

The background of the slide features a stylized illustration of a tree on the left and a large, light-colored rock in the center. The text "National CZO Program" is overlaid on the rock, with the URL "http://criticalzone.org" positioned below it.

National CZO Program

<http://criticalzone.org>

**The CZO program is both individual sites and a network of sites,
promoting a system approach to Critical Zone Science**

**CZO scientists pursues state-of-the-art science by implementing
innovative new techniques and conducting long-term monitoring**

**The CZO Program is an infrastructure for research of the
CZ Community at large: CZO scientists and NSF encourage
community involvement**



Critical Zone Observatory Network



CZO | CRITICAL ZONE OBSERVATORIES

U.S. NSF NATIONAL PROGRAM

NATIONAL BOULDER CHRISTINA JEMEZ-CATALINA LUQUILLO SHALE HILLS SIERRA

[Home](#) [Research](#) [Infrastructure](#) [Data](#) [Models](#) [Publications](#) [People](#) [Education/Outreach](#)

How does the Critical Zone... form, operate,
and evolve?

CZO seeks to answer fundamental Critical Zone questions and help predict how this
zone will change in the future.

[EXPLORE OUR RESEARCH >>](#)



Spotlight



**Xiande
Meng**

STAFF, Data Manager
Sierra CZO

Opportunities

**Career Opportunities: NSF Program Director,
Hydrologic Sciences, Rotator; two (2)
Openings**

Manager of Stable Isotope Laboratory

Quick Links

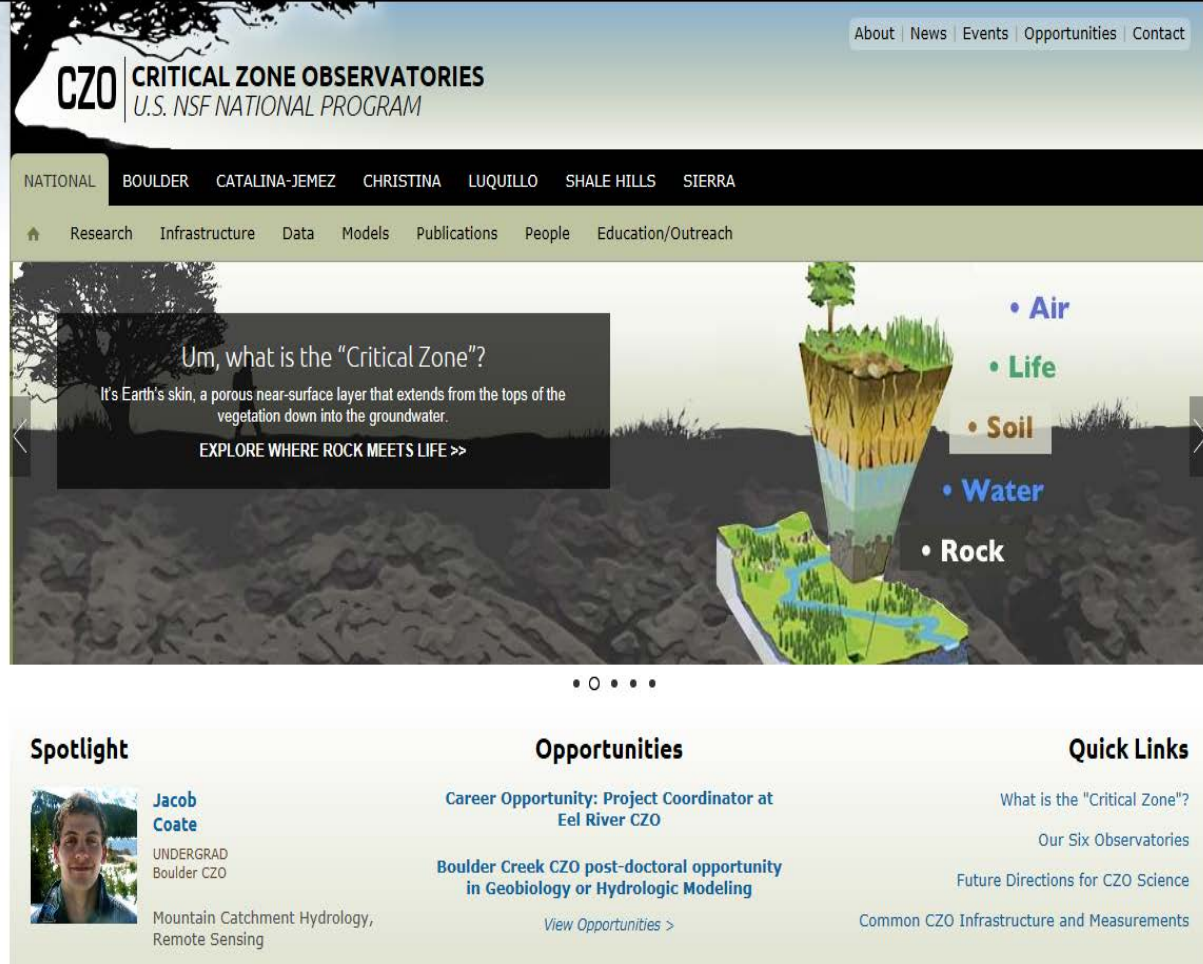
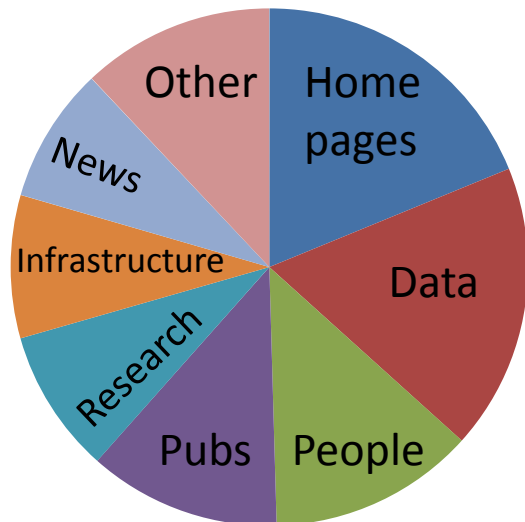
[What is the "Critical Zone"?](#)

[Our Six Observatories](#)

[Future Directions for CZO Science](#)

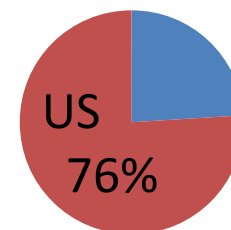
CZO Content

864 Publications
509 People
279 News Articles
180 Datasets
164 Events
125 Partners
66 Field Areas
30 Models



12,074 pageviews/month

34,640 Visits/yr.



CZO's are employing common measurements to assess CZ composition, structure and fluxes



Images: Santa Catalina – Jemez CZO

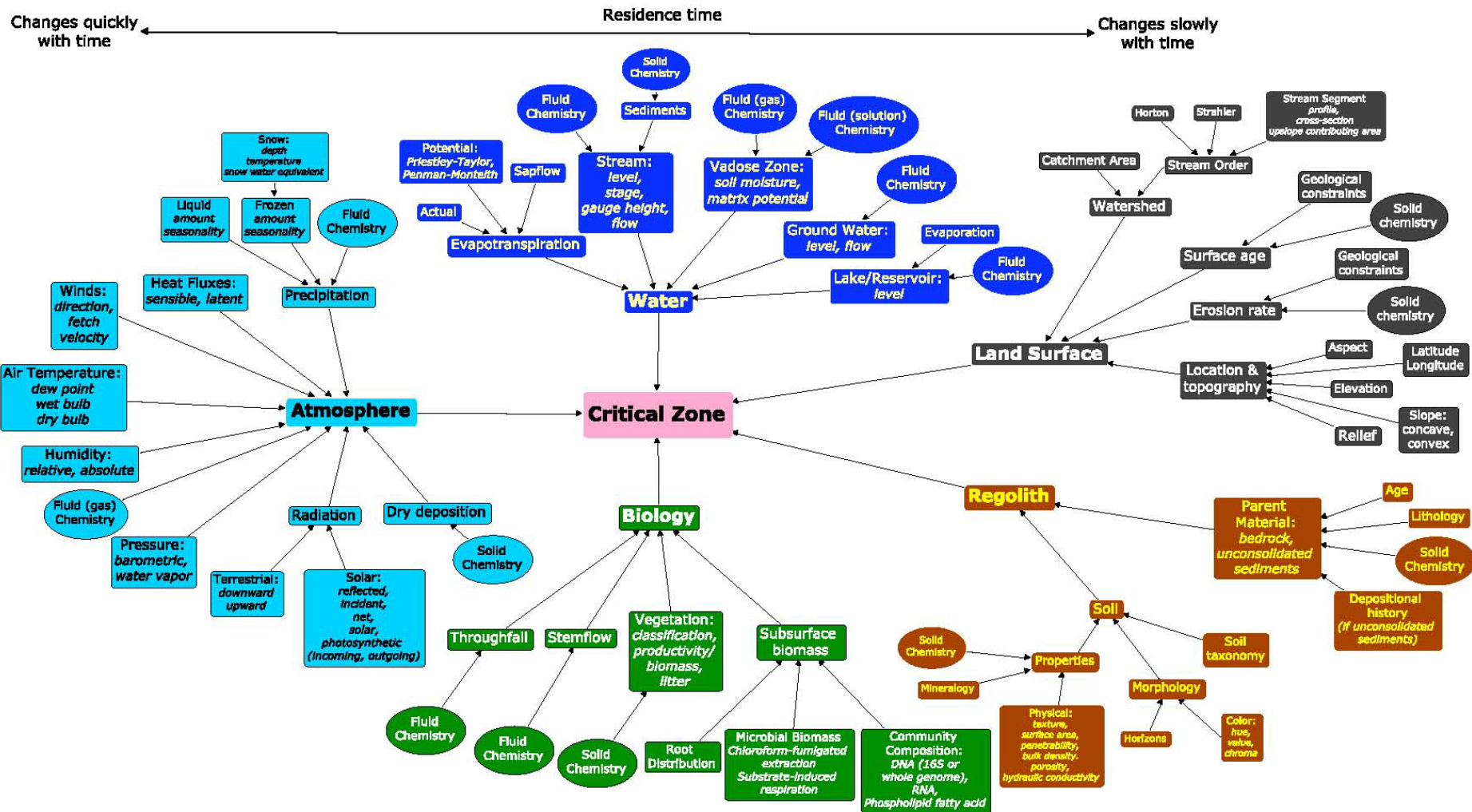
Network Questions

- 1. What controls critical zone properties and processes?
- 2. What will be the response of the critical zone structure, and its stores and fluxes, to climate and land-use change?
- 3. How can improved understanding of the critical zone be used to enhance ecosystem resilience and sustainability, and restore ecosystem function?

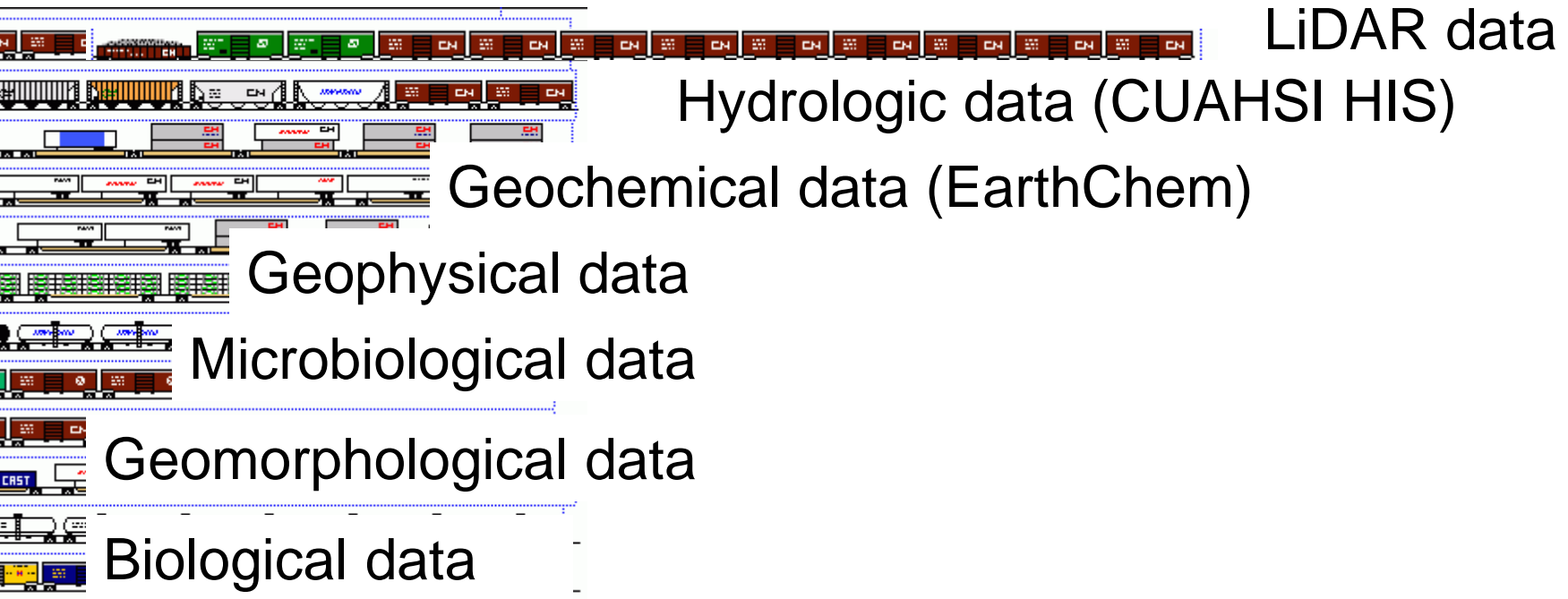
Critical zone datasets are very diverse

...difficult to organize

(from Sue Brantley)



Critical zone data types (trains) are moving down tracks at different rates



Critical Zone Observatory Network

Education

At Six CZO:

~116 graduate students: ~42 graduated

~ 65 undergraduate students: ~53 graduated

EAR Postdoctoral Fellowships (EAR-PF), July 18, 2014

Fellowships awarded for CZO research

Future postdoctoral opportunity for cross-site research

Research Experience for Undergraduates/Res. Exp. Teachers (REU/RET)

Christina River Basin & Shale Hills joint REU/RET program

InTeGrating CZO Science: Undergrad courses' content/materials

Student support to conferences and workshops

CZO National Office, **Coming Soon!**

Coordination of CZO Network Research and Educational Activities

Outreach to the Critical Zone Community at large and the public on behalf of the network

- Point of contact with science community
- Promoting the program and developing a high-profile public identity
- Developing an education and outreach program of wide coverage
- Representing the CZO program with CZ-related organizations, and at conferences and public events
- Assisting in organizing workshops, short courses, and sessions at meetings
- Managing a quarterly CZO newsletter and a speaker series

How to become involved with CZOs

- Seek a seed grant from one of the CZOs (some have them, some don't)
- Seek funding from NSF programs: EAR SEP programs and others (include letter of support from the CZO)
- Ask a CZO PI to host one of your grad students or postdocs to collect data or pursue modelling
- Use CZO data posted on the web (and notify the CZO)
- Interact with the National Program office
- Join the CZO student committee (CZEN.org, contact Adrian Harpold @ UC)
- Attend a workshop or the all-hands meeting (hosted by SS CZO, Sept. 2014)
- Pursue cross site comparisons that leverage the CZOs

Looking into the Future

- CZO program welcomes affiliation of new and existing sites or projects
- Potential future CZOs: urban & karst terrains
- CZO Competition in 4 years
- The CZO Program is growing internationally

A growing international network

- US National Critical Zone Observatory program
- European Commission SoilTrEC (Soil Transformations in European Catchments) <http://www.soiltrec.eu/>
- French RBV (Réseau des bassins versants– Network of River Basins); CRITEX (Critical Zone Program of Excellence) equipment project <http://rnbv.ipgp.fr/>
- TERENO (Terrestrial Environmental Observatories in Germany) <http://teodoor.icg.kfa-juelich.de/overview-de>
- Chinese Critical Zone Observatory program (announced Sept 2012)

CZO International Planning

International CZO Steering Committee

Prof. Steve Banwart, University of Sheffield

Prof. Jerome Gaillardet, Institut de Physique du Globe de Paris

Prof. Susan Trumbore, Max Plank Institute

Prof. Chen Zhu, Indiana University (liaison with NSF of China)

Prof. Donald Sparks, University of Delaware

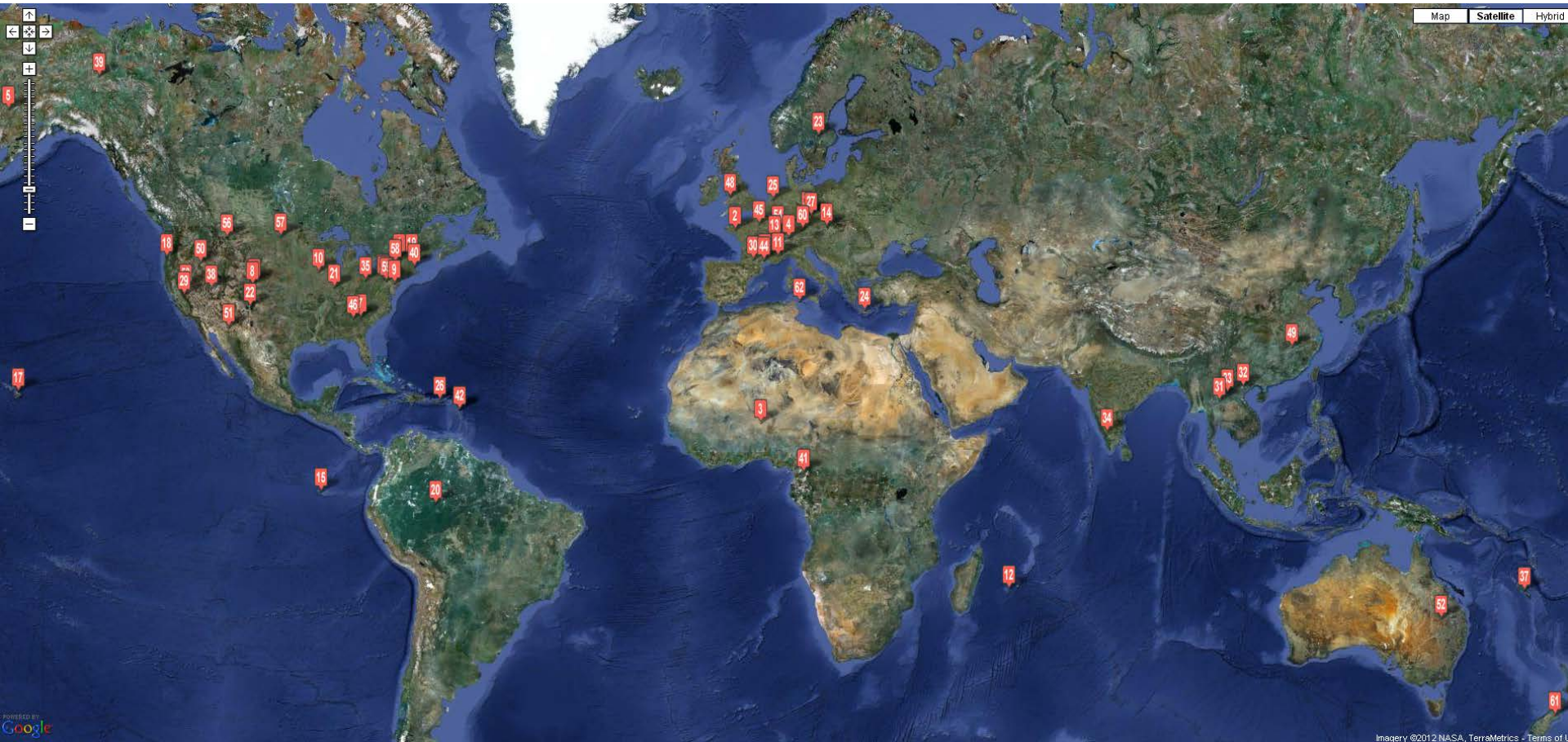
Dr. Martin Goldhaber, U.S. Geological Survey

Workshop to Advance International Critical Zone Observatory Science

China, U.S., U.K, France, Germany representation - Beijing, May 2014.

Potential Outcome: Joint call for proposals.

CZO and Related Study Sites



Public Consultation on Planning an International Critical Zone Program

<http://www.czen.org/forum>