Report

Co-Exploration & Distillation Workshop

WITH A FOCUS SEASONAL CLIMATE INFORMATION

26 to 27 September 2019
Hyacinth Hotel
Thiruvananthapuram, Kerala, India

EXECUTIVE SUMMARY

Scientist produce a wide range of information on seasonal timescales, which can be used to inform decision-making activities for a range of technical and non-technical users. However, how can scientists ensure users of this information understand the messages they're receiving? Do scientists and users speak the same 'language'? How can the scientists ensure that the information they're providing is what decision-makers require to improve their resilience?

In this two-day workshop following SASCOF-15, participants engaged in interactive sessions and open dialogue to better understand decision-making contexts, and the nature of distilling and communicating complex, scientific information in a way that enables effective decision-making activities.

Background

Historically, seasonal climate information has been provided to decision-makers in a largely science-driven process, and predominantly focusses on the use of data portals and tools to provide information in the form of a single method or model. Often though, this information is devoid of vital guidance about how the data were generated or whether any evaluation process has been undertaken to test the validity and robustness of the information. Users are frequently ill-equipped to determine this information for themselves and are thus unable to evaluate whether the information can be appropriately applied to their decision-making context. This creates the potential for maladaptation and actions that impede efforts to respond effectively to impacts from seasonal climate variability.

Overcoming the disconnect between climate service supply and application requires a fundamentally different kind of engagement between the science community and the broad array of potential users and intermediaries. One response to tackling supply-driven climate data has been to advocate for the generation of demand-driven climate data. While this approach has merit, there are implicit issues in developing climate data that require discipline-specific knowledge, and this method is therefore constrained by a user's capacity to recognize and express realistic and achievable needs. A promising approach, which has been developed in the 'Future Resilience

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for African Cities and Lands' (FRACTAL) project in the Future Climate for Africa (FCFA) programme, is that of "co-exploration". This involves collaborative knowledge production (both academic and non-academic) to inform decision-making activities in a transdisciplinary environment where opinions and values hold equal weight across the science-user spectrum.

An additional challenge that faces climate service providers is that of providing decision-makers in the region with accessible, timely, applicable and defensible climate information. Providing user-relevant climate information is challenging due to the variety of complicated, and at times contradictory, information available from multiple sources. The process of extracting, condensing and communicating relevant information is referred to as the 'distillation' of climate information. Whether tailoring, translating, or even co-producing, climate services essentially involve the distillation of key messages from the body of climate data and knowledge available with the intent of informing decisions. Distillation of climate information is intricately linked to understanding the decision-making contexts of users, and is an iterative process requiring direct engagement with users throughout. This helps to bridge the disconnect between service providers and users, ensuring decisions and actions are well-informed.

Objectives and expected outcomes

The objective of this initial workshop was to create an open dialogue between scientists working towards the provision of seasonal climate information, and users who require this information to make adaptive decisions. This represented a first step in an iterative process, with an overall aim of breaking down barriers and cultivating strong working relationships between science providers and users of scientific information.

By the end of the two-day workshop, participants worked together to:

Day 1

1. Develop a common language/terminology to be used in the communication of seasonal climate information.
2. Identify the 'burning issues' faced by users/stakeholders on seasonal timeframes.

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3. Build a better understanding of information required to inform actionable decisions by users/stakeholders.

Day 2

1. Develop their understanding of sources of seasonal climate information, including implicit assumptions and risks
2. Discuss ideas for communicating complex scientific information in relevant ways, specific to their own national contexts

Participation

Attendees included operational seasonal climate forecasters from national hydrometeorological services in ARRCC focal countries (India, Bangladesh, Nepal and Afghanistan), as well as key sector representatives from national stakeholders and government organisations within these countries.

Sessions (Total: 15 hours over two days)

In each session, participants unpacked the complexity of using seasonal climate information to inform decision-making activities. Focus was on identifying the burning issues or questions faced by decision-makers, and mapping the decision space within which seasonal climate information can guide well-informed actions.

In the introductory session, a participatory activity known as the 'Circle Game' was played in order to depict that nearly all participants in the room, whether they classified themselves as a 'user' or a 'provider' of seasonal information, felt that seasonal forecasts were indeed a useful source of information for decision-making on this timescale. This helped the facilitators 'set the scene' for understanding and demonstrating this usefulness over the coming two days.

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Session 1: Developing a common language

The first step in co-exploration is to develop a common language. There is often a barrier posed by scientific terminology, which can lead to misunderstandings of terms and ultimately misinformed adaptation pathways. It's important to recognise the impact that this confusion can have on decision-making.

For this session, participants were asked to brainstorm a list of words they typically used in their day-to-day working that were often misunderstood or misinterpreted. They then discussed these words in small groups and flagged words that could have different meanings in different contexts. The aim of this session was not to agree on a single definition for these words, but rather bring the issue of multiple definitions and understandings to the surface. The groups then fed back their list of terms to plenary, and each participant was asked to 'vote' using stickers for their top three words which they feel need to be used with caution. Figure 3 depicts the full list of terms identified in this session, with the font size relating to how many votes each term received. The top terms identified in this session were normal, users and likelihood.

Figure 1: Participants identifying commonly misunderstood terms in our day-to-day work, and voting for their top three words.
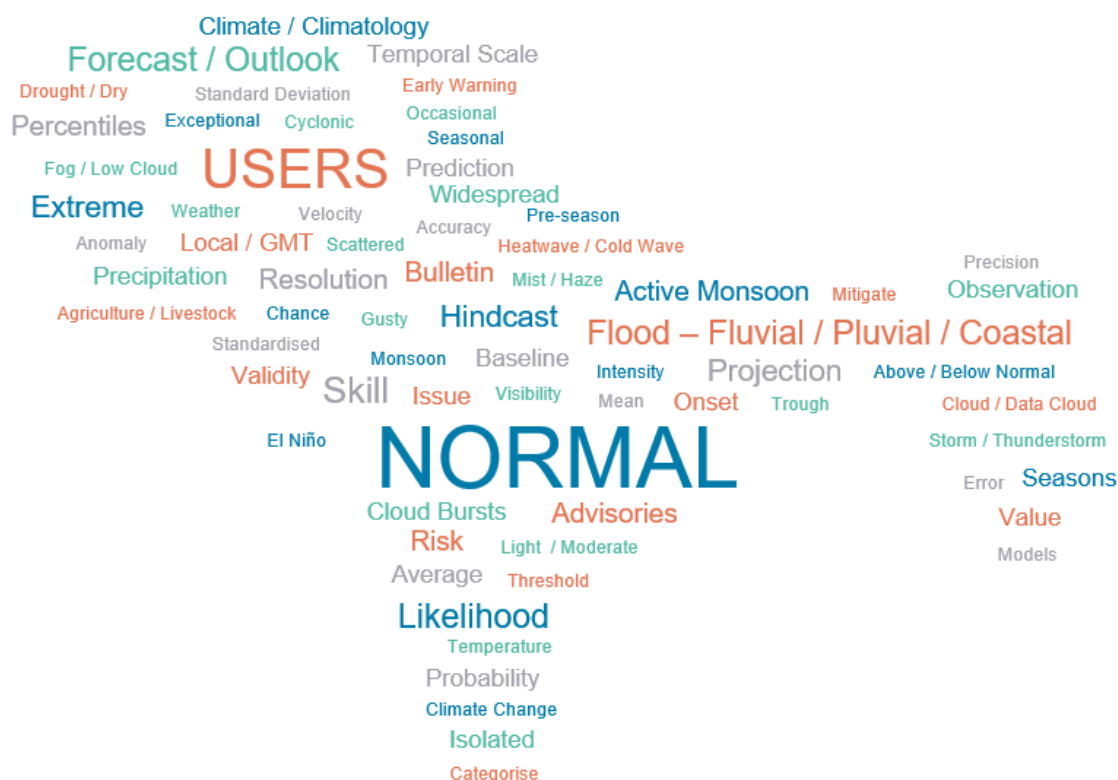
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Figure 2: The commonly misunderstood terms identified in Session 1, with the size of the word relating to how important participants felt these words were.

To end this session, a game of 'Snap!' was played, in which participants needed to work with a partner and say the first word that came to their mind when thinking of a specific topic (a number from 1 to 10, fruits and vegetables, and words they associated with seasonal forecasting). When the same word was mentioned, the team shad to shout 'Snap!'. This gave participants a taste for what it feels like when we speak a common language, and how challenging that can be given the complexity of the topic.

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Figure 3: Participants playing 'Snap!'.

Session 2: Identifying 'burning issues' and mapping the decision space

This session introduced the concept of a 'decision space' and outlined some methods and processes that could be followed when trying to better understand a user's decision-making context. This was an opportunity for users to highlight the decisions they face on a day-to-day basis, and the NMHS
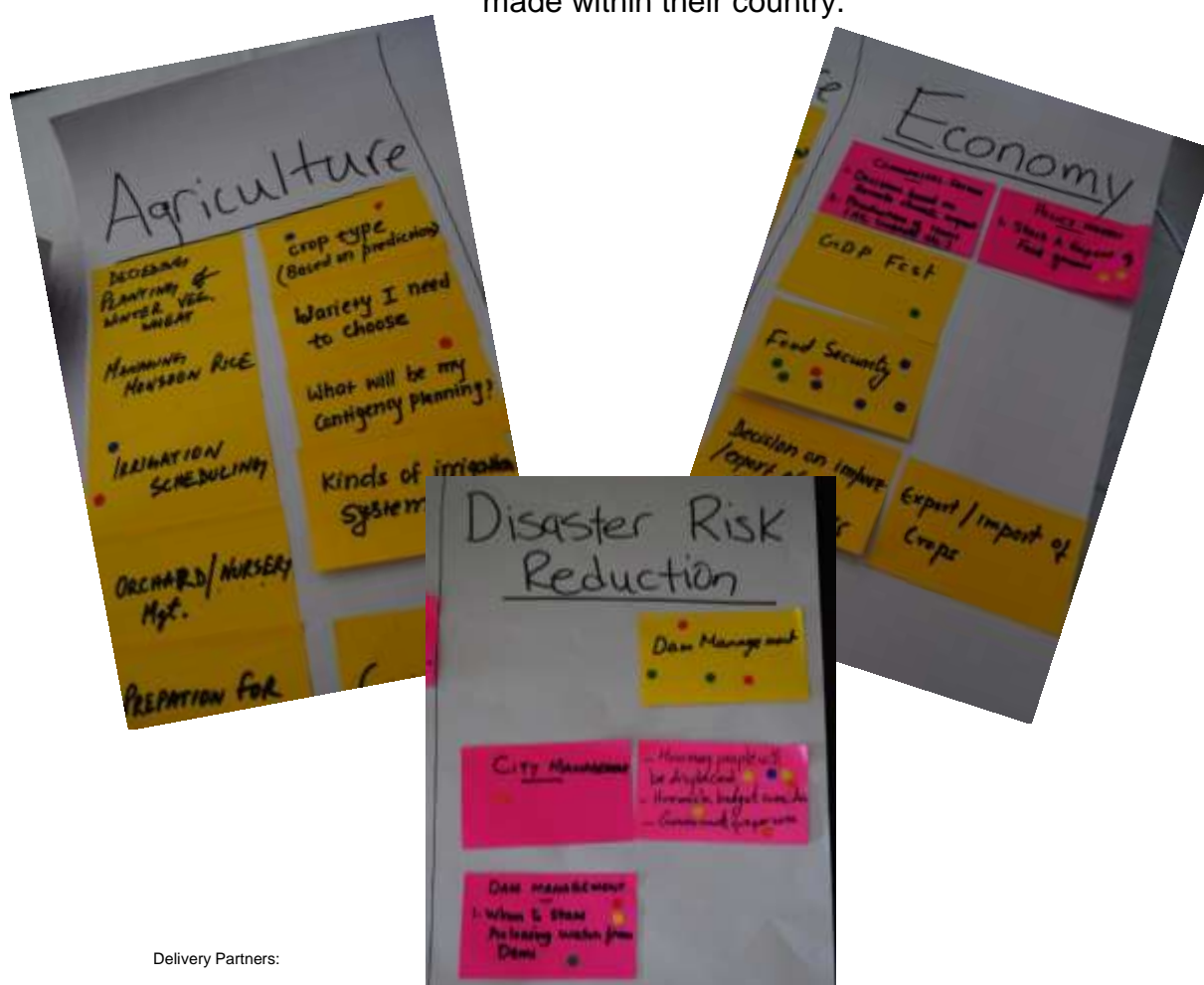
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representatives to highlight their current activities for the provision of seasonal climate information.

In country-specific groups, participants began by discussing the decisions being made within their countries that could benefit (or are already benefitting) from seasonal forecast information, and recorded these decisions on post-it notes. Each group then presented back to the plenary session with their top 4 or 5 decisions being made within their country. As the groups presented, the facilitators were able to form top-level headings for which sector these decisions fell into (i.e. agricultural, energy/power, water management, health, etc.). These headings were then placed around the room, and participants were asked to place their 'decision' post-it notes underneath the most appropriate heading, thereby 'mapping' the decisions being made within their country.

Lastly, in order to identify 'burning issues' (i.e. decision-making contexts that should be the key focus within ARRCC-SCIPSA), participants were again asked to 'vote' with stickers on their top three 'decisions'. The results of this vote identified that food security, water management and health were key sectors within which decisions are being made that could benefit from seasonal climate information. The next steps within ARRCC will be to work alongside NMHSs to help design bespoke products and services to help target these sectors.

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Session 3: Distillation – what is it and why?

The concept of 'climate information distillation' was introduced, which was defined as the process of combining complex (and often contradictory) information into useful and relevant messages tailored for specific decision-making contexts. Participants were shown that this is in fact not a new process, and as scientists, distillation is something we do on a day-to-day basis. However, what this session aimed to do was bring to the surface some of the assumptions made by scientists when producing seasonal climate information, and what risks are associated with these assumptions. Participants then investigated some example sources of seasonal climate information, assessing what key messages were being conveyed, and discussing the assumptions made in each example and associated risks.

This activity consisted of three separate 'packages' of plots and maps depicting seasonal climate information from various sources and analysis techniques. Each package of plots became more complex, with the final package consisting of a mix of seasonal and long-term climate information, communicated in complex and confusing ways. The final package generated a lot of intense discussion on the importance of choosing analysis techniques which are relevant to a specific decision – for example, the choice of a 30˚ C threshold for assessing temperature change over Bangladesh was deemed a poor decision, as this threshold was not relevant to any specific decision-making activities in the country and therefore providing very little in the way of relevant scientific information.

Session 4: Communicating seasonal climate information – challenges and opportunities

Pulling together the activities on understanding the decision-space on day 1 with the importance of distilling from multiple sources of information on day 2, this session focused on the challenges and opportunities for communicating seasonal climate information at the national and regional level. Participants were encouraged to discuss how information is currently communicated in their organisations and identify what has worked well and what could be enhanced in the future.

As a way of highlighting the importance of effective communication of seasonal information, participants engaged in a participatory exercise called 'Climate

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Whispers'. For this activity, the group was divided into three categories: forecasters, agricultural extension officers, and farmers. The facilitators outlined a hypothetical decision-making context that would underpin the activity. The "farmers" were located in northern Afghanistan, and were needing advice on whether to invest their money/effort in agricultural activities during the upcoming season, knowing that in previous years there has been very little rainfall and therefore a low return on crop productivity. Forecasters were provided with a top-level outlook on the upcoming season, which contained a brief mention of above normal rainfall for northern Afghanistan with a probability of 40% (among other, irrelevant forecast statements). The forecasters then had one minute to brief their extension officers on the forecast. The extension officers then had one minute to decide how/what they would communicate to the farmers, and then another two minutes to perform this communication and advise the farmers on what action should be taken ahead of the upcoming season.

The de-brief for this activity proved to be an interesting dialogue, as it brought to the surface the issues around communicating a 'deterministic' forecast. Many extension officers simply communicated that the season would be 'wet' and therefore the farmers should invest in crops. One particular group misunderstood the forecast, and farmers interpreted the 40% chance of 'wet' as being a 60% chance of 'dry', and therefore decided to invest in water storage instead. Very few farmers were given any indication that the forecast itself was probabilistic, and there was still a chance for the season to be either normal or below normal. This activity helped participants to embed the need for probabilistic information into the way their seasonal information is communicated, and provided a useful, hands-on experience for how challenging this can be.

Feedback

Participants were asked to complete a workshop feedback form, which asked whether participants found the workshop useful, relevant and applicable, as well as anything they would prefer to cover in future. In general, participants felt that the workshop was very useful, and covered topics and discussions that they had no prior knowledge on. The group discussions and participatory games were by far the highlight for many of the participants, with some going as far to recommend we

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abolish the use of PowerPoint slides altogether. In future, participants would've liked to see more engagement from the sector user community (this was noted by the facilitators as well). It became clear that the users were under-represented during the two days, and therefore a lot of the group discussion was skewed towards scientific terms and decision-making activities.

The facilitators felt that participant expectations were perhaps a bit different at the beginning of the workshop, and that many were expecting a more scientific, lecture-based approach similar to the COF process. Future workshops should ensure that expectations are communicated prior to the workshop itself, ensuring the participants do not feel too out of the comfort zone from the beginning. It was a pleasant surprise to many that the dynamic and the environment within the room changed so drastically from the official COF process to this two-day workshop, with participants commenting that the group felt more like a 'family' and that this was truly a safe space to ask questions and open a dialogue.

Next Steps

It is important that the processes and techniques practiced in this two-day workshop do not stop here. It is hoped that the NMHSs will embed this way of thinking into their dissemination activities on seasonal timescales (i.e. National Monsoon Forums, NCOFs, etc.). In order to help facilitate this transformation, ARRCC-SCIPSA is proposing to run similar 'Co-Exploration' workshops with key sector users and NMHSs in each individual ARRCC country. The process of understanding decision-making contexts and tailoring seasonal information for these decisions is an iterative process, and will require ongoing engagement with both the NMHS and user community.

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Annex: Agenda

26 September 2019 – Day 1

Time	Title	Facilitator
9:00	Opening and welcome	RIMES (G. Srinivasan)
9:15	Workshop Objectives and Expectations • Group introduction activity • Defining a 'workshop contract' for how we want to engage with each other over the next two days	UKMO (T. Janes)
10:00	Developing a common language • Presentation on 'Words of Importance'	UKMO (B. Parfitt)
10:30	*TEA*	
11:00	Developing a common language *(group activities)* • Identifying words used in our day-to-day working that are often misunderstood (Individually, 5-10 minutes) • Discuss these words in groups and identify any commonalities or differences (60 minutes) • Feedback to plenary (45 minutes) • Introduction of 'Jargon Cards' (5 minutes)	UKMO (B. Parfitt)
13:00	*LUNCH*	
14:00	Mapping the 'decision-space' • Presentation on understanding decision-making contexts • Country-level group activity to better	UKMO/RIMES (F. Colledge and G. Srinivasan)

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	understand the types of decisions being made by users (45 minutes incl. feedback) • Follow-on group discussions on identifying 'burning issues' (45 minutes)	
16.00	*TEA*	
16.30	Feedback on 'burning issues' to plenary • Identify as a group our top three 'burning issues'	UKMO/RIMES (F. Colledge and G. Srinivasan)
17.00	*End of Day 1*	

27 September 2019 – Day 2

Time	**Title**	**Facilitator**
9.00	Recap of Day 1	UKMO (B. Parfitt)
9.30	Session 3: Distillation – what is it and why? • Presentation on an introduction to 'distillation' • Group activity on interpreting and understanding complex information (Round 1 & Feedback)	UKMO/RIMES (T. Janes, A. Agarwal)
10.30	*TEA*	
11.30	Distillation *(cont'd)* • Group activity on interpreting and understanding complex information (Rounds 2 and 3 & Feedback)	UKMO/RIMES (T. Janes, A. Agarwal)
12.30	*LUNCH*	
13.30	Session 4: Communicating seasonal climate information • Presentation on communication challenges and	UKMO (T. Janes)

	opportunities • Group Activity: "Climate Whispers" (30 mins) • Group Activity: Discuss potential communication enhancements for the SASCOF-15 statement	
15.00	*TEA*	
15.30	Feedback on communication suggestions	UKMO (T. Janes)
16:00	Workshop wrap-up and survey	UKMO (B. Parfitt)
16.30	*End of Day 2*	

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