



A resolution dependence of equatorial precipitation activities represented in a general circulation model

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Numerical experiments with an aqua planet are performed to investigate dependence of the model representation of the equatorial precipitation activities on horizontal and vertical resolution. The numerical model utilized is AFES, an AGCM optimized for the Earth Simulator. With a resolution of horizontal truncation at T39 and 48 vertical levels (referred to as the standard run), there appear precipitation disturbances of the scale of several grids, which are advected westward by the background wind. When the vertical resolution increased to 96 levels from the standard run, precipitation tends to have weak intensity but be widely distributed, and the westward propagating grid-scale disturbances are rarely observed. When the horizontal resolution increased to T319 from the standard run, a hierarchical structure appears. A large-scale eastward moving precipitation structure is superimposed on a small-scale westward moving structure.