

**FIELD STUDIES AT THE OUARKZIZ IMPACT STRUCTURE, ALGERIA.** R. Sahoui<sup>1,2</sup>, D. Belhai<sup>1</sup> and F. Amrouche<sup>1,2</sup>, <sup>1</sup>University of Sciences and Technology Houari boumediene, Algiers, Algeria ([r.sahoui@gmail.com](mailto:r.sahoui@gmail.com)), <sup>2</sup>University Moulood Mammeri, Tizi ouzou, Algeria.

In January 2014 we undertook an expedition to study the Ouarkziz impact structure. It is situated in southwestern Algeria, exactly 170 km northeast of Tindouf (7°33'W and 29° 00' N). The first investigations of the structure were completed by Fabre and Greber (1956) and by [1]. Its impact origin was supported in the early 1970s [2], on the basis of observations of planar features (PFs) in some of the crater rocks (it is the only geological description available until now). Our field work was intended to study the structure in the field, provide details on structural aspects of the crater and to obtain fresh samples. The Ouarkziz crater appears on satellite images in the form of two discontinuous rings of hills. It is superimposed on a fold structure trending NW-SE (northern flank of Tindouf basin) [3, 4]. The rocks are composed of Lower Namurian limestones (called Lower Limestones), Upper Namurian marls with gypsum and thin limestones (called Upper Limestones). The outer ring has an average height of 103 m dipping at 50° outwards. It is set in the Lower Limestones (100m), at its major parts, and in the marls with gypsum (90 m) at the Southwestern part. There, the outer ring is severely eroded and the rocks show an intense hydrothermal activity. About 20 m thicknesses of the Upper Limestones are affected at the Western part of the ring, where the marls thickness is reduced. Elsewhere, the Upper limestones are dipping at 20° S which is characterizing the Northern flank of Tindouf basin. Previous geological investigations [2] derived a diameter of 3400 m from East to West and 3560 m from North to South for the outer ring. However, Upper Limestones are not affected towards the South of the crater. So, its diameter from North to South is about 3000 m. This ring shows strongly fractured upturned limestone beds with large blocks of ejected limestones. Folds with inclined axis are noted towards the East and the West; this is probably in relation with the E-W fault that affects the structure. The inner ring is less spectacular than the outer one. It is characterized by a distinct series of hills of up to about 30 m elevation above the crater floor. The hills appear as piles of rocks intensely brecciated. They are composed of angular to subangular fragments of various dimensions ranging from centimeters to several meters in size. This ring disappears at the Southwestern quadrant of the crater. The central area is largely covered by alluvium and no central peak is distinguished. At the present erosion level, the rocks that crop out at this zone are the Lower Limestones. This area is characterized by vertical dipping beds and quartz dikes. The rocks are fractured at all scales and brecciated.

**References:** [1] Monod T. 1965. *I.F.A.N Catalogues et documents*, n° 18, 96 p. [2] Fabre J. et al. 1970. *Comptes Rendus Academie Science Paris*, série D 270, 1212-1215. [3] Belhai D. et al. 2006. *Bulletin du Service Géologique de l'Algérie*. Vol. 17, n2, p. 95-112. [4] Sahoui R. 2013. Abstract #1184. 44th Lunar & Planetary Science Conference.