



SCAR Sub-Group

SG / SC

Person  
Responsible:

TATE

PS

Sheeba Chenoli

## XXXVII SCAR Delegates Meeting

India, September 2022

# Action Group on Tropical Antarctic Teleconnections (TATE)

## 2020-22 Report

### Summary

#### Report Author(s)

Sheeba Chenoli, Malaysia

#### Summary of activities from 2020-22

The Tropical Antarctic Teleconnections (TATE) group sponsored a half-day workshop on TATE, which was held on 20 June 2019 in conjunction with 9th Malaysian International Seminar on Antarctica. A total number of 6 papers were presented at the workshop. Details as given below:

1. **Prof. Francisco Aquino:** Synoptic and isotopic influence of tropical Antarctic teleconnections in two consecutive explosive cyclones in Southern Brazil.
2. **Prof. Seong-Joong Kim:** The recent weakening of the southern stratospheric polar vortex and its impact on the surface climate over Antarctica.
3. **Prof. Rui Mao:** Virtual The interannual linkage between the Antarctic Oscillation and tropical cyclone activity in the Southern Indian Ocean
4. **Prof Ryan Fogg:** Extratropical Southern Hemisphere Recorded Synchronous Pressure Variability in the Early 20th Century
5. **Dr Ing. Sebastián Marinsek:** Ongoing negative mass balance low Virtual precipitation in Bahía de Diablo Glacier, Antarctic Peninsula
6. **Dr Jonathan Willie:** Antarctic Atmospheric River Life Cycles

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).

#### Summary Budget 2021 to 2024

	2021	2022	2023	2024
	Spent	Allocated	Request	Request
(US\$)	0	4000	5000	5000

## Progress to date

### Sub-group Outcomes Summary

Sub-group	Activity/Outcome/Benefit/Achievement
TATE	The Tropical Antarctic Teleconnections (TATE) group sponsored a half-day workshop on TATE, which was held in conjunction with the 8th (2019/in person) and the 9th Malaysian International Seminar on Antarctica (2021/online). A total number of 12 papers were presented at the workshop.
TATE	<p><b>ISAES Antarctic climate teleconnection session</b>            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</p>
TATE	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 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.
TATE	Fieldwork in Antarctica (summer 2019/2020) to carry out snow sampling in a shallow pit.

### Sub-group Cash Flow

(Since previous report to Delegates in 2020)

Sub-group	Allocation	Amount spent		
		2020	2021	2022
TATE	4000	0	0	0

## Future plans

### Planned activities in 2022 to 2024

Sub-group	Planned activity
2022	Joint Publication Workshop/networking/visit
2023	Workshop / Inviting speakers/ECR activities during the workshop/symposium
2024	ECR activities during SCAR meetings/Annual meeting
2025	Joint Publication/ Book/ECR activities meeting/symposium// Inviting speakers

### Planned use of funds for 2022 to 2024

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2022	Joint Publication Workshop / networking / visit	5000	Sheeba Chenoli	sheeba@um.edu.my
2023	Workshop / Inviting speakers / ECR activities during the workshop / symposium	5000	Sheeba Chenoli	sheeba@um.edu.my
2024	ECR activities during SCAR meetings / Annual meeting	5000	Sheeba Chenoli	sheeba@um.edu.my
2025	Joint Publication / Book / ECR activities meeting / symposium / Inviting speakers	5000	Sheeba Chenoli	
<b>Total</b>		<b>20000</b>		

### Any additional detail on funds usage and desired results/outcomes

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

2022: 10%

2023: 20%

2024: 20%

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

2022: 30%

2023: 20%

2024: 20%

## Membership

### Leadership

Role	First Name	Last Name	Affiliation	Country	Primary Language	Email	Date Started
Chair	Sheeba	Chenoli	University Malaya	Malaysia	English	sheeba@um.edu.my	
Secretary	Francisco	Aquino	Universidade Federal do Rio Grande do Sul	Brazil	Portuguese		

*(Please identify early-career researchers with \* in first column)*

### Other members

First Name	Last Name	Affiliation	Country	Primary Language	Email
Azizan	Abu Samah	University Malaya	Malaysia	English / Malay language	
David	Bromwich	Ohio State University	USA	English	
Kyle	Clem	Victoria University of Wellington	New Zealand	English	
Fadazil		University Malaya	Malaysia	English / Malay language	
Seong-Joong	Kim	Korea Polar Research Institute	Korea	English / Korean	
Sheeba	Chenoli	University Malaya	Malaysia	English	
Sebastián	Marisek	Argentina	Argentina		
Jefferson C.	Simões	Universidade Federal do Rio Grande do Sul	Brazil	Portuguese / English	
Francisco	Aquino	Universidade Federal do Rio Grande do Sul	Brazil	Portuguese / English	
Venisse	Schossler	Universidade Federal do Rio Grande do Sul	Brazil	Portuguese / English	

*(Please identify early-career researchers with \* in first column)*

## Additional information (optional)

### Notable Papers

1. S.S. Atiqah Azhar, S.N. Chenoli, A.A. Samah, S.-J. Kim. The linkages between Antarctic sea ice extent and Indian summer monsoon rainfall. *Pol. Sci.*, 100537 (2020), 10.1016/j.polar.2020.100537
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 – PPGeo – 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*.  

This paper studied how the anomalies in the Antarctic atmospheric circulation in the spring of 2016 favored the simultaneous occurrence of two explosive cyclogeneses 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*.

**Direct support from outside organizations received for your activities**

1. University Malaya - *substantive in-kind support*
2. Sultan Mizan Antarctic Research Foundation - *substantive in-kind support*

**Outreach, communication and capacity-building activities**

PhD/Masters students working on TATE themed projects. Financially supported ECR during the TATE workshop.

**Contributions to equality, diversity, and inclusion (EDI)**

*(Any specific actions the group has undertaken to advance EDI within the group and/or within SCAR)*

**SCAR fellowship reviewers**

First Name	Last Name	Email	Principal Expertise
Sheeba	Chenoli	sheeba@um.edu.my	Polar-tropical teleconnection, Antarctic meteorology and climatology