

# BDE-SC5 Workshop 3 Report

The 3rd BDE workshop on Big Data in Climate Action, Environment, Resource Efficiency and Raw Materials (SC5) took place on 6 November 2017 in Brussels (Fondation Universitaire Rue d'Egmont 11, Brussels, 1000 Belgium).

## Agenda

- 09:30-10:00 **Welcome by the organisers and identification of expectations**  
*Session 1: The 2nd BigDataEurope Societal Challenge 5 (SC5) pilot*
- 10:00-10:15 **The BDE H2020 Project**  
*Andreas Ikononopoulos, National Centre for Scientific Research "Demokritos"*
- 10:15-10:30 **The Role of SC5 in the BDE H2020 Project**  
*Spyros Andronopoulos, National Centre for Scientific Research "Demokritos"*
- 10:30-11:00 **The 2nd SC5 pilot: Background and Rationale**  
*Spyros Andronopoulos, National Centre for Scientific Research "Demokritos"*
- 11:00-11:30 **Coffee break and networking**
- 11:30-12:15 **The 2nd SC5 Pilot**  
*Andreas Ikononopoulos and Iraklis Klampanos, National Centre for Scientific Research "Demokritos"*
- 12:15-13:30 **Lunch break and networking**  
*Session 2: Big Data Applications*
- 13:30-14:00 **Big Data applications in emergency response and management**  
*Patrick Armand, Atomic Energy and Alternative Energies Commission, France*
- 14:00-14:30 **Nuclear Emergency Response and Big Data Technologies**  
*Stella Moehrle, Karlsruhe Institute of Technology (KIT), Germany*
- 14:30-15:00 **Big Data Analytics in the Health Domain**  
*Maria-Esther Vidal, Fraunhofer IAIS, Germany*
- 15:00-15:30 **Supporting Agile Research on the Boundaries of Data and Computing**  
*Iraklis Klampanos, National Centre for Scientific Research "Demokritos", Greece*
- 15:30-16:30 **Round table and open discussion on "The present and future of data-driven emergency response in meeting Societal Challenge 5"**

# Presentations and Discussions



During this workshop, the BDE SC5 team presented the 2nd and 3rd pilots pertaining to the use of big data technologies and the application of deep learning techniques for rapid emergency response in the field of nuclear or radiological events. The 2nd pilot puts the foundation for data-scientific approaches in weather clustering and atmospheric dispersion data, with application in estimating the location of an unknown source emitting radioactive substances. The 3rd pilot

extends the application with semantic web technologies. This provides decision makers and experts with diverse information relevant to emergency response to emissions of hazardous substances, such as possibly affected cities and their populations, hospitals and other public infrastructure in the immediate vicinity of the plume, etc.

Invited speakers discussed fields bordering the SC5 pilots' field, such as the relationship between big data and nuclear emergency response, its potential applicability in real-time decision support systems for issues such as assessment and presentation of uncertainty - with particular application in the [JRODOS](#) (Java-based Real-time Online DecisiOn Support) system, as well as atmospheric dispersion modelling within large urban areas during emergencies related to releases of hazardous substances. The workshop also included presentations touching upon the use of big data in other fields, such as health, as well as the role of European e-infrastructures in meeting societal challenges.

The presentations given during the workshop are the following:

1. [Big Data Europe: Concept, Platform and Pilots](#), Andreas Ikonomopoulos, NCSR "Demokritos"
2. [The Role of SC5 in the BDE Project](#), Spyros Andronopoulos, NCSR "Demokritos"
3. [The 2nd SC5 Pilot: Background and Rationale](#), Spyros Andronopoulos, NCSR "Demokritos"
4. [Second SC5 Pilot: Identifying the Release Location of a Substance](#), Andreas Ikonomopoulos and Iraklis Klampanos, NCSR "Demokritos"
5. [Big Data Applications in Emergency Response and Management](#), Patrick Armand, Atomic Energy and Alternative Energies Commission
6. [Nuclear Emergency Response and Big Data Technologies](#), Stella Moehrle, Karlsruhe Institute of Technology
7. [Big Data Analytics in the Health Domain](#), Maria-Esther Vidal, Leibniz Information Centre for Science and Technology University Library
8. [Supporting Agile Research on the Boundaries of Data and Computing](#), Iraklis Klampanos, NCSR "Demokritos"

# Attendance

The SC5 workshop was attended by an audience of 14, including the organisers (3). Attendees included 4 EC officers (JRC).

The 2nd BDE SC5 pilot and rationale have been described in the [NERIS Platform Proceedings 2017](#), p.40. The 3rd BDE SC5 pilot has been demonstrated live at the [ISWC 2017 Conference](#), where it was awarded Best Demo - People's Choice. A video of the prototype developed can be found on the [BDE YouTube channel](#).