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***Understanding and Predicting Tropical Cyclone  
Damage Potential***

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An approach to assessing the damage potential of tropical cyclones is developed using a combination of physical reasoning and empirical assessment. Using readily available and key damaging cyclone parameters of intensity, size, and translational speed a Cyclone Damage Potential index is developed that represents offshore damage and onshore wind and coastal surge damage. The index is applicable to individual tropical cyclones, and to seasonal and global summaries. Actual damage assessment or prediction requires the additional step of incorporating historical damage data and regional peculiarities.

The index is then modified to use large-scale climate data available from global climate models, thereby sidestepping the need for information on individual cyclones. Relative sea surface temperature and steering flow are used as proxies for cyclone intensity, size, and translational speed. Application to climate model simulations under representative concentration pathways (RCPs) 4.5, 6.0, and 8.5 shows a future reduction in damage potential, driven by a cooling relative SST. However, the spread in damage potential reduction among the RCPs is less than the spread due to internal variability over the 21st century, as assessed using a climate model initial condition large ensemble. Improving understanding of spatial SST change may therefore be key to understanding future change in TC damage potential.

*This seminar will be webcast live at:*

*<http://www.fin.ucar.edu/it/mms/fl-live.htm>*

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**Thursday, 2 April 2015, 3:30 PM**

Refreshments 3:15 PM

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