**Supplemtary Appendix 1 – Terms used in association with Granulometry**

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Sorting | Sorting quantifies the variability within particle size distributions (Liu et al. 2016). Inferences on the depositional process and the energy regime of particles can be made from such (McLaren & Bowles 1985; Amireh 2015; Zhang et al. 2015; Sun et al. 2002; Purkait & Majumdar 2014). This is based on the idea that different transport mechanisms have different capacities to mobilise particles of varying sizes (e.g. aeolian and fluvial), thus aiding environmental discrimination (Hartmann 2007; McLaren 1981; McLaren & Bowles 1985). |
| Skew | Skewness is a measure of asymmetry within a distribution and reflects the trace variation of a particle size distribution (Liu et al. 2016; Folk & Ward 1957). An excess of sizes greater than that of the mean is denoted by a negative skew, otherwise suggesting an excess of coarse material in the deposits; a positive skew shows an excess of fine material (Zhang et al. 2015; McLaren & Bowles 1985; Folk & Ward 1957; Clarke et al. 2014; Sun et al. 2002; Zhu & Yu 2014). This allows for invaluable interpretations to be made on the energy regime of a depositional environment (Zhu & Yu 2014; Zhang et al. 2015; Liu et al. 2016; Folk & Ward 1957; McLaren & Bowles 1985). Positive skew generally attests to low energy/variable energy regimes, which results in the settling of fines (McLaren & Bowles 1985; Zhu & Yu 2014); negative skew is suggestive of higher energy conditions, causing fine material to remain in suspension whilst coarser material may remain intact (Purkait & Majumdar 2014; McLaren & Bowles 1985). |

**References**

Amireh, B.S., 2015. Grain size analysis of the Lower Cambrian-Lower Cretaceous clastic sequence of Jordan: Sedimentological and paleo-hydrodynamical implications. *Journal of Asian Earth Sciences*, 97(PA), pp.67–88.

Clarke, D.W. et al., 2014. A sediment record of barrier estuary behaviour at the mesoscale: Interpreting high-resolution particle size analysis. *Geomorphology*, 221, pp.51–68.

Folk, R.L. & Ward, W.C., 1957. *Brazos River Bar: A Study in the Significance of Grain Size Parameters*,

Hartmann, D., 2007. From reality to model: Operationalism and the value chain of particle-size analysis of natural sediments. *Sedimentary Geology*, 202(3), pp.383–401.

Liu, X. et al., 2016. Grain size of Lake Qinghai sediments: Implications for riverine input and Holocene monsoon variability. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 449, pp.41–51.

McLaren, P., 1981. An Interpretation of Trends in Grain Size Measures. *Journal of Sedimentary Research*, Vol. 51(2), pp.611–624.

McLaren, P. & Bowles, D., 1985. The effects of sediment transport on grain size distributions. *Journal of Sedimentary Research*, 55(4), pp.457–470.

Purkait, B. & Majumdar, D.D., 2014. Distinguishing different sedimentary facies in a deltaic system. *Sedimentary Geology*, 308, pp.53–62.

Sun, D. et al., 2002. Grain-size distribution function of polymodal sediments in hydraulic and aeolian environments, and numerical partitioning of the sedimentary components. *Sedimentary Geology*, 152(3-4), pp.263–277.

Zhang, X. et al., 2015. A model to study the grain size components of the sediment deposited in aeolian-fluvial interplay erosion watershed. *Sedimentary Geology*, 330, pp.132–140.

Zhu, B. & Yu, J., 2014. Aeolian sorting processes in the Ejina desert basin (China) and their response to depositional environment. *Aeolian Research*, 12, pp.111–120.