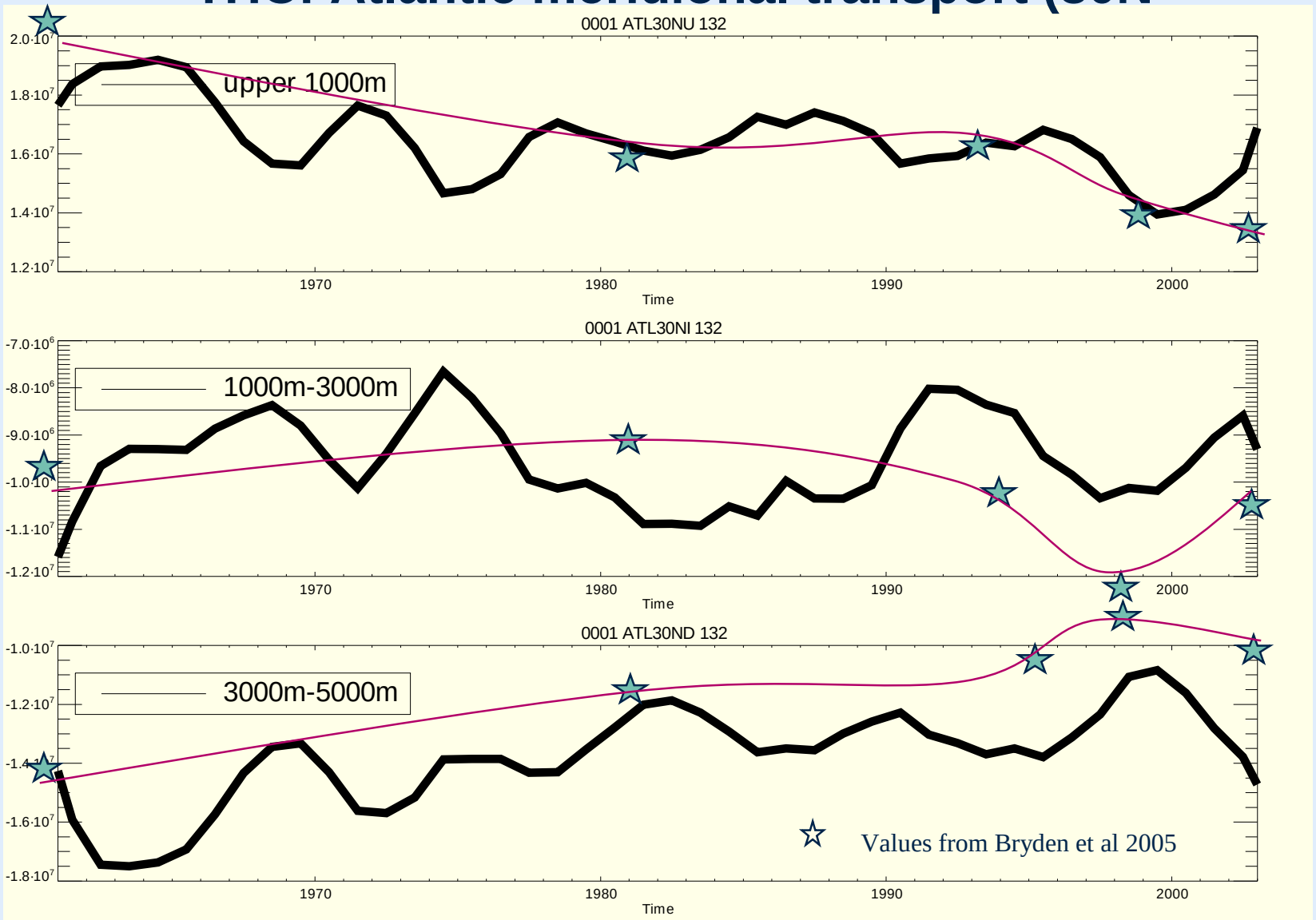
Summary of the working group on seasonal-to-decadal experiments

Ocean analysis

- The observational database EN3 will be ready and available in Aug 2006.
- The ENACT initialisation protocol will be followed as far as possible.
- The current experimental design to generate ocean analyses may not be ideal for multi-annual predictions. Additional thinking and analysis is required (e.g., THC).
- Groups will provide information on plans for the next sets of ocean analyses.
- CERFACS will provide ocean analysis and tools to adapt sets of ocean analysis for the OPA/NEMO community.
- The initial set of common variables will be increased with heat fluxes and volume transports, although not mandatory.

Ocean analysis

THC: Atlantic meridional transport (30N

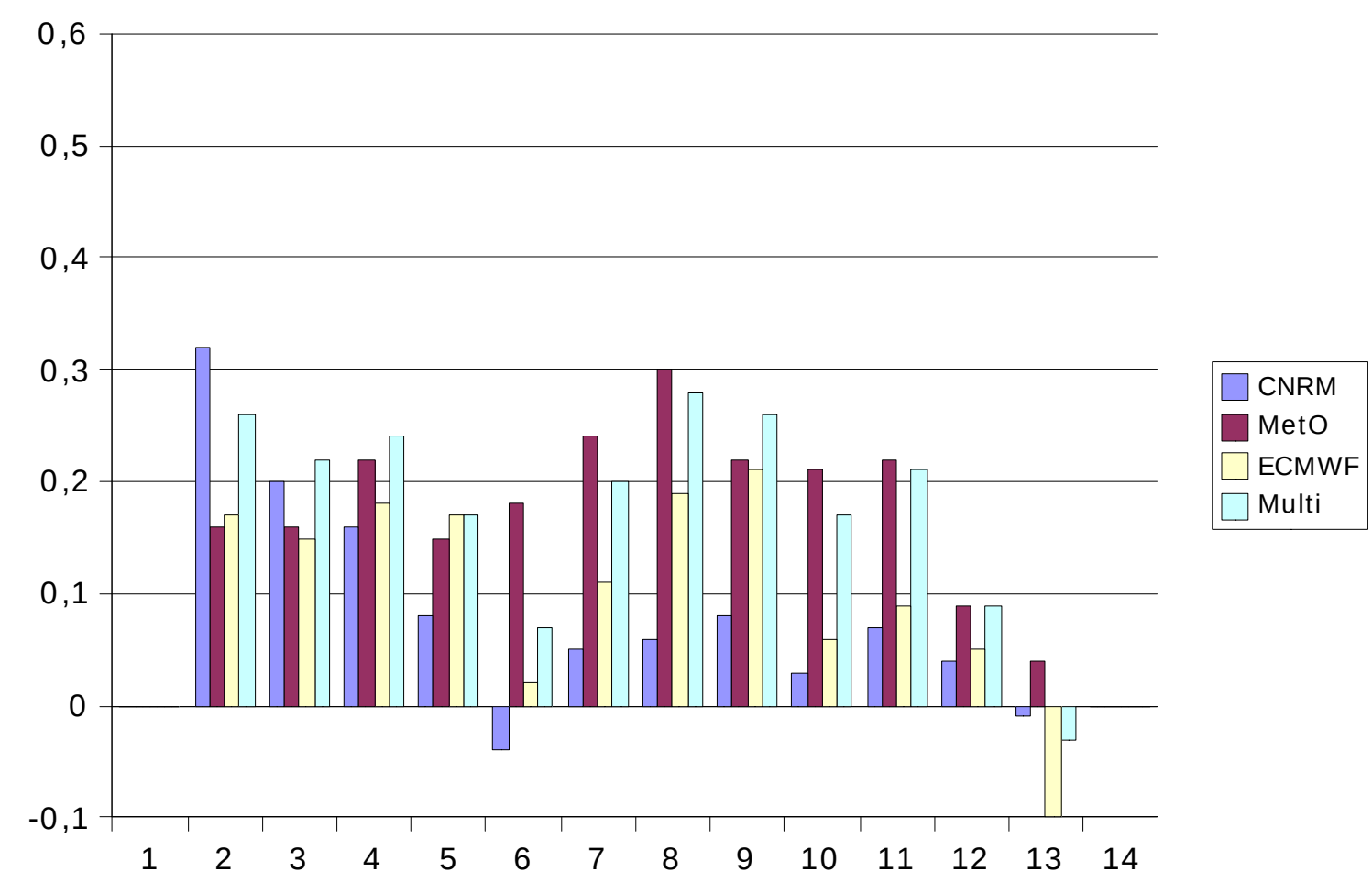


Multi-model

- Seasonal multi-model (3 models) hindcasts (stream 1) show a warm bias in the tropical Pacific.
- Skill (ACC and RMSE) of tropical variability is better than persistence, with a good match to spread (estimated as ensemble standard deviation).
- Interesting recovery in skill has been identified in terms of Northern Hemisphere Z500 variability.
- The annual (14 months) hindcasts indicate a good level of skill (ACC~0.2-0.3).

Multi-model

Seasonal hindcasts 1991-2000, Nov start dates, NH-Z500 ACC, three single models and multi-model



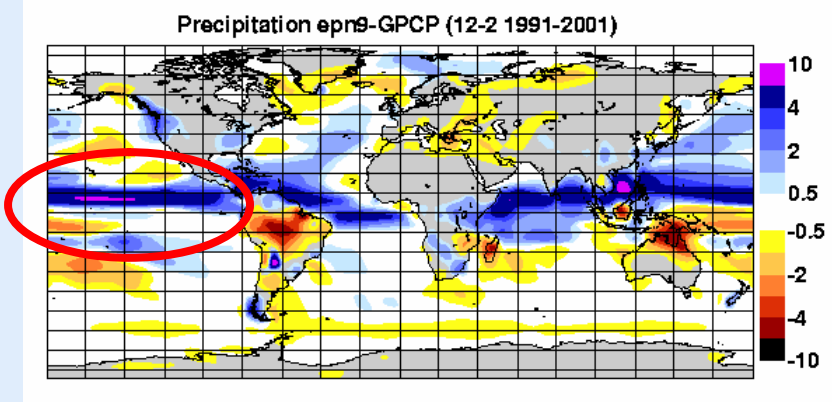
Stochastic physics

- ECMWF uses CASBS, a non-local, quasi-random and state-dependent stochastic physics scheme that backscatters dissipated energy into the resolved flow.
- The Met Office plans to use a similar scheme (with different pattern generation and backscatter criteria) in HadGEM for comparison experiments.
- Stochastic physics show robust beneficial impact in the seasonal and annual hindcasts, especially in terms of tropical precipitation and SST systematic error and intra-seasonal variability over the North Pacific.
- There is also improvement in skill of tropical precipitation and SST skill.
- No improvement is found in decadal integrations.
- There is the possibility of using perturbed parameters and stochastic physics in the same setting.

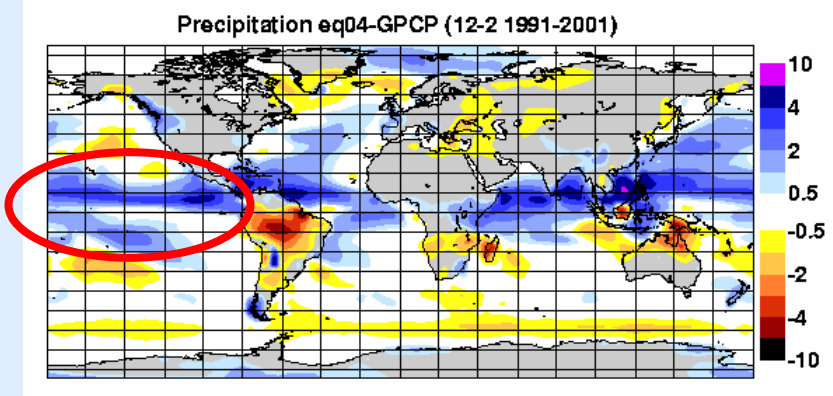
Stochastic physics

Systematic error, DJF precipitation, Nov start date

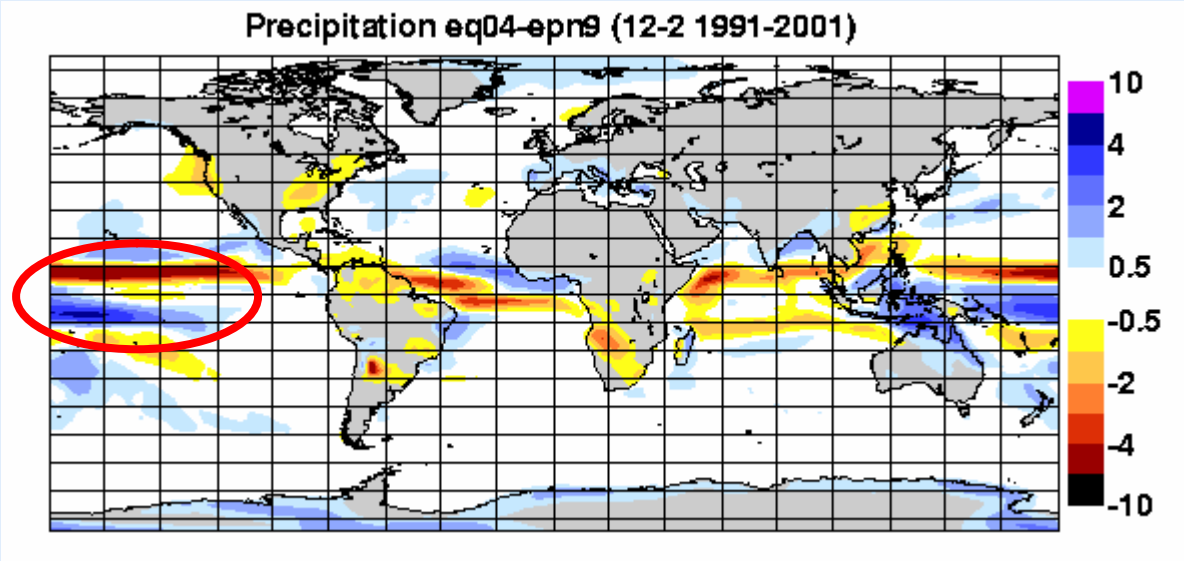
control – GPCP



CASBS – GPCP



CASBS – control

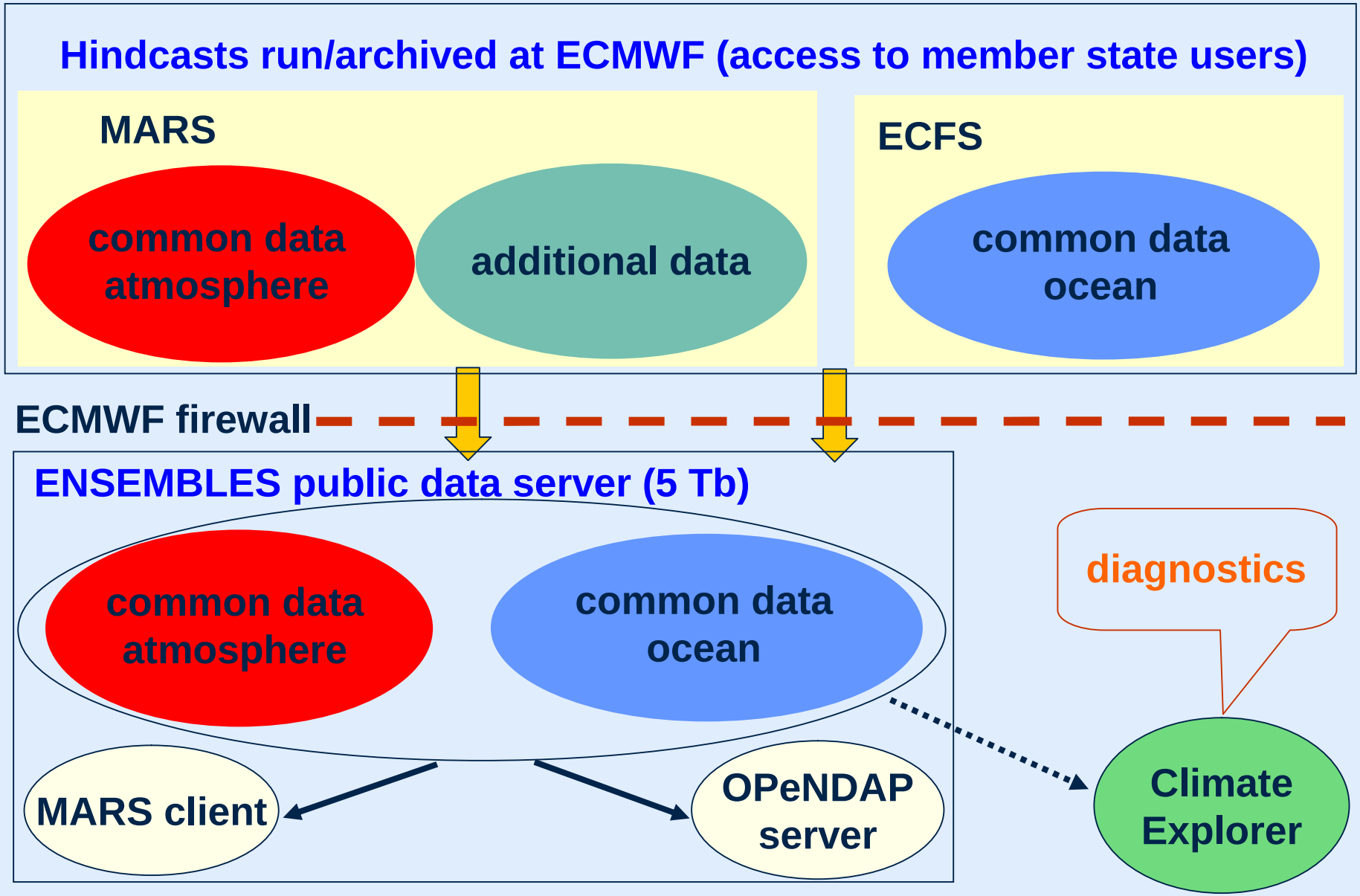


- improved tropical precipitation

Perturbed parameters

- Builds on DePreSys from the Met Office and QUMP and runs ensemble hindcasts up to 10 years.
- Within DePreSys, the assimilation of observed initial conditions slightly improves the skill.
- However, DePreSys overconfidence of hindcasts suggests model error should be sampled -> PPE.
- PPE has less skill and too much spread when compared to the multi-model and DePreSys. Some imbalance between initial conditions and perturbed model version?

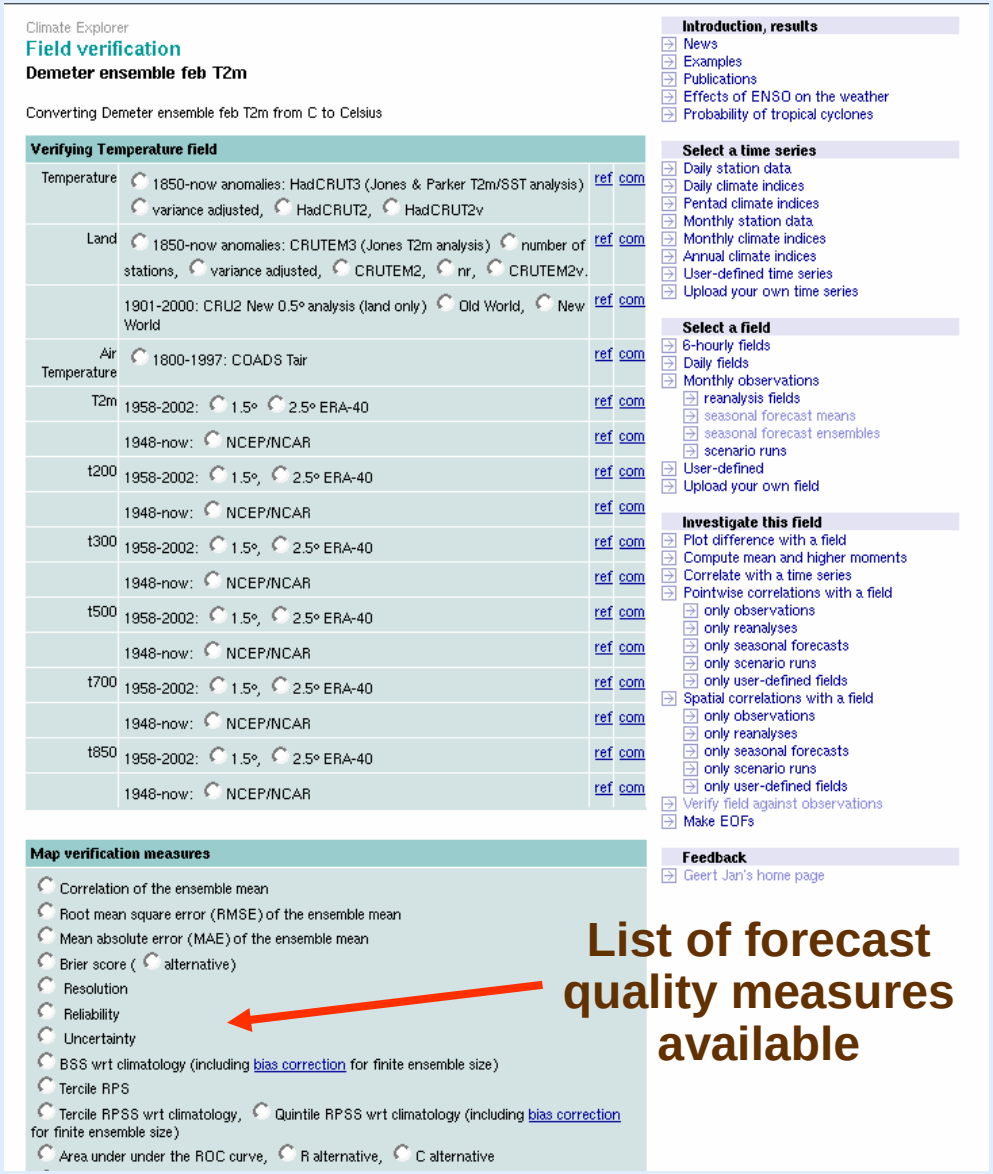
Archiving and dissemination strategy



Public dissemination: link to the Climate Explorer

http://climexp.knmi.nl

- Development in collaboration with RT5
- Reference datasets: station data, climate indices, obs, reanalyses, seasonal forecasts, scenario runs
- Calculation of basic statistics including correlations and EOF analysis
- New feature: forecast skill assessment of DEMETER data
- In a few weeks: link to the ENSEMBLES OPeNDAP server at ECMWF and extreme event analysis (RCLIM) tools



Link to Task Force Seasonal Prediction-WCRP

- Clear links between ENSEMBLES s2d and TFSP exist, e.g. in the domain of constructing and disseminating datasets or in the link to end users.
- ENSEMBLES is a prototype in the design of NetCDF headers for the efficient dissemination of operational s2d ensemble forecasts.
- A joint TFSP/ENSEMBLES RT1RT2A meeting is proposed for summer 2007. Possible venues are Madrid, Barcelona and Geneva. The meeting is expected to be ~3.5 days for TFSP and 1.5 for RT1RT2A.

Stream2 Simulations

- Original Proposal
  - 1960-2001
  - 9-ensemble members
  - 2 Seasonal forecast per Year
  - At least one Multi-annual every 5-years
- A number of issues raised
  - Computer resources (9-ensembles members for 10 yrs)
  - Fit in with other programs EuroSIP, TFSP
  - A case study (2005/6 Winter)
  - Teething problems need to be resolved
- Current Proposal
  - Follow original proposal until multi-annual
  - Extended to 2005
  - Define the multi-annual setup by Feb 2006