

## C07-O16

### ARCTIC HYDROLOGICAL CHANGE: MAJOR IMPLICATIONS FOR TERRESTRIAL AND FRESHWATER ECOSYSTEMS

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The hydrological cycle and associated cryospheric components are showing profound changes in the Arctic in response to global and regional climate variability and change, and other environmental drivers and stressors. This overview summarizes results from the terrestrial ecology component of the Arctic Freshwater Synthesis (AFS), which is an internationally authored contribution to ICARPIII, the World Climate Research Programme's –Climate and Cryosphere Project (WCRP-CliC) Grand Challenges, and the Arctic Council's AMAP's Adaptation Actions for a Changing Arctic (AACAA).

We present an integrated synthesis of the current state of knowledge of the major implications of Arctic hydrological changes on the structure, function and productivity of terrestrial and freshwater ecosystems, provide perspectives on the implications for natural capital and relationships to the provision of ecosystem services. We also discuss the implications for key ecological processes, hydrological co-drivers, and biological resources and ecological services in relation to alterations in: terrestrial and aquatic ecosystem productivity; biophysical properties and biogeochemical cycles; landscapes, successional trajectories and the creation of new habitats; seasonality; and, gains or losses of species.

Similar to other AFS components, we apply a circumpolar, cross-regional perspective to identify cross-cutting themes, identify key knowledge gaps, and make recommendations about future research directions and opportunities.