Arctic snow in a changing cryosphere: What have we learned from observations and CMIP5 simulations?

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Unlike other elements of the cryosphere (e.g., sea ice, ice caps) Arctic terrestrial snow cover is not perennial: it melts and disappears completely each spring and summer. The timing of this melt, and subsequent snow cover onset in the fall, has important implications for the energy budget through changes to surface albedo, for the water cycle through the release of stored water, and for geochemical cycles by influencing the ground thermal regime and the length of the growing season. This presentation will place current observed changes in Arctic snow cover in the context of other elements of the cryosphere, show how the use of multiple datasets can contribute to understanding observational uncertainties, and assess the ability of CMIP5 simulations to characterize observed variability and trends in Arctic snow cover.