ACTIVITY REPORT:

SATIO-TCS

(Stratospheric And Tropospheric Influences On Tropical Convective Systems)

Activity leads:

Peter Haynes, University of Cambridge, UK (2017-)

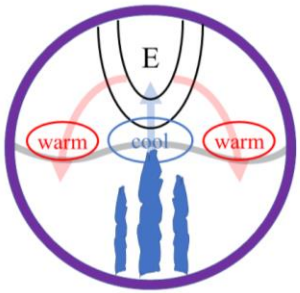
Shigeo Yoden, Kyoto University, Japan (2017-)

Peter Hitchcock, Cornell University, USA (2021-)

Takatoshi Sakazaki, Kyoto University, Japan (2021-)

28th SPARC SSG meeting

Part II: Activity reporting



SATIO-TCS
Stratospheric and Tropospheric Influences on Tropical Convective Systems

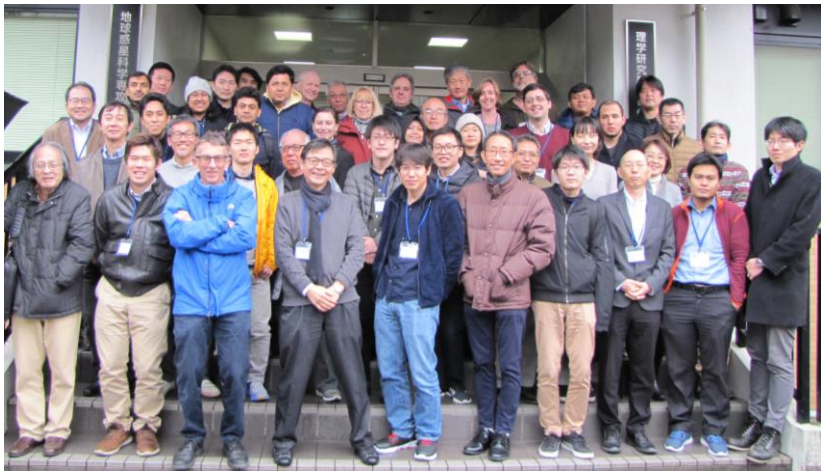
February 2021

Activity overview

- Observational, global modeling, and limited-area cloud-resolving modeling studies for better understanding the tropical stratosphere-troposphere coupling (TSTC) and implications for weather and climate prediction
- Focus on stratospheric influences on the multi-scale dynamics of tropical convective systems

Progress and achievements

- SATIO-TCS joint workshop on stratosphere-troposphere dynamical coupling in the tropics
  - held in Feb. 21 - 25, 2020, at Kyoto University, Kyoto, Japan
  - 57 participants, including 21 from abroad (in addition, 10+ people had registered but could not come due to the COVID-19 pandemic)
  - see Yoden et al. (2020, *SPARC Newsletter*) for more details

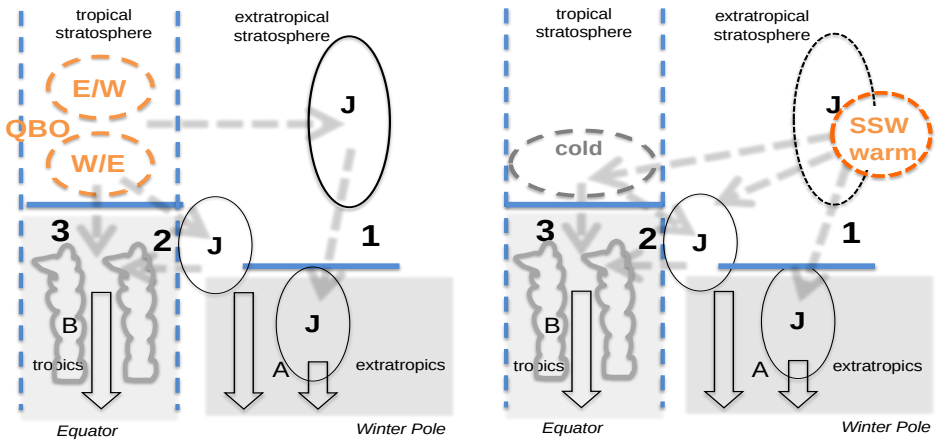


Progress and achievements

- Review articles:

Hitchman, M., S. Yoden, P. Haynes, V. Kumar, and S. Tegtmeier, 2021: An observational history of the direct influence of the stratospheric Quasi-Biennial Oscillation on the tropical and subtropical upper troposphere lower stratosphere. *J.Meteor.Soc.Japan*, **99**, in press

Haynes, P., P. Hitchcock, M. Hitchman, S. Yoden, H. Hendon, G. Kiladis, K. Kodera, and I. Simpson, 2021: Stratosphere-troposphere coupling in the tropics. *J.Meteor.Soc.Japan*, (under revision with minor comments)



Progress and achievements

- Online capacity building activity

  Kyoto University – Bandung Institute of Technology Biweekly Webinar Series "Extreme Weather in Changing Climate in the Maritime Continent and its Societal Impacts", Phase I: Oct.-Dec. 2020. http://webinarseries.meteo.itb.ac.id/

Collaborations

- The core community of SATIO-TCS remains quite small, though the range of potentially interested groups on the subject has increased over the last 3 years.
- There are existing and potential future connections to other communities (typically larger and more project-oriented observational and numerical modelling groups);
  in SPARC (QBOi, SNAP, S-RIP, DynVar, FISAPS, Gravity Waves, CCMI, ACAM, OCTV-UTLS, …), and outside SPARC (WMO: S2S/WWRP, Monsoon Panel, RCEMIP/WGNE, …, WCRP: GeoMIP/WGCM, …).

Future plans

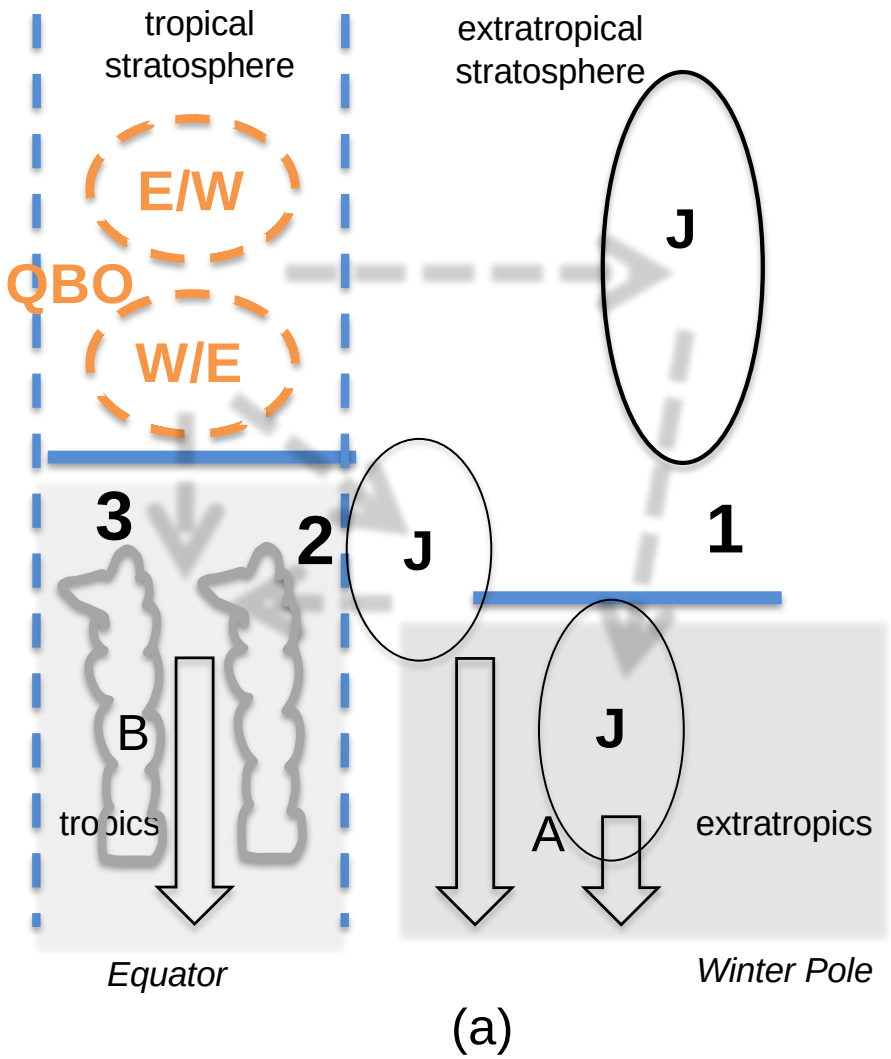
- The importance of TSTC is becoming increasingly recognized, but is not yet high on the agenda of the larger project-oriented groups.
- It is still the case that outside of SATIO-TCS the stratosphere-focused and tropical-troposphere-focused communities remain largely disconnected.
- Therefore there is a continuing need/opportunity for SATIO-TCS as an activity
  to promote the study of TSTC and
  to facilitate connection between different research communities.

Future plans

- (Views of new Activity Leaders need to incorporated.)
- Communication via SATIO-TCS Webpage, to provide new information (science, meetings, etc) and archives of relevant publications and seminar materials. (A regular SATIO-TCS Webinar Series could be considered.)
- Organisation of sub-sessions on related science in AMS, AGU, EGU, AOGS, IUGG/IAMAS, … meetings.
- Strong priority on promotion of activities in liaison with other groups (meetings, coordinated experiments, etc), with stand-alone SATIO-TCS meetings on special topics when there is a particular need.

Additional slide

- Haynes et al. (2021)



Emerging issues

- Issues requiring the immediate attention of the SPARC SSG, e.g.
  - leadership changes:
    - Peter Haynes (University of Cambridge, UK) and Shigeo Yoden (Kyoto University, Japan) are current leaders.
    - Peter Hitchcock (Cornell University, USA) and Takatoshi Sakazaki (Kyoto University, Japan) have agreed to join as activity leaders giving long-term viability.
  - Workshop support requests
    - none at present – 2022 onwards
  - Scientific guidance
    - Input required from SPARC SSG
  - Any other issues that have arisen within your activity