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The Virtual Museum for Meteorites

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Abstract

Meteorites play a fundamental role in education and outreach, as these samples of extraterrestrial materials are very valuable tools to promote the public's interest in Astronomy and Planetary Sciences. Thus, for instance, meteorite exhibitions reveal the interest and fascination of students, educators and even researchers for these peculiar rocks and how these can provide information to explain many fundamental questions related to the origin and evolution of our Solar System. However, despite the efforts of private collectors, museums and other institutions to organize meteorite exhibitions, the reach of these is usually limited. But this issue can be addressed thanks to new technologies related to the Internet. In fact we can take advantage of HTML and related technologies to overcome local boundaries and open the possibility of offering these exhibitions for a global audience. With this aim a Virtual Museum for Meteorites has been created and a description of this web-based tool is given here.

1. Introduction

The Virtual Museum for Meteorites (Fig. 2) is available at http://www.museodemeteoritos.es. Its contents are based on the private meteorite collection owned by Prof. Jose Maria Madiedo in Spain. The Madiedo Meteorite Collection consists of over 800 specimens which are available for research purposes but also for education and outreach. In fact, some of these meteorites are being regularly exhibited since 2007 in several places in this country (Fig. 1), together with multimedia materials and additional stuff that complete this collection. Among these, there are impactites and "meteorwrongs".

2. Methods

The rocks exhibited in the Virtual Museum for Meteorites where photographed by using two different techniques. Thus, some of them were imaged from different angles in order to setup interactive animations based on Javascript technology that can be easily manipulated from a user-friendly web interface. In this way, the visitor can rotate 360º the corresponding meteorite to visualize it from different points of view. This has the big advantage that important or curious features on the whole surface of the meteorite can be easily displayed. For other specimens, however, high-resolution digital photographs were taken in order to display zoomed images of the meteorite. These images can be also manipulated by the visitor from the web interface.

3. Structure of the Virtual Museum

On the other hand, the contents of the Virtual Museum are exhibited into six virtual rooms dedicated to different aspects of meteorites and impacts as follows:

Room 1: The origin of the Solar System and life on Earth. Asteroids, comets and meteor showers

Room 2: Rocks impacting the Earth. Impact cratering.

Room 3: Iron meteorites.

Room 4: Stony meteorites

Room 5: Stony-iron meteorites.

Room 6: Meteorites from Mars and the Moon.

4. Future developments

The contents of the Virtual Museum for Meteorites will be increased in a near future by including more meteorites from the Madiedo Collection. Besides, new virtual rooms dedicated to meteorite thin sections, "meteorwrongs" and impactites are also under development.

5. Summary and Conclusions

A web-based Virtual Museum for Meteorites exhibiting a part of the Madiedo Meteorite Collection has been created. This has been done with the aim to take advantage of Internet technologies in order to reach a global audience and to promote the interest in these space rocks and their key role in astronomical and planetary sciences. This on-line tool is available for students, educators and researchers since November 2011. The museum contents will be increased in a near future.

Figure 1: Images of public exhibitions of some specimens belonging to the Madiedo Meteorite Collection. **Top**: Detail of the exhibition *Vesta and Ceres: the Origins of the Solar System* (Casa de la Ciencia del CSIC, Sevilla, 2011-2012), photo by Leonor Ana Hernández. **Bottom**: Detail of the exhibition *Meteorites: Fragments from other Worlds* (Parque de las Ciencias de Granada, 2009).

Figure 2: Screenshots of the Virtual Museum for Meteorites. **Top**: Screenshot of the main web page, from which the different virtual rooms can be accessed. **Bottom**: Screenshot of the page describing the *Sulagiri* stony meteorite, with an interactive animation that allows the visitor to manually rotate 360º the specimen.