Reviewer's report

Title: Clusters of hemorrhagic fever with renal syndrome in Liaoning Province, northeastern China

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Reviewer: Marek Brabec

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The paper explores an interesting ground by modern means. It is not so easy to read for several reasons. It should be revised. Some detailed comments follow.

• English of the paper can be improved.

• On page 6, there appears a (very much correct) sentence: “The clusters of disease cases are meaningful only after having adjusted for spatial variations in the density of the background population." Does it mean that all the subsequent results (and MC simulations) are computed under the heterogeneous Poisson process assumption with population size offsets? In any case, it should be stated explicitly, what is modeled and tested (e.g. via the scan statistics) in all analyses of this paper – whether the raw counts (that would not be good), or those adjusted for local population size.

• There is too much of a description for a concrete SW (SaTscan) both in Methods and Results. That goes so far, that sometime parts of the paper read almost as a manual. E.g. on page 7, we read “Negative values, zero and outliers are shown in different size (area) and color in circular cartogram." despite the fact that the incidences analyzed in this study cannot be negative). In the next sentence, we read: “The default color is green.” And it goes on and on. All of this should be cut down, drastically. Specific details of SaTScan will not be all that useful to the users of other SW, so that the paper should concentrate on more general issues. Anyway, there will be enough of original material in the paper even after the cuts. Only general properties of the methodology used in the paper should be described, not the technical/graphical details of a particular SW (an interested reader can read about how the SW plots the data and outputs in the referenced papers and on the SaTScan webpage).

• What is the “annualized average incidence” (the notion appears e.g. on page 7). It should be defined formally and precisely (there should be clear indication in the paper how the annual adjustment was done, preferably in terms of a formula).

• Could you try to interpret the clusters somehow (at least the most important ones)?

• It would be interesting to come up with some hypotheses about how the clusters emerge (e.g. in relation to some explanatory variables) and try to build a regression model that would explain some or all of the clusters. That would correspond to the goal stated in the Background section as: “Studying the cluster patterns of HFRS is very important in both finding the risk factors behind the
spread of HFRS, and better preventing and controlling HFRS.”

• In Figure 3, there is a typo in the legend (“Senondary likely cluster”).