

## **GPR AS A TOOL FOR THE RECOGNITION OF ARCHITECTURAL ELEMENTS OF SHALLOW MARINE SILURO-DEVONIAN SANDSTONES**

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The Furnas Fm. is a terrigenous sandstone unit (mostly subarcoses), which lies at a low stratigraphic position in the Paraná Basin, south-central Brazil, with Pridoli?–Early Devonian age. Its paleodepositional environments (fluvial vs. marine) are still highly controversial, but the authors recognise strong evidences of a storm shallow marine origin. This work aims at the recognition of architectural elements through the use of Ground Penetrating Radar (GPR) techniques associated with outcrop data to support genetic inferences. Field survey using PulseEKKO™ 100 GPR system with 50 and 100 MHz antenna frequencies, suggests two architectural elements in the Furnas Fm. These are separated by master bounding surfaces (1st order), which are extensive horizontal (hectometric), quasi-planar, slightly erosional bedding surfaces. One of these elements, named FAA (Frontally Accreted Arenites), is interpreted as large coastal sandwaves generated by tide-storm currents. The other, named VAA (Vertically Accreted Arenites), is interpreted as sandy beaches, accumulated as storm layers bypassing the sandwaves (FAA elements). Within the FAA element, the radarfacies shows reactivation surfaces (2nd order). This particular study case demonstrates the success in applying such technique to the study of depositional architecture of Devonian sandstones of a potential HC reservoir in the Paraná Basin.