SCHOLARSHIP ANNOUNCEMENT

INTERNATIONAL DIPLOMA IN SEISMOLOGY: USE OF SEISMOLOGICAL DATA ONLINE EDITION - YEAR 2026

From July 6th to November 13th, 2026

Call for applications available at https://www.agcid.gob.cl
Chilean Agency for International Cooperation for Development ÿ AGCID

BACKGROUND

Latin America and the Caribbean is characterized as the second most disaster-prone region in the world (United Nations Office for the Coordination of Humanitarian Affairs, 2020). Their occurrence poses threats not only to people's lives and property, but can also reverse national development progress, erode resilience, and increase vulnerability.

This is why the Government of Chile, through its Chilean Agency for International Cooperation for Development (AGCID), inspired by the 2030 Agenda and its Sustainable Development Goals, and by the priorities of Chile's international cooperation policy strategy, intends to continue training and professional development initiatives that contribute to building the capacities of professionals and technicians from the countries of the Latin American and Caribbean region, as well as the institutions involved in the design and management of policies.

relevant public policies that allow progress towards communities that are better prepared and more resilient to natural disasters.

This edition of the Diploma course will take place in 2026, between the months of July and November inclusive.

GENERAL INFORMATION

I. HIGHER OBJECTIVE

To develop advanced capabilities in Seismology that integrate scientific and technical foundations, data analysis and processing tools, along with a critical understanding of the state of the art, in order to apply this knowledge in the characterization, modeling and real-time monitoring of earthquakes, thus strengthening the scientific and technological response to the occurrence of large-magnitude seismic events in the region.

II. OBJECTIVES OF THE DIPLOMA

- To provide the scientific and technical foundations, as well as the classic and modern tools for analysis and processing of seismological data for the study and modeling of the seismic source of earthquakes, along with their application in the real-time monitoring of seismic activity.

- Discuss the current state of the art of Seismology, showing a modern view of the study of earthquakes based on the scientific advances that have been made in recent decades by studying the latest mega-earthquakes that have occurred in Chile and the world.

- To acquire and deepen knowledge of seismology applied to the characterization and rapid estimation of earthquake source parameters. Furthermore, the role of using different types of observations together in this estimation process will be discussed.

III. RESULTS

Upon completion of the Diploma, participants will acquire the following skills:

- To understand the physical processes that control the generation of earthquakes under a modern view of Seismology and Geodesy.

- Acquire technical knowledge of the different types of instruments that allow monitoring of seismic activity and deformation processes in the Earth's crust.

- To understand the theoretical basis of seismic source modeling in its approximation of point source and finite source.

- Identify the techniques that allow estimating the parameters of the seismic source.

- To know the methods for determining source parameters in real-time seismological monitoring operations.

- Acquire knowledge in seismic source modeling using the W-phase method, as well as the use of far-field body waves for earthquake source characterization.

- Acquire knowledge about the characterization of faults through the modeling of aseismic processes, responsible for the accumulation of energy that is released during an earthquake, using geodetic observations.

- Understand the processes associated with seismic hazard estimation, recognizing its scope and limitations, with emphasis on case studies in different areas of Chile, including the North and South Central areas of Chile.

- Manage the knowledge and procedures to access data from national and international seismological networks, which are used in determining the seismic hazard of a specific site.

- To acquire the basic principles and understand the procedures used in real-time monitoring systems of seismic activity, for the rapid estimation of the parameters that characterize the source of an earthquake, as well as their dissemination to national and international agencies and the general public, with special emphasis on the Chilean case.

IV. IMPLEMENTING INSTITUTION

The Faculty of Physical and Mathematical Sciences at the University of Chile has the mission of generating, developing, integrating, and communicating knowledge in basic sciences, engineering, earth sciences, and economics and management. This mission is fulfilled through teaching, research, and outreach activities, at the highest levels of complexity and with international standards of excellence.

V. DURATION OF THE DIPLOMA

The Diploma will be implemented between July 6 and November 13, 2026, in online format.
The duration is 19 weeks, which include 163 hours of lectures, workshops and synchronous group activities (3 sessions per week, 3 hours each session).

This Diploma is 100% online (via streaming) through the Zoom platform for live transmission of each of the classes of the teachers/ experts and will have access to the U-Courses Teaching Support Platform.

VI. LANGUAGE

The Diploma will be conducted entirely in Spanish.

VII. BENEFITS OF THE SCHOLARSHIP

The Program will finance1 :

- Tuition and program fees.
- Certificate of approval.

VIII. INVITED COUNTRIES AND/OR ORGANIZATIONS

The governments of the following countries and regions will be invited to nominate candidates for the Diploma: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Dominican Republic, Uruguay and the following CARICOM Member States: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

IX. TOTAL NUMBER OF PARTICIPANTS

The total number of participants from invited countries will not exceed 25 in total2 and there are no pre-established quotas per country.

X. APPLICATION REQUIREMENTS

The Diploma is primarily aimed at people who meet the following requirements:

- Be a citizen of the country being convened and have residency in one of them. If you are temporarily in a country other than your country of citizenship, you must apply through the focal point of the country of which you are a citizen.
- To be nominated by your Government in accordance with the procedures indicated in Paragraph XI.
- Hold a university degree related to engineering or earth sciences.
- Possess work experience in the public or private sector, in the field of earth sciences, geological hazard assessment, engineering or disaster risk reduction, or failing that, have basic knowledge of earth sciences, ideally from degrees related to the field of geophysics or engineering.

- Professionals working in leading institutions in the field of science land or in disaster risk management.
- Have internet access for at least 12 hours per week for class development on-line.

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[1] No additional items beyond those mentioned above will be funded. Personal expenses must be covered by each participant.

[2] This academic program requires a minimum number of participants to be offered and, due to unforeseen circumstances, may experience changes in its schedule, teaching staff, and/or delivery method. Any changes will be communicated by the Program Coordinator.

Important note:

Priority in the selection process will be given to candidates who are working on projects related to the national development of their country.

XI. APPLICATION PROCESS

Candidates must submit their application, along with all the requested information, digitally via email (a complete copy of their application, including signatures and seals) to the Focal Point in their country of origin (Annex VI) for official processing. The required documents are as follows:

a) Application Form (Annex I) duly signed by the participant and their leadership;
b) Proposed Action Plan (Annex II);
c) Letter of commitment (Annex III);
d) Employment Certificate (Annex IV);
e) Certificate of Institutional Commitment (Annex V);
f) Title certificate
g) Applicants who are not Spanish speakers must present proof of language proficiency such as: certification through an international exam, a copy of a university degree if they have completed undergraduate or postgraduate studies in a Spanish-speaking country, or a letter of confirmation from the Embassy of Chile in the country.

Interested parties must submit their applications to the respective Focal Point in each country (see list of focal points in Annex VI) in order to formalize their application. **Applications received without formalization by the Focal Point will not be considered in the selection process.**

Each Focal Point will determine the deadline for submitting applications; therefore, it is the responsibility of each applicant to consult directly with the Focal Point in their country (Annex VI) regarding the respective application deadline. These deadlines may vary from country to country.

This call for applications for the International Diploma will have the following stages and reference application dates:

Stage	Dates
Dissemination and publication of the call for applications	December 16th 2025
Closing of the call for applications *(for applicants, after prior confirmation with the Focal point)*	April 20, 2026

Candidate pre-selection and application submission to the Platform AGCID Scholarships *(for Focal Point)*	April 23, 2026
Selection Committee	April 27-30 2026
Publication of results and notification of selected candidates	May 4, 2026

The final deadline for receiving applications by AGCID is April 20, 2026, but may be closed earlier than the date indicated by the Focal Point.
AGCID of each country, therefore it must be confirmed in the country of origin of each applicant, of
in accordance with the contacts in Annex VI.

TO CONSIDER:

ÿ No incomplete, illegible or late applications will be processed.
- Only applications officially submitted by the Focal Point will be evaluated. Applications submitted directly by the applicant will not be considered. - It is the responsibility of applicants to carefully read the call
for applications, including all requirements, application procedures, and attached documents, and to submit their application in compliance with the professional requirements specified in each job posting.

The data expressed in the application form and its respective annexes have the character of a sworn statement, therefore, in the event of having falsified, altered, concealed or presented inaccurate information for the purpose of obtaining the scholarship, the applicant will assume the respective administrative, civil and criminal sanctions, in accordance
to the regulations of their country of origin. Furthermore, the applicant will be ineligible to apply to future calls for proposals indefinitely. This must be communicated by the Committee formed for the implementation of the scholarship.

XII. SELECTION

The selection will be made by a Technical Committee comprised of representatives from AGCID and the University. This same Committee may assess the appropriateness of including other experts in natural disasters and/or public investment.

The results of the selection will be published on May 4, 2026 on the AGCID website, available at www.agcid.gob.cl, for the information of all interested parties.

The Diploma organizers will contact each selected participant by email to notify them, according to the contact information provided in the Application Form, and will directly coordinate all the arrangements related to their participation.

Important: Only those selected will be notified and, once they have confirmed acceptance of the scholarship, they will be sent a guide with the corresponding instructions and procedures to follow.

The final decision regarding who receives the scholarship is the sole responsibility of the Selection Committee and this decision is final.

XIII. PARTICIPANT'S OBLIGATIONS

ÿ Applicants are responsible for providing current contact information (Annex I: Application Form) and for periodically checking their email accounts in case of official requests and notices from the coordinating team, according to the dates described in section XI.

Participants will strictly adhere to the Diploma program. Requests for changes or alterations to the initially established Diploma program will not be accepted.

- Respect the instructions given by teachers and ensure good coexistence among the Diploma scholarship recipients.

The Diploma program is designed to be offered online for this edition. **Attendance is required for 85% of the sessions.**

- Complete all the necessary procedures for your participation in the program, including **obtaining authorization from your supervisor for your participation in synchronous classes.**
- Interruption of participation in the Diploma will only be authorized in duly qualified cases that prevent the continuation of training.

XIV. GENERAL PROGRAMME OF THE PROGRAM (PRELIMINARY)

PROGRAM NAME Diploma in Seismology: Use of Seismological Data	
PARTICIPANTS (AMOUNT)	Maximum of 25 participants per version.
DURATION	• Maximum duration in hours: 163 hours. • Hours in asynchronous format: 40 hours • Hours in synchronous format: 123 hours. • Maximum duration in weeks: 19 weeks • Diploma in online format, synchronous classes

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
1. Introduction	**Goal:** Leveling in basic knowledge of Earth Sciences, mathematics and physics. **Before:** Participants they know concepts general related to Earth Sciences and the mathematical, physical and computational basis necessary for its understanding. **Next:** Participants essential understand the concepts of Earth system related with the occurrence of earthquakes. They also understand physical concepts mathematicians essentials for he study of Earthquakes, as well as a basic knowledge of computing necessary for the study of earthquakes with cutting-edge techniques.	Unit 1: Request minimums in tools of physics, mathematics and computing	• Basic commands Linux, Python, • Linear algebra, vector calculus. • Probabilities. • Fourier and Laplace analysis.	Format: Classes asynchronous	25 hours
		Unit 2: Introduction to the Sciences of the Earth	• The use of the method scientist. • General description of the Earth System (formation and evolution). • Structure and composition of the Earth (crust, mantle, core). • Plate tectonics. • Seismic cycle: seismic and aseismic processes (cycle of energy accumulation and release).	Format: Classes asynchronous	15 hours
2. Observations Seismological	**Goal:** Acquire knowledge about the process of generating the different types of earthquakes earthquakes, his and characterization in terms of location and size, as well as its relationship with the geographical area where occur. **Before:** Participants they know concepts general topics related to seismology.	Unit 1: Observations Seismological	• Basic Seismology Concepts: Tectonics of plates, seismic cycle, hypocenter, magnitude area, rupture, intensity, mechanism, focus rupture velocity, seismic waves, etc. • Types of Earthquakes. • Laws that govern seismicity: Gutemberg-Richter Law, Omori Law. • Laws of Escalation. • Major earthquakes and the evolution of seismology. • Seismicity in Chile.	Format: Synchronous classes	22.5 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
	Next: Participants possible understand the causes why the occur earthquakes and how these can be ordered in terms of size and tectonic characteristics.				
3. Observations Geodesy applied to the Active Tectonics	**Goal:** Acquire knowledge about the geodesy techniques that They are applied to understand the seismic cycle in different contexts Tectonics. In particular, applied geodesy helps in to the understanding the slow and aseismic processes of crustal deformation, with a focus on the process of accumulating elastic deformation energy that is released eventually during the occurrence of large earthquakes. **Before:** Participants they know general concepts related to geodesy and the seismic cycle. **Afterwards:** Participants different understand the deformation processes can be associated with cycle seismic aspects general mechanical behavior of active faults and their relationship with the processes of energy accumulation that is released during large earthquakes.	Unit 1:Observation It's from the Geodesy applied to the Tectonics Active	• Introduction to to the applied active tectonic to geodesy. • Energy accumulation processes: interseismic period, characterization of roughness in a seismogenic zone, interpretation based on frictional and rheological models (Examples in Chile and Japan). • Energy release processes: co-seismic period, post-seismic period and “slow slip events”, characterization of the mechanical behavior of faults and interpretation based on frictional and rheological models. (Examples in Chile, Japan and Mexico). • Methods for estimating and characterizing quasi-static dislocation distributions in faults for different seismogenic sources. zones • Interpretation of the of the mechanical behavior of faults during the seismic cycle and their role in seismogenesis.	Format: Classes synchronous	12 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
4. Instrumentation and Networks	**Goal:** Acquire knowledge about the basic theory behind the records from seismological and geodetic instruments, which allow for the processing of these observations. To know the characteristics techniques general instruments used in monitoring of seismic activity and deformation processes of the Earth's crust. **Before:** Participants they know General concepts related to seismological and geodetic instrumentation and networks for understanding crustal movements land. **After:** Participants can identify the technical characteristics of a seismological station, as well as recognizing the instrumental response of different types of sensors. They can identify the technical characteristics of instruments of space geodesy, spatial and temporal precision of its and coverage measurements, methods of and data processing geodesics and of identification of signals interest.	Unit 1: Instrumentation lon and Networks	• Instruments seismological (e.g. short periods, broadband, accelerometers, etc.). • Instrumental response and calibration. • Description of geodetic instruments (terrestrial and space geodesy). • Basic theory for positioning using GNSS data. • Seismological monitoring networks and (local, regional, global networks, geodetic research networks). • Demonstration of field use of stations seismological and GNSS. • Demonstration basic processing of seismological and geodetic data. • Decomposition of geodetic time series into signals caused by different geophysical and anthropogenic processes (path models).	Format: Classes synchronous	10.5 hours
5. Analysis of Data and Modeling de la Fuente	**Goal:** Acquire knowledge about the different types of seismic data used in the seismic source study,	Unit 1: Analysis of Data and Modeling de la Fuente	• To handle the bases theoretical of modeling of the seismic source in its approximation of point source and finite source.	Format: Synchronous classes	16.5 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
Seismic	its correct processing, types of filters used, and instruments. answer Acquire knowledge of the theoretical foundations of source modeling seismic and the main techniques used for the determination of source parameters de12esplaztos. **Before:** Participants they know concepts general related to seismic data and his prosecution. Participants they handle general concepts of source modeling seismic. **After:** Participants can process a seismic signal, apply filters, remove the answer instrumental and calculate Fourier amplitude spectra. Participants are familiar with the theoretical foundations of the modeling of fountain seismic of earthquakes, and identify different methods and techniques for calculating parameters of the source.	Seismic	• To know the techniques of estimation of seismic source parameters. • To know the tensor calculation techniques of seismic moment a based on seismological records. • To know different methods for determining source parameters.		
6. Characteristics quantitative of the source seismic determined in seismological practice: how to obtain information scientific on	**Goal:** Acquire knowledge about seismic signal processing methods for rapid characterization of the event in terms of moment tensioner (centroid, mechanism focal point, duration of the source function, etc.) for the determination of his	Unit 1: Study of cases of events seismic: Taxonomy of earthquakes in the context Andean geodynamics.	• Presentation of new scientific background on the types of seismic sources in the context Andean. • Description and with practical examples of the centroid concept and comparison with the hypocenter. with • Analysis of the seismic moment tensor for typical event cases		7 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
earthquakes quickly	eventual potential tsunamigenic. Acquire knowledge practical/theoretical and required skills for modeling the fountain seismic and applications in early tsunami warning. Acquisition of skills for the analysis of body waves in the far and regional field: parameterization of the seismic model for a source approximation finite. **Before:** Participants they know General concepts related to network instruments and Seismological data acquisition, monitoring, and signal processing for real-time and near-real-time processing. Basic handling of concepts Instrumental response and seismic signal processing. Knowledge basics on seismic wave propagation, types of seismic sources, and notions of seismotectonics. **Next:** Identify the methods and techniques to determine the physical parameters that characterize the size, mechanism and rupture process of the seismic source from the modeling of the shapes of wave.	New background about the source seismic and taxonomy of earthquakes in Andean geodynamics.	of the Andean subduction. • Examples of seismic energy calculation, seismic moment, seismic efficiency drop. and voltage		
		Unit 2: Application for the modeling from source seismic: Analysis of cases of study of earthquakes in context Andean; Models of earthquakes of point source and finite source.	• Basic concepts of free oscillations of the Earth; How to use normal mode analysis, a seismological methodology, as to determine the centroid of the standard moment tensor. • Physical bases for kinematic models of seismic sources, both for point source and finite source cases; Physical limitations for parameterization of seismic source models. using the Validity • Range body wave ray theory approximation at the far field distance. Comparative analysis between deep and shallow earthquakes in the context of an Andean tectonic environment (case study using the Fraunhofer of approximation). • Case studies of temporal functions of the seismic source and the determination of the tensor seismic moment using the W-Phase method for earthquakes M>6.0 using waveform recordings at regional distances and ultra-long periods resulting from a superposition of the first as harmonics of		7 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
			Earth's normal modes (range between 100 and 1,000 s) in the Andean tectonic context.		
		Unit 3: Analysis Seismological to obtain quickly information scientific on earthquakes in early warning applications tsunamis;New you background about movements strong earthquakes.	• Analysis of recent Mw 7-8 earthquakes occurring in the context of Andean subduction, such as the Mw 8.4 Illapel 2015: a successful case for rapid determination of the seismic moment a tensor using the W-phase method as a methodology for tsunami early warning systems in a subduction environment Andean tectonics; Discussions on range of validity and limitations. • Example of modeling the point seismic source with the W-method Phase based on ultra-long period wave radiation data and seismic displacement data obtained from with GPS stations at near and regional co-distances. • Example of finite seismic source modeling with The W-Phase method using broadband data waveforms as an application for real-time operations for tsunami to warning systems.		7 hours
7. Database Management and Real-Time Operation	**Goal:** Acquire knowledge about the CSN operation, protocols and process. Learn about the systems real-time data processing, operations, and field systems for seismicity analysis developed at the CSN.	Center Seismological National: Mission and operation --	• Brief history of the creation of the CSN. • Protocols of operation. • Brief introduction to the systems used. • Description of the main products developed.	Format: Classes synchronous	13.5 hours
		Systems and tools for the prosecution data	• Automatic systems (Earthworm, EarlyBird) • Location systems events • Catalogues • Estimation systems		

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
	Before: Participants they know general concepts related to seismology and data analysis. **After:** Participants can apply knowledge to the those study of earthquakes in real time.	seismic	rapid magnitude • Station monitoring • Simulations • Seiscomp review		
		Operations and Communications s in the Field	• Description of field work: exploration, construction, maintenance and decommissioning • Telecommunications Seismological Systems • Good practices of land		
		Systems of characterization of earthquakes developed at the CSN	• Rapid estimation of intensities and visualization his • Shakemaps developed in Chile • Inversion of coseismic source parameters and PGD • Near real-time investments with strong movement data		
		Applications Geodesic	• On Geodesy and its application to the study of earthquakes • Examples of applications • Real-time data acquisition • Other results in Chile		
8. Seismic Hazard	**Goal:** Purchase knowledge about hazard determination seismic **Before:** Participants they know concepts general concepts related to seismology. **After:** Participants can perform the first ones stages for of seismic hazard determination in areas of interest, including the sources	Unit 1; Seismic Hazard	• Seismicity How historical: much information can we really obtain. • Description of major earthquakes globally: emphasis on earthquakes in Chile and the region. • Analysis and completeness of catalogs. • Different seismic sources: Identification of them for danger the determination. one of • Gutenberg-Richter determination for the entire catalog and for each seismic source. • Determination of the probability of occurrence according to Poisson.	Format: Classes synchronous	15 hours

Module	Learning objective (at least complete the goal)	Units	Overview	Format, activities (synchronous/as) synchronous)	Duration (hours)
	seismogenic features present in their study area, and determine the accelerations maximums expected associates, thus as an estimate of the maximum magnitude for each seismogenic source.		• Determination expected maximum accelerations.		
9. Workshop	**Goal:** Acquire knowledge global information on projects associated with Seismology implemented in different countries of Latin America **Before:** Participants they know general concepts related to applied projects of Seismology **Afterwards:** Participants can gain experience in seismology projects implemented in different countries. in	Workshop Experiences LATAM and CARICOM	• Presentation of 4 cases of former scholarship recipients Diploma Seismology, presenting its successful application case of Action Plan in your institution.	Format: Synchronous classes	12 hours
Total					Diploma up to 163 hours

CONTACTS

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