Precipitation Buoyancy Diagnostics

The precipitation-buoyancy diagnostics module relates precipitation to a measure of lower-tropospheric averaged buoyancy and its two components: a measure of lower-tropospheric Convective Available Potential Energy ($CAPE_L$) and lower-tropospheric sub saturation ($SUBSAT_L$). The module evaluates the model precipitation sensitivity to thermodynamic variations by conditionally averaging tropical oceanic precipitation by $CAPE_L$ and $SUBSAT_L$, and visualizing the result in 3D as a precipitation surface. A metric called γ_{Tq} assesses the $CAPE_L$ vs. $SUBSAT_L$ precipitation sensitivity. This metric is used to assess model performance compared to observations and a suite of CMIP6 models.

Version & Contact info

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