CHAGAL(L)

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CHAGAL – main features

- drawing of horizontal maps of scalar and vector fields
- batch processing, namelist-controlled
- input: ALADIN FA files
- output: PostScript or graphic metafile
- written in Fortran, using XRD library and NCAR Graphics low-level functions

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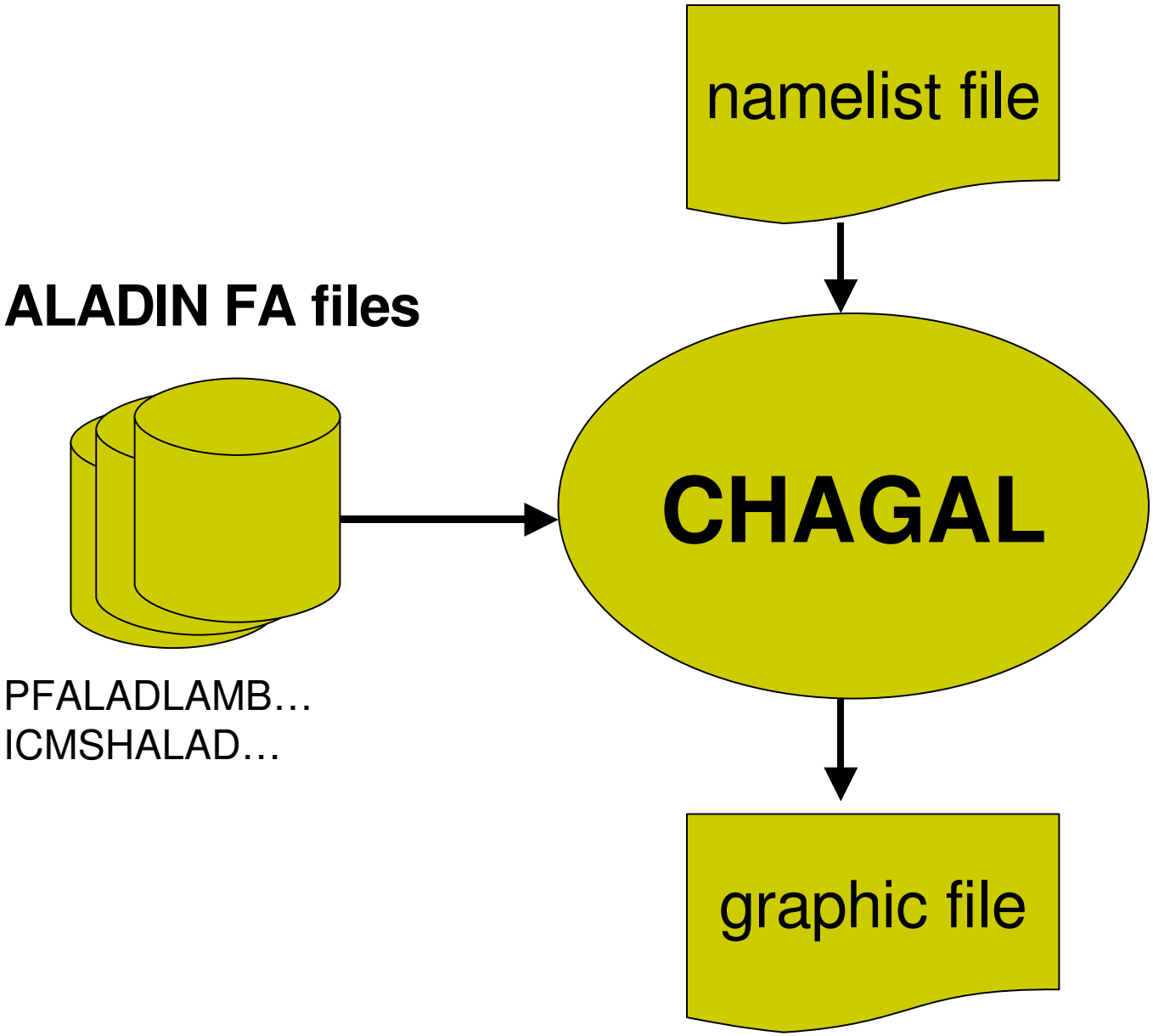
CHAGAL‘s story

- 1994 developed by MJ at Météo-France to create ALADIN maps for satellite RETIM dissemination
- further maintained and developed by J-D Gril at Météo-France (spectral transformations, more projections)
- independently developed at CHMI – main motivation for this presentation (CHAGAL***L***)


namelist file
ALADIN FA files
CHAGAL
PFALADLAMB…
ICMSHALAD…
graphic file

Structure of the chagal namelist file

- blocks of namelists "NAML"
- split by data
  - which parameter to read
  - what to do with read data
    - calculations (like accumulation to the previous parameter)
    - drawing
  - system of dynamic default values to avoid unnecessary repeating of the same parameters

```
&NAML
 IROWxCOL=102
 CFD='PFALAD+0048'
 LZOOM=.FALSE.
 CPREF='CLS'
 CVARFA='TEMPERATURE'
 SCALE=1.
 OFFSET=-273.15
 VCLMIN=0.
 VCLMAX=0.
 VCI=2.
 IMAPCOL=1.
/
&NAML
 LFRAME=.FALSE.
 CPREF='CLS'
 CVARFA='VENT_MERIDIEN','VENT_ZONAL'
 NTNZ=1.
/
```

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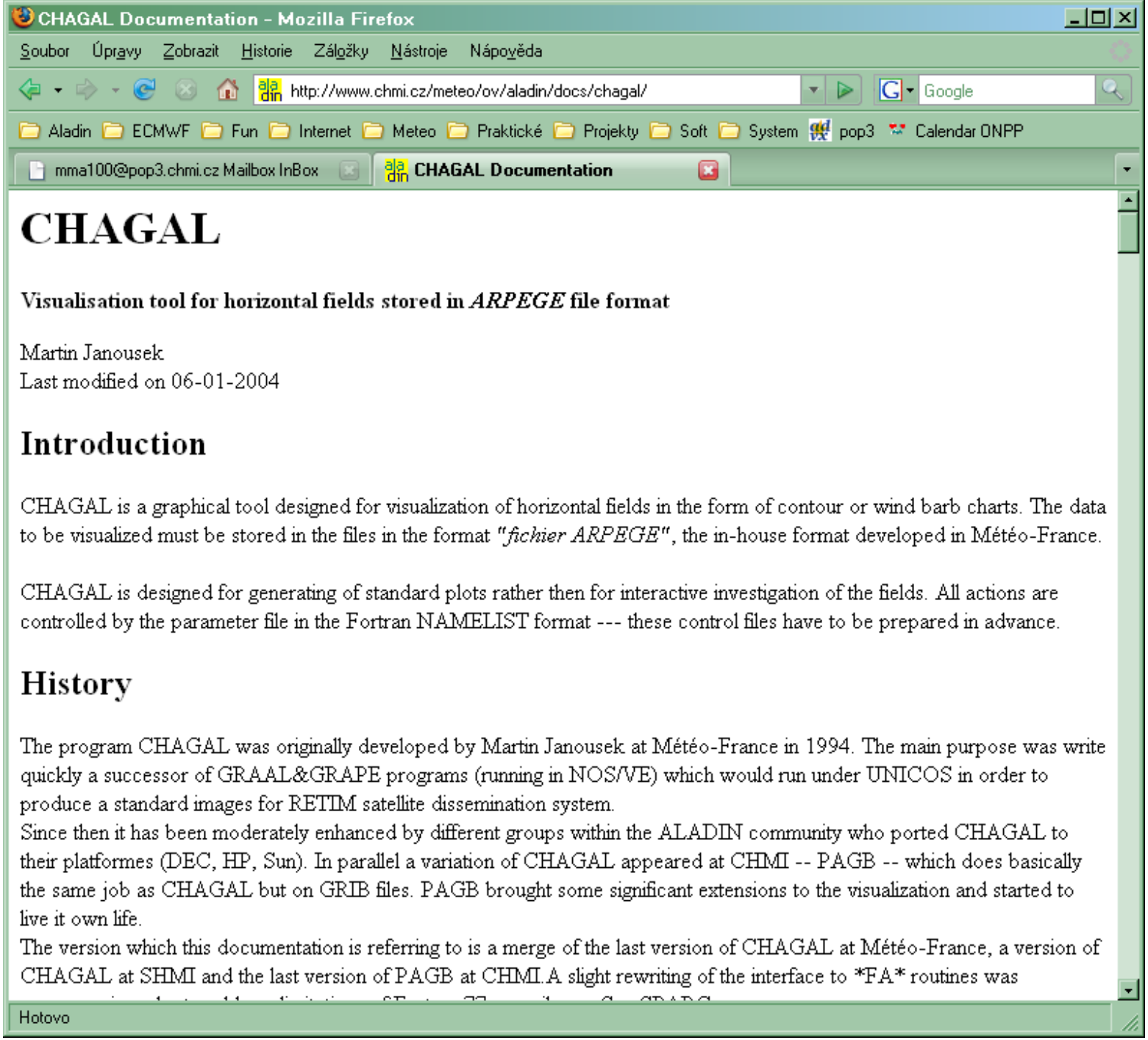
Pros and cons

- traditional tool
- batch processing (useful for both development or operations)
- fast
- reads directly FA files (no need for FA to GRIB converter)
- difficult for beginner
- no interactivity
- old concept (no objects, no attributes)
- a horrible piece of Fortran 77 code
- no tutorial, learning by examples



CHAGAL

Visualisation tool for horizontal fields stored in *ARPEGE* file format

Martin Janousek
Last modified on 06-01-2004

Introduction

CHAGAL is a graphical tool designed for visualization of horizontal fields in the form of contour or wind barb charts. The data to be visualized must be stored in the files in the format *"fichier ARPEGE"*, the in-house format developed in Météo-France.

CHAGAL is designed for generating of standard plots rather then for interactive investigation of the fields. All actions are controlled by the parameter file in the Fortran NAMELIST format --- these control files have to be prepared in advance.

History

The program CHAGAL was originally developed by Martin Janousek at Météo-France in 1994. The main purpose was write quickly a successor of GRAAL&GRAPE programs (running in NOS/VE) which would run under UNICOS in order to produce a standard images for RETIM satellite dissemination system.
Since then it has been moderately enhanced by different groups within the ALADIN community who ported CHAGAL to their platformes (DEC, HP, Sun). In parallel a variation of CHAGAL appeared at CHMI -- PAGB -- which does basically the same job as CHAGAL but on GRIB files. PAGB brought some significant extensions to the visualization and started to live it own life.
The version which this documentation is referring to is a merge of the last version of CHAGAL at Météo-France, a version of CHAGAL at SHMI and the last version of PAGB at CHMI.A slight rewriting of the interface to *FA* routines was

CHAGAL*L* show

- demonstration of new features added to the original 1994 version
- installed also on GMAP linux cluster
- available from CHMI

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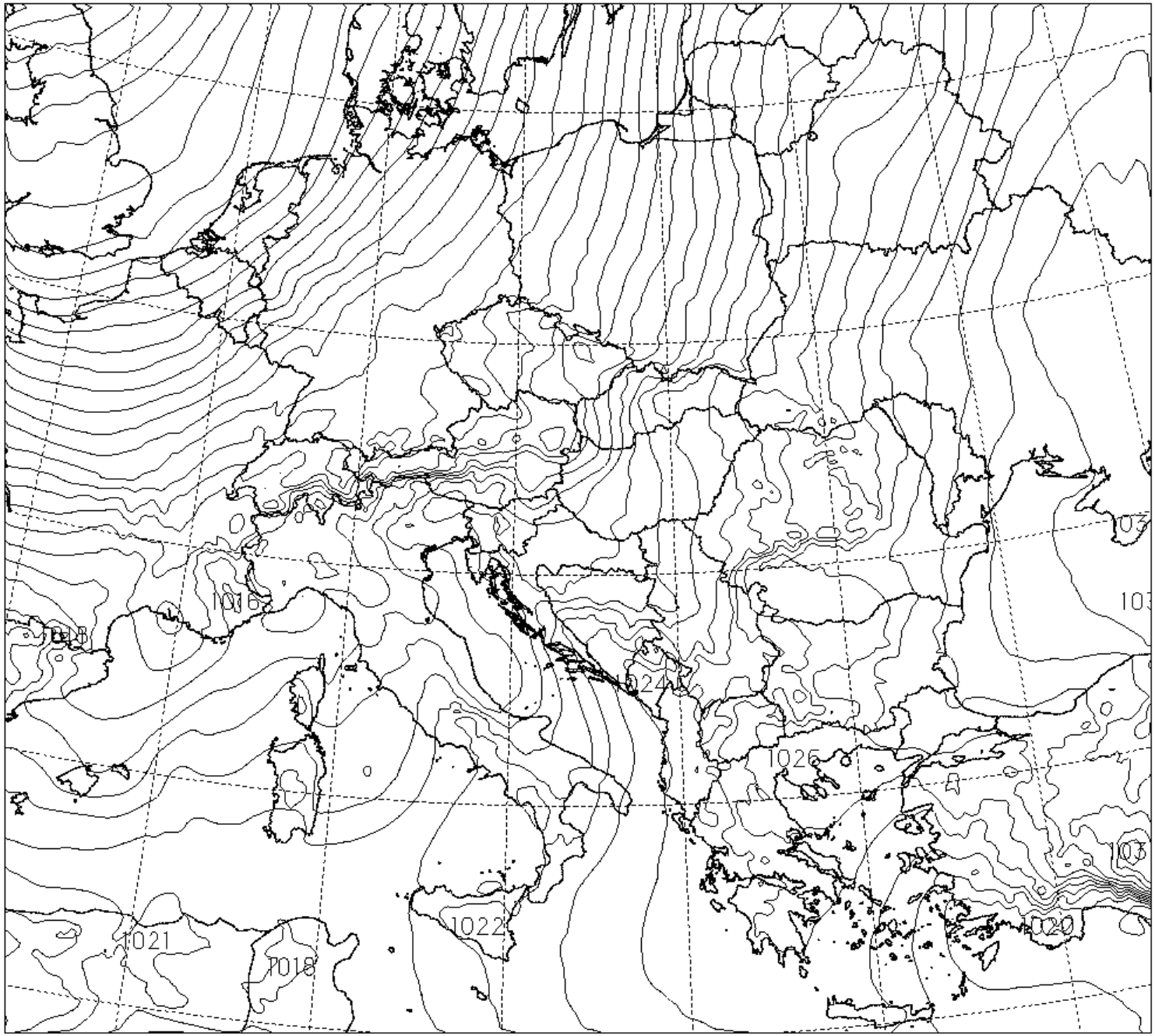
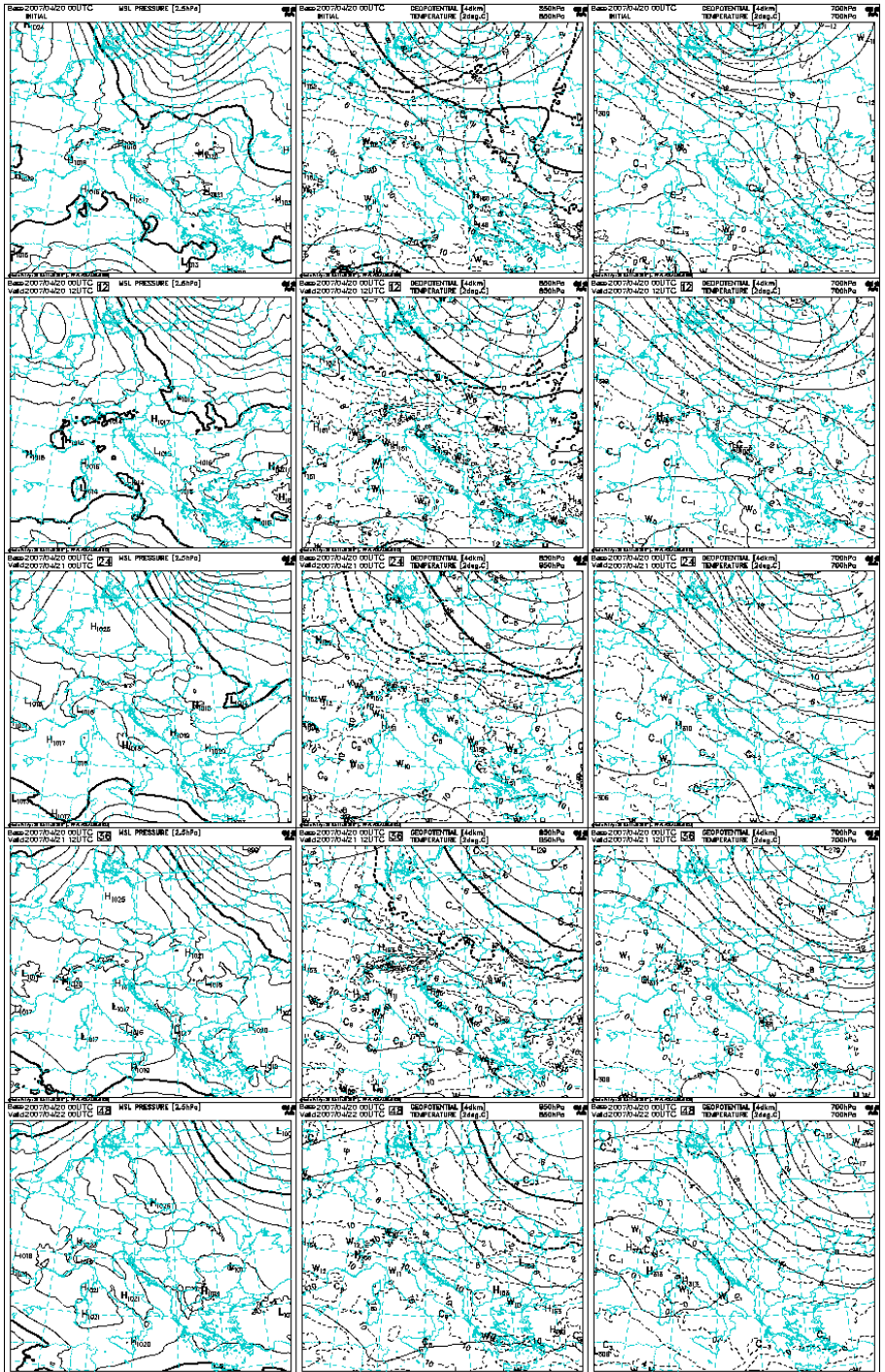
Base 2007/03/07 00UTC
INITIAL

msl pressure [mb]



mma100@voodoo Fri Apr 20 11:38:30 2007 [PF.fix]

ALAD



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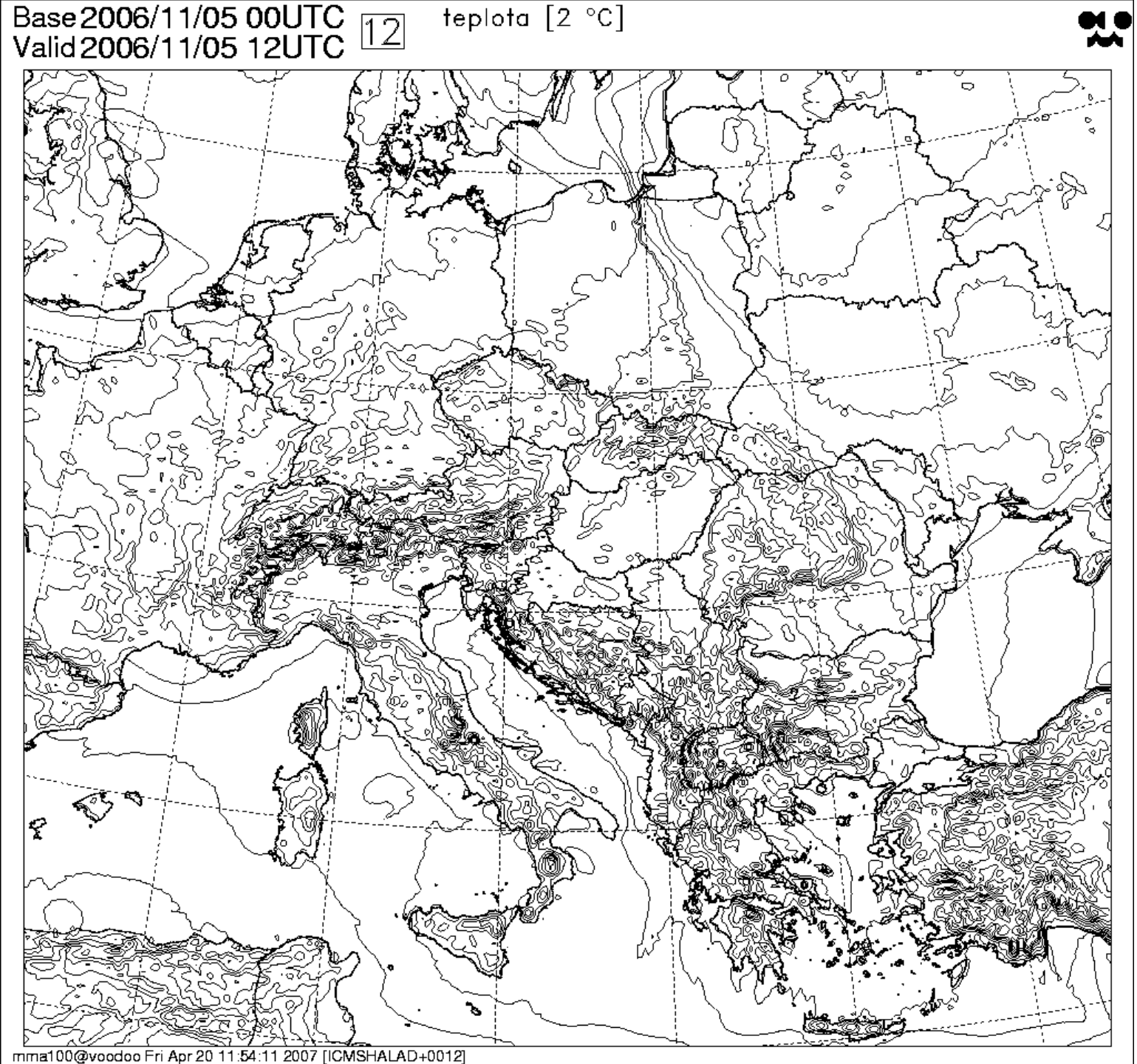
Base 2006/11/05 00UTC
Valid 2006/11/05 12UTC
12
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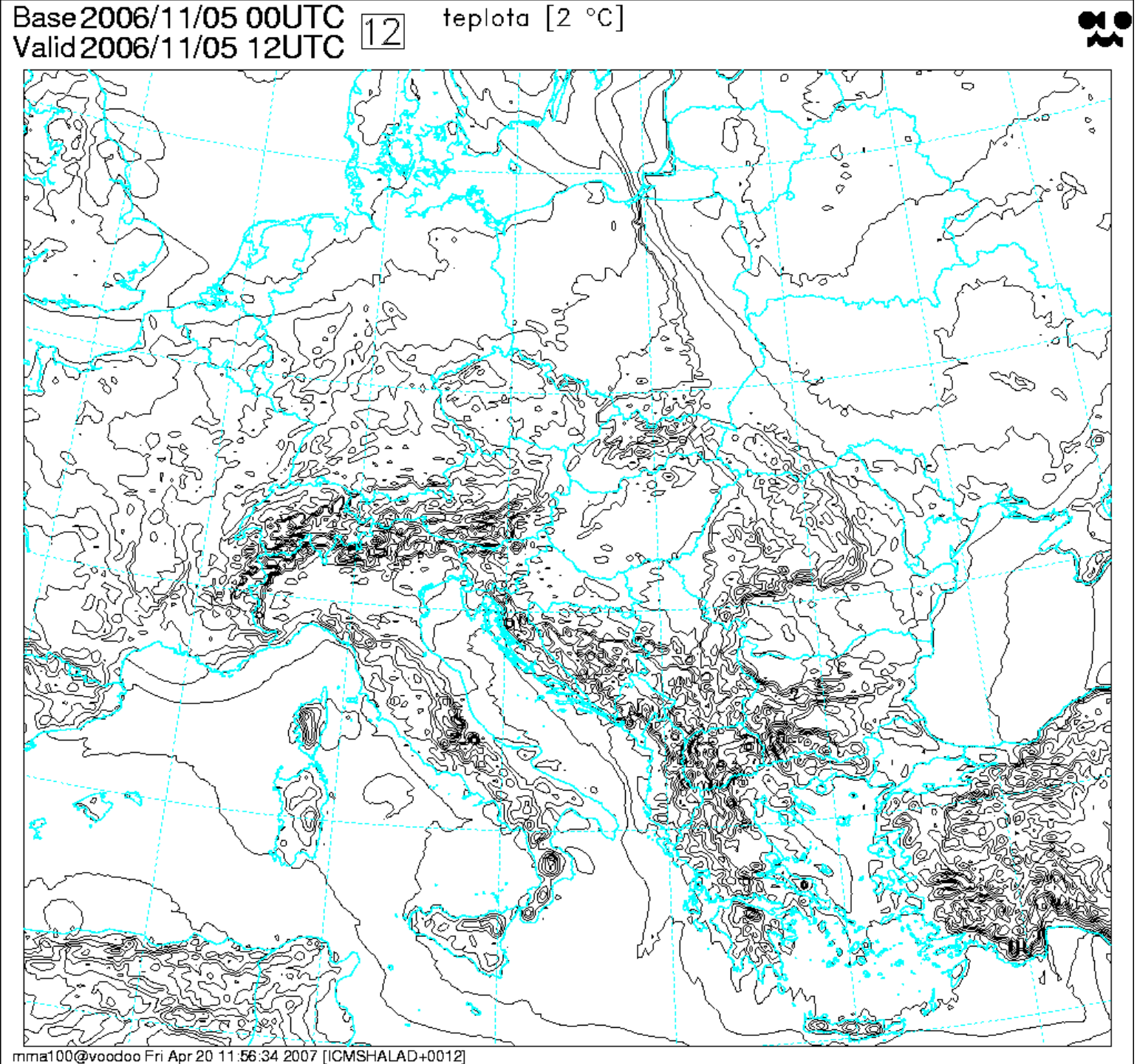
mma100@voodoo Fri Apr 20 11:54:11 2007 [ICMSHALAD+0012]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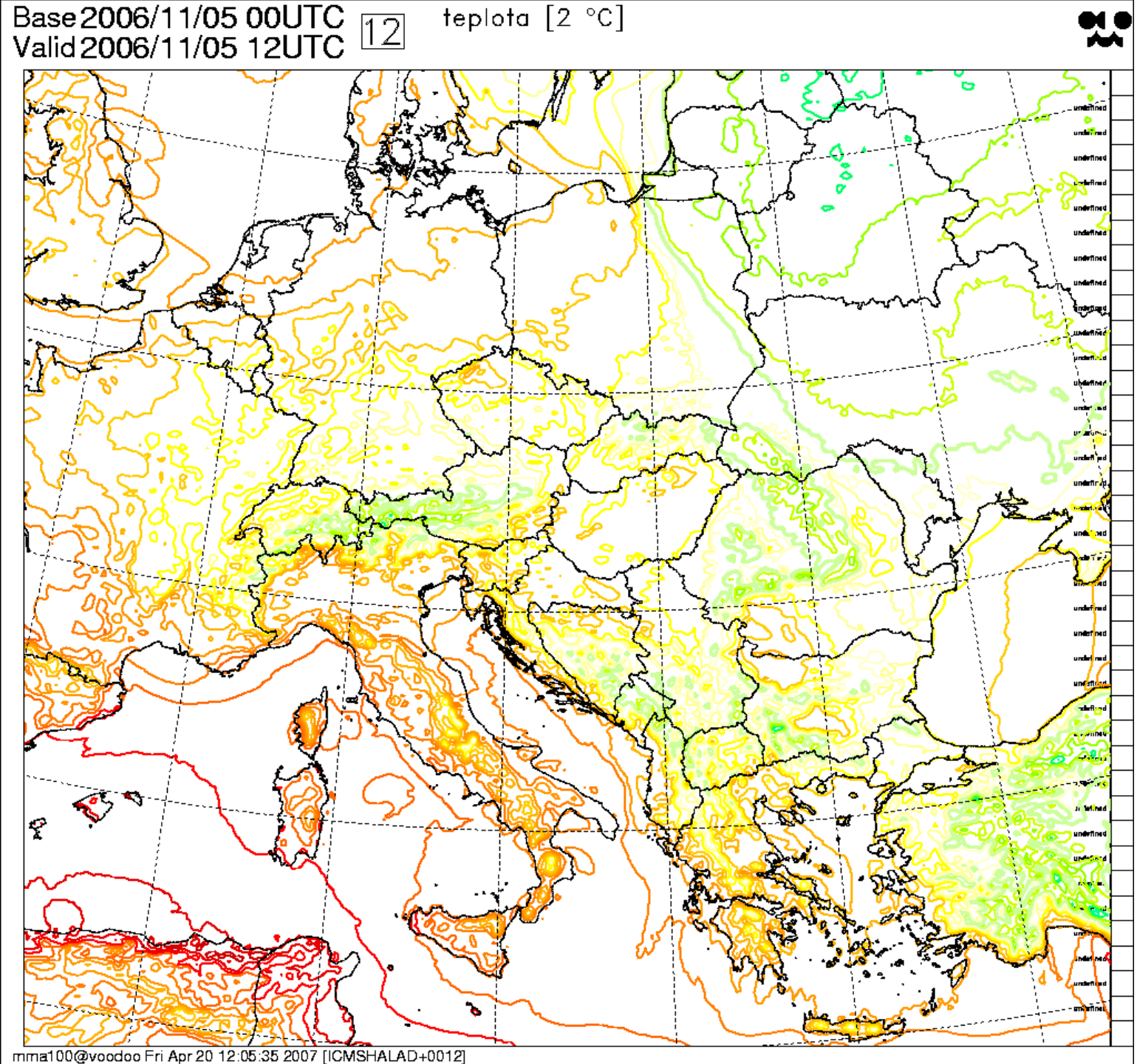
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mma100@voodoo Fri Apr 20 12:05:35 2007 [ICMSHALAD+0012]

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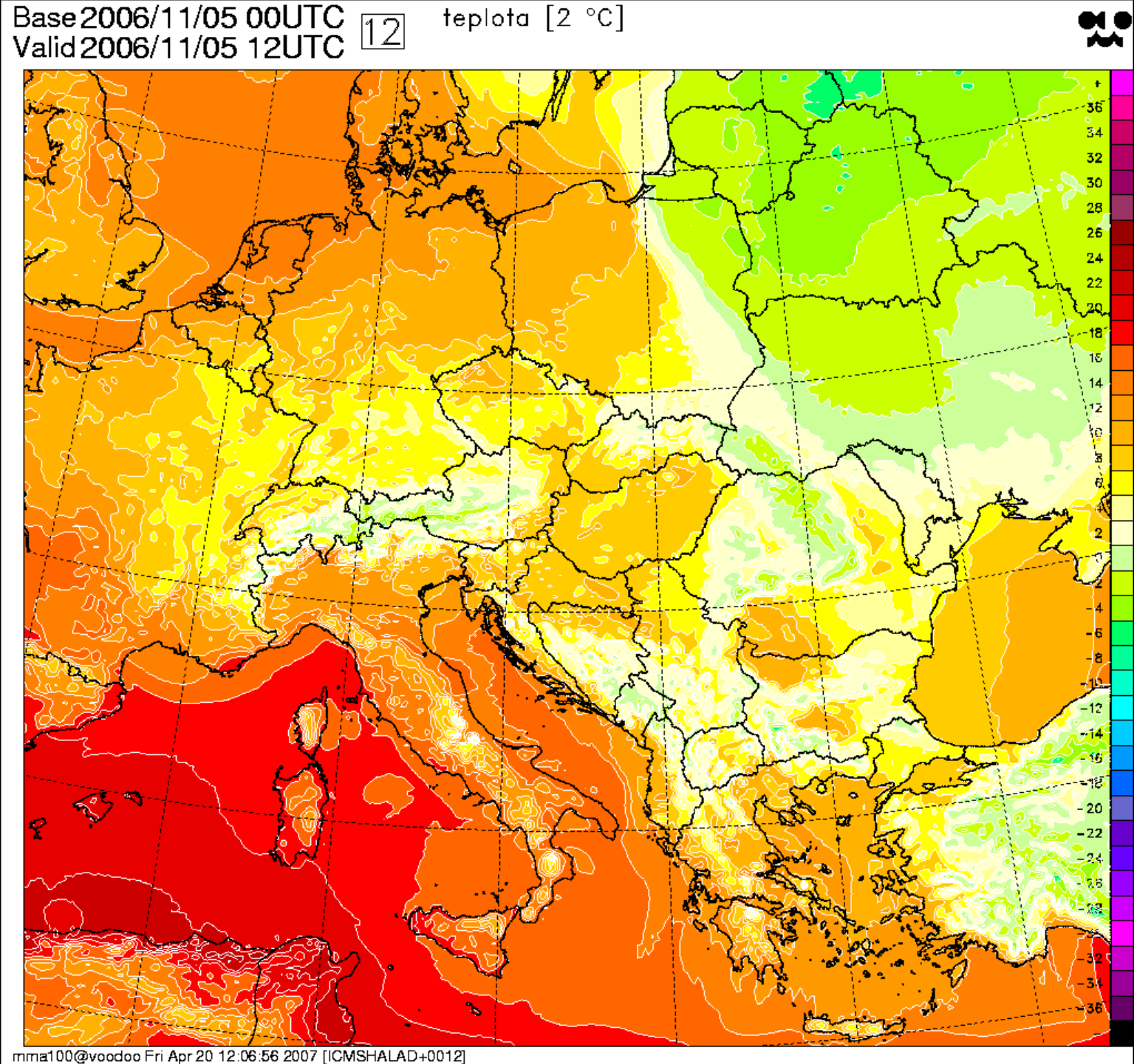
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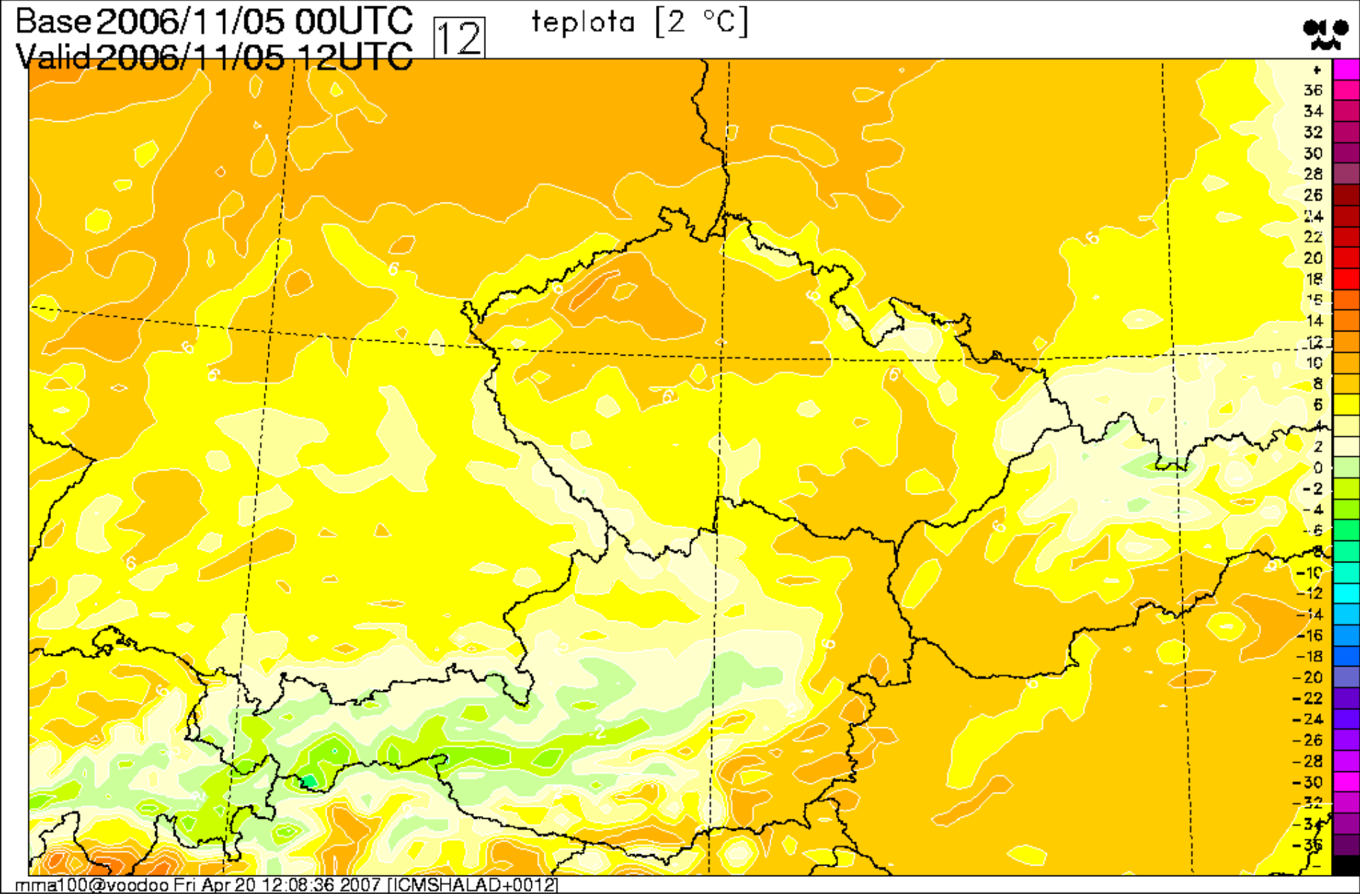

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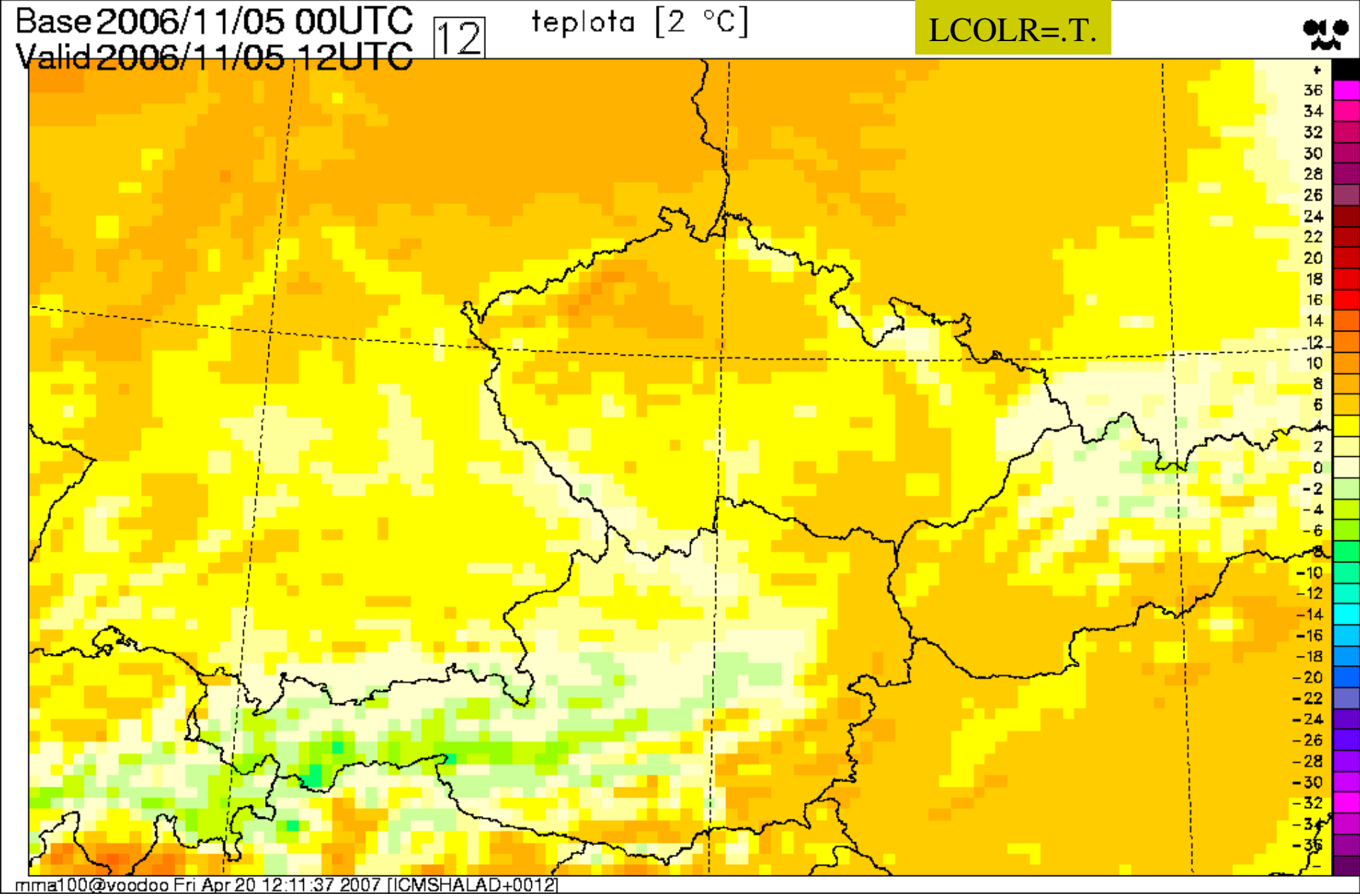

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Geography issue

- low quality of national boundaries in NCAR Graphics, a problem for high-resolution model
- high-resolution boundaries introduced to CHAGAL
  - by replacing NCARG geography boundary database
  - by introducing its own CHAGAL call to plotting package

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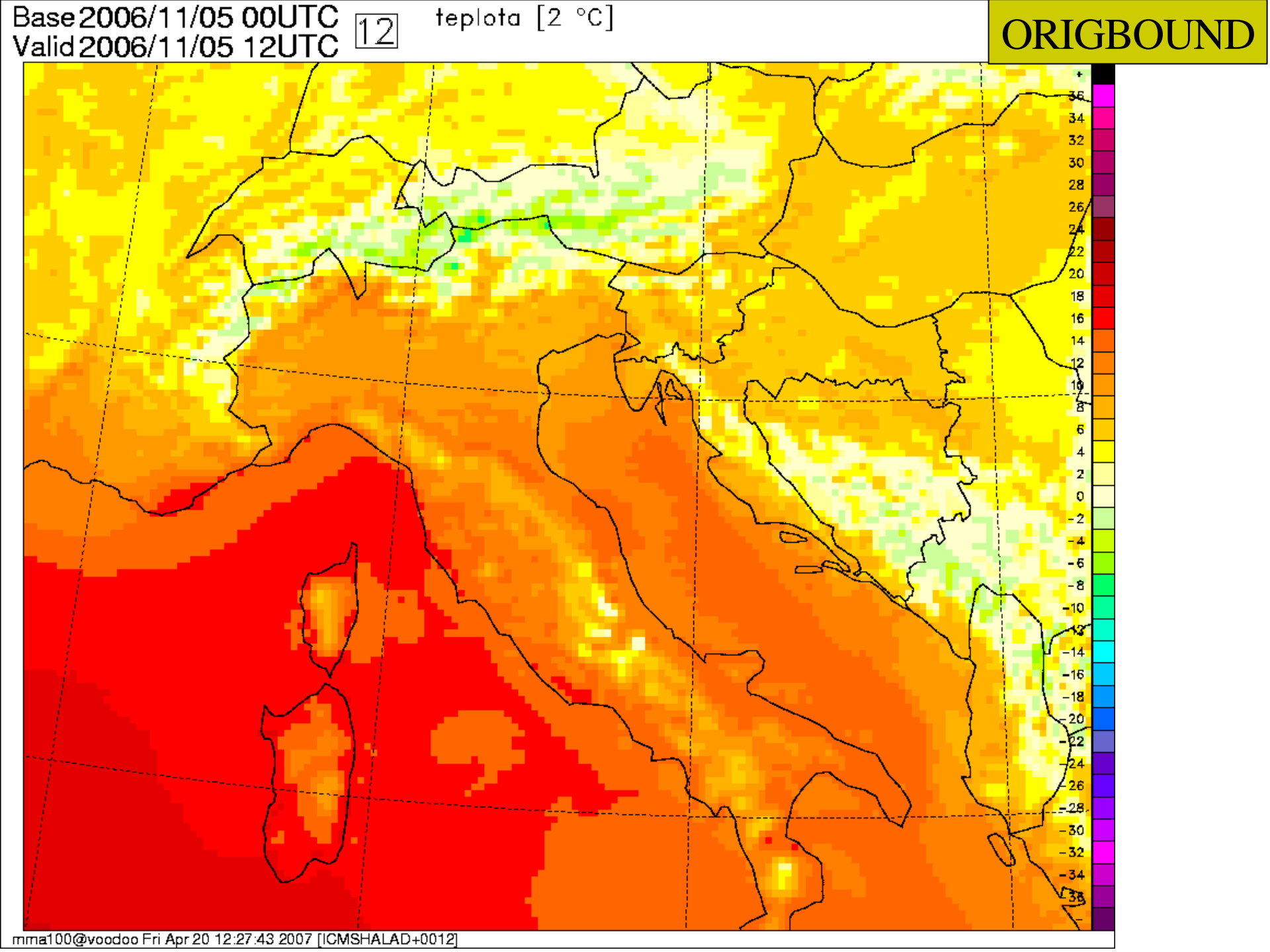
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Valid 2006/11/05 12UTC
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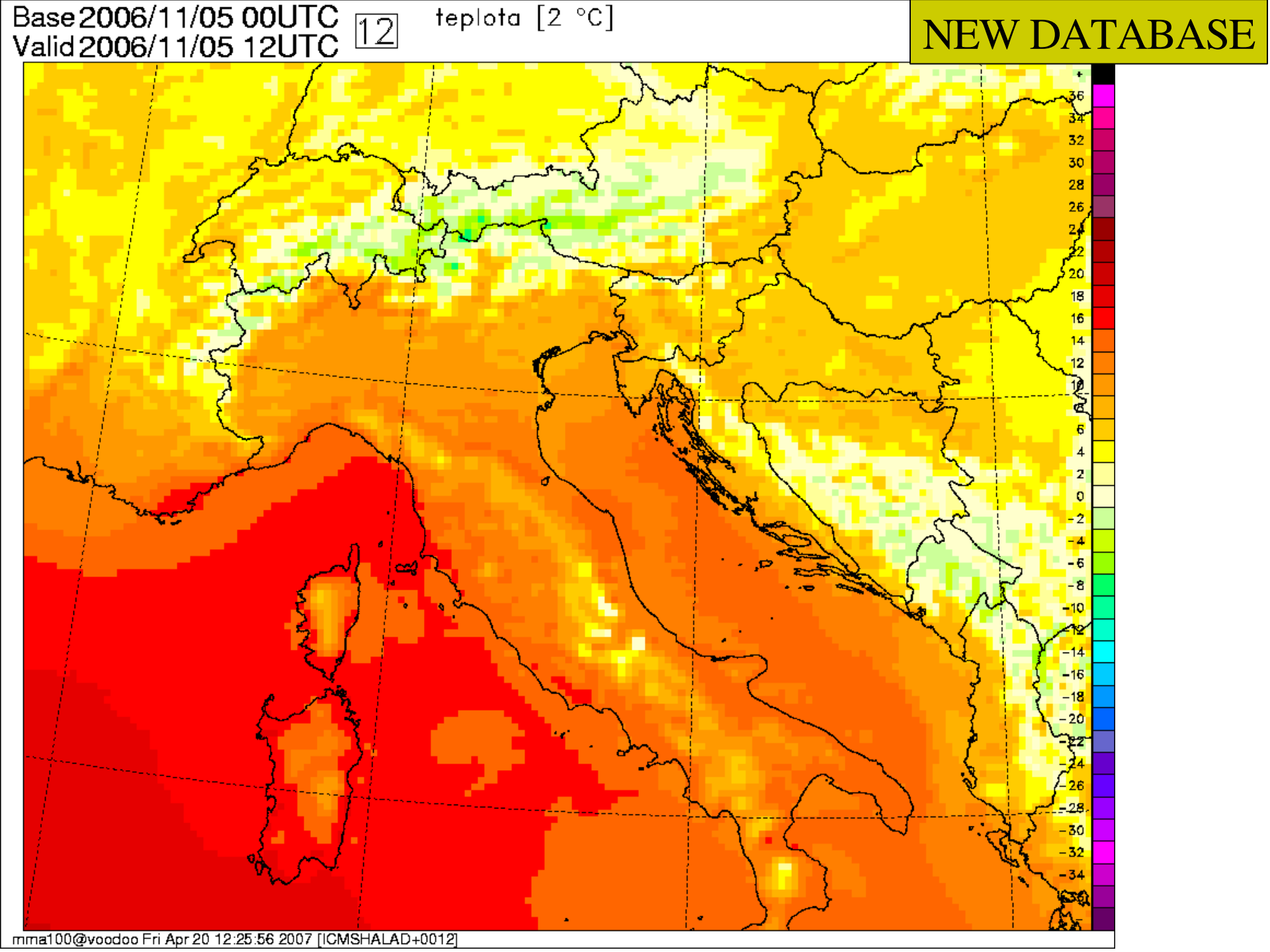
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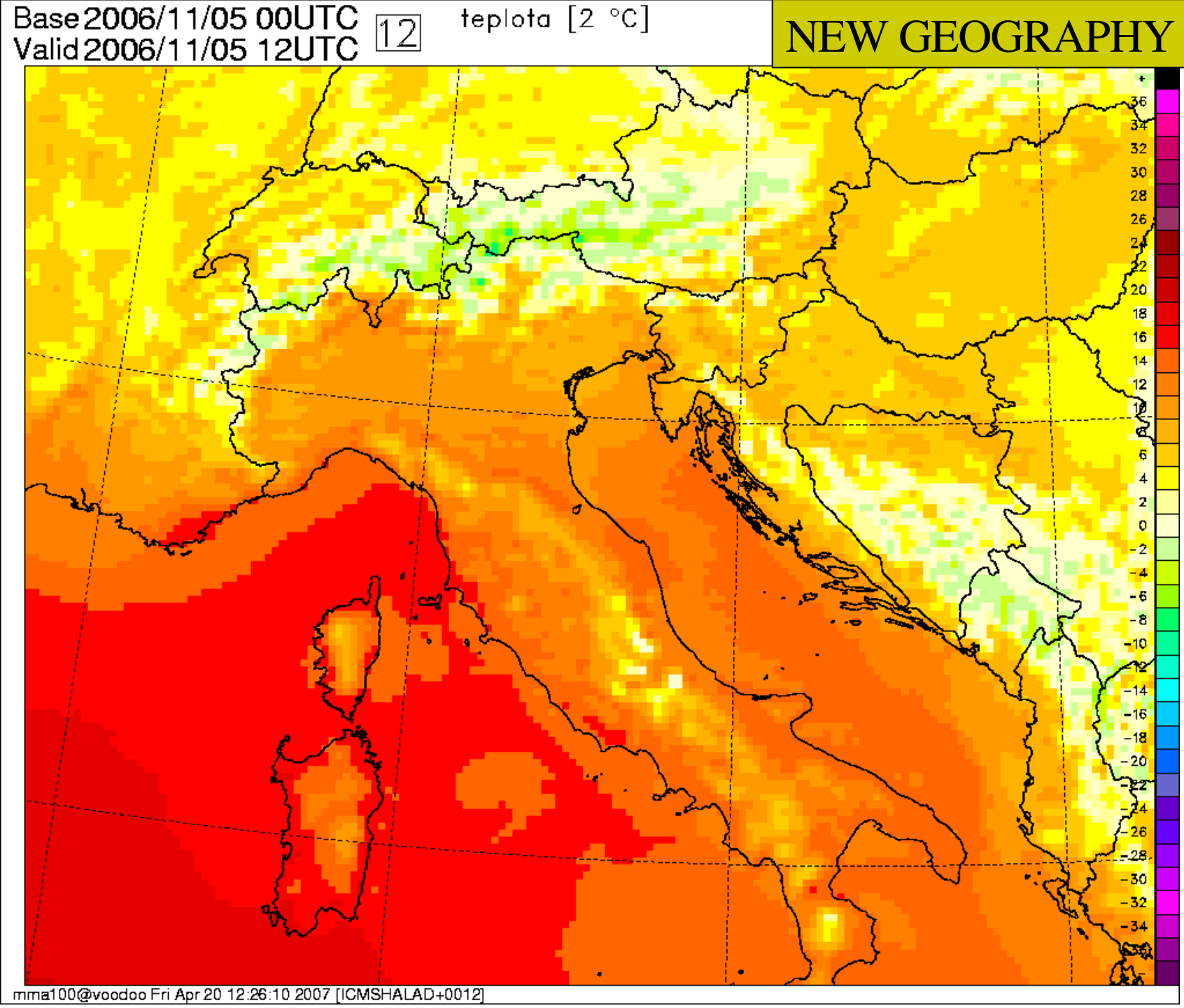
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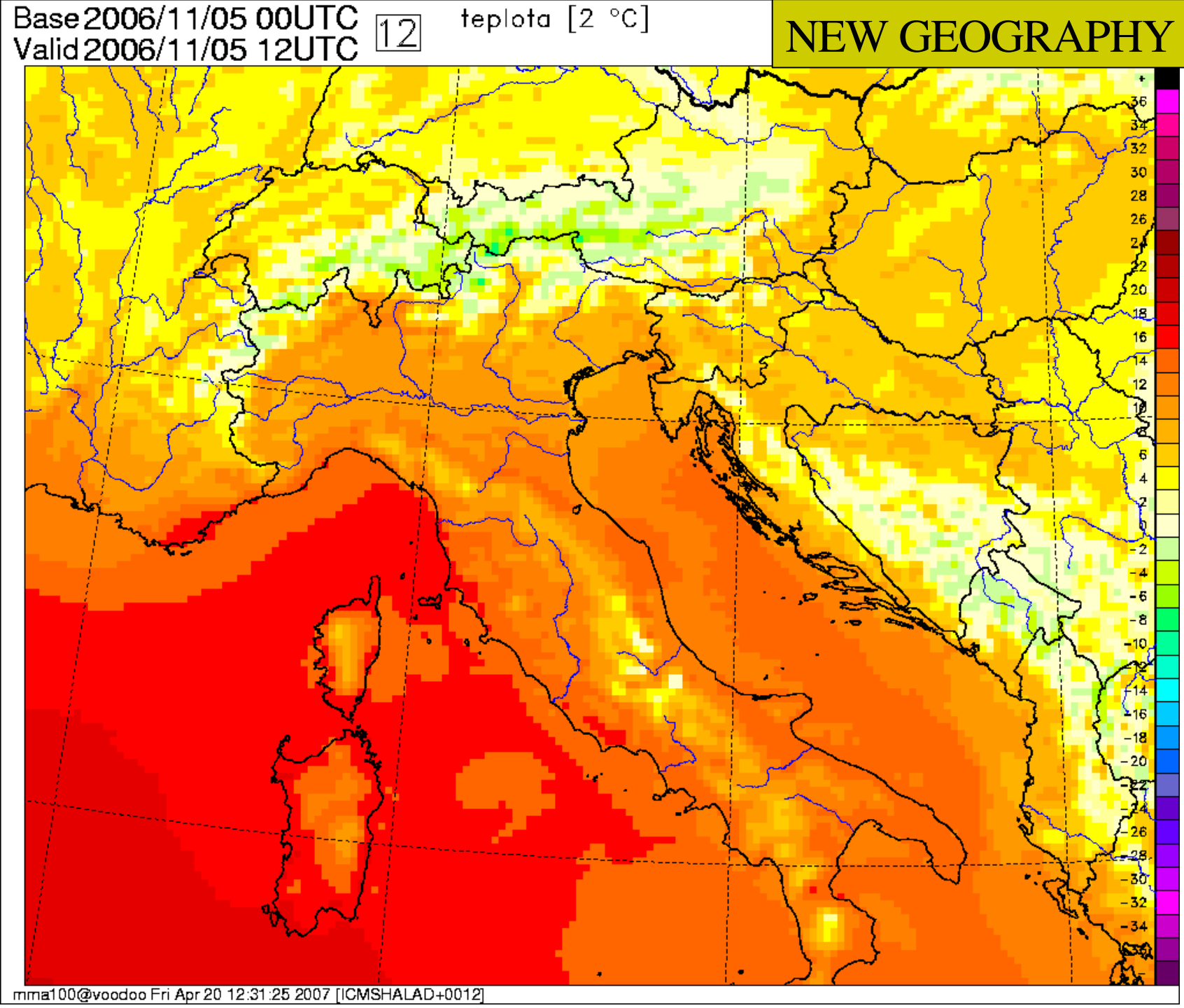
mma100@voodoo Fri Apr 20 12:26:10 2007 [ICMSHALAD+0012]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NEW GEOGRAPHY CALLS
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mma100@voodoo Fri Apr 20 12:31:25 2007 [ICMSHALAD+0012]

Other examples

- samples from CHMI operational presentation of ALADIN results

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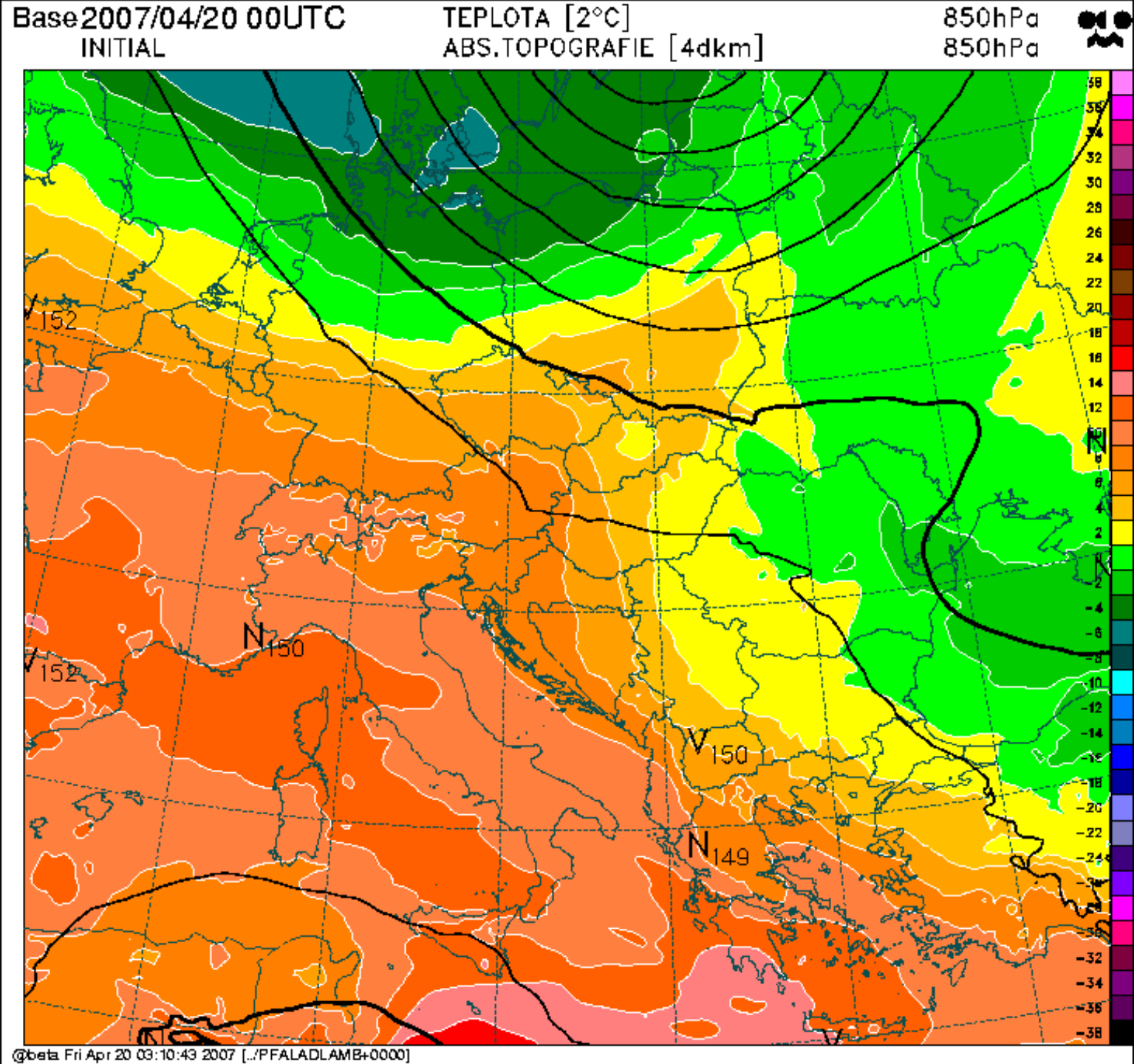
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INITIAL
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ABS.TOPOGRAFIE [4dkm]
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850hPa
152
N150
152
V150
N149
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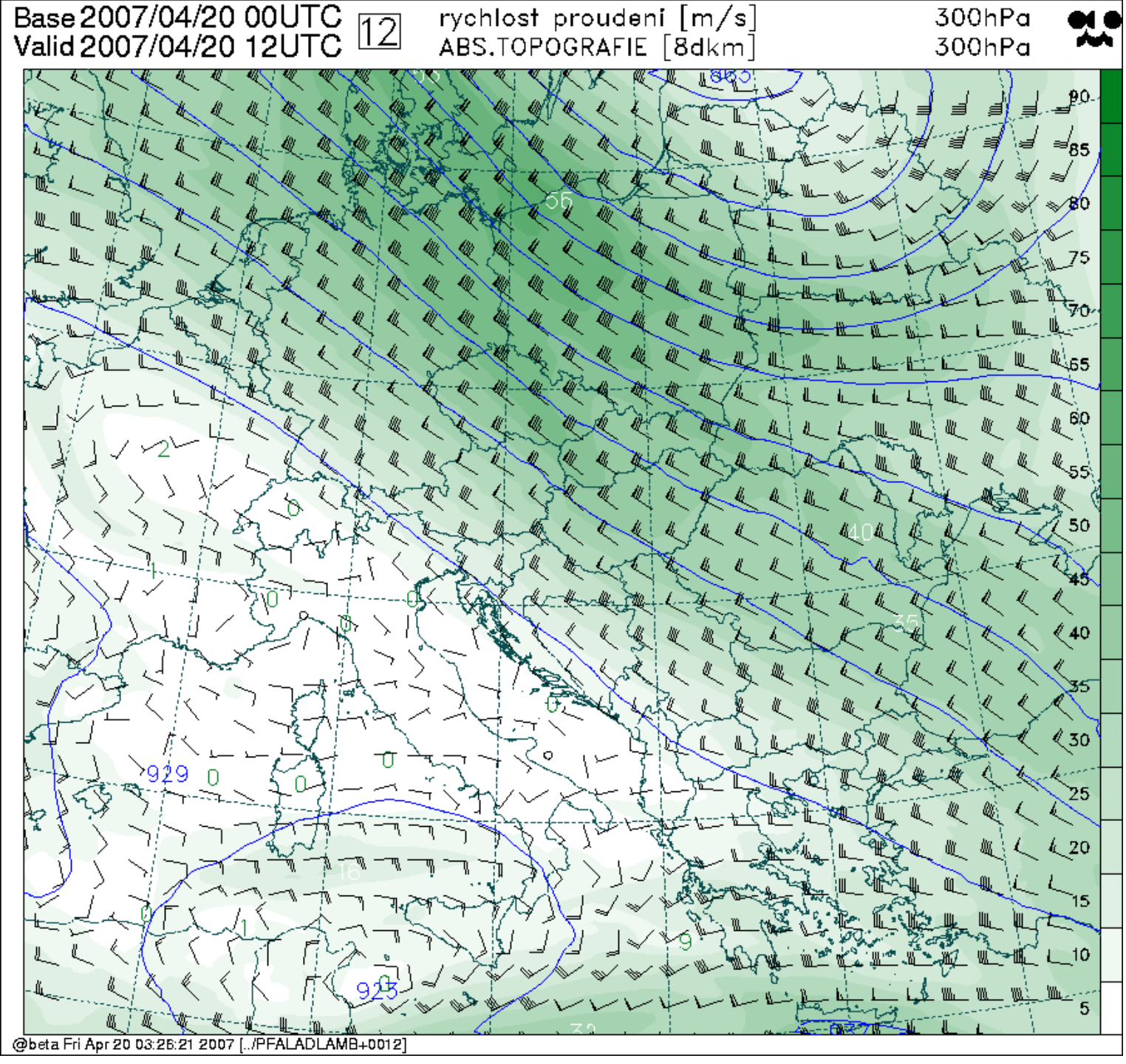
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Valid 2007/04/20 12UTC
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rychlost proudeni [m/s]
ABS.TOPOGRAFIE [8dkm]
300hPa
300hPa
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925
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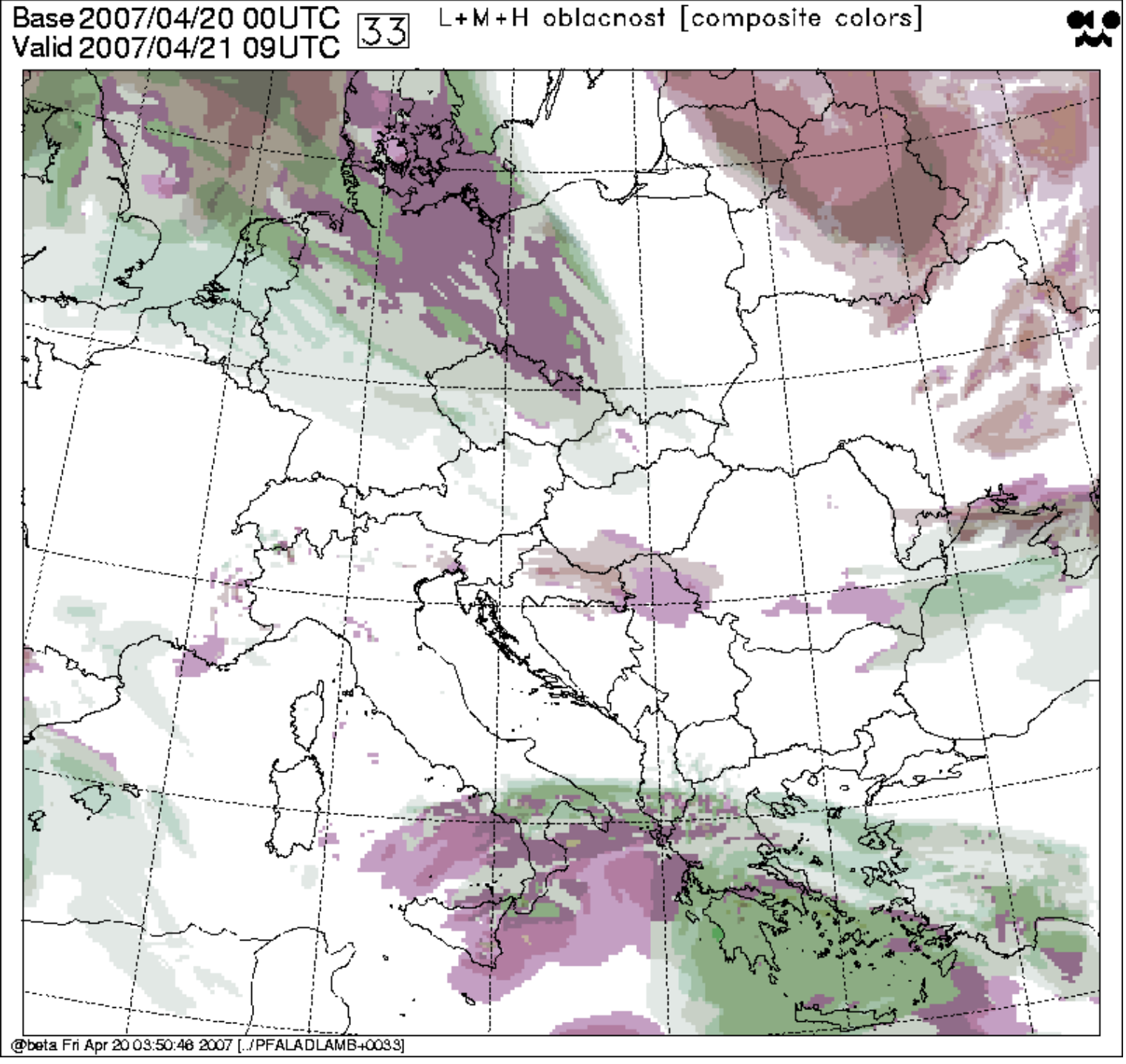
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L+M+H oblacnost [composite colors]
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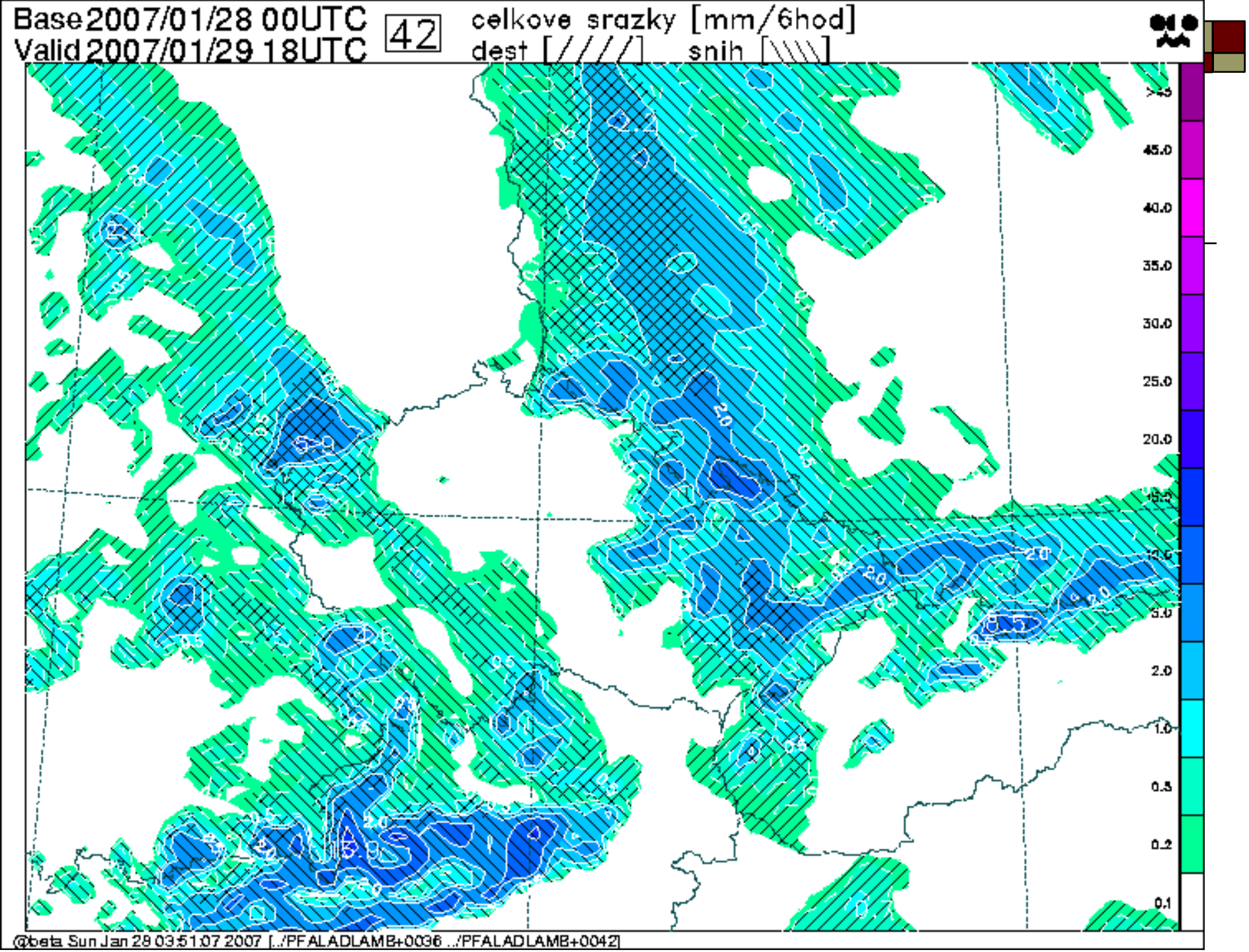
Base 2007/01/28 00UTC
Valid 2007/01/29 18UTC
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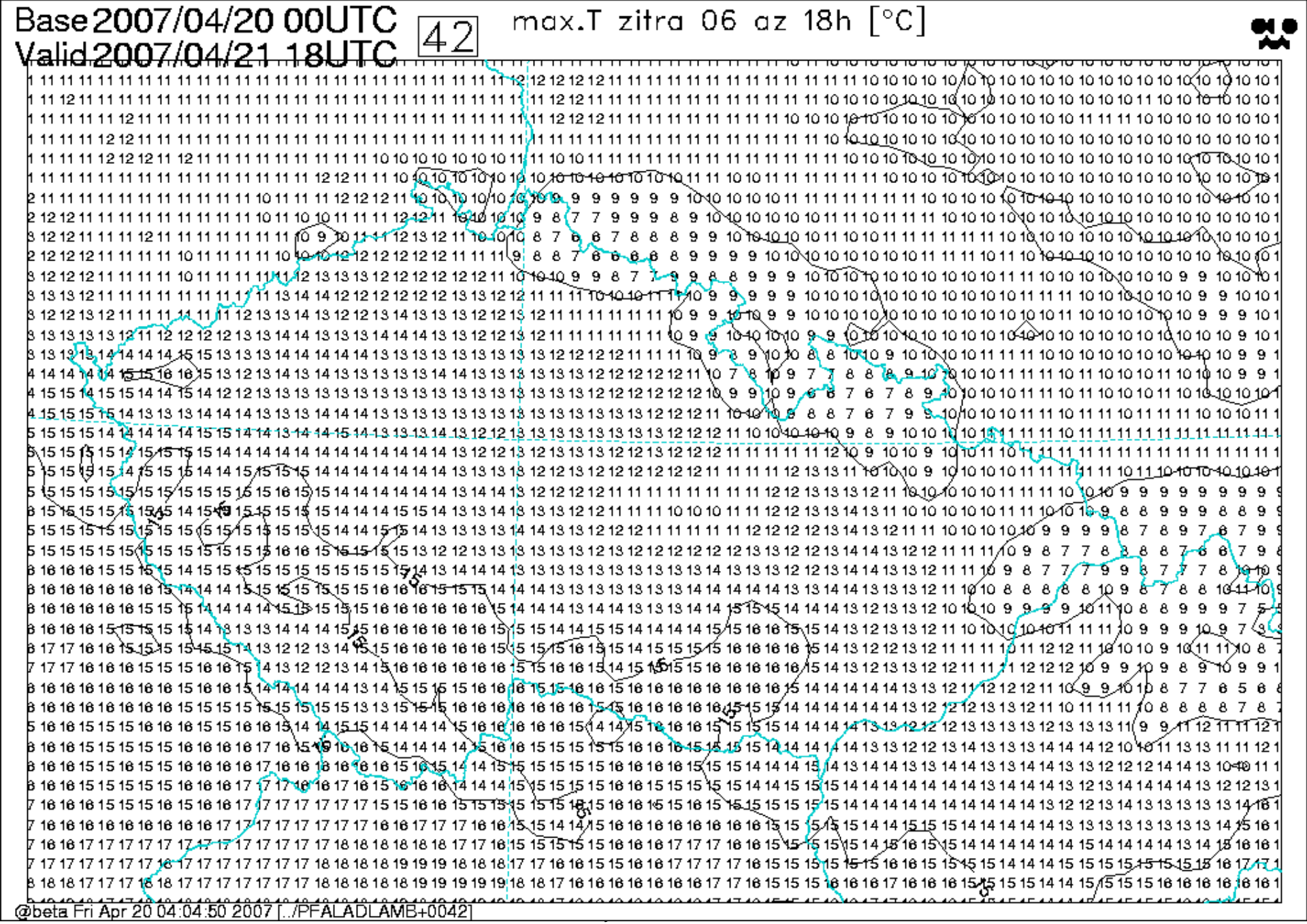
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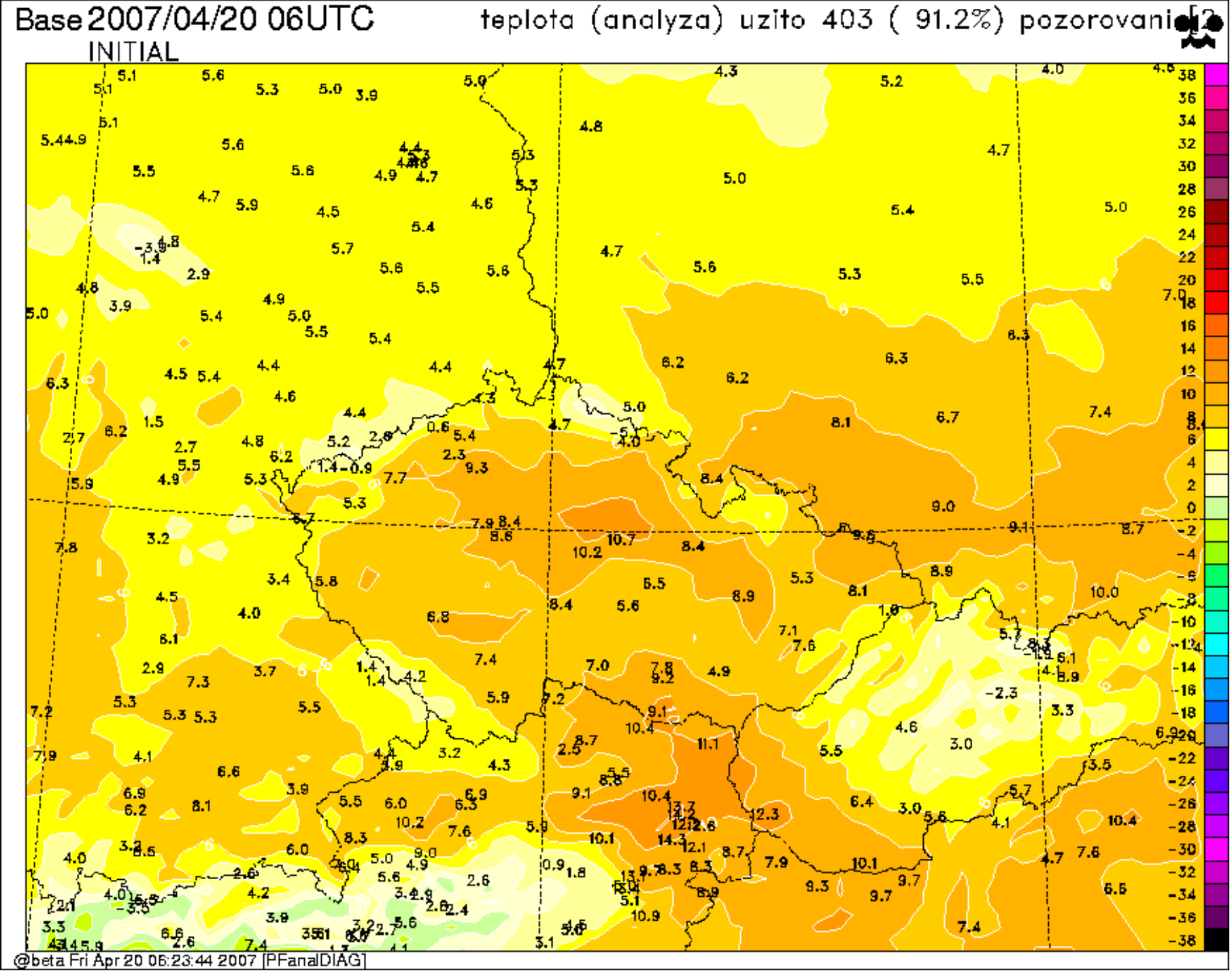
Base 2007/04/20 06UTC
INITIAL
teplota (analyza) uzito 403 (91.2%) pozorovani 12
@beta Fri Apr 20 06:23:44 2007 [PFanalDIAG]

Summary

- CHAGAL is still used both for model development and production
- it has been improved, new features added
- available from CHMI on request

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