Supporting information for…
Connecting regional aerosol emissions reductions to local and remote precipitation responses

Daniel M. Westervelt[1,5], Andrew J. Conley[2], Arlene M. Fiore[1,3], Jean-François Lamarque[2], Drew T. Shindell[4], Michael Previdi[1], Nora R. Mascioli[1,3], Greg Faluvegi[5,6], Gustavo Correa[1], Larry W. Horowitz[7]

[1]Lamont-Doherty Earth Observatory, Columbia University. Palisades, New York, USA

[2]National Center for Atmospheric Research, Boulder. Colorado, USA

[3]Department of Earth and Environmental Sciences, Columbia University, Palisades, New York, USA

[4]Nicholas School of the Environment, Duke University. Durham, NC, USA

[5]NASA Goddard Institute for Space Studies, New York, New York, USA

[6]Center for Climate Systems Research, Columbia University, New York, NY, USA

[7]National Oceanic and Atmospheric Administration, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA

Correspondence to: Daniel M. Westervelt (danielmw@ldeo.columbia.edu)
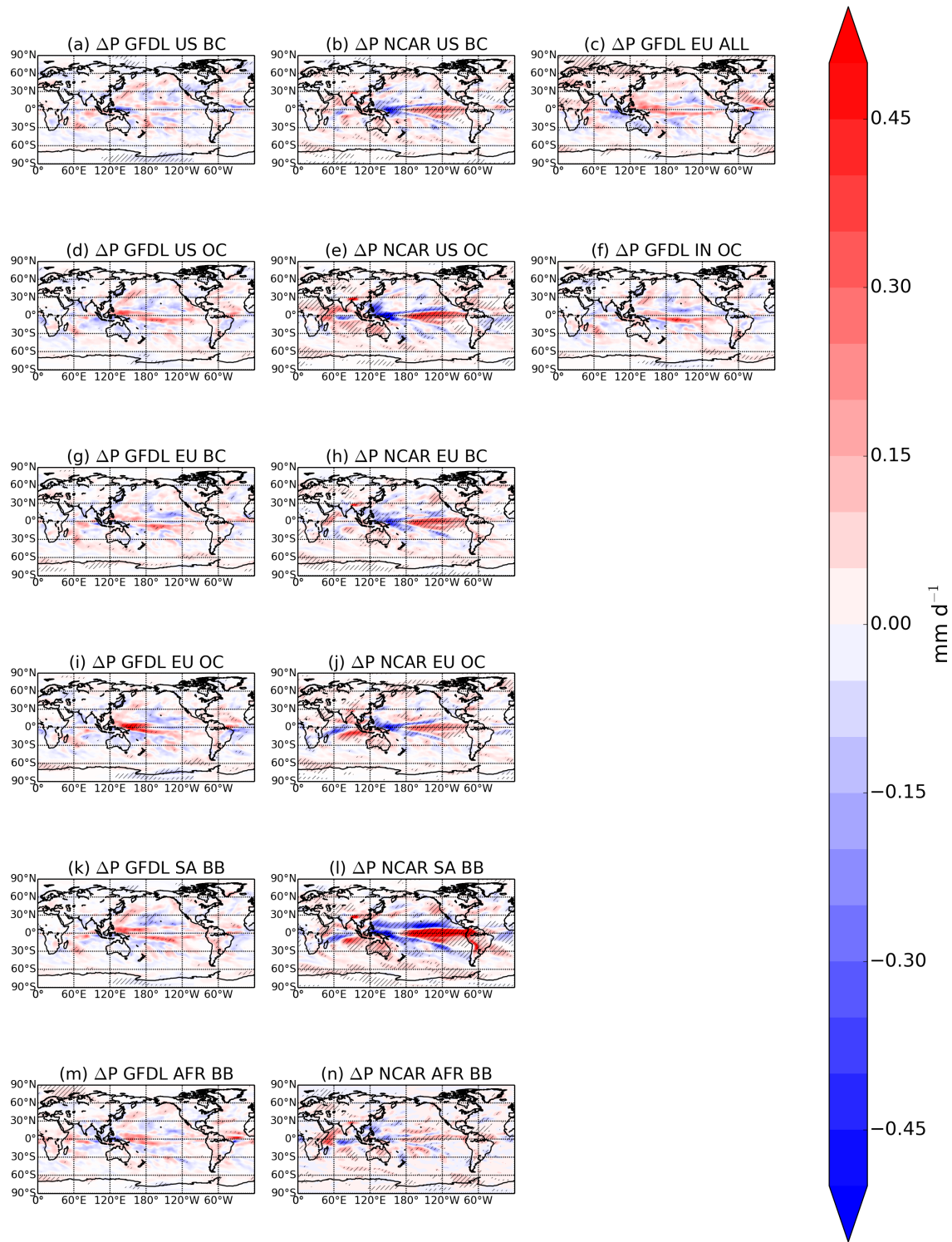
Figure S1: 200-year annual mean precipitation response to aerosol emissions decreases in each of the three models (GFDL-CM3, first column; NCAR-CESM1, second column; GISS-E2, third column) for several different regional emissions decreases (see Table 1)
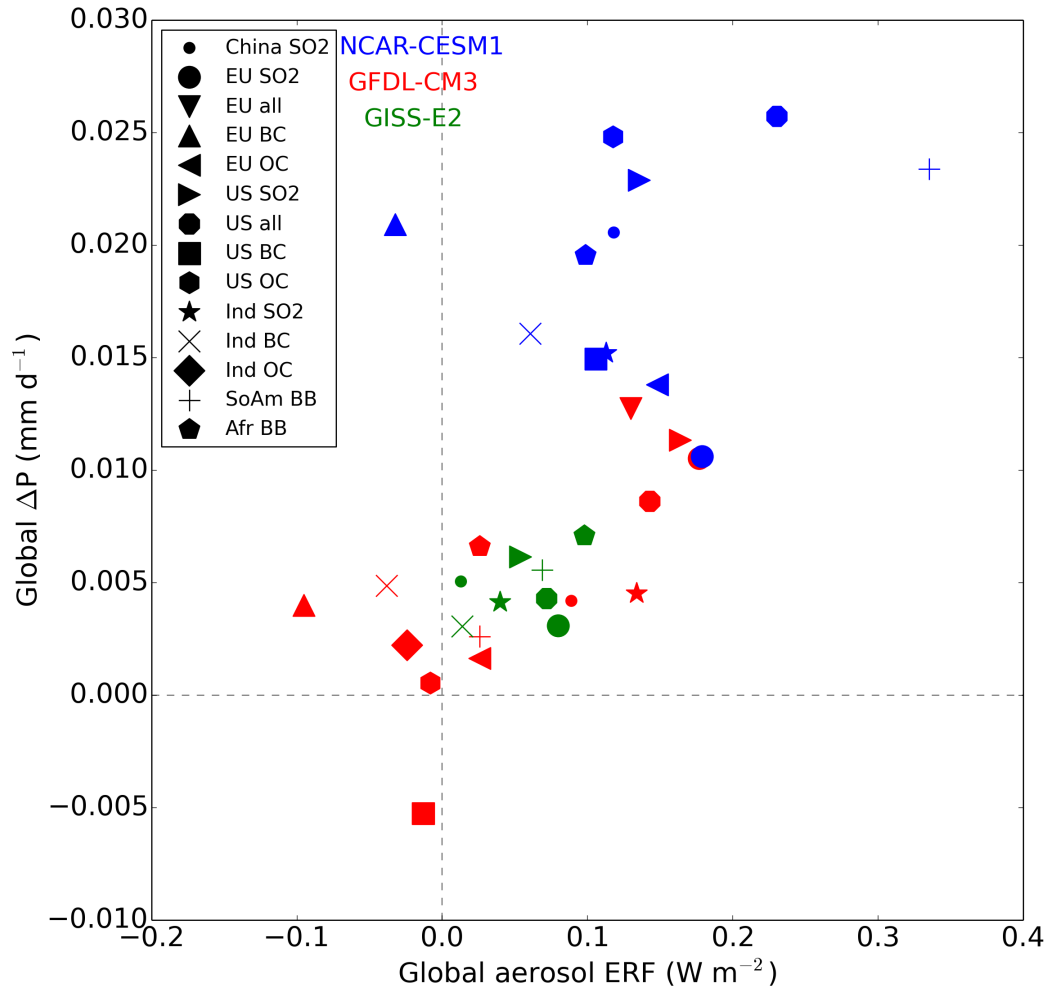
Figure S2: Scatterplot of global aerosol effective radiative forcing and precipitation response for GFDL-CM3 (red), NCAR-CESM1 (blue), and GISS-E2 (green)
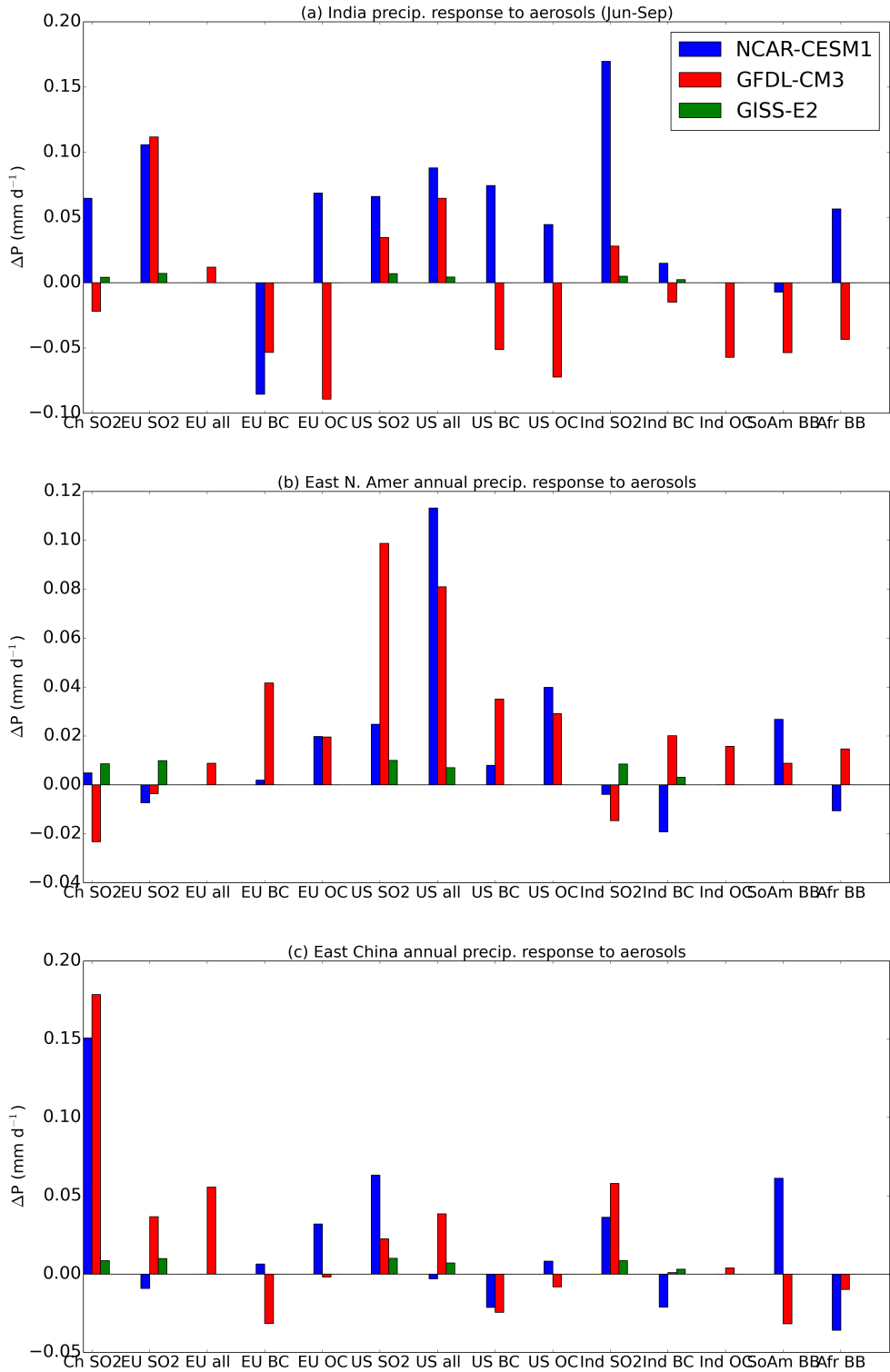
Figure S3: Regional and global precipitation response to each individual aerosol emissions decrease (Table 1). (a) India, Jun-Sep, (b) Eastern North America, annual, (c) Eastern China, annual
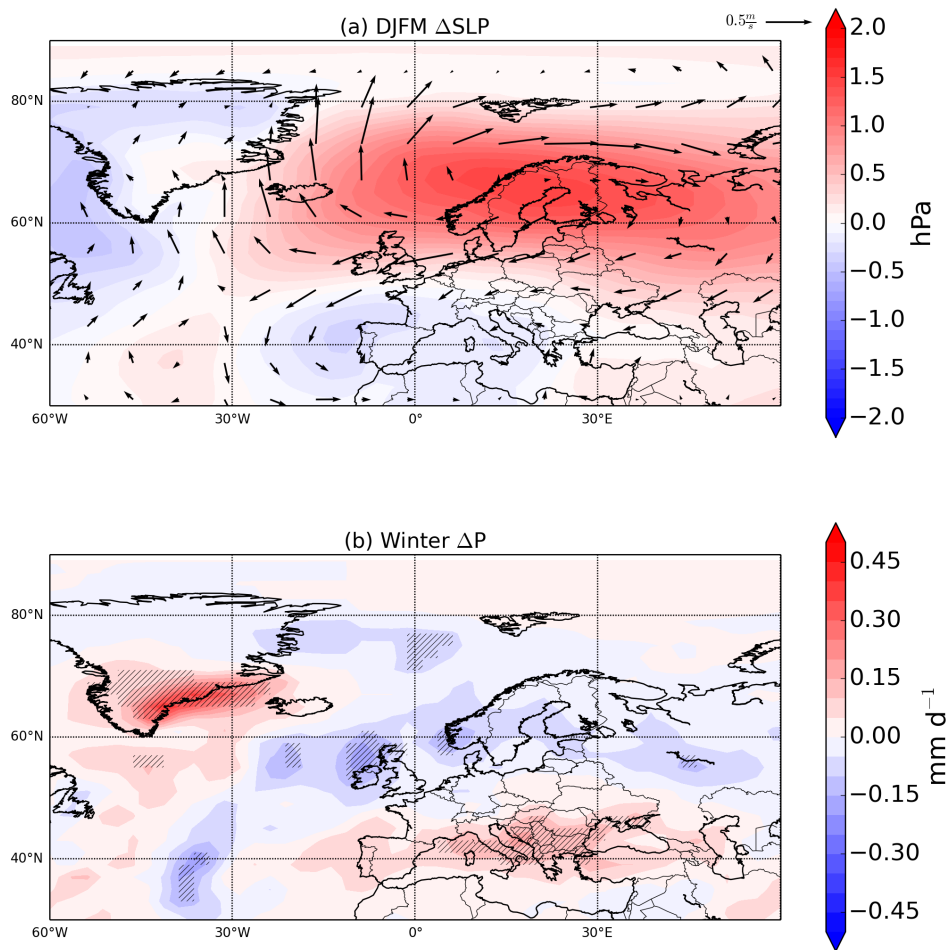
Figure S4: Wintertime response in sea-level pressure and surface winds (a) and precipitation (b) to reduction of European BC emissions in GFDL-CM3
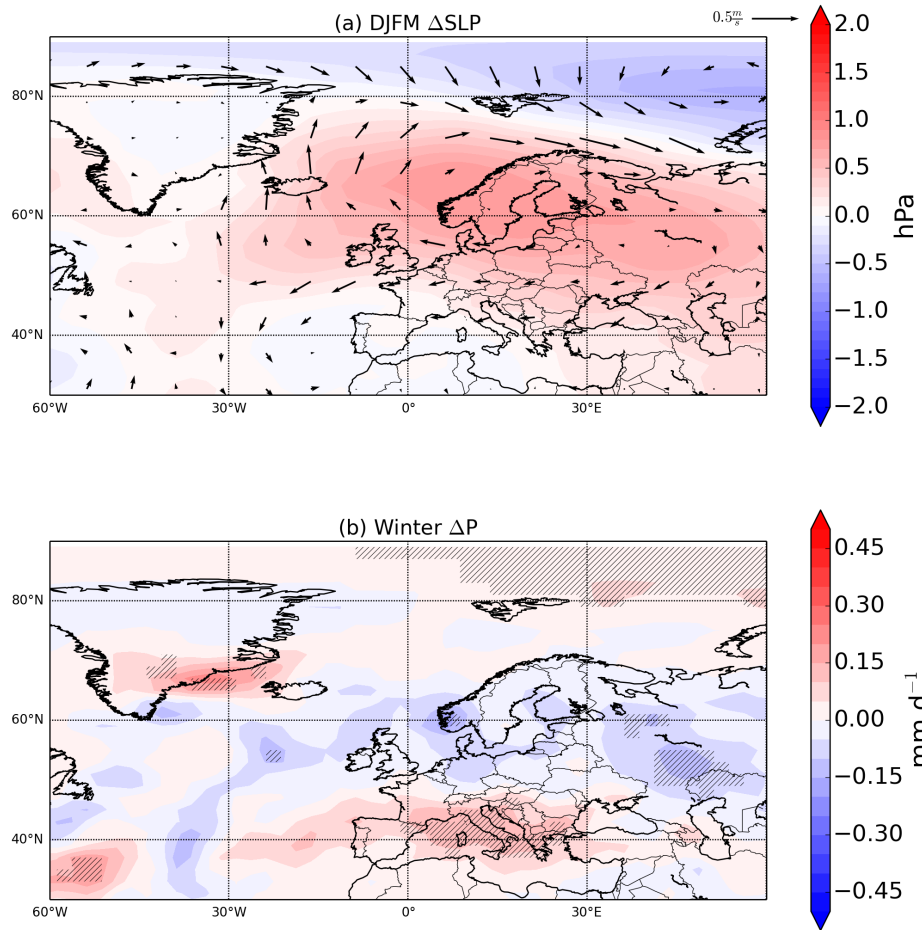
Figure S5: Same as S4, but for European OA emissions
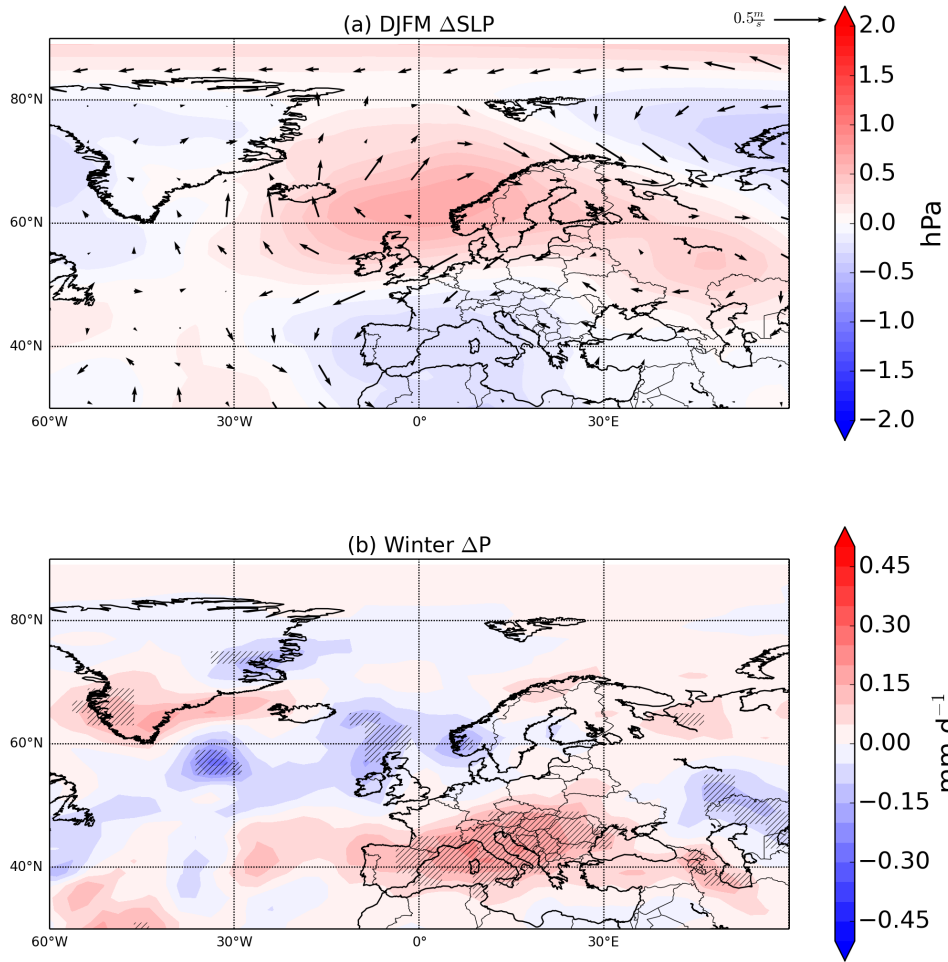
Figure S6: Same as S5, but for an emissions sum of BC, OA, and SO$_2$
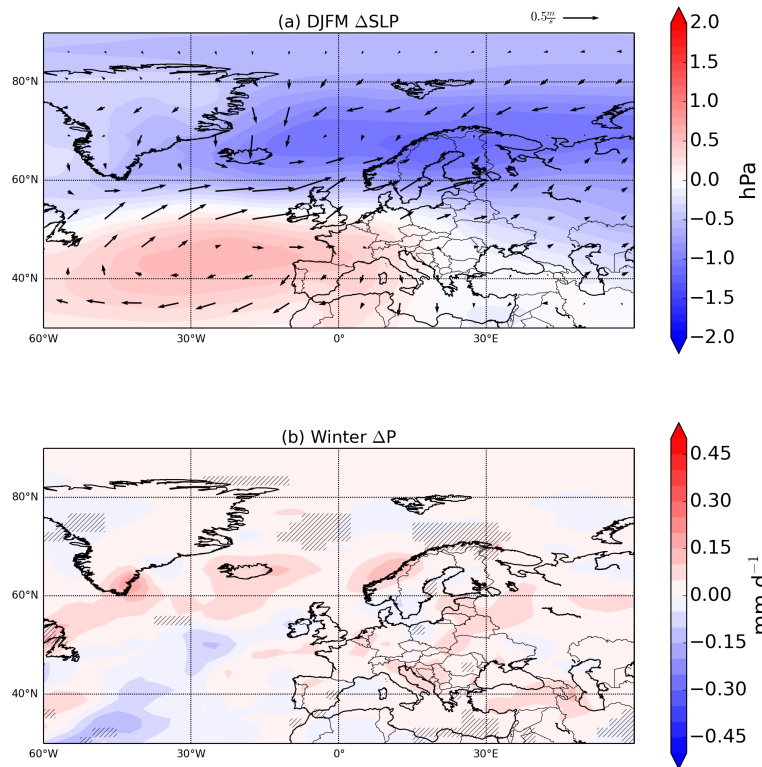
Figure S7: Wintertime response in sea-level pressure and surface winds (a) and precipitation (b) to reduction of European SO₂ emissions in NCAR-CESM1
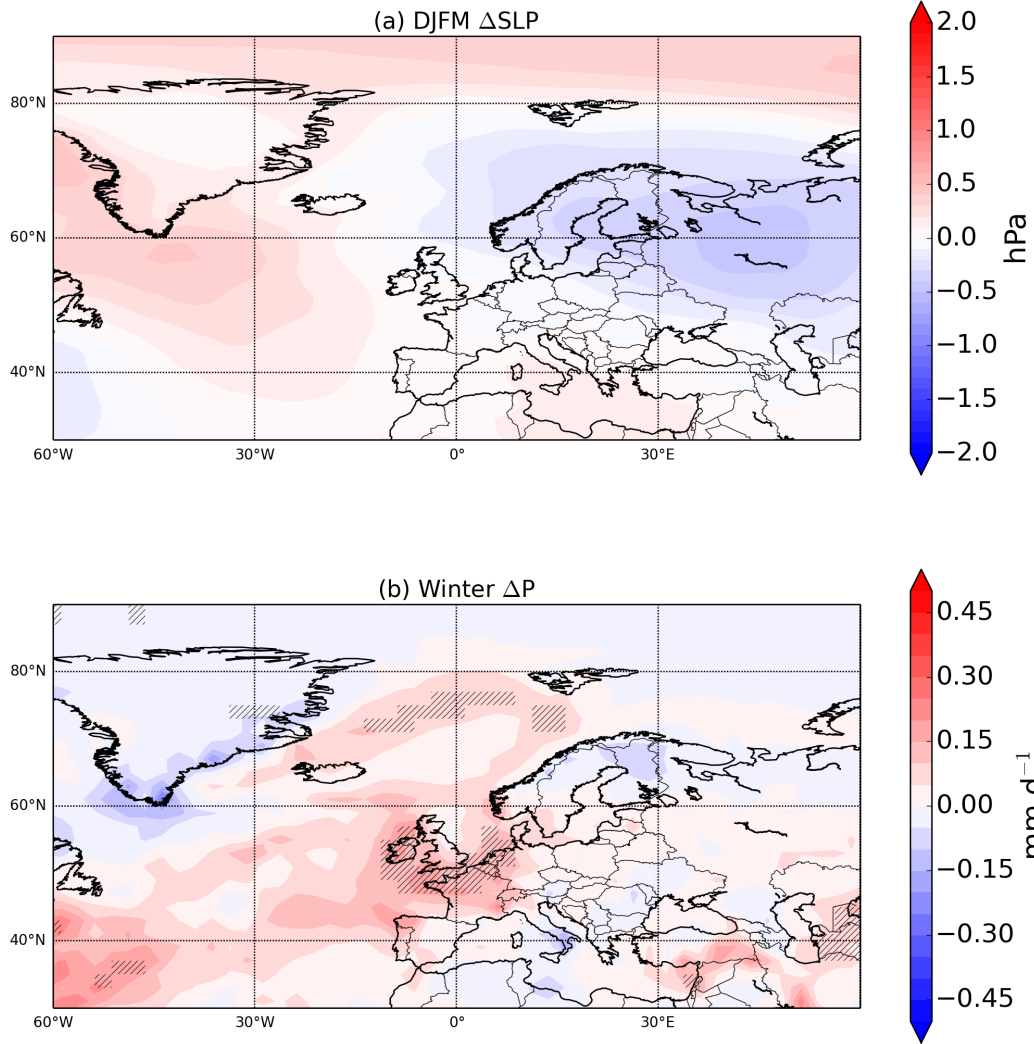
Figure S8: Wintertime response in sea-level pressure (a) and precipitation (b) to reduction of European SO₂ emissions in GISS-E2