

## ***Interactive comment on “A Statistical Analysis of TIR Anomalies extracted by RST in Relation with Earthquake in Sichuan Area with Use of MODIS LST Data” by Ying Zhang and Qingyan Meng***

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This paper is very meaningful and interesting which studied the relationship between TIR anomalies and earthquakes in Sichuan area from 2002 to 2018. It has a very long study period and a detailed statistics. I have some suggestions below which I feel would strengthen the paper.

Page 1 Line 25 in abstract – PPV, FDR, TPR and FNR are best added their full names. Line 35-The “TIR” might be repeated with the “outgoing longwave satellite”.

Page 2 Line 34- What’s the meaning of the “t no similar results”?

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Page 3 \* Add the names of the main faults in Fig.1. An overall map of China and Sichuan could also be considered.

Page 4 \* There are three spatial resolutions -250m, 500m, 1000m of the MODIS data, which one was used in your paper? Line 32- How did you get this conclusion-“But earthquakes caused by ground subsidence, human factors and so on will not cause TIR anomalies”?

Page 6 \* Maybe I did not understand the calculation process, but the right sides of the formula (11) and (12) are the same as the right sides of the formula (5) and (6). What's the purpose for repeating the same expression?

Page 7 Line 14- “In ELEFTHERIOU’s study” should add the reference. Line 29- “one of 5) and 5)” is “one of 5) and 6)”?

Page 9 Line 3- Period A is from 2002.09 to 2007.12, is Period B also from 2002.09 to 2007.12? Line 9- I cannot find the brown rectangle.

Page 12 Line 31- “Thermal anomalies are more likely to be extracted and TIR anomalies are more likely to correspond to earthquakes”. Do you have a standard of the thermal anomaly? Just as the size and the amplitude of the anomaly. \*There are 61 anomalies with period C, but 60 anomalies without period C because of the more cloud in period C in study area, however, little difference of clouds in Fig.7 and Fig.8 can be detected. Should you make the difference more obvious?

Page 14 \* In Fig.9, the percentage of PPV and TPR with magnitude  $\geq 7.4$  is 0, is there no TIR anomalies for these earthquakes? I have read some papers that there were TIR anomalies when Wenchuan 8.0 earthquake occurred. \* In 4.3 The evaluation of earthquake prediction ability for RST and 5 Discussion, the description is complicated, can you simplified them slightly?

Page 16 Line 37- “the prediction ability of RST in Sichuan area is limited”. I think this sentence is too absolute. Many earthquakes occurred in Longmenshan fault in

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Sichuan area had been studied by scientists, and got some anomalies before or after the earthquake. For example, Singh (2010) had found precursory signals using satellite and ground data associated with the Wenchuan earthquake of 12 May 2008. Zhang Yuan-sheng (2010) also detected the TBB anomalies before Wenchuan earthquake; and Zhang Xuan (2013) had analyzed the thermal infrared anomaly before the Lushan 7.0 earthquake. So, maybe the data was not suitable for this region, not simply because of the cloud. This should be described in the paper.

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