

Inclusive Planetary Science Outreach and Education: a Pioneering European Experience

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Abstract

Universal access to space science and exploration for researchers, students and the public, regardless of physical abilities or condition, is the main objective of work by the Space Inclusive Network (SpaceIn). The purpose of SpaceIn is to conduct educational and communication activities on Space Science in an inclusive and accessible way, so that physical disability is not an impediment for participating. SpaceIn members aim to enlarge the network also by raising awareness among individuals such as undergraduate students, secondary school teachers, and members of the public with an interest and basic knowledge on science and astronomy.

As part of a pilot experience, current activities are focused on education and outreach in the field of comparative Planetary Science and Astrobiology. Themes include the similarities and differences between terrestrial planets, the role of water and its interaction with minerals on their surfaces [1], [2], the importance of internal thermal energy in shaping planets [3] and moons [4], [5] and the implications for the appearance of life, as we know it, in our planet [6] and, possibly, in other places in our Solar System and beyond. The topics also include how scientific research and space missions can shed light on these fundamental issues, such as how life appears on a planet, and thus, why planetary missions are important in our society, as a source of knowledge and inspiration.

The tools that are used to communicate the concepts include talks with support of multimedia and multi-sensorial material (video, audio, tactile, taste, smell) and field trips to planetary analogue sites that are accessible to most members of the public, including people with some kind of disability. The field trips help illustrate scientific concepts in geology e.g. lava formations, folds, impact features, gullies, salt plains; biology, e.g. extremophiles, halophiles; and exploration technology, e.g. navigation in an unknown environment, hazard and obstacle avoidance, mobility in all types of terrain, etc.

Two analogue sites in the Spanish central region have been selected as they accessible to the target public and close enough to some of the research centres that participate in the SpaceIn project, with three other candidate sites being considered for further activities. The selected analogues for now are in Riba de Santiuste (Guadalajara) and Campo de Calatrava (Ciudad Real), both less than three hours away from the European Space Astronomy Centre (ESAC-ESA), the Centre for Astrobiology (CAB-CSIC/INTA), and Institute of Geosciences (IGEO-CSIC/UCM), among other SpaceIn participants in or near Madrid. The three other candidate sites are in the Madrid, Toledo and Almeria provinces in Spain.

The talks and field trips also involve preparatory activities such as the generation of maps, navigation tracks, images, digital elevation models and also tactile, audio, video and text materials for workshops and presentations in the participating centres.

This paper describes all these activities and the future plans for traineeships and other activities at European –rather than only local- level.

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