

External Science Review Committee of the Cooperative Institute for Satellite Earth System Studies (CISESS)



Presentation to the
NOAA Science Advisory Board

Chris Lenhardt
Review Panel Chair
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Outline

- Science Review Panel
- CISESS Background
- CISESS Themes
 - Core
 - Additional
- Findings and Recommendations
- Final Comments

CISESS

*Cooperative Institute for Satellite
Earth System Studies*



Science Review Panel

Chris Lenhardt, Chair

NOAA SAB and Renaissance Computing Institute (RENCI),
University of North Carolina Chapel Hill

Anthony Guillory

NASA Marshall Space Flight Center

Christian Kummerow

former Director of the Colorado State University Cooperative
Institute for Research in the Atmosphere

Tristan L'Ecuyer

Director, Cooperative Institute for Meteorological Satellite Studies,
University of Wisconsin-Madison

Shelley Stall

American Geophysical Union (AGU), Vice President, Data
Leadership



CISESS



- Launched in 2019 as a joint cooperative institute, co-lead by the University of Maryland (UMD) and North Carolina State University (NCSU)
- Includes 21 academic, non-profit, and community organizations
- Located in the Earth System Science Interdisciplinary Center at UMD and NCEI/NCSU
- Expertise includes basic and applied research on the coupled natural and human climate system and leveraged social science and policy research



EARTH SYSTEM SCIENCE
INTERDISCIPLINARY CENTER

NC STATE UNIVERSITY





CISESS Consortium



CISESS	University of Maryland	UCI	U of California Irvine
CISESS	N. Carolina State University	UGA	University of Georgia
CUNY	City University of New York	UM	University of Michigan
FIU	Florida International University	UMBC	UM Baltimore County
GMU	George Mason University	UNMC	U Nebraska Medical Center
HU	Howard University	RTI	Research Triangle Institute
NCSU	Raleigh Campus	SDSU	South Dakota State University
OSU	Oregon State University	TNC	The Nature Conservancy
PNNL	Pacific NW National Laboratory	USC	University of South Carolina
UA	U. of Alabama Tuscaloosa	UCAR	U. Corp. for Atmospheric Research
UAH	U. of Alabama Huntsville		

Bold indicates members that have or expect to receive CISESS task funding



By the Numbers Snapshot



Performance Metric	2020	2021	2022	Total
# of new or improved products developed that became or may become operational	153	189	178	518
# of peer-reviewed papers	115	200	117	432
# of NOAA technical reports		15	2	17
# of books and book chapters	26	31	47	31
# of talks and posters	359	468	252	1079
# of invited presentations	18	19	9	46
# of graduate students supported by a task	10	9	2	21
# of graduate students formally advised	13	26	9	48
# of high school interns	6	8	8	22
# of undergraduate students mentored during the year	10	24	22	56
# of students mentored by Consortium members	28	43	59	130

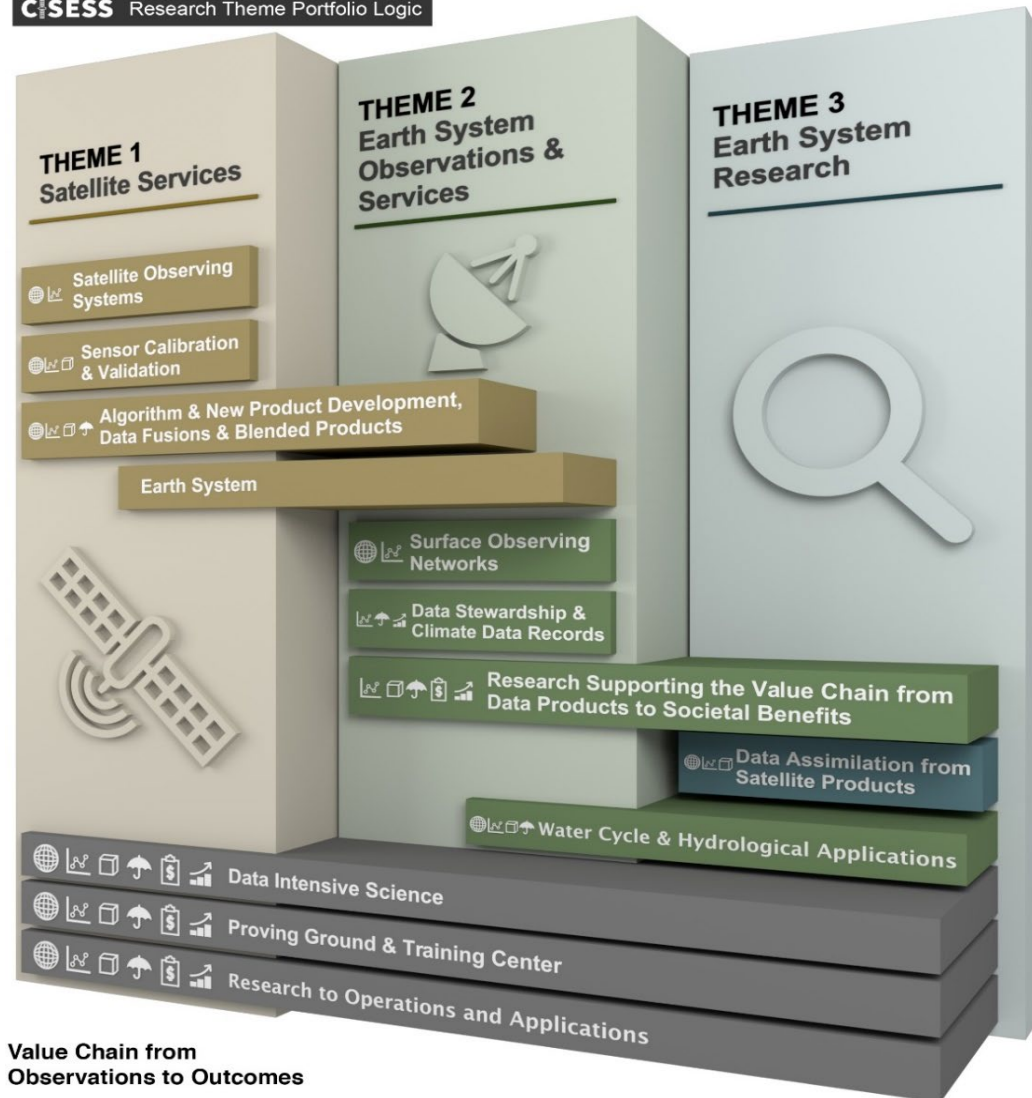


CISESS Core Science Themes

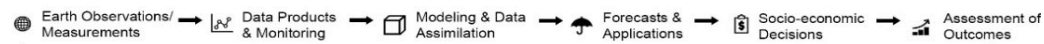


- Satellite Services
- Earth System Observations and Services
- Earth System Research

CISESS Research Theme Portfolio Logic



Value Chain from Observations to Outcomes





Additional CISSS Science Themes



- Cross-cutting Areas
 - Earth System
 - Data Intensive Science
 - Proving Ground & Training Center
 - Research to operations and applications
- Emerging Areas
 - Artificial Intelligence
 - Cloud Computing
 - Support for Nanosatellite Technology and Commercial Satellite Data
 - Support for Geostationary Extended Observations (GeoXO)
 - Social Science



Overall Rating

- Overall Rating: **Outstanding**
- The review committee found the material presented by CISESS to be comprehensive, detailed and explored all aspects of the review criteria
- CISESS efforts include a number of innovative and creative activities
- CISESS is a valuable asset for NOAA



Science Review: Findings



- CISESS science planning (vision, mission, objectives, operationalization) are well-aligned with NOAA and National Environmental Satellite, Data, and Information Service (NESDIS) strategic goals. (StratPlan)
- The scientific activities developed in consultation with NOAA leverage CISESS resources and NOAA data and information provide many examples of value-add, innovation, and creativity. In addition, the quality of science, levels of collaboration and linkages to NOAA initiatives are high. (SciRev)
- Institutional cost-sharing is an important contributor to CISESS success. (SciMgmt)



Science Review: Findings



- NOAA has benefited from CISESS expertise in emerging areas of technology and research. (SciRev, SciMgmt)
- Metrics are extensive and impressive reflecting the breadth and depth of CISESS work, but may not reflect the nature and import of CISESS impacts. (SciRev, SciMgmt)
- Communications and collaboration between CISESS lead institutions is appropriate and at times appears seamless. (SciMgmt)
- CISESS education and outreach efforts are very strong. (Ed/Out)
- Annual task funding model is an impediment to activities that contribute to the success of CISESS. (SciMgmt)



Science Review: Recommendations



- Work with NOAA to enhance and/or expand opportunities for graduate students. (Ed/Out, SciMgmt)
- Outreach and related activities would benefit from being funded as a separate task. (Ed/Out, SciMgmt)
- Work with NOAA to determine possibilities for implementing a multi-year task funding framework where applicable. (Ed/Out, SciMgmt)



Science Review: Recommendations



- Look for opportunities to expand inclusion of CISESS consortium partners in CISESS funded activities. (StratPlan, SciRev, Ed/Out, SciMgmt)
- Continue maintaining current metrics and look for ways to identify other types of impact metrics. (Ed/Out, SciMgmt)
- NOAA and the Cooperative Institutes (CIs) would benefit from including inputs and/or representatives in data management discussions and planning in an ongoing way. (StratPlan, SciRev)



Acknowledgements

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Committee would also like to thank NOAA CI office and technical manager for their efforts supporting the committee in its work.



Questions?