

Model simulations capture seasonal Arctic Haze and Clean Air cycle better than Satellite and Reanalysis:- Supplement

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1 Emission inventories used

The various emission inventories considered in this study is presented in Table 1 below.

Emission Component	GEOS-Chem Inventory	CAMSRA Inventory	MERRA2 Inventory	Citation
Aerosol Components (BC, OC)	CEDS	CEDS	CEDS	Hoesly et al. (2018)
Aerosol Precursor	CEDS	CEDS	CEDS	Hoesly et al. (2018)
SO ₂ , NO _x , NH ₃ , CH ₄ , CO, NMVOC	CEDS	CEDS	CEDS	Hoesly et al. (2018)
CO ₂	CEDS	CEDS	CEDS	Hoesly et al. (2018)
Aircraft Emissions	AEIC	AEIC	AEIC	Simone et al. (2013)
Biofuel and Agricultural Burning	Biofuel	GFED	GFED	Yevich and Logan (2003)
US & Mexico Inventory (BRAVO)	BRAVO	NEI	NEI	Kuhns et al. (2005)
Ammonia (NH ₃) Canada	APEI	EMEP	EMEP	Sheppard et al. (2010)
European Emissions	EMEP	EMEP	EMEP	Auvray et al. (2007)
Natural, Biofuel NH ₃	GEIA	GEIA	GEIA	Bouwman et al. (1997); Croft et al. (2016)
US EPA Emissions	EPA/NEI2011	NEI	NEI	Simon et al. (2010)
Anthropogenic VOCs	RETRO	RETRO	RETRO	Bolshcer et al. (2007)
Asian Emissions	MIX	MIX	MIX	Li et al. (2017)
African Emissions	DICE-Africa	DICE	DICE	Marais and Wiedinmyer (2016)
Biomass Burning Emissions	GFED4	GFED4	GFED4	Giglio et al. (2013)
Volcanic SO ₂ Emissions	Volcanic Inventory	Volcanic Inventory	Volcanic Inventory	Fisher et al. (2011)
Sea Salt Aerosols	Sea Salt	Sea Salt	Sea Salt	Jaeglé et al. (2011)
Mineral Dust	Mineral Dust	Mineral Dust	Mineral Dust	Zender et al. (2003); Fairlie et al. (2007)
Shipping Emissions	CEDS SHIP, EMEP SHIP	CEDS SHIP, EMEP SHIP	CEDS SHIP, EMEP SHIP	Hoesly et al. (2018)
Stratospheric Volcanic Emissions	Kasatochi and Sarychev	Kasatochi, Sarychev	Kasatochi, Sarychev	Fisher et al. (2011); Carn et al. (2015)

Table S1. Emission inventories used in GEOS-Chem, CAMSRA, and MERRA2 in this study.

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