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Generic and scientific constraints involving geoethics and geoeducation in planetary geosciences

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Geoscience education is a key factor in the academic, scientific and professional progress of any modern society. Geoethics is an interdisciplinary field, which involves Earth and Planetary Sciences as well as applied ethics, regarding the study of the abiotic world. These coss-cutting interactions linking scientific, societal and cultural aspects, consider our planet, in its modern approach, as a system and as a model. This new perspective is extremely important in the context of geoducation in planetary geosciences. In addition, Earth, our home planet, is the only planet in our solar system known to harbor life. This also makes it crucial to develop any scientific strategy and methodological technique (e.g. Raman spectroscopy) of searching for extraterrestrial life. In this context, it has been recently proposed [1-3] that the incorporation of the geoethical and geodiversity issues in planetary geology and astrobiology studies would enrich their methodological and conceptual character (mainly but not only in relation to planetary protection). Modern geoscience education must take into account that, in order to understand the origin and evolution of our planet, we need to be aware that the Earth is open to space, and that the study of meteorites, asteroids, the Moon and Mars is also essential for this purpose (Earth analogs are also unique sites to define planetary guidelines). Generic and scientific constraints involving geoethics and geoeducation should be incorporated into the teaching of all fundamental knowledge and skills for students and teachers.

References: [1] Martinez-Frias, J. et al. (2009) 9th European Workshop on Astrobiology, EANA 09, 12-14 October 2009, Brussels, Belgiam. [2] Martinez-Frias, J., et al. (2010) 38th COSPAR Scientific Assembly. Protecting the Lunar and Martian Environments for Scientific Research, Bremen, Germany, 18-25 July. [3] Walsh et al. (2012) 43rd Lunar and Planetary Science Conference, 1910.pdf