

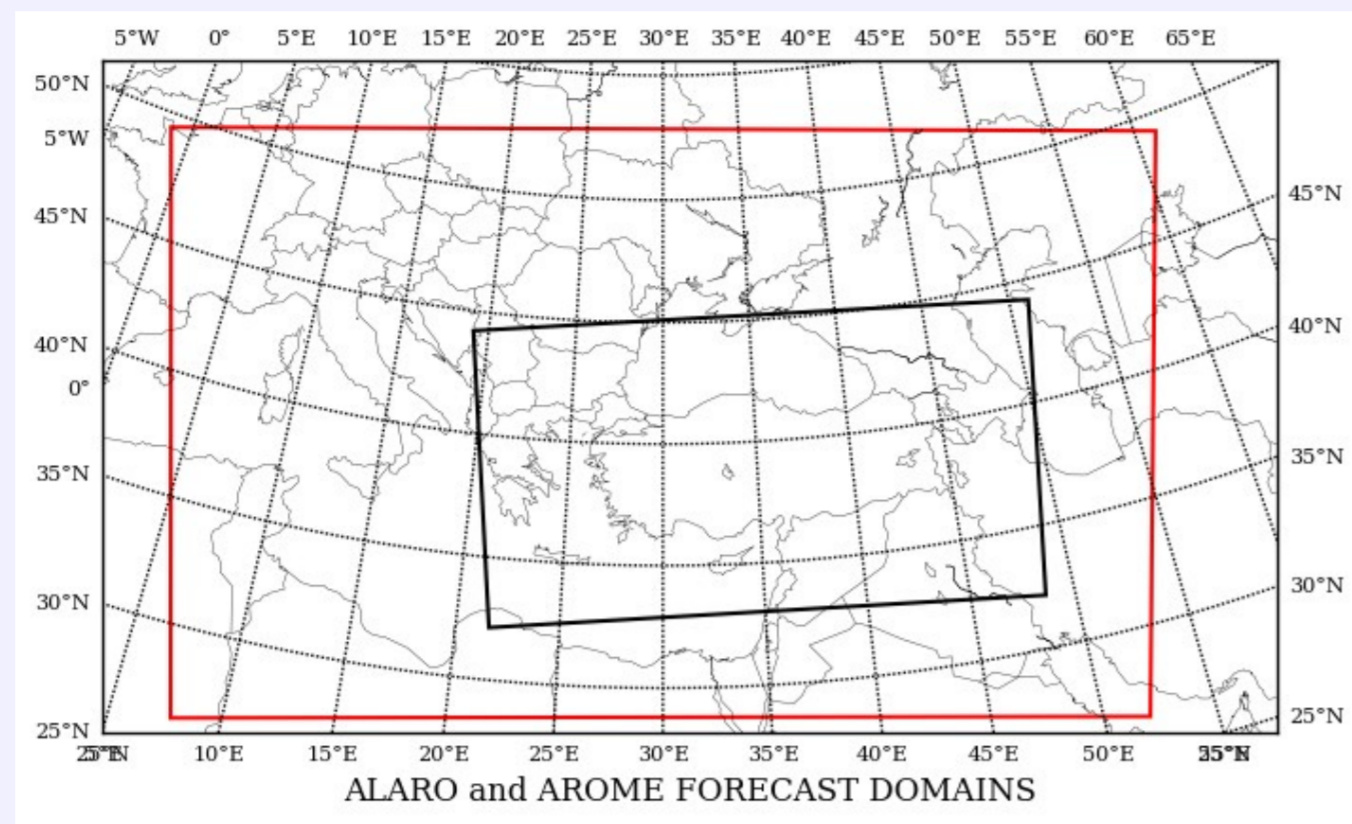
## Operational Configurations

### ALARO-TURKEY

Current operational suite:  
Model version: cy43t2\_bf10

#### Model Geometry:

- 4.5 km horizontal resolution
- 600 X 1000 grid points
- 72 vertical model levels
- Linear spectral truncation
- Lambert projection



#### Forecast Settings:

- 4 runs per day at 00, 06, 12 UTC
- 00,06,12 UTC (up to t+72) and 18 UTC (up to t+60).
- Coupling with ARPEGE LBC files at every 3 hours

### AROME-TURKEY

Current operational suite:  
Model version: cy43t2\_bf10

#### Model Geometry:

- 1.7 km horizontal resolution
- 629 X 1589 grid points
- 72 vertical model levels
- Linear spectral truncation
- Lambert projection

#### Forecast Settings:

- Hourly post-processing
- 4 run per day at 00,06,12,18 UTC
- up to 48 hourly forecast

### PARALLEL SUITE

**AROME-RUC (CANARI OIMAIN)** Model version: cy43t2\_bf10

#### Model Geometry :

Same as operational  
**Forecast Settings:** Coupled to ECMWF-IFS, forecasts up to t+24

#### Assimilation Settings:

- 3 hour assimilation cycle
- Surface Assimilation- Canari OI Main
- Coupling with ECMWF LBC files at every 3 hours

#### Observation Usage:

- SAPP Observations GTS + Local

## DAsKIT Activities

AROME-RUC surface assimilation system is running pre-operationally. The surface assimilation system is running on ecflo suite. SAPP program is used for observation pre-processing. SAPP synop data (rh2m, t2m) are assimilated in surface assimilation system.

As a next step, to be able to run 3d-Var, the background error of AROME Turkey was calculated as follows:

### B-Matrix Calculation for AROME-Turkey

- B-matrix from ECMWF EPS was calculated for AROME-Turkey on ECMWF cca by using the scripts of ZAMG and SHMU.
- The B-matrix was calculated for 30 days covering the period of 20210811-20210909.
- Total 120 forecast differences were utilized.
- The 00 and 12 UTC runs of 4 members of EPS were used for the calculation. And the calculation was done for the cycle version cy43t2\_bf10.

## HPC Systems at TSMS

### SGI ICE XA (Water cooled) System

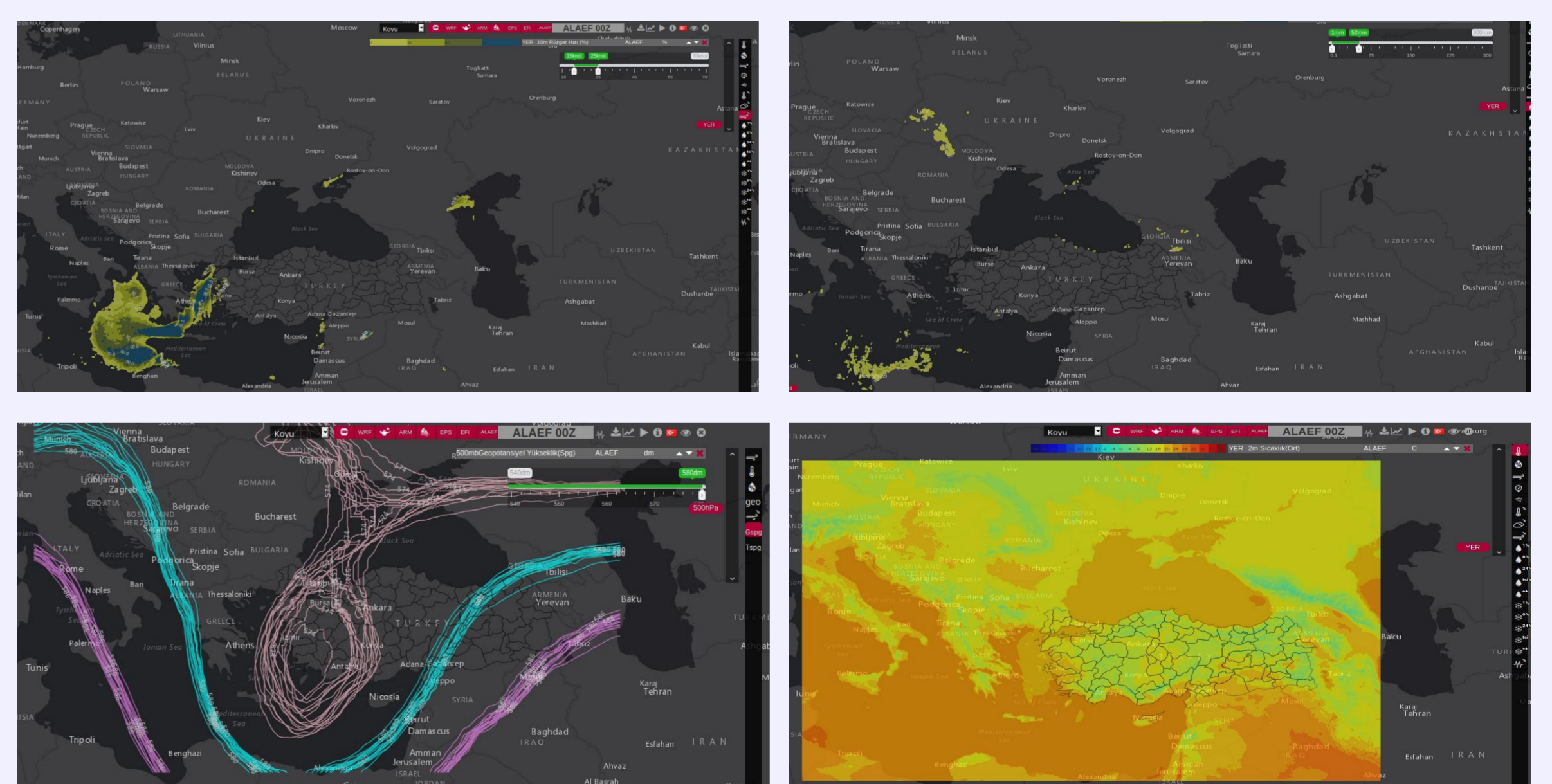
- 288 nodes, E5-2690v4 Broadwell, 2.6GHz,
- 14 Cores ( Total 4032 Core),
- 192GB DDR4 RAM per node
- ~168 Tflops peak performance
- OmniPath (100 Gbps),
- Enhanced Hypercube Interconnect Topology
- Altair PBS Pro
- SLES 12
- Intel Parallel Studio XE Cluster Edition
- SGI Lustre System ; 350TB disk storage (Installed at Turksat Headquarter)



## A-LAEF Activities

Since 1 December 2020, A-LAEF post-processing data has been using operationally at TSMS by kind help of Martin Bellus.

- Domain 4.5km , 869\*429, 16 members, 60 vertical levels
- User can select the thresholds for the probability maps.
- Spaghetti plots are produced for upper air parameters.
- For surface parameters, ensemble mean is plotted.



Representation of A-LAEF products on TSMS interactive web page (10m wind probability forecast for threshold between 15-25 knot and hourly total precipitation probability forecast for threshold between 1-52 mm on top. Spaghetti plot of geopotential height at 500 hPa and ensemble mean plot of 2 meter temperature at bottom).

## Surfex Activities

### Application of ECOCLIMAP 2<sup>nd</sup> Generation

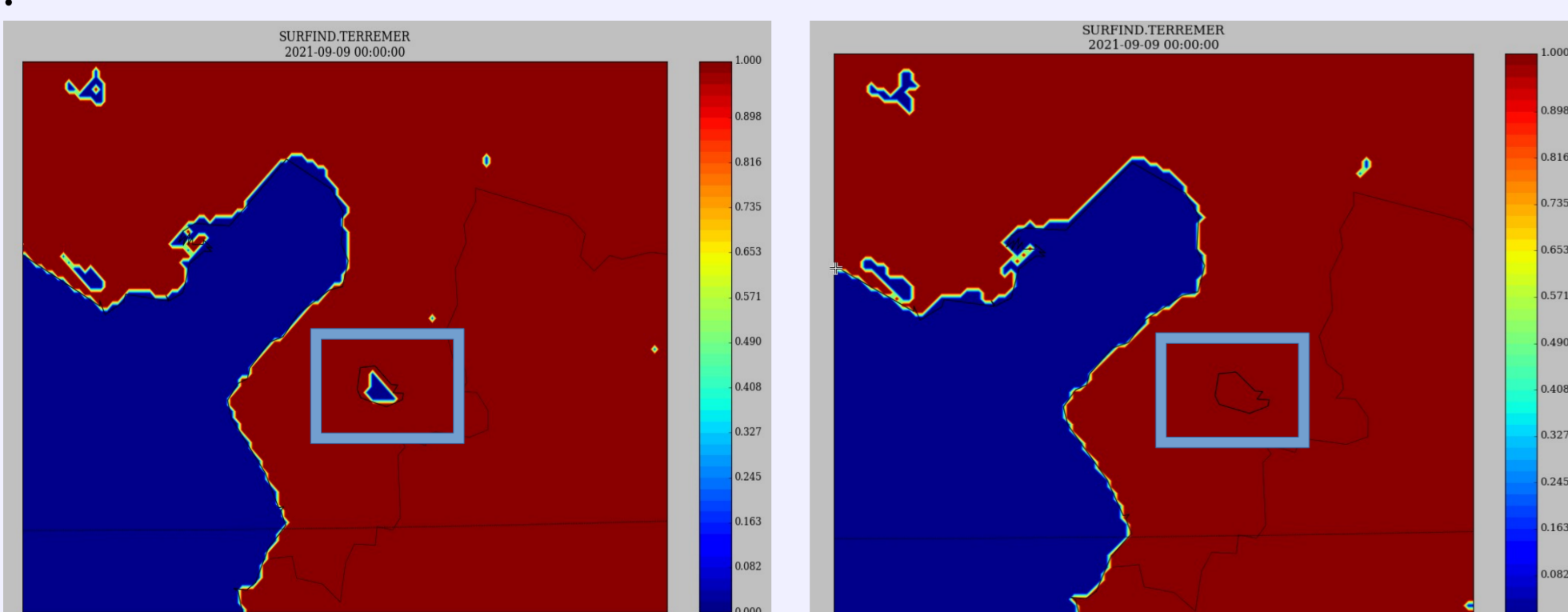
- Creation of new PGD file with ECOCLIMAP-SG using COVER, ANS, ANV, ALBNIR\_SAT, ALBVIS\_SAT and HT data sets.

- The following lines were added to the namelist:

```
&NAM_COVER
YCOVER = 'ecosg_final_map'
YCOVERFILETYPE = 'DIRECT'
```

```
/
&NAM_FRAC
LECOCLIMAP = T,
```

- The surface characteristics are represented more accurately as shown in the following map.



The removal of the lake (shown in blue rectangle) which does not exist in real, in AROME Turkey domain after using ecoclimap 2<sup>nd</sup> generation.