Abstract:
Humanity has built an increasingly complex and poorly understood sociotechnical and geopolitical system-of-systems to support human life on Earth. It sits atop, affects, and relies upon the climatic, ecological, animal, vegetable, and microbiotic system-of-systems. Much effort has gone into understanding how the sociotechnical system is affecting the web of natural systems, disrupting its balance and destabilizing the systems on which it relies. Less critical for the planet, but just as critical for humanity is the way in which the sociotechnical systems are themselves unstable. Unfortunately, the instability of the sociotechnical systems can lead to collapse in ways that would accelerate the destabilization of the earth systems, with devastating consequences for both humanity, and all life on earth. Exploring and mitigating this sociotechnical fragility is a critical new horizon in understanding the interplay between humanity and earth's climate.
The consequence of climate destabilization on food supplies, international security, energy needs, and international commerce are significant. Moreover, selfish state actors and inter-state competition can lead to both physical and economic conflicts that further degrade the environment, or create risks of biological or physical attacks on agriculture, or even nuclear war. Even without these new risks, inter-state competition could crowd out climate remediation projects and accelerate damage.
In this paper we will explore the various critical parts of the critical sociotechnical systems, paying attention to both how their failure could accelerate damage to the environment and natural systems, and how destabilized climatic systems make the task of building resilient sociotechnical and geopolitical systems harder, increasing the couple risks of disasters.