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by 15/12/2024

***NOTE: MAXIMUM LENGTH OF THE TEXT REPORT IS 6 (SIX) PAGES (starting from question 1)** Reports exceeding this length will be returned to the author(s) with the request of reducing the text to the above standard.

List of Meetings (Section 3.2); Publications (Section 3.6); Financial Statement (Section 8) should be added as an Annex (See form IV-meeting report and form III-financial statement).

The scientific information in this report will further be used for publications by UNESCO (please feel free to attach any additional information you may consider relevant to the assessment of the project).

IGCP project short title: OLLIN-Fault2SHA in Latin America (IGCP 669)

Duration: Project was approved in 2020; 2024 is the third year we receive financial support

Please tick this box if the report is for a Project on Extended Term (OET): ☐

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Date of submission of report: 15th December 2024

Signature of project leader(s):

Guidelines for Annual Report

1. Website address(es) related to the project

<https://www.ollinproyecto.com/>

2. Summary of major past achievements of the project (maximum 250 words excluding 2024 achievements). Meetings are not considered as scientific achievements; they should be listed under heading 3.2 and as an annex file.

The preceding project phase concentrated on the consolidation and public presentation of the network. We reinforced connections between research groups based in Latin America (mainly) and Europe. The network expanded during 2022 to comprise 114 and during 2023 to reach 139 members. Following the project's priorities, agreed during online meetings and the detection of a need of training in the target areas, the project has dedicated main effort in organizing training activities for early research career researchers. For that reason, the first Training school was held in a hybrid format during July 2023 in Bogota (Colombia). We have also supported the participation of young geologists (including undergraduate and graduate levels) in different meetings that have been held to encourage them to be part of the scientific community and to devote their career to improve the seismic hazard in the Latin America regions focus of the project.

The links between the proposers and local coordinators has allowed to get additional support to realize professional assessment: this is reflected in the collaboration with IKAM university in Ecuador (2023), the agreement between Spain and Colombia (IGME-SGC) and a Mexican-French project focused in the research of the Mexican Trans-mexican volcanic Belt.

3. Achievements of the project for 2024 only

3.1. General scientific and societal achievements (maximum 500 words)

(Meetings are not considered as scientific achievements, they should be listed under heading 3.2.)

- *Please describe what tangible improvements has your project obtained? (Beside publications, specify improvements to research, scientific contacts, policy implications, etc.)*

The main achievement of the project this year was the organization of the second training school focused on Fault2SHA tools in Latin America, held in Mendoza, Argentina (25th- 29th November 2024). The course was very similar to the one held on 2023, and counted with additional lecturers from the region. It also included a one-day field trip. The program included on day of practical computer lab to train researchers in the use of OpenQuake and other fault2SHA tools, preceded of lessons on basic topics of active tectonics (morphotectonics, paleoseismology, dating, edaphology, seismic hazard). It counted with 10 highly specialized instructors from seven countries) and the participation of 13 attendants on-site and 20 online (check the program of the course in the annexes).

In the frame of the organization of the course, we designed a 2 years project that have been approved by the Spanish Geological Survey (IGME-CSIC) and funded with near 30,000 euros (see attached in the annexes). It will allow 12 members of IGCP-669 from Spain, France, Argentina and Peru to cooperate during 2025-2026, with the aim to obtain in a collaborative way, seismic hazard models for Cusco (Perú) and Mendoza (Argentina), by integrating the characteristics of active faults located in the surroundings.

The second achievement of the project was to facilitated the participation of 5 early career researchers to the PATA-days international meeting from INQUA (Paleoseismology, Active Tectonics, Archaeoseismology) held in Chile during 6th – 11th October 2024. The IGCP-669 was included among the sponsors (<https://www.patadayschile.cl/>). The meeting allowed to gather 21 members of the OLLIN network.

- *Please describe how this project specifically benefited female scientists, young scientists and scientists from developing countries.*

Form V

With respect to the gender balance, this year the representation of women was maintained over 30% so we feel was a good marker. It was increased in the % of beneficiaries from the financial support with respect to last years (9 of 17 beneficiaries were women, see annex list of participants for details). All beneficiaries of this support were Early Career Researchers from low-middel income countries of Latin America (except of one, Albeiro Rendon that is senior, from Colombia). The project also supported the travel from Carlos Benavente from Peru to Argentina, so he was able to participate as an online-lecturer of the II Training School. Octavi Gomez-Novell, young researcher from Spain, also participated in the training course of Argentina and was partially covered by the funds of this project (hotels and meals).

- *Please describe project contribution to the UN2030 agenda, Sustainable Development Goals (SDGs) and global initiatives: Please indicate how the project contributes to the stated UN SDG and other UN Major Initiatives (eg. Sendai Framework 2030, Ocean Decade for Sustainable Development, Paris Climate Agreement etc)*

The project aims to increase the preparedness to face and anticipate seismic hazard. Accordingly, it is aligned with many of the SDGs (1, 2, 3, 8, 9) since the economic impact of large earthquakes often hits all these objectives of development. At the same time, we encourage participation and visibility of women in science (SDG 5) and specially, the support to developing countries which are majority within the network members (SDG 10).

3.2. List of IGCP project meetings/symposia in 2024 (please provide Form IV as attachment file).

- V Assembly of the Latin American and Caribbean Seismological Commission, Costa Rica, 24th- 28th June
- 37th International Geological Congress in Busan (Korea). August 24th-30th
- PATA-days (Paleoseismology, Active Tectonics, Archaeoseismology meeting from INQUA) in Chile, October 6th-11th
- During the II Training School in Mendoza (Argentina), November 25th – 29th

3.3. What kinds of activities has the project undertaken with respect to society and science outreach?

The main contribution to Society during 2024 comes from the II IGPP669 training course (Mendoza), which was taught in the most seismic region of Argentina. This region has been affected by historic earthquakes of magnitude greater than 7, but society is little aware of this danger due to the existence of anti-seismic building codes. The professionals participating in the course were geologists, geophysicists and civil engineers from both Mendoza and San Juan, as well as doctoral students and advanced students of geology and geophysics. The number of participants allowed participatory classes with much dialogue and comparisons, which enriched both participants and teachers. The possibility of having a live broadcast via institutional zoom guarantees the participation of those interested online from Buenos Aires and Cordoba and even Italy. Likewise, with the availability of this online course on the YouTube platform of the IANIGLA (Argentine Institute of Snowlogy, Glaciology and Environmental Sciences) after previous editing processes (currently undertaken) ensures a greater impact in the future, since a large number of interested parties have consulted for the online course.

<https://www.youtube.com/@ianigla> The videos will be also allocated in the IGPC 669 webpage as soon as they are available.

The complementary and diverse perspectives that the OLLIN course offered had allow a more open and effective communication for the geological community aimed at seismic hazard. Without a doubt, they mark a milestone in the potencialization of this discipline at the Spanish and Latin American Spanish-speaking level.

With the graphical material of the course and with some of the material from the PATA-days meeting in Chile (mainly photographs of the presentations), we are preparing a short 2024

Wrap-up video for the social media (X and Instagram, which will be also uploaded into the webpage).

Additionally, we have invested efforts to update our webpage and specially, the Instagram account, which has gained followers in the last year.

3.4. List of countries involved in project delivery.

The countries involved this year in the organization of activities and in the search for new proposals are Chile, Argentina, Perú, Colombia Ecuador, Mexico, France and Spain. Ecuador has joined more actively the network in the last year, and Oswaldo Guzman (Ikiam University) joined the group of local coordinators of the North Boundary American Plate region. Brasil was present as a lecture from this country collaborated in the training course (Pablo Souza).

3.5. Participation of international scientists to project meetings (detail involvement from developing countries young and female scientists, please indicate exact numbers)

Link for least developed countries: [see pdf. document](#)

Link for UN Country classification: [see pdf. document](#)

In the table, we have marked the participants from Upper middle Income, since no Lower middle or low income are involved (following the UN Country classification) so far.

	<i>Total number of scientists</i>	<i>Number of male scientists</i>	<i>Number of female scientists</i>
<i>Number of participating scientists</i>	43	26	17
<i>Number of young scientists/students (<35 years old)</i>	29	17	12
<i>Number of scientists from developing countries</i>	33	21	14

3.6. Provide a list of this year's publications (including maps), (please provide an annex as attachment file).

3.7. Activities involving other IGCP projects, UNESCO programmes, IUGS Commissions or Task Groups or others

Interaction with other IUGS groups was undertaken during the 37th International Geological Congress in Busan (Korea) in August 2024. Participants: M. Ortuño (Spain), O. Scootti (France), P. Boncio (Italy), D. Carreón (Mexico)

Also, Spanish members of the network had a short meeting with the Spanish IGCP/Unesco delegate in Spain Dr. Rosa Mª Mediavilla López during the XI Spanish Geological Congress in Ávila (Spain), July 2024

3.8. Scientific Legacy: Is there a need for storage of publications, field data, and other results of the project? Do you have a clear vision concerning where the data would be stored and who will be the custodian?

N/A

3.9. What kind of public information (media reports, social media, etc.) has the project generated? And how is their impact evaluated?

*Social Media where we have announced and shared the main news of the project
WEB page (main media used to collect information on the meetings, courses and grants)*

<https://www.ollinproyecto.com/>

@OllinIGCP669 (twitter) with 124 followers (4 more than last year).

Ollin_igcp669 (Instagram) with 100 followers (24 more than last year)

You tube channel: <https://www.youtube.com/@IGCP669> (181 visualization of the lessons we uploaded 2 years ago). We had a technical issue and cannot access this channel anymore, so we are planning to open a new channel with these two conferences and the lessons recorded on November 2024 during the Ii Training Course, beside the promotional video that is being edited.

3.10. Project highlight:

Once more, we consider our more remarkable contribution is educational. Thanks to the effort of 10 international lectures and coordinated by Stella Moreiras (CONICET-Cuyo University, Argentina) we trained a group of 12 on-site students in the Second OLLIN training school (Mendoza, Argentina), 5 days long. The course included lectures on basic knowledge on Earthquake Geology, geochronology and Seismic Hazard tools, including one-day hands-on session one day field trip to visit three active faults in the Andean region (La Cal, Divisadero Largo and Cerro La Gloria faults). This training course required a good organization and had the co-sponsoring of other institutions (IGME and University of Barcelona from Spain, Fundación Willians, Univ. de Cuyo, Argentinian Institute of Snowlogy, Glaciariism and Environmental Sciences, Argentinian association of Quaternary and Geomorphology). We are convinced that this training activities are fundamental, for the consecution of the main aim of the project: improving seismic hazard by considering geological data.

Besides this achievement, we are enthusiastic to have been able to receive external funding thanks to the IGCP- 669 network. The most remarkable income is from the IGME-CSIC Geological Survey-Scientific Council, that recently decided to support an Argentinian-Peruvian-Spanish collaboration in the frame of OLLIN project. The initiative will allow to develop geological based hazard maps for two areas near Cuzco and Mendoza. It will be led by Julián García Mayordomo (IGCP 669 secretary) and will last 2 years long having a financial support of almost 30,000 euros.

4. **Project response:** *Explain how IGCP Council 2024 recommendations were addressed by the project.*

We have been committed with the recommendation of spending a larger effort in outreach. We have been explaining our network activities in the social media and are finishing a wrap-up video to allow the general public having a closer idea of the work we do. The video will be published by mid- January and included in our web page.

We have also devoted time to improve and update the web page, where information on the Training schools, conferences, publications and annual IGCP reports is organized and accessible.

5. **Deviations/changes from initial project proposal:** *Please indicate any changes from initial proposal and reasons for these changes.*

This year we could not have a more general meeting as the previous years. For the next year, we want to ensure a general meeting can be hold. One of our challenges is that we grow every year and now have a large number of participants (nowadays 146). This makes no realistic to held annual meetings with a good number of members represented, making the online general meeting the only honest tool to ensure people participation.

6. **Activities planned for 2025**

6.1. General goals

For the next year, we'll like to focus our efforts in organizing a general meeting online to be able to strength the connection between the network members and to allow some "pass of stick" between some of the original proposers and new members that have now more interest and time to keep the project alive in future times.

We would also like to find the way to exchange more among the different regions (3 regions) and to develop new contacts (already initiated) with researchers from Central America (initiative led by Pierre Lacan)

Additionally, we'll work to organize a third training school. Since the project of the IGME-CSIC recently approved will facilitate the mobility of some of the members between Spain, Argentina and Peru (initiative led by Carlos Benavente and Julián García-Mayordomo).

6.2. Tentative list of specific meetings and field trips (please list expected participating countries)

We plan to organize the III Training school in Cuzco (Perú) during September 2025

7. Request for on-extended-term-status (applicable only if 2024 was the last year of your project)

N/A

8. Financial statement (\$ USD only): Please indicate total funding received from UNESCO/IUGS since the start of the project (i.e. 2020: \$5k; 2021: \$0k; 2022: \$0k; 2023: \$7k; 2024: \$10k)

The IGCP Scientific Board would like to be informed how 2024 IGCP funds were used, please provide financial statement as an attached file and not in this document. *(please provide Form III as attachment file).*

9. What additional funding besides the IGCP seed funding has the project obtained due to the IGCP label? Please estimate the budget received for meetings, research or other activities and identify the source. Indicate total additional funding has been obtained since the start of the project.

Additional funding this year came from INQUA (grants for other students members to attend PATA days) and from the following institutions to organize the II Training School

Fundacion Williams	1700 € (covering J. García Mayordomo stay and the rent of the bus for the field trip)
Universidad Nacional de Cuyo	human resources and 100€ fuel for the field trip
Instituto Argentino de Nivologia, Glaciologia y Cs Ambientales (IANIGLA)	Near 1500 € hall for the meeting, multimedia, video-editing and youtube channel where lectures will be uploaded
Consejo de Profesionales Ingenieros y Geologos (COPIG)	Advertising, fuel (10 €)
Universitat de Barcelona (Spain)	Near 1500 € (covering the flight ticket of O. Gómez-Novell)

For the next year 2025, the IGME-CSIC Geological Survey- Scientific Council, recently approved to support an Argentinian-Peruvian-Spanish collaboration in the frame of OLLIN project. The initiative, led by Julián García Mayordomo (IGCP 669 secretary) will be 2 years long and will have a financial support of almost 30,000 euros.

10. Did all project leaders and participants inform their respective IGCP/IUGS National Committees?

Mentioned in point 3.7

11. Attach any information you may consider relevant

Attachments *(check the box if document is attached or included)*

Financial statement-Form III To be delivered in the following days

Meeting report(s)-Form IV To be delivered in the following days

X Participant list/Publication list

X Program for the II Training School in Argentina