The launch of Seismica: a seismic shift in publishing

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Abstract Seismica, a community-run Diamond Open Access (OA) journal for seismology and earthquake science, opened for submissions in July 2022. We created Seismica to support a shift to OA publishing while pushing back against the extreme rise in the cost of OA author processing charges, and the inequities this is compounding. Seismica is run by an all-volunteer Board of 47 researchers who fulfill traditional editorial roles as well as forming functional teams to address the needs for technical design and support, copy editing, media and branding that would otherwise be covered by paid staff at a for-profit journal. We are supported by the McGill University Library (Québec, Canada), who host our website and provide several other services, so that Seismica does not have any income or financial expenditures. We report the process of developing the journal and explain how and why we made some of the major policy choices. We describe the organizational structure of the journal, and discuss future plans and challenges for the continued success and longevity of Seismica.

Résumé Seismica, une revue d’ouverture libre (OA) pour la sismologie et la science de l’earthquake, ouverte pour les contributions en juillet 2022. Nous avons créé Seismica pour soutenir la publication en OA, tout en déjouant l’augmentation des frais de publication en OA à charge des auteurs, et les inégalités que cette augmentation crée. Seismica est dirigée par un comité composé de 47 chercheurs et chercheuses bénévoles qui remplissent des rôles éditoriaux traditionnels. Réparti sur les équipes fonctionnelles, le comité répond aussi aux besoins techniques ou d’accompagnement, par exemple en relecture, mise en forme, et stratégies de communication; des besoins qui seraient, dans un journal à but lucratif, couverts par du personnel rémunéré. Nous sommes soutenus financièrement par la Bibliothèque de l’Université McGill (Québec, Canada), qui héberge notre site Web et fournit plusieurs services de publication: Seismica n’a ni revenu, ni dépense financière. Ici, nous présentons l’élaboration de la revue et expliquons certains choix pratiques. Nous décrivons l’organisation de la revue et discutons des plans et des défis futurs pour le succès et la longévité de Seismica.

Resumen Seismica, una revista científica de sismología y ciencia de eventos sísmicos de acceso libre (OA) vía diamante y gestionada por la comunidad, abrió convocatoria de publicaciones en julio de 2022. Creamos Seismica para promover el cambio a publicaciones de acceso libre (OA) y a la vez resistir el pronunciado aumento en los costos editoriales y de publicación – conocidos como APC (Article Processing Charges) – de los artículos de acceso libre y las desigualdades a las que conllevan. Seismica es gestionada por un comité editorial de voluntarios, conformado por 47 investigadores, que desempeñan puestos editoriales tradicionales y que a la vez forman equipos funcionales que atienden las necesidades de diseño técnico y soporte, edición, medios de comunicación e imagen; que de otra manera serían cubiertas por personal pagado en una revista con fines de lucro. Contamos con el apoyo de la biblioteca de la universidad de McGill (Québec, Canadá), que auspicia nuestro sitio web y nos brinda otros servicios, permitiendo que Seismica no reciba ingresos o conlleve gastos de operación. Reportamos el proceso de desarrollo de la revista, y explicamos el cómo y el porqué de nuestras principales políticas editoriales. Describimos nuestra estructura organizacional y discutimos los planes de desarrollo y desafíos para asegurar el éxito continuo y la longevidad de Seismica.
Seismica, a new Diamond Open Access (OA) journal designed by and for the earthquake science and seismology communities. We explain our motivations and process in designing and establishing the journal. We outline our aspirations for building additional programs around the journal for supporting author, reviewer, and editor skill development, author resources for communication outside the research community, and increasing equity, diversity and inclusion in all aspects of the publication process.

1 Introducing Seismica

Seismica is a Diamond Open Access (OA) academic journal for the broad disciplines of seismology and earthquake science, and related education and outreach. Diamond OA means that it is free to read and free to publish. We launched Seismica because of the inequities in the current publishing landscape, and the increasing costs of access to research for both authors and potential readers of scientific papers. The shift to OA requirements in many countries has exacerbated biases in access to publishing, compounded the problems with merit assessment and academic competition, and highlighted the fact that the costs for Gold/Hybrid OA (author-pays for open access) models are far in excess of the costs of publishing (Khoo, 2019; Björk, 2021). By returning control of the publishing process to the hands of the research community, we can address local and global inequities in access to research (Khanna et al., 2022). The opportunity to reimagine the publishing ecosystem for our community by developing a new journal with not-for-profit motives, which is designed by and for researchers, has inspired us to volunteer our time for Seismica.

Here, we report the context and our motivation for creating Seismica, describe the journal as it exists at the launch in 2022, and outline our aspirations for building a new kind of scientific community that will support equitable and inclusive global collaboration across our disciplines into the future.

1.1 Our Diamond Open Access (OA) publishing model

Diamond OA Journals are distinct from other OA publishing models in that there are no subscription fees for institutions or individuals, nor do authors pay to publish. While Diamond OA journals have always existed, there is a greater interest than ever before in encouraging and developing this model further (Ancion et al., 2022). Lange and Severson (2021) identified 485 Diamond OA journals operating without the support of a commercial publisher in Canada alone. This model of publishing is already very well established, although most of these journals are small-scale and 76% were in the fields of Social Sciences and Humanities. Khanna et al. (2022) found that Diamond OA journals published more scholarly works from the Global South, demon-

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1Grossmann and Brennls (2021) estimated that the actual cost of publishing an academic article averages about US$400, Siler and Frekien (2020) found that about a third of OA journals charge US$200 or less, the median is US$600, and that author charges increase with Journal Impact Factor. Journals publishing in seismology and earthquake science and related education and outreach typically charge ~ US$1500 to >US$11,000.
strating how Diamond OA expands the global reach and inclusivity of scientific research.

Traditionally, Science, Technology, Engineering and Mathematics (STEM) journals have been smaller players in the Diamond OA landscape (Lange and Severson, 2021; Bosman et al., 2021). STEM disciplines have taken different paths to OA publishing. Green OA involves posting preprint versions of articles (before submission or after acceptance) which is gaining popularity in the Earth Sciences (e.g., EarthArXiv, ESSOAr). However, the high value placed on peer review, fear of being ‘scooped’, and confusion surrounding preprint restrictions between different journals has prevented Green OA from fully serving the needs of the Earth Science community.

The field of Earth Science produces high-impact research that promises benefits to the public and society. Fulfilling this promise requires an open and inclusive publishing method to effectively communicate scientific results, such as new research on earthquake hazard and its implication for earthquake risk quantification and mitigation. Many professional organizations have produced longstanding publications prior to the consolidation of scholarly journals into a few large publishing companies, that were essentially Diamond OA before the classification existed in its own right (Shipp, 2000). This legacy of accessibility and knowledge sharing is continued by Seismica, joining a growing group of Diamond OA Journals in the Earth Sciences (e.g. Volcanica; Tektonika; The Sedimentary Record; Palaeontoligica Electronica; and several others in planning stages).

2 How Seismica began

In November 2020, Springer Nature announced a steep increase in article processing charges (APCs) for Gold OA of more than US$10,000 (Else, 2020). This announcement generated reactions among Earth Scientists on social media on a spectrum from amazement to outrage. Many highlighted that such fees were way beyond the means of most researchers. Some seismologists and earthquake scientists on Twitter noted that the Diamond OA journal Volcanica was already in its third year and had been successful, so proposed that something similar should be developed for our field (Figure 1).

From this collective momentum came action. A self-appointed task force of early- and mid-career seismologists, earthquake geologists and geodesists coalesced within days, and began to put together a road map to founding a new journal. This initiative benefited from the desire for positive action and community building that arose during the months of pandemic-related isolation. We created a discussion space in Slack (a free messaging application), open to anyone who was interested, where over 100 participants debated vigorously about journal scope, article types, open science, community-focused policies, improving representation, editorial structure, and journal branding (e.g., the journal name and logo). We invited Volcanica’s founders to speak with us and pass on their valuable insights. We explored possible institutional support and funding models to discover that several university libraries supported Diamond OA journals for free. We built a mailing list and surveyed our global community on who they were, what they wanted from a journal, and how they might help with it. We established an approach and philosophical basis for founding a new journal with a unique mission. The main findings of this initial task-force are reported by van den Ende et al. (2021).

With our road map in place, we formed an editorial selection committee, and openly invited applications for positions within Seismica. From the over 130 applications received by the September 2021 deadline, we appointed our Management Committee (comprising Executive Editors and Functional Team Chairs), Handling Editors and Functional Team Members. The organizational structure was designed with permeability between traditional editorial roles and the functional
teams that run the day-to-day operations of the journal (Figure 2), with individuals opting in or out of finite or open-ended functional roles.

Five task forces (Appendix A), raised from the appointed Board, undertook a 10-month journal building process to prepare Seismica for launch. The task forces were in near constant communication through the Management Committee to integrate our work as a coherent organization. We adapted our initial vision for the editorial structure as we realized the scope of some tasks, like Media & Branding, was larger than anticipated, and added members to certain task forces where required.

A major step toward ensuring Seismica’s future was signing a Memorandum of Agreement with the McGill University Library. Like many university libraries in Canada, McGill Library is equipped to support OA journals through the installation and maintenance of the open-source Open Journal Systems (OJS)7 platform from the Public Knowledge Project (PKP), as well as to train journal editors and guide new journals through customization of the OJS interface. McGill Library acquired an International Standard Serial Number (ISSN) for Seismica, assigns Digital Object Identifiers (DOIs) for all published content through CrossRef, and will also help Seismica to apply for inclusion in indices like Scopus and Web of Science. Critically, McGill Library takes on the cost of these services, through purchasing the services from relevant vendors and through in-kind contribution of the Library and IT staff time. If Seismica separates from McGill Library for any reason, both parties commit to give a six months notice, and Seismica would retain any archives previously hosted on the McGill Library servers. This agreement gives Seismica the stability to ensure that our articles will remain open and available for perpetuity. McGill University Library covers all of the necessary functions for publishing a peer-reviewed journal that would require funding to acquire; remaining functions are supported by the time and expertise of our volunteers.

3 Journal Design

3.1 Seismica’s Key Values

Through months of discussion, the character of our community became more distinct and we distilled some common values. These key values (Table 1) form the basis of Seismica’s policies, which are implemented as guidelines for authors, reviewers, and editors8. This section describes how some of the policies in place at the time of launch implement these values; these values will be cyclically reviewed through new policies described in Section 5.

To create an Accessible publishing venue, we designed a suite of peer-reviewed article types, including traditional research papers, but uniquely, we also offer a Report format designed for: fast publication (e.g., in the aftermath of a significant earthquake); instrument/field deployments; software; null results. We also encourage submission of reviews and opinion papers after consultation with the Editorial Board. Seismica recommends that our authors publish their articles under a Creative Commons CC-BY license9, and we provide support for authors to help them make an informed choice of CC license if CC-BY is not appropriate for their contribution.

We encourage authors to post preprints under the same license at any time from pre-submission up until acceptance (after which it would be redundant). We require authors to make data and code publicly downloadable (not “by request”). We also support the inclusion of multiple languages to encourage global readership within and beyond the research community.

To promote a Transparent scientific process, upon manuscript acceptance and publication, peer review reports and author replies are published alongside articles. Our manuscript template includes the Contributor Roles Taxonomy (CRediT)10 to promote recognition and acknowledgement of everyone who contributed to the work, and assist authors in making decisions about authorship.

Our Respectful journal design means that the promotion of equity, diversity and inclusion (EDI) must form a basis for policy decisions (described further in Section 3.2) and that the community must have a direct and decisive input on Seismica’s future development. For example, we discussed peer-review modes at length, with some Seismica Board members advocating for double-anonymous review due to its potential to reduce reviewer bias (e.g. Parks, 2020). Due to concerns about the capacity of authors and of OJS to truly anonymize manuscripts, and wanting not to create deterrents for potential submitting authors unaccustomed to double-anonymized reviews, we implemented a policy of publishing reviews. This and other policy choices will be re-examined in subsequent policy review cycles.

Seismica’s Credibility derives from informed and thorough editorial handling by knowledgeable researchers, and through trust in one another and in the organization. Our editorial board is designed to grow along with demand and rate of paper submission, to keep individual editors’ workloads lower, and ensure that each manuscript within Seismica’s broad scope is handled by someone with meaningful expertise. When Seismica receives a manuscript focused on a specific geographical area, editors will prioritize recruiting at least one reviewer from that area, with the help of author suggestions. This ensures a wider diversity of reviewers and increases the impact of the scientific work. All members of the Seismica community are bound by our Code of Conduct11 and competing interest policies12 which are updated regularly to reflect evolving understanding of best practices.

Progressive policies require reaching outside the research community to potential readers who may have an interest in participating or may benefit from publications in Seismica. Seismica publishes multiple language abstracts and are developing author support pro-

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7https://pkp.sfu.ca/ojs/
8https://seismica.org/policies
9https://creativecommons.org/licenses/by/2.0/
10https://credit.niso.org/
11https://seismica.org/code-of-conduct
12https://seismica.library.mcgill.ca/policies
3.2 An equitable, diverse, and inclusive journal

Equity, diversity, and inclusion (EDI) are intrinsic to our motivations in founding Seismica and the desire to address inequities in the scientific community is at the center of Seismica’s mission. Inequities are structurally engrained into the culture and practice of scientific research, but the last few years have seen a surge in its recognition and acknowledgement, along with some proposed solutions (e.g., Dutt, 2020; Ali et al., 2021; Liboiron, 2021; Pico et al., 2020). Seismica has ensured its key values align with many of these expert recommendations for institutional change in the academy.

A necessary step to understanding how Seismica can play a role in strengthening EDI, is to identify who Seis-
Seismica aims to promote innovation and creativity in academic publishing. We aim to capture more interested readers, professionals in geophysics or earthquake hazard/risk whose employment does not include a publishing mandate but who produce new scientific contributions through less-traditional formats such as field campaign reports, null results, and software articles, which may not be accepted at other journals. We will continue to innovate with or software, helping research to achieve its full potential.

Seismica publicly recognizes the volunteer labor of reviewers, editors, typesetters and contributors, along with the wide breadth of teamwork needed in research. We have a transparent review process by publishing reviews alongside research articles, as well as a list of authorship contributions. To address challenges with reproducibility in science, Seismica also promotes best practices in open data and software, helping research to achieve its full potential.

The scientific publishing ecosystem can sometimes produce discouraging language for researchers so Seismica will take a mindful approach. All parties must agree to our Code of Conduct, and do not tolerate disrespectful language. Seismica aims to combat reviewer fatigue by only sending papers out for review that meet our guidelines, which are made available to authors before submission. We will mentor reviewers, editors, and authors to achieve an inclusive, responsive, and productive publishing process.

Table 1 Seismica’s Key Values, Editorial Policies 2022.

<table>
<thead>
<tr>
<th>Values</th>
<th>Description</th>
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<tbody>
<tr>
<td>Accessible</td>
<td>Seismica believes that science should be accessible to everyone, and has created an open platform for sharing peer-reviewed research in seismology and earthquake science. By removing all fees, we encourage participation on many levels to share knowledge and data with the global community.</td>
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<tr>
<td>Transparent</td>
<td>Seismica publicly recognizes the volunteer labor of reviewers, editors, typesetters and contributors, along with the wide breadth of teamwork needed in research. We have a transparent review process by publishing reviews alongside research articles, as well as a list of authorship contributions. To address challenges with reproducibility in science, Seismica also promotes best practices in open data and software, helping research to achieve its full potential.</td>
</tr>
<tr>
<td>Respectful</td>
<td>The scientific publishing ecosystem can sometimes produce discouraging language for researchers so Seismica will take a mindful approach. All parties must agree to our Code of Conduct, and do not tolerate disrespectful language. Seismica aims to combat reviewer fatigue by only sending papers out for review that meet our guidelines, which are made available to authors before submission. We will mentor reviewers, editors, and authors to achieve an inclusive, responsive, and productive publishing process.</td>
</tr>
<tr>
<td>Credible</td>
<td>Readers, authors, reviewers, and members of the Seismica Board can depend on Seismica and one another to uphold these values. Seismica’s editors contribute their expertise and reputation in their respective fields so that Seismica can emerge as a scientifically trustworthy journal. Our distributed leadership and adaptability of our organization serve to keep us aligned with the community values.</td>
</tr>
<tr>
<td>Progressive</td>
<td>Seismica aims to promote innovation and creativity in academic publishing. We aim to capture more scientific contributions through less-traditional formats such as field campaign reports, null results, and software articles, which may not be accepted at other journals. We will continue to innovate with organizational structure and roles, and share the outcomes of our experiments to accelerate the pace of change.</td>
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Seismica represents and who we can serve. Our communities include: members of the Seismica Board (Editors and Functional Team Members, Appendix A); our community of authors and reviewers; and the wider global audience who read either our articles or our public-facing materials. Ideally, our Board should be a reflection of our community. The variety of essential roles within Seismica and our distributed decision-making by consensus and discussion means that policy decisions reflect the input of senior and junior researchers from across our disciplinary and global spectrum. To know how well the Board reflects the community, we need to understand who we are. Self-surveys during initial development stages provided a baseline for describing the Seismica community (van den Ende et al., 2021). Longitudinal voluntary surveys tracking the composition of the Board and of the reviewer/author community will provide a basis for ensuring that new rounds of recruitment keep the Board aligned with the broader community.

A long-term goal is to create opportunities for participation in publishing for members of the third community – interested readers, professionals in geophysics or earthquake hazard/risk whose employment does not include a publishing mandate but who produce new knowledge and insights, and researchers with relevant expertise who face financial barriers to publishing. Community-run journals using the free OJS platform are overwhelmingly concentrated in the Global South, but the chemical and physical sciences combined make up ~1% of these journals by discipline (Khanna et al., 2022). Our suite of report types was designed to facilitate participation by recognizing a more inclusive range of contributions. We support multi-language abstracts and encourage authors to provide one or more translations to support local interest in regions covered by their studies.

Seismica’s Equity, Diversity, and Inclusion (EDI) team has the mandate to be everywhere at once - members are distributed on key task forces. Although these individuals have EDI as their formal mandate at Seismica, everyone in the organization shares responsibility for pursuing these ideals and learning from the experiences of others. The dialog between members of different backgrounds and perspectives is ongoing and will continue to drive the evolution of the journal as we mature and grow.

3.3 Brand and communications

The success of a journal depends on its ability to attract authors to submit high-quality manuscripts that will build reader confidence in the journal. Authors look for an editorial board which inspires respect and authority, as well as convincing evidence of professionalism in the operation of the journal (Feldman, 2008; Shapiro and Bartunek, 2008). If a journal does not inspire confidence, through demonstration of integrity, authority,
and broad-based support, then submissions would not come in, and the journal would fail (Hodgkinson, 2008). Journal branding inspires confidence. Therefore, early in the planning process, we developed a strong vision for Seismica’s profile in the research community and for stakeholders outside of academia.

A brand is more than just a name, a logo design, or a clever tagline for our scientific journal. It is everything that encompasses Seismica, how we came to be, who we are, and what separates us from other scientific publications. We take inspiration from our vision, our mission, and the power of our collaboration. We believe that if we can communicate our vision clearly to the public and broader community, people will join us. We want people producing research from all over the world to know and feel that Seismica guarantees an equitable opportunity to publish their research, assuring a fair and open review process regardless of where they come from or who they are. We want to foster a sense of community ownership and loyalty, enough to build a group of ambassadors of Seismica who communicate our values around Diamond OA publishing. Because these values come from our community, they reflect its needs and guide our brand positioning to help attract like-minded researchers and foster their motivation and passion for the type of journal that Seismica aspires to be.

3.3.1 Visual Identity

Practically, the first branding task was to design a logo for the journal. In the Seismica spirit, an open logo design competition led to the submission of 18 logo designs, and the final one, designed by Adam Pascale, was chosen by popular vote. Geophysicist and illustrator Lucía Pérez Díaz volunteered to polish the logo for a variety of uses (Figure 3). The logo represents seismic wiggles with an offset, but it can also represent Earth’s topography. The color and design variants of the logo were selected to inspire confidence, invoke both trustworthiness and ambition, and be used across different spaces and themes, such as the various journal branches, websites, and social media pages (Twitter, Facebook, Instagram, YouTube). Close coordination between the Media & Branding Team and the Standards & Copy Editing Team for the Seismica manuscript formatting, and the Tech Team for the website appearance and functions, have given Seismica a distinctive and recognizable look.

3.3.2 Growing Our Community

It is essential to build recognition and familiarity with Seismica’s aims and mission to recruit Seismica Board volunteers, and to inspire authors to contribute their work and reviewers to volunteer their time. Alongside the building of our mailing list, social media accounts were opened in the early days of planning for launch. A dedicated team was formed to maintain online communication, entrusted with news, announcements, press releases, promoting the brand, and explaining what Seismica is all about. Our posts take different formats: text, images, and video interviews with Seismica Board members. Videos show the human side of the volunteering team behind Seismica. To date, in total, Seismica has over 4000 followers across our active social media platforms.

To connect directly to the research community, and to potential authors and reviewers, Seismica Board members are continuing to present at conferences (e.g. Funning et al., 2021; Gabriel et al., 2022). These multi-format presentations have allowed members of the Seismica team to talk and answer questions from fellow scientists. Support from the Media & Branding team enables presenters to stay on-message with Seismica’s brand and maintain the professional appearance with logos and slide templates.

Currently, our message to the community goes beyond promoting a new journal and guides our path forward. Seismica is the first Diamond OA journal built

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13https://twitter.com/seislogiast
14luciaperezdiaz.com
15https://twitter.com/WeAreSeismica
16https://www.facebook.com/WeAreSeismica/
17https://www.instagram.com/weareseismica/
18https://www.youtube.com/c/WeAreSeismica
for and by seismologists and earthquake scientists. Our tagline, *Our Seismic Moment*, showcases Seismica as an avenue for people who want to drive change and advance research and scientific discovery with genuine openness.

### 3.4 Journal Operations

Seismica uses a suite of technical tools to manage communications, the journal website, editorial workflow, and a reviewer database. We use tools that are free or low-cost, usually open source; and are confident that these tools will remain supported for the foreseeable future.

Our website and paper handling are managed through OJS. Seismica’s visual brand identity is built into the public-facing website using a custom Cascading Style Sheet (CSS). While OJS limits customization of the editorial workflow, we have adjusted the settings to suit Seismica’s purposes, for example, by updating the list of article components that authors are able to upload to match our needs, and editing the templates for emails used at different stages of paper handling. This simplifies the workflows for authors, editors, and reviewers, creating a smooth experience for everyone who needs to interact with the editorial process.

Where current out-of-the-box OJS functions did not fulfill our needs, our Tech team created purpose-built tools. For example, OJS cannot assign expertise tags to registered users. To help Handling Editors find reviewers, we built an independent reviewer database that allows individuals to register using their Open Researcher and Contributor IDentifier (ORCID) and tag their expertise within Seismica’s scope. These pre-defined tags were derived from the keywords mentioned in the journal scope. Our database enables Handling Editors to find qualified reviewers more easily, and contact them based on their ORCID or email address. To ensure privacy protection and GDPR compliance, we do not currently collect personal and/or demographic data that is not already publicly displayed on a user’s ORCID profile, except for an email address that a user can optionally provide. By the time we launched, over 200 reviewers had self-registered, providing a large pool of potential reviewers to evaluate the submitted manuscripts.

Although article templates are not required for initial submission, this can speed up the final typesetting process, so we provide templates in LATEX, odt, and docx formats. We use LATEX (Lamport, 1985) and Journal Article Tag Suite (JATS) eXtensible Markup Language (XML) (Needleman, 2012) to format articles for publication. Seismica LATEX templates use a custom class, based on the article document class, with simple commands for entering article metadata and incorporating multiple language abstracts and/or a non-technical summary. The submission template includes an anonymous option, which generates a PDF without author names, author contributions, and acknowledgements, even if that information is included in the input LATEX file, making it easier for authors to submit their work for double-anonymous peer review if they choose. The publication template, which differs from the submission template, also incorporates the Seismica logo and colors to tie into the overall visual branding scheme. Author contributions are printed below the list of authors for improved transparency, and volunteer editors’ and typesetters’ names appear on the first page. The Standards and Copy Editing team has developed tools to automate the conversion from odt or docx files to LATEX and JATS XML, using Pandoc and various Python packages. In particular, we try to automate the parsing of in-text citations, as reformating these from plain text to LATEX by hand is very time-consuming. The LATEX template for article submission can be used for preprints, and is available on Overleaf.

Slack continues to be the primary communication medium for internal discussions amongst the Seismica Board and ongoing Task Forces. General announcements can be broadcast to the whole workspace, while editorial and technical discussions happen in private Slack channels. Seismica also has a mailing list where larger journal announcements (e.g., journal launch) are broadcast to more than 500 subscribers (as of October 2022).

Other tools used by the Tech team include Google Docs and GitHub. Seismica’s core constitutional documents, including Editorial Policies and Guidelines, are currently maintained in Google Docs, which enable collaboration and edit tracking. Scripts, template, and website files are hosted on GitHub, and the Tech team uses GitHub to track and discuss tech support issues.

### 4 Post-launch insights

Seismica has only just launched. To date, we have been open for submissions for about 120 days. We have received on average 2-3 submissions per week. Seismica has been well received in the community, following our high levels of community engagement with our social media and conference presentations. Given these factors, together with a strong uptake with both our mailing list and reviewer database, we consider the launch of Seismica to have been highly successful. There are several early and important insights we have gained from this experience.

Our research community values community-led scholarly publishing. The opportunity to influence the journal incentivizes volunteering efforts. Seismica responds to community needs in all aspects of our design. Our organization is growing according to our mission and philosophy of non-profit motive. We hope our novel peer-reviewed Reports format will gather

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19. [https://orcid.org](https://orcid.org)
20. [https://reviewer-database.seismica.org](https://reviewer-database.seismica.org)
21. [https://gdpr-info.eu/](https://gdpr-info.eu/)
22. [https://seismica.org/templates/](https://seismica.org/templates/)
23. For both templates, we use the Source-Sans OpenType fonts suite, Latin Modern font for equations, and a 2-column text format for ease of reading (Doumont, 2009)
24. [https://pandoc.org](https://pandoc.org)
26. [https://seismica.us1.list-manage.com/subscribe/post?u=6b3197489014e9f8f2b30143958&id=b3a5fcd0e04](https://seismica.us1.list-manage.com/subscribe/post?u=6b3197489014e9f8f2b30143958&id=b3a5fcd0e04)
27. [https://seismica.org/policies#publication-types](https://seismica.org/policies#publication-types)
more data and insights which might otherwise end up uncredited and in gray literature or unreleased. Our inaugural Board represents a diverse international group of researchers, which connects us to a diverse and international community of authors and readers.

**Pre-launch community-building made a big difference in soliciting submissions.** We extensively used our outward-facing communications channels during the run-up to opening for submissions to improve name recognition and awareness of our values in the research community. Several authors who submitted papers in the first weeks of Seismica, and reviewers who accepted our requests, announced their participation on Twitter. This early community building is unusual among community-run journals (Lange, 2022).

**Researchers can provide the functions a traditional publisher provides.** With modern tools and software, along with institutional support, key journal functions, including work that has been traditionally charged for, can be accomplished by the scientific community:

- Initial editorial assessment and final decision-making
- Reviewing manuscripts and coordinating reviewer reports
- Transforming research into shareable outputs, for example, through social media
- Customising and maintaining a website-hosted publication workflow system
- Copy editing, typesetting, and persistent archiving for longevity and stability

With the increasing stress on library budgets, supporting community-run OA journals offers an institutional mechanism for addressing the cost crisis in academic publishing (Benz et al., 2022).

**Collaborative design of journal policies identifies common values and motivates volunteers.** Seismica Board members shared their own anecdotes and experiences during discussions that helped refine our policies, and doing so created optimism that smart policy choices could ameliorate some of the known general issues with traditional publishing systems, such as the peer review process. Just like every other journal, we are operating in a climate of reviewer burnout, but with shared not-for-profit motives, together with workload tracking and a dynamic organizational structure, we believe that these issues can be alleviated by cultivating a sense of community and a shared mission. This shared design has yielded clear communications and expectations from Seismica.

**5 Future growth opportunities**

Seismica’s initial few months post-launch have proven successful. Nevertheless, we are acutely aware that as we move past the launch phase, several immediate challenges surrounding the reputation, growth, and sustainability of Seismica lie ahead. Such challenges are common for other Diamond OA journals (Becerril et al., 2021; Bosman et al., 2021; Björk et al., 2016). First, Seismica must build an international reputation for quality and rigor that meets the expectations of the research community. Our pre-launch information campaigns have been very effective at growing name recognition within the research communities of our Board members. Continued support and article submissions, as well as reviewer engagement, depend on the journal establishing itself as a serious venue for academic research. The success of our launch was supported by the professional reputations of our volunteers (Appendix A), and we have relied on their name recognition to build our own. Seismica will establish itself as a brand that researchers are eager to affiliate with using these approaches: a rigorous and supportive review process led by disciplinary experts will ensure that our published papers are of high quality; the Seismica Ambassador program will inform the broader community of our mission and the issues in the scholarly publishing industry that we can address through community-led publishing; we will continue to visibly evolve our policies to stay on top of best practices in Open Science, EDI, and community needs.

Second, we must be prepared to grow and sustain our community. The excitement of journal-building has motivated generous contributions of time and labor from a large number of people. We need to keep our original community members engaged while also expanding to take up extra workload as submissions increase. We must develop a culture that maintains our mission amidst a growing Seismica Board. Seismica’s broad scope with a diverse set of Handling Editors that cover these different disciplines in seismology and earthquake science is more scalable than other structures. Early career researchers (ECRs) make up a disproportionate share of our volunteers; they bring an exceptional energy, responsiveness, and highly relevant skills to Seismica. We recognize and must respond to the need for ECRs to document their professional contributions in a way that supports their career advancement to mitigate the time away from research (Lange and Severson, 2022). We are building collaborations with researchers and experts in scholarly publishing, to inform the documentation of every role at Seismica as an academic and scholarly service to publishing. Many upcoming initiatives will support skills development for scholars across our community, hopefully creating ripples that extend beyond Seismica. These include editorial mentoring (underway), and reviewer and author workshops (in development). Our organizational structure is designed to best utilize the skills and available time from a variety of volunteers with different experiences and at different career levels. By tracking roles, responsibilities and workload, we can take care to avoid overloading individual volunteers, and respond quickly to changing demands. We are exploring ways to appropriately document and express gratitude for service to Seismica, beginning with prominent recognition on the published articles themselves.

Third, we must apply for, and anticipate the potential effects of, listing in scholarly journal indices. The Journal Impact Factor is used in many funding systems as a proxy for quality or value of scientific output, which in-
tensifies a number of negative impacts related to com-
petition and assessment of researchers (Casadevall and
Fang, 2014; Lariviere and Sugimoto, 2019). Recognizing
that potential Seismica contributors are dissuaded from
submitting their work to Seismica because the journal is
not currently indexed by Clarivate/Web of Science, we
will apply for an Impact Factor when Seismica becomes
eligible after two years of publishing. We recognize that
this may open the gates to new segments of the inter-
national research community accessing Seismica as a
publishing venue, so we must be ready with a global and
knowledgeable Board in place to support these chang-
ing needs. We recognize the implications of the misuse
of Impact Factor and related citation-counting metrics
for scientific assessment (e.g. Aksnes et al., 2019); we
prioritize accessibility to a broader author pool in seek-
ing listing, and will not compromise our core values in
pursuit of rankings.

Finally, we are aware of our positioning in the land-
scape of seismology and earthquake science research.
As we brainstormed ways to better serve our commu-

nities with author, reviewer, and editor support, we recog-
nized how many traditional publishers profit from our
voluntary labor and research funds, and that the cost
structure has become increasingly inequitable. We also
recognize that journals published by professional so-
cieties are operating within this cost structure and are
passing benefits back to the academic community from
their publishing profits. For researchers who can af-
ford it, choosing to publish with professional societies
continues to be a positive and ethical use of public re-
search funds. We also want to demonstrate to our sci-
entific community that there is another option which
has helped other disciplines – Diamond OA publishing.
Changes to funding agency policies increasing the re-
quirements for OA publishing (e.g. cOAlition S; Office
of Science and Technology Policy, 2022) can either drive
even greater cost increases through Gold/Hybrid OA, or
can represent a turning point toward the restoration of
community-controlled journals.

We plan to develop specific initiatives for the first 12-
24 months of Seismica’s operation:

• Better promotion of published research: Traditional
journals do very little to help authors promote their
work after the acceptance notice. Seismica will
support authors beyond the date of acceptance, by
providing support and tools for outreach, so-
cial media and raising the profile of published re-
search. We will also support authors in disseminating
their work toward the public and policy makers.

• Spreading the word about Diamond OA publishing:
The Seismica Ambassador program, due to launch
in early 2023, will empower members of the
broader research community to understand the
publishing landscape and community-based solu-
tions to address it – including researcher-led journ-
als like Seismica.

• Advancing open outputs beyond research articles:
Seismica will continue to publish research arti-
cles while also piloting non-traditional publication
types and open options for data, software and code.

• Formalization and documentation of Seismica work-
flows: We aim to create resilience and consistency
in our volunteer-run organization through careful
standardization and documentation of workflows,
from selecting handling editors, to copy editing,
to social media strategies, to recruitment of new
Board members. This could be a resource for other
startup Diamond OA journals, particularly in STEM
where there are fewer community-run examples.

• Soliciting helpful and useful reviews: Review qual-
ity and tone will be addressed through workshops
and explicit messaging, modeling reviewing as a re-
spectful and supportive service rather than a gate-
keeping exercise. Reviewer appreciation strategies
will support positive experiences for reviewers and
maintain our current benefit of reviewer prefer-
ence over for-profit journals.

• Editorial wisdom: Effective and efficient edito-
rial handling can reduce workload throughout the
manuscript handling process and result in higher
satisfaction for all parties. Our editorial mentoring
program, currently launching, aims to support ed-
tors with expert advice, opportunity for confiden-
tial discussion of decisions, and resources on best
practices.

• Collecting vital EDI data: In conjunction with our
EDI goals, we are considering mechanisms for col-
clecting such data in the future in ways that comply
with privacy regulations.

• Improving our global social media reach: Seismica is
currently active on platforms such as Twitter and
Facebook, that are most popular in the western
world. However, other platforms are equally as
popular across the globe in Asia and Africa, such as
Sina, Weibo or VKontakte. Seismica plans to set up
accounts on these platforms to reach a global audi-
ence.

Acknowledgements

The volunteer Board of Seismica (listed in Appendix A)
is grateful for the support we have received from the
research community, McGill University Libraries, and
one another during the ongoing adventure and chal-
lenge of building a community-led journal. We recog-
nize there are significant challenges ahead, challenges
that face the global research community on a much
broader scale, but to whose resolution we can make a
small contribution. We are enthusiastic about the work
ahead and invite you to join us!

We thank the members of the original Seismica Task
Force who initiated this effort (van den Ende et al.,
2021), and the leadership of Volcanica and Tektonika for
inspiration, sharing knowledge, and support. We thank
PKP and McGill Library. We thank the broader Seismica
community, including participants in our Slack group,
researchers who engage with us at conferences and on
social media, those who have added themselves to our
reviewer database, and members of our mailing list.

We are also indebted to Fabian Wadsworth and Jamie
Farquharson of Volcanica for taking the time to brief the
original Seismica Task Force on their experience setting up Volcanica and inspiring us to initiate the Seismica project.

References


A Appendix: Contributors to Seismica

Management Committee, 2022

The Management Committee consists of the five Executive Editors and the Chairs of the Functional Teams. Decisions at Seismica are undertaken by appropriate members of the Management Committee, who also ensure coordination between all parts of the organization:

- **Executive Editor for Community:** Christie Rowe
- **Executive Editor for Production:** Gareth Funning
- **Executive Editor for Open Science:** Samantha Teplitzky
- **Executive Editor for Operations:** Carmine Galasso
- **Executive Editor for Equity, Diversity and Inclusion:** Catherine Rychert
- **Chair, Fast Reports:** Kiran Kumar Thingbaijam
- **Co-chair, Tech Team:** Martijn van den Ende
- **Co-chair, Tech Team:** Thomas Lecocq
- **Chair, Media & Branding:** Tran Huynh
- **Co-chair, Standards & Copy Editing:** Théa Ragon
- **Co-chair, Standards & Copy Editing:** Hannah Mark

2021-2022 Journal-Building Task Forces

After recruitment of the Seismica Board in late 2021-early 2022, Task Forces were struck to accelerate the journal-building process. Some of the task forces evolved into permanent functional teams within Seismica’s organizational structure and others were retired or replaced.

Policy Development - retired 2022

This task force led decisions on journal policies, including designing article types, drafting the scope, addressing ethics and competing interests.

- Carmine Galasso (Chair)
- Martijn van den Ende
- Åke Fagerang
- Gareth Funning
- Stephen Hicks
- Kiran Kumar Thingbaijam
- Nicola Piana Agostinetti
- Théa Ragon
- Randy Williams

Guidelines Development - retired 2021

This task force drafted guidance for editors, reviewers, and authors, delineated the peer review process and paper handling workflows.

- Stephen Hicks (Chair)
- Théa Ragon
- Hannah Mark
- Martijn van den Ende
- Kiran Kumar Thingbaijam
- Thomas Lecocq
- Samantha Teplitzky
- Carmine Galasso
- Tran Huynh
- Andrea Llenos

Tech Team

This task force built the journal website using OJS, coordinated with McGill University Library and IT staff, and developed article templates, and collaborated on data/code availability policies.

- Samantha Teplitzky
- Thomas Lecocq (co-Chair)
- Martijn van den Ende (co-Chair)
- Théa Ragon
- Hannah Mark
- Dragos Toma-Danila
- Jesper Sören Dramsch

Equity, Diversity & Inclusion Team

This team is responsible for EDI policies and oversight at Seismica, through independent initiatives and embedding in all other processes at the journal.

- Catherine Rychert (Chair)
- Kasey Aderhold
- Danielle Sumy
- Lauren Waszek
- Marino Protti

Organizational Structure Team

This team is responsible for completing and maintaining the organizational structure of Seismica through policy development and review.

- Christie Rowe (Chair)
- Samantha Teplitzky
- Åke Fagereng
- Nicola Piana Agostinetti
- Greg Beroza
- Kasey Aderhold
- Daniille Sumy
- Gareth Funning
- Martijn van den Ende
- Carmine Galasso
- Catherine Rychert
Media & Branding Team
This task force developed a brand identity for Seismica and developed polished, coherent, professional messaging across all platforms to promote Seismica and grow our international community.

- Tran Huynh (Chair)
- Jaime Convers
- Matthew Agius
- Ezgi Karasozen
- Quentin Brissaud
- Shiba Subedi
- Abhineet Gupta

Standards & Copy Editing Team
This team creates and maintains the manuscript submission and publication templates, copy edits manuscripts, interfaces with authors to quality check figures and data/code availability.

- Hannah Mark (Chair)
- Théa Ragon (Chair)
- Karen M. Pearson
- Keyla Carlina Ramirez Loaiza
- Cláudia Reis
- Kirsty Bayliss
- Abhineet Gupta

Fast Reports
This task force drafted the Fast Reports guidelines and continues to serve as Handling Editors managing Fast Reports submissions.

- Kiran Kumar Thingbaijam (Chair)
- Tiegan Hobbs
- Ryo Okuwaki

Handling Editors
These Seismica Board Members manage the review process, interact with authors, and are led by the Editorial Mentoring group. The Editorial Mentoring team joins with senior editors from Tektonika to develop Mentoring Resources to serve both journal communities.

- Greg Beroza (Chair: Editorial Mentoring)
- Åke Fagereng (Editorial Mentoring)
- Suzan van der Lee (Editorial Mentoring)
- Yen Joe Tan (Editorial Mentoring)
- Vitor Silva
- Pathikrit Bhattacharya
- Andrea Llenos
- Atalay Ayele
- Mathilde Radiguets
- Alice-Agnes Gabriel
- Randy Williams
- Lise Retailleau
- Pablo Heresi
- Paula Koelemeijer
- Wenbin Xu

Logo Design
- Adam Pascale
- Lucía Pérez-Díaz

Appendix : Seismica Board Role Descriptions
These roles descriptions include tasks related to start-up/journal building as well as long-term management and operations of Seismica as we are at the time of this writing in the early months of operation. The Management Board is comprised of the Executive Editors and the Team Chairs (Figure 2).

Executive Editors
Production: Check over incoming submissions for compliance with Seismica policy, communicate with authors over needed changes, assign handling editors, monitor progress of articles through the workflow, identify gaps in policy or board member thematic coverage, attend Executive Editors and Board meetings, monitor and occasionally raise issues in Slack, possibly more things that will arise once articles go into production.

Operations: Coordinate development of editorial policies, including guidelines for authors and reviewers. Collect feedback on editorial policies and support their periodic review based on identified gaps. Attend Executive Editors and Board meetings. Support Executive Editor for production, assigning handling editor and monitoring progress of articles through the workflow.

Community: Manage communications within Seismica, plan meetings including Executive, Management Committee and Board, represent Seismica to other organizations (including sister journals and scientific societies), coordinate activities of Teams and Task Forces.

Equity Diversity Inclusion: Plan, organize, run meetings; solicit input on journal policies, procedures, philosophies, mission statement; run brain storming sessions on wish list/ways to enhance EDI; recruiting handling editors from a diverse background; drafting/editing code of conduct; developing and revising plan for demographic data collection; communicating with Seismica.

Open Science: work with Tech team to incorporate open science practices, look for opportunities to extend the usefulness of OJS and connect with other products to expand Seismica’s openness beyond articles, generally critique workflows.

Teams
Media & Branding Chair: Create and maintain an online brand identity across all media platforms used for the journal and its community. Ensure the key messages about Seismica are consistent, engage the broader
community promoting the journal and the opportunities for contributing to the Seismica initiative. Coordinate the different activities pertaining to the Media and Branding of Seismica across different social media and communication platforms.

**Media & Branding Team Member:** Carry out the work ensuring the success of Seismica’s branding strategy, led by the Team Chair in discussion with Team Members. Members are organized in task forces focusing on: Meetings & Conferences, Seismica Ambassadors Program, Social Media Communications, Upcoming Publications and News, and Creative Content & Messaging. Task forces consist of a lead and a support member. Weekly meetings of the entire Team and coordination with the Management Committee ensure continuity.

**Tech Team Chair:** Handle incoming requests for additions/changes on the Seismica website, the editorial system, and the reviewer database. Assign plannable tasks to Tech team members, handle urgent tasks yourself. Monitor the tech@seismica.org mailbox. Answer technical queries in Board meetings and on Slack. Maintain the test editorial system sandbox and interact with the copy editing/production team to produce the pdf/html articles.

**Tech Team Member:** Work on assigned tasks (listed on GitHub or assigned directly on Slack), participate in technical discussions/queries on Slack.

**Standards & Copy Editing Team Chair:** Develop and maintain templates for article submission and publication; develop and maintain tools for converting submissions into TeX and JATS formats (with help from the Tech team as needed). Work with team members to set standards and expectations for copy editing accepted articles. When articles are accepted, assign them to team members (team chairs included) for copy editing and typesetting, ensuring workload is evenly distributed. Help team members with any issues related to typesetting, copy editing, or communication with authors/editors. Answer questions in Board meetings and on Slack.

**Standards & Copy Editing Team Member:** Set standards and expectations for style guides and copy editing accepted articles. When handling a manuscript, correct typos and grammatical errors that were not caught during review, and provide suggestions for style-related edits. Convert submission template to proofs and engage with the authors to check proofs before publication. Convert proofs to PDF and XML galleys, including article metadata.

**Fast Reports Chair:** Facilitate effective team collaborations through active communications with team members, organizing team meetings and developing work plans. Coordinating with Media & Branding for promotion of Fast Reports. Establishing and communicating criteria for publishability, providing rapid reviews and seeking external reviewers, author communications, maintaining fast workflows.

**Fast Reports Team Member:** Handle submissions, provide rapid review of the submissions, assess state of revised manuscripts and make decisions, communicate with authors regarding process and decisions, contribute to the Fast Reports activities. Attend team meetings.

**Editorial Mentoring:** Provide ad hoc advising on editorial decisions to support Handling Editors, participate in the Organizational Structure design process, develop editor and reviewer best-practices and trainings, coordinating Mentoring Committee meetings and reporting back to the Seismica Board.

**Handling Editors:** Quality control of manuscripts, establish and maintain contact with reviewers, communicate with authors regarding process and decisions, handle conflicts in reviewers’ opinions, assess state of revised manuscripts and make decisions, upload reviews report to website, attend Board meetings. Volunteer for Seismica Board task forces as able.