Heat - a tale of perception, records, and attribution

The number and amplitude of high temperature events are robustly projected to increase in a warming climate, yet the spatial details, the drivers, and the implications for humans are intricate and deserve dedicated study. In this seminar I will provide an overview over recent work at NCAR on high temperature events in models and observations, including (i) the human exposure to and perception of climate change through the eyes of local temperature anomalies, (ii) the nature of record-setting summer temperatures and their evolution as well as potential mitigation under climate change, and (iii) the attribution of high temperature events to dynamical and thermodynamical drivers via a method of dynamical adjustment. The use of the CESM Large Ensemble in all of these studies illustrates the value of this set of simulations.