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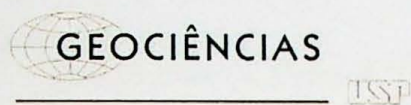
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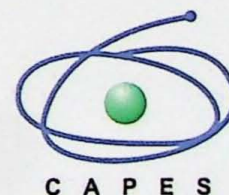
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How to become a bioclast: sedimentology of Ediacaran *Cloudina* deposits

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The rise of the first metazoans capable of producing skeletons at the end of the Ediacaran Period deeply marked the ecological and sedimentological dynamics of the Earth. At that time, *Cloudina* shells were the primary source of the first bioclasts, and the interaction between these hard particles and the ocean floor led to the formation of new types of deposits and contributed to the decline of stromatolites and thrombolites. Virtually all occurrences of Ediacaran skeletonized metazoans around the world show sedimentological and taphonomical similarities. Most occur on shallow carbonate platforms with the presence of microbial mats. The absence of terrigenous particles suggests a clear-water environment, and the occasional presence of tidal facies, tepee structures, breccias and salt pseudomorphs indicates deposition under evaporitic conditions with sporadic subaerial exposure. Living *Cloudina* was thus apparently adapted to stressful ecological conditions as well as resistant to wear by the mechanical action of bottom currents. However, after death, *Cloudina* shells were commonly transported by waves and currents for short distances and deposited as thin coquinas and concentrations between thrombolitic domes, in troughs in wave- and current-rippled grainstones, and as tempestites further offshore. The thin-walled *Cloudina* shells were probably not resistant to long-term reworking in the taphonomic active zone. Consequently, *Cloudina* shells seem to be most commonly preserved in parautochthonous bioclastic event beds. The sedimentary dynamics of both living *Cloudina* and the site of deposition was probably a determining factor for the early lithification, accumulation, and preservation of these first bioclastic deposits.