

**Supplementary Materials**

**Table S1a:** W-Akaike weights based on the model data for the period of 1979–2008, that is, the first 30 years of the satellite record period. The projections of 2006–2008 from the RCP4.5 scenario are used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2008	ACCESS10	0.12397	0.14458	0.12343	0.17248	<b>0.42809</b>	0.0074532
1979–2008	ACCESS13	0.4095	<b>0.48215</b>	0.0032122	0.092911	0.0071148	0.0051108
1979–2008	CCSM4	0.24238	0.26388	0.021743	<b>0.39249</b>	0.055854	0.023654
1979–2008	CESM1-CAM5	0.39718	<b>0.40036</b>	0.0056653	0.17443	0.012063	0.010293
1979–2008	EC-EARTH	0.13952	0.14131	0.1367	0.14137	<b>0.43256</b>	0.0085426
1979–2008	HadGEM2-AO	0.16376	0.23889	0.11593	0.1927	<b>0.27651</b>	0.01221
1979–2008	HadGEM2-CC	0.13042	0.14104	0.13003	0.13948	<b>0.45038</b>	0.0086414
1979–2008	HadGEM2-ES	0.15654	0.15392	0.13075	0.14783	<b>0.40188</b>	0.0090715
1979–2008	MIROC-ESM	0.16602	0.16867	0.11886	0.18669	<b>0.3482</b>	0.011546
1979–2008	MIROC-ESM-CHEM	0.16911	0.18916	0.033223	<b>0.50391</b>	0.070214	0.034375
1979–2008	MPI-ESM-LR	0.18686	0.19988	0.079037	<b>0.33032</b>	0.18255	0.021358
1979–2008	MPI-ESM-MR	0.26296	0.26653	0.0023101	<b>0.32225</b>	0.1259	0.020039

**Table S1b:** W-Akaike weights based on the model data for the period of 1979–2017, that is, the whole satellite record period. The projections of 2006–2017 from the RCP4.5 scenario are used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2017	ACCESS10	0.12632	0.16047	0.12556	0.1684	<b>0.40954</b>	0.0097047
1979–2017	ACCESS13	0.20612	0.24116	0.082604	<b>0.29889</b>	0.14162	0.02961
1979–2017	CCSM4	0.15822	0.17222	0.1199	0.21864	<b>0.28888</b>	0.042147
1979–2017	CESM1-CAM5	0.13968	0.14641	0.12979	0.152	<b>0.34833</b>	0.083809
1979–2017	EC-EARTH	0.13262	0.1462	0.13168	0.14938	<b>0.42994</b>	0.010188
1979–2017	HadGEM2-AO	0.13424	0.14496	0.13382	0.14145	<b>0.43521</b>	0.010313
1979–2017	HadGEM2-CC	0.13697	0.13426	0.13665	0.13752	<b>0.44407</b>	0.010523
1979–2017	HadGEM2-ES	<b>0.4033</b>	0.37369	0.0043682	0.20183	0.0033448	0.013468
1979–2017	MIROC-ESM	<b>0.50294</b>	0.37952	0.0010556	0.1077	0.00093195	0.007856
1979–2017	MIROC-ESM-CHEM	0.0862	0.08941	0.086071	0.086275	0.27946	<b>0.37258</b>
1979–2017	MPI-ESM-LR	0.2298	0.27772	0.016936	<b>0.41028</b>	0.015424	0.04983
1979–2017	MPI-ESM-MR	0.17414	0.19359	0.11123	<b>0.22731</b>	0.21075	0.082992

**Table S1c:** W-Akaike weights based on the model data for the period of 1988–2017, that is, the last 30 years of the satellite record period. The projections of 2006–2017 from the RCP4.5 scenario are used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1988–2017	ACCESS10	0.11956	0.15987	0.080428	0.2199	<b>0.41288</b>	0.007355
1988–2017	ACCESS13	0.13336	0.14016	0.13234	0.13517	<b>0.44408</b>	0.014896
1988–2017	CCSM4	0.13097	0.13642	0.13073	0.14057	<b>0.45227</b>	0.0090346
1988–2017	CESM1-CAM5	0.13298	0.13393	0.1329	0.1331	<b>0.45785</b>	0.0092384
1988–2017	EC-EARTH	0.10186	0.13233	0.10109	0.30672	<b>0.35174</b>	0.0062658
1988–2017	HadGEM2-AO	0.093865	0.23041	0.093485	0.25232	<b>0.32414</b>	0.0057742
1988–2017	HadGEM2-CC	0.13543	0.13674	0.13506	0.13579	<b>0.44856</b>	0.008425
1988–2017	HadGEM2-ES	0.28246	0.32223	0.011735	<b>0.34623</b>	0.01735	0.019991
1988–2017	MIROC-ESM	<b>0.42516</b>	0.3345	0.037285	0.12332	0.072932	0.0068037
1988–2017	MIROC-ESM-CHEM	0.068558	0.10134	0.068174	<b>0.52096</b>	0.23675	0.0042174
1988–2017	MPI-ESM-LR	0.18321	0.18451	2.3639e-06	0.1816	<b>0.4397</b>	0.010976
1988–2017	MPI-ESM-MR	0.13359	0.13557	0.13334	0.13394	<b>0.45492</b>	0.0086339

**Table S1d:** W-Akaike weights based on the model data for the period of 2006–2035, that is, the first 30 years of the climate model projections for the RCP4.5 scenario. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
2006–2035	ACCESS10	<b>0.38822</b>	0.3479	0.047341	0.10722	0.10295	0.0063688
2006–2035	ACCESS13	0.21136	0.20458	0.0638	0.18088	<b>0.32845</b>	0.010935
2006–2035	CCSM4	0.33745	<b>0.41986</b>	0.0013821	0.22588	0.0030649	0.012354
2006–2035	CESM1-CAM5	0.024762	0.040973	1.5315e-07	0.038498	0.039022	<b>0.85674</b>
2006–2035	EC-EARTH	0.13264	0.13387	0.13236	0.13492	<b>0.45805</b>	0.0081596
2006–2035	HadGEM2-AO	0.11572	0.17383	0.11528	0.18846	<b>0.3996</b>	0.0071184
2006–2035	HadGEM2-CC	0.14912	0.15299	0.021142	0.15279	<b>0.51494</b>	0.0090149
2006–2035	HadGEM2-ES	0.13688	0.10723	0.1364	0.13874	<b>0.47268</b>	0.008055
2006–2035	MIROC-ESM	0.20591	0.095408	0.15177	0.19098	<b>0.34453</b>	0.011392
2006–2035	MIROC-ESM-CHEM	0.14189	0.25523	0.12368	0.15898	<b>0.30119</b>	0.019025
2006–2035	MPI-ESM-LR	0.12082	0.12949	0.12055	0.20448	<b>0.41723</b>	0.0074325
2006–2035	MPI-ESM-MR	0.13205	0.13396	0.13186	0.13801	<b>0.456</b>	0.0081231

**Table S2a:** W-Akaike weights based on the model data for the period of 1979–2008, that is, the first 30 years of the satellite record period. The projections of 2006–2008 from the RCP8.5 scenario are used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2008	ACCESS10	0.13811	0.14895	0.1345	0.14495	<b>0.4244</b>	0.0090713
1979–2008	ACCESS13	0.37255	<b>0.59887</b>	0.00014111	0.026733	0.00027408	0.0014352
1979–2008	CCSM4	0.27616	0.31816	0.0048356	<b>0.36851</b>	0.01122	0.021109
1979–2008	CESM1-CAM5	0.22989	0.22923	0.07395	<b>0.25653</b>	0.19446	0.01593
1979–2008	EC-EARTH	0.13162	0.13591	0.13113	0.13891	<b>0.45453</b>	0.007889
1979–2008	HadGEM2-AO	0.11789	0.15867	0.11731	0.1883	<b>0.40712</b>	0.010709
1979–2008	HadGEM2-CC	0.13594	0.13018	0.13677	0.13364	<b>0.45527</b>	0.0081969
1979–2008	HadGEM2-ES	<b>0.50408</b>	0.34422	0.0058073	0.12795	0.010802	0.0071447
1979–2008	MIROC-ESM	<b>0.3184</b>	0.30739	0.029383	0.26328	0.06559	0.015962
1979–2008	MIROC-ESM-CHEM	0.16573	0.18631	0.074813	<b>0.3649</b>	0.18267	0.025571
1979–2008	MPI-ESM-LR	0.13211	0.13402	0.13178	0.13747	<b>0.45622</b>	0.0084061
1979–2008	MPI-ESM-MR	0.14665	0.14905	0.12882	0.1631	<b>0.40224</b>	0.010147

**Table S2b:** W-Akaike weights based on the model data for the period of 1979–2017, that is, the whole satellite record period. The projections of 2006–2017 from the RCP8.5 scenario were used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979– 2017	ACCESS10	0.090081	0.14698	0.089583	<b>0.37439</b>	0.29204	0.0069205
1979– 2017	ACCESS13	0.18786	0.25701	0.06998	<b>0.3339</b>	0.1055	0.045757
1979– 2017	CCSM4	0.17225	0.17992	0.11638	0.22098	<b>0.28236</b>	0.028113
1979– 2017	CESM1-CAM5	0.27425	0.29879	0.015477	<b>0.36546</b>	0.016491	0.029533
1979– 2017	EC-EARTH	0.034906	0.043156	0.034692	<b>0.7714</b>	0.11317	0.0026817
1979– 2017	HadGEM2- AO	0.13883	0.15269	0.1378	0.13998	<b>0.40167</b>	0.029029
1979– 2017	HadGEM2-CC	<b>0.27374</b>	0.25719	0.10226	0.20689	0.14508	0.014847
1979– 2017	HadGEM2-ES	0.13144	<b>0.56</b>	0.024733	0.235	0.021558	0.027275
1979– 2017	MIROC-ESM	0.16642	0.18198	0.13148	0.20374	<b>0.28695</b>	0.029429
1979– 2017	MIROC-ESM- CHEM	0.091469	0.095793	0.091401	0.09147	0.29653	<b>0.33334</b>
1979– 2017	MPI-ESM-LR	0.22295	0.23378	0.084237	<b>0.28134</b>	0.13505	0.042643
1979– 2017	MPI-ESM-MR	0.14756	0.14979	0.13737	0.1544	<b>0.37271</b>	0.038167

**Table S2c:** W-Akaike weights based on the model data for the period of 1988–2017, that is, the last 30 years of the satellite record period. The projections of 2006–2017 from the RCP8.5 scenario are used. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1988–2017	ACCESS10	0.09223	0.1088	0.09189	<b>0.38292</b>	0.31849	0.0056736
1988–2017	ACCESS13	0.13026	0.14293	0.13011	0.13057	<b>0.44763</b>	0.018498
1988–2017	CCSM4	0.13288	0.1335	0.13282	0.1329	<b>0.45887</b>	0.0090256
1988–2017	CESM1-CAM5	0.24349	0.26966	0.041875	<b>0.3399</b>	0.083346	0.021729
1988–2017	EC-EARTH	0.032861	0.034972	0.032742	<b>0.78393</b>	0.11348	0.0020215
1988–2017	HadGEM2-AO	0.11722	0.18119	0.11661	0.17298	<b>0.40479</b>	0.0072108
1988–2017	HadGEM2-CC	0.21538	0.27022	0.06999	<b>0.29007</b>	0.13376	0.020572
1988–2017	HadGEM2-ES	0.12598	0.27756	0.11673	0.13814	<b>0.32262</b>	0.018966
1988–2017	MIROC-ESM	0.1152	0.15092	0.11433	0.21464	<b>0.39782</b>	0.0070867
1988–2017	MIROC-ESM-CHEM	0.069461	0.10555	0.069087	<b>0.51177</b>	0.23987	0.0042729
1988–2017	MPI-ESM-LR	0.13452	0.13319	0.13499	0.13415	<b>0.45504</b>	0.008106
1988–2017	MPI-ESM-MR	0.13314	0.13297	0.13316	0.13313	<b>0.45941</b>	0.0081839

**Table S2d:** W-Akaike weights based on the model data for the period of 2006–2035, that is, the first 30 years of the climate model projections, for the RCP8.5 scenario. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
2006–2035	ACCESS10	0.12495	0.16526	0.12472	0.13692	<b>0.4315</b>	0.016643
2006–2035	ACCESS13	0.24472	0.23855	0.054785	<b>0.29971</b>	0.14378	0.018462
2006–2035	CCSM4	0.15022	0.14971	0.12712	0.15403	<b>0.40268</b>	0.016247
2006–2035	CESM1-CAM5	<b>0.65289</b>	0.16561	0.013479	0.14503	0.014876	0.0081124
2006–2035	EC-EARTH	0.24514	0.24953	0.028817	<b>0.26697</b>	0.19304	0.016498
2006–2035	HadGEM2-AO	0.26809	<b>0.51064</b>	0.035701	0.091224	0.088931	0.0054109
2006–2035	HadGEM2-CC	0.12654	0.15636	0.12592	0.14648	<b>0.43697</b>	0.0077312
2006–2035	HadGEM2-ES	0.10046	0.22122	0.09949	0.22575	<b>0.3469</b>	0.0061796
2006–2035	MIROC-ESM	0.00099296	<b>0.99509</b>	0.00014318	0.0028562	0.00012471	0.00078861
2006–2035	MIROC-ESM-CHEM	0.27684	0.19653	0.087123	<b>0.3051</b>	0.1152	0.019212
2006–2035	MPI-ESM-LR	0.11441	0.13595	0.11405	0.15816	<b>0.39509</b>	0.082339
2006–2035	MPI-ESM-MR	0.13447	0.13734	0.13368	0.13562	<b>0.44994</b>	0.0089414

**Table S3a:** The FIASY values predicted from statistical curve-fitting models that was optimized with the CMIP5 climate model data for the period of 1979–2008, that is, the first 30 years of the satellite record period. The projections of 2006–2008 from the RCP4.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2008	ACCESS10	2064.6	>2100	2064.1	>2100	<b>2064.6</b>	2061.9
1979–2008	ACCESS13	2013.3	<b>2015.6</b>	2054.5	2023.8	2085.2	2024.8
1979–2008	CCSM4	2017.0	2020.8	2067.9	<b>2027.1</b>	>2100	2028.2
1979–2008	CESM1-CAM5	2013.7	<b>2016.5</b>	2053.4	2024.2	2082.3	2025.1
1979–2008	EC-EARTH	2061.2	2079.5	2064.3	2065.8	<b>&gt;2100</b>	2059.9
1979–2008	HadGEM2-AO	2012.3	2013.5	2014.8	2012.1	<b>2016.9</b>	2012.1
1979–2008	HadGEM2-CC	2054.2	>2100	2053.6	>2100	<b>2054.2</b>	>2100
1979–2008	HadGEM2-ES	2027.2	2034	2046.1	2035.6	<b>2065.7</b>	2036
1979–2008	MIROC-ESM	2036.0	2044.9	2071.1	2046.7	<b>&gt;2100</b>	2047.6
1979–2008	MIROC-ESM-CHEM	2021.4	2027.1	2048.4	<b>2024.7</b>	2071.0	2025.1
1979–2008	MPI-ESM-LR	2031.7	2040.5	2061.9	<b>2037.0</b>	>2100	2037.7
1979–2008	MPI-ESM-MR	2020.7	2026.4	2084.2	<b>2030.2</b>	2095.0	2031.1

**Table S3b:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 1979–2017, that is, the whole satellite record period. The projections of 2006–2017 from the RCP4.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2017	ACCESS10	2064.4	>2100	2064.1	>2100	<b>2064.4</b>	2064.4
1979–2017	ACCESS13	2033.7	2040.5	2050.3	<b>2036.7</b>	2070.8	2045.5
1979–2017	CCSM4	2048.6	2060.0	2065.8	2050.0	<b>&gt;2100</b>	2077.1
1979–2017	CESM1-CAM5	2053.5	2067.5	2059.9	2054.8	<b>2092.0</b>	2079.7
1979–2017	EC-EARTH	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
1979–2017	HadGEM2-AO	2024	2028.6	2024	2026.6	<b>2024</b>	2024
1979–2017	HadGEM2-CC	2053.7	2070.5	2052.9	2057	<b>2053.7</b>	2053.7
1979–2017	HadGEM2-ES	<b>2020.6</b>	2022.9	2032.2	2023.3	2039.3	2023.8
1979–2017	MIROC-ESM	<b>2024.9</b>	2029.1	2056.5	2035.4	2085.1	2036.1
1979–2017	MIROC-ESM-CHEM	2085.9	>2100	2083.6	2090.7	2085.9	<b>2072.4</b>
1979–2017	MPI-ESM-LR	2030.8	2037.3	2050.7	<b>2035.3</b>	2071.7	2048.2
1979–2017	MPI-ESM-MR	2042.4	2053.0	2055.9	<b>2045.1</b>	2082.7	2069.6

**Table S3c:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 1988–2017, that is, the last 30 years of the satellite record period. The projections of 2006–2017 from the RCP4.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1988–2017	ACCESS10	2072.9	>2100	2055.2	>2100	<b>2072.9</b>	2072.9
1988–2017	ACCESS13	2045.8	2053.8	2046.6	2044.6	<b>2055.0</b>	2048.8
1988–2017	CCSM4	2085.5	>2100	2084.6	>2100	<b>2085.5</b>	2077.5
1988–2017	CESM1-CAM5	2077.3	2094.2	2078.5	2075.6	<b>2088.7</b>	2078.7
1988–2017	EC-EARTH	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
1988–2017	HadGEM2-AO	2022.8	2032.2	2022.8	>2100	<b>2022.8</b>	2022.8
1988–2017	HadGEM2-CC	2042.2	2049.6	2041.9	2042.8	<b>2052.3</b>	2046.6
1988–2017	HadGEM2-ES	2020	2021.7	2029.2	<b>2021.3</b>	2033.5	2022.2
1988–2017	MIROC-ESM	<b>2024.7</b>	2028.4	2048.4	2034.8	2064.3	2036.0
1988–2017	MIROC-ESM-CHEM	2082.1	>2100	2081.6	<b>&gt;2100</b>	2082.1	2082.1
1988–2017	MPI-ESM-LR	2037.3	2045.3	2082.9	2040.2	<b>2057.4</b>	2043.2
1988–2017	MPI-ESM-MR	2061.7	2075.7	2062.1	2061.3	<b>2073.2</b>	2067.2

**Table S3d:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 2006–2035, that is, the first 30 years of the climate model projections for the RCP4.5 scenario. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
2006–2035	ACCESS10	<b>2035.7</b>	2035.8	2044.3	2039.1	2048.5	2039.3
2006–2035	ACCESS13	2043.9	2047.5	2074.1	2052.0	<b>2085.0</b>	2053.3
2006–2035	CCSM4	2038.9	<b>2040.7</b>	2080.1	2047.7	>2100	2048.5
2006–2035	CESM1-CAM5	2041.2	2043.7	2074.7	2040.3	2047.8	<b>2042.4</b>
2006–2035	EC-EARTH	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
2006–2035	HadGEM2-AO	2029.1	2028.9	2029.1	2028.9	<b>2029.1</b>	2029.1
2006–2035	HadGEM2-CC	2061.6	2082.9	2067.7	2086.9	<b>2061.6</b>	2059.1
2006–2035	HadGEM2-ES	2033.5	2034.7	2033.5	2033.7	<b>2033.5</b>	2033.3
2006–2035	MIROC-ESM	2031.9	2032.5	2032.4	2031.9	<b>2032.8</b>	2032.0
2006–2035	MIROC-ESM-CHEM	2034.3	2034.5	2034.8	2034.1	<b>2035.7</b>	2034.2
2006–2035	MPI-ESM-LR	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
2006–2035	MPI-ESM-MR	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100

**Table S4a:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 1979–2008, that is, the first 30 years of the satellite record period. The projections of 2006–2008 from the RCP8.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979–2008	ACCESS10	2037.0	2046.0	2038.7	2035.7	<b>2051.7</b>	2035.5
1979–2008	ACCESS13	2011.6	<b>2013.2</b>	2047.2	2019.7	2069.3	2020.2
1979–2008	CCSM4	2014.4	2017.5	2061.1	<b>2023.4</b>	>2100	2024.5
1979–2008	CESM1-CAM5	2022.5	2028.7	2064.3	<b>2034.4</b>	>2100	2035.4
1979–2008	EC-EARTH	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
1979–2008	HadGEM2-AO	2031.4	2057.2	2031.3	>2100	<b>2031.4</b>	>2100
1979–2008	HadGEM2-CC	2038	2055.8	2042.4	2047.7	<b>2058.4</b>	2046.7
1979–2008	HadGEM2-ES	<b>2009.8</b>	2011.3	2023.6	2013.1	2028.8	2013.4
1979–2008	MIROC-ESM	<b>2019.7</b>	2024.4	2064.0	2033.1	>2100	2034.1
1979–2008	MIROC-ESM-CHEM	2026.1	2032.8	2050.3	<b>2027.4</b>	2074.7	2027.8
1979–2008	MPI-ESM-LR	>2100	>2100	>2100	>2100	<b>&gt;2100</b>	>2100
1979–2008	MPI-ESM-MR	2043.2	2055.6	2069.2	2048.6	<b>&gt;2100</b>	2048.9

**Table S4b:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 1979–2017, that is, the whole satellite record period. The projections of 2006–2017 from the RCP8.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1979– 2017	ACCESS10	2080.6	>2100	2080.3	<b>&gt;2100</b>	2080.6	2080.6
1979– 2017	ACCESS13	2031.9	2037.6	2044.7	<b>2033.1</b>	2059.9	2040.6
1979– 2017	CCSM4	2042.1	2052.6	2065.0	2046.9	<b>&gt;2100</b>	2074.1
1979– 2017	CESM1-CAM5	2029.5	2036.0	2053.1	<b>2035.7</b>	2077.6	2043.8
1979– 2017	EC-EARTH	>2100	>2100	>2100	<b>&gt;2100</b>	>2100	>2100
1979– 2017	HadGEM2-AO	2022.1	2024	2022.1	2022.1	<b>2024.1</b>	2023
1979– 2017	HadGEM2-CC	<b>2026.9</b>	2031.5	2036.2	2030.3	2045.1	2031.1
1979– 2017	HadGEM2-ES	2017.3	<b>2017.5</b>	2020.1	2017.2	2022.3	2017.8
1979– 2017	MIROC-ESM	2051.4	2062.1	2062.6	2053.9	<b>2099.4</b>	2077.6
1979– 2017	MIROC-ESM- CHEM	2080.1	2092.5	2078.0	2079.7	2080.7	<b>2068.5</b>
1979– 2017	MPI-ESM-LR	2038.6	2048.0	2059.5	<b>2044.9</b>	2091.6	2071.9
1979– 2017	MPI-ESM-MR	2058.8	2075.4	2067.5	2064.0	<b>&gt;2100</b>	2099.3

**Table S4c:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 1988–2017, that is, the last 30 years of the satellite record period. The projections of 2006–2017 from the RCP8.5 scenario were used. Values in bold indicate the FIASY value from the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
1988– 2017	ACCESS10	>2100	>2100	>2100	<b>&gt;2100</b>	>2100	>2100
1988– 2017	ACCESS13	2044.2	2050.2	2044.6	2043.4	<b>2046.6</b>	2041.5
1988– 2017	CCSM4	2083.8	>2100	2080.7	2087.8	<b>2083.8</b>	2075.1
1988– 2017	CESM1-CAM5	2027.9	2033.0	2050.1	<b>2032.4</b>	2067.8	2036.0
1988– 2017	EC-EARTH	>2100	>2100	>2100	<b>&gt;2100</b>	>2100	>2100
1988– 2017	HadGEM2-AO	2022.1	2031.7	2022.1	>2100	<b>2022.1</b>	2022.1
1988– 2017	HadGEM2-CC	2024.9	2028	2033.9	<b>2025.9</b>	2040.1	2028.7
1988– 2017	HadGEM2-ES	2017.9	2017.9	2018.4	2017.7	<b>2019.4</b>	2017.8
1988– 2017	MIROC-ESM	2079.2	>2100	2078.6	>2100	<b>2079.2</b>	2079.2
1988– 2017	MIROC-ESM- CHEM	2076.1	>2100	2075.7	<b>&gt;2100</b>	2076.1	2076.1
1988– 2017	MPI-ESM-LR	2059.7	2076.0	2055.2	2062.7	<b>2075.6</b>	2075.6
1988– 2017	MPI-ESM-MR	2097.1	>2100	2092.8	2098.8	<b>&gt;2100</b>	>2100

**Table S4d:** The FIASY values predicted from statistical curve-fitting models optimized with the CMIP5 climate model data for the period of 2006–2035, that is, the first 30 years of the climate model projections for the RCP8.5 scenario. Values in bold indicate the likely optimal statistical curve-fitting model.

Years	MODEL	W_exp	W_gomp	W_log	W_quad	W_lin	W_linlag
2006– 2035	ACCESS10	2042.9	2045.2	2042.8	2050.1	<b>2042.9</b>	2040.6
2006– 2035	ACCESS13	2041.0	2043.7	2073.1	<b>2048.7</b>	>2100	2055.6
2006– 2035	CCSM4	2053.1	2060.2	2079.7	2063.7	<b>&gt;2100</b>	2098.8
2006– 2035	CESM1-CAM5	<b>2035.5</b>	2037.3	2041.4	2037.3	2044.4	2037.4
2006– 2035	EC-EARTH	2057.9	2066.8	2085.1	<b>2067.8</b>	>2100	2068.8
2006– 2035	HadGEM2-AO	2031.8	<b>2031</b>	2033.5	2031.8	2034.3	2031.8
2006– 2035	HadGEM2-CC	2052.5	2071.9	2052.4	>2100	<b>2052.5</b>	2052.3
2006– 2035	HadGEM2-ES	2026.1	2025.2	2026.1	2025	<b>2026.1</b>	2026.1
2006– 2035	MIROC-ESM	2030.7	<b>2027.8</b>	2030.9	2030.5	2031.2	2030.2
2006– 2035	MIROC-ESM- CHEM	2033.3	2033.9	2034.6	2033.3	2035.5	2033.3
2006– 2035	MPI-ESM-LR	2085.2	>2100	2084.8	>2100	<b>2085.2</b>	>2100
2006– 2035	MPI-ESM-MR	2064.9	2073.5	2065.3	2064.4	<b>2078.5</b>	2071.3