

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)  
Integrated Applications End-to-End Solutions (1)

Author: Mr. Roland GUEUBEL  
UCL, Belgium, roland.gueubel@gmail.com

Prof. Jean-Luc Gala  
UCL, Belgium, jean-luc.gala@uclouvain.be  
Mr. Cesar Baston Canosa  
ESA, The Netherlands, Cesar.Baston.Canosa@esa.int  
Dr. Pierre-Alain Fonteyne  
UCL, Belgium, pierre-alain.fonteyne@uclouvain.be

## B-LIFE PROJECT : NEW SERVICES FOR BIOLOGICAL EMERGENCIES

**Abstract**

The B-LIFE (Biological Light Fieldable laboratory for Emergencies) project is focused on delivering services for field analysis of biological threats and emergencies using a light fieldable laboratory system, autonomous and able to be quickly deployed nearby the crisis area.

As seen in recent years, the successful management of sanitary crises such as CBRN (Chemical, Biological, Radiological and Nuclear) threats, life-threatening emerging diseases and outbreaks in remote areas, relies on the ability to perform rapid and reliable detection and identification of pathogens (e.g. anthrax cases in US in 2001, and SARS outbreak in Ontario in 2003). For fast response, the diagnostic capacity must be as close as possible to the crisis/crime area.

The integration of several space based technologies: Satellite Communication, Global Navigation Satellite System (GNSS) and Earth Observation are critical to provide rapid field operational capabilities:

- Satellite communications are required for the communications between the field teams and the command and control centre(s).
- Earth Observation (EO) imagery provides geological information and maps of the crisis area.
- Meteorological and weather forecasts need to be provided in order to support the forecast of disease spreading, the stability of medicines and the protection of the equipments in use.
- Satellite navigation will be used for georeferencing of the data samples as well as for tracking and tracing of the medical/biological and sampling team.

B-LIFE service is a valuable tool for European countries, institutions and organisations to improve the level of response and increase of security in CBRN emergencies, a service that is available in any location worldwide. The B-LIFE service allows the integration and exploitation by any stakeholder with their own expertise and purposes.

B-LIFE is currently in Feasibility Study stage under the auspice of the Integrated Applications Promotion (IAP) programme of the European Space Agency (ESA). The project is developed by an international consortium. From Belgium, the Centre of Applied Molecular Technology of the Université Catholique de Louvain develops the biological laboratory and manages the project, the Vrije Universiteit Brussel provides expertise in remote sensing and image processing. The consortium is completed with SES TechCom, one of the largest satellite operators, based in Luxemburg. The project is supported by the Belgian federal scientific Policy and by the Luxemburg Government.

Following a successful completion of the study, it is planned to continue within ESA's IAP programme with a demonstration project developing and demonstrating the targeted pre-operational services.