

Interactive comment on “Solar radiative forcing of aerosol particles near the Taklimakan desert during the Dust Aerosol Observation-Kashi campaign in Spring 2019” by Li Li et al.

Anonymous Referee #1

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General comments: In this manuscript, the measurements obtained during the Dust Aerosol Observation-Kashi campaign were employed in radiative transfer model and the estimations were improved by considering the actual measured atmospheric profiles and diurnal variations of land surface albedo. Direct aerosol solar radiative forcing of dust aerosols was analyzed based on comprehensive parameters and numerical models. The effects of data assimilations on estimating the radiative forcing effects were also explored. However, the manuscript was poorly worded, thus making me confused. The manuscript needs to structure writing accurately to produce proper paragraphs with clear topics. Major revisions are necessary before the manuscript is finally accepted for publication. Specific comments: 1. Section 1, this part should intro-

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duce the research background and significance, current status, concealed problems, as well as research mentality and content of this manuscript. Nevertheless, the introduction of this manuscript is inundated with accumulation of literatures rather than sublimation of these research results. The authors need survey more literatures in recent five years and then summarized them. 2. Section 2 and 3, the authors seem to be drowned by abundant resources and avoid stringing them together to form a system. Some descriptions should be streamlined. The outline and structure of this manuscript should be reorganized. 3. Section 2.1, this part should explain why the experimental site was selected in Kashi instead of the local aerosol properties, such as the representativeness or speciality in studying aerosol-related issues. 4. Lines 85-86, ‘the Ångström exponent (AE, 440~870 nm) and fine-mode fraction (FMF) at Kashi are the lowest among all sites in China’ What is the scientific value of this sentence? And it needs strong literature to support. 5. Section 2.2, ‘aerosol properties during the DAO-K campaign’ is part of the ‘Results’, so I suggest moving it to Section 4. 6. The structure of the manuscript makes me feel that some parts are more or less irrelevant to the title ‘Solar radiative forcing of aerosol particles near the Taklimakan desert during the Dust Aerosol Observation-Kashi campaign in Spring 2019’. Too much attention was spent on Section 4.3. Technical corrections: 1. Line 17, ‘are improved by’ should be changed to ‘were improved by’. 2. Line 40, ‘it is a challenging’ should be changed to ‘it is challenging’ or ‘it is a challenge’. 3. Line 41, add ‘the’ before ‘high surface albedo over desert’. 4. Line 42, I suggested replacing the sentence ‘Numerous efforts have investigated...’ with ‘Numerous efforts have been undertaken to investigate...’. 5. Line 52, ‘have relatively small inter-annual variation’ should be changed to ‘had relatively small inter-annual variation’. 6. Line 53, ‘According to WRF-Chem simulations’ should be changed to ‘According to the WRF-Chem simulations’. 7. Line 85, the comma before ‘moreover’ should be changed to semicolon. 8. Line 239, ‘includes’ should be changed to ‘included’. 9. Line 315, ‘Globally’ should be changed to ‘Generally’. 10. Line 433, ‘for it will damage the surface-layer particulate results’ should be changed to ‘for that it will damage the surface-layer particulate results’. 11. I suggest deleting some acronyms,

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especially the phrases only appear once. Too many acronyms make the article chaotic.

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