Working Group XIV: Climate Informatics

Research Overview:
Climate informatics includes statistics and machine learning as data analysis methods but also has an end-to-end aspect to problem solving. Here the formulation of a substantive problem based on data and the communication and dissemination of the final solution play an important role. We will also consider a broad view of data in this group ranging from observational data and derived data products to model output and designing computer experiments. One focus will be on large data problems where the challenge is to come up with good approximations to standard methods for smaller data volumes.
Some possible topics as listed below but the working group activity will also adapt to the interests of the members.

- Remotely sensed and observed data as it applies to creating data products for the water management and hydrology. (This will partner with ongoing work at U Minn.) One specific topic is to attach measures of uncertainty to the current estimates.

- Compression of earth system (climate) model simulations.

- Creation of data products for extreme rainfall.

- Exploring the use of deep learning for interpreting climate fields. This can also involve some efforts to dissect the neural networks to determine how they work.

- Strategies for using high performance computing resources (aka supercomputers) for near interactive analysis of large climate data sets.

Working Group XIV: Climate Informatics (cont.)

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