Observing changes in near-polar glaciers in the northern and southern hemispheres

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Abstract: Approximately 50 researchers attended the Ice2sea North/South Glacier Workshop at the Geological Survey of Denmark and Greenland (GEUS). The aim of the workshop was to highlight the importance of changes in Northern and Southern Hemisphere near-polar glacier systems, which are subject to rapid climate warming from the atmosphere and ocean. Other goals of the workshop were to identify the observations required to understand the changes in these glacier systems and to determine difficulties and opportunities for making future projections. The meeting also served to bring together a new community of researchers working on similar glaciological problems in distinct geographic regions (e.g., the Arctic, including Alaska; Patagonia; and the Antarctic Peninsula). Full details of the workshop agenda and organizing committee can be found in the workshop report at http://www.ice2sea.eu/wp-content/uploads/2013/04/Ice2seaNSWorkshop_FINALREPORT_summary.pdf.

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New U.S. energy secretary Moniz calls climate change a high priority. Climate change is “an extraordinarily high priority,” Ernest Moniz, the new secretary of the U.S. Department of Energy (DOE), said during a 22 May town hall meeting 1 day after being sworn into office.

Moniz, who served as undersecretary of DOE from 1997 to 2001, during the Clinton administration, noted that the department’s priorities intersect with the Obama administration’s need to address the highest levels on climate change and the president’s “all of the above” energy strategy. The opportunity for DOE to move forward on climate issues “frankly was in some senses a climatic event most certainly wanting to come back to the department,” he said.

“When all is said and done, it is the prog­ress that we will help facilitate in terms of lowering the cost of low carbon technol­ogy that is going to be a tremendous facili­tation for the policy agenda going forward,” he said. “We have to advance especially the clean energy technology agenda. That’s really our biggest green spot.”

Moniz said that the nation’s current nat­ural gas boom not only has helped to decrease carbon dioxide emissions over the past several years, but could serve as “a bridge” to a low-carbon future. The boom affords more time to develop new and reliable technologies that will provide the ke­ystones for them. This is “the crucial decade” to do that, he said, adding that he is “very bullish” that it is going to be a lot bigger than most people think, sooner than they think.

He also noted that carbon capture uti­lization projects are a major focus that is “very important.” Carbon capture uti­lizes “several key factors could adversely affect the workforce.”

Among those factors is that about one third of the U.S. workforce comprises baby boomers who could retire in large num­bers by the end of the decade, and there are few younger workers in the pipeline to replace them. Also, while many energy and mining jobs require a strong foundation in science, technology, engineering, and math­ematics (STEM) skills, the pipeline of STEM-capable students and workers is inadequate to meet workforce needs, according to the DOE.

The report includes recommendations to improve STEM education, broaden the pool of registered professionals, and improve the perception of future regional industries and thus sea level water equivalent. Researchers also discussed glacier calving: the discharge to the sea or lakes from marine or tidewater-terminating glacier margins, as well as improving gravimetric estimates of glacier mass loss, and extending and improving trad­i­tional, field-based assessments of glacier change.

In the session on modeling, participants dis­cussed the role and importance of mass loss by calving and frontal melting, often as a result of ice coming into contact with warm ocean waters; geometric adjustments, model intercomparison, and the importance of downsampling coarse-resolution data, and uncertainty in glacier mass change projec­tion and particular data needs.

The three highest-priority data needs for improving model projections of north­south glacier change were identified as: bet­ter information on ice thickness at flux gates and theoretical and observational knowledge of snow and ice density varia­tions, and glaciological and geodetic availability of automatic weather station cli­mate data, including in situ measurements of glacier mass balance and accumulation.

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