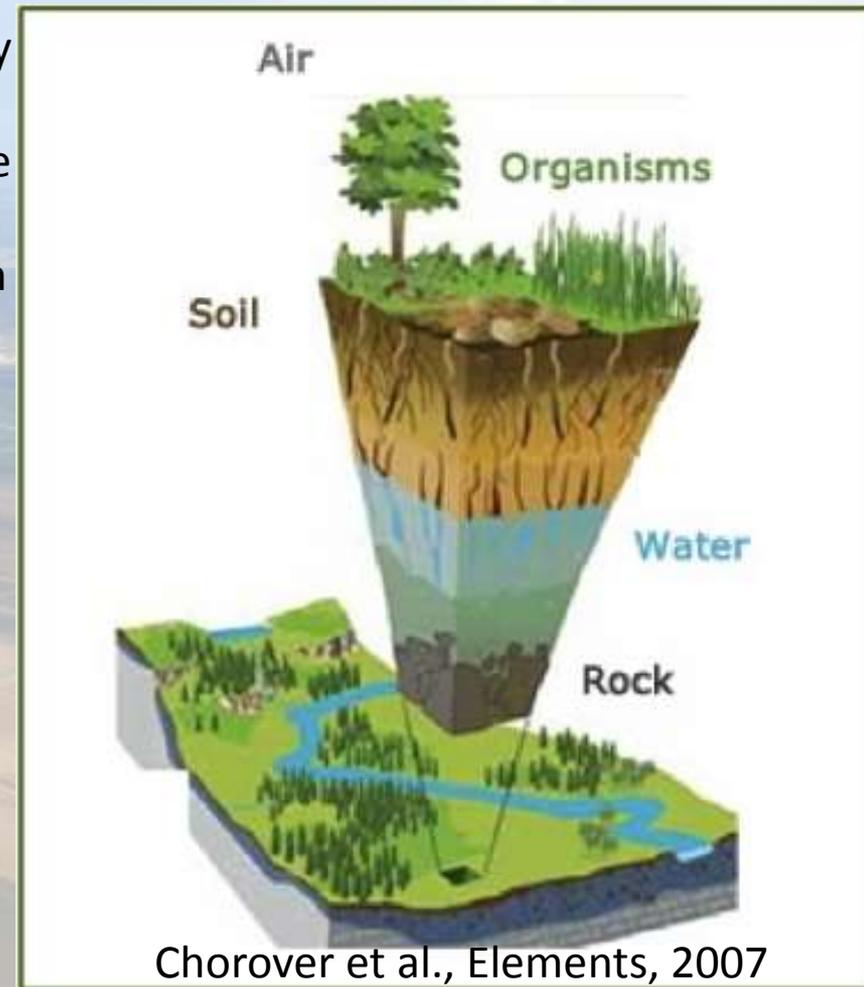


NSF funded Critical Zone Observatories (CZO) are a network of 10 environmental laboratories to study the chemical, physical and biological processes that shape the Earth's surface from the vegetation to the top of the unaltered bedrock. This CZ sustains human activity and is under intensive pressure from climate change and growth in human population and changing consumption habits.

CZO research works at the catchment/watershed scale and seeks to understand the couplings of these processes across temporal and spatial scales by monitoring and modeling.

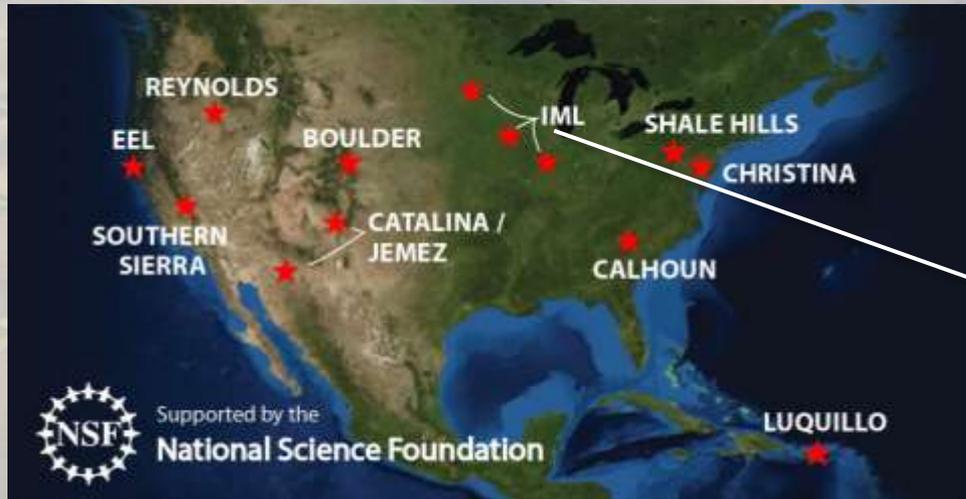
Additionally, Critical Zone Observatories (CZO) have been established globally during the past seven years to investigate the complex interactions that regulate CZ properties and determine the availability of life-sustaining resources.

The NSF CZO Program is a community resource. It serves the international scientific community through research, infrastructure, data, and models.



Chorover et al., Elements, 2007

Are you interested in collaborating with a CZO focused on resilience of CZ services in intensively managed agricultural landscapes (IML)?



Southern Sierra CZO (California)

Susquehanna-Shale Hills CZO (Pennsylvania)

Jemez River Basin – Sta. Catalina CZO (New Mexico/Arizona)

Eel River CZO (California)

IML -Intensively Managed Landscapes CZO (Illinois/Iowa)

Boulder Creek CZO (Colorado)

Christina River Basin CZO (Pennsylvania/Delaware)

Luquillo CZO (Puerto Rico)

Reynolds Creek CZO (Idaho)

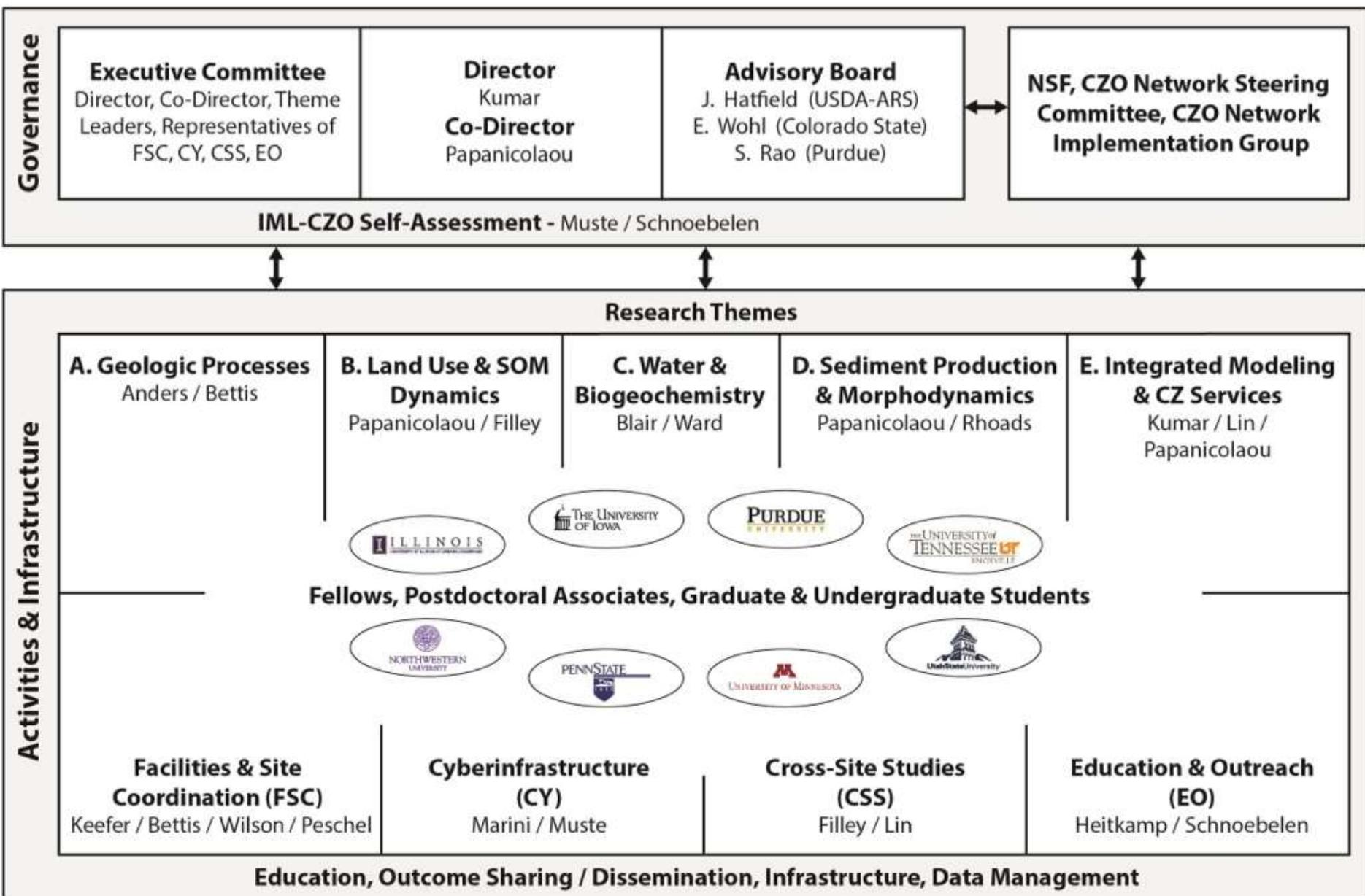
Calhoun CZO (South Carolina)

The Intensively Managed Landscape (IML)-CZO: what we are about.

Resilience of CZ services in IML.

- *Water quantity & quality*
- *Food, fiber, (bio)fuel*
- *Nutrient transformation*
- *Carbon storage*
- **Change from Geologic Legacy to Future Climate**
 - How do different time scales of geologic evolution and anthropogenic influence interact to determine the trajectory of CZ structure and function?
- **Change in Biota and Soil Interactions**
 - How is the co-evolution of biota (vegetation and microbes) and soil affected due to intensive management?
- **Change in Transport and Transformation**
 - How have dynamic patterns of connectivity, which link across transition zones & heterogeneity, changed due to anthropogenic impacts.
 - How do these affect residence times & aggregate fluxes of water, carbon, nutrient, and sediment?

Organizational Structure



To learn about the IML-CZO go here:

<http://criticalzone.org/iml/>

To inquire about being a visiting scholar at the IML-CZO contact:

Timothy Filley, Purdue University

filley@purdue.edu

Henry Lin, Penn State University

hul3@psu.edu

CZO | CRITICAL ZONE OBSERVATORIES
U.S. NSF NATIONAL PROGRAM

SWITCH OBSERVATORY ▼

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Research Infrastructure Data Models Publications People Education/Outreach

Observatories

A **Critical Zone Observatory** is an environmental laboratory, focused on the interconnected chemical, physical and biological processes shaping Earth's surface.

Our **ten observatories** span a range of climatic, ecologic, geologic, and physiographic environments, from California to Puerto Rico.

Each **CZO is working toward a common set of resources**, which will enable us to compare whole-watershed Carbon, energy and mass balances across a variety of settings.

NATIONAL INFRASTRUCTURE:

- National Office >
- Observatories ▶
- A Common Approach >
- GIS, Remote Sensing & Geophysics >

To learn about the entire national network of 10 CZOs go here:

<https://criticalzone.org/national/infrastructure/observatories-1national/>