

## Grain size parameters of aeolian deposits in Sarakhas area, Northeastern Iran

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### Abstract

Grain size is the most important characteristics of aeolian sediments. Mean grain size, grain size distribution, standard deviation and skewness are the parameters reflecting sedimentation environments and are used to elucidate mechanisms of deposition and determining the provenance of aeolian deposits (Zhu et al., 2014). Loess and sand dunes are the two main aeolian deposits that are different regarding to their grain size distribution. Sand dunes occur in all climate conditions, but active sand dunes are commonly exist in desert environments, especially in mid-latitudes of northern hemisphere. Desert loesses occur in Africa and Middle east and nearly almost all are adjacent downwind to sand seas (Crouvi et al., 2010). There is a continuous transition of sand dunes to loess deposits in Sarakhas area, northeastern Iran. Thirty surface samples were taken from aeolian deposits to characterize grain size parameters and propose a model of aeolian deposition in this area. Results showed a unimodal particle size distribution with dominance of very fine sand and coarse silt which the sum of these two fractions exceeds more than 70%.  $M_z$  with a gradual fining trend varies from  $3.27\phi$  in sand dunes to  $4.77\phi$  in loess deposits. Sand dunes are moderately sorted and symmetrical. Loess deposits are poorly and very poorly sorted and very finely skewed. Dominance of very fine sand and coarse silt and continuity of sand dunes and loess deposits are the evidences of local origin of aeolian deposits in the study area. It seems that flood plain of Hariroud River and Karakum desert are the main sources of aeolian deposits in the study area.

**Keywords:** Aeolian deposits, Sarakhas, Loess

### References

- [1] Crouvi O, Amit R, Enzel Y, Gillespie AR (2010) Active sand seas and the formation of desert Loess. *Quaternary Science Reviews*, 29: 2087-2098.
- [2] Zhu B, Yu J (2014) aeolian sorting processes in the Ejina desert basin (China) and their response to depositional environment. *Aeolian Research*, 12:111-120.