



Asymmetry of tropical precipitation change under global warming

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A clear trend of tropical precipitation changes induced by global warming is found in hemispherical averages of most climate model simulations as well as from observation. It is observed that in response to global warming, an asymmetric pattern develops between tropical precipitation changes in the northern and southern hemispheres, and this asymmetry is locked with the seasonal cycle of tropical convection. In boreal summer (winter), the northern hemispherical average departure from tropical mean increases (decreases), while the departure of the southern hemispherical average decreases (increases). This implies an enhanced seasonal precipitation range between rainy and dry seasons and an increased precipitation difference between northern and southern hemispheres.