

Regional analysis– Shifting patterns of mild weather in response to projected radiative forcing

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Following the publication of the mild weather paper in *Climatic Change*, many requests for numbers for individual cities were requested. In this document I report the computed numbers for many cities around the world. These were semi-randomly selected, to get a global coverage, but with reference to the locations of the people doing the request.

The analysis includes three numbers for each city, the number of mild days for the current period (mean over 1986-2005), the change of the number of mild days from the current period to the period 2016-2035 and the the change in mild weather from the current period to the period 2081-2100. I have calculated these for the annual total, the period June-July-August (JJA) and for the period December-February-March (DJF). Depending on the city, the reader must pick the JJA or DJF season to find the corresponding summer change. All values are from model experiments using the GFDL HiFLOR model.

- Change in the annual number of mild days
- Change in the number of mild days in JJA
- Change in the number of mild days in DJF

Finally, I include two figures which shows seasonal changes in mild weather in the U.S. and in Europe. The data shown are the same as in Fig. 3 of the main paper, but with zoomed in on the region of interest.

- Extra figures

Reference

All numbers based on similar analysis reported in the *Climatic Change* paper:

K van der Wiel, SB Kapnick, GA Vecchi (2017): Shifting patterns of mild weather in response to projected radiative forcing. *Climatic Change*, **140**, pp. 649-658.

Change in the annual number of mild days

| | | | |
|----------------|-------------------|------------------------|------------------------|
| Atlanta | 79 days per year | −9 days in 2016-2035 | −12 days in 2081-2100 |
| Boston | 76 days per year | +6 days in 2016-2035 | +2 days in 2081-2100 |
| Chicago | 77 days per year | −2 days in 2016-2035 | −9 days in 2081-2100 |
| Dallas | 96 days per year | −5 days in 2016-2035 | −1 days in 2081-2100 |
| Denver | 87 days per year | −3 days in 2016-2035 | −6 days in 2081-2100 |
| Los Angeles | 157 days per year | no change in 2016-2035 | +6 days in 2081-2100 |
| Miami | 97 days per year | −16 days in 2016-2035 | −28 days in 2081-2100 |
| New York City | 83 days per year | −1 days in 2016-2035 | −6 days in 2081-2100 |
| San Diego | 180 days per year | no change in 2016-2035 | +3 days in 2081-2100 |
| Washington | 81 days per year | −7 days in 2016-2035 | −13 days in 2081-2100 |
| Amsterdam | 64 days per year | +8 days in 2016-2035 | +19 days in 2081-2100 |
| Athens | 110 days per year | −8 days in 2016-2035 | −14 days in 2081-2100 |
| Budapest | 99 days per year | −2 days in 2016-2035 | −1 days in 2081-2100 |
| London | 69 days per year | +10 days in 2016-2035 | +24 days in 2081-2100 |
| Madrid | 112 days per year | −1 days in 2016-2035 | −13 days in 2081-2100 |
| Moscow | 57 days per year | +9 days in 2016-2035 | +6 days in 2081-2100 |
| Paris | 86 days per year | +6 days in 2016-2035 | +12 days in 2081-2100 |
| Rome | 101 days per year | −4 days in 2016-2035 | −9 days in 2081-2100 |
| Stockholm | 50 days per year | +7 days in 2016-2035 | +13 days in 2081-2100 |
| Buenos Aires | 147 days per year | −2 days in 2016-2035 | −1 days in 2081-2100 |
| Lima | 326 days per year | −32 days in 2016-2035 | −114 days in 2081-2100 |
| Santiago | 209 days per year | +4 days in 2016-2035 | +4 days in 2081-2100 |
| Puerto Montt | 57 days per year | +4 days in 2016-2035 | +19 days in 2081-2100 |
| Rio de Janeiro | 91 days per year | −18 days in 2016-2035 | −40 days in 2081-2100 |
| Cape Town | 197 days per year | +2 days in 2016-2035 | +12 days in 2081-2100 |
| Dakar | 171 days per year | −18 days in 2016-2035 | −57 days in 2081-2100 |
| Nairobi | 196 days per year | −3 days in 2016-2035 | −12 days in 2081-2100 |
| Beijing | 87 days per year | −2 days in 2016-2035 | −8 days in 2081-2100 |
| Kathmandu | 120 days per year | +7 days in 2016-2035 | +18 days in 2081-2100 |
| Mumbai | 82 days per year | −16 days in 2016-2035 | −44 days in 2081-2100 |
| Singapore | 0 days per year | no change in 2016-2035 | no change in 2081-2100 |
| Shanghai | 81 days per year | −5 days in 2016-2035 | −6 days in 2081-2100 |
| Melbourne | 135 days per year | +7 days in 2016-2035 | +19 days in 2081-2100 |
| Sydney | 144 days per year | +5 days in 2016-2035 | +13 days in 2081-2100 |

Change in the number of mild days in JJA

| | | | |
|----------------|-----------------|------------------------|------------------------|
| Atlanta | 16 days per JJA | −5 days in 2016-2035 | −10 days in 2081-2100 |
| Boston | 46 days per JJA | −2 days in 2016-2035 | −10 days in 2081-2100 |
| Chicago | 45 days per JJA | −7 days in 2016-2035 | −18 days in 2081-2100 |
| Dallas | 4 days per JJA | −1 days in 2016-2035 | −3 days in 2081-2100 |
| Denver | 29 days per JJA | −6 days in 2016-2035 | −15 days in 2081-2100 |
| Los Angeles | 33 days per JJA | −4 days in 2016-2035 | −7 days in 2081-2100 |
| Miami | 1 days per JJA | no change in 2016-2035 | −1 days in 2081-2100 |
| New York City | 44 days per JJA | −7 days in 2016-2035 | −17 days in 2081-2100 |
| San Diego | 47 days per JJA | −6 days in 2016-2035 | −10 days in 2081-2100 |
| Washington | 32 days per JJA | −7 days in 2016-2035 | −18 days in 2081-2100 |
| Amsterdam | 41 days per JJA | +5 days in 2016-2035 | +10 days in 2081-2100 |
| Athens | 37 days per JJA | −13 days in 2016-2035 | −23 days in 2081-2100 |
| Budapest | 55 days per JJA | −7 days in 2016-2035 | −10 days in 2081-2100 |
| London | 47 days per JJA | +6 days in 2016-2035 | +11 days in 2081-2100 |
| Madrid | 54 days per JJA | −10 days in 2016-2035 | −24 days in 2081-2100 |
| Moscow | 41 days per JJA | +3 days in 2016-2035 | +3 days in 2081-2100 |
| Paris | 52 days per JJA | +1 days in 2016-2035 | +1 days in 2081-2100 |
| Rome | 33 days per JJA | −11 days in 2016-2035 | −19 days in 2081-2100 |
| Stockholm | 40 days per JJA | +3 days in 2016-2035 | +6 days in 2081-2100 |
| Buenos Aires | 20 days per JJA | +2 days in 2016-2035 | +7 days in 2081-2100 |
| Lima | 90 days per JJA | −3 days in 2016-2035 | −12 days in 2081-2100 |
| Santiago | 22 days per JJA | +2 days in 2016-2035 | +8 days in 2081-2100 |
| Puerto Montt | 0 days per JJA | no change in 2016-2035 | no change in 2081-2100 |
| Rio de Janeiro | 45 days per JJA | −5 days in 2016-2035 | −12 days in 2081-2100 |
| Cape Town | 21 days per JJA | +2 days in 2016-2035 | +9 days in 2081-2100 |
| Dakar | 0 days per JJA | no change in 2016-2035 | no change in 2081-2100 |
| Nairobi | 59 days per JJA | +4 days in 2016-2035 | +5 days in 2081-2100 |
| Beijing | 17 days per JJA | −5 days in 2016-2035 | −10 days in 2081-2100 |
| Kathmandu | 9 days per JJA | −1 days in 2016-2035 | −5 days in 2081-2100 |
| Mumbai | 0 days per JJA | no change in 2016-2035 | no change in 2081-2100 |
| Singapore | 0 days per JJA | no change in 2016-2035 | no change in 2081-2100 |
| Shanghai | 10 days per JJA | −3 days in 2016-2035 | −7 days in 2081-2100 |
| Melbourne | 3 days per JJA | +2 days in 2016-2035 | +5 days in 2081-2100 |
| Sydney | 13 days per JJA | +7 days in 2016-2035 | +18 days in 2081-2100 |

Change in the number of mild days in DJF

| | | | |
|----------------|-----------------|------------------------|------------------------|
| Atlanta | 2 days per DJF | +1 days in 2016-2035 | +2 days in 2081-2100 |
| Boston | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Chicago | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Dallas | 19 days per DJF | +2 days in 2016-2035 | +9 days in 2081-2100 |
| Denver | 0 days per DJF | no change in 2016-2035 | +1 days in 2081-2100 |
| Los Angeles | 23 days per DJF | +3 days in 2016-2035 | +12 days in 2081-2100 |
| Miami | 42 days per DJF | -4 days in 2016-2035 | -6 days in 2081-2100 |
| New York City | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| San Diego | 27 days per DJF | +3 days in 2016-2035 | +13 days in 2081-2100 |
| Washington | 0 days per DJF | no change in 2016-2035 | +1 days in 2081-2100 |
| Amsterdam | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Athens | 0 days per DJF | no change in 2016-2035 | +1 days in 2081-2100 |
| Budapest | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| London | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Madrid | 0 days per DJF | no change in 2016-2035 | +1 days in 2081-2100 |
| Moscow | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Paris | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Rome | 0 days per DJF | no change in 2016-2035 | +1 days in 2081-2100 |
| Stockholm | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Buenos Aires | 31 days per DJF | -4 days in 2016-2035 | -11 days in 2081-2100 |
| Lima | 69 days per DJF | -11 days in 2016-2035 | -39 days in 2081-2100 |
| Santiago | 78 days per DJF | -4 days in 2016-2035 | -19 days in 2081-2100 |
| Puerto Montt | 37 days per DJF | +2 days in 2016-2035 | +11 days in 2081-2100 |
| Rio de Janeiro | 4 days per DJF | -2 days in 2016-2035 | -3 days in 2081-2100 |
| Cape Town | 67 days per DJF | -3 days in 2016-2035 | -7 days in 2081-2100 |
| Dakar | 87 days per DJF | -1 days in 2016-2035 | -13 days in 2081-2100 |
| Nairobi | 61 days per DJF | -3 days in 2016-2035 | -8 days in 2081-2100 |
| Beijing | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Kathmandu | 32 days per DJF | +10 days in 2016-2035 | +28 days in 2081-2100 |
| Mumbai | 66 days per DJF | -9 days in 2016-2035 | -31 days in 2081-2100 |
| Singapore | 0 days per DJF | no change in 2016-2035 | no change in 2081-2100 |
| Shanghai | 2 days per DJF | +1 days in 2016-2035 | +3 days in 2081-2100 |
| Melbourne | 56 days per DJF | -2 days in 2016-2035 | -5 days in 2081-2100 |
| Sydney | 38 days per DJF | -6 days in 2016-2035 | -9 days in 2081-2100 |

Seasonal change for U.S. and Europe

