What is the Critical Zone?

The critical zone extends from the top of the tree canopy to the deepest penetration of groundwater

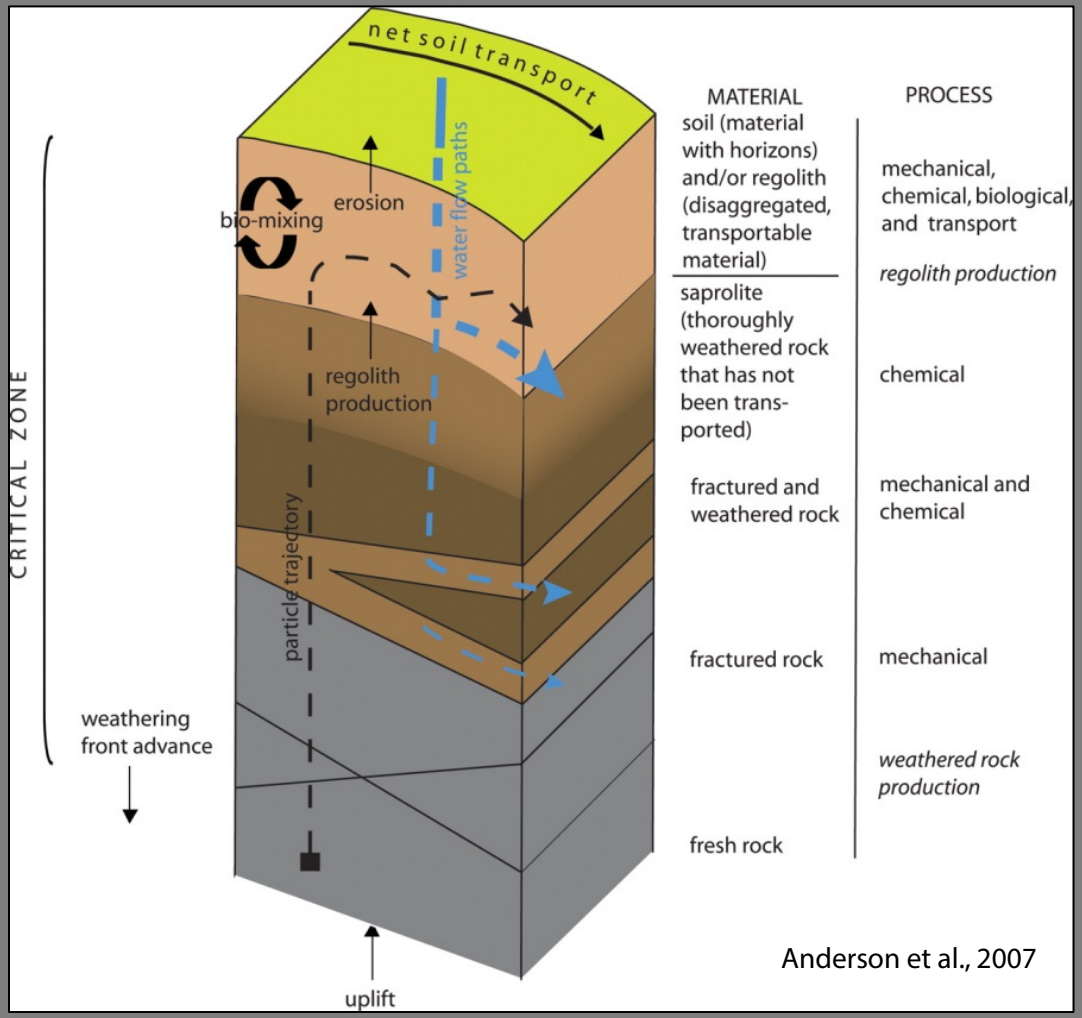
The critical zone is the region of the Earth where life interacts with the hydrosphere, lithosphere, and atmosphere

Therefore, understanding the functioning of the critical zone and how it evolves is of “critical” importance

Critical Zone Science examines the interactions between these spheres at a range of spatial and temporal scales

Nicole West (Central Michigan University)

The fundamental architecture of the Critical Zones is governed by the transformation of bedrock to regolith



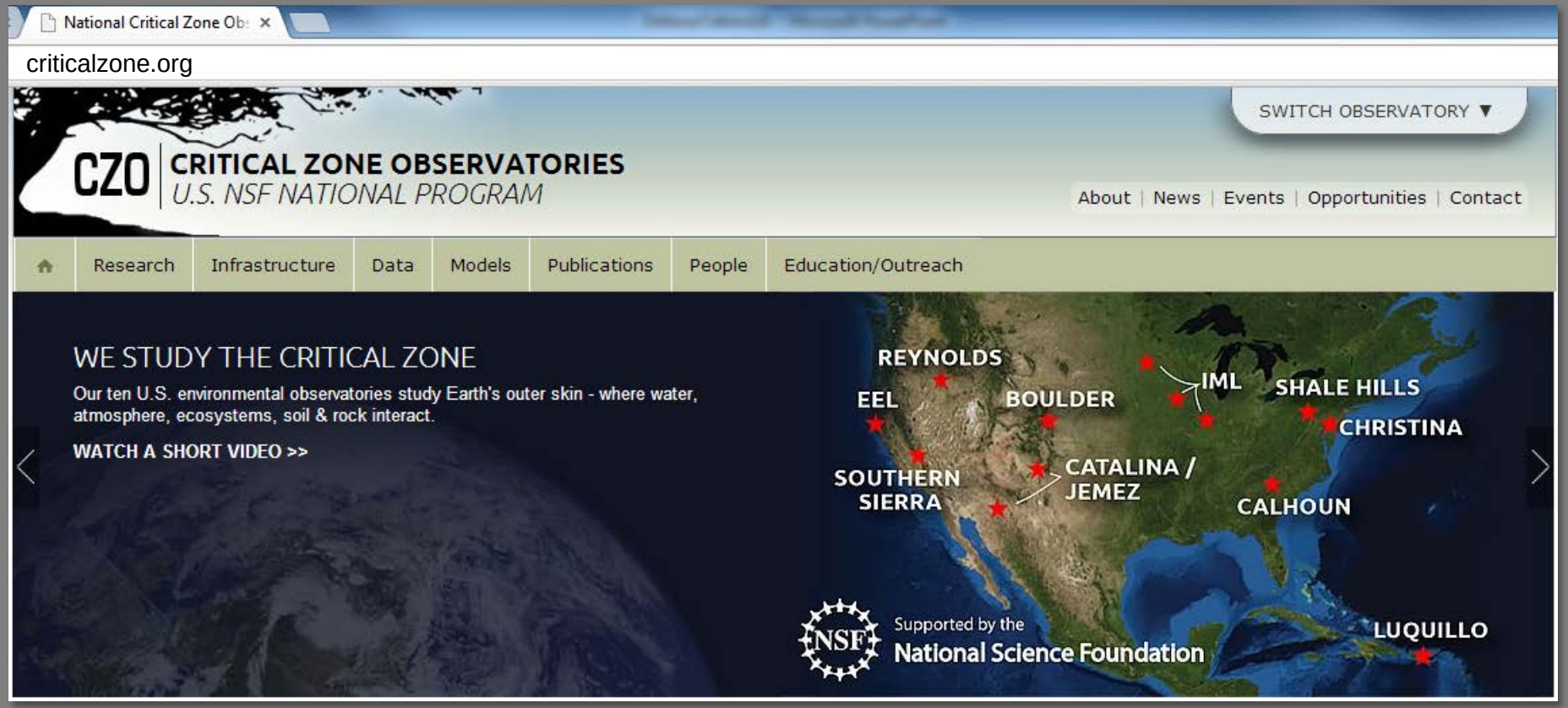
Anderson et al., 2007

What are the primary processes and rate laws that set the physical characteristics of the Critical Zone?

How does the architecture of the critical zone change in response to climatic, base level, and land use perturbations?

Nicole West (Central Michigan University)

The Critical Zone Observatory Program provides a natural laboratory to study the effects of lithology, climate, and tectonics on surface and near-surface processes



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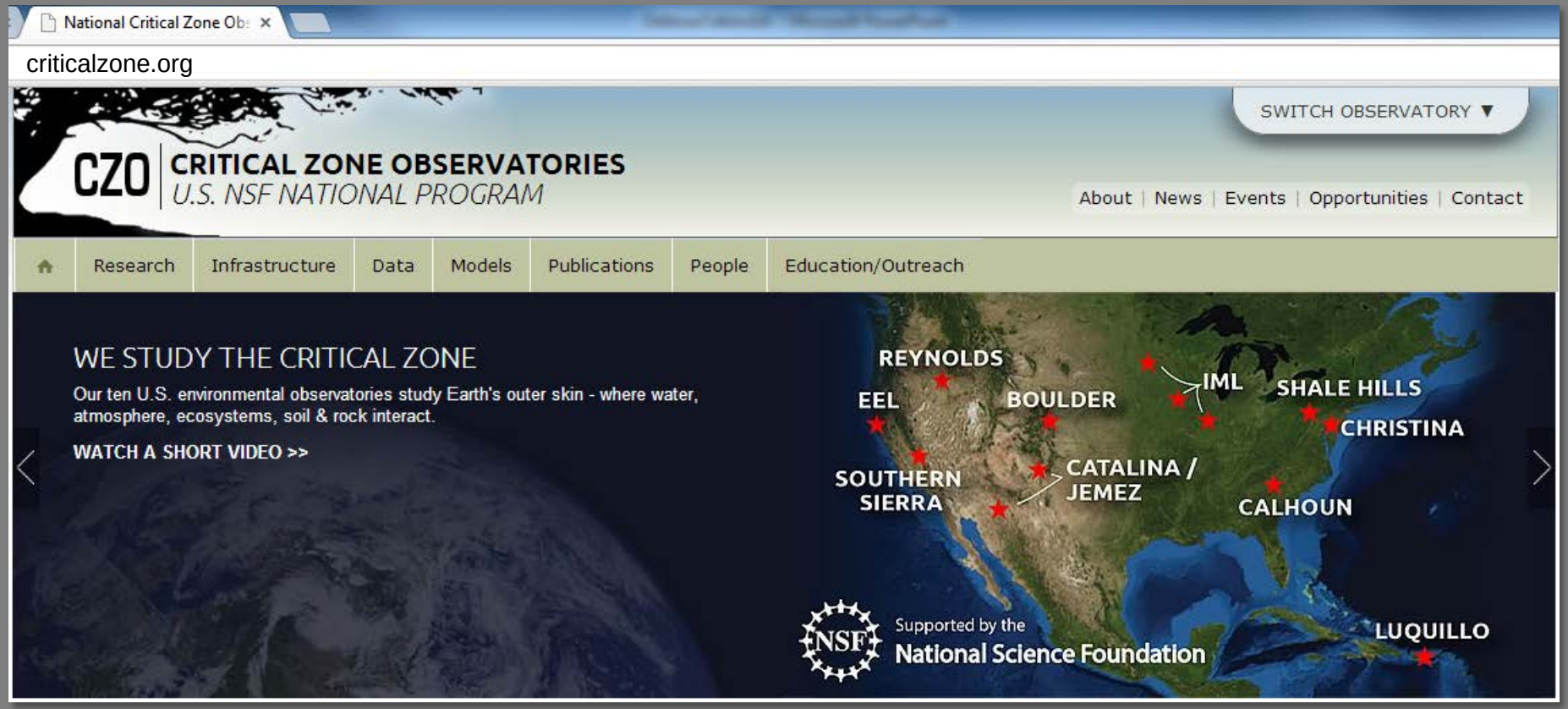
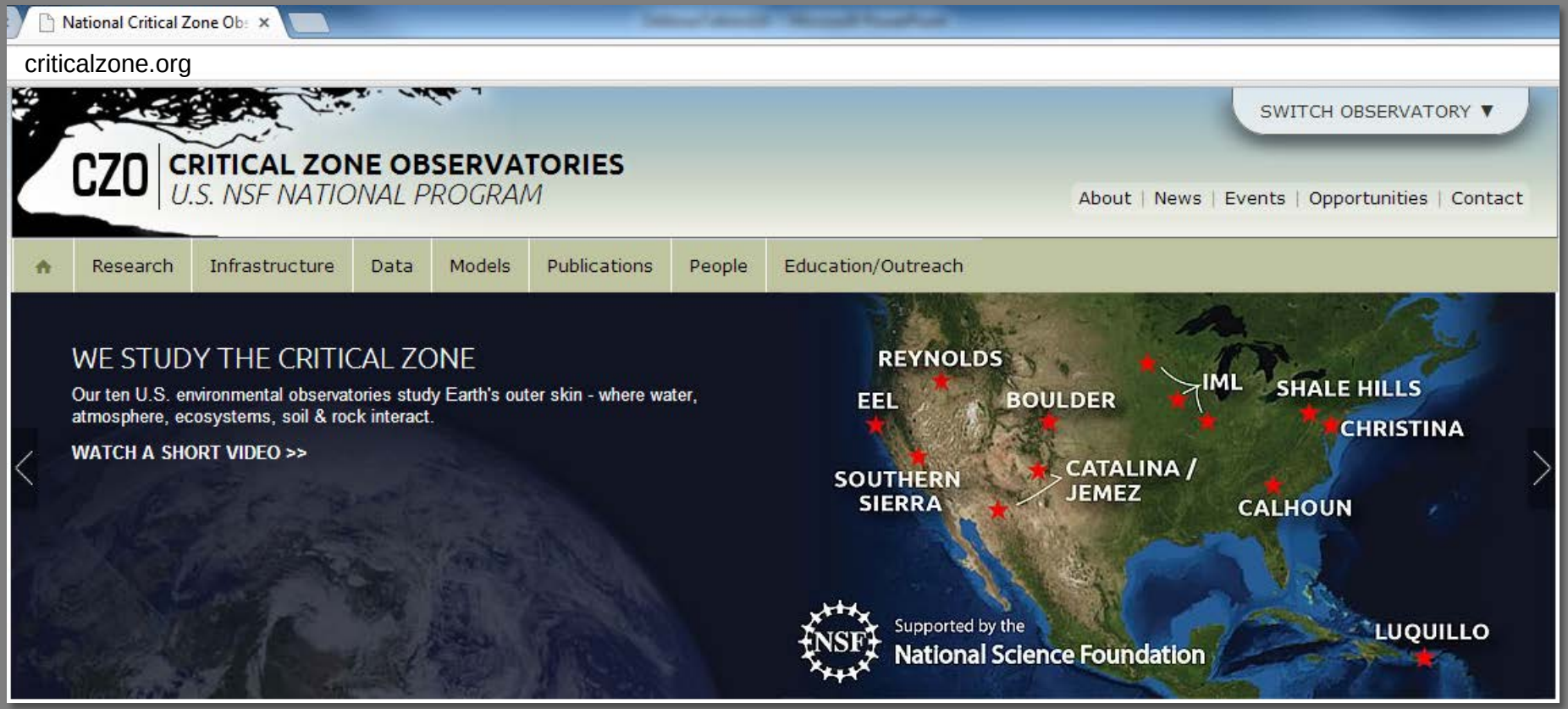
Each CZO was funded by individual proposal, therefore each CZO has different goals and strengths



Each CZO is comprised of an interdisciplinary group of PIs, including ecologists, hydrologists, pedologists, atmospheric scientists, and geologists (geochemists, geomorphologists, geophysicists)

Nicole West (Central Michigan University)

Proposed CC Array locations could provide tectonic and climatic environments that are not represented by the currently funded CZOs



Proposed CC Array locations include a variety of plate boundary interactions, uplift rates, and permafrost environments in the far northern boundaries, which are missing from our developing understanding of how Earth's critical zone behaves

Nicole West (Central Michigan University)