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MÉLANGE CONCEPT: REDEFINITION AND A NEW CLASSIFICATION

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Nearly 100 years after the introduction of the term “mélange” by Greenly (1919 *Mem. Geological Survey, London*), the definition of a mélange, the mode and nature of processes responsible for mélange formation, and the geological environments in which different mélange types form are still a topic of controversy. The main challenge in studies of mélanges is the recognition of their original, diagnostic block-in-matrix fabric elements, which provide critical clues for where and how these chaotic rock assemblages initially formed and what they tell us about the nature of and interplay between crustal and submarine processes during their development. Here, we present an overview of characteristic mélange types, discuss their formation and present a functional, new mélange classification. Using field-based stratigraphic and structural criteria, we show that mélanges are characterized and distinguished from each other by different internal fabrics and diagnostic block-in-matrix arrangements (Festa et al., 2019 *Gondwana Research*). Tectonic, sedimentary, and diapiric processes and their mutual interplay and superposition in various geological settings result in the formation of different mélange types (Festa et al., 2010 *International Geology Review*; Festa et al., 2016 *Gondwana Research*). Mélange forming processes can be spatially and temporally associated with extensional tectonics, passive margin evolution, strike-slip tectonics, convergent margin tectonics, collision tectonics, and intra-continental deformation. Hence, mélanges are not just restricted to subduction–accretion complexes in terms of their occurrence and formation. Redefinition of mélange, the new mélange classification and the evolving mélange concept, as presented here, provide important new constraints in solving some of the long-standing controversies in the literature. They can also be used effectively in reconstructing various paleoenvironments within different tectonic settings as recognized in the geological record.

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