

STRATIGRAPHIC RECORD OF THE ARAGUAINHA IMPACT CRATER IN THE PERMO-TRIASSIC PARANA BASIN

ERIC TOHVER¹; CRISTIANO LANA²; PETER CAWOOD³; RICARDO TRINDADE⁴;
CARLOS ROBERTO SOUZA FILHO⁵; CLAUDIO RICCOMINI⁵

(1) University of Western Australia; (2) Universidade Federal de Ouro Preto; (3) St. Andrews University;
(4) University of Sao Paulo; (5) UNICAMP
Email: eric.tohver@uwa.edu.au

Sedimentary rocks of the Paraná Basin records major unconformity-bound stratigraphic sequences that are common to the Gondwanan continents. The age of these sequences is typically established by biostratigraphic techniques, but these are limited in their ability to date the prominent unconformities. In this contribution, we report new geochronological evidence for the Permo-Triassic age of the 40 km diameter Araguainha impact crater from the northern Paraná Basin. We examine the stratigraphic evidence for the Araguainha impact event as a cause of the unconformity between the uppermost Permian deposits of the Passa Dois Group and the lower Triassic Piramboia Formation. Geological evidence for an impact at this critical interval is found within a ca. 1000 km radius of the crater. This evidence includes the identification of Neptunian dykes and other seismites, including a possible event bed. Highly anomalous carbon isotope values from the early-middle Permian Iratí Formation are also observed over this area, suggestive of a role for the impact crater in releasing isotopically light carbon into the atmosphere at the time of the impact.