# Scientific and Technological Activities (STAC) 2019 End of Year Report to the AMS Council

Genene Fisher, STAC Commissioner Bruce Telfeyan, STAC Past Commissioner Ankur Desai, STAC Incoming Commissioner

Photo from STAC Chairs Annual Meeting, January 6, 2019, Phoenix, AZ



#### 1. 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).

#### 2. Items for Council

STAC provided the AMS Secretary-Treasurer updates to the AMS Organizational Procedures. In particular, our updates included edits to the size of the Boards. In this document, some Boards do not specify their size, while others note the maximum number of members that can be included. STAC Board Chairs prefer to set the number of members based on the needed expertise and diversity of representation, however, this is being raised to the Council as recommended by the AMS Secretary-Treasurer in case the Council would like to discuss limitations to Board and Committee sizes.

For example, the following edits were suggested by the Board Chairs:

Board on the Urban Environment: Replace "To consist of six members plus ex-officio members who are members of other Committees of the Commission with interests that intersect with the urban environment" with "To consist of up to 15 members, including ex-officio members who are members of other Committees of the Commission with interests that intersect with the urban environment and represent all three sectors of the Society's membership."

Board on Societal Impacts: Replace "To consist of up to 15 members encompassing a range of disciplines" with "To consist of members who (1) encompass a range of disciplines and methodological approaches in the study of weather, climate, and society; and (2) represent all three sectors of the Society's membership."

# 3. Conferences and Symposia

STAC consists of thirty science committees and six inter-disciplinary boards. Twenty eight STAC-led conferences/symposia were held in Phoenix during the 2019 Annual Meeting. Seven additional conferences have taken place or are being planned since January 2019 at various locations. Here is a listing of all the STAC conferences and symposia through 2019:

Conference Name (2019 Annual Meeting)	Board / Committee				
35th Conference on EIPT	Board on Environmental Information Processing Technologies				
33rd Conference on Hydrology	Committee on Hydrology				
32nd Conference on Climate Variability and Change	Committee on Climate Variability and Change				
24th Conference on Applied Climatology	Committee on Applied Climatology				
21st Conf. on Atmospheric Chemistry	Committee on Atmospheric Chemistry				
20th Conference on Middle Atmosphere	Committee on Middle Atmosphere				
19th Conference on Aviation, Range, and Aerospace Meteorology	Committee on Aviation, Range, and Aerospace Meteorology				
18th Conf on Artificial and Computational Intelligence and its Applications to the Environmental Sciences	Committee on Artificial Intelligence Applications to Environmental Science				
17th Symposium on the Coastal Environment	Committee on Coastal Environment				
16 <sup>th</sup> Conference on Space Weather	Committee on Space Weather				
15th Annual Symposium on New Generation Operational Environmental Satellite Systems	Committee on Satellite Meteorology, Oceanography, and Climatology				

15IMPACTS: Major Weather Events and Impacts of 2018	Board on Societal Impacts
14th Symposium on Societal Applications: Policy, Research and Practice	Board on Societal Impacts
11th Symposium on Aerosol–Cloud–Climate Interactions	Committee on Atmospheric Chemistry
10th Conference on Environment and Health	Board on Environment and Health
Ninth Conference on Transition of Research to Operations	Committee on Satellite Meteorology, Oceanography, and Climatology
Ninth Symposium. on Lidar Atmospheric Applications	Committee on Laser Atmospheric Studies
Ninth Conference on the Meteorological Application of Lightning Data	Committee on Atmospheric Electricity
Ninth Symposium on Advances in Modeling and Analysis Using Python	Board on Environmental Information Processing Technologies
Seventh Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events	Board on Societal Impacts
Seventh AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA)	Committee on Satellite Meteorology, Oceanography, and Climatology
Seventh Symposium on the Madden-Julian Oscillation and Sub- Seasonal Monsoon Variability	Committee on Tropical Meteorology and Tropical Cyclones
Fifth Symposium on High Performance Computing for Weather, Water, and Climate	Board on Environmental Information Processing Technologies
Second Conference on Earth Observing SmallSats	Committee on Satellite Meteorology, Oceanography, and Climatology
Tropical Cyclones and Extreme Monsoon Precipitation: Prediction, Impacts, and Communication	Committee on Tropical Meteorology and Tropical Cyclones
Special Symposium on Mesoscale Meteorological Extremes: Understanding, Prediction, and Projection	Committee on Mesoscale Processes
Phased Array Radar Symposium	Committee on Radar Meteorology
Special Symposium on Meteorological Observations and Instrumentation	Committee on Measurements

Specialty Meetings	Board/Committee
Polar Meteorology	Committee on Polar Meteorology and Oceanography
Weather Warnings and Communication	Board on Societal Impacts
Atmospheric and Oceanic Fluid Dynamics	Committee on Atmospheric and Oceanic Fluid Dynamics
Mesoscale Processes	Committee on Mesoscale Processes
Radar	Committee on Radar Meteorology
SatMet	Committee on Satellite Meteorology, Oceanography, and
EUMETSAT	Climatology

#### 4. STAC Board and Committee Awards

This past year, STAC offered the second instance of its biennial award opportunity for its STAC-level awards in accordance with the terms of reference approved in 2017 by the AMS Council: <a href="https://www.ametsoc.org/index.cfm/stac/chair-member-information/awards/stac-board-and-committee-awards/">https://www.ametsoc.org/index.cfm/stac/chair-member-information/awards/stac-board-and-committee-awards/</a>

Thirteen STAC Boards and Committees submitted nominations which were all approved by the STAC Commissioners. The awards consist of presentation of a certificate, generally at the next 2020 B/C conference with appropriate recognition to include (when appropriate) an invited talk by the awardee. Recipients of the awards will be announced in the next Council report.

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

#### 5. Departing STAC Board and Committee Chairs:

We extend special thanks to these twelve individuals who are completing their service as board or committee chairs within STAC. They have all served voluntarily and provided leadership and direction to each of their members. They are listed here with their years of service as the Chair:

- Committee on Air-Sea Interaction, David Richter, 2017-2020
- Committee on Tropical Meteorology and Tropical Cyclones, Zhuo Wang, 2017-2020
- Board on Urban Environment, Dev Niyogi, 2017-2020

- Committee on Meteorology and Oceanography of the Southern Hemisphere, James Renwick, 2017-2020
- Committee on Artificial Intelligence, Philippe Tissot, 2017-2020
- Committee on Atmospheric Chemistry, Jeffrey Collett, 2017 -2020
- Committee on Atmospheric Electricity, Geoffrey Stano, 2018 -2020
- Committee on Atmospheric Radiation, Jens Redemann, 2019-2020
- Committee on the Coastal Environment, Andre van der Westhuysen, 2014-2020
- Committee on Radar Meteorology, Ali Tokay, 2016-2020
- Committee on Hydrology, Kristie J. Franz, 2018-2020
- Committee on Polar Meteorology and Oceanography, Ryan Fogt, 2013-2020

#### 6. STAC Best Practices

The <u>STAC Best Practices Document</u> is in its fifth 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 to understand their responsibilities and what they can do to help build their science community. We mention the 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.

#### 7. 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."

In the past, named sessions were uncommon and not frequently used. In recent years, STAC has been highlighting them as a way to recognize outstanding members of the various science communities.

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.

For 2020, 5 named sessions have been approved by the Executive Committee for the Annual Meeting and 2 named sessions during a specialty conference. They are as follows:

Conference	Meeting Dates	Location	Named Session	Status
20th Conference on Aviation, Range and Aerospace Meteorological	12-16 January 2020	Boston, MA	John T. Madura	Approved
18th Symposium on the Coastal Environment	12-16 January 2020	Boston, MA	Dr. Vincent J. Cardone	Approved
17thConference on Space Weather	12-16 January 2020	Boston, MA	Louis J. Lanzerotti	Approved
Fourth Symposium on Multiscale Predictability: Data-Model Integration and Uncertainty Quantification for Weather, Climate and Earth System Monitoring and Prediction	12-16 January 2020	Boston, MA	Fuqing Zhang	Approved
Special Symposium on the Future of Weather, Forecasting, and Practice	12-16 January 2020	Boston, MA	Ronald (Ron) W. Przybylinski	Approved
Hurricanes and Tropical Meteorology	10-15 May 2020	New Orleans, LA	T.N. Krishnamurti	Approved
19th Conference on Mountain Meteorology	13-18 July 2020	Park City, UT	Vanda Grubišić	Approved

# 8. Named Symposia

Three named symposia will be held at the 2020 Annual Meeting and in September, the Council approved two named symposia for 2021 Annual Meeting. They are as follows:

2020 Planned Symposia		
Name, Current Position	Year/Site	Theme
Robert Dickinson Symposium	2020/Boston	Earth system modeling and climate change, land surface modeling and remote sensing, and large scale atmospheric dynamics
Wayne Schubert Symposium	2020/Boston	Atmospheric dynamics, tropical meteorology
Susan Solomon Symposium	2020/Boston	Ozone, Climate, and Policy: Susan's Contributions Then and Now

2021 Planned Symposia		
Name, Current Position	Year/Site	Theme
Richard H. Johnson	2021/New Orleans	Organized convection; collection of unprecedented datasets during field campaigns; international collaborations
Kevin E. Trenberth Symposium	2021/New Orleans	Empirical Analysis of Global Climate Change

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 comprised 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 (<u>Proposal for Named Symposium</u>) are due to Claudia Gorski by May 1 of the year prior to the next Annual Meeting, or at least 18 months before the proposed event.

#### 9. STAC Board and Committee Chairs Conference Calls

Two STAC B/C Chair teleconferences were held in 2019. The notes can be found here:

April 2019: <a href="https://www.ametsoc.org/index.cfm/stac/news-reports/monthly-stac-newsletter/april-2019-stac-teleconference/">https://www.ametsoc.org/index.cfm/stac/news-reports/monthly-stac-newsletter/april-2019-stac-teleconference/</a>

Oct 2019: <a href="https://www.ametsoc.org/index.cfm/stac/news-reports/monthly-stac-newsletter/october-2019-stac-teleconference/">https://www.ametsoc.org/index.cfm/stac/news-reports/monthly-stac-newsletter/october-2019-stac-teleconference/</a>

## 10. 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. For the period of January 1 through June 30, 2019, Ward reports that he had 21 actions: 9 carried over from 2018 and 12 new requests in 2019. The chart below shows the current status. The full analysis of 2019 will be provided in the next report.

	ossary of Meteorology Actions for	n i Jan-Sv Jun	le 2019
	Action	Count	Comments
	Total	21	
	Received in 2018 but had		
D	actions in 2019		
Request	("carryover")	9	
Summary	Total received in 2019	12	
	Revision requests	4	
	New terms	8	
	Revised terms	6	
D!-!	New terms added	6	
NIImmary —	Rejected terms	4	
	Withdrawn terms	2	
	Terms in review	3	

# 11. Membership Breakdown of STAC Boards and Committees

2019 Membership Breakdown of STAC Boards and Committees										
Sector of the Weather Enterprise	Number	Percent	State of Residence	Number	Percent	Decade of Birth	Number	Percent		
Academia (including Students)	227	51.9	Alabama	9	2.2	1930s	1	0.2		
Government (including FFRDC)	160		Alaska	2	0.5	1940s	9	2.1		
Private	30		Arizona	7	1.7	1950s	32	7.3		
Not Specified	20		Arkansas	0	0.0	1960s	65	14.9		
Retired	0	0.0	California	47	11.5	1970s	118	27.0		
Total	437	100	Colorado	73	17.9	1980s	129	29.5		
Total	101	100	Connecticut	0	0.0	1990s	40	9.2		
Gender	Number	Percent	Delaware	3	0.7	Not reported	43	9.8		
Male	281	64.3	District of Columbia	7	1.7	Total	437	100		
Female	156		Florida	10	2.5	Median birthdate	Januar			
Total	437	100	Georgia	6	1.5			,		
	101		Hawaii	2	0.5	Student N	lember Da	ata		
AMS Member Category	Number	Percent	Idaho	0	0.0	Gender		Percent		
Members	267	61.1	Illinois	11	2.7	Male	26	54.2		
Student Members	48	11.0	Indiana	5	1.2	Female	22	45.8		
Associate Members	0	0.0	lowa	2	0.5		<u> </u>			
Non-Members of the AMS	122	27.9	Kansas	3	0.7	Decade of Birth	Number	Percent		
Total	437	100	Kentucky	0	0.0	1980s	15	31.3		
			Louisiana	1	0.2	1990s	29	60.4		
			Maine	0	0.0	2000 and later	0	0.0		
STAC Board/Committee Roles	Number	Percent	Maryland	44	10.8	Not reported	4	8.3		
B/C Chairs	34	7.8	Massachusetts	6	1.5	Total	48	100		
B/C Co-Chairs	4	0.9	Michigan	7	1.7	Median birthdate	Octobe	r 1991		
B/C Vice Chairs	22	5.0	Minnesota	5	1.2	State	Number	Percent		
Chair Emeritus	5	1.1	Mississippi	1	0.2	Alabama	3	6.7		
B/C Ex Officio Members	1	0.2	Missouri	2	0.5	Arizona	3	6.7		
B/C Members	319	73.0	Montana	4	1.0	California	5	11.1		
B/C Student Members	48	11.0	Nebraska	6	1.5	Colorado	7	15.6		
Board Member at Large	1	0.2	Nevada	3	0.7	Delaware	1	2.2		
STAC Commissioners (Past/Current/Incoming)	3	0.7	New Hampshire	3	0.7	Florida	2	4.4		
Total	437	100.00	New Jersey	10	2.5	Hawaii	1	2.2		
			New Mexico	4	1.0	Illinois	1	2.2		
			New York	17	4.2	Louisiana	1	2.2		
Country of Residence		Percent	North Carolina	13	3.2	Maryland	2	4.4		
Australia	4	0.9	North Dakota	1	0.2	Massachusetts	1	2.2		
Austria	1	0.2	Ohio	2	0.5	Michigan	1	2.2		
Canada	7	1.6	Oklahoma	23	5.7	Montana	1	2.2		
China	2	0.5	Oregon	2	0.5	Minnesota	1	2.2		
Croatia	1	0.2	Pennsylvania	2	0.5	New Jersey	3	6.7		
France	2	0.5	Rhode Island	0	0.0	New Mexico	1	2.2		
Germany	1	0.2	South Carolina	2	0.5	North Carolina	1	2.2		
Ireland	1	0.2	South Dakota	1	0.2	New York	2	4.4		
Israel	1	0.2	Tennessee	3	0.7	North Carolina	1	2.2		
Japan	2	0.5	Texas	12		Oklahoma	4	8.9		
New Zealand	1	0.2	Utah	4	1.0	Pennsylvania	1 1	2.2		
Norway	1	0.2	Virginia	19	4.7	Vermont	1 1	2.2		
Singapore	1	0.2	Vermont	1	0.2	Virginia	1 1	2.2		
Spain	1	0.2	Washington	15	3.7	Total	45	100		
Taiwan	1	0.2	West Virginia	0	0.0	Country	Number	Percent		
United Kingdom	3		Wisconsin	5	1.2	Canada	2	4.2		
United States	407	93.1	Wyoming	2	0.5	United Kingdom	1 1	2.1		
Total	437	100.00	Total	407	100	United States	45	93.8		
						Total	48	100		

2019 Membership B	reakdo	wn of S	STAC Board and	Comn	nittee C	hairs and Vic	e-Chair	S
Sector of the Weather Enterprise	Number	Percent	State of Residence	Number	Percent	Decade of Birth	Number	Percent
Academia	34	52.3	Alabama	2	3.3	1930s	0	0.0
Government (including FFRDC)	27	41.5	California	4	6.7	1940s	1	1.5
Private	4	6.2	Colorado	8	13.3	1950s	9	13.8
Total	65	100	DC	1	1.7	1960s	13	20.0
			Georgia	1	1.7	1970s	25	38.5
Gender	Number	Percent	Illinois	3	5.0	1980s	14	21.5
Male	44	67.7	Indiana	2	3.3	1990s	0	0.0
Female	21	32.3	lowa	1	1.7	Not reported	3	4.6
Total	65	100	Maryland	9	15.0	Total	65	100
			Michigan	1	1.7	Median birthdate	July 1	974
AMS Member Category	Number	Percent	Minnesota	1	1.7			
Members	53	81.5	Mississippi	1	1.7			
Associate Members	0		Nebraska	1	1.7			
Non-Members of the AMS	12		New Mexico	1	1.7			
Total	65	100	New York	4	6.7			
			North Carolina	2	3.3			
Country of Residence	Number	Percent	North Dakota	1	1.7			
Australia	1	1.5	Ohio	1	1.7			
Germany	1	1.5	Oklahoma	4	6.7			
Israel	1	1.5	Tennessee	1	1.7			
New Zealand	1	1.5	Texas	3	5.0			
Norway	1	1.5	Virginia	2	3.3			
United States	60	92.3	Washington	4	6.7			
Total	65	100	Wisconsin	1	1.7			
			Wyoming	1	1.7			
			Total	60	100			

			Membership, 2016 - 2019		
Sector of the Weather Enterprise	2016 (%)	2019 (%)	State of Residence	2016 (%)	201 (%)
Academia	61.6	51.9	Colorado	16.7	17.
Government	29.2	36.6	Maryland	11.7	10.
Private	8.3	6.9	California	9.7	11.
Not Specified	0.9	4.6	Rest of the U.S.	61.9	59
Gender	2016	2019	Decade of Birth	2016	2019
Male	70.3	64.3	1930s	0.2	0
Female	29.7	35.7	1940s	3.0	2
STAC Board/Committee Roles	2016	2019	1950s	12.2	7
B/C Chairs	8.3	7.8	1960s	21.4	14
B/C Co-Chairs	0.0	0.9	1970s	27.8	27
B/C Vice Chairs	1.6	5.0	1980s	17.2	29
Chair Emeritus	0.2	1.1	1990s	3.7	9
B/C Ex Officio Members	0.7	0.2	Not reported	14.5	9
B/C Members	78.2	73.0	Median birthdate	Mar-72	Jan-7
B/C Student Members	9.9	11.0			
Board Member at Large	0.2	0.2			

Country of Residence		
United States	88.0	93.0
Other	12.0	7.0

Trends in STAC Bo	ard and Com	mittoo Ch	aire 2016 2010		
Helius III STAC Bu	2016	2019	all's, 2010 - 2015	2016	201
Sector of the Weather Enterprise	(%)	(%)	State of Residence	(%)	(%
Academia	52.7	52.3	Colorado	21.2	13.
Government	41.7	41.5	Maryland	21.2	15.
Private	5.6	6.2	CA, NY, OK, VA, WA	36.9	30.
Gender	2016	2019	Rest of the U.S.	20.7	41.
Male	80.5	67.7	Decade of Birth	2016	2019
Female	19.5	32.3	1930s	0.0	0.
Country of Residence	2016	2019	1940s	0.0	1
United States	91.7	93.0	1950s	16.7	13
			1960s	16.7	20
			1970s	38.9	38
			1980s	11.1	21
			1990s	0.0	0
			Not reported	16.7	4
			Median birthdate	Jun-70	Jul-

#### Some analysis on the 2016-2019 data:

#### For overall membership:

- In 2016, most members were from academia and in 2019, most came from government
- Female membership continues to grow, 29.7% to 35.7%
- STAC non-US membership has decreased from 12% to just 7%
- Colorado, Maryland, and California continue to be the largest source of STAC membership with around 40% of the total
- We have become younger by four years as the mean age is 40 while in 2016 it was 44

# Among the Chairs and Vice Chairs:

- Females in leadership roles expanded from 19% to 32% and now account for nearly a third of the STAC B/C leadership
- Colorado, Maryland, and California are the greatest source of our Chairs, but the leadership from the remaining states has more than doubled. Our Chairs are much more widely spread across the country.
- The mean age for Chairs dropped to 45 while in 2016 it was over 46.

#### 12. 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. In September 2018, the AMS Council approved increased funds availability for conferences that kicks in for events with more than 300 participants (based upon number of abstracts received or on attendance at last event). There will be an additional allocation of \$5 for each attendee above 300.

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.

#### 13. Annual Awards

STAC was involved with the AMS Annual Awards again this year under the guidance of the AOC. We successfully met the new, accelerated 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	WAF(STAC)
Prediction	
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	Board on Atmospheric Biogeosciences (STAC)
Biometeorology	
The Robert E. Horton Lecturer in Hydrology	Committee on Hydrology (STAC)
The Bernard Haurwitz Memorial Lecturer	STAC
The Walter Orr Roberts Lecturer in	STAC
Interdisciplinary Sciences	
The AMS Journalism Award	STAC Commissioner Review
Outstanding Contribution to the Advance of	Professional Affairs Commission with input
Applied Meteorology	from Applied Climatology
The Banner I. Miller Award	Committee on Tropical Cyclones and Tropical
	Meteorology (STAC)

### 14. 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 437 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/

15. 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.