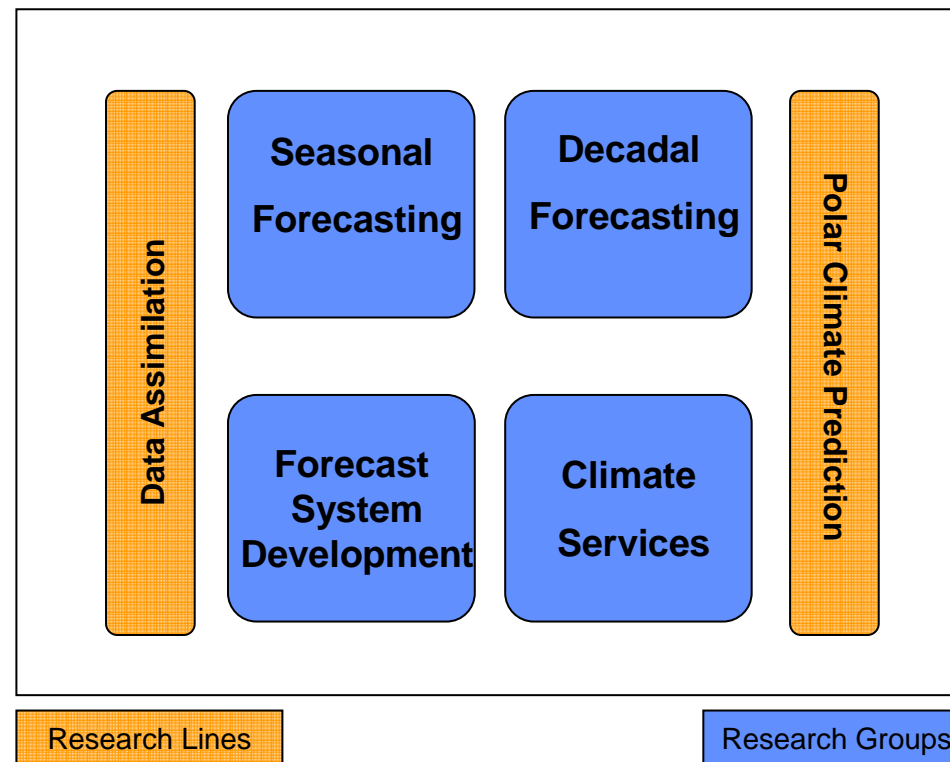


Climate Forecasting Unit



Focus: seasonal-to-decadal prediction

-  **Francisco J Doblas-Reyes**
-  **Isabel Andreu-Burillo: *ocean processes***
-  **Muhammad Asif: *EC-Earth***
-  **Lauriane Batté (V): *stochastic parameterizations***
-  **Pierre-Antoine Bretonnière: *SPECS data***
-  **Louis-Philippe Caron (V): *tropical cyclones***
-  **Alberto Carrassi: *data assimilation***
-  **Melanie Davis: *climate services***
-  **Virginie Guémas: *initialization and sea ice***
-  **Fabian Lienert: *North Pacific, climate services***
-  **Domingo Manubens : *autosubmit developer***
-  **Oriol Mula-Valls: *system administrator***
-  **Aida Pintó: *prediction of extremes***
-  **Mar Rodríguez: *SPECS manager***
-  **Luis Rodrigues: *seasonal climate predictability***
-  **Ramiro Saurral (V): *climate prediction in SH***
-  **Gabriela Tarabanoff: *secretary, climate services***
-  **Danila Volpi: *initialisation, decadal prediction***
-  **Robin Weber: *initialisation in simple models***

Objectives:

- 1) Development of s2d prediction capability
- 2) Forecast quality assessment
- 3) Downscaling of probabilistic forecasts
- 4) Climate services

We share on request:

- 1) Autosubmit
- 2) Sea-ice restarts
- 3) R diagnostic functions

We run on:

- 1) Marenstrum (Spain)
- 2) ECMWF
- 3) Lindgren (Sweden)
- 4) HECTOR (UK)
- 5) Our local cluster

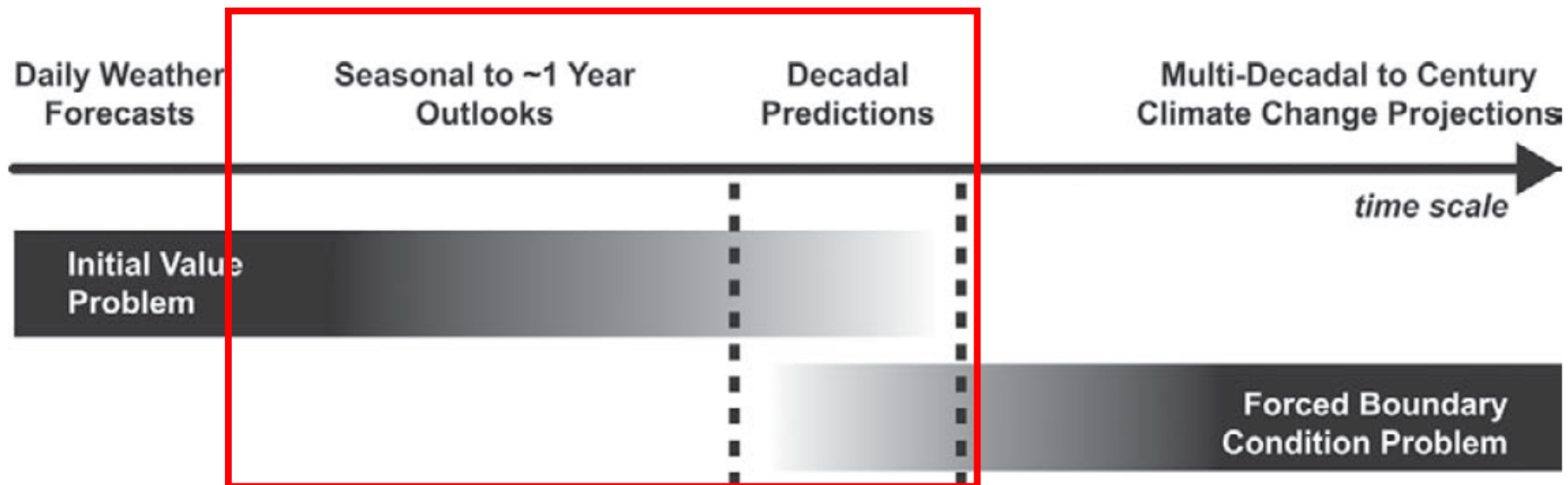
<http://www.ic3.cat> <http://ic3cfu.wikispot.org>

Resources

- IC3 and ICREA core funding (4 people).
- EC: FP7 projects (QWeCI, CLIM-RUN, DENFREE, SPECS, EUPORIAS, IS-ENES2), Marie Curie (INCLIDA).
- MINECO (Spain): Projects RUCSS, PICA-ICE.
- Others:
 - Private: MAPFRE, Banca Cívica.
 - Agence Nationale de la Recherche (France).
 - German Academic Exchange Service.
- Computing time on Ithaca (IC3's computer) and computational projects at BSC (6 Mhours), ECMWF (20 MSBUs) and OLCF (0.5 Mhours), plus PRACE Tier-0 (BSC, 38 Mhours) and Tier-1 (PDC, 4 Mhours), all to run EC-Earth and NEMO.
- Collaborations: EC-Earth (mainly SMHI and KNMI), Météo-France, IPSL (J. García-Serrano), Univ. Stockholm, CIMA, Met Office, Royal Meteorological Institute of Belgium, ECMWF, CERFACS, MPI-Met, CPTEC, NOAA, UQAM, CNRS.

Climate time scales

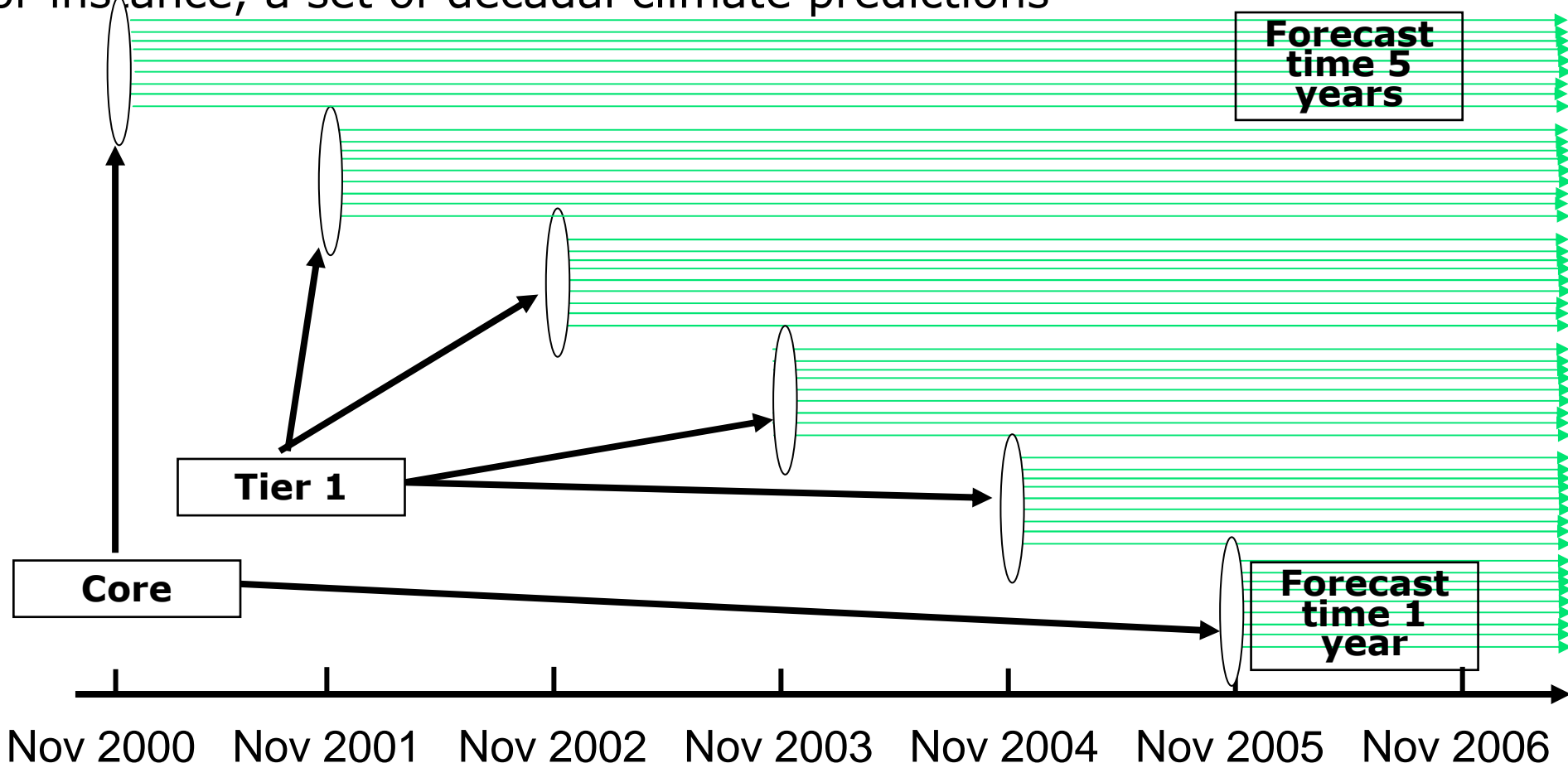
Progression from initial-value problems with weather forecasting at one end and multi-decadal to century projections as a forced boundary condition problem at the other, with climate prediction (**sub-seasonal, seasonal and decadal**) in the middle. Prediction involves initialization and systematic comparison with a **simultaneous** reference.



Meehl et al. (2009)

Climate predictions

Assume an ensemble forecast system with an initialized ESM to perform, for instance, a set of decadal climate predictions



Plus empirical forecast systems to be used as benchmarks and to detect untapped sources of predictability.