


**DISCCRS** 

DISsertations initiative for the advancement of Climate Change ReSearch

**Collaborative Research:  
Using the DISCCRS\* Model to  
Prepare a New Generation of  
Interdisciplinary, International, Inclusive  
Researchers**

\* DISsertations Initiative for the Advancement of Climate Change ReSearch

**C. Susan Weiler**  
Office for Earth System Studies  
Whitman College

2019 American Meteorological Society Annual Meeting  
28<sup>th</sup> Symposium on Education 7.2 Wed. Jan 9 10:30  
Phoenix, AZ

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**2002 – 2016**

 **National Science Foundation** 

**National Aeronautics & Space Administration**  
Whitman College C.S. Weiler PI (2002-2015)  
University of Oregon, R. Mitchell PI (2005-2015)

**Co-sponsoring Professional Societies**  
*Announce symposium to members through publications, e-mail and meeting fliers*

**AAG** Association of American Geographers; **AERE** Association of Environmental and Resource Economics; **AGU** American Geophysical Union; **AMS** American Meteorological Society; **ASLO** American Society of Limnology and Oceanography; **ESA** Ecological Society of America; **ESS-ISA** Environmental Studies Section of the International Studies Association; **STEP/APSA** Science, Technology & Environmental Politics (STEP) section, American Political Science Association; **TOS** The Oceanography Society; and **USSEE** U.S. Society for Ecological Economics

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**Focus**

- Climate Change & Impacts
- Recent Ph.D. graduates
- Interdisciplinary, collaborative Research  
Select for diversity (discipline, techniques, ethnicity, institution, international, System Science....)
- Interest in Academic Research Careers

**Mechanisms**

- 8 Week-long Symposia 2003-2015
- Web-based resources <http://disccrs.org>
- Weekly electronic newsletter

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**Research & “Soft” Skills**

- Physical, Biological, Social Scientists interested in crossing the natural-social-science divide
- Communication
- Interpersonal and team skills



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## DISCCRS Website

<http://disccrs.org>

- Program description
- Application materials
- Climate change links
- Career-development resources
- Newsletter Archives



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## DISCCRS Registration Form

- Name
- Contact Info
- PhD Dissertation Citation & Abstract
- Key Words
- Primary & Secondary areas of Expertise
- Job Sector, Institution, Position
- Demographic Information



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## Public, Fully Searchable Ph.D. Dissertation Registry

- Any Ph.D. grad can register
- ~ 2,000 registered since 2002
- ~ 50% registered dissertations earned outside U.S.
- > 50 countries represented



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## DISCCRS Weekly E-Newsletter

- Newspaper Articles
- Forum
- Professional resources
- Job postings
- Funding opportunities

Provides time-sensitive information, new opportunities & resources

> 1,000 Subscribers

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|          | SATURDAY  | SUNDAY      | MONDAY        | TUESDAY       | WEDNESDAY            | THURSDAY      | FRIDAY             | SATURDAY  |
|----------|---|-------------|---------------|---------------|----------------------|---------------|--------------------|-----------|
| 7:30 AM  |   | Breakfast   | Breakfast     | Breakfast     | Breakfast            | Breakfast     | Breakfast          | Breakfast |
| 8:45 AM  |   |             | PLUS / DELTA  | PLUS / DELTA  | PLUS / DELTA         | PLUS / DELTA  | PLUS / DELTA       |           |
| 9:00 AM  |   | OVERVIEW    | RESEARCH      | AGENCY        | COMMUNICATION        | COMMUNICATION | TEAM EXERCISE      | DEPART    |
| 9:30 AM  |   |             |               |               |                      |               |                    |           |
| 10:00 AM |   | Break       | Break         | Break         | Break                | Break         | Break              |           |
| 10:30 AM |   | RESEARCH    | KEYNOTE       | COMMUNICATION | PROPOSAL DEVELOPMENT | KEYNOTE       | TEAM PRESENTATIONS |           |
| 11:00 AM |   | RESEARCH    |               |               |                      |               |                    |           |
| 11:30 AM |   |             | Lunch         |               |                      |               |                    |           |
| 12:00 PM |   |             |               |               |                      |               |                    |           |
| 12:30 PM |   | Lunch       | RESEARCH      |               | Lunch                | Lunch         |                    |           |
| 1:00 PM  |   |             |               |               |                      |               |                    |           |
| 1:30 PM  | Arrivals / Transfer Presentation Files / Poster Setup | TEAM SKILLS | RESEARCH      |               |                      |               | TEAM PRESENTATIONS |           |
| 2:00 PM  |   |             |               |               |                      |               |                    |           |
| 2:30 PM  |   | Break       | Break         |               | PANEL                | TEAM EXERCISE | VISIONING          |           |
| 3:00 PM  |   |             |               |               |                      |               |                    |           |
| 3:30 PM  |   | RESEARCH    | COMMUNICATION |               |                      |               |                    |           |
| 4:00 PM  |   | Break       | Break         |               | Break                | Break         | Break              |           |
| 4:30 PM  |   | KEYNOTE     | PANEL         |               | TEAM SKILLS          | INFORMAL      | EVALUATION         |           |
| 5:00 PM  |   |             |               |               |                      |               |                    |           |
| 5:30 PM  |   | KEYNOTE     |               |               |                      |               |                    |           |
| 6:00 PM  |   |             | Dinner        |               | Dinner               | Dinner        | Dinner             |           |
| 6:30 PM  |   |             |               |               |                      |               |                    |           |
| 7:00 PM  |   |             |               |               |                      |               |                    |           |
| 7:30 PM  | 2-MINUTE INTROS Brainstorming                         | TEAM SKILLS | POSTERS       |               | INFORMAL             | INFORMAL      | INFORMAL           |           |
| 8:00 PM  |   |             |               |               |                      |               |                    |           |
| 8:30 PM  |   |             |               |               |                      |               |                    |           |

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### 15 Years of Tracking & Assessment DISCCRS Symposia

- Formative and Summative
- Surveys 1 – 14 years post symposia
- Periodic address update requests
- Long-term engagement with alums

**25 years total for 19 Week-long Symposia**

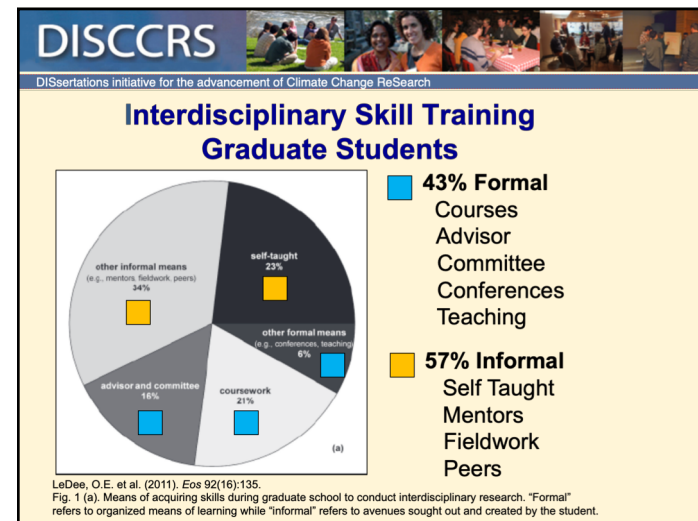
8 DISCCRS Climate  
8 DIALOG Limnology & Oceanography  
1 DIACES Land-Water Interface  
2 NGPR Polar

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## DATABASE

**Filemaker Pro**  
19 Symposia 1993 – 2015  
~ 800 Symposium Alumni

8 DISCCRS  
8 DIALOG Limnology and Oceanography  
1 DIACES Land-Water Interface  
2 NGPR Polar



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**Five most highly rated Symp. Components**

- 4.6 Informal Networking with participants (3.9 - 5.0)
- 4.6 Mentor Interactions (4.4 - 4.6)
- 4.4 Team Training (4.0 - 4.8)
- 4.4 Communication Training (3.9 - 4.8)
- 3.9 Interactions with Agency representatives, Proposal Development (3.5-4.7)

54% respondents reported that they have **maintained professional connections** with at least two (54%), or in some cases >5 (21%), scholars post symposium

43% reported **ongoing or completed** research projects, coauthored papers, abstracts, and proposals, co-organized conferences and special sessions, and cross-recruitment of graduate students and postdocs with other DISCCRS scholars.

\*Written evaluations submitted on final day of each symposium. 5-point scale, 5 = Excellent. Averages from each symposium

**References re. DISCCRS**

**Overcoming early career barriers to interdisciplinary climate change research.** Hein, C., J. Ten Hoeve, S. Gopalakrishnan, B. Livneh, H. Adams E. Marino and C.S. Weiler (2018). *Wiley Interdisciplinary Reviews: Climate Change*.

**Scholarly motivations to conduct interdisciplinary climate change research.** Milman, A., J.M. Marston, S.E. Godsey, J. Bolson, H.P. Jones and C.S. Weiler (2015). *Journal of Environmental Studies and Sciences*.

**Is pre-tenure interdisciplinary research a career risk?** Fischer, E.V., K.R.M. Mackay, D.F. Cusack, L.R.G. DeSantis, L. Hartzell-Nichols, J.A. Lutz, J. Melbourne-Thomas, R. Meyer, D.A. Riveros-Iregui, C.J.B. Sorte, J.R. Taylor and S.A. White (2012). *Eos* 93(31):311-312.

**Personality type differences between Ph.D. climate researchers and the general public: Implications for effective communication.** Weiler, C.S., J. Keller and C. Olex (2011). *Climatic Change*. 112(2):233-242.

**Training a new scientist to meet the challenges of a changing environment.** LeDee, O.E. et al. (2011). *Eos* 92(16):135.

**Developing next-generation climate change scholars: The DISCCRS experience.** Mitchell, R.B. and C.S. Weiler (2011). *Journal of Environmental Studies and Sciences* 1(1):54-62.

**Meeting PhD graduates' needs in a changing global environment.** Weiler, C.S. (2007). *Eos* 88(13):149,151.

**Meeting the Needs of interdisciplinary Ph.D. Graduates in a Changing Global Environment.** Weiler, C.S. and the Workshop Participants (2004). <http://disccrs.org/files/biocomplexity/BiocomplexityWorkshopReport.pdf>

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**Survey responses: Role of symposia in the promotion of early career IDR.**

| Statement                                   | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|-------------------|----------|---------|-------|----------------|
| 76% Facilitated IDR                         | 53%               | 23%      |         |       |                |
| 76% Better understand methods/questions     | 50%               | 26%      |         |       |                |
| 81% Improved comm. across disciplines       | 56%               | 25%      |         |       |                |
| 71% Improved comm. w/ general public        | 49%               | 22%      |         |       |                |
| 66% Continue to network                     | 40%               | 26%      |         |       |                |
| 80% Facilitated interdisc prof. dev. skills | 49%               | 31%      |         |       |                |
| 76% Gained lasting value from symp          | 9%                | 40%      |         |       |                |

**Figure 2.** Hein, C., J. Ten Hoeve, S. Gopalakrishnan, B. Livneh, H. Adams E. Marino and C.S. Weiler (2018). Overcoming early career barriers to interdisciplinary climate change research. *Wiley Interdisciplinary Reviews: Climate Change*. DOI: 10.1002/wcc.530.

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**PLANS for Future: Expand Focus**

- **Earth System, Resilience, Sustainability** (rather than strict focus on climate change)
- **Interactions and Action across Sectors** (academic, gov't, non-profit, policy rather than academic only)
- **Undergraduate, Graduate, Post-Ph.D.** (interdisciplinary research and skills training should begin early!)
- **Agents for change** (research should be more closely tied to local/regional/national/global action)



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Despite the focus on academic career interest, many past participants have gone on to work in non-academic sectors, particularly government, with a large proportion in NOAA. Even more could be identified through a call for early career researchers interested in careers beyond academia.

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**Current Job Sector**  
 209 U.S. DISCCRS Symposium Alumni

| Job Sector  | Percentage |
|-------------|------------|
| Academic    | 71%        |
| Federal Gov | 20%        |
| Commercial  | 4%         |
| Non-profit  | 3%         |
| State gov   | 2%         |

Despite the focus on academic careers, many DISCCRS alumni have gone on to work in other sectors, particularly government.

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**Current Job**  
 42 DISCCRS Alum in Federal Sector

| Agency        | Percentage |
|---------------|------------|
| NOAA          | 26%        |
| NATIONAL LABS | 17%        |
| USGS          | 14%        |
| OTHER         | 17%        |
| EPA           | 7%         |
| NCAR          | 7%         |
| NASA          | 7%         |
| USDA          | 5%         |

NOAA is a significant employer for researchers interested in Earth System Science; a program such as DISCCRS to support networking and training for early career researchers in this area would support its mission.

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**NOAA Long-Term Goals**  
Earth System Science

- Climate Adaptation and Mitigation
- Weather-Ready Nation
- Healthy Oceans
- Resilient Coastal Communities and Economies

The breadth of NOAA's mission and its linkages across the natural and social sciences fit well with training efforts targeting system science and sustainability

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## NOAA Next Generation Strategic Plan

**NOAA Mission:** Science, Service, and Stewardship  
“Human health, prosperity, and well-being depend upon the **health & resilience of coupled natural and social ecosystems**”

**Vision of the Future:** Resilient Ecosystems, Communities, and Economies

**Social Science Goals:**

1. Define and measure NOAA impact on Society;
2. Use NOAA’s products and services strengthen Societal Decision-Making;
3. **Institutionalize Social Science to Further Mission**

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## NOAA offices already facilitate local, regional and national activities with diverse partners



NOAA In Your Neighborhood CoastWatch Nodes Weather Forecast Office (122) River Forecast Center (13) NCEP Center (9) Center Weather Service Units (22) NESDIS CoastWatch Nodes (9) NOS HazMat Office NOS Coastal Services Center NESDIS Nat. Climatic Data Center

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## NOAA Cooperative Science Centers provide a mechanism to develop training programs such as DISCCRS

The Center for Earth System Sciences and Remote Sensing Technologies (NOAA-CREST) has expressed interest in pursuing related activities.

Contact Dr. Shakila Merchant, Assistant Director NOAA/CREST Center: [smerchant@ccny.cuny.edu](mailto:smerchant@ccny.cuny.edu) for details.

## NOAA Cooperative Science Centers

**Center for Coastal and Marine Ecosystems (CCME)**

**Florida A&M University**

- Bethune-Cookman U
- Cal State U Monterey Bay
- Jackson State U
- Texas A&M U-Corpus Christi
- U Texas at Rio Grande Valley

**Center for Earth System Sciences and Remote Sensing Technologies (NOAA-CREST)**

**City College of the City U of New York**

- Hampton University
- University of Maryland, Baltimore County
- University of Puerto Rico, Mayaguez
- San Diego State University
- University of Texas, El Paso

**NOAA Center for Atmospheric Science and Meteorology (NCAS-M)**

**Howard University**

- Fort Valley State U
- Jackson State U
- Pennsylvania State U
- San Diego State U
- U Albany – State U of New York
- Tuskegee U
- U Maryland – Baltimore County
- U Maryland – College Park
- Universidad Metropolitana
- U Puerto Rico – Mayaguez
- U Texas – El Paso

**NOAA Living Marine Resources Cooperative Science Center (LMRCS)**

**U Maryland, Eastern Shore**

- Delaware State U
- Hampton U
- Oregon State U
- Savannah State U
- U Maryland Center for Environmental Science Institute of Marine and Environmental Technology
- Miami Rosenstiel School of Marine and Atmospheric Sciences