BSSA Call for Papers

**Earthquakes in Slowly Deforming Mountain Belts: The 2023 Moroccan High Atlas Earthquake and the 2023 western Afghanistan Mw 6.3 earthquake quadruplet**

The *Bulletin of the Seismological Society of America (BSSA)*is soliciting papers for a Special Issue on earthquakes in slowly deforming mountain belts, with a focus on the 2023 Moroccan High Atlas earthquake and the 2023 western Afghanistan earthquake quadruplet.

The Mw 6.8 High Atlas, Morocco, earthquake occurred on 8 September 2023 (UTC 22:10) at a depth of ≥10 km and was followed by an aftershock sequence including an Mw 4.9 the same day. This is the largest recorded instrumental earthquake to have affected Morocco and the most damaging one since the 1960 Agadir earthquake (Mw 5.9). The earthquake caused widespread damage and devastation to villages, towns, and infrastructure in the mountainous region of the High Atlas, claiming ~3000 lives and affecting ~2.8 million people in the wider area south-west of Marrakesh.

Only one month later, a devastating quadruplet of four Mw 6.3 earthquakes (and several Mw > 5 aftershocks) occurred in western Afghanistan (07-15 October 2023) that killed thousands of people and destroyed villages and towns near the city of Herat, a provincial capital in western Afghanistan. In the recent past, the immediate region of these earthquakes has been relatively quiet seismically, however, sporadic seismicity in the wider area indicates current tectonic deformation.

Earthquakes like the recent earthquakes in Morocco and Afghanistan are painful reminders of the seismic hazard that exists even in slowly deforming mountain belts away from major plate boundaries. Slow deformation rates may translate to infrequent earthquake occurrence, which often lead to limited hazard preparation and mitigation strategies, aggravated due to poor construction style. In this Special Issue, *BSSA* aims to focus on the seismological work being undertaken in these regions, particularly by local researchers and institutions, and to raise global awareness of seismic hazard and risk arising from local traditional construction practices in remote rural mountain regions.

We solicit contributions from all fields of earthquake science, earthquake engineering, but also social sciences, to shed light on seismic hazard assessment and risk mitigation in regions like the High Atlas or similar tectonic environment. The seismotectonic context, remote-sensing imagery and field investigations suggests that the 8 September 2023 mainshock in Morocco was a blind thrust rupture. Hypocentral locations of the Afghanistan earthquakes indicate an eastward migration of the sequence. These earthquakes also raise numerous questions related to geodynamics, seismotectonics, strain partitioning, distributed faulting and earthquake triggering, seismic source characteristics, near- and far-field ground motions, near-field damage, rockfall distributions, and seismic hazard of slowly deforming mountain belts.

*BSSA* welcomes contributions to the Special Issue that focus on these and other scientific aspects of these earthquakes.

**Guest Editors for this Special Issue:**

* Sarah Boulton, School of Geography, Earth and Environmental Sciences, University of Plymouth, UK ([sarah.boulton@plymouth.ac.uk](mailto:sarah.boulton@plymouth.ac.uk))
* Eric J. Fielding, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, USA ([eric.j.fielding@jpl.nasa.gov](mailto:eric.j.fielding@jpl.nasa.gov))
* Fida Medina, Commission of Natural Hazards, Moroccan Association of Geosciences ([f\_medina@geoscimar.org](mailto:f_medina@geoscimar.org)).
* Mustapha Meghraoui, EOST – Institut Terre et Environnement de Strasbourg, Université de Strasbourg ([m.meghraoui@unistra.fr](mailto:m.meghraoui@unistra.fr))
* Youssef Timoulali , National Institute of Geophysics – Centre National pour la Recherche Scientifique et Technique (ING- CNRST) ([timoulali@cnrst.ma](mailto:timoulali@cnrst.ma); [ytimoulali@gmail.com](mailto:ytimoulali@gmail.com))

**Deadline for Submission: 31 May 2024**

Articles accepted to this *BSSA* Special Issue will be published online soon after acceptance and collectively in print in the December 2024 issue. **Papers will be reviewed as they are received and published online prior to the print issue.**

In preparing manuscripts, authors must follow the *BSSA* author guidelines at <https://www.seismosoc.org/publications/bssa-submission-guidelines/>.

Papers must be submitted via the *BSSA* online submission system ([www.edmgr.com/bssa](https://www.seismosoc.org/publications/calls-papers/bssa-call-for-papers-5-5/www.edmgr.com/bssa)) under the category “Earthquakes in Slowly Deforming Mountain Belts.”

**Please address questions about scientific issues to the guest editors or *BSSA* Editor-in-Chief P. Martin Mai at bssaeditor@seismosoc.org.  Submission-related questions should be addressed to the *BSSA* Editorial Office at**[**bssamss@seismosoc.org**](mailto:bssamss@seismosoc.org)**.**

**Interview with *BSSA* Editor-in-Chief P. Martin Mai**

**Why was it important to create this special issue?**

After the initial news of the Morocco earthquake, it became clear that this event would soon be forgotten, and if forgotten, nothing could change in the local activities and approach to earthquake resiliency. It’s important that we try to raise awareness in countries that do not often experience earthquakes, because when they do, they are often very damaging and have a high death toll.

It can be important to have key papers about an earthquake event collected in one place, especially if we include papers that would not normally be published in a journal with a focus on earthquake science. When engineers or geologists publish about these events separately in other journals, they may not reach the audience of earthquake scientists who benefit from their work. A *BSSA* Special Issue helps to close this loop and build more research collaborations and scientific networks within the global community.

**What are some of the interesting scientific questions about these earthquakes?**

In Morocco and Afghanistan, the earthquakes took place in mountainous regions far away from plate boundaries—a few hundred kilometers—so the deformation rates on these faults are low. These faults therefore do not produce (large) earthquakes often, but they still accumulate stress over long periods of time. When such faults break, the consequences can be fatal—because there was so little seismicity in the preceding decades or even centuries, the local population may not be prepared.

The Afghanistan sequence was unusual because it had four earthquakes, almost the same size within a few days. That is of interest to scientists who want to understand the causes and consequences of such earthquake behavior, and whether there are other places on the globe where similar events can happen, too.

**What kinds of manuscripts would you like to see submitted for the special issue?**

We are looking for papers across a broad range of disciplines, including reconnaissance and observational papers by the initial teams on the ground. It would be great if papers are submitted on the local and regional geology or seismotectonics as well as general studies on the topic, because these earthquakes illustrate that we need to know more about earthquakes in slowly deforming mountain belts. It may be that local experts have published on these topics, but in journals that the larger community is not aware of. We hope to motivate these scientists to contribute to this Special Issue.

It would also be good to receive manuscripts on the engineering and social science side, to learn more about how people build and how the populations dwell in these areas, and how this might have contributed to the large numbers of fatalities in remote areas with small villages.

**What is *BSSA* doing to help local researchers contribute to the special issue?**

We know that researchers in both regions are focused on rebuilding their lives and ensuring the safety of their families and colleagues, first and foremost. For this reason, we allow submissions for a period of seven months, longer than usual,  for the special issue. We think it is important to accommodate the needs of the local scientists on the ground in Morocco and Afghanistan to be able to piece together their stories.

Authors with financial hardships may explore help with publication fees through [our waiver program](https://www.seismosoc.org/publications/journal-publication-charges/).

SSA has also partnered with American Journal Experts, Inc. (AJE) to provide English language editing for our authors at a discounted rate. Authors can receive a 20% discount on AJE’s services by visiting their [website](http://secure.aje.com/c/SSA1) and registering for an account. The discount will be automatically applied when using this link.