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Interactive comment on “Preliminary observation of temperature profiles by radio acoustic sounding system (RASS) with a 1280 MHz lower atmospheric wind profiler at Gadanki, India” by T. V. Chandrasekhar Sarma et al.

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Comments :

The discussion paper "Preliminary observation of temperature profiles by radio acoustic sounding system (RASS) with a 1280 MHz lower atmospheric wind profiler at Gadanki, India" by T.V. Chandrasekhar Sharma et al. is in its present form not suitable for publication.

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The description of the radio acoustic sounding system at 1280 MHz does not provide new information about the technique and represent an extract of the system description of the RASS development for the Gadanki MST radar (Chandrasekhar Sarma et al., Ann. Geophys., 26, 2531, 2008).

Response :

- The description in the Annales Geophysicae paper is about the acoustic attachment for the MST Radar (53MHz operation), which operates around 100 Hz. The current system operates at around 3kHz frequency and uses commercial public address horns. Eventhough conceptually similar to the former it has distinct features.

Comments :

The presented first observations does not comply with the requirement “to continuously profile the atmospheric temperature from near the ground to upper tropospheric altitudes” as stated in the abstract. The temperatures obtained by the tower observations, the WP-RASS and MST radar-RASS measurements do not show any overlap between the different observations. In addition, the WP-RASS observations performed with $1 \mu\text{s}$ and $0.25 \mu\text{s}$ pulse lengths disagree on August 29 and August 30 around 0600 LT. The comparison of the different observations should be done on a profile basis including an error discussion.

Response :

- The height coverage of MST Radar- RASS experiment was up to about 12 km in this experiment, but results are shown up to 5 km in figure 7 to enhance the visual perception of diurnal temperature variation at lower tropospheric altitudes. In the results reported in Sarma et al. 2011 Tv profiles were obtained up to about 14 km. Results reported in the PhD thesis, Sarma 2011 show height coverage of RASS Tv profiles up to about 19 km and beyond.

Comments :

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More observations have to be acquired to demonstrate the capability of temperature profiling using WP-RASS and MST radar-RASS.

AMTD

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5, C2372–C2374, 2012

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