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Earthquake induced soft sediment deformation structure in a paleoproterozoic extensional basin, Vempalle Formation, Cuddapah Basin, India

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Soft sediment deformation structures (SSDS) are preserved in homogenous dolomudstone lithology of crinkly laminite and heterolithic facies of Paleoproterozoic (Orosirian) Vempalle Formation of the Cuddapah basin formed on eroded basement of Eastern Dharwar Craton, Peninsular India. While ductile deformation structures as preserved in this succession include boudins or pinch and swell structures, diapirs, convolute bedding and folds whereas intrastratal faults, syn-sedimentary breccias, cracks and vein-arrays belong to brittle deformation regime. On basis of the observed SSDS, their lateral homogeneity and traceability, draping by undeformed strata, proximity of faults as well as apparent lack of storm signatures and gravity induced mass movement. These fine grained deformed beds can be tentatively ascribed to a large, intermediate depth earthquake with magnitude approximately 4 and above, generated during reactivation of basement faults owing to plume related mantle activity. The occurrence of SSDS in Vempalle Formation emphasizes the role of down-warping along pre-existing planes of weakness in the Archean basement in the later evolution of Cuddapah basin analogous to subsidence in present day continental margin subsequent to thermal subsidence during the initiation of Cuddapah basin.

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Differential dissolution susceptibility of Paleocene foraminiferal assemblage from Farafra oasis, Egypt

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F our inferred carbonate dissolution intervals are recognized at North Gunnasection within the Dakhla and Esna formations (Paleocene) of the Farafra Oasis of Egypt as the following: at the Danian/Selandian boundary, at the upper part of *Acarinina soldadensis* P4c Biozone, at the upper two third of the *Morozvella velascoenis* P5 Biozone and at the Paleocene/Eocene boundary (P5/E5), where the P/E boundary is marked by major hiatus. The essential indicators of dissolution within the four intervals samples are low P/B ratios, high relative abundance of the agglutinated taxa, high relative abundance of calcareous taxa resistant to dissolution, especially *Lenticulin, Cibicidoides* and *Anomalinoides* and low relative abundance of susceptible calcareous taxa, such as unilocular, uniserial and biserial taxa for the benthics and non-muricate taxa for the planktonic, associated with the high percentage of organic carbon. The probably factors may contribute to the dissolution of planktonic foraminiferal tests in the four intervals of dissolution at the Farafra Oasis is that acidity produced by the degradation of organic matter promotes dissolution in sediment pore waters.

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