MeteoSwiss

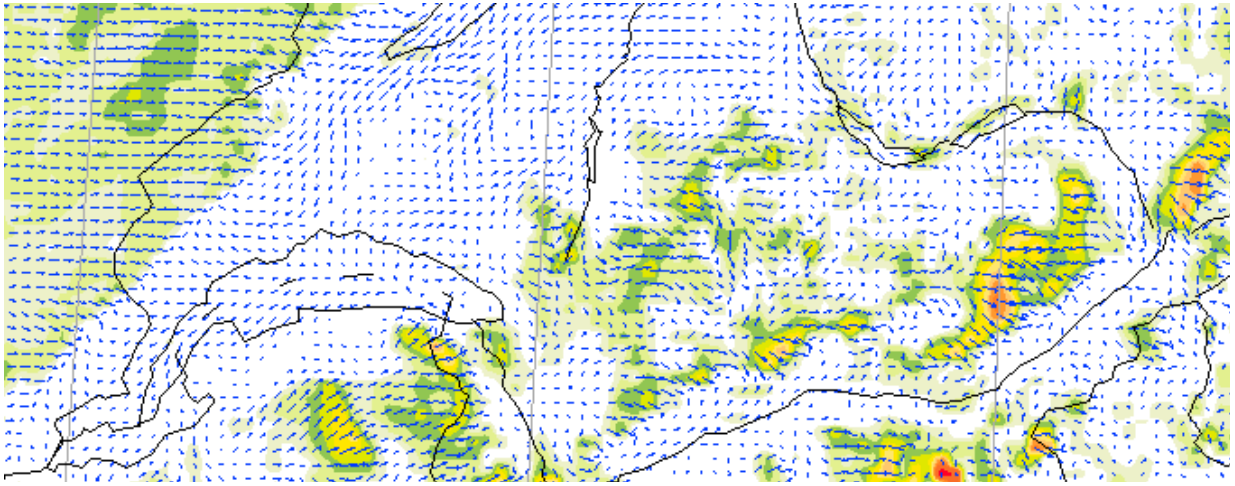**Factsheet**

Potential for new products and applications
—

The new NWP model systems developed
by MeteoSwiss provide new possibilities
for the end user

COSMO-1

- best possible deterministic forecast
  with high update frequency
- benefit over COSMO-E especially for
  processes and regions, where a high
  horizontal resolution is most important
- suitable for nowcasting
- highest degree of physical realism for
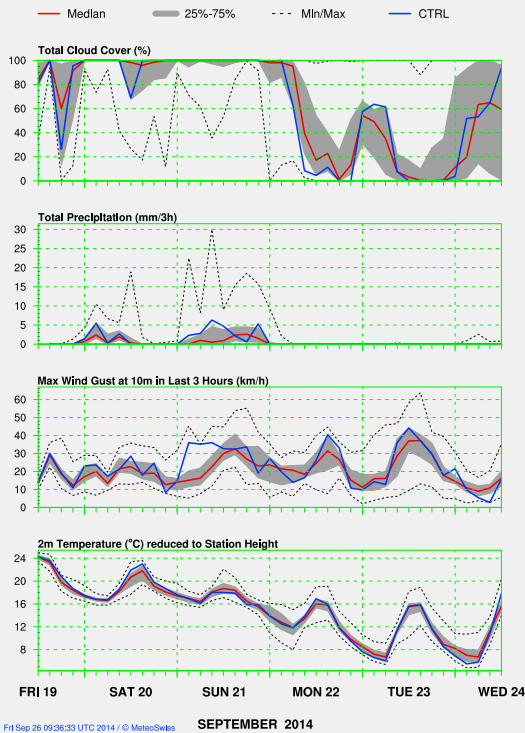 animations and visualizations

COSMO-E

- probabilistic products at convection-
  permitting resolution
- especially suited for rare or extreme
  events, e.g. warnings
- deterministic forecast accompanied
  with an "error bar"

KENDA

- best estimation of the state of the
  atmosphere in three dimensions, with
  an information of the related uncertainty
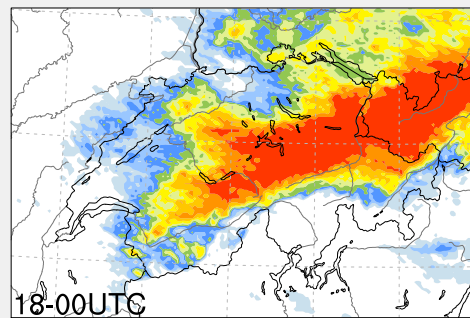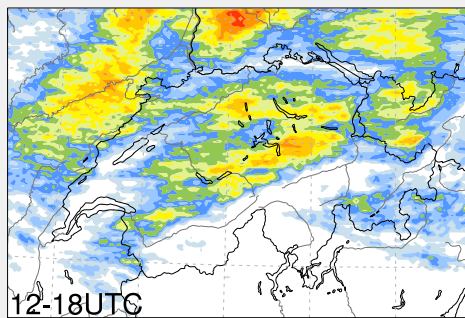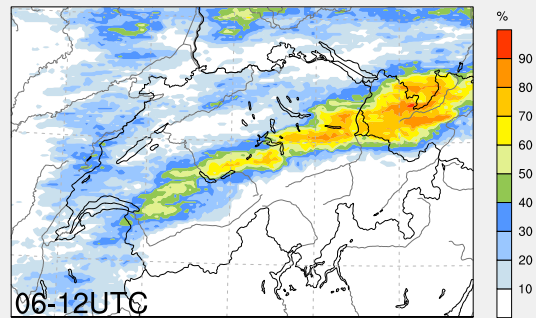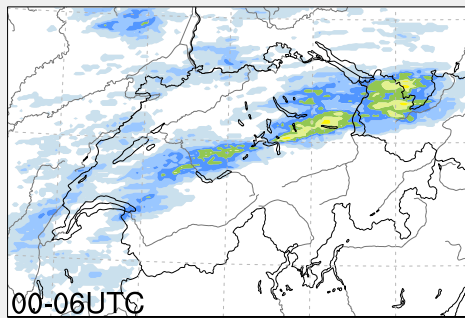- can potentially include all available observations

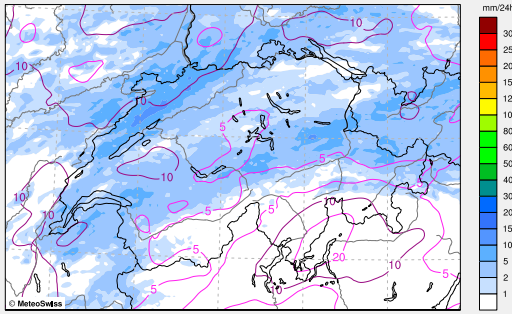**Meteogram starting on 19.09.2014 at 12 UTC showing the 5-day forecast of COSMO-E (for Zurich-Kloten).**

Displayed are the median of the ensemble (red), the 25% to 75% probability range (grey), minimum and maximum values (grey dotted) as well as the control run (blue). The meteogram can be produced for any point within the COSMO-E domain.

COSMO-E forecast of the probability to exceed a precipitation amount of 5mm/6h for 4 different 6h time intervals of the day.
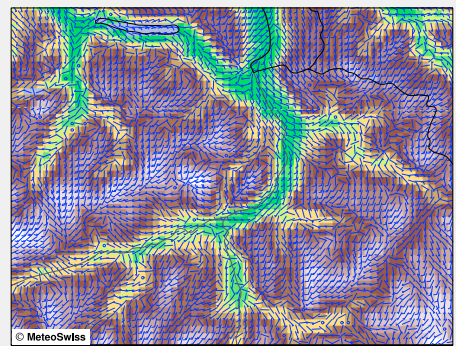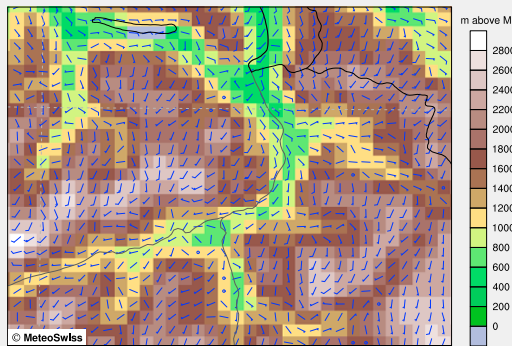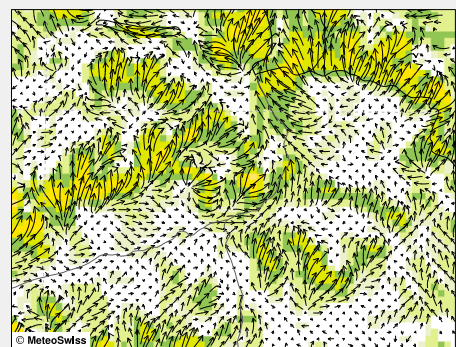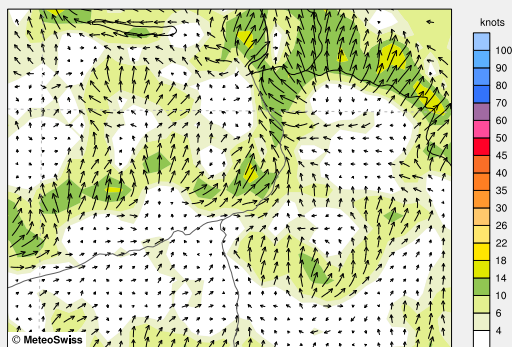
Shown are probabilities at grid-point scale. These can also be upscaled to e.g. the probability that an event occurs somewhere in boxes with e.g. a size of 20 km times 20 km (9 times 9 grid-boxes of the original COSMO-E grid). Probability plots can be produced for any parameter and any threshold.

Precipitation forecast of COSMO-E.

Displayed are the 24h precipitation median of the ensemble (coloured areas) together with the standard deviation of the ensemble (isolines; contours at 1, 5, 10, 20, and 50mm/24h). This is a nice example combining a deterministic forecast with the uncertainty provided by the ensemble forecast.

10m wind forecast for COSMO-2 (left) and COSMO-1 (right) for an area in southeastern Switzerland showing the finer details that are available in the COSMO-1 forecast.

The upper plots show the wind speed (coloured areas) and the wind barbs in 10m height. The bottom plots illustrate the orography (coloured area), overlaid by wind barbs.