Geosciences Instrumentation and Data Systems (GI) Division Meeting

Francesco Soldovieri

GI Division President

EGU22 | 25 May 2022



Meetings | Publications | Outreach | www.egu.eu

EGU European Geosciences Union

Agenda

- Welcome & Thank you
- EGU22: General facts and GI information and statistics
- GI presence on the internet and social media
- Christiaan Huygens Medal
- Division Outstanding ECS Award
- Outstanding Student and PhD candidate Presentation contest (OSPP) Award
- Gl structure
- Gl Journal
- EGU Early Career Scientist (ECS) GI Division activity and planning
- GI Division President Election and new GI President
- Any other business



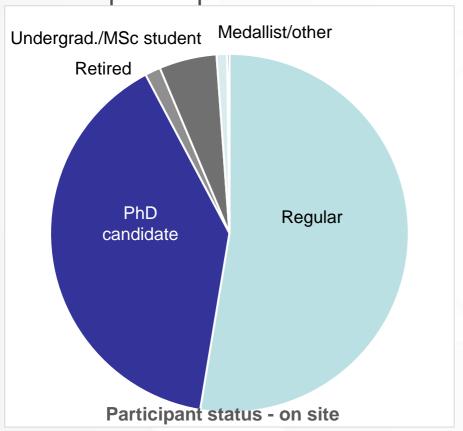
EGU22: Sessions and Abstracts, Schedule

- 12,423 active abstracts in programme | -9% relative to 2021
- 777 active sessions | 614 short-oral sessions | 54 Short Courses |
 35 Medal and Award Lectures
- 4 Union Symposia, 6 Great Debates
- 65 Networking and Community Events (excluding pop-ups), Townhall Meetings, Side Events, Splinter Meetings
- EGU Plenary 23 May 12:00 CEST (Room E1)
- Medal & Award celebration 25 May 17:30 CEST (Room E1)

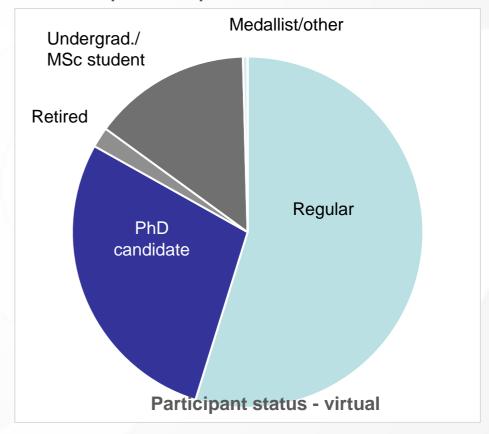


EGU22: Registration numbers and breakdown

- 7307 on-site registrations
- On-site participants: 88 countries

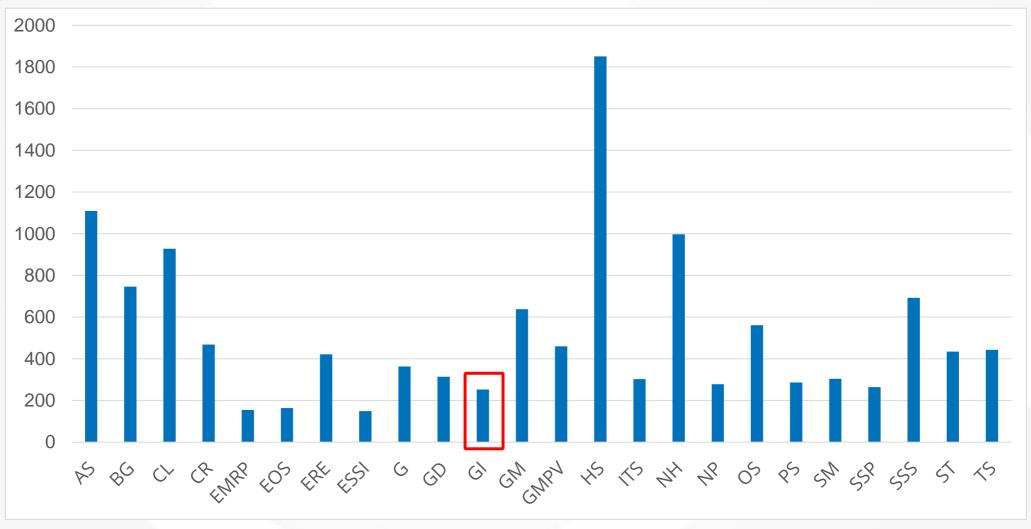


- 5904 virtual registrations (22/05 15:00)
- Virtual participants: 113 countries





EGU22: Abstracts per Programme Group





Early-Career Scientist Events at EGU22

- 42 Short courses
 - 30 Short courses ECS as lead-convener
- 3 Networking and pop-up events led by and aimed at ECS
- 32 Great Debates led by ECS
- Jobs and Career Center initiatives
 - Blogs
 - Short courses
 - Networking events
 - Pop-up events
- Outreach
 - Introducing ECS Reps via EGU Blog
 - Blogs and Social Media blurbs about ECS-events



Equality, Diversity and Inclusion (EDI) at EGU22

- **NET1** "The Leadership" directed by Ili Baré film screening | 23 30 May
- US1 Changing the Faces of Leadership at the Geoscience Policy Interface | 26 May 15:10–16:40
 CEST
- **US3** The future of (geo)scientific conferences | 24 May 13:20–16:40 CEST
- **US4** Scientific neo-colonialism: what is it and why should you care? | 24 May 17:00–18:30 CEST
- GDB1 Towards an academic evaluation system that celebrates diversity of talent | 23 May, 10:20– 11:50 CEST
- **EOS3.1** Promoting and supporting equality, diversity and inclusion in the geosciences | 24 May 08:30–10:00 CEST
- SC2.5 ADVANCEGeo Workshop Strategies for Improving Workplace Climate in the Geosciences |
 24 May 13:20 14:50 CEST
- EDI Networking Event | 26 May, 19:00–20:00 CEST
- EGUpride icebreaker | 22 May, 19:00–21:00 CEST and EGUpride networking | 26 May, 18:00–19:00
 CEST
- Did This Really Happen (DTRH) comics and EGU colouring book (part 2!)
- EDI Booth.... AND MORE!



EGU22 outreach activities

- **EGU Public Lecture**: "Geothermie Energie aus der Tiefe" (Geothermy energy from the depths) by Maria-Theresia Apoloner | Zentralanst. f. Meteorologie und Geodynamik (ZAMG) 24 May 18:00 at the Austrian Academy of Sciences and online.
- **EGU Mentoring**: 48 mentees for 20 mentors applications.
- Croome award lecture by Robin George Andrews 24 May 19:00 CEST Room E1
- Teaching/scientist pairing scheme



EGU22 Survey

- Distribution:
 - via email to participants and EGU members after EGU22
 - links on social media & blog
 - egu22.eu website
- Survey live during EGU22 and until end of June
 - https://www.egu22.eu/feedback





GI Sessions at EGU22

Total: 953 abstracts (981 submitted)

50 Sessions (33 Co-organized, 17 GI lead)

Abstracts in 17 GI leading sessions: 251 (-3% with respect to 2021)

History:	2021	714	259
	2020	880	490
	2019	1175	414
	2018	1151	448
	2017	912	331
	2016:	612	about 250
	2015:	465	
	2014:	524	
	2013:	435	
	2012:	335	

2011:

2010:

305



GI1 – General sessions on geoscience instrumentation (2 Sessions, 19 abs)		
GI1.1 Open session on geoscience instrumentation		
and methods Convener: Vira Pronenko Co-convener: Francesco Soldovieri	10	
GI1.2 Autonomous Uncrewed Aircraft Systems (UAS): Geoscience Research Platforms for the 21st century Convener: Misha Krassovski Co-convener: Juri Klusak	9	



GI2 – Data networks and analysis (2 Sessions, 51 abs)

GI2.2

Data fusion, integration, correlation and advances of non-destructive testing methods and numerical developments for engineering and geosciences applications

31

Convener: Andrea Benedetto | Co-conveners: Morteza (Amir) Alani, Andreas Loizos, Francesco Soldovieri, Fabio Tosti

GI2.3

Geoscience problems related to massive release of radioactive materials by nuclear accidents and other human activities

20

Convener: Daisuke Tsumune

Co-conveners: Yasunori Igarashi, Liudmila Kolmykova,

Masatoshi Yamauchi



GI3 – Planetary and space (remote sensing) instrumentation (2 Sessions, 24 abs)

Analogue Planetary Research and Instruments Convener: Sebastian Hettrich Co-conveners: Bernard Foing, Agata Kolodziejczyk, Charlotte Pouwels, Marc Heemskerk	13
Open session on planetary and space instrumentation Convener: Håkan Svedhem Co-conveners: Bernard Foing, Angele Pontoni	11



GI4 – Atmosphere and ocean monitoring (2 Sessions, 24 abs)

	, ,
GI4.1 Lidar remote sensing of the atmosphere Convener: Andreas Behrendt Co-conveners: Diego Lange Vega, Joelle Buxmann, Paolo Di Girolamo	14
Gl4.2 Open session on atmosphere, land and ocean monitoring Convener: Bernard Foing Co-convener: Paola Formenti	

GI5 – Earth surface and subsurface met	hods of investigation
	(4 Sessions, 53 abs)

	, , , , , , , , , , , , , , , , , , ,
GI5.1 Underground research facilities for science, research and development Convener: Jari Joutsenvaara Co-convener: Marcus Laaksoharju	4
GI5.3 Ground Penetrating Radar: Applications and Advancements Convener: Raffaele Persico Co-conveners: Alessandro Fedeli, Marco Salucci, Salvatore Piro, Michele Ambrosiano	13
GI5.4 Open session on Muography Convener: Dezső Varga Co-conveners: Marko Holma, Jari Joutsenvaara, Hiroyuki Tanaka	16
GI5.5 Geo-infrastructure monitoring: complex data analysis and instrument application Convener: Mezgeen Rasol Co-conveners: Veronica Escobar-RuizECS, Franziska Schmidt, David Ayala-Cabrera, Silvia Ientile	10

GI6 – Multidisciplinary sessions on geoscience instrumentation, data networks and analysis (5 Sessions, 81 abs)

uala lielworks aliu alialysis (3 Sessiolis, o i abs)	
Gl6.1 Remote sensing for environmental monitoring Convener: Annalisa Cappello Co-conveners: Sabine Chabrillat, Gaetana Ganci, Gabor Kereszturi, Veronika Kopackova	12
Airborne observations in multidisciplinary environmental research using European Research Infrastructures; observations, campaigns and future plans Convener: Philip Brown Co-conveners: Hannah Clark, Onno MullerECS, Shridhar JawakECS, Felix Friedl-Vallon	21
New frontiers of multiscale monitoring, analysis, modeling and decisional support (DSS) of environmental systems Convener: Pietro Tizzani Co-conveners: Antonello Bonfante, Francesca Bianco, Raffaele Castaldo, Nemesio M. Pérez	21



GI6 – Multidisciplinary sessions on geoscience instrumentation, data networks and analysis (5 Sessions, 81 abs)

data nother and analysis (5 555515115, 51 abs)	
Cosmic rays across scales and disciplines: the new frontier in environmental research Convener: Martin Schrön Co-conveners: Marek Zreda, Konstantin HerbstECS, W. Rühm, Jannis Weimar	11
Gl6.2 Geoscience applications of environmental radioactivity Convener: Virginia Strati Co-conveners: Xuemeng Chen, Anita Erőss, Viktor Jobbágy, Gerti Xhixha	16



GI Session Organization Group

For each sub-programme group, a responsible is appointed in order to solicit new session proposals and propose sessions themselves to fill thematic gaps, interact and get suggestions/request from conveners, and help the Division President in setting-up the Division Programme at the General Assembly.

	GI – Geosciences Instrumentation & Data Systems (#EGU20GI)		
	GI Programme Group Chair	Francesco Soldovieri	
G1	General sessions on geoscience instrumentation	Vira Pronenko	
G2	Data networks and analysis	Masatoshi Yamauchi 🖂	
G3	Planetary and space instrumentation	Bernard Foing ☑	
G4	Atmosphere and ocean monitoring	Bernard Foing ☑	
G5	Earth surface investigation methods	Jean Dumoulin 🖂	

G6 Multidisciplinary sessions on geoscience instrumentation,.....

Francesco Soldovieri



Division website



Lara Pajewski (149316) https://www.egu.eu/gi/home/



ABOUT * MEETINGS * PUBLICATIONS * AWARDS * JOBS

EGU.EU

GI GEOSCIENCES INSTRUMENTATION AND DATA SYSTEMS Division on Geosciences Instrumentation and Data Systems

Home / GI

President: Lara Pajewski (gi@egu.eu)

Deputy President: Francesco Soldovieri (soldovieri.f@irea.cnr.it)

Opposed to other divisions concentrating on specific fields of geosciences, this division intends to be a forum for developments in instrumentation, technology, methods and data handling used in any field of the various geosciences. By promoting the discussion between specialists from widely diverse fields, advances in instrumentation made in one field might be utilized in other areas also and encourage co-operation, thereby saving separate development work and making new approaches possible, which otherwise might still have to wait for years or even decades.

As nearly every other field of geosciences is related to one or the other instrumentation strategy, many of the GIsessions are co-organized with sessions from other divisions. Potential contributors to any session are encouraged to evaluate the benefits of a multi-disciplinary discussion versus the specific interest of the own target group.

Recent awardees

Raffaele Persico





Subscribe to

- EGU newsletter
- GI mailing list
- GI-ECS mailing list

Tweets by @EGU_GI



Day 1 of Sharing Geoscience Online went



GI on social media

© GI has a Twitter profile (@EGU_GI).

Facebook, LinkedIn and Instagram profiles could be set up in the near future.

To create a blog and make the GI presence on social media stronger, GI needs to create a Communication Team, composed by the blog editors and by the social media account administrators

ACTION of the NEW GI PRESIDENT!



Christiaan Huygens Medal

The <u>Christiaan Huygens</u> Medal was established by the Geosciences Instrumentation and Data Systems Division to recognise significant contributions in fields within the scope of the division.

The medal is awarded for an innovation, development or discovery that has had major impact in its field, or for a series of contributions, during an extended period, that has led to significant progress.

The medal has been exclusively designed for the EGU by <u>József Kótai</u>.



Unfortunately no Medal for this year



Previous Christiaan Huygens Medal Recipients



R. Giles Harrison 2021



Raffaele Persico 2020



Lev V. Eppelbaum 2019



<u>Jothiram</u> <u>Vivekanandan</u> 2018



Riccardo Lanari 2017



Karl U. Schreiber 2016



Kristine M. Larson 2015



Martin Hürlimann 2011



Jean-Loup Bertaux 2010



<u>Valery</u> <u>Korepanov</u> 2009



Horst Uwe Keller 2008



Christiaan Huygens Medal Committee 2022

Chairman: Susana Barbosa

Current Members: Jothiram Vivekanandan (4° term)

Lev Eppelbaum (3° term)

Raffaele Persico (2nd term)

Giles Harrison (1st term)



Proposal of new composition of Christiaan Huygens Medal Committee 2023

Chairman: Susana Barbosa

Current Members: Lev Eppelbaum (4° term)

Raffaele Persico (3rd term)

Giles Harrison (2nd term)

Proposal: Dr. Ilaria Catapano (IREA-CNR)

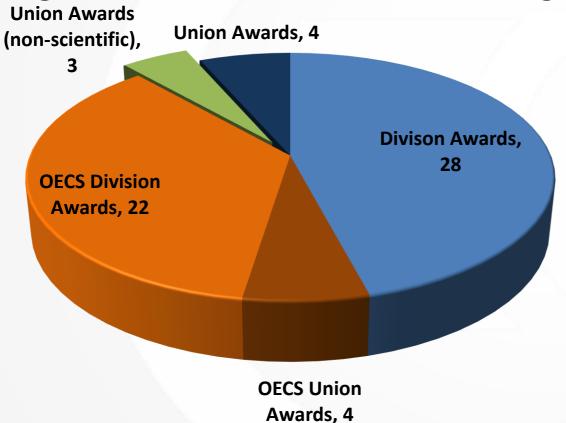
Any objection?





EGU features an extensive awards and medals

programme on all career stages



Awards

- Four prestigious Union medals, recognising excellence in scientific research
- Four Union awards for Outstanding Early Career Scientists, services for the Union, science journalism, and outreach
- 28 division medals, awarded for significant disciplinary contributions in Earth, planetary and space sciences
- 22 division awards for Outstanding Early Career Scientists and General Assembly awards for students

EGU awards & medals



- » Nominations are exclusively by EGU members* while candidates do not need to be EGU members. (*An exception is one award to promote excellence in journalism allowing nominations from non-members and self nominations)
- » Individual award and medal committees are then evaluating the nominations selecting the most deserving candidate based on scientific achievements**. (**plus one medals each for journalism, outreach and service to the union)

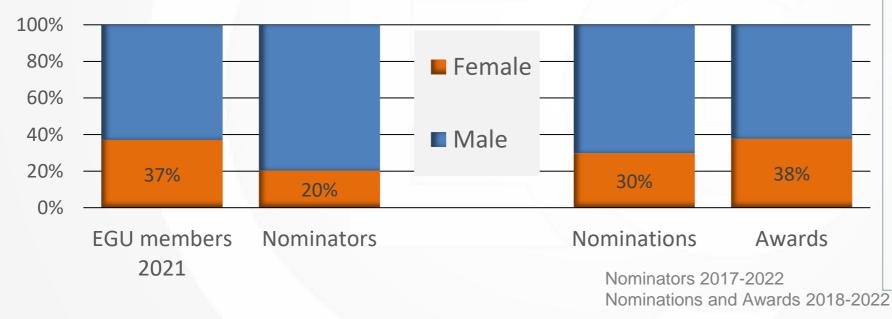
EGU awards & medals



- All members are strongly encouraged to contribute to the awards program by nominating suitable candidates.
- When nominating please think about people who may have been overlooked in your discipline.

· If you do not nominate nobody will.

Members, Nominators, Nominees, and Awardees



EGU22-1087 * |
Presentations | EOS3.1 |
Highlight
Equality of opportunities
in geosciences: The
EGU Awards Committee
experience

Thomas Blunier

EGU awards committee chair
Wed, 25 May, 10:34–
10:41 Room 1.14



How to nominate

Where: https://www.egu.eu/awards-medals/nominations/

When: Deadline is **June 15 every year**

What is required:

	Division and Union medals	Outstanding Early Career Scientists Awards
Nomination letter	1 page	½ page
Curriculum Vitae	2 pages	1 page
Selected bibliography	2 pages	½ page
Supporting letters	3-5 (maximum 1 page each)	-



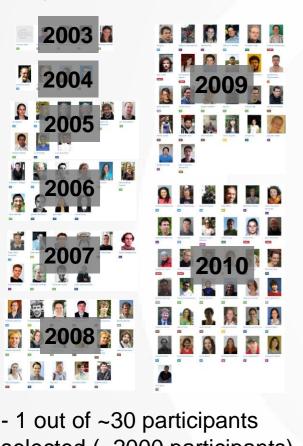
OSPP

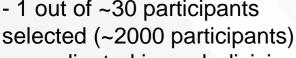
Outstanding Student and PhD candidate Presentation contest



OSPP: Outstanding Student and PhD candidate Presentation contest

Organized since 2003 (first in HS division, since 2008 union-wide)





- coordinated in each division





2022:

>2800

participants







2020





OSPP: Outstanding Student and PhD candidate Presentation contest

What is evaluated?

- scientific content (relevance, methods, ...)
- presentation (organization, aesthetic appeal, ability to answer questions, ...)

Who votes?

- 3 pre-defined judges per participating presentation
- ALL EGU participants (from post-doc level on, not co-author, no shared affiliation) can vote as well on abstract page!
- WE NEED YOU!!!

Who can participate?

- first and presenting author
- either currently a BSc or MSc student or PhD candidate
- or last degree obtained in year of GA

Why participate?

- Better visibility for your research
- Award certificate and ceremony
- Free open-access publication in one of the EGU journals
- Conference fee waiver for next EGU



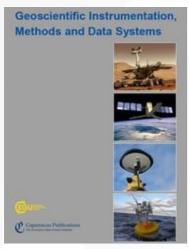


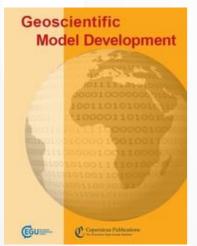
GI Structure

President	Francesco Soldovieri	gi@egu.
Programme Group Chair	Francesco Soldovieri	gi@egu.
Science Officers	Nicola Masini Cultural and Archaeological Heritage	nicola.masini@cn
	Dirk Fleischer Data systems and Publishing	dirk.fleischer@ulb.hhu.
	Bernard Celerier Downhole Instrumentation	
	Andrey Marusenkov Electromagnetic and Acoustic Sounding	
	Jean Dumoulin Infrastucture instrumentation and monitoring	jean.dumoulin@univ-eiffe
	Ari-Matti Harri Instrumentation for Polar Regions and Harsh Environment	ari-matti.harri@fm
	Torben Mikkelsen Ocean and Atmosphere Instruments	
	Bernard Foing Space instrumentation	foing@strw.leidenuni
Sub-Programme Groups	Vira Pronenko PG1: General Sessions on Geoscience Instrumentation	pron@isr.lviv
	Masatoshi Yamauchi PG2: Data Networks and Analysis	m.yamauchi@irf
	Bernard Foing PG3: Atmosphere and Ocean Monitoring, Space Instrumentation	foing@strw.leidenuniv
	Jean Dumoulin PG4: Earth Surface Investigation Methods	jean.dumoulin@univ-eiffd
Christiaan Huygens Medal Chair	Susana Barbosa	susana.a.barbosa@inescted
OSPP Coordinator	Misha Krassovski	krassovskimb@ornl.c



GI Journals





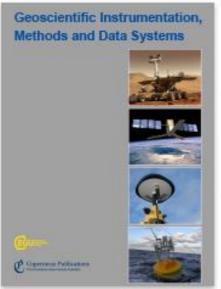
Geoscientific Instrumentation, IF 1.473 Methods and Data Systems (GI)

Geoscientific Instrumentation, Methods and Data Systems (GI) is an open-access interdisciplinary electronic journal for swift publication of original articles and short communications in the area of geoscientific instruments. It covers three main areas: atmospheric and geospace sciences, Earth science, and ocean science. A unique feature of the journal is the emphasis on synergy between science and technology that facilitates advances in GI.

Geoscientific Model Development (GMD) IF 6.135

Geoscientific Model Development (GMD) is an international scientific journal dedicated to the publication and public discussion of the description, development, and evaluation of numerical models of the Earth system and its components.





Geoscientific Instrumentation, Methods and Data Systems (GI)

Journal Report to GI DM

OUTLINES

25th May, 2022

- Journal Scope
- **Journal Summary**
- Questions to address at the 2022 Editorial Meeting

The current executive editors:

Jean Dumoulin

Salvatore Grimaldi

Håkan Svedhem



Geoscientific Instrumentation, Methods and Data Systems (GI) urnal Scope

Challenging Mission: Multi-Trans-Inter Disciplinary Journal

It covers all aspects of instrumentation, methods and data systems across all fields covered by the EGU. A unique feature of the journal is the emphasis on the synergy between science and technology that facilitates advances in GI.

- concepts, design, and description of instrumentation;
- concepts, design, and description of data systems;
- •retrieval techniques of scientific products from measurements;
- calibration and data quality assessment;
- uncertainty in measurements;
- •newly developed and planned research platforms and community instrumentation capabilities;
- •major national and international field campaigns and observational research programmes;
- •new observational strategies to address societal needs in areas such as monitoring climate change, preventing natural disasters, and urban health monitoring;
- •networking of instruments for enhancing high temporal and spatial resolution of observations;
- urban instrumentation and remote sensing;
- model-calibrated remote sensing;
- advanced data analytics and assimilation methods;
- multi-scale and multi-physical sensing;
- •new concept in measurements system architecture;
- •Internet of things (IoT) and massive low-cost instrumentation;
- citizen science data management;
- ·human sensing.





Geoscientific Instrumentation, Methods and Data Systems (GI) Journal Summary

CURRENT SITUATION

Journal report 2021

35

Manuscripts submitted (report year)

-23.9%

Relative change (pre-report year)

436

Manuscripts submitted (all time)

26

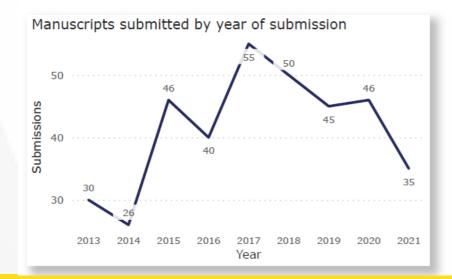
Articles published (report year)

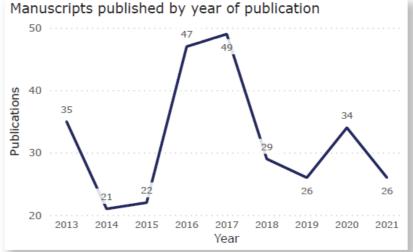
-24%

Relative change (pre-report year)

320

Articles published (all time)



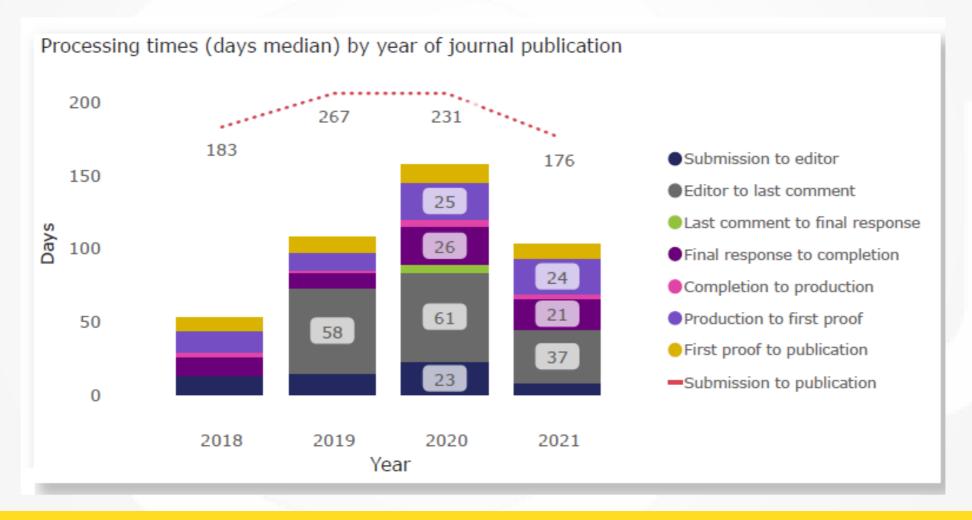






Geoscientific Instrumentation, Methods and Data Systems (GI) a Journal Summary

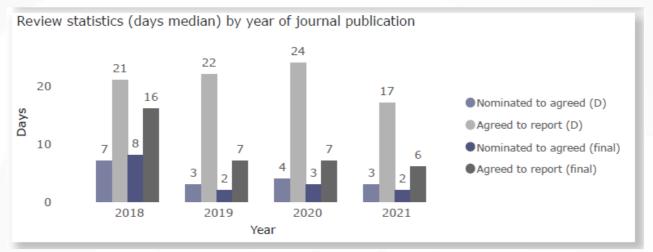
CURRENT SITUATION





Geoscientific Instrumentation, Methods and Data Systems (GI) Journal Summary

CURRENT SITUATION



Renewing AE board

For topics in:

- Hydrology
- Geomorphology
- Citizen science
- Signal and image processing
- Artificial Intelligence
- ...

Considering a Mix of early & advanced career scientist

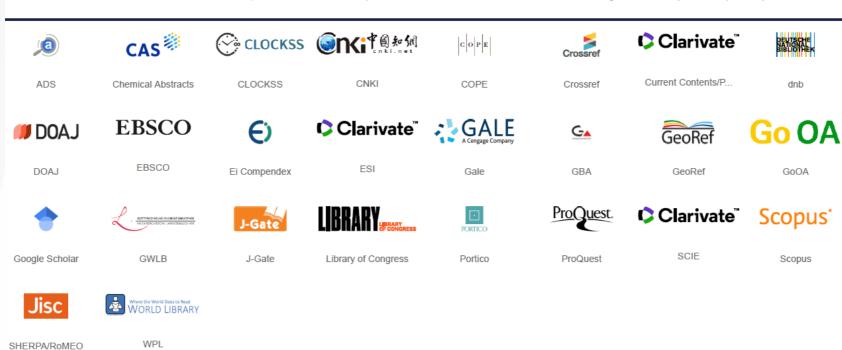
CRITICAL ISSUES





Dissemination

Geoscientific Instrumentation, Methods and Data Systems is indexed and archived in the following databases (as of May 2022):



Crossref reports for all articles published in the last 2 years:

100% 42% 46% 100% 100% 80% 100.00% Open abstracts Grant numbers Funding statements License information Open references Orcid IDs Similarity reports

Assets defined in articles published in 2021:

31%8%27%0%0%Any assetCodeDataVideo supplementsVideo abstracts



Geoscientific Instrumentation, Methods and Data Systems (GI) Questions to address at the 2022 Editorial Meeting (1/2)

Follow-up of 2021 listed actions

- The Associate Editor group still need to be renewed, and enlarged above all for specific disciplines: Underground instrumentation & measurement systems, Ground instrumentation & measurement systems, Airborne Instrumentation & measurement systems, Space Instrumentation & measurement systems, Signal & Image processing, Monitoring systems, Numerical system Engineering, Urban Monitoring, Multi-scale monitoring, AI, ...
 - involving young and active researchers;
- ➤ A turn over of AEs → Pursue the renewing of the editorial board
- > Towards 2 Associate Editor Calls (with only 2 days of lag). Following that, proceed with the direct assignment of the AE by EE.
- AEs should handle a minimum of 1-2 manuscript per year.
- > APC reduction for early career scientist.
- > Special issue linked to the EGU Division, to the EGU General Assembly and to multidisciplinary topics (i.e. Citizen science) still has to be encouraged.



Geoscientific Instrumentation, Methods and Data Systems (GI) Questions to address at the 2022 Editorial Meeting (2/2)

Our journal is multidisciplinary

- → Difficulty for the present three EE's to appropriately cover all the topics
- → The addition of one more EE should improve the coverage and lower the workload
- → In addition, Håkan Svedhem (co-founder of the GI journal in 2011) and Salvatore Grimaldi both have indicated their desire to step down as EE's. They both have agreed to continue as AE's

Thus, there is a need for two to three new EE's in the short to medium term

New EE's should have significant experience from editorial work, preferably having worked actively for some time as AE for the GI journal or a similar journal (EGU or non-EGU)

EE's are appointed by the EGU council on recommendation from the EGU Publication committee



EGU Early Career Scientist (ECS) GI Division

Highlights from 2021-2022

- **1. Webinar:** Instrument Development for Geosciences Research (Veronica Escobar Ruiz). Recorded YouTube link on EGU YouTube Channel.
- **2. EGU 22 GI5.5:** Geo-infrastructure monitoring: complex data analysis and instrument application (11 abstracts).
- **3. Communications:** Internal meetings and slack group communications with other ECS Rep.
- **4. Workshop:** Preparation for a one-day workshop related to the remote sensing techniques for environmental and infrastructure monitoring
- 5. Blogs: LinkedIn blogs and Twitter posts to outreach the community
- **6. Special issue:** Remote Sensing for Infrastructure Assessment Using NDTs and Intelligent Data Analysis: New Trends and Challenges https://www.mdpi.com/si/89672

EGU GI ECS Representatives





Mezgeen Rasol

(He/him)





Veronica Escobar Ruiz (She/her)



EGU ESC GI Division

Plans 2022-2023

- 1. Build an active and strong ECS committee through EU;
- 2. Outreach and advertising through LinkedIn, Twitter and Blogs;
- 3. Organize and continuation of current session for EGU23;
- 4. One day workshop on GI and ECS role to develop an ECS network, and instrumentations.
- 5. Joint collaboration with other ECS in Europe and worldwide.
- 6. Webinars from former ECS representatives to explore their experience at GI; Dr.Fabio Tosti and Dr.Tim Van Emmerik (will contact them for such webinars) to inspire new ECS members.

<u>Issues or support needs</u>

• Expecting more support from EGU GI division team.



GI Division President Election Autumn 2021



Pietro Tizzani ELECTED 52 votes (39.4%)



Bernard Foing 48 votes (36.4%)



Roberto Pierdicca 30 votes (22.7%)



Any other business?

Thank you and Enjoy the Conference!



Why did you change the date of EGU22 from early April to late May?

This decision was made in January at the beginning of the omicron wave. There was considerable anxiety within the community about attending an in-person event in these conditions. Moreover, Austria limited the maximum event size to 2000 seated people (and even less standing), with no indication of when that rule would be relaxed.

Under these conditions, when the ACV proposed an alternative date (due to the cancellation of another conference) we decided to do this, in order to maximise the chance of having an in-person component to EGU22



Will the date of the General Assembly change again in future?

This was the first time in the history of the EGU General Assembly that we have had to change the date and we sincerely hope it will be the last!

We are currently not announcing the date of the the 2023 General Assembly because we are still discussing with the ACV. Originally it was planned for early April but we hope to find again a date in May so as to be more resilient with regards to possible new Covid infection waves.



Why are there no posters or PICOs this year?

We originally had to provide a hygiene plan to the Austrian authorities. Including posters and PICOs in the programme appeared as a major risk in getting the plan approved.

Large numbers of non-seated people mixing in closed spaces are viewed as too much of a risk to our attendee's health, safety and well-being in the current pandemic situation.



 Austria relaxed the Covid regulations. Why are you maintaining the 2G and mask requirements?

The Austrian authorities announced the relaxation of the regulations after our deadline for on-site registration. Due to the requirements of our conference hygiene plan, it was not possible to re-open the registration. We felt that participants had signed up for an in-person event under certain conditions and we did not want to modify this after participants had registered. The health and safety of all participants is our primary concern. In addition, we were advised to maintain a 2G conference given the unpredictable nature of regulation changes.