Top Highlights

1. New CORDEX FPS in response to the call of the TPE was approved by CORDEX on 17 October, 2019 (PI: Deliang Chen from Sweden): 21 Partners from Austria, China, India, Japan, Nepal, Norway, Pakistan, Spain, UK, US.

2. TPE has identified high resolution climate modeling over the Tibetan Plateau as a priority area.

3. Non-Cumulus Parameterization experiment captures better the diurnal cycle of precipitation frequency.

4. MSKF experiments better reproduced the diurnal cycle of precipitation intensity.

5. Kilometer-scale models enable enhanced process understanding in often poorly observed mountain regions.

6. High resolution topography helps to understand the moisture transport process to TP.

7. There is a lack of knowledge about connection between organized convection between synoptic background condition and surface features.

8. Need additional parameters from the regional analysis to get clear relationship between meso scale convective system and extreme precipitation.

9. Small scale forcing captures the dryness-witness contrast between northwest and southwest TP.

10. Nearly 2km high resolution simulations produce better result compare to 10km and 30km resolutions.
Additional Notes and Takeaways

Invited Speaker 1: Tandong Yao

- TPE is focusing on water and human activity, particularly impacts of changing Asian water towers and cooperation between scientists and policy makers in the view of adaptation strategy.
- TPE concentrates in Asia water towers, conservation process phases and improve the function of ecology buffer
- Upcoming TPE event
  November 29-30, TPE workshop, Frankfurt, Germany

Invited Speaker 2: Andreas Prein

- Mountains are warming faster than land-atmosphere.
- Kilometer-scale models are needed to stimulate mountain regions.
- Capturing Realistic mountain structure is very important for understanding the water cycle.
- Increase more observations to reduce the observation bias and improve the performance of kilometer-scale models
- High resolution model can realistically stimulate snow back dynamics.

Speaker 1: Shiori Sugimoto

- Cloud-resolving simulation supports to understand the diurnal cycle in precipitation and physical process
- The topography resolution affects the diurnal cycle in precipitation over the Himalayas
- Afternoon precipitation increases in the lower topography at the mid-altitude of Himalayas. Midnight precipitation decreases at the lower latitude of Himalayas.
- High resolution topography stimulation supports to understand the moisture transport process to TP.
Speaker 2: Yahhang Gao

- Largest Bias and inconsistent in reanalysis and GCM over TP region.
- Very less observation stations are in eastern part of Himalayas.
- Some precipitation datasets have more uncertainty in the TP compared to CMA station records.
- DDM generates better show cover fraction than three merged precipitation runs.
- The outputs of Noah-MP run which driven by merged precipitation dataset underestimate the show cover fraction in the central and eastern TP, Particularly in the Brahmaputra Grand Canyon.

Speaker 3: Xu Zhou

- High resolution models can stimulate the less air water vapor to interior plateau. It indicates the precipitation bias in the model.
- High resolution models identify the air water vapor transport.
- Difficulties exists in simulating the precipitation at the southern slope of TP.

Speaker 4: Tinghai Ou

- Regional Dynamic downscaling method is required.
- Investigate impact of CUs on the simulations of summer rainfall diurnal cycle over the TP.
- No – Cumulus Scheme works fine at 9km resolution.
- MSKF experiments reproduce the better diurnal cycle of precipitation intensity.
- Simulations with Cumulus Scheme overestimate the summer hourly precipitation frequency compared to observation.

Speaker 5: Jianpang Tang

- WRF with high resolution stimulates the surface wind in complex terrain.
- The WRF stimulates the spatiotemporal variations of annual mean precipitation and surface air temperature over TP without convection scheme evidently.
- Large warm bias presents precipitation over eastern IP and also more cold bias presents in temperature over western IP.
Speaker 6: Kun Yang

- Established 55 newly constructed rainfall observation network.
- Representing complex terrain, lake, snow and land air interactions is crucial in the model.
- AsiaPEX supports to collect the data from in-situ, model evaluation and process studies.
- There are thousand lakes on the third poles. Lake-air water vapor/heat and momentum exchanges must be expressed well.

Speaker 7: Deliang Chen

- Assess the ability of RCM models through inter-comparison of models.
- Configuring models in variation combination of aspects, in stimulating convective and stratiform precipitation assist to estimate the performance of RCM models.
- Elaborate the studies about understanding of physical process behind the variability of convective precipitation and its contributions over the TP.

General Discussion

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