

Syn depositional shallow-water precipitation of glauconitic Minerals, Early Devonian sandstone, Iran

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Numerous studies have demonstrated that glauconitic minerals predominantly form in water depths of mid-shelf in modern environments. Early-Devonian sandstone from the northern Iran are rich in glauconitic minerals. Stratigraphic, sedimentological, and petrographic constraints indicate that the glauconitic minerals are autochthonous. This Early Devonian strata formed under very shallow-water to tidal-flat conditions. The presence of fibroradiated rims of glauconitic minerals on glauconitic mineral pellets, echinoderm fragments, and quartz grains demonstrates that the Padeha glauconitic minerals precipitated on or in close proximity to the sea floor and prior to calcite precipitation. Thus, the occurrence of glauconitic minerals in the rock record cannot be used a priori as an environmental indicator of either mid-shelf and deeper water and/or a slow rate of sedimentation.

Keywords: glauconite, Early-Devonian, Padeha, Iran