

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

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EXPERIENCING SPACE BY EXPLORING THE EARTH – EASY-TO-USE IMAGE PROCESSING
TOOLS IN SCHOOL LESSONS**Abstract**

In the 1990s, a photo taken by the probe Voyager within a distance of 6 billion kilometers showed the Earth as a small island right in the middle of an infinite black ocean. A 'Blue Marble' turned into a 'Pale Blue Dot' and initiated a public discourse about a sustainable handling of our resources. Therefore, 'Blue Dot – Shaping the Future' became the title of the mission of Alexander Gerst's space flight. From May 28 to November 10, 2014 the ESA Astronaut fascinated the German public with his live-impressions from the International Space Station (ISS). Simultaneously, the project 'Columbus Eye – Live-Imagery from the ISS in Schools' published a learning portal on earth observation from the ISS (www.columbuseye.uni-bonn.de). The portal makes use of NASA's High Definition Earth Viewing (HDEV) experiment, which features four cameras observing the earth 24/7. Columbus Eye is carried out at the University of Bonn and sponsored by the German Aerospace Center (DLR) Space Administration. The main goal of Columbus Eye is to enable children to observe our planet from the Astronaut's perspective while applying professional remote sensing analysis tools. During the IAC 2014, we published a concept on how the fascination of technology and environment should be bundled in order to ignite the pupil's interest on spaceflight and earth observation. Following up on this, in 2015 we are proud to present the implementations of this concept: the HDEV archive and, even more importantly, the observatory. While the archive provides spectacular footage of, for instance, the Mediterranean Sea, the Himalaya, and sunrises available for everybody, the observatory was specifically constructed for pupils and teachers. Here, it is possible to learn about processes and phenomena of the coupled human-environment system in an interactive manner. The pupils can conduct easy-to-use image processing analyses on their own. In doing so, they get the opportunity to derive a map out of an HDEV image and hence turn a continuous spatial texture into a discrete spatial pattern of land uses. Furthermore, the presentation explains how teachers can be taught to apply the Columbus Eye learning tools in their everyday school lessons. Finally, we present the next mission of the project: the HDEV videos will be edited in order to perceive them in virtual reality. Witnessing geospatial analyses turns into experience and enters our understanding.