

Interactive comment on “Taklimakan Desert Nocturnal Low Level Jet: Climatology and Dust Emission” by J. M. Ge et al.

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Received and published: 16 May 2016

General Comments This paper utilized the multi-year ERA-Interim reanalysis data to examine and characterize the NLLJs over the Taklimakan Desert. Convective boundary layer (CBL) height and the magnitude of the momentum were investigated that allowed the authors to study the possible effect of NLLJ on dust emission. The relationship between satellite-derived AOD and low-level wind speed was further analyzed in order to demonstrate the importance of NLLJ on dust emission over the TD region. This is an interesting study. The manuscript is well written, logically structured and fits within the scope of ACP. I recommend it for publication after the following comments are well addressed.

Specific Comments The authors shown a roughly positive correlation between wind

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speed and AOD over the TD region in figure 2 and later stated that an enhancement of wind in lower atmosphere will be associated with an increase of AOD (L. 367-368). This is reasonable for the dust source regions, while it also means any mechanism (e.g. cold front in spring) that can cause a strong surface wind could obscure the direct link between AOD and NLLJs. The author claim that this risk is avoided (L. 370), could you show some evidence?

The authors indicated that NLLJ may play an important role in the both dust emission and transport (L. 105-106). However, the Taklimakan Desert is surrounded by high mountains and only opens on eastern side (L. 55-57), and the wind direction of NLLJs is mainly easterly (L. 261-262). Will the NLLJs be important for dust transport over this region?

L. 307: Add references for Richardson number. L. 326: Are you sure there is no any of clouds on NLLJ nights?

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-190, 2016.

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