Earth observation videos in schools– enriching a school lesson on geographic zones with footage from the ISS

Clemens Kramm¹, Henryk Hodam², Carsten Jürgens², Claudia Lindner², Annette Ortwein², Johannes Schultz², Fabian Selg², and Andreas Rienow²

¹Ruhr-University Bochum, Department of Geography, Geomatics Research Group, Germany (clemens.kramm@rub.de)
²Ruhr-University Bochum, Department of Geography, Geomatics Research Group, Germany

“I want to remind the students that asked me the questions, that you are the future of science, technology and exploration. You have that flame. You teachers are fanning the flame, so it becomes a fire of curiosity and future exploration. We trust your generation to come up with the questions and the answers that we need to be better humans in the future.” – Luca Parmitano, Commander of the International Space Station (ISS)

Remote sensing and space travels have become a major tool for research and development in terms of scientific problems since the 1970’s. You don’t have to be an astronaut or pilot to get in touch with the many achievements, applications and scientific findings. Everyone and especially pupils are using them on a daily basis. Therefore, to deliberate the use of these technologies in school is crucial. The topic of remote sensing and space travels is quite complex and diverse, so many teachers are struggling to integrate them into their lessons. The main goal should be to support teachers by providing useful remote sensing school material and to encourage them to use these in their lessons. However teachers need the right science-based tools to fan “the flame, so it becomes a fire of curiosity”. To assist them in an effective manner it is necessary to adapt to their standard procedure of preparing a lesson: a fully developed teaching concept which includes not only the analysis of the topic itself but also the current curricula, the class, the didactics, the method and the material. Thereby it is possible to demonstrate how beneficial and well-grounded such a lesson can be.

The presentation addresses the question of how synergies of human space travels can be used to educate pupils and enhance the fascination of earth observation imagery in the light of problem-based learning in everyday school lessons. It will be shown which possibilities the topic of earth observation from space holds ready for teaching the regular curricula and how teachers can appropriately justify the appliance in their lessons. A comprehensive teaching concept example will be discussed, which matches german teaching standards and uses NASA’s High Definition Earth Viewing (HDEV) videos from the International Space Station (ISS) to enrich a secondary school geography lesson about the different geographic zones on earth.