

**NOTES OF
Interim Telecon: EXPERT PANEL ON NATURAL HAZARDS – Meteorological and Coastal
Flood Hazards Sub-Panel**

DATE: Tuesday 31 March 2020

OBJECTIVES

- Introduce [REDACTED] to the Expert Panel
- Discuss Climate Change webpage and Newsletter
- Review of Research paper on Extreme Weather events in the UK and TAG13

ATTENDEES:

[REDACTED]

Apologies: [REDACTED]

Actions

No	ACTION	Responsible
1/4a	Present on evolving “High-end climate scenarios” at the next Expert Panel meeting.	[REDACTED]
2/4a	Provide ideas, input and feedback for the ONR webpage on Climate Change to [REDACTED]	All
3/4a	Produce the first draft of the “Research Briefing” and circulate to the Panel for comments.	[REDACTED] All
4/4a	Send link to the Defra and NERC guide to producing quick scoping reviews and rapid evidence assessments.	[REDACTED]
5/4a	Review the paper “Extreme Weather events in the UK”	[REDACTED]
6/4a	Include comments from [REDACTED] and [REDACTED] and incorporate the messages from [REDACTED] presentation into the final version of [REDACTED] paper “Extreme Weather events in the UK”	[REDACTED]
7/4a	Produce a scope of work outlining the next steps for the “Extreme Weather events in the UK” work, including whether a further research project is needed, and [REDACTED] and [REDACTED] to have a conversation offline.	[REDACTED]
8/4a	Share the proposed text on space weather for Annex 2 Expert Panel (EP) paper with [REDACTED] and [REDACTED] for comment. Finalise the Annex 2 Expert Panel paper.	[REDACTED]

9/4a	Telecon with ██████ to appraise ██████ of the changes to the Annex 2 EP paper.	████████████████████
10/4a	Contact ██████ to discuss whether the Annex 2 ██████ paper will be reviewed by the Met Office	████
11/4a	Provide comments on the Annex 3 EP paper	████
12/4a	Finalise Annex 3 EP paper and make any necessary updates to Annex 3	████████

The agenda is included as an appendix. PowerPoint (ppt) presentations can be found at 2020/102925.

1. Introduction

█████ welcomed everyone and explained that, owing to the postponement of the Expert Panel meeting on 19th-20th March, it was important to hold this telecon to discuss the most pressing issues. ██████ added that one of the advantages was that ██████ was able to join us, and ██████ welcomed ██████ to the meeting. ██████ invited introductions and reminded everyone that it was important to stick to the agenda (see appendix to these notes) as we had a lot to discuss in a limited time frame. ██████ reported that ██████ would be moving tomorrow to work with ██████, ██████, and that ██████ would be taking over the day-to-day running of the Expert Panel but ██████ would continue to chair it. ██████ gave a brief introduction to the Panel and explained that ONR's Expert Panel on Natural Hazards consisted of the Meteorological and Coastal Flood Hazards sub-panel and the Seismic Hazards sub-panel. ██████ added that each sub-panel usually meets once a year and their main purpose was to provide expert advice to ONR, peer review any research undertaken and provide input to TAG13 and any supporting papers. ██████ reported that ██████ would be involved in a meeting next week to introduce ██████ to the External Hazards team and the work of ONR together with an External Hazards "Keep in touch" meeting scheduled for May.

█████ thanked ██████ and emphasised that everything that is discussed here, together with the presentations, are subject to FOIs, and ██████ advised everyone to treat everything they write or present as if it will be released. ██████ invited ██████ to give ██████ introduction. ██████ gave an in-depth review of ██████ experience and the projects ██████ had been involved in throughout ██████ career. ██████ highlighted some of the recent projects "RECEIPT", "AquaCAT" and "European Climate Services (H2020)" and reported that ██████ would be able to keep the Panel apprised of any developments in these areas. ██████ said that ONR is interested in how "High-end climate scenarios" are evolving and ██████ suggested that it would be useful to have presentations from ██████ on this topic at the next meeting.

████████████████████ to present on evolving "High-end climate scenarios" at the next Expert Panel meeting (Action 1/4a).

2. ONR Climate Change Webpage

█████ invited ██████ to give an overview of the layout and design of the ONR "Climate Change" webpage that is being developed. This webpage will be part of ONR's website. ██████ said that the aim of the webpage was to provide information to the public on how ONR ensures that nuclear licensed sites remain safe against the effects of climate change. The webpage will include answers to frequently asked questions, references, links to ONR guidance (including TAG13, SAPs, UKCP18 Position Statement and the ONR and EA Joint Advice Note on the 'Principles for Flood and Coastal Erosion Risk Management'),

together with links to new research. [REDACTED] added that they would be including a link to the [ONR webinar on External Hazards](#) which provides a useful overview. The page would also help ONR respond to FOIs. [REDACTED] suggested a “latest news” section and [REDACTED] agreed this was a good idea. This is discussed further in the next agenda item. [REDACTED] said that the FAQs should have a short response as most of the detail can be found in ONR’s guidance which will be linked. [REDACTED] asked for everyone to provide some ideas, input and feedback. [REDACTED] reported that the webpage had been requested by [REDACTED] (ONR Chief Executive) as a result of questions raised by NGOs and the Public. [REDACTED] added it was important to provide this information and that it raised the profile of the Panel.

All to provide ideas, input and feedback for the ONR webpage on Climate Change to [REDACTED] (Action 2/4a).

3. Climate Change – Newsletter

[REDACTED] introduced the idea of a climate change newsletter and said that cutting edge research should be included. [REDACTED] added that ONR has started to develop a template and that the intent is not to produce a newsletter as such but provide a horizon scan of recently published research and determine its prominence and what impact it has, if any, on the nuclear industry. [REDACTED] added that one way of evaluating the impact of research could be to use a RAG rating according to its potential impacts on ONR’s position on climate change - red if it has an impact, amber if it requires further monitoring and review and green if it does not challenge ONR’s position. [REDACTED] emphasised that it was important that the research is graded in relation to whether it is credible and if it has been published in a peer reviewed journal. [REDACTED] said that [REDACTED] would be leading this initiative and asked [REDACTED] for [REDACTED] thoughts. [REDACTED] said that we should only be reporting science published in peer reviewed journals. However, [REDACTED] added that some journals have a greater impact than others. [REDACTED] said that there are a number of papers where, at the time, the science and their projections seemed not to be credible but are now accepted as correct – [REDACTED] quoted the paper by Hansen and others. Further discussion was held on how a RAG status could reflect the provenance of a research paper. The meeting agreed that although papers published in academically esteemed journals should be prominently listed, other peer reviewed research papers should not be discounted.

It was agreed that a “Research Briefing” was a more appropriate term for the document rather than a “Newsletter” and that [REDACTED] would produce a draft (~3-4 pages) for the first quarter of 2020, including key research from 2019. The draft Research Briefing should include suggested RAG statuses and be circulated to the panel for comment by the end of April. Going forwards the aim is to produce a Research Briefing every quarter. [REDACTED] added that [REDACTED] does not want this task to take up too much time (and budget) but recognised that the first draft would need more effort. [REDACTED] added that once the research briefing has been produced it needs to be peer reviewed internally - ideally by [REDACTED]

[REDACTED] to produce the first draft of the “Research Briefing” and circulate to the Panel for comments (Action 3/4a).

[REDACTED] added that, in 2015, Defra and NERC published a guide to producing quick scoping reviews and rapid evidence assessments which may be of interest. [REDACTED] offered to send the link, which is reproduced below – sent by [REDACTED] following the meeting:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/560521/Production_of_quick_scoping_reviews_and_rapid_evidence_assessments.pdf

█ to send link to the Defra and NERC guide to producing quick scoping reviews and rapid evidence assessments (Action 4/4a).

4. Extreme Weather Events in the UK

█ invited █ to give █ presentation on Extreme Weather trends over time. █ explained the methods of assessing Extreme Weather events and the problems of attribution. █ highlighted the case of extreme floods and compound events and concluded with the following implications:

- *The period of past instrumental data may be a relatively benign period of UK climate unrepresentative of parts of the Holocene.*
- *Extrapolation from such data sets may not capture the increased risk of future extreme events.*
- *Calls into question robustness of attribution arguments. Was the 2000 'Millennium' floods unlikely in an unforced climate (Pall et al 2011)? Palaeoflood record suggests that such floods are not that unusual over the longer term.*
- *EVA from short data sets and collected in a 'benign' climate may bias the assessments of future weather and climate risk. Such data sets have only been collected from a short period of the Holocene, and from a small region of the Northern Hemisphere. A wider spatial and longer temporal view might strengthen our view of climate and weather extremes.*
- *Extending the palaeoflood record could provide reliable estimates of rare floods (potentially with annual exceedance probabilities of 10^{-6}) for infrastructure such as nuclear power-plants.*

█ thanked █ for █ presentation and invited questions. █ commented that █ thought the 4th bullet above was very important. █ asked what the next steps should be and summarised that the original brief had been to conduct a literature review - █ asked whether further research was needed. █ said that, following █ first draft, █ had conducted a review and that █ needed to revise the document in light of this review. █ added that it would be useful to have █ views also. █ commented that the document █ reviewed did not clearly state the same messages that █ had presented today, and that they should be included in the final version. █ agreed to do this. █ noted that this paper will be published on ONR's website when complete.

█ to review the paper "Extreme Weather events in the UK" (Action 5/4a).

█ to include comments from █ and █ and incorporate the messages from █ presentation into the final version of █ paper "Extreme Weather events in the UK" (Action 6/4a).

█ added that █ with input from █ and █ should produce a scope of work (a list of bullet points) outlining the next steps and detailing any further research. It was agreed that █ and █ would have a conversation offline to discuss this. █ emphasised that they should not start work on the next steps until internal approval was obtained in ONR and a project officer assigned.

██████ and ██████ to produce a scope of work outlining the next steps, including whether a further research project is needed, and ██████ and ██████ to have a conversation offline (Action 7/4a).

5. TAG13 Updates

██████ explained that TAG13 was guidance for inspectors on all external hazards and that Annex 2 covers Meteorological hazards and Annex 3 covers Coastal Flood hazards. ██████ added that each Annex was supported by an Expert Panel (EP) paper, which provided further information for inspectors, but was not part of the guidance. ██████ reported that the EP were in the process of updating the Expert Panel papers and, so far, ██████ and ██████ had reviewed the Annex 2 EP paper and ██████ had reviewed the Annex 3 EP paper. ██████ asked them to report on the status of these reviews. ██████ said that ██████ would take the lead on finalising the updates and reported that ██████ had included a section on “Space weather” and “fog and lightning”. ██████ said that ██████ (ONR), along with ██████, have been working on “Space weather” and that it would be useful for ██████ to copy this information to ██████ and ██████. ██████ added that ██████ (ONR) was the lead inspector on Annex 2 and that they should have a telecon with ██████ to appraise ██████ of these changes and how they feed into the Annex. ██████ asked ██████ how long it would take to make the changes and finalise the Expert Panel paper – ██████ responded, about a month. ██████ said that this timescale was useful as ONR have brought forward their work on updating the Annexes. ██████ said that the paper should be peer reviewed and suggested ██████ and potentially the Met Office as reviewers. ██████ added that ██████ had recently been in contact with the Met Office regarding the N77 – Meteorological Hazards ONR training course which they delivered to ONR inspectors and that ██████ may have a suitable contact. ██████ reported that the EP paper had been originally reviewed by the Met Office.

██████ to share the proposed text on space weather for Annex 2 EP paper with ██████ and ██████ for comment. Finalise the Annex 2 Expert Panel paper (Action 8/4a)

██████ and ██████ to have a telecon with ██████ to appraise ██████ of the changes to the Annex 2 EP paper (Action 9/4a).

██████ to contact ██████ to discuss whether the Annex 2 EP paper will be reviewed by the Met Office (Action 10/4a).

██████ reported that ██████ and ██████ have reviewed the Annex 3 EP paper, and ██████, with input from ██████, will take this forward in relation to any updates needed in Annex 3. ██████ said that it would be useful for ██████ to provide ██████ comments on the paper before they finalise it.

██████ to provide comments on the Annex 3 EP paper (Action 11/4a).

██████ and ██████ to finalise the Annex 3 EP paper and make any necessary updates to Annex 3 (Action 12/4a).

6. AOB

██████ asked if anyone had anything to add. ██████ assured everyone that during the COVID-19 crisis, all payments to external contractors would be honoured.

AGENDA**Interim Telecon meeting: EXPERT PANEL ON NATURAL HAZARDS - Meteorological and Coastal Flood Hazards****DATE:** Tuesday 31st March (InterimTelecon)**OBJECTIVES**

- Introduce [REDACTED] to the Expert Panel
- Discuss Climate Change webpage and Newsletter
- Review of Research paper on Extreme Weather events in the UK and TAG13

ATTENDEES:

Serial	Timing	Item Description	Introduced
Tuesday 31st March – Telecon UK Freefone 0800-783-7072 Participant Passcode: 29791865 then #			
1	10:00 – 10:25 10:00 – 10:15 10:15 – 10:25	Introduction Panel Overview, Welcome and Introductions Introduction - [REDACTED]	[REDACTED]/All
2	10:25 – 10:35	ONR Climate Change Webpage	[REDACTED]
3	10:35 – 10:55 10:35 – 10:45 10:45 – 10:55	Climate Change - Newsletter Overview/Template Discussion	ONR All
4	10:55 – 11:25 10:55 – 11:10 11:10 – 11:25	Extreme Weather Events in the UK Overview [1] Next Steps and Discussion	[REDACTED] All
5	11:25 – 11:55 11:25 – 11:35 11:35 – 11:45 11:45 – 11:55	TAG13 Updates Annex 2 and Expert Panel Paper [2] Annex 3 and Expert Panel Paper [3] Discussion	All All All
6	11:55 – 12:00	AOB	All
	12:00	Close	

PAPERS

[1] Extreme Weather Events in the UK – EP paper and review document by [REDACTED]

[2] Annex 2 Expert Panel Paper – with [REDACTED] edits and suggested edits from [REDACTED] separate document)

[3] Annex 3 Expert Panel Paper – with ONR and [REDACTED] edits