Geophysical Research Abstracts
Vol. 18, EGU2016-8021-2, 2016
EGU General Assembly 2016

Earth Observation from the International Space Station -Remote Sensing in Schools-

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Since spring 2014, the NASA High Definition Earth Viewing (HDEV) mission at the International Space Station (ISS) is online. HDEV consists of four cameras mounted at ESA's Columbus laboratory and is recording the earth 24/7. The educational project 'Columbus Eye – Live-Imagery from the ISS in Schools' has published a learning portal for earth observation from the ISS (www.columbuseye.uni-bonn.de). Besides a video live stream, the portal contains an archive providing spectacular footage, web-GIS and an observatory with interactive materials for school lessons. Columbus Eye is carried out by the University of Bonn and funded by the German Aerospace Center (DLR) Space Administration. Pupils should be motivated to work with the footage in order to learn about patterns and processes of the coupled human-environment system like volcano eruptions or deforestation. The material is developed on the experiences of the FIS (German abbreviation for "Remote Sensing in Schools") project and its learning portal (http://www.fis.uni-bonn.de).

Based on the ISS videos three different teaching material types are developed. The simplest teaching type are provided by worksheets, which have a low degree of interactivity. Alongside a short didactical commentary for teachers is included. Additionally, videos, ancillary information, maps, and instructions for interactive school experiments are provided. The observatory contains the second type of the Columbus Eye teaching materials. It requires a high degree of self-organisation and responsibility of the pupils. Thus, the observatory provides the opportunity for pupils to freely construct their own hypotheses based on a spatial analysis tool similar to those provided by commercial software. The third type are comprehensive learning and teaching modules with a high degree of interactivity, including background information, interactive animations, quizzes and different analysis tools (e.g. change detection, classification, polygon or NDVI tool). All materials and modules are developed based on the school curricular and can be used in lessons that are mainly based on self-reliant learning and require only minimal lead and instruction by the teacher. The poster presents new tools and strategies to educate pupils and to enhance their fascination of earth observation imagery in the light of problem-based learning in everyday school lessons.