

CICS-MD Science Meeting
November 12-13, 2014
College Park, MD

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1-2 Towards a Subseasonal Excessive Heat Outlook System

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Heat waves affect human health and several sectors of the economy, from agriculture and fisheries to energy production. Adaptation to more frequent, more intense and longer lasting heat waves, as projected by the IPCC, necessitates utilizing all sources of available predictability to provide excessive heat information at increasing forecast lead times. Currently, in a collaborative work between the NOAA Climate Prediction Center and ESSIC/CICS-MD we are developing a prototype Subseasonal Excessive Heat Outlook System that focuses on human health (SEHOS-H). This system targets the Week-2 to Week-4 forecasting horizon. Known sources of predictability at these lead times include the Madden-Julian Oscillation (MJO). In this presentation we first discuss the relationship between heat and human health and adapt the meteorological quantities to forecast to the challenges of subseasonal prediction. We then retrace the chain of meteorological events that led to high mortality incidents for specific cases, including the Chicago 1995 heat wave, making the link to the MJO. We finally explore the potential of current state-of-the-science forecast models to utilize known sources of subseasonal predictability and present a roadmap to an operational SEHOS-H.