The intensity scale verification method with missing value

21 August 2005
Data description

Observation: 450 pluviometers → gridding in connection with a fine scale climatology

Model: COSMO Swiss implementation

Resolution: 7km

Valid: 06-30 h FCST
Two-dimensional discrete Haar wavelet filter
(Barbara Casati et al, 2004)

Figure 11. Example of the one-dimensional discrete Haar wavelet filter applied to an example function (top left panel). At the first step the function is decomposed into the sum of a coarser mean function (the first father wavelet component) and a variation-about-the-mean function (the first mother wavelet component). At each step the Haar wavelet filter decomposes the father wavelet component obtained from the previous step into the sum of a coarser mean function (the $i^\text{th}$ father wavelet component) and a variation-about-the-mean function (the $i^\text{th}$ mother wavelet component). The $i^\text{th}$ father wavelet component is obtained from the initial function by a spatial averaging over $2^i$ pixels. The process stops when the largest father wavelet component (mean over the whole domain) is found.
Method

- Extending the grid to 64X64
- All gridpoints outside Switzerland are set to 0 mm
Intensity Scale Skill Scores are all positive

How much do the outside gridpoints contribute?
Exp1: resample the whole domain randomly
Exp2: resample the Switzerland randomly.
Resample all

Resample inside

Normal

Intensity-Scale Skill Score

Johannes Jenkner and Feng Liang
2.02.2007
Heidke Skill Score (equal to the binary MSE skill score)
Conclusion

- irregular border with missing values outside leads to a spurious skill
- false skill predominantly present for low thresholds (beneath 8mm/day) and scales up to 60 km
- forecast of the COSMO model exhibits a good quality (especially for the strong intensities and small scales)