

Supplementary Materials

Gross primary production and Ecosystem Respiration are calculated for dry years (JJAS of 2003, 2007, and 2010) and wet years (JJAS of 2006, 2008, 2011, and 2012), respectively, by the CASA biogeochemical model. Results are shown in Fig. S1 and Fig. S2. We also estimate mean CO₂ biomass burning and fossil fuel emissions during dry year (JJAS of 2003, 2007, and 2010) and wet years (JJAS of 2006, 2008, 2011, and 2012). Results are shown in Fig. S3 and Fig. S4.

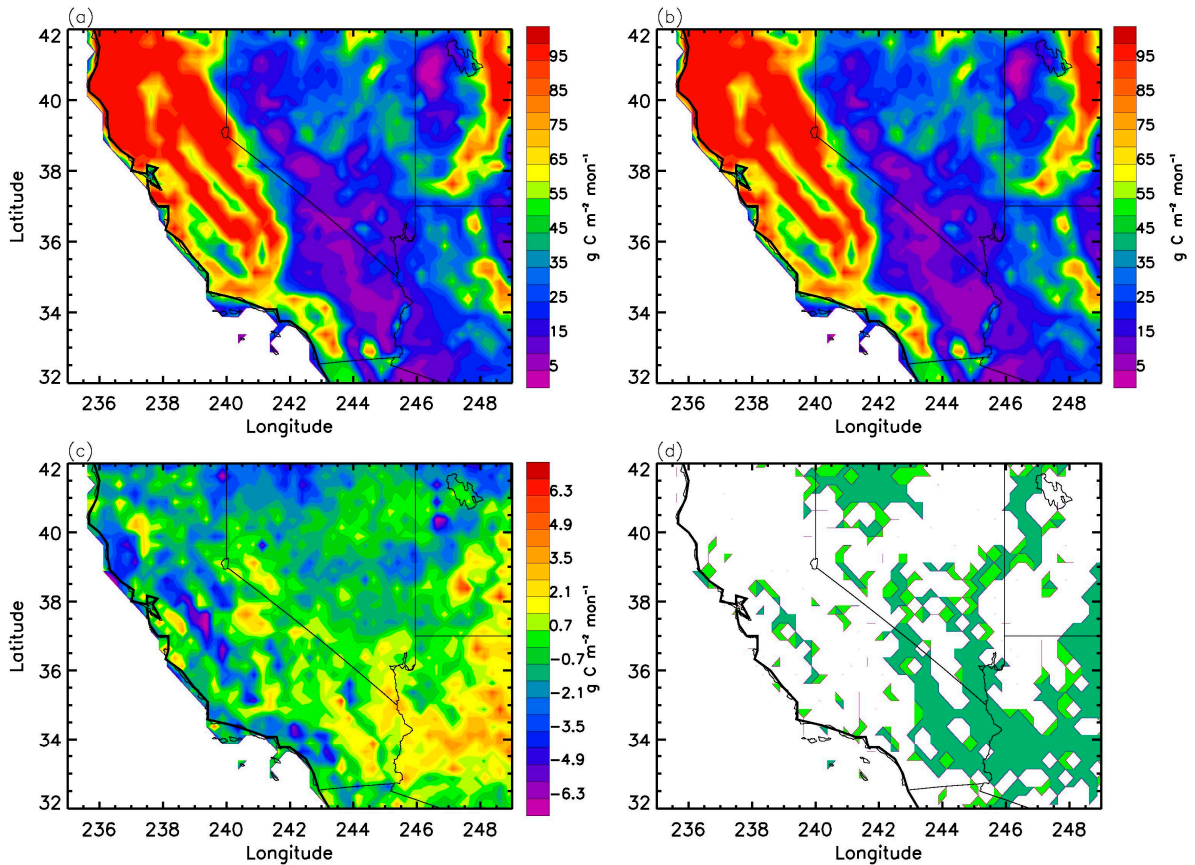


Figure S1: (a) The mean value of Gross Primary Production (GPP) in dry years (JJAS of 2003, 2007, and 2010), (b) The mean value of GPP in wet years (JJAS of 2006, 2008, 2011, and 2012), (c) GPP differences between the dry and wet years. (d) GPP differences within 5% significance level and 1% significance level are highlighted in light green and dark green. Units for GPP are g C m⁻² mon⁻¹ in (a)-(c).

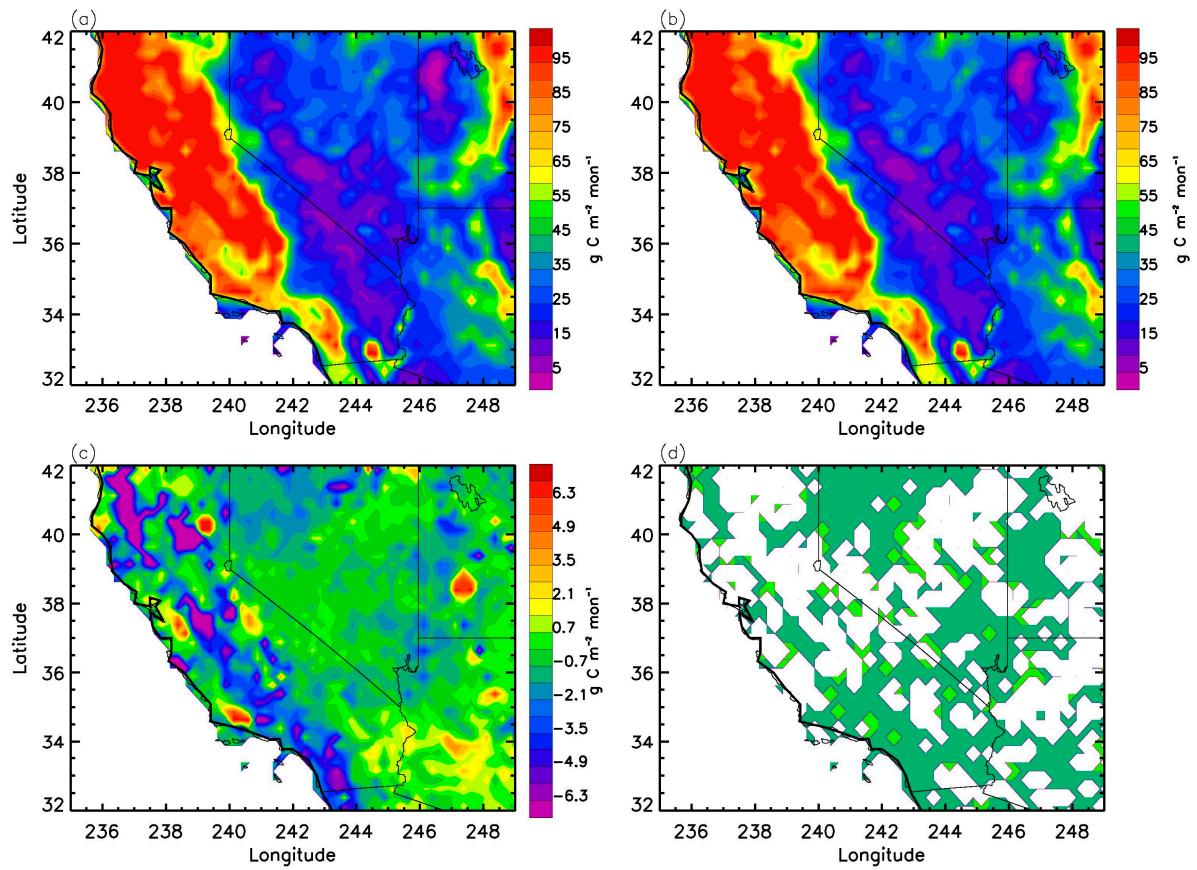


Figure S2: (a) The mean value of Ecosystem Respiration (R_e) in dry years (JJAS of 2003, 2007, and 2010), (b) The mean value of R_e in wet years (JJAS of 2006, 2008, 2011, and 2012), (c) R_e differences between the dry and wet years. (d) R_e differences within 5% significance level and 1% significance level are highlighted in light green and dark green. Units for R_e are $\text{g C m}^{-2} \text{mon}^{-1}$ in (a)-(c).

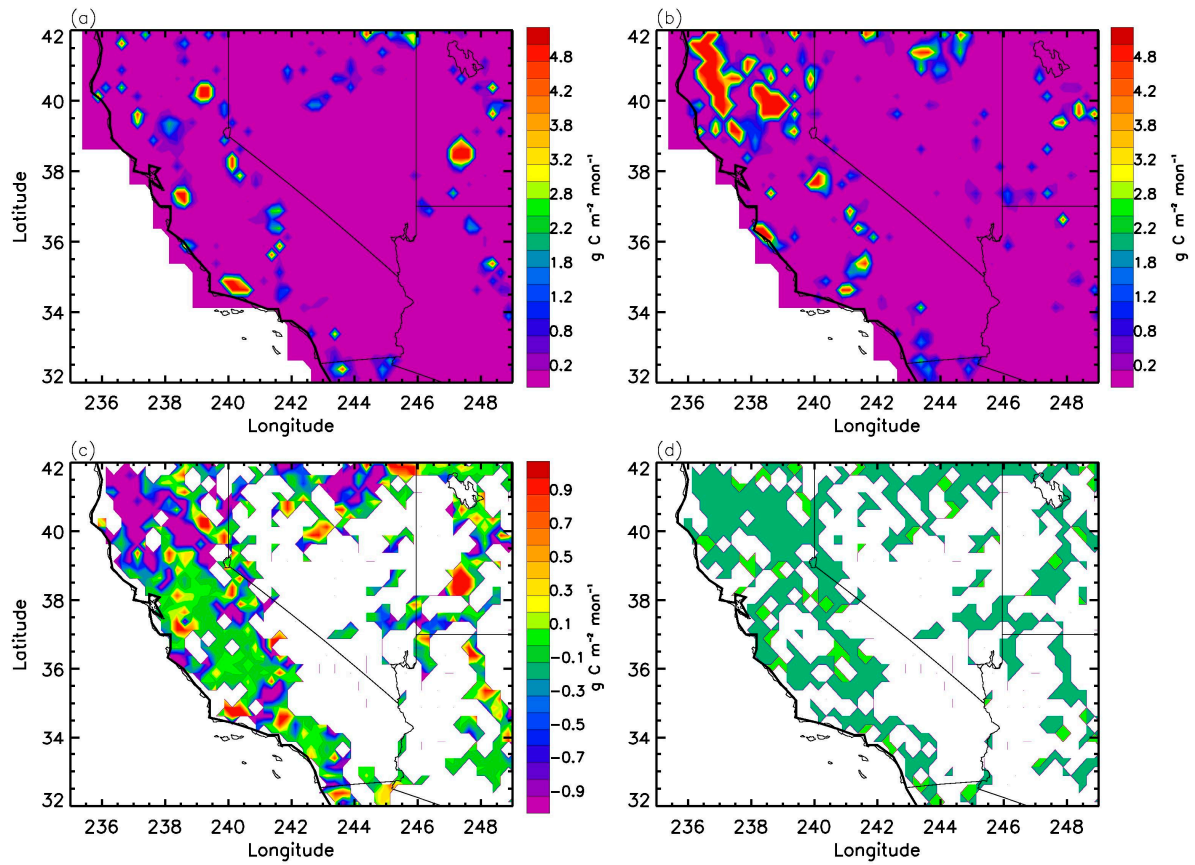


Figure S3: (a) The mean value of biomass burning, from GFEDv4.1, in dry years (JJAS of 2003, 2007, and 2010), (b) The mean value of biomass burning in wet years (JJAS of 2006, 2008, 2011, and 2012), (c) Biomass burning differences between the dry and wet years, (d) Biomass burning differences within 5% significance level and 1% significance level are highlighted in light green and dark green. Units for biomass burning are $\text{g C m}^{-2} \text{ mon}^{-1}$ in (a)-(c).

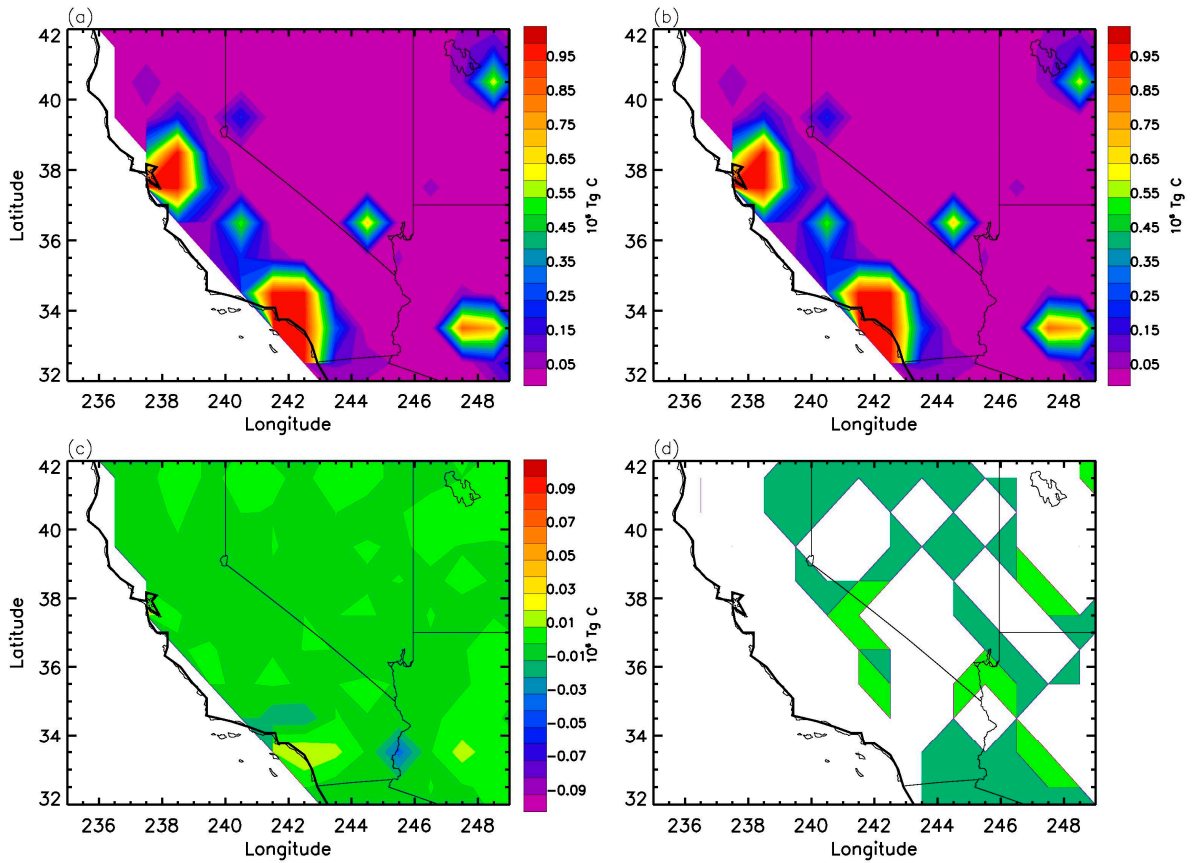


Figure S4: (a) The mean value of detrended CO₂ fossil fuel emissions, from CDIAC, during dry years (JJAS of 2003, 2007, and 2010), (b) The mean value of detrended CO₂ fossil fuel emission in wet years (JJAS of 2006, 2008, 2011, and 2012), (c) CO₂ fossil fuel emission differences between the dry and wet years, (d) CO₂ fossil fuel emission differences within 5% significance level and 1% significance level are highlighted in light green and dark green. Units for CO₂ fossil fuel emissions are 10⁶ Tg C in (a)-(c).