
DELIVERABLE

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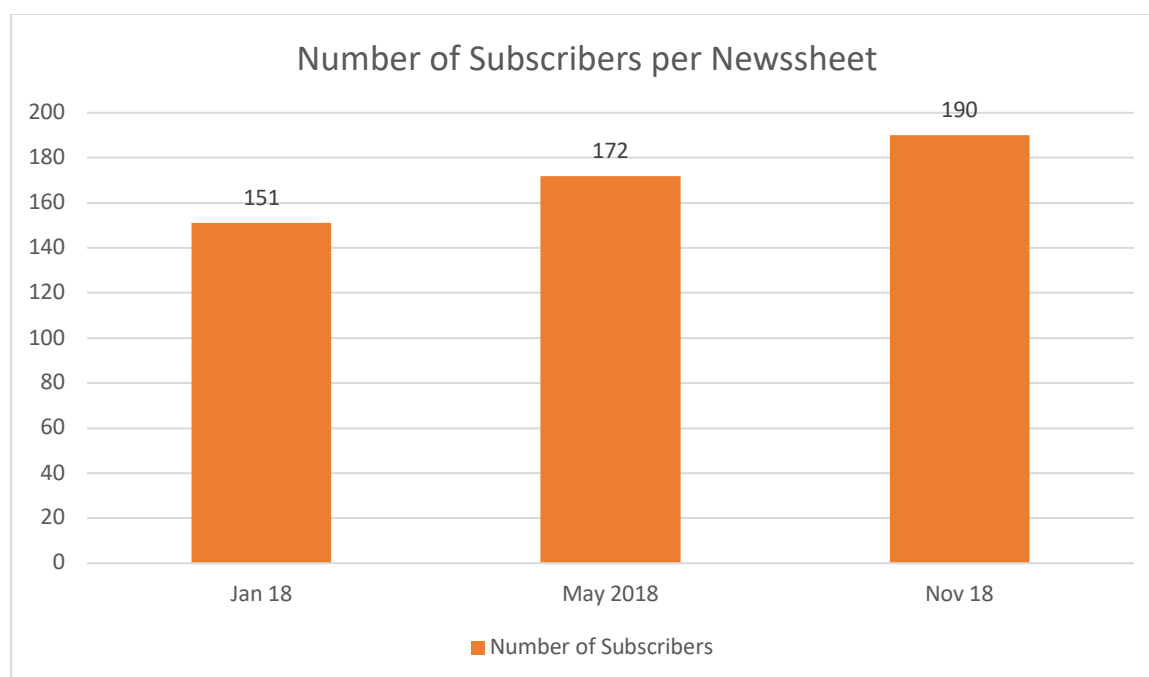
Introduction

SERA mails an external newsletter twice a year via the email marketing service MailChimp to its members, stakeholders and other interested parties. This is an efficient way to update the extended SERA community and provide them with the opportunity to share their experience within SERA. A continuous number of openings (available on MailChimp) proves the importance and effectiveness of this communication tool. Until this day, three external newsheet have been released and the next newsheet is planned for May 2019.

1 Coverage and Reach of External Newsheets

The email marketing service MailChimp allows tracking the mailing list changes. As the following table shows, the number of subscribers to the external newsheet is increasing (as of 30 November 2018: 190).

NUMBER OF SUBSCRIBERS	
SERA NEWSHEET #1	151
SERA NEWSHEET #2	172
SERA NEWSHEET #3	190



2 Appendix: Published External Newsheets

The appendix contains all external newsheets that have been published so far (as of 30 November 2018).

	DATE
SERA NEWSHEET #1	23 January 2018
SERA NEWSHEET #2	09 May 2018
SERA NEWSHEET #3	30 November 2018

Contact

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Newsheet #1

SERA stands for “Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe” and aims to reduce the risk posed by natural and anthropogenic earthquakes. To that aim, this EU project will significantly improve the access to data, services and research infrastructures for scientists and other professionals. Since its start in May 2017, SERA has already made some achievements including a workshop on seismology for teachers, first access to test facilities, or the successful launch of its project website. Learn more about these activities in our first SERA newsheet. Further updates, highlights and upcoming events will be reported bi-annually.

We hope, you enjoy reading this newsheet!



Twitter



Website



Email

Highlights

SERA kick-off meeting

The SERA kick-off meeting took place from 31 May to 1 June 2017 at ETH Zurich. The aim of the meeting was that project participants get an insight to all work packages and understand the big picture of SERA. During the social dinner on lake Zurich the participants had the chance to get to know each other on a personal level - an important aspect to make future cooperation successful.



Website and twitter account

Would you like to learn more about SERA? Then have a look at our [website](#). Besides general information on the project such as work packages, tasks and involved partners, the website provides insights on current progresses and events. In addition, we introduced a twitter profile [@sera_research](#) to distribute latest news. Become part of the SERA community by following us.

Site visit to Grimsel rock laboratory

During the meeting of SERA work package WP23/JRA1 on 18 and 19 January, ten people from Germany, Switzerland, France, Italy and Poland gathered in the snowy Swiss mountains. On the first day, they visited the [Grimsel rock laboratory](#), which is located 1730 metres above sea-level in the granitic formations of the Aar Massif 450 metres deep in the rock. The JRA1 group eyed especially on the "in-situ stimulation and circulation (ISC)" experiment since its dataset could be used as one of the validation cases for the JRA1 work package.



[Read more](#)

Interview

Transnational access projects on track



An important mission of SERA is to facilitate access to [ten high-class experimental facilities](#) in Europe. Out of 37 proposals, the TA-SEP (Transnational selection and evaluation panel) selected last October [17 promising research projects](#) within the first call and granted them access to the facilities. Igor Lanese talked with us about the selection procedure.

Which were the three main criteria for the selection?

Scientific value and innovation of the proposals were the most important

selection criteria, together with the importance for European competitiveness. Besides, technical and economical compatibility with the selected research infrastructure's available resources were critical aspects for the decision.

Where are the selected research teams from?

Overall, the involved researchers come from 18 different nations. The most represented are Italy, Switzerland and Portugal ([see detailed graphics](#)).

When will the experiments start?

The first access to NORSAR data centre has already been provided. For all other research infrastructures, the preliminary phase which includes the specimen and test setup design, material supply, specimen construction, instrumentation layout design, etc. is currently implemented. This phase generally requires few months, therefore, the first tests should start between March and June 2018.

What is the overarching goal of the experiments?

The accepted projects cover a wide range of key aspects related to structural safety. The research will encompass geotechnical aspects with soil-structure interaction and liquefaction, existing structures with limited seismic design provisions as well as innovative structural systems, with focus both at component (e.g. steel connections, coupling beams) and whole structure level, to enhanced seismic isolation and retrofit solutions. Further, the experiments aim at implementing innovative testing techniques such as geographically-distributed hybrid simulation for seismic and fire testing.

What contributions do you expect for the seismology and earthquake engineering community?

Given the heterogeneity of the selected projects and the research infrastructures peculiarities, we expect a wide range of contributions to the earthquake engineering and engineering seismology scientific community: The research will improve the knowledge and the safety of new, existing and retrofitted structures, through the investigation of specific structural aspects (e.g. components of shear resistance of coupling beams, soil-structure interaction) as well as the global response to different kind of actions (seismic, fire). The role of non-structural elements gained more and more importance in the last years, and it will be duly considered in the research. Furthermore, EE and ES communities will profit from the revision and improvements of Eurocodes, design guidelines and novel design methods based on the experimental campaigns results. Novel testing techniques will be implemented and validated, giving access to the scientific community to new powerful and cost-effective tools for structural assessment. Finally, all TA users will significantly benefit from the collaboration with highly-specialized first-class research infrastructures, bringing new skills and knowledge to their own institutions and to the whole scientific community through conferences, workshops, and so on.

The second call for proposals runs from 5 January to 4 March 2018. More information on the [SERA website](#) and [sera-ta.eucentre.it](#).

A glimpse into...

...the teachers' workshop in Bucharest

For three days in the beginning of November, more than 200 teachers mainly from Romania but also from Moldavia and Ukraine gathered for the first SERA teachers' workshop in Bucharest. The teachers learned how they can bring pupils in touch with complex scientific concepts. The core of the workshop comprised of four interactive, hands-on sessions: "Basics in seismology", "Introducing and demonstrating earthquake engineering to schools", "Mars@School and Insight mission" and "Citizen seismology in education".



The teachers workshop was a collaboration between SCIENTIX and members of work package 3. The aim of this work package is to connect SERA partners that are already leading seismo@school initiatives and supporting them in sharing best practices. Seismo@school programmes using observational seismology as an educational tool in schools and non-formal educational settings like museums are effective methods to increase people's understanding of earthquake hazards and risk.

[Click here for more impressions](#)

...a wish list of hazard products

SERA deliverable D25.1 summarises the main anthropogenic and natural hazard outputs that are required by European structural engineers and risk modellers. The engineering community requirements are mainly defined by the needs of the ongoing revisions to Eurocode 8, whereas the risk modelling needs have been identified by participants of the SERA work-package JRA4 (Risk Modelling Framework for Europe).

...standard classification schemes for Europe



SERA deliverable D26.1 describes the common classification scheme (i.e. taxonomy) that will be used within the European risk framework being developed within SERA for buildings and other elements at risk - with a focus

on the main components of industrial facilities, i.e. pipelines and storage tanks. By using a single classification scheme, it is possible to ensure that fragility/vulnerability models for specific elements at risk are compatible with the exposure models that may be developed by different parts of the engineering community. The building taxonomy is based on an international standard, i.e. the GEM Building Taxonomy, whereas a new taxonomy for pipelines and storage tanks has been developed based on the experience gained in previous European projects [SYNER-G](#), [STREST](#) and [INDUSE-2-SAFETY](#).

Outlook and events

April 25-26, 2018 Bucharest, Romania
SERA annual meeting
In collaboration with INFP, Bucharest.

Jan 5 - March 4, 2018
Transnational access call for proposals
Information are on www.sera-eu.org and sera-ta.eucentre.it.

May 21-22, 2018 Tokyo, Japan
[5th International Conference on Steel and Concrete Structures](#)

April 08-12, 2018, Vienna (Austria)
[EPOS @ the EGU 2018 General Assembly](#)

June 21-22, 2018, Paris (France)
[International Conference on Civil & Structural Engineering](#)

The next external newsheet will be released in June 2018.

We always welcome feedback and suggestions - send them to the SERA communication team (stephanie.schnydrig@sed.ethz.ch or michele.marti@sed.ethz.ch).

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Newsheet #2

SERA already celebrated its first birthday last month! On this occasion, the consortium met in Bucharest for its scientific annual meeting. The partners reviewed the current status of the project, presented achievements, and discussed upcoming issues. Get a sneak peak into this event and many more project highlights in this newsletter - enjoy reading!



Twitter



Website



Email

Highlights

Scientific annual meeting in Bucharest

From 25 to 26 April 2018, the SERA community met for its first scientific annual meeting in Bucharest. Around 70 project participants took part and presented the status-quo, results and upcoming work for their tasks and work packages. Following the contributions of all SERA participants, the SERA Scientific Advisory Board described its impressions of the tasks accomplished in the first twelve months of the project. Based on those, its members will elaborate a set of recommendations for the attention of the general assembly. In addition, the SERA management board held its third meeting to discuss amongst others, details of the data management plan or measures to ensure a successful outcome of transnational access experiments. Framing the main meeting, numerous work packages took the opportunity to get together in smaller groups and to deepen discussions on specific topics.

Of course, there was also time allocated for informal exchange: Be it at the social dinner in the old town of Bucharest, or during the tour to INFP, which the local SERA team offered.



Find this article also on our website

First results published

The first publications in the framework of SERA are published. The study called "[A Python Library for Teaching Computation to Seismology Students](#)" (Aiken et al., 2018) is one of the most downloaded studies with more than 1'000 downloads until today.

Another study (in press) "[Impact of magnitude selection on aleatory variability associated with Ground-Motion Prediction Equations: Part I- Local, energy, and moment magnitude calibration and stress drop variability in central Italy](#)" will be published in the Bulletin of the Seismological Society of America.

There will be a third and last call for proposals. Dates and deadlines will follow soon on the [SERA website](#) and on sera-ta.eucentre.it.

Interview

Towards a reference earthquake hazard model for Europe



The 2013 European Seismic Hazard Model (ESHM13) was built upon harmonized datasets and state of the art procedures without country border limitations. A goal of the joint research activities within the WP25 is to update and extent this model until 2020 to the so-called ESHM20. WP25 leader Laurentiu Danciu from ETH Zurich is giving an insight in this SERA subproject.

Why does one want to harmonize the seismic hazard models in Europe?

For various reasons. But one that comes always first, is the need to overcome the cross-border limitations of the earthquake related datasets (i.e. earthquake catalogues, active faulting, ground motion models). Earthquakes do not follow borders. Needless to say, that an earthquake occurring at the border between two countries, will have its effects crossing the political borders. Furthermore, the harmonization means also to bring together the scientific and engineering community as well as the local or national experts to homogenize the state-of-practice in seismic hazard and risk assessment.

How will ESHM20 look like?

The ESHM20 will follow the same principles as ESHM13, with state-of-the art procedures homogeneously applied for the entire pan-European region. These updates of ESHM13 will include up-to-date instrumental earthquake catalogues, refinements of local magnitude definition and calibration scales, reassessment of historical seismicity, and calibration of ground shaking models with new earthquake recordings. Priority will be given to inherent uncertainties of data, models, and their propagation in the seismic hazard assessment. The ESHM20 will reflect not only the up-to-date datasets but also the state of the art with respect to analyses methods. To this aim, we will collaborate with other joint research activities within SERA.

What is key when harmonizing models across borders?

Coordinated activities between scientific and engineering communities as well as with stakeholders are essential for the success and acceptance of the updated ESHM. Recently, a meeting was facilitated by the Joint Research Centre (JRC) in Ispra, Italy. The meeting brought together more than 30 experts from whole Europe, representing the SERA working group, [CEN/TC 250/SC 8](#) as main stakeholders of the seismic hazard model, various experts from JRC as well as the representatives of the member states. It is crucial that all involved parties commit to enhance collaboration and achieve further harmonization.

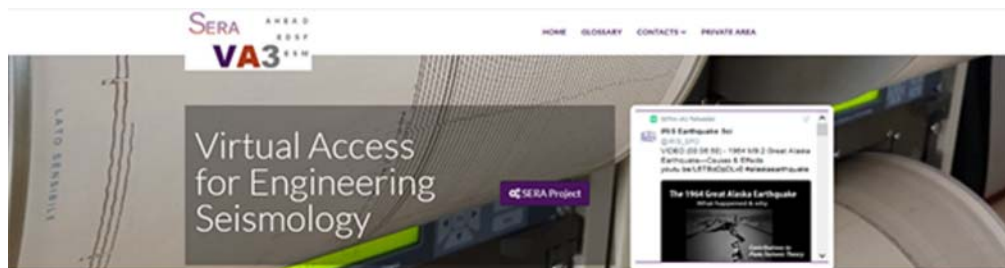
What are the next steps to be taken?

We will start again from the national models, re-evaluate the new models for every country in Europe, understand the differences and reconcile them. The updating process has already started, with catalogue compilations (earthquake catalogues, active faults) across the entire Euro-Mediterranean region. Four regional workshops to present, discuss and review the key elements of the ESHM20 are yet to be organized, starting by the end of this year.

A glimpse into...

...the virtual access portal for engineering seismology

The SERA WP20/VA3 has recently outlined a [web portal to access data and services for engineering seismology](#). It facilitates the access to the European Strong Motion Database (ESM), the European Archive of Historical Earthquake Data (AHEAD), and the European Database of Seismogenic Faults (EDSF). The portal's aim is to coordinate the currently separated and intrinsically diverse services. In future, it is planned to extend the functionalities of the existing services and provide interactions among the three data sources.



SERA project WP 20 - Access to data and services for engineering seismology (VA3)

The access to data and services for engineering seismology includes the European Strong Motion Database (ESM), European Archive of Historical Earthquake Data (AHEAD) and the European Database of Seismogenic Faults (EDSF). This work package will strengthen and coordinate its current databases and services, develop services to provide optimized access to data and tools for the seismological and the engineering seismology communities. The plan is also to extend the functionalities of the existing services and to provide experimental, integrated services that enable the interaction among the three data sources.



[Click here to visit the portal](#)

...our brand-new flyers



We are happy to announce two flyers: the official project flyer provides practical information about the project's goals, work packages and partners - you can download it [here](#).

Furthermore, there is a brochure specifying each of the ten research infrastructures to which SERA offers transnational access - have a look at it by clicking [here](#).

Outlook and events

17 - 22 June 2018, Cracow (Poland)

[Seismix 2018](#) with a deep seismic sounding workshop held by WP5

10 July 2018, Guimarães (Portugal)

Teachers workshop with WP3

2 - 7 September 2018, Valetta (Malta)

36th General Assembly of the European Seismological Commission, with a SERA session dedicated to earthquake early warning. [More information](#)

September 2018, Cracow (Poland) *

JRA1/JRA2 workshop

November 2018, Potsdam (Germany) *

JRA2 workshop

2 - 8 November 2018*

WP7 Community workshop

* Detailed information will follow on the website.

The next external newsheet will be released in November 2018.

We always appreciate feedback and suggestions - please send them to the SERA communication team (stephanie.schnydrig@sed.ethz.ch or michele.marti@sed.ethz.ch).

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Newsheet #3

November 2018 marks 18 months since SERA started and, as project manager Kauzar Saleh Contell says, it is "ready to thrive"! The past one and a half years were a great demonstration of how collaboration and support in the scientific community leads to a extensive array of smaller and greater achievements. In this newsletter, the project manager tells us more about how she experienced the first half of the SERA project, members of the SERA community describe the project's scope and the first fact sheet series is introduced. Additionally, an overview of research projects that were accepted in the last two TA calls for proposals is presented and you will learn more about the very successful teachers' workshop in Portugal with more than 900 participants.



Twitter



Website



Email

Interview



SERA half-time interview with Kauzar Saleh

November 2018 marks 18 months since SERA has started. This also means the project's halftime has now passed which offers an excellent opportunity to look at what has already been achieved and what is still to come. Dr. Kauzar Saleh Contell, SERA project manager, on past and future plans and what excites her about SERA.

Can you describe the past 18 months of SERA in three words?

Ready to thrive!

What was your personal highlight during the first half of SERA?

Working with an advanced community means that people already know what they have to do, so I am glad that all the project implementation tools that we developed fitted reasonably well with the expectations of project participants.

Even when you don't hear much from partners and you wonder if steps were unclear, suddenly everyone starts delivering and people are very collaborative. So I would highlight the nice collaboration environment, and being able to interact with people almost individually, despite being so numerous and working far apart.

What can we expect from the second half of the project?

Next year we will see many of the SERA results materialising. Just to give an idea, during the first half of the project 30 deliverables were completed, and another 70 will come in the second half. For instance many of the Transnational Access experiments now selected will be completed in the next 18 months, so the second Science Meeting in May 2019 will be a very interesting one, as all WPs will have a lot to show. A few days later the EC will conduct an external project review, this is relevant for SERA itself but also for future projects to come.

What makes SERA special to you?

SERA is a great example of how research tools can be designed to support a whole research cycle, from supporting individual teams (an example is Transnational Access in SERA), then helping teams develop collaborations and starting to function as a research community (Networking Activities, also Joint Research Activities), and finally supporting the coordinated distribution of research data to potentially open new scientific and technological questions by reaching a wide range of users (Virtual Access). These are all valid activities on their own, but I believe that linking people and strategies makes a lot of sense, as this is also necessary to support the sustainability of a research domain. Other than that, I find that Seismology and Geosciences in general are beautiful disciplines with a lot of scientific work to conduct, but also strong links to culture, people and with the capacity to influence society; two examples here are the contribution of SERA to the update of the construction code in Europe for 2020, and to the first pan-European Solid Earth organisation, EPOS, established less than a month ago, to which SERA participates with the validation of implemented services and the creation of new ones.



SERA in a nutshell

In case you missed it in on your Twitter feed: This is how members of the SERA community define the scope of the project. The quotes were collected at the Annual Meeting in Bucharest, Romania, that took place from 25 to 26 April 2018.

"Our aim is to produce an integrated assessment of seismic risk across all countries in Europe and share the outcome models and results through online platforms, available to everyone"

Helen Crowley from Eucentre

"We aim to bring together seismologists working in the fields of educational seismology, citizen seismology and geoethics - the common theme being the process of communicating the science of seismology to non-specialists"

Paul Denton from the British Geological Service

"A highlight of SERA: it opens the 10 most advanced European research infrastructures for earthquake engineering, integrated studies on geotechnical site effects, engineering seismology *and array seismology to talented research groups*"

Alberto Pavese from Eucentre

"There is no fully organized European structure for ensuring that deep seismic sounding data is preserved for future use. Thus, our objective is to investigate

an appropriate model for integrating *DSS data into the EPOS framework.*"
Monika Ivandic on behalf of WP5



Highlights



First fact sheet series published

In our fact sheet series, we address key questions SERA is challenged with and present preliminary results.

The following questions are covered in the first issue:

Why is it important to know the seismic hazard? Realistic seismic hazard assessment is essential to base seismic building codes on. It requires good knowledge of historical and recent seismicity and the neotectonic regime, namely the seismically active or seismogenic faults. [Read more](#)

What is seismic risk? In the most recent national risk assessments prepared by the countries participating in the Union Civil Protection Mechanism, earthquakes are the fourth most common hazard assessed after flooding, extreme weather and forest fires. Disaster risk comprises three elements: hazard, exposure and vulnerability. Hazard is the dangerous phenomena, being

the source of potential harm. Exposure refers to people, property, systems or other elements present in hazard-prone areas. Vulnerability represents the susceptibility of an element at risk of being adversely affected by natural phenomena. [Read more](#)

What happens to buildings in case of an earthquake? The same seismic excitation affects buildings differently; for example, tall buildings tend to amplify the motions of longer period earthquake excitation components. Although concrete and masonry buildings are stiffer than their counterparts made of steel, they cannot be considered as rigid bodies – had that been so, each point on it would move in the same amount as the ground. Concrete and masonry buildings indeed deform, displace and rotate due to their flexibility. Their behavior depends mainly on the fundamental period of vibration (function of the stiffness of the structural system, its mass, and its total height). [Read more](#)

How does the testing of a building on a shake table work? In order to study the effects of earthquake actions on a structure, performing shake table tests is the most realistic research approach. This article describes how the testing of a building structure on a shake table is performed and which are the outcomes and benefits of this type of experimental test. A shake table system is composed of several components, comprising mainly the hydraulic pumping system, servo-valve controlled actuators, the shake table platform, and the digital control system. [Read more](#)

The fact sheet is available [online](#) on our website or as a [PDF](#).



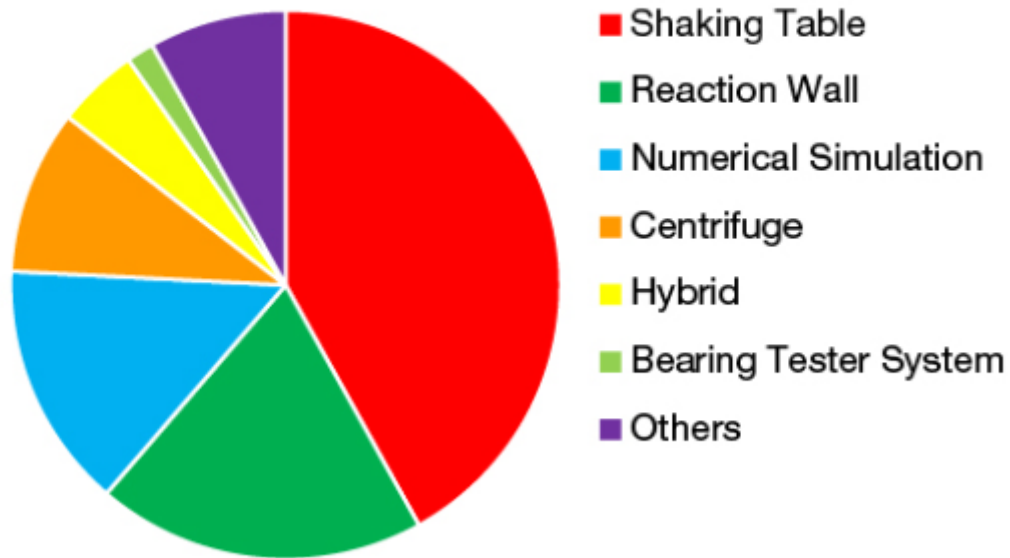
SERA TA provided access for 33 projects

The Transnational Access activities (TA1-10) offer a combined and integrated access to the largest collection of high-class experimental facilities for earthquake engineering in Europe – and worldwide – including reaction walls, shake tables, bearing testing facilities and centrifuges, to two facilities for integrated studies on geotechnical site effects and engineering seismology, and to a unique infrastructure in Europe for array seismology.

So far, two SERA TA calls have been evaluated and a total of 33 research projects have been selected, with a third call being in the selection process at the moment. Of those 33 projects, over 50 % are using shaking tables and reaction walls in their tests. Reinforced concrete, steel and masonry are among the most analysed types of specimen. The largest user group comes from Italy, followed by Portugal and Greece.

Find more detailed information about each of the 33 projects on the [SERA TA website](#).

TESTING TECHNIQUE - 1ST AND 2ND CALL



A glimpse into...

Teachers' workshop in Portugal



In the framework of SERA, the Instituto Dom Luiz (Portugal) organized in collaboration with the Instituto Superior Técnico (Portugal) and the external partners of the WP1 "Seismology@School" an event that took place from 9 to 11 July 2018. It focused on demonstrating how seismology and seismic engineering can provide tools and examples for educational activities.

The event brings together Portuguese and Brazilian teachers from STEM fields (science, technology, engineering and math). Six SERA workshops were organized as part of the annual meeting at Casa das Ciências in Guimarães. Most of the teachers attending came from a high school with students between 14 and 18 years old. This year was very successful as over 900 teachers attended the 3-day event.

The main goal of this conference is to allow teachers to gain new ideas, concepts, projects, and activities to enrich their lectures. The keynote presentations and workshops are for the most part provided by professional researchers.



Updated Data Regulations According to GDPR

We hope you are enjoying receiving and reading the SERA newsletter! To comply with the updated data regulations in the EU (GDPR), we need to remind you that we are using MailChimp to compile our newsletter. With your subscription, you agreed to the [privacy_policy](#) and [terms](#) of MailChimp. No worries if you have changed your mind in the meantime, you can easily unsubscribe by clicking on the respective link at the end of this newsletter or by sending an email to sera_office@erdw.ethz.ch. No further action is needed if you would like to continue to be informed about SERA activities, results, and highlights. To comply with the GDPR in the future, we have activated a double-opt-in process. Interested readers receive after their initial sign-up a message asking again for their permission and their acknowledgement of the privacy policies of MailChimp

Outlook and events

AGU Fall Meeting 2018

10 - 14 December 2018

Washington DC, USA

[Find out more](#)

EGU General Assembly 2019

7 - 12 April 2019

Vienna, Austria

[Find out more](#)

GeoTHERM - expo & congress

14 - 15 February 2019

Offenburg, Germany

[Find out more](#)

Second Annual Science Meeting

Week of May 13th, 2019

Location to be announced soon

Energy geostructures: analysis and design

6 - 8 March 2019

Lausanne, Switzerland

[Find out more](#)

The next external newsheet will be released in May 2019.

We welcome always feedback and suggestions - send them to the SERA communication team (janine.aeberhard@sed.ethz.ch or michele.marti@sed.ethz.ch).

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