Supplement of

The impact of the El Niño-Southern Oscillation on BVOC emission fluxes: An Earth System Model evaluation

Ryan Vella[1,2], Andrea Pozzer[1,4], Matthew Forrest[3], Jos Lelieveld[1,4], Thomas Hickler[3,5], and Holger Tost[2]

[1]Atmospheric Chemistry Department, Max Planck Institute for Chemistry, Mainz, Germany
[2]Institute for Atmospheric Physics, Johannes Gutenberg University Mainz, Mainz, Germany
[3]Senckenberg Biodiversity and Climate Research Centre (SBiK-F), Frankfurt am Main, Germany
[4]Climate and Atmosphere Research Center, The Cyprus Institute, Nicosia, Cyprus
[5]Department of Physical Geography, Goethe University, Frankfurt am Main, Germany

Correspondence: Ryan Vella (ryan.vella@mpic.de)
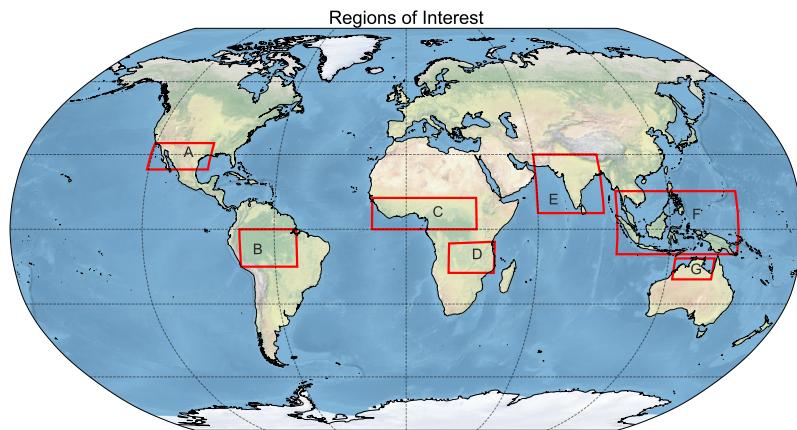
Figure S1. Regions of interest. Extent of areas are presented in Tabel 1.

Region	Label on figures	Acronym	Latitude range	Longitude range
South West USA	A	SWUSA	24, 34.6	−120.8, −92.4
Amazon Basin	B	Amazon	−15, 0	−75.8, −50
Central West Africa	C	CEAfr	0, 12.6	−15.54, 32
South East Africa	D	SEAfr	−14.6, −5.7	19.5, 40.3
India	E	India	6.5, 30	60, 90
South East Asia	F	SEAsia	−10, 15.3	96, 151
North East Australia	G	NEAus	−20.1, −11.7	123, 141

Table 1. Details on the regions considered.
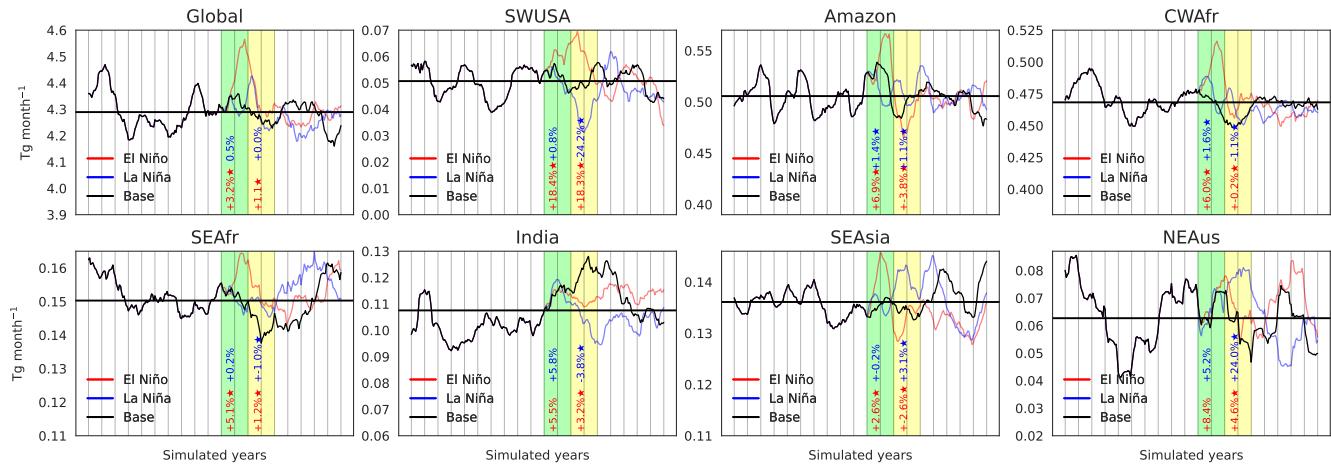
Figure S2. Time evolution of global and regional monoterpene fluxes with El Niño (red) and La Niña (blue) events over two years (green columns). The black line illustrates base conditions throughout all simulation. Statistically significant changes (p<.01) are marked with a star.
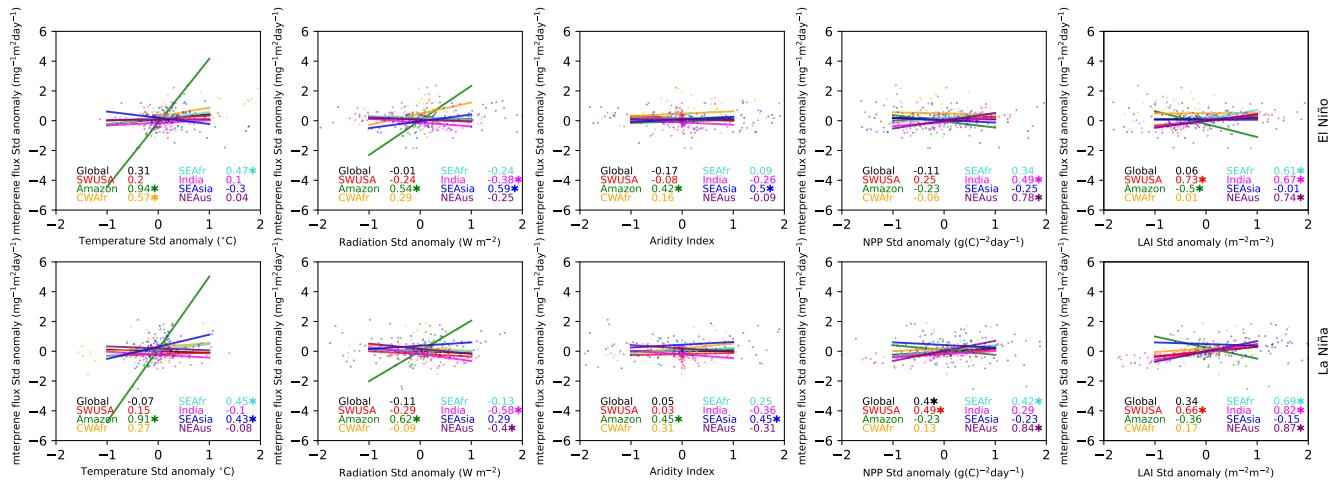
Figure S3. The Person's correlation (r) between the standardized monterpene flux anomaly and standardized temperature, radiation, AI, NPP, and LAI anomaly at different regions for the event years and the following two years (four years in total). Very strong El Niño and La Niña events are shown in the top and bottom panels, respectively.
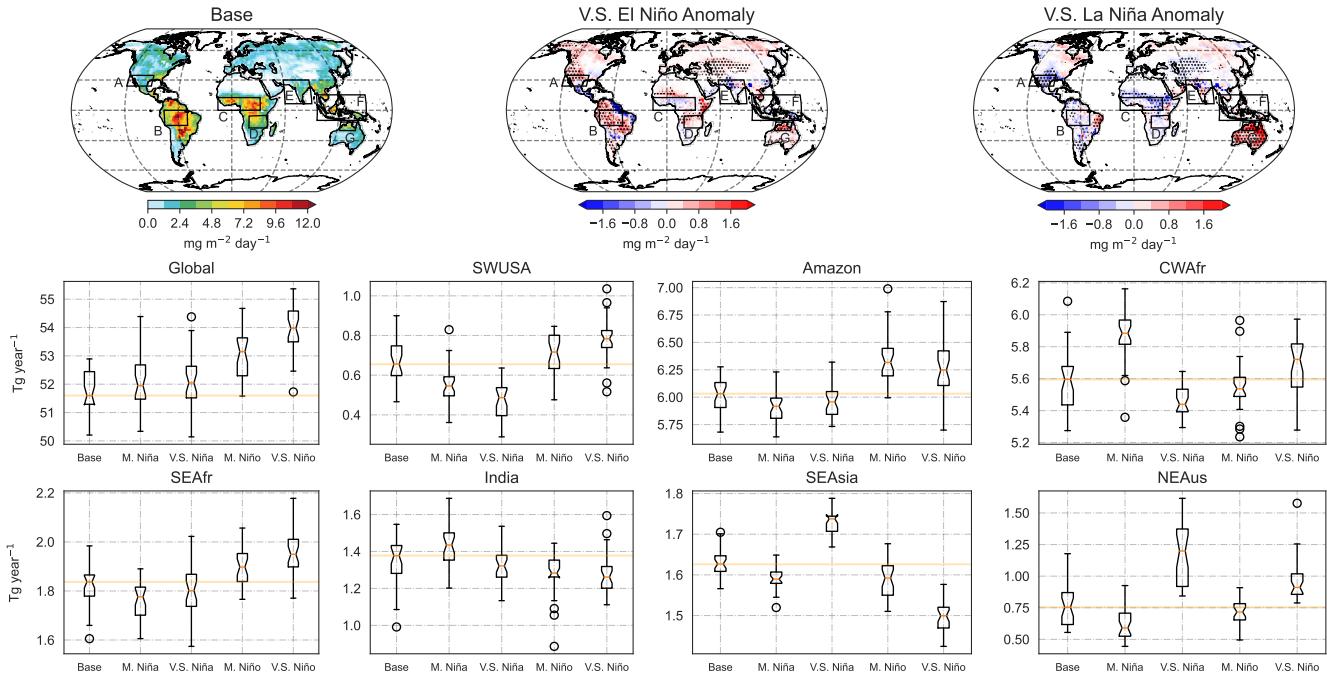
Figure S4. Global monoterpene fluxes for the base scenarios as well as changes in emissions during very strong El Niño and La Niña events.The barplots show emission changes for the different scenarios. The median of the base scenario is indicated in orange.
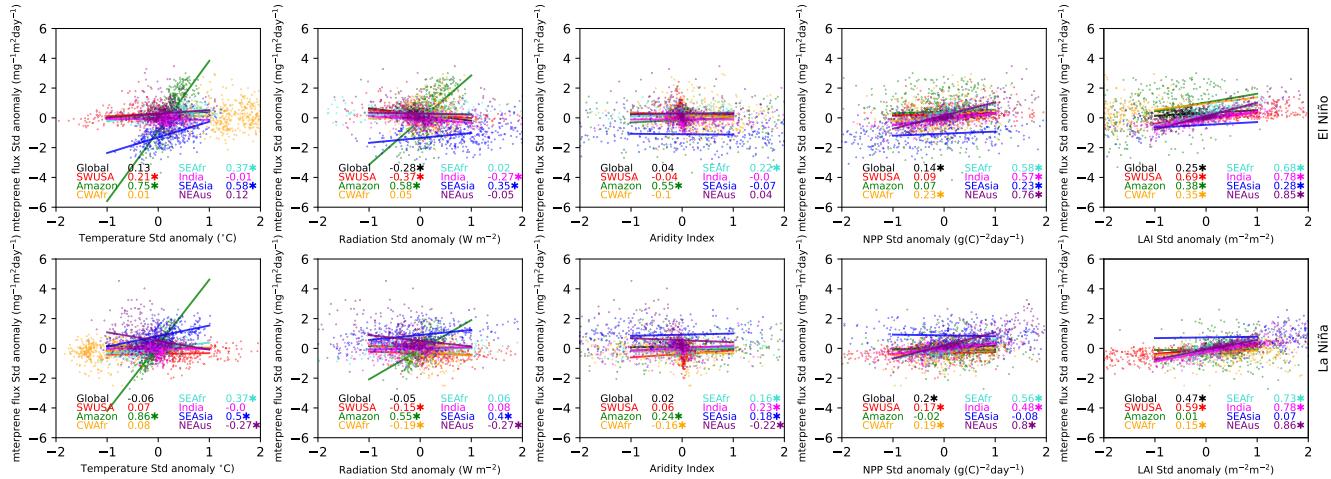
Figure S5. The Person's correlation (r) between the standardized monoterpene flux anomaly and standardized temperature, radiation, AI, NPP, and LAI anomaly at different regions for very strong El Niño (top panels) and La Niña (bottom panels) events. Correlations with p<.01 are marked with a star.