GAS BUBBLING AND ROCKS FORMATION IN THE ADRIATIC SEA

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Abstract

Gas seeps and related rocks are known both in the northern and central Adriatic sea. Gas imageries – "ghosts" included – in boomer records appear to be limited north of the Jabuca deep only but are very frequent north of the Po delta. The rocky outcrops in the northern Adriatic – locally named "tegnue" by fishermen – are made up by organic reefs grown upon base rocks (methanites) formed by the cementation of local sediments because of methane seeps. The timing of these processes is certainly related to the sea level and climatic changes and will be properly defined, as hereby outlined

Keywords: Shoreline Evolution, Sediments

The rocky outcrops off the Italian coasts both in the northern and central Adriatic are related to gas seeps, but the ones in the northern part lie at limited depth (less than 50 meters) and host abundant organic growth capable of forming luxurious algal reefs [1]. The others, in the central Adriatic, are relevant to the pock marks area in about a 100 meters water depth, east off Ancona. They are located over a large oil/gas field [2], and the dredged rock samples appear free of organic growth. The area is poorly studied and the situation appears to be very similar to the much better known North Sea pock marks. The Northern Adriatic Sea rock outcrops are formed by hard substrata supporting the growth of algal reefs [3], locally named "tegnue" by fishermen. These base rocks are locally sea bed sediments lithified by methane seeping through them [4]. Depending upon the sediments permeability (both horizontal and vertical), the seeping methane forms horizontal slabs, sometimes superimposed and cemented to one another, or vertical pinnacles less than 2 meters high. Since all these rocks must have been cemented only under a sediment cover, their outcropping must be due to a strong erosion, responsible of wiping out at least 7 metres of loose sediments, as one of the rocks is about 6 meters high [5]. The ages of the algal reefs (not yet properly determined) which now live at depths from about 8 to 45 metres are strictly depending on the time the base rocks were uncovered and/or submerged during the last deglaciation. Other questions are the age of the bed rocks found at different depths: the ages of their datable carbonates might have been corrupted by the age of the methane involved in their cementation New outcrops of base rock have been found last year off Grado, in about 2.5 metres water depth only, close to the remains of a ancient church, submerged now at 3.5 metres water depth. And yet archive documents testify that church hosted a holy service in 1723 ! These unexpected findings suggest further new ideas on the Northern Adriatic Sea evolution since at least the last glaciation.

References

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