

## **FOUR IMPACT CRATERING ON THE PARANÁ SEDIMENTARY BASIN (SOUTH AMERICA)**

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Astroblemes and diagnostic features of impact waves have been reported in sediments and magmatites from inner Paraná basin (Brazil). The Cerro do Jarau Astrobleme (Rio Grande do Sul State, 56°33'W, 30°12'S; 5.5 km diameter; 117±17 Ma) was identified by the presence of shock-metamorphosed rocks. The circular crater is a stratigraphic-structural window on the basalts of the Cretaceous Serra Geral formation, where of uplifted (±400m) sediments of the Jurassic (?) Pirambóia and Botucatu formations are exposed. The Vargeão Astrobleme (Santa Catarina State, 52°10'W, 26°50'S; 10 km; 117±17 Ma) and Piratininga Astrobleme (São Paulo State, 49°10'W, 22°30'S; 12 km; 117±17 Ma) present planar deformation features (PDFs) and recrystallization. They exhibit structural evidences such as central uplift and annular graben. The central uplifts of the Pirambóia-Botucatu Sandstones in the lavas of the Serra Geral formation confirm a isostatic movement of ±600m inside the structural windows. This three astroblemes are aligned along the direction N30E and thus they are interpreted as a record of an event of multiple coeval cryptoexplosions. The Araguinha Astrobleme (Goiás-Mato Grosso States, 52°59'W, 16°47'S; 40 km; 247±5.5 Ma) have shatter cones and partially melted polymictic breccia (suevite). This suevite (40Ar/39Ar - 247±5.5 Ma) and the shatter cones are the most consistent evidences from the cryptoexplosive origin of this largest astrobleme of the South America. The granitic central uplift represents a stratigraphic gap of more than 1km to its normal position.