

Publication List of Xiaojing Zheng: from 2013 to 2022

(sorted in reverse chronological order; † corresponding author)

1. X. Li, N. Hutchins, X. Zheng†, I. Marusic, and W. Baars†,
Scale-dependent inclination angle of turbulent structures in stratified atmospheric surface layers,
J. Fluid Mech. 942, A38 (2022).
2. H. Liu, Y. Shi, and X. Zheng†,
Evolution of turbulent kinetic energy during the entire sandstorm process,
Atmos. Chem. Phys. 22(13), 8787-8803 (2022).
3. Z. Zhu, R. Hu, Y. Lei and X. Zheng†,
Particle resolved simulation of sediment transport by a hybrid parallel approach,
Int. J. Multiphas. Flow 152 (2022).
4. H. Liu, Y. Feng, and X. Zheng†,
Experimental investigation of the effects of particle near-wall motions on turbulence statistics
in particle-laden flows,
J. Fluid Mech. 943, A18 (2022).
5. H. Liu, and X. Zheng†,
Large-scale structures of wall-bounded turbulence in single- and two-phase flows: advancing
understanding of the atmospheric surface layer during sandstorms,
Flow 1, E5 (2021) [invited review].
6. R. Hu, X. Zheng†, and S. Dong,
Extracting discrete hierarchies of Townsend's wall-attached eddies,
Phys. Fluids 34, 061701 (2022).
7. X. Li, G. Wang, and X. Zheng†, Turbulent/Synoptic Separation and Coherent Structures in
the Atmospheric Surface Layer for a Range of Surface Roughness,
Bound-Lay. Meteorol. 182, 75-93 (2022).
8. X. Zheng†, and T. Bo,
Representation model of wind velocity fluctuations and saltation transport in aeolian sand flow,
J. Wind Eng. Ind. Aerod. 60(12), 6536-6547 (2022).
9. S. Peng, K. Jin, and X. Zheng†,
Study on validity of low-magnetic-Reynolds Number assumption for hypersonic
magnetohydro-dynamic control,
AIAA. J. 60(12), 6536-6547 (2022).
10. B. Zhang, K. Jin, Y. Kou, and X. Zheng†,

Modelling of magneto-electro-thermo-mechanical coupled behavior of the lubricating liquid film for the electromagnetic launch,
Int. J. Heat Mass Transf. 196, 123267 (2022).

11. X. Zheng†, G. Wang, and W. Zhu,
Experimental study on the effects of particle-wall interactions on VLSM in sand-laden flows,
J. Fluid Mech. 914, A35 (2021).

12. X. Zheng, S. Feng, and P. Wang†,
Modulation of turbulence by saltating particles on erodible bed surface,
J. Fluid Mech. 918, A16 (2021).

13. L. Wang, R. Hu, and X. Zheng†,
A scaling improved inner-outer decomposition of near-wall turbulent motions,
Phys. Fluids 33(4), 385703 (2021) [editor's pick].

14. H. Liu, X. He, and X. Zheng†,
An investigation of particles effects on wallnormal velocity fluctuations in sand-laden atmospheric surface layer flows,
Phys. Fluids 33, 103309 (2021).

15. T. Jin, P. Wang, and X. Zheng†,
Characterization of wind-blown sand with near-wall motions and turbulence: from grain-scale distributions to sediment transport,
J. Geophys. Res-Earth 126, e2021JF006234 (2021).

16. P. Wang, Q. Wei, and X. Zheng†,
Differences of turbulence modulation by heavy particle on solid wall and erodible bed surface,
Phys. Fluids 33, 113305 (2021).

17. P. Wang, J. Li, and X. Zheng†,
The effect of gravity on turbulence modulation in particle-laden horizontal open channel flow,
Phys. Fluids 33, 083315 (2021).

18. L. Wang, R. Hu, and X. Zheng†,
A scaling improved inner-outer decomposition of near-wall turbulent motions,
Phys. Fluids 33(4), 045120 (2021).

19. X. Li, G. Wang, and X. Zheng†,
Study of coherent structures and heat flux transportation under different stratification stability conditions in the atmospheric surface layer,
Phys. Fluids 33(6), 065113 (2021).

20. X. Li, G. Wang, and X. Zheng†,
Logarithmic energy profile of the streamwise velocity for wall-attached eddies along the spanwise direction in turbulent boundary layer,
Phys. Fluids 33(10), 105119 (2021).
21. X. Li, Y. Huang, G. Wang and X. Zheng†,
High-frequency observation during sand and dust storms at the Qingtu Lake Observatory,
Earth. Syst. Sci. Data 13, 5819-5830 (2021).
22. G. Wang, H. Gu, and X. Zheng†,
Large scale structures of turbulent flows in the atmospheric surface layer with and without sand,
Phys. Fluids 32, 106604 (2020). [editor's pick]
23. R. Hu, X. Yang, and X. Zheng†,
Wall-attached and wall-detached eddies in wall-bounded turbulent flows,
J. Fluid Mech. 885, A30 (2020).
24. L. Wang, R. Hu, and X. Zheng†,
A comparative study on the large-scale-resolving capability of wall-modeled large-eddy simulation,
Phys. Fluids 32, 035102 (2020) [editor's pick].
25. X. Zheng†, T. Jin, and P. Wang,
The influence of surface stress fluctuation on saltation sand transport around threshold,
J Geophys Res-Earth 15, 2019JF005246 (2020).
26. H. Liu, G. Wang, and X. Zheng†,
Amplitude modulation between multi-scale turbulent motions in high-Reynolds-number atmospheric surface layers,
J. Fluid Mech. 861, 585-607 (2019).
27. P. Wang, S. Feng, X. Zheng†, and H. Sung,
The scale characteristics and formation mechanism of aeolian sand streamers based on large eddy simulation,
J. Geophys. Res-Atmos. 124, 2019JD031081 (2019).
28. G. Han, G. Wang, and X. Zheng†,
Applicability of Taylor's hypothesis for estimating the mean streamwise length scale of large-scale structures in the near-neutral atmospheric surface layer,
Bound-Lay. Meteorol. 172, 215-237 (2019).
29. H. Liu, G. Wang, and X. Zheng†,
Three-dimensional representation of large-scale structures based on observations in

- atmospheric surface layers,
J. Geophys. Res-Atmos. 124, 2019JD030733 (2019).
30. H. Gu, G. Wang, W. Zhu, and X. Zheng†,
Gusty wind disturbances and large-scale turbulent structures in the neutral atmospheric surface layer,
Sci. China Phys. Mech. 62(11), 114711 (2019).
31. G. Han, L. Liu, T. Bo, and X. Zheng†,
A predictive model for the streamwise velocity in the near-neutral atmospheric surface layer,
J. Geophys. Res-Atmos. 124: 2018JD029052 (2019).
32. H. Zhang, and X. Zheng†,
Quantifying the large-scale electrification equilibrium effects in dust storms using field observations at Qingtu Lake Observatory,
Atmos. Chem. Phys. 18, 17087-17097 (2018).
33. Y. Zhang, R. Hu, and X. Zheng†,
Large-scale coherent structures of suspended dust concentration in the neutral atmospheric surface layer: A large-eddy simulation study,
Phys. Fluids 30, 046601 (2018).
34. R. Hu, and X. Zheng†,
Energy contributions by inner and outer motions in turbulent channel flows,
Phys. Rev. Fluids 3(8), 084607 (2018).
35. H. Zhang, T. Bo, and X. Zheng†,
Evaluation of the electrical properties of dust storms by multi-parameter observations and theoretical calculations,
Earth Planet. Sc. Lett. 461, 141-150 (2017).
36. T. Bo, L. Fu, L. Liu, and X. Zheng†,
An improved numerical model suggests potential differences of wind-blown sand between on Earth and Mars,
J. Geophys. Res-Atmos. 122(11), 5823-5836 (2017).
37. Z. Zhu, R. Hu, X. Zheng†, and Y. Wang,
On dust concentration profile above an area source in a neutral atmospheric surface layer,
Environ. Fluid Mech. 17(6), 1171-1188 (2017).

38. X. Wang, X. Zheng, and P. Wang,
Direct numerical simulation of particle-laden plane turbulent wall jet and the influence of Stokes number,
Int. J. Multiphas. Flow 92, 82-92 (2017).
39. H. Liu, G. Wang, and X. Zheng†,
Spatial length scales for large-scale structures in atmospheric surface layers,
Phys. Rev. Fluids 2, 064606 (2017).
40. G. Wang, X. Zheng†, and J. Tao,
Very large scale motions and PM10 concentration in a high-Re boundary layer,
Phys. Fluids 29, 061701 (2017).
41. Y. Wang, R. Hu, and X. Zheng†,
Aerodynamic analysis of an airfoil with leading edge pitting erosion,
J. Sol. Energ-T ASME. 139, 061002 (2017).
42. G. Wang, and X. Zheng†,
Very large scale motions in the atmospheric surface layer: a field investigation,
J. Fluid Mech. 802, 464-489 (2016).
43. Y. Wang, X. Zheng†, R. Hu, and P. Wang
Effects of leading edge defect on the aerodynamic and ow characteristics of an S809 airfoil,
PloS One 11(9), e0163443 (2016).
44. P. Wang, and X. Zheng†,
Unsteady saltation on Mars,
Icarus 260, 161-166 (2015).
45. T. Bo, P. Ma and X. Zheng†,
Numerical study on the effect of semi-buried straw checkerboard sand barriers belt on the wind speed,
Aeolian Res. 16, 101-107 (2015).
46. G. Wang, T. Bo, J. Zhang, W. Zhu and X. Zheng†,
Transition region where the large-scale and very large scale motions coexist in atmospheric surface layer: wind tunnel investigation,
J. Turbul. 15(3), 172-185 (2014).
47. L. Fu, T. Bo, and X. Zheng†,
Lift-off parameters of saltating particles on Mars,
Icarus 234, 91-98 (2014).
48. X. Zheng†, R. Zhang, and H. Huang,

Theoretical modeling of relative humidity on contact electrification of sand particles,
Sci. Rep. 4, 4399 (2014).

49. T. Bo, H. Zhang, and X. Zheng†,
Charge-to-mass ratio of saltating particles in wind-blown sand,
Sci. Rep. 4, 5590 (2014).

50. H. Huang, T. Bo, and X. Zheng†,
Numerical modeling of wind-blown sand on Mars,
Eur. Phys. J. E 37(9), 80 (2014).

51. G. Wang, T. Bo, J. Zhang, D. Zhu, and X. Zheng†,
The critical frequency of the large-scale vortices and the background turbulence in desert
area,
Atmos. Res. 143, 293-300 (2014).

52. X. Zheng†,
Electrification of wind-blown sand: Recent advances and key issues,
Eur. Phys. J. E 36, 138 (2013) [invited review].

53. T. Bo, H. Zhang, W. Hu, and X. Zheng†,
The analysis of electrification in windblown sand,
Aeolian Res. 11, 15-21 (2013).

54. T. Bo, H. Zhang, W. Zhu, and X. Zheng†,
Theoretical prediction of electric fields in wind-blown sand,
J. Geophys. Res-Atmos. 118(10), 4494-4502 (2013).

55. X. Zheng†, L. Fu and T. Bo,
Incident velocity and incident angle of saltating sand grains on Mars,
New J. Phys. 15(4), 043014 (2013).

56. X. Zheng†, J. Zhang, G. Wang, H. Liu, and W. Zhu,
Investigation on Very Large Scale Motions (VLSPMs) and their influence in a dust storm,
Sci. China Phys. Mech. 56(2), 306-314 (2013).

57. S. Duan, W. Zhu, and X. Zheng†,
Numerical investigation on two-grain-bed collisions in windblown sand transport,
Powder Technol. 235, 431-436 (2013).