



Integrating anthropogenic hazard data to facilitate research related to the exploitation of geo-resources

Grzegorz Kwiatek (1), Aglaja Blanke (1), Dorota Olszewska (2), Beata Orlecka-Sikora (2), Stanisław Lasocki (2), Elena Kozlovskaya (3), Jouni Nevalainen (3), Jean Schmittbuhl (4), Jean-Robert Grasso (5), Marc Schaming (4), Pascal Bigarre (6), Jannes-Lennart Kinscher (6), Gilberto Saccorotti (7), Alexander Garcia (8), Nigel Cassidy (9), Sam Toon (9), Grzegorz Mutke (10), Mariusz Sterzel (11), and Tomasz Szepieniec (11)

(1) GFZ German Research Centre for Geosciences, Geomechanics and Rheology, Potsdam, Germany (kwiatek@gfz-potsdam.de), (2) Institute of Geophysics Polish Academy of Sciences, Warsaw, Poland, (3) University of Oulu, Finland, (4) Université de Strasbourg, CNRS, Institut de Physique du Globe, Strasbourg, France, (5) Physicien du Globe, Isterre, Grenoble Observatory, Grenoble, France, (6) L'Institut national de l'environnement industriel et des risques, Nancy, France, (7) Istituto Nazionale di Geofisica e Vulcanologia Direttore Sezione di Pisa, Italy, (8) Center for the Analysis and Monitoring of Environmental Risk (AMRA) Università di Napoli "Federico II", Napoli, Italy, (9) School of Physical and Geographical Sciences, Keele University, UK, (10) Central Mining Institute, Katowice, Poland, (11) ACK Cyfronet, AGH, Poland

The Thematic Core Service “Anthropogenic Hazards” (TCS AH) integrates data and provides various data services in a form of complete e-research infrastructure for advanced analysis and geophysical modelling of anthropogenic hazard due to georesources exploitation. TCS AH is based on the prototype built in the framework of the IS-EPOS project POIG.02.03.00-14-090/13-00 (<https://tcs.ah-epos.eu/>). The TCS AH is currently being further developed within EPOS Implementation phase (H2020-INFRADEV-1-2015-1, INFRADEV-3-2015). The TCS AH aims to have a measurable impact on innovative research and development by providing a comprehensive, wide-scale and high quality research infrastructure available to the scientific community, industrial partners and public.

One of the main deliverable of TCS AH is the access to numerous induced seismicity datasets called “episodes”. The episode is defined as a comprehensive set of data describing the geophysical process induced or triggered by technological activity, which under certain circumstances can become hazardous for people, infrastructure and the environment. The episode is a time-correlated, standardized collection of geophysical, technological and other relevant geodata forming complete documentation of seismogenic process. In addition to the 6 episodes already implemented during previous phase of integration, and 3 episodes integrated within SHEER project, at least 18 new episodes related to conventional hydrocarbon extraction, reservoir treatment, underground mining and geothermal energy production are currently being integrated into the TCS AH.

The heterogeneous multi-disciplinary data from different episodes are subjected to an extensive quality control (QC) procedure composed of five steps and involving the collaborative work of data providers, quality control team, IT team, that is being supervised by the quality control manager with the aid of Redmine platform. The first three steps of QC are performed at local data center and include the (1) transfer of episode data to the local data center, (2) data standardization and validation of formats, (3) metadata preparation according to TCS AH metadata scheme. The final two steps of QC are performed already at the level of TCS AH website and include (4) Contextual analysis of data quality followed by appearance of episode in TCS AH maintenance area, and finally the (5) Episode publication at TCS AH website.