**WAD LAHTEYBA H5 MOROCCAN FALL OF JUNE 27th, 2019.**

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**Introduction:** On Thursday 27th of June 2019 at 5 pm Moroccan time (GMT+1) a fireball was detected by many people in the South of Morocco. Eyewitnesses reported a yellow to red color of the fireball during around 3 seconds on a Southwest to Northeast direction. No sonic booms were reported. Hundreds of hunters and nomads went to the area where they are though the fall occurred. First pieces were recovered on June 29th two days after the fall. There were so many reports of the fall that the national Moroccan TV organized a documentary that was diffused on the Moroccan national TV news of Al Oula channel. Several hunters gave their testimonies to the TV journalists and talked about a potential strewnfield of 7x3 km. We interviewed two eyewitnesses who has seen the fireball from Oued Essakiya and from Lbbouirat. Additional information was given by other Moroccan hunters. So far many pieces totaling around 20 kg were collected the biggest one is 4330 g.

**Physical characteristics:** Numerous small pieces from a few grams to 4 kg were collected. Very fresh, thin, black and mat fusion crust covers the pieces. The interior is gray showing frequent inframillimetric chondrules. The rock is friable, and the external part of small pieces is rough showing a secondary fusion crust. Metal and sulfides are very thin. Magnetic susceptibility measured by SM30 is log(χ) = 5.29 falling in the H ordinary chondrites values.

**Petrography:** Microprobe examination of a polished mount shows numerous porphyritic chondrules set in a recrystallized groundmass. Plagioclase grains are ubiquitous with sizes up to 25 microns in diameter. Abundant FeNi-metal and troilite observed throughout. Apatite and chromite are ubiquitous minor phases.

**Geochemistry:** Olivine average on nine measurements is Fa₁₈.₆±₀.₃ with Fe/Mn = 38±3 and low-Ca pyroxene average on seven measurements is Fs₁₆.₄±₀.₁W₂.₀±₀.₁.

**Classification:** Based on the physical characteristics, petrography, and geochemistry, we classified Wad Lahteyba as an H5 Ordinary chondrite with an S3 shock degree and a W0 weathering grade. The name and classification were approved by the Nomenclature committee of the Meteoritical Society on May 2020 and published in the Meteoritical Bulletin №109 [1].

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