

# Towards 'Flourishing Studies'

## A network science lens onto flourishing science commons

### What is the world of Earth and Space

#### Science that we are walking into?

Our grand challenges in science are those for which we cannot ignore the complexity of the world—the interconnectedness of our disciplines, systems, and groups.

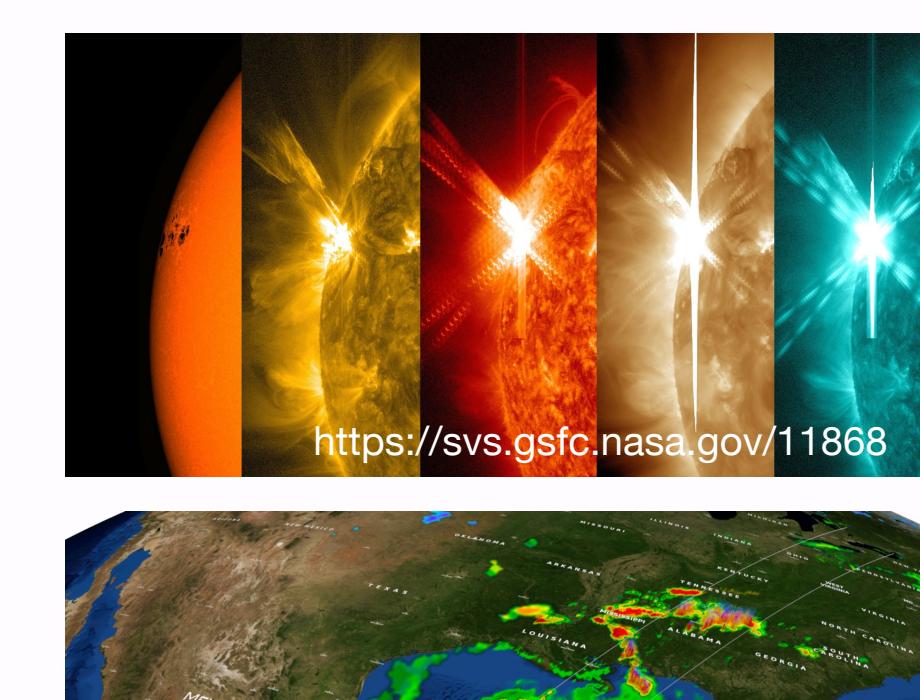
#### How do we embrace complexity in the project of scientific discovery?

### Complexity

Complexity science is the study of phenomena that emerge from a collection of interacting objects. To understand a complex system requires a plurality of frameworks and we must be able to move between levels (e.g., micro and macro). Complexity science is a paradigm that suggests ways of reconciling the micro and macro scales. It is the collection of methods to understand a system across scales, smaller scale behavior in connection with larger-scale phenomena that emerge from it. The complex systems paradigm transcends the concepts of scale and discipline, providing methods to connect across them.



The automobile is a complex object, meaning many parts had to come together for it to emerge



Physical phenomena and scientific discoveries are complex objects, too

Self-organization, emergence, and scaling theory  
Systems science and cross-scale  
Risk and resilience framework  
Information and acknowledging uncertainty  
Networks, network science, and collectivity