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THE EARTH-MOON SYSTEM WITH REMOTE SENSING IN EDUCATION - IMPLEMENTING LUNAR AND CIS-LUNAR TOPICS INTO THE SCHOOL CURRICULUM

Abstract

In the face of limited awareness regarding the impact of remote sensing on everyday life, there is an increasing need to educate the general public about its advantages and capabilities. The rising quantity and quality of space-collected data empower to potentially transform our understanding of the planet. To elevate awareness and address future professionals, an effective strategy involves integrating remote sensing principles more consistently into school curricula, leveraging its interdisciplinary nature for STEM-related education. Remote sensing, a potent tool for scientific analysis not only on Earth but also on the Moon, can be utilized to inspire students and educators about space exploration. The presented concept positions the Moon as a valuable research object with a focus on sustainable development on Earth and understanding the Moon as the archive of the Earth, seamlessly aligned with existing school curricula. The educational methodology involves introducing remote sensing techniques in physics and geography classes through various training modules. These modules utilize lunar and cis-lunar satellite data, alongside augmented reality implementation. For the Moon, three modules explore geological composition, environmental factors, and gravitational forces, stimulating critical thinking among the students. An additional module focuses on the Earth-Moon system, utilizing the Deep Space Climate Observatory (DSCOVR) in the L1-Lissajous-Orbit to provide a continuous global sunlit perspective of the Earth. Anticipated outcomes include transforming the perception of the Moon from a "dead" neighbor to an accessible eighth continent ripe for scientific research and innovation. Students are expected to develop the ability to describe, comprehend, and analyze lunar and cis-lunar topics using scientific background information and remote sensing products. The integration of lunar satellite data into the augmented reality application "Columbus Eye" is introduced, aligning with the "Bring Your Own Device" principle for a personalized, immersive and interactive learning experience. Research indicates that augmented reality enhances learning effectiveness and cognitive abilities, fostering greater motivation among students and increased receptiveness compared to traditional methods. The forthcoming presentation aims to emphasize the relevance of lunar and cis-lunar topics through satellite-based observations, showcasing results and completed content, as well as outlining the future direction of the educational initiative. The incorporation of (lunar) remote sensing into school curricula is seen as pivotal for enhancing public awareness. Ongoing development includes a training module utilizing DSCOVR and other cis-lunar satellite data, offering deeper insights into global dynamics and environmental conditions, thereby promoting a comprehensive understanding.