ALARO-TURKEY
Current operational suite:
Model version: cy38T1

Model geometry:
• 4.5 km horizontal resolution
• 450 x 720 grid points
• 60 vertical model levels
• Lambert projection

Forecast settings:
• Digital filter initialization
• 180 sec time-step
• Hourly post-processing
• 4 runs per day at 00, 06, 12 UTC (up to 1+72) and 18 UTC (up to 1+60).
• Coupling with ARPEGE LBC files at every 3 hours

AROME-TURKEY
Pre-operational suite:
Model version: cy38t1

Model Geometry:
• 2.5 km horizontal resolution
• 512 x 1000 grid points
• 60 vertical model levels
• Linear spectral truncation
• Lambert projection

Forecast settings:
• Digital filter initialization
• 60 sec time-step
• Hourly post-processing
• 1 run per day at 00 UTC up to 48 hourly forecast
• Coupling with ARPEGE LBC files at every 3 hours

HPC Systems at TSMS

• 512 core based Intel Itanium2 each at 1.67 GHz.
• Total Peak performance 3.4 TFlops
• Total memory 1 TB
• 2 Login, 2 Services Nodes and 3 Xen based postprocessing Nodes
• 30 TB Disk Storage

Case Study for Wind Gust over Turkey

On March 23rd and 24th 2016, high winds caused damages across Aegean and central region of Turkey. Wind gusts of up to 95 knots led to trees falling, cancellations of flights and ferries. The actual case study was based on the comparisons of 23.03.2016 00GMT run of ALARO and ALADIN related models. The study is still in the process.

Interactive SkewT-LogP Diagram Application

Interactive SkewT – LogP Project, which enables the user to plot the Temp diagram of any given point when clicked on google based map. The diagrams are produced based on WRF and ALARO models. In the project, open source codes and softwares were used and code improvements were done by Turkish Aladiners.

User-friendly SkewT diagrams are produced for the given point instead of generating this diagram for every point in the map and user can make alteration on the diagram. In this context, the computer resources are used more efficiently. Therefore, it was a necessity to switch to interactive applications.

Interactive Page Study for National Aviation Activities

According to the need of national aviation, an interactive page study is started to develop. This study will enable pilots to get cross section map between departure and arrival points. The map, the horizontal axes illustrates flight distance (in km) and the vertical one shows levels from surface to selected level (in km). The outputs generating from the operational AROME model consist of temperature, wind direction and speed, vertical velocity, cloud fraction, QNH, topography. In addition of these parameters, the parameter of ice severity is generated from the operational AROME model consist of temperature, wind direction and speed, vertical velocity, cloud fraction, QNH, topography. In addition of these parameters, the parameter of ice severity is generated from the operational AROME model. This application generates the following parameters: Temperature, Dew Point, Velocity, Humidity, CAPE, CIN, Icing, Vertical Wind, Instability Indices, Thickness.

For each pressure level, temperature, dew-point temperature, wind speed and direction and the height of the pressure level are shown in a table. The application allows the user to make changes in values and atmospheric profile. After the modifications, all instability indices are recalculated.

In addition, the application has hodograph feature. Wind shear is plotted in 0-3, 0-6, 0-16 km height ranges on the hodograph.