Alek Petty

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Arctic and Antarctic sea ice variability

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I’m currently a postdoc at NASA’s Goddard Space Flight Center and the University of Maryland - specializing in Arctic and Antarctic sea ice variability. I completed my PhD on the sea ice and ocean surrounding Antarctica at the Center for Polar Observation & Modelling, University College London, in January 2014.

I am principally interested in polar sea ice; the physics governing its mean state, the factors contributing to its spatial and temporal variability, and its coupling with the atmosphere and ocean. The transfer of heat, salt, water and momentum through sea ice is a key theme throughout much of my work. I utilize sea ice models (of varying complexity) and sea ice observations (in-situ, airborne and satellite) to increase our understanding of these fundamental concepts. I am increasingly interested in sea ice prediction, and recently joined the Sea Ice Prediction Network (SIPN), Sea Ice Outlook Action Team.

**List of publications**

Petty, A. A., M.C. Tsamados, N.T. Kurtz, S.L. Farrell, T. Newman, J. Harbeck, D.L. Feltham, J.A. Richter-Menge (2016), Characterizing Arctic sea ice topography using high-resolution IceBridge data, The Cryosphere Discuss, doi:10.5194/tcd-9-6495-2015

Petty, A.A., J.K. Hutchings, J.A. Richter-Menge, M.A. Tschudi (2016), Sea ice circulation around the Beaufort Gyre: The changing role of wind forcing and the sea ice state, doi:10.1002/2015JC010903 (in press).

Tsamados, M.C., D.L. Feltham, A.A. Petty, D. Schroder, D. Flocco (2015), Processes controlling surface, bottom and lateral melt of Arctic sea ice in a state of the art sea ice model, Phil. Trans. Roy. Soc., Lond A, 373, doi:10.1098/rsta.2014.0167

Petty, A.A., D.L. Feltham, and P.R. Holland (2014), Sea ice and the ocean mixed layer over the Antarctic shelf seas, The Cryosphere, 8, 761–783, doi:10.5194/tc-8-761-2014.

Petty, A.A., D.L. Feltham, and P.R. Holland (2013), Impact of atmospheric forcing on Antarctic continental shelf water masses, J. Phys. Oceanogr, 43, 920–940, doi:10.1175/JPO-D-12- 0172.1.

<http://science.gsfc.nasa.gov/sed/bio/alek.a.petty>

<http://science.gsfc.nasa.gov/sed/index.cfm?fuseAction=home.main&navOrgCode=600&navTab=nav_about_us>

<http://essic.umd.edu/joom2/index.php/faculty-and-staff?layout=user&user_id=761>

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