The 2010 Russian heat wave and the Pakistan Flood: Teleconnection of extremes William Lau⁺;

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In this talk, we present preliminary results showing that the two record setting extreme events during 2010 summer, i.e., the Russian heat wave/wild fires and Pakistan flood were physically connected. The root cause of the 2010 Russia heat wave was an extratropical atmospheric blocking event which, through the excitation of a large-scale atmospheric Rossby wave, was instrumental in affecting the rainfall evolution of the South Asian summer monsoon, including triggering of torrential rain over northern Pakistan and vicinity. Each event was amplified through local feedback mechanisms involving land-atmosphere interaction for the Russian heat wave, and development of mid-tropospheric cyclones for the heavy rain over northern Pakistan. The timing of the Pakistan heavy rain appeared also to be modulated by the northward propagation of the monsoon intraseasonal oscillation (MISO) over the Indian subcontinet, enhancing moisture transport from the Bay of Bengal and the Arabian Sea to northern Pakistan.