



53<sup>rd</sup> ESReDA Seminar:

## **Enhancing Safety: the Challenge of Foresight**

14<sup>th</sup> and 15<sup>th</sup> November 2017, JRC, Ispra – Italy



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## **FINAL Call for papers**

### **Scope of the Seminar**

Conventional safety management relies on prevention and protection approaches, but it is clear, especially after disasters, that this is not enough. Reactive approaches after events are valuable strategies to provide information and lessons on risk management deficiencies. The analysis of major accidents and crises has shown that there were early warning signs that could have been heeded and used as valuable information to design "relevant tools" and proactive strategies for preventing major events. Such missed opportunities point towards the need to improve foresight methods for enhancing safety management. Several high-technology sectors, such as aviation and nuclear power have achieved a high performance level. Their call for a next generation of safety enhancement strategies and more proactive approaches has broadened to other sectors during the last decades.

The shift from safety management approaches in which improvement is predominantly based on hindsight to include more foresight approaches has many hurdles to overcome, in theory, as well as in practice. This raises several questions:

- How can safety imagination be enhanced: can we go beyond scenario approaches and techniques?
- How can foresight theories, methods and techniques contribute to broad risk assessments in order to improve systematic and holistic safety management?
- Addressing short term foresight versus long term planning: which methods/approaches are more appropriate for one and the other?
- How can we anticipate the new multi-faceted risks created by new technology, the digital revolution, industry 4.0, etc.? What can be done to improve our management of emerging risks?

- How to detect and handle early warning signs (EWS), weak signals, accident precursors, etc.? Can the analysis techniques developed for “big events” (accidents, near misses) be applied to “tiny events” (EWS, weak signals), or are new classes of techniques needed?
- Which anomalies/surprises should we pay attention to? How to discriminate the signal from the noise? How to deal with and benefit from whistleblowers?
- How to increase the visibility of EWS? Are there tools and methods available? If yes, which are they?
- What role do leading indicators play and can they help achieve foresight with efficiency? If yes, how?
- Are new methods and technologies related to “big data” part of the solution?
- How does the social climate impact risk awareness and an organization’s ability to identify early warning signals (reporting culture, speak-up behavior and psychological safety, debate, attitude towards bad news, etc.)?
- How can safety analysts generate the political capital needed to produce organizational change when they cannot point to a past accident to demonstrate the need for improvement and face the cost challenge?
- Is knowledge of the past obsolete? Is current knowledge management practice and organizational learning in organizations well-structured to tackle foresight in safety?
- How can foresight improve resilience and accident prevention?
- How did some sectors become highly reliable, ultra-safe, non-plus ultra-safe? Why are there such big differences (performance, approach) across sectors?

The 53<sup>rd</sup> ESReDA seminar will be a forum for exploring these questions. We aim to discuss theories, concepts, and experiences of enhancing foresight in safety. Authors are invited to present their proposals and discuss successes and failures in foresight and to identify future needs in safety research and training. We want to encourage new ideas, scientific papers, conceptual papers, case studies and cross-sectoral research on the theme of foresight in safety. This seminar will bring together researchers, practitioners, specialists and decision-makers to discuss strategies to improve foresight.

Papers for contributions to the seminar are invited; please see instructions in the next paragraphs.

### Target groups and domains of application (examples)

Papers for the seminar are welcome from various stakeholders (industrialists, regulators, safety boards, universities, R&D organisations, engineering contractors and consultants, training specialists) and could address different sectors:

- *Energy sector*: nuclear and non-nuclear (e.g. fossil, hydro) power plants and networks
- *Process industry*: oil and gas, chemical and petrochemical facilities
- *Transport (rail, road, air and maritime)*: supply and distribution network, operation
- *Aerospace industry*
- *Critical infrastructure*: electricity, water, telecommunications, information systems
- *Public sector and government*.

This seminar is aimed at addressing issues met by different industries. Other topics may be included if they fit well within the theme of the seminar and are applicable to foresight in safety, such as natural disasters, na-tech disasters, food safety, sanitary crisis, and banking.

## Seminar organisation

### **Location**

European Commission Joint Research Centre (JRC)  
Via Enrico Fermi 2749  
I-21027 Ispra (VA)  
ITALY

### **Organization**

The Seminar is jointly organised by ESReDA and JRC.

#### *Chairmen of the Seminar*

L. Ferreira (ESReDA President, Professor at University of Porto, PORTUGAL)  
To be defined (European Commission Joint Research Centre)

#### *Technical Programme Committee (TPC)*

\*Ana Lisa Vetere Arellano (EC JRC Dir. E – Space, Security and Migration, ITALY)  
\* Zdenko Simic (EC JRC Dir. G – Nuclear Safety and Security, The NETHERLANDS)  
Nicolas Dechy (IRSN, FRANCE)  
Yves Dien (CHAOS, FRANCE)  
Antonio Felicio (ESReDA, PORTUGAL)  
Milos Ferjencik (University of Pardubice, CZECH REPUBLIC)  
Paulo Maia (EDP, PORTUGAL)  
Eric Marsden (FonCSI, FRANCE)  
Sever Paul (AGIFER, ROMANIA)  
Sverre Roed-Larsen (SRL HSE, NORWAY)  
Fabiana Scapolo (JRC Dir. I - Foresight, Behavioural Insight & Design for Policy, BELGIUM)  
Dan Serbanescu (Romanian Academy, ROMANIA)  
Miodrag Strucic (JRC Directorate G – Nuclear Safety and Security, The NETHERLANDS)  
John Stoop (Kindunos, The NETHERLANDS)  
Tuuli Tulonen (Tukes, FINLAND)  
Frank Verschueren (Ministry of Labor, BELGIUM)

\*Technical Programme Committee chairperson

#### *Opening of the Seminar:*

Georg Peter (EC JRC Dir. E – Space, Security and Migration, Unit Head, ITALY)

#### *Closing of the Seminar:*

Dr. Franck Wastin (EC JRC Dir. G – Nuclear Safety and Security, Unit Head, The NETHERLANDS)

#### *Local Organization Committee:*

\*Ana Lisa Vetere Arellano (EC JRC Dir. E – Space, Security and Migration, ITALY)  
\*Zdenko Simic (EC JRC Dir. G – Nuclear Safety and Security, The NETHERLANDS)

\*Local Organizing Committee chairpersons

#### For Logistics:

European Commission Joint Research Centre, Ispra/Petten  
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Orsolya SUDAR, +39-0332-789783;  
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## Relevant dates, abstracts and papers submission, preliminary schedule:

- Submission of abstracts: by 30<sup>th</sup> of June 2017
- Notification to the authors: by 12<sup>th</sup> of July 2017
- Submission of final camera-ready papers: 30<sup>th</sup> of September 2017
- 13<sup>th</sup> of November 2017: Other ESReDA joint activities: Board of Directors meeting, project groups' meetings.
- SEMINAR: 14<sup>rd</sup> and 15<sup>th</sup> November 2017

## Procedure to submit an abstract, paper and to register

The abstracts, not exceeding 400 words, should address:

- Objectives
- Relevance for the Seminar
- Novelty
- Methods and findings.

The language of the seminar is English.

If the abstract is accepted, authors are expected to prepare a full paper for publication in the proceedings. Guidance about the format to be used for camera-ready ESReDA papers will be sent directly to authors.

Authors wishing to present a paper are invited to submit an abstract/paper online at <https://easychair.org/conferences/?conf=esreda53rdseminar>.

If there are any questions related to abstract/paper submission, authors could use e-mail [esreda53rdseminar@easychair.org](mailto:esreda53rdseminar@easychair.org)

Registration details are available on ESReDA website and EC Minerva:

[www.esreda.org/event/53rd-esreda-seminar/](http://www.esreda.org/event/53rd-esreda-seminar/)

[minerva.jrc.ec.europa.eu/en/shorturl/esreda\\_foresight\\_in\\_safety\\_pg/esreda\\_53rd\\_seminar](http://minerva.jrc.ec.europa.eu/en/shorturl/esreda_foresight_in_safety_pg/esreda_53rd_seminar)

## Registration and Seminar Fee

Registration will be accepted until 15<sup>th</sup> of October 2017. A registration form and information package for the venue will be made available on the ESReDA website.

The fees for registration are **300 €**. Fees are to be paid by bank transfer to ESReDA:

Holder: ESReDA  
Bank: BNP Paribas Fortis Bank, Boulevard Jamar 1 D, 1060 Bruxelles, Belgium  
IBAN: BE69 0012 3728 1678  
BIC: GEBABEBB  
Subject: Registration to the 53rd ESReDA Seminar

Fee waiver:

- One speaker per accepted paper may participate without paying seminar fees.
- Seminar fees for ESReDA members (maximum of three people per organization) are waived.

Questions: [jrc-esreda53rdseminar@ec.europa.eu](mailto:jrc-esreda53rdseminar@ec.europa.eu)

## About the European Commission Joint Research Centre

As the European Commission's science and knowledge service, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle. Its work has a direct impact on the lives of citizens by contributing with its research outcomes to a healthy and safe environment, secure energy supplies, sustainable mobility and consumer health and safety. <https://ec.europa.eu/jrc>

### **JRC Directorate E – Space, Security and Migration**

To focus on emergency preparedness, response, disaster risk management and resilience in cases of natural and man-made hazards. To cover the fight against crime and terrorism, including combating the illicit trafficking of people, drugs and weapons. To focus on cyber security, data protection and space infrastructures as well as the use of communications data by security and intelligence agencies. To also include certain technical aspects relating to the implementation of Treaties and Conventions on the non-proliferation of nuclear, chemical and biological weapons. To further study the implications of demographic change and to analyse the root causes, likely scale, timing and impact of migration. The Directorate will serve the Foreign and Security, Humanitarian Aid and Civil Protection, Human Rights, Justice and Home, and Institutional Affairs policy areas including the perspective of the emerging Digital Single Market.

### **JRC Directorate G – Nuclear Safety and Security**

To provide technical and scientific support to EU policies in nuclear safety, security and radiation protection, and carries out related education, training and information activities. Within the EU Euratom programme JRC supports research, knowledge creation and preservation across its Member States on nuclear technologies contributing to the energy decarbonisation. Work on the safety of nuclear reactors covers nuclear fuel, operation, advanced systems, as well as nuclear safeguards, and non-proliferation. The JRC develops scientific tools that enhance nuclear research, and compiles databases of information relevant to all aspects of nuclear safety and security. One core activity in this field is the knowledge management training and education in order to ensure preservation of knowledge and transfer of expertise in the field.

## About Ispra

[Ispra](#) is a small town situated on the eastern shores of the lake of glacial origin, [Lake Maggiore](#). It currently has 5345 inhabitants and it belongs to the Province of Varese in the Lombardy Region. For more information, here are some interesting links about Ispra:

[ec.europa.eu/jrc/en/about/jrc-site/ispra](https://ec.europa.eu/jrc/en/about/jrc-site/ispra), [en.wikipedia.org/wiki/Ispra](https://en.wikipedia.org/wiki/Ispra),  
[en.wikipedia.org/wiki/Lake Maggiore](https://en.wikipedia.org/wiki/Lake_Maggiore), [comune.ispra.va.it/](https://comune.ispra.va.it/), [www.tuttitalia.it/lombardia/97-ispra/](https://www.tuttitalia.it/lombardia/97-ispra/)

There are many hotels in the area. More information will be provided in early 2017 regarding the hotels where you can book your stay.



## About European Safety, Reliability & Data Association (ESReDA)

European Safety, Reliability & Data Association (ESReDA) is a European Association established in 1992 to promote research, application and training in Reliability, Availability, Maintainability and Safety (RAMS). The Association provides a forum for the exchange of information, data and current research in Safety and Reliability.

ESReDA membership is open to organisations, privates or governmental institutes, industry researchers and consultants, who are active in the field of Safety and Reliability. Membership fees are currently 1000 EURO for organisations and 500 EURO for universities and individual members. Special sponsoring or associate membership is also available.

For more information on ESReDA, contact: [Inga.Zutautaitė@lei.lt](mailto:Inga.Zutautaitė@lei.lt)

**ESReDA General Secretary**, Dr. Inga Žutautaitė  
Senior Researcher at Lithuanian Energy Institute

ESReDA address: European Safety, Reliability & Data Association, an International Non-Profit Scientific Association under the Belgium law (June 27, 1921, Title III). Headquarter: ESReDA, rue Gachard 88 Bte 14, B-1050 Bruxelles, Belgium, Siret: E00005802.

Any interested party is welcome to contribute to ESReDA project groups.

### ESReDA Project Group on Foresight in Safety

In autumn 2015 a project group was launched for 2-3 years to address Foresight in Safety. The project group meets twice a year. It gathers industry experts, researchers and consultants from: EDF-R&D (France), EDP-Gestão da Produção de Energia, S.A. (Portugal), IRSN (France), EC JRC (Italy and The Netherlands), Kindunos (the Netherlands), Tukes (Finland), FonCSI (France), SRL HSE (Norway), University of Pardubice (Czech Republic), Labor Ministry of Belgium, and AGIFER (Romania).

### Former ESReDA Project Groups on Accident Investigation and Dynamic learning

The ESReDA project group “Accident Investigation” was operational from 2000 to 2008 to address accident investigation methods, practices, organizational conditions, institutional and regulations context. The PG organized 2 seminars and issued three deliverables:

- the 24th ESReDA Seminar on “*Safety Investigation of Accidents*” in JRC, Petten, 2003
- the 33rd ESReDA Seminar on “*Future challenges of accident investigation*”, in JRC, Ispra, 2007
- “*Accident Investigation Practices - Results from a European Study*” (2003 – report edited by DNV);
- “*Shaping Public Safety Investigations of Accidents in Europe*” (2005 - ESReDA Safety Series – book edited by DNV);
- “*Guidelines for safety investigation of accidents*” (2008) available for free download on the ESReDA website.

The ESReDA project Group “Dynamic Learning as a follow-up from accident investigation” was in operation from 2009 to 2015. It worked on how lessons from events and accidents are learned. The PG organized 2 seminars and issued four deliverables available for free on the ESReDA website:

- The 36th ESReDA Seminar on “Lessons learned from accident investigations”, EDP, Coimbra, Portugal, 2009.
- The 45th ESReDA Seminar on “Dynamic Learning from Incidents and Accidents, Bridging the Gap between Safety Recommendations and Learning”, EDP, Porto – Portugal, 2013
- “Case study analysis on dynamic learning from accidents” ESReDA report,
- “Barriers to learning from incidents and accidents” ESReDA report,
- “Guidelines for preparing a training toolkit on event investigation and dynamic learning”, ESReDA report
- “Challenges to the investigation of occurrences. Concepts and confusion, metaphors, models and methods”. Essay by Pr. Stoop.