

A NEW METEORITE FIND IN BOU AZARIF, ALNIF AREA (SOUTH MOROCCO).

H. Chennaoui Aoudjehane^{1,2}, A. Jambon², N. Larouci^{1,2}, H. Gako¹
¹Laboratoire GAIA, Equipe patrimoine géologique du Maroc, Université Hassan II Casablanca Faculté des Sciences Ain Chock BP 5366 Maârif Casablanca Maroc. E-Mail : h.chennaoui@fsac.ac.ma. ²UPMC-PARIS 6, ISTEP 4 place Jussieu, 75005 Paris France. CNRS UMR 7193.

During a field trip in the South of Morocco, in December 2010, that aimed to collect the coordinates of two recent falls in the Morocco-Algerian border, we visited a minerals and fossils store in Alnif (South of Morocco). The dealer Mohamed Bouiri showed us a sample of a badly weathered meteorite that he claimed to know the exact provenance. Then he called the finder of the meteorite Hassan Belaid that agreed to accompany us to the find place a few kilometers from Alnif. We collected many samples with the coordinates N 31°09.386'; W 005°09.157', in less than one hour, in a hillside. The finder estimates that he collected about 100 kg of this meteorite that is regularly discovered after rain showers. The fall is old as the samples are recovered by sediments that are eroded by the rain. The weathering grade provides evidence of this old age.

We collected SEM images (UPMC ISTE^P) to see the size of minerals, their layout, and the mode. Listed minerals are: olivine, pyroxene, plagioclase, weathered kamacite, taenite less weathered than kamacite, troilite, phosphates (chlorapatite and merillite).

EMP analyses (SX100- UPMC ISTE^P) on olivines, pyroxenes and plagioclases: Olivine Fa 18.2; Pyroxene Fs 17.9, Wo 2.3; that allowed us to classify the meteorite as an ordinary chondrite H5. The shock intensity is S3 and the weathering grade is W4. The magnetic susceptibility is $\log \chi = 4.75$.

By searching in the Meteoritical Bulletin database, we found that the name "Alnif" has already been given to an 8 kg sample, purchased in April 1992 by A. Carion in a mineral shop in Rissani, Morocco. The seller said it had been collected with trilobites near Oum-Jrane, 60 km south of Alnif. Microprobe analyses of Alnif meteorite yield: olivine, Fa19.3; pyroxene Fs17.3, Wo1.7; plagioclase, An10.6; that corresponds to an ordinary H5 chondrite, shock stage S2; weathering grade W2; submitted by the MNHN Paris, in 1998.

Even for an ordinary chondrite, it is important to avoid the NWA nomenclature whenever possible. This meteorite will have a proper geographic name that could be "Bou Azarif" (Bou Izarif) as the hill is named in the topographic 1/100.000 map of Alnif. It will be added to meteorites that have been submitted by a Moroccan French team, as Benguerir [1], Al Haggounia [2], Tamdakht [3], with a proper geographic name.

It could be interesting to measure the terrestrial age of this meteorite and try to find its history, if it is a fossil meteorite, how deep are the samples, to compare it with the Alnif meteorite in order to assess whether they are paired stones.

References: [1] H. Chennaoui Aoudjehane et al. (2006), *Meteoritics and Planetary Science* 41, 231-238. [2] H. Chennaoui Aoudjehane et al. (2007), *Meteoritics and Planetary Science* abstract 5329. [3] H. Chennaoui Aoudjehane et al. (2009) *Meteoritics and Planetary Science* abstract 5038.