Georadar survey to explore a supposed ejecta layer around the Maâdna crater (Talemzane, Algeria)

Lamine Hamai1,2, Atmane Lamali1,2, Abdelkrim Yelles-chaouche1, Abdeslam Abtout1, Abdelmadjid Nadjemi2, Nacer-Eddine Merabet1, Salah-Eddine Bentridi2, Leila Djadia1, and Sid Ahmed Mokhtar3

1 Centre de Recherche en Astronomie Astrophysique et Géophysique, CRAAG, Algiers, Algeria (lamine.hamai@yahoo.fr)
2 Laboratoire de l’Énergie et des Systèmes Intelligents (LESi), Université Djillali Bounaâma Khemis Miliana, Khemis Miliana, Algeria
3 Centre de Recherche Nucléaire de Draria, CRND, Algiers, Algeria

Geophysics continues to play a critical role in the future discovery of terrestrial impact structures. While the signatures within these structures may not be unique, the application of geophysics can effectively characterize them, even when they are deeply eroded or completely buried underground. In the case of Maâdna crater (33°19' N, 4°19' E), among new performed geophysical surveys, a GPR technique has been especially used to explore a supposed ejecta layer. However, GPR survey results allowed the confirmation of nonexistence of such as melting materials at Maâdna crater. Nevertheless, our different scans were interpretative against the structural context of the Maâdna structure. Indeed, most of the analyzed profiles allowed us recognizing the typical deformation effects at this structure, which can also generally be encountered at any crater-like structured site. Consequently, in view to this new resulting GPR data, even we do not definitely reject an impact origin, we are still pleading for other charactering scenarios for this structure.