

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2021-155

Anonymous Referee #1

Referee comment on "Infrasound measurement system for real-time in situ tornado measurements" by Brandon C. White et al., Atmos. Meas. Tech. Discuss.,
<https://doi.org/10.5194/amt-2021-155-RC1>, 2021

Review of INFRASOUND MEASUREMENT SYSTEM FOR REAL-TIME IN-SITU TORNADO MEASUREMENTS

General Comments

This paper introduced a newly-designed portable tornadic infrasound measuring system called GLINDA. The design, installation, and deployment of this system are presented. A calibration test was conducted. The signal processing techniques are implemented to improve the data quality and find the spectral peak of weather events. Two weather events measured by the GLINDA are presented and discussed. Their empirical fit is discussed, which is useful to characterize infrasound sources from tornado events. Overall, the major contribution of this paper is mobilizing the previous Elbing's infrasound measuring system. This modification improved the fidelity and availability of the tornadic infrasound data.

The paper is well written. But a few sentences and small mistakes were noted in the specific comments below. These should be addressed.

Overall, this is an interesting and valuable paper, and it should be published with minor changes. However, some small elements of the paper are missing. For example, only the caption of figure 6 appears and not the figure itself.

Specific Comments

Abstract – “Hasproviding” – one word?

L48: Why is there a tilde over 1 Hz?

P6L110: What are the deployment conditions during the measurements? Are there any potential acoustic interference from other equipment or environment noise (e.g. weather radar, truck engine, traffic or nearby industrial)?

P7L137: What are the test conditions of the measurement shown in the spectrogram of Fig. 5? The Figure should be introduced in more details, such as the meanings of F_{res} and T_{res} in the title.

L164: “fixed frequency domain resolution over the 0 to Nyquist frequency range.” I’m not sure I understand this sentence.

P9L183: Fig. 6 is missing(?). Only a caption appears.

P9L184: H is introduced here but there is no definition.

P10L196: The storm chaser “intercepted” the tornado before its generation. Is this sentence means the GLINDA system captured the characteristic infrasound of the tornado before its touchdown? If so, could the author provide the accurate time difference (instead of “shortly”) between acoustic interception and physical tornadic touchdown? This is very valuable data.

P18L293: In conclusion, the term GLINDA has been already defined in previous P3L58, which is a different definition.

P 18L307: The “past observation” may need reference.

Figure captions, figure caption, figure property, math equation, and abbreviation. Examples are listed below.

P 3L72: Usually, there is no one-sentence paragraph for academic writing. P5L94: Figure caption usually ends with a period.

P 7137: "Fig 5" should have a dot for abbreviation.

P9172: Reference of equation should be Eq. 2 or Eqn. 2.

P9179: Equation 2 does not have a punctuation.

6. P12L225: Space is needed between number and unit.

P15: Fig. 14 axis's labels need revision.