# Initial diagnostics on CERA-20C performance

Per Dahlgren
ECMWF

CERA-20C Ensemble

- 1 control + 9 perturbed ensemble members

- Assess uncertainties

- Determine background errors (B-matrix) in data-assimilation

- We expect:

  1: Larger ensemble spread in observation sparse regions

  2: Ensemble spread to decrease over the century

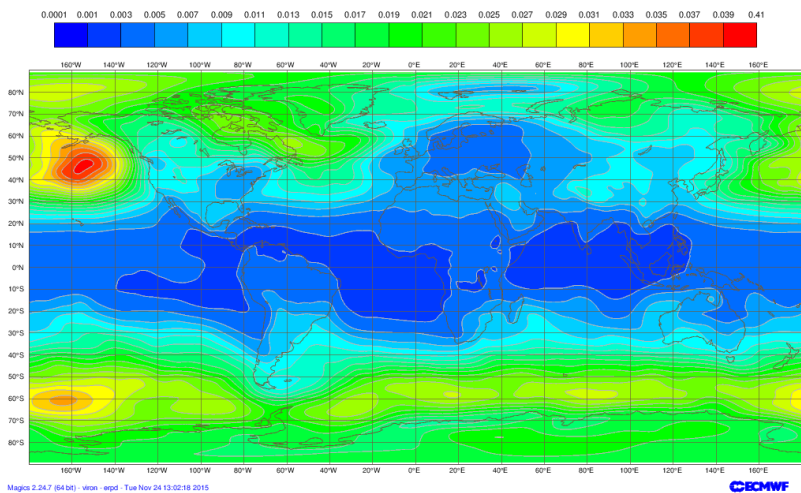# CERA-20C Ensemble spread Feb 2004 +3h forecasts of lnPs

200402 Avg. ens. spread. scaled standard deviation LNPS
EXP 2379 CERA-20C
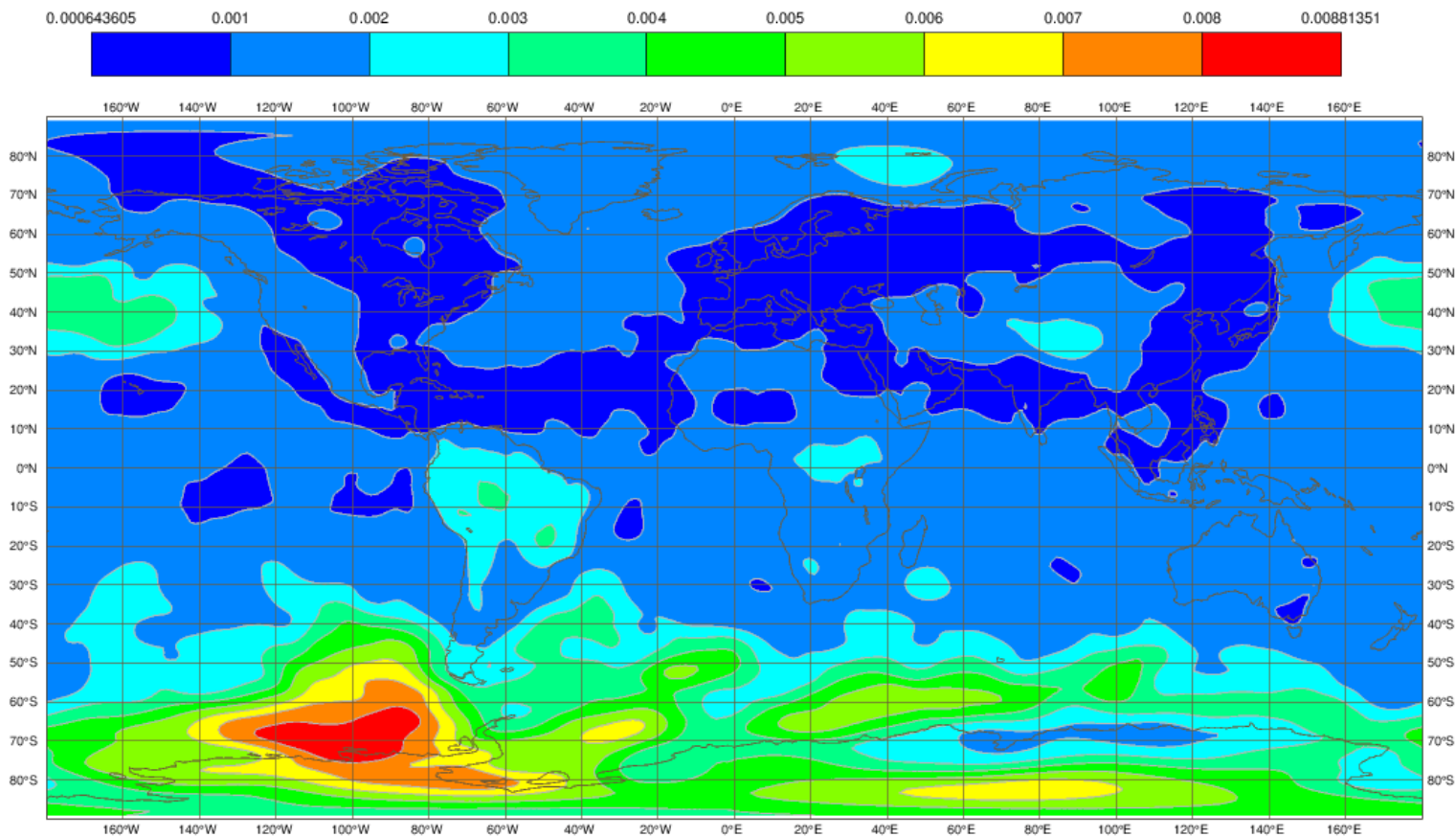
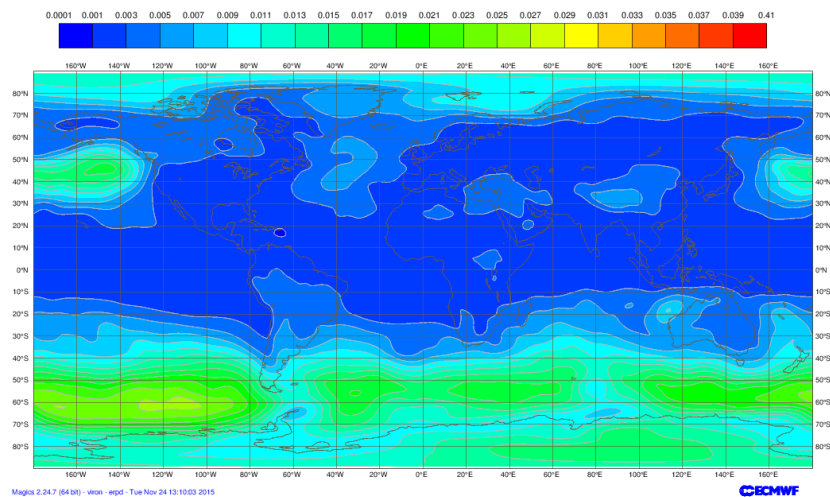# CERA-20C Ensemble spread Feb. +3h forecasts of lnPs

Feb 1900

190002 Avg. ens. spread. scaled standard deviation LNPS
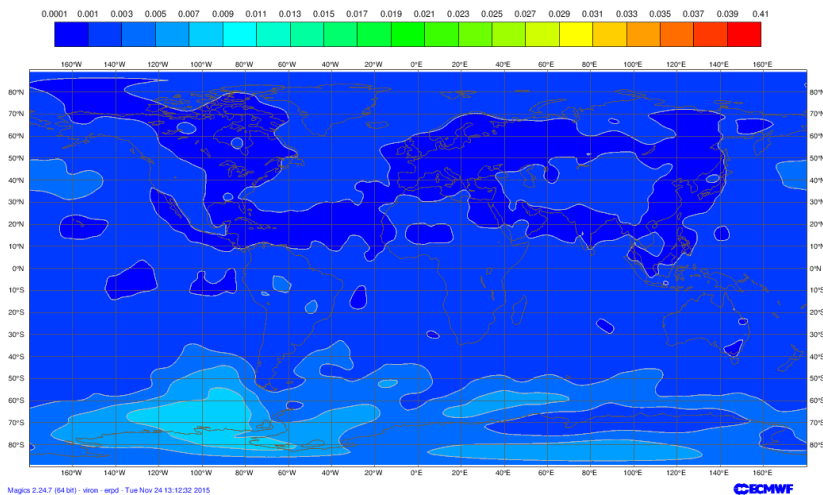EXP 2366 CERA-20C

Feb 1948

194802 Avg. ens. spread. scaled standard deviation LNPS
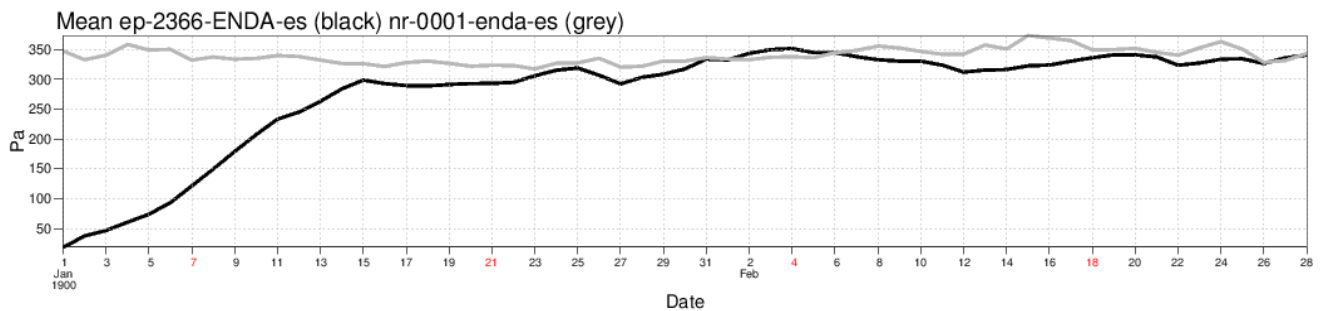EXP 2372 CERA-20C

Feb 2004

200402 Avg. ens. spread. scaled standard deviation LNPS
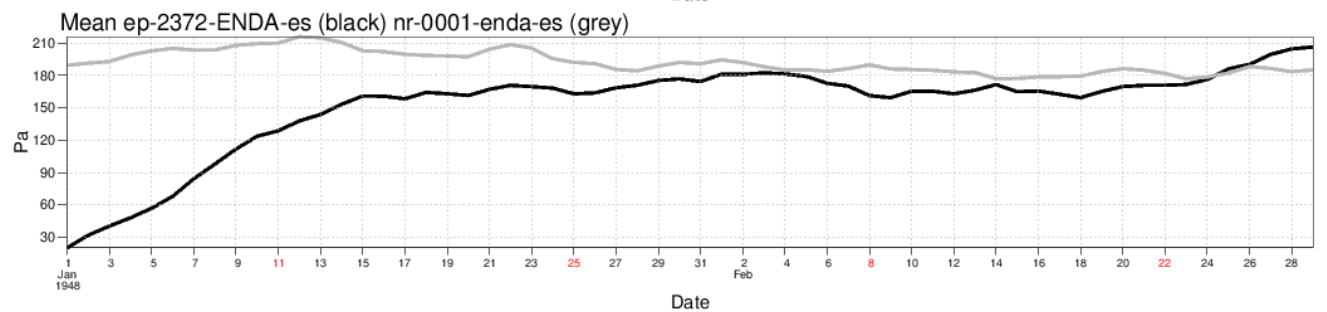EXP 2379 CERA-20C

Fixed colour scale used

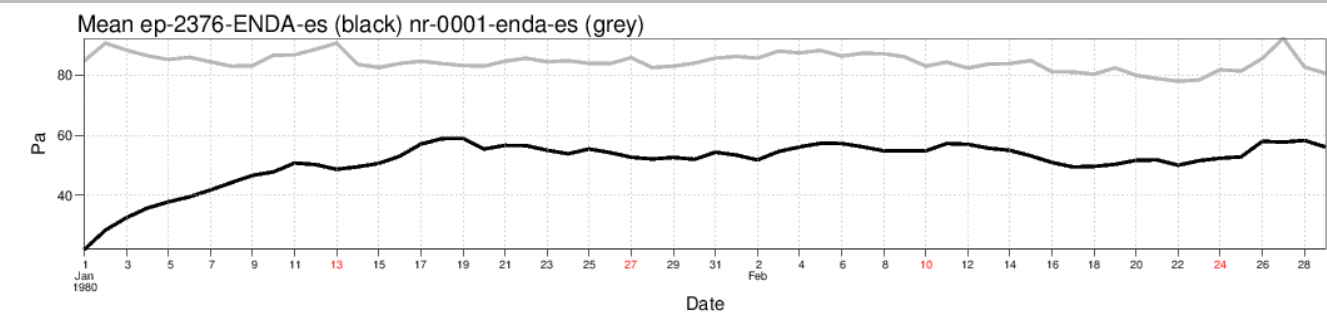# CERA-20C Ensemble spread. +3h forecasts of lnPs
Global averages

1900

1948

1980

2004

CERA-20C
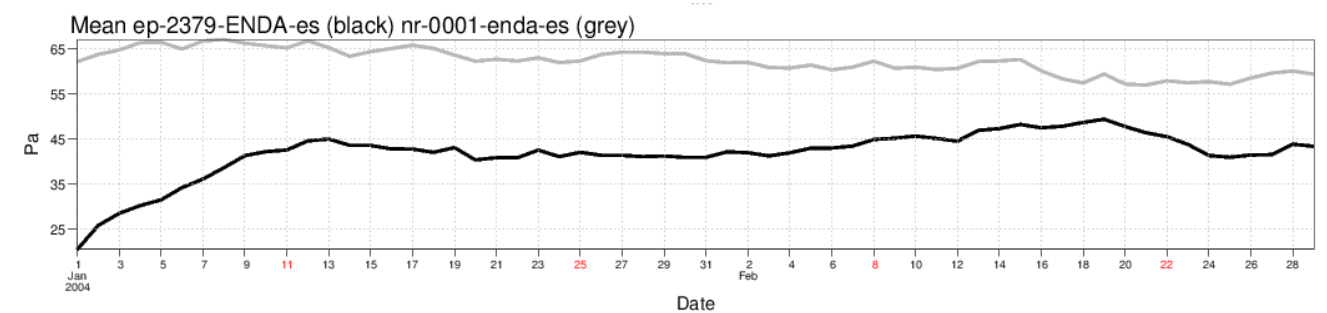
20CR

Initial diagnostics on CERA-20C performance

- ENS-spread decreases over the century, as expected

- ENS-spread of CERA-20C similar to 20CR in beginning of century

- ENS-spread of CERA-20C lower than 20CR at the end of the century

- Diagnostic studys have only just begun