

Manuscript nhes-2018-357 by Lee et al. investigates the effect of increasing resolution of geostationary satellite observations to predict tropical thunderstorms in Southeast Asia. The manuscript fits well within the scope of the NHESS-journal. Although concise, the text is clearly written. However, following points should be addressed before publication:

General comments:

- The goal of this study is very clear. However, I believe that using solely 8 clouds to draw conclusions on the difference in lead time between the old and new observational satellite data is too little. The authors need to include much more data, i.e., increase the amount of observed clouds, simply by extending the amount of observation days (now only 10 & 11 Aug 2017). Why not using for instance all the thunderclouds observed in August 2017 & 2018?
- Fig 1 & 2 only include the data based on the new satellite observations. I believe its worthwhile to include in the figures as well the behaviour of the virtual (lower resolution) data. In this way it is easy for the reader to see the difference between the two.

Specific comments (chronological in appearance):

1. Introduction:

- p1, L27, typo: "... lead to extensive economic losses"
- p2, L10/11: please rephrase "should be grounded" in this sentence. It is not clear what you mean.
- p2, L16: "(briefly, min)": what do you mean?
- p2, L20/21: "Moreover, ... measurements": there are of course advantages using satellite in stead of ground-based observations, but also disadvantages. A network of radars, such as NEXRAD in the US or OPERA in Europe do provide high-resolution precipitation observations over a large area continuously with a higher spatial resolution compared to satellite observations.

2. Data and Method

- p2, L30-p3,L2: so is this the only reason why the authors chose this particular region to investigate?
- p3, L6: please rephrase "...dramatically uprising in the clean sky"
- p3, L11,12: Regions 1, 2 and 3 are mentioned in the text but its not totally clear where those are located. A new figure indicating the three regions would clarify this.
- p3, L14: Reference to JMA/MSK is now "2017", however, in the reference list it is "2018"
- p3, L15: "... whose resolution is **similar to** the MTSAT ..."

3. Determining thunderstorm pixels and defining the lead time

- p3, L31: please add a reference(s) for "... BT11 of clouds, which insofar, has been shown to be highly associated with the predictability of thunderstorms [references]"
- p4, L8: please rephrase "... time passed from when the ..." into "time in between the cloud ... and ..."
- p4, L15: reference (Houze, 204) → 2004

4. Improved predictability by comparing lead time differences

- p4, L25: please rephrase: “the sooner early clouds”
- p4, L26 add references: “Some previous studies have shown ... [references]”
- p4, L29: 8 clouds are not a lot to build your conclusions upon
- p5, L2: what is meant with “the floating population”?
- P5, L7/8: remove the brackets “(…)”
- p5, L19: What is meant with “it is difficult to reflect the whole cloud”
- p5, L18-L31: it would be worthwhile to include in Figure 2 the behaviour of the “virtual” lower resolution MTSAT data. In that way, the reader can check visually directly the difference for this particular case.

5. Conclusions and limitation

- p6, 1 sentence: this is expected. Even without this study one expects that newer instruments provide higher quality data, which in turn have a positive effect for any meteorological purpose. Exactly what you wrote on p6, L13-15.
- p6, L9-10: please rephrase “ ... and the mature deep convective with heavy rain”
- p6, L23: “if applied to real technology”. Do you mean “ if implemented operationally”?
- p6, L26-27: “ For example, Cambodia ... satellite data are 4 km.”: I am wondering if this is really the best place/appropriate (in a scientific article) referring to a specific country. I believe it is better to write in general terms that there are countries in southeast Asia who receive 4km data. For example, last line of the summary is written in more general words, which is in my opinion better.

Tables:

I think Table 1 & 3 could be transformed into 1 single table. The observation times in Table 1 can be put into Table 3. However, since more data will be included in the paper, the authors should think how to restructure those tables. I can imagine that when you have not 8, but for example 80 observed clouds it would be better not to use a table but to make a figure of the distribution of the lead times & cloud scales ... Is there maybe a relation between the cloud scale and the lead time? More things can be done when including more data!

Figures:

- Figure 1: Please rephrase last sentence in the caption of this figure. At the moment, it is not clear. + Include the low-resolution data in this figure as well for direct comparison.
- Figure 2: I would like to see for Fig. 2 a & b that the authors include the virtual (lower resolution) data in order for the reader to see directly the difference between the new and old observational data.