Geophysical Research Abstracts
Vol. 20, EGU2018-12845, 2018
EGU General Assembly 2018
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# Sedimentological and paleoecological significance of the plug shaped burrows from the Late Creatceous of Bagh Group, Western India

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A variety of plug-shaped burrows are observed in the Late Cretaceous of Bagh Group of Gujarat, Western India. Four ichnospecies namely Bergaueria hemispherica, Conichnus conicus, Conostichus broadheadi and Conostichus stouti are identified. The burrow fill sediments varies but the host sediments in either case is remarkably constant i.e. shale. Abundant species of B. hemispherica with C. conicus and C. stouti occur in shales while the infill material chiefly consists of sandy allochemic limestone (Oyster limestone). Similarly, C. conicus, C. broadheadi and C. stouti also occur in shales and infilled with overlying micritic sandstone. The presence of burrows in fine clastic indicates the soft unconsolidated substrate where the physa of the sea anemone penetrate to get stability against the water movement. Majority of the burrows are present on sole of the sandy allochemic limestone and micritic sandstone and lacks their surface expression on bedding plane except Conostichus stouti which suggest vacation of burrow during the deposition of sediments. Presence of C. conicus, C. broadheadi and C. stouti in rippled micritic sandstone indicate the sea anemones had lived in moderately agitated condition of lower shoreface.

These plug shaped burrows represents cast made by variety of sea anemones which is reflected in the distinct burrow geometry, wall ornamentation, distal termination, wall lining and the diameter/height ratios. B. hemispherica occurs crowded at the sole of sandy allochemic limestone extending downward in the fine grained clastics at depths of upto 40 mm. The variable depths of penetration reflect the number of generations living together. C. conicus occurs as short, conical, unornamented burrow, circular in cross section with D/H ratios ranging from 0.64 to 0.81. C. broadheadi is characterized by presence of apical protuberance, faint longitudinal striations and has D/H ratio of 0.95 and C. stouti is conical to sub-conical in shape, having well developed transverse and vertical striation and D/H ratios ranging from 0.41 to 0.65. These burrows exhibit cubichnial/domichnial behaviour of sea anemones which indicates clear, calm water, oxygenated conditions and abundance of food in suspension mode in the lower shoreface and offshore environment.