

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

Author: Mrs. Annette Ortwein
University of Bonn, Germany, s3anortw@uni-bonn.de

Dr. Andreas Rienow
University of Bonn, Germany, a.rienow@geographie.uni-bonn.de

Dr. Valerie Graw
University of Bonn, Germany, valerie.graw@uni-bonn.de

Mr. Sascha Heinemann
University of Bonn, Germany, sascha1@uni-bonn.de

Dr. Johannes Schultz
University of Bonn, Germany, schultz@geographie.uni-bonn.de

Mr. Fabian Selg
University of Bonn, Germany, selg@uni-bonn.de

BEYOND THE PIXEL – INTERDISCIPLINARY EARTH OBSERVATION EDUCATION FROM THE
ISS IN SCHOOLS**Abstract**

”Man must rise above the Earth – to the top of the atmosphere and beyond – for only thus will he fully understand the world in which he lives”. This famous quote by Socrates anticipates the importance of space travels and earth observation techniques for research on coupled human-environment systems. There is an undoubtedly wide-spread use of remote sensing techniques and image processing analyses for scientific and societal purposes such as weather forecasting, ecological monitoring, or disaster management. Nevertheless, applying earth observing products in everyday school lessons is rare and narrowed only to a visual supplement. The project ‘Columbus Eye – Live-Imagery from the ISS in Schools’ aims at the sustainable integration of earth observation in schools. Columbus Eye is sponsored by the German Aerospace Center (DLR) Space Administration and acts as the exclusive European partner of NASA’s High Definition Earth Viewing (HDEV) experiment, which features four cameras on the International Space Station (ISS) observing the earth 24/7. During the IAC 2015, we presented the implementation of a concept on how the fascination of technology and environment can be bundled in order to ignite the pupil’s interest on space flight and earth observation. The corresponding learning portal (www.columbuseye.uni-bonn.de) provides a live-stream to observe our earth from the astronaut’s perspective while applying professional remote sensing analysis tools. Following up on this, we are proud to present the extensions of the interactive learning materials. The e-learning section now comprises three kinds of interactivity: working sheets, classification tools, and comprehensive teaching units. The paper explains how geographic information applications build the canvas for explaining physical and mathematical curricular knowledge. Background information, quizzes, and informative animations encourage pupils to solve a given problem on their own virtue in order to foster their methodological competences. Finally, the contribution presents the shift of the didactical paradigm from computer aided e-learning to smartphone supported m-learning. Regular topographic maps are augmented by the fascinating views from above. Hence, the tangible dimensions of pens papers are virtually lifted into the fascinating environment of space.