

“The Eye of the Cyclone” – Teaching Natural Hazards in Schools by Using M-Learning and Augmented Reality Techniques

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Earth observation from space enables scientists and decision makers to forecast and react on the impacts of tropical storms. The project “Columbus Eye – Live-Imagery from the ISS in School Lessons” teaches pupils the implications of the coupled human-environment systems by applying remote sensing and digital image processing. Recently, Columbus Eye launched its first Android App featuring ISS videos. Generating a smartphone-based learning environment for working with ISS imagery introduces m-learning to the classrooms. The learning unit “The Eye of the Cyclone” addresses the formation and path of Philippine typhoon Maysak by using a multi-media approach. Based on a traditional work sheet, the diagrams of typhoon Maysak come alive when viewed through the smartphone’s camera. A diagram of the typhoon’s secret interior mechanics turns into a video of typhoon Maysak as seen from the ISS on 31st of March 2015, holding additional information on its unique specifications. The second diagram of air masses suddenly moves and shows the path of typhoon Maysak over time. But before those interactive parts are explored, the background information is presented in the work sheet by means of written scientific learning materials, including information on the occurrence, formation and inner structure of typhoons. Thus, fostering the reading competence, the pupils’ understanding on the topic is assessed by several tasks on the work sheet’s final page. The oral presentation explains how the haptic experience of writing the solutions on a sheet of paper makes the knowledge paperbound and “real”, literally lifting pens & papers into space. In the light of the Copernicus services, it will be explained how Sentinel-based teaching units can be developed in order to communicating the knowledge and the handling of natural hazards in times of global change.