GLACIOLOGY

Cloud loss melts Greenland

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JUSTINE EVANS/ALAMY STOCK PHOTO

In recent years, accelerated mass loss has been observed from the Greenland Ice Sheet, largely attributed to enhanced surface melt associated with higher temperatures. Given the resultant increase in rates of global sea-level rise, which threaten coastal environments, it is prudent to assess additional contributory factors that drive accelerated melt. Stefan Hofer from the University of Bristol, UK, and colleagues, quantify the connection between Greenland ice loss and changes in summertime cloud cover using a combination of satellite data and climate model simulations.

The authors reveal that Greenland's summertime cloud cover significantly declined after 1995, a change coincident with a shift toward negative phases of the North Atlantic Oscillation which favour stable atmospheric conditions. This reduction in cloud cover modifies the surface energy balance, driving an increase in downward short-wave radiation that enhances summertime melt: for every 1% decrease in summertime cloud cover, mass loss increases by 27 ± 13 Gt. This cloud-driven effect is shown to play a comparatively greater role than long-wave responses associated with increasing temperatures. Thus, climate models must be able to correctly reproduce observed changes in cloud cover and corresponding impacts on short-wave energy fluxes to accurately simulate surface mass-balance changes. *GS*

MENTAL HEALTH

Flood-induced displacement

Lancet Planetary Health **1,** e134–e141 (2017)

Experiencing natural disasters such as flooding has been linked to adverse mental-health outcomes. Because climate change is likely to increase the incidence of river, groundwater, and coastal flooding, understanding the risk factors that mediate the relationship between flood experiences and mental health can inform projections of climate-change health impacts.

Alice Munro from the London School of Hygiene and Tropical Medicine, UK, and colleagues, analysed survey data from residents of UK counties affected by flooding. One year after flooding, the prevalence of anxiety, depression, and post-traumatic stress disorder symptoms was higher in those who were displaced by flooding compared to those who were flooded but not displaced, after controlling for severity of flooding. Those who were displaced were more likely to report symptoms of depression and post-traumatic stress disorder if they received no advanced warning versus at least a 12-hour notice prior to flooding and displacement. Duration of displacement had no effect on mental-health outcomes. These results suggest that early warning systems or services that reduce the need for evacuation could protect against mental-health disorders following floods. *JR*

BIOGEOCHEMISTRY

Primary production uncertainty

New Phytol. http://doi.org/b9k3 (2017)

A major source of uncertainty in global gross primary production (GPP) modelling, and associated carbon-cycle dynamics, is the calculation of maximum photosynthetic carboxylation rate (V_{cmax}), one of two plant traits that closely determines photosynthetic rate. Various methods are used in terrestrial biosphere models to calculate these traits, each representing a different theory about how these traits scale, but the resultant errors have not previously been quantified.

Anthony P. Walker at Oak Ridge National Laboratory, USA, and co-workers investigate the impact of four trait-scaling hypotheses (plant functional type, nutrient limitation, environmental filtering, and plant plasticity) for V_{cmax} simulation and their impact on global patterns of GPP.

Modelled global GPP ranged between 108–128 PgC yr^{-1}, representing around 65% of the uncertainty range found in GPP model intercomparison exercises. This uncertainty propagated through to a 27% coefficient of variation in net biome productivity. Encouragingly, all hypotheses produced global GPP estimates that were highly correlated with proxies of global GPP. *AB*

MEDIA

Mitigation focus

Climatic Change http://doi.org/b9k4 (2017)

MICHAEL HOERICHS/ALAMY STOCK PHOTO

The 2015 Paris meeting was covered widely by the media. However, it's not clear whether this coverage highlighted the full range of topics discussed or focused on a few key outcomes. To address this issue, as well as to determine if the topic coverage was similar globally, Sonya Gurwitt and colleagues from Brown University, Rhode Island, USA, analysed online articles from print newspaper coverage in 13 countries published during the 2-week meeting. The authors selected the countries to represent different stages of economic development, level of engagement in the UNFCCC process, geographical spread, and different political and media systems.

Of the 2,580 articles assessed, mitigation was found to be the main topic, with less coverage of adaptation issues. Coverage was skewed towards the developed world, with issues of greater importance to emerging economies and the developing world, such as vulnerability, equity, and population effects, receiving less coverage. Nigeria had the highest coverage of the developing world, with France having the most balanced coverage of the developed, emerging and developing world. The authors note that the coverage often focused on climate-change effects on natural systems, rather than on humans, highlighting a developed-world perspective. *BW*

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