# A New Martian Meteorite Found In The Sahara

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NWA 476

August 14, 1998

## A rock from the Red Planet: A new Martian meteorite found in the Sahara

The discovery of a new Martian meteorite was announced by Dr. Jutta Zipfel from the Max Planck Institute for Chemistry in Mainz. Members of the institute' staff classified this meteorite based on results from mineralogy, chemistry, and inert gas analyses. An official announcement was made during the 61st Meteoritical Society meeting in Dublin 1998 which took place two weeks ago.

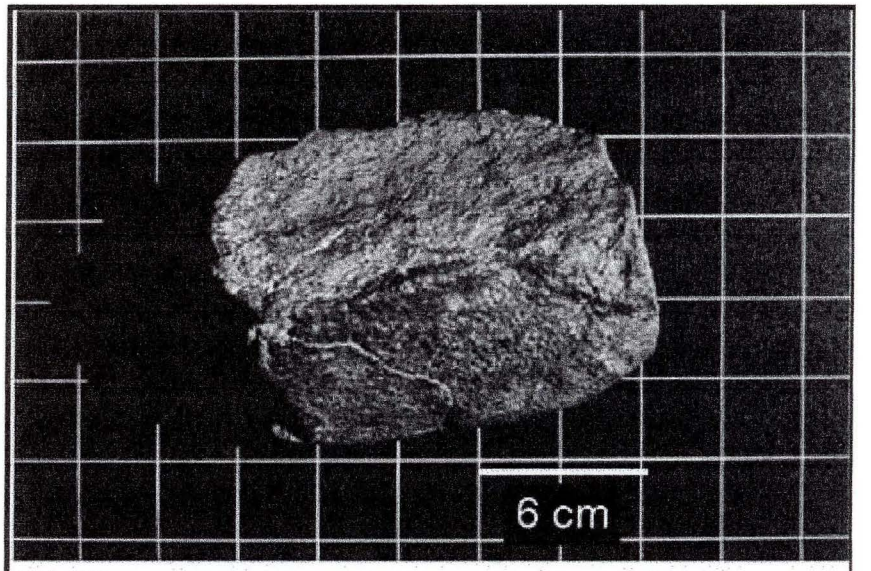


Fig.1 Bread-loaf shape of the new Martian meteorite. Clearly visible the sandblown surface crosscut by cracks.

Several observations make this finding exciting news and are an enrichment of meteoritical sciences. This meteorite is the first Martian meteorite found in the hot desert climate of the Sahara. It is the first one found since 1994 and also the first since the discussion whether there is life on Mars began two years ago. Now, the number of Martian meteorites has increased to a total of 13, a small number if compared to the total of more than 20,000 meteorite specimens known so far. A fragment of the meteorite was given to the Max Planck Institute for Chemistry in Mainz by a private finder for scientific purposes. The rock weighs a little over 2 kg and is shaped like a loaf of bread.

During a five-minute speech, Zipfel presented results from inert gas, chemical and mineralogical studies. The inert gas inventory of the atmosphere of Mars is very characteristic and well known from the Viking mission measurements on the surface of Mars in 1976. This is, so far, the strongest evidence that meteorites having

this inert gas fingerprint must come from Mars. Inert gases present in this meteorite clearly puts it in the group of Martian meteorites. Typical elemental ratios obtained by bulk chemical analyses of a chip of the new meteorite soon confirmed this finding. In addition, mineral chemistry and petrographic observations, such as the presence of feldspathic glass, rounded out the picture. 'We had no doubt that this was a Martian meteorite,' said Zipfel, who made the announcement at the MSM in Dublin.

During the meeting, Zipfel gave British scientists from the Open University a 150 mg sample for analysis of the oxygen isotopic composition of the meteorite. These measurements were carried out one week after the Dublin announcement and their results are consistent with findings obtained by the Max Planck scientists.

Inert gas analyses show that this meteorite was ejected from Mars about 1 million years ago, marking an ejection event unknown from other Martian meteorites, said Zipfel in her presentation. After that, the meteorite took its time to travel through space before it was captured by the gravity of the Earth and landed in Northern Africa. It was collected there in May of this year and immediately brought to the German Max Planck Institute for classification. The meteorite is the first find of its group in a hot desert environment. Clearly, it carries along with it its desert history, in that it is penetrated throughout by veins filled with terrestrial weathering products. 'The search for past evidence of life in this meteorite will be severely impeded because it was lying in the hot desert for probably thousands of years and not in a relatively sterile environment such as Antarctica', said Zipfel. However, it will give scientists the opportunity to gain further knowledge about geochemical processes on Mars and new insights into its evolution as a planet.

The chemical study of Martian meteorites and their implications for the bulk composition of Mars has a long tradition with scientists from the Max Planck Institute for Chemistry in Mainz. Their development of the APXS instrument was selected by NASA's Mars "Pathfinder Mission". Measurements with this instrument made it possible for the first time to analyse rocks sitting on the surface of Mars.

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