Department of Meteorology
Joint Seminar Announcement

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Last millennium dust and temperature variability in southwestern Tibet

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Date: Monday, July 21, 2014
Seminar Time: 3:30pm
Location: Pacific Ocean Science & Technology Building, POST 723

Abstract:

Dust over the Himalayas and southern Tibetan Plateau may influence high-elevation temperature and hydrology across Asia, but little is known about long-term dust variability and its relationship with regional climate over the last millennium. Here we have reconstructed a proxy record of past dust and temperature impacts on glacial streamflow and sediment deposition in Kiang Co, a small lake on the southwestern Tibetan Plateau. Terrigenous elemental variability in the Kiang Co sediment record, a proxy for glaciofluvial sediment deposition in the lake, co-varies with the Dasuopu ice core dust record from the central Himalayas on centennial timescales. The relationship between the Kiang Co sediment record and Dasuopu indicates coherent dust forcing across the central Himalayas over much of the last millennium, and suggests that regional dustiness influences glacial streamflow and sediment transport on centennial timescales. In addition, the Kiang Co terrigenous elemental abundance record is positively correlated with May-September temperatures from the Tibetan Plateau to central India from 1870 to 2007 AD, highlighting the important influence of temperature on melting and streamflow in this region, as well as a relationship between dust and temperature on centennial timescales. These findings strengthen the likelihood of future dustiness with continued warming, along with further increases in melting and high-elevation streamflow in coming decades.