

## Systematic prospecting of circular structures by satellite imagery for the search for potential new impact craters in Mauritania

Ely cheikh Ould Mohamed Navee<sup>1,\*</sup>, Chennaoui Hassna Aoudjehane<sup>1</sup>, David Baratoux<sup>2,3</sup>

<sup>1</sup>Faculty of Sciences, Hassan II University of Casablanca, G.A.I.A. Laboratory, BP5366 Maarif, Casablanca, Morocco, <sup>2</sup>Institut Fondamental d'Afrique Noire Cheikh Anta Diop, Dakar, Senegal,

<sup>3</sup>Geosciences Environnement Toulouse, University of Toulouse, IRD & CNRS, 14, Avenue Edouard Belin, 31400 Toulouse, France

\*E-mail: elycheikhnaviee@gmail.com

Impact cratering is a major geological process responsible for the evolution and modification of planetary crusts. The geology of Africa spans more than 3 billions of years (from Archean to present), and the geological evolution of crustal blocks that form today the African continent was affected by impact processes. However, due to insufficient systematic exploration of Africa for impact structures, this African impact record is likely to be very incomplete. Furthermore, known impact structures in Africa remained poorly mapped and investigated in comparison with impact structures in Europe or America. Mauritania has 2 confirmed impact craters Tenoumer and Aouelloul (Monod and Pomerol, 1966; Koeberl and Reimold, 1998), as well as 4 unconfirmed circular structures (Reimold and Koeberl, 2014) (Fig. 1).

Mauritania has old and relatively flat surfaces and may host old/large impact structures that remain to be discovered, for instance in geophysical data sets. Due to desertic conditions, erosion is limited and conditions for the preservation of small and more recent impact craters (< a few tens of Ma old) are good. With these two facts in mind, we have started prospecting for circular structures using Google Earth imagery and other satellite data with available access (e.g. Sentinel data). The search for circular structures may also lead to the discovery of various geological processes affecting Mauritania, beyond the search for impact structures, including volcanic or tectonic structures, or even structures of economic interest such as kimberlite pipes (Reimold et al., 2014). The circular structures are listed in Fig. 1 and illustrated in Fig. 2.

This preliminary investigation allowed us to detect 26 new circular structures that we described and analysed from the Sentinel-2a and Sentinel 2b images. The nature of these structures will be discussed during the presentation, with the objective to determine the most promising structure for further field investigation.

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**Key words:** impact crater.

### References

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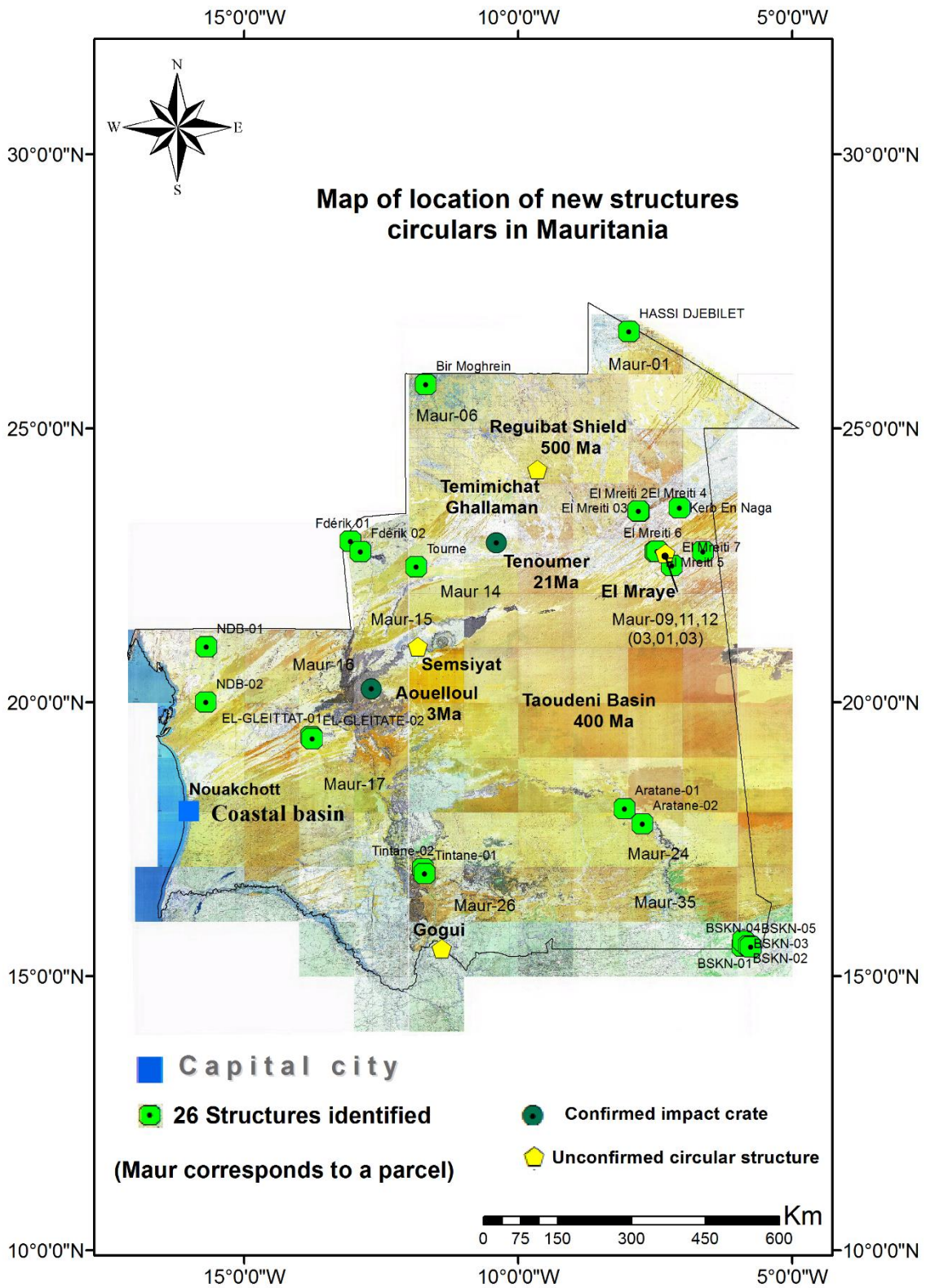


Fig.1: The location map of the circular structures detected by the Google Earth systematic prospecting.

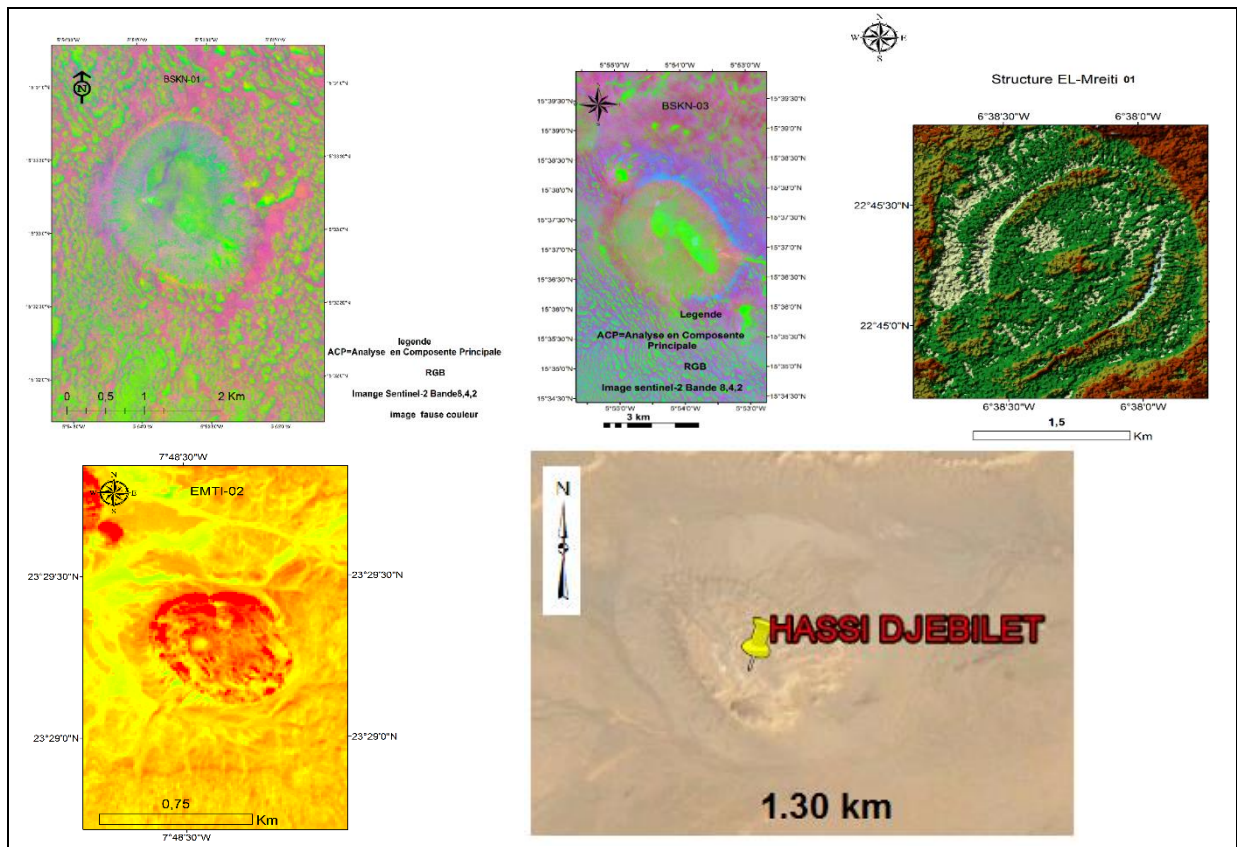


Fig. 2: Examples of circular structures detected by prospecting (e.g. Sentinel data).