Referee's report on the ms NHESS-2016-374 by Niccolini et al.

In this manuscript (ms) the authors check the potential of a novel approach to identify the approach to a critical point on the basis of natural time analysis by employing acoustic emissions data.

In general:

This ms falls within the scope of "Natural Hazards and Earth System Sciences".

The title of the ms should be improved.

The conclusions drawn are very interesting.

The Reference list needs completion.

More specifically:

1. Concerning the structure of the ms, Section 2 should be shortened so that to become part of the Introduction. Furthermore, the authors should give more details in Section 4 on the way the raw data have been processed.

2. The title of the manuscript should be improved in order to become more precise. A tentative example may be: "Natural time analysis of acoustic emission from the Royal Castle of Racconigi"

3. Concerning the list of References:

In line 6 of p.8, Ref. [1] should be added to [33-35].

In line 18 of p.8, Ref. [2] should be inserted, because it is the one that gives the justification why κ_1 converges to 0.070 when the system enters the critical state.

In line 19 of p.8, just after the phrase "Two criteria ... to critical state:" the relevant Ref. [3] should be added.

In short, my suggestion in this stage of the review process is that the ms should be revised along the lines explained above.

References:

1. P. A. Varotsos, N. V. Sarlis, E. S. Skordas, and M. S. Lazaridou, Seismic Electric Signals: An additional fact showing their physical interconnection with seismicity, Tectonophysics 589 (2013) 116–125.

2. P. Varotsos, N.V. Sarlis, E.S. Skordas, S. Uyeda, and M. Kamogawa, Natural time analysis of critical phenomena. Proc. Natl. Acad. Sci USA 108 (2011), 11361-11364.

3. P.A. Varotsos, N.V. Sarlis, E.S. Skordas and M.S. Lazaridou, Fluctuations, under time reversal, of the natural time and the entropy distinguish similar looking electric signals of different dynamics, J. Appl. Phys. 103 (2008), 014906