

Phanerozoic glendonite distribution and their significance for reconstruction of high-latitude palaeoenvironments

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Glendonites are calcite pseudomorphs after ikaite. Here results of thorough survey of available data about glendonite occurrences coupled with information about palaeolatitudes are provided. Oldest Phanerozoic glendonites are came from Carboniferous of the Southern hemisphere. During the Permian glendonite occurrences became numerous and since the Middle Permian they are known from the both Northern and Southern hemispheres. Triassic glendonites are unknown, but in the Late Pliensbachian they became very abundant. Early Toarcian OAE coincides with disappearance of glendonites. Later high-latitude cooling in the Northern hemisphere leads to gradual increase of glendonite abundance during the Middle Jurassic followed by decline towards the Late Jurassic. All Jurassic glendonite occurrences are known from the Northern hemisphere only. During the Early Cretaceous two peaks of glendonite abundance are recognized – Late Valanginian and Late Aptian; glendonites of this age are well-known from the both northern and southern hemispheres. Paleogene glendonite records are known from two regions in the Northern hemisphere, which are northern Atlantic region (Denmark and Spitsbergen) and Northern Pacific. During the Neogene all glendonite occurrences became restricted to north of Pacific Rim. Quaternary occurrences of glendonites are most geographically widely distributed. Although all these glendonite records are clearly associated with glaciations or cooling events, additional factors controlling their occurrences remains unclear. This study was supported by RSF grant 17-17-01171.