

## ***Interactive comment on “Geostatistical radar-raingauge combination with nonparametric correlograms: methodological considerations and application in Switzerland” by R. Schiemann et al.***

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### **1 General Comments**

The authors present the results of a study comparing several techniques for producing hourly accumulated rainfall fields over Switzerland. These fields are produced using information provided by a network of rain-gauges and an hourly accumulated radar composite from 3 weather radars. The techniques are evaluated using a variety of metrics for three detailed cases and for an extended period of one year.

The main findings of the paper are that the author's extension of the radar rain-gauge combination method of Velasco-Forero et al. (2009) performs best overall, and that the Kriging variance calculated does not produce suitable error bounds on the rainfall estimates.

Overall I found the paper to be well written and thorough, with useful and well presented figures. My recommendation is that the paper is suitable for publication subject to addressing the specific comments and technical corrections below.

## 2 Specific Comments

- The authors provide very little information about the construction of the radar composite. e.g. Have bias adjustments been applied using the same gauge network? Some brief comments on these matters and a reference to a document describing the detailed procedure followed in the production of the composites would be useful for researchers doing future work assessing the results of this study.
- Pg. 6942 lines 17 & 18 - What is the rationale for only removing the cross-validated gauge in the final Kriging step? Surely its presence in the initial steps will influence the results?
- Why is the empirical semivariogram in Fig. 8a truncated at about 45km range?

## 3 Technical Corrections

- Pg. 6930 line 8 - "...several figures in Sect 3." would be clearer if a specific figure was specified e.g. Fig 5.

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- Pg. 6931 line 3 - Shouldn't "...this is equivalent to" read "...it can be shown that"?
- Pg. 6932 line 10 - "...property of positive definiteness." could read "...property of positive definiteness of the covariance matrix." to be more specific.
- Pg. 6932 line 13 - "...allows to estimate..." should read "...allows estimation of..."
- Pg. 6937 lines 5 & 6 - The meaning of the last sentence isn't clear to me.
- Pg. 6938 line 12 - "...gauge loactions..." should read "...gauge locations..."
- Pg. 6940 line 10 - This sentence implies that the radar values are estimated at the gauge locations using interpolation. This is not what the authors mean. A new rainfall field is estimated by  $OK_{np}$  using a sparse set of radar values sampled at the gauge locations.
- Pg. 6943 Bullet starting at line 3 - The wording of this point is clumsy and makes it difficult to understand.
- Pg. 6945 line 12 - "Whe compute..." should read "We compute..."
- Pg. 6946 line 3 - "They do not only..." should read "They not only..."
- Pg. 6947 line 3 - "...strenghts..." should read "...strengths..."

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