

# NWP in Croatian Meteorological and Hydrological Service

## Current status of the operational suite

### Computer

SGI Altix LSB-3700 BX2 Server with 48 Intel Itanium2 1.6GHz/6MB  
96 GB standard system memory, 2x146 GB/10Krpm SCSI disk drive  
OS SUSE Linux Enterprise Server 9 for IPF with SGI Package  
Intel Fortran & C++ compilers version 9.0.031  
Queuing system (PBS Pro)

### LBC files and lines

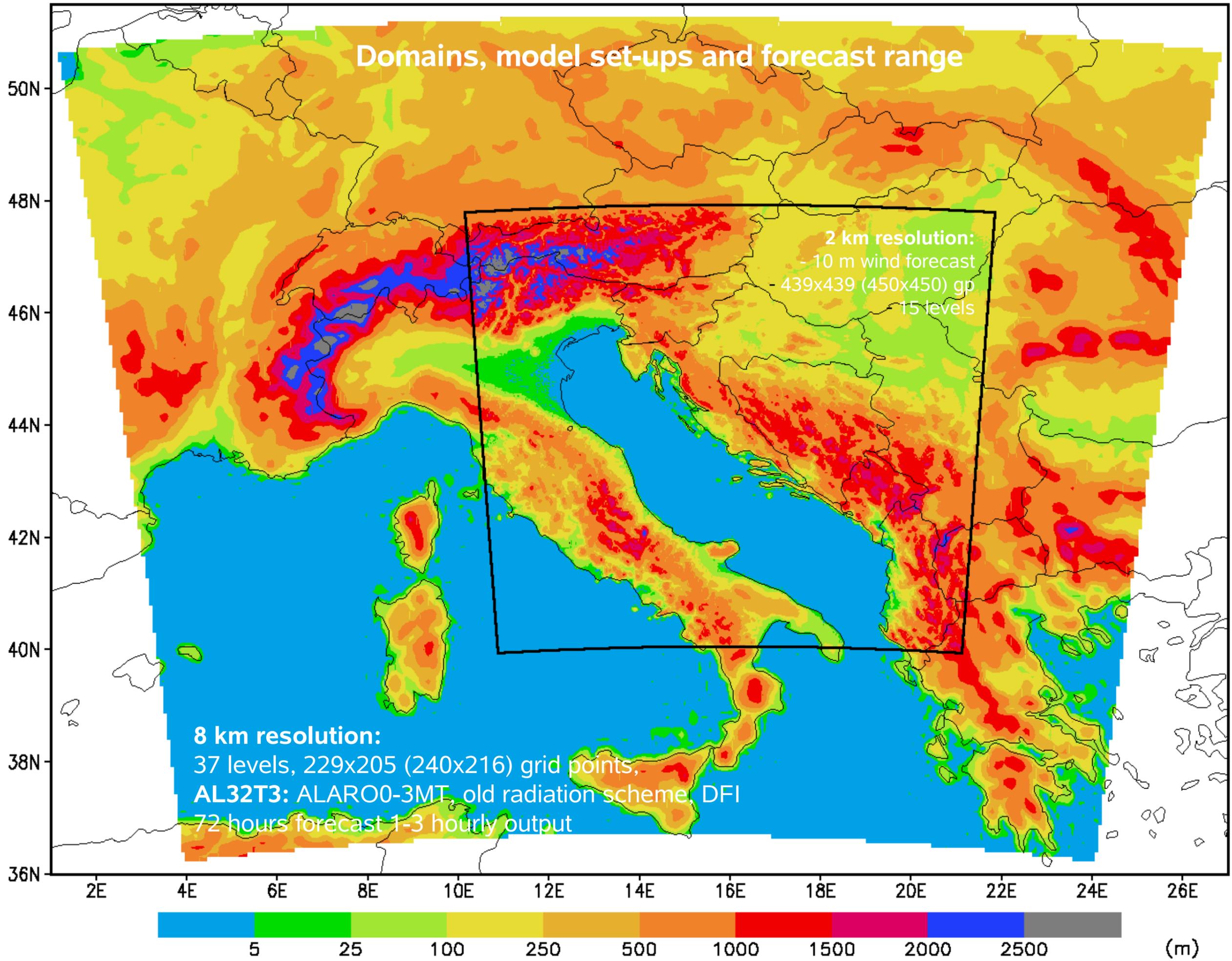
global model ARPEGE, coupling frequency 3 hours  
Internet and **RMDCN** through ecgate as backup from July 2006

### Products on Internet

[http://prognoza.hr/karte\\_e.php?id=aladin&param=&it=](http://prognoza.hr/karte_e.php?id=aladin&param=&it=)  
[http://www.dhmz.htnet.hr/prognoza/karte\\_e.php?id=aladin&param=&it=](http://www.dhmz.htnet.hr/prognoza/karte_e.php?id=aladin&param=&it=)



# Domains, model set-ups and forecast range



## **The operational suite**

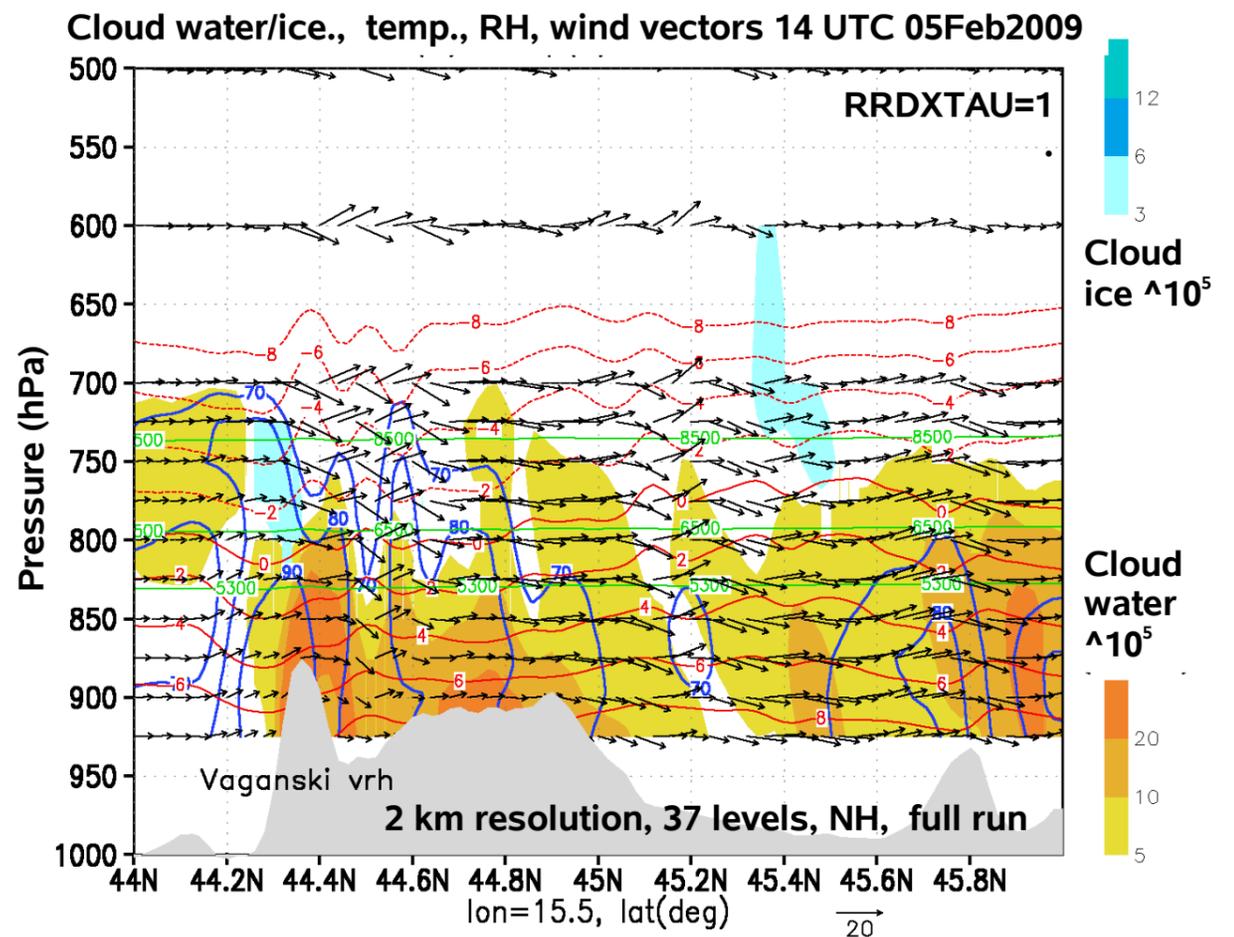
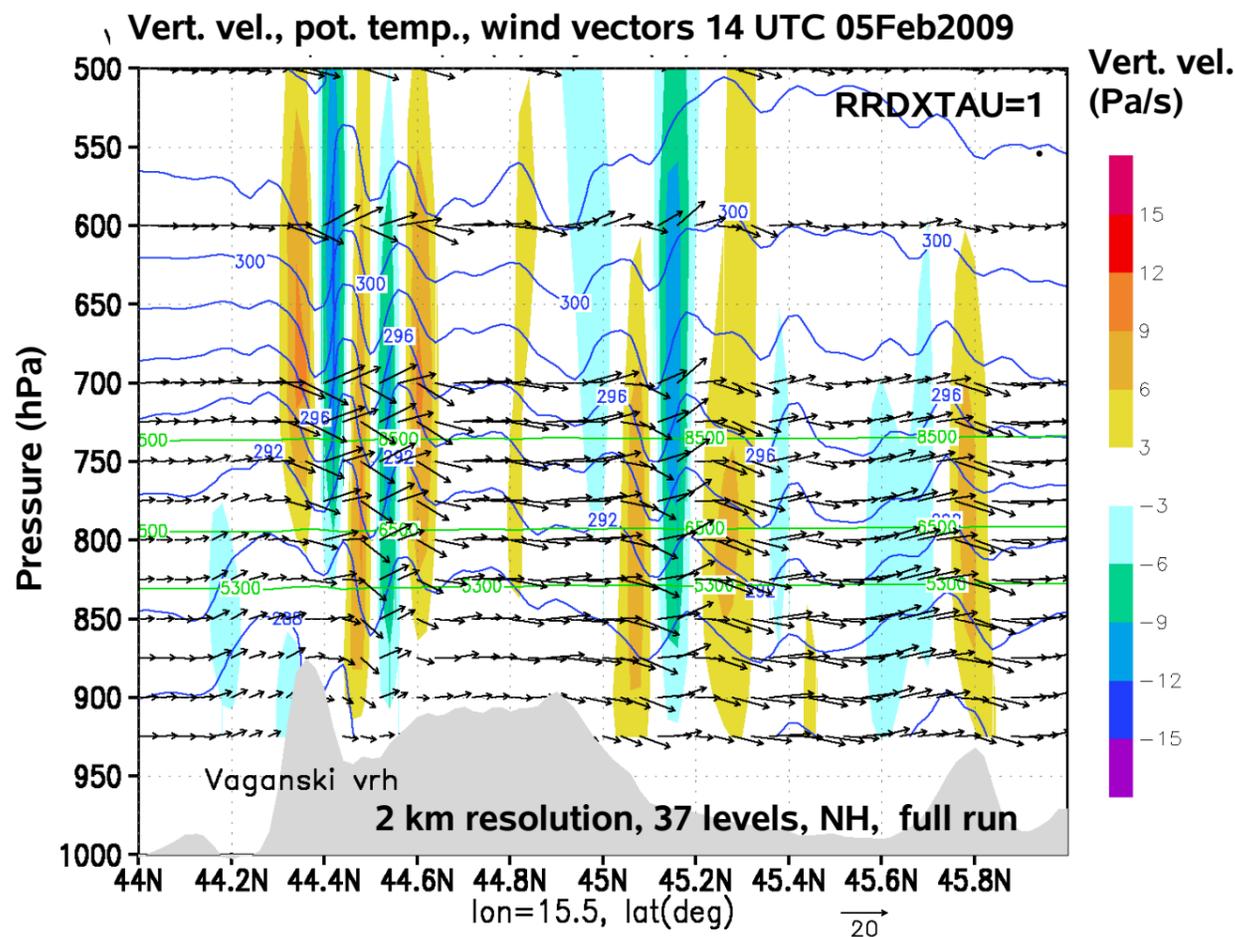
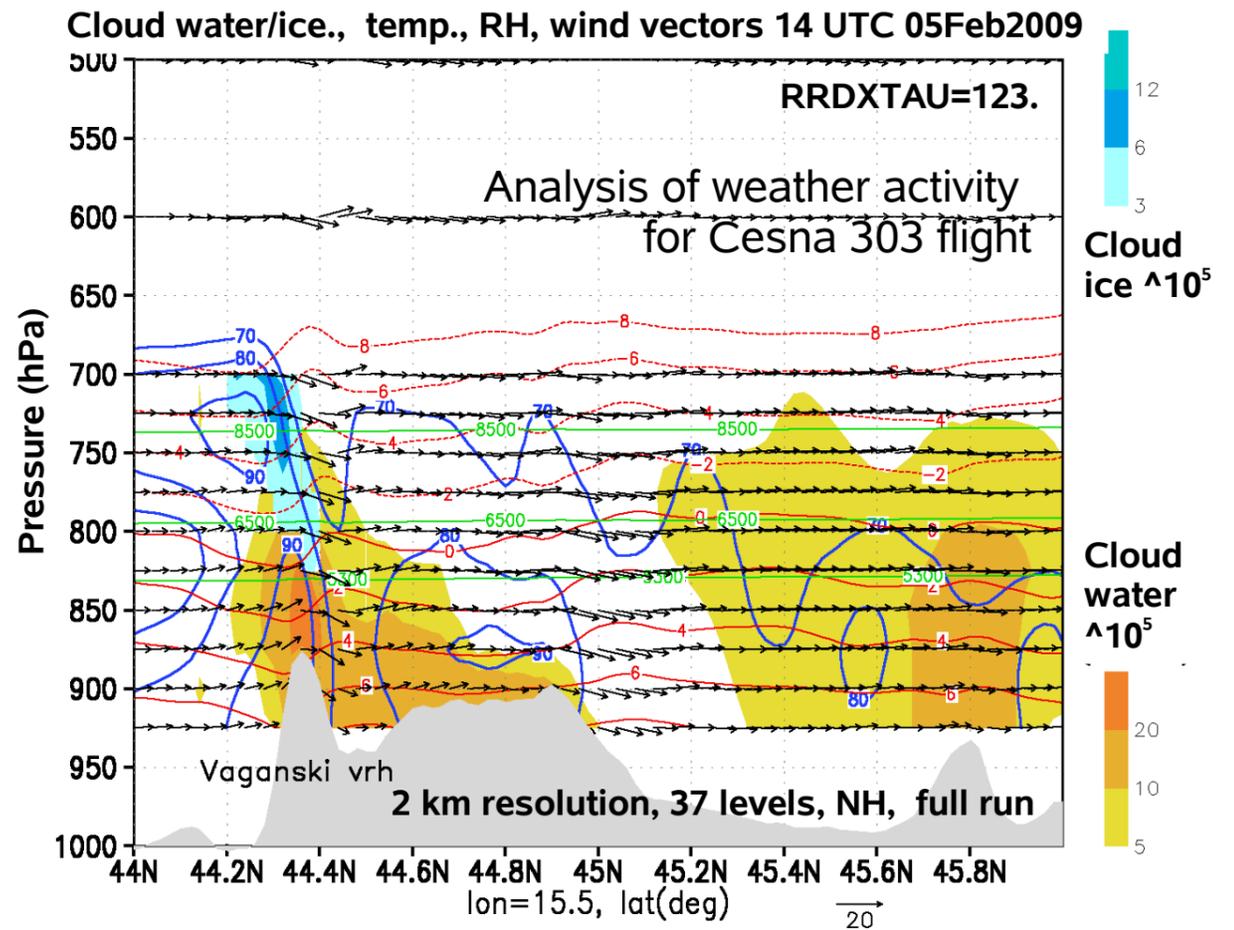
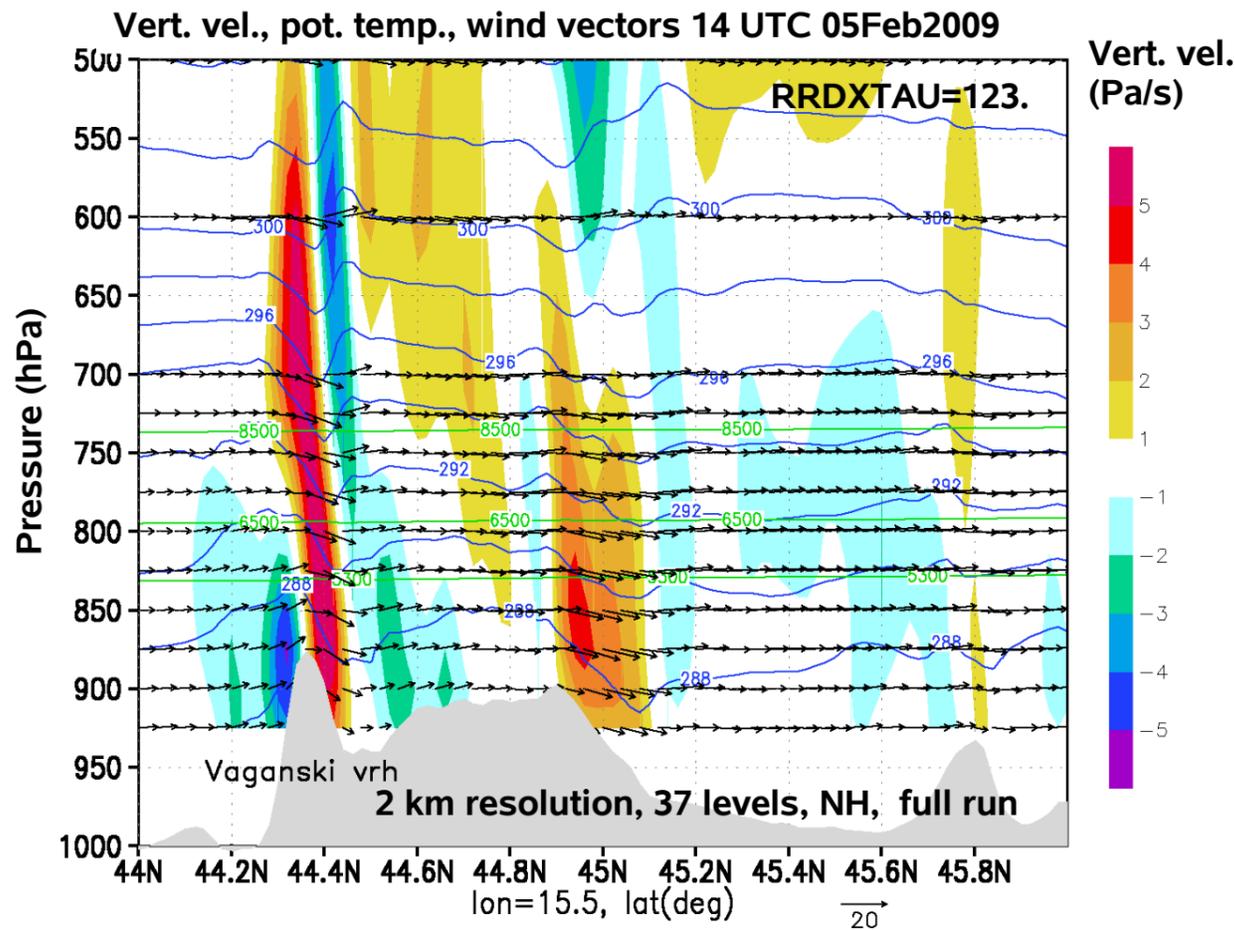
- the operational suite uses one model version AL32T3 with the physics set-up nicknamed Alaro0-3MT since the end of February 2008,
- one huge 2 km domain is used for 10 m wind dynamical adaptation,
- porting of remaining visualization and post-processing tools to the new visualization machine,
- operational production of the ALADIN meteorological input for RODOS dispersion model.

## **Changes since the the last WS**

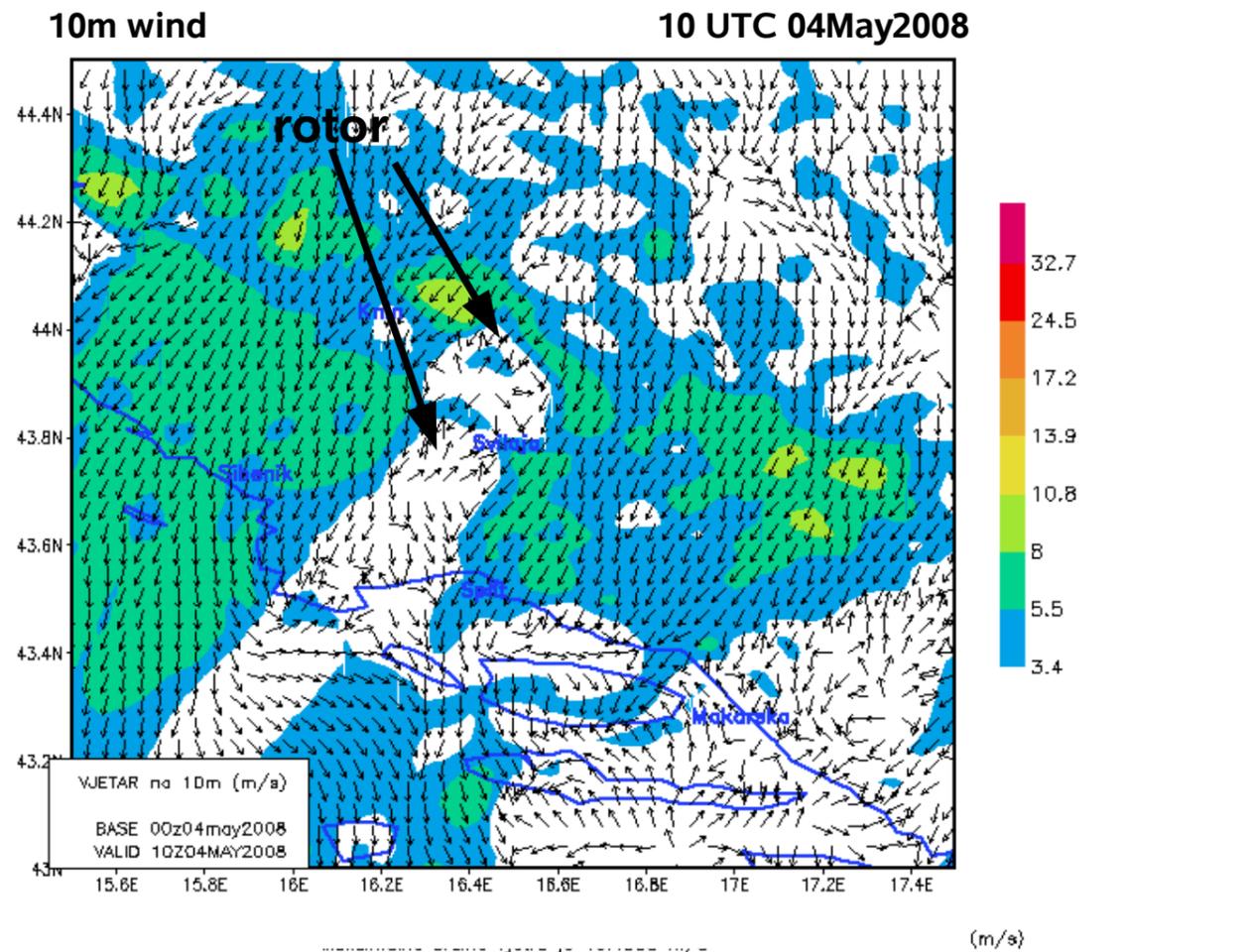
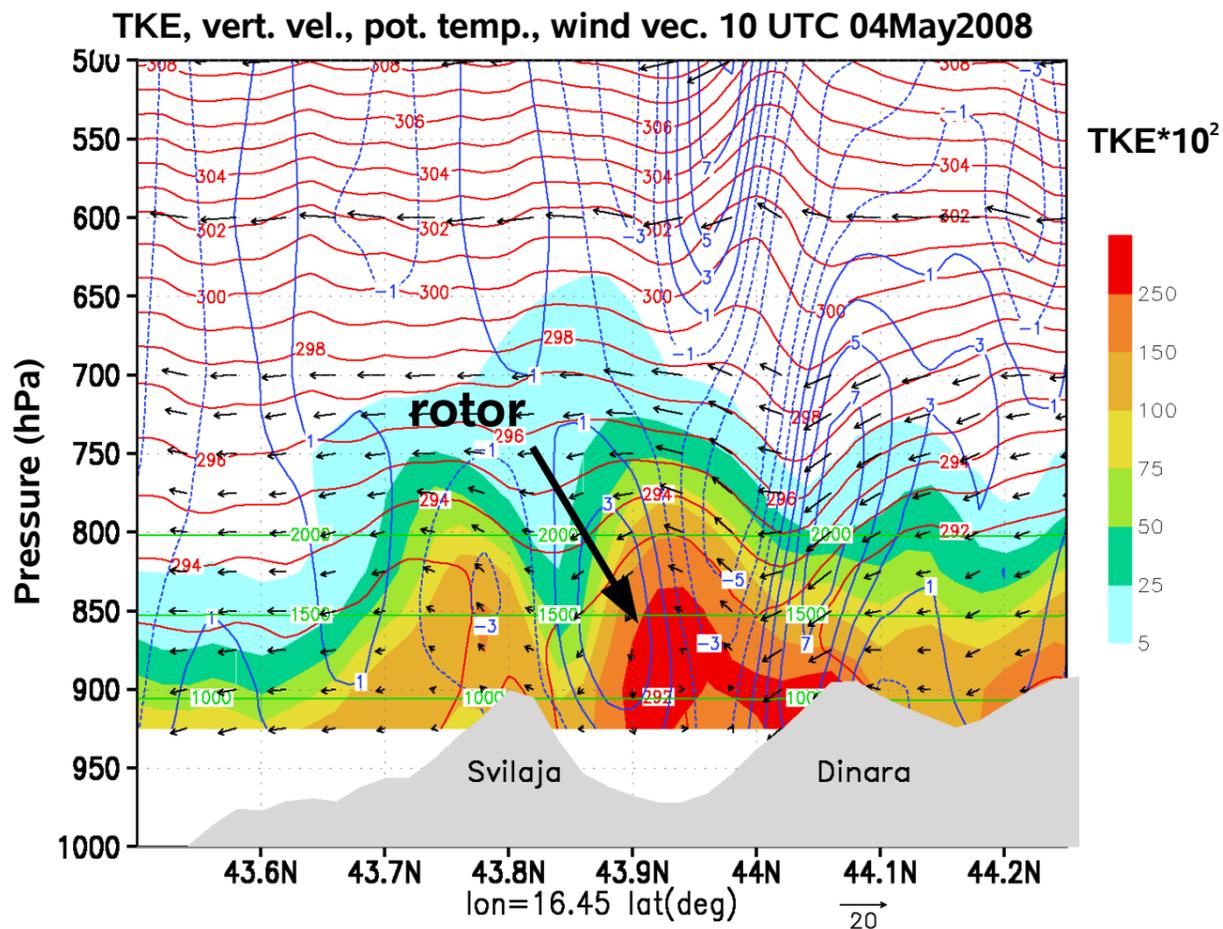
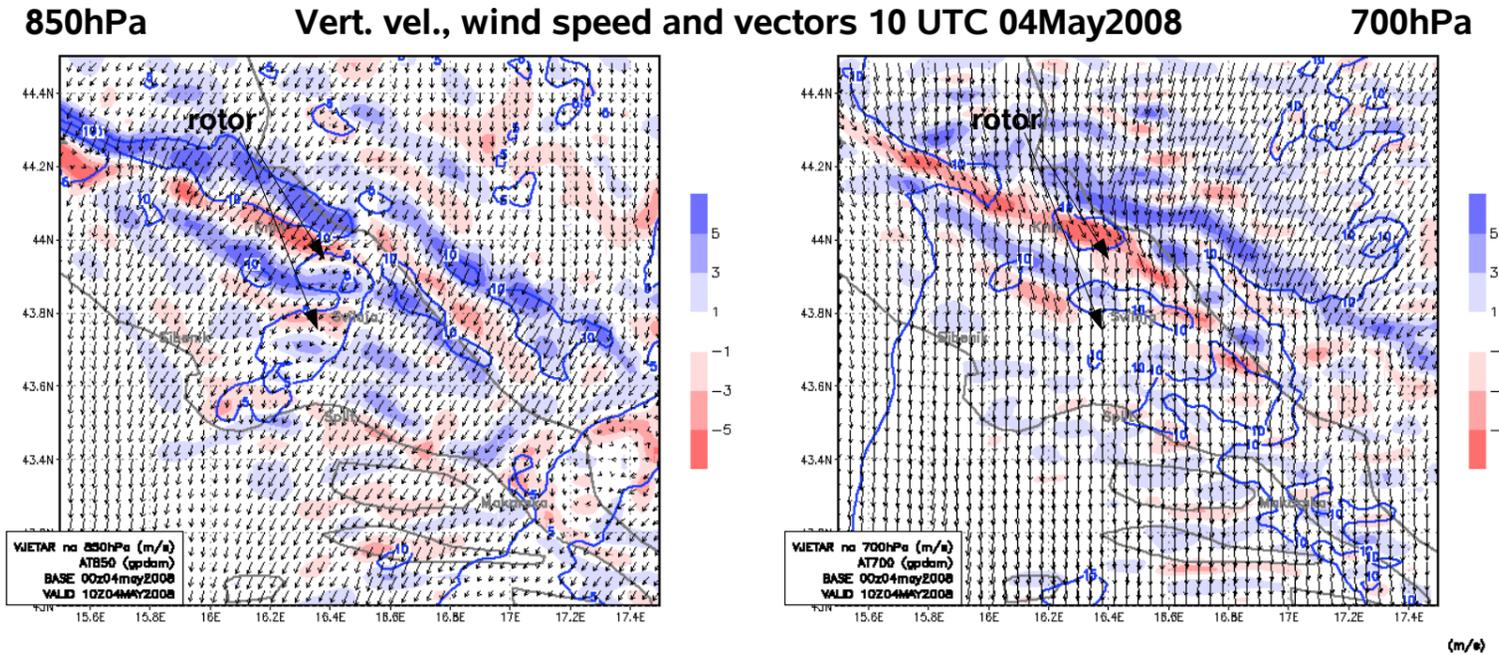
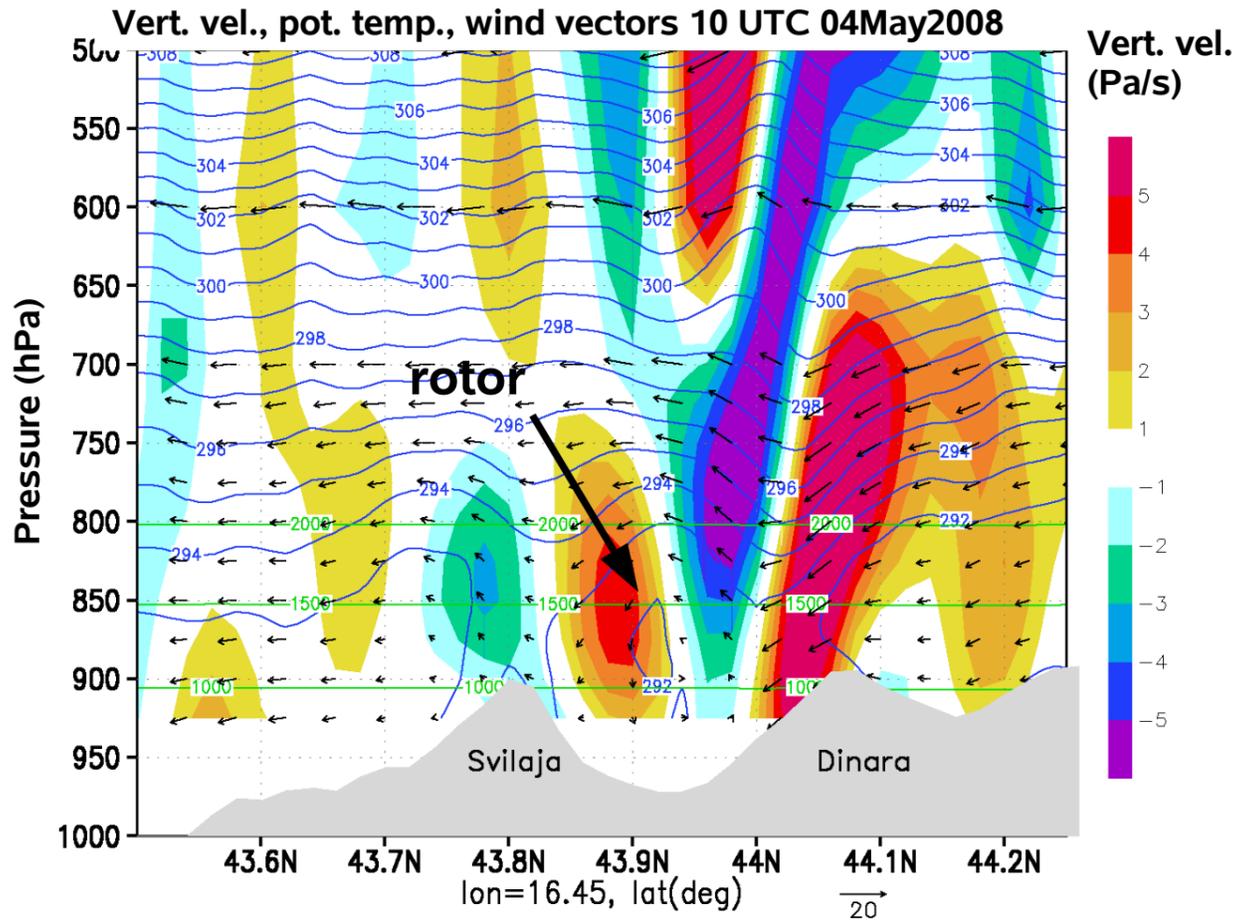
- the pre-operational assimilation parallel suite is experimenting with cycling of the surface OI and 3Dvar using different datasets ([see poster on Data assimilation in Croatia](#)),
- the computer has doubled the number of CPU and memory,
- new version of gmckpack and AL35T1 are ported,
- impact of 3MT is being tested for the 8 km resolution forecast.
- different options for horizontal diffusion, non-hydrostatic dynamics and increased number of levels for the high-resolution dynamical adaptation are being tested,

## **Specific weather situation analyses and forecasts**

- background weather information for air-crash investigations,
- forecast for sailing – input for specific navigation software,
- forecast for Croatian electric power company and gas distribution company,
- wind on highway.



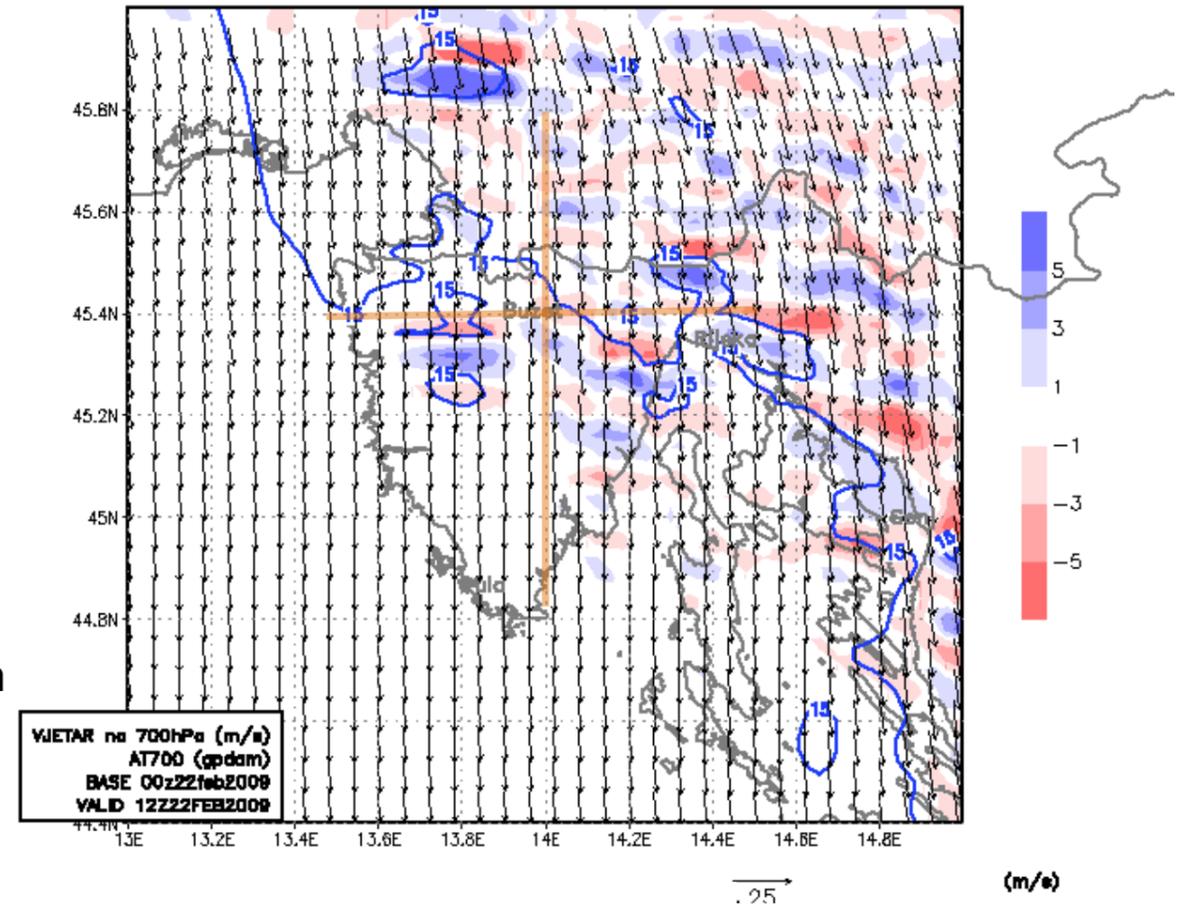
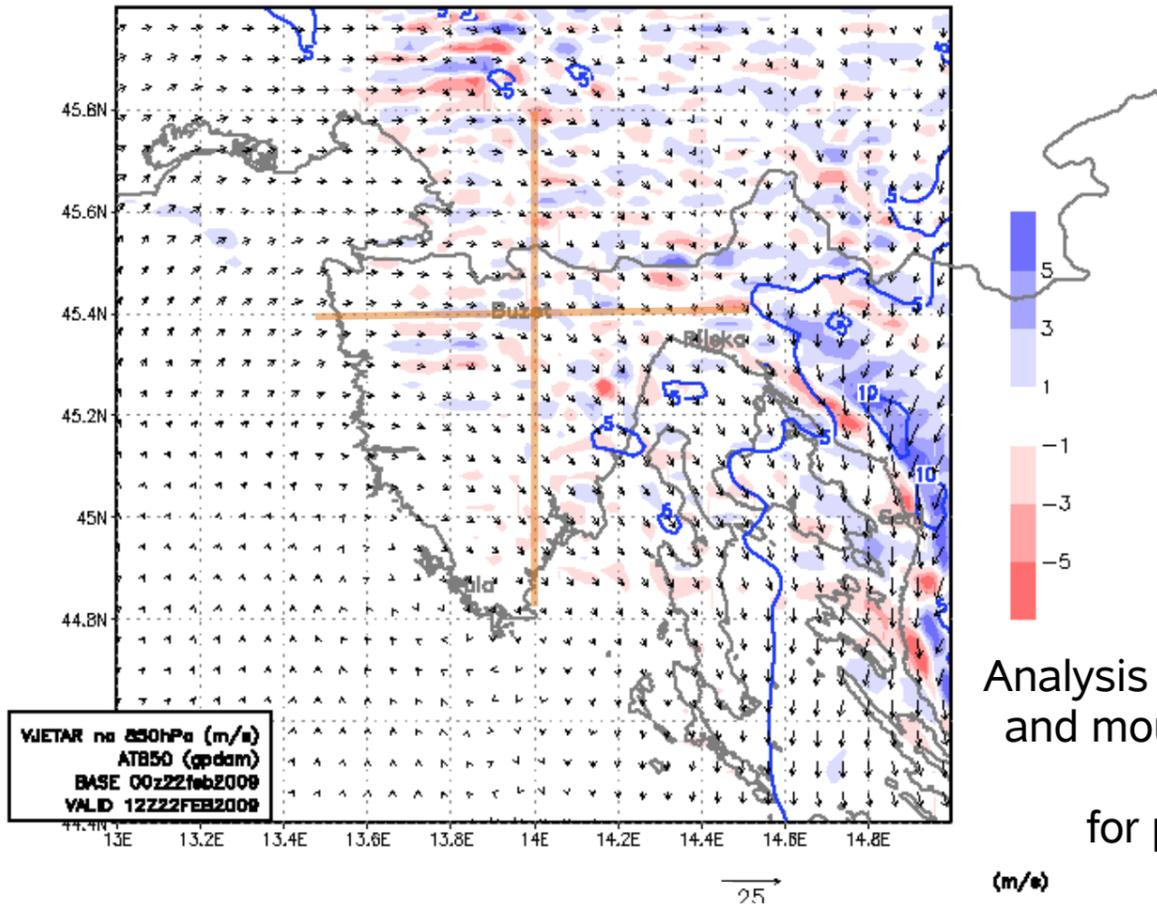
# Analysis of weather situation and mountain wave activity for paraglider flight



850hPa

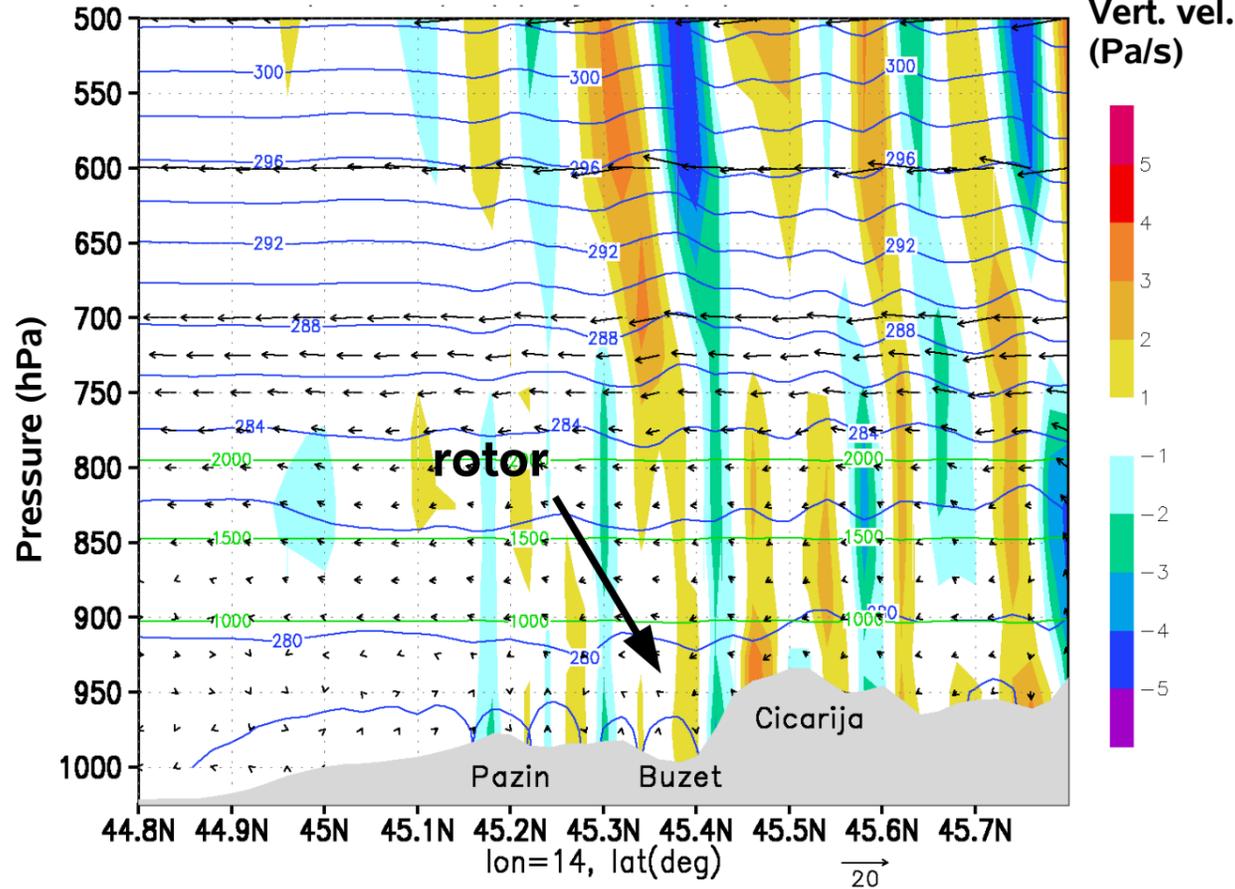
Vert. vel., wind speed and vectors 12 UTC 22Feb2009

700hPa

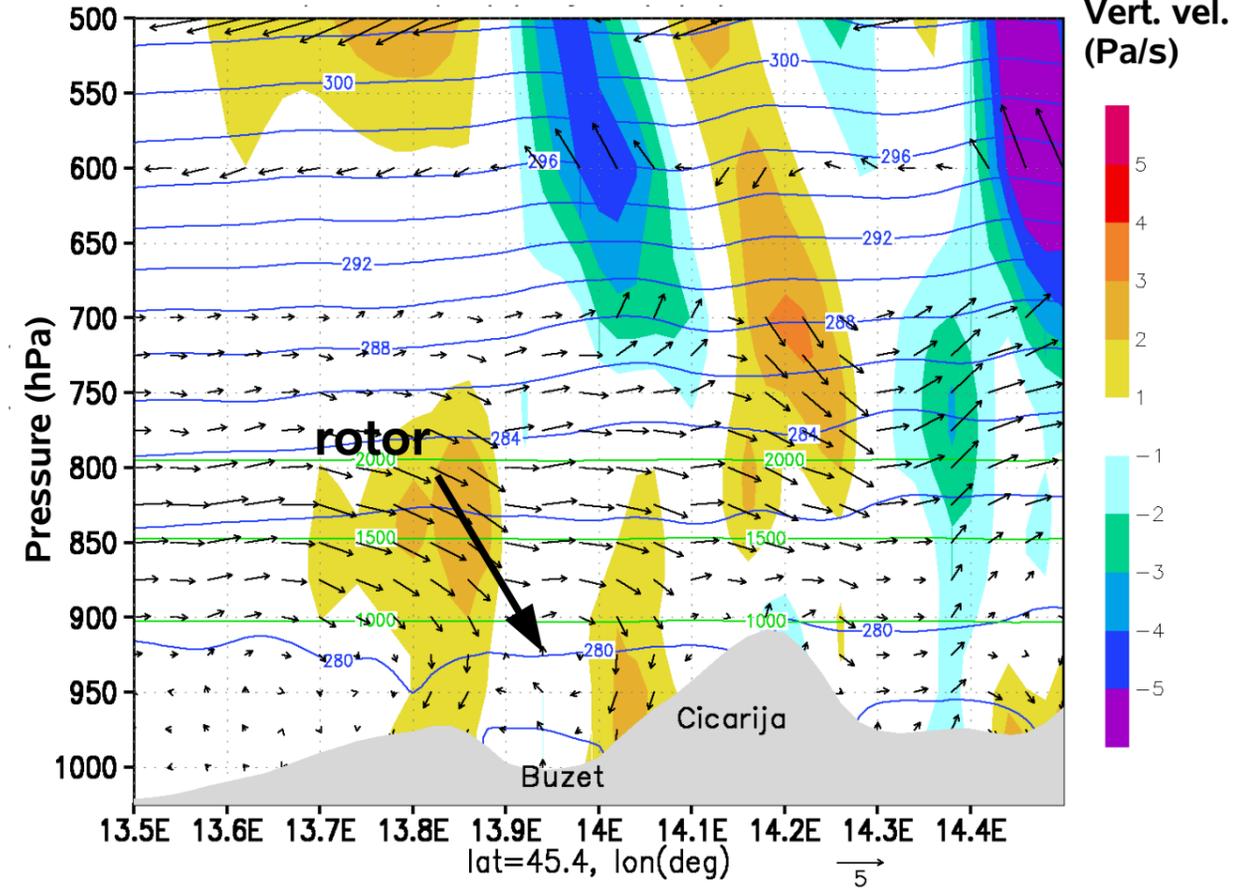


Analysis of weather situation and mountain wave activity for paraglider flight

Vert. vel., pot. temp., wind vectors 12 UTC 22Feb2009



Vert. vel., pot. temp., wind vectors 12 UTC 22Feb2009



# EMEP4HR

The Unified EMEP model is coupled to ALADIN meteorological output and run on 10km resolution. This model setup called EMEP4HR is used for air quality studies in DHMZ. Figure 1. shows monthly maximum surface ozone fields (in PPBV) for May 2006. This is a part of a study made to determine the influence of industrial and traffic emissions on this important pollutant. Figure 2 and 3 show the relative effects of 15% increase and 15% decrease respectively of traffic based NO<sub>x</sub> and VOC emissions. In the first case maximum ozone is increased while in the other it is decreased by approximately 1% in the area with very high traffic emissions. This study is made for the purposes of the Ministry of construction and environment of Croatia.

