

**Posterbeitrag AK Fernerkundung 2011**  
**"Fernerkundung kann alles!" – aber wie gut?**

Johannes Anhorn<sup>1,2,3</sup>, Joachim Post<sup>1</sup>, Olaf Neussner<sup>2</sup>, André Twele<sup>1</sup>, Sandro Martinis<sup>1</sup>

<sup>1</sup> DLR, German Aerospace Center

<sup>2</sup> GIZ, Deutsche Gesellschaft für Internationale Zusammenarbeit

<sup>3</sup> South Asia Institute, Universität Heidelberg

**Accuracy of Flood Delineation from High Resolution TerraSAR-X Data**

Floods are one of the most common and devastating natural phenomenon worldwide. The Philippine archipelago is on high risk due to its high flood hazard level (frequent typhoons and heavy tropical rainfalls), exposure of people living in flood plains and their generally high vulnerability.

A flood extent measurement based on in-situ field measurements and an automatic flood delineation algorithm from Synthetic Aperture Radar (SAR) satellite data is presented. The comparison of field data from 2011 and flood extents from simultaneous high resolution TerraSAR-X images leads to a better evaluation of the flood extent and respective backscatter behaviour. The automatic flood mapping algorithm was developed at DLR Oberpfaffenhofen for rapid mapping purposes. Automatic split-based thresholding of Single HH Polarized Enhanced Ellipsoid Corrected (EEC) TerraSAR-X StripMap (SM) and SpotLight (SL) data and subsequent multilevel image segmentation leads to the generation of unsupervised flood extent maps. Several manual post classification steps (e.g. Integration of Digital Elevation Models) try to deal with SAR inherent limitations and the reduction of classification errors. The usual lack of reference data for flood mapping tends to result in even more user input and hence likely more time consuming procedures. Together with field measurements of a flood event from January 2011 in the Municipalities of Oras and Jipapad (Eastern Samar/Philippines) comparative studies could be done and an additional threshold based region growing algorithm could be implemented to increase the accuracy of the classification.

In cooperation with GIZ Philippines, the results are used as a planning tool for Community Based Flood Early Warning Systems (FEWS). In this case detailed flood extent maps lead to a better understanding of the flood regime and improved early warning chain.