Naturally occuring botryoidal carbonates in a Holocene karst paleolake Prološko Blato (Dalmatia, Croatia)

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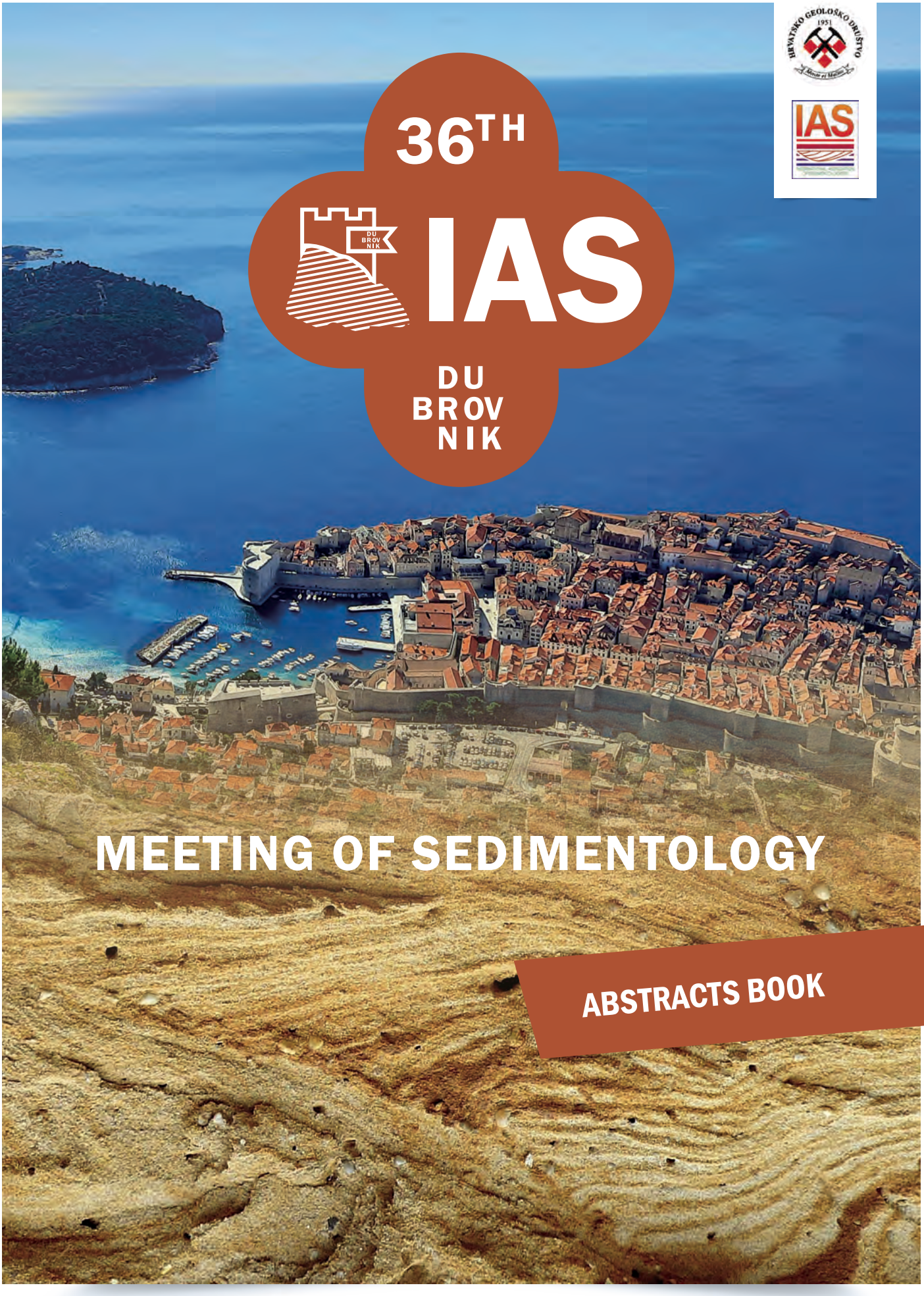

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ABSTRACTS BOOK

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Theme 1. Continental carbonates, karst and cave deposits

General Session

Poster presentation

Naturally occuring botryoidal carbonates in a Holocene karst paleolake Prološko Blato (Dalmatia, Croatia).

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The Prološko Blato is a seasonal karst wetland in the NW part of the Imotsko polje (karst polje) in the Dalmatian hinterland. Ongoing paleolimnological research revealed the existence of Holocene paleolake sediments made of pale brown lacustrine carbonate, rich in gastropods and ostracods, that started to form at ca. 8000 cal yr BP. Multiproxy core analysis, including geochemical, sedimentological, and micropaleontological (ostracods), suggests a relatively shallow, oligotrophic lacustrine environment with continuous carbonate sedimentation until ca. 800 cal BP. Specific to this karstic paleolake is the occurrence of enigmatic botryoidal carbonates initially detected in coarser sieved fractions (>250 um) during the ostracod analysis, and confirmed via SEM analysis. In micropaleontological slides, botryoidal grains occur as plate-like forms, flat on one side and botryoidal (spherical) on the other, implying their growth on a fixed substrate. SEM analysis revealed that botryoidal grains are made of acicular crystals, similar to the needle-like aragonite, exhibiting two distinctive spherulitic forms: a) spherules made of needles radially spreading from the central point outwards, and b) spherules made of needles radially arranged around a circular void. This potentially implies the same formation process, but different stages of development of needle-like crystals. Botryoidal carbonates are numerous in specific samples throughout the paleolake record, which could possibly be used as a proxy for paleoenvironmental interpretation. However, their origin (organic vs. inorganic, diagenetic) and environmental conditions necessary for their formation remain to be investigated.