SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Lift Off - Secondary Space Education (2) (2B)

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AUGMENTING PUPIL'S REALITY FROM SPACE – LEARNING WITH DIGITAL MEDIA BASED ON EARTH OBSERVATION DATA FROM THE ISS

Abstract

"What beauty. I saw clouds and their light shadows on the distant dear earth. . . . The water looked like darkish, slightly gleaming spots. . . . When I watched the horizon, I saw the abrupt, contrasting transition from the earth's light-colored surface to the absolutely black sky." Juri Gagarin, the first man in Space, used these words, when he could caught the first sight of the Earth appearing as a blue island in a black sea of nothing. The NASA mission "High Definition Earth Viewing" (HDEV) and the European partner project "Columbus Eye – Live-Imagery from the ISS in School Lessons" enable the public to share Gagarin's first views of our Planet. Four cameras attached to the Columbus Laboratory of the International Space Station (ISS) observe the Earth in three different perspectives since 2014. Columbus Eye develops interactive teaching materials in order to integrate the unique footage taken by the earth observation cameras of HDEV. Above all, the ideas of the projects are: fostering methodological competences of pupils in secondary school lessons; mediating STEM curricular topics; strengthening media-based learning. The paper presents the didactical and technical paradigm of the teaching materials and will introduce how teachers get trained to integrate those materials in their everyday classes. The modular concept allows teachers to combine different small learning units and HDEV videos individually to teach curricular topics. In doing so, pupils are encouraged to look at physical and geographic implications in the human-environment system. Exemplarily is the challenge of combating desertification from various angles. A simple worksheet about deserts and their formation provides background information if and where necessary, and the interactive earth observatory can be consulted regarding surface classification and additional regional information. Furthermore, the smartphone-based learning unit "Aral Sea – A Lake Disappears" deals with unsustainable agriculture and how it can affect the face of our planet drastically.