

IAPSO-IUGG

Activities' Report - Year 2021

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1. Introduction

IAPSO, the International Association for the Physical Sciences of the Oceans, is one of the 8 Associations of IUGG, the International Union of Geodesy and Geophysics, representing the international community of physical ocean sciences. The IAPSO activity is carried out by organizing biennial conferences, that every four years coincides with the IUGG General Assemblies, and through commissions, committees and workshops on original and up-to-date research themes. IAPSO also participates to the activities of SCOR (Scientific Committee on Oceanic Research), with which it has organized a number of joint working groups. IAPSO provides also basic services to the research community, such as the Permanent Service for Mean Sea Level and the IAPSO Standard Seawater Service, the latter being the reference for calibrating seawater salinity measurements. Since April 2022, IAPSO has a new website (<http://iapso-ocean.org>) and a Facebook page (<https://www.facebook.com/iapso.iugg.org>).

The activities mentioned above have important implications also at the national scale and the participation of the Italian community to the periodic assemblies, in a higher number when they are taking place in European States, is both an occasion to meet the international reference community and a place to enhance visibility of research activities carried out in national academies or research institutions.

2. Main activities carried on by IAPSO during 2021 relevant for Italy and for CNR

In 2021 the activity has been reduced to a minimum, due to the COVID-19 pandemic. All activities have been carried out remotely. Essentially it has been limited to the distribution of news and calls issued by IAPSO through the newly established national IAPSO mailing list (lista.iapso.it@cnr.it). Among these there were the IAPSO calls for nominations for the Early Career Scientist Medals (published on 1st October 2020) for the IUGG Early Career Scientist Award and for the IAPSO Best Practice Study Groups (deadline November 2021).

In July 2021, the online event VACO2021 was held in substitution of the Joint Assembly of IAMAS, IACS and IAPSO originally scheduled in South Korea.

In October 2021 a first in-presence event was held in Naples, namely the "JRU EMSO-IT: Towards a 4-D vision of the ocean", in which the Italian marine scientific community met with the aim of defining a common path to improve the coordination and the integration between the many research infrastructures and national initiatives, finalized to promote the role of Italian organizations in the field of European marine research.

As part of the IAPSO topics, in 2021 a series of oceanographic and hydrographic field campaigns were performed in three different lagoons in Sardinia (Italy) with the aim of both analyzing the main hydrodynamic features and to estimate the water residence times in the three lagoon basins. This research activity was carried out as part of a FESR project aimed at mapping the suitable areas for aquaculture activities.

Within the INTERREG project SICOMARplus, an acoustic doppler current profiler was installed in the Oristano Gulf to perform continuous measurements of the sea water elevations, wave height and water currents aimed at understanding the Gulf circulation pattern and at validating oceanographic forecasting prediction systems.

In 2021, intense research activities were also carried out by the IAPSO reference community in relation to the extreme high tide that hit the city of Venice in November 2019. The involved researchers simulated the devastating event from different perspectives and considering different temporal scales. In particular, the time series of the sea water levels from the 1872 to 2019 were analyzed to detect the different forcing promoting the event and to evaluate the effects of their temporal variability. The obtained results highlighted a positive trend in the intensity of the non-tidal contribution to extreme sea levels in the last decades. Furthermore, the

combined use of high resolution altimetric data and wave and storm-surge numerical models applications improved the prediction accuracy in coastal areas. Finally, from a detailed analysis of the wind and wave distribution in the Ligurian Sea during the Vaia storm (29 October 2018), the main mechanisms promoting the extreme wave conditions in the East Coast were detected.

3. Activities carried on by Italian Delegate within the Union during 2021 and impact on the Italian scientific community

With the aim to qualitatively and quantitatively enhance the Italian participation it is necessary to make a better access to information possible. To this end now a mailing list of Italian scientist who are associated to IAPSO exists, to which it is always possible to be added (instructions are published here: <https://www.cnr.it/it/organismo-scientifico-internazionale/38/iapso-iugg-international-association-of-physical-sciences-of-the-oceans>), which will be used by the delegate and the alternate to easily spread information and communications that are relevant for IAPSO, as well as collect contributions for the periodic reports on the Italian scientific activities in the framework of IAPSO. Through this list the most important IAPSO news has been divulged and the potential nominations for the award have been collected.

4. Evaluation of the participation in terms of benefits and membership cost

As the other IUGG Associations, IAPSO is a scientific reference and is fundamental for the internationalization of the Italian community, favouring the openness towards the global community. Through IAPSO the Italian scientific community has the opportunity to participate to scientific initiatives (conferences, scold, working groups, strategic plans drafting), even from the organisational point of view. This enhances visibility of the national community and its authoritativeness in the framework of the Association. The membership costs to IUGG do also have advantages from an economic point of view, given that the Italian participants care eligible to receive support for their participation to the scientific activity through travel grants and funding for the organization of workshops in Italy, thanks to IUGG support programs to scientific meetings.

Although in the past, several events were funded in a similar way, within the period considered in this reporting activity, probably due to the persistence of the pandemic event, this did not occur. It is hoped that in the next future, the participation of Italian researchers to such a type of calls, that will be appropriately disclosed through the aforementioned mailing list, will increase.

Other similar event can be supported in future, when in person meetings will be possible again. To conclude in my opinion the benefits/cost ratio of the membership is extremely favourable.

5. Evaluation of Italians' attendance and how to improve interest and involvement

The organization of a national scientific event related to IAPSO or more in general to IUGG and its associations, would help to promote the Association's activities in Italy and would provide useful contents to the preparation of the biennial report of the Italian activities. In addition, it would create a higher awareness within the national scientific community about the role that Italy could have at the international level, based on the notable scientific expertise and the availability of instruments and observational networks. This event could also be organised as a scientific workshop with a IUGG grant (application to be performed to the next call).

6. Italian experts with important roles within the Union or within related Commissions and Programs (if known)

The Italian community is represented in the committees and the commissions of the Association, and has had representative roles within international organizations on behalf of the Association and the Union. In particular, between 1995 and today:

- Paola Malanotte Rizzoli (USA/Italy) was part of the IAPSO Bureau from 1995 to 2007 as President (1999-2003), Past President (2003-2007) and Deputy Secretary General (1995- 1999).
- Mario Astraldi has been member of the Executive Committee from 1995 to 2003.

- Stefania Sparnocchia has been member of the Executive Committee from 2007 to 2015 and since 2015 she is Secretary General. Furthermore, she has been Liaison Officer of IUGG/IAPSO for the Intergovernmental Oceanographic Commission of UNESCO from 2011 to 2019 and has been member of the Site Comparison Committee that evaluated the proposals for the IUGG G.A. in 2023, and selected Berlin.
- Stefano Tinti is member of the Joint Tsunami Commission (IAPSO/ IASPEI/IAVCEI)
- Christian Ferrarin is member of the Commission on Mean Sea Level and Tides (the commission's members are all those that participate to the commission's meetings, C. Ferrarin has participated to the 2019 meeting)
- Giorgio Budillon (Univ. Parthenope) and Paola Rivaro (Univ. Of Genoa) are the national representatives for SOOS (Southern Ocean Observing System, <https://www.soos.aq/community/national-representatives>)
- Giorgio Budillon is the Italian representative for Physical Sciences in SCAR (Scientific Committee on Antarctic Research, <https://www.scar.org/ssg-ps/ps-members/>)
- Katrin Schroeder has been appointed as Chair of the Early Career Scientists Award Committee with the role of evaluating the applications received for the 2021 call (awards in 2023 at the IUGG GA in Berlin)

7. Conclusions

As already pointed out in previous occasions, it would be useful to establishing a national award for Italian early career scientists, active on IAPSO themes, that would favour their participation to the General Assemblies of the Association. This participation should also be encouraged by sustaining young Italian researchers with fellowships and awards, enhancing their international mobility.



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