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Interactive comment on “Link between local scale BC emissions and large scale atmospheric solar absorption” by P. S. Praveen et al.

Anonymous Referee #1

Received and published: 18 September 2011

This interesting manuscript is based on measurements in a rural location in the Indo-gangetic Plains of northern India as part of project Surya. The project addresses air quality and climate change issues related to the use of cook stoves in India. The biomass burning emissions from these cook stoves, practiced by many millions of households in southern Asia, lead to intense local and regional air pollution, also contributing to global atmospheric change. The manuscript presents a successful attempt to link, i.e. upscale, local emissions of sunlight absorbing particulate air pollution to regional and climate relevant optical properties of aerosols by using in situ, ground-based and satellite remote sensing observations. I recommend publication in ACP after minor revisions as indicated below. Title: I recommend adding "in India" after BC emissions or at the end p.21320 l.16: SSA should be defined. I recommend including a table or appendix with a list of abbreviations and acronyms. l.19: replace “can be used to infer”

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by “are consistent with”. The implicit generalization is difficult to prove. l.21: replace “leading to” by “supporting” l.24: “human” health p.21321 l.3: replace “soot” by “black carbon” and add “the condensed fraction of” to semi-volatile organics. l.13: “disruption” of the monsoon. This is too strong, please weaken, e.g. affecting the monsoon. l.17: replace “more than 100 years” by “decades to centuries” l.18: remove “the impacts of” p.21322 l.10: remove “layer” p.21323 l.5: remove “from” l.11: add “fossil fuel related pollution sources” p.21324 l.13: replace “understand” by “infer the” p.21325 l.20: has been reported p.21328 l.15: coastal p.21329 l.10-14: Interesting but not very clearly explained. Please improve. p.21332 l.7: replace “propagation” by “transport” or “dispersion” p.21334 l.21: replace “symmetrically” by “homogeneously” (correct?) p.21336 l.7: add reference of Lawrence and Lelieveld, 2010, ACP (review) l.18: replace “proven” by “shown” p.21337 l.2-3: Why make this statement about earlier studies? This is not a conclusion from the present work. Please delete or reformulate. l.8: ..rural emissions play. ... Unclear sentence. Please improve. l.10-11: replace “further validated” by “agrees with”

Generally I recommend checking the use of language by a native English speaker, e.g. to check for pronouns and minor grammar issues

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 21319, 2011.

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