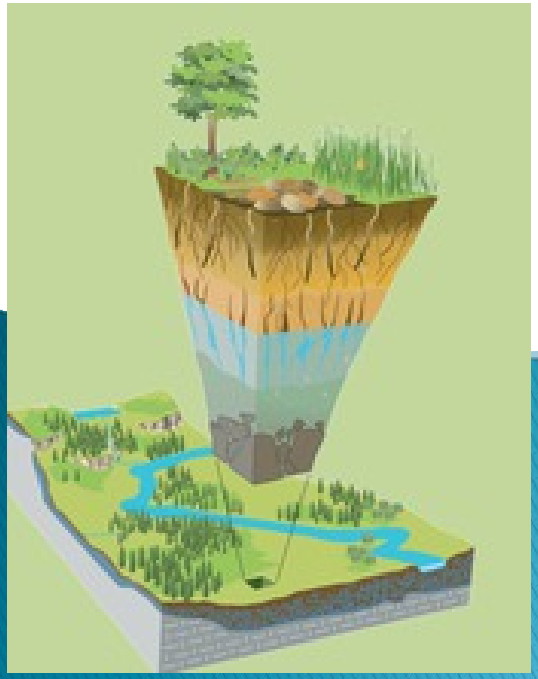
Please Stand By……

Critical-Zone Collaborative Network

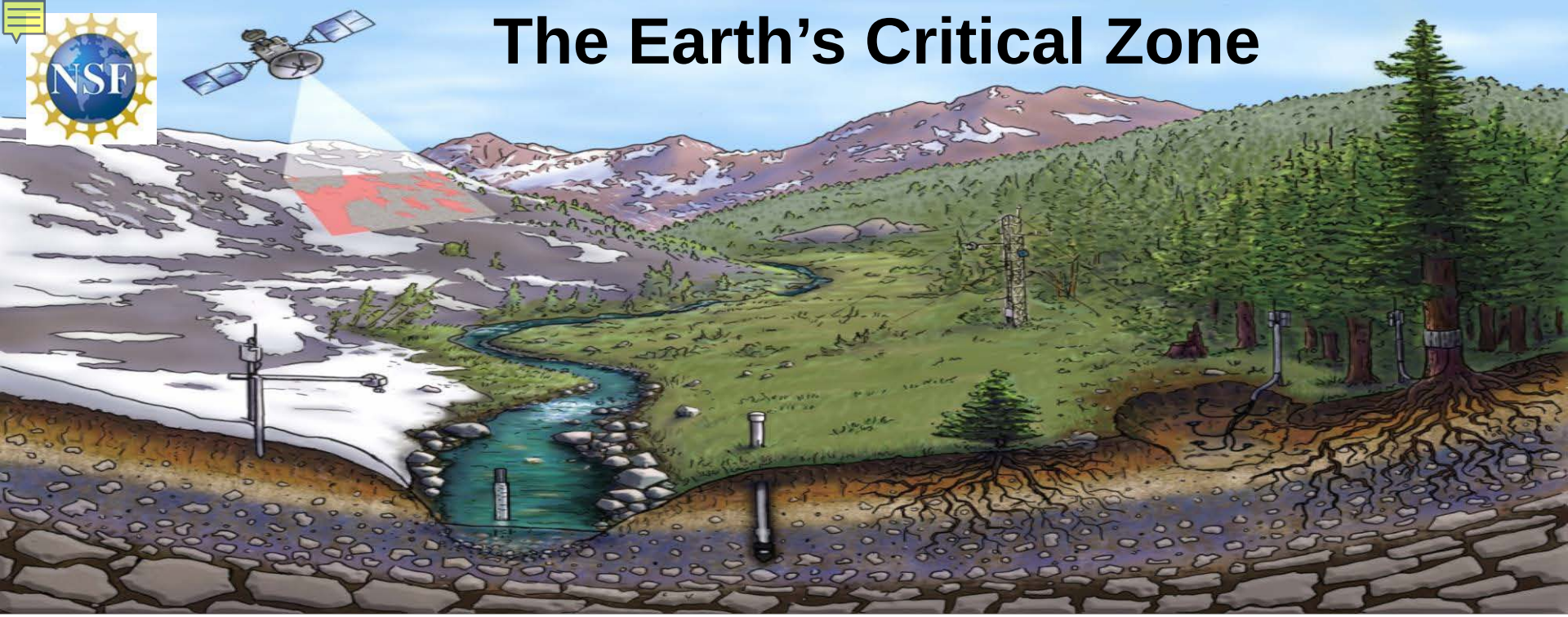
Program Solicitation
NSF 19-586



Questions during the webinar

- Please mute your microphones during the presentation
- Video cameras can also be turned off
- Send your questions in writing to:
  - cznet@nsf.gov
  - jlawrenc@nsf.gov
  - pbennett@nsf.gov
- Some will be answered at the end of the presentation
- We will compile all questions and answers and then send them to webinar participants.

The Earth's Critical Zone

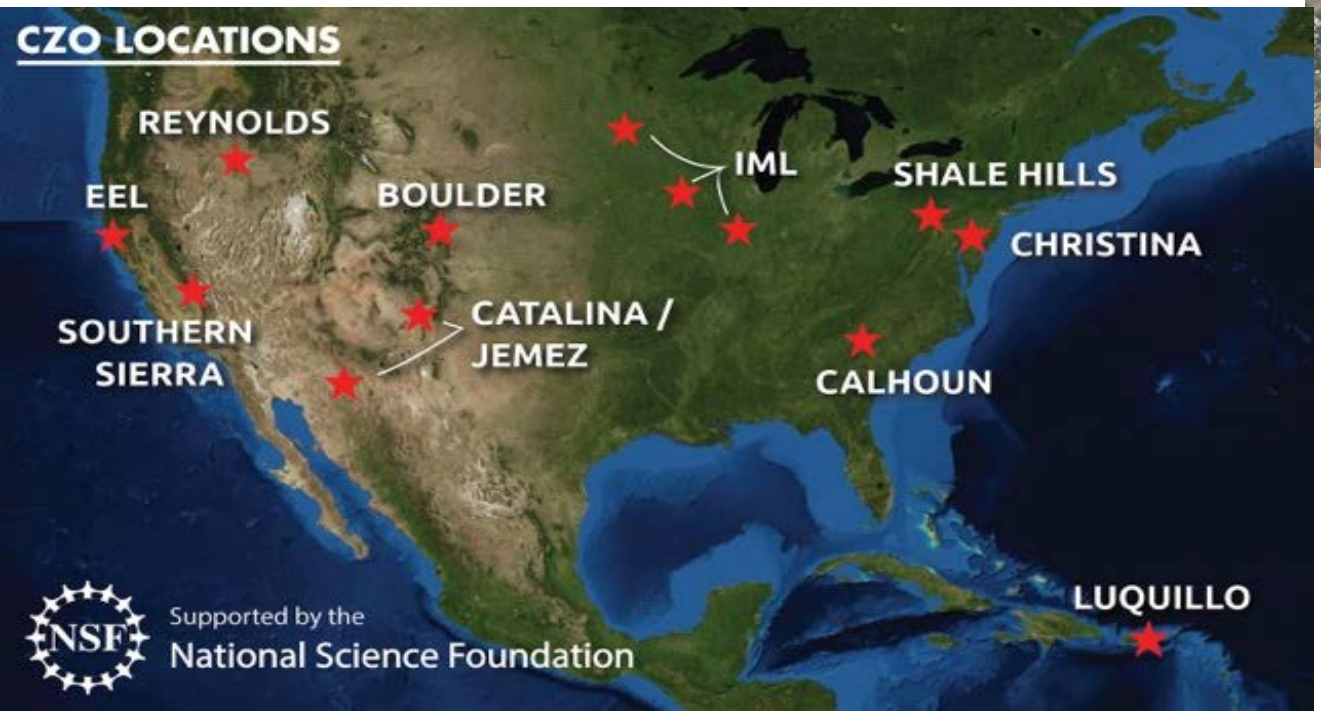


The Critical Zone is the heterogeneous, near-surface environment in which complex interactions involving rock, water, air, and living organisms regulate availability of life-sustaining resources **(Basic Research Opportunities in the Earth Sciences, NRC, 2001**).

Critical Zone Observatories provide essential data sets and a coordinated community of researchers who **integrate hydrological, ecological, geochemical, and geomorphic processes from mineral grain to watershed scales** to illuminate the rich complexity of interactions between the lithosphere, the pedosphere, the hydrosphere, the biosphere, and the atmosphere**. (New Research Opportunities in the Earth Sciences. NRC, 2012)**

The Predecessor Program: Critical Zone Observatories (CZO)

- Interdisciplinary investigations of the Earth's Critical Zone
- 10 research sites
- National Office
- 800 personnel involved (400 students)
- 828 publications (Web of Science)
- Ending in FY 2019



Next Generation of Critical-Zone Research

- Advance the field of Critical-Zone Science
- Focus on significant research themes
- Not restricted to pre-existing CZO sites
- Similar protocols for sampling and analysis
- Coordination of data management
- Expand the community of CZ researchers
- Operate as network from the outset facilitated by a Coordinating Hub

Critical Zone Collaborative Network Program Goals (NSF 19-586)

1. Conduct network-scale investigations of CZ phenomena, processes, and gradients to push CZ science beyond single-watershed studies;

2. Establish and maintain a physical infrastructure to collect comprehensive data covering the key environmental variables that govern CZ processes;

3. Institute a logical and effective management structure that will coordinate the operation and research agenda of the network, and support use of the facilities by other research teams;

4. Implement a coordinated education and outreach plan to enhance the growth of CZ science that will fully include groups who are historically underrepresented in the sciences;

5. Implement a plan for the management, dissemination, and maintenance of the data that results from the network operation and the scientific investigations

Critical-Zone Collaborative Network

The Network will comprise two components:

- *Thematic clusters* will operate an array of CZ locations to pursue a science theme. 5-year collaborative projects or cooperative agreements, 8-10 awards. $7.5 million annually.
- *Coordinating Hub* will coordinate network meetings, manage data, plan for future infrastructure, and support outreach. 5-year cooperative agreement, up to $1 million annually, 1 award.

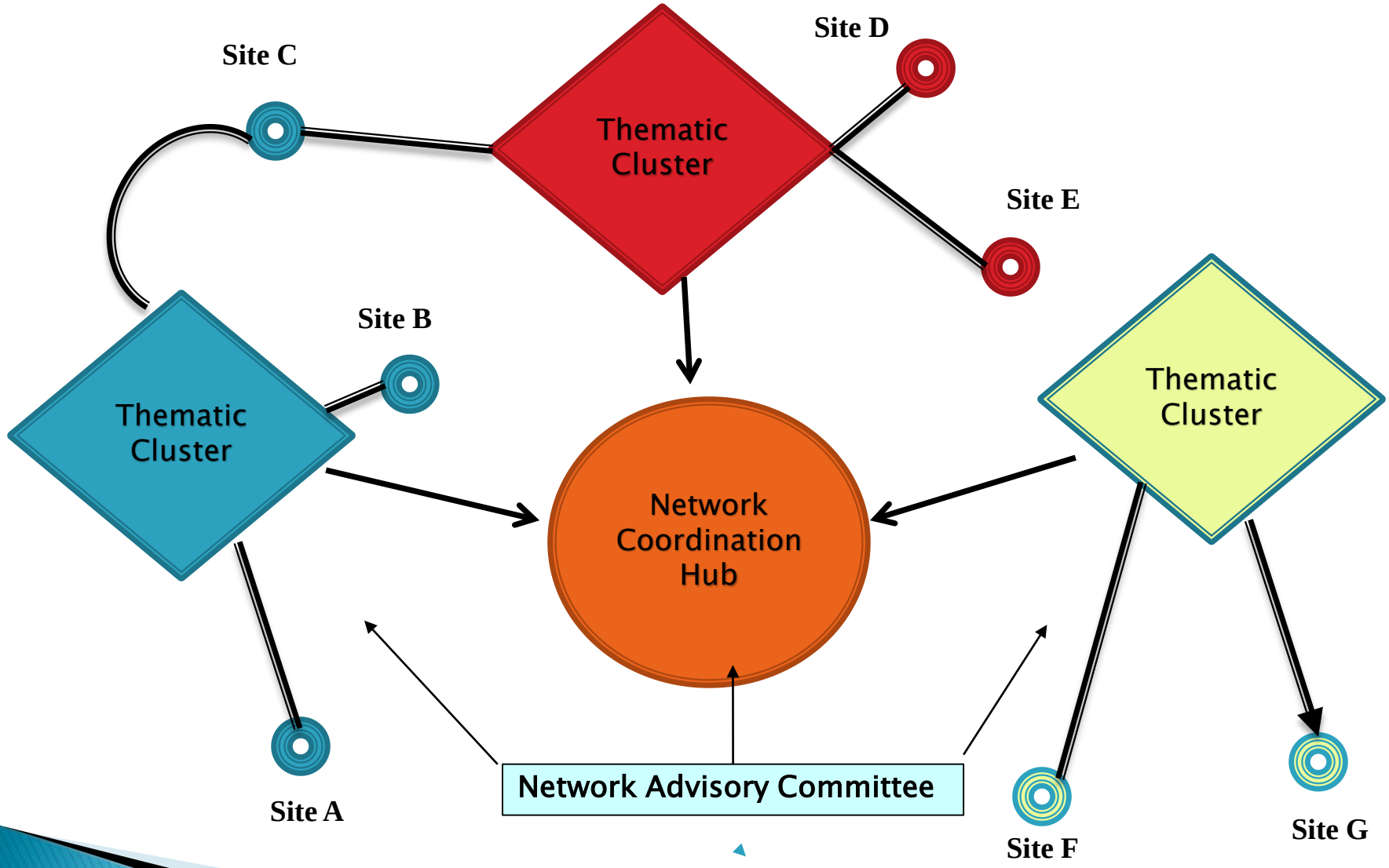
Thematic Cluster

- Research into CZ processes at network scale
- Organized by science theme, conceptual model, testable hypotheses
- Array of multiple sites with varied characteristics
- Align with common protocols used by entire Network (post-award)
- Facilitate involvement of other research teams
- Maintain local education, outreach, and diversity programs

Coordinating Hub

- Successor to the CZO National Office
- Ensure compatibility of methods across Clusters
- Lead the data management effort
- Facilitate access to needed cyberinfrastructure
- National outreach, education
- Budgetary support for outside research teams to use network
- Organize meetings of Network, including Network Advisory Committee

Very Hypothetical Example
Critical-Zone Collaborative Network



Anticipated Timeline

- May 31, 2019 – New solicitation released
- December 2, 2019 – Proposal deadline
- February, 2020 – Review panel
- March–April, 2020 – Reverse site visits for top proposals
- By September, 2020 – New awards issued
- Fall, 2020 – Meeting of all awardees at NSF to align plans and priorities

Eligibility and Award Information

- Institutions may submit up to four proposals
  - 1 Coordinating Hub proposal
  - Up to 3 Thematic Cluster proposals
- ***Subawards on proposals from other institutions do not count against institutional limits.***
- Individuals may be PI or co-PI on up to four proposals
  - Only 1 Coordinating Hub proposal
  - Up to 3 Thematic Cluster proposals
- No restrictions on senior personnel who are not PIs

Eligibility and Award Information

- Total annual program budget = $8.5 million (pending availability of funds)
  - 1 Coordinating Hub award up to $1 million/year
  - Multiple Thematic Cluster awards; $7.5 million total/year
  - Award durations 5 years

Additional Award Information

- Awards will most likely be made as Cooperative Agreements.
- Terms and conditions of awards are negotiated between NSF and grantee
- Budgets will be subject to annual negotiation

Cooperative Agreements

- Cooperative agreements will be used by NSF when an activity is technically or managerially complex and would require extensive or close coordination between NSF and the awardee.
- Under a cooperative agreement, the awardee has primary responsibility for the conduct of the project.
- Cooperative Agreements are negotiated and codified at the time of the award.

NSF Merit Review Criteria

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the **potential to advance knowledge**.
- **Broader Impacts.** The Broader Impacts criterion encompasses the **potential to benefit society** and contribute to the achievement of specific, desired societal outcomes.
- **Both IM and BI are evaluated using similar criteria:**
  - **Qualifications of the team and resources available.**
  - **Well-reasoned plans with mechanisms to assess success.**

Elements for Consideration for Both IM and BI Criteria

Criteria related to the value of a project:

- What is the potential for the proposed activity to:
  - Advance knowledge and understanding ***within Critical-Zone Science and related fields*** (IM)?
  - Benefit society or advance desired societal outcomes (BI)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

Additional Review Criteria

- Network-scale syntheses that push CZ science beyond single-watershed studies.
- **Thematic Clusters:** collect comprehensive data covering the key environmental variables that govern CZ processes.
- Logical and effective management structure.
- Education and outreach activities that enhance the growth of CZ science.
- Effective management and dissemination of data.

Review Procedures

- Ad hoc (Mail) reviews
- Panel Evaluation –February, 2020
- Reverse Site Visit for top proposals. March – April, 2020
  - Includes discussions that will align projects and begin formulation of Cooperative Agreements.
- Awards announced – by September, 2020

First Post-Award Meeting

- The Collaboration Hub and Thematic Clusters will meet at NSF shortly after the awards are issued to complete the alignment of goals, methods, and management structure for the Network.

Proposal Preparation

- Deadline: December 2, 2019 (one time)
- Specify: ”Network Hub"; "Network Cluster”; [“Collaborative Research: Network Cluster”]
- Project Description: up to 20 pages includes Results of Prior NSF Support and an Engagement Plan
  - detailed description of how the project will engage other scientists and fulfill the expectation of being a community resource.
- Management Plan: up to 4 pages describing structure, leadership responsibilities
- Follow latest PAPPG (NSF 19-1).

Additional Questions?

- Read the solicitation (NSF 19-586)!
- See "Frequently-Asked Questions" section
- Contact a Program Officer
- cznet@nsf.gov
  - Richard Yuretich, Lead, 703-292-4744
  - Enriqueta Barrera, 703-292-4731
  - Justin Lawrence, 703-294-2425
  - Ingrid Padilla, 703-292-2268
  - Philip Bennett, 703-292- 2915