch of the James Webb Space telescope at the end of 2018.

Questions were posed by Steve Olson of the Legend Gold Corp., Victor Zabielski of NOVA, Kevin Marvel of the Astronomical Society, President Bentley, and Brooks Hanson of AGU.

Derek Lampkin of UMD
Fuel Injecting a Greenland Glacier

Conventional theory suggests slow ice-sheet adjustment. Goals of Dr. Lampkin's team were to ascertain if there is a threshold by measuring ice-sheet melting and movement, understand the root cause of the change, and construct predictive models on future ice-sheet behavior. Dynamic behavior of surface melt rates along the margins of the Greenland Ice Sheet have sped production of water, consequently resulting in increased melt infiltration to the bedrock/ice interface. A negative feedback loop results, thus encouraging rapid melting and overall negative mass balance. Accelerated infiltration is facilitated through drainage of supraglacial lakes, through fractures and through crevasses as well as moulins. Their aim is to improve our understanding of the ever-evolving supraglacial environment. Their work has quantified the spatial clustering distribution of lakes and linked it to variability in melt production, drainage rates and other components of the supraglacial hydrology. The team also established the impact of subglacial topography on the distribution of lakes and quantified the relationships between lake distributions and ice flow dominated by internal deformation versus basal sliding.

Questions were put forth by Kevin Marvel of the Astronomical Society, and 2nd VP Carl-Henry Geschwind.

Miriam Jones
Rapid carbon loss and slow recovery following permafrost thaw in boreal peatlands

Permafrost peatlands store one-third of the total carbon (C) in the atmosphere and are increasingly vulnerable to thaw as high-latitude temperatures warm. Large uncertainties remain about C dynamics following permafrost thaw in boreal peatlands. A chronosequence approach was used to measure C stocks in forested permafrost plateaus (forest) and thawed permafrost bogs, ranging in thaw age from young (<10 years) to old (>100 years) from two interior Alaska chronosequences. Permafrost originally aggraded simultaneously with peat accumulation (syngenetic permafrost) at both sites. Upon thaw, C loss of the forest peat C is equivalent to ~30% of the initial forest C stock and is directly proportional to the prethaw C stocks. Model results indicate that permafrost thaw turned these peatlands into net C sources to the atmosphere for a decade following thaw, after which post-thaw bog peat accumulation returned sites to net C sinks. It can take multiple centuries to millennia for a site to recover its prethaw C stocks; the amount of time needed for them to regain their prethaw C stocks is governed by the amount of C that accumulated prior to thaw. Consequently, these findings show that older peatlands will take longer to recover prethaw C stocks, whereas younger peatlands will exceed prethaw stocks in a matter of

centuries. We conclude that the loss of sporadic and discontinuous permafrost by 2100 could result in a loss of up to 24 Pg of deep C from permafrost peatlands.

Inquisitive minds were 2nd VP Carl-Henry Geschwind, Victor Zabielski of NOVA, Earl Saxon of the Forest Inform Party, Ben Mandler of AGI, Jim Hayes, and Sandy Neuzil.

Closing

At this time, President Bentley announced that due to scheduled renovations of the Cosmos Club in the fall, the September 13th meeting was to be held in an alternative location. Unfortunately, none of the candidate hosts agreed to demean their organizations by allowing 50 to 60 beer-swilling geologists to debase their property, so the meeting is canceled.

President Bentley announced the program for the 1521st meeting to be held on October 4th, 2017, and adjourned the 1520th meeting at 21:59 EDT.

Respectfully submitted
Nikolaus J. Deems
Meeting Secretary