Data Mining for Global Change: Furthering Science, Knowledge

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University of Minnesota's Vipin Kumar and colleagues want to integrate computer scientists into the effort to address climate change, ecosystem health, and global sustainability. The research team is involved with Understanding Climate Change: A Data Driven Approach, a U.S. National Science Foundation Expeditions in Computing initiative, and the GOPHER project, which is affiliated with the Planetary Skin Institute. The goal of the initiatives is to provide new computational solutions for studying the global climate and ecosystems, and projecting the impact of climate change on natural and human-made systems. Other scientific disciplines have achieved high levels of success in implementing data-driven approaches. The researchers are working to develop methods that take advantage of climate and ecosystem data from satellite and ground-based sensors; the observational record for atmospheric, oceanic, and terrestrial processes; and physics-based climate model simulations. They currently are focusing on novel methods for analyzing historical climate data, various aspects of modeling tropical cyclone activity, multi-model ensemble approaches for evaluating and combining simulation output from multiple climate models, and change detection in space-time data.

Full article: