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Interactive comment on "Brown carbon absorption in the red and near infrared spectral region" *by* András Hoffer et al.

Anonymous Referee #2

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This paper discusses measured absorption properties of tar balls from ~652 nm to 950 nm wavelength, following from Hoffer et al.'s (2016) paper on the same topic from 467-652 nm. The paper contributes unique information to the literature, so I think it should be published following minor revisions listed below.

1) Abstract. I don't think that absorption by tar balls in the red and near-infrared part of the solar spectrum is "contrary to conventional belief" as illustrated in Alexander et al. (2008). The issue has been a question of the magnitude of absorption. You can argue that most (but not all) models have assumed no absorption – however, even then, most models have not included tar balls at all. So you could say that most models have not included tar balls and of those that have, most have not accounted for red and infrared absorption. Please modify the abstract to more clearly delineate this.

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Discussion paper

2) Page 1, Line 26. State “in most all radiation models” rather than “in radiation models” Since some radiation models (e.g., in Jacobson et al., 2014) have included organic absorption in the red and near infrared.

3) Page 5. Why nigrozin?

4) Page 6. Please clarify why if tar balls are only 5% of the particle number, they represent 7% of absorption. To do this, you can use an example with a monodisperse distribution of BC particles at their mean size and one of tar ball particles at their mean size Provide the number of particles, the cross-sectional area of particles, and the single-particle absorption efficiency of particles at each size and calculate the extinction coefficient of each monodisperse size distribution.

5) Summary. Please clarify that Alexander et al. did not examine the impact of tar balls on global warming.

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