Supplement of Atmos. Chem. Phys., 16, 11807–11821, 2016
http://www.atmos-chem-phys.net/16/11807/2016/
doi:10.5194/acp-16-11807-2016-supplement


Atmospheric Chemistry and Physics
Open Access

*Supplement of*

# Can simple models predict large-scale surface ocean isoprene concentrations?

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Figure S1 shows the comparison between the measured isoprene production rate and the isoprene production rate derived from the phytoplankton functional type (PFT)-parameterization by Hirata et al. (2011). The comparison shows very good linear correlation in less productive regions (dashed regression line) whereas it is not linear over the whole range of isoprene production rates. The parameterization is dependent on the chl-*a* concentration and figure S1 shows, fairly clearly, that the parameterization overestimates the PFT concentration and, therefore, the isoprene production rate (dotted regression line) in productive regions. The phytoplankton pigment data used in the parameterization of Hirata et al. (2011) is well distributed in the Atlantic Ocean, sparsely distributed in the Indian Ocean region of SPACES/OASIS, and there has been no data used for the parameterization in the region off to Peru where ASTRA-OMZ took place. This may also cause some discrepancies between the measured and calculated values. But as these overestimated PFT values only account for 5% of our data set the overall coefficient of determination between the derived data using Hirata et al. (2011) and the measured isoprene production rate is 0.89.

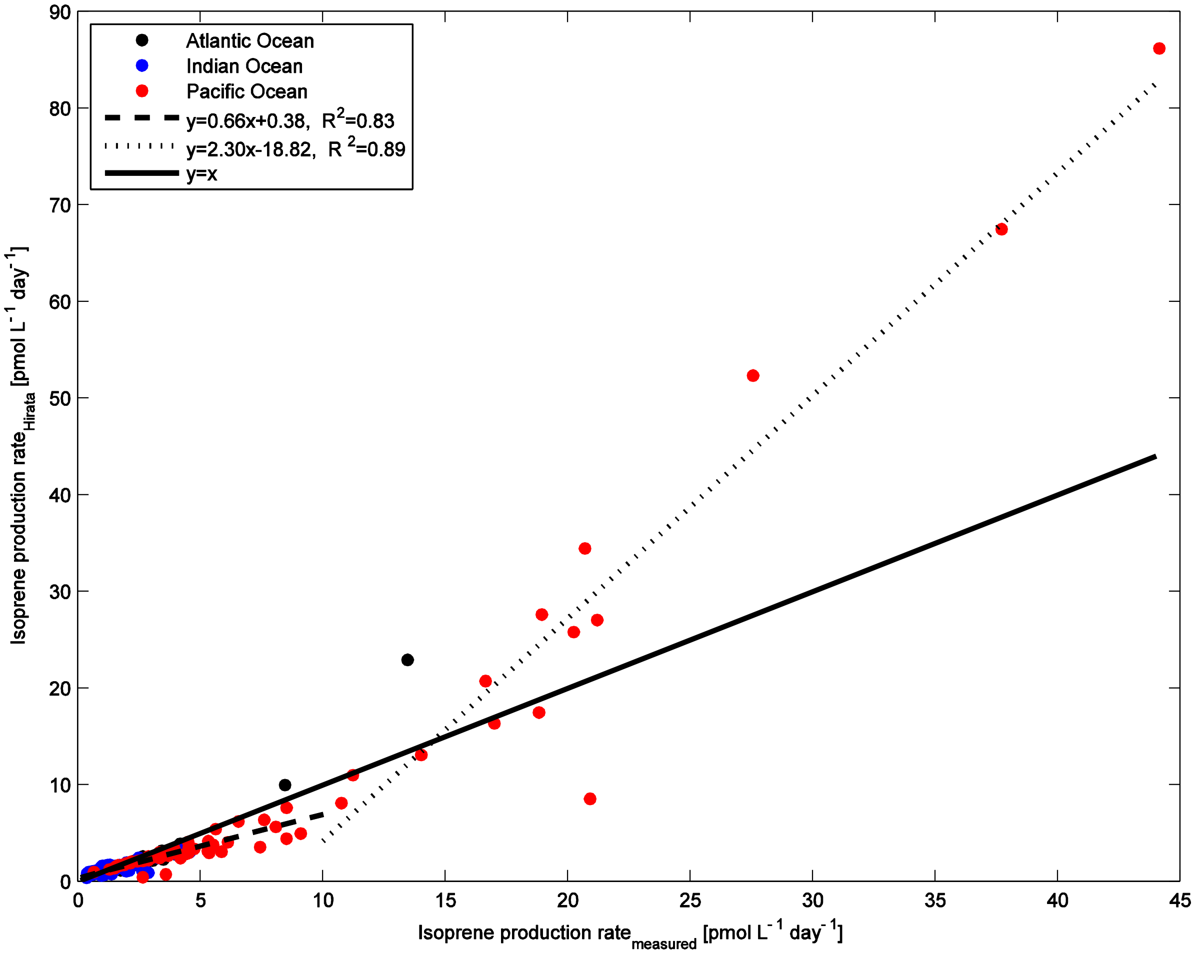


**Figure S 1: Measured isoprene production rates versus parameterized isoprene production rates from three different cruises (black: ANT-XXV/1; blue: SPACES/OASIS; red: ASTRA-OMZ). The dashed line and dotted line represent the regression line of isoprene production rates between 0 and 10 pmol L$^{-1}$ day$^{-1}$ and higher than 10 pmol L$^{-1}$ day$^{-1}$, respectively. The solid line represents the 1:1 line.**

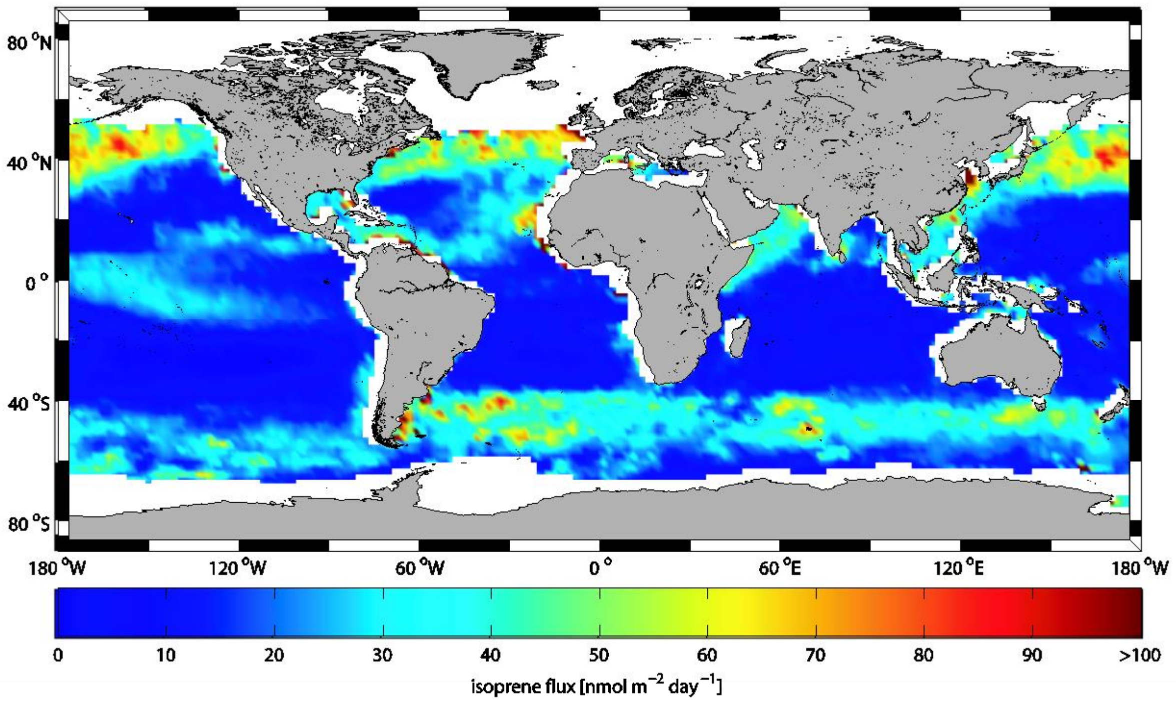


**Figure S2: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for January 2014.**

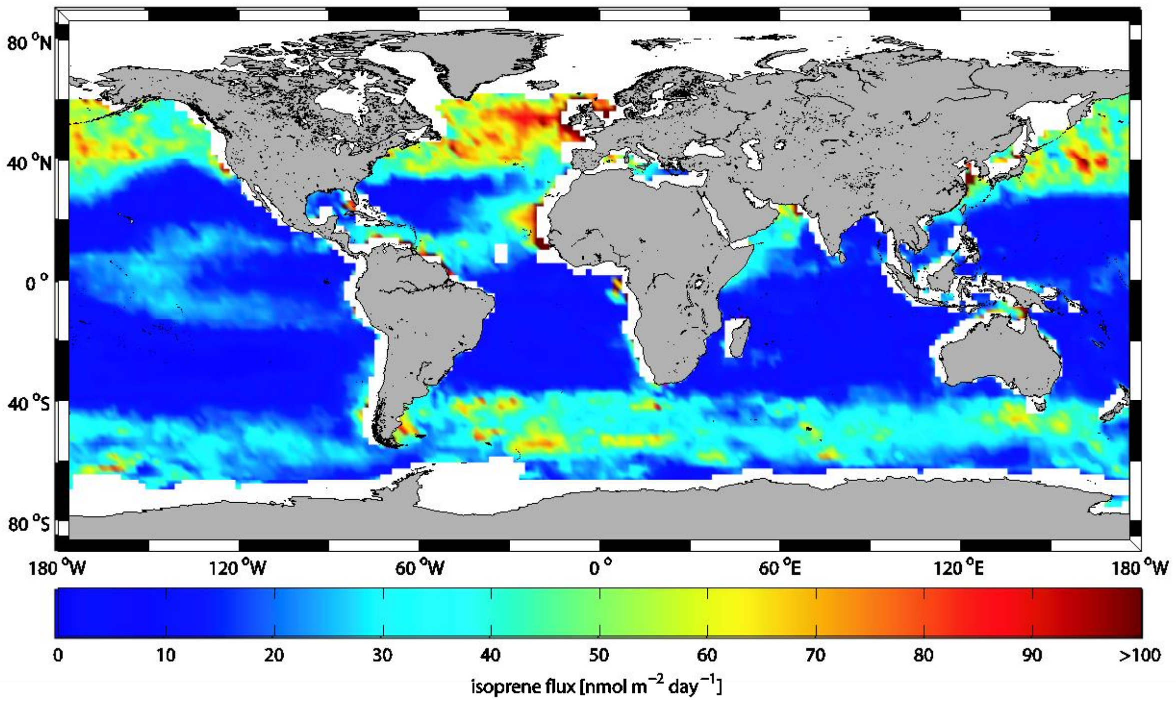


**Figure S3: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for February 2014.**

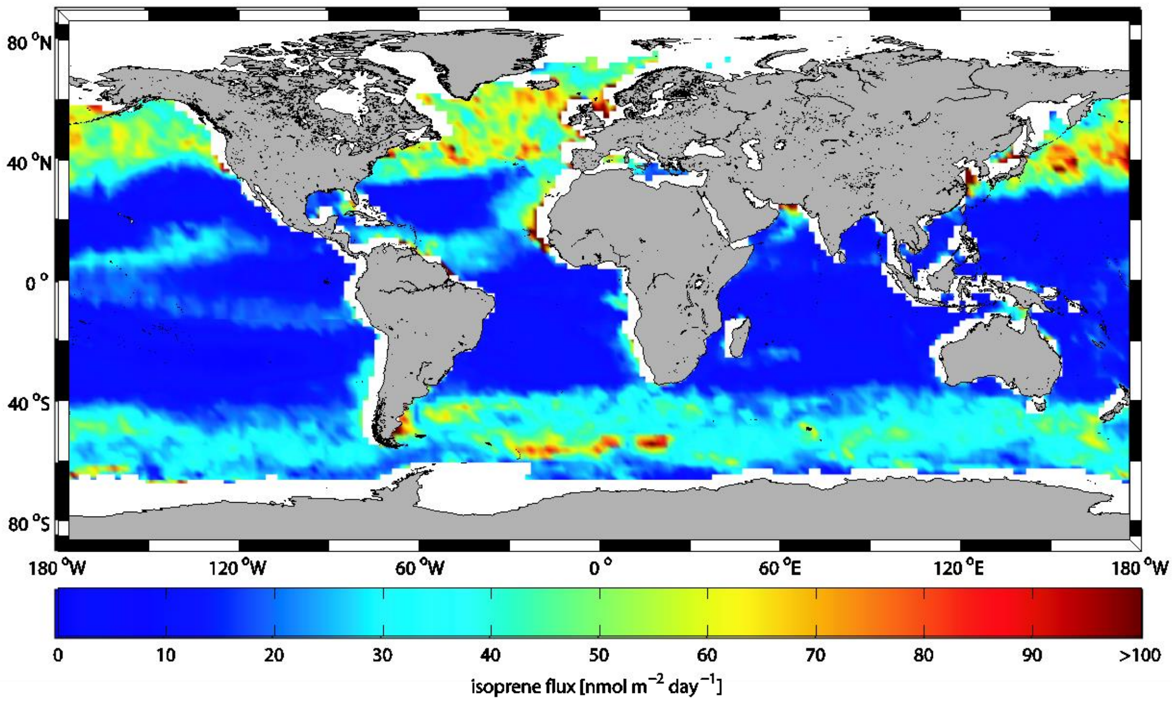


**Figure S4: Global monthly mean marine isoprene fluxes in nmol m$^{-2}$ day$^{-1}$ for March 2014.**

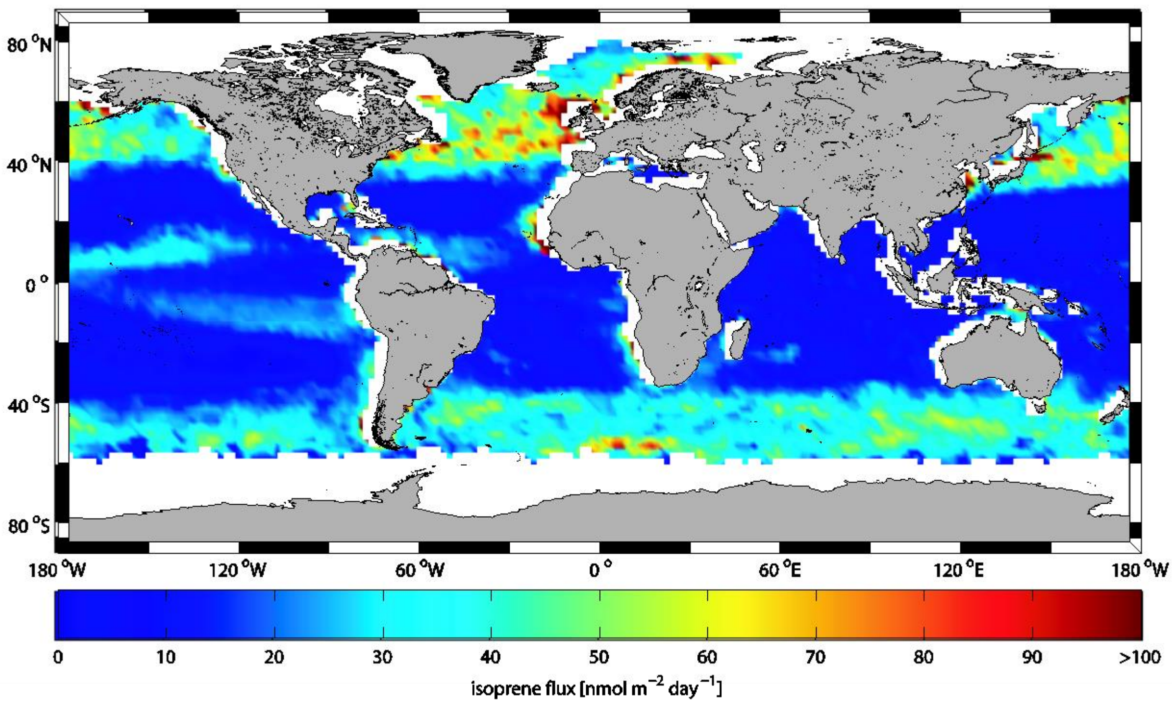


**Figure S5: Global monthly mean marine isoprene fluxes in nmol m$^{-2}$ day$^{-1}$ for April 2014.**

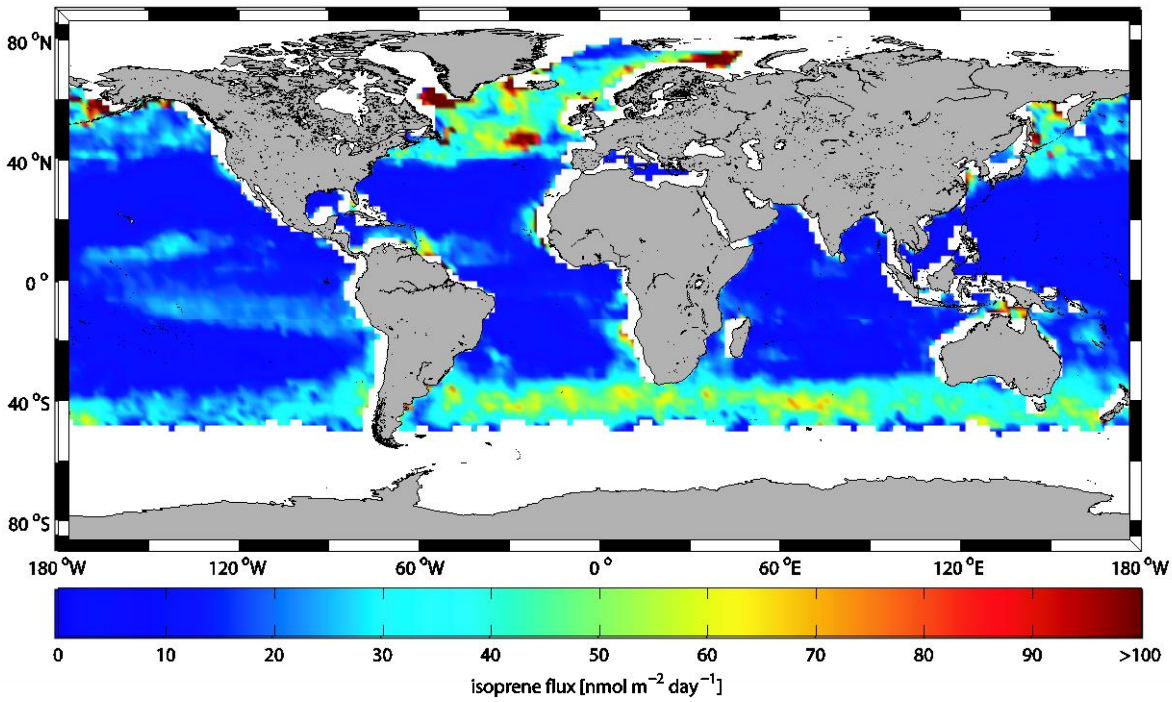


**Figure S6: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for May 2014.**

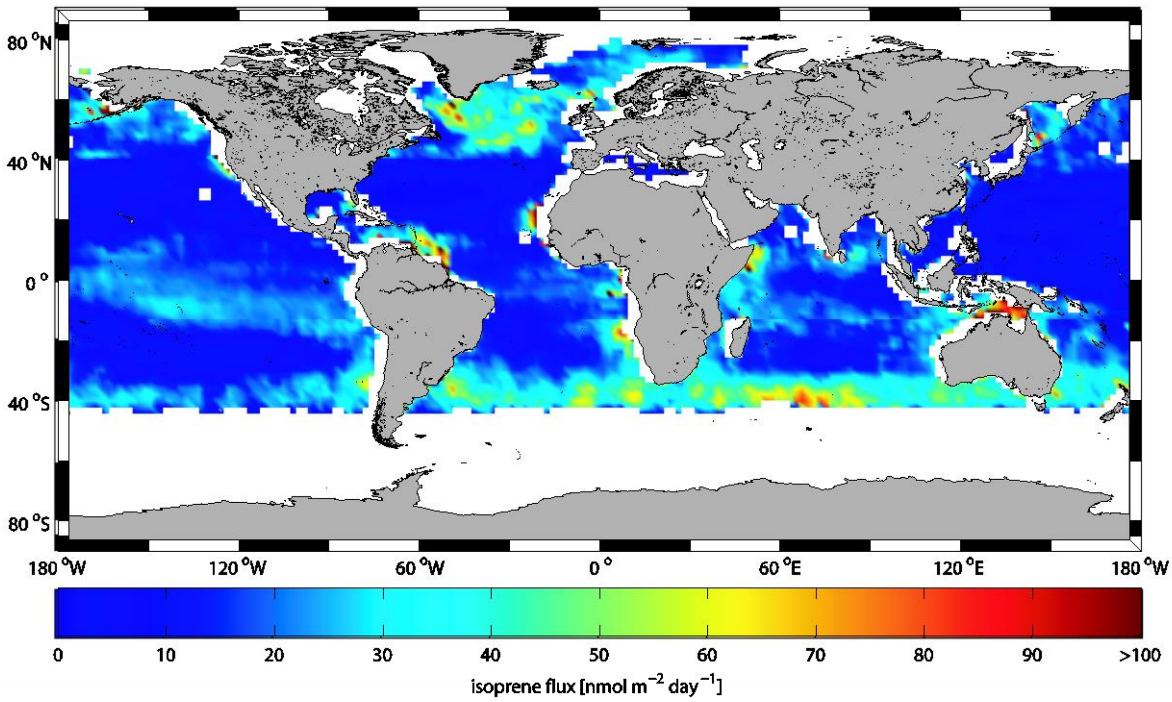


**Figure S7: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for June 2014.**

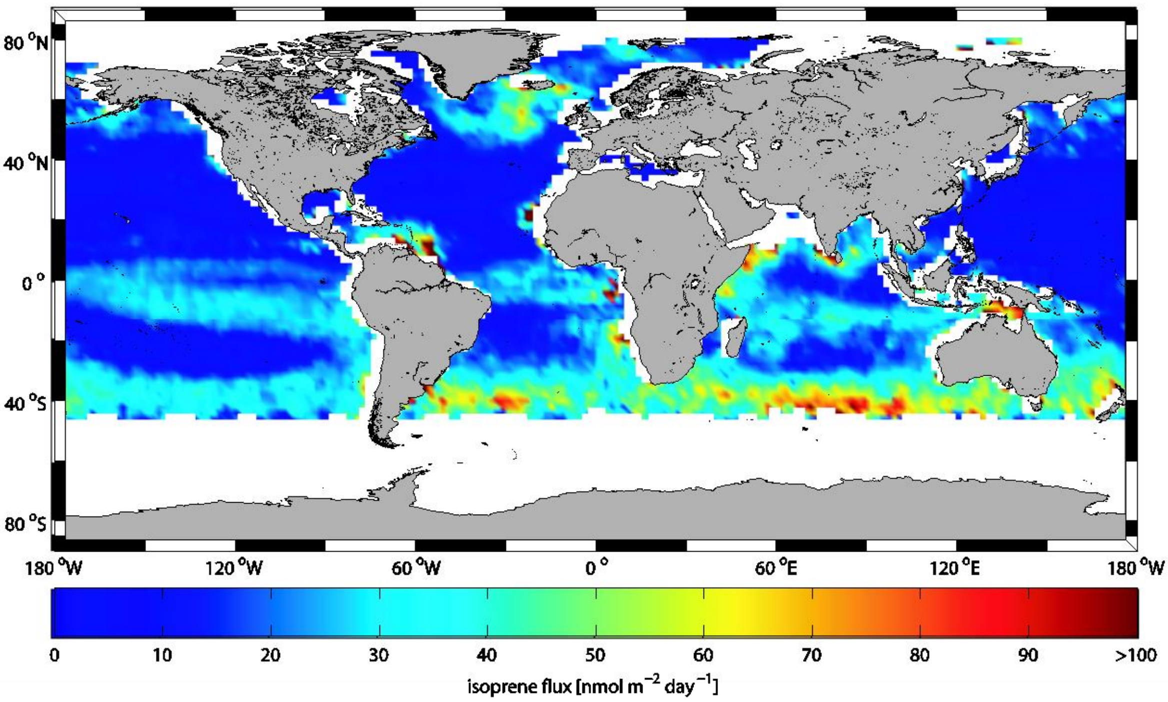


**Figure S8: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for July 2014.**

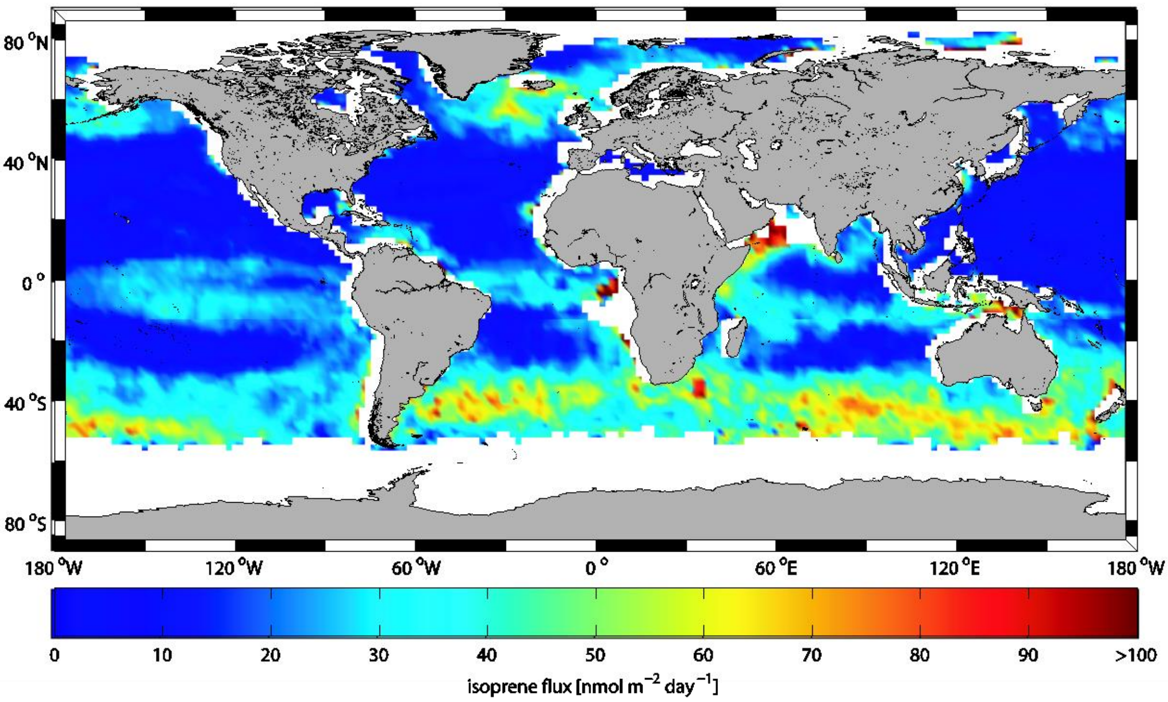


**Figure S9: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for August 2014.**

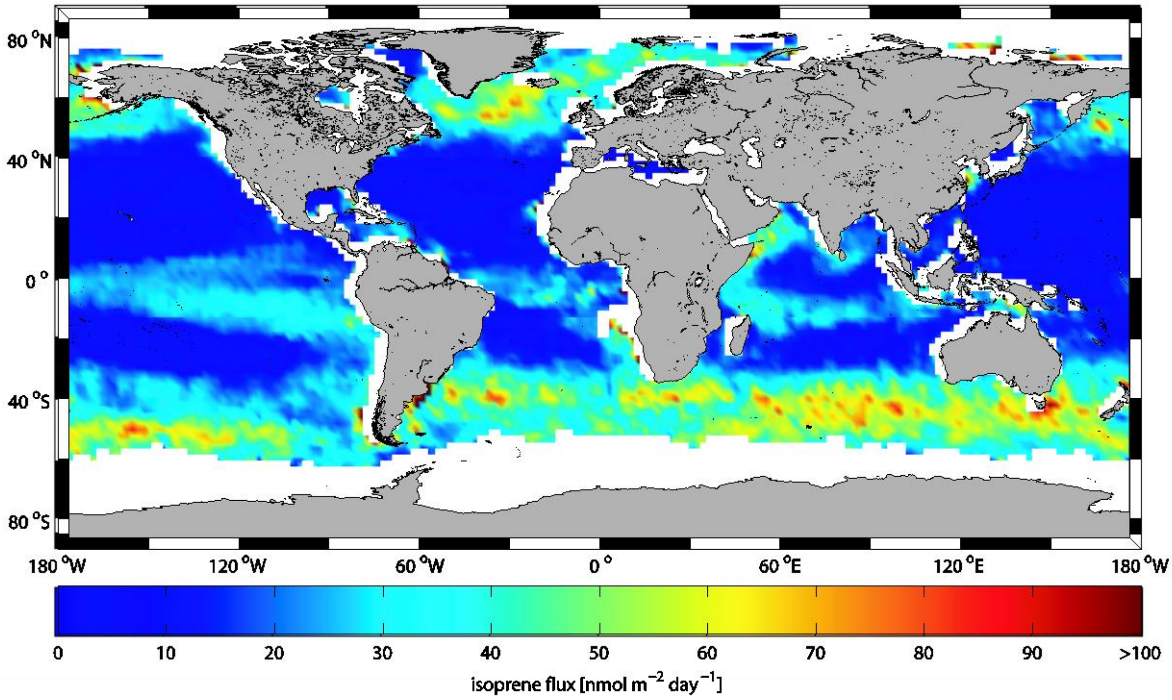


**Figure S10: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for September 2014.**

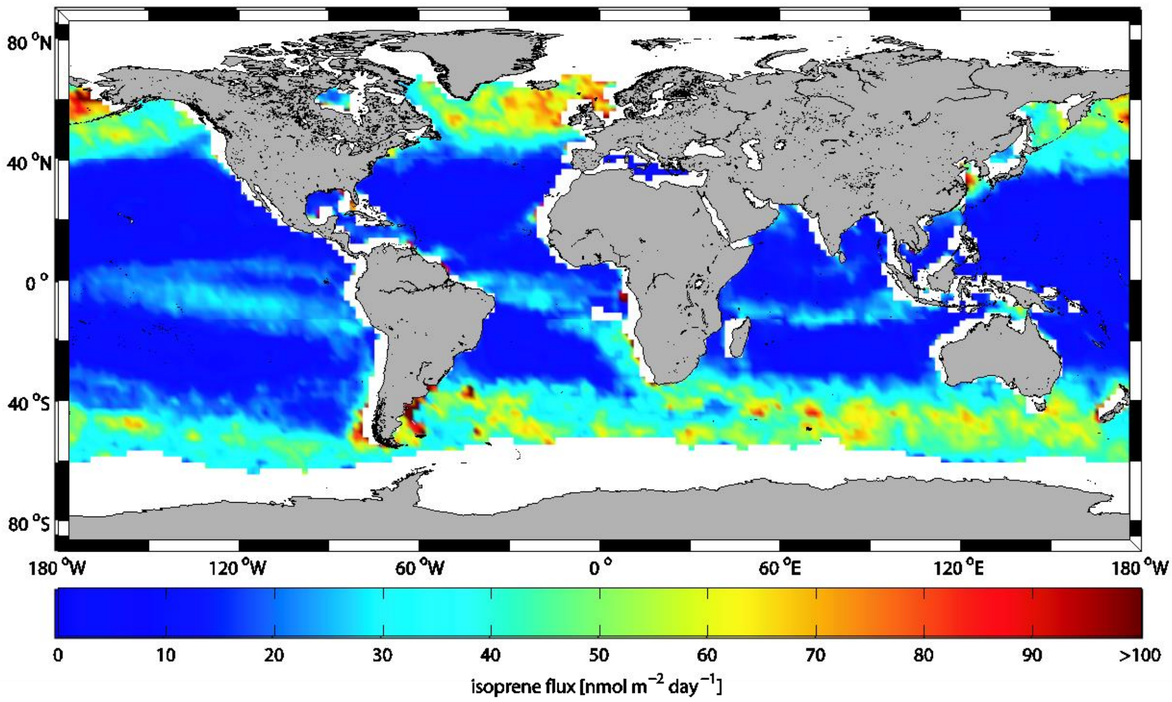


**Figure S11: Global monthly mean marine isoprene fluxes in nmol $m^{-2}$ $day^{-1}$ for October 2014.**

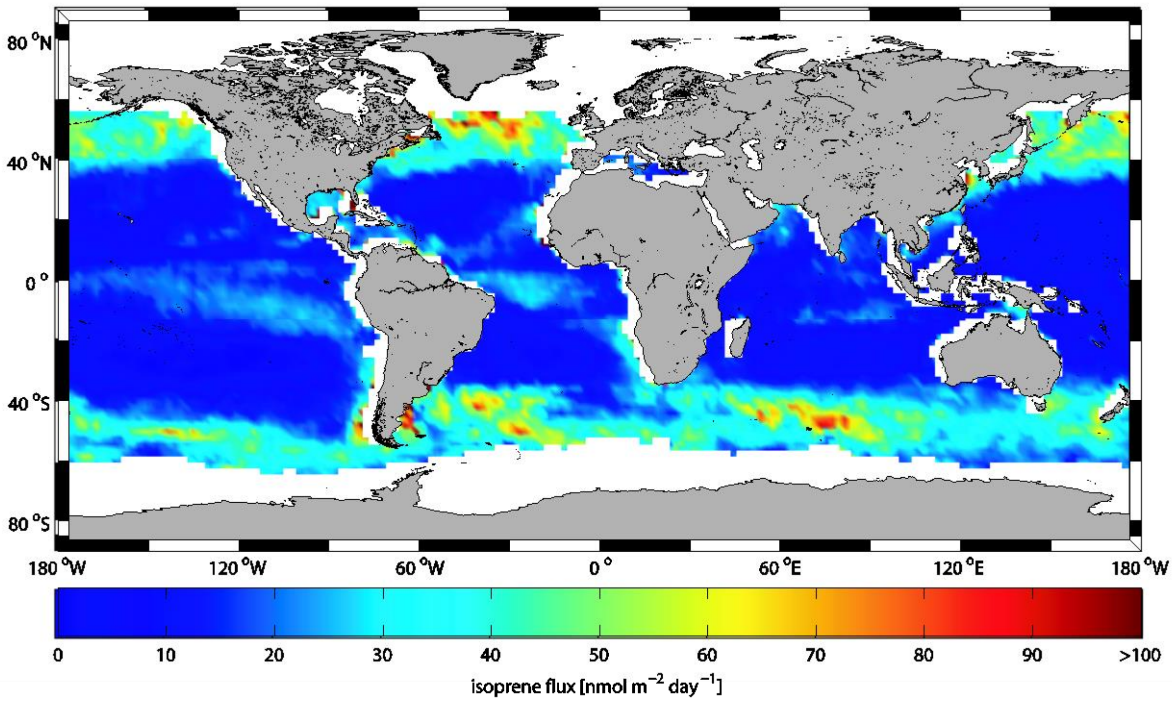


**Figure S12: Global monthly mean marine isoprene fluxes in nmol m$^{-2}$ day$^{-1}$ for November 2014.**

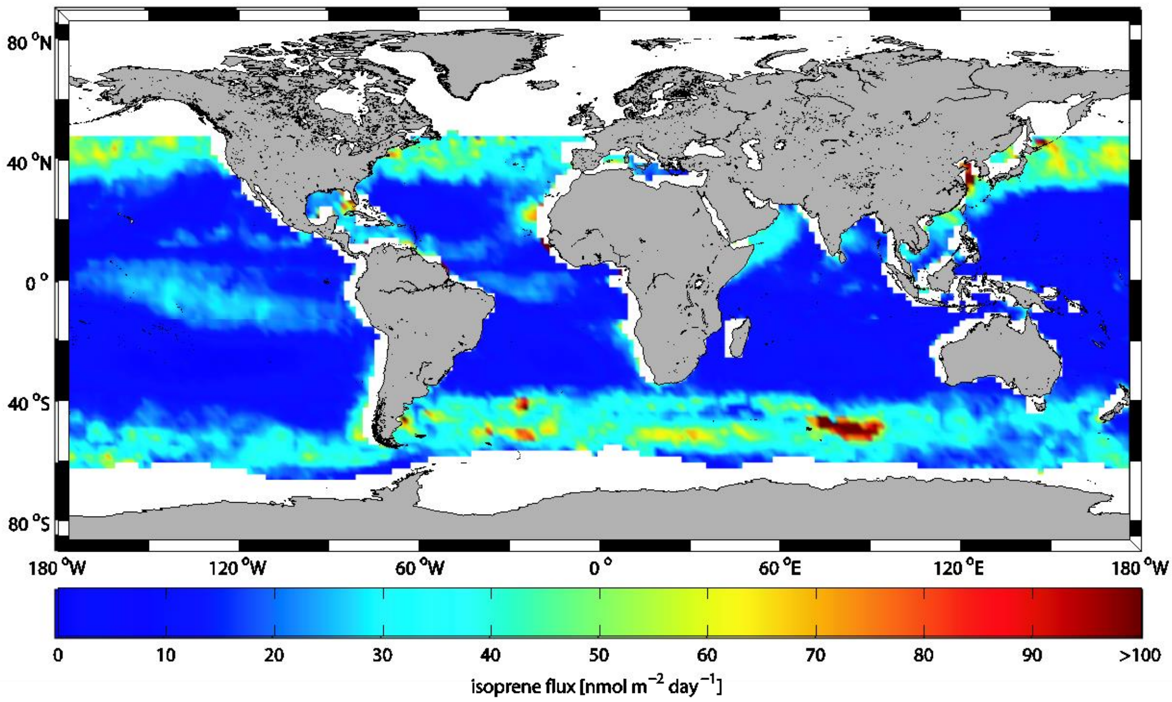


**Figure S13: Global monthly mean marine isoprene fluxes in nmol m$^{-2}$ day$^{-1}$ for December 2014.**

**References**

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