

34th Annual Environmental Information Processing Technologies (EIPT) Conferences

The Board of the Environmental Information Processing Technologies (EIPT) encompasses four Conferences and Committees that focus on computing and operations within the weather and atmospheric disciplines – they include the Environmental Information Processing Technologies Conference, the Python Symposium, the Research to Operations Conference and the High Performance Computing Symposium.

The EIPT Conference held its 34th Annual Conference during the 98th Annual Meeting of the American Meteorological Society. The Conference spanned four days with 20 individual sessions in 14 topic areas ranging from road weather innovations to service updates from various organizations to cloud computing. EIPT also hosted an AMS Town Hall on NOAA's Big Data CRADA and held joint sessions with the Sixth Symposium on the Weather, Water, and Climate Enterprise and the Sixth AMS Symposium on the Joint Center for Satellite Data Assimilation.

The EIPT Program Committee met on Monday, January 8th, for our annual face-to-face meeting where we announced upcoming Committee changes, Board updates and started planning for the 35th Annual Meeting. Later in the day, several EIPT Program Committee Members participated in the fourth annual AMS Speed Networking Event for early and mid-career professionals.

Our student competition paper winners presented professional and well thought out papers. Chris Philips of University of Alabama was awarded 1st prize for his paper "Low-Cost Crowdsourcing Sensor Package for Drought-Related Decision Making". Second place went to Lindsay Maudlin from North Carolina State University for her presentation on "The Expert to Novice Spectrum: An Eye-Tracking Evaluation of How User Experience Shapes Interactions with a Climate Decision Support System". Third place was awarded to Alexander Gallagher from SUNY Albany for his presentation on "Using Less Conventional Observations to Identify Model Physics Errors in a CONUS-wide Ensemble". The winner of the EIPT poster competition was Andrew Mahre for his poster titled "Development of Scanning Strategies to Meet Operational Needs of the Multimission Phased Array Radar".

We were proud to present our first Board of the EIPT award to Tom Whittaker from the University of Wisconsin, Madison's Space Science and Engineering Center (SSEC). Tom Whittaker received the Distinguished Scientific/Technological Accomplishment Award, given to an individual who has made significant contributions to the discipline and is well recognized within the discipline as being a science/technological leader.

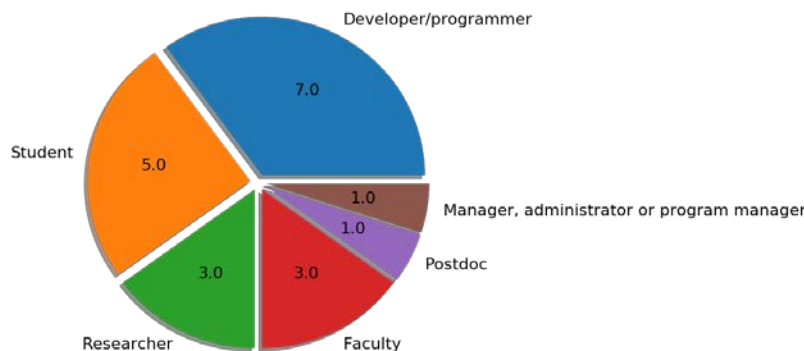
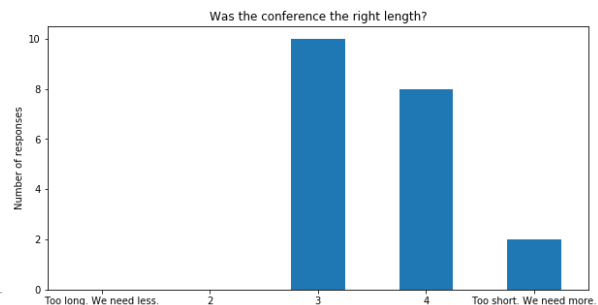
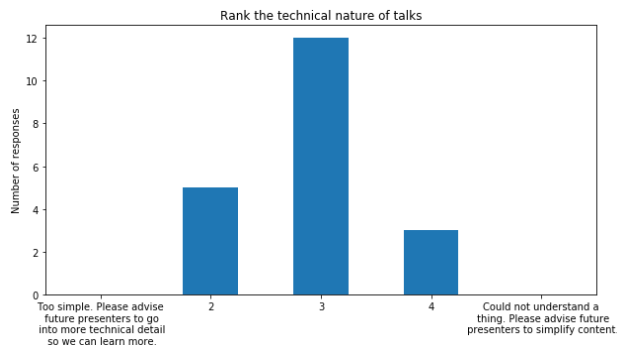
We are looking forward to seeing you at our 35th Annual Meeting in Phoenix. We are planning several panels, a joint event with the other conferences, invited talks, core science keynotes and Town Halls. Please check for the conference announcement later this spring and you can already suggest session topics at the following link: <https://annual.ametsoc.org/2019/>.

Eighth Symposium on Advances in Modeling and Analysis Using Python

The 8th Python symposium kicked off with a keynote from Matthew Rocklin showcasing the latest tools for using the Python programming language on large clustered environments. This live demonstration was well attended with over 230 in the room at various stages. Following this we had a full day of presentations, two short tutorials and an evening of poster presentations. We used some of our chair funds to host a social event which was very well attended with over 40 symposium attendees showing up. This provided a great place for early career attendees to network. We even had a few Python VIPs show up including Travis Oliphant, the “Father” of Scientific Python, CEO of Quantsight and past CEO of Anaconda inc.

Day two saw more presentations and we ended the oral portion of the conference with a panel session “Show Me Your Stack” where four Python gurus gave an 8 minute talk on what tools they used to do day to day work and we then had over 30 minutes for audience Q&A. This session was a great success and the chair did not need to use any pre-canned questions. This will definitely feature in next years Symposium.

Finally, following the Symposium we opened a questionnaire via Google Forms to get feedback on the Symposium to help with planning for the 9th Symposium. There were a number of questions. We had 20 responses and the figures below show the professional description of respondents and their thoughts on the technical nature of the talks (just right) and the length of the Symposium (too short).



Summary of 2018 8R2O Conference for STAC EIPT Board
98th American Meteorological Society Annual Meeting and
Eighth Conference on the Transition of Research to Operations [8R2O]
Austin Convention Center (ACC) and Hilton Conference Center, Austin, TX
January 7-11, 2018

Overview:

The 8R2O Conference was held on January 7-11, 2018 as part of the 98th American Meteorological Society (AMS) Annual Meeting 2018, at the Austin Convention Center and the Hilton Conference Center in Austin, Texas.

The theme for the 2018 AMS Annual Meeting was “*Transforming Communication in the Weather, Water, and Climate Enterprise: Focusing on Challenges Facing Our Sciences.*” The 8R2O Conference was designed to support the AMS theme by providing a comprehensive venue spanning the full 4-day AMS Meeting Week, January 8-11 for discussing research oriented towards providing research to operations’ enablers, utilizing technologies, models, algorithms and applications which help fulfill the NOAA and national visions for weather, water and climate information on many time scales. There were approximately 4,350 members (subject to final official count) of the weather, water and climate communities at the Annual Meeting. The participation-attendance (subject to the final official count) at the 98th AMS 2018 Meeting – which was very close to a record number for the AMS Annual Meetings. Forty-three (43) Conferences and Symposia were part of the 98th AMS Annual Meeting. There were over 800 at the Student Conference on Saturday-Sunday, January 6-7 as well as over 200 organizational exhibitors (institutional, industrial and government agency) in over 100 Booths. Again, this year, these statistics were a testimonial to a vital Society and a highly- involved NOAA.

The 8R2O Conference provided a lineup of R2O-related presentations for the twenty sessions available in the six different conference rooms assigned, for a full day of sessions-days from 8:30 AM Monday, January 8th through the 5:00 PM Thursday, January 11th AMS 2018 adjournment. This year the Presidential Forum was held on Sunday afternoon, January 7th and followed by the AMS Annual Business Meeting. This freed-up Monday morning for the regular conferences and symposia.

There were twenty (20) 8R2O hosted sessions in the 13 available session slots on Monday through Thursday, January 8-11 in the six rooms assigned. This was accomplished by conducting three parallel sessions in 2 different conference rooms on Monday and four parallel sessions in 2 different rooms on Thursday. There were 128 oral presentations, 28 poster presentations in three poster sessions, and a Town Hall meeting. In addition there were four partnered sessions (two with 14NGOESS including a Special Session of invited presentations on National and International Operational Environmental Satellites, 6JCSDA (Joint Center for Satellite Data

Assimilation), one with Health and Environment (8HEALTH), and a Panel Discussion with the Energy and Environment Conference (9ENERGY) during the four days of Conference Sessions.

A. 8th Conference on Transition of Research to Operations (8R2O)
Including Hosted Sessions and Joint Sessions:

1. *Advances in CubeSats and SmallSats to Improve Earth Science, Weather Forecasting, Space Weather Prediction, Hydrology Studies, or Climate Monitoring-Part I*
Joint Session 5: 8R2O-hosted, Joint with 14NGOESS, 1SMALLSATS
2. *Advances in CubeSats and SmallSats to Improve Earth Science, Weather Forecasting, Space Weather Prediction, Hydrology Studies, Climate Monitoring-Part II*
Joint Session 10: 8R2O-hosted, Joint with 14NGOESS, 1SMALLSATS
3. *Advances in Satellite Observations, Earth Science, and Observing Technologies - Part I*
4. *Advances in Satellite Observations, Earth Science, and Observing Technologies - Part II*
5. *NASA Earth Observation Systems and Applications for Health and Air Quality Models and Decisions*
Joint with 9HEALTH (Health and Environment)-Hosted joint with 8R2O
6. *Community Global Modeling: Next Generation Global Prediction System (NGGPS) and beyond: Improvements in Global Models, Key Components of Global Models and Statistical Techniques to Evaluate Those Improvements—Part I*
7. *Community Global Modeling: Next Generation Global Prediction System (NGGPS) and beyond: Improvements in Global Models, Key Components of Global Models and Statistical Techniques to Evaluate Those Improvements—Part II*
8. *Community Global Modeling: Next Generation Global Prediction System (NGGPS) and beyond: Improvements in Global Models, Key Components of Global Models and Statistical Techniques to Evaluate Those Improvements—Part III*
9. *Community Global Modeling: Next Generation Global Prediction System (NGGPS) and beyond: Improvements in Global Models, Key Components of Global Models and Statistical Techniques to Evaluate Those Improvements—Part IV*
10. *Research to Operations: Selected Student Presentations*
11. *National and International Program Overviews for Environmental Satellites (Invited) - Special Session*
14NGOESS-Hosted Joint with 8R2O, 22SATMET, 6JCSDA
12. *Communicating Information and Risk in the Energy Sector*
Themed Joint Session Panel Discussion – 9ENERGY-Hosted joint with 8R2O
13. *Advances in Communication Processes and Technology to Improve the End-to-End Communication of Earth or Space Environment Observations, Products, or Information to Operational End Users and the Public*
14. *Significant Role of Calibration/Validation for the Transition of Research to Operations*
15. *Considerations and Best Practices for the Transition of Research to Operations*
16. *Testbeds, Models, and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to End Users and to the Public in Weather, Water, or Climate Applications—Part I*
17. *Testbeds, Models, and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to End Users and to the Public*

- in Weather, Water, or Climate Applications—Part II*
18. *Testbeds, Models, and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to End Users and to the Public in Weather, Water, or Climate Applications—Part III*
 19. *Testbeds, Models, and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to End Users and to the Public in Weather, Water, or Climate Applications—Part IV*
 20. *Analysis and Nowcast (0-18 Hour Forecast) Requirements of the National Weather Service: Discussion of the Field's Needs and Preliminary Results of the First Field Survey*
Town Hall
 21. *Commercial and Institute Activities Enabling the Transition of Research into Operations*
 22. *Earth Science Product, Model and Algorithm Improvements for Transitions of R2O/O2R in Weather, Water, and Climate Applications*
 23. *Improving R2O & O2R in Analysis and Nowcast (0–18-Hour Forecast): Potential of New or Enhanced Capabilities for Meeting U.S. Service Needs—Part I: Introduction & Overviews*
 24. *Improving R2O & O2R in Analysis and Nowcast (0–18-Hour Forecast): Potential of New or Enhanced Capabilities for Meeting U.S. Service Needs—Part II: Data Processing and Assimilation*
 25. *Improving R2O & O2R in Analysis and Nowcast (0–18-Hour Forecast): Potential of New or Enhanced Capabilities for Meeting U.S. Service Needs—Part III: Modelling Tools & HPC*
 26. *Improving R2O & O2R in Analysis and Nowcast (0–18-Hour Forecast): Potential of New or Enhanced Capabilities for Meeting U.S. Service Needs—Part IV: Post-Processing & OPG*

B. Town Hall - NASA's Earth Science - Flight Program Investments in and Planning for the Next-Generation Earth Observatories – An Update

The 8R2O Conference hosted a lunchtime Town Hall on January 8th presenting the annual status of the NASA Earth Science missions. The Town Hall was conducted by Eric E. Ianson, the Associate Director, Flight Programs, Earth Science Division, NASA Science Mission Directorate with over 130 registrants participating in this *Town Hall Meeting: NASA's Earth Science - Flight Program Investments in and Planning for the Next-Generation Earth Observatories – An Update*.

Description: The NASA Earth science flight program is a dynamic undertaking consisting of a large fleet of operating satellites, an array of satellite and instrument projects, a robust airborne science program which advances the use of satellite data, and a massive data archiving and distribution system. NASA's fleet of 20 operating missions provides a wide range of scientific measurements obtained from dedicated Earth science satellites and the ISS. Projects in development are divided into categories: 1. Earth Systematic Missions (ESM), 2. Earth System Science Pathfinders (ESSP). The Earth Science Flight Program benefits from investments by the

Earth Science Technology Office (ESTO) to develop and demonstrate cutting-edge technologies that can be applied to future NASA Earth science measurements/missions. As the NASA program evolves it will leverage the lessons learned from the current missions and plan for adjustments to future objectives to meet the needs of the USA and the Earth science community.

C. Panel Discussion “*Communicating Information and Risk in the Energy Sector*”

The 9th Conference on Weather, Climate, and the New Energy Economy (9ENERGY) and the 8R2O Conference conducted a Themed Joint Session entitled, “Communicating Information and Risk in the Energy Sector”, which leveraged community knowledge to improve communication of *energy meteorology information*. The format for this for this Themed Joint Session was a Panel with two moderator/co-chairs. The Session Co-chairs were Justin Sharp (Sharply Focused, LLC) and Aiden Tuohy (Electric Power Research Institute) and the panelists included Stephen Bennett (Riskpulse), David Emmitt (Simpson Weather Associates), Tassos Golnas (DOE), Jason Samenow (The Washington Post Capital Weather Gang), and George McLean (Avangrid).

D. 8R2O Student Presentation Competition and 8R2O Co-hosted Student and Early Career Professionals Speed Networking Event and Reception

The 8R2O Conference sponsored two student activities within its Conference and the AMS Annual Meeting. A Student Competition/Awards was included as an integral part of the 8R2O Conference sessions for both Oral Presentations and Poster Presentations. The 8R2O judges awarded 1st place (\$200 plus Certificate) and 2nd place (\$150 plus Certificate) awards for each of the Oral Presentation and Poster Presentation competitions.

In addition, the 8R2O Conference co-hosted with six other conferences a Student Reception on the evening of January 7th within the Austin Convention Center. A special feature of the reception was a Speed Networking session giving the 96 students and early career professionals an opportunity to network and discuss the experiences of ~38 professionals serving as mentors. A kick-off to the Speed Networking and an introduction with some of his own student experiences was given by the NOAA/NESDIS Assistant Administrator, Dr. Stephen M. Volz.