



ARGOS CBRN

The main objective of the DIADEM project is to create an ICT system for collaborative situation assessment and decision making that supports effective protection of the population and the environment against chemical hazards in industrial areas.

This requires reasoning based on large quantities of information which is typically very heterogeneous and can be obtained via sensor networks, the existing communication infrastructure, such as mobile phone networks, Internet as well as databases. While such information can be very useful, its exploitation requires substantial domain expertise. No single expert has the required knowledge or the capability to use all the available information, while full automation of situation assessment processes is usually not possible or acceptable.

Supporting robust decision making

ARGOS originates in nuclear emergencies by supporting the Nuclear Division of the Danish Emergency Management Agency (DEMA) in dealing with emergencies related to accidents in nuclear power plants (NPP) and other nuclear installations. Today ARGOS is in operation in 13 countries as an Information System (IS) for enhancing Crisis Management for incidents with CBRN releases.

ARGOS is a prognostic tool as well as a database system for collection and presentation of data relevant for emergencies. ARGOS facilitates decision support, improving situation awareness and information sharing among the Emergency response organizations. As a simulation instrument, ARGOS is also valuable for training of emergency responders.

A fundamental feature in ARGOS is the ability to run, interpret and visualize results from atmospheric dispersion models. This means that ARGOS can produce a time dependent prognostic picture of areas likely to be contaminated, including air concentrations, deposition and how this will affect humans.

The Chemical part of ARGOS includes a comprehensive database with chemical substances. Dedicated models cover releases of aerosols and liquids as well as evaporation of spills on the ground. A special model for dispersion of heavy gasses is also incorporated.



ARGOS in DIADEM

In the DIADEM-framework ARGOS provides automatic dispersion calculation initiated through the DPIF-framework. This facilitates the ability to have the first prognoses for the severity of a spill very rapidly without the involvement of experts in using the system. The automatic dispersion calculation can be initiated by a number of different events in the system:

- Indication/alarm from a sensor or monitoring station
- The request for a certain type of response from the alarm central
- Complaints to reach a certain threshold

ARGOS provides features for GIS-based graphical visualization of concentrations of a plume based on either:

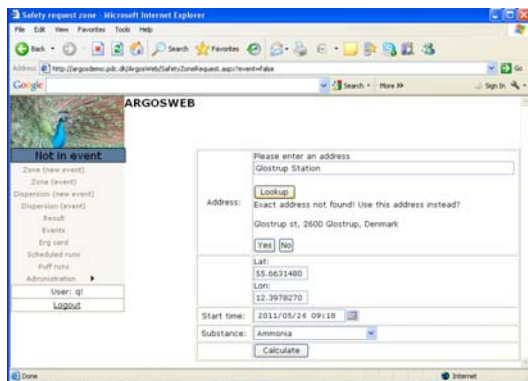
- Dispersion calculation
- Raw measurements and/or monitoring data
- The results of Gas Distribution Modeling (GDM) through the DPF-framework

ARGOS includes advanced tools to easy facilitation of threshold values for plumes from Electronic Emergency Response Guide. This is valid for dispersion calculation, raw monitoring data as well as Gas Distribution Modeling. ARGOS includes values for:

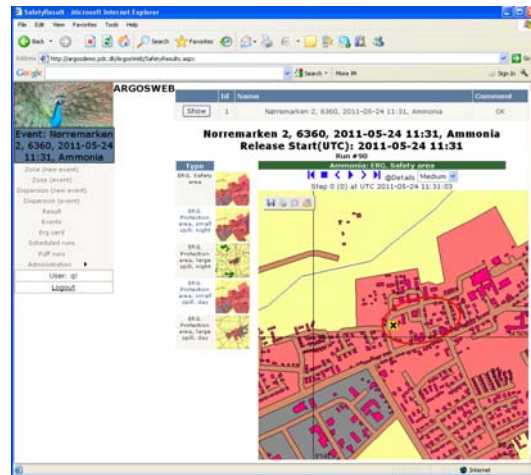
- ERPG-1, expose 1 h. with only mild health effects.
- ERPG-2, expose 1 h with only reversible health effects
- ERPG-3, expose 1 h without life-threatening health effects.
- IDLH, Immediately Dangerous to Life or Health

Support for early warning

As part of the DIADEM-project the web-based capabilities of the ARGOS-system has been heavily enhanced.



ARGOS now provides a web-portal that gives the operator at the alarm-central (112-center) a very simple interface for providing information on a possible chemical spill. This immediately gives the incident commander a web-page with a map showing the initial safety zone. Thus giving valuable information on recommended route to accident.



Based on templates you can also make initial dispersion calculations on the web. All information provided through the web-system can be transferred to the Duty Hazmat Officer (DHO) operating the ARGOS-system and the DHO can easily publish more advanced calculations with added GIS-information etc. from ARGOS to the web-system. Thus giving a much more seamless information exchange between the incident commander and DHO.

DIADEM Project

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