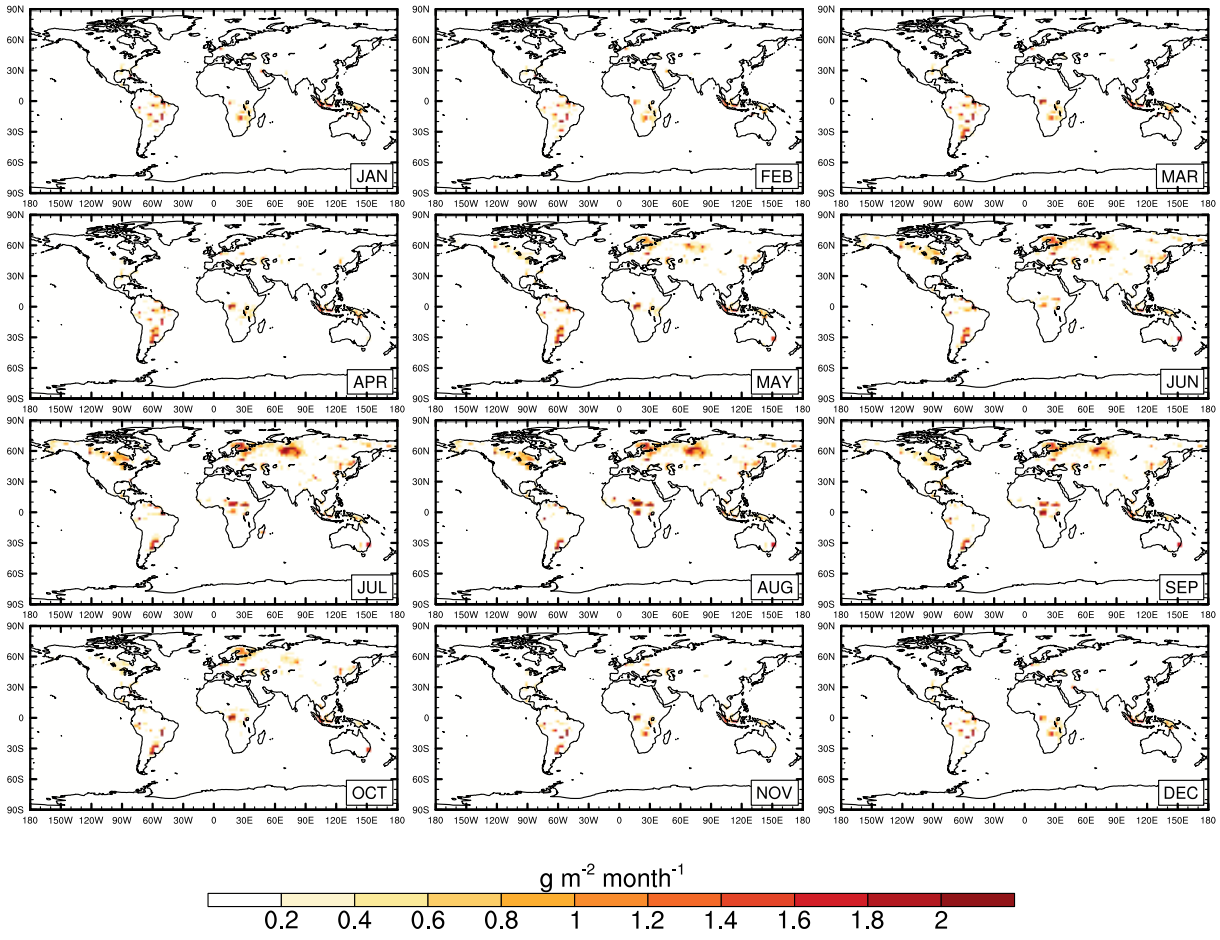

Figure S1: Monthly methane emissions from wetlands (g CH_4 m^{-2} $month^{-1}$).

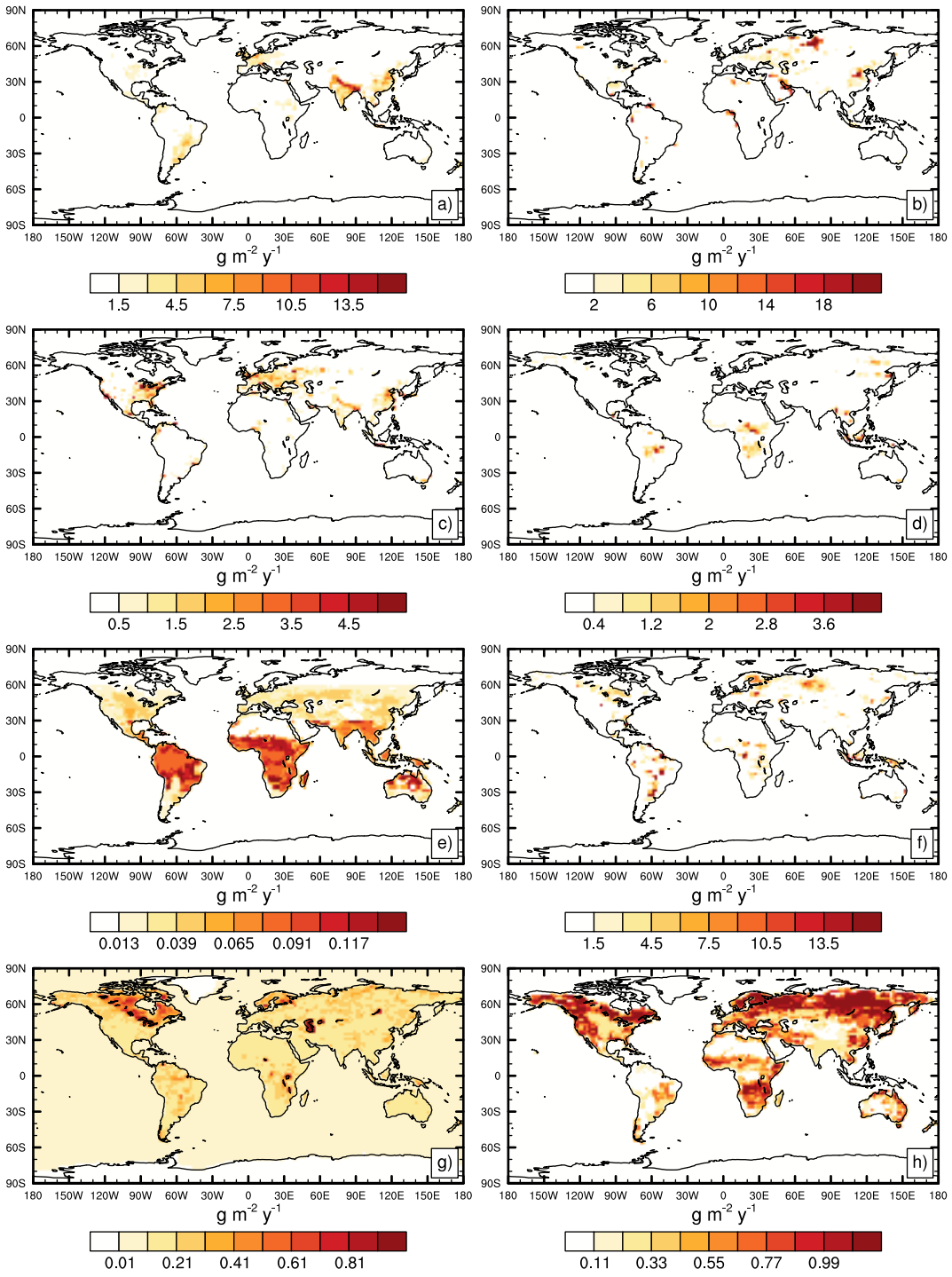

Figure S2: Annual methane fluxes (g CH_4 m^{-2} y^{-1}) as: a) sum of agriculture and agricultural waste burning emissions; b) sum of domestic, energy, industrial, shipping, and transportation emissions; c) waste emissions; d) biomass burning emissions; e) termite emissions; f) wetland emissions; g) sum of marine, terrestrial geological, and lake emissions; and h) soil uptake (positive values indicate magnitude of methane loss to soils).

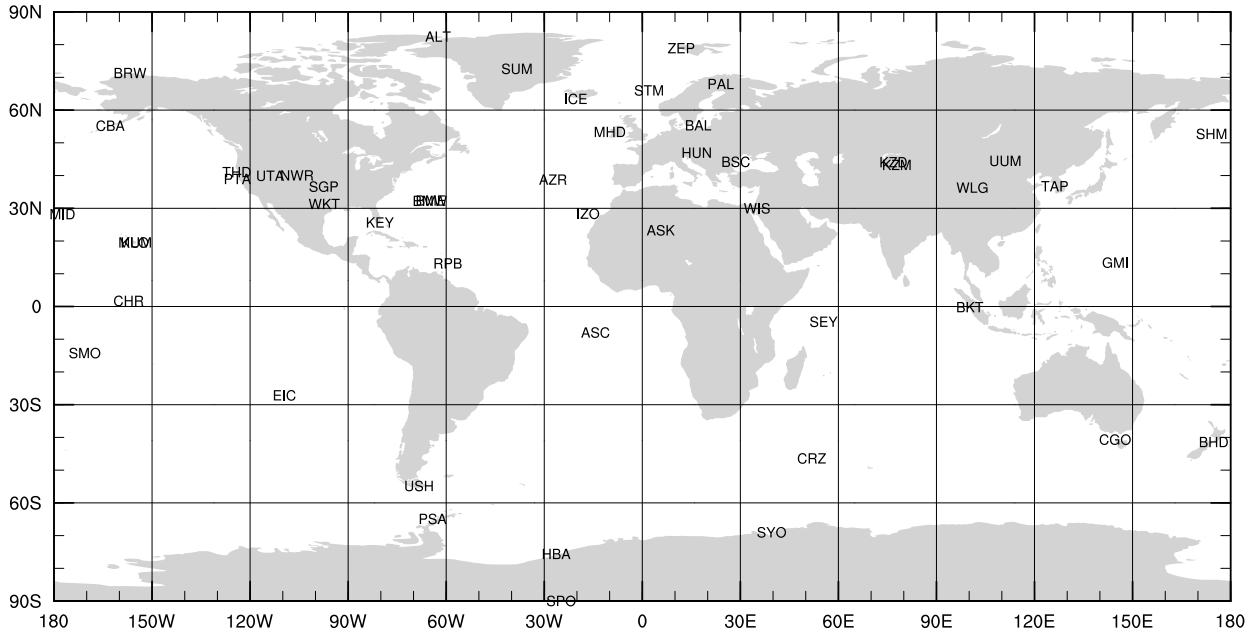

Figure S3: The geographic locations of the 50 measurement stations from the NOAA ESRL global air-sampling network (Dlugokencky et al., 2015) used for the model–measurement comparison of surface methane concentrations. On the map, each station is identified by its 3-letter code; the full station names are available in Fig. 5. For clarity, the two stations near 20º N, 155º W are the Hawaiian sites Mauna Loa (MLO) and Cape Kumukahi (KUM); those near 32º N, 65º W are the Bermudian sites Tudor Hill (BMW) and St. Davids Head (BME); and those near 44º N, 77º E are the Kazakhstani sites Sary Taukum (KZD) and Plateau Assy (KZM).

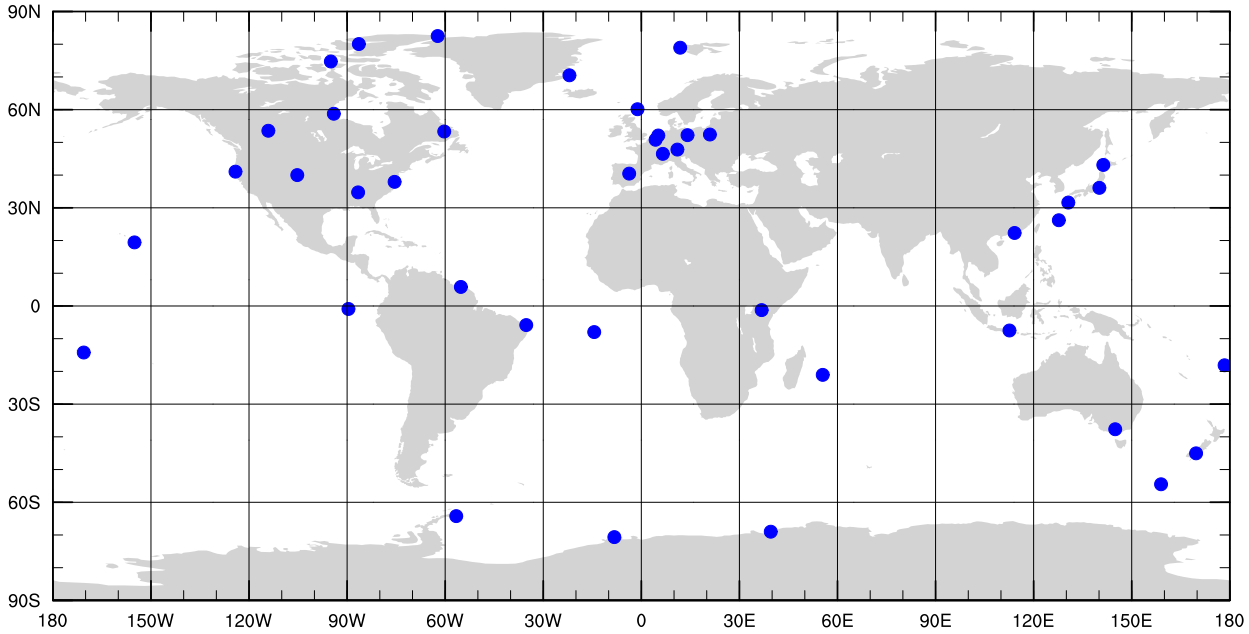

Figure S4: The geographic locations of the 41 measurement stations associated with the ozonesonde climatology (Tilmes et al., 2012) used for the model–measurement comparison of ozone.