

The elements of subseasonal excessive heat outlook systems (SEHOS)

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In this paper I present the four building blocks of a SEHOS and the paths for improvements on baseline versions. The first module post-processes output from weather/climate forecast model(s) in order to remove systematic biases. The chosen methodology is quantile mapping of extreme values of temperature and humidity. The second module, which is the core of the SEHOS, maps the bias corrected atmospheric conditions to a thermal discomfort index. Multiple thermal discomfort indices and definitions of excessive heat events are compared. The third module calibrates probabilistic information on the occurrence and intensity of excessive heat events. The chosen methodology is reliability mapping of extreme events. Finally, the fourth module is the interface between probabilistic prediction of heat waves and potential users ranging from the health sector (private, state, federal) to NOAA's CPC. This paper concludes with the description of a pilot version of the CFSv2 based SEHOS that will be providing experimental real time global forecasts of excessive heat events to the health community and use feedback to improve on it.