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ARCTIC FRESHWATER SYNTHESIS: SOURCES, FLUXES, STORAGE AND EFFECTS

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There is increasing scientific recognition that changes to the Arctic freshwater systems have produced, and could produce even greater, changes to bio-geophysical and socio-economic systems of special importance to northern residents and also produce some extra-Arctic effects that will have global consequences. In recognition of such concerns, three international organizations, the World Climate Research Program's Climate and Cryosphere Project (WCRP-CliC), the International Arctic Science Committee (IASC), and the Arctic Council's Arctic Monitoring and Assessment Program (AMAP), jointly initiated a scientific assessment entitled the "*Arctic Freshwater Synthesis (AFS)*", which focused on assessing the various Arctic freshwater sources, fluxes, storages and effects. The AFS was organized into 6 major Components including i) Oceans; ii) Atmosphere; iii) Terrestrial Hydrology; iv) Terrestrial Ecology; v) Resources and vi) Modelling. Each Component was led by two co-Leads and supported by a team of international co-authors. In considering historical and projected future changes in the various freshwater components, synergistic roles among components, and the overall freshwater budget, the assessment also evaluated effects on: i) regional and global climate, ii) biological productivity and biodiversity, and iii) human and economic systems. This presentation reviews the major findings of each AFS Component, examines important synergistic processes/effects among Components, and identifies key priorities for future research.