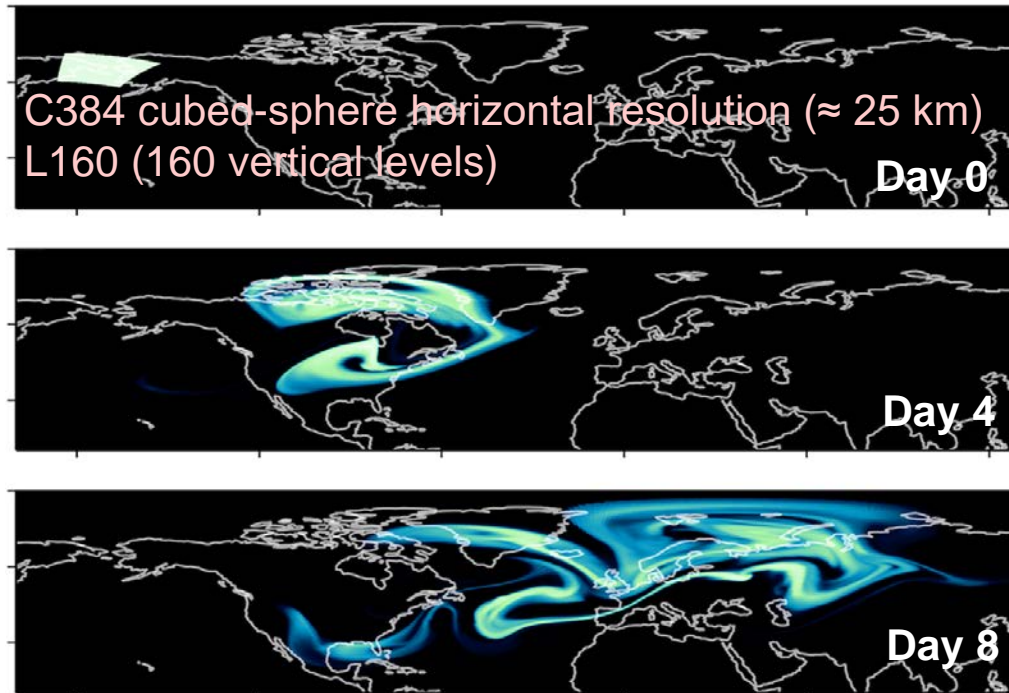


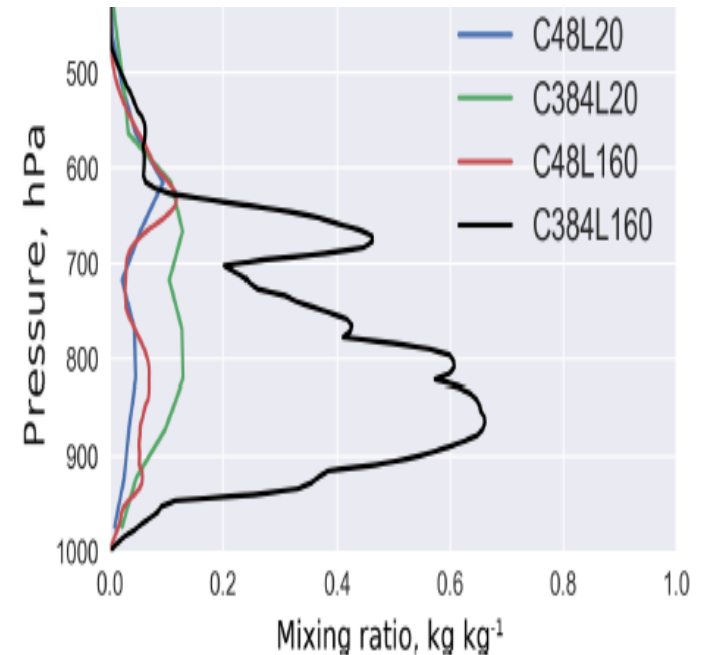
The importance of vertical resolution in the free troposphere for modeling intercontinental plumes

- Current global models cannot preserve pollution plumes during intercontinental transport because of numerical diffusion
- This is due to coarse vertical resolution in free troposphere; a L160 model (160 vertical levels) can correct the problem
- This is now being tested in a prototype L132 version of the NASA GEOS-5 model

8-day inert plume transport, FV3 dynamical core C384L160



Plume preservation after 8 days starting from unit mixing ratio



Zhuang, J., D.J. Jacob, and S.D. Eastham, Atmos. Chem. Phys., 18, 6039-6055, 2018.

