dimensionalen Datenquellen abgeleitet wurden. Weiters konnte gezeigt werden, dass viele geomorphologische Strukturen mit gravimetrischen relevanten Dichteänderungen assoziiert sind, und damit auch ein eindeutiger Beweis für ihren tektonischen Ursprung erbracht werden kann. Daten aus Bougueranomalien haben damit zur wesentlichen Verbesserung des Verständnisses der pleistozänen Geschichte beigetragen. Die vorhandenen Gravimetriemesswerte, die insbesondere in verschieden Sedimentbecken großflächig und mit hoher Auflösung verfügbar sind ist, können damit als wichtige Quelle zur hochauflösenden Strukturaufnahme dienen.

The unique style of biocalcification by *Oocardium stratum* (Desmidiaceae, Chlorophyta)

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In the Eastern Alps, spring-associated limestones (SAL) are present as flowstones and porous limestones (tufa limestones). Among actively-forming tufas, formation of limestones with a cream to ocre-coloured, smooth to botryoidal surface is induced by the unicellular micro-alga *Oocardium stratum*. Calcification by *O. stratum* can comprise a major portion of large SAL deposits. Individual cells are heart-shaped globuli each embedded in a mucus capsule. Along part of the mucus capsule, calcification is induced in form of a tube-shaped calcite crystal. During calcite precipitation, the cells shift upward. When the cells split, their corresponding tube branches, too, while the optical orientation of the crystal lattice is retained. In this way 'bush-shaped' elongate single calcite crystals riddled by tubes (left behind by the upward-shifting algae) originate. A different calcification is represented by hemispheres with laterally-merged calcite tubes; it is as yet unknown to what extent the variations in calcification are related to environment (e. g. water chemistry, hydrology, illumination, crystallization substrate) or to genetic differences within '*O. stratum*'. Experiments with precipitation substrates indicate that calcification by *O. stratum* can proceed rapidly: the determined maximum rate of calcification (starting from colonization) is up to 10 mm per eight months. During the cold/low-lit season calcification ceases, and the cells pass into an unknown state (anabiosis?, encystation?). Over the cold season, diatom mats spread and show precipitation of calcite rhombohedra within their mucus. In the next warm season, diatom mats disappear, and *O. stratum* regenerates from unknown sources (re-activated cysts?, spores?). The calcification by *O. stratum* is unique in that spheroidal unicells produce tube-shaped, gently curved, single calcite crystals up to 10 mm in documented length. *Oocardium* calcite can comprise a macrofacies of laminated tufa in itself, or may build the 'limestone component' of phytoclastic tufas and moss tufas. In diagenetically matured SAL the original fabric of *Oocardium* calcite tends to be blurred by recrystallization combined with further, inorganic crystallization of calcite spar, leaving a coarsely-crystalline sparstone ('combispar') with patchy relicts of the original fabric. We suspect that microfacies produced by *O. stratum* are often confused with calcification fabrics from filamentous cyanobacteria, which latter are more easy to recognize in the field and in many cases are present in the same creek together with *O. stratum*.

Modern molluscan drilling frequencies in the Gulf of Trieste

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Several hypotheses have been suggested to explain the transition from Paleozoic faunas dominated by epibenthic suspension-feeders to post-Paleozoic faunas dominated by endobenthic animals. The Northern Adriatic Sea has been used as a modern analogue for epeiric Paleozoic shelf environments because in its eastern and northernmost parts it supports dense communities of epibenthic suspension feeders (mostly sponges, ascidians and ophiurids) - a faunal structure characteristic of the Paleozoic rather than the Recent based on the life-modes of its constituent taxa. For this reason the Northern Adriatic Sea has been used to explore this long-term faunal transition. Low predation and bioturbation intensities are considered background conditions in the Northern Adriatic, but few studies have analysed drilling predation in this area. In this study we examine drilling predation on molluscs as a test of the low-predation hypothesis.
Standardized bulk samples were collected from the upper-most 20cm of sediment at two tidal flat- and six sublittoral locations. The species composition is relatively diverse (172 species of bivalves, gastropods and scaphopods from the subtidal and 67 from the intertidal, totalling 178), is typical for Mediterranean Seas and is taxonomically similar between samples. A total of 60,480 disarticulated valves and gastropod shells, and 700 articulated bivalves were examined for drill holes. The overall drill frequency across subtidal samples was 27.5%, and across intertidal samples was 1.93%. Overall drilling frequency for individual subtidal samples ranged from 18.7% to 32.4% and for intertidal samples from 1.4% to 2.4%. Three species, *Bittium latreillii*, *B. reticulatum* and *Corbula gibba* were abundant in the intertidal and subtidal. For each, drilling intensities were higher in the subtidal [*B. latreillii* (n = 4353, DF = 34.5%), *B. reticulatum* (n = 2296, DF = 32.9%), *Corbula gibba* (n = 1877, DF = 33.4%)] than in the intertidal [*B. latreilli* (n = 1066, DF = 3.4%), *B. reticulatum* (n = 3517, DF = 2.67%), *Corbula gibba* (n = 1948, DF = 0.0%)]. Other abundant subtidal taxa include *Nassarius cf. pygmaeus* (n = 2387, DF = 14.1%) and *Turritella communis* (n=2209, DF = 44.1%); both confirm high drilling frequencies in the subtidal. In addition, *C. gibba*'s prey effectiveness - reflecting this species' ability to resist drilling predators in the subtidal - is high (PE = 48.5%). In summary, our results suggest that drilling frequencies are low in the intertidal, but high in the subtidal; therefore we cannot support low predation intensity as a general background condition in the Northern Adriatic Sea.

Predatory drilling intensities of Karpatian and Badenian molluscan assemblages from the Central Paratethys

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Predation may be one of the most important agents of natural selection and therefore may contribute greatly to regional and global biodiversity. Direct evidence of ecological interactions between fossil organisms is generally rare, but one exception is predatory drill holes on molluscan shells. To date little is known about ecological interactions between molluscs and their shell-