



# PREPARE

Wolfgang Raskob

Karlsruher Institut für Technologie (KIT), Eggenstein-Leopoldshafen, Hermann-von-Helmholtz-Platz 1, Germany, [wolfgang.raskob@kit.edu](mailto:wolfgang.raskob@kit.edu), Tel.: +4972160822480



- PREPARE: Innovative integrated tools and platforms for radiological emergency preparedness and post-accident response in Europe
- Research project under the European Commission's 7th Framework Programme, EURATOM for Nuclear Research and Training Activities (work programme 2012), Fission-2012-3.3.1, Grand Agreement Number 323287
- Start first of February 2013, will last 3 years
- 45 partners
- 6 research work packages
- 1 work package on training and dissemination
- 1 work package on management





Figure Number of disaster-related deaths after the Great East Japan Earthquake by prefecture and age

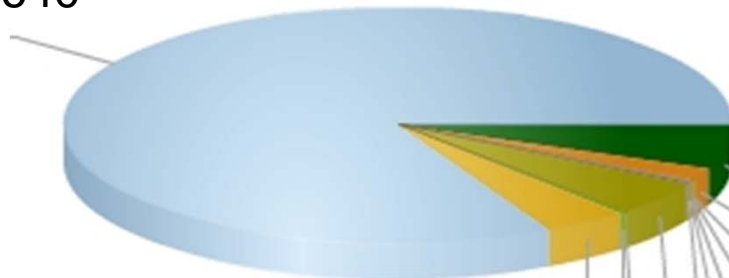
Prefecture	Total	The difference from the previous value	Age group		
			$\leq 20$	$\geq 21$ $< 65$	$\geq 66$
Iwate	446	(5)	1	55	390
Miyagi	900	(11)	2	113	785
Fukushima	1,793	(89)	0	169	1,624
Others	55	(0)	3	10	42
Total	3,194	(105)	6	347	2,841

Seiji Yasumura, Fukushima University

(As of Sept. 30, 2014)



Germany  
43.640



All other EU-countries  
together 9.300

- Fukushima & Atomausstieg in Rest-EU (United Kingdom), 26
- Fukushima & Atomausstieg in Rest-EU (Switzerland), 3,200
- Fukushima & Atomausstieg in Rest-EU (Spain), 831
- Fukushima & Atomausstieg in Rest-EU (Romania), 16
- Fukushima & Atomausstieg in Rest-EU (Netherlands), 102
- Fukushima & Atomausstieg in Rest-EU (Luxembourg), 20
- Fukushima & Atomausstieg in Rest-EU (Liechtenstein), 62
- Fukushima & Atomausstieg in Rest-EU (Italy), 133
- Fukushima & Atomausstieg in Rest-EU (France), 2,519
- Fukushima & Atomausstieg in Rest-EU (Cyprus), 12
- Fukushima & Atomausstieg in Rest-EU (Belgium), 176
- Fukushima & Atomausstieg in Rest-EU (Austria), 2,170



- **Platform for information collection and exchange:** The objective is to develop a so called **Analytical Platform (AP)** for **information analysis and exchange** in time of nuclear or radiological crisis events allowing **discussion between experts** on an expert-level and to **widespread congruent information** on the current situation to the **public including mass media**. The AP will cover all phases of an emergency and the functionalities will **support uncertainty handling** in the early beginning of the emergency in case information is sparse.



- Situation awareness
- Means to communicate with experts and public
  - Virtual meeting room
  - Ask the expert
- Web crawling
- Central database with historic cases and scenarios
- Case-based reasoning functionality to adapt to new situations
- Decision support

## Analytical Platform





- Requirement: Providing a **structured storage facility** for **historic events and fictitious scenarios**, their **propagation with time** and their applied (or applicable) **emergency measures**
- Objective: Supporting a **fast assessment of a current event**
- Means:
  - Defining **attributes** and **attribute ranges** to provide a **unique representation**
  - Taking into account **decision-making factors** and **resulting effects**
  - Taking into account **accident phases** and hence the status of the release, type and urgency of countermeasures, type and availability of resources, and relevance of exposure pathways

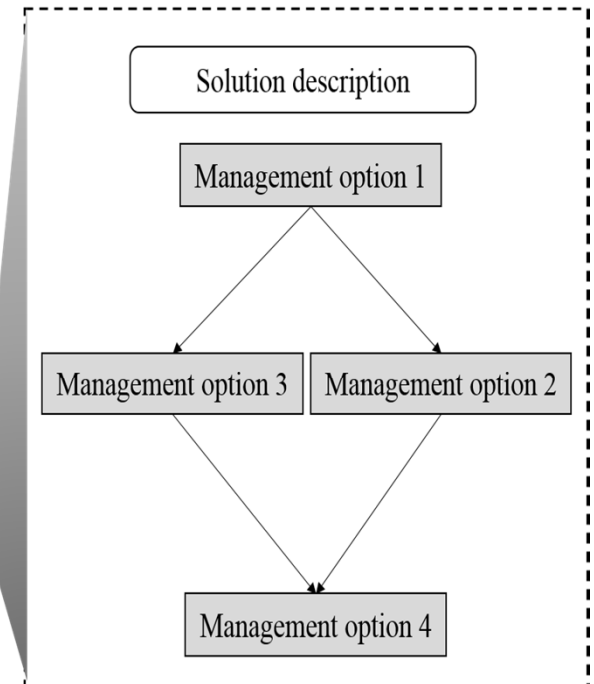
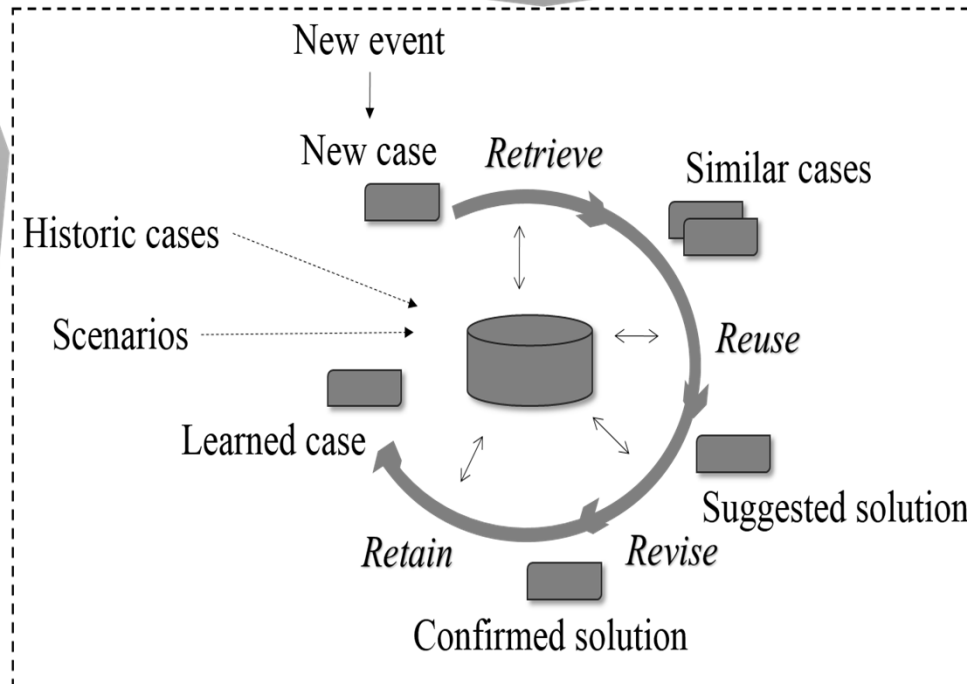
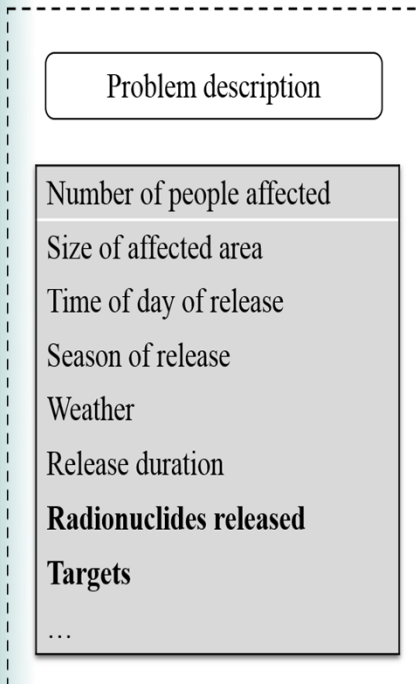
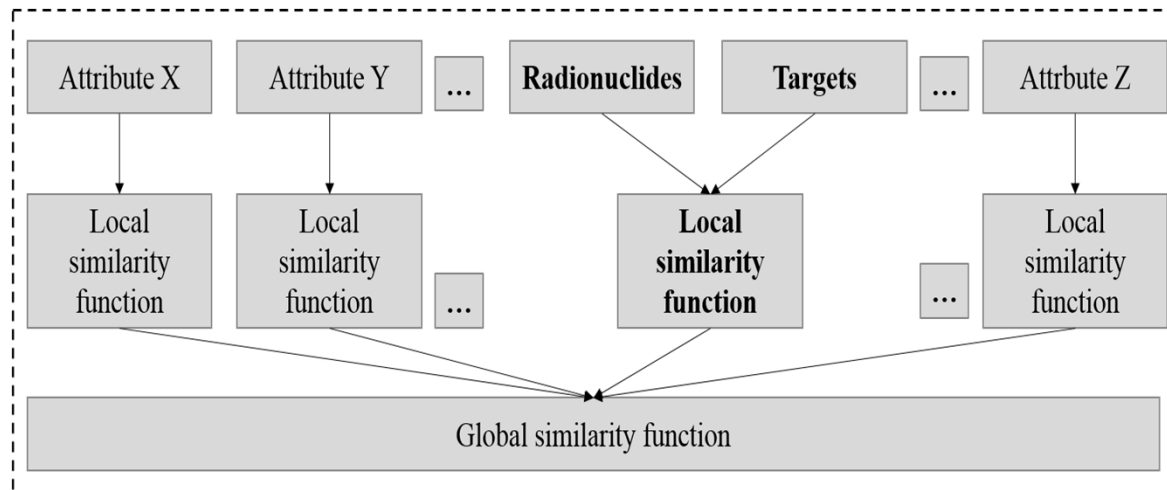






# Case Based Reasoning

PREPARE







- Data base structure and attributes defined with support of experts
- Several cases defined from
  - Chernobyl accident
  - Windscale fire
  - Fukushima Daiichi nuclear power plant accident
  - Litvinenko poisoning
- Scenarios are under preparation based on WP1 on long lasting releases
- First demonstrator ready for testing by end of June 2015



The screenshot shows a web browser window with the address bar displaying `localhost:40080/web/incident-2015.07.24-philippsburg`. The page title is "Incident 2015.07.24 Philippsburg". A user profile for "Stella Moehrle" is visible in the top right corner. The main content area features a navigation menu with the following items: Overview (selected), Ask the Expert, Discussion, Virtual Meeting Room, Measurements, Historic Analysis, Decision Support, Library, and About PREPARE. Below the navigation menu, the breadcrumb "Incident 2015.07.24 Philippsburg / Overview" is shown. The main content area contains a list of links on the left and a text block on the right. The text block contains the following information:

- Overview
  - Summary
  - Action Advise
  - Timeline
- Ask the Expert
- Discussion
- Virtual Meeting Room
- Measurements
- Historic Analysis
- Decision Support
- Library
- About PREPARE

This is a default page. It should contain a brief abstract on the incident.  
To edit go to:  
Sites/Incident XXXX.YY.ZZ ABC/Content/Web Content/Overview

There are no recent activities.

Powered By [Liferay](#)



# The scenario module

PREPARE

Historic Analysis - PF x

localhost:40080/web/incident-2015.07.24-philippsburg/cbr#\_48\_INSTANCE\_sNU3BmO5dnsm\_%3Dhtl

Stella Moehrle

## Incident 2015.07.24 Philippsburg

Overview Ask the Expert Discussion Virtual Meeting Room Measurements **Historic Analysis** Decision Support Library About PREPARE

Incident 2015.07.24 Philippsburg / Historic Analysis

**CBR data**

Event type: Nuclear Event: Nuclear1  Expertmode

### Nuclear results

Date: 2015.06.12 14:10:23  
File Name: CBR Query NuclearEvent

[Strategy 510, label: Chernobyl nuclear power plant accident, United Kingdom, similarity value: 0.25](#)

avertedDose: to be specified  
 cont: to be specified  
 waste: to be specified

Sequence	Countermeasure	Target	Reason	Information
	Selective grazing regime	sheep meat		additional info
	Manipulation of slaughter times	sheep meat		additional info
	Movement restrictions	sheep meat		additional info

[Strategy 520, label: Fukushima Daiichi nuclear power plant accident, Fukushima, similarity value: 0.001](#)  
[Strategy 507, label: Chernobyl nuclear power plant accident, Belarus region, similarity value: 0.0](#)  
[Strategy 505, label: Chernobyl nuclear power plant accident, Narodichsky district of Zhitomirskaya oblast, similarity value: 0.0](#)  
[Strategy 506, label: Chernobyl nuclear power plant accident, Narodichsky district of Zhitomirskaya oblast, similarity value: 0.0](#)  
[Strategy 512, label: Lithuania; Populatio who were qbe a rlie test, similarity value: 0.0](#)  
[Strategy 513, label: Lithuania; Populatio who were qbe a rlie test, similarity value: 0.0](#)



## General objectives:

- Investigate the conditions and means for **pertinent, reliable and trustworthy** information to be made available to the public **in due time and according to its needs** in the course of nuclear emergency and post-emergency contexts
- Taking into account **complexity and dynamic dimensions** of information flows
- Grounding on on the **empirical analysis** on the dynamic of information related to the Fukushima experience (in Japan and Europe) but also on other available experiences in the EU

## 3 areas of focus:

- Emergency & post-emergency **expertise networks interactions**
- Information & participation of **affected populations**
- Evaluation & improvement of **global communication (media)**



- Bringing in valuable input from **Japanese colleagues** as their testimony is unique and mostly needed to develop experts preparedness in Europe
- Stimulating exchanges of experience and discussions on **experts responsibility and public confidence, experts collaboration** to manage complexity, or effective networking in practice
- Analysis of the use of traditional and social media conducted
  - To support efforts to provide an effective public communication about nuclear or radiological emergencies
  - To identify differences in media reporting about the same nuclear event and with similar radiological consequences in different countries
  - To identify the factors influencing media reporting about a nuclear emergency
- Support the engagement of experts in the Analytical Platform
  - Interviewing experts
  - Defining means for engagement



- Work in PREPARE is driven from the observations during and after the Fukushima incident
- PREPARE integrates 45 partners from universities, research organisations, operational emergency management centres, industry and NGOs
- Work is part of the Strategic Research Agenda (SRA) of the NERIS Platform, but the SRA is much wider and contains more tasks
- PREPARE is a step forward in harmonisation of emergency management and rehabilitation preparedness in Europe
- Important to assure that the products are applied by end users and for new products (Analytical Platform) end users are identified
- Communication and interaction with stakeholders is crucial and work in this area has to be intensified and better linked with technical tools



Thank you very much for  
your attention

Questions?