



Supplement of

WOMBAT v1.0: a fully Bayesian global flux-inversion framework

Andrew Zammit-Mangion et al.

Correspondence to: Andrew Zammit-Mangion (azm@uow.edu.au)

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Additional figures and tables

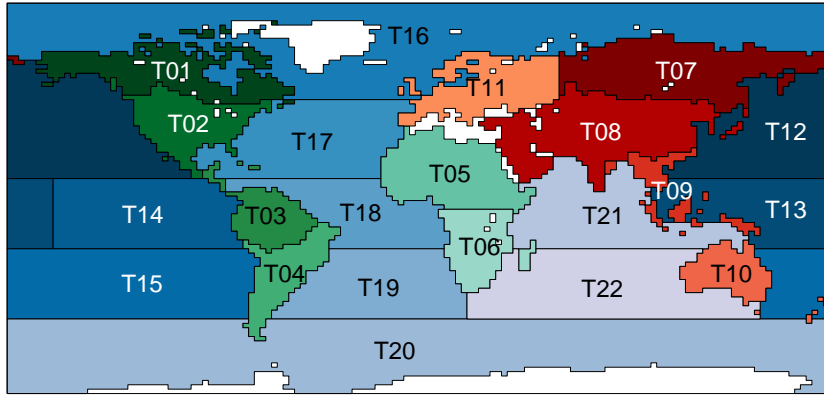


Figure S1. Map of the 22 TransCom3 regions used in our study. The names of these regions are given in Table S1. The white regions correspond to areas assumed to have zero CO₂ surface flux.

Code	Name	Type
T01	North American Boreal	Land
T02	North American Temperate	Land
T03	Tropical South America	Land
T04	South American Temperate	Land
T05	Northern Africa	Land
T06	Southern Africa	Land
T07	Eurasia Boreal	Land
T08	Eurasia Temperate	Land
T09	Tropical Asia	Land
T10	Australia	Land
T11	Europe	Land
T12	North Pacific Temperate	Ocean
T13	West Pacific Tropical	Ocean
T14	East Pacific Tropical	Ocean
T15	South Pacific Temperate	Ocean
T16	Northern Ocean	Ocean
T17	North Atlantic Temperate	Ocean
T18	Atlantic Tropical	Ocean
T19	South Atlantic Temperate	Ocean
T20	Southern Ocean	Ocean
T21	Indian Tropical	Ocean
T22	South Indian Temperate	Ocean

Table S1. The code, name, and type, of the 22 TransCom3 regions used in our study. A map showing these regions is given in Figure S1.

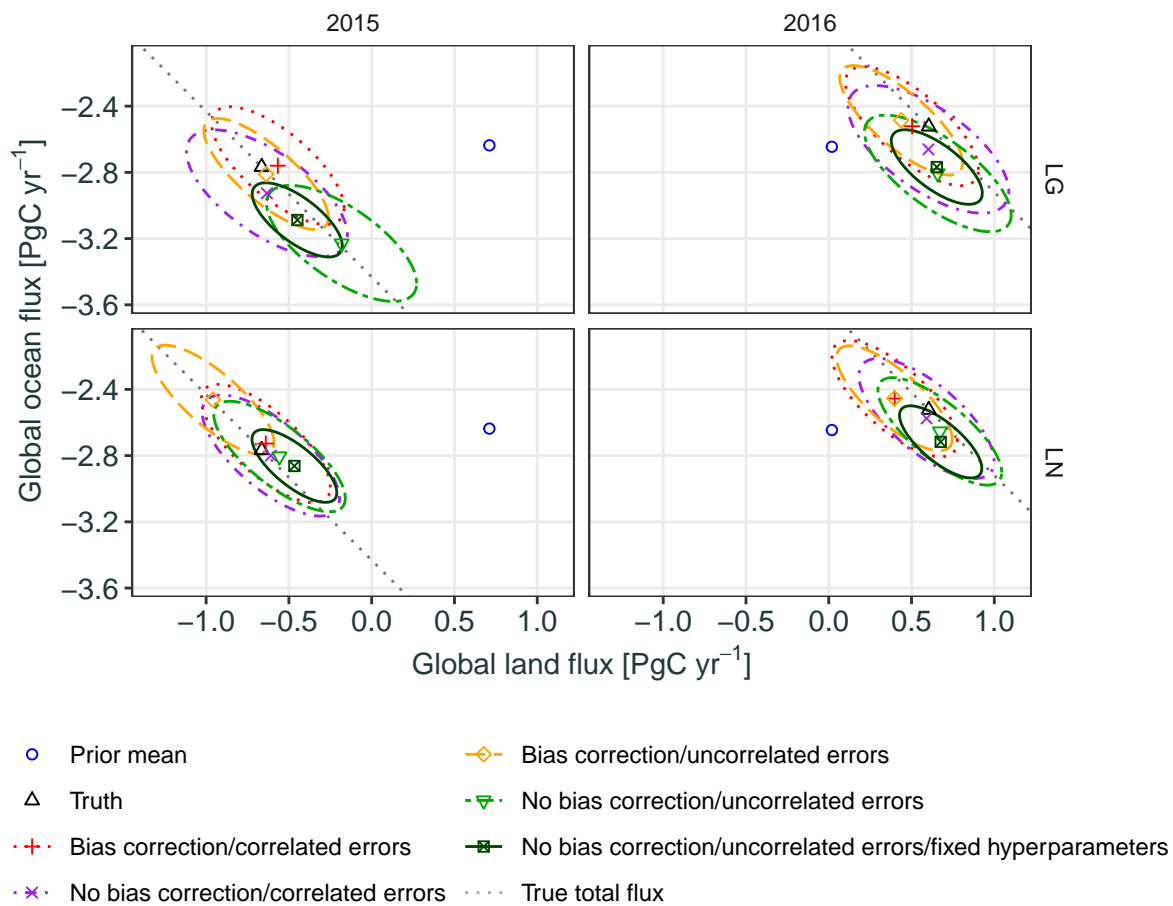


Figure S2. As in Fig. 3, but for global ocean versus global land.

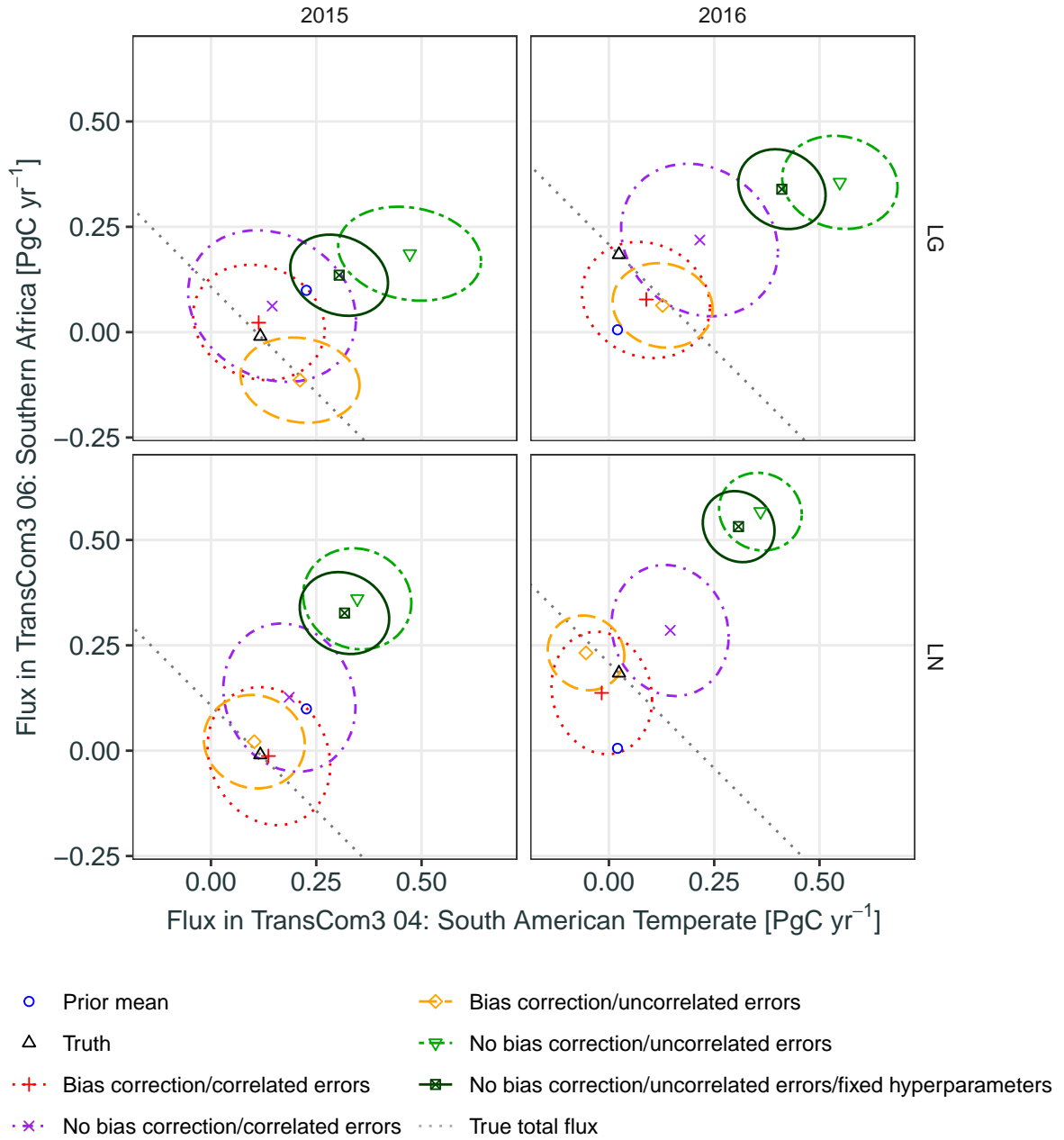


Figure S3. As in Fig. 3, but for the Southern Africa region (TransCom3 region 06) versus the South American Temperate region (TransCom3 region 04).

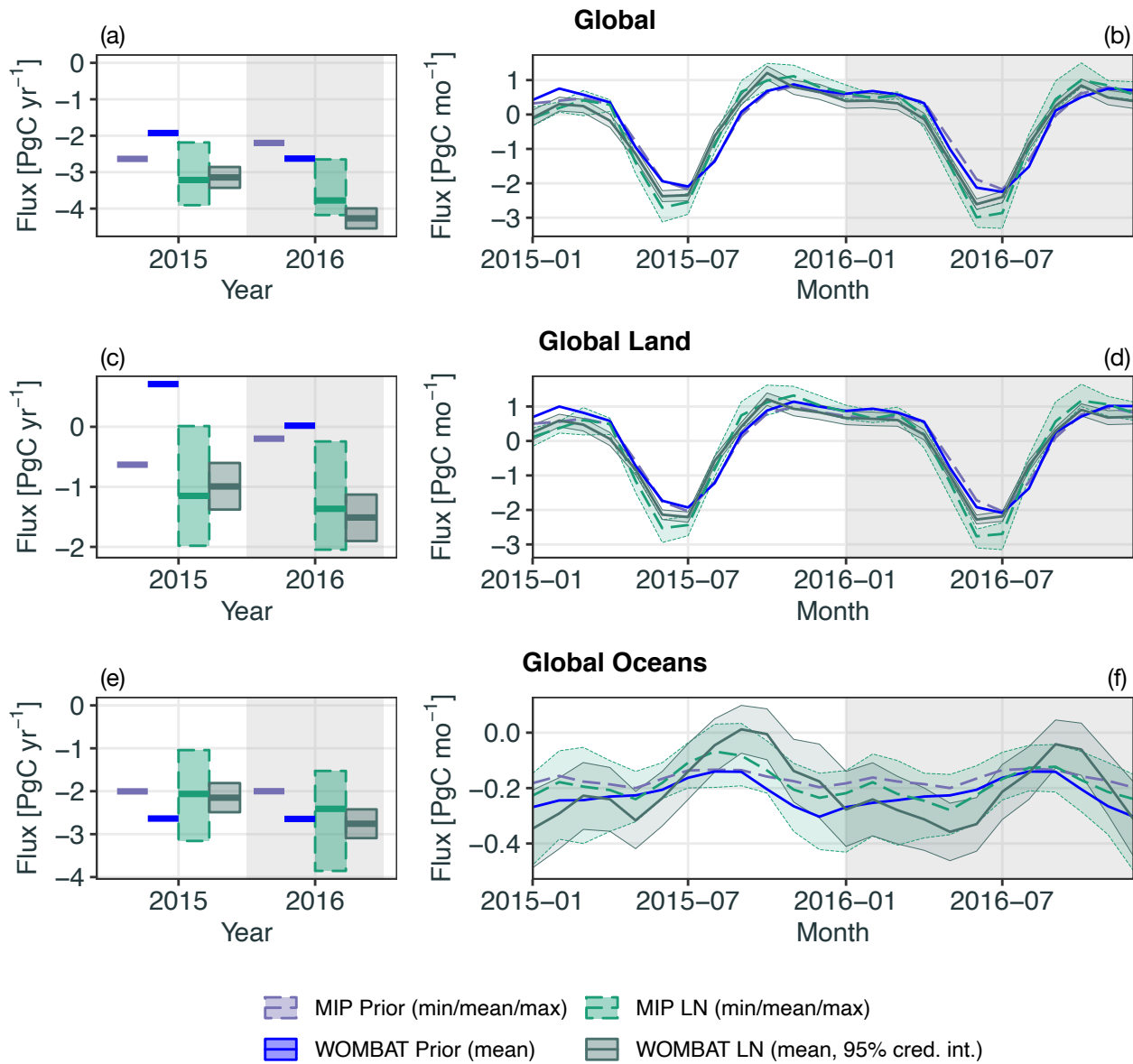


Figure S4. As in Fig. 4, but for LN inversions.

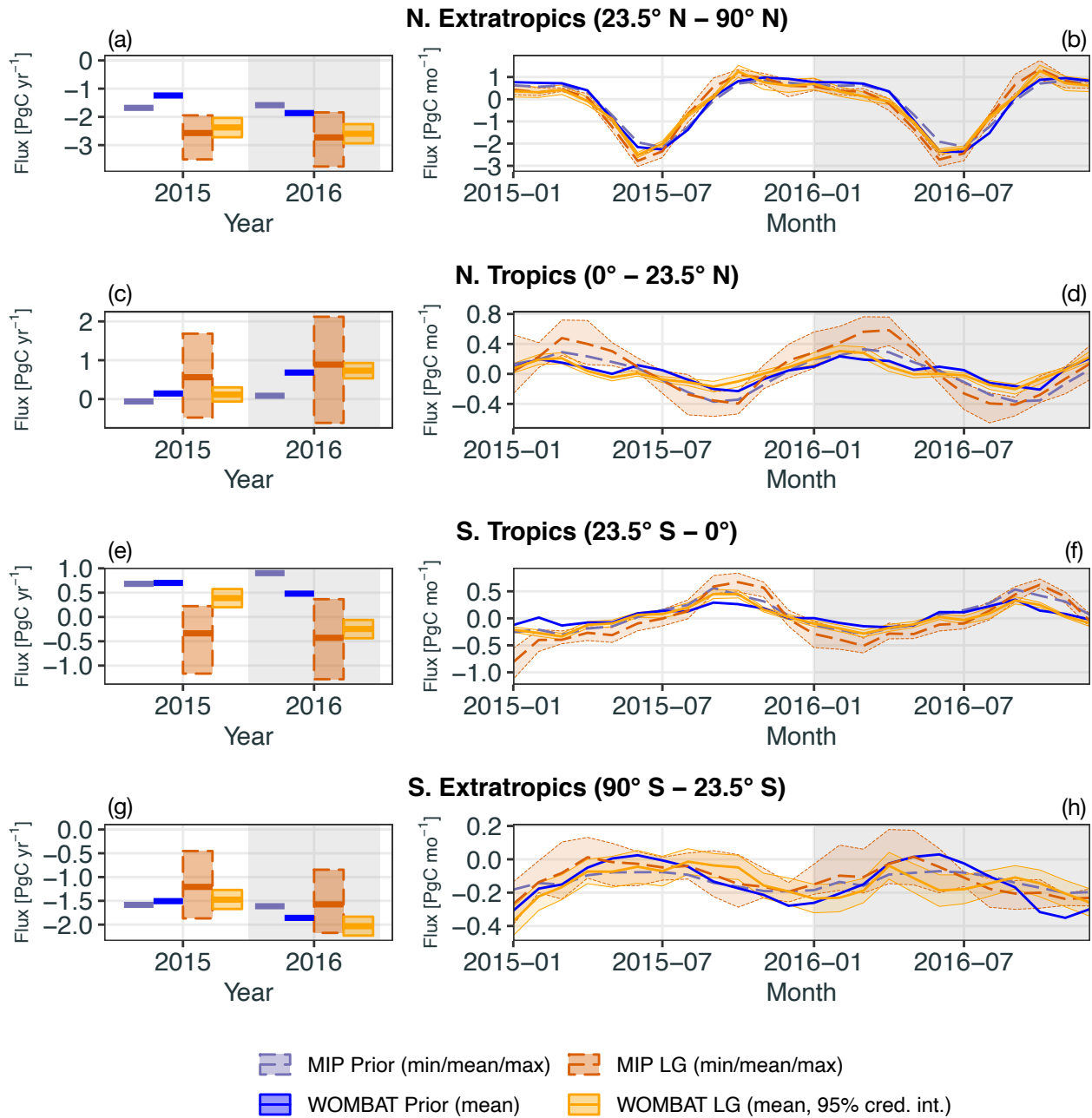


Figure S5. As in Fig. 4, but for zonal bands covering the northern extratropics (a, b; 23.5°N–90°N), the northern tropics (c, d; 0°–23.5° N), the southern tropics (e, f; 23.5° S–0°), and the southern extratropics (g, h; 90° S–23.5° S).

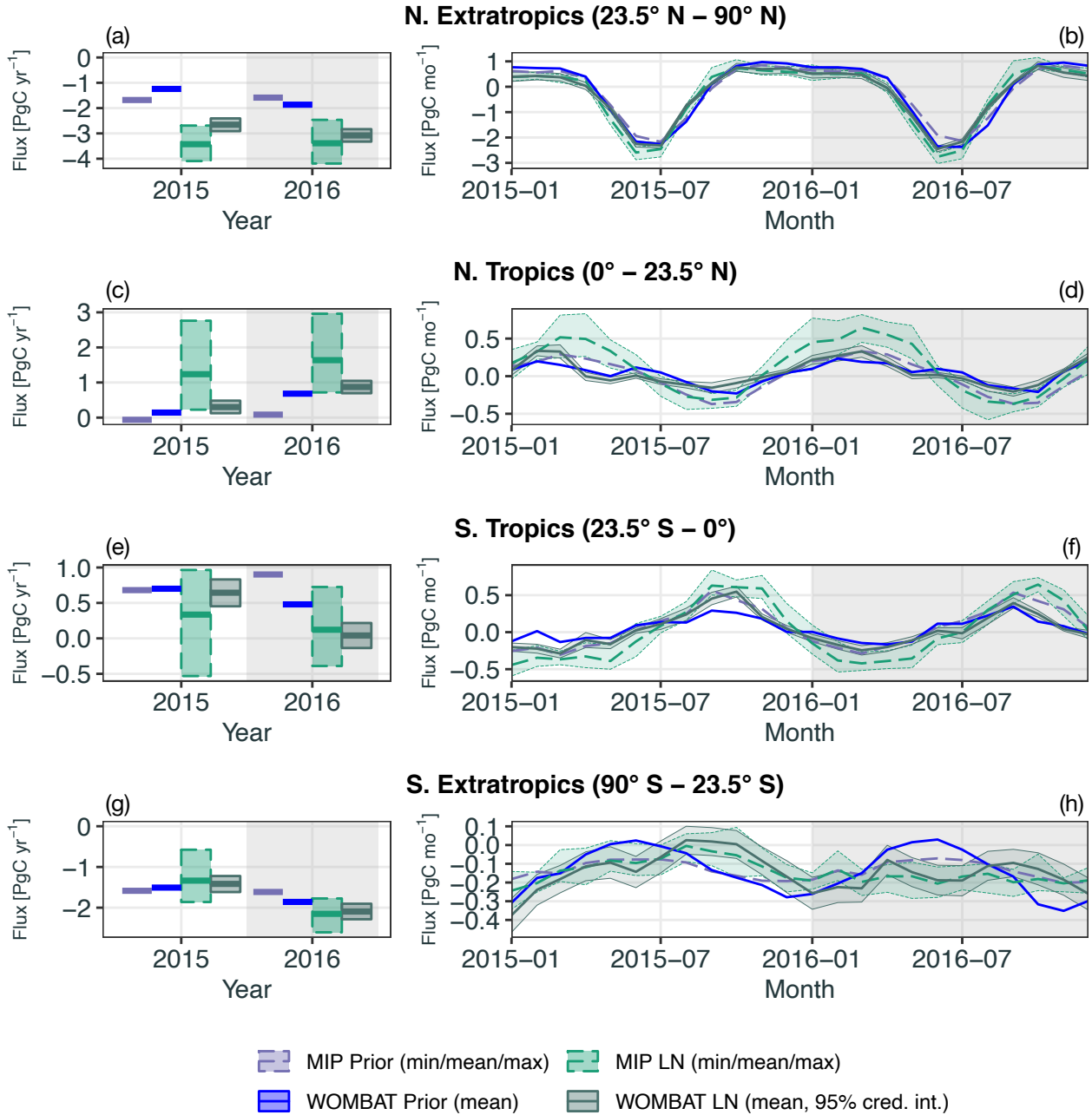


Figure S6. As in Fig. S5, but for LN inversions.

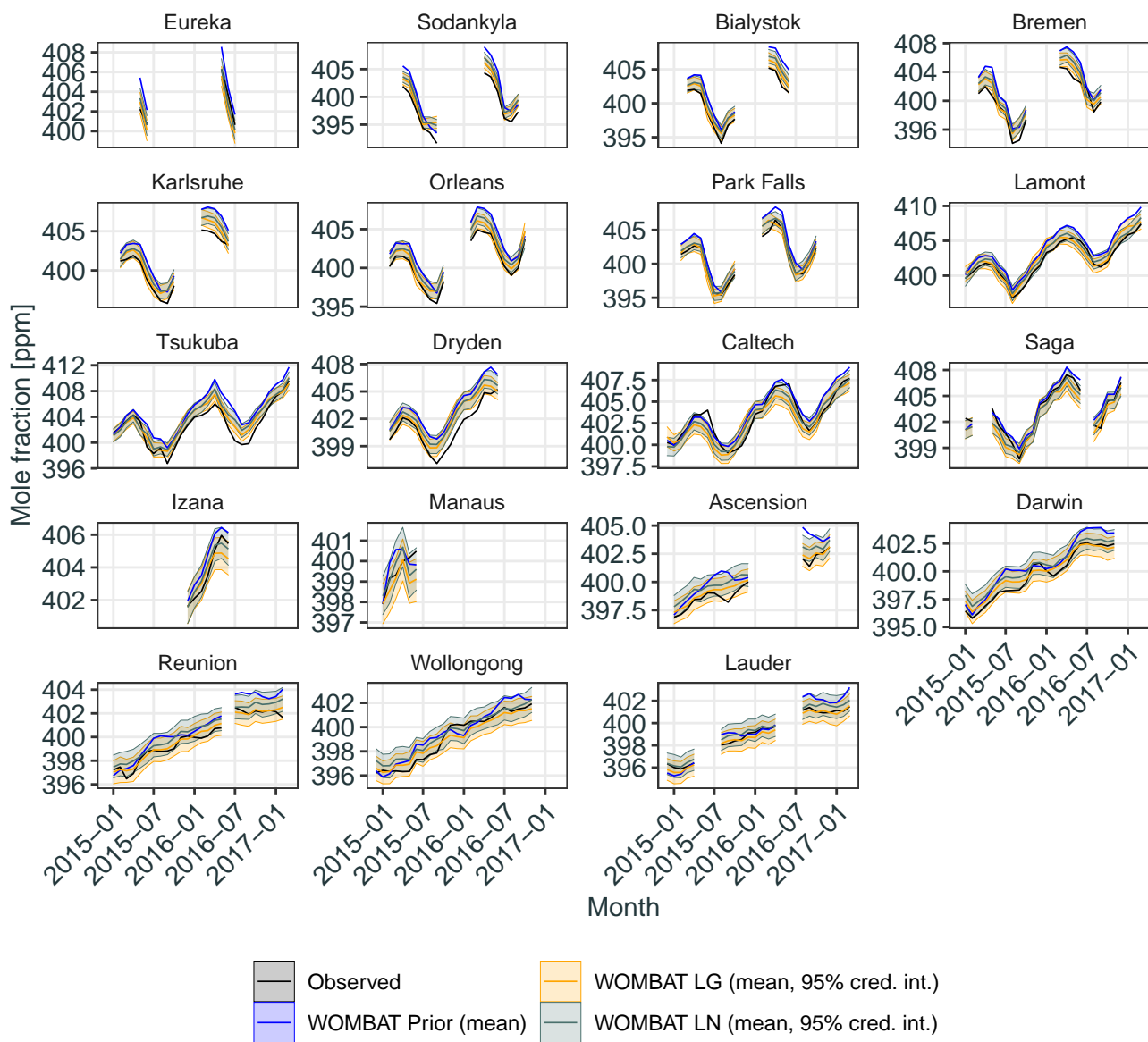


Figure S7. Monthly-averaged TCCON retrievals together with the prior and posterior mole-fraction distributions from WOMBAT, by month and location. Each panel shows the quantities corresponding to a single site. Thick solid black lines show the TCCON retrievals, while thick coloured lines show the prior and posterior mole-fraction means. Shaded areas and thin lines show 95% posterior intervals for the cases “WOMBAT LG” and “WOMBAT LN.”