

SIAM Activity Group Geosciences Charter Renewal Application

This CHARTER RENEWAL applies to the SIAM Activity Group on Geosciences (SIAG/GS). The SIAG/GS was originally formed under the aegis of SIAM in July 1991 by the SIAM Council and the SIAM Board of Trustees with its initial operating period beginning January 1, 1992 and ending December 31, 1994. Its charter has been renewed by the Council and Board fourteen times thereafter.

This SIAG has 325 members, including 84 student members, as of December 31, 2023.

According to its Rules of Procedure, the objective of the SIAM Activity Group on Geosciences is to provide an established forum for interdisciplinary interactions among mathematicians, engineers, chemists, physicists, and other scientists having special interests in flow in porous media and geophysics.

Its purposed functions were:

1. Organize minisymposia at the SIAM Annual Meeting and ICIAM in years where there is no SIAG conference.
2. At least once every seven years either organize a track of at least six minisymposia at the SIAM Annual Meeting or have an activity group meeting held jointly with the annual meeting. The VP for Programs and the VP at Large will coordinate the scheduling with the SIAG chair.
3. Organize a biennial SIAM Conference on the Mathematical and Computational Issues in the Geosciences. The SIAG will consider dovetailing specialized workshops and conferences with the SIAM Annual meeting or other SIAG conferences. The chair of the conference organizing committee shall be either the program director or the chairperson of the SIAG or their designee. The organizing committee must be approved by the VP for Programs at least 16 months before the conference.
4. With the approval of the SIAM Program Committee, the SIAG may organize special sessions at SIAM meetings. Other SIAG meetings may be organized only with the approval of the SIAM president and vice president for programs.

The SIAG has complemented SIAM's activities and supported its proposed functions. The answers to the questions below indicate how this was accomplished and what the officers propose as the future directions for the SIAG.

List all current officers of the activity group (including advisory board, if relevant).

Chair: Masa Prodanovic

Vice-Chair: Chris Kees

Program Director: Luca Formaggia

Secretary: Irina Tezaur

1. How is the field covered by the activity group doing? Is it growing, is the focus shifting? What have been the significant advances over the last two years?

A combination of research focus on climate change and water/energy/food nexus is making the intersection of mathematics, computational sciences, engineering and geosciences a growing field. Further, we have seen a growing trend of machine learning applied to data processing as well as creating proxy models and speeding up numerical simulation. There additionally appears to be a heightened interest in climate change-related issues, especially from younger members of the community.

2. How is the activity group doing? Is it remaining vibrant? Is the size of the SIAG stable or increasing? How is the SIAG keeping up with the changes in the field? How are the broader interests of SIAM reflected in the activities of the SIAG?

The activity group remains vibrant. After a decrease in membership over the pandemic, we have a slight increase from 2022 to 2023 membership, see Figure 1.

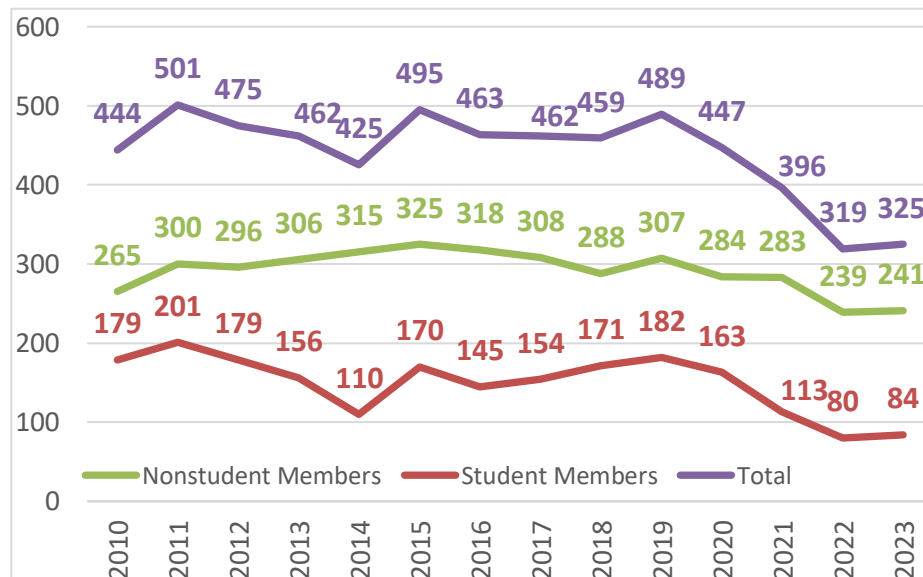


Figure 1: SIAG membership over the year.

3. Please list conferences/workshops the activity group has sponsored or co-sponsored over the past two years, and give a brief (one sentence or phrase) indication of the success or problems with each.

The SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS23) was held in-person in Bergen, Norway in June 2023. The University of Bergen team lead by Prof. Jan Nordbotten did an outstanding organizational effort and the conference was a

success. We had 355 attendees which is pretty much the same as the prepandemic attendance (361 attendees in Houston, TX in 2019).

4. Please indicate the number of minisymposia directly organized by the activity group at the last two SIAM annual meetings. When did the SIAG last organize a track at an annual meeting or meet jointly with the SIAM Annual Meeting?

Because of the number of Activity Groups, the current guidelines are that an Activity Group should organize a track about every seven (7) Annual Meetings or meet jointly with the Annual Meeting within a seven (7) meeting period.

The SIAG/GS had a track with SIAM Annual 2018, held in Portland, Oregon, with one invited (plenary) speaker and eight minisymposia. The proposal to collocate GS25 with the SIAM annual meeting in 2025 (AN25) in Montreal, July 28 to Aug 1 (<https://www.siam.org/conferences/cm/conference/an25>) failed because (1) we currently do not have active members in the area that could take on the role of the local organizer, and (2) during the business meeting at SIAM GS23 many active voiced the concerns over timing in August.

5. Please indicate other activities sponsored by the activity group, to include newsletters, prizes and web sites. Have each of these been active and successful.

We have had regular webinars organized 3-4 times per semester in Fall and Spring, and posted on our YouTube channel:

https://www.youtube.com/playlist?list=PLf_ipOSbWC86I1N9ATZJkPz1ym9KbPo5c

In 2023/24, the following speakers gave a seminar in 2023/24:

- Paola Antonietti, Politecnico di Milano, Sept, 13, 2023
- Lynn Schreyer, Washington State University, Oct 11, 2023
- William Collins, Lawrence Berkeley National Laboratory, Nov 8, 2023
- Jörn Zimmerling, University of Uppsala, Finland, Dec 6, 2023
- Tiina Roose, University of Southampton, UK, Feb 8, 2024
- Eileen Martin, Colorado School of Mines, USA, Mar 7, 2024
- Stefano Mantica, Eni, Italy, Apr 11, 2024
- Todd Arbogast, The University of Texas at Austin, May 10, 2024

The activity group maintains a wiki website (<http://wiki.siam.org/siag-gs>). Information is regularly sent via the SIAM Engage platform (<https://www.siam.org/membership/activity-groups/detail/geosciences>) to the activity group members on, for example, job openings, summer schools, and meetings. There are two prizes given at each of the SIAM Geosciences meetings: a Career Prize and an Early Career Prize.

We have further established LinkedIn webpage (Figure 2) at the time of SIAM 2023 conference. As of end of April 2024, the page has 349 followers and growing.

A recent SIAM News item was written about SIAG member Tiina Roose's research on December 5, 2023 (<https://sinews.siam.org/Details-Page/image-based-modeling-of-plant-soil->

[interactions-1](#)); she was also a plenary speaker at GS23.

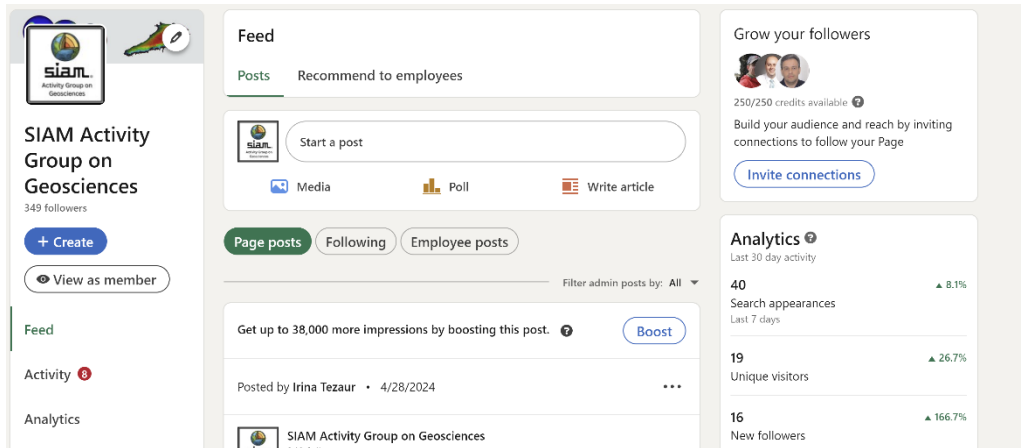


Figure 2: Snapshot of the new LinkedIn group as of April 28, 2024 including Analytics (visible only to admins) in the lower left showing current growth. <https://www.linkedin.com/company/siam-activity-group-on-geosciences>

6. What activities are planned and proposed for the next period of the charter? Please describe scheduled and suggested future activities in detail.

The next SIAM Geosciences conference will take place in Baton Rouge and New Orleans, LA, USA, Norway, organized by the Louisiana State University in May 2025, and the organization is well on the way.

We are also planning an online career panel for/by young researchers/students repeating the success of the panel organized during SIAM GS Conference 2023.

We are finally planning to coordinate more SIAM MPE leadership and perhaps coorganize the career event.

7. How can SIAM help the activity group achieve its goals?

We would like to coordinate more events for young researchers. These could be webinars and organized across different chapters. We had a very successful career panel at the GS23 and will organize it again during GS25.

8. How can the activity group help SIAM in its general role of promoting mathematics and computational science?

We are grateful for the help we receive in running our group.

This SIAG/GS requests that the SIAM Council and Board of Trustees renew its charter for a two-year operating period beginning January 1, 2025.

Signed,

Maša Prodanović

Maša Prodanović, SIAG/GS Chair
April 28, 2024