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Applications of Subseasonal-to-Seasonal Forecasts: Progress and Future Plans

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Subseasonal-to-seasonal (S2S) forecasts are bridging the gap between weather forecasts and long-range predictions. Decisions in various sectors are made in this forecast timescale, therefore there is a strong demand for this new generation of predictions. While much of the focus in recent years has been on improving forecast skill, if S2S predictions are to be used effectively, it is important that along with scientific advances, we also learn how best to develop, communicate and apply these forecasts.

In this paper, we present recent progress in the applications of S2S forecasts, and provide an overview of ongoing and emerging activities and initiatives from across the wider weather and climate applications and user communities, as follows:

- To support an increased focus on applications, an additional science sub-project focused on S2S applications has been launched on the World Meteorological Organization WWRP-WCRP S2S Prediction Project: <http://s2sprediction.net/>. This sub-project will provide a focal point for research focused towards S2S applications by exploring the value of applications-relevant S2S forecasts and highlighting the opportunities and challenges facing their uptake.
- Also supported by the S2S Prediction Project, the ongoing Real-Time Pilot initiative http://s2sprediction.net/file/documents_reports/16Projects.pdf is making S2S forecasts available to 15 selected projects that are addressing user needs over a two year period (November 2019 through to November 2021). By making this real-time data available, the initiative is drawing on the collective experiences of the researcher and user communities from across the projects. The Real-Time Pilot will develop best practice guidelines for producing useful and useable, application-orientated forecasts and tools that can be used to guide future S2S application development. We will present an update on the initiative, including results from an initial set of questionnaires that focussed on engagement strategies and practices, supporting a review of how projects were designs, the roles and responsibilities of different project participants and the methods used to determine project success.
- To increase the uptake and use of S2S forecasts more widely across the research and user

communities, we present a new initiative: a global network of researchers, modellers and practitioners focused on S2S applications, called S2Sapp.net – a community with a shared aim of exploring and promoting cross-sectoral services and applications of this new generation of predictions.

- Finally, we will provide an update on a recently-submitted applications community review paper, covering sectoral applications of S2S predictions, including public health, disaster preparedness, water management, energy and agriculture. Drawing from the experience of researchers and users working with S2S forecasts, we explore the value of applications-relevant S2S predictions through a series of sectoral cases where uptake is starting to occur.