Title: The why, how, and what of large scale meteorological patterns

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Abstract:

This talk touches upon why one might look for large scale meteorological patterns (LSMPs) associated with extremes, how one can identify these LSMPs and some examples of why the LSMPs might be useful. As for the 'what' temperature extremes in middle latitudes usually involve displacements of air masses from their normal locations. Consequently there large scale upper air patterns are created in other fields, like the mass and wind fields as well. As for the 'how' the statistical technique of bootstrap resampling will be described along with some advantages and cautions. As for the 'why' the LSMPs can be used in both predictive and diagnostic applications.

Specific extreme hot spells examples will be drawn from the Workshop 'common dataset' for Central Valley of California summer season. These LSMPs have large scale and are easily resolved by current climate models. Hence, for example, the LSMP provides a tool to assess how well a climate model is providing the environment for a regional downscaling model. The LSMP also informs why the hot spell is occurring (including influencing the regional conditions). Other applications include a simple 'index' to indicate similar the instantaneous pattern is to the LSMP associated with the extreme.