Report on AVOID final symposium

Authors: Fiona Hewer, Paul van der Linden, Jason Lowe, Simon Buckle, Simon Bailey, Rachel Warren, Nigel Arnell, Maria Noguer, Andrew Watkinson

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   4. Web links for symposium output
   5. Participant feedback
   6. Quotes [about the AVOID programme from delegates]

Front cover: the word cloud on the was generated using text from this report and the symposium flyer.
1. Introduction

The AVOID symposium was an event marking the finale of the AVOIDing dangerous climate change research programme. Since 2009, 120-or-so scientists from the Met Office Hadley Centre, Grantham Institute, Tyndall Centre, Walker Institute and elsewhere conducted scientific research to address the policy relevant questions:

- What levels of climate change are potentially dangerous?
- What emissions pathways will avoid “dangerous” climate change?
- What is the technical and economic feasibility of such pathways?

The programme featured key note addresses from the Secretary of State for Energy and Climate Change the Rt. Hon Edward Davey and the Government Chief Scientific Adviser, Sir John Beddington who set the context of climate change science and policy. Four AVOID programme four science leaders gave a presentation summarising the key scientific results from the programme, drawn from some of the 26 published papers and 50 or so technical reports (available at [www.metoffice.gov.uk/avoid/resources-researchers](http://www.metoffice.gov.uk/avoid/resources-researchers)). An overview of the programme and some scientific results were presented in a four-page symposium flyer (available at [http://www.metoffice.gov.uk/media/pdf/r/a/Symposium_flyer.pdf](http://www.metoffice.gov.uk/media/pdf/r/a/Symposium_flyer.pdf)). The main session concluded with a panel discussion on the future prospects for international climate negotiations, UK climate policy and climate science. Participants were then able to join a networking reception where the DECC 2050 pathways calculator was demonstrated. The programme is given in Appendix 3.

This ‘closing event’ enabled the programme team to present key results reflecting the cutting edge of current climate change research to policymakers and the academic community. It also allowed a discussion of the status of science and climate negotiations, and future potential directions for subsequent research. Communication of climate science with the public and policy makers was a thread that ran through the event. The AVOID programme will produce further journal papers in the coming months. It will also create a ‘High Level Results’ report, reflecting on this event and across the whole research programme.

The event programme, presentations and scientific results flyer are all available at [www.metoffice.gov.uk/avoid/news](http://www.metoffice.gov.uk/avoid/news)

2. Results presented on AVOIDing dangerous climate change

David Warrilow welcomed participants and introduced the Government Chief Scientific Adviser, Sir John Beddington (slides available to download at [www.metoffice.gov.uk/avoid/news](http://www.metoffice.gov.uk/avoid/news)). He began by reiterating the basic evidence that human-induced greenhouse gas emissions are causing climate change and will continue to do so. He then focused on communication of climate change science, and how to convince the lay person and politicians that they need to take account of climate change. The drought early in 2012 and the flooding events in some regions later in the year, in what was overall an average rainfall year was a good way to explain the difference between average and variability. Sir John highlighted the need to communicate risk and impacts to non-scientists, calling for more effort in attribution studies which are essential in communication with policy makers. He explained how policymakers, especially in the UK, were discussing the impact and relative likelihood of events. Citing climate dependent risks from the UK National
Risk Register, Sir John illustrated the important need for information on potential increases in impact severity or likelihood of an event due to climate change. The role of climate change globally as an escalator of food insecurity, water stress and lack of access to energy was emphasized.

David Warrilow then introduced the AVOIDing dangerous climate change research programme. He explained the origins of the research questions from Article 2 of the UNFCCC objectives

“...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...

Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. “

He introduced the four science leaders of the AVOID programme: Dr. Jason Lowe, Met Office Hadley Centre; Prof. Nigel Arnell, Walker Institute; Dr. Simon Buckle, Grantham Institute for Climate Change at Imperial College; Dr. Rachel Warren, Tyndall Centre. The science leaders gave a presentation on a key results from the programme, which are summarised in the following section. The slides are available at [www.metoffice.gov.uk/avoid/news](http://www.metoffice.gov.uk/avoid/news) as is the scientific results flyer which explains more about the programme and its research. After the presentations there were questions and comments from the audience on the need to present shorter term results to engage interest, how to get across that a 4 °C global temperature rise above pre-industrial levels is not an acceptable option, and there was a discussion about why some economic models looking at climate change mitigation have lower costs or benefits than others. It was considered that recent extreme weather events might be a good way to explain the severity of the impacts of climate change with 4 °C global temperature rise and that people can more readily comprehend impacts by comparison to the type of extreme events they have witnessed/experienced. It was also commented that it was sometimes helpful to think of long and shorter timescales together because of the importance of resilience in the near term and emissions reduction in the near term to prevent greater impacts in the longer terms.

The meeting was pleased to be joined by the Secretary of State for Energy and Climate Change the Rt Hon Edward Davey, who addressed the meeting and stayed on to take questions from the audience before having to return to Parliament for a vote. The full text of his speech is available at [https://www.gov.uk/government/speeches/edward-davey-speech-to-the-avoid-symposium-at-the-royal-society](https://www.gov.uk/government/speeches/edward-davey-speech-to-the-avoid-symposium-at-the-royal-society). He said of the research:

“[The AVOID programme] has been an impressive demonstration of successful collaboration between academia and Government. And it has had concrete outcomes. For example, materially supporting the UK’s international engagement and informing our negotiating position at Copenhagen and beyond; Contributing to the UN’s Environmental Programme with robust, credible and timely research; And supporting the setting of our carbon budgets.”

During the questions, the Secretary of State emphasised the importance of policy to support economic growth, and the need to engage with some countries who were lagging behind in the negotiating process. He was encouraged by ‘Obama 2’ and the new Chinese ‘ecological administration’ and asked scientists to
contribute to achieving the legal framework called for by the Durban Platform. He explained in detail his approach to the 2014 carbon budget.

There was media coverage of the Secretary of state’s speech. The Telegraph picking up on his criticism of climate change ‘deniers’ and his description of the USA Today cartoon trending on Twitter “what if it’s a big hoax and we create a better world for nothing?” (See: http://www.gocomics.com/joelpett/2009/12/13/ - although this cartoon is simplistic and ignores other relevant factors it does make a point).

The Secretary of State for Energy and Climate Change the Rt Hon Edward Davey addressing delegates at the AVOID symposium.

In the final formal session of the day Nick Mabey chaired a discussion panel with Pete Betts, Jim Skea and Julia Slingo. The chairman opened by describing the range of approaches to using scientific information in decision making from optimisation and risk management to worse case scenarios. Pete Betts opened by explaining that the negotiations had achieved a lot but it was only half what was required altogether. Climate impacts should be described in ways that resonate with people i.e. near-term, granular. Stranded assets – assets that become unusable or uneconomic due to climate change - was an important current topic. Jim Skea described the need for the UK to decarbonise electricity generation, become more energy efficient and implement electrification to meet its climate mitigation targets. There was a need to address carbon intensity to attract investment, and for Carbon Capture and Storage. New cars were achieving greater fuel efficiency than had been expected. Sectoral approaches to decarbonisation were putting undue pressure on ‘easy’ sectors. There was a need for more information on the wider sustainability impacts of climate policy. Julia Slingo felt that the science had a long way to go. There were important questions about the regional and local impacts of climate change, and hazardous weather and climate
extremes. Improved understanding and better communication about weather and climate volatility were needed. There was a role for high resolution modelling and supercomputing in addressing these questions.

3. Take home messages

Snapshot of some recent key results

- The 2 °C warming limit is achievable with a 50% chance with a peak in emissions in the next few years followed by rapid long-term reductions in emissions.
- The later the emissions peak, the more likely that techniques to remove carbon dioxide from the atmosphere will need to be developed and employed to limit warming to 2 °C.
- The transition to a low carbon economy, which is necessary to limit warming, appears challenging but is still technologically and economically feasible.
- This transition would require a combination of decarbonisation of the industrial, transport and buildings sectors and energy efficiency measures.
- Climate mitigation policy that limits 21st century global warming to 2 °C avoids significant harmful climate change impacts.
- The later the emissions peak, the more time for implementing adaptation is available.
- Tough limits on global emissions of greenhouse gases could avoid 20 to 65% of the damaging effects of climate change by 2100 relative to a business-as-usual pathway which reaches 4 °C by 2100.
- Climate change impacts over the century, and the extent to which tough limits on global emissions could avoid them, are distributed unevenly by system, sector, region, and by timing of impact.

Communication of climate science was raised at several points during the event:

- Scientists need to keep repeating the basic evidence that fossil fuel burning is changing the climate, even though there is scientific consensus on cause and occurrence of global warming. This repetition is needed to rebut misinformation in the media and elsewhere, and build trust in science and increase public understanding.
- Communication of climate change science is more effective when it is personalised, localised and imminent
- Civil contingency issues are a good point of engagement on climate science with policy makers
- Decisions in government and business are almost never made in possession of all the relevant facts because they are not normally known. Therefore, decisions are normally made based on uncertain information. In a democracy, elected officials make the final decisions, but scientific experts have a role to play in giving their judgement of the relative risks.

4. Feedback

The AVOID symposium attracted 90 participants from Government departments and their agencies (about 45), academic organisations (about 30), foreign embassies, research councils and NGOs. 14 submitted feedback forms. The feedback was overwhelmingly positive (see Appendix 5 for the collated responses).
The most positive response to the tick box questions was that 9/14 ‘strongly agreed’ that the event was useful; 5 ‘agreed’ that it was useful and no-one was neutral or disagreed. The least positive response was to the statement ‘the event was of the right length’: 1 disagreed, 1 was neutral, 8 agreed and 4 strongly agreed. The comments suggest interest and engagement on the scientific, political and science communication issues raised by the event.

5. Appendices

1. AVOID symposium steering group
2. Attendees at the AVOID symposium
3. AVOID symposium programme
4. Web links for symposium output
5. Participant feedback
6. Quotes about the AVOID programme from delegates
APPENDIX 1: AVOID symposium steering group

<table>
<thead>
<tr>
<th>Prof.</th>
<th>Nigel</th>
<th>Arnell</th>
<th>Walker Institute</th>
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<tr>
<td>Dr</td>
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<td>Dr</td>
<td>Simon</td>
<td>Buckle</td>
<td>Grantham Institute for Climate Change</td>
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<td>Dr</td>
<td>Jolene</td>
<td>Cook</td>
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<td>Ms</td>
<td>Fiona</td>
<td>Hewer</td>
<td>Fiona’s Red Kite</td>
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<td>Dr</td>
<td>Jason</td>
<td>Lowe</td>
<td>Met Office</td>
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<tr>
<td>Dr</td>
<td>Maria</td>
<td>Noguer</td>
<td>Walker Institute, University of Reading</td>
</tr>
<tr>
<td>Mr</td>
<td>Paul van der</td>
<td>Linden</td>
<td>Met Office</td>
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<tr>
<td>Dr</td>
<td>Rachel</td>
<td>Warren</td>
<td>Tyndall Centre</td>
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<tr>
<td>Prof</td>
<td>Andrew</td>
<td>Watkinson</td>
<td>LWEC</td>
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</tbody>
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APPENDIX 2: Attendees at the AVOID symposium

1. Prof. Nigel Arnell Walker Institute
2. Dr Simon Bailey Grantham Institute for Climate Change
3. Mr Tom Bain DECC
4. Ms Laura Bates Department of Energy and Climate Change
5. Sir John Beddington BIS
6. Dan Bernie Met Office Hadley Centre
7. Mr Pete Betts Department for Energy and Climate Change
8. Ms Elizabeth Bolton Energy and Climate Change Committee, House of Commons
9. Miss Briony Bowe Department of Energy and Climate Change
10. Dr Simon Buckle Grantham Institute for Climate Change
11. Jane Burston NPL
12. Ms Fiona Carroll Met Office
13. Mr Andy Chalmers DECC
14. Miss Amanda Charles Government Office for Science
15. Dr Michael Clark DECC
16. Dr Jolene Cook DECC
17. Dr Kirstine Dale Met Office
18. Ed Davey DECC
19. Dr Olivier Dessens University College London
20. Dr Simon Duffield Natural England
21. Mr Chris Duffy Grantham Research Institute, LSE
22. Dr Tyrone Dunbar Met Office
23. Mr Duncan Eggar BBSRC
24. Dr Bernd Eggen Health Protection Agency
25. Dr Michael Ellis British Geological Survey
26. James Foster DECC
27. Mr Paul Freeman Department of Energy & Climate Change
28. Mr Ajay Gambhir Imperial College London
29. Su-Lin Garbett-Shiels DFID
30. Dr Simon Gosling The University of Nottingham
31. Prof Ian Gough LSE
32. Dr Jonathan Graves Department of Health
33. Dr Tony Grayling Environment Agency
34. Mr Barry Gromett Met Office
35. Mr John Harmer Met Office
<table>
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<tr>
<th>No.</th>
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<tr>
<td>36</td>
<td>Mrs Sophie Hartfield</td>
<td>DECC</td>
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<td>37</td>
<td>Miss Lucy Hayes</td>
<td>DECC</td>
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<tr>
<td>38</td>
<td>Ms Fiona Hewer</td>
<td>Fiona's Red Kite</td>
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<td>39</td>
<td>Miss Naomi Hicks</td>
<td>Grantham Research Institute</td>
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<tr>
<td>40</td>
<td>Mr Neil Hirst</td>
<td>Grantham Institute, Imperial College</td>
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<td>41</td>
<td>Sir Brian Hoskins</td>
<td>Grantham Institute Imperial</td>
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<td>42</td>
<td>Dr Ruth Hughes</td>
<td>Natural Environment Research Council (NERC)</td>
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<td>43</td>
<td>Mr James Hughes</td>
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<td>44</td>
<td>Mr Tatsuya ITO</td>
<td>Embassy of Japan</td>
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<td>45</td>
<td>Miss Rachel James</td>
<td>University of Oxford</td>
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<td>46</td>
<td>Tamara Janes</td>
<td>Met Office</td>
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<td>47</td>
<td>Dr Cathy Johnson</td>
<td>DECC</td>
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<td>48</td>
<td>Tim Kruger</td>
<td>University of Oxford</td>
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<td>49</td>
<td>Professor Corinne Le Quéré</td>
<td>Tyndall Centre for Climate Change Research</td>
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<td>50</td>
<td>Mr Tom Leveridge</td>
<td>House of Commons</td>
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<td>51</td>
<td>Ms Kirsty Lewis</td>
<td>Met Office Hadley Centre</td>
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<td>52</td>
<td>Jason Lowe</td>
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<td>53</td>
<td>Nick Mabey</td>
<td>E3G</td>
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<td>54</td>
<td>David Mackay</td>
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<td>55</td>
<td>Ms Kathy Maskell</td>
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<td>56</td>
<td>Sarah Miller</td>
<td>ICCEE/DECC</td>
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<td>Lorna Mitchell</td>
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<td>58</td>
<td>Rear Admiral Neil Morisetti</td>
<td>FCO</td>
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<td>59</td>
<td>Miss Paula Newton</td>
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<td>Dr Maria Noguer</td>
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<td>Atsushi Oku</td>
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<td>62</td>
<td>Mr Dan Osborn</td>
<td>NERC</td>
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<td>63</td>
<td>Cdr Richard Pethybridge</td>
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<td>64</td>
<td>Nicola Ranger</td>
<td>LSE/DFID</td>
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<td>65</td>
<td>Dr Sarah Raper</td>
<td>Manchester Metropolitan University</td>
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<td>66</td>
<td>Mr Mathew Richardson</td>
<td>Met Office</td>
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<td>67</td>
<td>Dr Mattia Romani</td>
<td>GGGI</td>
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<td>68</td>
<td>Dr James Rydge</td>
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<td>69</td>
<td>Emily Shuckburgh</td>
<td>British Antarctic Survey</td>
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<td>70</td>
<td>Ms Ioanna Sikiaridi</td>
<td>Grantham Research Institute, LSE</td>
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<td>71</td>
<td>Prof Jim Skea</td>
<td>Imperial College London</td>
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<td>72</td>
<td>Julia Slingo</td>
<td>Met Office</td>
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<td>73</td>
<td>Ms Mandy Solomon</td>
<td>South African High Commission</td>
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<td>74</td>
<td>Mr Chris Taylor</td>
<td>DECC</td>
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<td>Erica Thompson</td>
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<td>Mr Paul van der Linden</td>
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<td>82</td>
<td>Prof Jim Watson</td>
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<td>Dr Olly Watts</td>
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<td>84</td>
<td>Mr Tim Williamson</td>
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<td>Dr Phillip Williamson</td>
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<td>Ms Sally Wolkowski</td>
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<td>Ken Wright</td>
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<td>89</td>
<td>Anne Yael</td>
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<tr>
<td>90</td>
<td>Miss Ruby Yau</td>
<td>Foreign Office</td>
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APPENDIX 3: AVOID symposium programme

AVOID Symposium Programme

"The AVOID final symposium aims to showcase programme research results to high-level government policymakers, senior researchers, and key representatives from research bodies and the business world. It will also demonstrate the strength of the ‘AVOID approach’.*"

Venue: The Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG
Date: 12 Feb 2013, 13.30 to 17.00, with an evening reception until 19.00

**AVOID Symposium Programme:**

**13:00** Registration. Tea and coffee

**13:30** Welcome, David Warrillow, DECC

**13:35** Session 1: Avoiding Dangerous Climate Change

Key note address: Prof. Sir John Beddington CMG FRS, Government Chief Scientific Adviser

**13:55** Results of the AVOIDing dangerous climate change research programme

Dr. Jason Lowe, Met Office Hadley Centre
Prof. Nigel Arnell, Walker Institute
Dr. Simon Suckling, Grantham Institute for Climate Change at Imperial College
Dr. Rachel Warren, Tyndall Centre

**14:55** Questions and discussion chaired by David Warrillow, DECC

**15:25** Session 2: Challenges for future research and climate change policy

Key note address: The Rt Hon Edward Davey MP, Secretary of State for Energy and Climate Change

**15:45** Short break

**15:55** Prospects for international climate negotiations, Pete Betts, Director of International Climate Change, Department of Energy and Climate Change

**16:00** Prospects for UK domestic policy, Prof. Jim Skea, Committee on Climate Change

**16:05** Future research to support policy, Prof. Julia Slingo OBE, Chief Scientist, Met Office

**16:10** Q&A session chaired by Nick Mabey, Chief Executive, E3G

**16:30** Closing remarks

**17:00** Networking reception including a demonstration of the DECC 2050 Pathways Calculator and a poster exhibition

**19:00** CLOSE
APPENDIX 4: Web links for symposium output

AVOID symposium (presentations, programme and flyer): www.metoffice.gov.uk/avoid/news

Video of Sir John Beddington keynote: http://youtu.be/c7tw9e9MoD4


Video of presentations: http://youtu.be/RL-jcrBMGM8

Video of panel discussion chaired by Nick Mabey: http://youtu.be/4b4-sPMU_i4

AVOID website (for the whole programme): www.metoffice.gov.uk/avoid

APPENDIX 5: Participant feedback

15 replies received

About the event – please tick a box

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<tr>
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<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
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<td>I found the content easy to understand</td>
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<td>11</td>
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<tr>
<td>The material covered was relevant to my work</td>
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<td>The venue was appropriate for this event</td>
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<td>6</td>
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<tr>
<td>The event was of the right length</td>
<td>5</td>
<td>8</td>
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What are the key messages that you took out from the event?

The need to cut emissions, and the role of good communication in achieving this – Met Office
The rate of dangerous climate change is undimmed – Environment Agency
Potential for avoided impacts, if 2oC limit achieved. Challenge of achieving the 2oC limit. Need to take fresh approach to communicating climate change science – DECC
Still a lot of uncertainty exists. Interesting to also look at regional/local scale – Grantham institute/LSE
That the priority of the minister is to trigger green growth (or not be left out), which needs far more
information on economics and social behaviour – Tyndall Centre
Importance of the science in developing communications to the wider network. Need to relate the recent events/evidence as much as possible - FCO
UK will keep leading international climate change legislation in EU – Japan Embassy
Achieving the 2oC target will be extremely difficult. That the AVOID programme provides some answers but not all. That competitive edge is not lost by being in the forefront of the drive for a greener economy – MOD
The science is settled but we haven’t yet worked out how to best communicate science - Academic
Anything above 2oC not acceptable – GO Science
We’re at the brink, sleepwalking to an awful prospect. Need much better communications to make climate change a well known and discussed society/public issue – NGO
We are losing the communications battle – key challenge. - Natural England
Better timescales for communication of impacts – BGS
The next couple of years are critical (but it may be too late to avoid dangerous climate change) - NERC

Which was the most useful part of the event?
As a scientist familiar with the climate science of AVOID I was more interested in the political processes (with which I wasn’t as familiar) – Met Office
Holistic approach to building the . Secretary of State also good – Environment Agency.
The overview of the main findings from AVOID – DECC
The ministers talk of the AVOID presentations – Tyndall Centre
Q&A and panel discussion - Grantham institute/LSE
Q&A were best to sense current thoughts and concerns within the scientific community – FCO
Secretary of state – Japan embassy
Chief Scientist talk – GO Science
The discussion and presentation of and about the AVOID programme – MOD
Biodiversity impacts research – Academic
The science behind 2C, mitigation needs – NGO
General scientific update – Natural England
Ed Davey's speech – as political context - NERC

What didn’t you like?
Discussion/question periods far too short.

About you - your response is confidential.

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<th>Business</th>
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APPENDIX 6: Quotes

Secretary of State for Energy and Climate Change the Rt. Hon Edward Davey said of the research:

“[The AVOID programme] has been an impressive demonstration of successful collaboration between academia and Government. And it has had concrete outcomes. For example, materially supporting the UK’s international engagement and informing our negotiating position at Copenhagen and beyond; Contributing to the UN’s Environmental Programme with robust, credible and timely research; And supporting the setting of our carbon budgets.”

DECC Chief Scientific Advisor, Professor David Mackay:

“Through AVOID, leading institutions and scientists have collaborated to deliver timely, robust, multidisciplinary research findings to inform the UK Government’s position at the UNFCCC negotiations. This ambitious, cross-cutting programme has successfully linked the UK’s science base to policy-makers and is an excellent model for other projects to consider emulating.”

Government Chief Scientific Advisor, Sir John Beddington:

“The AVOID programme is an excellent example of how it is possible to leverage academic research to support policy and decision-making. It has been extremely successful.”