Convection has to be parameterized in contemporary global models due to its small spatial scale. In this work, we address some of the uncertainties arising from the four different convective parameterization schemes in a Flexible Global Ocean-Atmosphere-Land System models (FGOALS). Relatively large differences are found in the simulated climatological mean precipitation patterns, sea surface temperature (SST), the seasonal cycle of the equatorial SST and the amplitude and period of ENSO. The role of closure assumption and convective momentum transport are discussed.