**Supplemental Material I. Overview of the final selection of blogs**

|  |  |
| --- | --- |
| **Blogs** | **Number of blog posts** |
| <https://wattsupwiththat.com>\* | 1395 |
| [http://realclimatescience.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Frealclimatescience.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322937784%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=70PPrSfKCy%2BjllVpwqDqnGohPLXCTvnov4BSI9pEpPY%3D&reserved=0)\*\* | 388 |
| [http://notrickszone.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fnotrickszone.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322947739%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=rNuG7VudGcVRLdqWNunIy4rYts%2FxfQOTVByJuB17YNk%3D&reserved=0)\* | 218 |
| [http://iceagenow.info](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Ficeagenow.info%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322947739%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ZS1VV2WGNfdXvESAJUUx49X10s5peTLePeah%2BPLT6c0%3D&reserved=0)\* | 185 |
| [https://www.masterresource.org](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.masterresource.org%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322947739%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=nQTNtGpRNycxnjdKMzZYrI8TfCpQRBpV7znupyKcBac%3D&reserved=0)\* | 118 |
| [https://www.climateconversation.org.nz](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.climateconversation.org.nz%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322957687%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=bAcj7rxfadT2%2FDtMUr1q4QSycUKiZRvZkTUCGn7M1pc%3D&reserved=0)\* | 62 |
| [http://gregladen.com/blog](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fgregladen.com%2Fblog&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322957687%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=UxR0WI%2FbglgzAU4R5ZIX1cNefi%2FWMqGLizCAxgmINsQ%3D&reserved=0)\*\* | 59 |
| [http://www.eco-imperialism.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.eco-imperialism.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322967648%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=IjYlg8xIe1CjK%2Fj86tLm%2FQEmkf4KUApqGPLIWJ7gAbY%3D&reserved=0)\* | 55 |
| [http://www.thegwpf.org](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.thegwpf.org%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322967648%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=NLIC0MC%2FPaWLQ2VxjBLTNFqzlOiaNcWlbNn2W91F%2FcY%3D&reserved=0)\* | 31 |
| [http://realclimate.org](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Frealclimate.org%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322977602%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=AVhpgnm6AiAeQ0p%2BTQ%2Bn1Ll%2FS2QvrQqNT8nH3R1i8l4%3D&reserved=0)\*\* | 24 |
| [https://www.thinkorswim.ie](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.thinkorswim.ie%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322977602%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=pEp8fHfOEEfLtTE4boy7IO3dDDckPl3L5JsAZG8HVoA%3D&reserved=0)\*\* | 23 |
| [https://carbon-sense.com](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcarbon-sense.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322977602%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=V5mp9U8YgGM5jUgu7VNgEK2fTKF3X6S9ixxFiK20l9U%3D&reserved=0)\* | 16 |
| [http://climatesciencewatch.org](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fclimatesciencewatch.org%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322987572%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=uO0c32FFkyMeEcVF6%2FTYAXij2IDXvF5WpDVxbOtS5eU%3D&reserved=0)\*\* | 15 |
| [http://www.brusselsblog.co.uk](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.brusselsblog.co.uk%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322987572%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=4ppnaI%2BSqFBB4iDcnUb6mMPe4J6%2BpBmfEB3jVHmLdpg%3D&reserved=0)\*\* | 13 |
| [http://www.coyoteblog.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.coyoteblog.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322997514%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=dtjS44j1mORZq5pluIPrpGLsV3DSQDzagm9dJ%2FVKdps%3D&reserved=0)\* | 13 |
| [http://jennifermarohasy.com](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fjennifermarohasy.com%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474322997514%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=2NtXbcuL%2BiSxhL6ErC%2F1E9c1vuLiDhGyYY09JHUfS14%3D&reserved=0)\*\* | 10 |
| [http://www.climate-lab-book.ac.uk](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.climate-lab-book.ac.uk%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474323007481%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=dWjRHQgTNPTWTBS8IMvW8frfmClmh6CM2PyaLY9qOjI%3D&reserved=0)\*\* | 7 |
| [http://greatwhitecon.info](https://eur03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fgreatwhitecon.info%2F&data=04%7C01%7C%7Cb4cebdecedd8448f0c3c08d8888a26ac%7C27d137e5761f4dc1af88d26430abb18f%7C0%7C0%7C637409474323007481%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=Xy4x0nGOAU3h8LmR6dZrJ67XP5A2qlxlIEhgnFbCZ0w%3D&reserved=0)\* | 1 |

*Note: \* = Climate sceptical blogs; \*\* = Climate mainstream blogs.*

**Supplementary Material II. Table SX**

Descriptive statistics, by dataset and outcome variable.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Dataset** | **Negative\_emotion** | **Positive\_emotion** | **Emotion** | **Anger** | **Disgust** | **Surprise** | **Joy** | **Fear** | **Sadness** |
| *N* | Blogs | 2573 | 2573 | 2633 | 2573 | 2573 | 2573 | 2573 | 2573 | 2573 |
|  | Twitter | 167000 | 167000 | 167000 | 167000 | 167000 | 167000 | 167000 | 167000 | 167000 |
| *Mean* | Blogs | 0.00527 | 0.00292 | 0.008 | 6.08E-04 | 5.85E-04 | 5.32E-04 | 2.38E-04 | 0.00103 | 0.00182 |
|  | Twitter | 0.00616 | 0.0027 | 0.00887 | 2.63E-04 | 2.47E-04 | 2.67E-04 | 1.40E-04 | 6.83E-04 | 0.00104 |
| *Median* | Blogs | 0.00359 | 0.00191 | 0.00613 | 0 | 0 | 0 | 0 | 0 | 3.63E-04 |
|  | Twitter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *SD* | Blogs | 0.0078 | 0.00499 | 0.00944 | 0.00165 | 0.00524 | 0.00141 | 9.81E-04 | 0.00547 | 0.00616 |
|  | Twitter | 0.022 | 0.0144 | 0.0274 | 0.00425 | 0.00435 | 0.00515 | 0.00304 | 0.00723 | 0.0092 |
| *Skewn.* | Blogs | 9.05 | 10 | 6.21 | 6.06 | 42.5 | 6.36 | 10.6 | 37.2 | 27 |
|  | Twitter | 4.97 | 7.26 | 4.25 | 19.8 | 24.2 | 36 | 26 | 15.4 | 13.6 |
| *SE skewn.* | Blogs | 0.0483 | 0.0483 | 0.0477 | 0.0483 | 0.0483 | 0.0483 | 0.0483 | 0.0483 | 0.0483 |
|  | Twitter | 0.00599 | 0.00599 | 0.00599 | 0.00599 | 0.00599 | 0.00599 | 0.00599 | 0.00599 | 0.00599 |
| *Kurtosis* | Blogs | 154 | 187 | 77.5 | 55.9 | 2007 | 66.8 | 166 | 1668 | 1034 |
|  | Twitter | 38 | 78.5 | 26.3 | 516 | 824 | 2137 | 886 | 406 | 305 |
| *SE kurtosis* | Blogs | 0.0965 | 0.0965 | 0.0954 | 0.0965 | 0.0965 | 0.0965 | 0.0965 | 0.0965 | 0.0965 |
|   | Twitter | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 | 0.012 |

**Supplemental Material III.** **Table Welch’s *t*-tests and Mann-Whitney U-tests for blog posts and tweets, per outcome variable**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Test** | **Statistic** | **df** | **p** | **Mdiff** | **95%CI** | **Effect Size** |
| Negative\_emotion | Welch's t | -5.48 | 3243 | < .001 | -8.93e−4 |  [-1.21E-3, -5.73e−4] | -0.054 |
|  | Mann-Whitney U | 8.01E+07 |  | < .001 | 3.21E-03 | [3.14E-3, 3.27E-3] | 0.627 |
| Positive\_emotion | Welch's t | 2.09 | 3270 | 0.037 | 2.18E-04 | [1.35E-4, 4.23E-4] | 0.0203 |
|  | Mann-Whitney U | 8.68E+07 |  | < .001 | 0.00177 | [1.73E-3, 1.81E-3] | 0.596 |
| Emotion\_total | Welch's t | -4.4 | 3375 | < .001 | -8.62e−4 | [-1.25E-3, -4.78E−4] | -0.0421 |
|  | Mann-Whitney U | 8.43E+07 |  | < .001 | 5.26E-03 | [5.16E-3, 5.37E-3] | 0.617 |

*Note: Effect sizes are displayed in Cohen’s d for the Welch’s t-tests and as rank biserial correlation for the Mann-Whitney U-tests.*

**Supplemental Material IV.** **Blog dataset: Wilcoxon signed-rank tests for individual emotion categories**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** |  | **Z** | **p** | **Mdiff** | **95%CI** | **Effect Size** |
| Anger | Disgust | 126290 | < .001 | 5.81E-04 | [4.48E-4, 7.45E-4] | 0.329 |
|  | Surprise | 255487 | 0.156 | 1.05E-04 | [-4.70e−5, 2.53E-4] | 0.0522 |
|  | Joy | 262730 | < .001 | 9.98E-04 | [8.97E-4, 1.14E-3] | 0.498 |
|  | Fear | 171377 | < .001 | -7.34e−4 | [-8.59e−4, -5.40e−4] | -0.306 |
|  | Sadness | 109243 | < .001 | -0.00178 | [-1.94E-3, -1.65E-3] | -0.719 |
| Disgust | Surprise | 172281 | < .001 | -2.58e−4 | [-4.53e−4, -1.21e−4] | -0.137 |
|  | Joy | 172712 | < .001 | 6.93E-04 | 5.32E-4, 8.57E-4 | 0.350 |
|  | Fear | 77627 | < .001 | -0.0012 | [-1.31E-3, -1.07E-3] | -0.580 |
|  | Sadness | 41276 | < .001 | -0.00205 | [-2.21E-3, -1.96E-3] | -0.881 |
| Surprise | Joy | 253449 | < .001 | 9.08E-04 | [7.68E-4, 1.01E-3] | 0.470 |
|  | Fear | 229015 | < .001 | -7.02e−4 | [-8.55e−4, -5.10e−4] | -0.286 |
|  | Sadness | 180165 | < .001 | -0.00173 | [-1.87E-3, -1.57E-3 | -0.631 |
| Joy | Fear | 58695 | < .001 | -0.00149 | [-1.6E-3, -1.4E-3] | -0.731 |
|  | Sadness | 36845 | < .001 | -0.0023 | [-2.44E-3, -2.16E-3] | -0.907 |
| Fear | Sadness | 147200 | < .001 | -0.00139 | [-1.52E-3, -1.31E-3] | -0.584 |

*Note: Effect size is displayed as rank biserial correlation.*

**Supplemental Material V.** **Twitter dataset: Wilcoxon signed-rank tests for individual emotion categories**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** |  | **Z** | **p** | **Mdiff** | **95%CI** | **Effect Size** |
| Anger | Disgust | 87258 | 0.009 | 0.00236 | [1.41E-6, 4.37E-3] | 0.127 |
|  | Surprise | 475501 | 0.520 | 6.95E-05 | [-1.05E-3, 1.49E-3] | 0.0201 |
|  | Joy | 376319 | < .001 | 0.01063 | [6.29E-3, 1.88E-2] | 0.311 |
|  | Fear | 375834 | < .001 | -0.04953 | [-0.051, -0.049] | -0.585 |
|  | Sadness | 253558 | < .001 | -0.05411 | [-0.055, -0.054] | -0.830 |
| Disgust | Surprise | 410902 | 0.353 | -1.91e−5 | [-1.71E-3, 8.23E-6] | -0.0297 |
|  | Joy | 333171 | < .001 | 0.00694 | [4.02E-3, 0.012] | 0.255 |
|  | Fear | 310017 | < .001 | -0.05116 | [-0.052, -0.050] | -0.634 |
|  | Sadness | 153702 | < .001 | -0.05509 | [-0.056, -0.054] | -0.889 |
| Surprise | Joy | 315465 | < .001 | 0.00951 | [5.98E-3, 0.017] | 0.294 |
|  | Fear | 756648 | < .001 | -0.04712 | [-0.048, -0.046] | -0.470 |
|  | Sadness | 1.04E+06 | < .001 | -0.05124 | [-0.052, -0.050] | -0.617 |
| Joy | Fear | 209114 | < .001 | -0.05327 | [-0.054, -0.053] | -0.759 |
|  | Sadness | 218414 | < .001 | -0.05558 | [-0.056, -0.054] | -0.875 |
| Fear | Sadness | 1.76E+06 | < .001 | -0.00945 | [-0.013, -6.97E-3] | -0.295 |

*Note: Effect size is displayed as rank biserial correlation.*

**Supplemental Material VI. Welch’s *t*-tests and Mann-Whitney U-tests for climate mainstream and climate sceptical blog posts, per outcome variable**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** |  | **Statistic** | **df** | **p** | **Mdiff** | **95%CI** | **Effect Size** |
| Negative\_emotion | Welch's t | 3.039 | 606 | 0.002 | 0.00165 | [5.83E-4, 2.71E-3] | 0.1712 |
|  | Mann-Whitney U | 496617 |  | < .001 | -7.54e−4 | [-1.24E-3, -2.91E-5] | 0.12 |
| Positive\_emotion | Welch's t | 0.814 | 581 | 0.416 | 3.09E-04 | [-4.37E=4, 1.05E-3] | 0.0471 |
|  | Mann-Whitney U | 428113 |  | < .001 | -8.24e−4 | [-1.11E-3, -4.39E-4] | 0.2414 |
| Emotion\_total | Welch's t | 2.913 | 600 | 0.004 | 0.00196 | [6.37E-4, 3.27E-3] | 0.1652 |
|   | Mann-Whitney U | 513351 |   | 0.001 | -9.66e−4 | [-1.70E-3, -1.31E-4] | 0.0903 |

*Note: Effect sizes are displayed in Cohen’s d for the Welch’s t-tests and as rank biserial correlation for the Mann-Whitney U-tests.*