Supporting Information for "Land dominates the regional response to CO2 direct radiative forcing"

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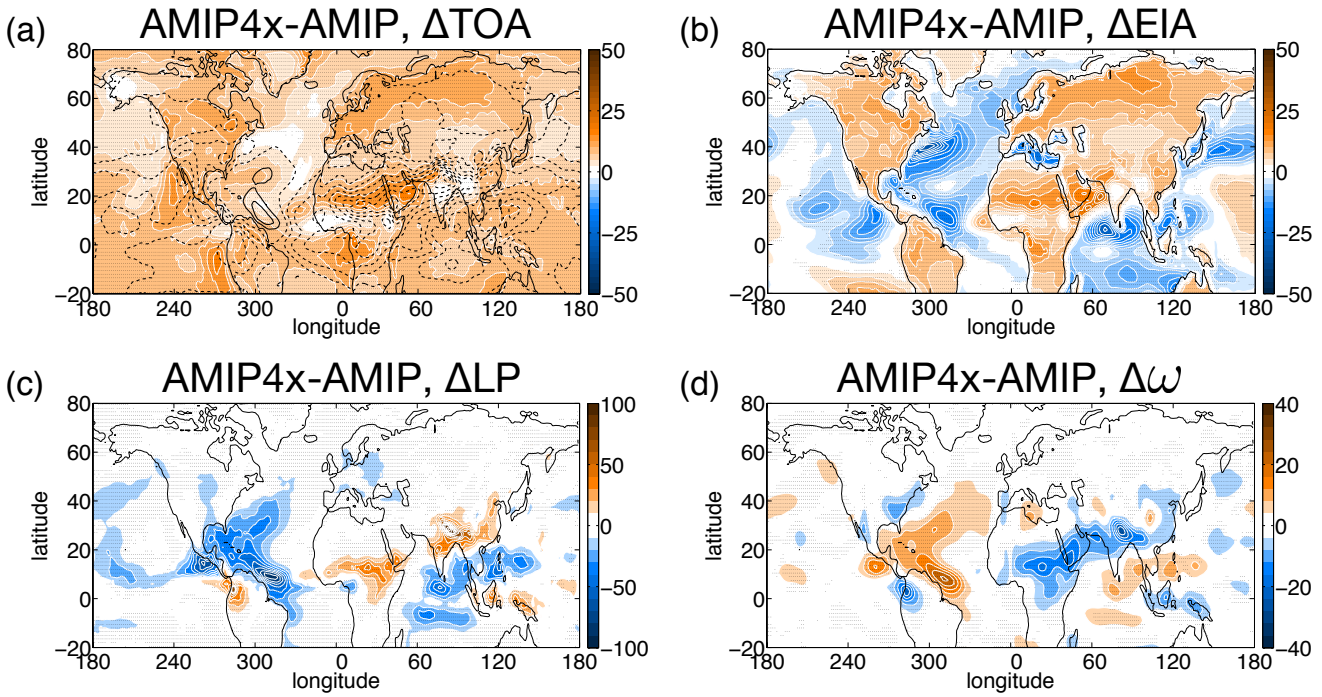

Figure 1. Response of summertime (June, July and August) (a) TOA radiation (shading) and OLR (contours, negative dashed), (b) EIA, (c) precipitation (weighted by the latent heat of vaporization), and (d) 500 hPa ω to direct radiative forcing in the CMIP5 ensemble. Stippling indicates where $> 80\%$ of the models agree on the sign of the response. Contour interval is (a-c) 2.5 Wm^{-2} and (d) 4.0 hPa day^{-1}.

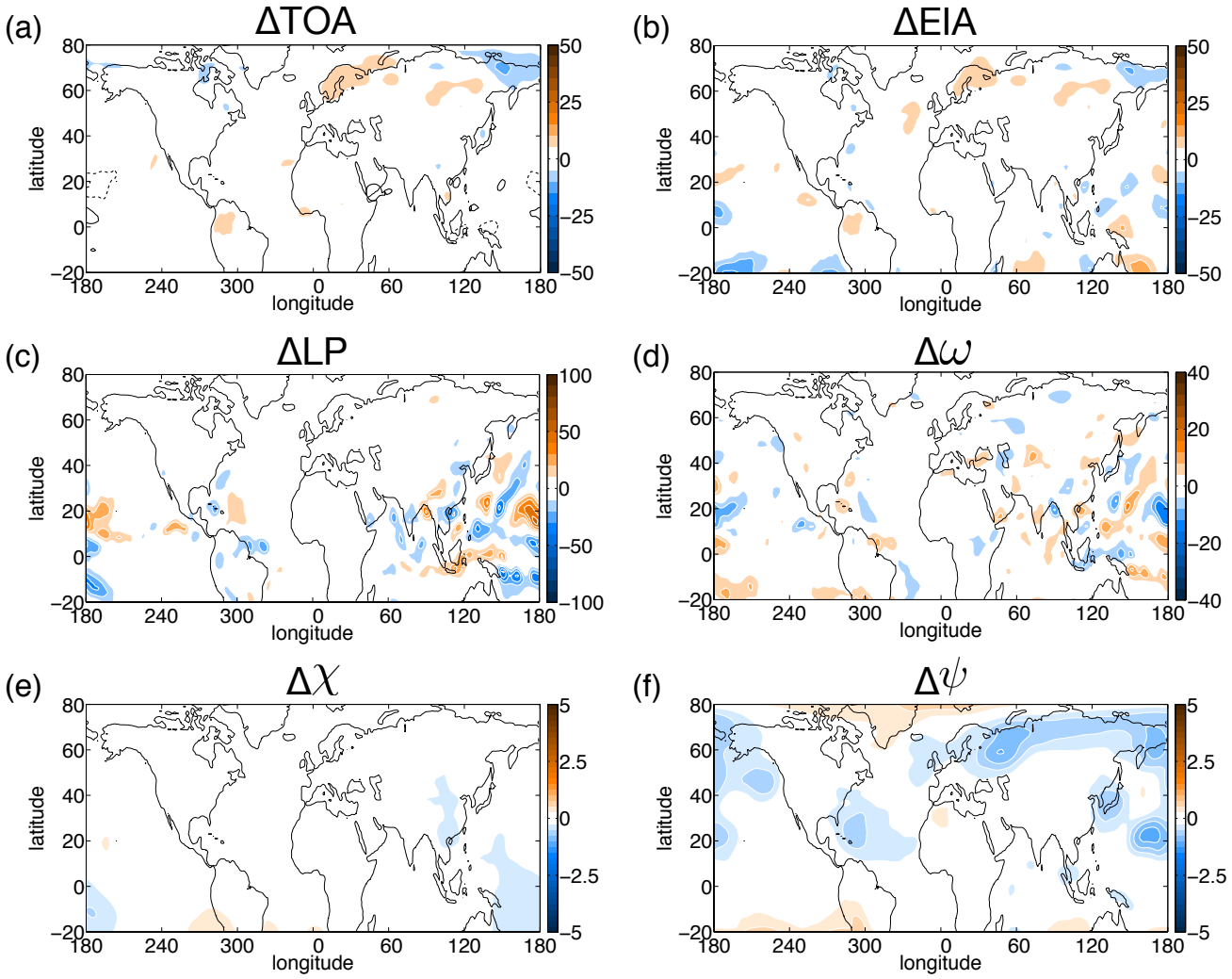

Figure 2. Residual response to increased CO2 over ocean and land (difference between AMIP4x-AMIP and the sum of AMIP4xCO2_O-AMIP and AMIP4xCO2_L-AMIP) for (a) TOA radiation (shading) and OLR (contours, dashed negative), (b) EIA, (c) precipitation (weighted by the latent heat of vaporization), (d) 500 hPa ω, 925 hPa (e) velocity potential and (f) stream-function. Contour interval is (a-c) 2.5 Wm^{-2}, (d) 4.0 hPa day^{-1}, and (e,f) 2.5e5 $\mathrm{m}^2\mathrm{s}^{-1}$ (shading) and 2.0e6 $\mathrm{m}^2\mathrm{s}^{-1}$ (black contours).

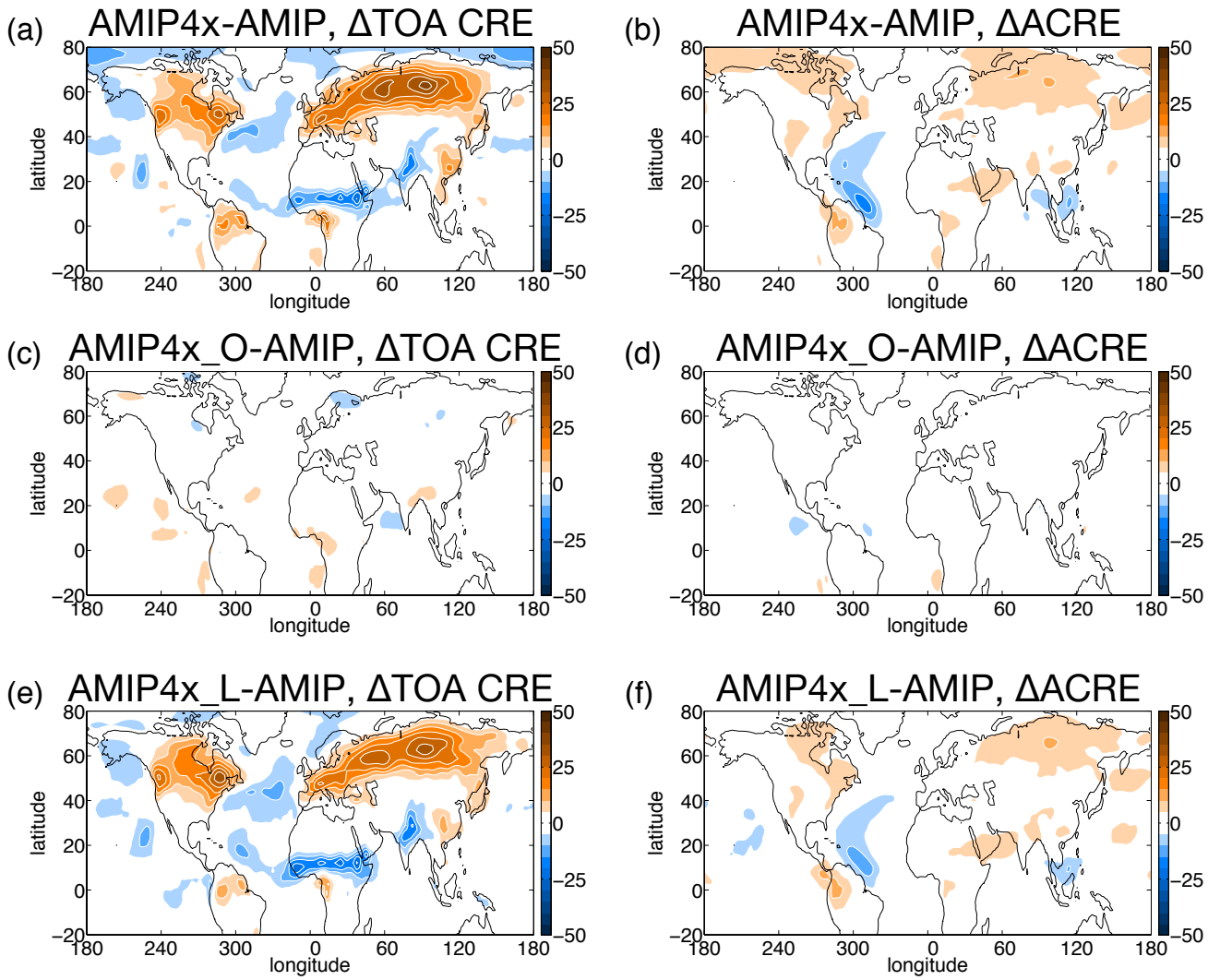

Figure 3. Response of summertime TOA cloud radiative effect (left) and atmospheric cloud radiative effect (right) in response to increased CO2 everywhere (top), ocean direct radiative forcing (middle) and increased CO2 over land (bottom). Contours as in Fig. 1.

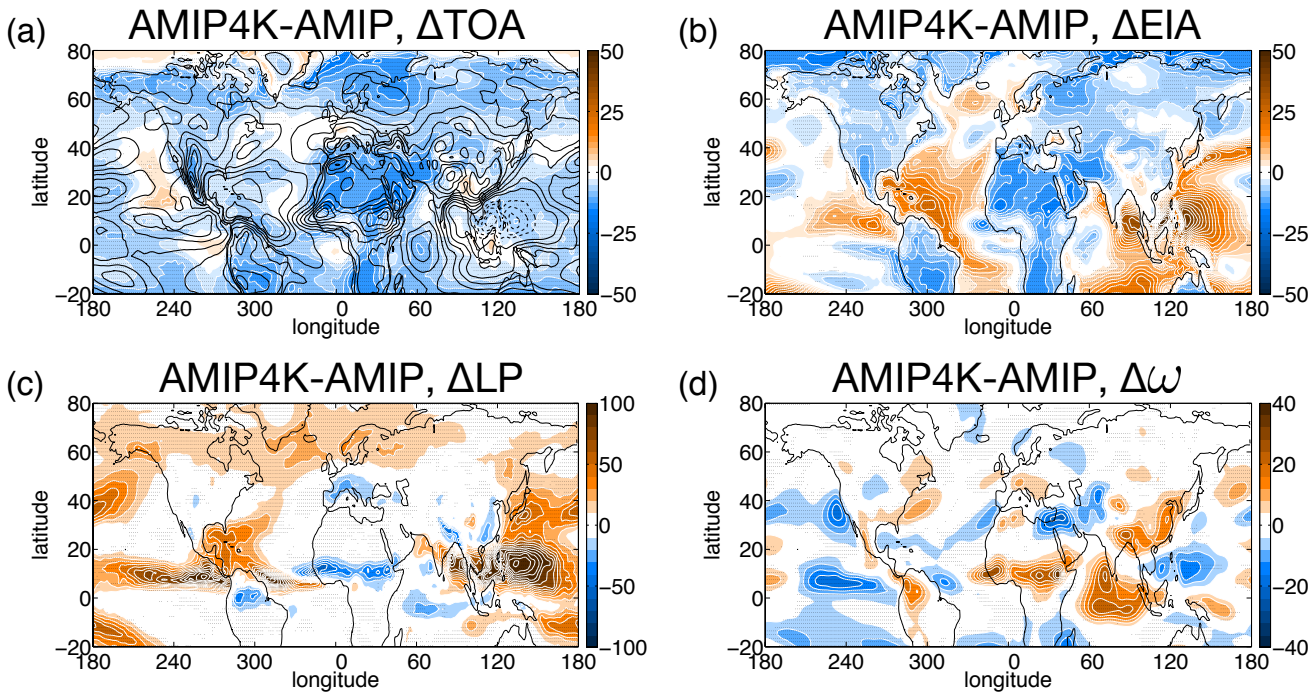

Figure 4. Response of summertime (a) TOA radiation (shading) and OLR (contours, negative dashed), (b) EIA, (c) precipitation (weighted by the latent heat of vaporization), and (d) 500 hPa ω to indirect SST warming by 4 K in the CMIP5 ensemble. Stippling and contours as in Fig. 1.

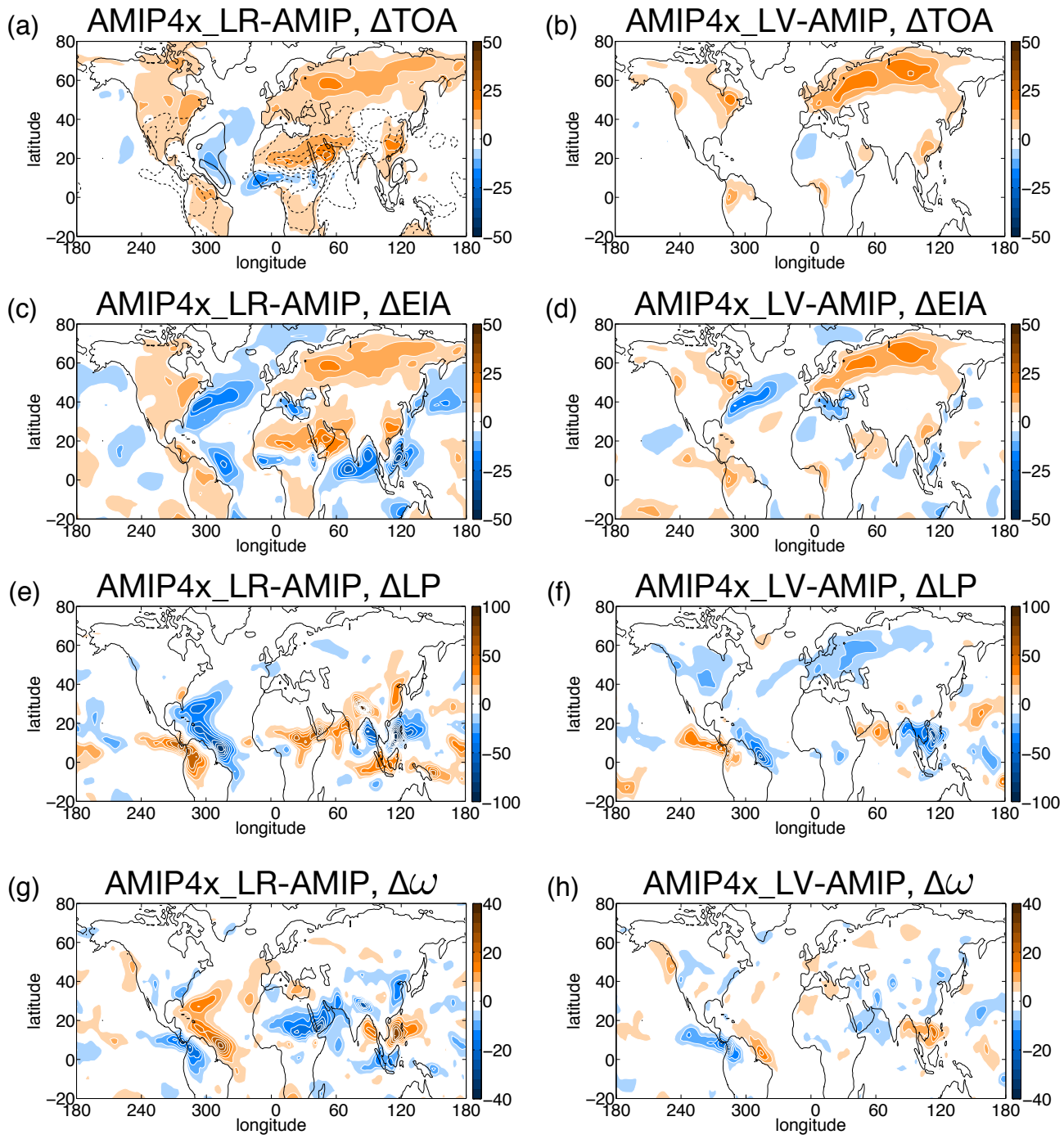

Figure 5. Radiative (left) and vegetation (right) contributions to the response of summertime (a,b) TOA radiation (shading) and OLR (contours), (c,d) EIA, (e,f) precipitation (weighted by latent heat of vaporization), and (g,h) 500 hPa ω to increased CO2 over land in the MPI AGCM. Contour interval is (a-f) 2.5 Wm^{-2}, (g,h) 4.0 hPa day^{-1}.

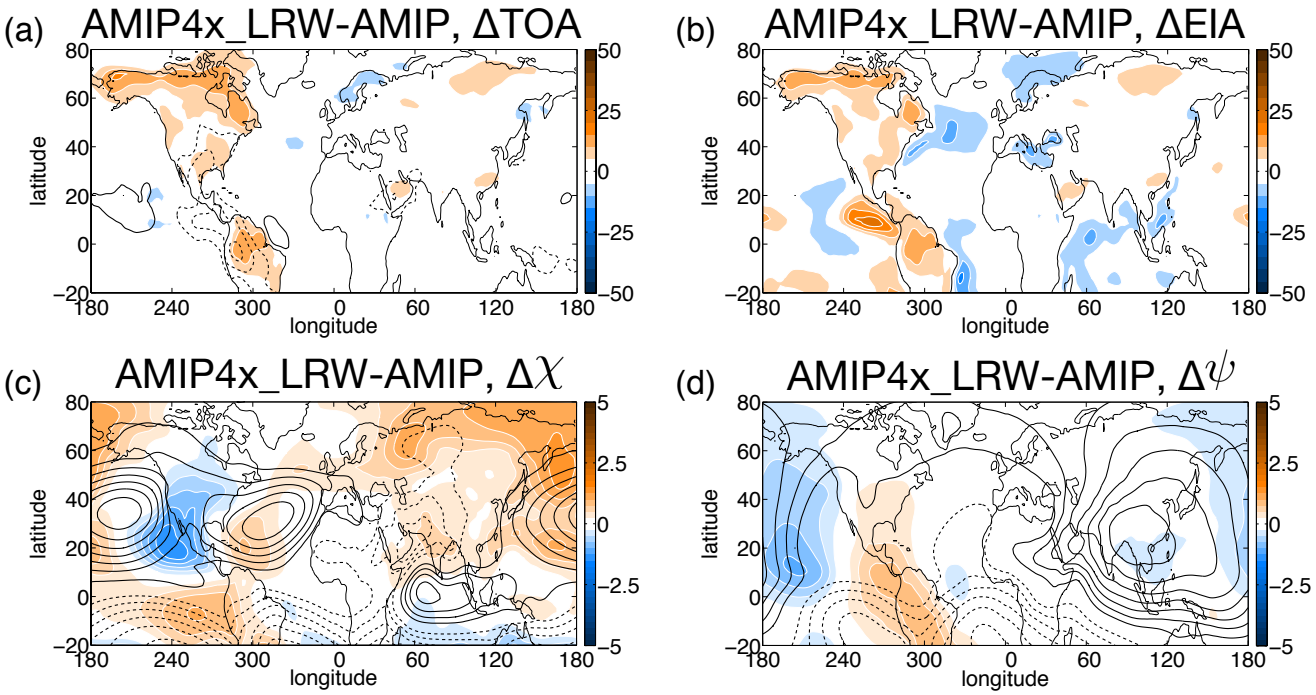

Figure 6. Response of summertime (a) TOA radiation (shading) and OLR (contours), (b) EIA, (c) precipitation (weighted by latent heat of vaporization), 925 hPa (c) velocity potential and (d) streamfunction to increased CO2 over western hemisphere land in the MPI AGCM. Contouring as in Fig. 3.