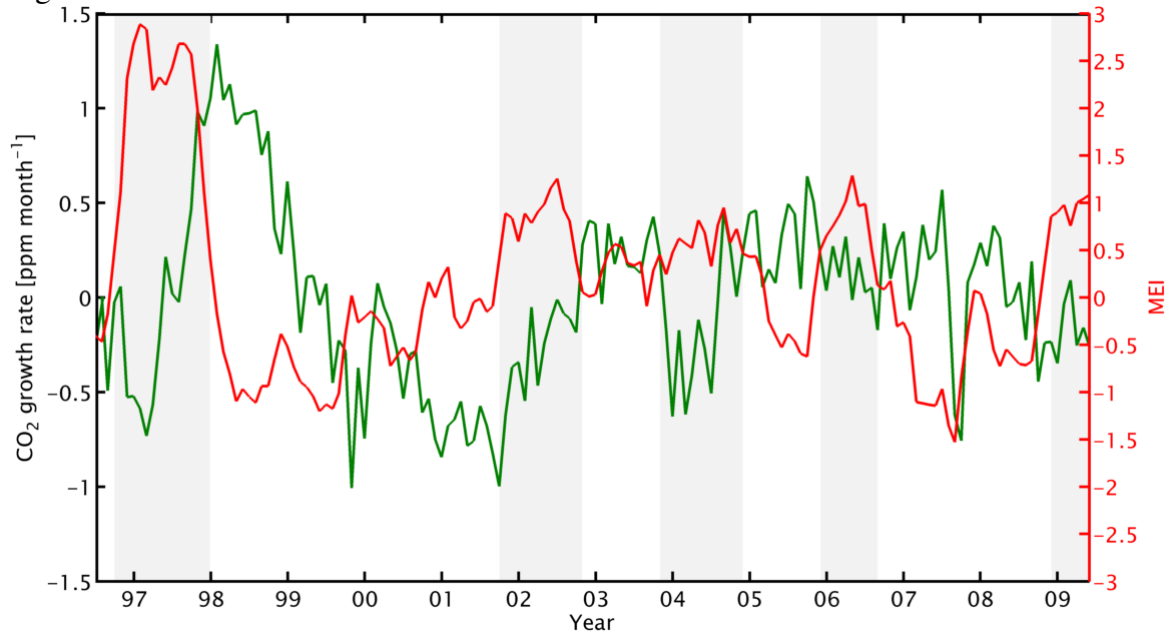**Figures**

Figure 1.

Figure 1. Temporal profiles of CO_2 atmospheric growth rate and MEI from 1997 – 2009. Monthly time series show MEI (red) and CO_2 growth rate (green). Year label is centered on June-to-August. Grey background indicates El Niño event.
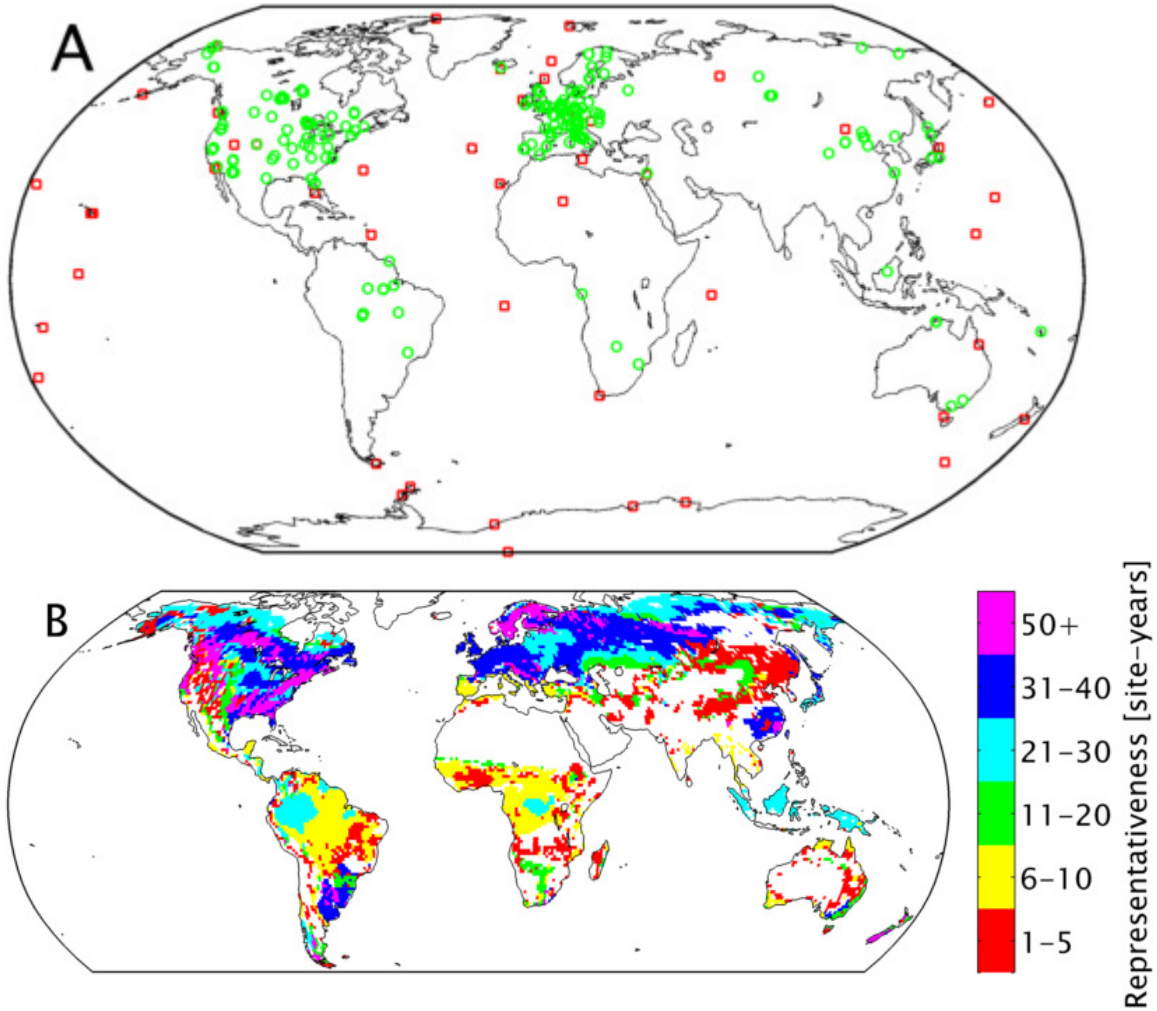
Figure 2

Figure 2. Inversion and FLUXNET measurement sites. Panel A: Location of FLUXNET (green circles) and inversion (red squares) sites used in this study. Panel B: Representativeness of FLUXNET. Values are from a mapped cross-tabulation of site-years by Köppen-Geiger climate (Peel et al., 2007) and IGBP land cover class (Loveland et al., 2001). Non-vegetated and non-sampled areas shown in white.
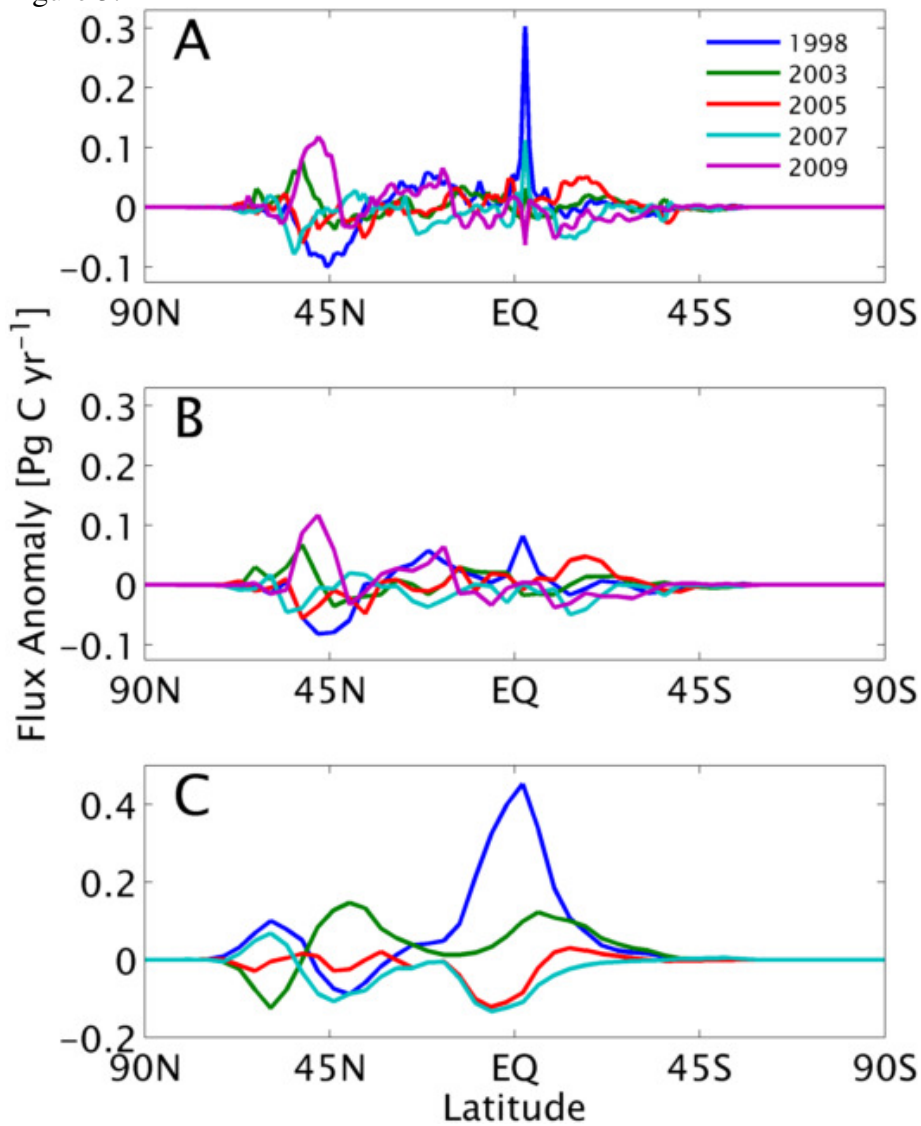
Figure 3.

Figure 3. Latitudinal profiles of global flux anomaly. Panel A: Profile of Δ_{total} (1º x 1º) for 5 El Niño events from 1997 – 2009. Panel B: as Panel A but coarsened to 3.75º x 5º to match the Jena inversion grid. Panel C: Profile of Jena inversion NEE anomaly (3.75º x 5º) for 4 El Niño events from 1997 – 2008. Legend and color coding show starting year of El Niño events. Note change of scale for Δ_{total} vs. Jena results. A positive sign indicates increased outgassing of CO_2 to the atmosphere.
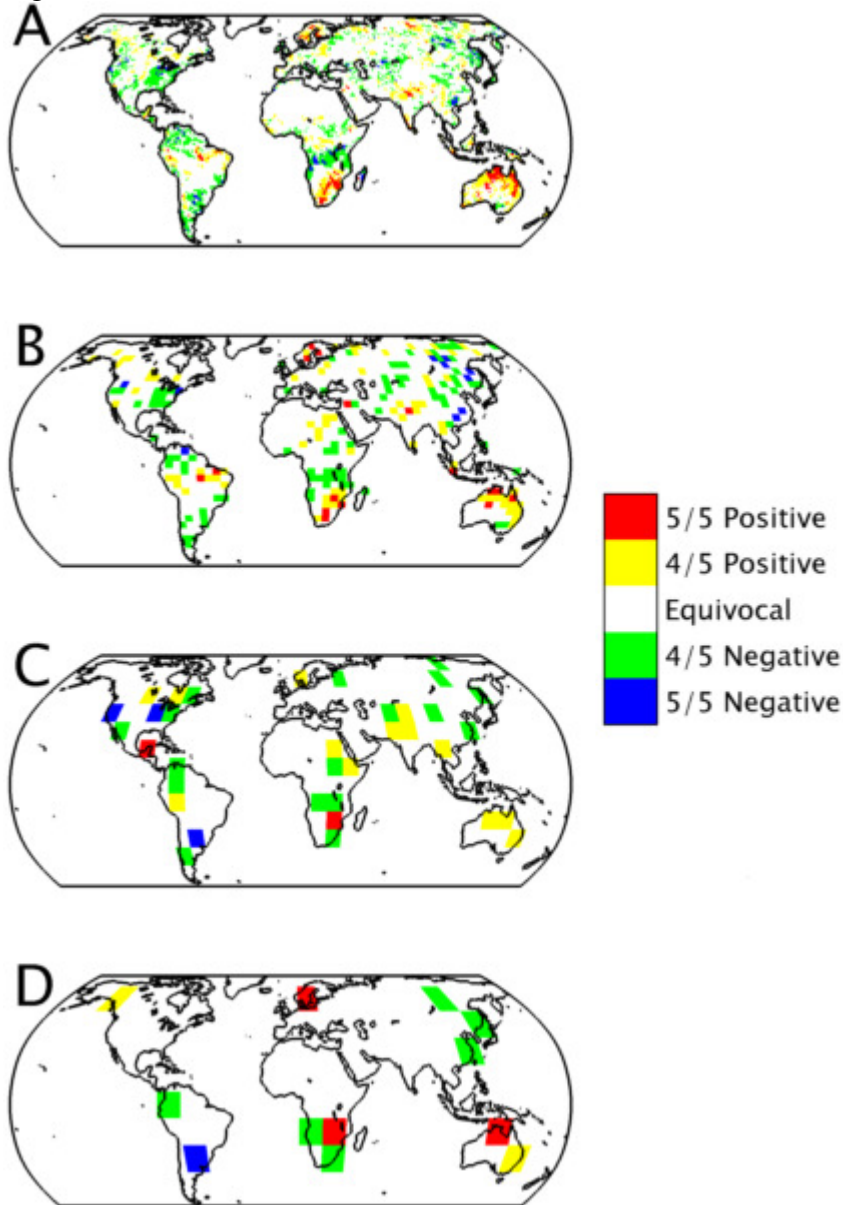
Figure 4.

Figure 4. Consistency of Δ_{biotic} sign across 5 El Niño events from 1997 – 2009. Panels differ only in resolution. Panel A: 1º x 1º. Panel B: 3.75º x 5º, matches Jena inversion grid. Panel C: 10º x 10º. Panel D: 15º x 15º. Legend numbers indicate the number of events out of all 5 with the relevant sign. Non-vegetated grid cells and those with signs split 2 to 3 shown in white. A positive sign indicates increased outgassing of CO_2 to the atmosphere.