

CRI-Strat 2 & Improving SOA in UKESM

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- Updated isoprene chemistry and HO_x-recycling (greater OH in tropical regions)

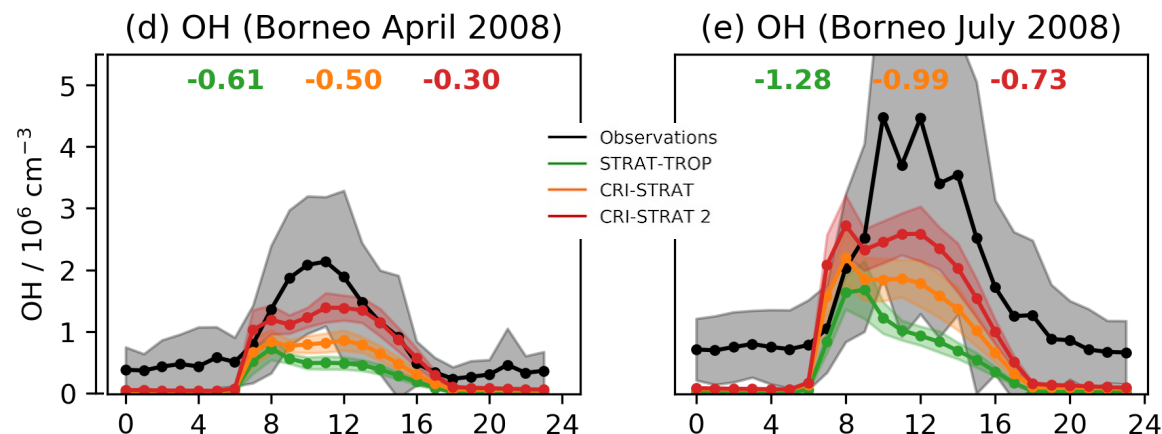
- **Improved model performance for isoprene, monoterpenes and OH in tropical regions**

- Allows greater focus on emissions improvement.

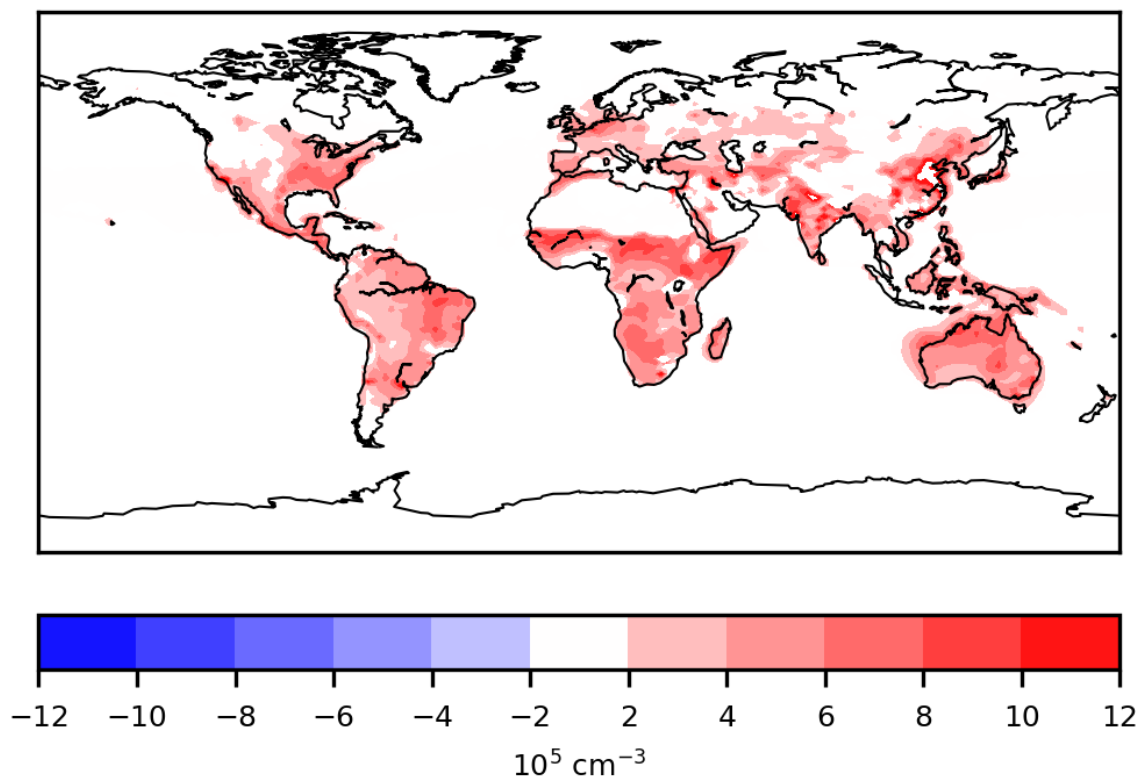
- Adding to trunk at vn12.0

- Gas phase impacts review in ACP discussions (Weber et al., 2021)

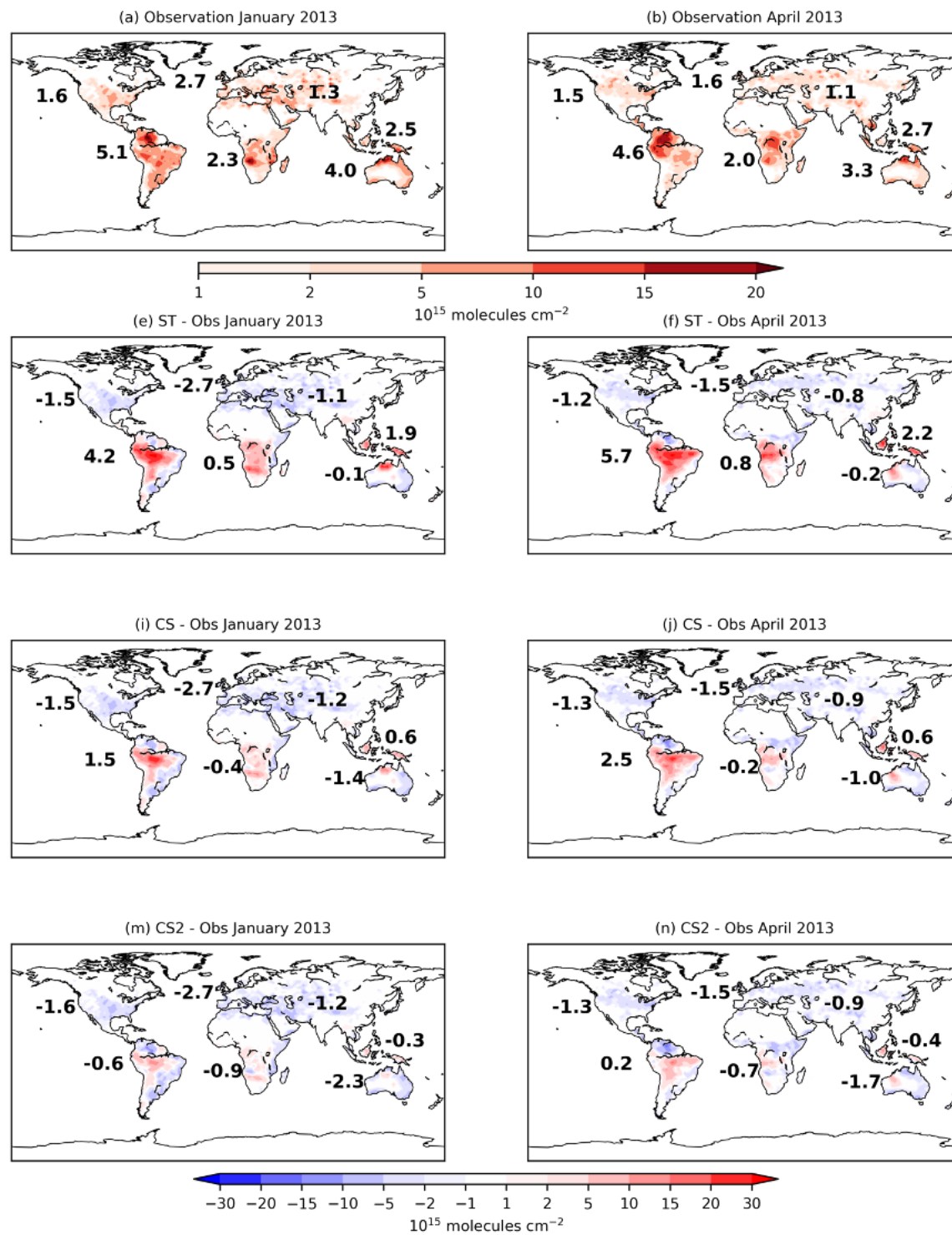
(numbers are diurnal bias)



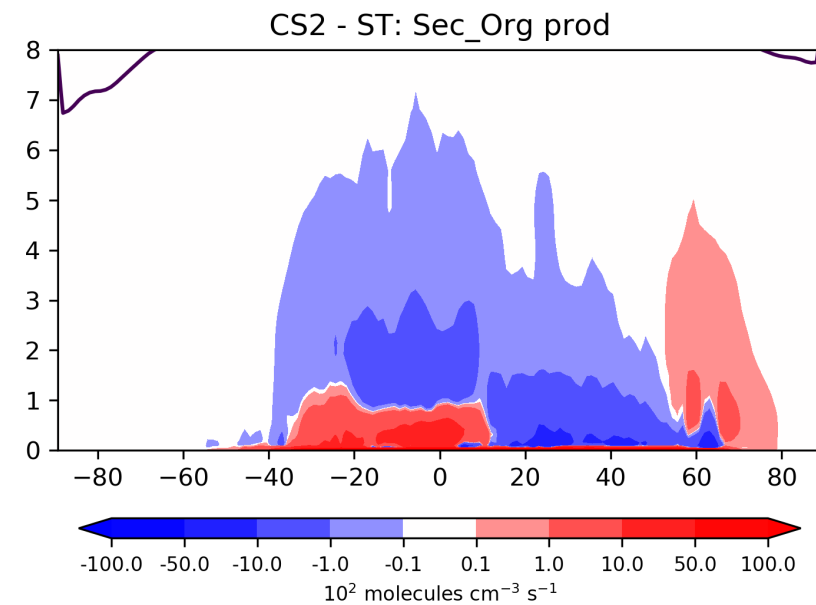
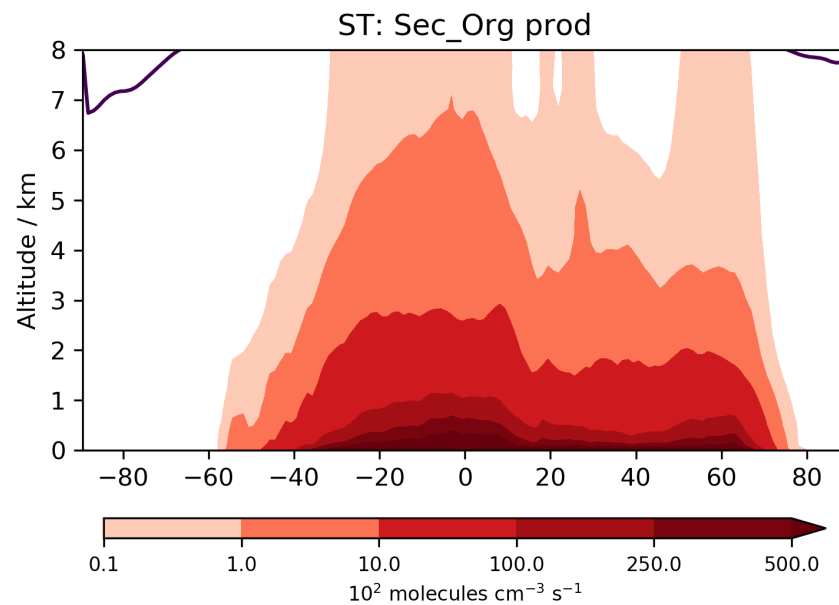
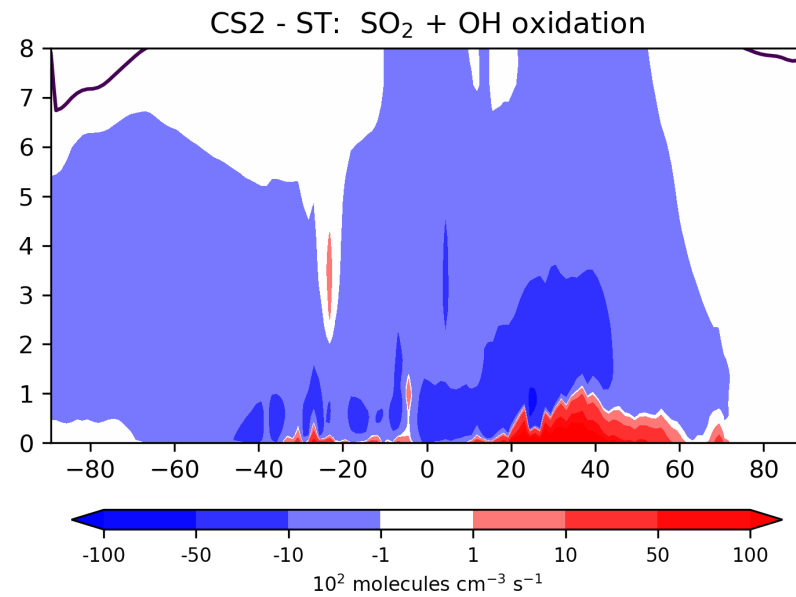
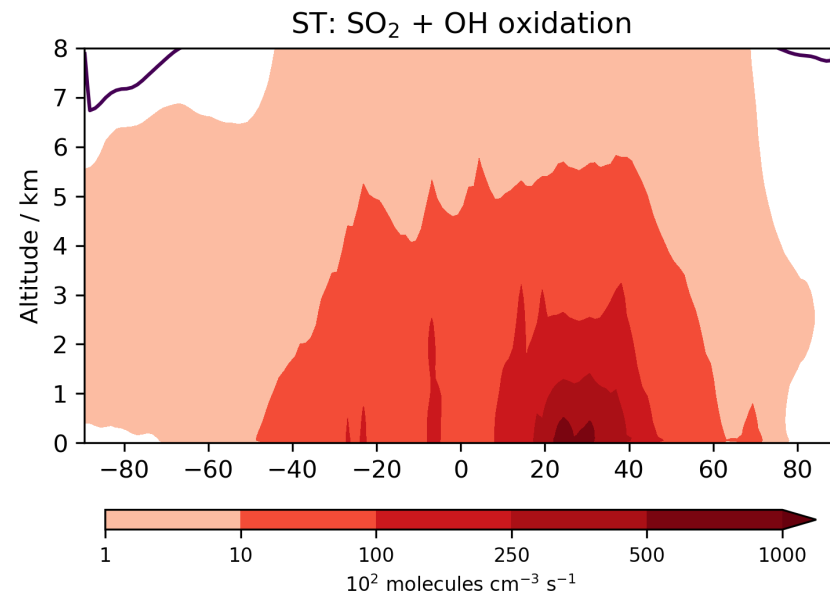
CS2-ST OH lowest 500m (2006-2007)



Isoprene column bias decreases in CS2



Oxidant changes influence aerosol formation



Improving SOA

Multiple Sec_Org Tracers – have working development branch

- $\text{Sec_Org}_{\text{Isoprene}} + \text{Sec_Org}_{\text{Monoterp}}$
- greater flexibility for condensation and nucleation
- IEPOX (pH!), anthropogenic SOA and ELVOCs

HOMs and Pure Biogenic Nucleation

- multiple Sec_Org tracers approach allows for HOM scheme (e.g. CRI-HOM) to be added
- greater flexibility with HOM-specific nucleation rates including PBN

Science Questions

1. BVOC feedbacks on climate

- oxidising capacity and methane in PI atmosphere
- PI aerosol burden

2. Impacts of land use change

3. Sulphate aerosol and SOA differences – climate sensitivity