Stratigraphy of the Turonian-Coniacian boundary interval in the Gosau Group of Gams, Styria

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At Gams bei Hieflau, Styria (Northern Calcareous Alps of Austria), the presence of upper Turonian ammonites, inoceramids, micro- and nannofossils was reported from previous work, e.g., by Herbert Summesberger and Heinz Kollmann, including the type locality of the ammonite Barroisiceras haberfellneri (Hauer) at Radstattöhö, between the villages of Mooslandl and Gams, within marls of the Grabenbach Formation. A renewed field survey in the framework of a Bulgarian-Austrian WTZ project indicated several new biostratigraphic results, based on bivalves, dinoflagellates, and calcareous nannofossils along road cuts and artificial outcrops NE of Radstattöhö. The presence of Barroisiceras haberfellneri and the bivalve Didymotis attests for the interval of uppermost Turonian to lowermost Coniacian, where Didymotis events are known from several European sections. Small-sized representatives of the genus Didymotis were collected, which are preserved as internal moulds, only rarely with shell fragments attached. The specimens are almost equilateral, ornamented with relatively thick, widely spaced, rounded commarginal rugae. The radial ornamentation is visible in one specimen only. The sampled small-sized Didymotis with slender or no radial ornamentation are very similar to the Didymotis I morphotype considered to be part of the Didymotis I event in the upper Turonian Mytiloides scupini Zone at Salzgitter-Salder (GSSP for the base of the Coniacian). Based on this sparse Didymotis record we assume a late Turonian age (?Mytiloides scupini Zone) for the studied interval. One test sample from the Turonian-Coniacian boundary interval at Gams yielded a dinocyst association of moderate abundance and preservation. The association includes the following taxa: Achomosphaera ramulifera, Canninia glomerata, Dinopterygium alatum, Isabelidinimum cooksoniae, Kleithriasphaeridium readei, Raetiadinium truncigerum, Oligosphaeridium pulcherrimum, Spiniferites ramosus, Pterodinium cingulatum and Exochosphaeridium majus. The concurrent presence of the dinocyst species Raetiadinium truncateum, Oligosphaeridium pulcherrimum and Canninia glomerata marks an age not older than late Turonian for the sampled succession, compared to the data from the recently established Turonian/Coniacian GSSP boundary stratotype at Salzgitter-Salder, Germany. Nannofossil data at Radstattöhö report the presence of Marthasterites furcatus and Litastrinus septenarius, indicating nannofossil subzones CC13 and UC9 (upper Turonian–lower Coniacian). The absence of Zeugrhabdotus biperforatus may further indicate nannofossil subzone UC9a. Additional detailed stratigraphic investigations are planned in cooperation with the Geopark Steirische Eisenwurzen and in the framework of UNESCO IGCP-710.