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Exceptional: Martian meteorite falls in Morocco
TISSINT meteorite

Last July 2011, near Tissint, village in Tata area (South of Morocco), an exceptional event occurred: the fall of a meteorite from Mars. (The official publication of Tissint meteorite on the Meteoritical Society website <http://www.lpi.usra.edu/meteor/metbull.php?code=54823>).

Morocco is one of the most famous places in the world concerning meteorite finds, thousands of meteorites have been found and are still being collected, especially in the South part of our country. All meteorite groups are represented, from the most common ones that are ordinary chondrites to rare ones such as Martian or lunar meteorites.

Meteorites are extra-terrestrial rocks coming essentially from the asteroids belt between Mars and Jupiter. Some of them, rare, come from our satellite the Moon or planet Mars.

There are just four observed falls of Martian meteorites on Earth that are: Chassigny (France, October 3rd 1815), Shergotty (India, August 25th 1865), Nakhla (Egypt, June 28th 1911) and the last one is Zagami (Nigeria, October 3rd 1962).

This fall is considered to be the fifth one in the world, that's why it's an exceptional event. A large part of the field information has been given by a very known meteorites specialist, Mr Abdallah Aaranson. Field investigations have been conducted by a team from Hassan II University of Casablanca headed by Prof Hasnaa Chennaoui Aoudjehane, to identify the exact place of the fall and the strewnfield.

These investigations allowed to draw the bolide trajectory from North West to South East and to define where it landed. Nomads from Oued Draâ valley area and people from Tata observed the meteor in the night of July 18th 2011 at about 2:00 am illuminating the entire valley. Eyewitness reported that it was first yellow in and then turned green before it appeared to split into two parts. Two sonic booms were heard over the valley. Many people searched the stone for weeks, late in October, the first sample has been found. Classification has been performed by Prof. Tony Irving from Washington University (USA) as a Martian meteorite, precisely as a Shergottite. Many international laboratories are working on this exceptional stone; it's a unique opportunity for planetary scientists to have access to fresh material directly coming from the red planet Mars not contaminated by Earth atmospheric and geologic effects. Implications for the best knowledge of Mars composition and history are invaluable.

Tissint meteorite is added to the Moroccan meteorite falls that have been submitted to the Meteoritical Society by Prof. Hasnaa Chennaoui Aoudjehane, from Hassan II University of Casablanca, Faculty of Sciences, international meteorites expert specialised in Martian meteorites. These falls are "Benguerir meteorite" that fell in Sebt Labrikiine on November 22th 2004 at 11:45 am, then "Tamdakht meteorite" that fell in Ouarzazate area on December 20th 2008 at 10:37 pm. Other meteorites from Morocco have also been classified and named by the Hassan II University team in close cooperation with international research groups, especially Prof. Albert Jambon from the Université Pierre et Marie Curie Paris 6 (France), e.g. Al Haggounia meteorite in Laâyoune area and of which the exact origin has been unknown for a long time by scientists.

The pride of this team is to be able to give a prestigious nomenclature of Moroccan places to a so rare objects, which would otherwise, be called by an acronym NWA (North West Africa) followed by a number e.g. NWA 480, related to the number of the meteorites found and submitted to the Meteoritical Society, due to the lack of information on the exact place of the collection of samples gathered from all parts of the south of Morocco.

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El Aglâb Mountains South East of Tata, place of the Tissint meteorite fall



Research of pieces of Tissint meteorite between El Aglâb and El Ga'ïdat



A complete fusion crusted sample of Tissint meteorite