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## Monitoring Oil Field-Induced Subsidence Using Satellite-Based Radarinterferometry

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In 2003 a consortium around the company Deutsche Montan Technologie (DMT) and several industrial partners from mining and oil industry launched a project "Earth Observation Market Development for the Mining Sector (EOMD Mining)". This project is funded by the European Space Agency (ESA) within a programme "Earth Observation Market Development (EOMD)". The goal of the project is the development of a new integrated service for monitoring mining and oil exploitation induced surface movements. This service includes the application of the latest remote sensing monitoring technique of radarinterferometry and the use of a Geographic Information System (GIS) for analysis and interpretation of the monitoring results.

The integrated service has been established and applied to several "Pre-Commercial Projects (PCP)" provided by industrial partners. The PCP "Kuwait Oil Field Subsidence Monitoring" is on the way in co-operation with Kuwait Institute for Scientific Research (KISR). This PCP serves as a base for this contribution:

In a preliminary project a small Synthetic Aperture Radar (SAR) dataset from ERS-1/2 sensors has been purchased and processed. Problems arose due to strong atmospherical artefacts in the resulting interferograms. Nevertheless the general capability of the technique has been shown due to a sufficient coherence in the area of interest encouraging further work. New SAR data from Envisat's ASAR sensor acquired between 2003 and the end of 2005 have been purchased by KISR and processed at DMT. Surface movements have been determined using SAR data by the application of the Differential Interferometric SAR (DInSAR) and the Interferometric Point Target Analysis (IPTA) approach. The results have been integrated into a GIS for further analysis and interpretation in combination with information about the reservoir.

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