1 **Supporting Information for**

2 **"Large impact of coarse-resolution atmospheric transport model error on land-ocean**

3 **and tropic-extratropic partitioning and seasonal cycle in CO$_2$ inversion"**

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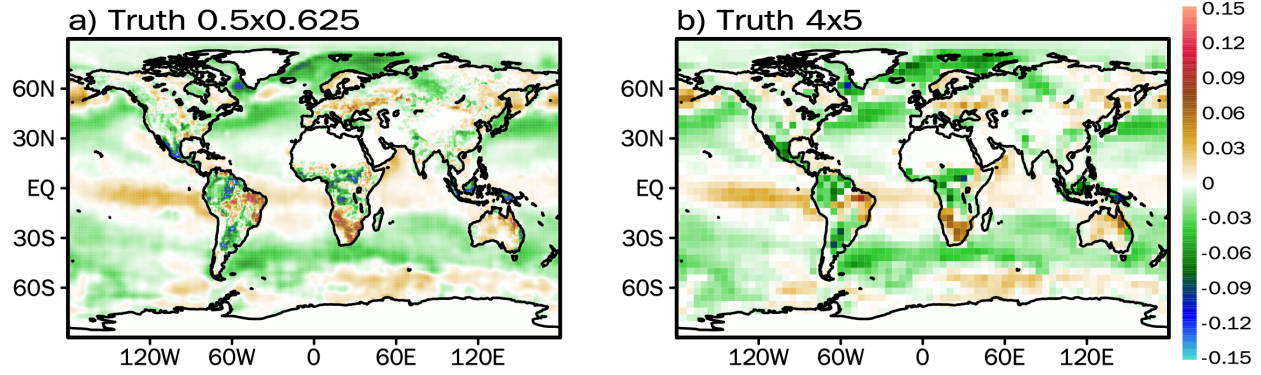**Figure S1.** **The annual mean true surface land and ocean fluxes in nature runs of (a) EXP-biased at 0.5°×0.625° resolution and (b) EXP-perfect at 4°×5° resolution.**

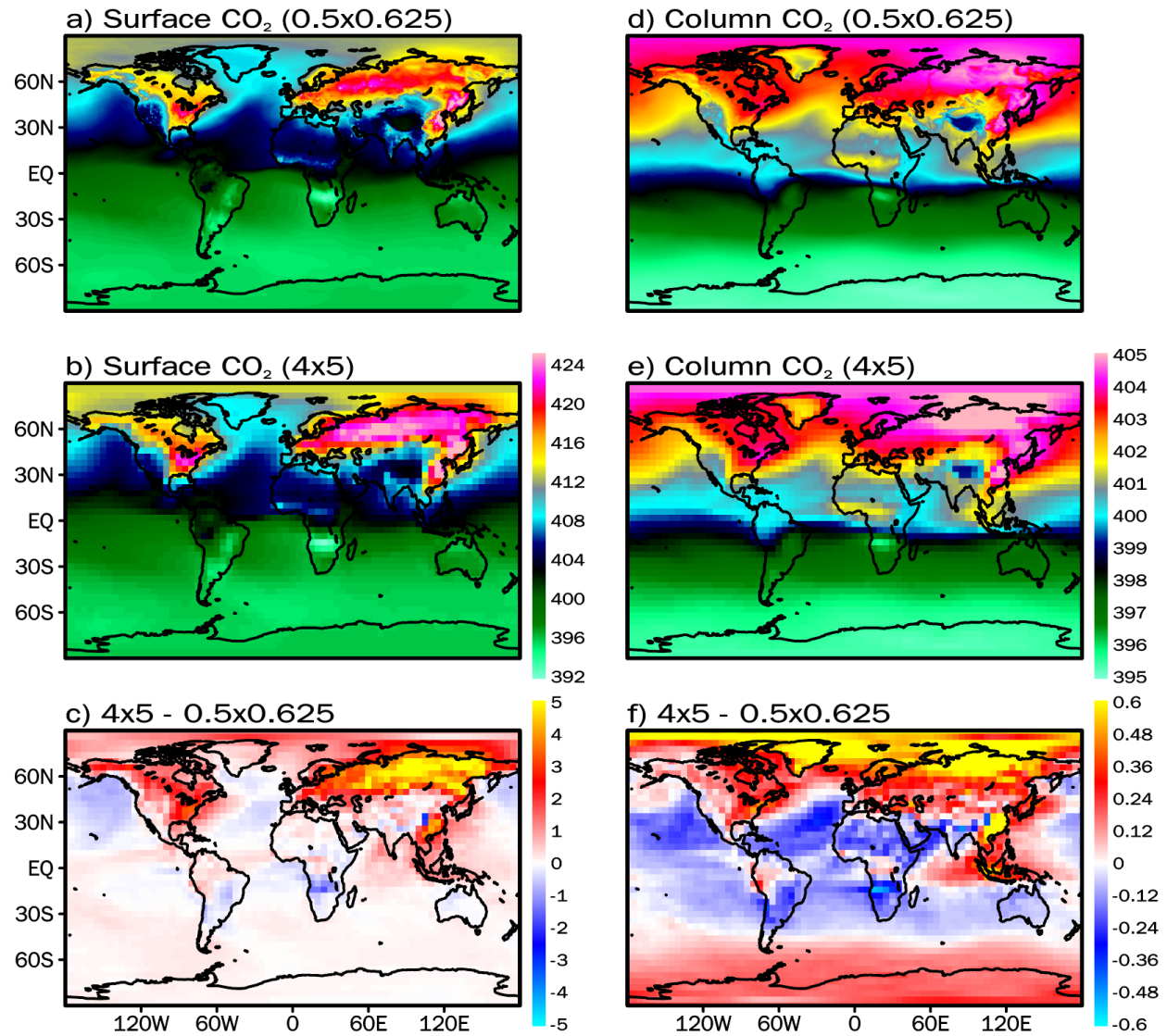**Figure S2.** **The mean surface CO_2 and column CO_2 pattern of nature runs at horizontal resolutions of 0.5°×0.625° (a, d) and 4°×5° (b, e) from January to March. (c, f) The difference between the two nature runs.**
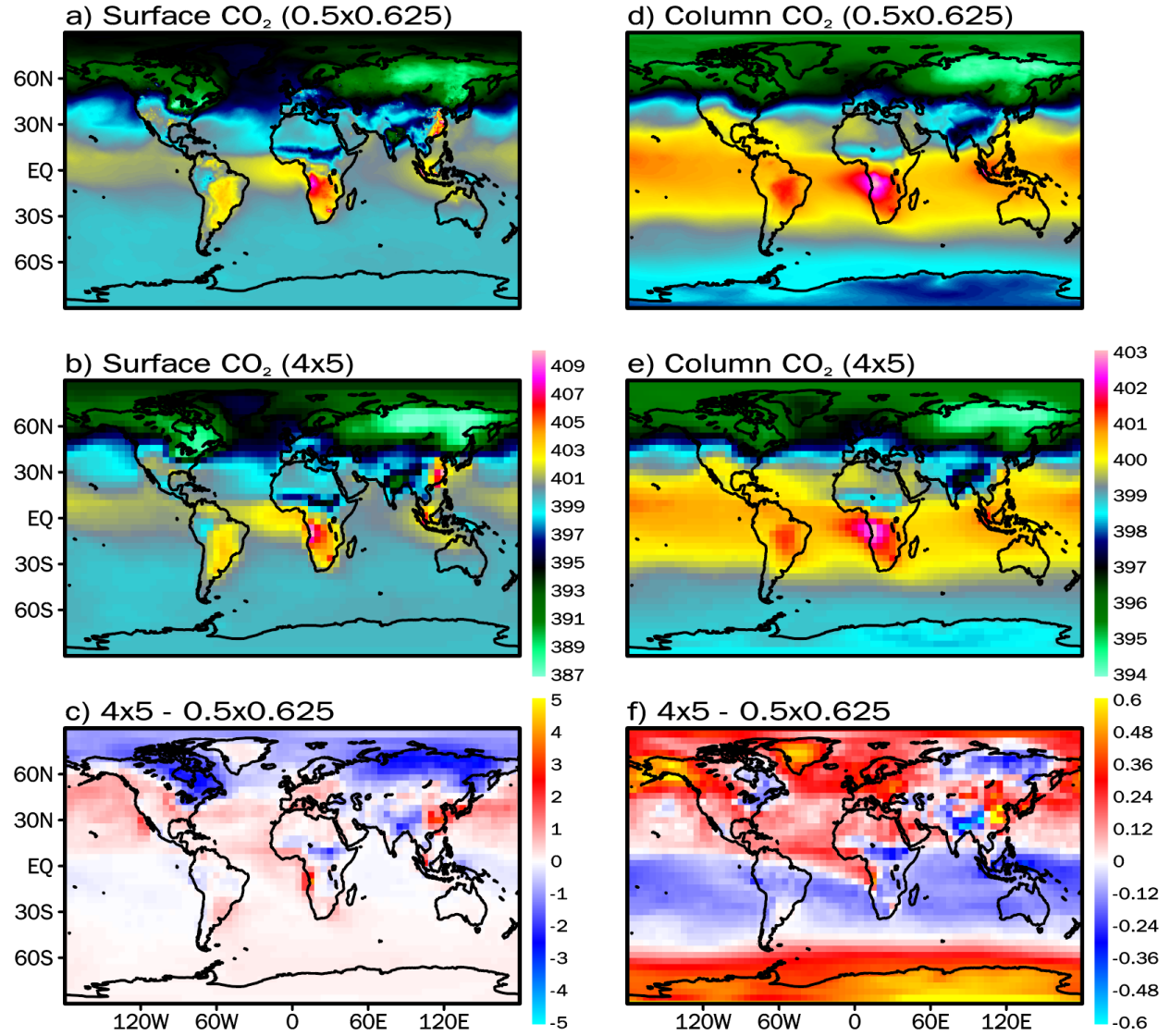
Figure S3. **The mean surface CO₂ and column CO₂ pattern of nature runs at horizontal resolutions of 0.5°×0.625° (a, d) and 4°×5° (b, e) from July to September. (c, f) The difference between the two nature runs.**

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