Supersite for eco-hydrological observations at boreal forest in Poker Flat Research Range, Alaska

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The supersite for eco-hydrological observations that was established by the collaboration study between Japan Agency for Marine-Earth Science and Technology and International Arctic Research Center, University of Alaska Fairbanks is currently in operation at Poker Flat Research Range located about 35km northeast from Fairbanks Alaska. A 17m scaffold tower (Fig. 1), equipped by sensors for general meteorological measurements and fluxes in the atmospheric boundary layer, was constructed in the black spruce forest in 2010. Snow, precipitation, and soil temperature/moisture were continuously monitored. A distributed temperature sensing system with fiber optics monitors spatially continuous surface and ground temperatures. The floor-level carbon dynamics are monitored with the automated open/close chamber system that has 16 chambers. This supersite also plays a role in acquiring the ground-truth for satellite remote sensing. The spectral reflectance of forest canopy/floor and the forest landscape is being monitored by the spectral-radiometers and the automatic digital fisheye lens camera, respectively. Those data are utilized for the study of biogeochemical modeling. The knowledge, understandings, and data which are created based on the supersite observations are enhancing the geochemical study on Arctic climate system.

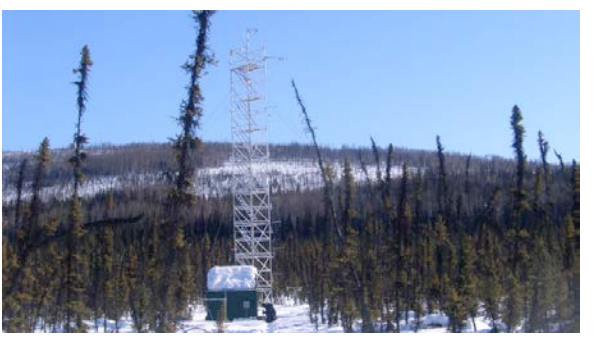

Figure 1: The 17m observation tower constructed in the black spruce forest of Poker Flat Research Range, Fairbanks.