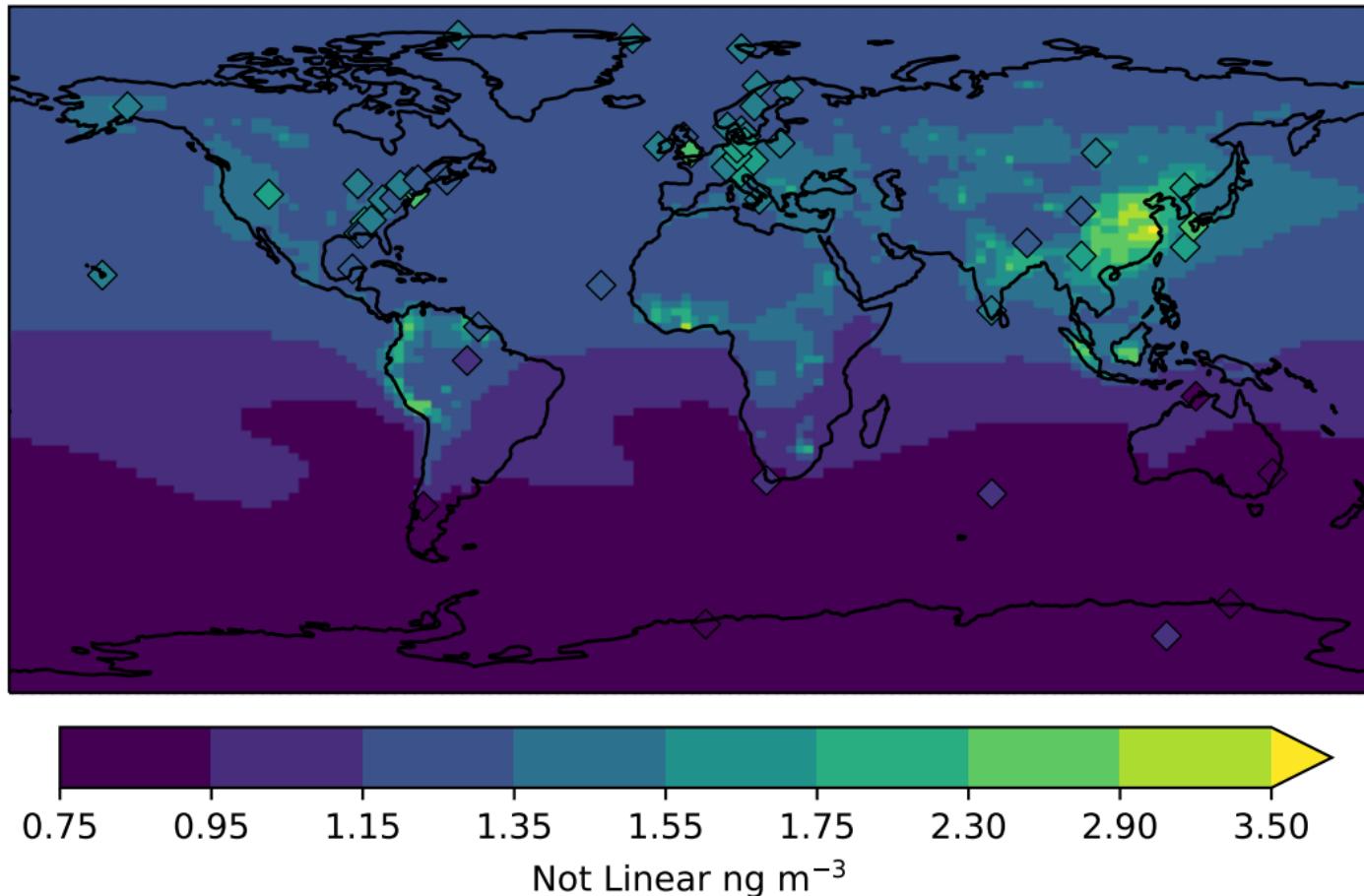


Reference Model Version: Surface TGM

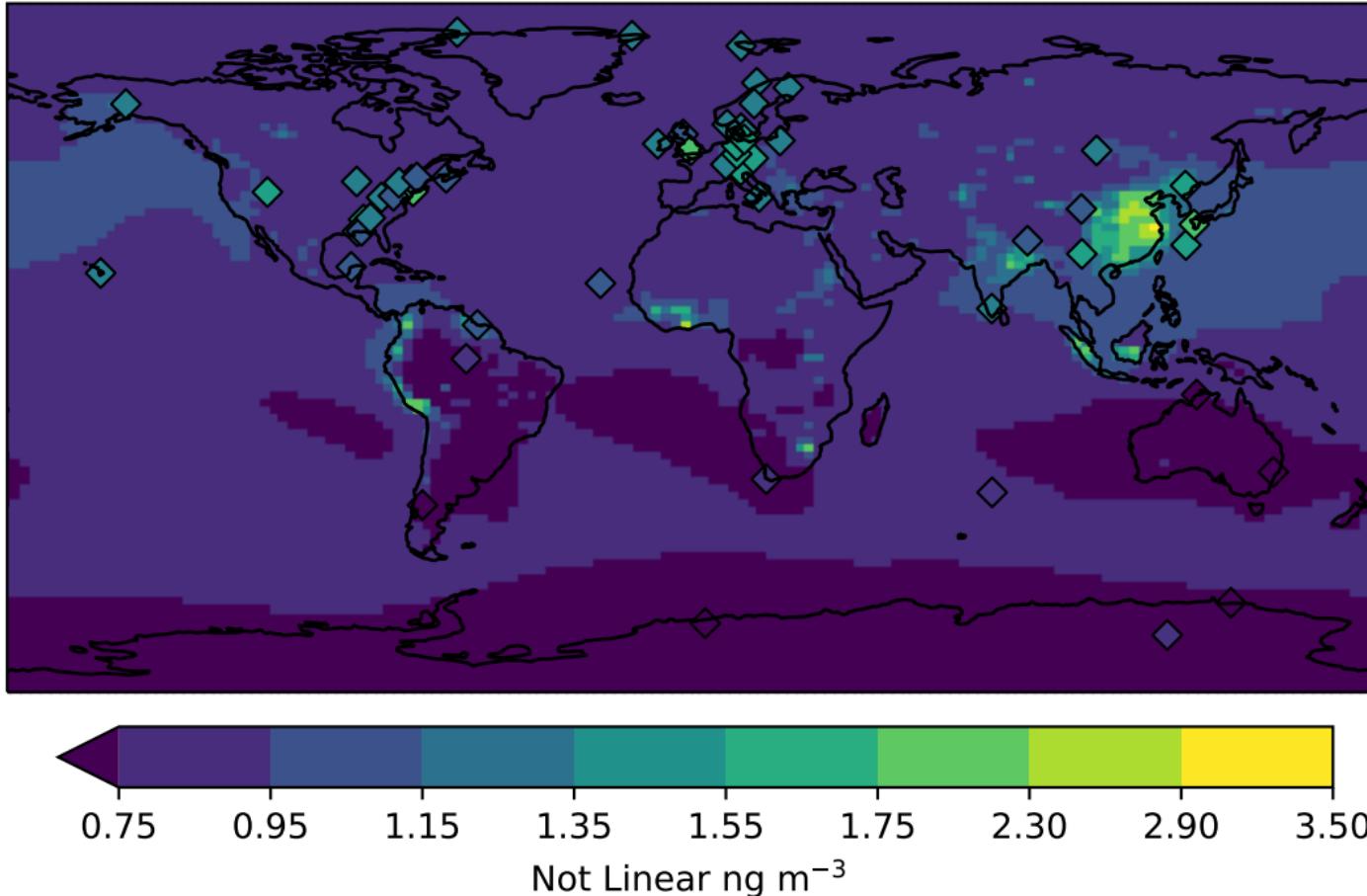


Terrestrial $R^2 = 0.598$

Mean Mod. = $1.29 \pm 0.19 \text{ ng m}^{-3}$

Mean Obs. = $1.39 \pm 0.26 \text{ ng m}^{-3}$

New Model Version: Surface TGM

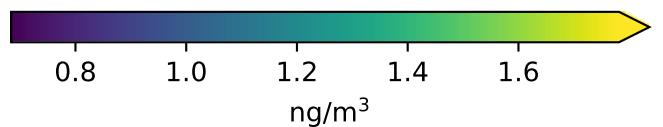
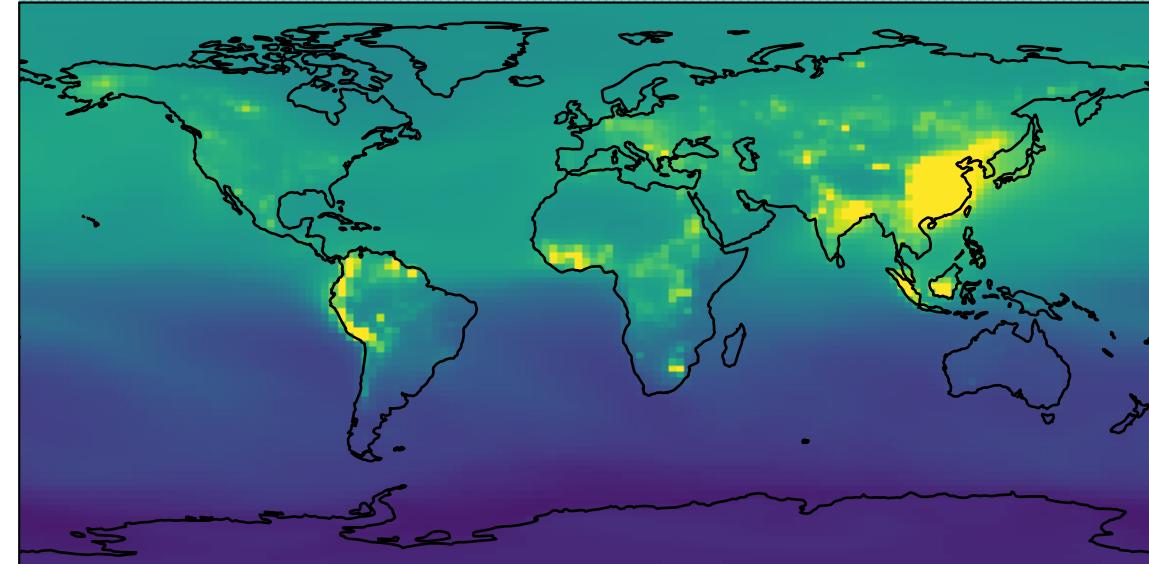


Terrestrial $R^2 = 0.432$

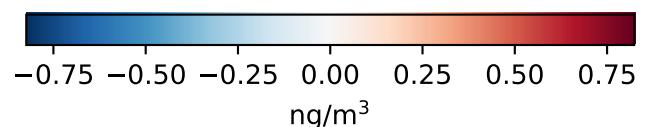
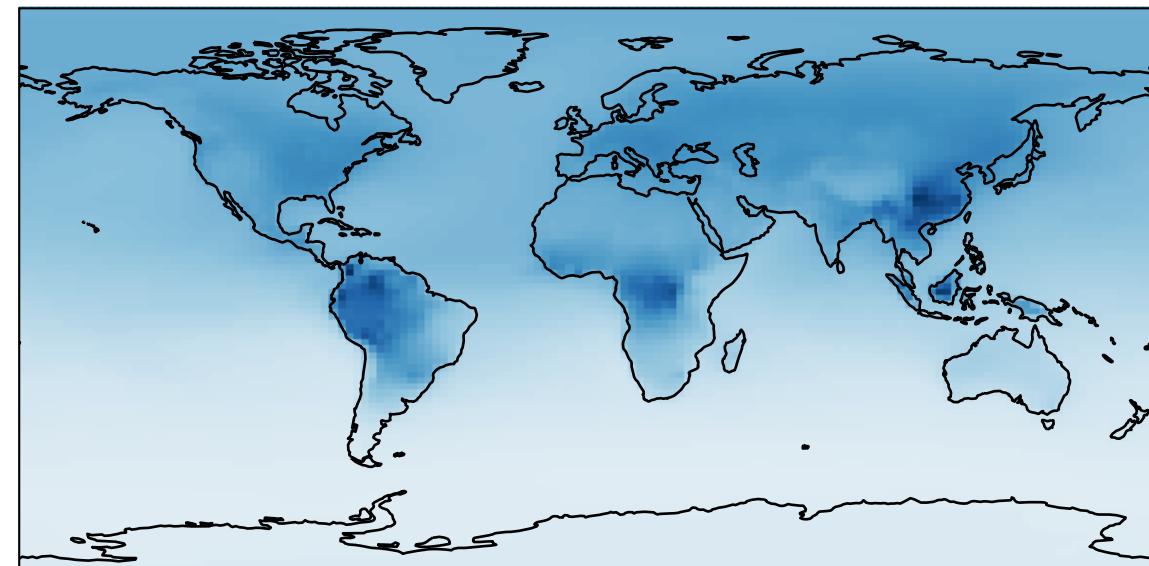
Mean Mod. = $0.87 \pm 0.11 \text{ ng m}^{-3}$

Mean Obs. = $1.39 \pm 0.26 \text{ ng m}^{-3}$

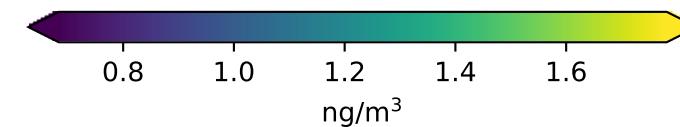
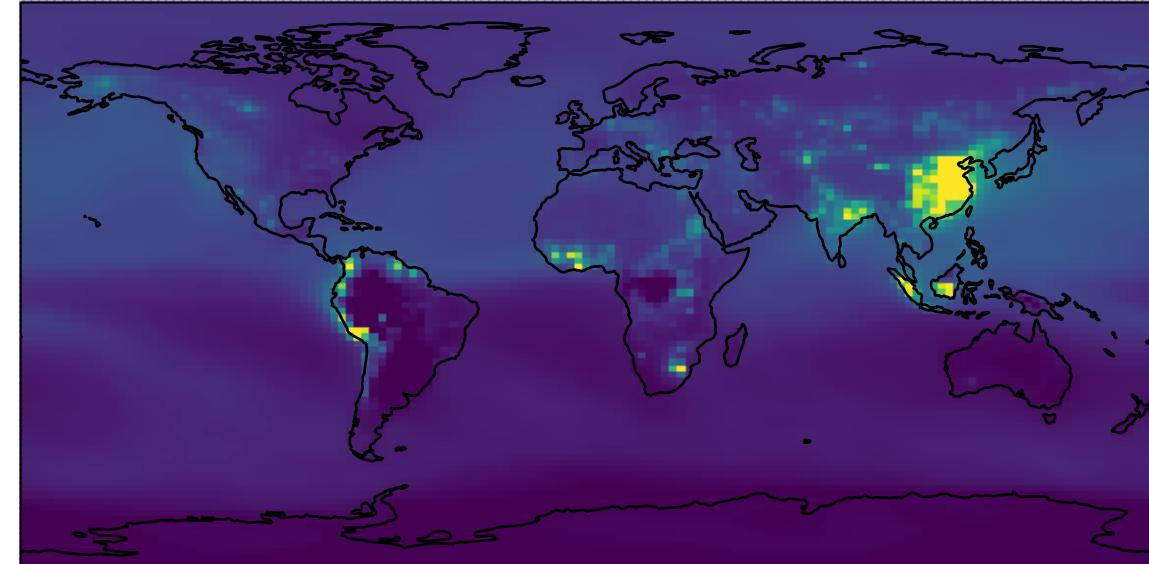
Reference Model Version: Surface TGM



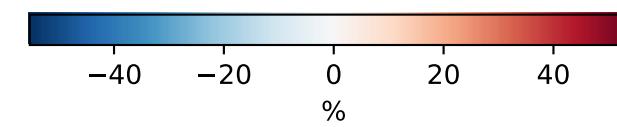
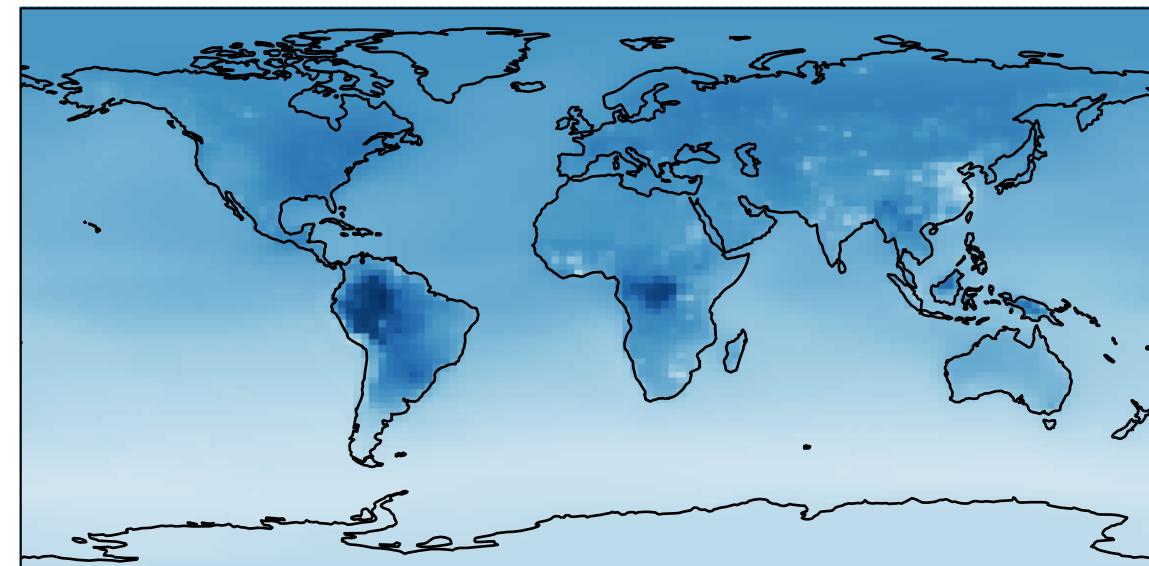
Absolute Difference



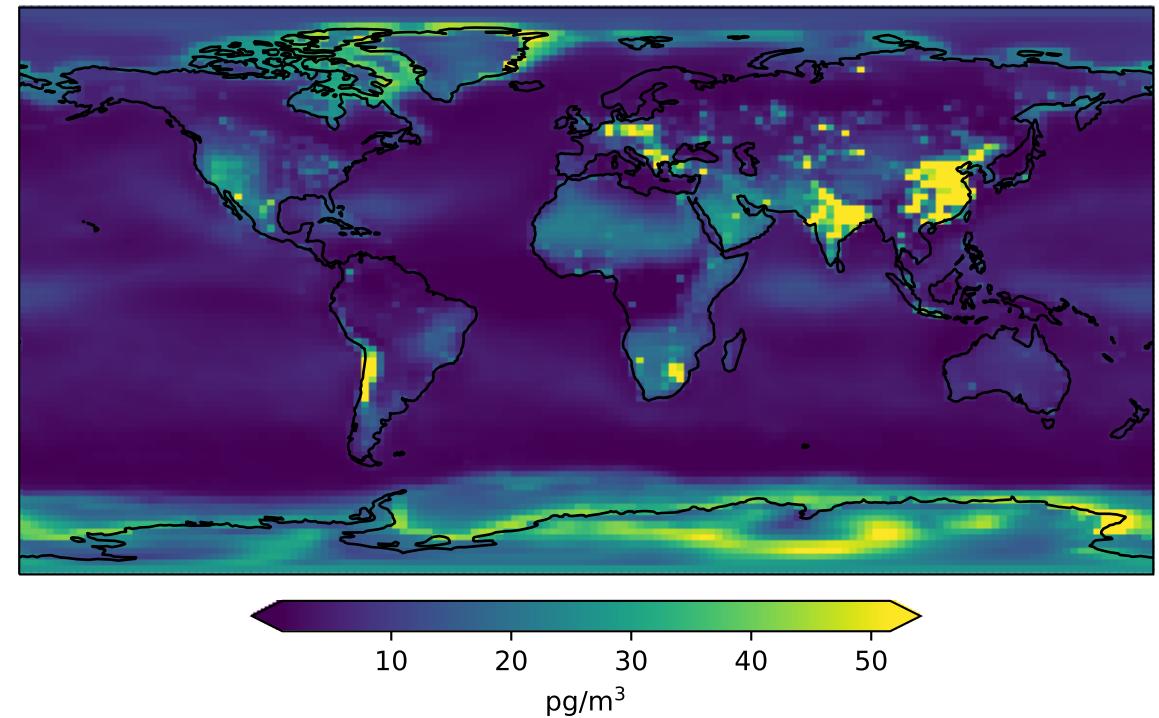
New Model Version: Surface TGM



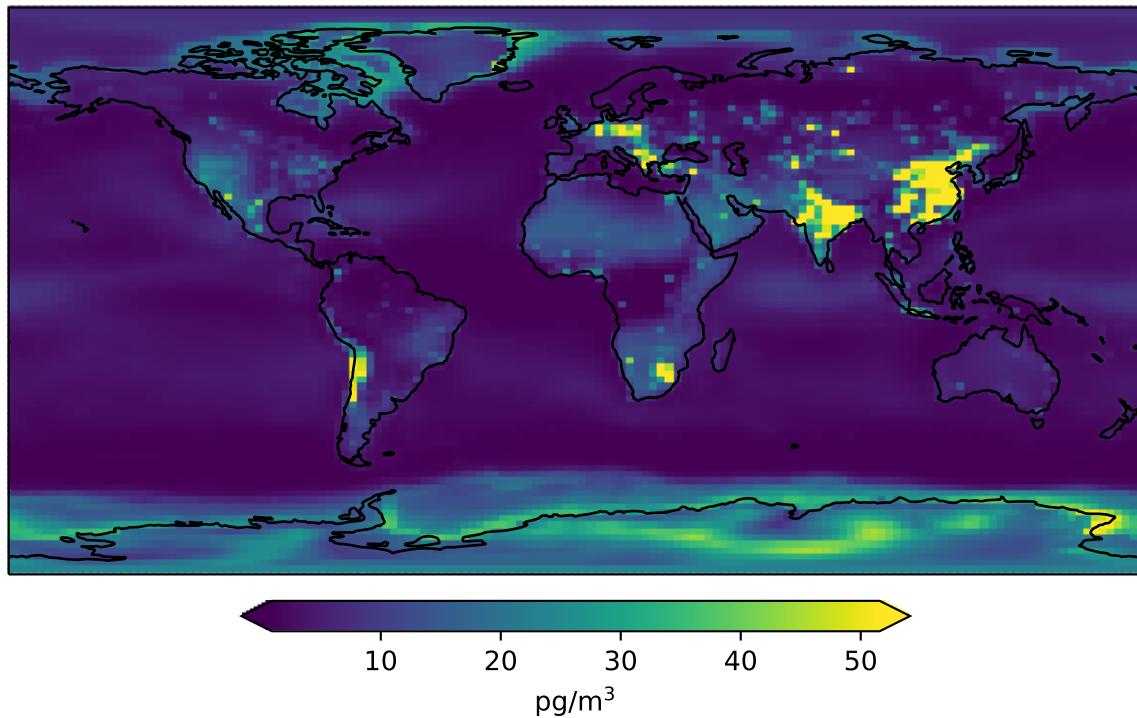
Percent Difference (%)



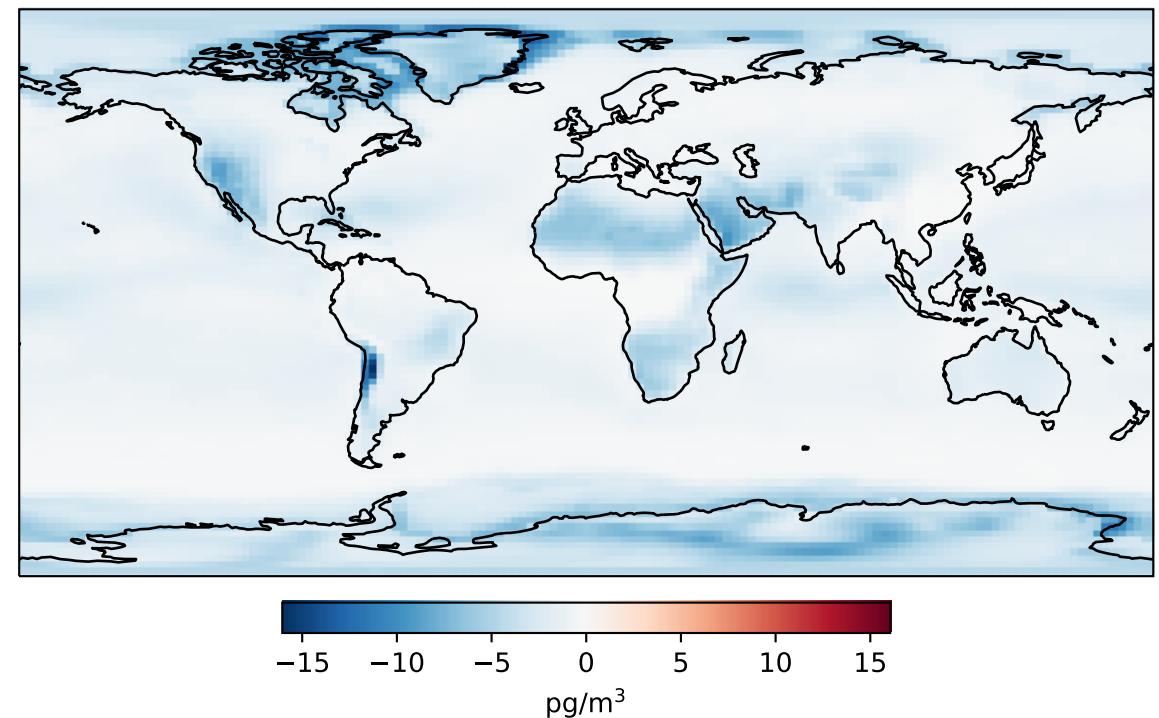
Reference Model Version: Surface Hg(II)+Hg(P)



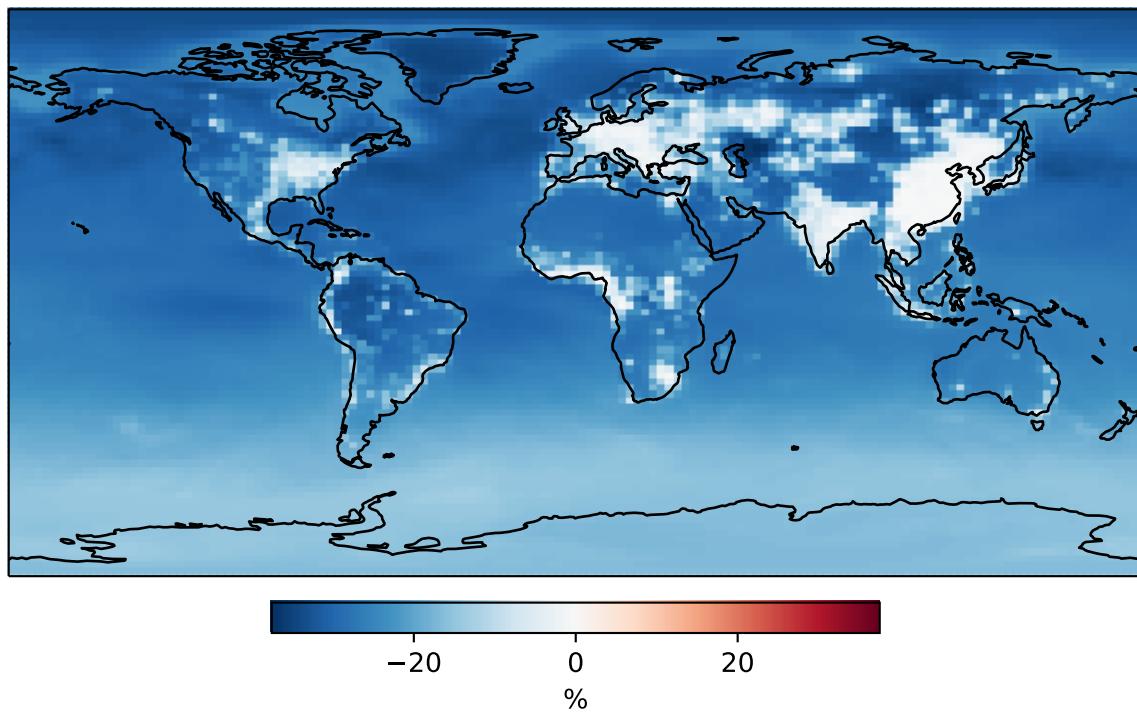
New Model Version: Surface Hg(II)+Hg(P)



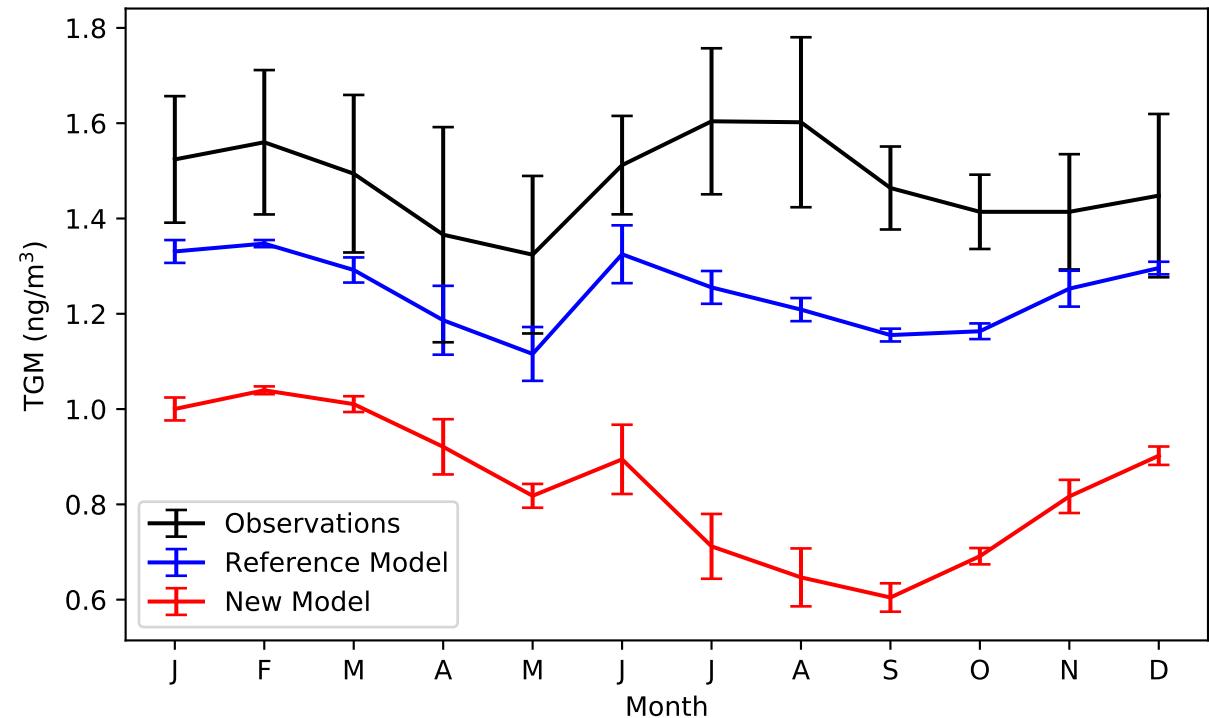
Absolute Difference



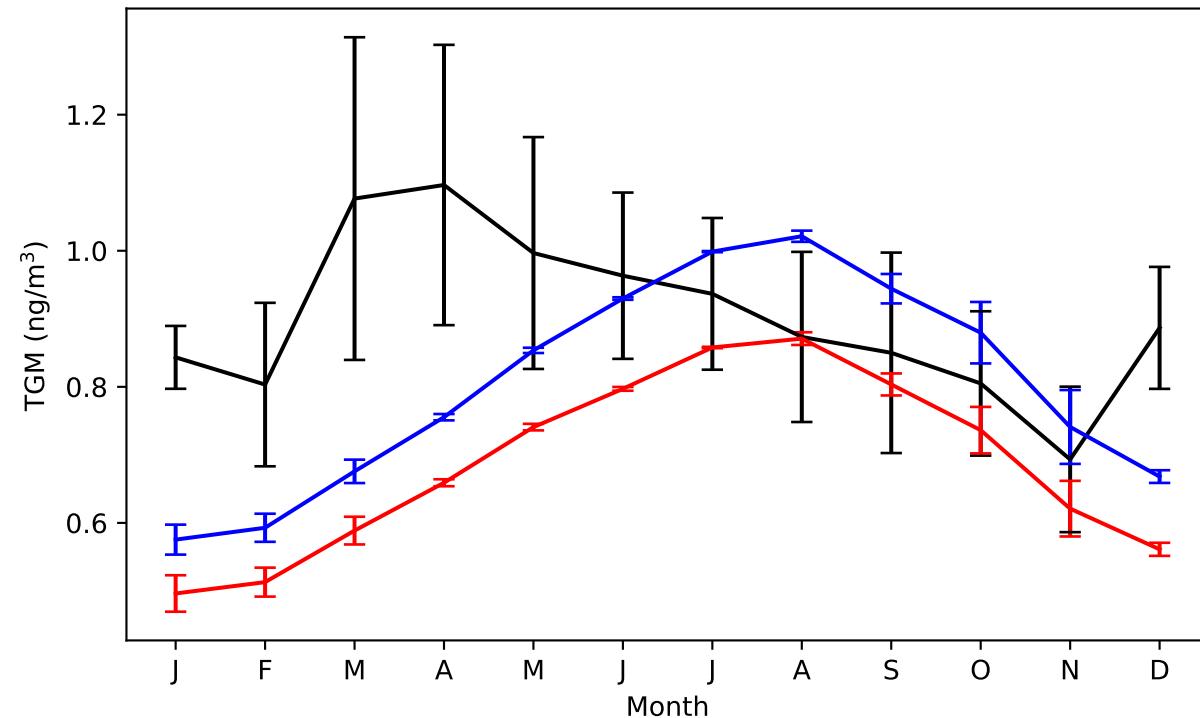
Percent Difference (%)



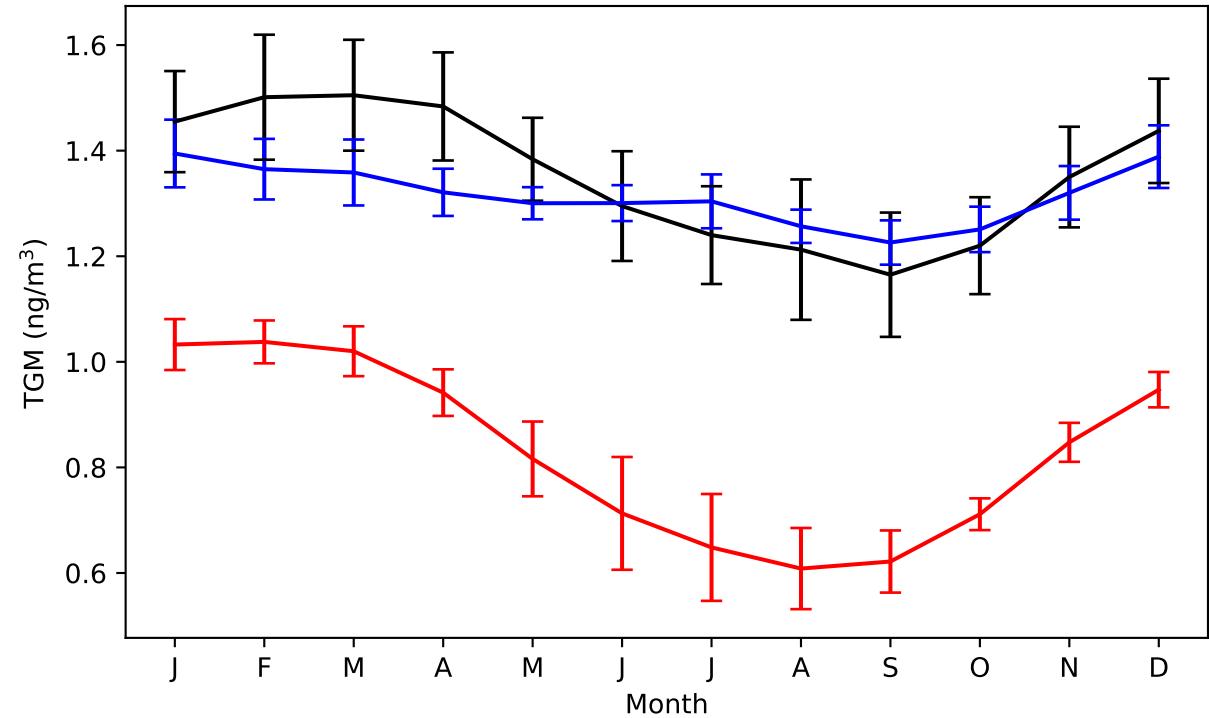
Arctic



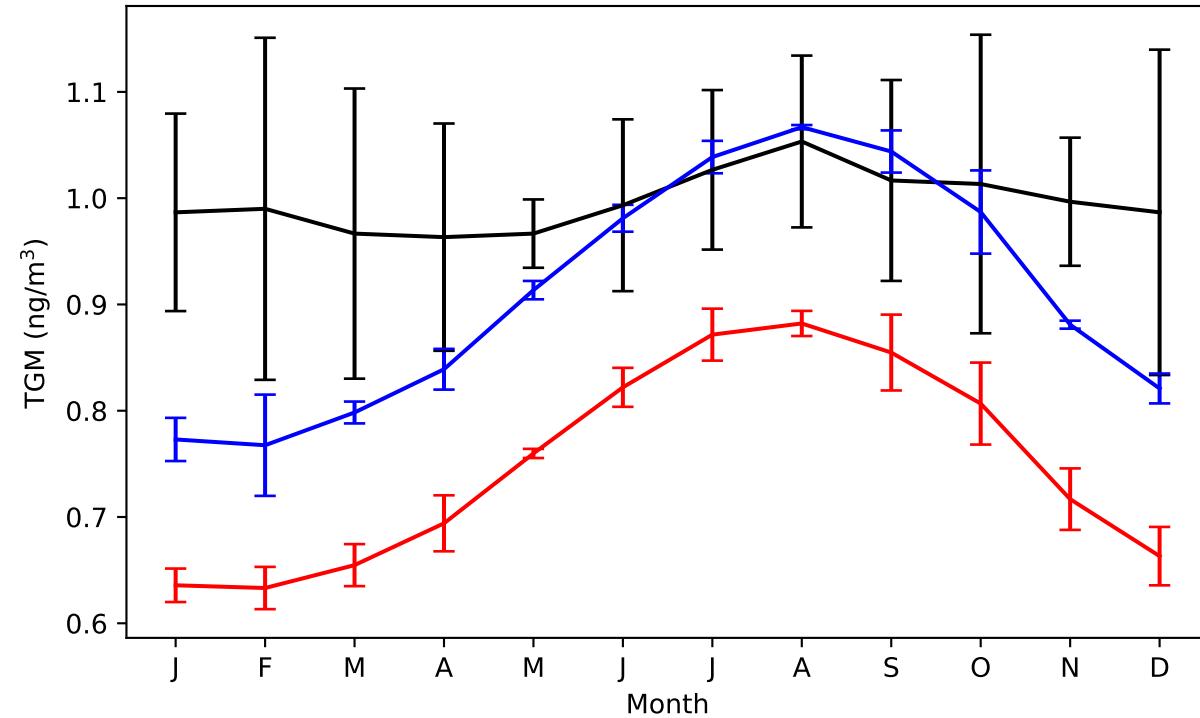
Antarctic



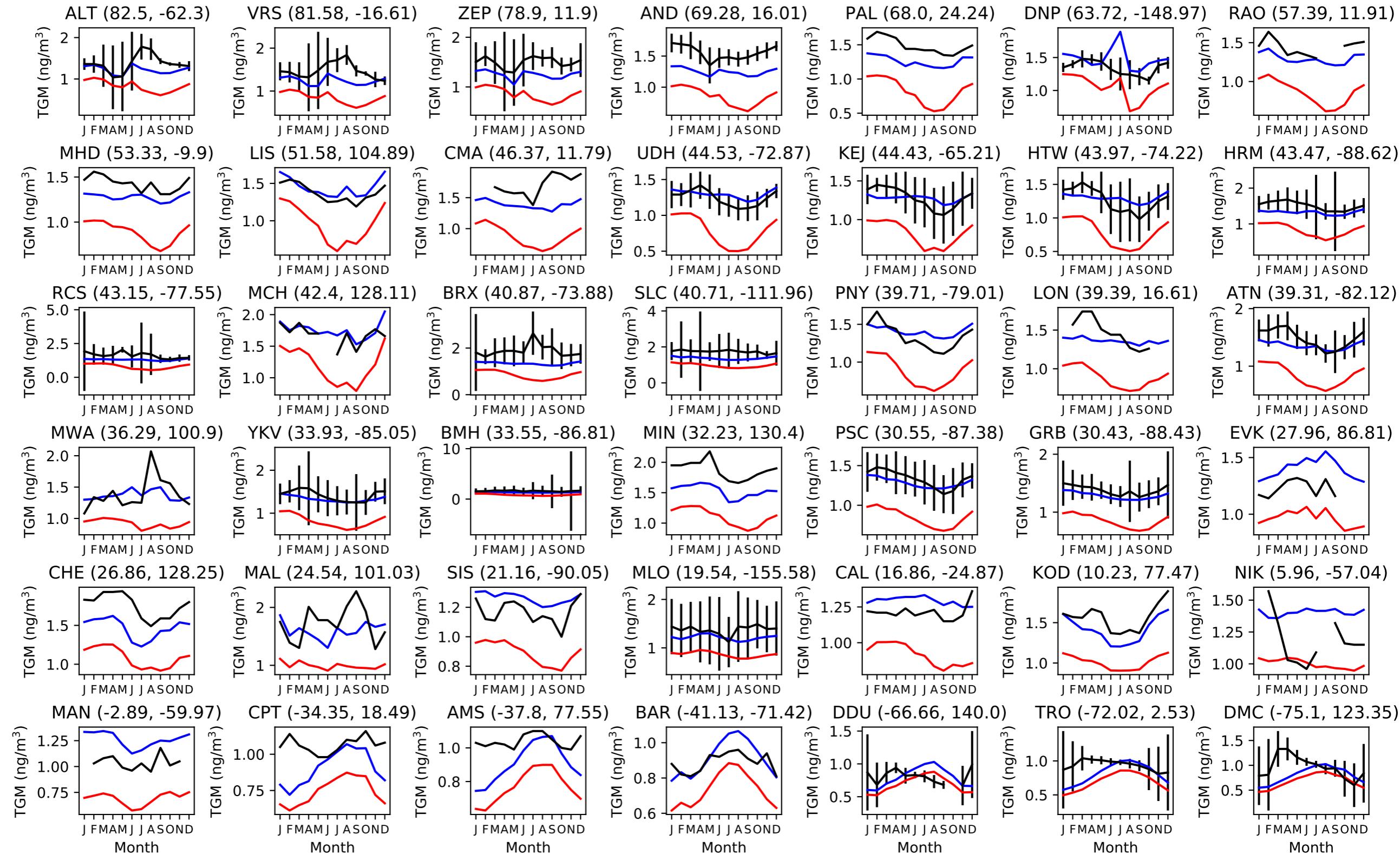
Northern Mid Latitudes



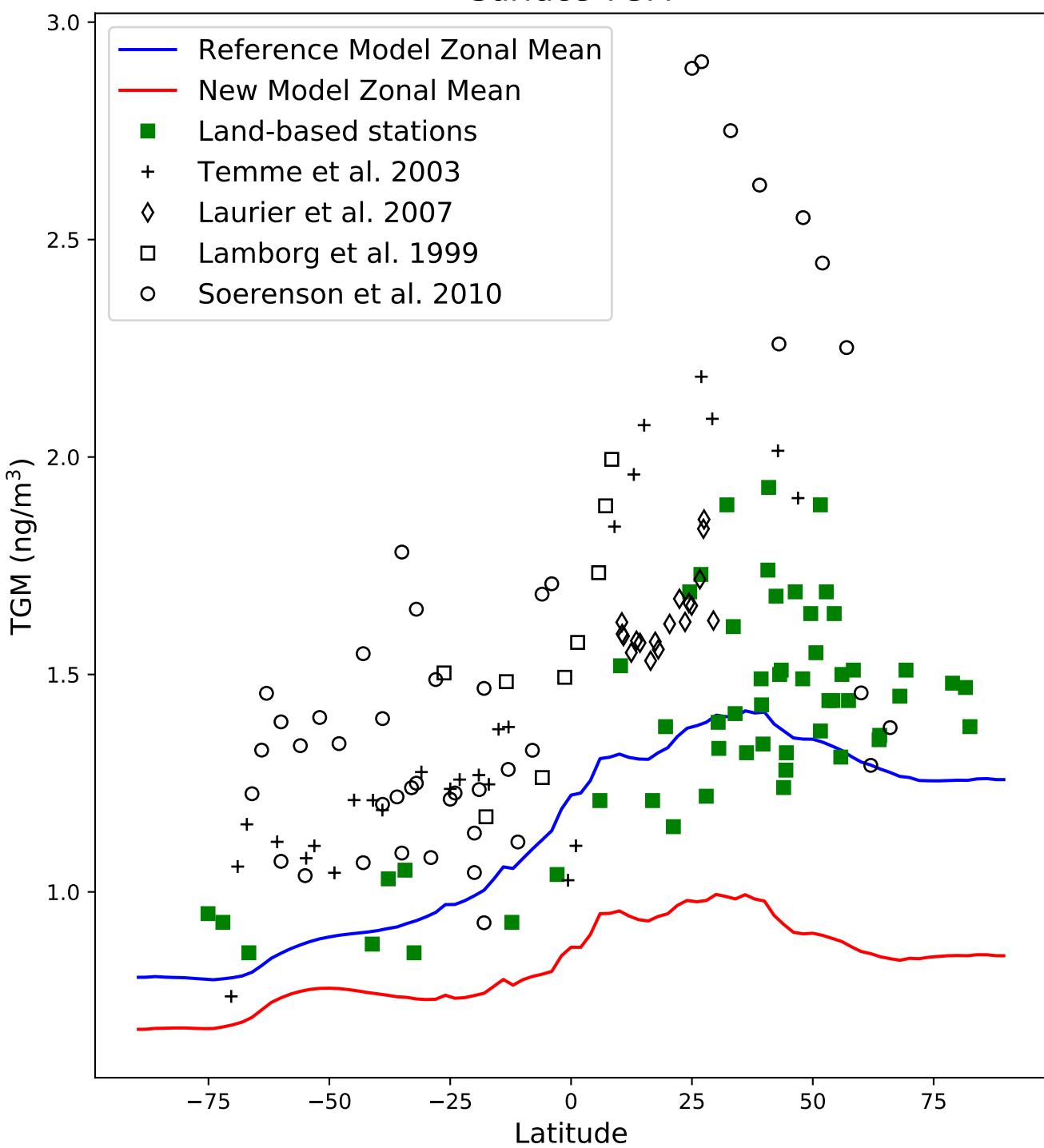
Southern Mid Latitudes



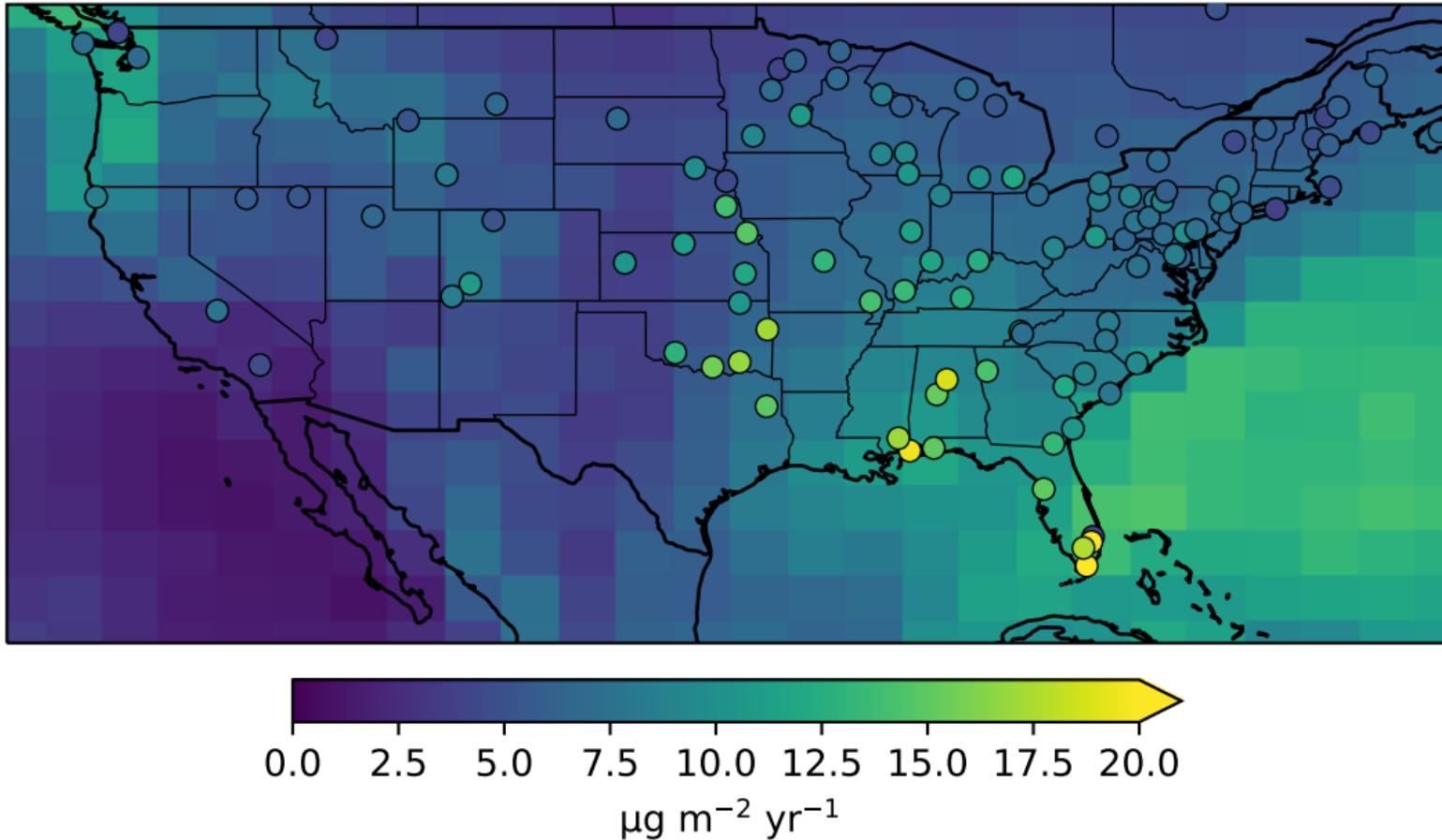
— Reference Model
— New Model
+————+ Observations



Surface TGM



Hg Wet Deposition, Reference Model (2015), MDN (2015)

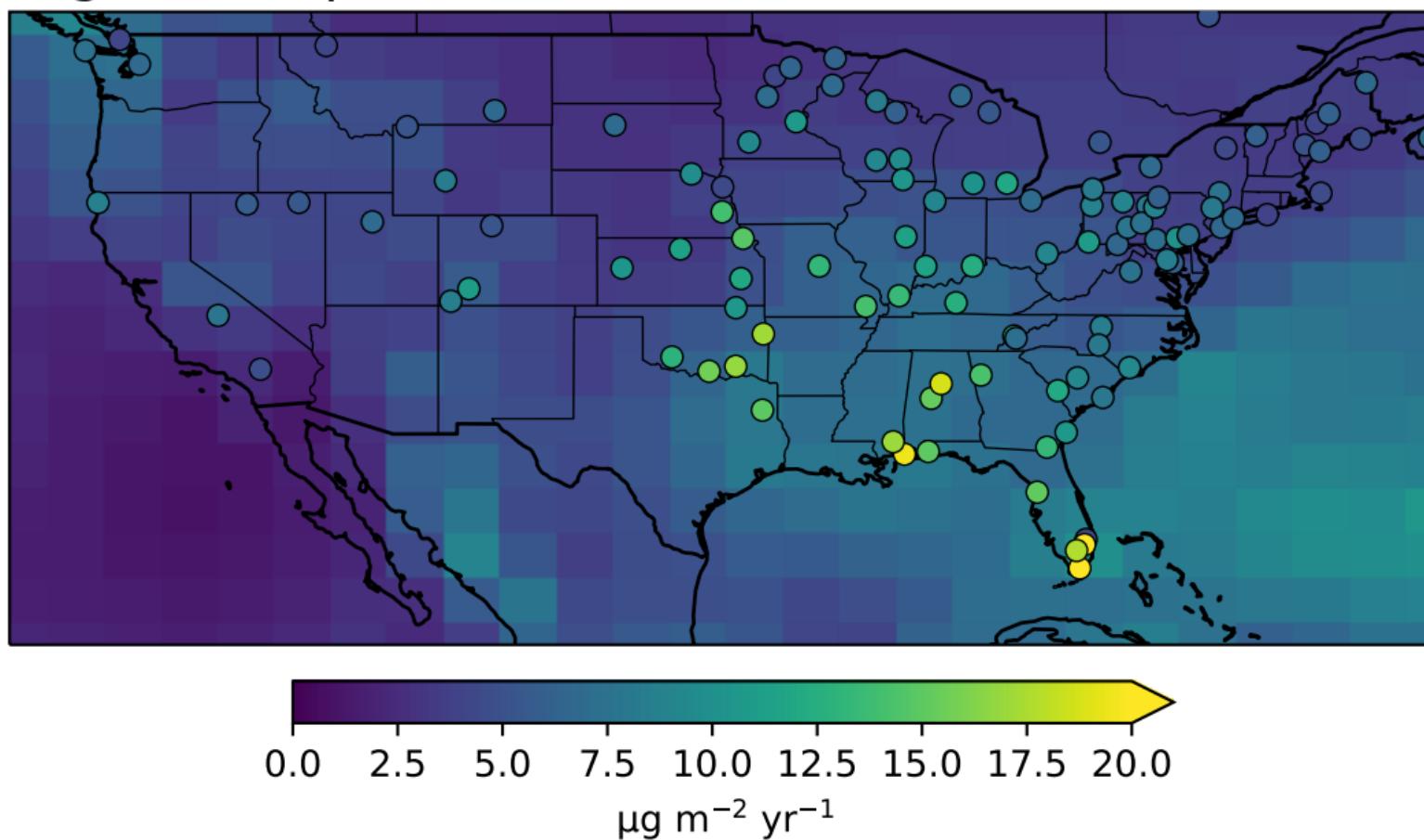


$$R^2 = 0.277$$

$$\text{Mean Mod.} = 7.0 \pm 2.3 \mu\text{g m}^{-2} \text{yr}^{-1}$$

$$\text{Mean Obs.} = 8.9 \pm 4.1 \mu\text{g m}^{-2} \text{yr}^{-1}$$

Hg Wet Deposition, New Model (2015), MDN (2015)



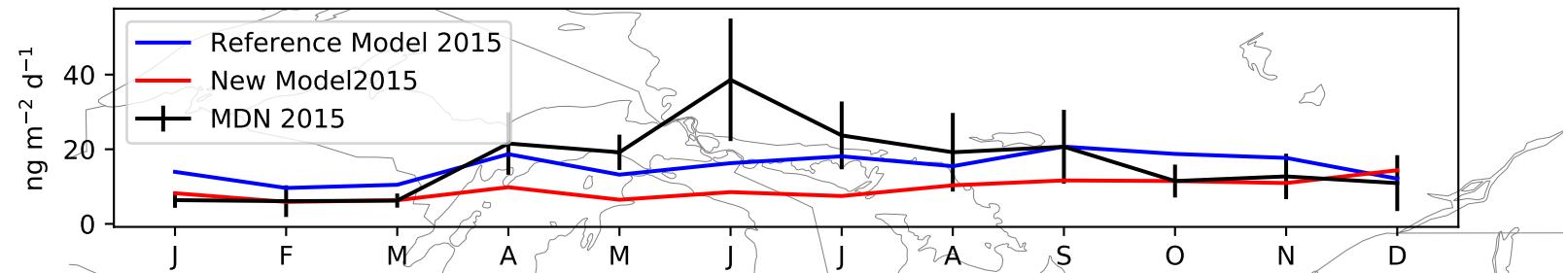
$$R^2 = 0.527$$

$$\text{Mean Mod.} = 4.9 \pm 1.8 \mu\text{g m}^{-2} \text{yr}^{-1}$$

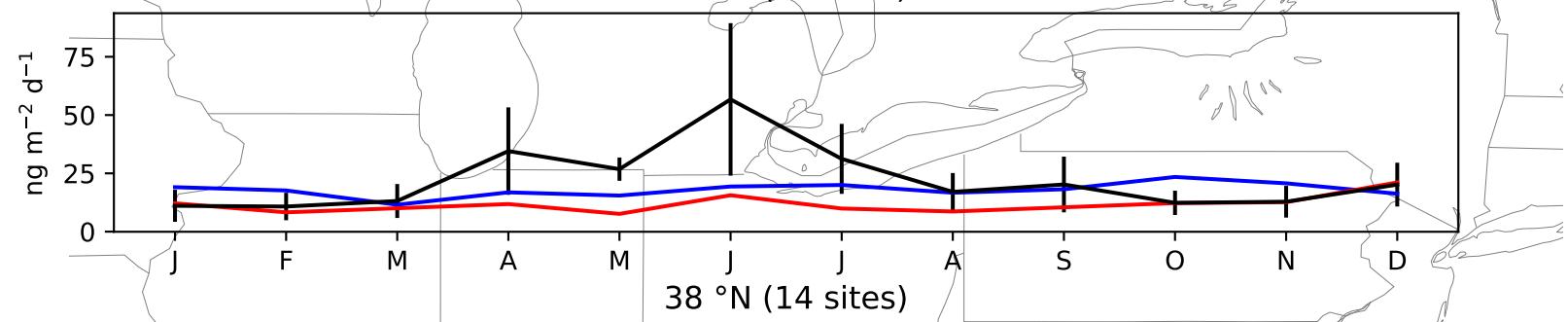
$$\text{Mean Obs.} = 8.9 \pm 4.1 \mu\text{g m}^{-2} \text{yr}^{-1}$$

Wet deposition fluxes, Eastern USA

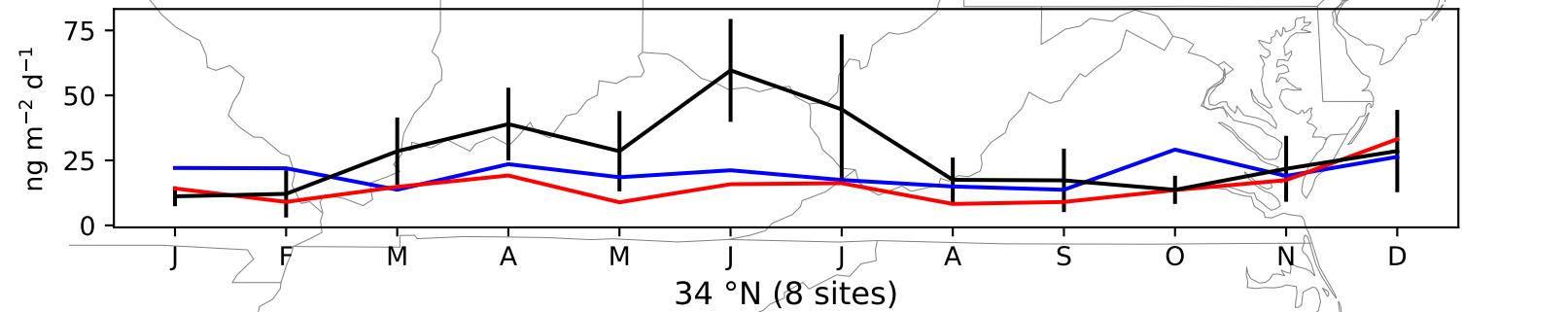
46 °N (7 sites)



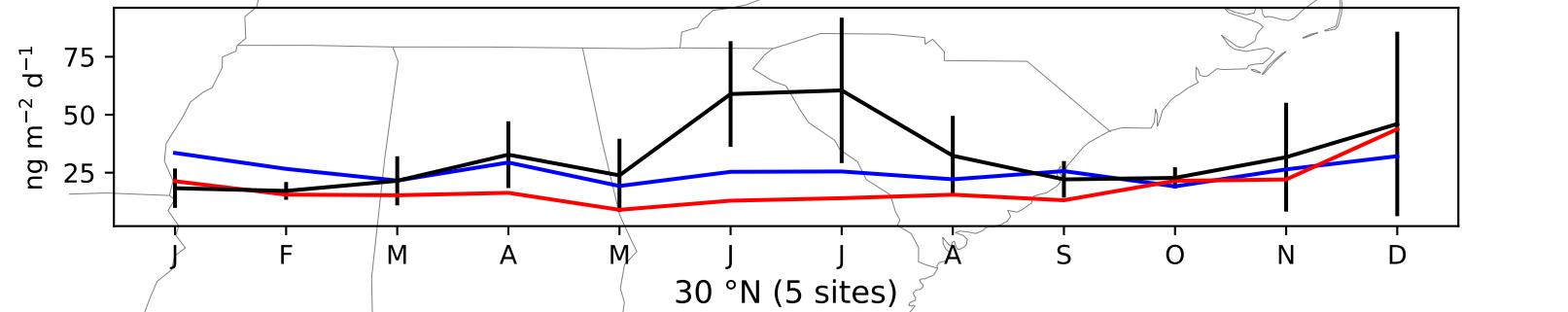
42 °N (21 sites)



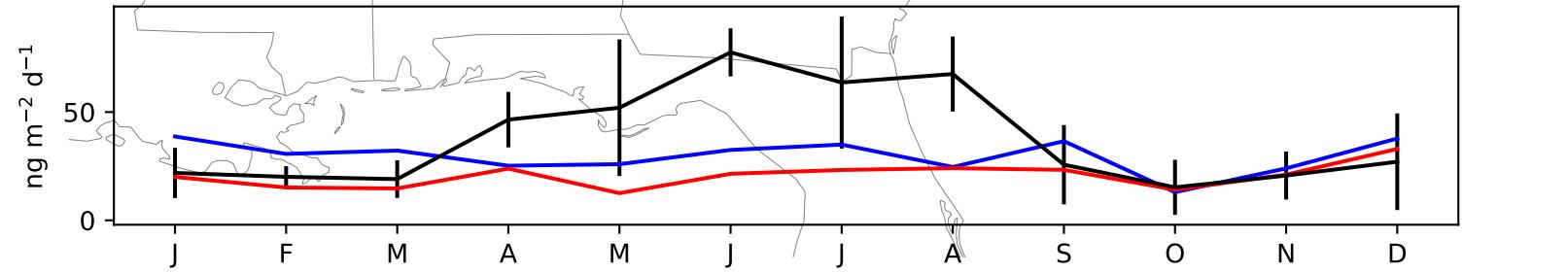
38 °N (14 sites)



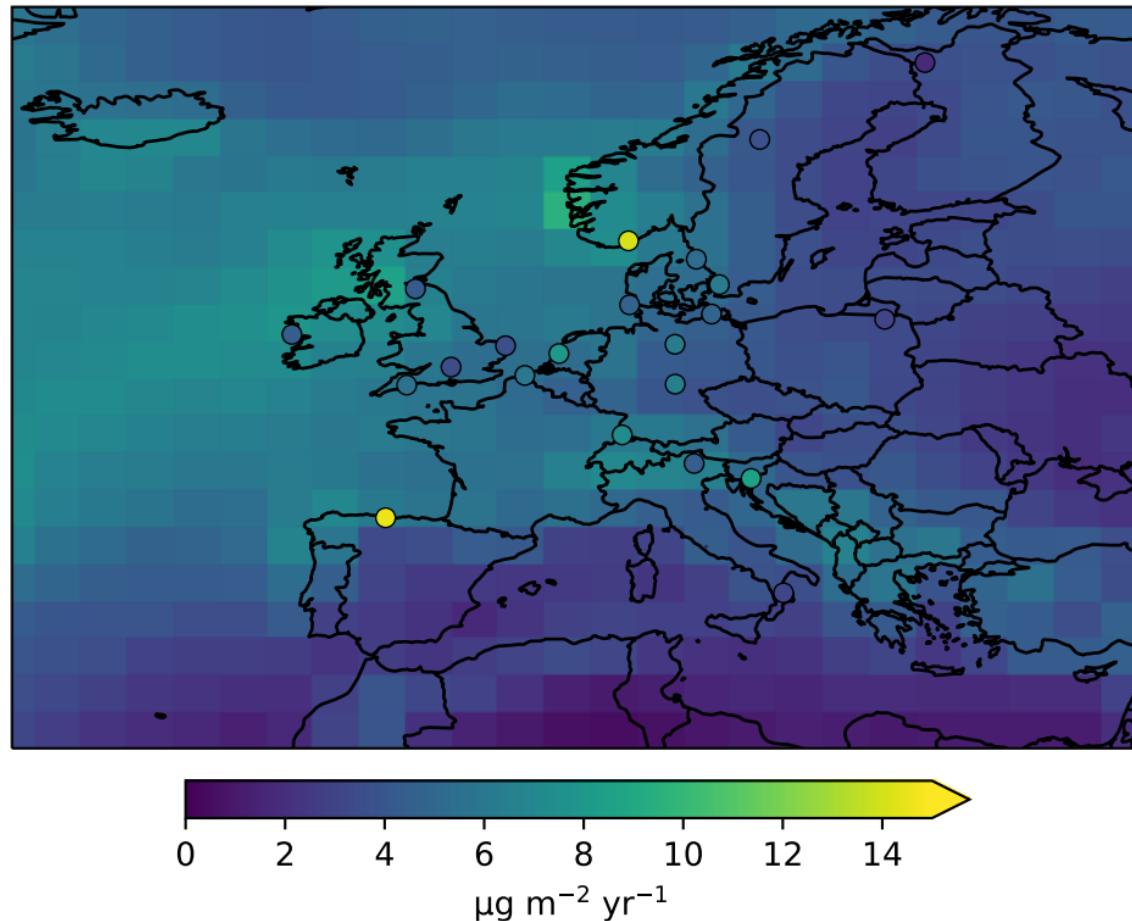
34 °N (8 sites)



30 °N (5 sites)



Hg Wet Deposition, Reference Model (2015), EMEP (2013-15)

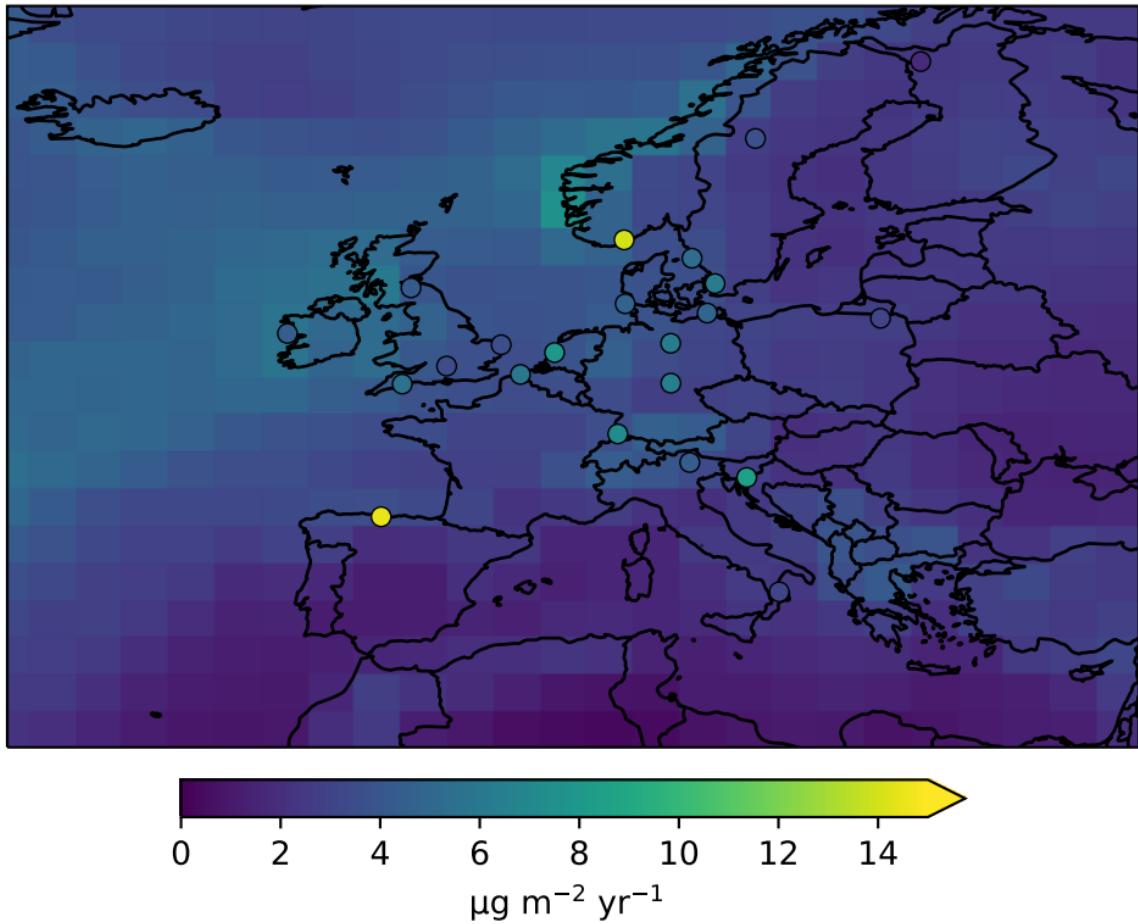


$$R^2 = 0.168$$

$$\text{Mean Mod.} = 5.3 \pm 1.1 \mu\text{g m}^{-2} \text{yr}^{-1}$$

$$\text{Mean Obs.} = 5.9 \pm 3.1 \mu\text{g m}^{-2} \text{yr}^{-1}$$

Hg Wet Deposition, New Model (2015), EMEP (2013-15)

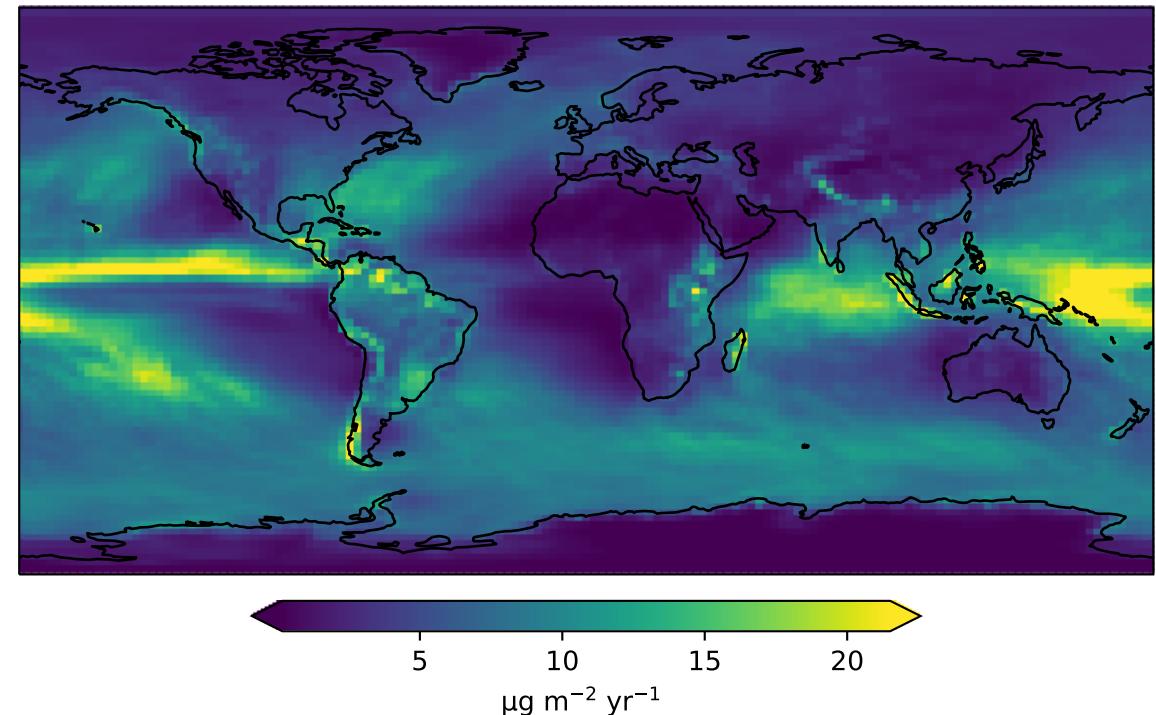


$$R^2 = 0.069$$

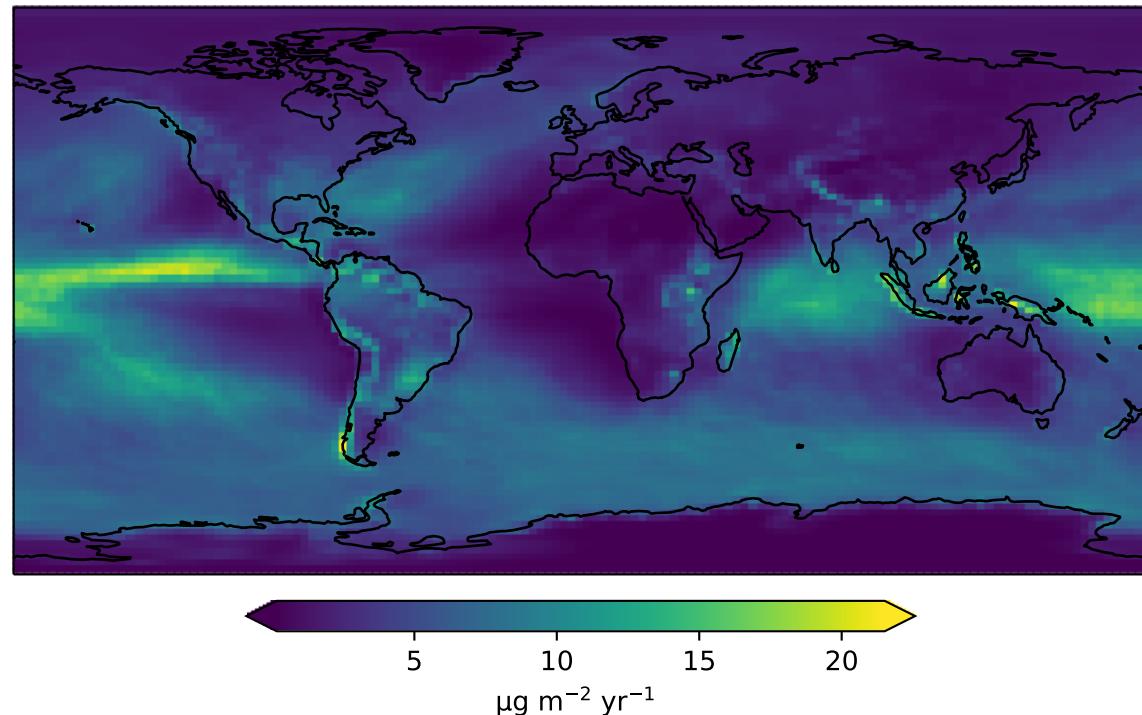
$$\text{Mean Mod.} = 3.5 \pm 0.7 \mu\text{g m}^{-2} \text{yr}^{-1}$$

$$\text{Mean Obs.} = 5.9 \pm 3.1 \mu\text{g m}^{-2} \text{yr}^{-1}$$

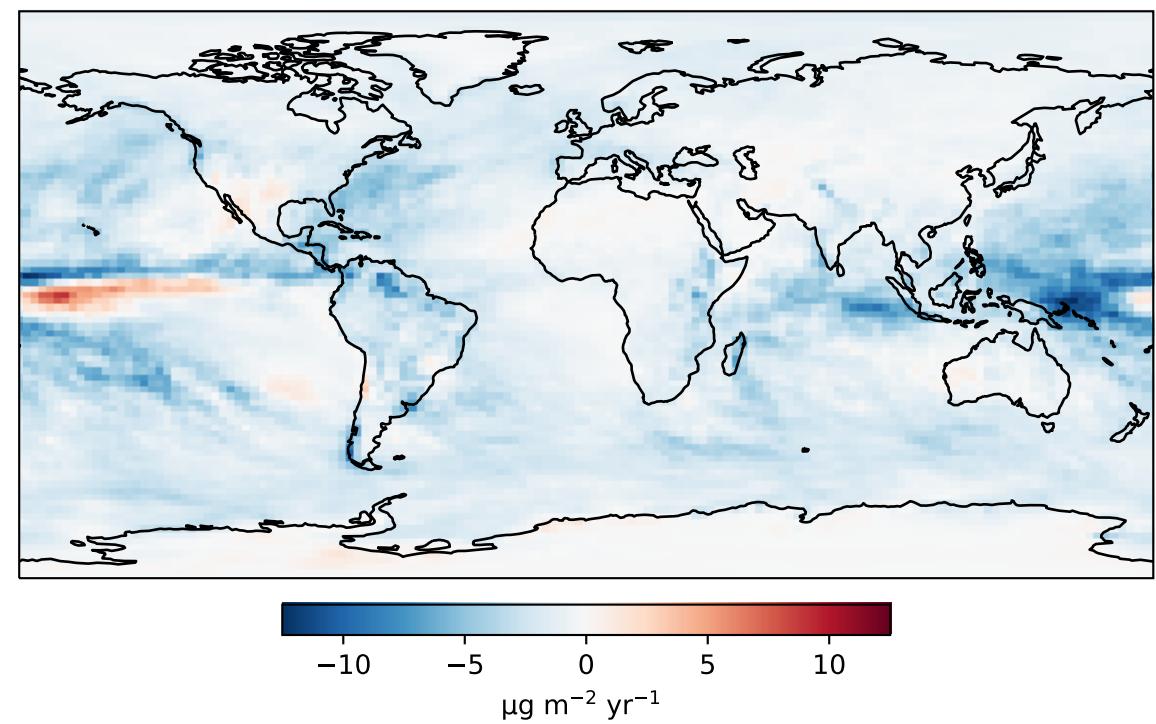
Reference Model Version: Total Wet Dep



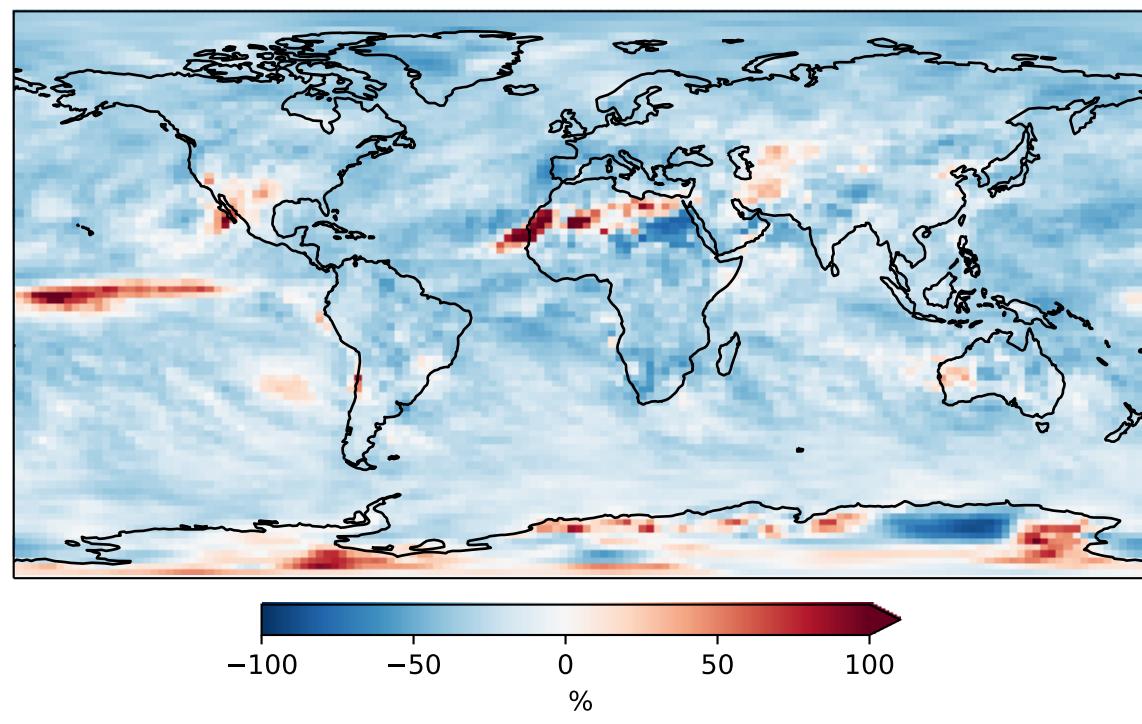
New Model Version: Total Wet Dep



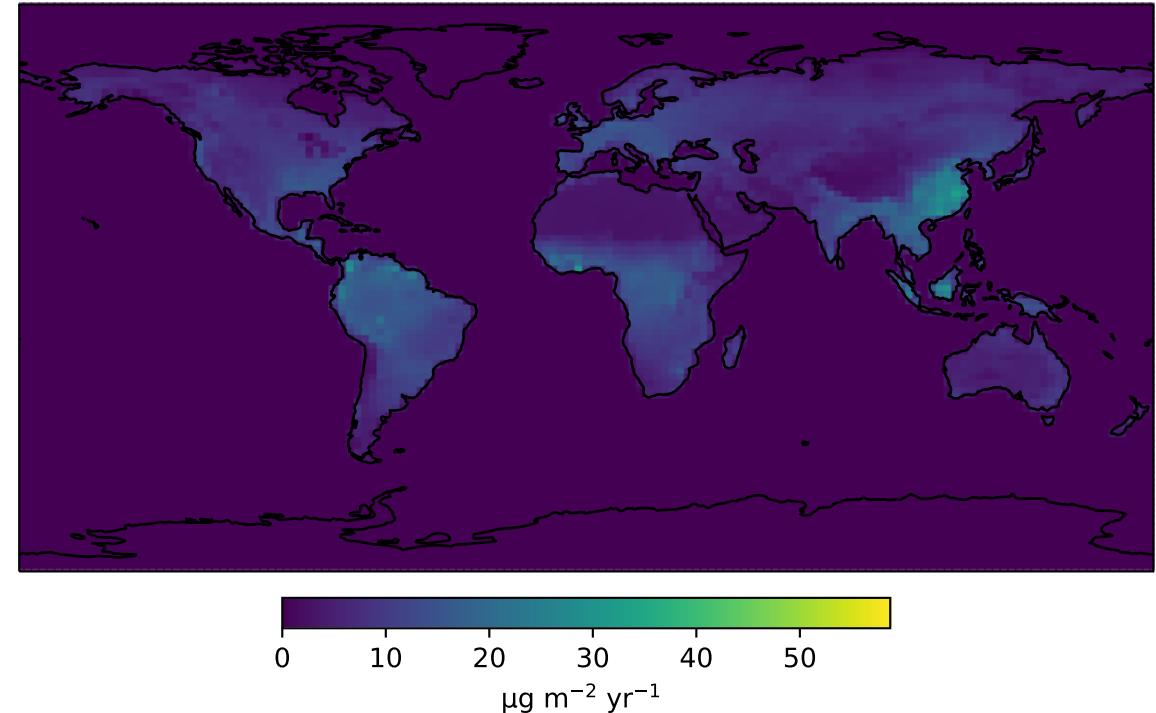
Absolute Difference



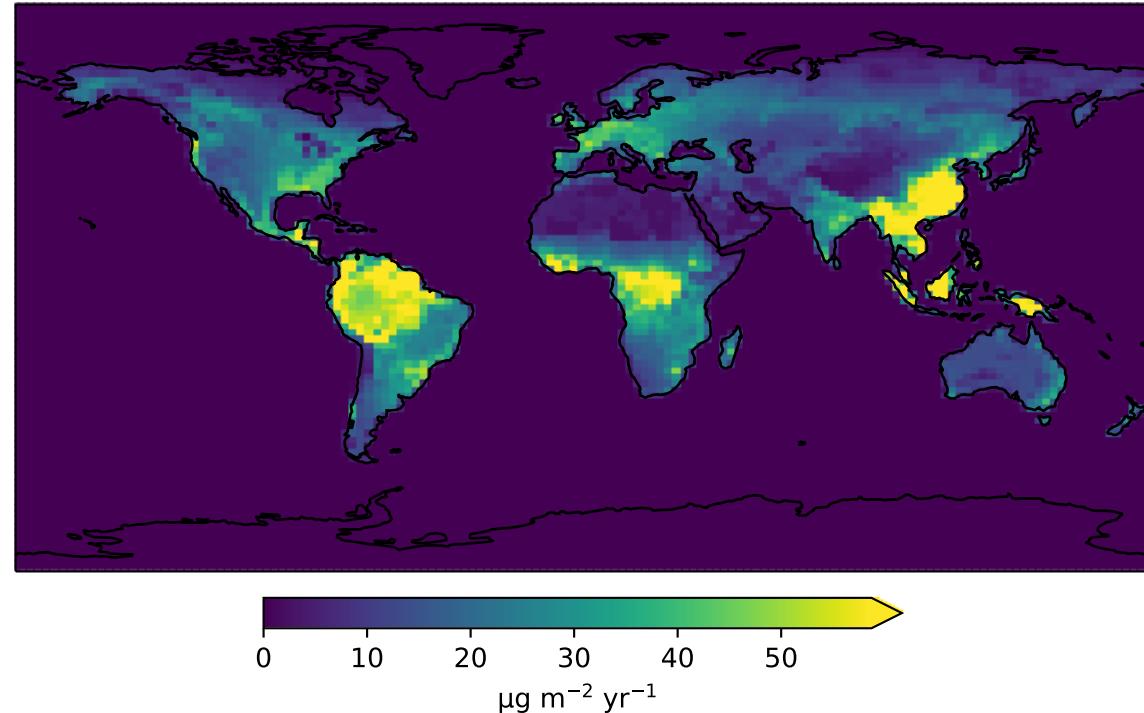
Percent Difference (%)



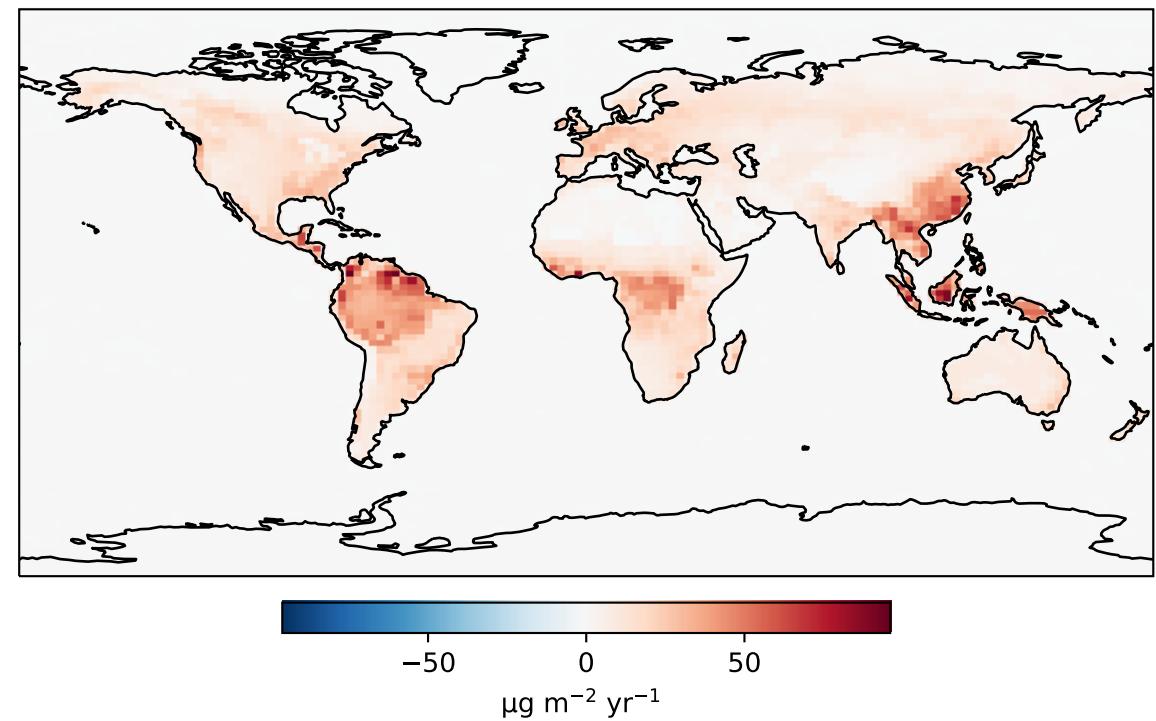
Reference Model Version: Hg(0) Dry Dep



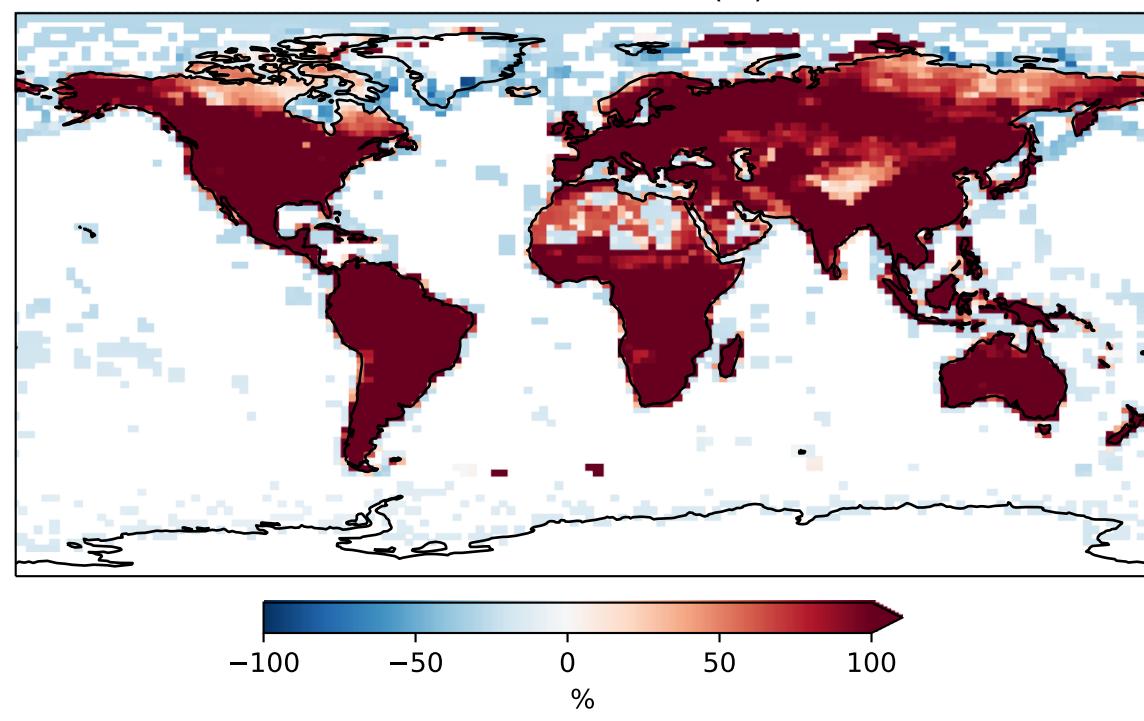
New Model Version: Hg(0) Dry Dep



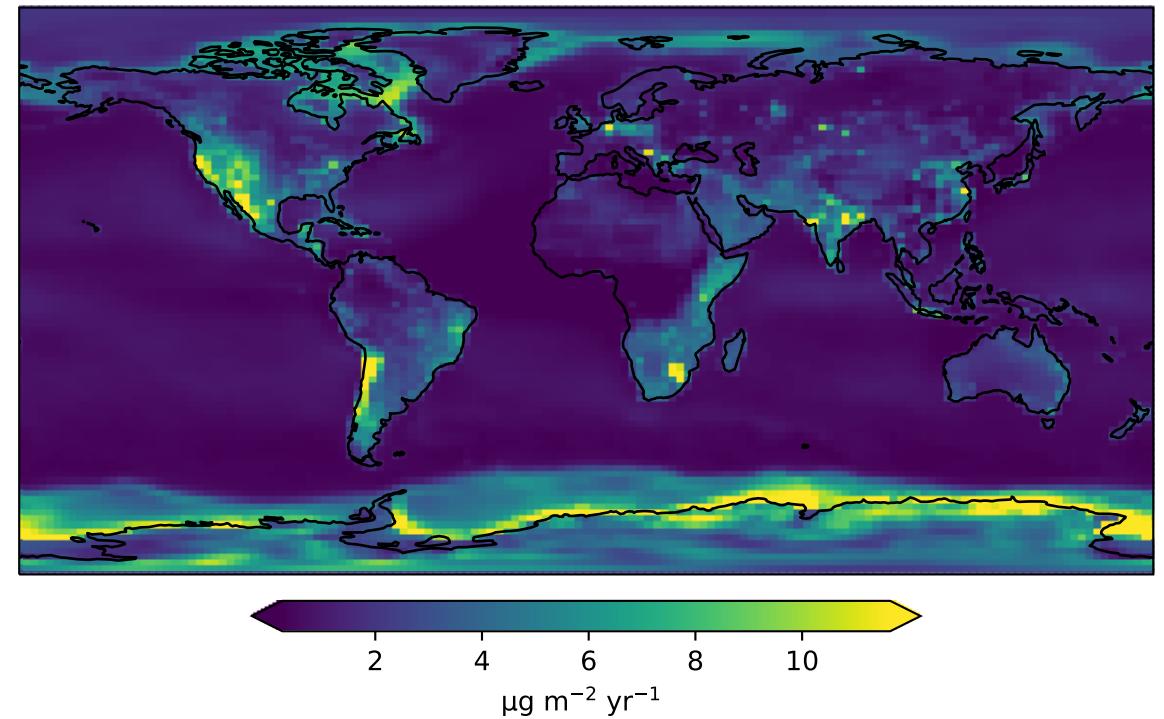
Absolute Difference



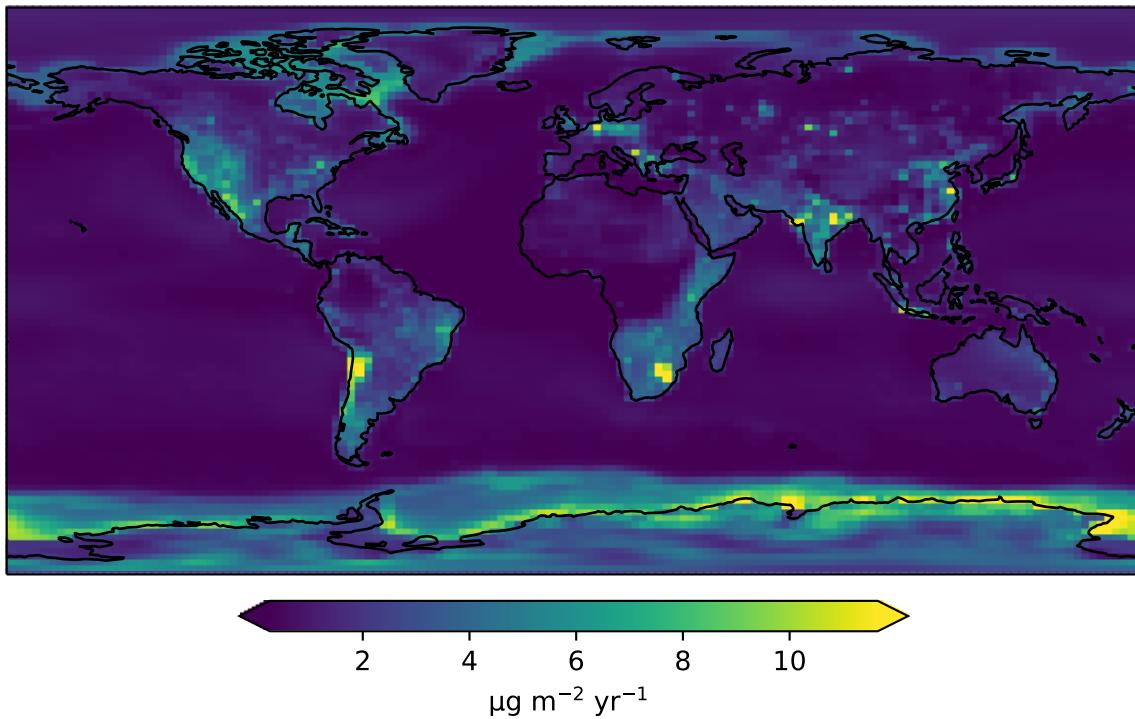
Percent Difference (%)



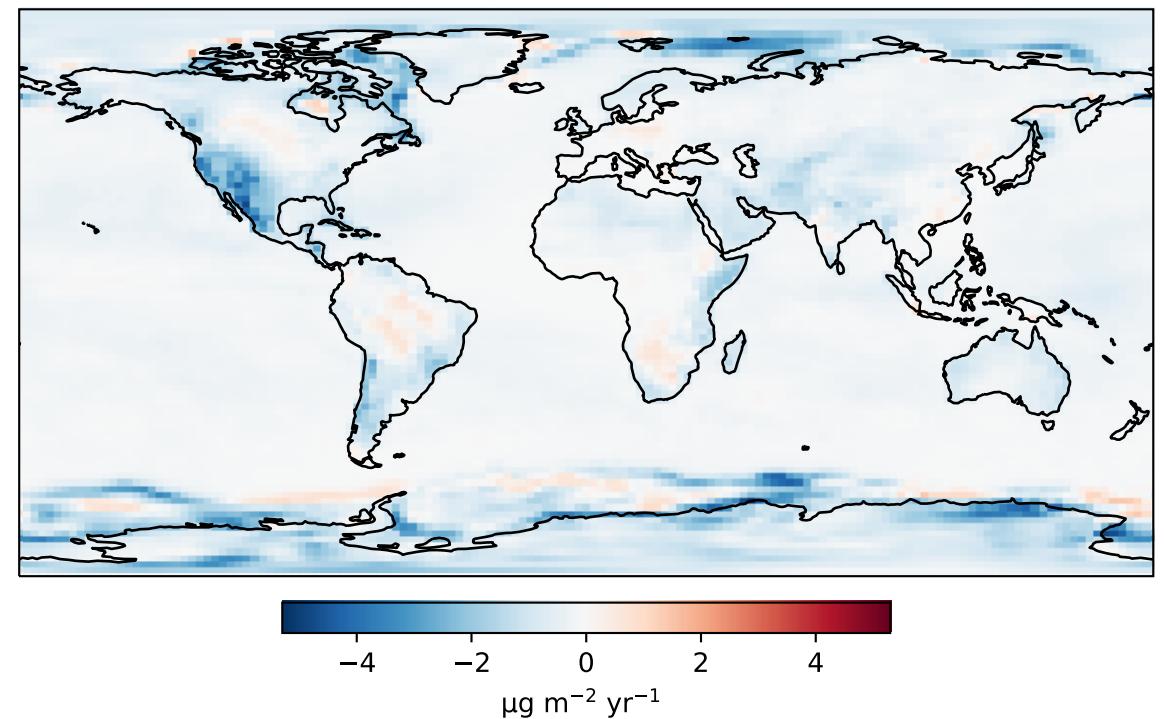
Reference Model Version: Hg(II)+Hg(P) Dry Dep



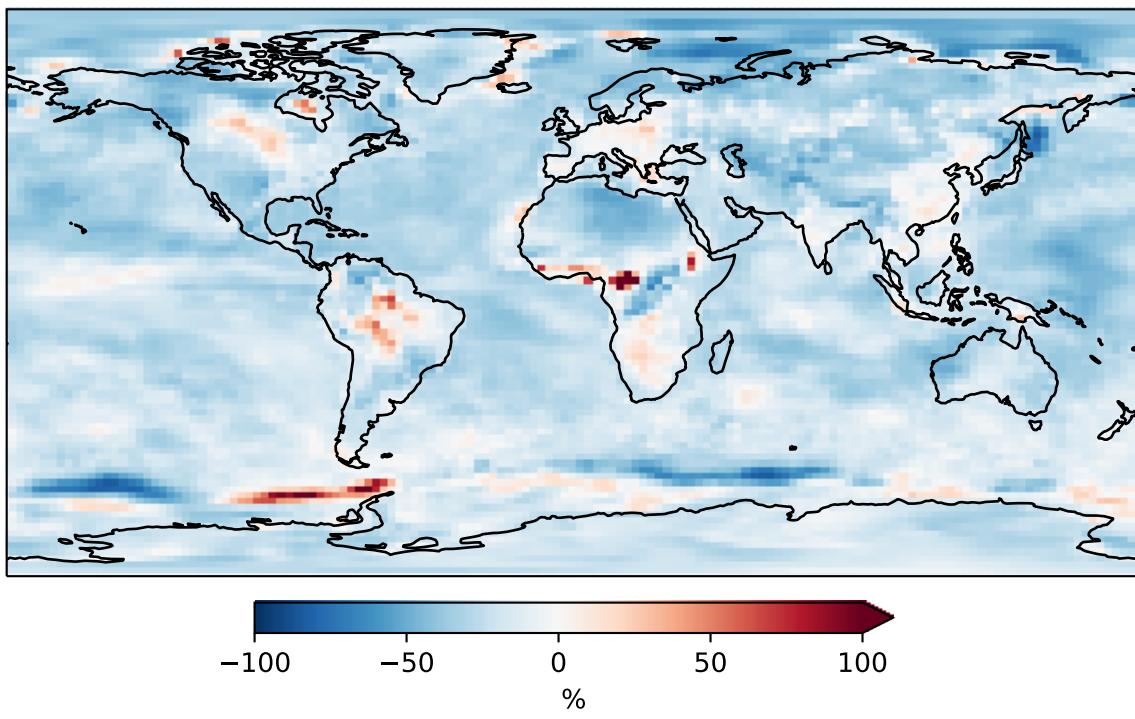
New Model Version: Hg(II)+Hg(P) Dry Dep



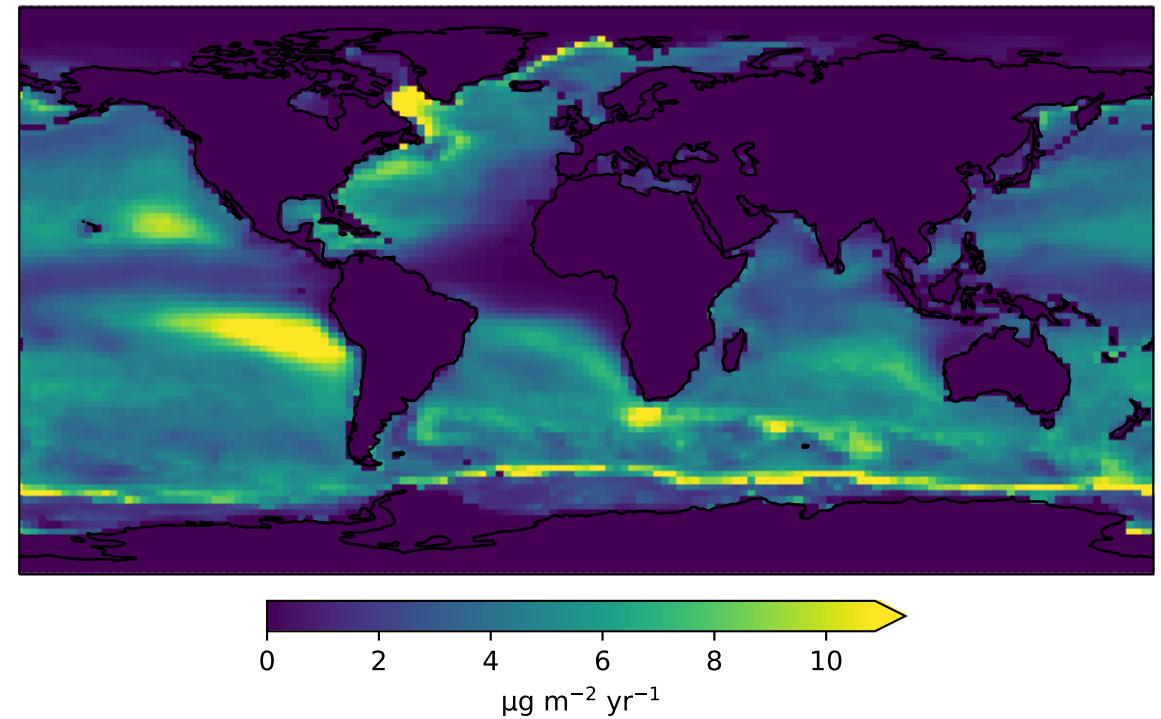
Absolute Difference



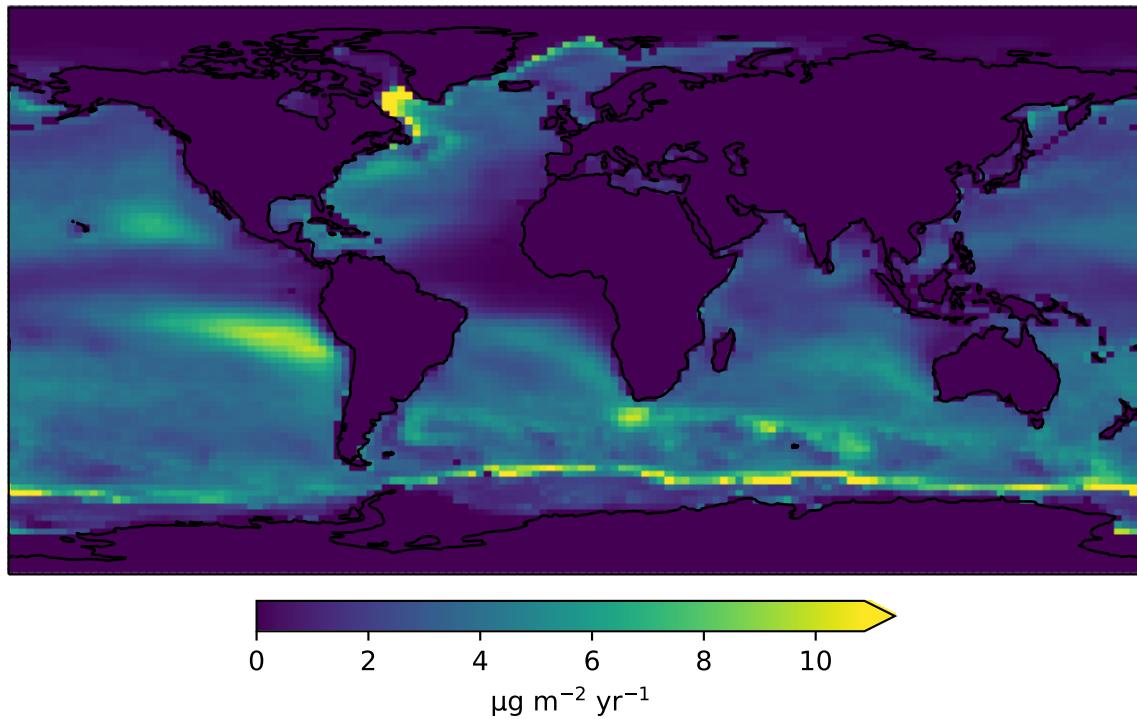
Percent Difference (%)



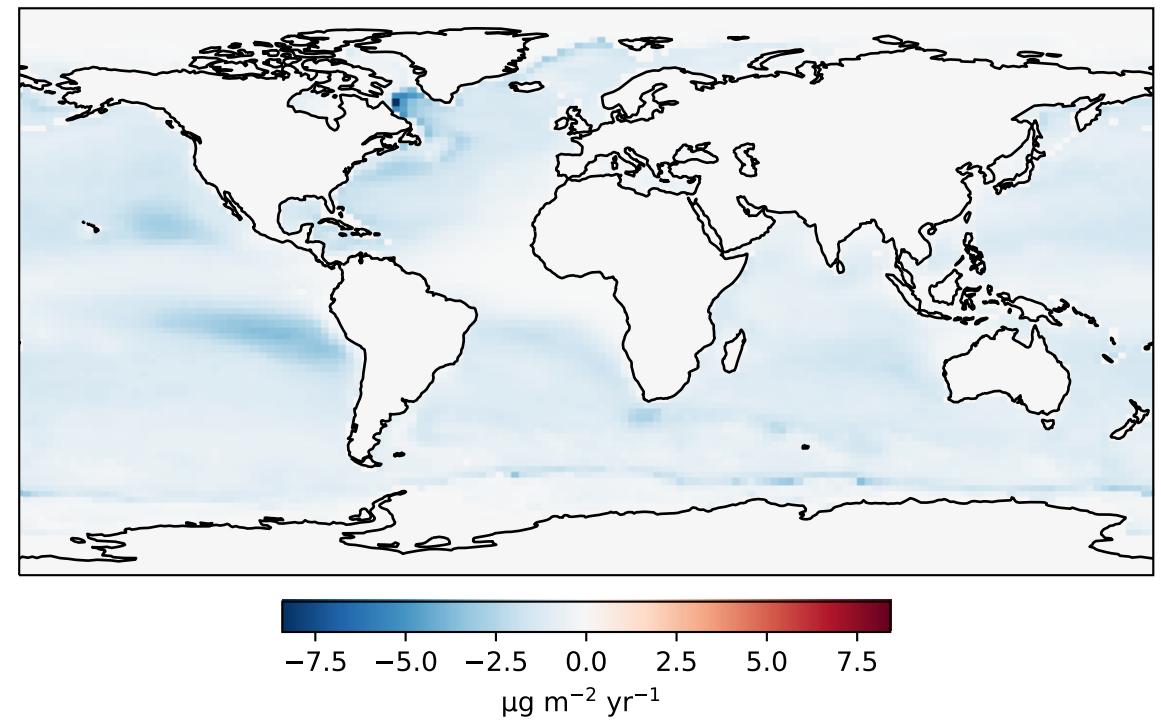
Reference Model Version: Sea Salt Uptake



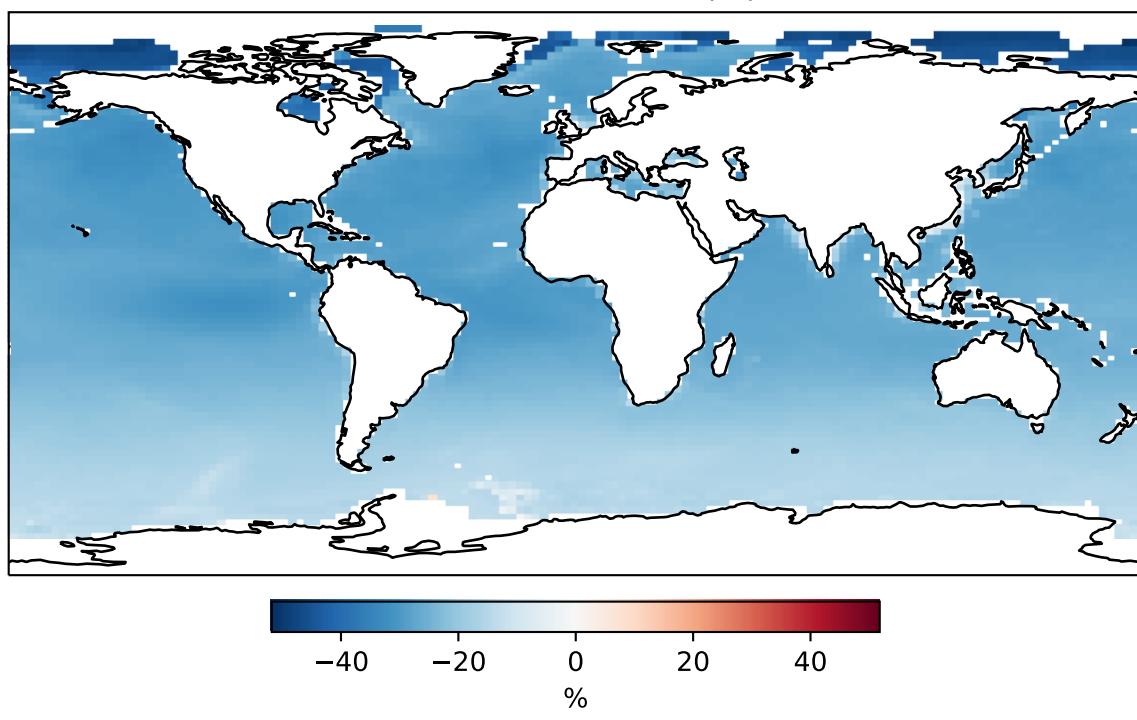
New Model Version: Sea Salt Uptake



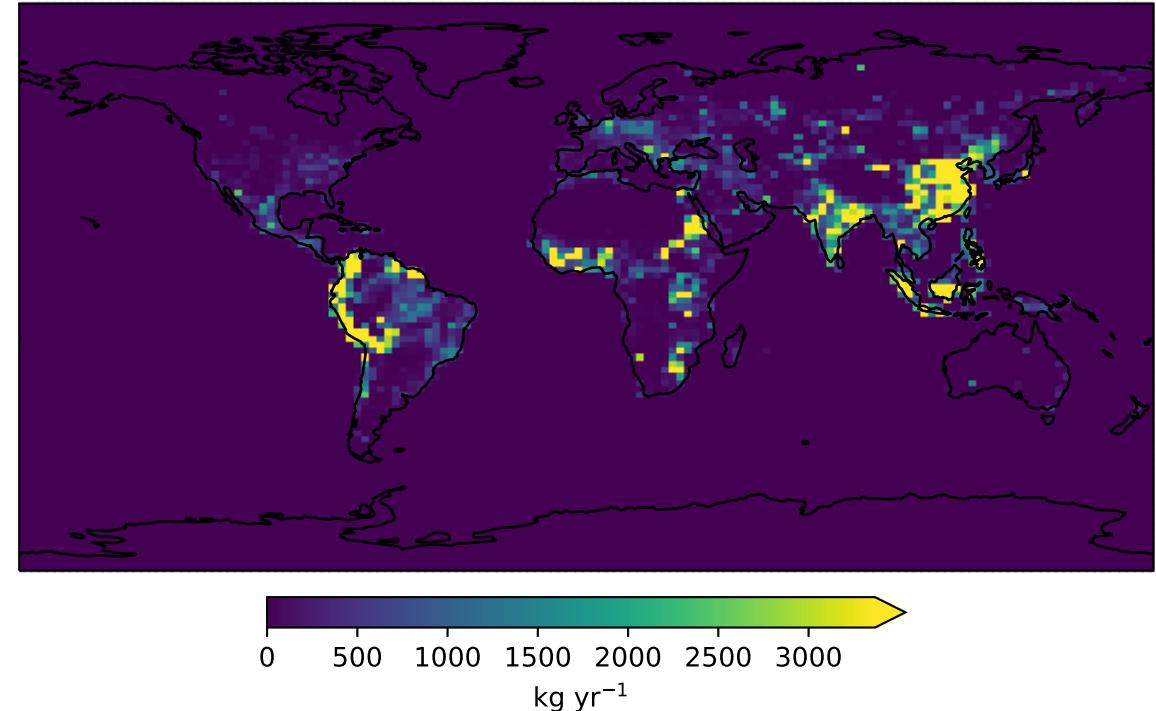
Absolute Difference



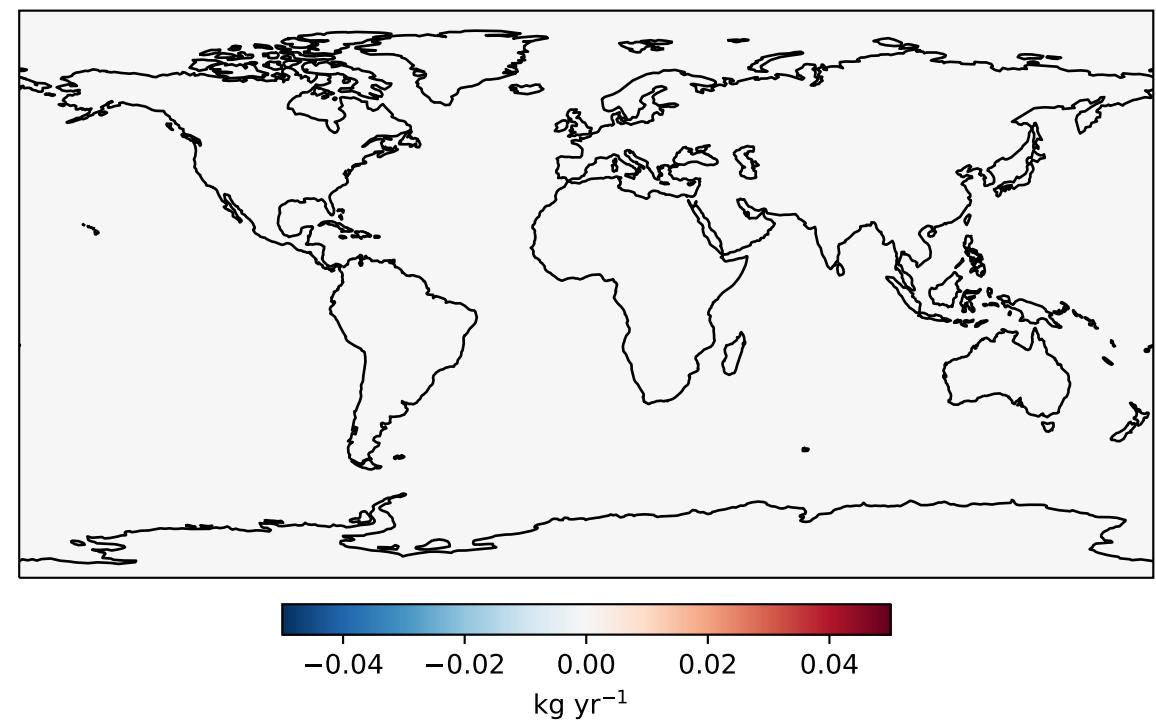
Percent Difference (%)



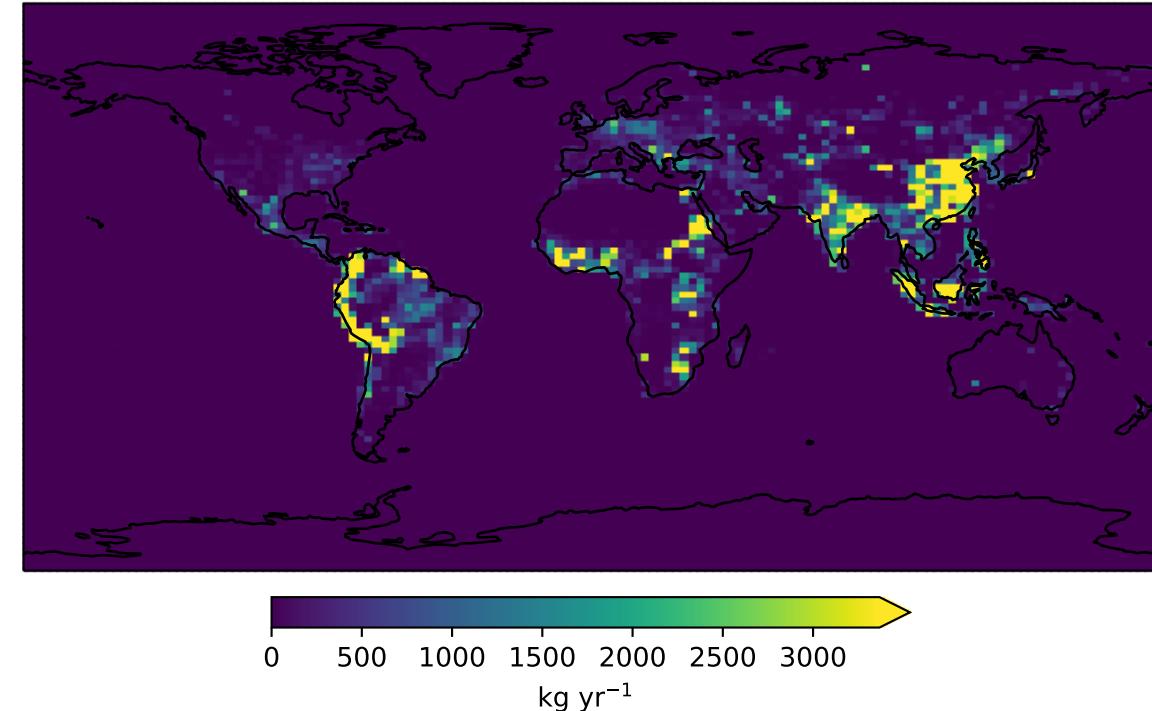
Reference Model Version: Anthro Emissions - Hg(0)



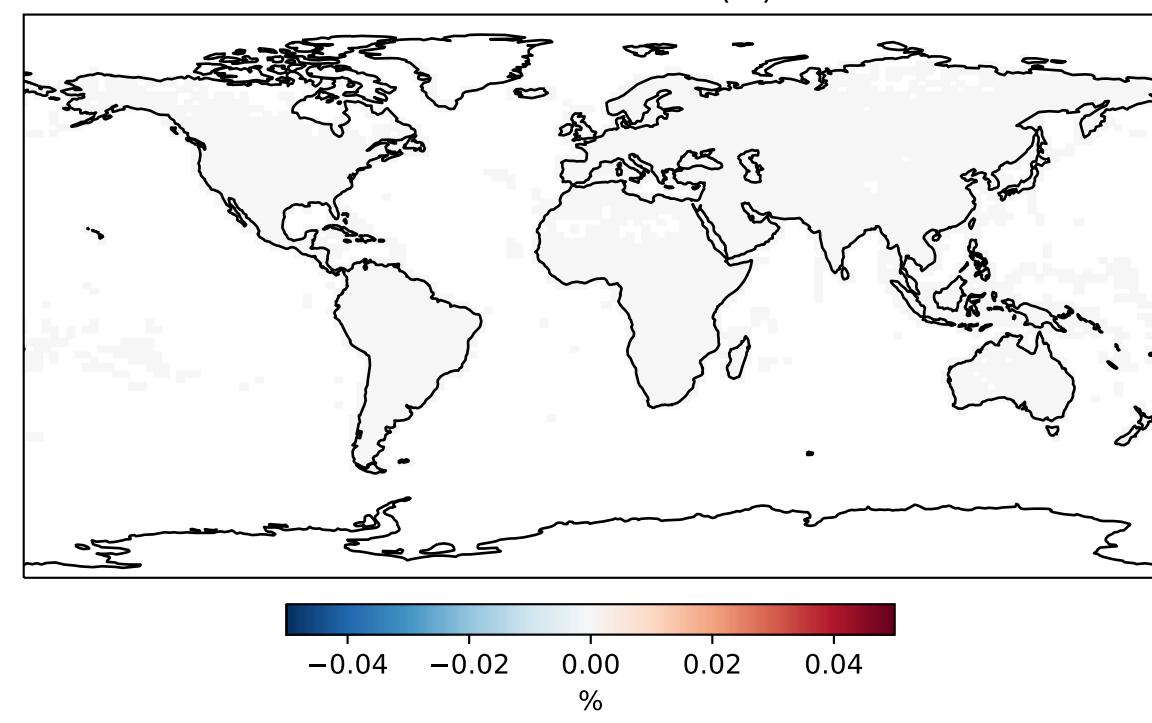
Absolute Difference



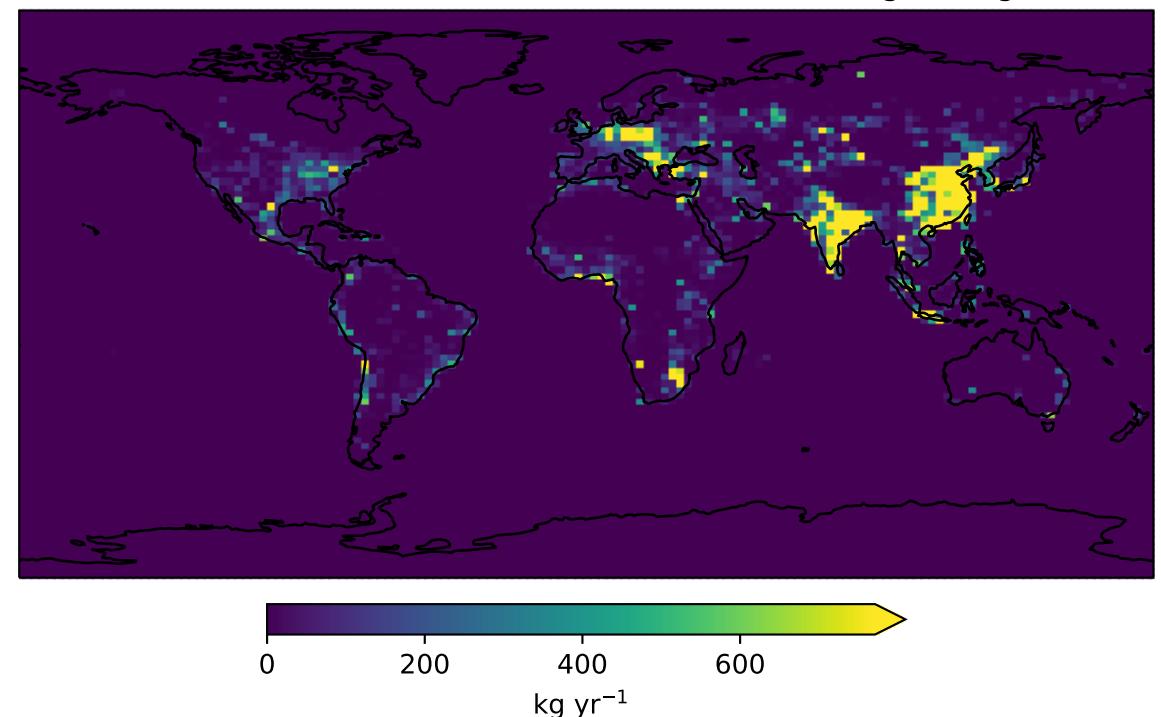
New Model Version: Anthro Emissions - Hg(0)



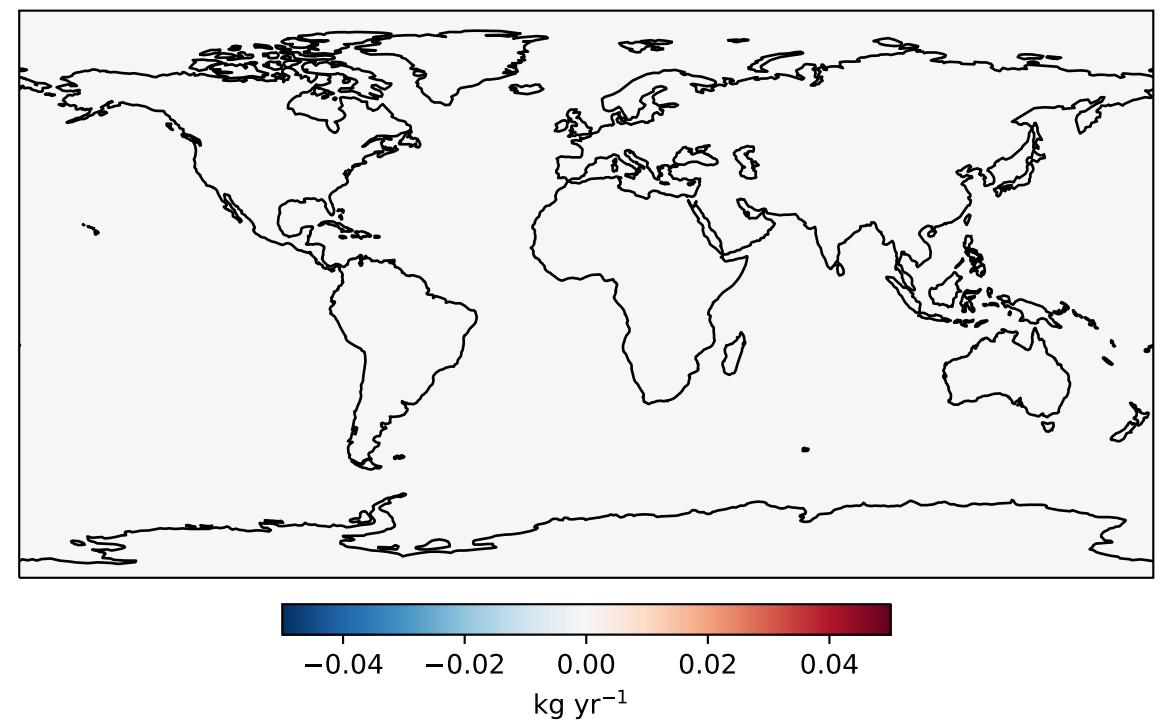
Percent Difference (%)



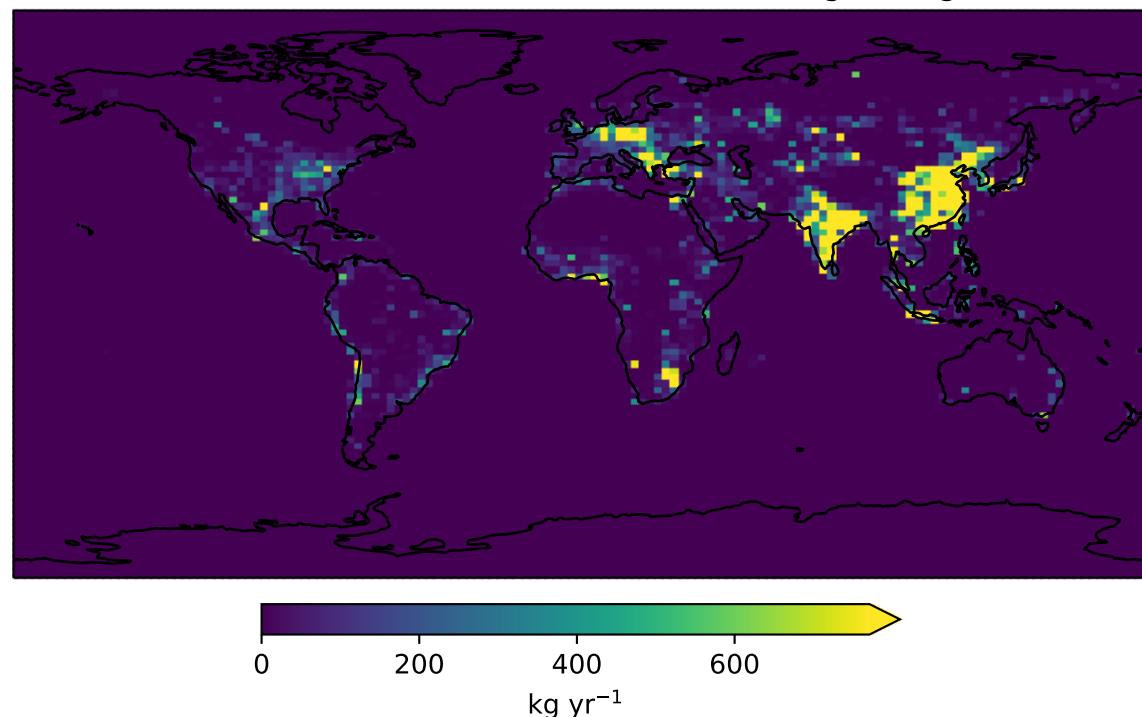
Reference Model Version: Anthro Emissions - Hg(II)+Hg(P)



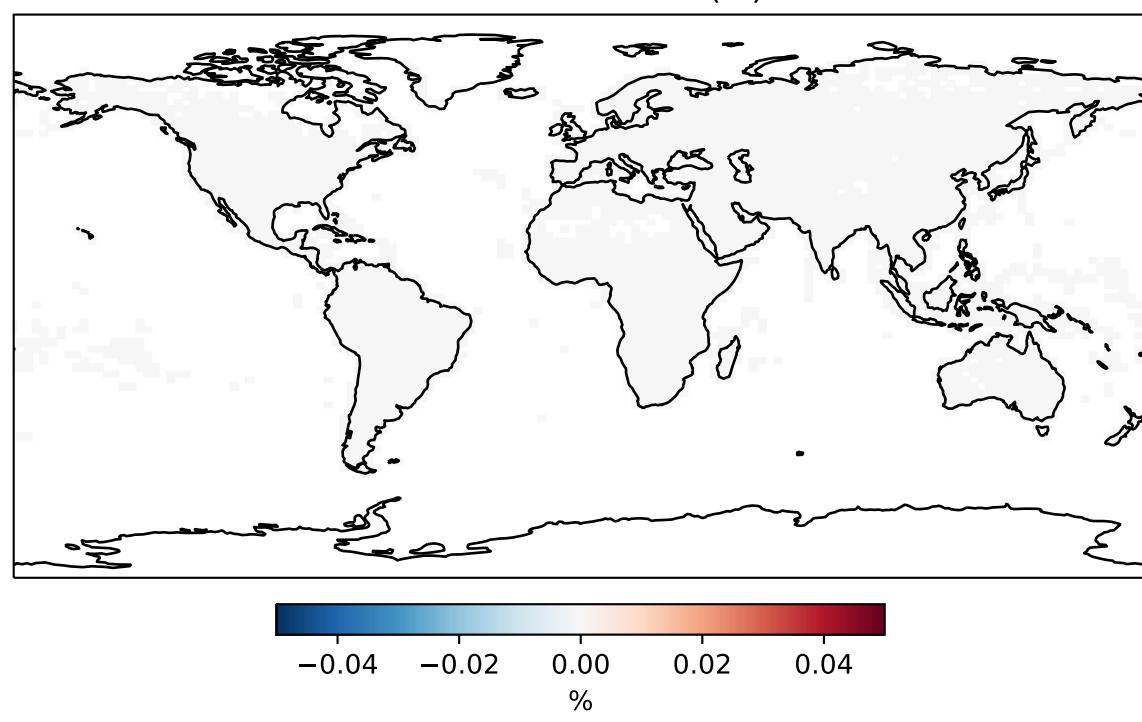
Absolute Difference



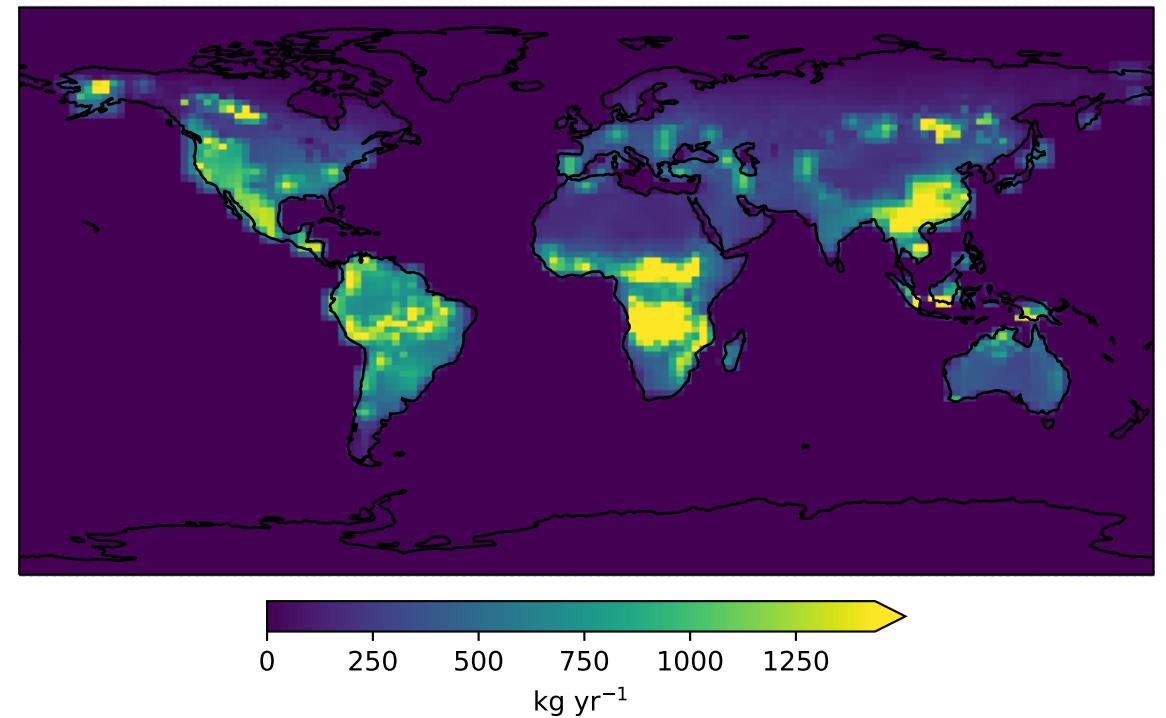
New Model Version: Anthro Emissions - Hg(II)+Hg(P)



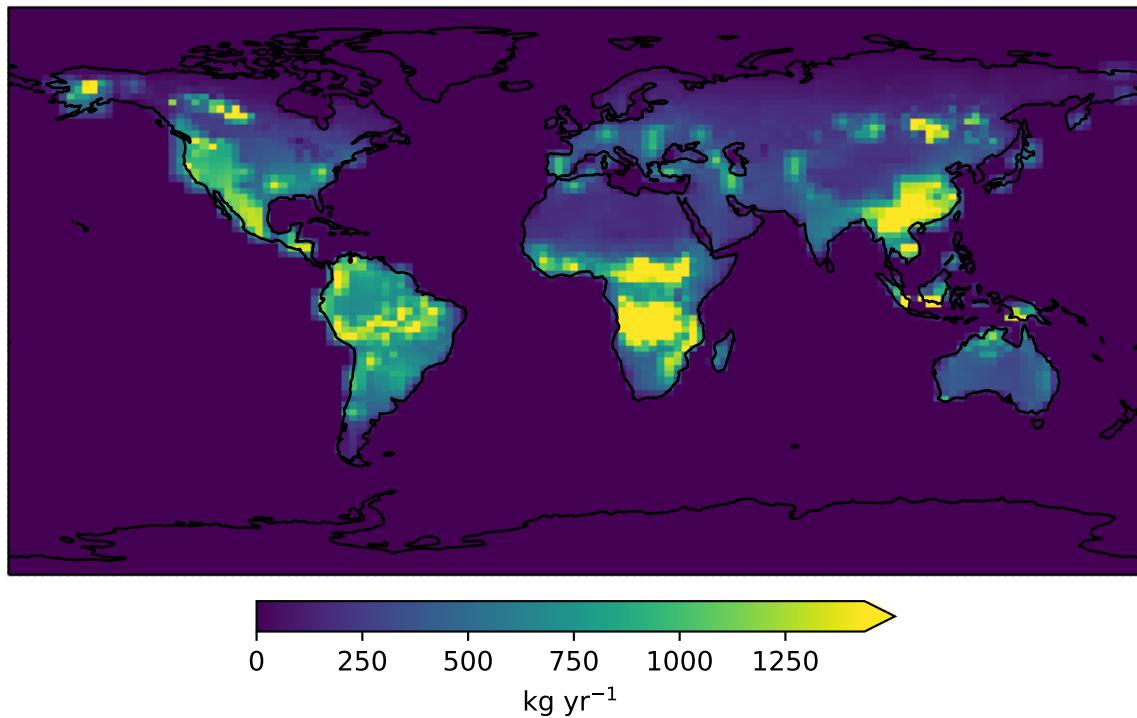
Percent Difference (%)



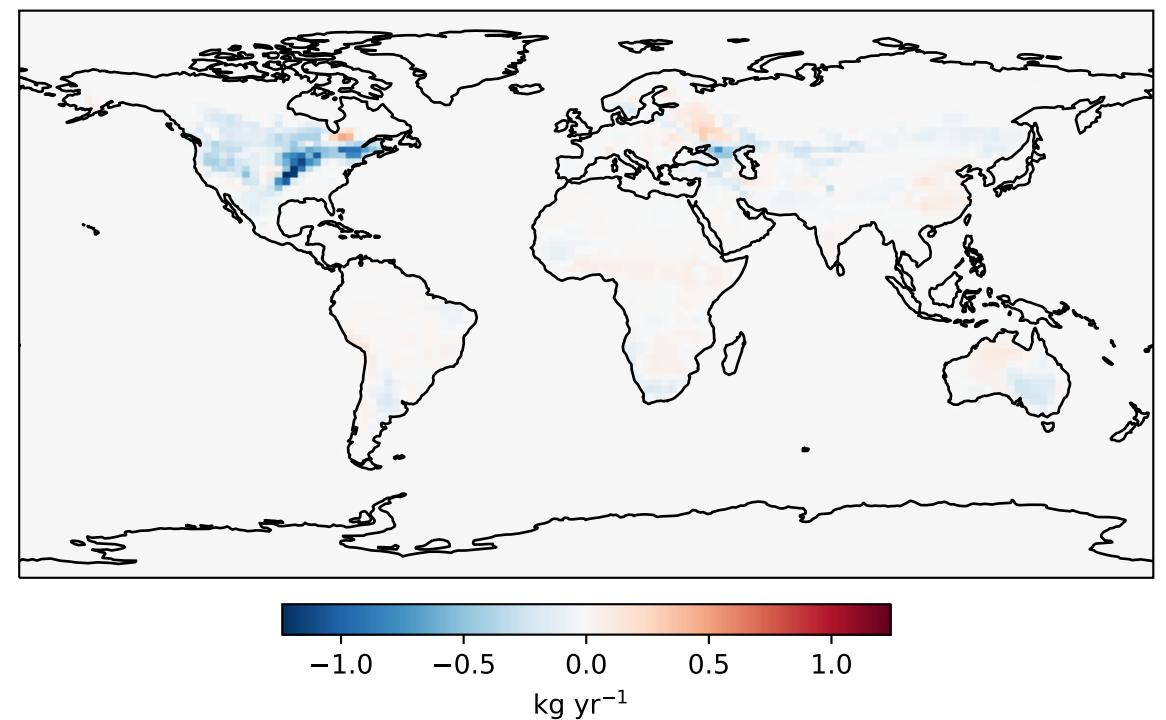
Reference Model Version: Direct Terrestrial - Geo, BB, & Soil



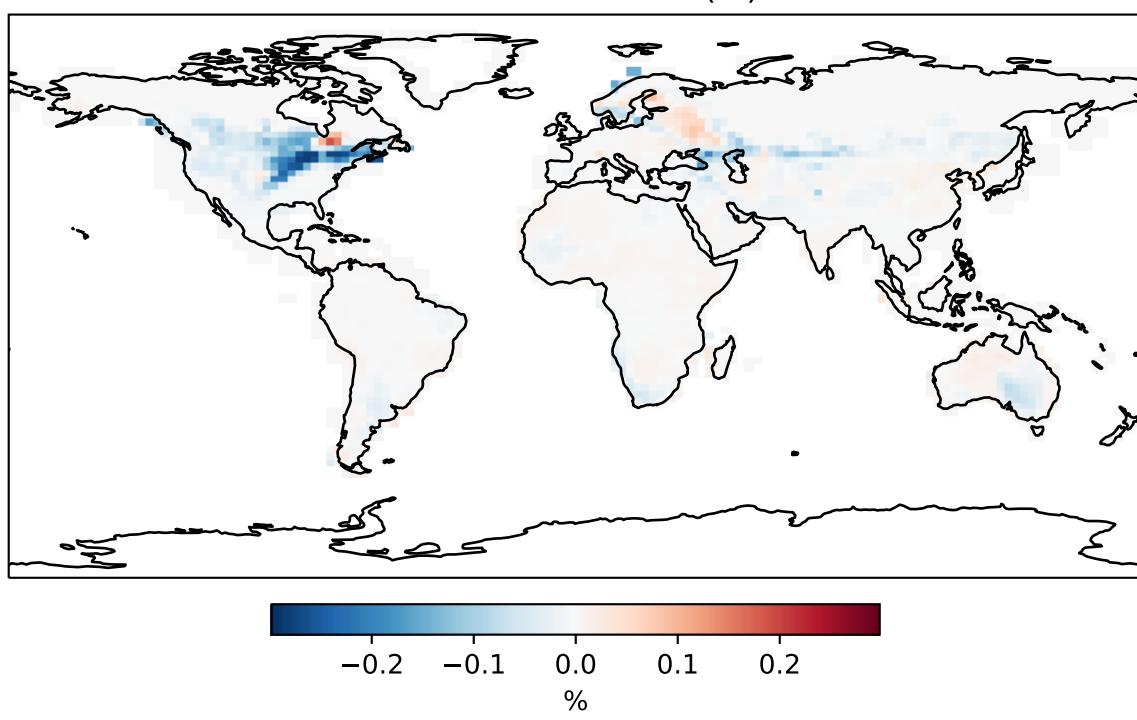
New Model Version: Direct Terrestrial - Geo, BB, & Soil



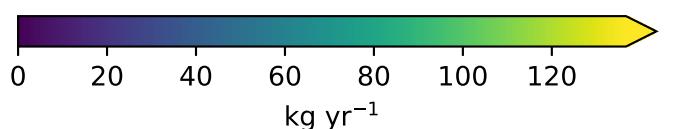
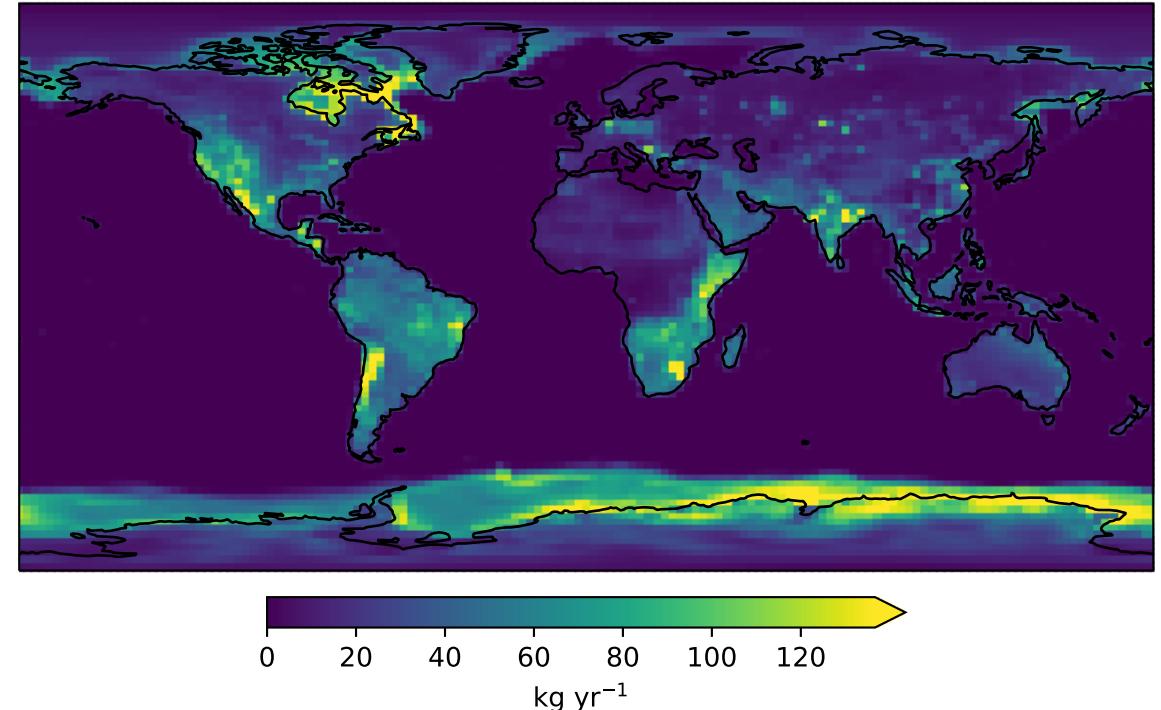
Absolute Difference



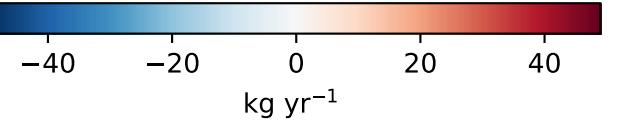
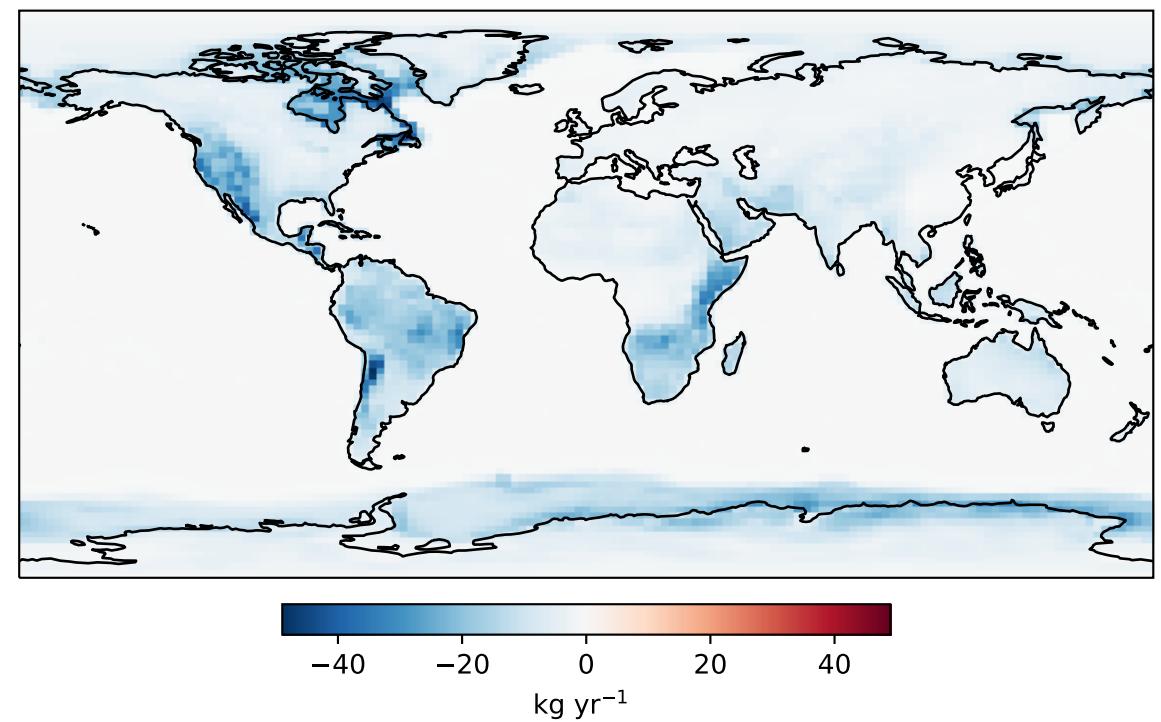
Percent Difference (%)



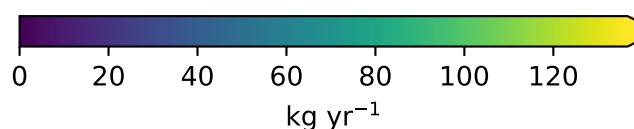
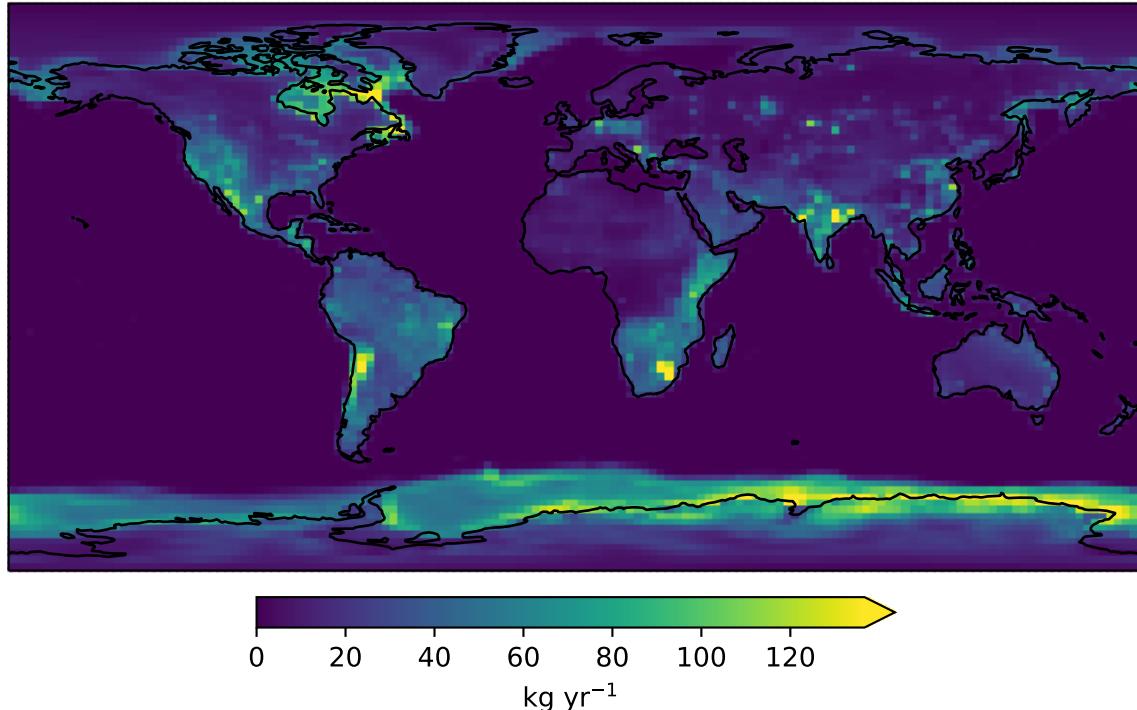
Reference Model Version: Prompt Re-emission - Land & Snow



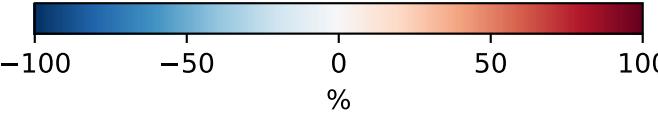
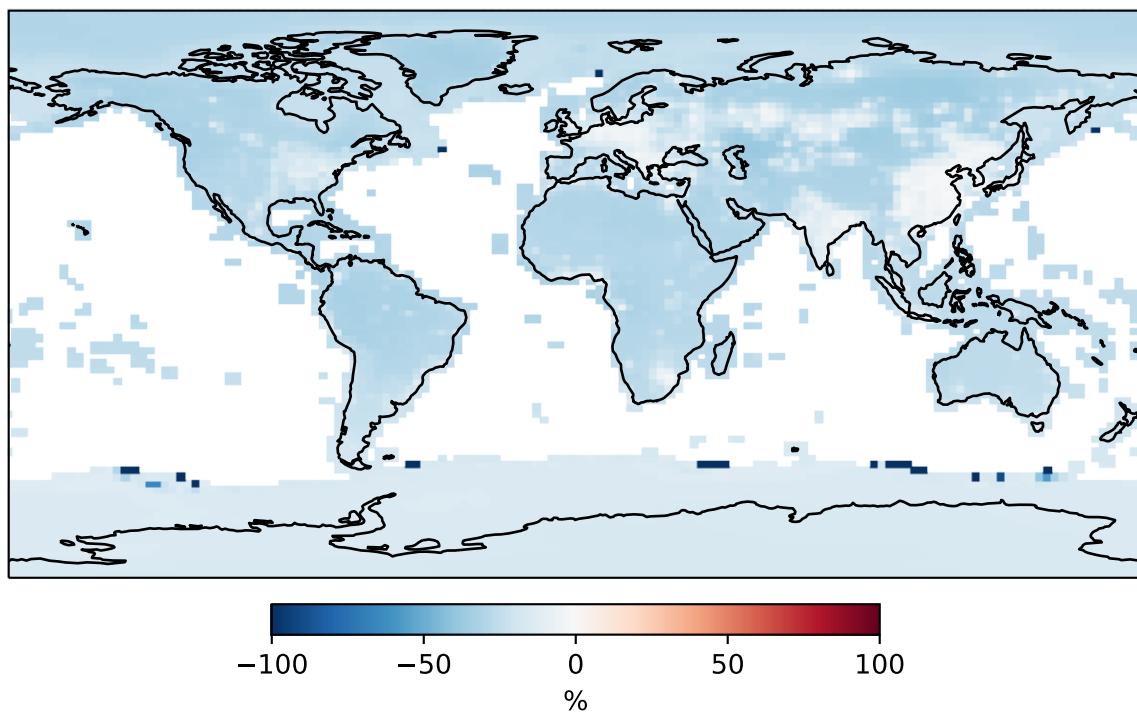
Absolute Difference



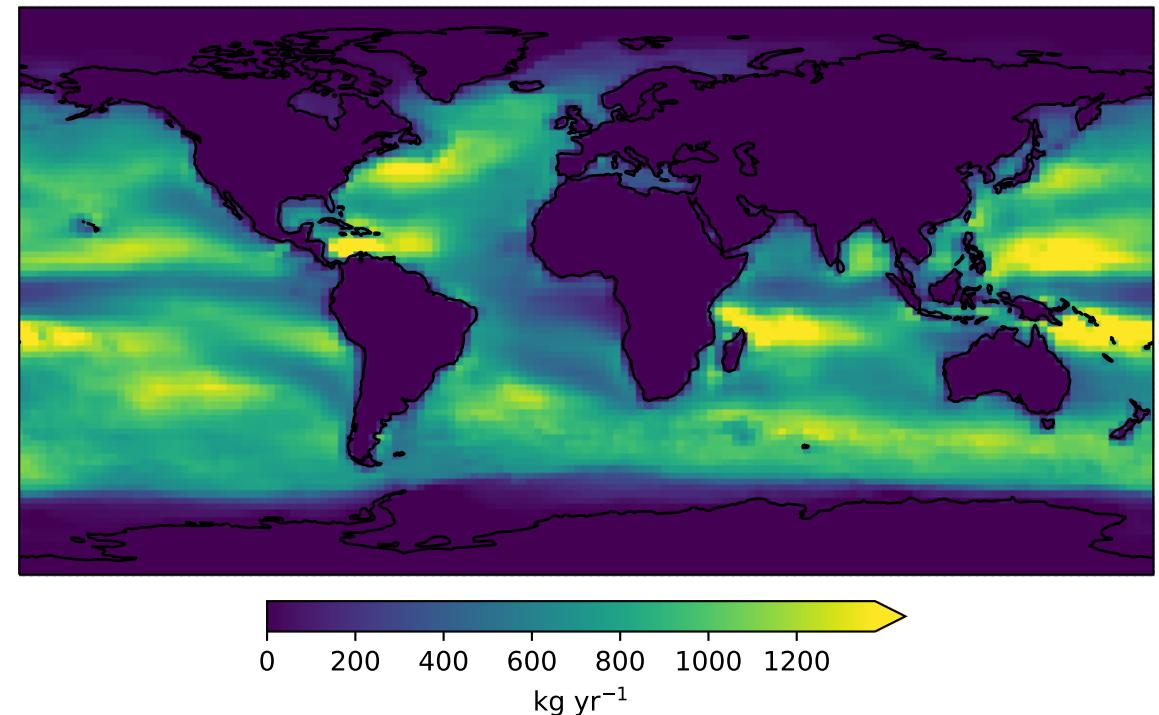
New Model Version: Prompt Re-emission - Land & Snow



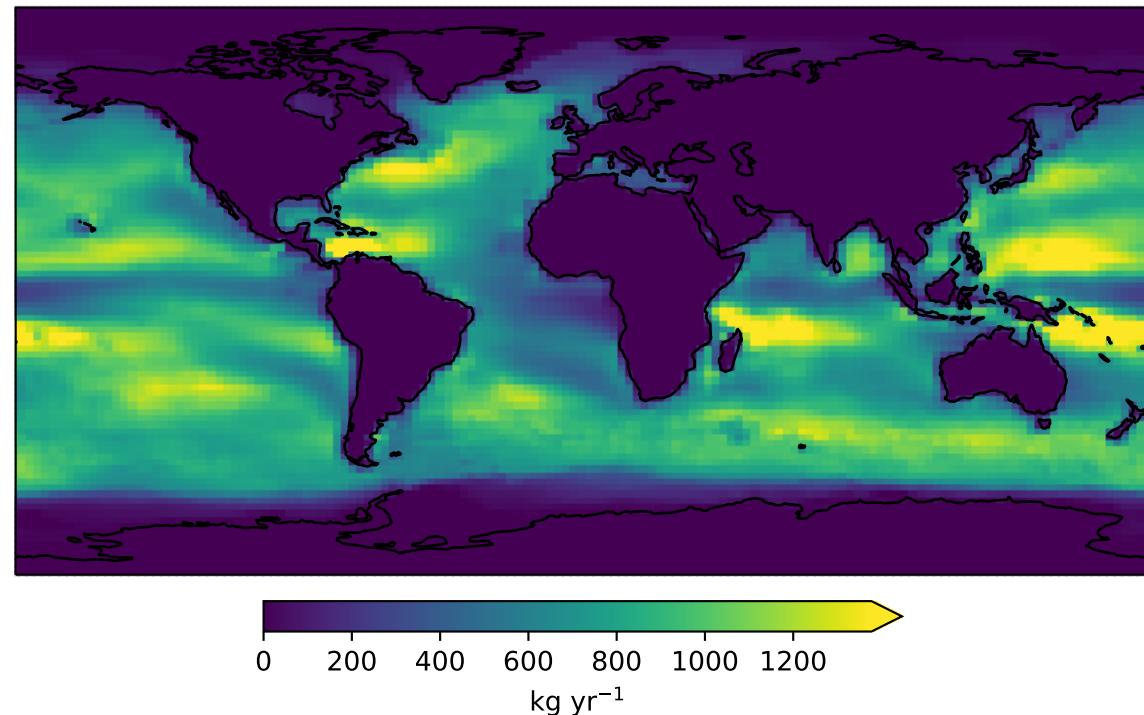
Percent Difference (%)



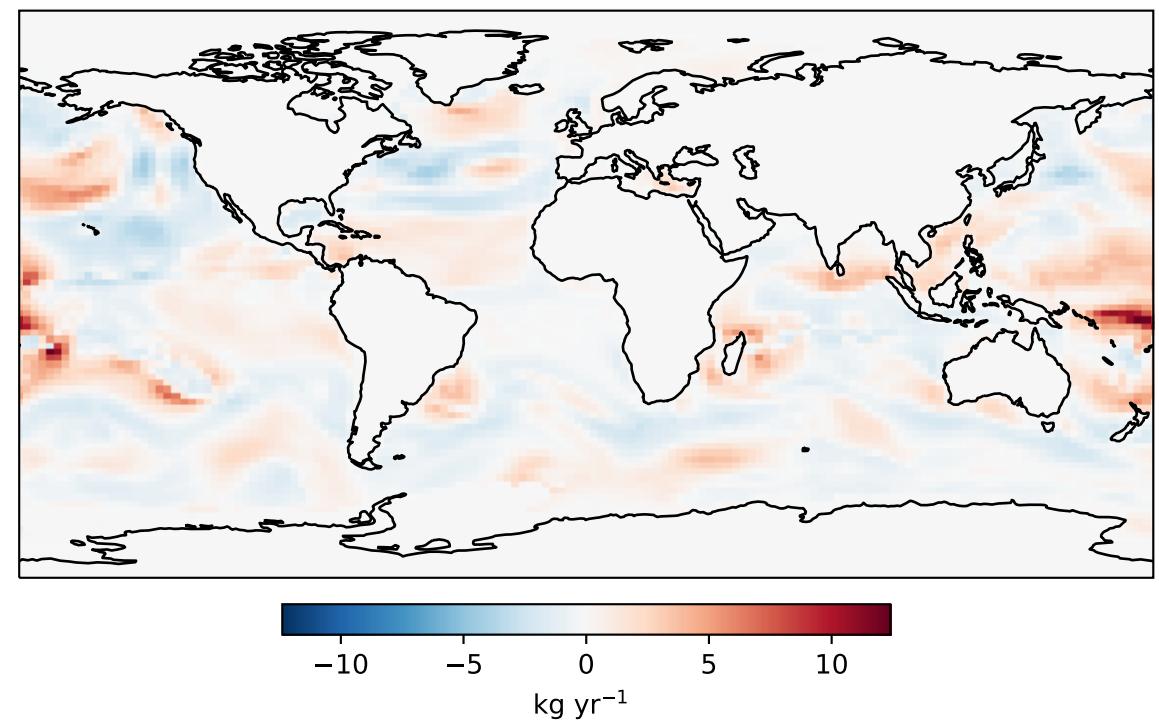
Reference Model Version: Gross Ocean Evasion



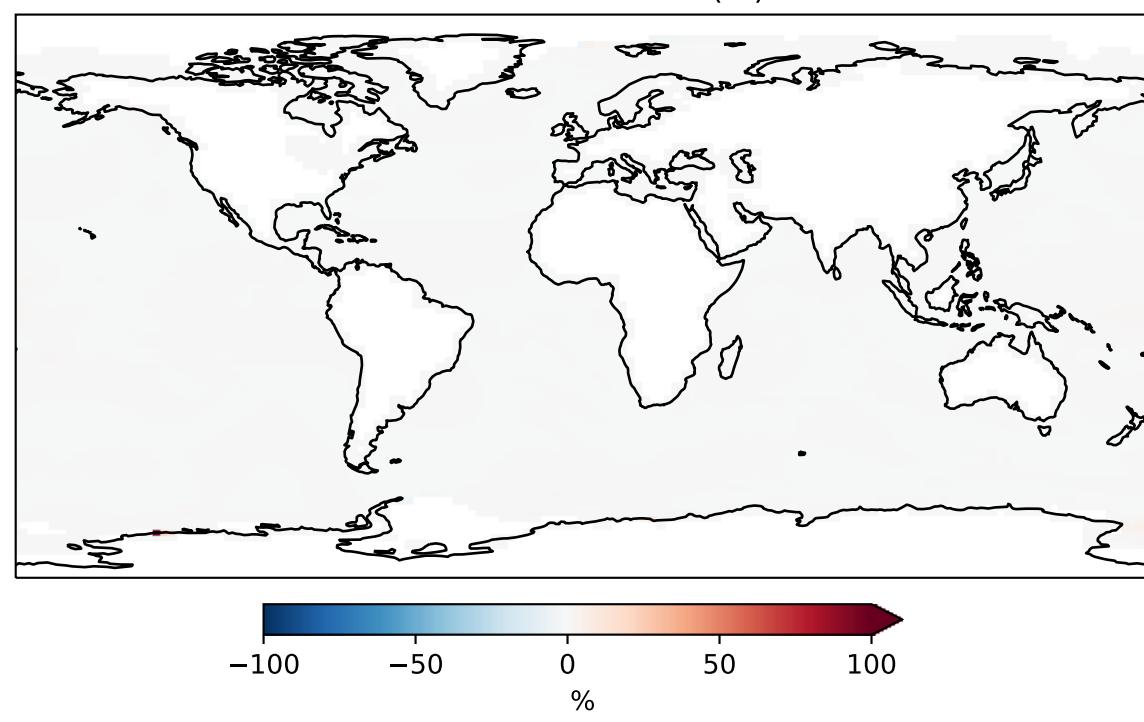
New Model Version: Gross Ocean Evasion



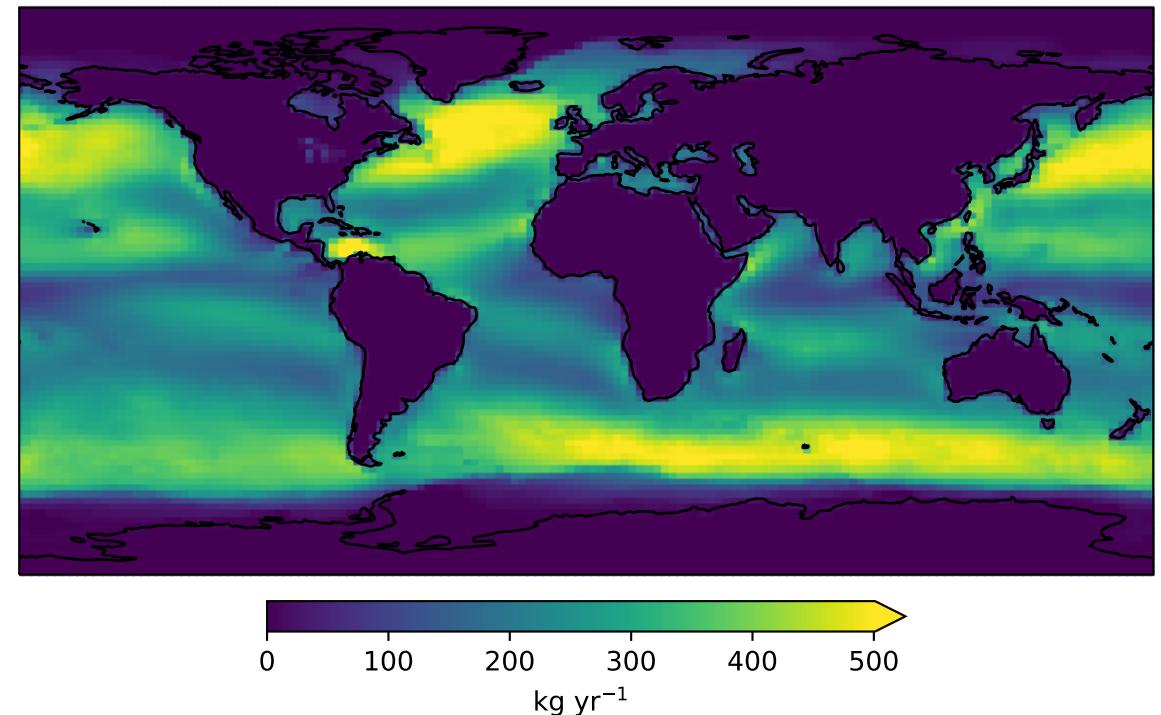
Absolute Difference



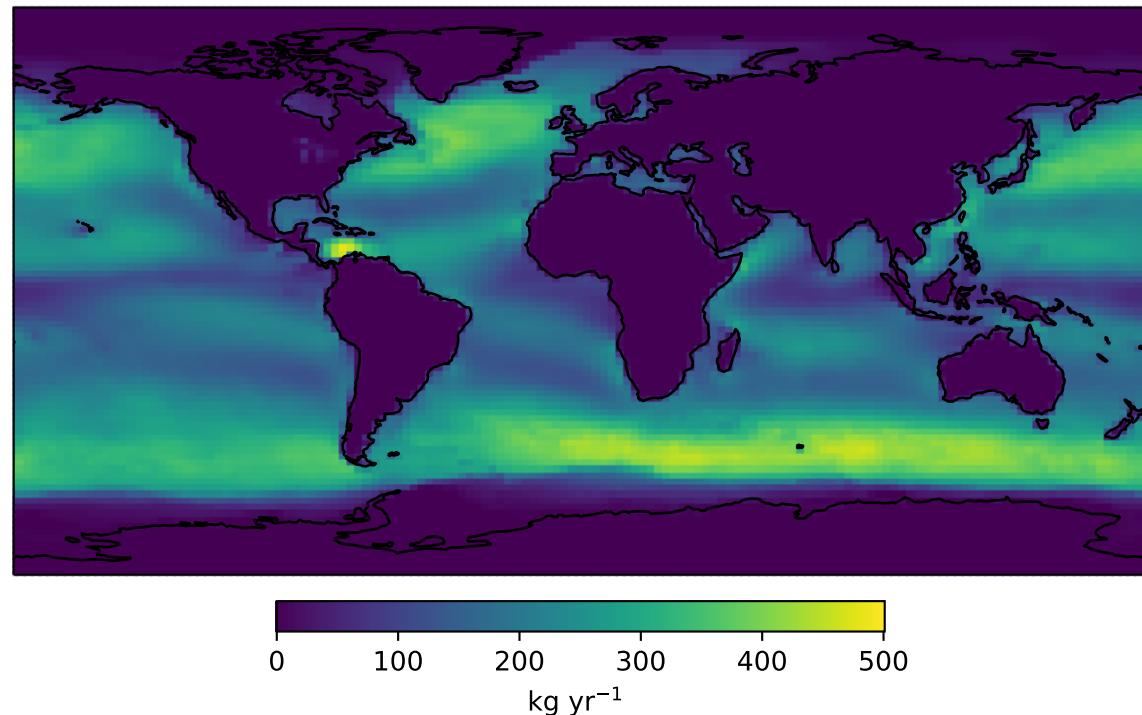
Percent Difference (%)



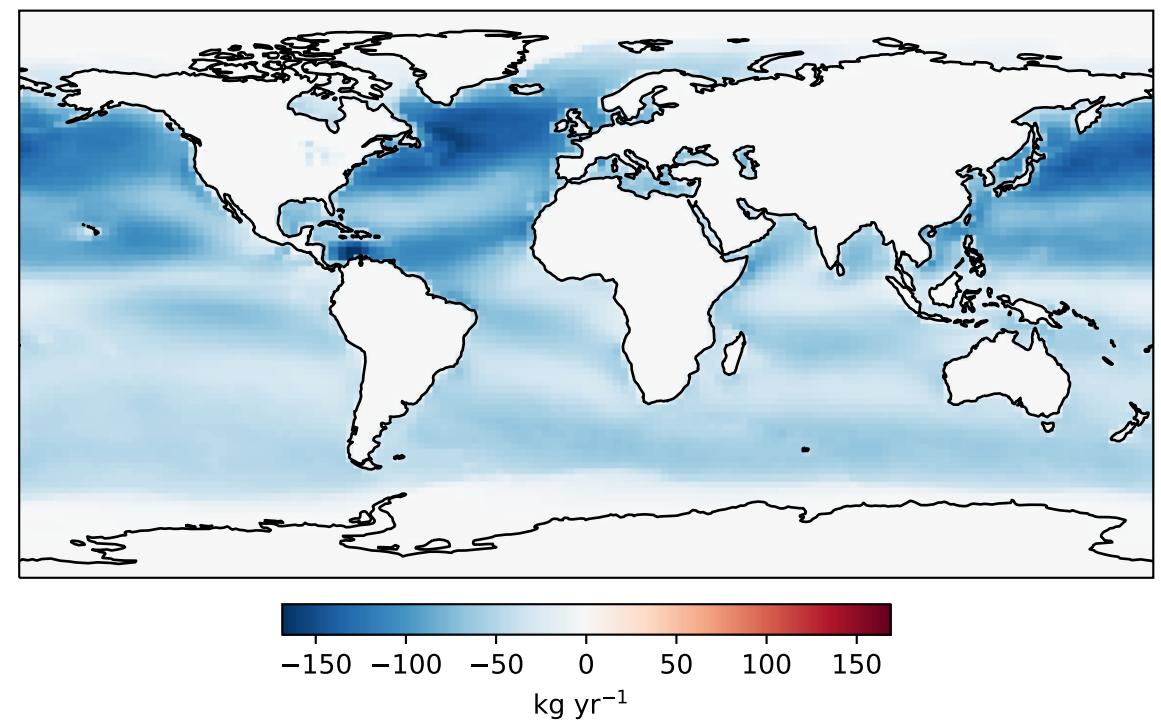
Reference Model Version: Gross Ocean Hg(0) Uptake



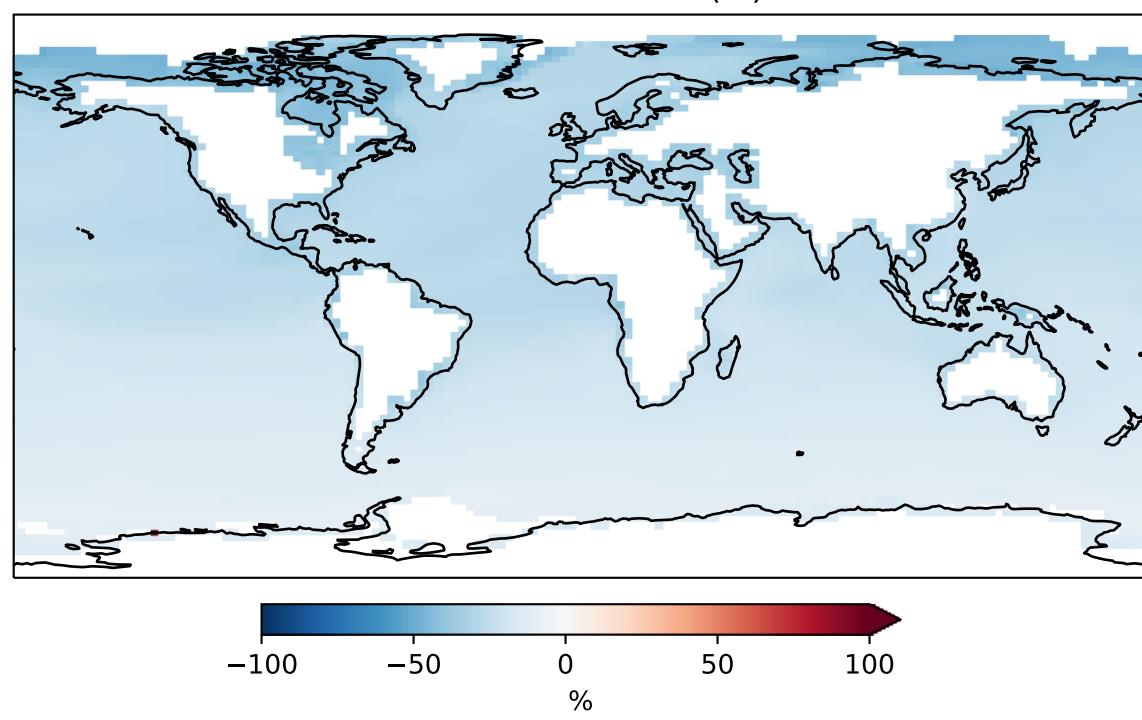
New Model Version: Gross Ocean Hg(0) Uptake



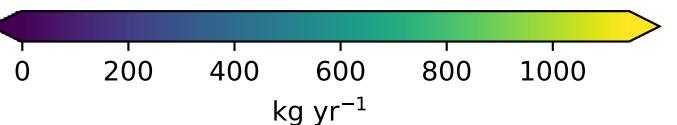
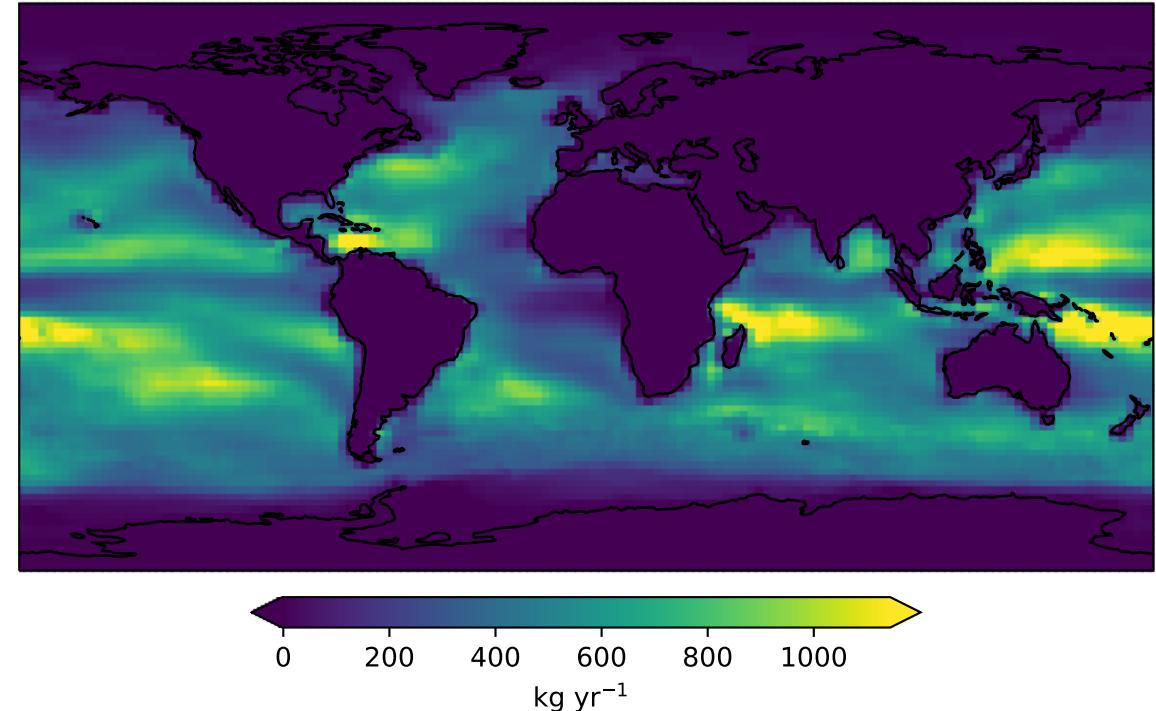
Absolute Difference



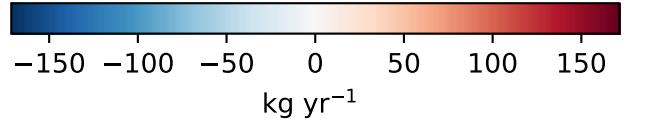
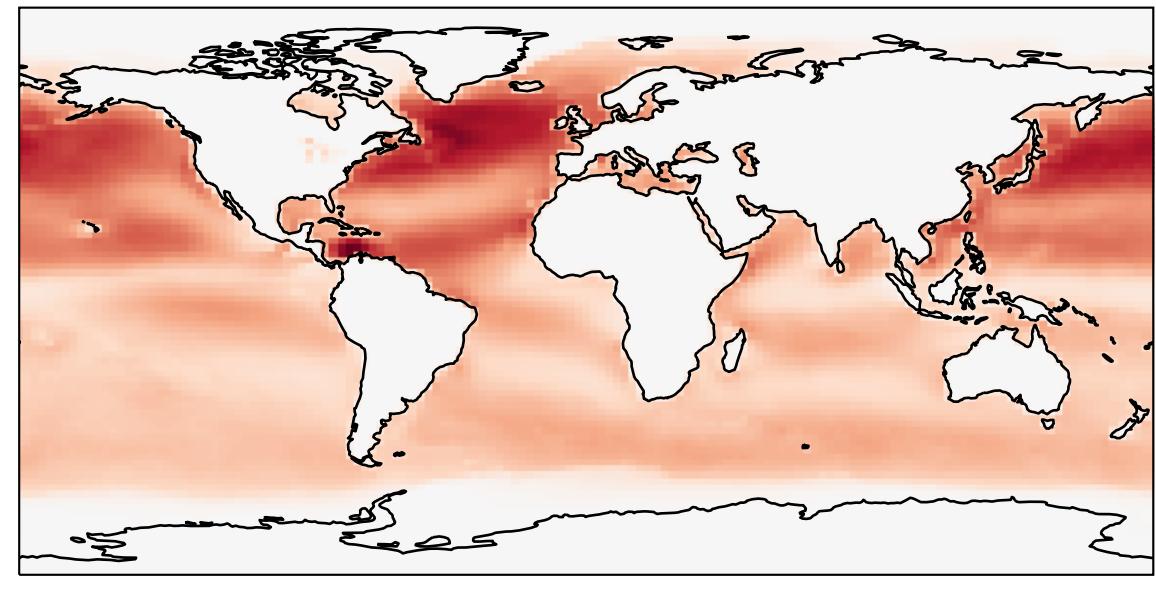
Percent Difference (%)



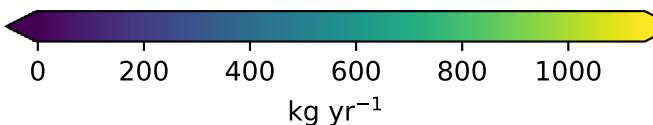
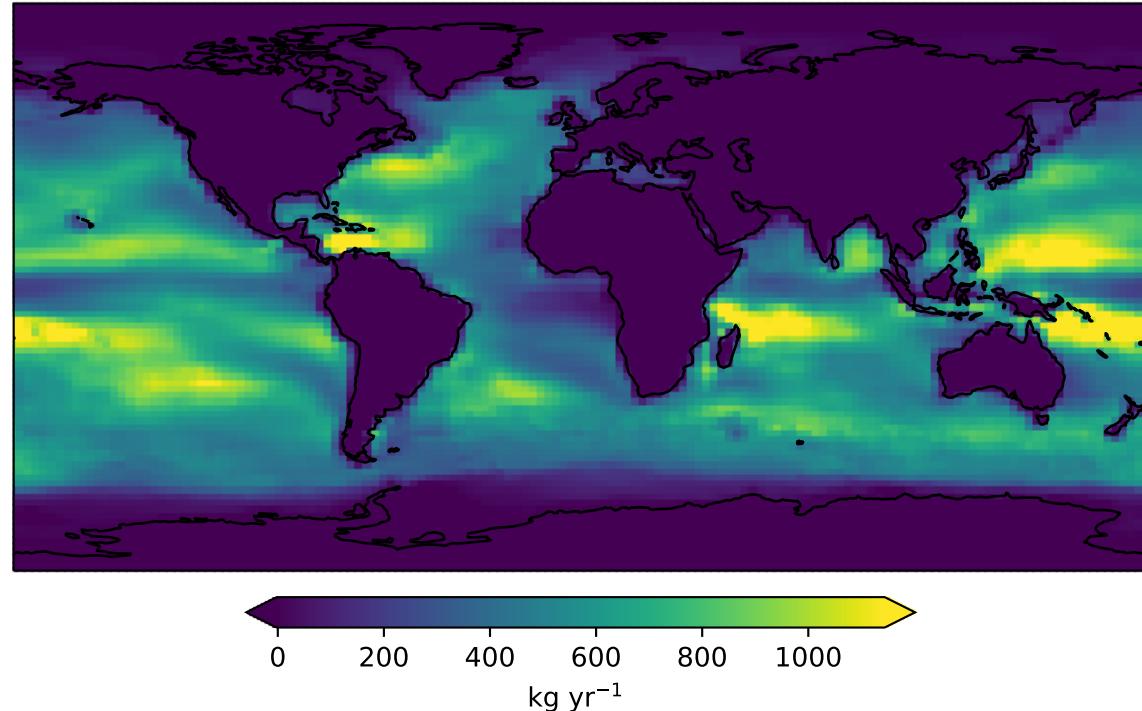
Reference Model Version: Net Ocean Evasion



Absolute Difference



New Model Version: Net Ocean Evasion



Percent Difference (%)

