DID THE ROCHECHOUART IMPACT (FRANCE) TRIGGER AN END-TRIASSIC TSUNAMI? M. Schmieder[1], P. Lambert[2] and E. Buchner[1]. [1]Institut für Planetologie, Universität Stuttgart, D-70174 Stuttgart, Germany. Email: martin.schmieder@geologie.uni-stuttgart.de. [2]Sciences & Applications, F-33700 Bordeaux Merignac, France

Introduction and Background: The ~23 km in diameter Rochechouart impact structure, hosted by largely Paleozoic (Variscan) crystalline rocks of the NW French Massif Central [1], recently yielded a new Triassic/Jurassic boundary age by high-precision $^{40}Ar/^{39}Ar$ dating of sanidine (201.4 ± 2.4 Ma; 2σ) and adularia (200.5 ± 2.2 Ma; 2σ) [2], in contradiction with a formerly postulated 214 ± 8 Ma Late Triassic age [3]. Paleoenvironmental considerations [4-6] suggest that the Rochechouart impact occurred very close to (or even beyond) the latest Triassic shoreline of the continental Massif Central, with the marine Aquitaine Basin and Biscay Rift (westernmost Tethys) to the West (see also [1]); however, no structural, lithological, or sedimentological criteria for a (shallow) marine impact scenario have been found to date. A still puzzling ~2-4 m thick 'seismite' of large extent (>250,000 km²) partially overlain by 'tsunamite' in the uppermost Triassic (Rhaetian) of the British Islands was suggested to be incompatible with endogenic terrestrial mechanisms but consistent with a hitherto unknown high-energy end-Triassic impact event [7,8] (see [9] for discussion).

Discussion: In agreement with new geochronological and paleogeographic data, we propose the near-coastal (or shallow marine?) impact of the Rochechouart meteorite as a potential trigger mechanism for the formation of end-Triassic tsunami deposits in the westernmost Tethys domain. The Aquitaine Basin, Biscay Rift, Western Approaches Trough, and Burgundy Gate [6] represented channel-like sea straits that linked the Rochechouart impact site and the British Islands at the time of impact, maintaining high wave energy; the distance between the impact site and the area of tsunami deposition was about 700-1300 km. The Rochechouart impact energy by far (factor ~24) exceeded the energy of the largest man-witnessed terrestrial earthquake (Chile 1960; M=9.5) [10], capable of producing major seismic waves in the Earth's crust and tsunami waves in the sea. The comparatively small crater size, however, suggests no direct relationship between the Rochechouart impact and the global end-Triassic mass extinction [11,12]. A search for distal impact ejecta produced by the Rochechouart impact and reworked by the tsunami deposits will be necessary in order to substantiate our theory.

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