Projects participating in the S2S Real Time Pilot Initiative:

Project ID No.	Name	Project Focus	Sector	User Partners	Project Contact
1	**Sea Ice Prediction Network Phase 2**	Improve understanding of Arctic sea ice and predictability	Agriculture, Forestry & Fishing Sector	Modelling centres; Shipping industry; Resource management; Defence; Marine mammal subsistence hunting	Cecilia Bitz (University of Washington)
2	**Monthly Climate Outlooks**	To provide sub-seasonal to seasonal forecasts of temperature and precipitation extremes for DFID priority regions in Africa and South Asia (covering about 50 developing countries)	Humanitarian Sector	DFID humanitarian advisors and crisis anticipation advisors in the humanitarian sector (e.g., Start Network).	Nicholas Klingaman (NCAS)
3	**Experimental Subseasonal Forecasting of Atmospheric Rivers along the US West Coast**	Provide probabilistic forecasts of atmospheric river occurrence at week-2 (8-day to 14-day) and week-3 (15-day to 21-day) lead over the Western U.S./North Pacific	Water Sector	California Department of Water Resources	Mike DeFlorio (Jet Propulsion Laboratory)
4	**ForPAc: Towards Forecast-based Preparedness Action**	ForPAc aims towards more anticipatory Early Warning Systems for Flood and Drought Risk in Kenya, through improved S2S hazard forecasts and systematic approaches to the use of forecasts to trigger early actions.	Disaster Risk Management & Humanitarian Sector	Kenya National Drought Management Authority, Kenya Red Cross Society, Kenya Met Dept, ICPAC.	Martin Todd (University of Sussex)
5	**Asia Regional Resilience to a Changing Climate (ARRCC)**	Applied science for end user application. Regional programme recognising the need for trans boundary delivery, with specific focus on 4 countries - Afghanistan, Bangladesh, Pakistan and Nepal.	DRR (Early Warning) & Agriculture, Forestry & Fishing Sector	ARRCC, Met Office Partnership (MOP) programme and RIMES, user partners to be finalised.	Francis Colledge (Met Office)
6	**Navy Earth System Prediction Capability**	Determining how to best utilize S2S model forecasts in a potential future operational Navy subseasonal TC prediction capability.	Defence Sector	Naval Research Laboratory; Joint Typhoon Warning Center	Matthew Janiga (Naval Research Laboratory)
7	**Digiscape**	We are building platform technology that will allow us to take any seasonal climate forecast and use it to force an agricultural model such as for growing grains or pasture to provide real time forecasts.	Agriculture, Forestry & Fishing Sector	CSIRO Agriculture and Food stakeholder network	Jaclyn Brown (CSIRO)

#	Project	Description	Sector	Users	Contact
8	**S2S4E Sub-seasonal to seasonal climate forecasting for energy**	S2S4E (H2020 project) offers an innovative service to improve renewable energy (RE) variability management by developing new research methods exploring the frontiers of weather conditions for future weeks and months. The main output of S2S4E is a user co-designed Decision Support Tool (DST) https://s2s4e-dst.bsc.es/#/ that for the first time integrates sub-seasonal to seasonal (S2S) climate predictions with RE production and electricity demand.	Energy Sector	Energy producers: EDP Renovaveis, EnBW Energie Baden- Wurttemberg and Électricité de France.	Andrea Manrique (Barcelona Super Computing Centre)
9	**GCRF-African SWIFT**	Development and provision of improved, reliable, and actionable forecasts and early warning across eastern and western sub-Saharan Africa.	DRR (Early Warning); Agriculture, Energy & Water Sector	Spectrum of African user agencies identified by NMSs in agriculture, water, energy & health	Steven Woolnough (University of Reading)
10	**Intesa Operativa fra DPC e CNR-ISAC (Operational Agreement between Italian Civil Protection Agency and CNR-ISAC)**	Provision of deterministic and probabilistic temperature and precipitation monthly forecasts over the Italian territory using the S2S database.	DRR (Early Warning)	Italian Civil Protection Department (DPC)	Daniele Mastrangelo (Institute of Atmospheric Sciences and Climate (CNR-ISAC))
11	**S2S for Disaster Risk Reduction in Southeast Asia**	Collaboration between ASEAN Specialised Meteorological Centre (ASMC), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and Regional Integrated Multi-Hazard Early Warning System for Asia and Africa (RIMES).	DRR & Humanitarian Sector	Selected national and regional DRR agencies in Southeast Asia (to be finalized).	Thea Turkington (Centre for Climate Research, Singapore)
12	**W2SIP (WISER support to ICPAC Project)**	The project aims to strengthen the capacity of ICPAC to deliver wide-reaching, usable, new, improved weather and climate products and services anchored on principles of coproduction and user engagement that cascade down to national and sub-national levels and regional user stakeholders in Africa.	NMHS's; DRR; Agriculture, Forestry & Fishing Sector; Humanitarian Sector (food security); Energy Sector; Health Sector; Media Sector	Resilience Analysis Unit (RAU) multi-stakeholder regional technical hub, IGAD DRM, IGAD and FAO Co-chaired Food Security and Nutrition Working Group.	Zewdu Segele (ICPAC)

13	**Multi-scale climate variability in South America and sub-seasonal to seasonal prediction**	Evaluation of the S2S models' skill in reproducing the observed precipitation variability during the rainy season in the Brazil core monsoon region, as well as the MJO contribution to it; Evaluation of S2S forecasts, including prediction of extreme events; tests of S2S forecasting system	Civil Defence; Agriculture, Forestry & Fishing Sector; Energy Sector	ENGIE BRASIL ENERGIA S.A., the largest private energy producer in Brazil.	Alice Grimm (Universidade Federal do Paraná, Brazil)
14	**Tailoring sub-seasonal predictions for Early Warning Systems to support Public Health management - A Case Study in Rio Branco, Acre state, Brazilian Amazon**	Assessing the S2S models' capability to anticipate heat waves; Find the relationship between heat waves and disease statistics; Develop a system to give tailored information about upcoming heat waves.	DRR & Health Sector	Acre's institutions: Environment Secretary of the State, the University of Rio Branco, Acre and Woods Hole Centre and the State Commission for Environmental Risk Management.	Christopher Cunningham (CEMADEN, Brazil)
15	**Understanding the mechanisms and predictability of persistent large-scale circulations patterns over North America leading to extreme fire weather conditions**	Develop benchmark metrics to evaluate the forecast skill of extreme fire weather regimes using dynamical and statistical forecast models.	DRR (Early Warning)	National Interagency Coordination Centre (provides logistical coordination and mobilization to support the wildland fire community) and NWS regional HQ.	Charles Jones (Earth Research Institute)
16	**Adapting Agriculture to Climate Today, for Tomorrow (ACToday) - A Columbia University World Project**	Help end hunger, achieve food security and improved nutrition, and promote sustainable agriculture (Sustained Development Goal 2). More information here: https://iri.columbia.edu/actoday	Agriculture, Forestry & Fishing Sector; Humanitarian Sector	Ministries of agriculture and rural development in 6 developing countries, (Senegal, Ethiopia, Vietnam, Bangladesh, Guatemala and Colombia), FAO, WFP	Angel Munoz (IRI)

Sub-seasonal to Seasonal (S2S) Prediction Project:
Real Time Pilot Initiative

The S2S Prediction Project is a joint research initiative launched by the World Weather Research Programme (WWRP) and the World Climate Research Programme (WCRP) in 2013. The main goal of the project is to improve the skill of sub-seasonal to seasonal forecasts and promote the uptake of these forecasts to support users and decision-makers.

In January 2019, the S2S Prediction Project entered Phase II. A key feature of Phase II is the pull through of scientific research for operational and application use. The S2S Real Time Pilot Initiative is designed to improve our understanding of how we can effectively mobilise our underpinning and growing science capability to better inform the development of user-orientated applications in the S2S time range. Through existing collaborations and interested projects, the initiative will identify what is required in order to make S2S forecast data usable and how this varies between users in different sectors, different organizations within a sector and organizations with different levels of weather and climate knowledge and experience. End user engagement is pivotal to the success of the Pilot Initiative and therefore, all projects selected to participate have close links with a user/application community.

The Real Time Pilot Initiative is due to formally start on 1st November 2019. Real-time S2S forecasts will be made available to the selected projects for a two-year period (up to 31st October 2021) so that user-orientated applications can be designed, developed and tested with users. During the life of the Initiative, the S2S Real Time Pilot project team will solicit feedback from the researchers and developers, as well as the users engaged with the projects. This feedback is essential so that we can gather information on user engagement and co-development practices, user feedback on the tools that are developed, and the methods used to generate application/user-orientated products, the successes and the challenges. Using this information, we will be able to generate best-practice guidance to support future S2S applications work. The feedback strategy is currently in development but will likely involve at least one semi-structured interview and the completion of a feedback form at intervals to be defined within the strategy. The feedback strategy will be finalised by early October 2019.

Desired outputs from the S2S Real Time Pilot Initiative are:

- Identify what is required to make S2S forecast data usable, from both a developer and user perspective, and how this varies across different sectors, different organizations within a sector and organizations with different levels of weather and climate data experience.
- Identify different researcher-user engagement strategies and how these evolve during the lifetime of the pilot. Identify successes, challenges and 'serendipitous' outcomes from the collaboration/engagement processes.
- Evaluate and synthesis feedback from the researcher and user perspectives to inform the production of a best practice guidance document that can support future user-orientated forecast application development.

We are excited to see how this Initiative develops and are grateful for your willingness to participate and provide feedback.

The S2S Real Time Pilot Team