**Supplementary Information**

**Table S1**. CMIP5 Climate Model Simulations

|  |  |  |
| --- | --- | --- |
| Model | Number of Realizations | 1st *and* 2nd aerosol indirect effects |
| ACCESS1-0  | 1 | 1 |
| ACCESS1-3  | 3 | 1 |
| bcc-csm1-1  | 3 | 0 |
| bcc-csm1-1-m | 3 | 0 |
| BNU-ESM  | 1 | 0 |
| CanESM2  | 5 | 0 |
| CCSM4  | 6 | 0 |
| CESM1-BGC  | 1 | 0 |
| CESM1-CAM5  | 3 | 1 |
| CESM1-FASTCHEM | 3 | 0 |
| CESM1-WACCM  | 1 | 0 |
| CMCC-CESM  | 1 | 0 |
| CMCC-CM  | 1 | 0 |
| CMCC-CMS  | 1 | 0 |
| CNRM-CM5  | 10 | 0 |
| CNRM-CM5-2  | 1 | 0 |
| CSIRO-Mk3-6-0  | 10 | 1 |
| FGOALS-g2  | 4 | 1 |
| FIO-ESM  | 3 | 0 |
| GFDL-CM2.1  | 10 | 0 |
| GFDL-CM3  | 5 | 1 |
| GFDL-ESM2G  | 1 | 0 |
| GFDL-ESM2M  | 1 | 0 |
| GISS-E2-H p1 | 6 | 0 |
| GISS-E2-H p2 | 5 | 0 |
| GISS-E2-H p3 | 6 | 0 |
| GISS-E2-H-CC  | 1 | 0 |
| GISS-E2-R p1 | 6 | 0 |
| GISS-E2-R p2 | 6 | 0 |
| GISS-E2-R p3 | 6 | 0 |
| GISS-E2-R p100 | 6 | 0 |
| GISS-E2-R-CC  | 1 | 0 |
| HadCM3  | 10 | 0 |
| HadGEM2-AO  | 1 | 1 |
| HadGEM2-CC  | 1 | 1 |
| HadGEM2-ES  | 5 | 1 |
| INMCM4  | 1 | 0 |
| IPSL-CM5A-LR  | 6 | 0 |
| IPSL-CM5A-MR  | 3 | 0 |
| IPSL-CM5B-LR  | 1 | 0 |
| MIROC-ESM  | 3 | 1 |
| MIROC-ESM-CHEM | 1 | 1 |
| MPI-ESM-LR  | 2 | 0 |
| MRI-CGCM3 p1 | 3 | 1 |
| MRI-CGCM3 p2 | 1 | 1 |
| MRI-ESM1  | 1 | 1 |
| NorESM1-M  | 3 | 1 |
| NorESM1-ME  | 1 | 1 |
| Anthropogenic Only Simulation |
| CCSM4 p11 | 4 | – |
| CESM1-CAM5 p11 | 3 | – |
| CNRM-CM5  | 10 | – |
| GFDL-CM3 p2 | 3 | – |
| GFDL-ESM2M p2 | 1 | – |
| GISS-E2-H p109 | 3 | – |
| GISS-E2-H p309 | 3 | – |
| GISS-E2-R p109 | 5 | – |
| GISS-E2-R p309 | 5 | – |
| IPSL-CM5A-LR p2 | 3 | – |