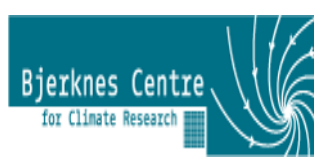


Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación



INTAROS plans for model evaluation

Ralf Doescher (SMHI), Yongqi Gao (NERSC), *Virginie Guemas (BSC)*, Stein Sandven (NERSC)



Improving skill of climate predictions

Goal: better prediction skill

Input: observations, via reanalysis, either by “big” actors (ECMWF) or by individual institutes, with or without INTAROS data.

Means: improved accuracy and suitability of **initial conditions** in combination with global climate models and Arctic hydrological models.

- T/S profiles or gridded (at least SST/SSS), sea ice concentrations.

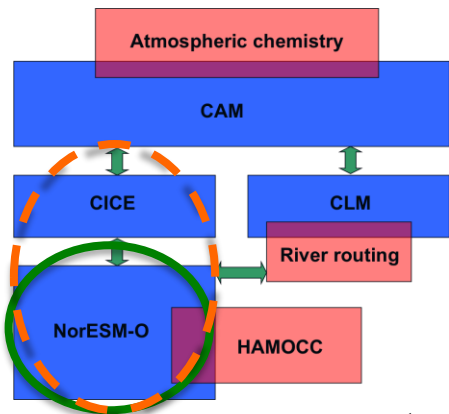
Expected results: more skilful climate prediction.

Formal distribution in 3 activities

- 1) **Understand dependence** of climate simulations and variability on data availability
 - 2) **Assessing the full effect of enhanced initialization** on climate prediction skill, and promote INTAROS data in the climate prediction community
 - 3) Improving **hydrological** runoff predictions
-

Norwegian Climate Prediction Model (NorCPM)

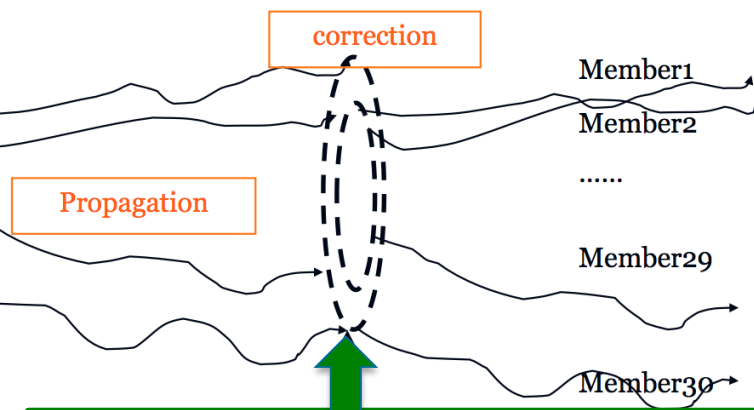
Earth System model (NorESM)



30 members

Only update ocean atm 2°; ocean+ice 1°

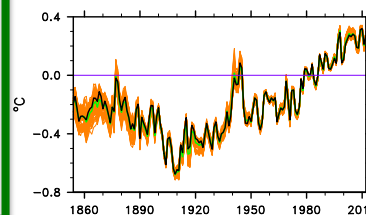
Data assimilation (EnKF)



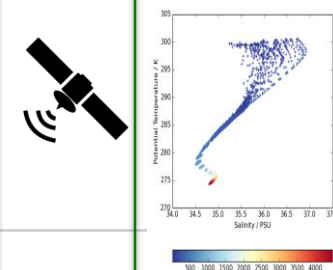
Observations

- V0 system : **SST**
- V1 system: **SST+T-S (+SSH?)**
- V2 system: **Ice-concentration**
- V3 system: **All**

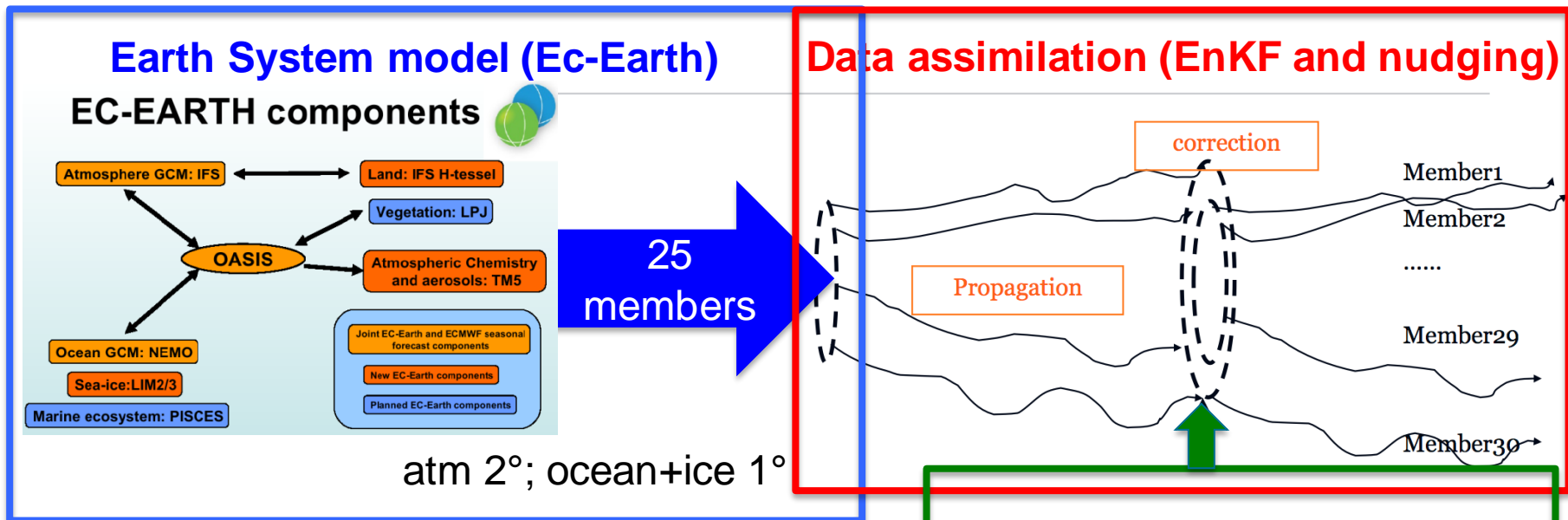
Stochastic
HadISST2+ icec



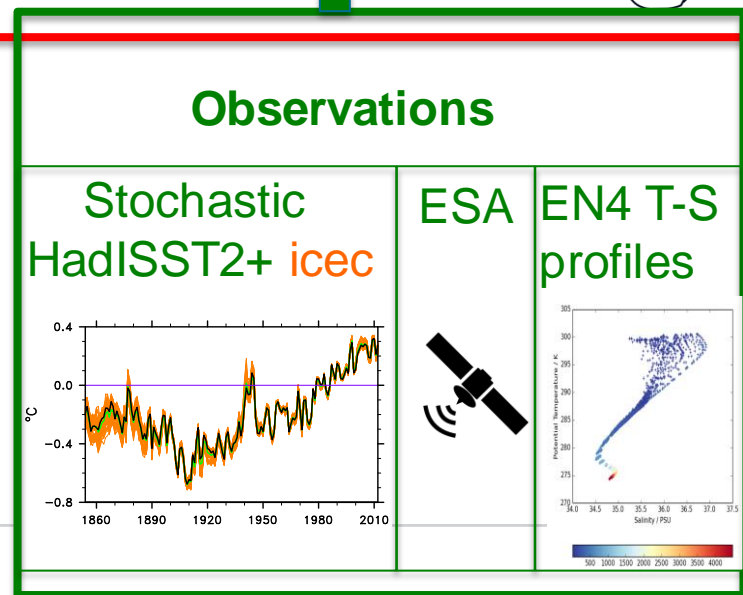
SSH EN4 T-S profiles

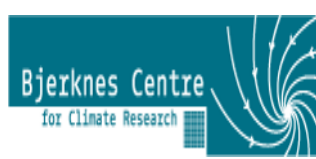


Ec-Earth



V1 system: SST + T/S+ Ice-conc + atm





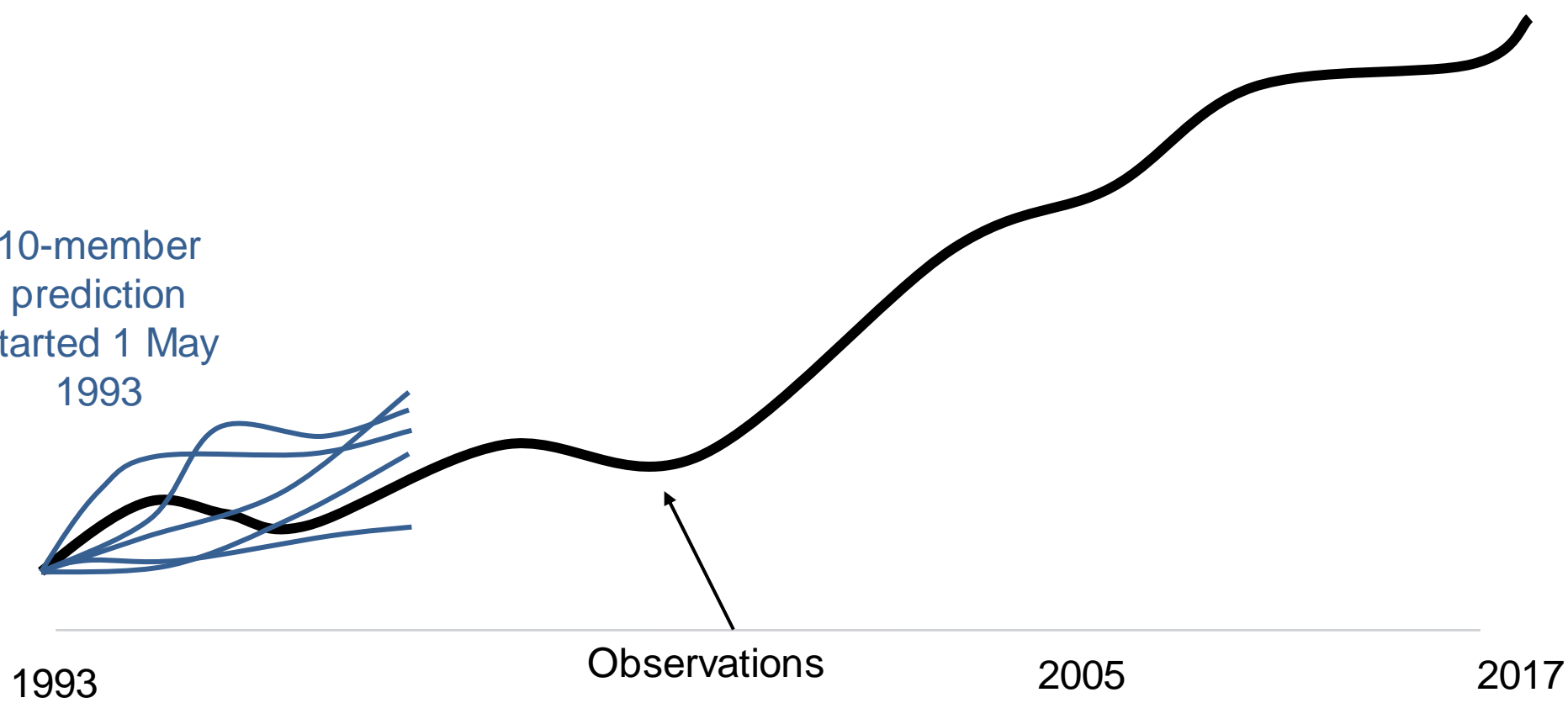
Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación



Climate Predictions

Experimental setup

10-member
prediction
started 1 May
1993





Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación

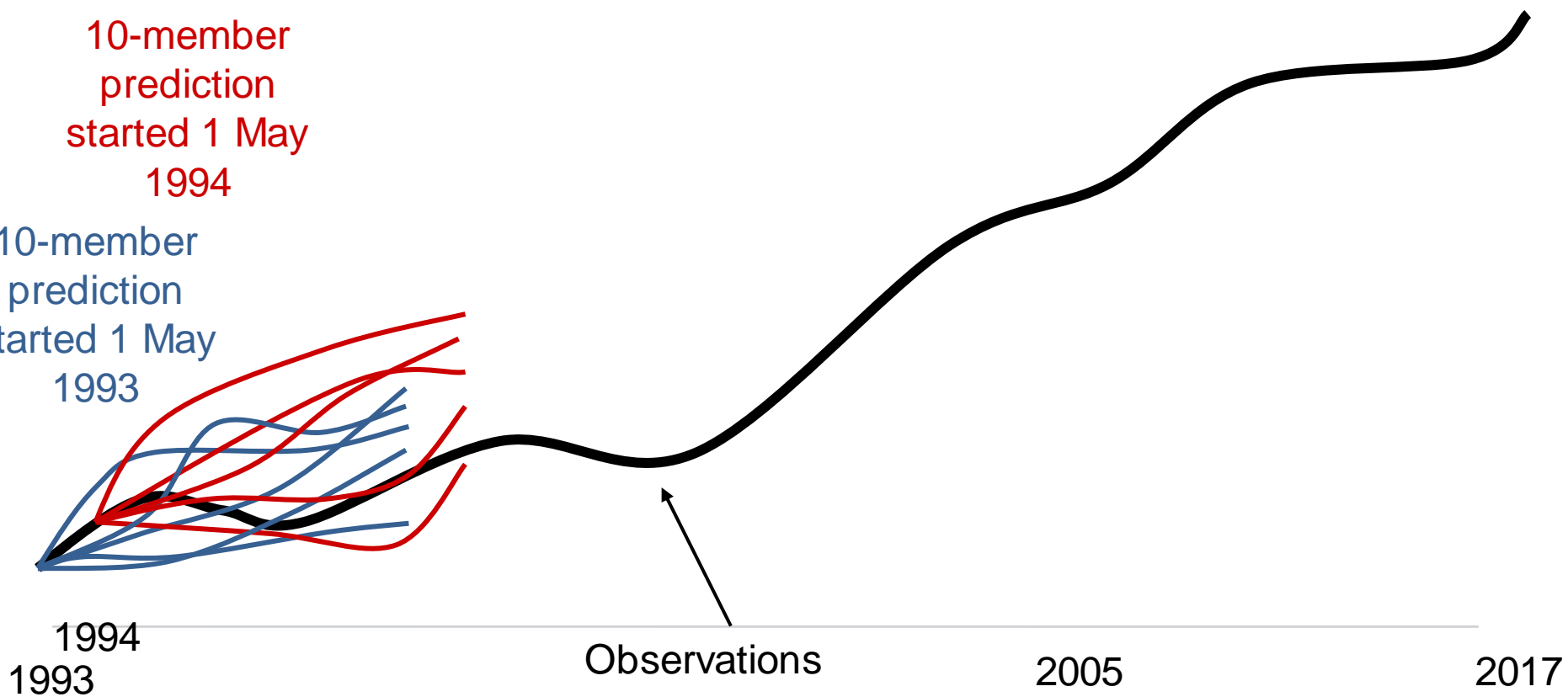


Climate Predictions

Experimental setup

10-member
prediction
started 1 May
1994

10-member
prediction
started 1 May
1993



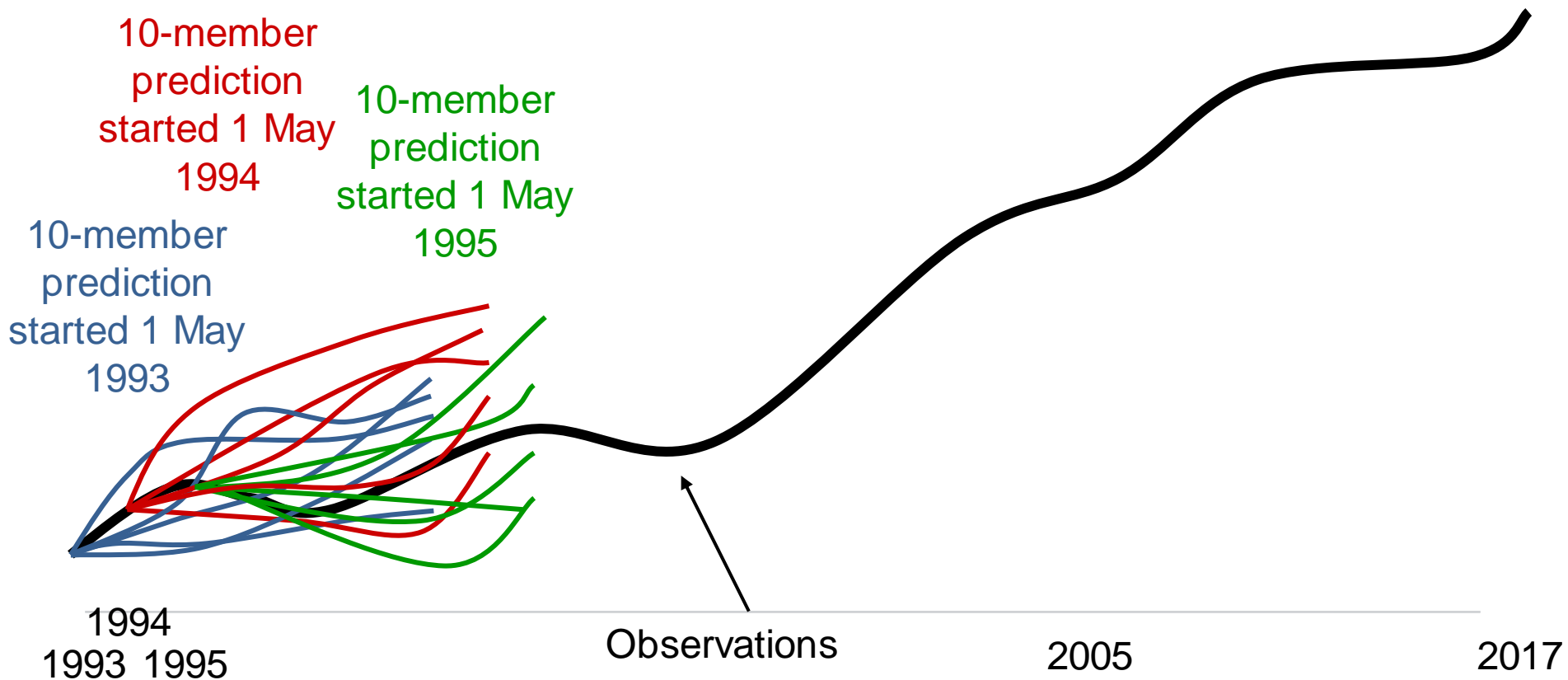


Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación



Climate Predictions

Experimental setup



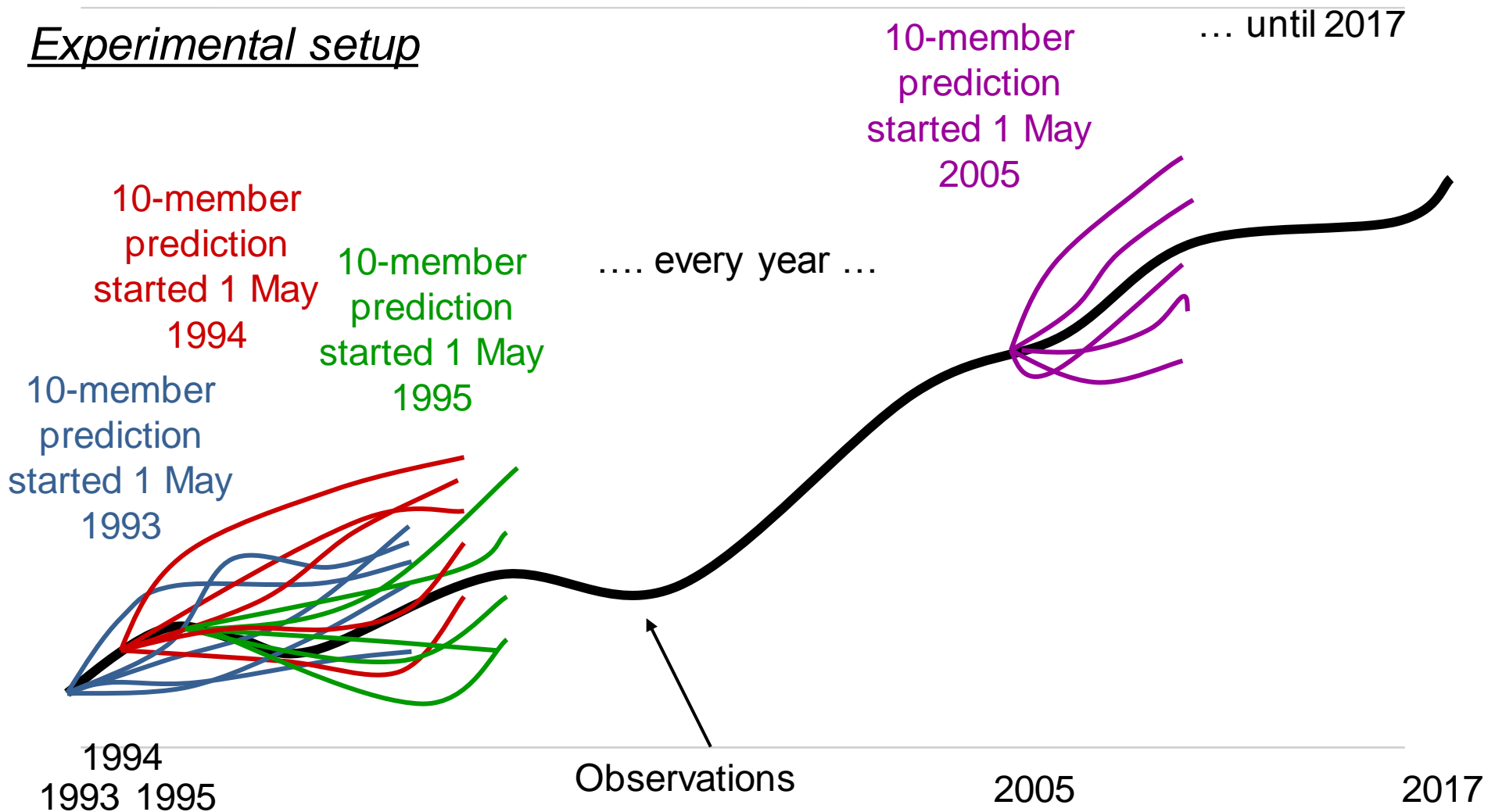


Barcelona Supercomputing Center
Centro Nacional de Supercomputación



Climate Predictions

Experimental setup





INTAROS model evaluation workplan

1. Arctic climate prediction with NorCPM and EC-Earth 3.2 by assimilating the additional data (sea ice, sea surface temperature) from INTAROS. The aim is to test the added-value of INTAROS data set.
2. Data-deny experiments (under planning)
3. Improve hydrological runoff predictions.