**Supplementary Information**

**‘Sharpening the Focus: Climate Change Focusing Events and Citizens Attention in Australia’**

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# Step 1: Determining Climate-related Focusing Events

Following the coding using Nvivo software of online news searches, four topics emerged. These four topics highlight some of the main climate change topics in Australian news media between 2004 and 2022 that received the most attention to climate change. The graph above illustrates the most frequently mentioned events. First, events in which climate change impacts were omitted. Such events include climate change’s impact on indigenous communities, on agriculture, or on health, for example.

The four topics include: politics and policy, extreme weather events, Global crisis, and advocacy events (see table 1). During the search, specific types of focusing events were grouped under each of the topics. The five main focusing events under each topic included:

1. policy and politics: national elections, state elections, global climate summits, as well as discussions on renewable energy developments, mitigation policy, adaptation policy, and emissions targets.
2. Extreme weather events: ice melt & sea level rise, bushfires, coral bleaching, drought, and extreme temperatures.
3. Global Crisis: Covid-19, Fukushima Nuclear crisis, oil spills, Russian invasion of Ukraine
4. Activism & Awareness: Climate protests, major reports (IPCC reports and studies), and climate litigation.

The following events identified where selected:

***Table 1: Overview of Focusing Events***

|  |  |  |
| --- | --- | --- |
| Climate-related Group | Focusing Event | Data Source |
| Political Events | UNFCCC COPs | UNFCCC website |
| National Elections | Australian Electoral Commission (AEC) |
| State Elections | Official State government electoral commission websites |
| Extreme Weather Events | Bushfires | Australian Disaster Resilience Knowledge Hub |
| Floods | Australian Disaster Resilience Knowledge Hub |
| Coral Bleaching | Great Barrier Reef Marine Park Authority |
| Major Storms | Australian Disaster Resilience Knowledge Hub |
| Advocacy Events | Climate Protests | School Strikes for Climate, Fridays for Future websites & Australian Broadcasting Corporation |
| IPCC Reports | IPCC website |

The events omitted from the initial search were decided upon because:

1. The exact start and end dates of events were difficult to identify.
2. The events were long lasting and more pervasive in natures (ie drought, sea level rise, global financial crisis).
3. They were considered other issues or topics that have been impacted by climate change.
4. They did not have a clear relation to climate change (global crisis events including Fukushima, Oil spills, Covid-19, and the Russian Invasion of Ukraine).

# Step 2: Data Collection

After establishing the climate-related focusing events, data for each event was collected. Data was collected through desktop web searches from official websites. The data was recorded at the state-month level.

## Step 2 (a): Google Trends

To gauge citizens’ attention to climate change, google trends data was collected for the search terms ‘climate change’ and ‘global warming’. Google trends data was collected for each state and territory between January 2004 and December 2022. The scores are relative and range between 0-100. The two sets of data were then aggregated to get an overall score of citizens’ attention for each state and territory.

## Step 2 (b): Focusing Events

The start and end dates of the focusing events were recorded at the state-month level. This means that an event was recorded during the month(s) that it occurred in each state or territory.

Events that were national or global in scale, such as global crises or UNFCCC COPs, and could not be isolated at the state/territory level, they were recorded in each state or territory.

### Political Events

#### UNFCCC COPs

Data for the annual United Nations Framework Convention on Climate Change Conference of the Parties (UNFCCC COPs) were collected through the official UNFCCC website. As the UNFCCC COPs are a global event, they are assumed to have national reach. Thus each UNFCCC COP was recorded in each state/territory.

**Source:** <https://unfccc.int/process-and-meetings/conferences/past-conferences/past-conferences-overview>

Table 2 below lists the UNFCCC COPs from 2004 to 2023 including the location of each meeting and the month(s) the meeting took place.

***Table 2: UNFCCC COPs***

|  |  |  |
| --- | --- | --- |
| **COP Number** | **Location** | **Date (MM/YY)** |
| 10 | Buenos Aires | 12/2004 |
| 11 | Montreal | 12/2005 |
| 12 | Nairobi | 11/2006 |
| 13 | Bali | 12/2007 |
| 14 | Poznan | 12/2008 |
| 15 | Copenhagen | 12/2009 |
| 16 | Cancun | 11/2010 |
| 17 | Durban | 11/2011 |
| 18 | Doha | 11/2012 |
| 19 | Warsaw | 11/2013 |
| 20 | Lima | 12/2014 |
| 21 | Paris | 11/2015 |
| 22 | Marrakech | 11/2016 |
| 23 | Bonn | 11/2017 |
| 24 | Katowice | 12/2018 |
| 25 | Madrid | 12/2019 |
| 26 | Glasgow | 10-11/2021 |
| 27 | Sharm el-Sheikh | 11/2022 |
| 28 | Dubai | 11-12/2023 |

#### Australian Federal Elections (2004-2023)

Australian Federal Elections data was collected from the official Australian Electoral Commission website. The recorded date for federal elections was taken at the month-year of the polling day. As the federal elections are a national event, they are assumed to have national reach. Thus, each election was recorded in each state/territory.

**Source:** <https://www.aec.gov.au/elections/federal_elections/election-dates.htm>

***Table 3: Australian Federal Elections***

|  |  |
| --- | --- |
| **Party Voted in** | **Date** |
|  | 10/2004 |
|  | 11/2007 |
|  | 08/2010 |
|  | 09/2013 |
|  | 07/2016 |
|  | 05/2019 |
|  | 05/2022 |

### Australia State Elections

State and territory elections data was collected from the respective state or territory government’s electoral commission websites or past election results webpages (see table 4).

***Table 4: Australian State & Territory Election Websites***

|  |  |  |
| --- | --- | --- |
| **State/Territory** | | **Website** |
| ACT | <https://www.elections.act.gov.au/elections_and_voting/past_act_legislative_assembly_elections> | |
| NSW | <https://elections.nsw.gov.au/elections/past-results/state-election-results#a2023nswstateelection> | |
| NT | <https://ntec.nt.gov.au/elections/past-elections/legislative-assembly> | |
| QLD | <https://results.ecq.qld.gov.au/elections/index.html> | |
| SA | <https://www.ecsa.sa.gov.au/elections/past-state-election-results> | |
| TAS | <https://www.tec.tas.gov.au/house-of-assembly/index.html#previous_elections> | |
| VIC | <https://www.vec.vic.gov.au/voting/learn-to-vote/history-of-elections-in-victoria/stability> | |
| WA | <https://www.elections.wa.gov.au/elections/state/past-elections> | |

From the websites indicated in table 4, the months for each state election between 2004 and 2022 were collected. The dates are indicated in Table 5.

***Table 5: Australian State & Territory Election Dates***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACT | NSW | NT | QLD | SA | TAS | VIC | WA |
| 10/2020 | 03/2023 | 08/2020 | 10/2020 | 03/2022 | 05/2021 | 11/2022 | 03/2021 |
| 10/2016 | 03/2019 | 08/2016 | 11/2017 | 03/2018 | 03/2018 | 11/2018 | 03/2017 |
| 10/2012 | 03/2015 | 08/2012 | 01/2015 | 03/2014 | 03/2014 | 11/2014 | 03/2013 |
| 10/2008 | 03/2011 | 08/2008 | 03/2012 | 03/2010 | 03/2010 | 11/2010 | 09/2008 |
| 10/2004 | 03/2007 | 06/2005 | 03/2009 | 03/2006 | 03/2006 | 11/2006 | 02/2005 |
|  |  |  | 09/2006 |  |  |  |  |
|  |  |  | 02/2004 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

### Extreme Weather Events

Past data for bushfires, floods, and storms was used from a past database developed by the authors (Crellin & MacNeil, 2023). This database examined these three extreme weather events from 2008 – 2020. Due to the widened time frame of this study, additional data from the Australian Disaster Knowledge Resilience Hub was added for each additional year of the study (2007-2007 & 2021-2022). Below are the dates for which a bushfire, flood, or storm occurred in a given state or territory.

#### Bushfires, Floods, Storms

##### ACT

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  |  |
| 2005 |  |  | 02/02/2005 |
| 2006 |  |  |  |
| 2007 |  |  |  |
| 2021 |  |  |  |
| 2022 |  |  |  |

##### NSW

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  | 01/03/2004 |
| 2005 |  |  | 02/02/2005; 30/06/2005 |
| 2006 |  |  |  |
| 2007 |  |  | 08/06/2007; 02/10/2007; 08/10/2007 |
| 2021 |  | 18/03/2021 |  |
| 2022 |  | 22/02/2022 |  |

##### SA

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  |  |
| 2005 | 10/01/2005 |  | 02/02/2005 |
| 2006 |  |  |  |
| 2007 | 06/12/2007 |  |  |
| 2021 |  |  |  |
| 2022 |  | 21/01/2022 |  |

##### NT

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  | 01/03/2004 |
| 2005 |  |  |  |
| 2006 |  |  |  |
| 2007 |  |  |  |
| 2021 |  |  |  |
| 2022 |  |  |  |

##### QLD

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  | 01/03/2004 |
| 2005 |  |  | 02/02/2005 |
| 2006 |  |  |  |
| 2007 |  |  | 02/10/2007 |
| 2021 |  |  |  |
| 2022 |  | 21/01/2022 |  |

##### TAS

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  |  |
| 2005 |  |  | 02/02/2005 |
| 2006 |  |  |  |
| 2007 |  |  |  |
| 2021 |  |  |  |
| 2022 |  |  |  |

##### VIC

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  |  |
| 2005 |  |  |  |
| 2006 | 01/12/2006 |  |  |
| 2007 |  |  |  |
| 2021 |  |  | 07/06/2021 |
| 2022 |  |  |  |

##### WA

|  |  |  |  |
| --- | --- | --- | --- |
|  | Bushfires | Floods | Storms |
| 2004 |  |  | 01/03/2004 |
| 2005 |  |  | 16/05/2005 |
| 2006 |  |  |  |
| 2007 |  |  |  |
| 2021 | 01/02/2021 |  |  |
| 2022 | 05/02/2022 |  |  |

#### Coral Bleaching – Great Barrier Reef

Data for coral bleaching events were obtained from the Great Barrier Reef Marine Park Authority website and its ‘reef health updates’[[1]](#footnote-2)[[2]](#footnote-3). The weekly reef health reports document the health of the Great Barrier Reef indicating if coral bleaching is taking place and to what extent. Due to the significance of the Great Barrier Reef, the events were recorded as national events, meaning that coral bleaching was recorded for each state. Events of coral bleaching were recorded if moderate to severe bleaching occurred. This is compared to other instances of bleaching that may occur at ‘low-levels’ or ‘minor scattering’. These levels of bleaching are not thought to spike citizen’s attention to climate change. For example, such low-levels were reported in June – October 2020.

### Climate Advocacy Events

#### Climate Protests

Discussed by Hohenhaus et al. (2023), the most prominent youth climate strikes in Australia are those generated by the ‘School Strikes 4 Climate’, which is also known as ‘Fridays for Future’ in other parts of the world. As highlighted, other groups have also mobilized for climate, including the Australian Youth Climate Coalition and the Indigenous youth-led Seed Mob. Based on these previous findings, the database draws on the ‘school strikes for climate’ Facebook page and ‘Fridays for future’ strike statistic webpage. The protests were recorded at the state level. Additional climate protests were also uncovered between 2005 – 2011. These were included as they were touted as the largest climate protests in Australian history prior to the most recent school strikes from climate movement. These dates were collected primarily from the Australian Broadcasting Corporation news website, as well as The Age, Business Insider, and others[[3]](#footnote-4)[[4]](#footnote-5)[[5]](#footnote-6)[[6]](#footnote-7).

|  |  |
| --- | --- |
| **Date** | **State/Territory** |
| 11/2005 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 11/2006 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 11/2007 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 12/2008 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 12/2009 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 06/2011 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 11/2018 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 03/2019; 05/2019; 09/2019; 11/2019 | NT, VIC, NSW, QLD, SA, TAS, ACT, WA |
| 01/2020; 09/2020 | NT, VIC, NSW, QLD, SA, TAS, ACT, WA |
| 05/2021; 10/2021 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |
| 03/2022; 09/2022 | VIC, ACT, TAS, VIC, NSW, SA, NT, WA |

#### IPCC Assessment reports

Data on IPCC assessment reports was obtained from the official IPCC website[[7]](#footnote-8). Only synthesis reports and main reports were recorded. This is because synthesis reports are the reports that…

|  |  |
| --- | --- |
| **Date** | **Report Type** |
| 04/2022 | Report |
| 08/2021 | Report |
| 10/2014 | Synthesis Report |
| 09/2007 | Synthesis Report |

# 

# Regression Table Results

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 months | 1 months | 2 months | 3 months | 4 months | 5 months | 6 months |
| **UNFCCC COPs** | **-4.835\***  (0.013) | **-13.995\*\*\***  (6.66e-13) | **-8.17\*\*\***  (3.96e-05) | **4.558\***  (0.023) | 3.387  (0.087) | **9.072\*\*\***  (4.73e-06) | **9.269\*\*\***  (1.84e-06) |
| **National Elections** | **6.24\***  (0.028) | -1.627  (0.561) | **-5.49\***  (0.051) | -4.949  (0.081) | -0.613  (0.826) | -1.859  (0.505) | -2.102  (0.442) |
| **State Elections** | 3.469  (0.285) | -3.996  (0.212) | 5.041  (0.121) | -3.419  (0.297) | -5.722  (0.077) | 1.058  (0.743) | **7.479\***  (0.018) |
| **Bushfires** | -0.623  (0.815) | 1.682  (0.522) | 2.3  (0.383) | 1.684  (0.526) | 0.265  (0.919) | -2.613  (0.318) | -1.198  (0.641) |
| **Coral Bleaching** | 2.146  (0.318) | 0.264  (0.901) | 0.534  (0.800) | 1.259  (0.557) | -1.995  (0.346) | -0.461  (0.827) | -0.674  (0.745) |
| **Storms** | **9.975\*\***  (0.005) | 2.889  (0.411) | **-6.977\***  (0.048) | -2.551  (0.473) | -2.884  (0.411) | 2.279  (0.515) | 0.844  (0.806) |
| **Floods** | -7.398  (0.077) | -4.286  (0.299) | 1.705  (0.681) | 6.526  (0.118) | 1.241  (0.763) | -0.962  (0.815) | 2.929  (0.467) |
| **Climate Protests** | **12.835\*\*\***  (1.93e-11) | **7.009\*\*\***  (0.0002) | **4.508\***  (0.017) | **6.328\*\*\***  (0.0009) | **10.983\*\*\***  (1.47e-08) | **10.386\*\*\***  (8.10e-08) | **17.732\*\*\***  (<2e-16) |
| **UNFCCC Reports** | **9.502\***  (0.025) | **14.263\*\*\***  (0.0007) | **10.183\***  (0.016) | -2.67  (0.529) | **-10.011\*\***  (0.017) | -5.439  (0.202) | 6.992  (0.094) |

>0.001 \*\*\* >0.01 \*\* >0.05\*

# References

Hohenhaus, M, Rutherford, S, Boddy, J & Borkoles, E. (2023), Climate warriors down under: contextualizing Australia’s youth climate justice movement. *Npj Climate Action,* 2(45). doi: <https://doi.org/10.1038/s44168-023-00085-y>.

1. <https://www2.gbrmpa.gov.au/learn/reef-health/past-reef-health-updates> [↑](#footnote-ref-2)
2. Reef health updates were lowered by Covid-19 as surveying results of coral bleaching slowed due to travel restrictions and lower monitoring levels. [↑](#footnote-ref-3)
3. <https://www.abc.net.au/news/2018-11-30/australian-students-climate-change-protest-scott-morrison/10571168>; <https://www.abc.net.au/news/2019-03-14/politically-correct-teaching-to-blame-for-climate-change-strike/10897682>; <https://www.abc.net.au/news/2019-09-20/school-strike-for-climate-draws-thousands-to-australian-rallies/11531612>; <https://www.abc.net.au/news/2009-12-12/massive-turnout-for-walk-against-warming/2568466>; <https://www.abc.net.au/news/2020-01-10/bushfires-australia-protests-nationwide-sack-pm-scott-morrison/11857556>; <https://www.abc.net.au/news/2011-06-05/thousands-say-yes-at-carbon-price-rallies/2746710> [↑](#footnote-ref-4)
4. <https://www.theage.com.au/environment/big-numbers-warm-to-climate-cause-20091212-kpq2.html> [↑](#footnote-ref-5)
5. <https://www.businessinsider.com/australian-climate-protest-photos-videos-signs-melbourne-sydney-2019-9?r=US&IR=T#a-few-mentioned-the-melting-polar-ice-caps-5> [↑](#footnote-ref-6)
6. <https://www.safecom.org.au/walk-against-warming.htm>; <https://climateandcapitalism.com/2007/11/12/australians-walk-against-warming/> [↑](#footnote-ref-7)
7. <https://www.ipcc.ch/reports/> [↑](#footnote-ref-8)