

# Weather Forecast Analysis

## Progress Report

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**METEOS**  
SUNSHINE FOR BUSINESS



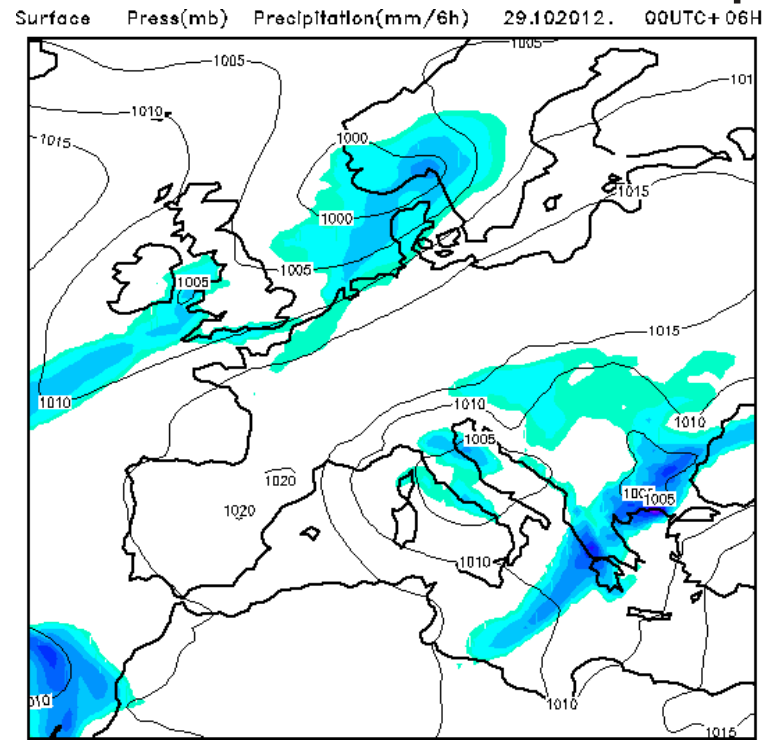
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# Goal

- Porting the Eta model to a Maxeler platform

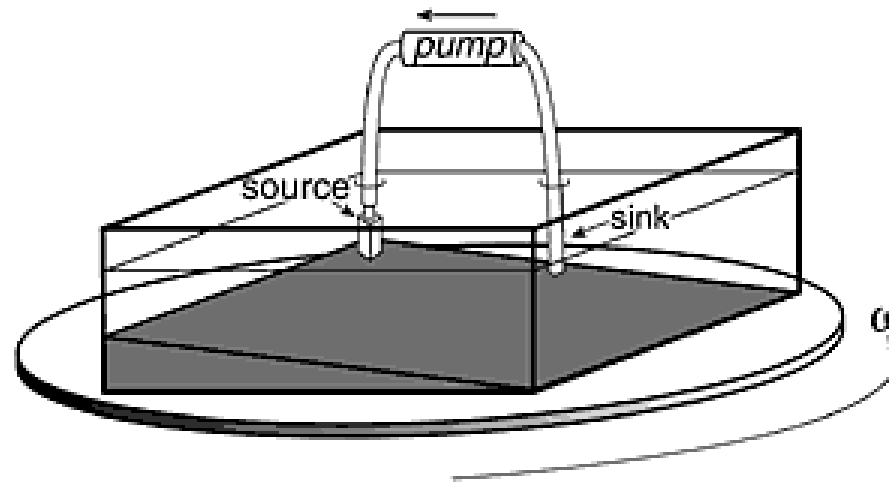


Eta model chart

Image courtesy: Hydrometeorological Service of Serbia

# Goal

- ~~Porting the Eta model to a Maxeler platform~~
- Porting the Eta model core to a Maxeler platform



## Shallow water Source-Sink model

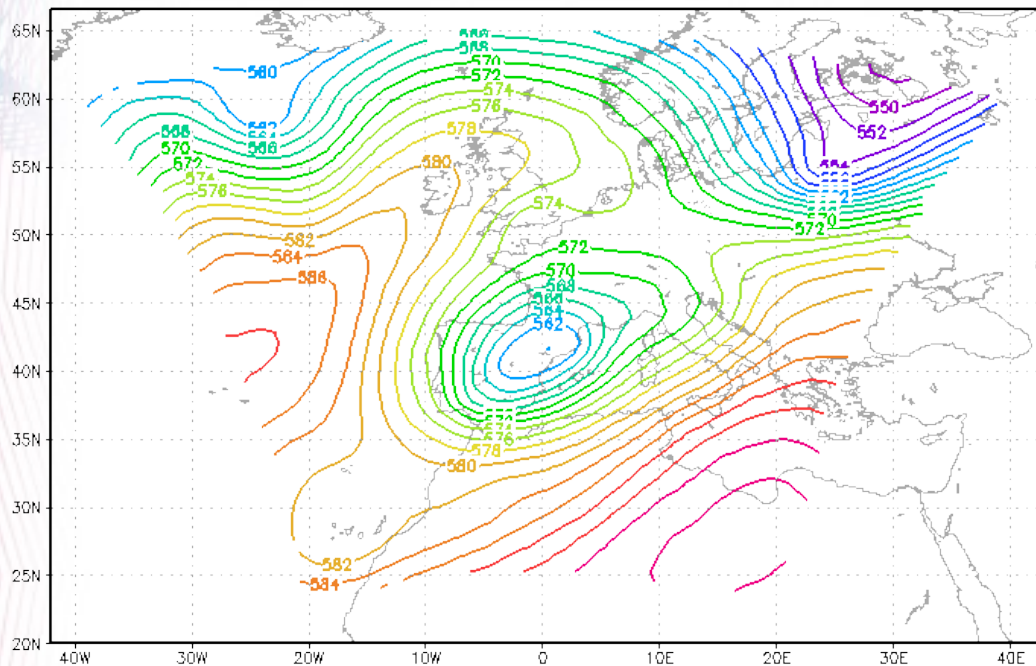
Image courtesy: Program in Atmospheres, Oceans, and Climate, MIT

# Progress

- ✓ Profiled single-core x86 Eta model (30k lines)
- ✓ Too complex for our resources
- ✓ Shallow water Source-Sink model (500 lines)
- ✓ Source-Sink model ported from Fortran to C
- **Currently: Analysing the code**
- Note: No Maxeler-related steps so far

# Next Steps (Oskar's Guide)

- Determine possible changes (Acceleration plan):
  - Choreography
  - Data encoding
  - Precision
- Put figures in a spreadsheet to get theoretical data
- Iterate above steps until there is maximum speed-up
- Port the code to Maxeler
- Get the real speed-up figures



## Acceleration of a weather forecast model

Execution time for 768 iterations:  
 CPU execution time: 100s  
 Dataflow execution time: ??s

Achieved speedup: ??x

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Note: Measurement is made on a single-core CPU.



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