SPECS/PREFACE/WCRP Workshop on Initial Shock, Drift, and Bias Adjustment in Climate Prediction

Objectives

10-11 May 2016, Barcelona, Spain

A joint initiative by SPECS, PREFACE and WCRP-WGSIP. A two-day workshop by invitation only.

Objective: The aim of the workshop is putting in common the current strategies to understand the physical processes behind the initial shock and drift in dynamical climate prediction for all time scales and to formulate recommendations that will guide international future research activities. The question of bias adjustment will be considered as a necessary tool to engage with the users of the resulting climate information.
The discussions will be based on the activities already taking place in the SPECS and PREFACE European FP7 projects and contribute to the activities of the initial shock and drift project promoted by the Working Group on Seasonal-to-Interannual Prediction (WGSIP) of the World Climate Research Programme (WCRP).

Structure: The workshop will consist of talks, a poster session (format A0, portrait), breakout groups and a plenary discussion session.

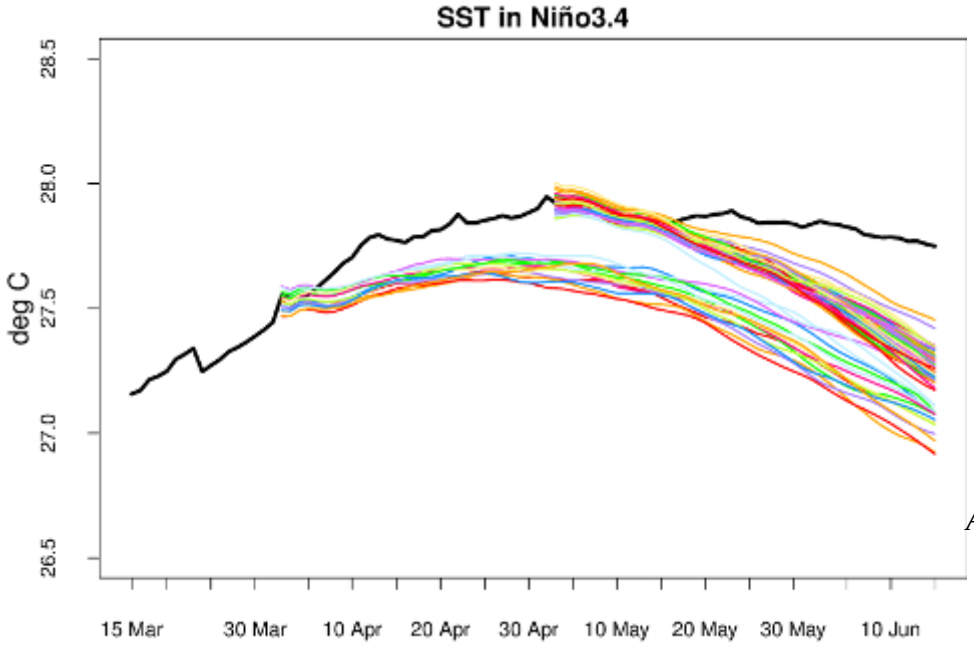
Attendees: Scientists and representatives from international programmes, prediction centres and funding agencies.

Expected outcomes: Agreeing on a set of common tools for the diagnosis and treatment of the initial shock and drift in climate predictions. The attendants will be expected to contribute to a set of recommendations for the bias adjustment of the CMIP6 decadal predictions, in the light of the current experience in sub-seasonal and seasonal forecasting. The outcome will be made available as a report shortly after the workshop. Three key topics will be covered in the breakout groups. The outcome will be presented in the final plenary session:

- Strategies to reduce the initial shock (Chairs: Noel Keenlyside and Masahide Kimoto)
- Forecast drift and stationary systematic error (Chair: Ben Kirtman)
- Bias adjustment (Chairs: Virginie Guemas and Doug Smith)

The workshop will be followed by a meeting of the Decadal Climate Prediction Panel (DCPP) of CMIP6.
This event is organised by the European projects SPECS and PREFACE and supported by the WCRP.

Guidance document



An example of model initial shock and drift in a seasonal forecast ensemble: the black line is the climatology of daily SST in Nino3.4, between 15th March and 15th June of 1993-2009, from satellite observations (ESA dataset). Each coloured line is the climatology of a different ensemble member from the ECMWF System 4 forecast (for the same period and region) for two different start dates, 1st April and 1st May.

Agenda

Please note that you will be able to exhibit your poster from day 1 on the "exhibition hall" that is available for us. The poster presentation will be done during the lunch and the Icebreaker.

Tuesday 10 May
8:30 Registration
9:00 Introduction and local information
9:30 Plenary: Presentations

- Bill Merryfield (Environment Canada) WGSIP's Long-Range Forecast Transient Intercomparison Project: Framework and initial results
- Anca Brookshaw (ECMWF) The Subseasonal to Seasonal (S2S) Project
- George Boer (Environment Canada) Decadal Climate Prediction Project
- Emilia Sánchez-Gómez (CERFACS) Physical analysis of the model drift in the North Atlantic: role of the atmosphere in the model bias adjustment

11:00 Coffee break
11:30 Plenary: Presentations

- Lauriane Batté (Météofrance) Randomly correcting model errors in the atmospheric component of CNRM-CM and impact on seasonal forecast quality
- Frank Sienz (MPI) Comparison and potential of bias correction methods for skewed variables
- Patrick Laloyaux (ECMWF) Origin and impact of initialisation shocks in coupled atmosphere-ocean forecasts

12:30 Plenary: Introduction to break out group sessions
13:00 Lunch
14:00 Breakout group sessions
15:30 Coffee break
16:00 Breakout group sessions
17:00 Plenary: Presentations

- Aurore Voldoire (Météofrance) SST bias development in the Tropical Atlantic in PREFACE coordinated experiments
- Tina Dippe (GEOMAR) Seasonal predictions of equatorial Atlantic SST in a low-resolution CGCM with surface heat flux correction
- Gokhan Danabasoglu (NCAR) Ocean initialization and decadal prediction skill in the Community Earth System Model decadal prediction experiments

18:00 End of day
18:30 Icebreaker

Wednesday 11 May
9:00 Breakout group sessions
10:30 Coffee break
11:00 Plenary: Presentations

- Alberto Carrassi (NERSC) Linking the anomaly initialization approach to the mapping paradigm
- Holger Pohlmann (MPI) Slow recovery from initialization shock in the tropical Pacific in MPI-ESM decadal hindcasts

11:40 Plenary: Summary of the breakout groups

- Strategies to reduce the initial shock (Masahide Kimoto)
- Forecast drift and stationary systematic error (Ben Kirtman)
- Bias adjustment (Doug Smith)

13:00 Plenary: Conclusions and future steps
13:30 Adjourn

Poster session:

- Evaluation of full-field initialization for the MiKlip decadal prediction system: An initial shock in the North Atlantic
- Comparison of parametric and non-parametric drift correction approaches
- Initial shock, drift and trends in decadal climate predictions in the South Pacific region upon different phases of ENSO
- Challenges in creating user relevant seasonal forecasts
- Diagnosis and improvement of initial condition and model error in seasonal Arctic sea-ice predictions
- Investigating the potential of SST assimilation for ocean state estimation and climate prediction
- On a hierarchy of bias correction methods
- Investigating Model Initial Drift in the Tropics in Seasonal Hindcasts and supporting material
- Different types of drift in two seasonal forecast systems and their dependence on ENSO
- Towards the operational use of climate forecasts at DWD – technical challenges and user involvement
- Tropical Atlantic SST bias development in EC-Earth3.1

Organising Committee
Francisco Javier Doblas-Reyes (BSC-CNS)
Virginie Guemas (BSC-CNS)
George Boer (Environment Canada)
Noel Keenlyside (Univ. Bergen)
Doug Smith (Met Office)
Bill Merryfield (Environment Canada)
Thomas Toniazzo (UNIRES)
Jon Shonk (Univ. Reading)
Michel Rixen (WCRP)

Accommodation and venue
For more information you can contact : gabriela.tarabanoff@bsc.es

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Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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