



The Subseasonal to Seasonal (S2S) Prediction Project and Database



Mission statement

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



WMO S2S Prediction Project

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



WMO S2S Prediction Project



Steering Group

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The role of the Liaison Group is to ensure a good interaction and collaboration between the Steering Group and other Working Groups and activities.

WMO S2S Prediction Project

Steering Group/Liaison Group/Project Office (ICO)

Sub-Projects

Teleconnections
Madden-Julian Oscillation
Monsoons
Africa
Extremes
Verification and Products

Database (ECMWF, CMA, IRI)

Research Issues

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

Modelling Issues

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

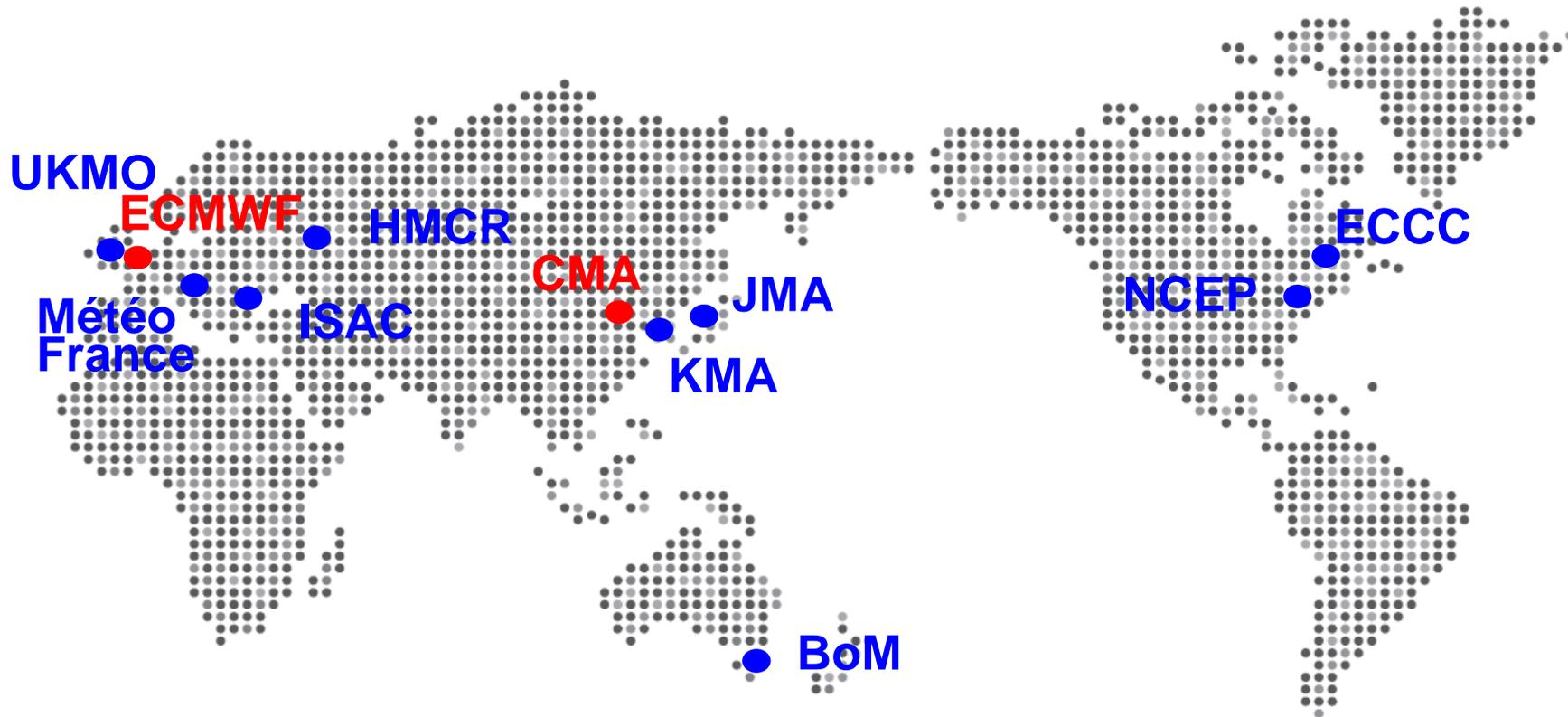
Needs & Applications

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

Global/Regional/National Activities



S2S partners



- Data provider (11)
- Archiving centre (2)

A large subset of the S2S data is available from the International Research Institute for Climate and Society (IRI), Columbia University



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	TI479/TI319L100	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

Monitoring S2S forecasts

ECMWF European Centre for Medium-Range Weather Forecasts

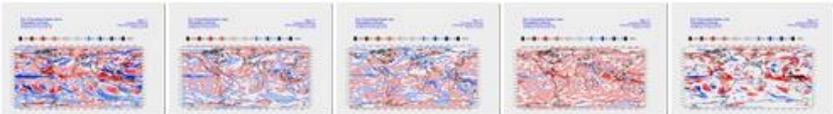
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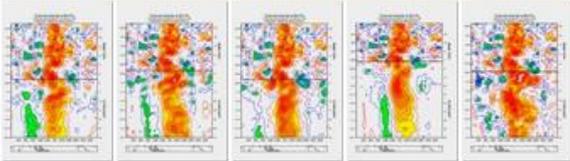
s2s products

anomaly



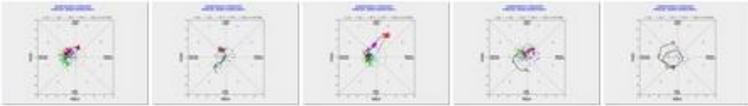
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hovmoller



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<http://www.ecmwf.int/en/research/projects/s2s/charts/s2s/>



S2S website

The S2S website facilitates user-friendly access to exchange of information on this topic and includes links to the S2S databases at ECMWF, CMA and IRI.

The S2S website provides (<http://s2sprediction.net>):



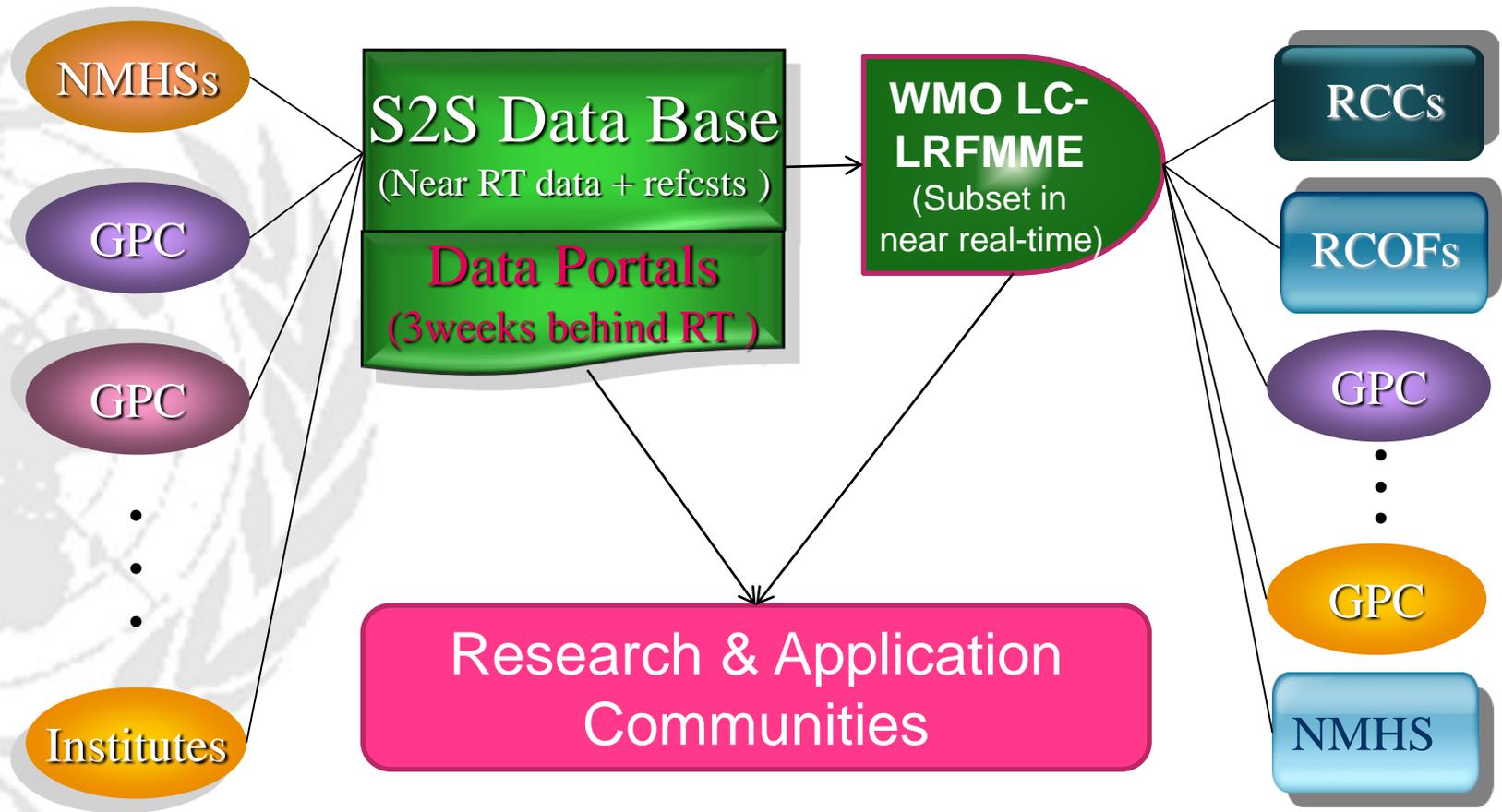
The latest news from S2S communities including information of workshops and meetings, recent S2S articles, reports and books.



Wiki pages for each of the S2S sub-projects whose role is to coordinate S2S activities with relevant bodies and to prepare reports for the regular S2S steering group meetings.



S2S linkage with WMO operational activities



S2S Producing Centres

WMO Users



S2S phase 2

- 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



1. S2S Database enhancement

- Continue to maintain and update the current S2S database with current model upgrades and new models, possibly new variables.
- Add 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.



2. Research activities (sub-projects)

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



3. Enhanced 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*



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- Vitart, F., 2017: Madden-Julian Oscillation Prediction and Teleconnections in the S2S Database, accepted in *Quarterly J. of Royal Meteor. Soc.*



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