

Climate Modeling for Actionable Science

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The impacts of climate change are felt most strongly through changes in extreme weather events that cause damages to infrastructure and the built environments and challenge the management of natural resources. To support mitigation and adaptation planning, storm-resolving climate models are emerging to provide actionable information. I will discuss an ongoing effort to develop such a capability, highlighting the computational challenges and recent successes in building the foundation for taking advantage of exascale computers for climate modelling. I will also present examples of ongoing efforts in improving modelling of flood risk associated with hurricanes in coastal regions and air pollution from wildfires using a variety of modelling tools including climate models and machine learning models.