

# CyberInfrastructure and Geospatial Information Laboratory

# University of Illinois at Urbana-Champaign

# NSF SI2-SSI: CyberGIS Software Integration for Sustained Geospatial Innovation

## **Project Objectives:**

- 1) Engage communities through a participatory approach to evolving cyberGIS software requirements
- 2) Integrate and sustain a core set of composable, interoperable, and reusable cyberGIS software elements
- 3) Empower high-performance and scalable cyberGIS by exploiting spatial characteristics of data and analytical operations
- Enhance an online geospatial problem solving environment for the contribution, sharing, and learning of cyberGIS software 4)
- 5) Deploy and test cyberGIS software by linking with national and international cyberinfrastructure (CI) for significantly improved scalability
- 6) Evaluate and improve the cyberGIS framework through domain science applications and vibrant partnerships









#### **Domains of Sciences and Technologies**

- Advanced cyberinfrastructure
- The nexus of food, energy, water systems
- Hydrology and water resources
- Geographic information science
- Geography and spatial sciences
- Geosciences





#### **Emergency Management and Water Resources**



"Combination of detailed GIS representation of stream network and supercomputing to determine the flow is transformative – CyberGIS has delivered a major success for the nation!" – Dr. David Maidment

#### **Publications, Presentations, and Tutorials**

• 100+ publications, and numerous presentations and tutorials

#### **Advanced Cyberinfrastructure Resources**

- UIUC School of Earth Society and Environment (SESE) Keeling Cluster and Virtual ROGER
- NSF XSEDE
- NSF Blue Waters supercomputer

### **User Communities**

- Biologists
- Geographers
- Geoscientists
- Hydrologists
- Social scientists
- General public
- Broad geographic information systems (GIS) users

#### **Integration of Education and Research**

- CyberGIS Gateway has developed a global user community
- Graduated and trained more than 20 students and postdoctoral fellows
- 17 CyberGIS Fellows across 13 campuses in the USA have contributed to the development of cutting-edge cyberGIS education materials: <u>http://cybergis.illinois.edu/about/fellows</u>
- UCGIS (<u>http://www.ucgis.org</u>) Summer School focusing on <u>Collaborative Problem Solving</u> with CyberGIS and Geospatial Data Science took place during the week of May 15, 2017, with students and mentors working together to gain hands-on experience with cyberGIS problem solving

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