

Evaluation of cloud forcing response in the Southeastern Pacific marine subsidence regionAnita Rapp[†];[†] Texas A&M University, USALeading author: arapp@tamu.edu

The southeastern Pacific marine stratocumulus region is dominated by the radiatively important marine boundary layer clouds, which have been linked to the large cloud feedback uncertainties between general circulation models (GCMs). An analysis of the response of cloud radiative forcing (CRF) to sea surface temperature (SST) is performed in the subsidence-dominated marine stratocumulus region of the southeastern Pacific in support of the CMIP5. From the AMIP simulations of the coupled ocean-atmosphere GCMs, the CRF sensitivity to SST will be calculated following Bony and Dufresne (2005). Monthly anomalies in CRF and SST will be computed by subtracting the mean seasonal cycle. The response of clouds to changes in the environment is the calculated CRF sensitivity, which is determined by the change in CRF with the change in SST over the period of simulation. The net, shortwave, and longwave CRF sensitivity estimates from available GCM simulations will be computed. From these calculations, we can evaluate the current range of cloud sensitivity estimates in the AMIP climate simulations performed in support of the IPCC Fifth Assessment Report.