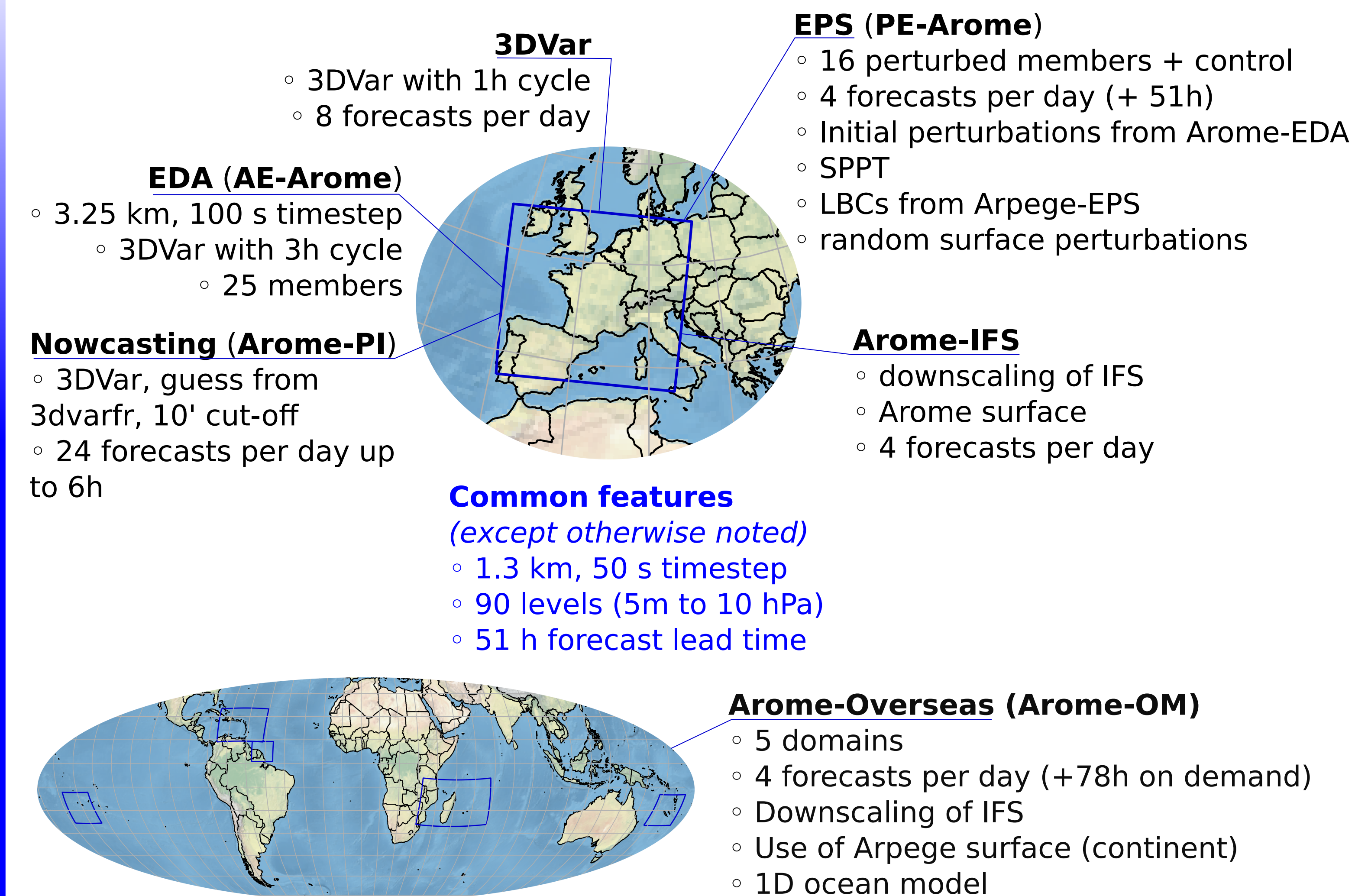


Regional operational NWP systems based on AROME

operational suite: cy46t1_op1

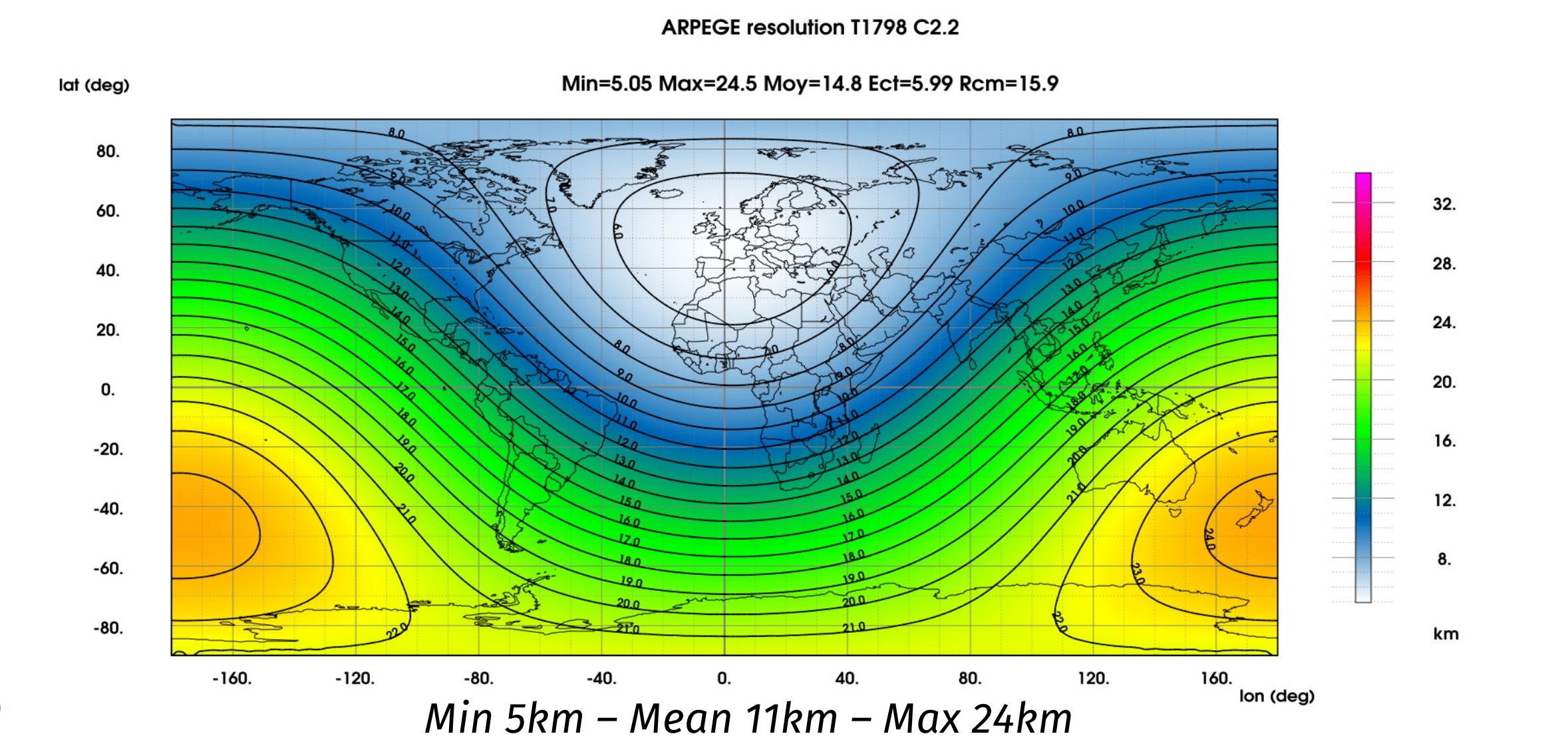
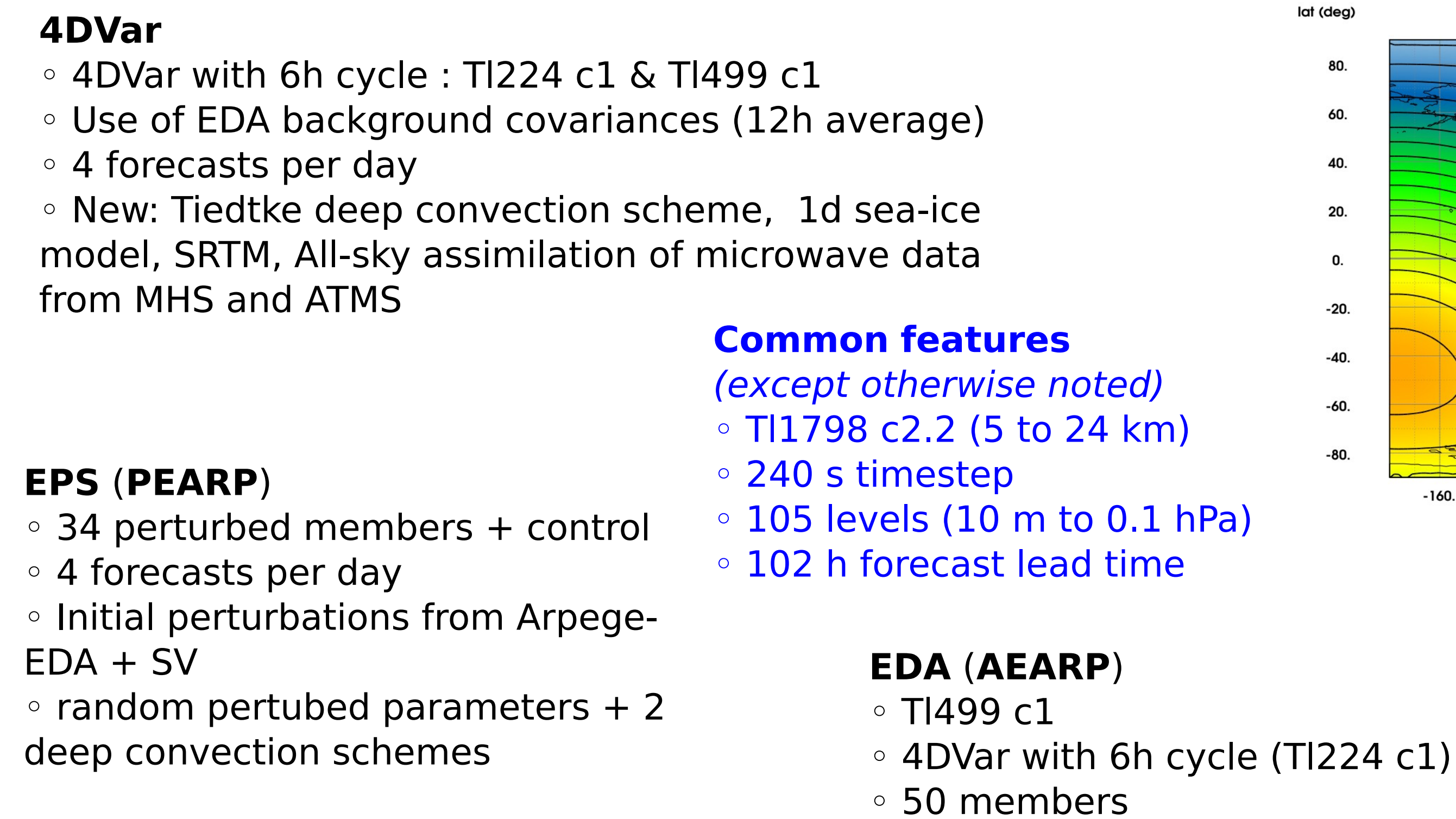


References

- Brousseau et al 2016, Improvement of the forecast of convective activity from the AROME-France system. Q.J.R. Meteorol. Soc., 142: 2231-2243
- L. Raynaud et F. Bouttier, 2016: Comparison of initial perturbation methods for ensemble prediction at convective scale, Q. J. R. Meteorol. Soc.
- Bouttier et al. 2016 Sensitivity of the AROME ensemble to initial and surface perturbations during HyMeX. Q. J. R. Meteorol. Soc.
- Merlet et al, 2017: Arome for nowcasting, Aladin-Hirlam Newsletter n°9
- Faure et al, 2020: Operational Implementation of the AROME Model in the Tropics, Weather and Forecasting, 35(2), 691-710

Global operational NWP systems based on ARPEGE

operational suite: cy46t1_op1



References

- Descamps et al 2015, PEARP, the Météo-France short-range ensemble prediction system. Q.J.R. Meteorol. Soc., 141: 1671-1685
- Bouysse et al, 2022, The 2020 Global Operational NWP Data Assimilation System at Météo-France, Data Assimilation for Atmospheric, Oceanic and Hydrologic Applications (Vol. IV)

Overview of Météo-France NWP systems

2 HPC, 2 implementations

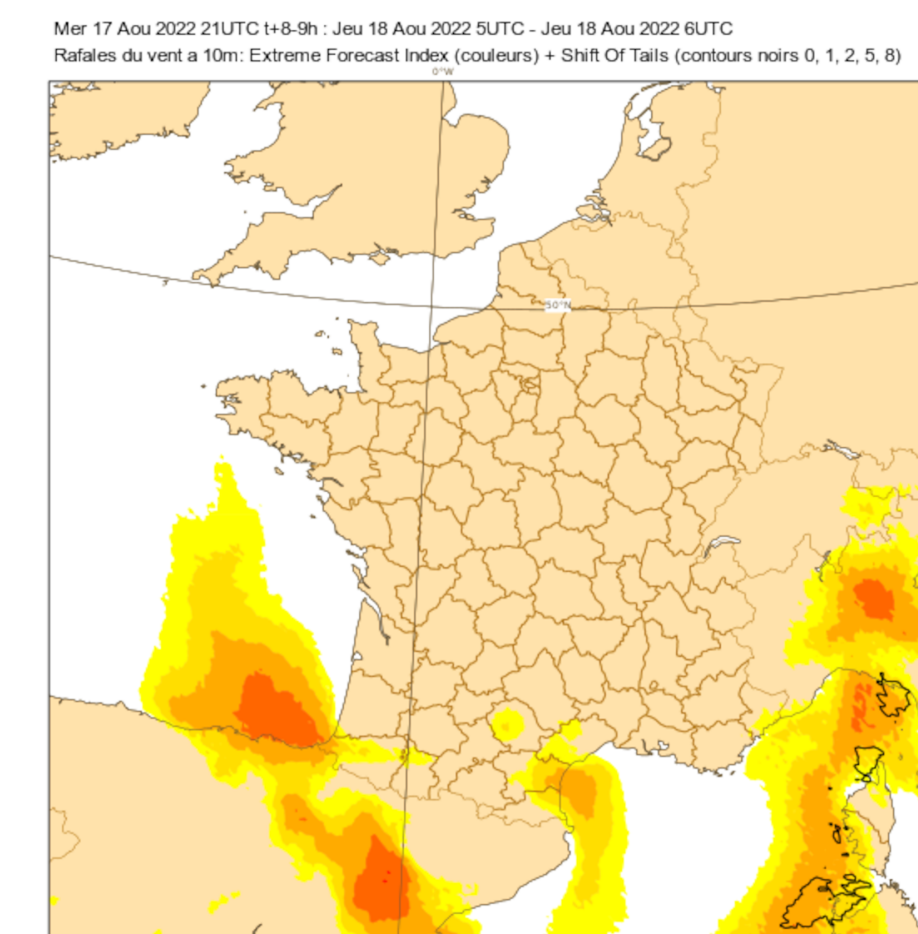
In operations since February 2021
No upgrade during the 4 year contract



Each HPC: ATOS BULL Sequana XH2000
2292 computing nodes

10.39 PFlops peak performance
2 AMD Epyc Rome processors with 64 cores at 2.25 Ghz

=> Five fold increase in performance than the previous HPC



Further perspectives (2022-2023)

- Transfer to operations of EFI and SOT diagnostics on Arpege EPS and Arome EPS
→ Operational switch planned in winter 2022-2023
- Preparation of Arome overseas EPS:
16 members at 2.5km L90, twice per day, 5 geographical domains
→ Operational switch planned beginning of 2023

Next e-suite: cy48t1_op1:

- OOPS in 3DVar and 4DVar analyses
- Assimilation: 3DVar Arome, hybrid B matrix in Arpege 4Dvar
- Arome EDA: 50 members (instead of 25 currently)
- Physics: EcRad (Arome), use of SST from Mercator-Océan global model and enhancement of Tiedtke deep convection scheme (both for Arpege), change of aerosol and ozone climatologies (from CAMS, Arome)
- Dynamics : use of WENO interpolations for T and Q in stratosphere (Arpege)
- Observations: "all sky" assimilation of microwave obs, Arpege: GOES-17, CrIS mode «FSR», GNSS-RO (GRACE-C, Sentinel-6, Spire), scatterometers HY-2B & HY-2C(Arome), AMV HIMAWARI/AHI, Mode-S from EMADDC (Arome), WIGOS adaptations
- PEARP: revision of singular vectors and of the range of perturbed parameters

