



Table S1. The forcing agents in CMIP5 models (BC: black carbon, OC: organic carbon, CAE: cloud albedo effect, CLE: cloud lifetime effect, DS: dust, VI: volcanic, SS: sea-salt, LU: land use, SI: solar activity). Strikethrough indicates the component is not considered.

Model	GHGs	Aerosols	Others
CanESM2	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, CAE, DS, VI, SS	Trop O ₃ , Strat O ₃ , LU, SI
CSIRO-Mk3.6.0	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, CAE, DS, VI, SS	Trop O ₃ , Strat O ₃ , SI
GFDL-CM3	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, CAE, CLE, DS, VI, SS	Trop O ₃ , Strat O ₃ , LU, SI
GFDL-ESM2M	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, DS, VI, SS	Trop O ₃ , Strat O ₃ , LU, SI
IPLS-CM5A-LR	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, CAE, DS, VI, SS	Trop O ₃ , Strat O ₃ , LU, SI
NorESM1-M	CO ₂ , CH ₄ , N ₂ O, CFCs	SO ₄ , BC, OC, CAE, CLE, DS, VI, SS	Trop O ₃ , Strat O ₃ , LU, SI