Supporting Information for

Joint controls of solar radiation and precipitation on the photosynthesis of Amazon forests during the 2015 drought

Xing Li[1,2], Jingfeng Xiao[2*], Binbin He[1,3*]

[1]School of Resources and Environment, University of Electronic Science and Technology of China, No. 2006, Xiyuan Ave, West Hi-Tech Zone, Chengdu, 611731, China, [2]Earth Systems Research Center, Institute for the Study of Earth, Oceans, and Space, University of New Hampshire, Durham, NH 03824, USA, [3]Center for Information Geoscience, University of Electronic Science and Technology of China, No. 2006, Xiyuan Ave, West Hi-Tech Zone, Chengdu, 611731, China

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Introduction

This supporting information provides supplementary figures to support the text in the results and discussion of the main article.

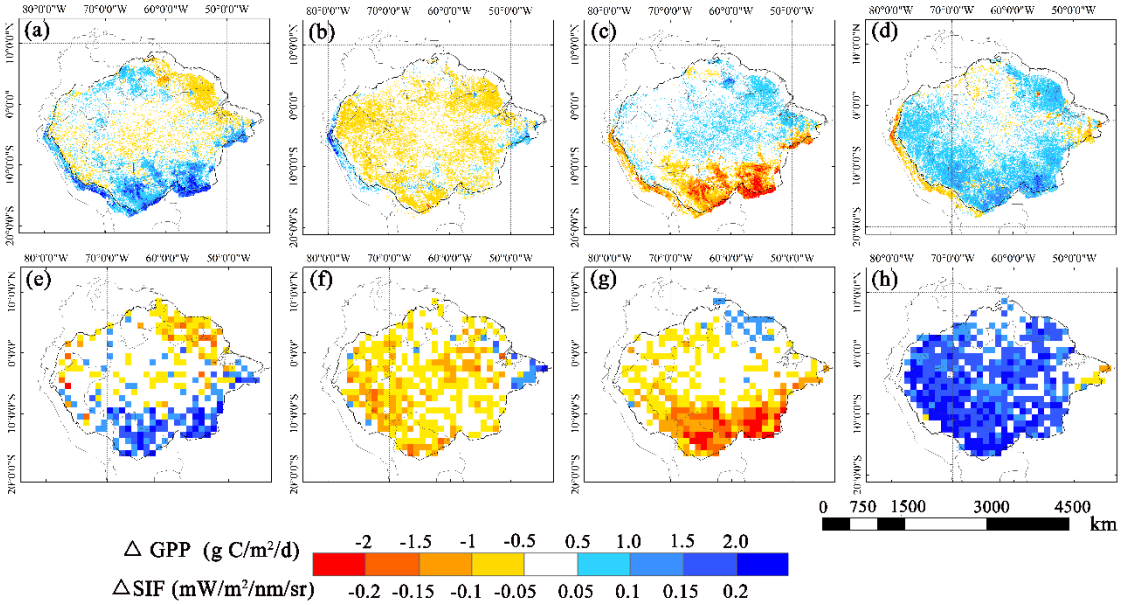

Figure S1. Spatial and temporal evolutions of gridded GPP (a-d) and GOME-2 SIF (e-h) throughout the four seasons with a, e for JFM; b, f for AMJ; c, g for JAS; and d, h for OND, respectively. Both datasets were averaged over the period from 2007 to 2010 for each season.

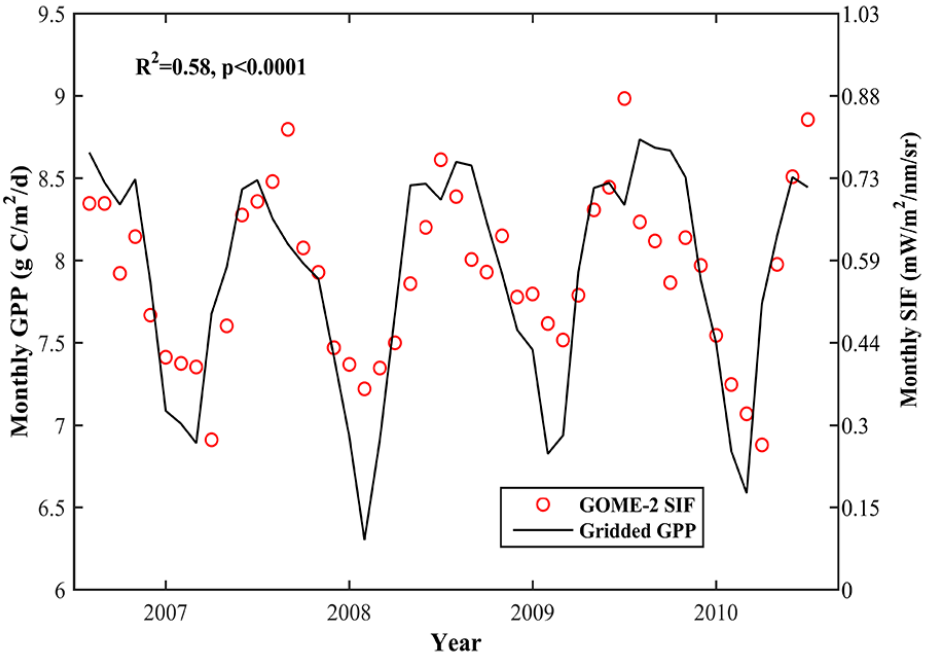

Figure S2. The seasonal cycles of gridded GPP (black line) and GOME-2 SIF (red circles) in the southeastern Amazon.

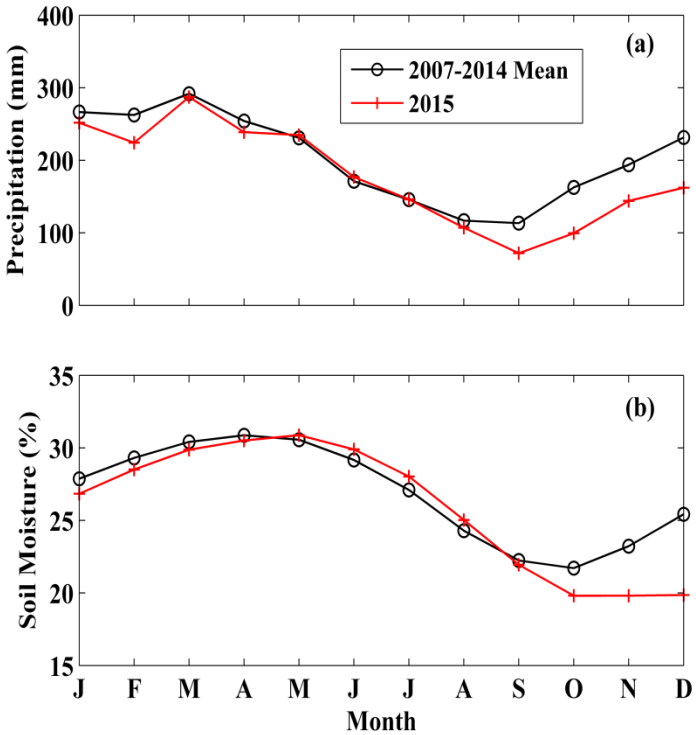

Figure S3. Monthly precipitation and soil moisture averaged over Amazon basin: (a) monthly total precipitation (mm), (b) monthly mean soil moisture (%). The multi-year means from 2007 to 2014 are shown in black lines with circles, and the 2015 values are shown in red lines with plus symbols.

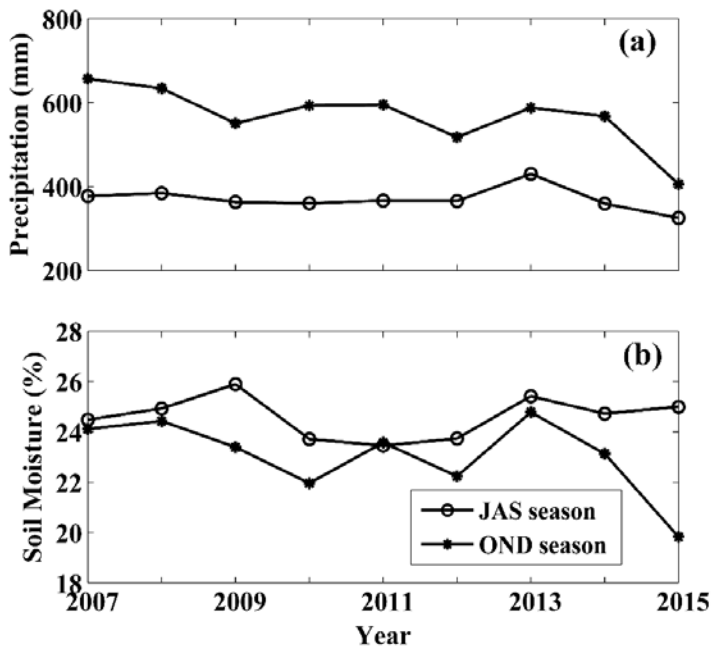

Figure S4. Seasonal precipitation and soil moisture averaged over Amazon basin from 2007 to 2015: (a) seasonal total precipitation (mm), (b) seasonal mean soil moisture (%). The interannual variability in JAS season is shown in black line with circles, and the variability in OND season is shown in black line with asterisks.

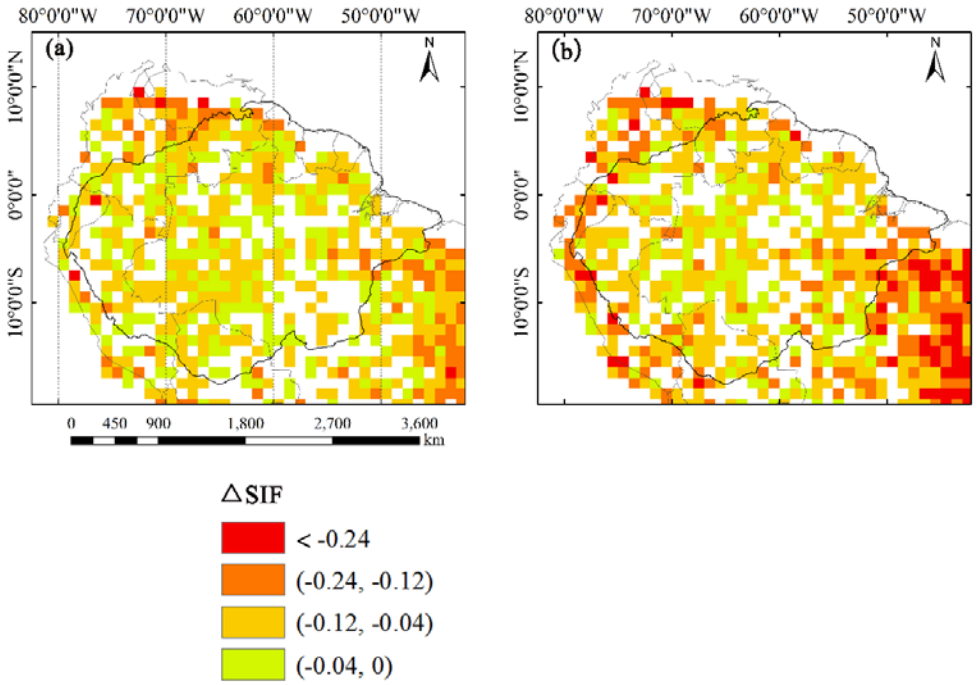

Fig. S5 The anomalies of SIF in 2015 relative to 2011: (a) anomalies from January to December; (b) anomalies from July to December.

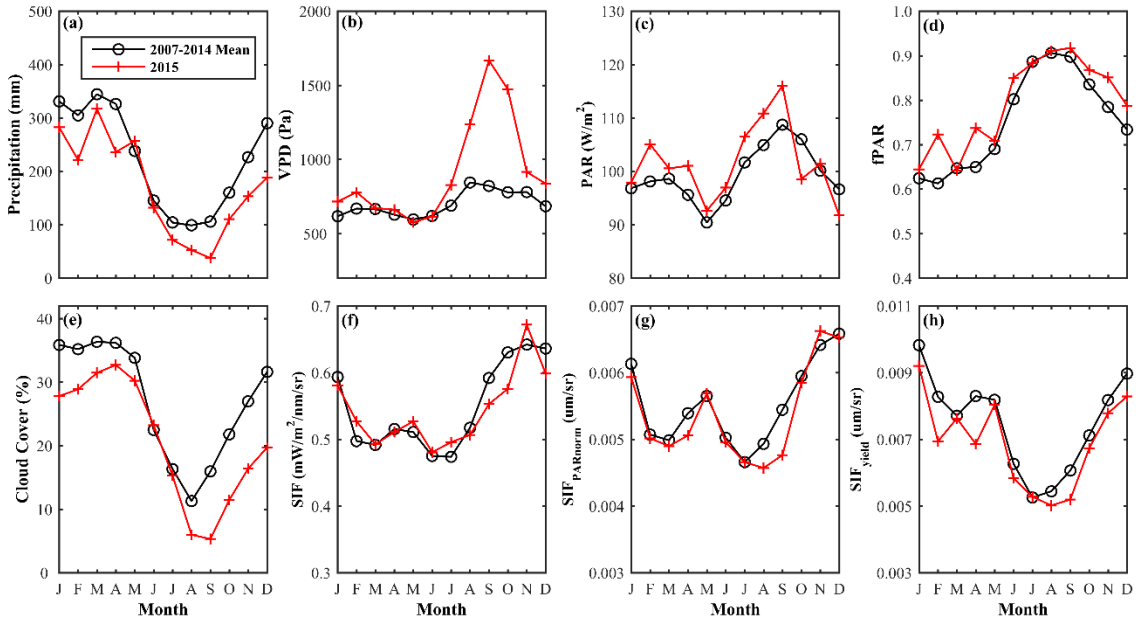

Figure S6. The seasonal cycle of monthly precipitation (a), VPD (b), PAR (c), fPAR (d), cloud cover (e), SIF (f), SIF_{PAR_norm} (g), and SIF_{yield} (h) for the central Amazon (region B defined in Supplementary Figure 1). The multi-year means from 2007 to 2014 are shown in black lines with circles, and the 2015 values are shown in red lines with plus symbols.

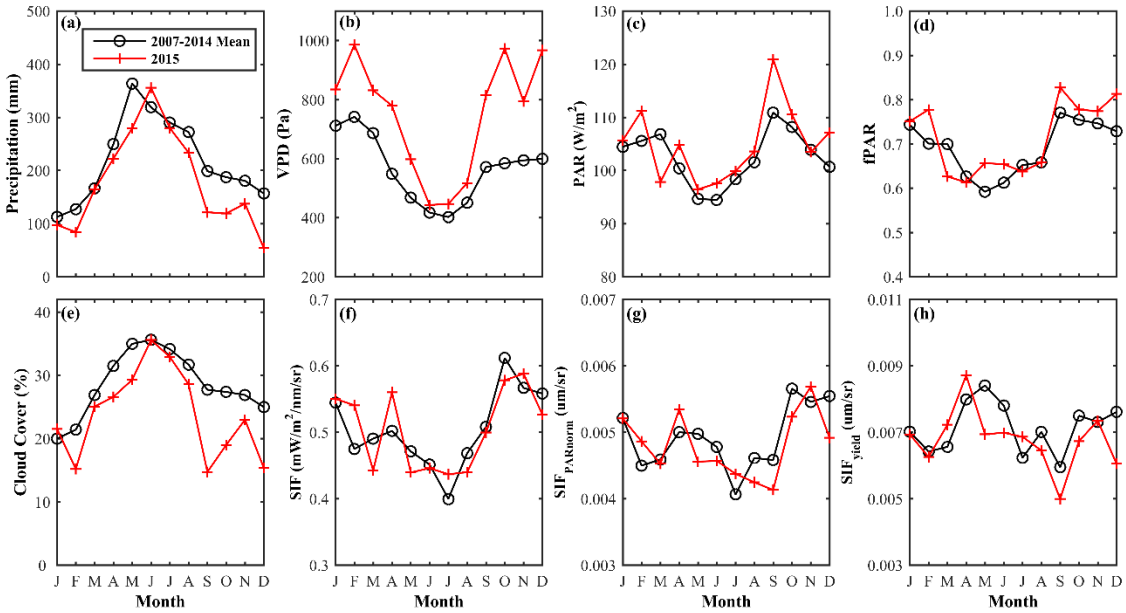

Figure S7. The seasonal cycle of monthly precipitation (a), VPD (b), PAR (c), fPAR (d), cloud cover (e), SIF (f), SIF_{PAR_norm} (g), and SIF_{yield} (h) for the northern Amazon (region C defined in Supplementary Figure 1). The multi-year means from 2007 to 2014 are shown in black lines with circles, and the 2015 values are shown in red lines with plus symbols.

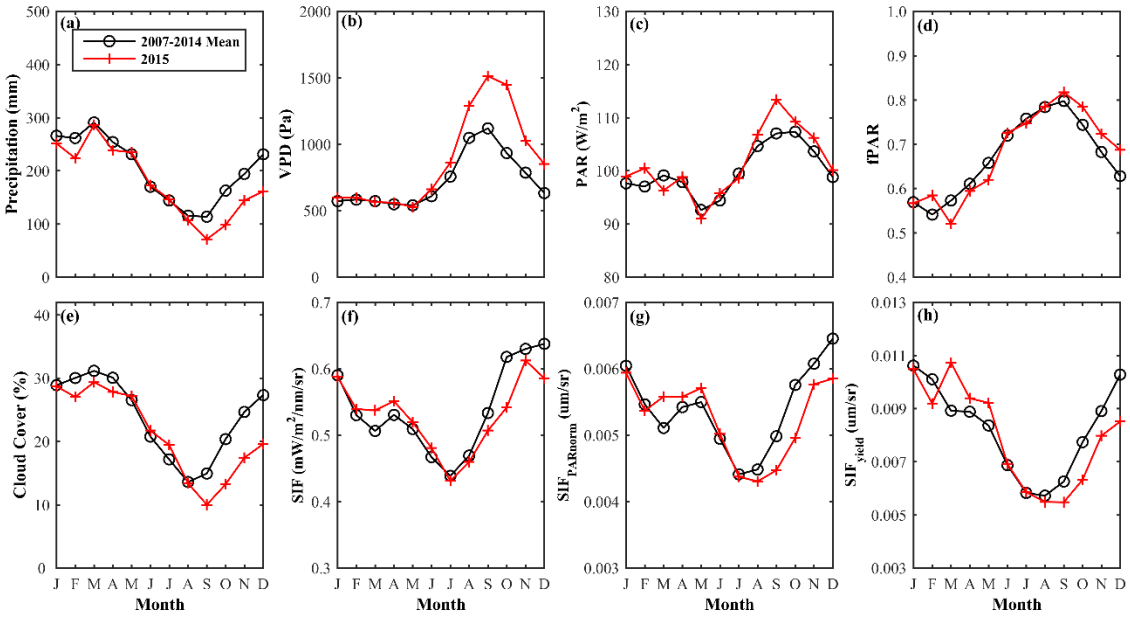

Figure S8. The seasonal cycle of monthly precipitation (a), VPD (b), PAR (c), fPAR (d), cloud cover (e), SIF (f), SIF_{PAR_norm} (g), and SIF_{yield} (h) for the entire Amazon basin. The multi-year means from 2007 to 2014 are shown in black lines with circles, and the 2015 values are shown in red lines with plus symbols.

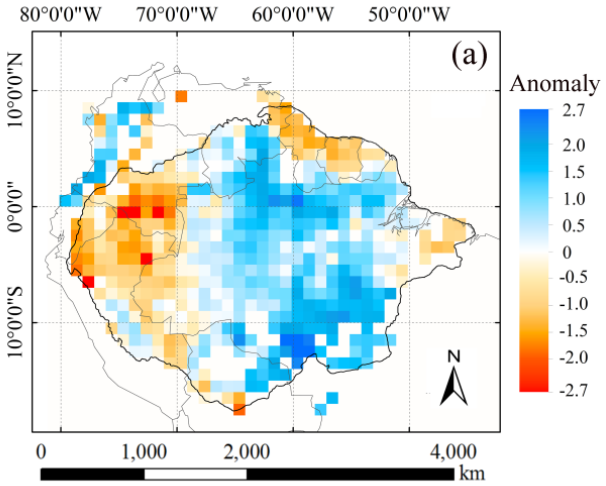

Figure S9. The spatial distribution of anomalies of LAI in 2015 relative to the means over the period 2007–2014 in Amazon.