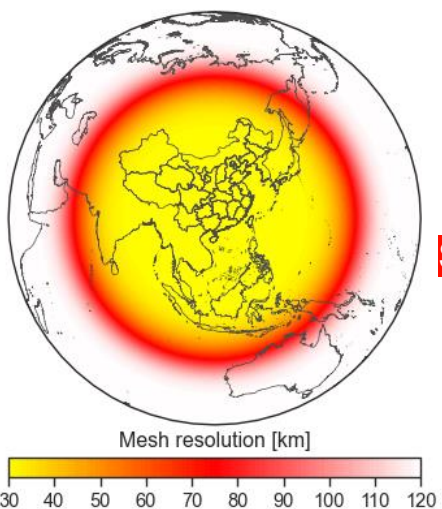


Motivation

- Variable-resolution global climate models (VR-GCMs) can reach high resolution over specific regions and coarsen the mesh away from the refinement region to reduce the number of grid points.
- Few have utilized the VR-GCMs refined over the large East Asia domain with resolution at ~25 km scale and explored the VR-GCMs' performance in simulating the precipitation at climate scale.

30-120 km MPAS-VR mesh



Refined 30 km

Smooth transition

Coarse 120 km

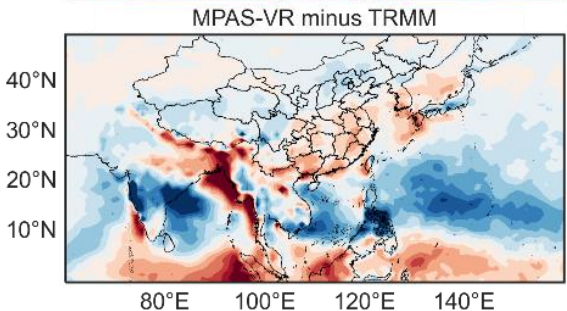
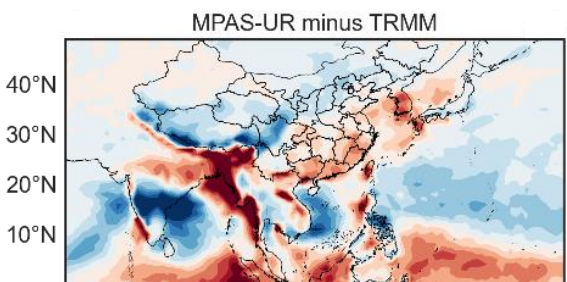
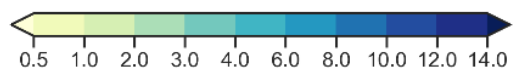
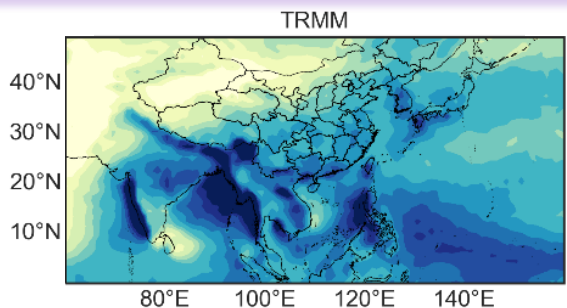


Fig 1. JJA mean precipitation rate (unit: mm d⁻¹)

Results

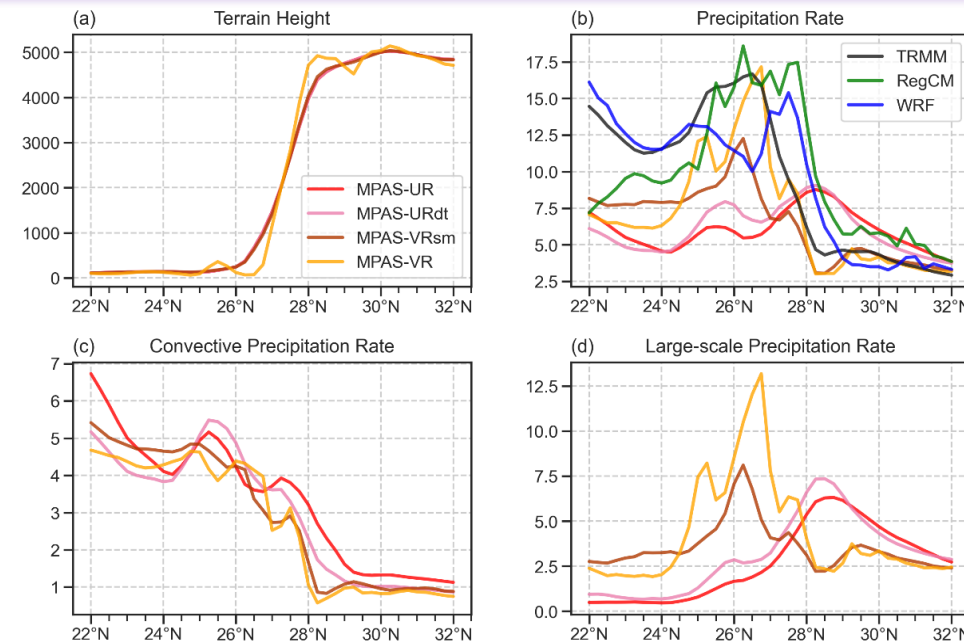


Fig 2. The meridional transects zonally averaged along 86-93°E in JJA for terrain height (a; unit: m), precipitation rate (b; unit: mm d⁻¹), convective precipitation rate (c; unit: mm d⁻¹) and large-scale precipitation rate (d; unit: mm d⁻¹)

