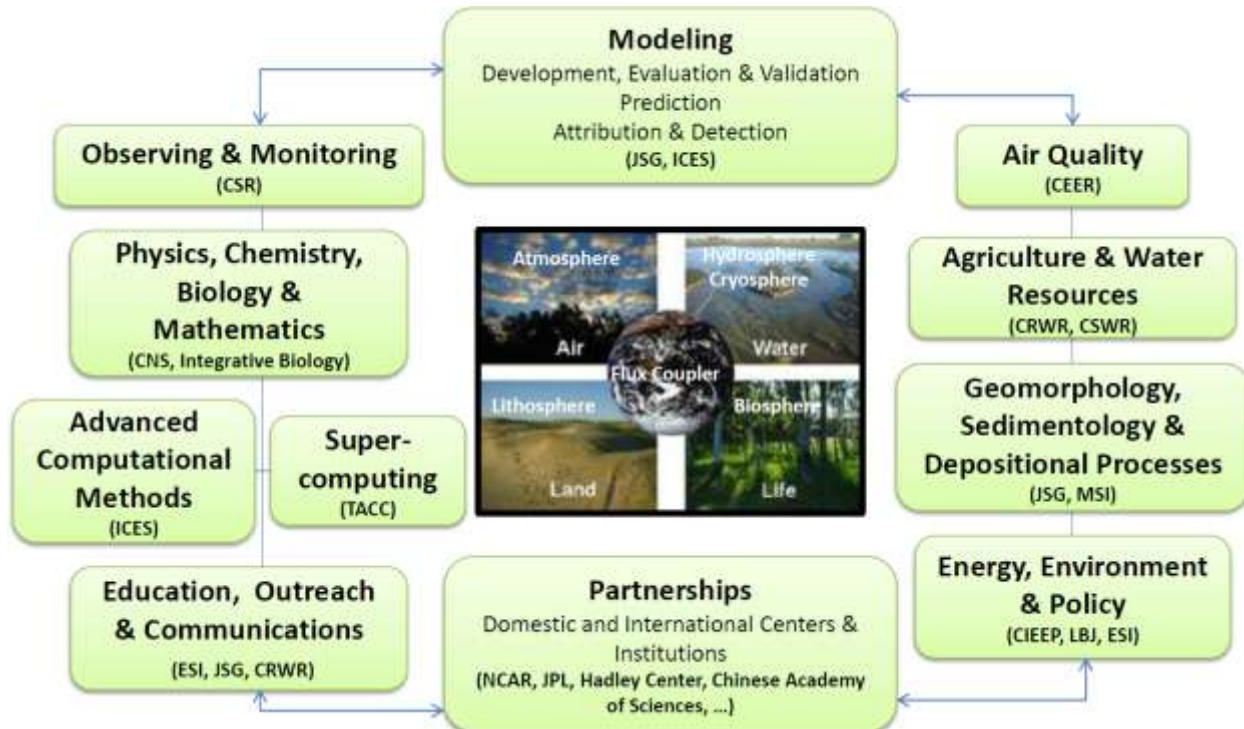


### Mission, Goals, and Objectives

The Center for Integrated Earth System Science (CIESS) engages in high-impact research topics of global significance, such as climate, water, environment, and energy. CIESS views the Earth in a holistic way and fosters collaborative study of the world in which we live and seek sustainability. CIESS uses powerful methodologies such as earth system modeling, satellite remote sensing, cyberinfrastructure, and supercomputing simulations which are now profoundly changing research in earth system science.



**UT Center for Integrated Earth System Science research components and their linkages.**

Specifically, the goals of CIESS will be to answer a wide variety of earth science questions including:

- How do the Earth's atmosphere, ocean, biosphere, cryosphere, and lithosphere interact?
- How can we use *in situ* measurements, global satellite observations, proxy data, and computational analysis to describe and understand the Earth's dynamic system?
- What has been the impact of human activity on the Earth?
- What is the future of our environment as population, climate, land use, and water use change?
- How can we reduce modeling uncertainties and make reliable predictions of extreme events at regional scales?
- How can we make rational decisions under uncertainties in order to mitigate, prevent, plan for, or adapt to the negative potential impacts of global change?
- How can we apply the lessons learned from climate system models to other earth sciences and engineering?

UT-Austin has among the world's finest programs in geological sciences (the Jackson School of Geosciences, JSG), engineering (the Cockrell School of Engineering, CSE), land surface modeling and climate modeling (the Jackson School of Geosciences), hydrology and water resources informational technology and management (the Center for Research in Water Resources, CRWR, and the Center for

Sustainable Water Resources, CSWR), earth observing and monitoring (the Center for Space Research, CSR), high-performance computational resources (the Texas Advanced Computer Center, TACC), computational sciences (the Institute for Computational Engineering and Sciences, ICES), air resource engineering (the Center for Energy and Environmental Resources, CEER), government and policy making (the Center for International Energy and Environmental Policy, CIEEP, and the Lyndon B. Johnson School of Public Affairs, LBJ), and outreach lecture series (the Environmental Science Institute, ESI). CIESS integrates strengths from these entities and from other university organizations (e.g., the College of Natural Sciences, CNS, and the Marine Science Institute, MSI) and fosters collaborations to address the above mentioned earth science questions.

CIESS organizes symposiums, training courses, and distinguished speaker series. CIESS has been proactive in competing for funding opportunities available nationally (e.g., NSF, DOE, NASA, NOAA) and internationally (KAUST) as well as from industry (e.g., Microsoft, Kisters, ESRI, IBM, OGC). CIESS enjoys prolific collaborations with major institutions (e.g. NCAR, NCEP, JPL, UK Met Office, Chinese Academy of Sciences).

### **CIESS Leadership**

Currently, CIESS is a cooperative effort between the Jackson School of Geosciences and the Cockrell School of Engineering. Faculty members and research staff from these and other university organizations with an interest in working on interdisciplinary approaches to earth system science are the foundation for the program. The center director reports to the dean of the Jackson School of Geosciences where the center director and program office are housed. See <http://www.jsg.utexas.edu/ciess/collaborators/> for 32 collaborators.

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Professor, Department of Civil, Architectural & Environmental Engineering, Cockrell School of Engineering

### **Data Sets and Modeling**

The Noah-MP Land Surface Model (UT site): [http://www.geo.utexas.edu/noah\\_mp/default.htm](http://www.geo.utexas.edu/noah_mp/default.htm)

The Noah-MP Land Surface Model (NCAR site):

<http://www.ral.ucar.edu/research/land/technology/lsm.php>

The WRF/Noah-MP coupled model page: <http://www.ral.ucar.edu/research/land/technology/wrf.php>

The Community Land Model (CLM): [http://www.cesm.ucar.edu/working\\_groups/Land/](http://www.cesm.ucar.edu/working_groups/Land/)

The RAPID river network model: <http://www.geo.utexas.edu/scientist/david/rapid.htm>

### **Drought Symposium**

CIESS hosts a series of Water Forums to share the latest water research and provide a forum for discussion of trends, problems and future directions. Presentation highlights from the most recent forum participants are available on the **CIESS Website**: <http://www.jsg.utexas.edu/ciess/>

### **Contact Information**

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