

Scientific and Technological Activities (STAC) January 2022 Report to the AMS Council

Ankur Desai, STAC Commissioner

Gene Fisher, STAC Past Commissioner

Kristie Franz, STAC incoming Commissioner

Introduction

STAC is responsible to the Society and the Council for advancing science and technology by promoting the open exchange of ideas, strengthening our disciplinary communities, enhancing collaboration and dialog among these communities, embracing diversity, celebrating and fostering excellence, and cultivating the next generation of scientists and leaders. STAC has continued to carry out these primary roles by planning conferences, symposia, maintaining an active membership and web site (both of which are updated at least annually); recognizing outstanding members via Society Award and Fellow nominations; informing the AMS Council of concerns and suggestions for improvement; and providing a brief summary to the Council/Commissioners after each conference, symposium, or other meeting(s).

Items for Council

STAC does not have any items requiring AMS Council discussion. A proposal to change terms of the Awards for an Exceptional Specific Prediction initiated by the Weather Analysis and Forecasting STAC is currently being reviewed by the Awards Oversight Committee in advance of any council presentation.

Conferences and Symposia

STAC consists of thirty science committees and six inter-disciplinary boards. Thirty-five STAC-led conferences/symposia are being held during the 2022 Annual Meeting. Seventeen additional conferences are being planned for 2022 in twelve different locations. We are currently investigating hybrid options for most of our 2022 conferences. Thirty-six are planned for the 2023 Annual Meeting in Denver and more may join. Also in 2023, ten specialty conferences are being planned to be held in person at eight different locations.

Here is a listing of all the STAC conferences and symposia through 2022 and those planned for 2023.

AMS 2022 annual meeting (Houston, TX and online)

Conference Name	Organizing Committee/Board
13th Conference on Environment and Health	AMS Board on Environment and Health
38th Conference on Environmental Information Processing Technologies	AMS Board on Environmental Information Processing Technologies

12th Symposium on Advances in Modeling and Analysis Using Python	AMS Board on Environmental Information Processing Technologies
Eighth Symposium on High Performance Computing for Weather, Water, and Climate	AMS Board on Environmental Information Processing Technologies
17th Symposium on Societal Applications: Policy, Research and Practice	AMS Board on Societal Impacts
10th Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events	AMS Board on Societal Impacts
Major Weather Events and Impacts of 2021	AMS Board on Societal Impacts
10th Symposium on the Weather, Water, and Climate Enterprise	AMS Commission on Weather, Water, and Climate Enterprise
31st Conference on Education	AMS Committee for the Conference on Education
26th Conference on Applied Climatology	AMS Committee on Applied Climatology
21st Conference on Artificial Intelligence for Environmental Science	AMS Committee on Artificial Intelligence for Environmental Science
24th Conference on Atmospheric Chemistry	AMS Committee on Atmospheric Chemistry
14th Symposium on Aerosol-Cloud-Climate Interactions	AMS Committee on Atmospheric Chemistry
22nd Conference on Aviation, Range, and Aerospace Meteorology	AMS Committee on Aviation, Range, and Aerospace Meteorology
35th Conference on Climate Variability and Change	AMS Committee on Climate Variability and Change
20th Symposium on the Coastal Environment	AMS Committee on Coastal Environment
13th Conference on Weather, Climate, and the New Energy Economy	AMS Committee on Energy

12th Conference on Transition of Research to Operations	AMS Committee on Environmental Information Processes and Technology
36th Conference on Hydrology	AMS Committee on Hydrology
22nd Symposium on Meteorological Observation and Instrumentation	AMS Committee on Measurements
19th Conference on Mesoscale Processes	AMS Committee on Mesoscale Processes
22nd Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA	AMS Committee on Meteorological Aspects of Air Pollution
21st Conference on Middle Atmosphere	AMS Committee on Middle Atmosphere
27th Conference on Probability and Statistics	AMS Committee on Probability and Statistics
Symposium on Radar Science in the Service of Earth System Predictability	AMS Committee on Radar Meteorology joint with AMS Board on Environmental Information Processing Technologies
18th Annual Symposium on Operational Environmental Satellite Systems	AMS Committee on Satellite Meteorology, Oceanography, and Climatology
10th AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA)	AMS Committee on Satellite Meteorology, Oceanography, and Climatology
Fifth Conference on Earth Observing SmallSats	AMS Committee on Satellite Meteorology, Oceanography, and Climatology
19th Conference on Space Weather	AMS Committee on Space Weather
10th Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability	AMS Committee on Tropical Meteorology and Tropical Cyclones
31st Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP)	AMS Committee on Weather Analysis and Forecasting
First Symposium on Earth Prediction Innovation and Community Modeling	AMS Committee on Weather Analysis and Forecasting

20th History Symposium	AMS History Committee
Seventh Symposium on US-International Partnerships	AMS International Affairs Committee
23rd Conference on Planned and Inadvertent Weather Modification	Committee on Planned and Inadvertent Weather Modification

2022 planned specialty meetings

CONFERENCE	LOCATION
13th International Conference on Southern Hemisphere Meteorology and Oceanography	Christchurch, New Zealand
2022 AMS Washington Forum	Washington DC
35th Conference on Hurricanes and Tropical Meteorology (2020 Meeting)	New Orleans, LA
Summer Policy Colloquium	Washington DC
ECLA (2020 Meeting)	Kansas City, MO
49th Conference on Broadcast Meteorology (2021 Meeting)	Milwaukee, WI
Sixth Conference on Weather Warnings and Communication (2021 Meeting)	Milwaukee, WI
23rd Conference on Atmospheric and Oceanic Fluid Dynamics	Breckenridge, CO
20th Conference on Mountain Meteorology	Park City, UT
24th Conference on Boundary Layers and Turbulence (2020 Meeting)	Šibenik, Croatia
22nd Conference on Satellite Meteorology (Collective Madison Meeting)	Madison, WI
17th Conference on Polar Meteorology and Oceanography (Collective Madison Meeting)	Madison, WI
16th Conference on Cloud Physics (Collective Madison Meeting)	Madison, WI
16th Conference on Atmospheric Radiation (Collective Madison Meeting)	Madison, WI
Summer Community	Boulder, CO
Heads and Chairs	Boulder CO

30th Conference on Severe Local Storms (2020 Meeting)	Santa Fe, NM
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STAC Board and Committee Awards

STAC is offering the fourth instance of its now annual award opportunity for STAC-level awards in accordance with the terms of reference approved in by the AMS Council:

<https://www.ametsoc.org/index.cfm/stac/chair-member-information/awards/stac-board-and-committee-awards/>

These awards recognize individuals whose outstanding contributions further the goals of the STAC. The process can be found on the STAC webpage, under the “Chair & Member Information” tab or at STAC Level Awards

There are three types of awards for which each B/C can submit a nomination:

- Outstanding Early Career,
- Distinguished Scientific/Technological Accomplishment, and
- Outstanding Service

Awards nominated in 2020 and bestowed in 2021 are posted here:

<https://www.ametsoc.org/index.cfm/stac/chair-member-information/awards/stac-level-awards-for-2021/>

In 2021, 13 STAC boards and committees took advantage of the award opportunity and their nominations were approved by the STAC Commissioner.

Eleven of these awards, noted in the table below, will be announced in advance virtually or during the AMS Annual Meeting in Houston. The remaining two will be presented at specialty conferences organized by the **Committee on Mountain Meteorology** or **Committee on Tropical Meteorology and Tropical Cyclones** later in spring 2022.

Type	Nominee	Citation	Board/Committee
STAC Outstanding Early Career Award	John T Allen	For significant early career contributions in advancing our understanding of severe convective storms and climate connections for forecasting applications	Committee on Weather Analysis and Forecasting
STAC Outstanding Service Award	Jeffrey Collett	For outstanding service to the AMS Committee on Atmospheric Chemistry and for raising the stature of atmospheric chemistry within AMS	Committee on Atmospheric Chemistry

STAC Outstanding Service Award	Kristie Ebi	For tireless leadership, commitment, and service to Board on Environment and Health and AMS	Board on Environment and Health
STAC Outstanding Service Award	John Jensenius	For his continuous drive to increase public knowledge and awareness of the dangers of lightning and his dedication to lightning safety.	Committee on Atmospheric Electricity
STAC Outstanding Service Award	Sujay Kumar	For exemplary leadership and flexibility in chairing the first virtual AMS Conference of Hydrology during the 2020-2021 COVID-19 pandemic	Committee on Hydrology
STAC Outstanding Early Career Award	Ashley Matheny	For leadership and excellence in the study of vegetation hydrodynamics and its role in the surface-atmosphere exchange of water	Committee on Agricultural and Forest Meteorology
STAC Outstanding Early Career Award	Amanda Maycock	For exceptional leadership in integrating middle atmospheric research into the broader field of climate science	Committee on Middle Atmosphere
STAC Outstanding Early Career Award	Angie Pendergrass	For fundamental contributions to our understanding of the dynamics of extreme precipitation and its response to greenhouse gas forcing	Committee on Climate Variability and Change
STAC Outstanding Early Career Award	Joseph Ripberger	For outstanding early career scholarship that demonstrates excellence in risk and public policy research in weather, climate, and water contexts.	Board on Societal Impacts
STAC Outstanding Early Career Award	David Bodine	For prodigious influence on the field of radar meteorology via influential publications, management of field programs, and leadership through service on committees and boards, in conference planning, and journal editing and review for AMS	Committee on Radar Meteorology
STAC Distinguished Scientific/Technological Accomplishment Award	Masataka Murakami	For leading the field of weather modification research by inventing novel approaches for lab and field work and numerical modeling	Committee on Planned and Inadvertent Weather Modification

STAC Best Practices

The [STAC Best Practices Document](#) is in its seventh year of existence and we continue to update and expand it. We combined our past experiences with those of other successful STAC committees and created a living document that helps STAC board and committee chairs and members. Its main purpose is aid STAC volunteers in understanding their responsibilities and what they can do to help build their science community. We mention this document every chance we get and it continues to have a very positive impact. The vast majority of STAC members want to make a difference, but some simply do not know how to contribute in the most effective ways. This provides guidance to be fully involved.

One area of improvement we seek to add to this document is to better document best practices for supporting diverse, inclusive, and equitable measures in recruiting, retention, and supporting communities.

Named Sessions

STAC has played an increasingly larger role with named sessions at conferences and symposia. Named sessions are discussed in The Guidelines for Society and Commission Awards and described as follows:

"A named session honoring an individual may be held within an existing specialty conference or symposium on the recommendation of the STAC Commissioner and approval by the Executive Committee. Except for extraordinary circumstances, there should be a limit of two special sessions per specialty conference."

The named session requires a Proposal for Named Session form submitted to the STAC Commissioner who then endorses (if appropriate) and forwards the nomination to the AMS Executive Committee for approval.

At the 2022 annual meeting, there are three named sessions. Three have been proposed for 2023.

2022 Annual meeting named sessions

1. The Andy Majda Memorial Session on Tropical Convection and Waves, hosted by the 10th Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability
<https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Session/59480>
2. The Legacy and Impact of Dr. William M. "Bill" Lapenta, hosted by the 31st Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP) and joint with the 38th Conference on Environmental Information Processing Technologies, First Symposium on Earth Prediction Innovation and Community Modeling, 12th Conference on Transition of Research to Operations and Eighth Symposium on High Performance Computing for Weather, Water, and Climate
<https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Session/59376>
3. William W. Vaughan session on Technical Developments of Terrestrial Weather Information in Support of Commercial Space Operations Transgressing the Atmosphere Aviation, Range, and Aerospace Operations, hosted by the 22nd Conference on Aviation, Range, and Aerospace Meteorology
<https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Session/59528>

2022 specialty meetings named sessions

1. A Session In Honor of Dr. John Horel (Applications of Mountain Meteorology), hosted by the 20th Conference on Mountain Meteorology (27 June - 1 July 2022 in Park City, UT)

Named Symposia

Two named symposia proposed for 2021 were postponed to 2022.

Named symposia (postponed from 2021 to 2022 annual meeting)

- Kevin E. Trenberth Symposium
- Richard H. Johnson Symposium

Named symposia (2023 annual meeting)

- Roger Pielke, Sr.
- William Hooke

Named symposia (deferred to 2024 pool of candidates)

- Kuo-Nan Liou
- Daniel Keyser

Note that the Named Symposium is a higher and more distinctive level of recognition than the Named Session. It is normally a one-day event consisting of three or four sessions (it can have a poster session in addition to oral presentations). It requires the full 18-month planning time-frame accorded to a specialty conference. Nominations ([Proposal for Named Symposium](#)) are due to Jen Ives by May 1 of the year prior to the next Annual Meeting, or at least 18 months before the proposed event.

STAC Board and Committee Chairs Conference Calls

The STAC chairs meeting, normally held in person at the annual meeting, was split into two virtual meetings on January 5, 2021 and February 25, 2021. In addition to review of best practices, we held a multi-part session on diversity, inclusion, and equity focused on anti-racist and anti-sexist practices that could be implemented this year by our boards and committees. These have been documented in our meeting notes.

We held a STAC chairs call on May 21, 2021 where Erica Callahan unveiled the new system for AMS volunteer interest and recruiting, Paul Higgins introduced updates to the AMS policy program, and Claudia Gorski discussed planning for return to in person meetings.

Our final STAC chairs call of this past year was held on Oct 22, 2021. We held a general discussion on planning for meetings, addressing council updates to the AMS annual meeting and statements surrounding it, membership updates, and conference reports.

Our 2022 annual STAC chairs meeting will be held in hybrid format at the AMS annual meeting on Sunday Jan 23, 2022 from 11 am – 2 pm. Several chairs will present their experiences in contributing to drafting and revising AMS statements.

STAC Support to the Editor of the Glossary of Meteorology

The *GoM* continues to be an important reference for our Society and with our global community. STAC Boards and Committees are actively involved in supporting the *GoM* by providing expert input on

requests for new or updated glossary terms. Ward Seguin works closely with STAC Chairs as requests for new or revised terms need attention.

This year a total of 29 proposed changes or additions to the Glossary were received and one was carried forward from 2020. Of these 30 terms, two were rejected and a third was withdrawn. Eight new terms were added to the Glossary and 19 were revised. The Scientific and Technical Activities Commission (STAC) reviewed 19 of these terms, including the term carried over from 2020, which was rejected. The remaining were reviewed by experts in National Oceanic and Atmospheric Administration (NOAA), one by a university faculty member and the remaining by the Chief Editor with the assistance of the person making the suggestion and/or the AMS staff editor.

This table summarizes the performance statistics for 2021 and earlier years.

AMS Glossary of Meteorology Status (updated 13 Dec 2021)										
Year	New Suggestions	Carried Forward from Previous Years	In Review	Not yet in review	Added to GOM during year (new and revised terms)	Rejected or Withdrawn	Days in Review		Days Submission to Decision	
							Ave	#	Ave	#
2013	29				12	11	50.5	13	64.8	23
2014	31	6			26	4	75.8	30	101.4	30
2015	18	7			13	2	66.3	13	142.1	17
2016	15	10			14	3	238.6	15	270.8	16
2017	16	8			19	3	142.7	16	177.1	16
2018	50	2			39	4	51.4	39	57.8	41
2019	23	9	0		24	8	53.3	21	76.9	28
2020	39	1	1		21	18	41.8	39	47.9	39
2021	29	1	0	0	27	3	38.4	29	40.3	29

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The additions and revisions to the Glossary are shown in the following table.

ID	Term	Reviewer	Disposition
21014	AMSU	STAC	Accepted as new term
21021	Density weighted mean wind speed	STAC	Accepted as new term
21019	Digging	STAC	Accepted as new term
21018	Heat dome	STAC	Accepted as new term
21022	Lifting	STAC	Accepted as new term
21024	Membership function	STAC	Accepted as new term
21011	Meteotsunami	Outside expert	Accepted as new term
21007	Windstorm	STAC	Accepted as new term
21016	Aerosol	STAC	Revised term
21008	Climatology	STAC	Revised term
21023	Cold Snap	STAC	Revised term
21026	Dropsonde	Chief editor	Revised term
21010	Dry-adiabatic lapse rate	STAC	Revised term
21028	Freezing Drizzle	Outside expert	Revised term
21029	Freezing Rain	Outside expert	Revised term
21002	Lidar ratio	STAC	Revised term
21009	Meteorological range	STAC	Revised term
21017	Midget tropical cyclone	STAC	Revised term
21013	Monsoon trough	STAC	Revised term
21003	Precipitation	STAC	Revised term
21005	Pyrocumulonimbus	Chief editor	Revised term
21025	Radiosonde	Chief editor	Revised term
21027	Subtropical cyclone	Outside expert	Revised term
21004	Turner angle	Outside expert	Revised term
21001	Vortex	STAC	Revised term
21020	Warm Rain	STAC	Revised term
21012	Wind Profiler	Chief editor	Revised term

Membership Breakdown of STAC Boards and Committees

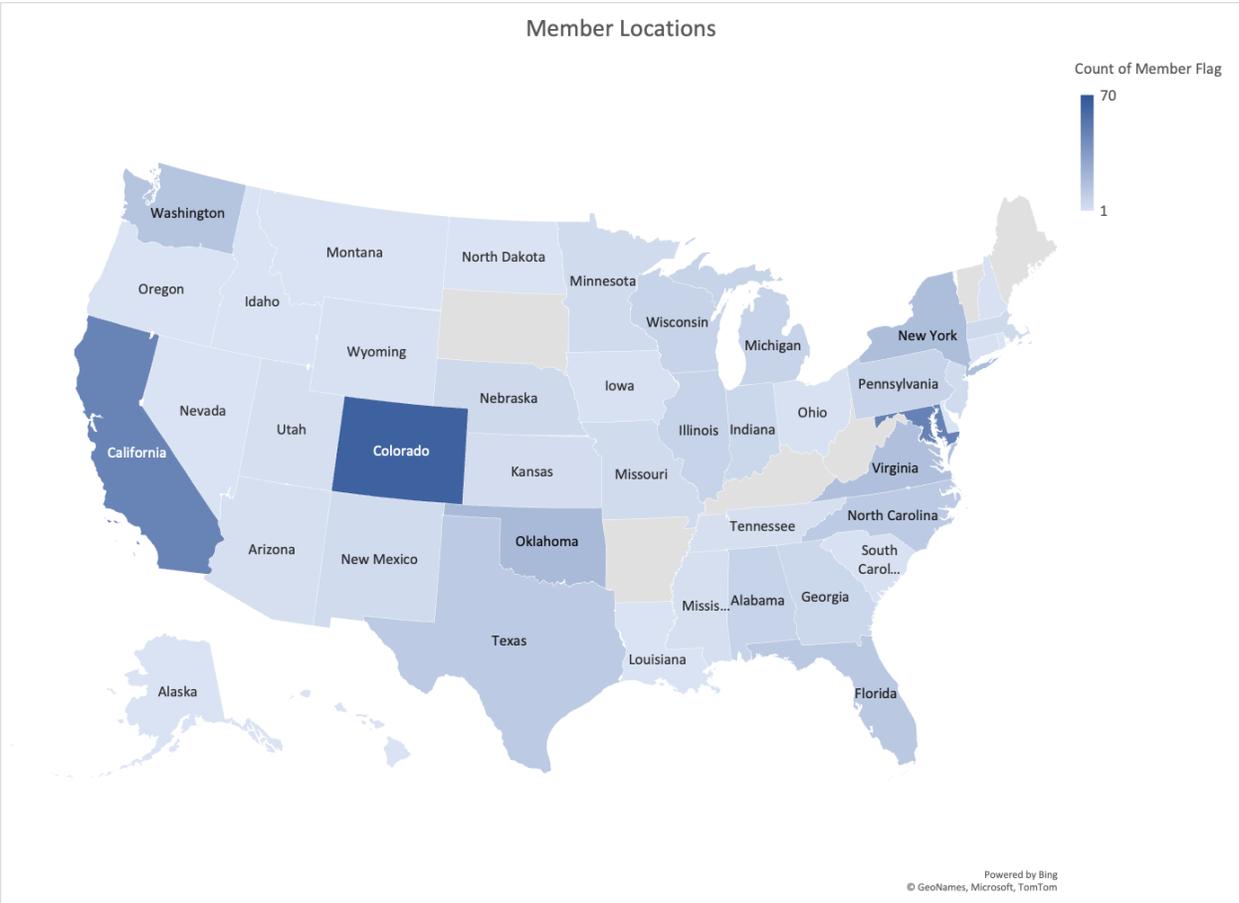
Detailed analysis of membership of STAC boards and committees is presented in the tables and maps below. Based on demographics received for 2021 provided by Beth Farley, 438 volunteers participated in STAC boards and committees. These members were 41% identified as women (36% for chairs and

vice-chairs, 50% for students). 11% of the volunteers were students. By sector, 64% were from academic, 34% from government, and 2% from private sector (though 23% affiliations were not tagged). By AMS membership, 79% were AMS members. By country, 93% were in the United States, with largest representation from Colorado, Maryland, and California.

Position Code	Gender			Grand Total
	Female	Male	(blank)	
Chair	13	23		36
Co-Chairperson		2		2
Emeritus Chair	4	1		5
Ex Officio		1		1
Ex Officio Chair	1			1
Member	125	192	8	325
Member At Large	1			1
Student Member	23	22	1	46
Vice-Chair	7	14		21
Grand Total	174	255	9	438

Position Code	Affiliation				Grand Total
	Acad	Govt	Priv Sector	Not provided	
Chair	18	14	1	3	36
Co-Chairperson	2				2
Emeritus Chair	3	1		1	5
Ex Officio			1		1
Ex Officio Chair		1			1
Member	168	93	5	59	325
Member At Large		1			1
Student Member	27	3		16	46
Vice-Chair	9	9		3	21
Grand Total	227	122	7	82	438

Position Code	AMS Member		Grand Total
	no	yes	
Chair		3	36
Co-Chairperson			2
Emeritus Chair			5
Member		73	325
Student Member		9	46
Vice-Chair		5	21
Grand Total		90	435



Country	Members
AUSTRALIA	4
AUSTRIA	1
CANADA	6
CHINA	1
CROATIA	1
FRANCE	3
GERMANY	2
GREAT BRITAIN	1
IRELAND	2
ISRAEL	1
ITALY	1
JAPAN	3
SINGAPORE	1
SOUTH KOREA	1
SPAIN	1

TAIWAN	1
UNITED KINGDOM	1
UNITED STATES	407
Grand Total	438

Committee Name	Chair	Co-Chair	Emeritus Chair	Member	Student Member	Vice- Chair	Grand Total
Agricultural and Forest Meteorology	1			9	1		11
Air-Sea Interaction	1			10	2	1	14
Applied Climatology	1			6	2		9
Artificial Intelligence Applications to Environmental Science	1			9	2	1	13
Atmospheric and Oceanic Fluid Dynamics	1			7	1	1	10
Atmospheric Chemistry	1			15	1		17
Atmospheric Electricity	1			10	2	1	14
Atmospheric Radiation			2	8	1		11
Aviation, Range, and Aerospace Meteorology	1			15	3	1	20
Board on Atmospheric Biogeosciences	1			7	1	1	10
Board on Data Stewardship	1			9	1	1	12
Board on Environment and Health	1		1	8		1	11
Board on Environmental Information Processing Technologies	1			4			5
Board on Societal Impacts	1		1	8	1		11
Board on the Urban Environment	1			6	1		8
Boundary Layers and Turbulence	1			4			5
Climate Variability and Change	1			14	3	1	19
Cloud Physics	1			12			13
Coastal Environment	1			8	1		10
Hydrology	1			16	3	1	21
Laser Atmospheric Studies	1			9	1	1	12
Measurements	1		1	8	2	1	13
Mesoscale Processes	1		1	9	2	1	14
Meteorological Aspects of Air Pollution	1					1	2
Meteorology and Oceanography of the Southern Hemisphere	1			2	1		4
Middle Atmosphere	1			9	2	1	13
Mountain Meteorology	1			9	1		11
Planned and Inadvertent Weather Modification	1			9	1	1	12

Polar Meteorology and Oceanography	1			4	1	1	7
Probability and Statistics	1			9	1		11
Radar Meteorology	1			8	2	1	12
Satellite Meteorology, Oceanography, and Climatology	1	1		10	3		15
Severe Local Storms	1			6			7
Space Weather	1			9	1		11
Tropical Meteorology and Tropical Cyclones	2			14	1	2	19
Weather Analysis and Forecasting	1			25	1	1	28
Grand Total	36	2	5	325	46	21	435

Request for Meeting Funds (Program Chair Funds)

The Program Chair of each AMS sponsored conference or symposium can request up to \$1,500 to support student awards, student presenter travel allowance, abstract fees for guest speakers, invited speaker travel support, and special activities. A quick look at the requests indicates that the most common use of the program chair funds is for student awards which can be up to a maximum of \$200 per award, followed by invited speaker abstract awards. STAC handles these fund requests for all AMS conferences whether within STAC or from other Commissions (as per agreement through the AMS Meetings Coordinator). Routine requests are approved by the AMS Meetings Coordinator while those requests requiring closer examination are reviewed by the STAC Commissioner.

Annual Awards

STAC was involved with the AMS Annual Awards again this year under the guidance of the AOC. We successfully met the schedule to determine the results of the judging. This table covers the awards with STAC involvement

Award	Responsible B/C (and Commission)
The Charles L. Mitchell Award	WAF (STAC)
The Award for an Exceptional Specific Prediction	WAF(STAC)
The Francis W. Reichelderfer Award	WAF, BOGM, Coastal Environment, Hydrology (STAC and Professional Affairs)
The Helmut E. Landsberg Award	Board on Urban Environment (STAC)
The Award for Outstanding Achievement in Biometeorology	Board on Atmospheric Biogeosciences (STAC)
The Robert E. Horton Lecturer in Hydrology	Committee on Hydrology (STAC)
The Bernard Haurwitz Memorial Lecturer	STAC
The Walter Orr Roberts Lecturer in Interdisciplinary Sciences	STAC
The AMS Journalism Award	STAC Commissioner Review

Outstanding Contribution to the Advance of Applied Meteorology	Professional Affairs Commission with input from Applied Climatology
The Banner I. Miller Award	Committee on Tropical Cyclones and Tropical Meteorology (STAC)

STAC Newsletter

The STAC Newsletter (issued every other month) has continued to be a success as it keeps the STAC members better informed. The newsletters are sent to all STAC members, the Council, Commissioners, and AMS Staff through the AMS Community. Refer to: <https://www.ametsoc.org/stac/index.cfm/news-reports/monthly-stac-newsletter/>

As always, STAC appreciates the support of the AMS Staff and values our collaborative efforts with and support from the AMS Council and the other Commissioners.