

Spatial structure of synoptic icing observations in central Europe and their applicability

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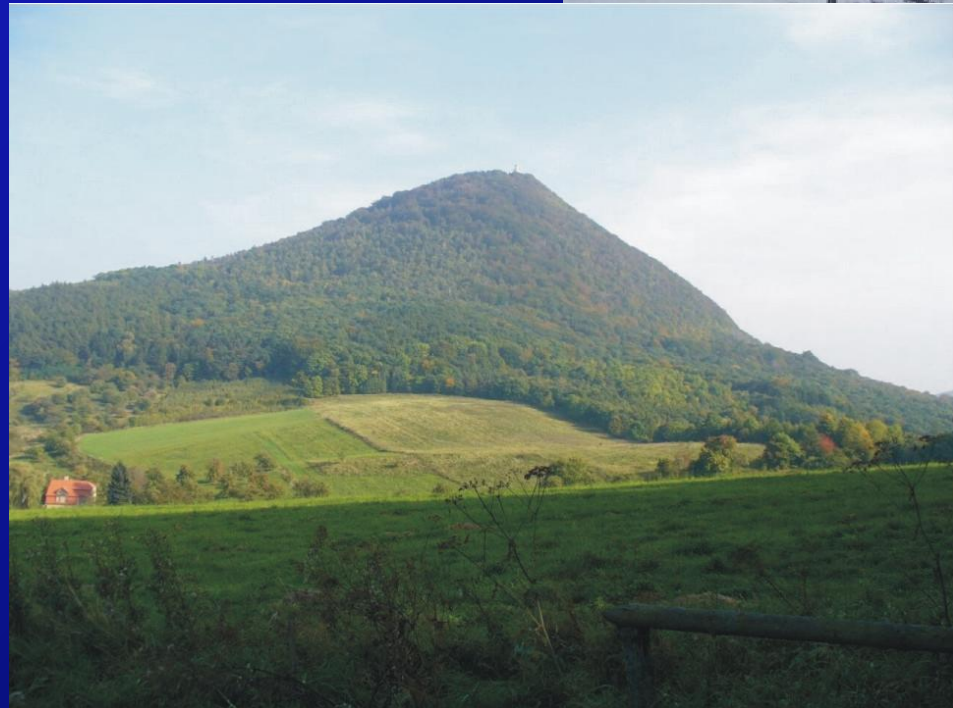
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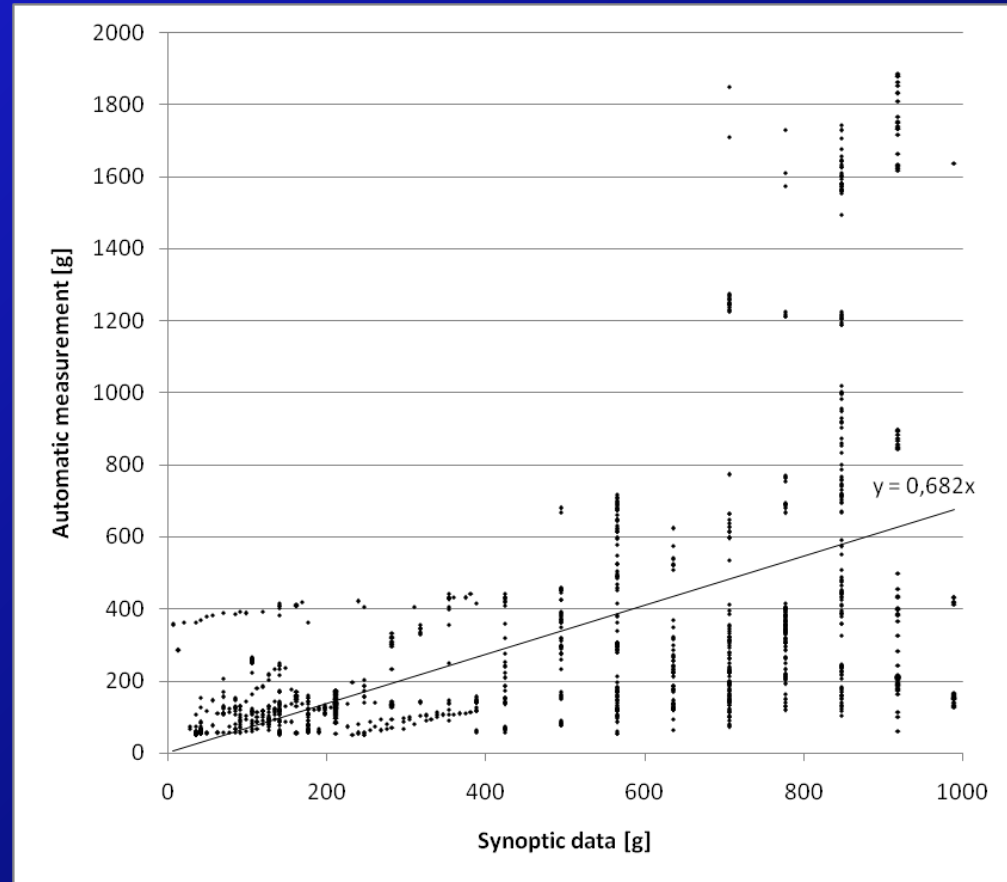
Measurements at Milešovka Mt.

- altitude 837 m a.s.l., on the top of an isolated mountain
- synoptic measurements:
 - taken manually at 10 m a.g.l.
- automatic measurements:
 - icing sensor at 10 m a.g.l. with a nonrotating cylinder
 - from 1999/00, usually October – April
 - position: attached to the fences on the terraces of the meteorological station



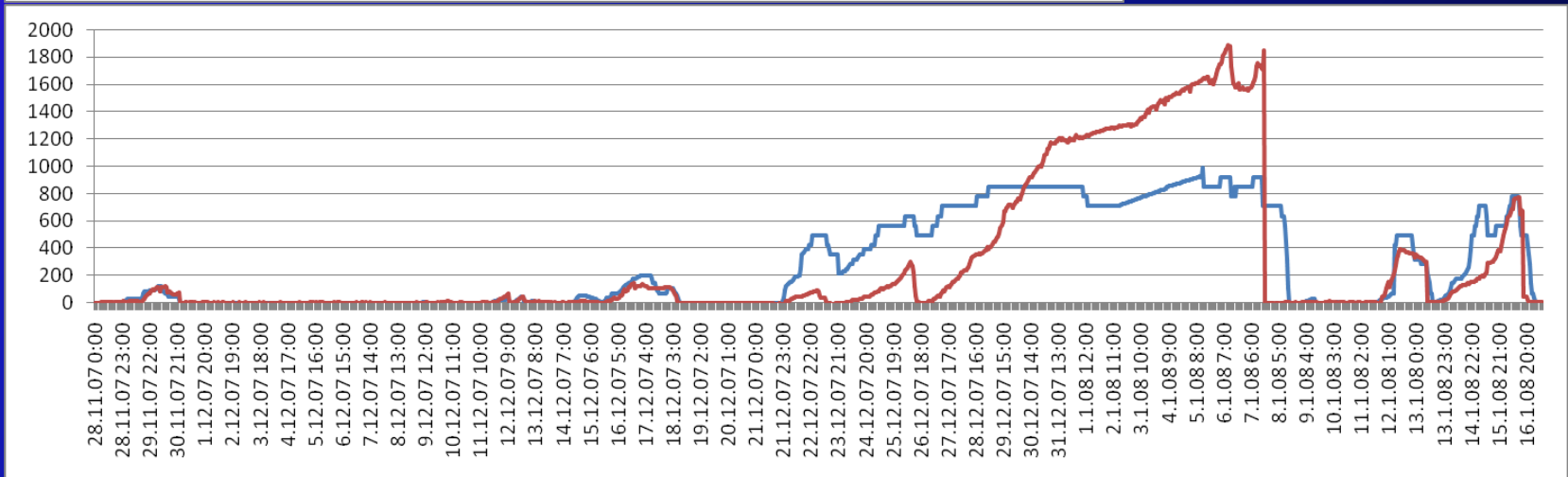
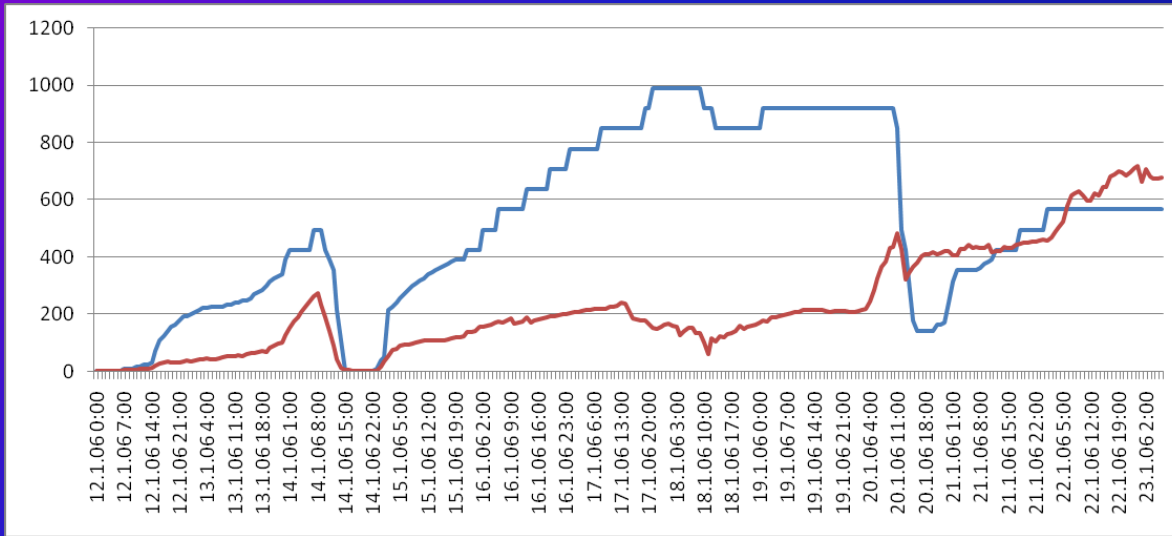
Comparison of synoptic and automatic measurements at Milešovka Mt.

- Synoptic icing measurements are taken manually and ice accumulation is specified in mm
- Icing is included in section 3 (regional) of the synoptic code among special phenomena
- Mass of ice accumulation is calculated using density 600 g/m^3



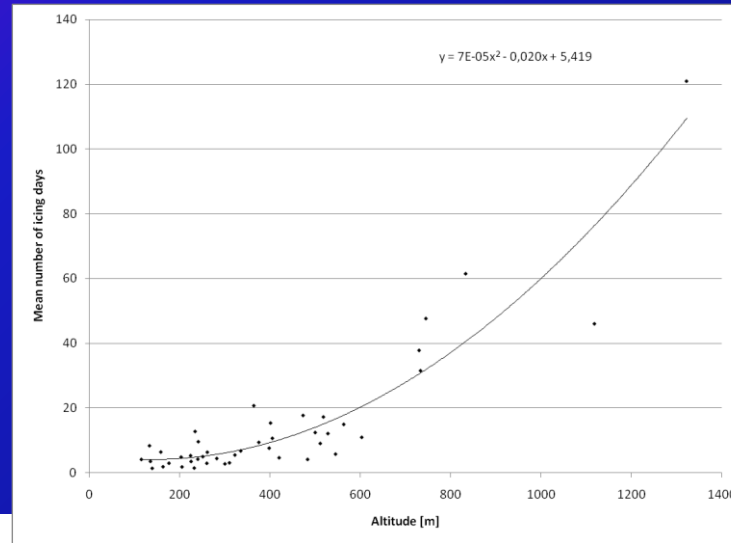
Scatterplot of both types of measurements based on hourly data

Comparison of synoptic (blue) and automatic (red) measurements

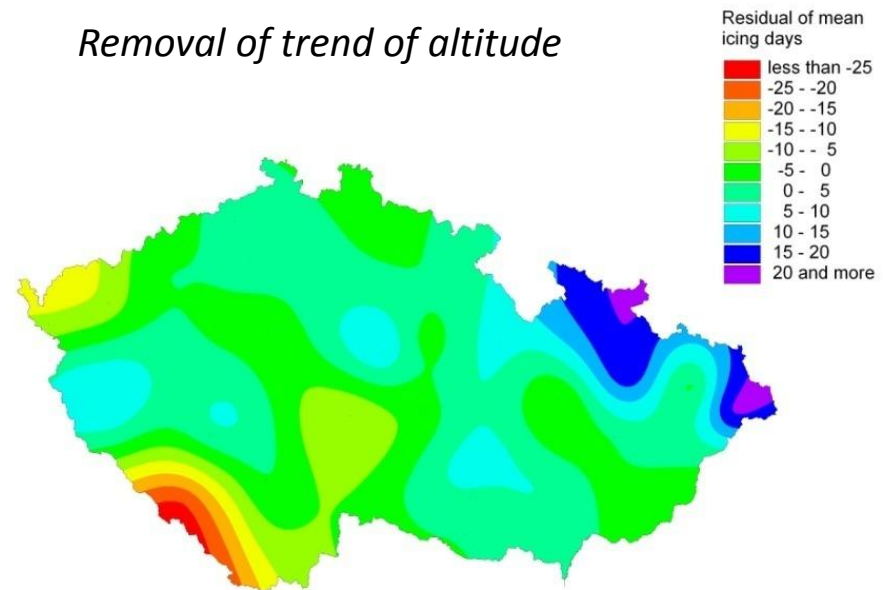


Spatial interpolation of synoptic data

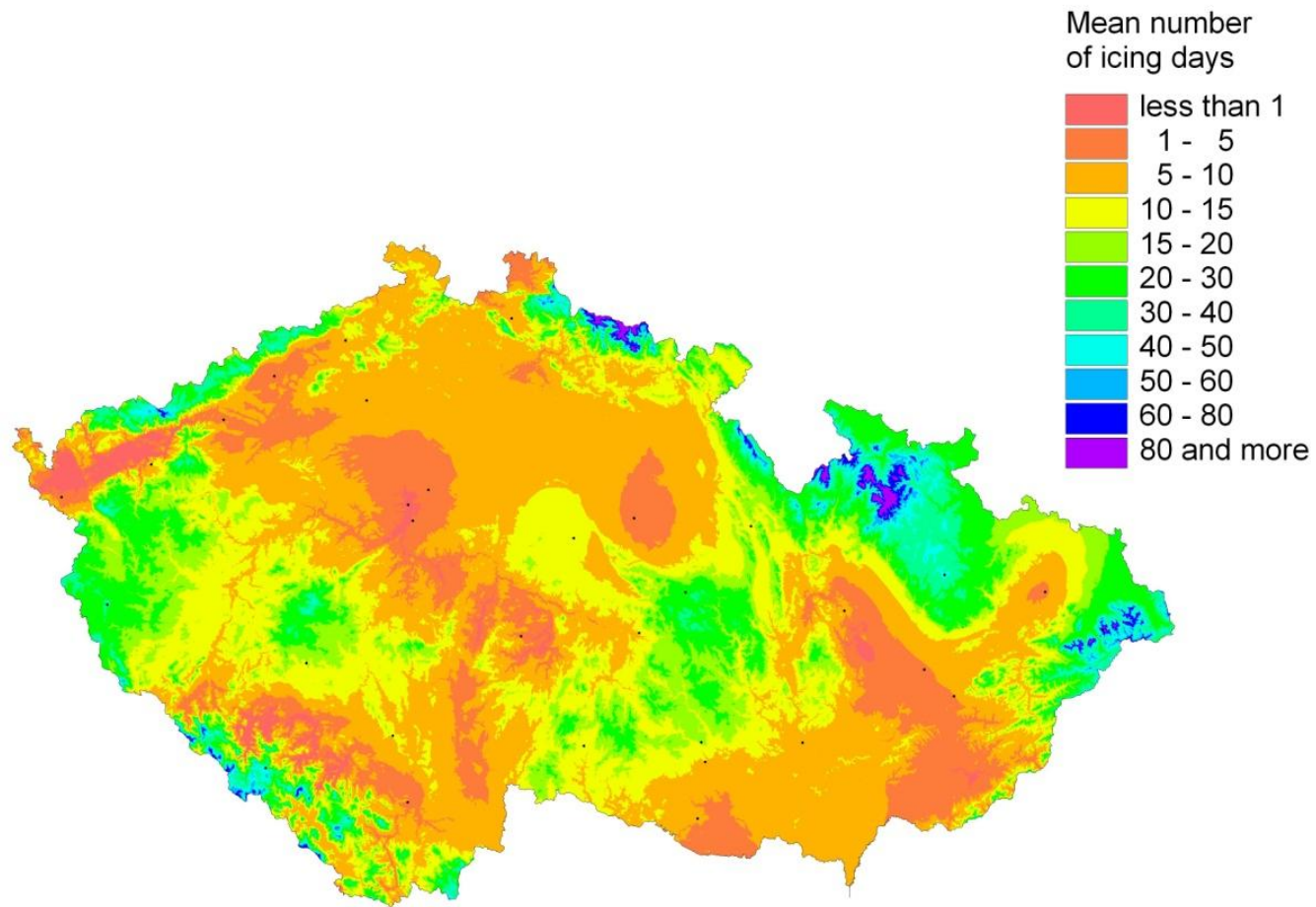
- Data from 37 synoptic station applied, period 1999 - 2008
- The effect of altitude is removed using second order polynomial trend
- Interpolation of mean number of icing days is done using the spline method applied on residuals
- The altitude effect is finally included using digital elevation model with 100 m resolution



Removal of trend of altitude



Interpolation of residuals



Mean number of icing days interpolated from the synoptic measurements
