

## **Earth System Initiative**

The Earth System Initiative (ESI) was formally retired effective July 1, 2014, to make way for a new institute-wide environmental initiative yet to be named.

ESI was founded in 2002 to foster and facilitate multidisciplinary research and education efforts in earth and environmental sciences and engineering at MIT, and to enhance strategic communication of the new knowledge and insights gained to citizens, policymakers, and corporate decision makers—those whose decisions and actions ultimately determine how humanity interacts with the global environment or the Earth system. Participating ESI faculty came primarily from the Departments of Civil and Environmental Engineering and Earth, Atmospheric and Planetary Sciences. ESI also drew from the Departments of Chemistry, Electrical Engineering and Computer Science, Mechanical Engineering, Biology, Biological Engineering, Anthropology, and Urban Studies and Planning.

### **Research Support**

As of its final day of operation, ESI's active portfolio of sponsored research totaled just over \$40 million in obligated funds spread over 60 research accounts under 15 active ESI-affiliated principal investigators (PIs). Total research volume expended during FY2014 was just over \$8.1 million. Over the 11 years since sponsored research under ESI began in 2004, cumulative research volume totaled just under \$84 million, for an annual average of just over \$7.6 million (see table). In all, 125 distinct research accounts under 25 different faculty PIs were administered through ESI, with a total value of just over \$145 million. This amount includes some \$60 million in research funds awarded and anticipated, but not yet spent on grants running through FY2018.

Currently funded research projects include collaborations among faculty in the School of Engineering and the School of Science and bridge the gap between fields such as biology, geology, chemistry, atmospheric sciences, and electrical engineering and computer science. As ESI is dismantled, these projects and associated funding will be distributed to the home departments of the participating faculty PIs.

**Earth System Initiative-sponsored research volume, FY2004–FY2014**

<b>Fiscal Year</b>	<b>Research Volume (\$)</b>
2004	2,013,987
2005	5,028,797
2006	6,901,764
2007	7,486,815
2008	9,054,250
2009	9,646,973
2010	10,084,605
2011	9,133,720
2012	7,873,709
2013	8,444,239
2014	8,156,779
<b>Total</b>	<b>83,825,638</b>

**Administration**

Professor Dara Entekhabi (Civil and Environmental Engineering and Earth, Atmospheric, and Planetary Sciences) was faculty director of ESI from July 2008 through June 30, 2014. During his tenure with ESI, Entekhabi also served as director of the Parsons Laboratory for Environmental Science and Engineering and chair of the Environmental Research Council. Dr. Kurt Sternlof was executive director of ESI from February 2009 through June 30, 2014, during which time Mark Pendleton served as financial officer. The faculty director's office was located in Room 48-216G; the executive director's office was in Room 16-177C, and the financial officer's office was in Room 54-924. ESI operated under the purview of the Office of the Vice President for Research.

**Highlights and Activities**

ESI remained an active, vibrant enterprise through its final day of operations. During FY2014, ESI continued to support a wide variety of faculty and student groups with financial and material support and guidance. Highlights included ongoing founding support of the MIT Water Club as it demonstrated its sustainability with officer elections; support of the new student group Fossil Free MIT as it mounted a very successful campus-wide campaign to focus Institute leadership attention on the challenges of climate change; ongoing support of the new research community Oceans@MIT; logistical and financial support to launch a new, recurring technical conference called DyDESS (Dynamic Data-driven Environmental Systems Science Conference); ongoing support for the Terrascope Freshman Learning Program; and similar support for a variety of other smaller activities.

However, most notably and through the dedicated and longstanding efforts of Director Entekhabi and Executive Director Sternlof, ESI was instrumental in bringing about the

launch of the new MIT initiative for the environment announced by President Rafael Reif in his letter to the community on May 8, 2014—even though this announcement meant that ESI would be closing its doors less than two months later.

In their farewell letter to the ESI community, Entekhabi and Sternlof wrote:

*Dear Colleagues,*

*We are writing to let you know that after more than a decade of nurturing the Institute's research enterprise in earth system science, ESI will be succeeded this summer by the new Institute-wide initiative for the environment, for which it helped pave the way.*

*As ESI-affiliated faculty, the Institute owes you a great debt of thanks. Your vitality, innovative research and above all your sense of community have laid a solid foundation for the new initiative. It is with high hopes for this new phase of MIT's commitment to enabling sustainable human welfare on Earth that ESI will end its run. We urge all of you to embrace the new initiative with your enthusiastic participation.*

**Dara Entekhabi**

**Director, Earth System Initiative**

**Bacardi and Stockholm Water Foundations Professor**

**Professor of Civil and Environmental Engineering and of Earth, Atmospheric and Planetary Sciences**

**Kurt Sternlof**

**Executive Director**