

	“True” atmosphere	Prior estimate and parameters
State vector ( $\mathbf{x}$ )		
Gridded emission rates <sup>a</sup>	Posterior from GOSAT analysis <sup>b</sup>	EDGAR v4.3.2+ WetCHARTs <sup>c</sup>
Global OH concentration $\left(\tau_{\text{CH}_4}^{\text{OH}}\right)^{\text{d}}$	8.6 years	7.5 years
Parameters		
OH distribution	GEOS-Chem v5, ACCMIP <sup>e</sup>	GEOS-Chem v11
Meteorological field <sup>f</sup>	GEOS-FP	MERRA-2