



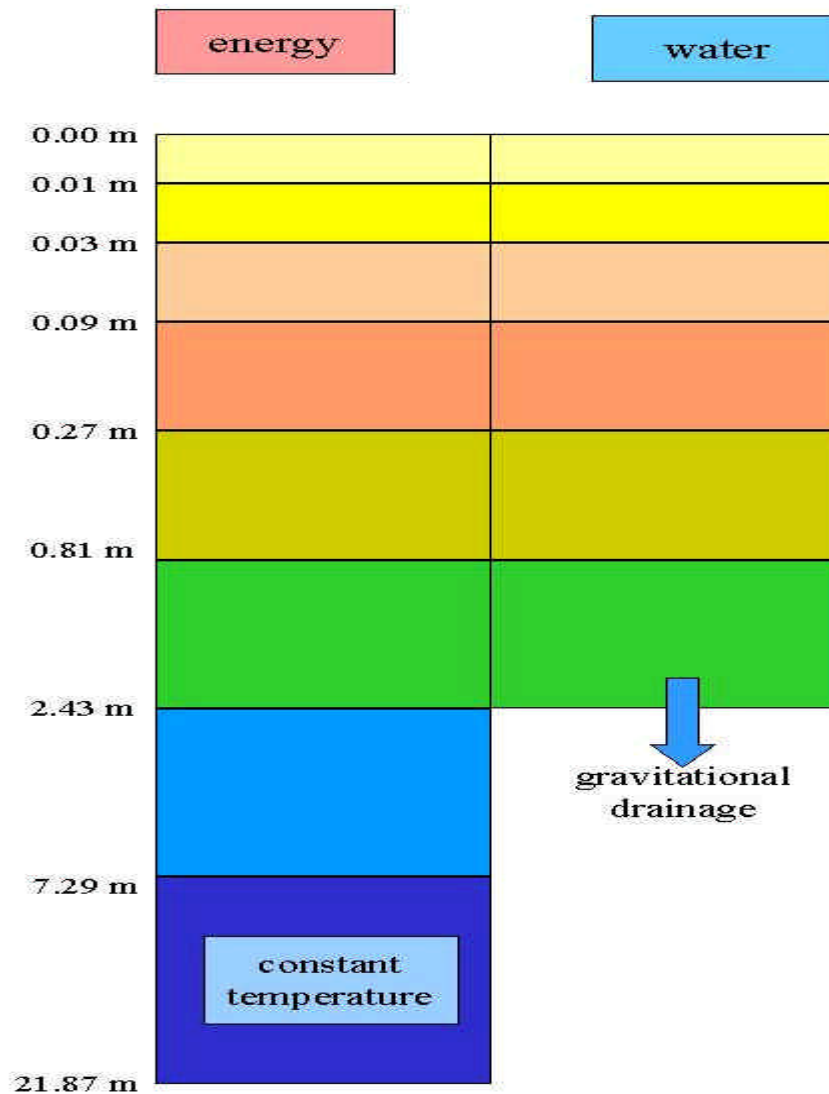
**COSMO WG3-meeting  
Milan  
September 21, 2004**

**The new soil model, present status**

**Erdmann Heise  
German Weather Service**

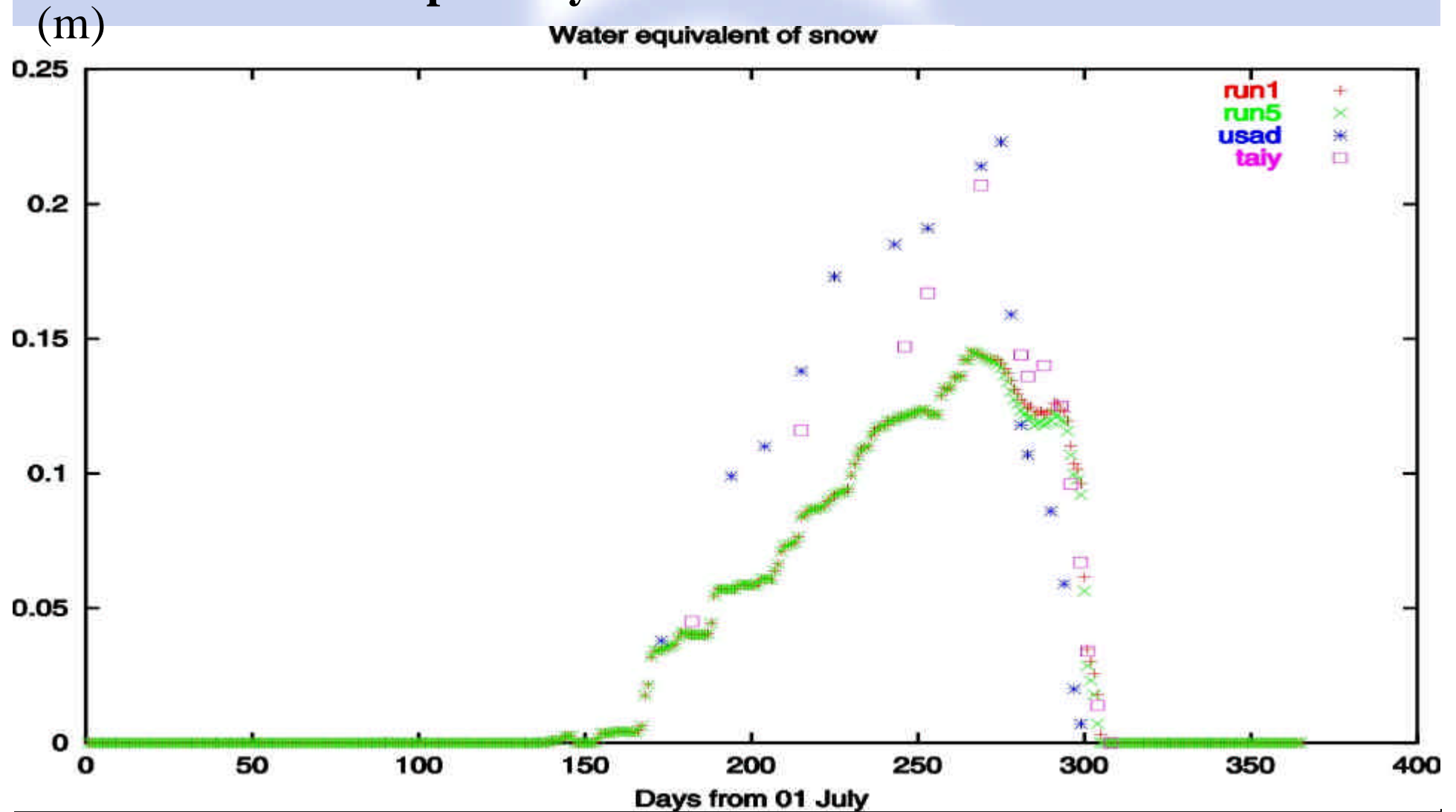
## Summary of important changes of the soil model:

- Multi-layer version for temperature and water content
- Freezing/melting processes in the soil considered
- Improved treatment of snow cover
  - New formulation of the melting process
  - Snow albedo depending on snow age
  - Consideration of the influence of forests on snow albedo in preparation



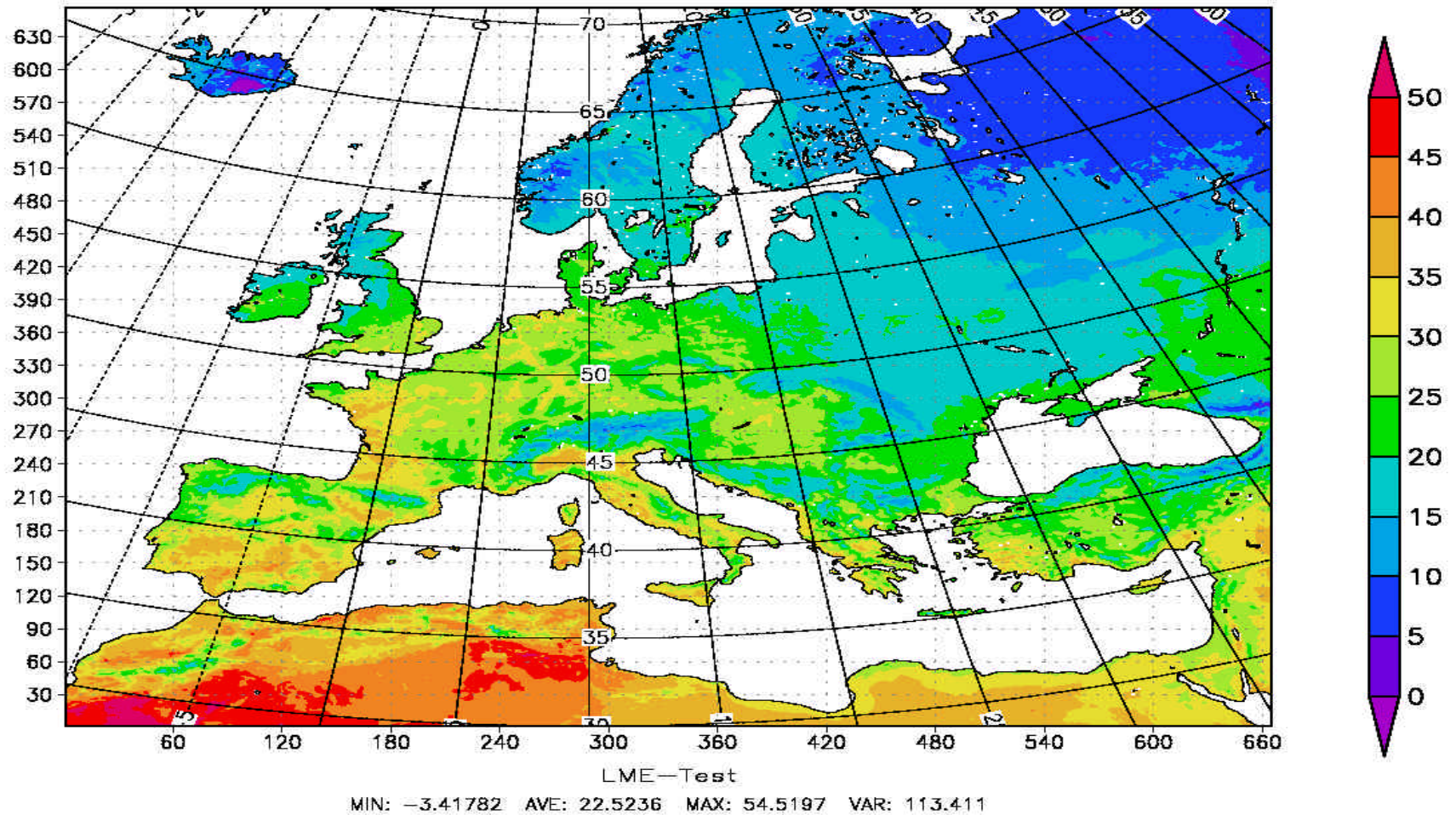
Layer configuration for the multi-layer soil model

## Perpetual-year simulation for Valdai





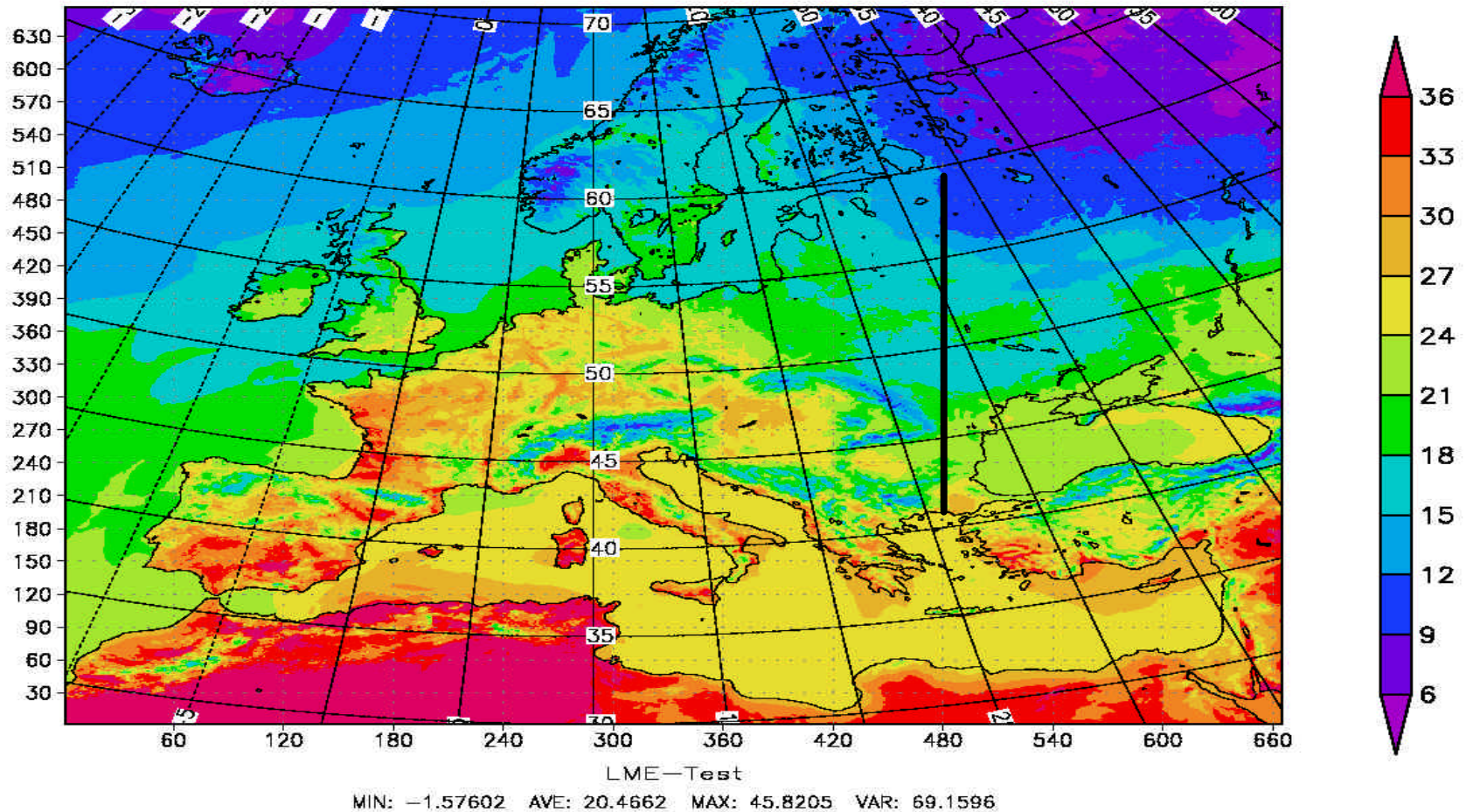
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tml



## Soil surface temperatures

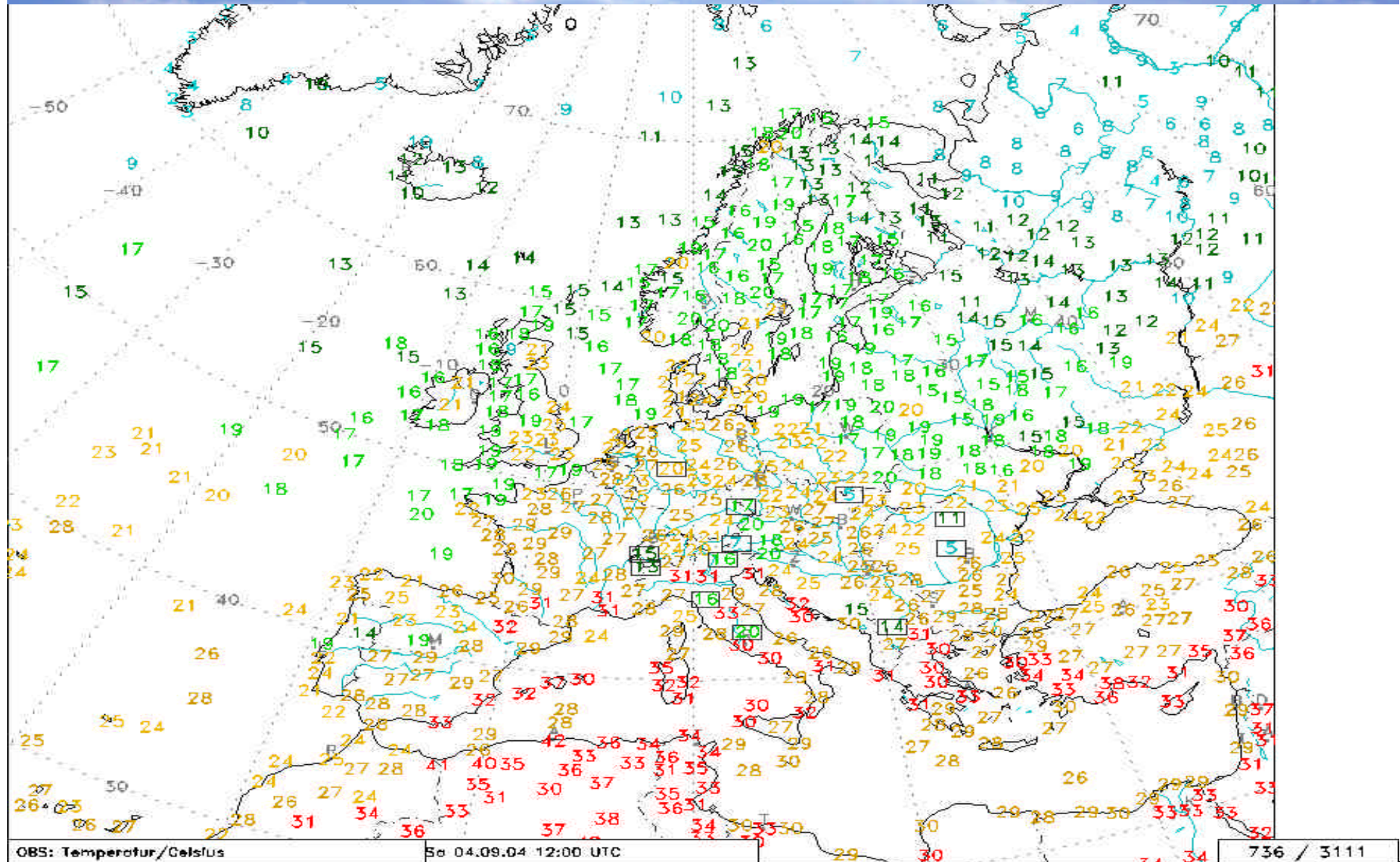


04sep2004 15 UTC    vv = 3 hrs  
t2m



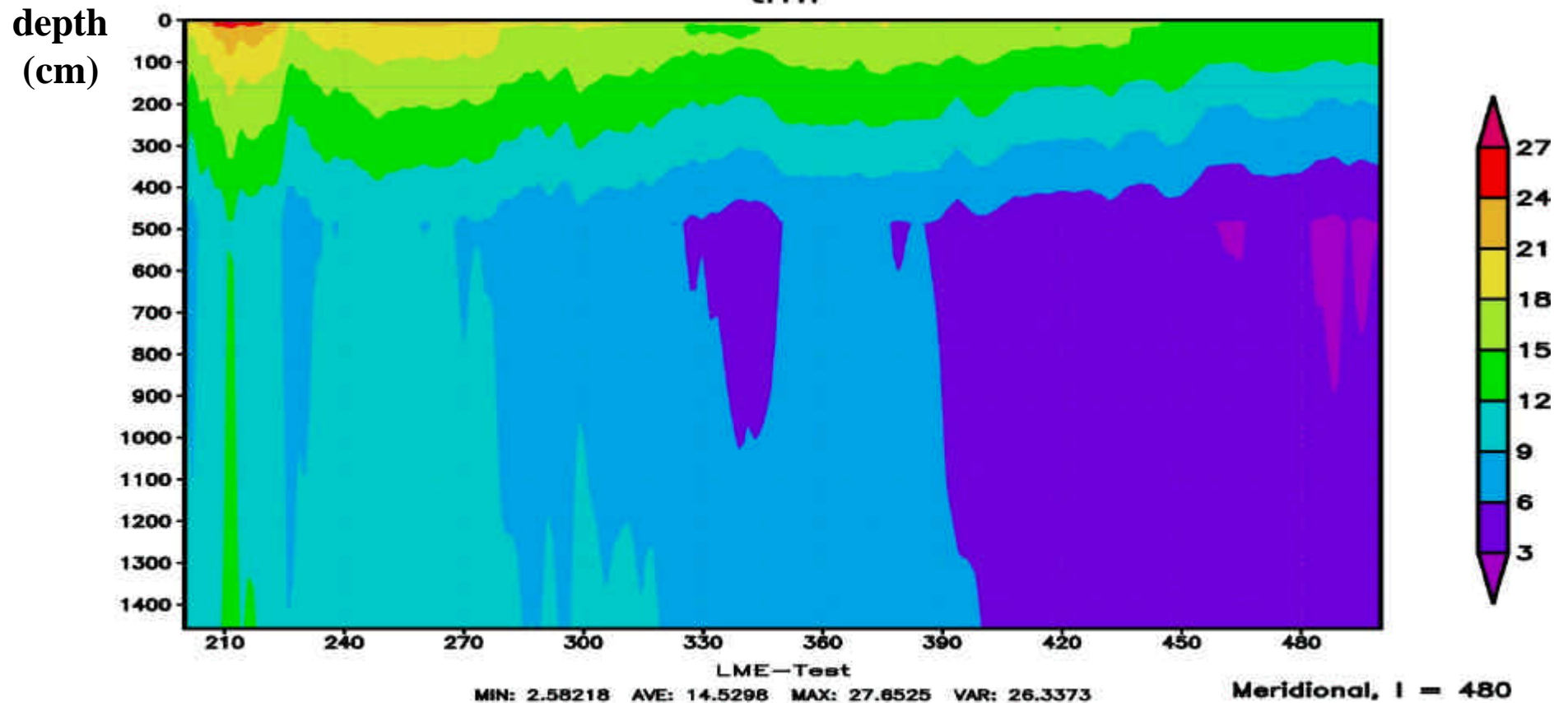
## 2m temperatures

# Deutscher Wetterdienst



## Meridional cross section of soil temperatures

LM tml 04sep2004 12UTC+3h  
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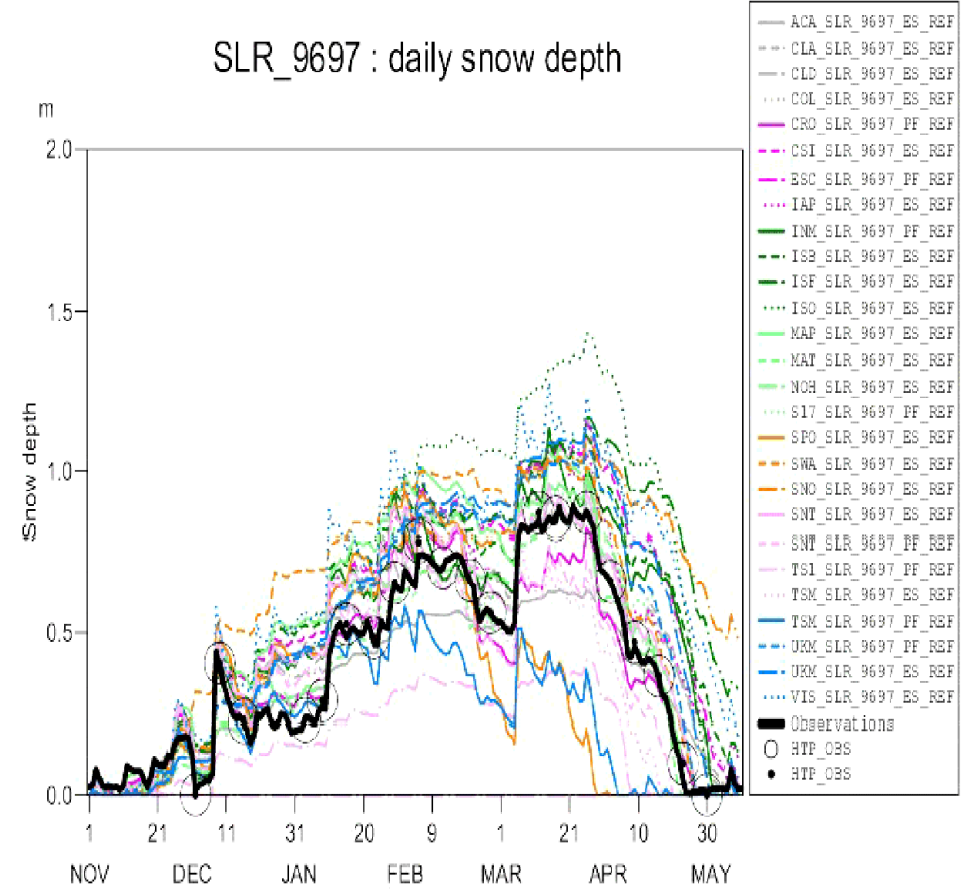
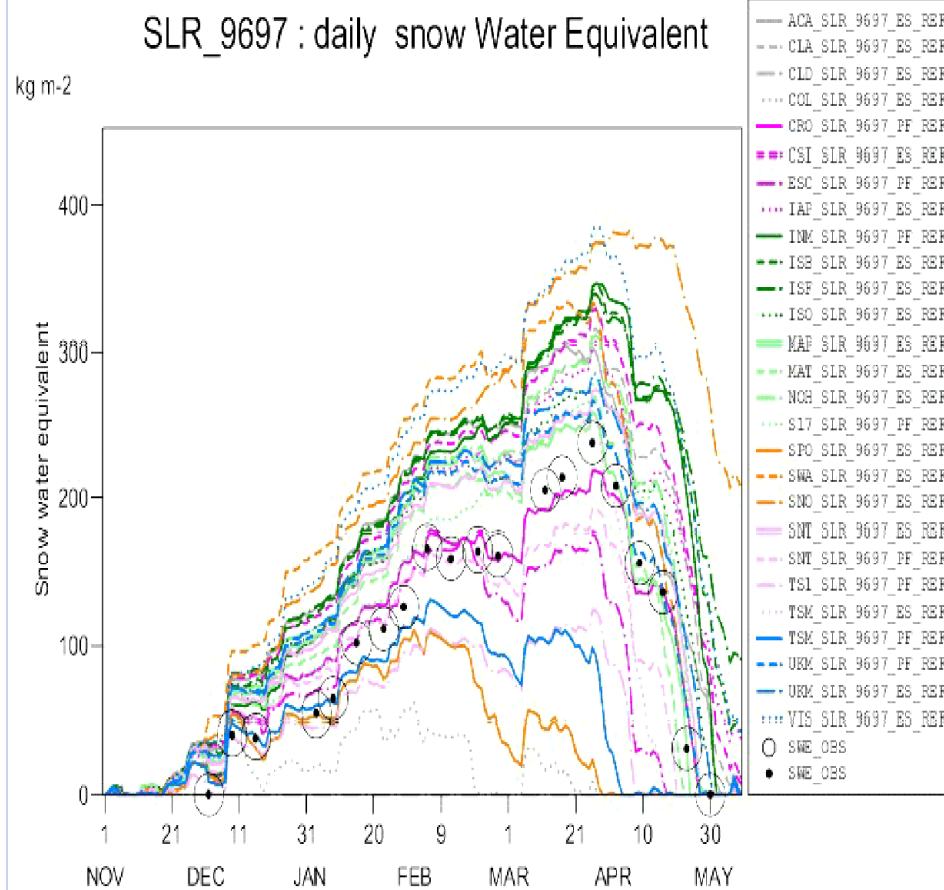


## What remains to be done?

- Include the effect of forests on snow albedo
- Perform parallel experiments in summer and winter, one to two months each
- Include the satellite-based determination of actual plant parameters and switch to new association tables
- Make the new soil model operational

## SNOWMIP

Vergleich der Schneemodellierung von Bodenmodellen  
 an einzelnen Messpunkten, Beobachtungen : schwarz  
 (GME/LM\_Bodenmodell nicht enthalten)





## Meridional cross section of soil water content

LM wml 04sep2004 12UTC+3h  
wml

