

International Union of Geodesy and Geophysics (IUGG)

Activities' Report - 2023

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1. Introduction

As an international, non-governmental scientific organisation, the **International Union of Geodesy and Geophysics** (IUGG, <http://www.iugg.org/>) aims at the advancement, promotion, and coordination of research activities relating to the planet Earth, the space surrounding it, and the processes that regulate its changes. Founded in 1919, the IUGG is part of the International Science Council (ISC, <https://council.science/>).

The Union comprises **eight International Associations**, each of which operates in Earth and space-related fields. The **Associations** are:

- The *International Association of Cryospheric Sciences* (IACS, <https://cryosphericssciences.org/>);
- The *International Association of Geodesy* (IAG, <https://www.iag-aig.org/>);
- The *International Association of Geomagnetism and Aeronomy* (IAGA, <https://iaga-aiga.org/>);
- The *International Association of Hydrological Sciences* (IAHS, <https://iahs.info/>);
- The *International Association of Meteorology and Atmospheric Sciences* (IAMAS, <https://www.iamas.org/>);
- The *International Association for the Physical Sciences of the Oceans* (IAPSO, <https://iapso-ocean.org/>);
- The *International Association of Seismology and Physics of the Earth's Interior* (IASPEI, <http://iaspei.org/>);
- The *International Association of Volcanology and Chemistry of the Earth's Interior* (IAVCEI, <https://www.iavceivolcano.org/>).

Owing to the many interactions between the themes covered and the links between the objectives of the eight Associations, the Union currently has **five interdisciplinary commissions** (<http://www.iugg.org/about/commissions/>):

- *Climatic and Environmental Changes* (CCEC, <https://iugg.org/associations-commissions/commissions/cceg/>);
- *Mathematical Geophysics* (CMG, <https://iugg.org/associations-commissions/commissions/cmg/>);
- *Geophysical Risk and Sustainability* (GRC, <https://iugg.org/associations-commissions/commissions/grc/>);
- *Study of the Earth's Deep Interior* (SEDI, <https://iugg.org/associations-commissions/commissions/sedi/>);

- *Planetary Sciences* (UCPS, <https://iugg.org/associations-commissions/commissions/ucps/>).

2. National representatives and National committee 2023 - 2026

By order no. 14 of 14 February 2023, the CNR President has appointed the national representatives in the Union and in the eight international Associations for the 4-year period 2023-2026.

The national representative to the International Union of Geodesy and Geophysics (IUGG) is Fausto GUZZETTI. The alternate is Claudia PASQUERO.

The national representatives to the eight international Associations are:

- Barbara STENNI, Giovanni MACELLONI substitute, for the *International Association of Cryospheric Sciences* (IACS),
- Mattia CRESPI, Paolo MESSINA substitute, for the *International Association for Geodesy* (IAG),
- Umberto VILLANTE, Luigi VIGLIOTTI substitute, for the *International Association of Geomagnetisms and Aeronomy* (IAGA/IUGG),
- Alberto MONTANARI, Tommaso MORAMARCO substitute, for the *International Association of Hydrogeological Sciences* (IAHS/IUGG),
- Marcello MIGLIETTA, Massimiliano PASQUI substitute, for the *International Association of Meteorological and Atmospheric Sciences* (IAMAS/IUGG),
- Katrin SCHROEDER, Andrea CUCCO substitute, for the *International Association of Physical Sciences of the Ocean* (IAPSO/IUGG),
- Warner MARZOCCHI, Andrea ARGNANI substitute, for the *International Association of Seismology and Physics of Earth's Interior* (IASPEI/IUGG),
- Giuseppe DE NATALE, Claudia PRINCIPE substitute, for the *International Association of Volcanology and Chemistry of the Earth's Interior* (IAVCEI/IUGG).

Later, by order no. 40 of 3 April 2023, the President of the CNR reconstituted the National committee for the participation of the CNR in the International Union of Geodesy and Geophysics (IUGG) with the following tasks:

- To fulfil the functions of the Italian National committee; and
- To provide guidelines and proposals for an effective Italian participation in the activities of the IUGG and the necessary support to the CNR on issues concerning international initiatives and activities promoted by the IUGG and the interested international Associations.

In its new composition, the National committee met on 16 May 2023 and appointed Fausto GUZZETTI as President, and Warner MARZOCCHI as Scientific secretary.

On 3 November 2023, Giuseppe DE NATALE informed the President of the National committee that he had resigned as representative in IAVCEI -

International Association of Volcanology and Chemistry of the Earth's Interior.

On 11 December 2002, Umberto VILLANTE informed the President of the National committee that he had resigned as representative of IAGA - *International Association of Geomagnetism and Aeronomy*.

The President of the National committee thanked Giuseppe DE NATALE and Umberto VILLANTE for their work over the years as national representatives and members of the National committee.

On 29 February 2024, by order no. 36, the President of CNR appointed Giuseppe CONSOLINI as new representative to IAGA and Gilberto SACCOROTTI as new representative to IAVCEI. Both are members of the National committee.

3. Main IUGG activities in 2023 relevant for Italy and for CNR

The main activity of the Union in 2023 was the quadrennial **General Assembly**, held in Berlin from 11 to 20 July, which was attended by 5198 delegates, the highest ever attendance at a Union General assembly.

Of particular importance at the General assembly was the adoption of **five Union resolutions**, all of interest to the national scientific community.

In addition to scientific meetings of international importance, the Union, through its General secretariat, continued its information and coordination activities with its member Associations and with other international scientific organisations, in particular with the International Science Council (ISC, <https://council.science/>), of which the IUGG and the CNR are members.

The updating of the Union's website (<https://iugg.org/>) and the publication of monthly electronic newsletters, which can be found at <https://iugg.org/publications/ejournals/>, continued. Cecilia LALLE, of the Cnr International Relations Unit, regularly informed the members of the National committee about the publication of the newsletters and summarised the most interesting contents.

4. Activities as national representative within the Union

In addition to coordinating the activities of the National Commission CNR - IUGG, the main activities were:

- participation in the General Assembly and mainly in the work of the Union Council, with three meetings in Berlin on 12, 15 and 18 July,
- the transmission to interested national administrations, for their information, of the five resolutions adopted by the Union Council, all of interest to Italian scientists,
- updating the web pages on the National committee on the CNR website and providing the IUGG General secretariat with the annual reports for the years 2019 to 2022, and
- the analysis and approval of the proposed amendments to the Statutes and By-Laws of the Union.

Regarding the five resolutions adopted by the Council of the Union, in close coordination with the International Relations Department of the CNR and the CNR Presidency,

- The Resolution on **Improving Protection of Geodetic Observatories from Active Radio Services** was sent to the Head of the Cabinet of the Italian Ministry of Enterprise and Made in Italy and, for information, to the Presidents of the National Institute of Astrophysics, the Italian Space Agency, and the National Research Council.

In a note dated 15 January 2024, the Head of the Cabinet of the Italian Ministry of Enterprise and Made in Italy informed the President of the National committee that the Ministry, in synergy with the other institutional actors involved and in a proactive perspective, is committed to identifying corrective solutions to be proposed to Working Group 7D that can satisfy the interests of all parties involved.

- The Resolution on the **Sustained Terrestrial Water Storage (TWS) Monitoring by Dedicated Gravity Satellite Constellations** was sent to the Head of the Cabinet of the Ministry of the Council of Ministers, to the Presidents of the Italian Space Agency and of the Istituto Superiore per la Protezione e la Ricerca Ambientale and, for information, to the President of the National Research Council.
- The two Resolutions concerning the **Sharing Geophysical Data across Borders**, and the **Preservation and Dissemination of and Enhanced Access to Analogue Records**, were jointly forwarded to the President of the Council of Presidents of Public Research Institutions, with a request for transmission to the Presidents of all the Public Research Institutions, and, for information, to the President of the National Research Council.
- The Resolution on **Weather and Climate Engineering Based on the Addition of Aerosol Particles** was sent to the Head of Cabinet of the Ministry of the Environment and Energy Security, the President of the Istituto Superiore per la Protezione e la Ricerca Ambientale, the Director of Agenzia Italia Meteo, the Coordinator of the Steering Committee for Meteorology and Climatology of the Presidency of the Council of Ministers and, for information, to the President of the National Research Council.

With the support and collaboration of the International Relations Unit of the CNR, the contents of the web pages in Italian [<https://www.cnr.it/it/organismo-scientifico-internazionale/31/iugg-international-union-of-geodesy-and-geophysics>] and English [<https://www.cnr.it/en/international-scientific-organization/31>] on the CNR website on the Union have been updated, including information on the activities of the National committee.

Subsequently, information was sent to the IUGG General secretariat on the annual reports prepared by the National representative for the years 2019 to 2022. The reports are now also available on the Union's website, together with those of the other countries [<https://iugg.org/members/national-committee-reports/>].

Regarding the proposed amendments to the Statutes and By-Laws of the Union, received by e-mail from the Executive Secretary of IUGG on 11 December 2023, the relevant documents were distributed to the national representatives in the International Associations with a request for feedback and possible suggestions. The issue was discussed in 2024.

5. Evaluation of the participation in the Union in terms of benefits and costs of membership

The Union and its eight Associations cover research areas of considerable interest to the national academic and scientific community in the broad and diverse field of Earth and Space Sciences. Directly and through its individual Associations, the Union contributes to the international governance of research in the Earth and Space Sciences by promoting inter-Association commissions and by maintaining relations with other scientific bodies in neighbouring or complementary fields.

In the Associations and in specific interdisciplinary commissions, national representatives have played and will continue to play an important role in promoting Italian research and fostering international cooperation and synergies.

In 2023, of particular importance was the election of Salvatore GRIMALDI as President-elect of the International Association of Hydrological Sciences (IAHS) and of Marcello Mario MIGLIETTA as member of the International Commission on Dynamical Meteorology of the International Association of Meteorological and Atmospheric Sciences (IAMAS) at the General Assembly in Berlin.

The Union continues to promote young researchers in the Earth and space sciences through support programmes and awards.

The membership fee paid by the CNR to the Union covers participation in the activities of the Union and its eight international Associations, which therefore have no additional membership costs. This is particularly important for the larger and more established Associations, as well as for the younger ones, which need organisational support to grow and establish themselves as reference points in the Italian scientific community.

6. Evaluation of Italian participation with proposals to improve interest and participation

The national academic and scientific community working in the broad field of Earth and space sciences is heavily involved in the activities of the Union and its eight Associations, and is also active in other scientific, technical and research organisations close to the topics covered by the Union and its Associations, in particular - but not exclusively - the European Geosciences Union (EGU) and the American Geophysical Union (AGU).

Greater involvement of the national community in the Union's interdisciplinary commissions is desirable, as is greater proactivity in proposing scientific events and meetings for Union support.

Significantly, in 2023, at the General Assembly in Berlin, Paolo PAPALE was

awarded the prestigious title of Elected Fellow of the IUGG "*for ground-breaking and highly considered research in geochemical modelling, volcanology and volcanic risk assessment, with significant societal impact*".

The Bureau of the Union also conferred the title of Conferred Fellow on Stefania SPARNOCCHIA, outgoing Secretary General of IAPSO, and Roberto SULPIZIO, outgoing Secretary General of IAVCEI.

7. Summary of the activities of the National committee

During 2023, the National committee met twice electronically, the first time on 16 May and the second time on 8 November. Informal meetings between the members of the Commission also took place during the General Assembly held in Berlin from 11 to 20 July 2023. To participate in the General Assembly, the Head of the International Relations Units of the CNR, Virginia CODA NUNZIANTE, sent the composition of the national delegation to the Union Secretariat on 30 June 2023. The RI-Cnr Unit financially supported the missions of the Delegates: Fausto Guzzetti, Mario Marcello Miglietta, Alberto Montanari, Katrin Schroeder, Umberto Villante and Mattia Crespi.

During the informal meetings that took place during the General assembly in Berlin, the exchange of information made it possible to optimise relations and actions within the IUGG Council and the meetings of the International Associations.

As described above, in December 2023, concerned Italian National Administrations were informed of the resolutions adopted by the IUGG Council in July [see § 4].

During the year, the pages of the CNR website relating to the Union and to each International Association were updated.

At the request of the Union Secretariat, the Secretariat of the National committee sent the updated information on the Italian Committee for publication in the 2024 IUGG Yearbook.

Finally, the discussion resumed on the organisation of a workshop as part of the activities of the IUGG National committee. After a broad discussion and with the contribution of all members of the committee, it was agreed to organise a workshop on "Potentially Hazardous Natural Events: Models, Uncertainties, Communication", to be held on 25 and 26 September 2024 in the Marconi Hall of the CNR headquarters in Rome. To support the organisation of the workshop, the National committee has prepared a document outlining the rationale, format, and planned logistics of the workshop.

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National representative to the IUGG
President of the Italian National committee

Perugia, April 29, 2023