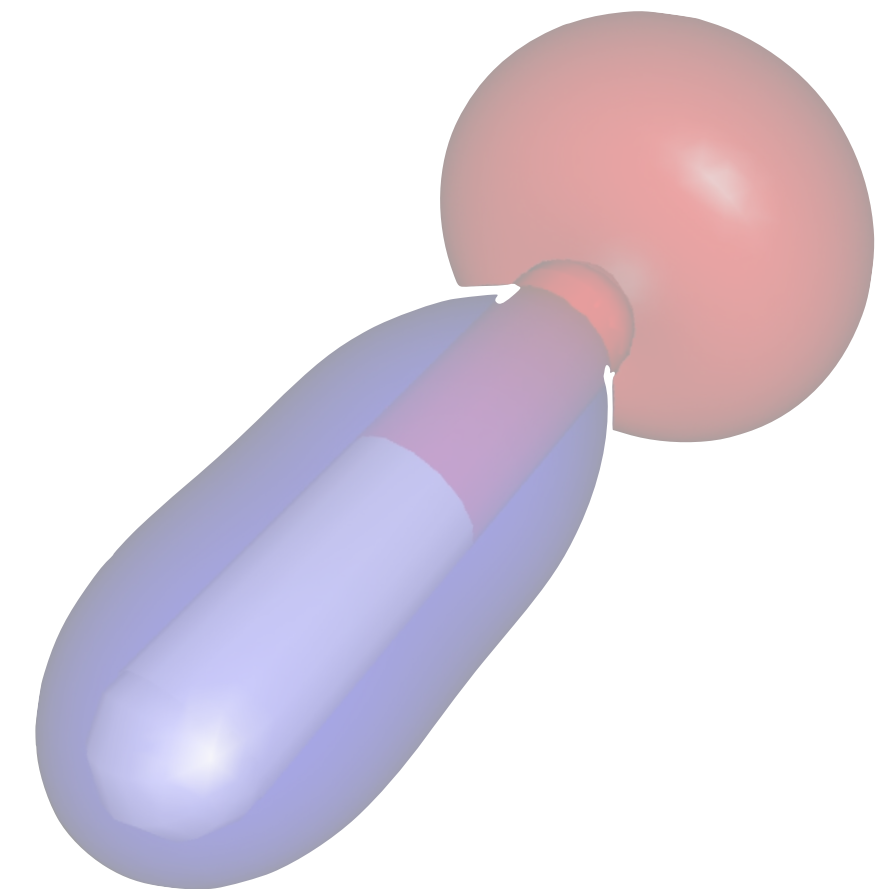
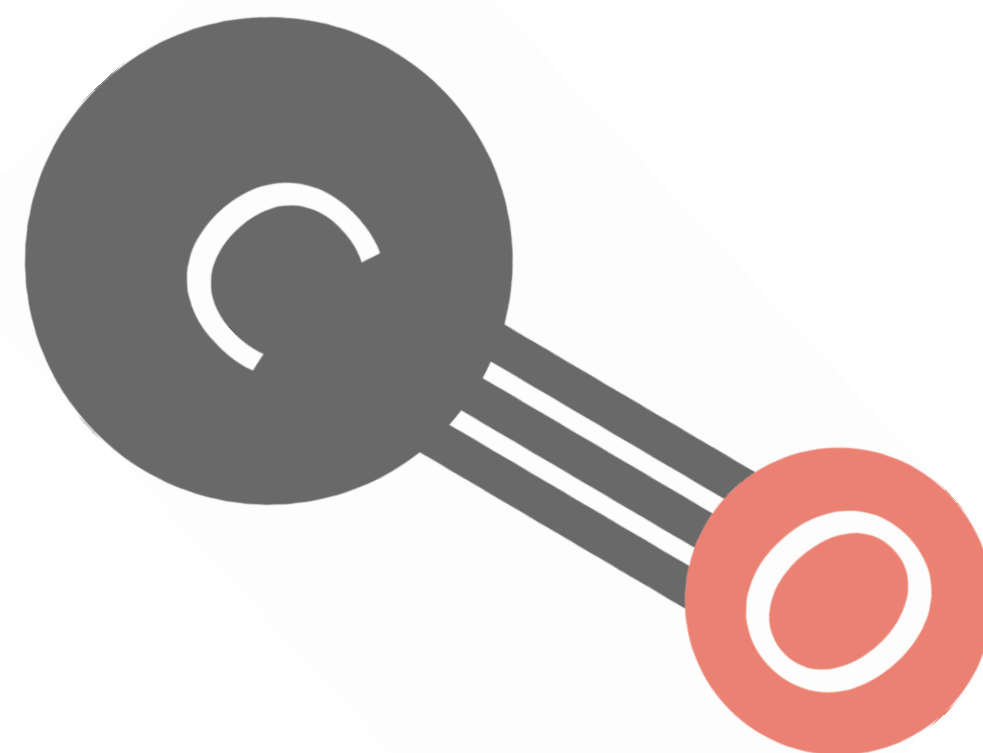
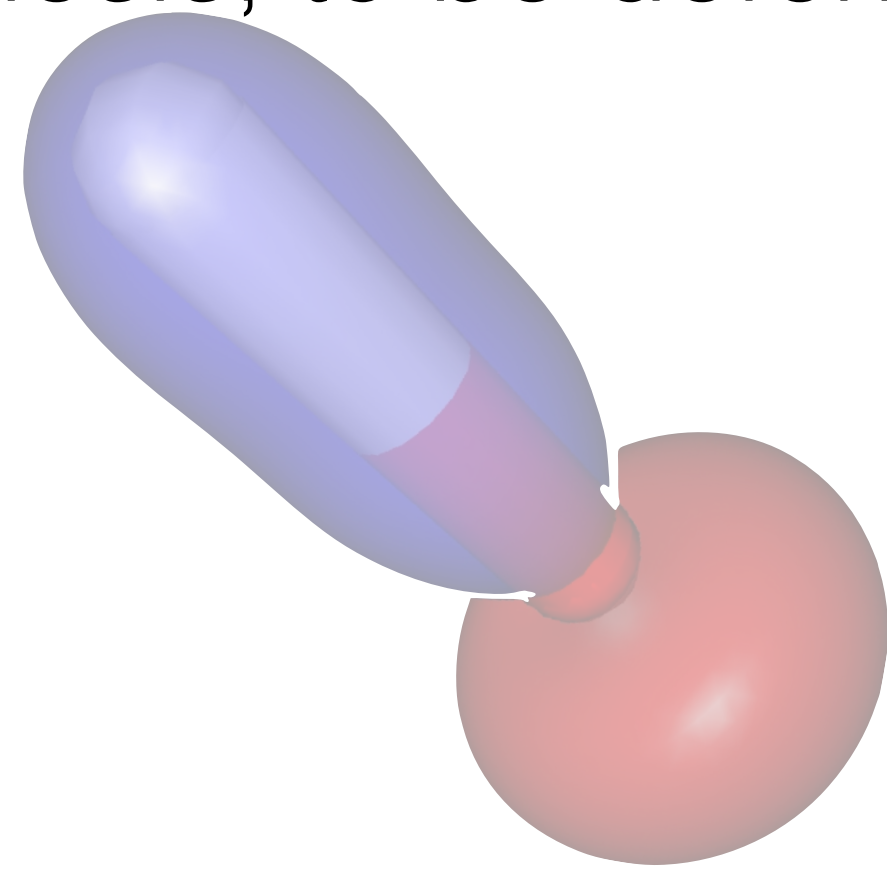


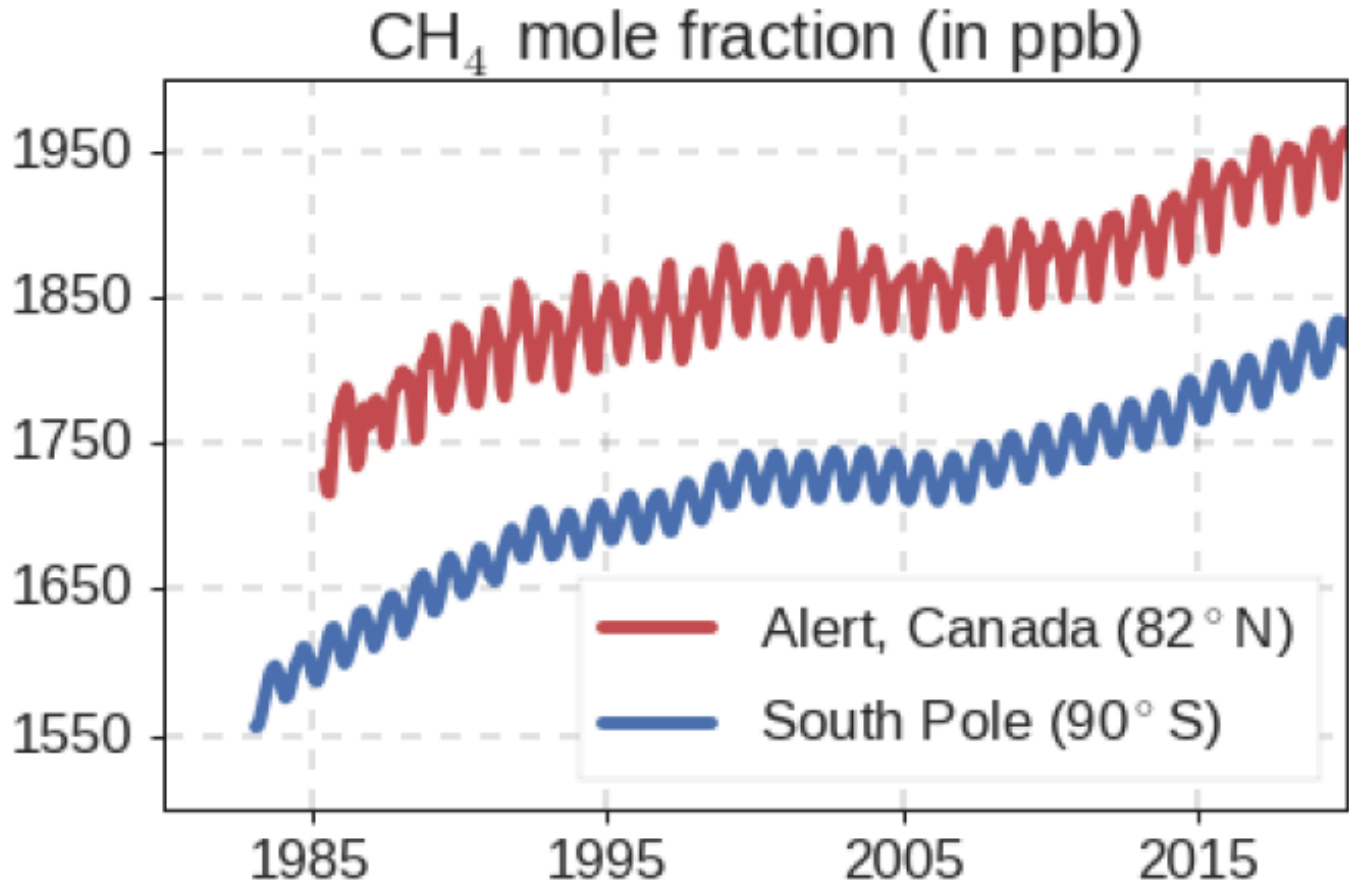
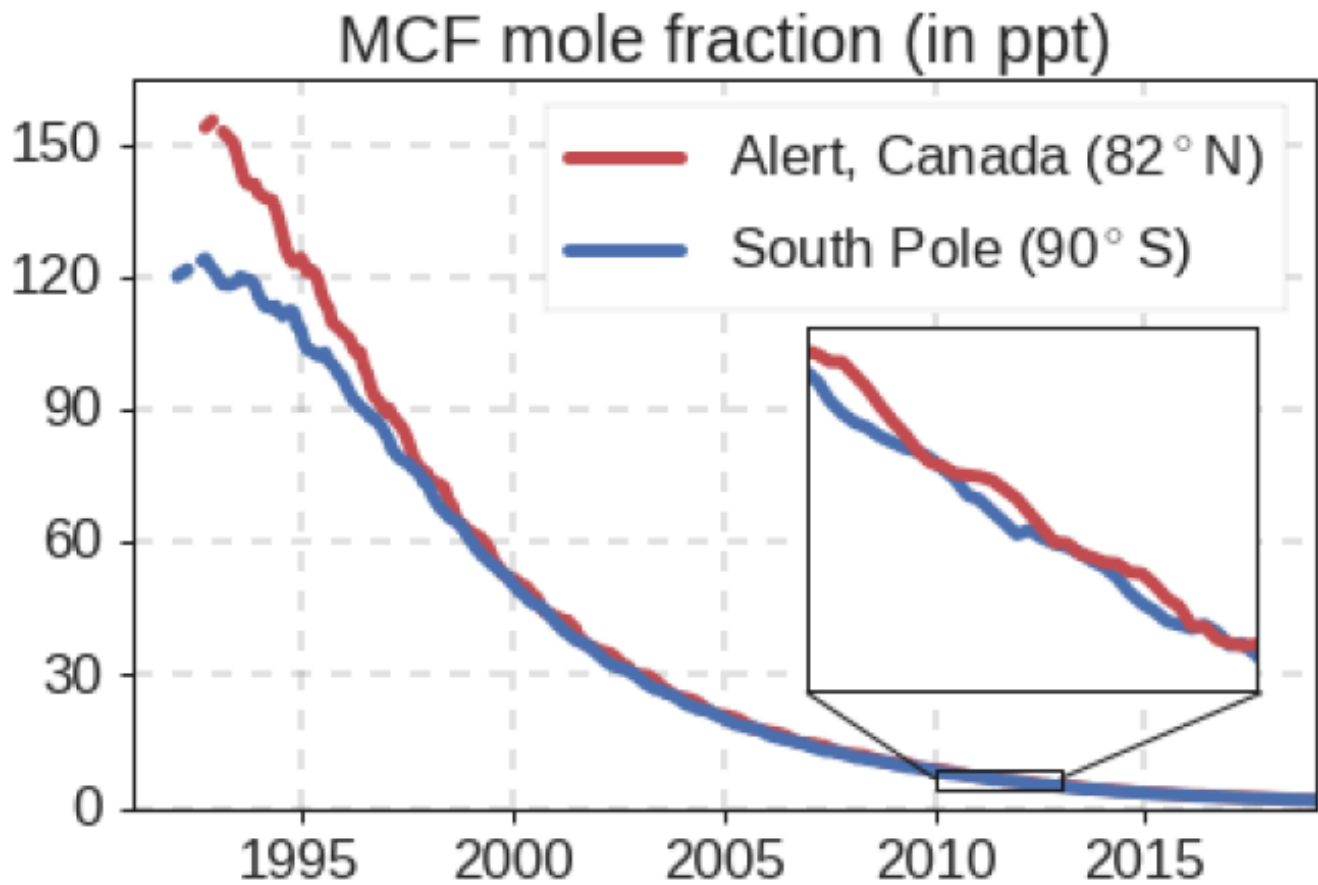
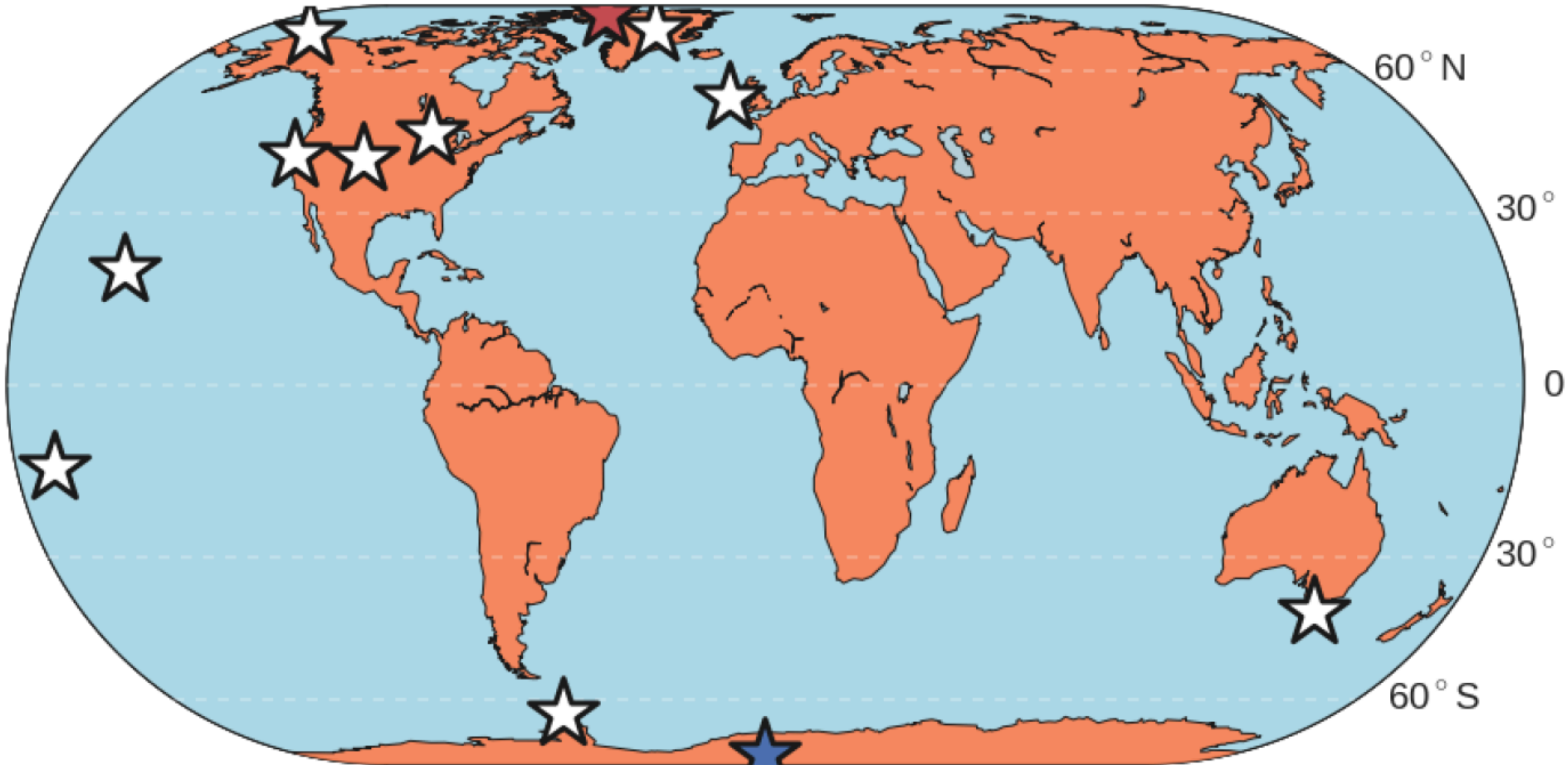
# *Improving estimates of the atmospheric oxidative capacity and Amazon fire emissions*

**Stijn Naus, Wageningen University**

PhD Thesis, to be defended on 3-2-2021

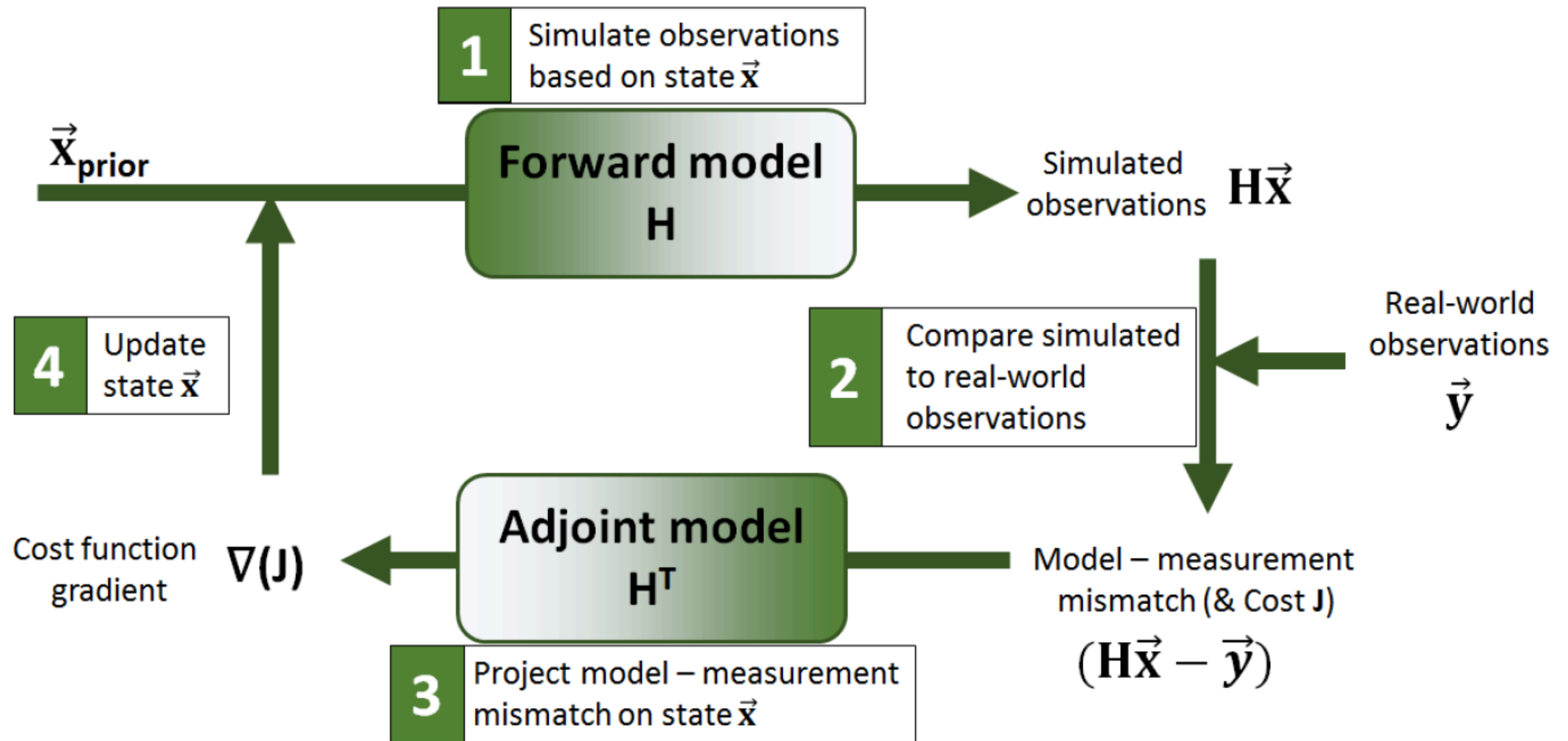


# Context: using measurements to constrain atmospheric processes



COS-OCs

# The 4DVAR framework implemented in TM5



# The Thesis

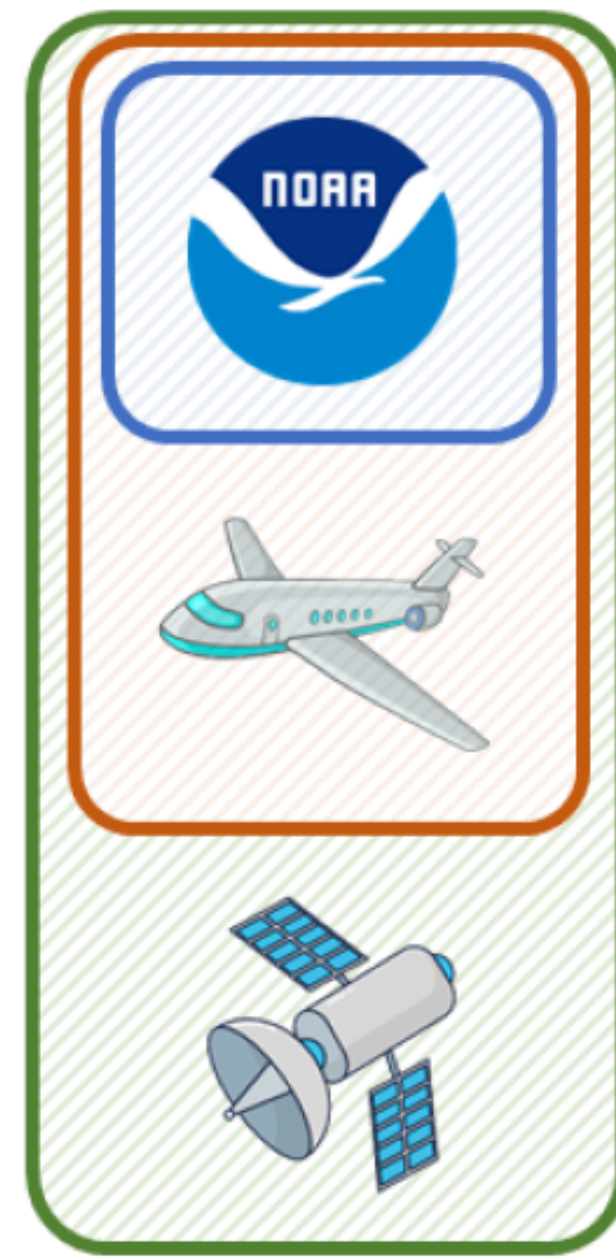
## Legend

Chapter 2

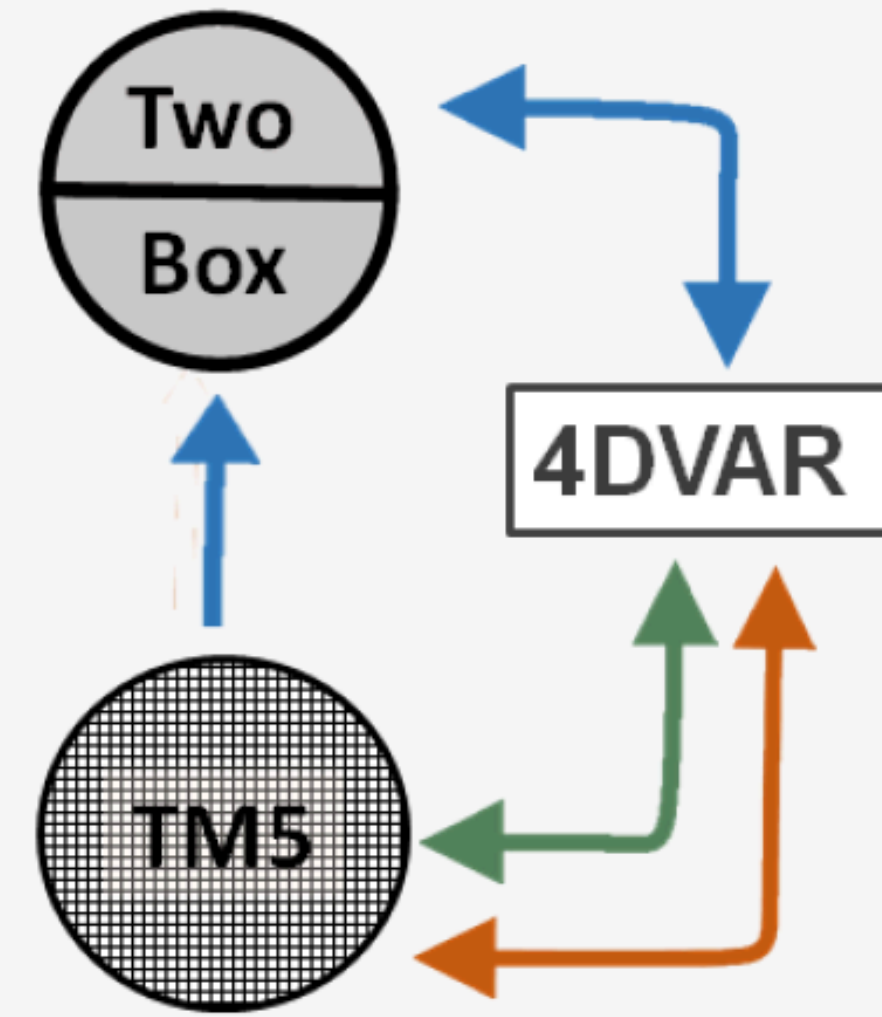
Chapter 3

Chapter 4

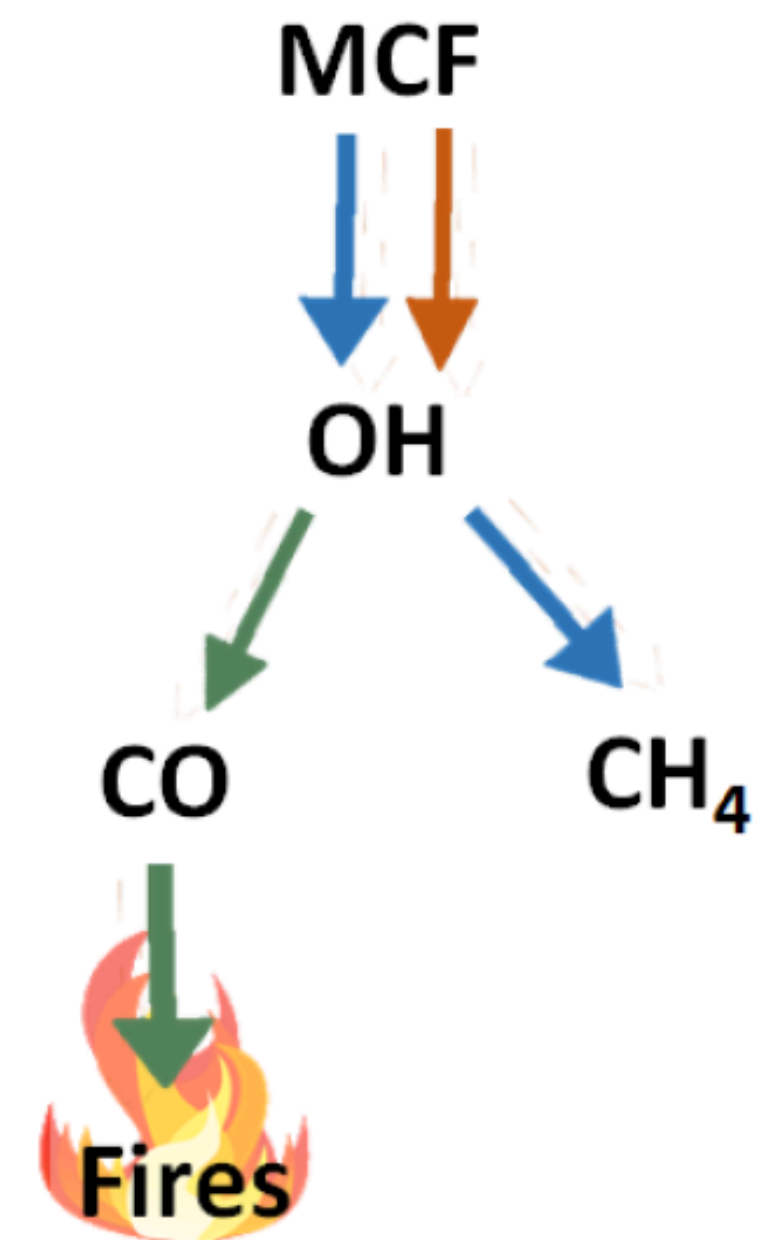
## Observations



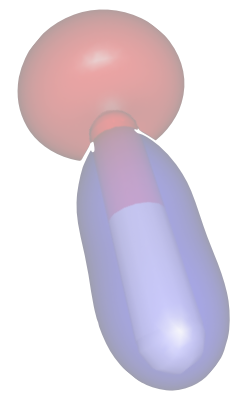
## Tools



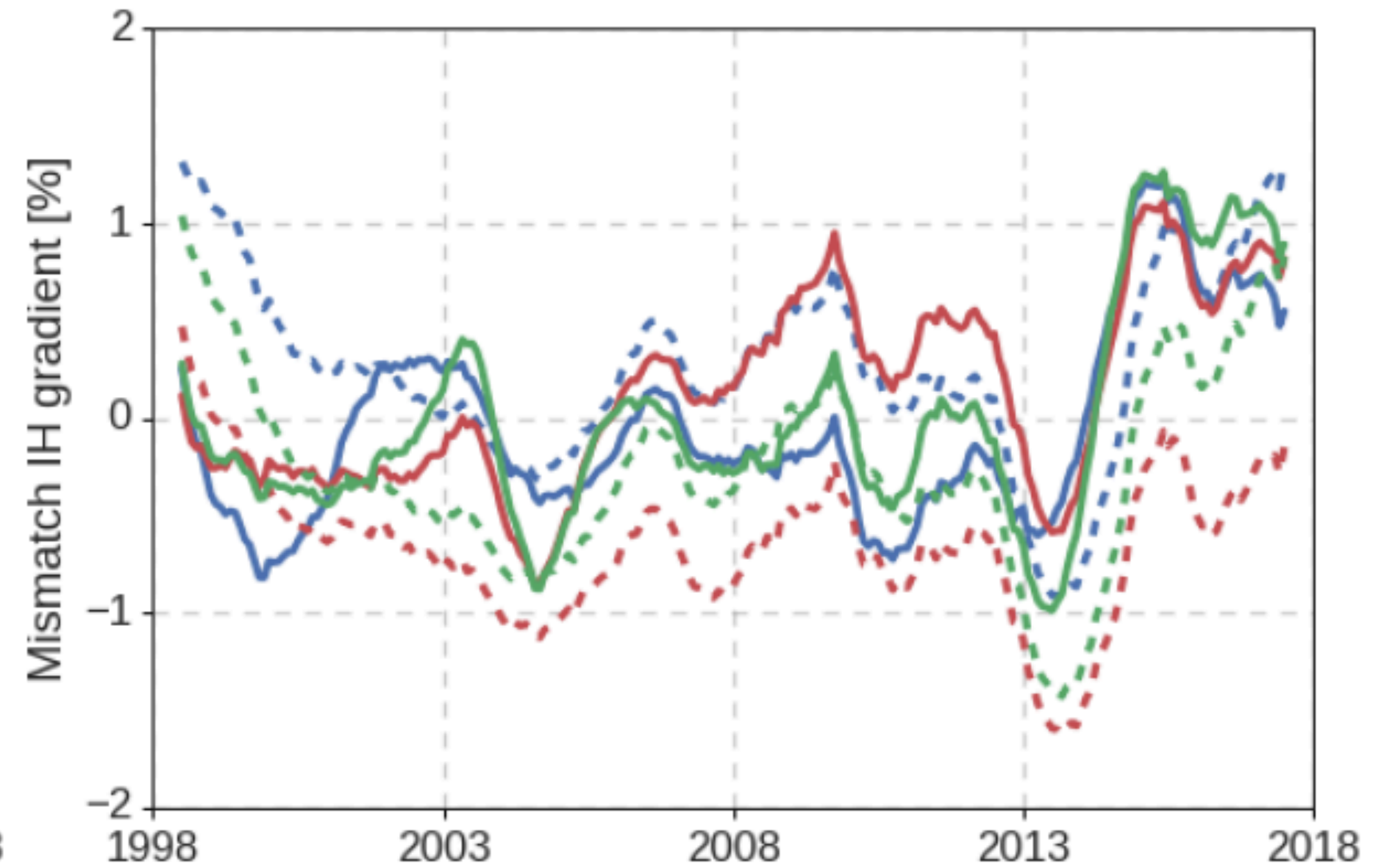
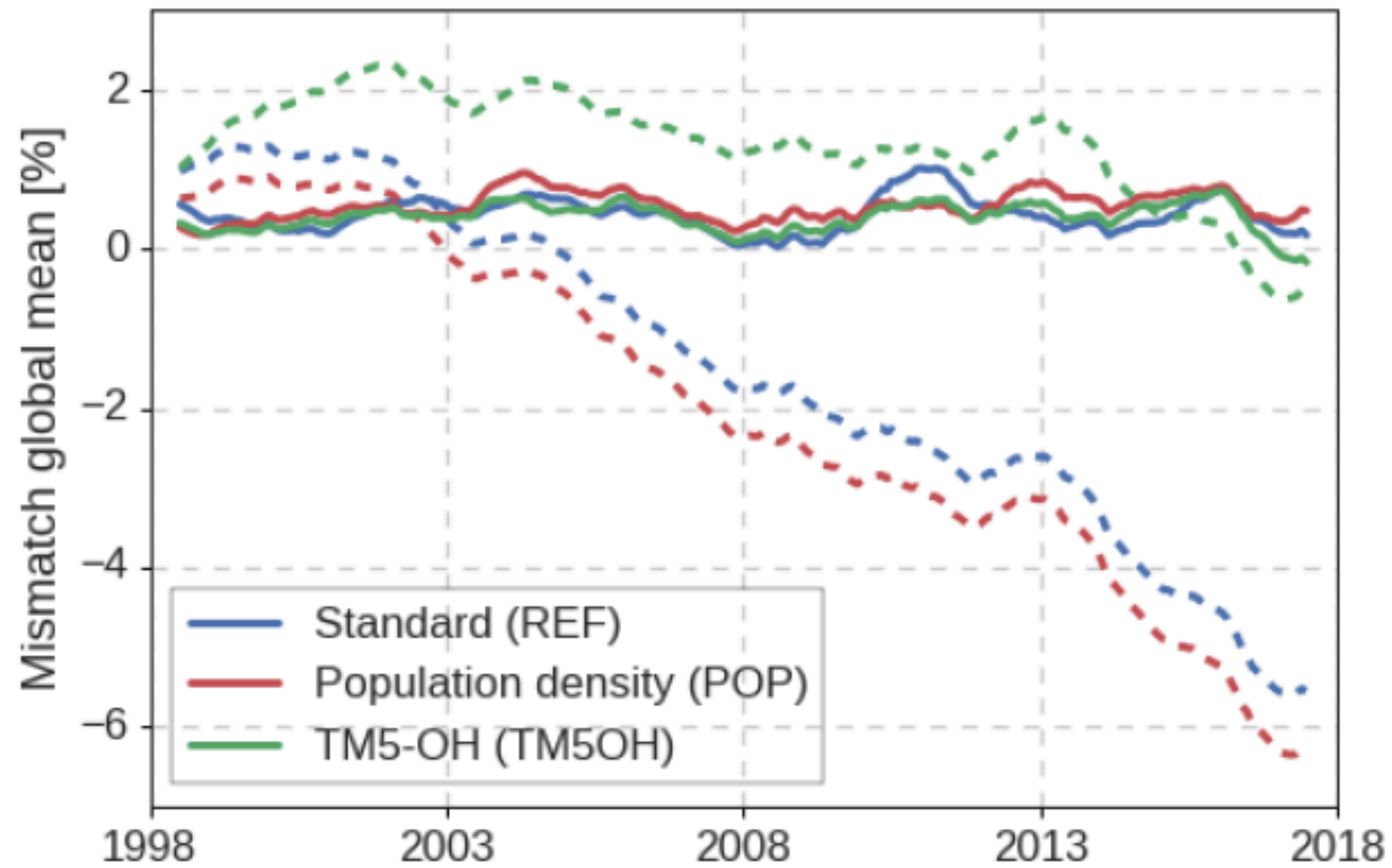
## Objectives



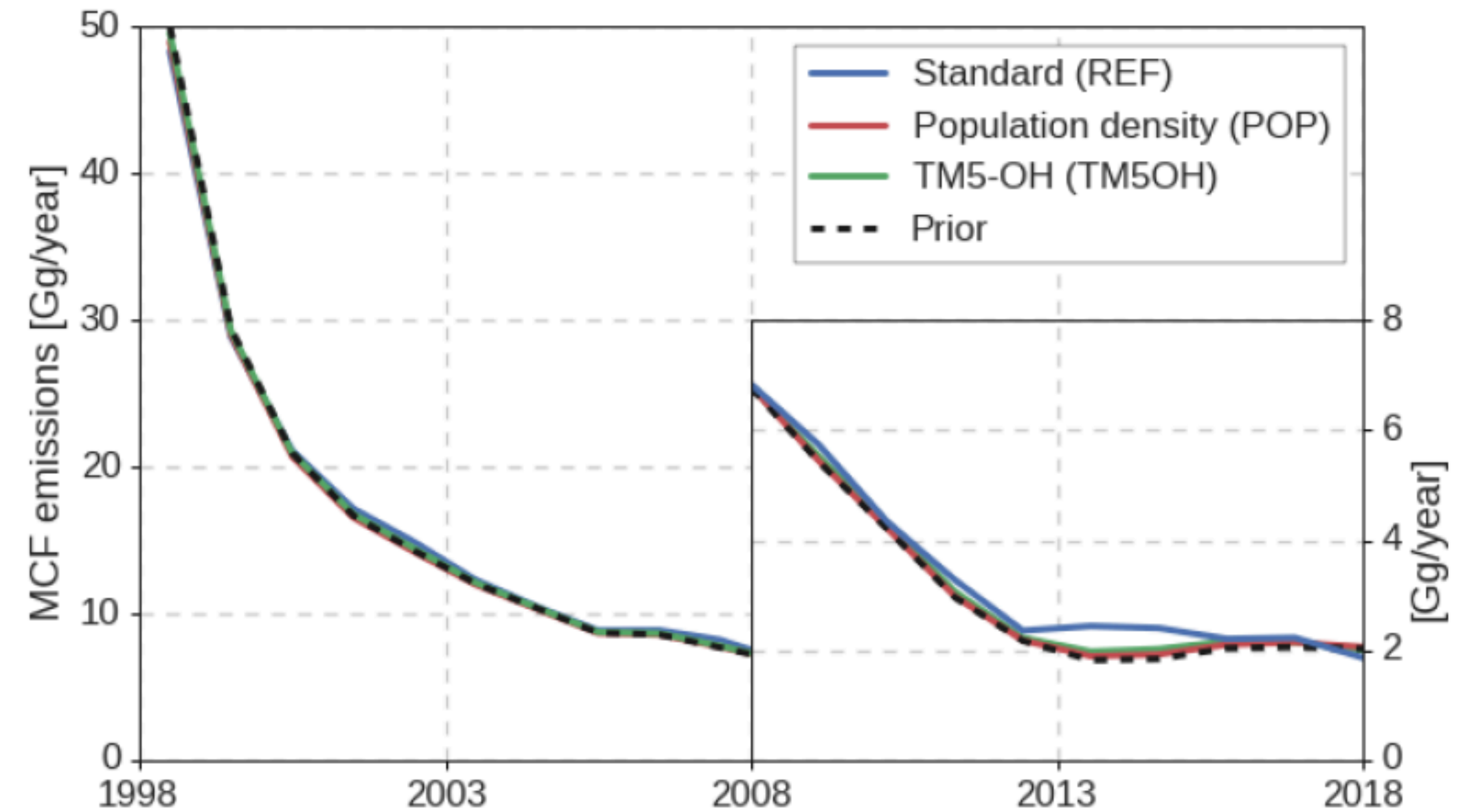
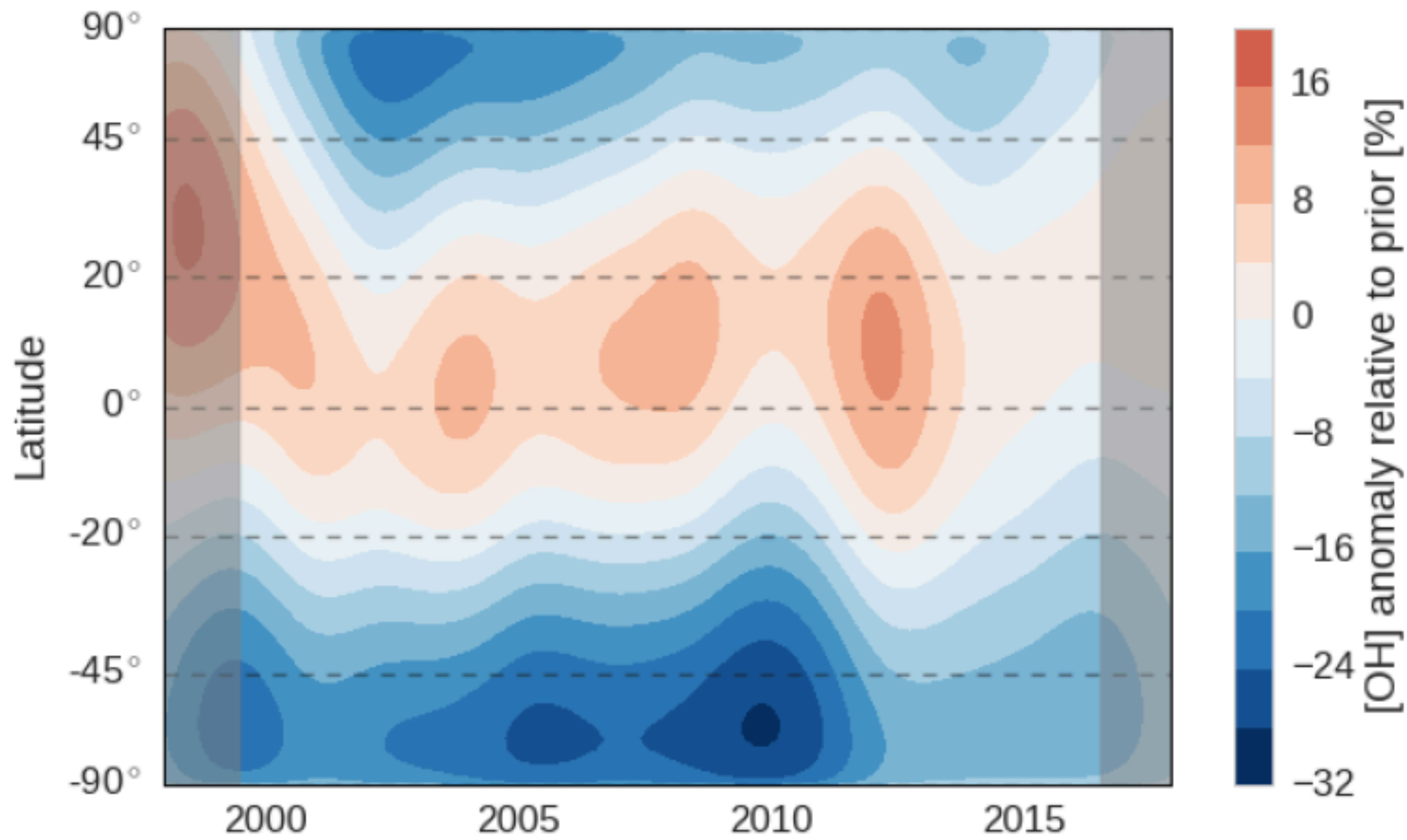
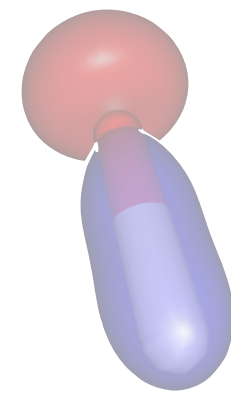
# A 3D-model inversion of methyl chloroform to constrain the atmospheric oxidative capacity



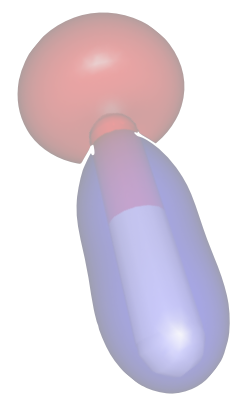
COS-OCs



# A 3D-model inversion of methyl chloroform to constrain the atmospheric oxidative capacity

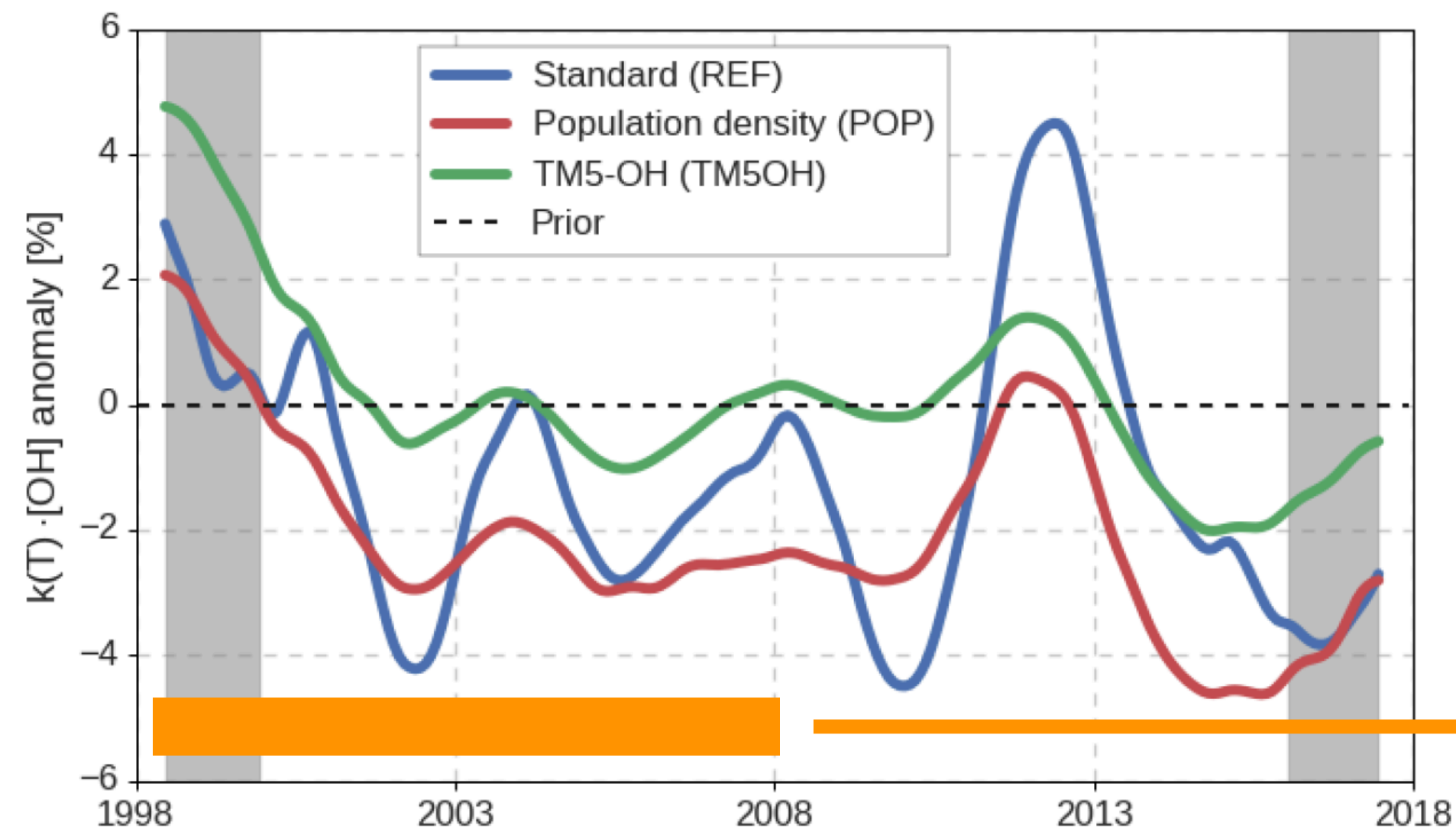


COS-OCs

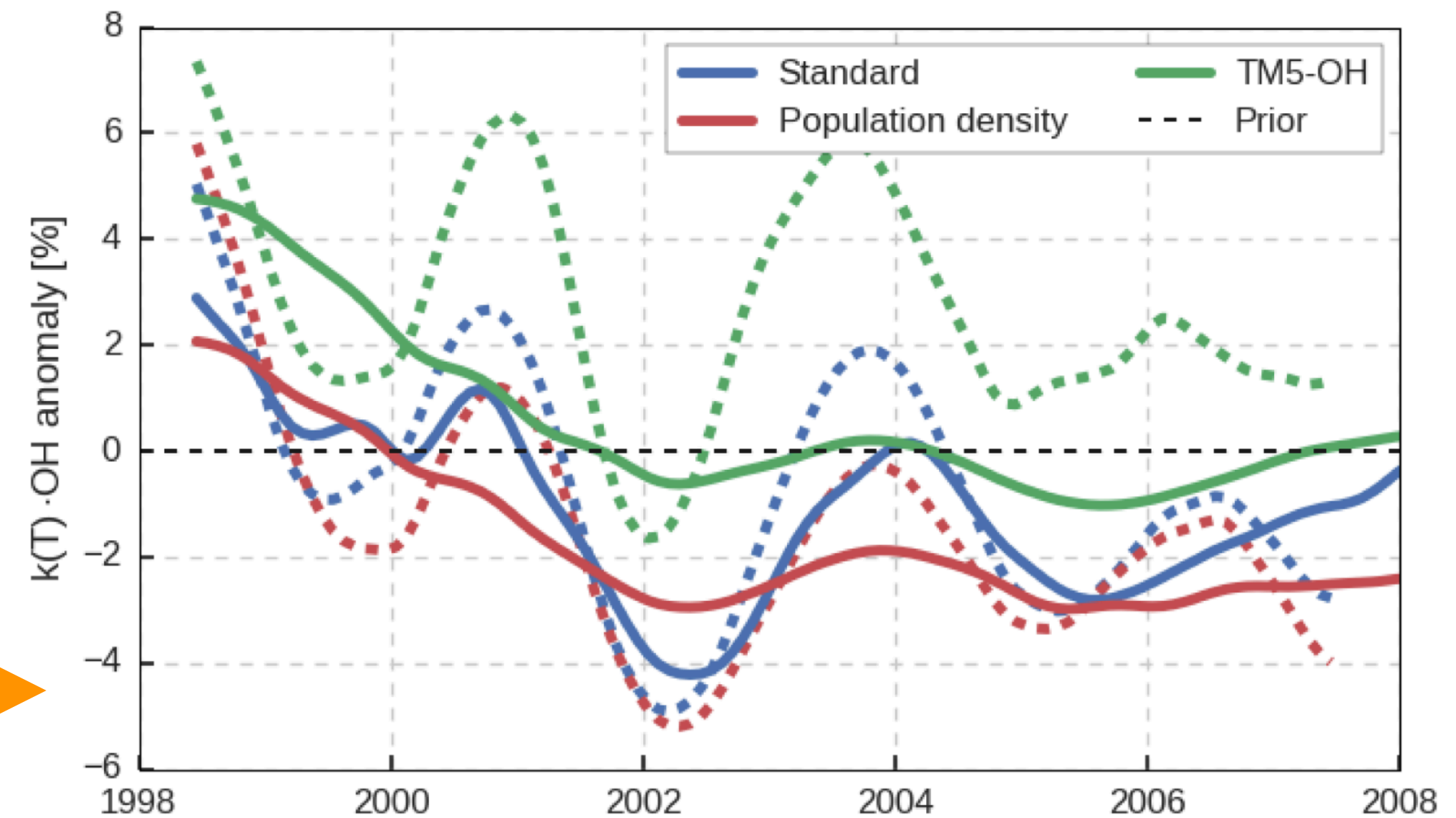


# A 3D-model inversion of methyl chloroform to constrain the atmospheric oxidative capacity

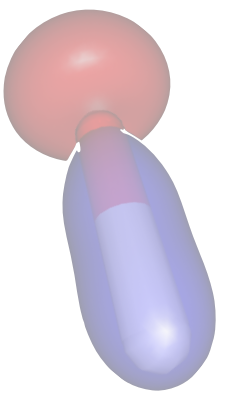
COS-OCs



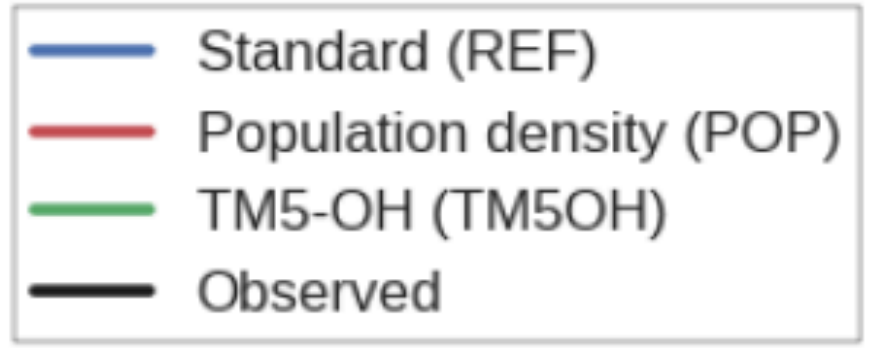
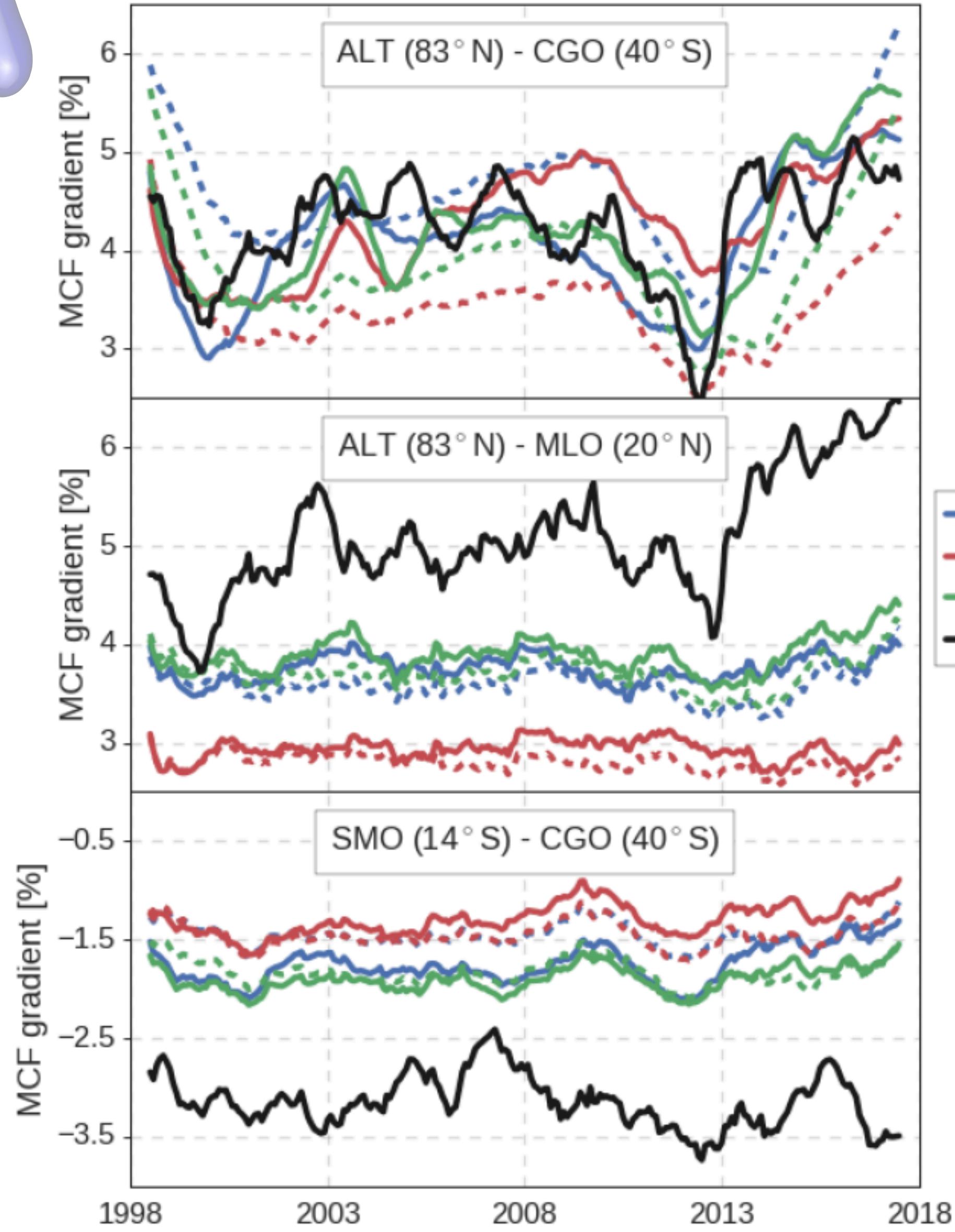
20 year inversions



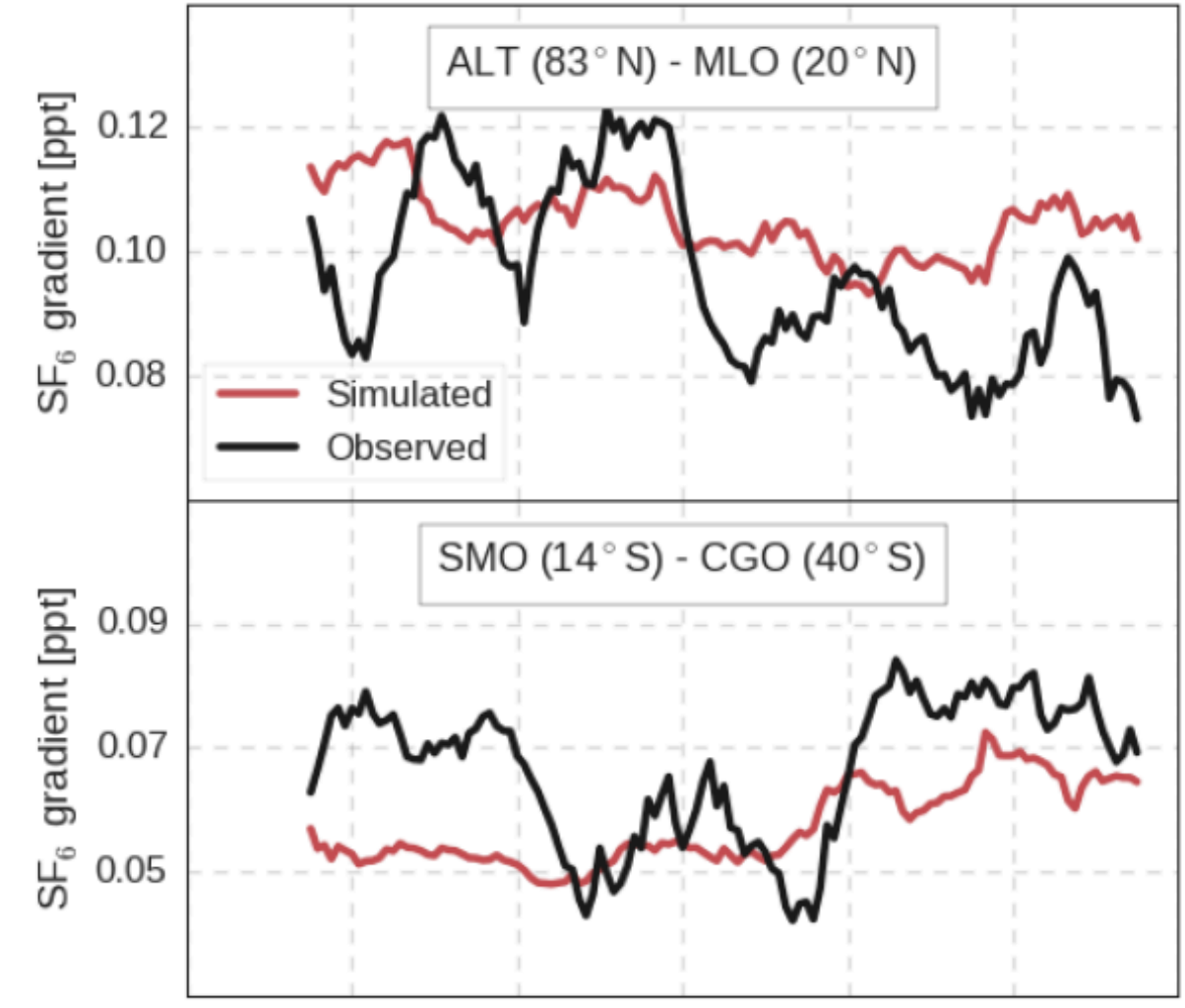
10 year inversions



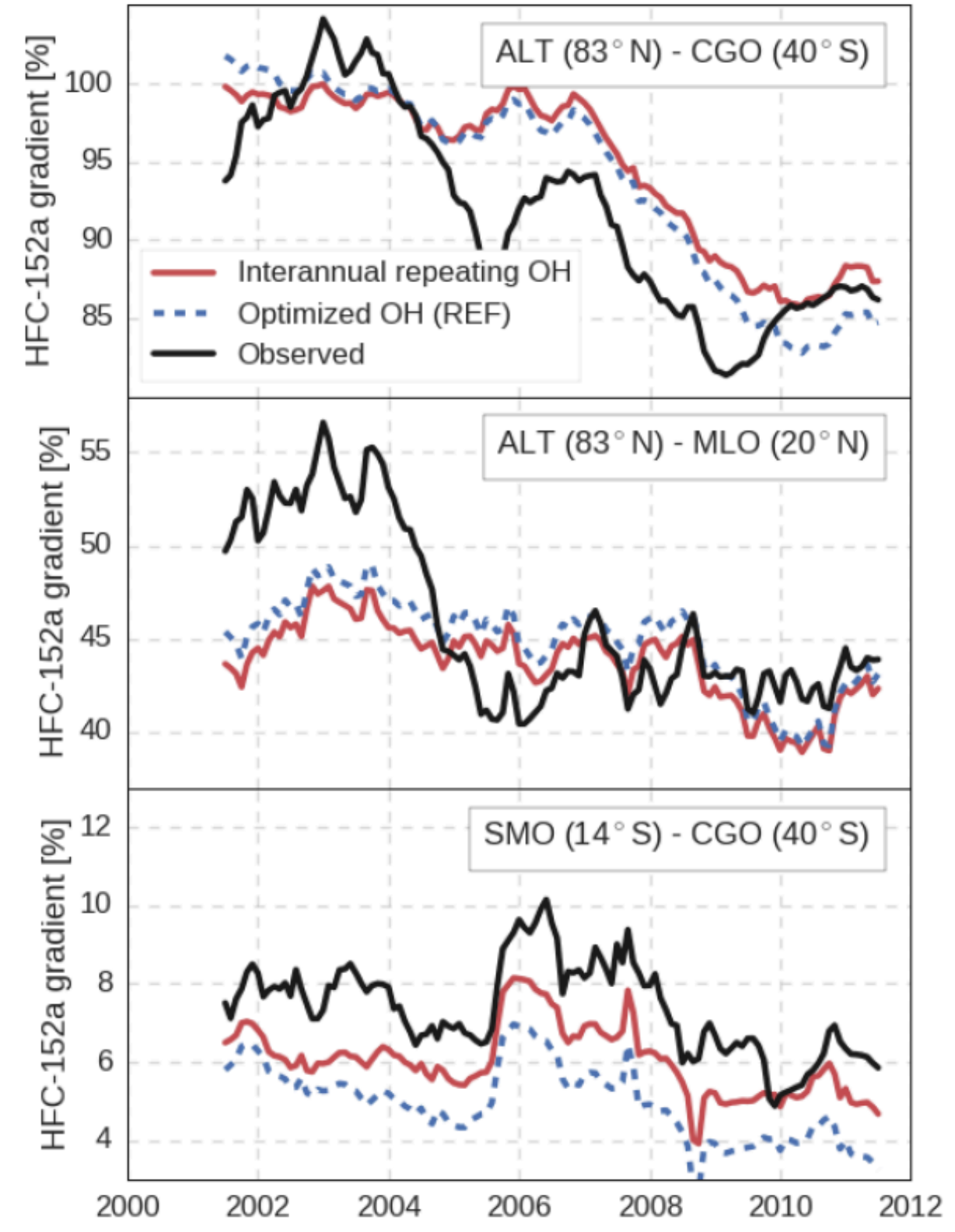
# Inability to fit the MCF intra-hemispheric gradients



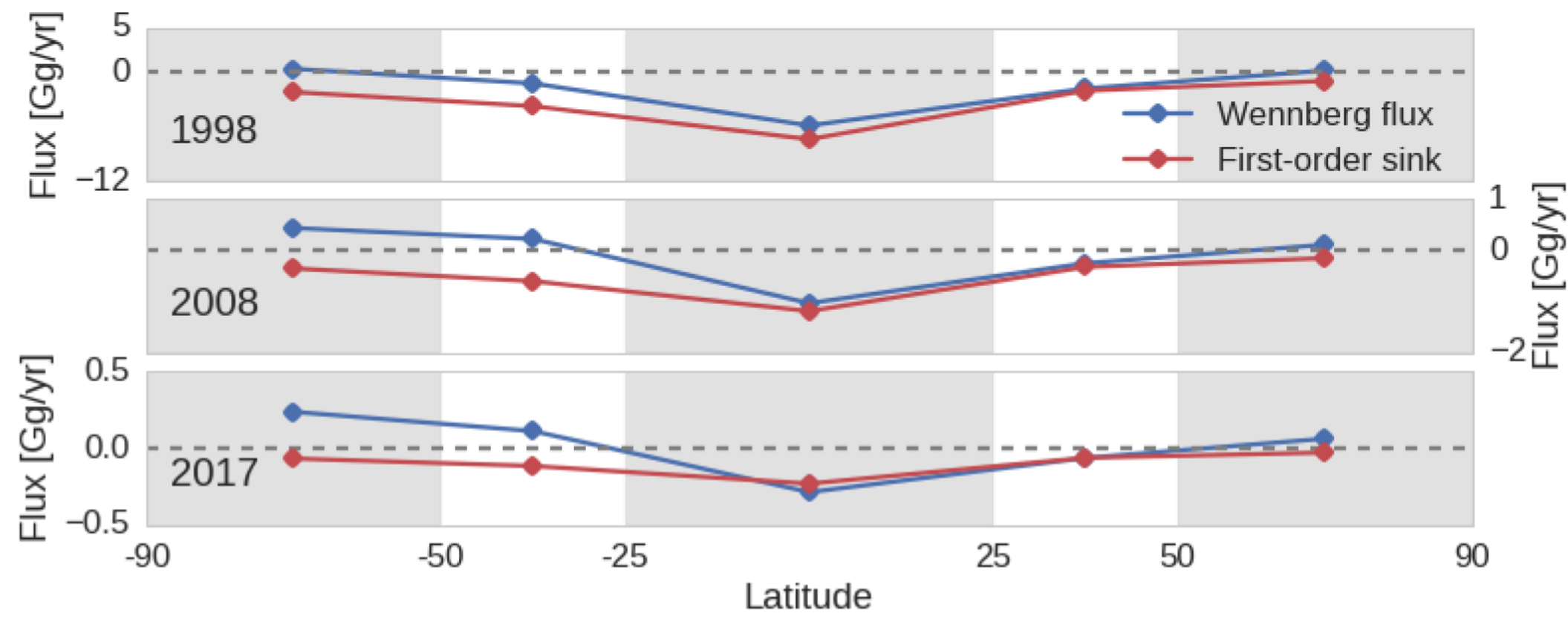
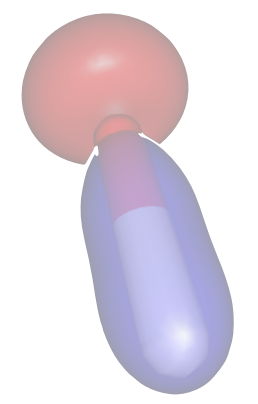
## SF6



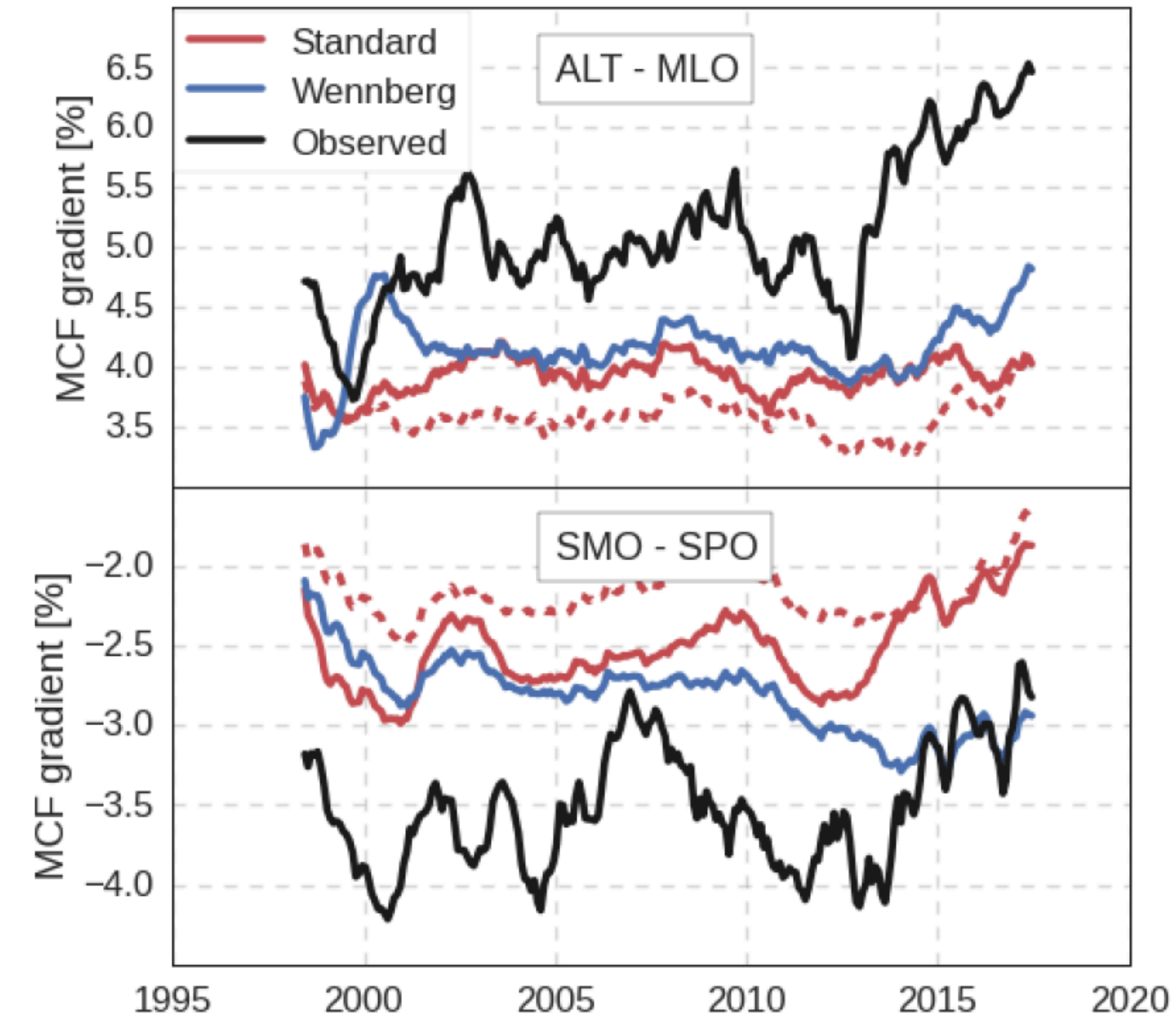
## HFC-152a



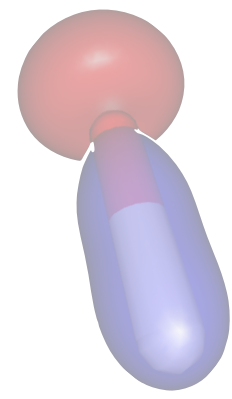




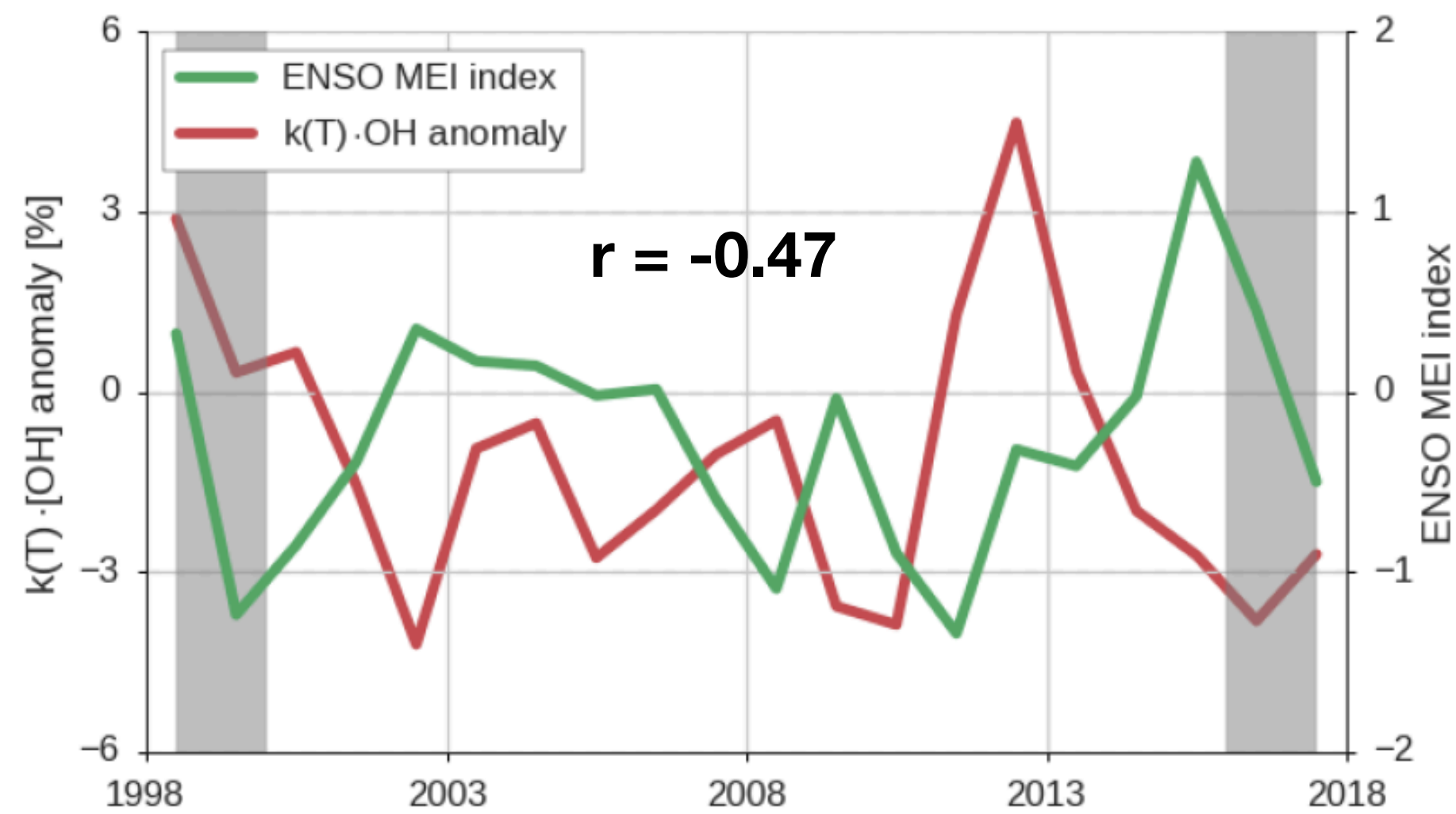
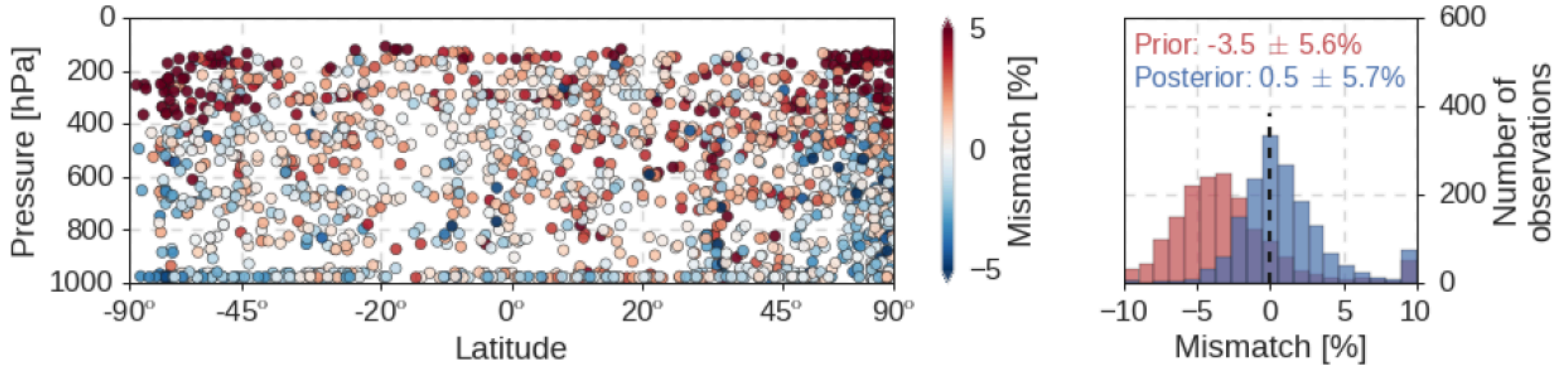
Re-emission of MCF that was taken up earlier

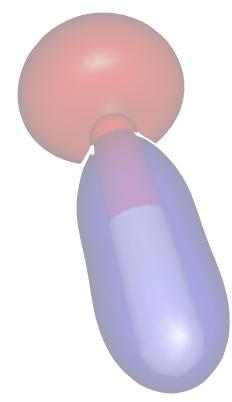


Partly solves the problem

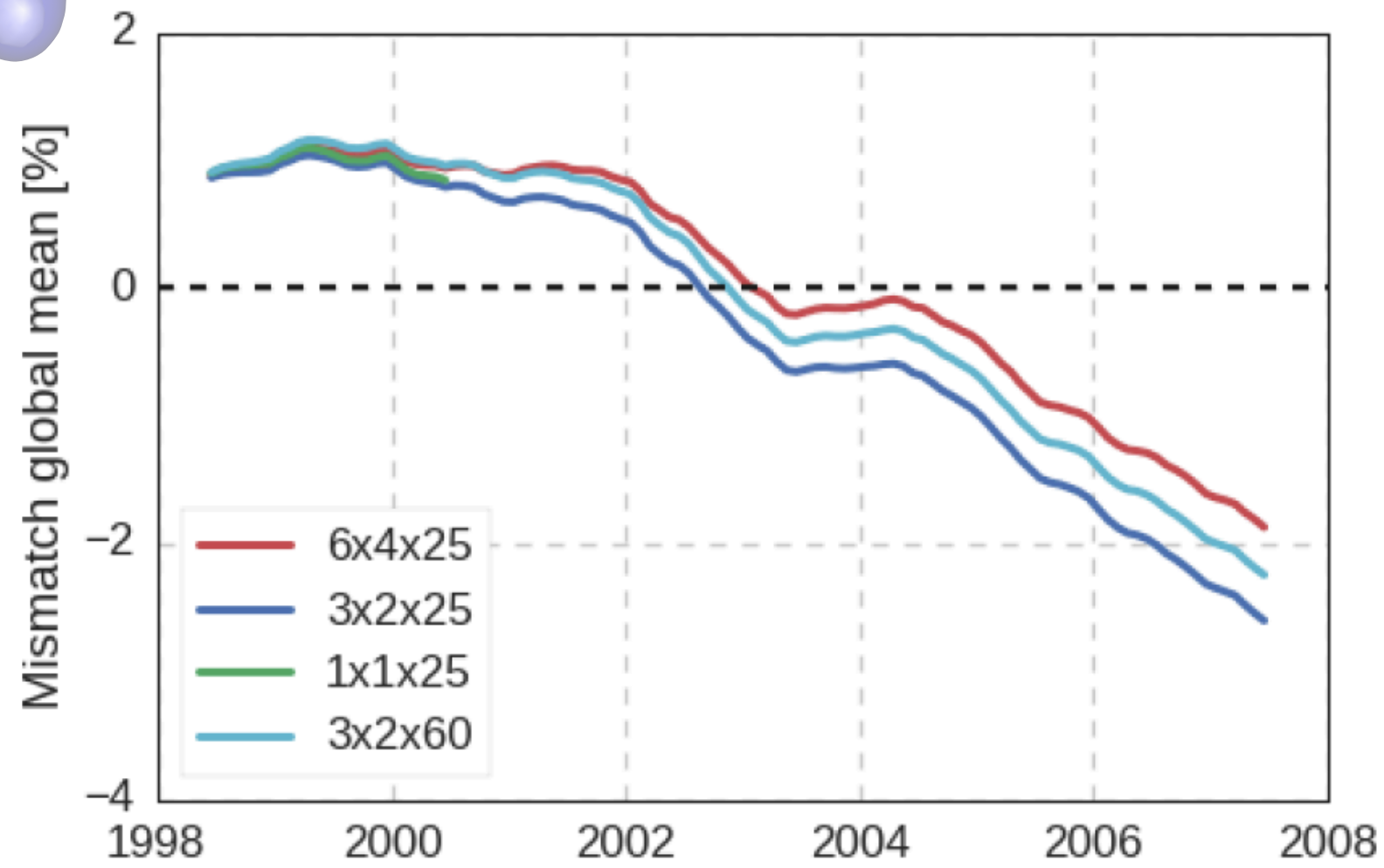


### Comparison with independent HIPPO and Atom data

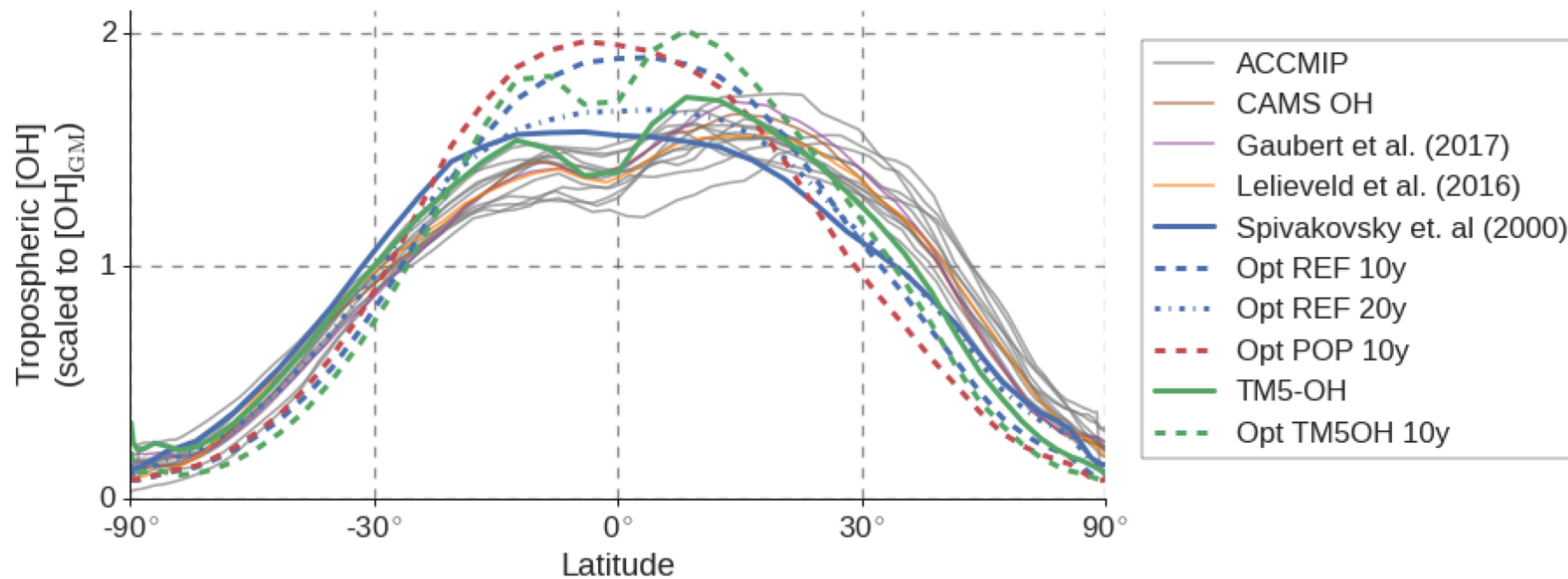




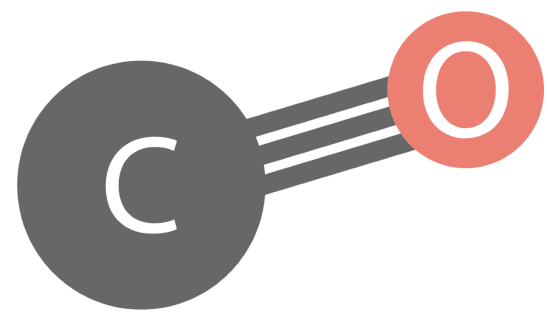
Some more cool stuff:



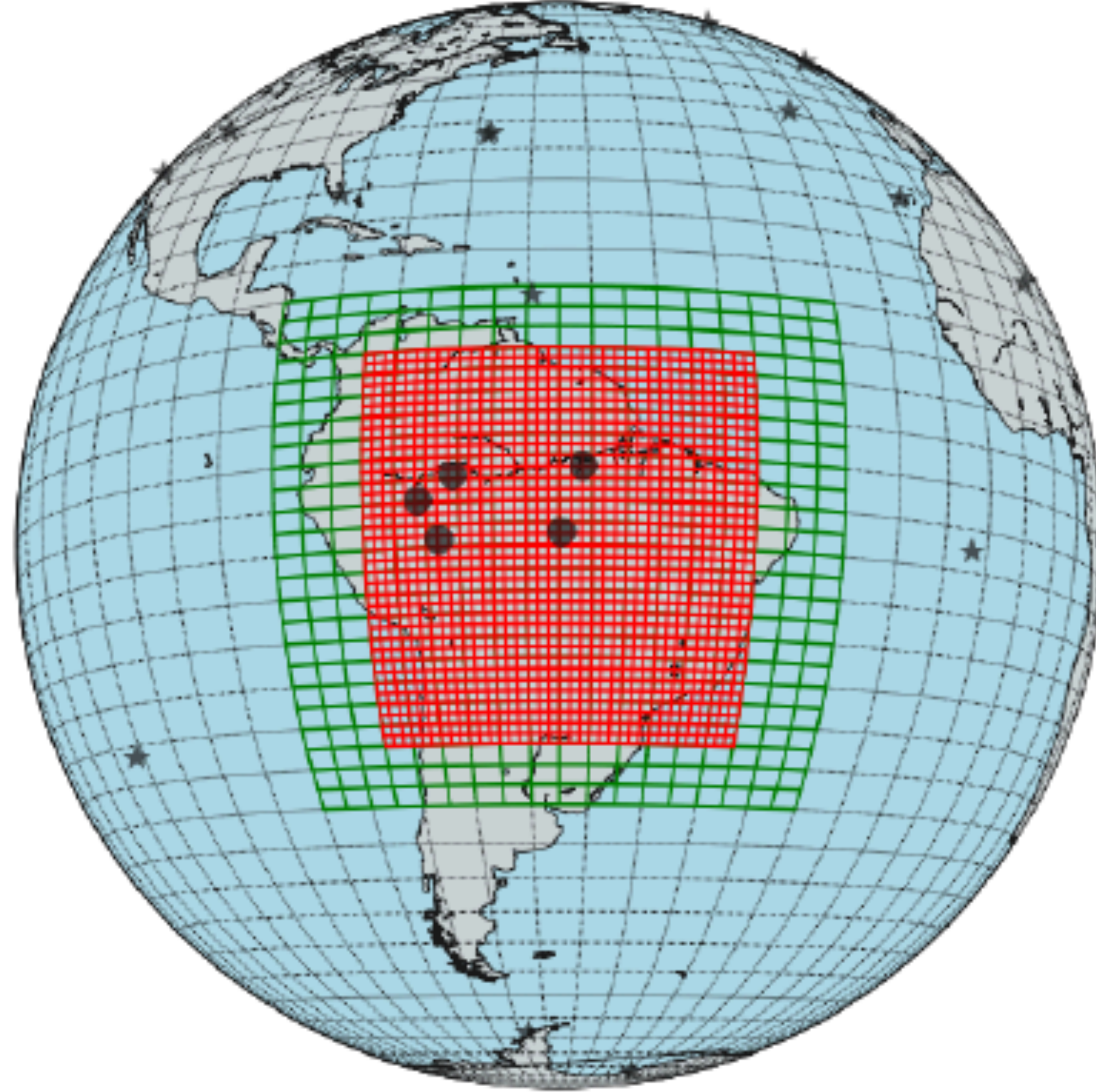
effects of TM5-resolution



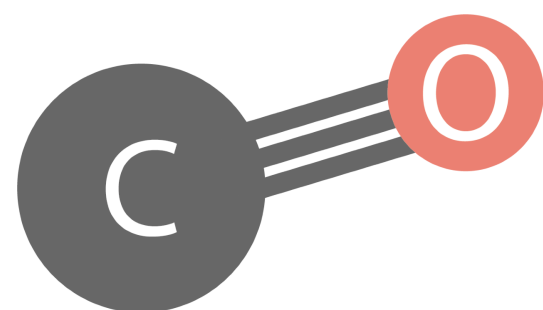
comparison to other latitudinal OH distributions



# An atmospheric perspective on Amazon fires

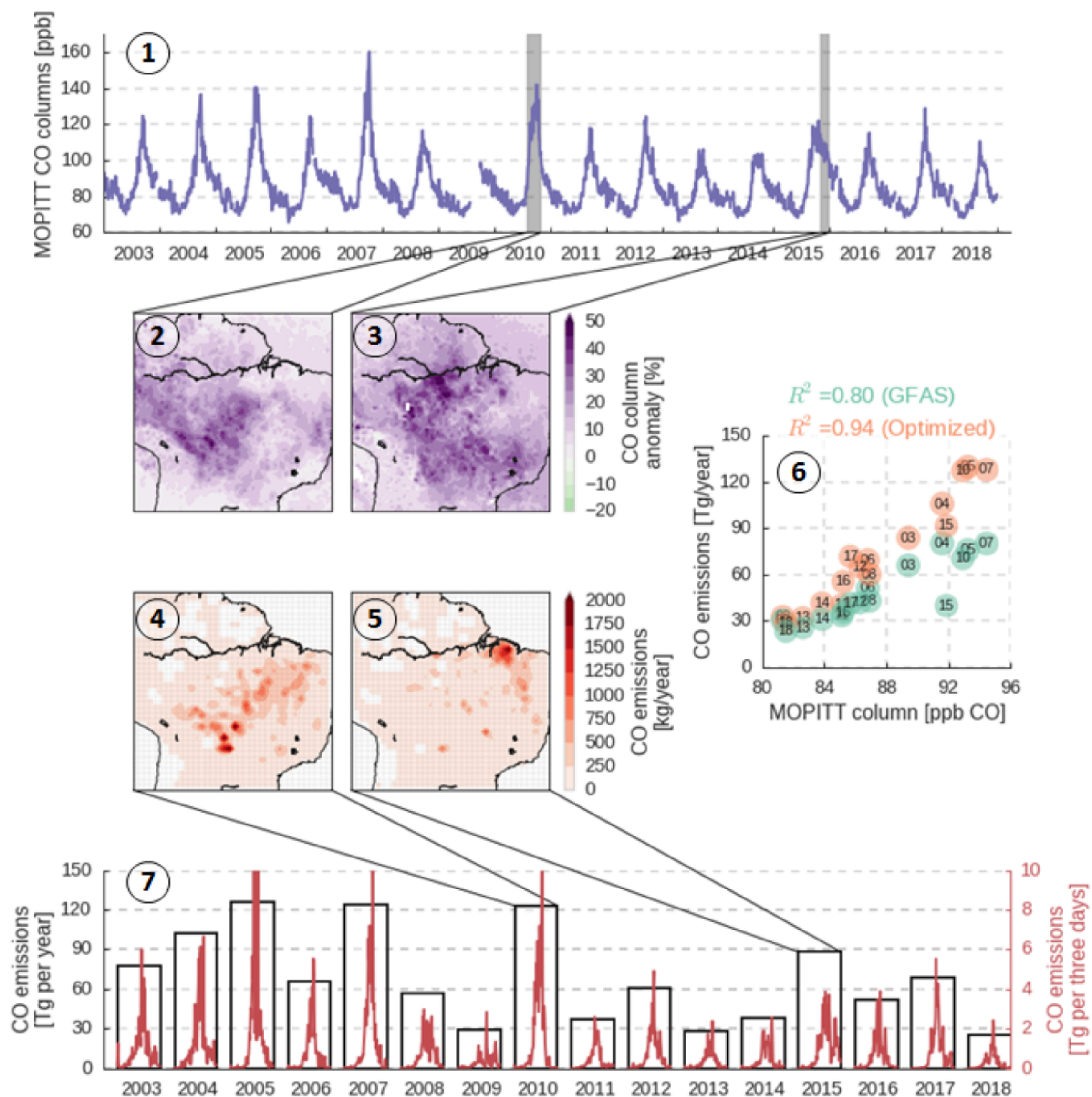


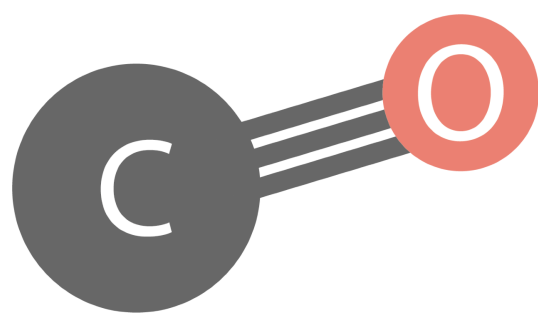
COS-OCs



# An atmospheric perspective on Amazon fires

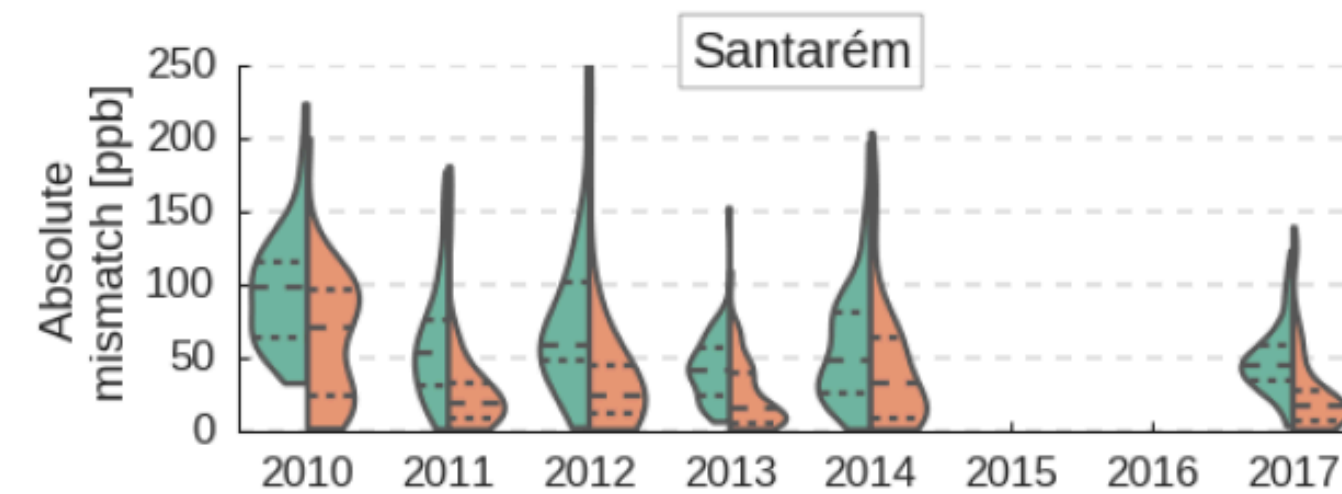
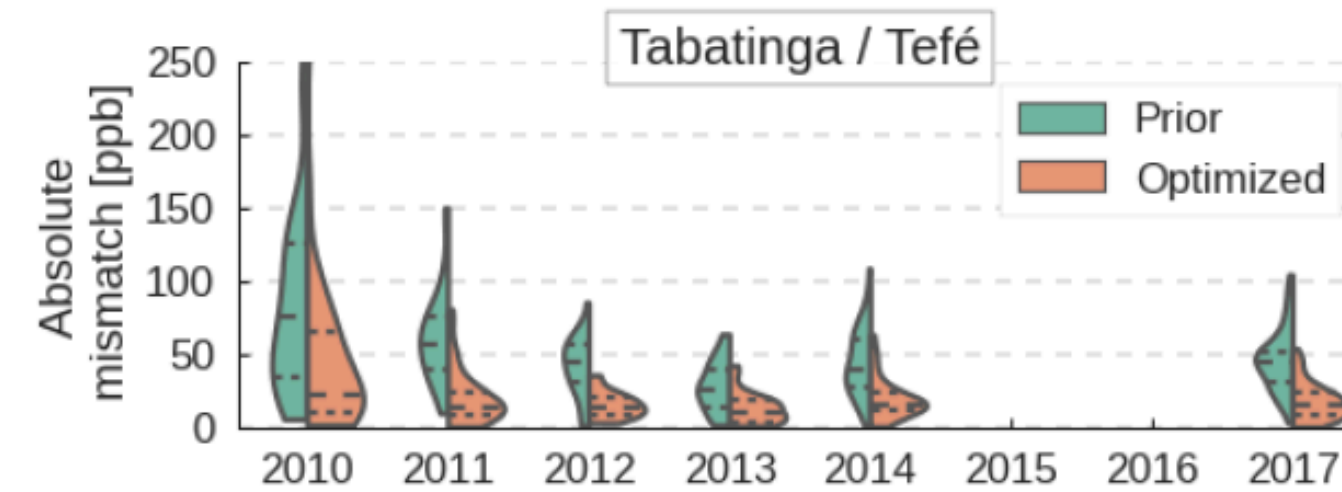
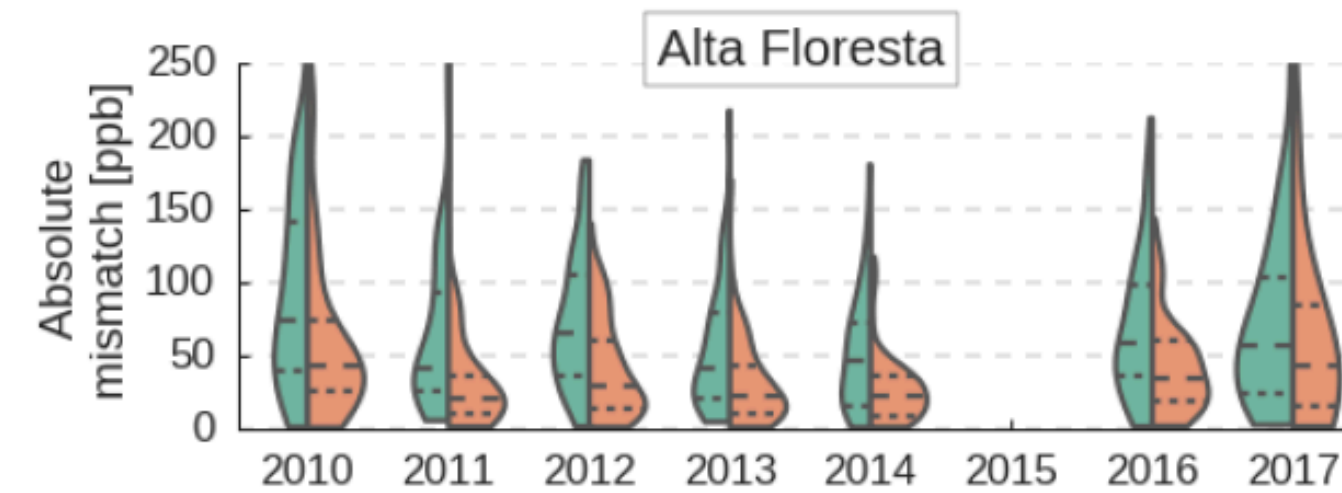
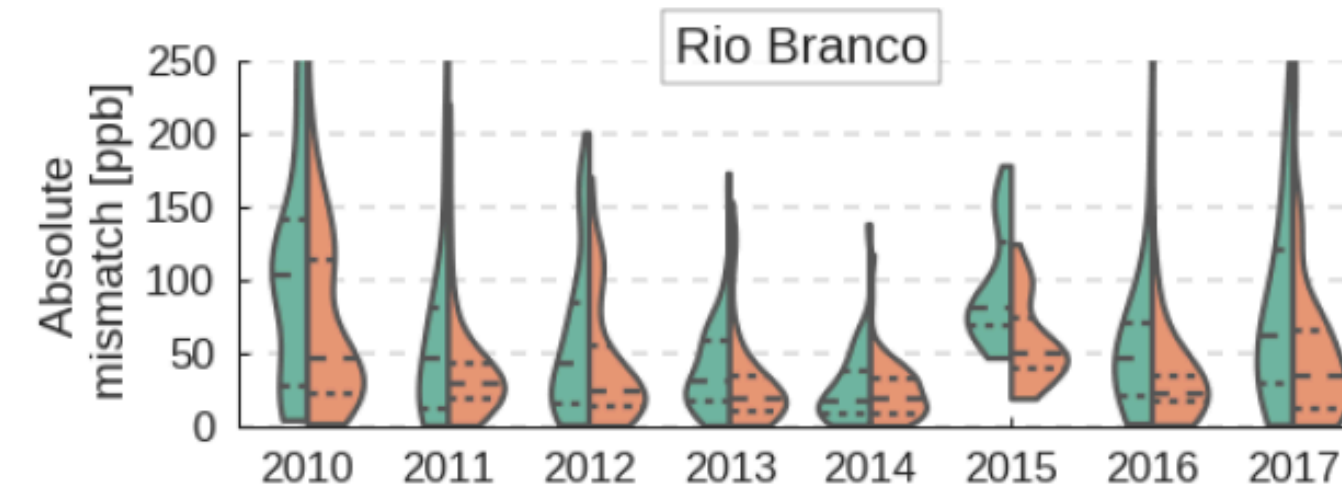
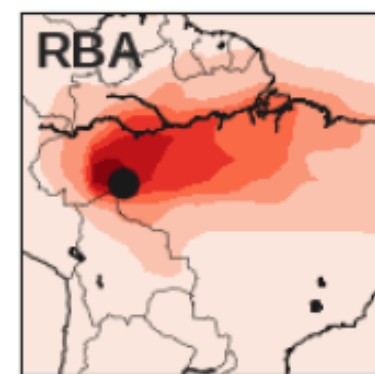
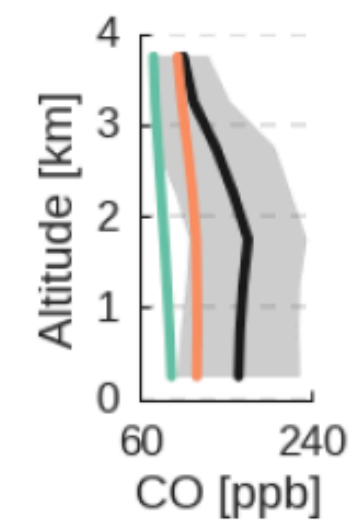
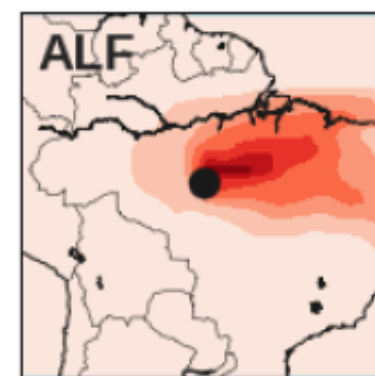
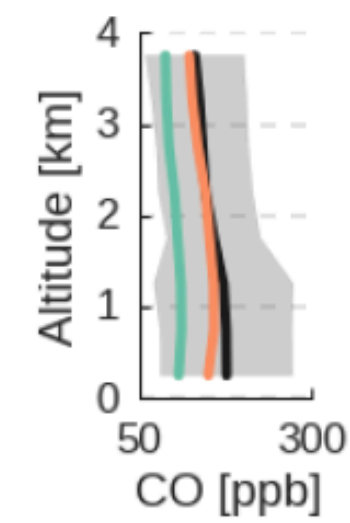
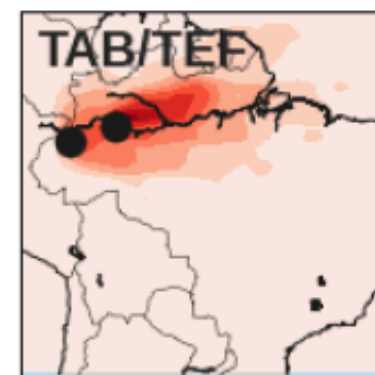
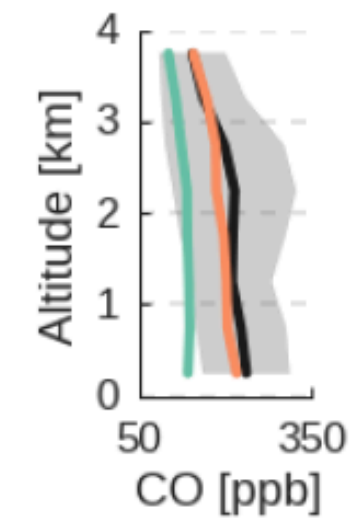
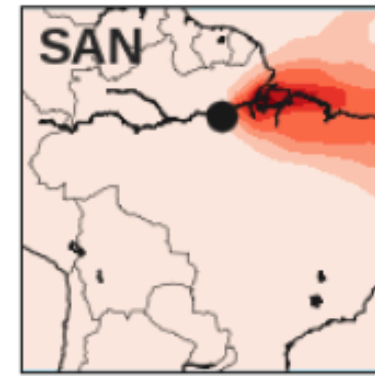
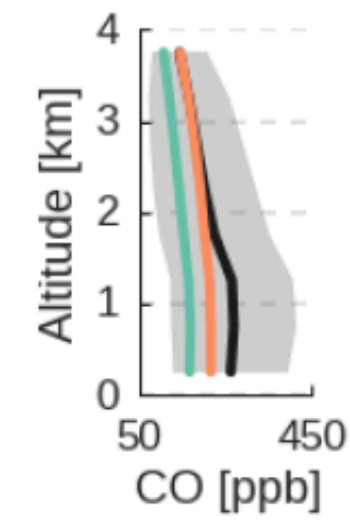
COS-OCs

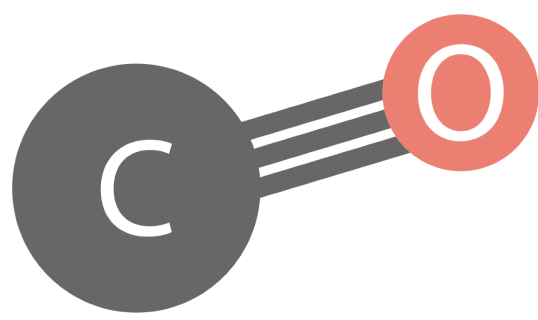




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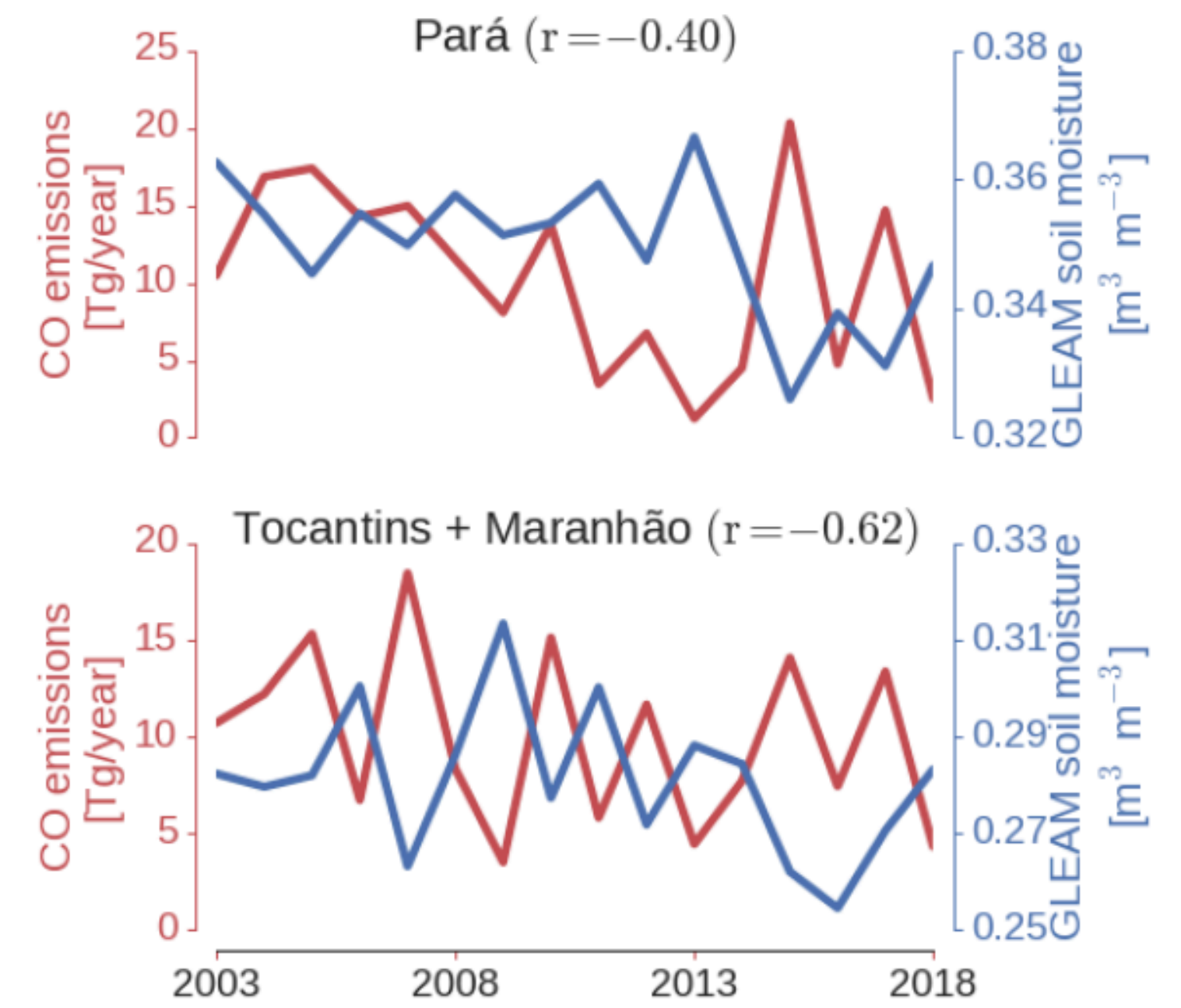
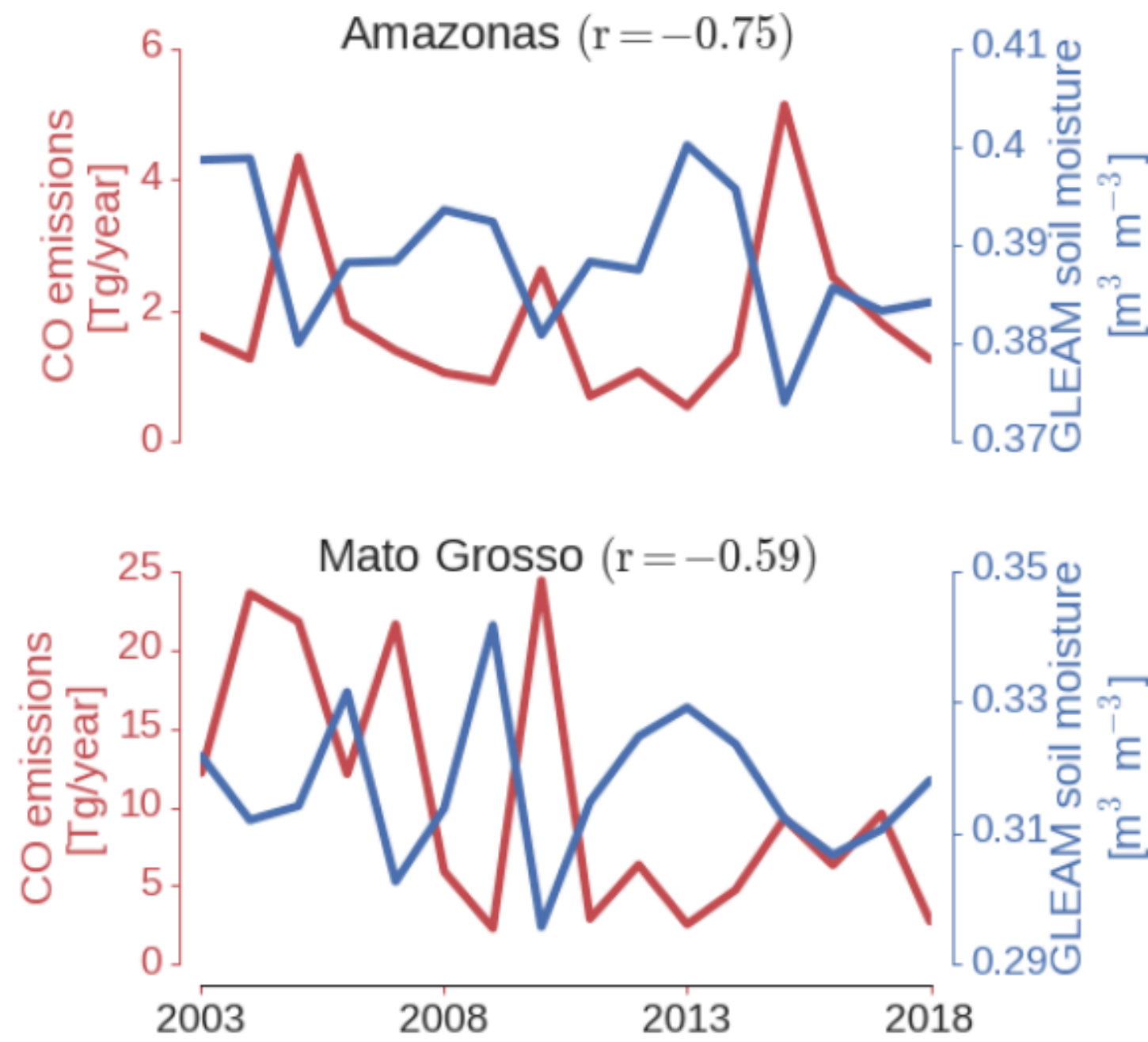
COS-OCs

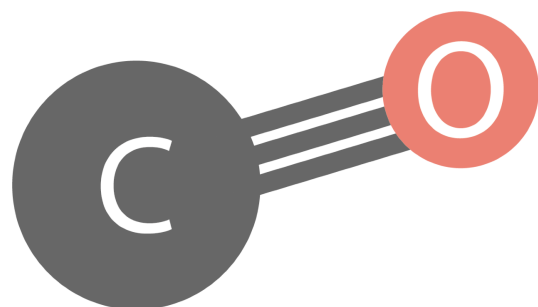




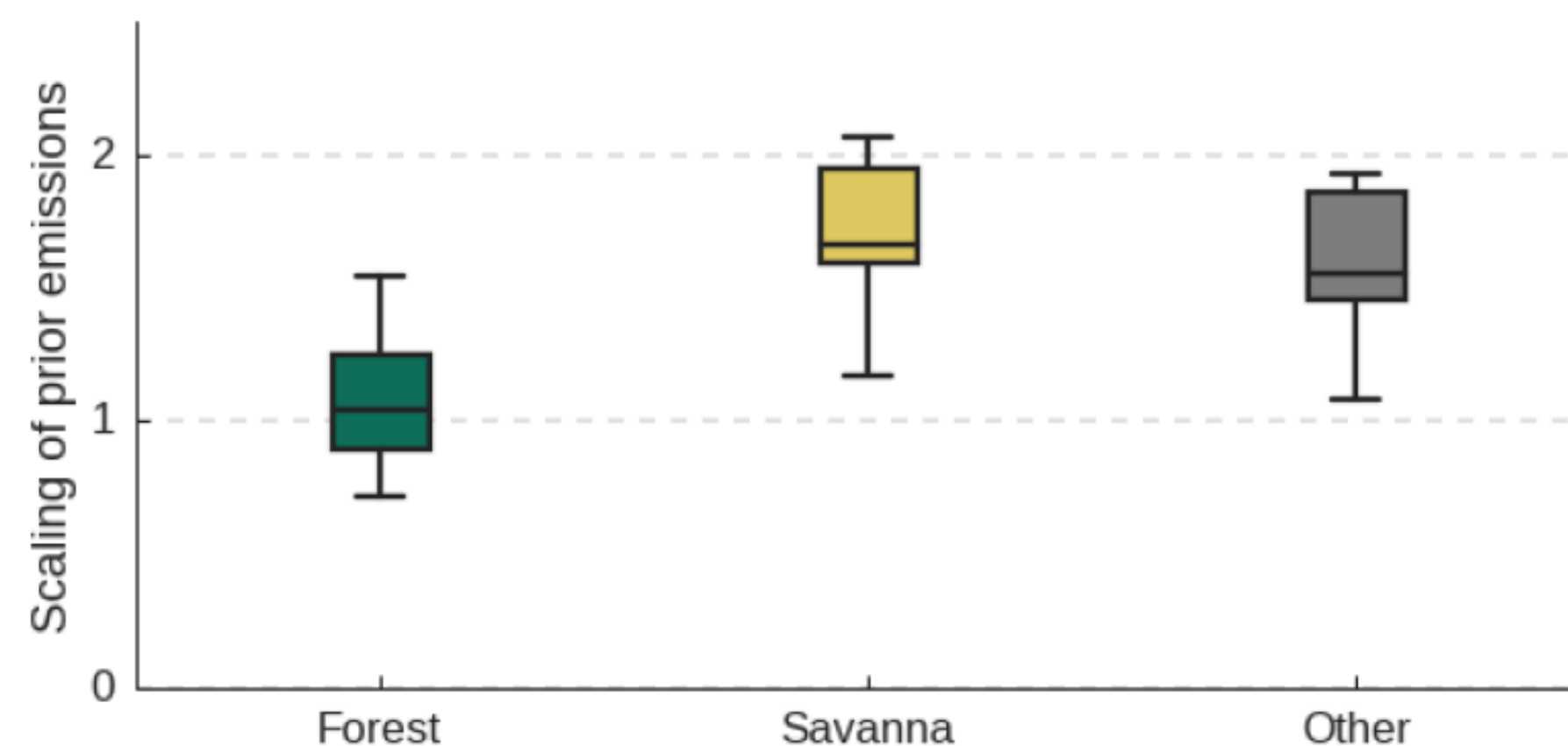
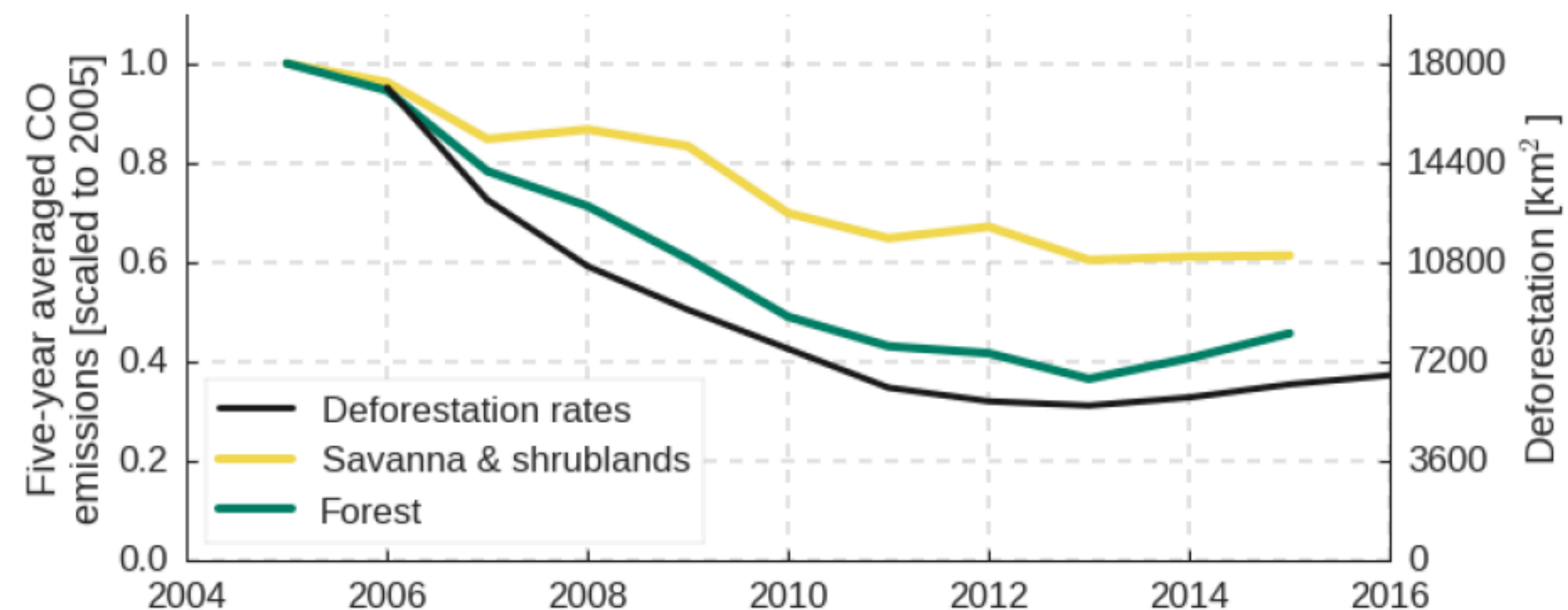
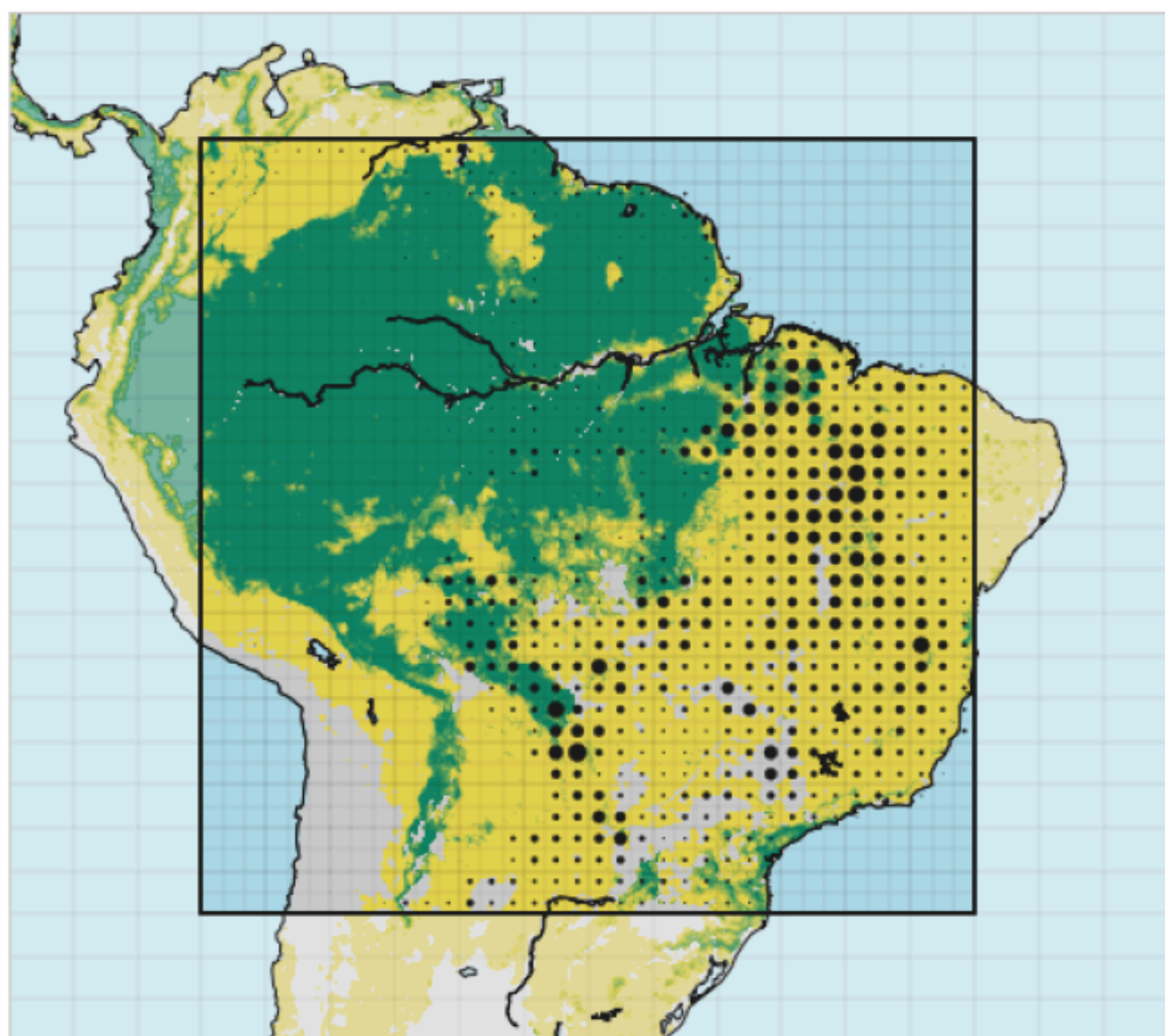
# An atmospheric perspective on Amazon fires

COS-OCs

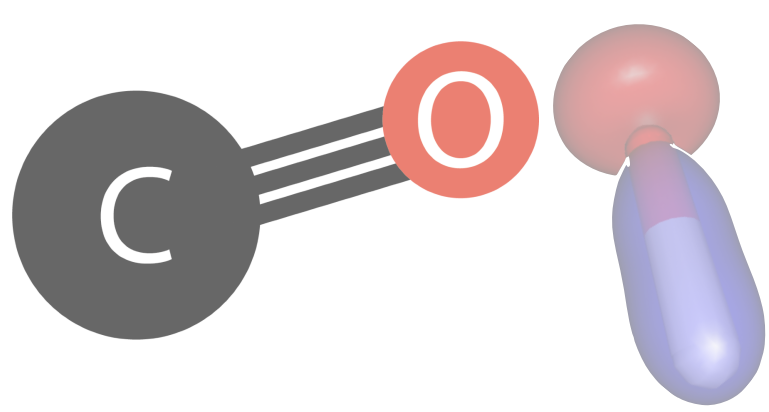




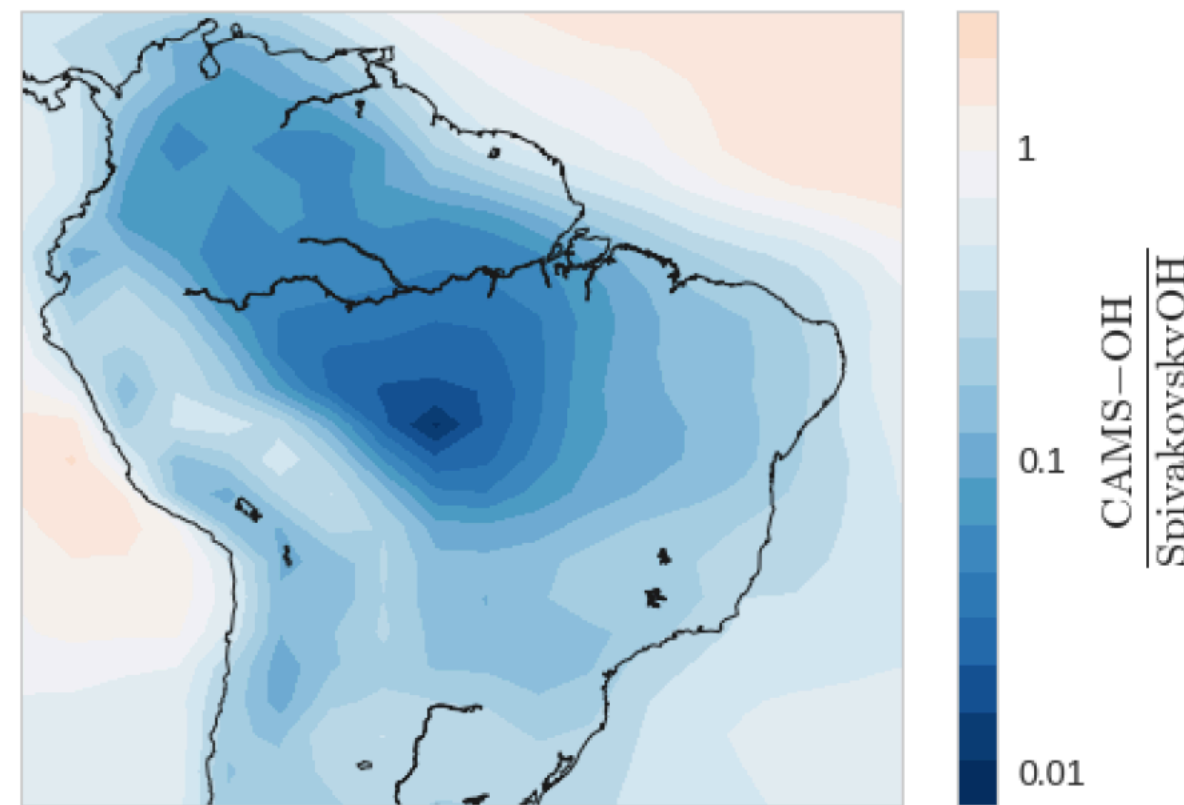
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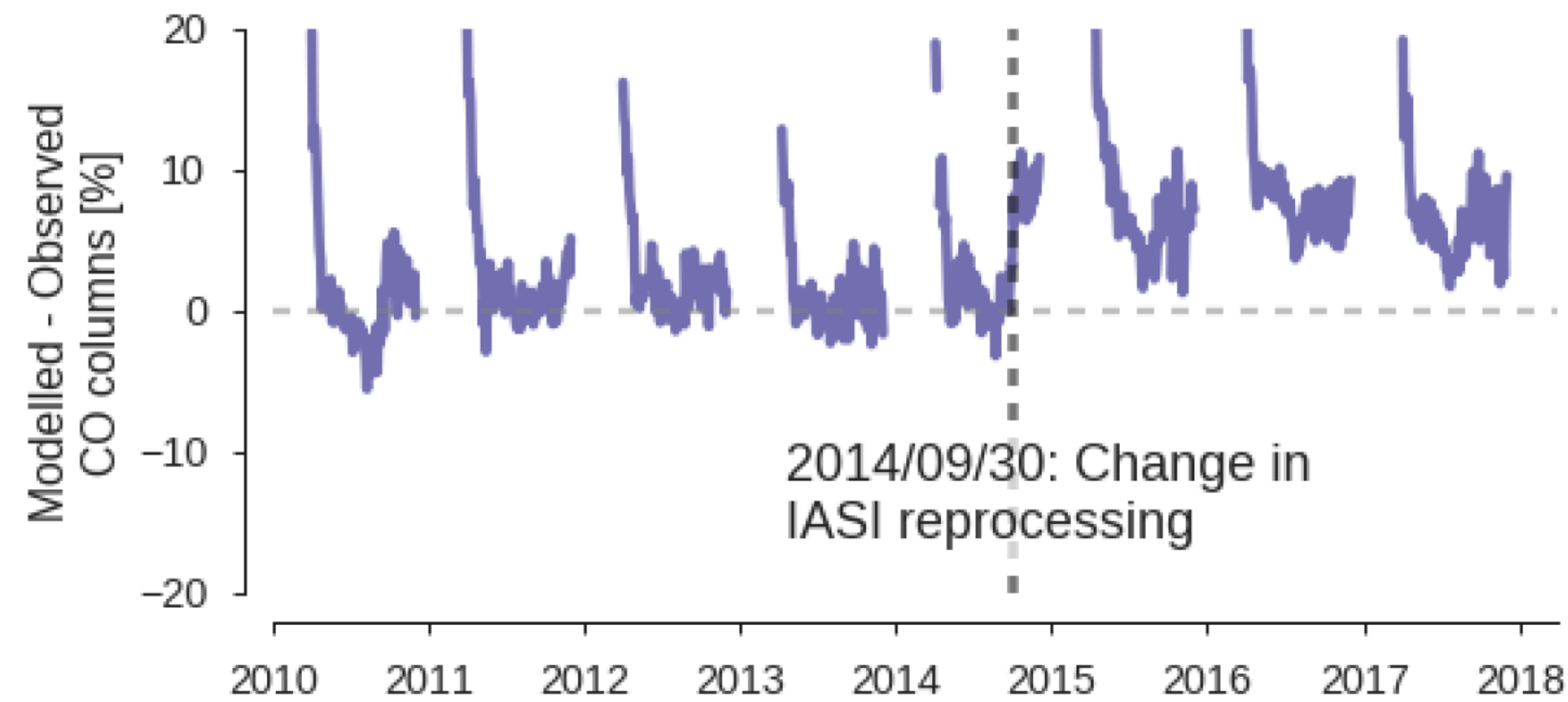
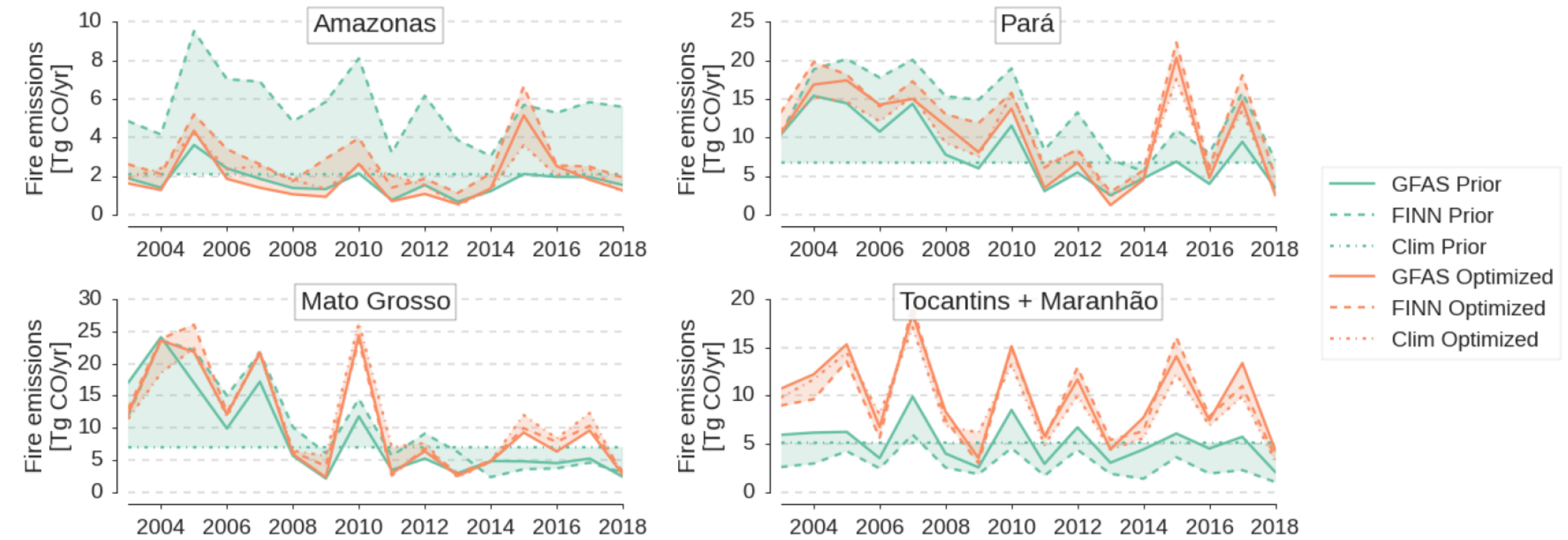


**CAMS OH very low**



# Some final cool stuf

**MOPITT puts strong constraints on regional emissions**



**IASI product is less consistent due to changes in reprocessing**