

University of Groningen

Climate change and group dynamics

Postmes, Tom

Published in:
Nature climate change

DOI:
[10.1038/nclimate2537](https://doi.org/10.1038/nclimate2537)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2015

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Postmes, T. (2015). Climate change and group dynamics. *Nature climate change*, 5(3), 195-196.
<https://doi.org/10.1038/nclimate2537>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

PSYCHOLOGY

Climate change and group dynamics

The characteristics and views of people sceptical about climate change have been analysed extensively. A study now confirms that sceptics in the US have some characteristics of a social movement, but shows that the same group dynamics propel believers.

Tom Postmes

A minority of the public are sceptical about the idea that humans cause climate change. This has received a lot of attention in the media as well as in scientific research. Many became concerned when scepticism — a marginal phenomenon in many countries across the globe — increased in the US and a few other (mainly anglophone) countries towards the end of the 2000s¹. Research into the causes of US scepticism has pointed to links with party politics, polarization (that is, conflictual relations between republicans and democrats) and the involvement of conservative think-tanks. Writing in *Nature Climate Change*, Bliuc and colleagues² now show that sceptical US citizens see themselves as part of a sceptic movement. This means that their actions are determined not just by their individual beliefs and political views, but also by a shared social identity and by competition with believers. But importantly, Bliuc *et al.* show that those who believe in climate change also act as members of a group. This finding suggests that to cope with the climate change contrarian movement, efforts on education, persuasion or political messages will not suffice. To convince a sceptical public, believers need to harness knowledge about social movements and intergroup conflict reduction.

Interest in sceptics, their views and tactics has increased sharply in recent years. I conducted a basic search of articles mentioning climate change and/or global warming in conjunction with the words scepticism, denial, denial and/or contrarians on Web of Science and identified 226 papers published since 2000. Of these, 121 analysed scepticism itself, with the vast majority (112) published since 2010 (Fig. 1).

Roughly a quarter of the studies of scepticism (31) focus on sceptic discourse and in particular on the tactics, methods and arguments used by sceptics in the media, blogosphere and books. The remaining studies address scepticism in the public (dark blue bars in Fig. 1). A large group of studies (38) describes the scope and nature

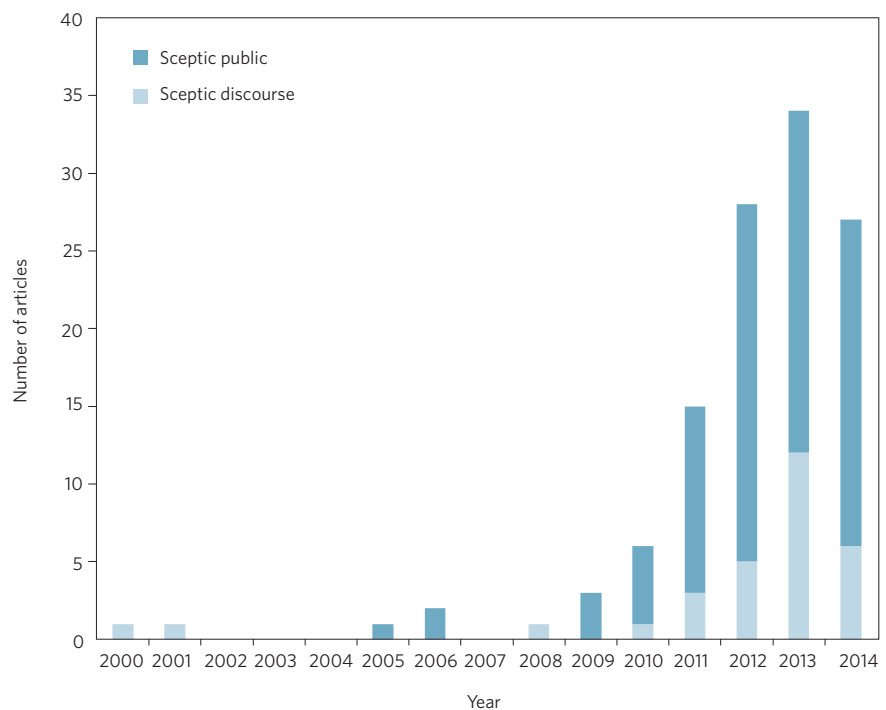


Figure 1 | The number of scientific articles investigating climate scepticism among the public, or through analysis of discourse in media or books. Counts were made of a convenience sample of studies identified through a search of Web of Science (accessed 8 January 2015) of articles using the words (sceptic*, denial*, denier*, and/or contrarian*) and (climate change or global warming) — asterisks were used as wildcards in the search. Author conducted the search and coded the articles.

of scepticism. They chart the evolution of scepticism over time and make international comparisons. Another set (19) examines how scepticism is related to other variables, showing that scepticism is associated with conservative political ideology and individualism. Some studies examine predictors (14) of climate scepticism, showing, for example, that scepticism increases when confidence in science is eroded³. And finally, some analyse the consequences of climate change scepticism (12) and report, for example, that sceptics may process news reports in a biased way⁴.

Bliuc and colleagues² take a broader look at the climate change contrarian movement by surveying not just sceptics,

but also believers. They examine the psychological and social motivations of both groups. In line with research on participation in social movements and collective action, they show that three factors together predict intentions to act and actual behaviour: identification with the own group (or ingroup), efficacy of the ingroup and anger towards the other group (or outgroup)^{5,6}. These three are related: they revolve around the awareness of 'us' in opposition to 'them' with very clear boundaries between groups. This is evidence that sceptics as well as believers act on the basis of a politicized social identity as member of a broader movement: they display 'group consciousness'.

The implications of this contribution are important. It confirms that sceptics tend to see themselves as a community with a shared identity. But this is also true for believers, a category into which many scientists fall. The findings of Bliuc *et al.* are a clear signal that the one-sided focus on sceptics needs to change. As with any conflict between two groups, efforts should be directed to prevent escalation, improve the relationships, and focus on the dynamics within groups that prevent progress.

The prevention of further escalation of conflict may be particularly important for climate scepticism: past research suggests that polarization strengthens scepticism⁷. In the case of social movements, conflict reduction is more likely if one knows the different factions that tend to exist within the movement, maintains dialogue, is open to engagement and collaboration wherever possible, and never treats different factions as though they are all the same⁸.

The improvement of relations between groups partly depends on believers being able and willing to engage with climate sceptics and to jointly move towards pro-environmental action. Only a few studies (3 in this sample) have analysed whether this would be possible, and they generally are critical of current attempts to persuade

sceptics. The alternatives they suggest all focus on new ways of communicating with sceptics: by focusing on future scenarios, including sceptics in collective deliberation and social movements, or by collaborating with them toward joint goals for society⁹. These all echo well-known approaches that try to decrease conflict between groups by collaborating on superordinate goals.

A final way of reducing intergroup conflict reflects on the dynamics within groups that prevent progress. The reason people feel they belong to movements is partly because the image of two irreconcilable camps is promoted both by the media but also on each side of this divide. In an atmosphere of conflict, people tend to talk badly about the outgroup as a way of expressing solidarity with their own side. The mantra among believers, for example, is that climate change contrarians ignore a unanimous community of scientists. But research suggests that both images are wrong. There is never complete agreement even among scientists, so depicting climate scientists as 100% unanimous on the causes of climate change is counterproductive¹⁰. Similarly, sceptics are not one block united against science: there are many different reasons for scepticism, doubt or uncertainty about

climate change¹¹. The results of Bliuc *et al.* show that future research and theorizing can make a major advance by studying how this head-to-head clash between social movements (whether real or imagined) can be avoided and resolved: understanding group dynamics will help to change beliefs about climate change. □

Tom Postmes is in the Department of Social Psychology, University of Groningen, Grote Kruisstraat 2, 9712 TS Groningen, the Netherlands. e-mail t.postmes@rug.nl

References

1. Capstick, S., Whitmarsh, L., Poortinga, W., Pidgeon, N. & Upham, P. *WIREs Clim. Change* **6**, 35–61 (2015).
2. Bliuc, A.-M. *et al. Nature Clim. Change* **5**, 226–229 (2015).
3. Hmielowski, J. D., Feldman, L., Myers, T. A., Leiserowitz, A. & Maibach, E. *Publ. Underst. Sci.* **23**, 866–883 (2014).
4. Corner, A., Whitmarsh, L. & Xenias, D. *Climatic Change* **114**, 463–478 (2012).
5. Rees, J. H. & Bamberg, S. *Eur. J. Soc. Psychol.* **44**, 466–473 (2014).
6. Duncan, L. E. in *The Oxford Handbook of Personality and Social Psychology* (eds Deaux, K. & Snyder, M.) 781–803 (Oxford Univ. Press, 2012).
7. McCright, A. M. & Dunlap, R. E. *Sociol. Q.* **52**, 155–194 (2011).
8. Reicher, S. *et al. Policing* **1**, 403–415 (2007).
9. Bain, P. G., Hornsey, M. J., Bongiorno, R. & Jeffries, C. *Nature Clim. Change* **2**, 600–603 (2012).
10. Bray, D. *Environ. Sci. Policy* **13**, 340–350 (2010).
11. Poortinga, W., Spence, A., Whitmarsh, L., Capstick, S. & Pidgeon, N. F. *Glob. Environ. Change* **21**, 1015–1024 (2011).

Published online: 2 February 2015

POWER SYSTEMS

Carbon negative at the regional level

Modelling of the power system on the west coast of North America shows that including bioenergy with carbon capture and sequestration technologies could enable the region to be carbon negative by 2050.

Nico Bauer

Investigating decarbonization pathways is a key component of informing policymakers and society about the potential for mitigating climate change. Several model-based studies have explored decarbonization scenarios for national, regional and global power sectors^{1,2}. However, although the need to include negative CO₂ emissions in such analyses has been recognized in global energy sector studies, few national or regional models have included negative-emission technologies^{3,4}. Writing in *Nature Climate Change*, Daniel Sanchez and colleagues present findings that are of interest far beyond the boundaries of the power sector in the west coast region of North America that they studied⁵. The

authors map out the potential for the area's CO₂ emissions to be reduced by 2050, including what would be required to achieve net negative levels.

Sanchez and colleagues used an extension of the SWITCH power-sector model⁶, assessing with a high level of spatial detail the region's bioenergy supply, which comprises mostly forestry and agricultural residues, and considering various technologies for electricity generation, including bioenergy with carbon capture and storage (BECCS). The authors present implications for the regional power sector and derive marginal abatement costs associated with deep emission reductions and even negative emissions (to –145%) in 2050 compared with 2020 levels.

BECCS is a highly debated technology option⁷ that offers, like afforestation, the possibility of removing CO₂ from the atmosphere. The IPCC's Working Group III concluded that the development of CO₂ removal technologies and their large-scale deployment is crucial to any scenario under which there is a high likelihood of keeping global warming below 2 °C (ref. 8). This conclusion was derived from a large body of scientific literature that applied a set of global integrated assessment models (IAMs) projecting alternative futures until 2100⁹, most of which focussed on BECCS as the key option for CO₂ removal. The availability of BECCS and a high supply of lignocellulosic material for bioenergy are projected to be critical requirements for