



SCAR Sub-Group

SG

TATE

PS

Person Responsible: Sheeba Chenoli

SCAR Delegates Report 2020

Tropic Antarctic Teleconnections **(TATE)** **2018-2020 Report**

Summary

Report Author(s)

Sheeba Chenoli (Malaysia)
Seong-Joong Kim (Korea)
Francisco Aquino (Brazil)

Summary of activities from 2018-20

The Tropical Antarctic Teleconnections (TATE) group sponsored a half -day workshop on TATE which was held on 20 June 2019 in conjunction with 8th Malaysian International Seminar on Antarctica. A total number of 6 papers were presented at the workshop. TATE would also be linking to the Asian Forum for Polar Sciences (AFOPS) and plans to contribute to the Near-term Variability and Prediction of the Antarctic Climate System (AntClimnow).

ISAES Antarctic climate teleconnection session participation

Dates/Place: July 22-26, 2019 July / Incheon, Republic of Korea
Session title: Tropical-Polar teleconnection and Antarctic climate change
Conveners: Seong-Joong Kim (South Korea), Sheeba Nettukandy Chenoli (Malaysia), Rui Mao (China), and Takashi Yamanouchi (Japan)
Number of Presenters: 17

AOGS2020 session proposal

Dates/Place: Jun 28-Jul 4, 2020/ Hongcheon, Republic of Korea
Session title: Polar climate change and their influence on Asia
Conveners: Seong-Joong Kim (South Korea), Sheeba Nettukandy Chenoli (Malaysia) and others
Number of abstracts: 42

(Unfortunately, due to COVID-19, the AOGS 2020 is now cancelled)

In Brazil, the group led by Dr. Aquino pays attention to the large-scale atmospheric environment that develops cyclogenesis, explosive cyclones and mesoscale convective systems in South America, particularly on Antarctica's influence on extreme subtropical events. New studies analyze how the stable composition of isotopes in the Amazon and precipitation in the South Atlantic were related to Antarctica (frontal systems, SACZ and MCCs) in neutral years and ENSO; the

TATE: 2018-2020 Report, cont.

variability of SAM, the subtropical anticyclone of the South Atlantic and the ZCAS in events of retraction and expansion of the Antarctic sea ice.

Supervision of a master's dissertation on cyclogenesis in hot years in southern Brazil, and a doctoral thesis on the influence of ENOS, SAM and PSA on rainfall in the southern region of Brazil from 1950 to 2020.

Participation in the 8th MALAYSIAN INTERNATIONAL SEMINAR ON ANTARCTICA / Workshop on Tropic Antarctic Teleconnections (TATE), in Kuala Lumpur, Serdang, Selangor, Malaysia.

Fieldwork in Antarctica (summer 2019/2020) to carry out snow sampling in a shallow pit.

Summary Budget 2019 to 2022

	2019	2020	2021	2022
	Spent	Allocated	Request	Request
(US\$)				

Progress to date

Sub-group Outcomes Summary

(Summarize the above and in each case provide your sub-group name in left hand column to assist Science Group COs in compiling their reports)

Sub-group	Activity/Outcome/Benefit/Achievement
Sheeba Chenoli (Malaysia)	8th MALAYSIAN INTERNATIONAL SEMINAR ON ANTARCTICA / Workshop on Tropic Antarctic Teleconnections (TATE)
Azizan Abu Samah (Malaysia)	8th MALAYSIAN INTERNATIONAL SEMINAR ON ANTARCTICA / Workshop on Tropic Antarctic Teleconnections (TATE)
Seon-Joong Kim (Republic of Korea)	SAES Antarctic climate teleconnection session participation AOGS2020 session proposal
Francisco Eliseu Aquino (Brazil)	Research activities in Brazil, Participation in Workshop on Tropic Antarctic Teleconnections (TATE)
Jefferson Cardia Simões (Brazil)	Research activities in Brazil, Participation in Workshop on Tropic Antarctic Teleconnections (TATE)
Venisse Schossler (Brazil)	Research activities in Brazil, Participation in Workshop on Tropic Antarctic Teleconnections (TATE)

Sub-group Cash Flow

(From previous Delegates meeting to date)

Sub-group	Allocation	Amount spent		
		2018	2019	2020
TATE WORKSHOP			Around 824 USD	

Future plans

Planned activities in 2020 to 2022

Sub-group	Planned activity
TATE	Session in IUGG 2021
TATE	Asian Forum for Polar Sciences (AFOPS)
TATE	Tate workshop under proposed SRP Antarctic clim now

Planned use of funds for 2020 to 2022

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2021	One day TATE WORKSHOP in Malaysia with outreach program	5000	Sheeba Nettukandy Chenoli	sheeba@um.edu.my
2021	Session in IUGG	3000	Sheeba Nettukandy Chenoli	sheeba@um.edu.my
2021	Session in AfoPS	2000	Sheeba Nettukandy Chenoli	sheeba@um.edu.my
Total		10,000		

Any additional detail on funds usage and desired results/outcomes

Percentage of the budget to be used for support of early-career researchers

2020:
2021:
2022:

Percentage of the budget to be used for support of scientists from countries with developing Antarctic programmes

2020:
2021:
2022:

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End

*Please identify early-career researchers with * in first column*

Other members

First Name	Last Name	Affiliation	Country	Email
Azizan	Abu Samah	University Malaya		
David	Bromwich	Ohio State University		
Kyle	Clem	Victoria University of Wellington		
Ryan	Fogt	Ohio University		
Seong-Joong	Kim	Korea Polar Research Institute		
Sheeba	Chenoli	University Malaya		
Sebastián	Marisek	Argentina		
Jefferson C.	Simões	Universidade Federal do Rio Grande do Sul		
Francisco	Aquino	Universidade Federal do Rio Grande do Sul		
Venisse	Schossler	Universidade Federal do Rio Grande do Sul		

Please identify early-career researchers with * in first column

Additional information (optional)

Please add any more detail here that you wish, on your subgroup activities, papers published, etc.

Notable Papers

(Five to ten most notable papers – see the example below, which includes a brief statement (shaded) indicating the link to the group)

1. Moore, K.A., Smythe, P.H. & Hui, C.W., et al. 2017. Remote sensing using remotely piloted aircraft systems in Antarctica. *Frontiers in Remote Sensing* **62**, 102-136.

This work provides a comprehensive overview of developments in remote sensing based on RPAS in the Antarctic region. It was the outcome of the AG-Remote Sensing's meeting in Kuala Lumpur, October 2016.

2. Schossler, V., Simões, J.C., Aquino, F.E., Viana, D.R. 2018. Precipitation Anomalies in the Brazilian southern coast related to the SAM and ENSO climate variability modes. *Revista Brasileira de Recursos Hídricos* **23**, 10 pp.

This work provides the statistical relationship between the SAM and ENSO indices and precipitation anomalies in the long latitudinal strip of the southern coast of Brazil. It was the result of the author's doctoral thesis.

3. Schossler, V., Aquino, F.E., Reis, P.A., Simões, J.C. 2019. Antarctic circulation anomalies on the spring of 2016 as a inductor of explosive cyclogenesis in the Rio Grande do Sul. *Revista de Geografia – PPGEIO – UFJF – Special Issue – 8(2)*, 54 – 64.

This study studied how the anomalies in Antarctica in the spring of 2016 favoured a strong storm surge in the state of Rio Grande do Sul in October of the same year. The publication was the award for a successful work, the best presented at the Brazilian Climatology Seminar in 2018.

4. Moraes, F.D.S, Aquino, F.E. Mote, T.L., Durkee, J.D, Kyle, S. 2020. Atmospheric characteristics favorable for the development of Mesoscale Convective Complexes in southern Brazil. *Climate Research*, **Vol. 80**: 43-58.

This work provides a comprehensive overview of determining whether MCCs in SB are unique relative to other regions across Brazil and South America and the influence of Antarctica on subtropical extreme events. It was the outcome of the Mini Symposium 1: Tropical Antarctic teleconnections in Kuala Lumpur, August 2016.

5. Schossler, V., Aquino, F.E., Reis, P.A., Simões, J.C. 2020. Antarctic atmospheric circulation anomalies in the spring of 2016. *Theoretical and applied Climatology*. (in press).

This paper studied how the anomalies in the Antarctic atmospheric circulation in the spring of 2016 favored the simultaneous occurrence of two explosive cyclogenesis in the Southern Hemisphere. This article is the result of the work presented at SCAR 2018 in Davos, Switzerland.

6. Reis, P.A., Aquino, F.A., Schossler, V. Bernardo, R.T., Simões, J.C. 2020. Tropical-Antarctic connections obtained from rainfall stable isotope ratios of an explosive cyclone in southern Brazil. *Advances in Polar Science* (in press).

This paper presents the results of the study that investigated the antarctic origin of the stable isotope of rain from an explosive cyclogenesis in 2018. This article is the result of the work presented at TATE 2019 in Kuala Lumpur, Malaysia.

7. Linkage of Antarctic Sea Ice Extent with the Indian Summer Monsoon Rainfall (Under review).

Major collaborations your Science Group has with other SCAR groups and with organisations/groups beyond SCAR

(Numbered list of substantive collaborations)

Within SCAR

1. X

Outside SCAR

1. X

Outreach, communication and capacity-building activities

Brief highlights of any activities undertaken since the SCAR Delegates meeting in 2018.

SCAR fellowship reviewers

Please list one or more people (name and email address) from your group who would be willing to serve as reviewers for the next few years, along with 1-3 keywords on their principal expertise.

First Name	Last Name	Email	Principal Expertise
Sheeba	Chenoli	sheeba@um.edu.my	Polar-tropical teleconnection, Antarctic meteorology and climatology
Venisse	Schossler	venisse.schossler@ufrgs.br	Polar-tropical teleconnection; cyclogenesis, SAM, ENSO. Sea Level Rise