

Lifting the Classroom into Space – Pupils observe the Earth by analyzing multispectral remote sensing data

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"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." Greek Philosopher Socrates, despite not having any means to do so, captured the feeling of looking at our home planet from above. This is now called the Overview Effect; A well-known phenomenon many Astronauts experience upon their first view on Earth from Space, evoking a cognitive shift in awareness about the small, fragile rock in the vastness of space we live on. Today, satellites enable humankind to explore the spatial patterns on our Earth, simultaneously capturing a small part of that effect.

The project "FIS – Remote Sensing in School Lessons" aims to integrate propaedeutic learning into classrooms by teaching pupils about natural and man-made phenomena in times of global change based on real remote sensing data and digital image processing techniques, amplifying their scope of perception to the global and the invisible. Built on the basis of intermediality, interactivity, and interdisciplinarity, Sentinel-based teaching units can be developed in order to communicate the benefits of remote sensing to young people.

Over the course of the project, feedback from pupils and teachers using the modules was collected and used to improve old and new learning modules. This includes increases in the use of mobile devices with Augmented Reality, in communications between pupils, and most recently in updating the satellite data the modules are based on with new Sentinel images. Exemplarily, different digital learning units and how their teaching values were improved with Sentinel data will be demonstrated: (1) "Oases – Explored from Near and Far" teaches about the set-up of oases using a VISNIR composite in an interactive process to deduce a thematic map. (2) "Floods" teaches about location-making processes, including the danger of flooding, using several interactive tools on an RGB image, a thematic map and a DEM. (3) "From Satellite Images to Maps" is an interactive classification tool in which pupils define their own classes using the individual red, green and blue values and similarity in an RGB image.