



# **International Workshop on Recent Advances in Seismic and Fault Displacement Hazard Assessment for Nuclear Installations**

**IAEA Headquarters, Vienna, Austria and  
virtual participation via Cisco Webex**

**18-21 June 2024**

**Ref. No.: EVT2303993**

## **Information Sheet**

### **Introduction**

In order to ensure the seismic safety of nuclear installations, their structures, systems, and components are designed to withstand vibratory ground motions expected to occur at their sites during the life cycle of these facilities. IAEA Safety Standards Series No. SSG-9 “Seismic Hazards in Site Evaluation for Nuclear Installations” provides the recommendations in relation to the evaluation of vibratory ground motion hazards, which was updated in 2022. This update incorporates the changes in the state-of-the-practice for seismic hazard assessment of nuclear installations over the last decade, particularly on the novel approaches utilized in ground motion characterization, evaluation of the logic tree structures of ground motion and source characterisation models for proper treatment of the epistemic uncertainties, and probabilistic approaches for fault displacement hazard assessment.

In order to support the Member States in the practical application of these novel approaches, a series of technical documents are prepared by External Events Safety Section with the help of a wide spectrum of consultants from the nuclear industry. A recent TECDOC entitled “*Evaluation of Probabilistic Seismic Hazard Analysis (PSHA) Based on Observational Data*” provides detailed technical information on evaluating the inputs and outputs of PSHA, both during the development stages of the PSHA and afterwards, upon the completion of PSHA. Another new TECDOC, “*Ergodicity of Ground Motion Models*

*for Site Specific Seismic Hazard Assessment at Nuclear Installation Sites*” describes the methods for developing fully or partially non-ergodic ground motion models and provides the Member State experience in the implementation of these models in site evaluation. A new publication that focuses on the comparison of probabilistic methods to estimate the fault displacement hazards within the framework of a carefully designed benchmarking study is currently being drafted. In addition, a TECDOC that summarizes the good practices and experiences of seismic monitoring and analysis of site-specific ground motion data at nuclear installation sites is in preparation. These new technical documents will soon be available to the Member States through IAEA pre-print repository.

With this event, the Member States will be able to recognize and discuss the changes in SSG-9 (Rev.1) and the support provided by the new technical documents, particularly on the challenging issues in the areas of seismic and fault displacement hazard assessment. Participants will be able to familiarize themselves and gather hands-on-experience in the seismic and fault displacement hazard assessment using these new approaches and methods.

## **Objectives**

The objectives of the international workshop are: (i) to introduce the novel approaches in probabilistic seismic hazard assessment, particularly in the ground motion characterization, that are documented in the recent IAEA publications, (ii) provide the participants necessary tools and hands-on-experience to implement these new methodologies in site evaluation of nuclear installations, (iii) present and discuss the recent advances in probabilistic fault displacement hazard assessment by focusing on the benchmarking results for different tectonic environments, and (iv) provide guidance on seismic monitoring systems, their deployment and their use in site response analysis for new and existing NPP sites.

## **Target Audience**

The event is open to all experts from Member States that that are involved or interested in the assessment of the seismic and fault displacement hazards for nuclear installations safety. The hands-on examples will be prepared and presented, especially for young professionals from embarking countries who may need some practical guidance to implement the state-of-the-practice.

Young professionals specialized in earthquake engineering, seismology, geology, geophysics, seismic hazard, and safety assessment in nuclear regulatory bodies, utilities, technical support organizations, vendors, research and development organizations and other relevant stakeholders are encouraged to apply.

## **Topics**

The workshop will be focused on the state-of-the-practice on probabilistic seismic hazard assessment, ground motion models, seismic source characterization, evaluation of uncertainties, and probabilistic approaches for fault displacement hazard assessment. The main topical areas to be covered during the workshop are:

- 1) Use of observational data (empirical ground motions, macro-seismic intensity, precariously balanced rocks, etc.) to evaluate the inputs and outputs of the probabilistic seismic hazard assessment.
- 2) Development of partially or fully non-ergodic ground motion models. Analysis of Member States experience in implementing non-ergodic ground motion models.
- 3) Deployment of the seismic monitoring systems to be used in site evaluations of nuclear installations.
- 4) Use of the data from seismic monitoring systems in non-ergodic ground motion models and site response analysis.
- 5) Probabilistic fault displacement hazard assessment: the state-of-the-practice, experience in nuclear installation sites, comparative analysis of currently available methods for different tectonic environments.

## Working Language(s)

English

## Participation and Registration

The event is targeted at experts from regulatory bodies, utilities, technical support organizations, vendors and research and development organizations, who are working in the areas covered by the workshop.

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **5 April 2024**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
  - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
  - Persons without an existing NUCLEUS account can register [here](#).
2. Once signed in, prospective participants can use the InTouch+ platform to:
  - Complete or update their personal details under ‘Complete Profile’ and upload the relevant supporting documents;
  - Search for the relevant event under the ‘My Eligible Events’ tab;
  - Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating Authority’ (if an invited organization is not listed, please contact [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org));
  - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
  - Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
  - Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application,

together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **5 April 2024**.

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org).

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the [Data Processing Notice](#) concerning the IAEA InTouch+ platform.

## Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made, together with the submission of the application, by **5 April 2024**.

## Venue

The event will be held at the Vienna International Centre (VIC) where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:  
<https://www.iaea.org/events>.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

## Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since

Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

## **Organization**

### **Scientific Secretary**

#### **Ms Zeynep Gulerce**

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### **Administrative Secretary**

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.



# Grant Application Form

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To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary, Ms Zeynep Gulerce, Division of Nuclear Installation Safety, Department of Nuclear Safety and Security (Email: [Z.Gulerce@iaea.org](mailto:Z.Gulerce@iaea.org)) and to the Administrative Secretary, Ms Minitha Poikudiyil, (Email: [M.Poikudiyil@iaea.org](mailto:M.Poikudiyil@iaea.org)).

**Deadline for receipt by IAEA through official channels: 05 April 2024**

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yyyy/mm/dd):	Nationality:	

### 1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended	
			from	to

### 2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years attended	
			from	to

**3. Description of work performed over the last three years:**

**4. Institute's/Member State's programme in field of event:**

**Date:** \_\_\_\_\_ **Signature of applicant:** \_\_\_\_\_

**Date:** \_\_\_\_\_ **Name, signature and stamp of Ministry of Foreign Affairs,  
Permanent Mission to the IAEA or National Atomic Energy  
Authority**

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