

Late Valanginian to Late Hauterivian Peritidal and Subaerial Exposure Facies, Adriatic Platform, Croatia

Regan, Sean P.¹; Mosher, David¹; Husinec, Antun¹; Read, Fred J.² (1) Geology, St. Lawrence University, Canton, NY. (2) Geology, Virginia Tech, Blacksburg, VA.

A Late Valanginian to Late Hauterivian section exposed along roadcuts on Mljet Island, southern Croatia, is 240 meters thick and was deposited on the tectonically stable, Bahama-like Adriatic carbonate platform. Massive to very thick beds of sucrosic dolomite subtidal facies (gastropod-mold dolowackestone-mudstone to floatstone) with rare peritidal laminites (fenestral and planar laminites) predominate in the Valanginian. Locally, shallowing-upward parasequences are capped by a few centimeter-thick intraclast breccia layers (incipient paleosols) that formed during exposure.

The Hauterivian section consists of predominantly cyclic, subtidal to peritidal units with numerous exposure surfaces. Compared to the Late Hauterivian, subaerial exposure units are thicker, while subtidal facies are thinner. An idealized parasequence consist of, from bottom to top: a) common transgressive laminites; b) well developed subtidal units of peloid lime mudstone-wackestone to floatstone containing gastropods, clams, benthic foraminifera, calcareous algae, and branching, cm-wide peloid-filled burrows; c) regressive fenestral laminites (inter- to-supratidal facies); and d) karstified tops locally with thick breccias with granule-to-pebble-size clasts in lime mudstone matrix or dolomitic green shale (prolonged subaerial emergence); underlying facies commonly have extensive branching rootlets, leached mollusks, and infill of green shaly dolomite. Although many cycles are regressive and transgressive-regressive, the transgressive upward deepening cycles capped by paleosols are suggestive of the Lofer cycles of Fischer (1964). Rootlets, karstification, and lack of evaporitic layers on the platform all suggest a humid setting in which repeated and prolonged periods of subaerial exposure formed the abundant paleosols..