



The Sub-seasonal to Seasonal (S2S) Prediction Project

“Bridging the gap between weather and climate”

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WMO/WWRP International Legacy Projects

PPP

HIW

S2S

Minutes

2 weeks

Seasonal

Mission Statement

- “To improve forecast skill and understanding on the sub-seasonal to seasonal timescale with special emphasis on high-impact weather events”
- “To promote the initiative’s uptake by operational centres and exploitation by the applications community”
- “To capitalize on the expertise of the weather and climate research communities to address issues of importance to the Global Framework for Climate Services”

S2S project

- 5-year project, started in Nov 2013.
- Project office: KMA/NIMR hosts the project office in Jeju island.
- Trust Fund: Contributions from Australia, Canada and UK

Sub-seasonal to Seasonal (S2S) Prediction Project

Sub-Projects

Interactions and teleconnections between midlatitudes and tropics

Madden-Julian Oscillation

Monsoons

Africa

Extremes

Verification

Research Issues

- Predictability
- Teleconnection
- O-A Coupling
- Scale interactions
- Physical processes

Modelling Issues

- Initialisation
- Ensemble generation
- Resolution
- O-A Coupling
- Systematic errors
- Multi-model combination

Needs & Applications

Liaison with SERA
(Working Group on
Societal and Economic
Research Applications)

S2S Database

S2S Database

- Daily real-time forecasts + re-forecasts
- 3 weeks behind real-time
- Common grid (1.5x1.5 degree)
- Variables archived: about 80 variables including ocean variables, stratospheric levels and soil moisture and temperature

S2S partners

	Time-range	Resol.	Ens. Size	Freq.	Hcsts	Hcst length	Hcst Freq	Hcst Size
ECMWF	D 0-46	Tco639/319L91	51	2/week	On the fly	Past 20y	2/weekly	11
UKMO	D 0-60	N216L85	4	daily	On the fly	1993-2015	4/month	7
NCEP	D 0-44	N126L64	4	4/daily	Fix	1999-2010	4/daily	1
EC	D 0-32	0.6x0.6L40	21	weekly	On the fly	1995-2014	weekly	4
CAWCR	D 0-60	T47L17	33	weekly	Fix	1981-2013	6/month	33
JMA	D 0-33	T1479/T1319L100	50	weekly	Fix	1981-2010	3/month	5
KMA	D 0-60	N216L85	4	daily	On the fly	1996-2009	4/month	3
CMA	D 0-45	T106L40	4	daily	Fix	1886-2014	daily	4
CNRM	D 0-32	T255L91	51	Weekly	Fix	1993-2014	2/monthly	15
CNR-ISAC	D 0-31	0.75x0.56 L54	40	weekly	Fix	1981-2010	6/month	1
HMCR	D 0-63	1.1x1.4 L28	20	weekly	Fix	1981-2010	weekly	10

S2S Database current status

- All the 11 S2S models are available
- IITM (India) would like to join S2S
- ftp site has been set up to contain MJO RMMs computed from the S2S database

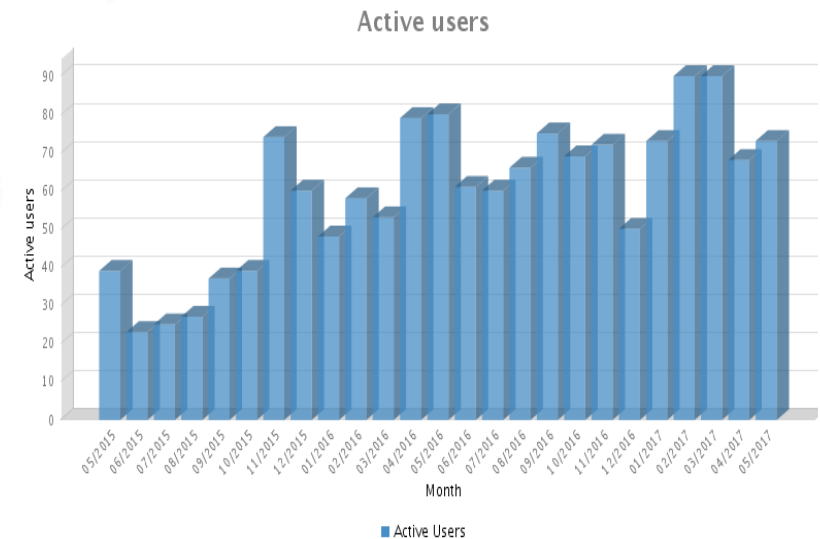
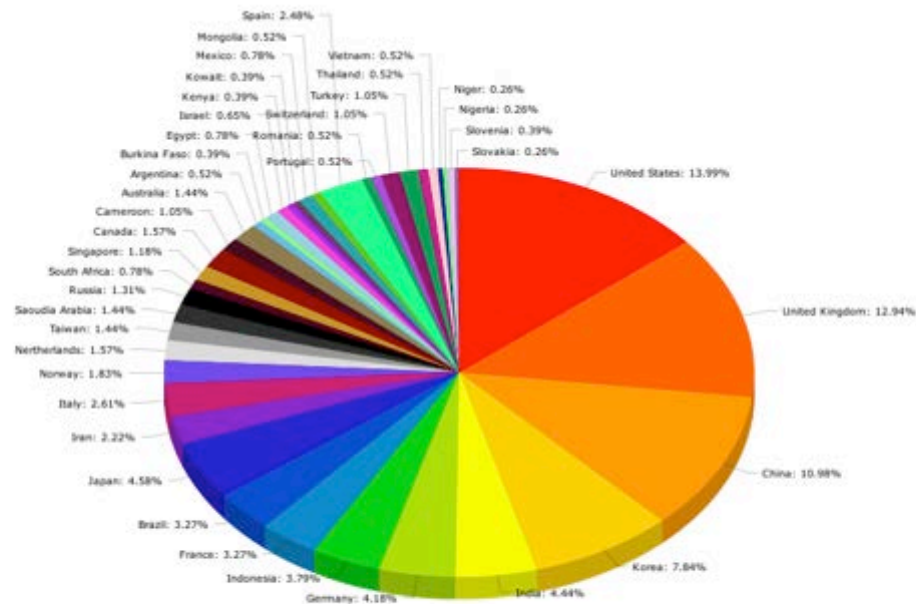
Plans:

- Add new ocean sub-surface and sea-ice variables

Use of the S2S database Since May 2015

- 848 registered users from 88 countries at ECMWF
- 222 register users mostly from China at CMA

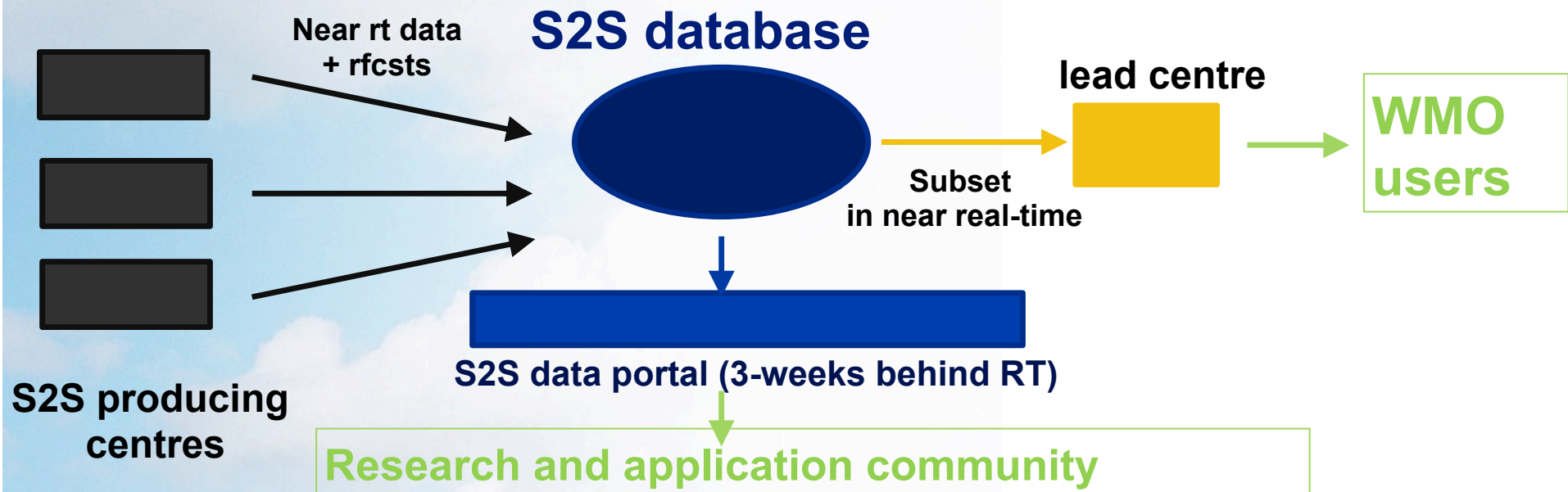
ECMWF Server



Linkage with CBS

A major goal of S2S is to support CBS operational sub-seasonal activities

- Research into sub-seasonal predictability under S2S will be conducted in close liaison with developing infrastructure and procedure for operational sub-seasonal prediction as they develop under CBS.]
- It has been proposed to use the S2S database to exchange real-time data for CBS activities.



S2S future plans

- S2S is a five year project which started in Nov 2013.
- A proposal has been submitted for a 5-year extension 2018-2023 (S2S Phase 2) for approval by the WMO EC

S2S Phase 2 Proposal (1)

1. S2S Database enhancement

- Continue to maintain and update the current S2S database with current model upgrades and new models, possibly new variables.
- Add the originally-planned ocean variables to the S2S database in NetCDF format.
- Make model ensemble means, model climatology available from the IRI data library to save time and efforts to a large range of users.
- Create a verification and products interactive maprooms using IRI Data Library
- Consider increasing time or spatial resolution

S2S Phase 2 Proposal (2)

2. Research activities (sub-projects)

- MJO Prediction and teleconnections
- Ocean and sea ice initialization and configuration
- Land Initialization and configuration
- Aerosols
- Ensemble generation

S2S Phase 2 Proposal (3)

3. Enhancing operational infrastructure and user Applications

- Research to Operations (R2O) and S2S Forecast and Verification Products Development
 - *Pursue research for testing and developing methodologies for calibration, combination, verification and generation of forecast products*
 - *Coordination with the relevant WMO technical commissions to define the standards and protocols for operational implementation and exchange of S2S forecasts*

- Real-time Pilot for S2S Applications research & demonstrations
 - *Goal is to demonstrate the value of S2S forecasts to different GFCS sectors*
 - *Real time pilot: Make some derived variables available close to real-time for a limited period of time, such as 1 year.*
 - *Promote interdisciplinary research the development of “Ready-Set-Go” -type S2S applications*

S2S Project Group Goals for Exeter Meeting

- Annual S2S Steering Group Meeting (~last one in 5-yr Phase 1 of S2S)
- Coordinate modeling activities through WMAC, especially regarding planning for Phase 2 of S2S
 - Modeling topics: MJO Prediction and teleconnections; Ocean and sea ice initialization and configuration; Land Initialization and configuration; Aerosols; Ensemble generation
 - Translation of forecast output to user applications (calibration, MME, forecast product dev).
 - Enhancing operational infrastructure
 - Enhancing the S2S database for maximum co-benefit