Geophysical Research Abstracts
Vol. 18, EGU2016-10816, 2016
EGU General Assembly 2016

Diversity and taphonomic gradients from shoreface to deep water: Case studies based on sea urchin assemblages from the Miocene of Sardinia

James Nebelsick (1) and Andrea Mancosu (2)

(1) University of Tuebingen, Institute of Geosciences, Tuebingen, Germany (nebelsick@uni-tuebingen.de), (2) Universita' degli Studi di Cagliari, Dipartimento Scienze della Terra, via Trentino, 51, Cagliari, 09127, Italy

Echinoid faunas from Miocene sediments from Sardinia allow diversity to be correlated to variations in depositional environments as well as taphonomic pathways. Taxonomic richness and preservation potentials vary among both carbonate and siliciclastic dominated shelf environments. Studies include detailed investigation of stratigraphy, sedimentology, palaeontology and taphonomy in both the field and in the laboratory. Environmental Interpretations are based on composition and diversity of taxa, functional morphological interpretation of life habits as well as taphonomic signatures. These investigations have revealed: 1) various mass accumulations of clypeasteroid echinoids ranging from autochthonous assemblages to multiple in situ reworked accumulations in shore face environments, 2) the distribution of morphotypes of the common genus Clypeaster, 3) echinoid assemblages dominated by both irregular and regular echinoids in siliciclastic and carbonate shelf environments, 4) spatangoid assemblages in heavily bioturbated coarse sands, and 5) monotypic shell beds of well-preserved regular echinoids and spatangoid from deeper siliciclastic environments. Variations in the diversity of echinoid taxa are correlated to biotic and abiotic ecological factors in specific depositional environments. Preservation potentials vary highly as determined by ambient environmental conditions and skeletal architectures. A synthesis of faunal diversities and preservation potentials along shelf gradient ranging from shoreface to deep water is presented.