CENTER FOR SUSTAINABILITY SCIENCE AND STRATEGY

As critical challenges such as climate, health, energy and food security increasingly affect people's lives around the world, decision-makers need a better understanding of the Earth in its full complexity—and that includes people, technologies and institutions as well as environmental processes. Better knowledge of these systems and how they interact can lead to more effective strategies that avoid unintended consequences and ensure an improved quality of life for all.

To that end, the MIT Center for Sustainability Science and Strategy (CS3) (*https://cs3.mit.edu*) is working to advance knowledge and computational capabilities in the field of sustainability science, and support decision-makers in government, industry and civil society to achieve sustainability goals. Aligned with the Climate Project at MIT, CS3 researchers develop and apply expertise from across the Institute to improve understanding of sustainability challenges and thereby provide actionable knowledge and insight to inform strategies for improving human well-being for current and future generations.

The center aims to produce leading-edge research to help guide societal transitions toward a more sustainable future. Drawing on the long history of MIT's efforts to address global change and its integrated environmental and human dimensions, CS3 is well-positioned to lead burgeoning global efforts to advance the field of sustainability science, which seeks to understand nature-society systems in their full complexity. This understanding is designed to be relevant and actionable for decisionmakers around the world in their efforts to develop viable pathways to improve quality of life for multiple stakeholders.

To produce more precise and comprehensive knowledge of sustainability challenges and guide decision-makers to formulate more effective strategies, the center has set the following goals:

- **Advance fundamental understanding of the complex interconnected physical and socio-economic systems that affect human well-being.** As new policies and technologies are developed amid climate and other global changes, they interact with environmental processes and institutions in ways that can alter the Earth's critical life-support systems. Fundamental mechanisms that determine many of these systems' behaviors, including those related to interacting climate, water, food and socio-economic systems, remain largely unknown and poorly quantified. Better understanding can help society mitigate the risks of abrupt changes and "tipping points" in these systems.
- **Develop, establish and disseminate new computational tools toward better understanding Earth systems, including both environmental and human dimensions.** The center's work will integrate modeling and data analysis across disciplines in an era of increasing volumes of observational data. MIT multi-system models and data products will provide robust information to inform decision-making and shape the next generation of sustainability science and strategy.
- **Produce actionable science that supports equity and justice within and across generations.** Our research is designed to inform action associated with measurable outcomes aligned with supporting human well-being across generations. This requires engaging a broad range of stakeholders, including not only nations and companies, but also NGOs and communities that take action to promote sustainable development—with special attention to those who have historically borne the brunt of environmental injustice.

The center offers opportunities for undergraduates and graduate students to get involved in research through the Undergraduate Research Opportunities Program and research assistantships. CS3 students run a weekly student/postdoc seminar series to present and discuss their research.

CS3 Director Noelle Selin, a professor at the Institute for Data, Systems and Society and the Department of Earth, Atmospheric and Planetary Sciences, oversees the center. For further information, visit the website (*https://cs3.mit.edu*) or contact the CS3 office by email (*cs3-info@mit.edu*) or phone at 617-253-7492.