

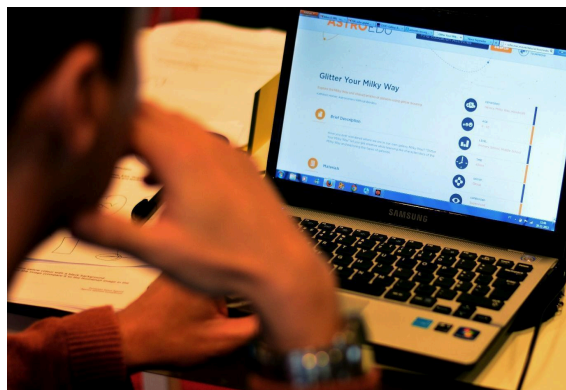


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# ASTROEDU

Peer-reviewed Astronomy Education Activities



## AstroEDU Report 2023/2024

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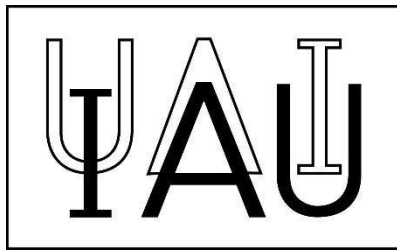
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# ASTROEDU

Peer-reviewed Astronomy Education Activities

is a project by



with the collaboration of:

INAF (Istituto Nazionale di Astrofisica), Las Cumbres Observatory

# Table of contents

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Abstract	4
<b>1. Accomplishments of the 1st year</b>	<b>5</b>
1.1 Redefinition of the editorial board and of the workflow	5
1.2 Changes in the editorial process of publication and review	5
1.3 Improvements of the technical structure for the website	5
1.4 Publication of new activities and review of existing activities	6
1.5 Participation of the scientific community	6
1.6 Dissemination to a worldwide audience	7
<b>2. Planning for the future</b>	<b>8</b>
2.1 Collaboration with the IAU community	8
2.2 Enlarge the use of astroEDU worldwide	8
2.3 Improve external communication	8
Conclusion	9
Attachments	
Attachment 1- List of publications and scientific congresses	10
Attachment 2 -Activities published	11

## Abstract

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AstroEDU (<https://astroedu.iau.org>) is the free, open-access platform for educational activities supported by the Office of Astronomy for Education (OAE) of the International Astronomical Union (IAU). With astroEDU, educators can find a selection of education activities on astronomy, Earth, and space science that have been reviewed both by a professional educator and a professional scientist to ensure accuracy from both the educational and scientific perspectives.

Founded in 2013, since April 2022 astroEDU has a new Editorial Board working at its reorganization and relaunch. This Report refers to the activities of this new editorial team in the second year of its activities, going from 1<sup>st</sup> of April 2023 to the 1<sup>st</sup> April 2024.

For more information about the first year of activity, we will refer to the AstroEDU Report 2022/2023 [<https://doi.org/10.20371/INAF/TechRep/275>].

**In this second year of activities, astroEDU has reached many of the objectives identified: three different language editions are now online (English, Italian and Spanish), and the platform has published one activity per month starting from September 2023.**

AstroEDU has also a lively community of users and collaborators, including researchers, teachers, students, and experts in science education and was presented in a number of Scientific congresses and other IAU initiatives.

# 1. Accomplishments of the 2nd year

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## 1.1. Redefinition of the Editorial Board and of the workflow

In the second year of activity the editorial board was modified to include new members who joined the team of the international board (since October 2023). The international board continues meeting on a weekly basis to organise and coordinate astroEDU tasks. The international editorial team is today constituted by: Livia Giacomini, editor in chief; Giulio Mazzolo; Edward Gomez; Gwen Sanderson; Gianluigi Filippelli (new member); Federica Duras (new member); Silvia Casu (new member - editor in chief of the Italian edition); Carolina Escobar García (new member - editor in chief of the Spanish edition).

In this period, the Italian editorial board was also revamped, with a new structure: Silvia Casu (editor in chief of the Italian edition); Sandro Bardelli; Ilaria De Angelis; Federica Duras; Gianluigi Filippelli; Giuliana Giobbi; Anna Wolter, Ezio Pignatelli.

We also implemented a new Spanish editorial board starting on February 2024 led by Carolina Escobar García and including members: Anaely Pacheco Blanco; Ana Escorza; Agustín Vallejo.

The international and local editorial boards are at the moment organizing their activities and their interactions following previous indications from the AstroEDU Report 2022/2023.

## 1.2. Changes in the editorial process of publication and review

The review process is what makes astroEDU unique in the worldwide panorama and to meet this standard, it should be kept as simple as possible. The voluntary basis of the professionals involved (from the members of the Editorial Board to reviewers) calls for a wise management of the limited time and resources available. For this reason, the effectiveness of the review procedure has been evaluated with care and the publication process optimised, deciding that some technical tools previously used should be quitted (the OJS system) being too complicated. The editorial board built and shared a series of documents and videos instructions to make these processes as easy as possible for collaborators.

Other aspects of the process are described in AstroEDU Report 2022/2023.

## 1.3. Improvements of a new technical structure for the website

A number of improvements were made to the existing website:

- tags and keywords are now clickable, so that reader can choose to see all activities of a certain age range or on a specific topic;

- addition of new visible tags: type of activity and country
- page of collaborators where Institutes/projects/Universities that collaborate with AstroEDU are highlighted
- addition of a new process of DOIs attribution starting from March 2024 with the economical support of the Association Speak Science. This allows us to give a DOI to all new activities and start a process of reattribution of DOIs to existing activities that will be ongoing in the next years;
- development of an AI assistant (ongoing activity- Thesis of Antonella Corleone, a student of Università degli Studi Roma Tre, currently undertaking a thesis for a Master's degree in Mathematics Educational Outreach).

#### 1.4. Publication of new activities and review of existing activities

Starting from September 2023, we have been publishing 1 new activity per month on the 2nd Monday of the month. **In the period 1st of April 2023-1st of April 2024, a total of 9 new international activities were reviewed and published**, meeting the goal that was established in the 1st Year Report (see Attachment 1 for the complete list). **At the end of this second year of activity AstroEDU has a total of 100 published activities in English, 43 in Italian and 14 in Spanish.**

After the first review accomplished in 2022/2023, no further review of the old activities has been accomplished during this second year. A complete second review of the activities is planned for the next year (summer 2025).

#### 1.5. Participation of the scientific community

In the IAU community, we started a closer collaboration with OAE Nodes and Centers and IAU Working Groups. Some examples of this collaboration: all the activities that were codesigned in the Steam-Med project organized by OAE-Center Italy in Lampedusa in 2022 were published on AstroEDU (see <https://astroedu.iau.org/en/collections/steam-med-project/>); we started a collaboration with the IAU Inclusive office subgroup to review and publish activities from their projects (as an example: <https://astroedu.iau.org/en/activities/touching-the-stars/>)

Communication to the larger scientific community was also taken in account, mainly focusing on selected international congresses and events: **AstroEDU was presented in 6 different Congresses and workshops** (see Attachment 2 for a complete list).

An evident consequence of these efforts is the fact that the number of activities proposed for publication is rapidly increasing.

This has also led to a growing number of collaborators: the volunteers who have signed in the form (created in 2021 at <https://astroedu.iau.org/it/volunteer/>) to collaborate with AstroEDU **has grown from 37 to 98 in the period April 2023 to April 2024**. Starting from September 2023 activity reviewers were selected amongst these subscribers.

## 1.6. Dissemination to a wide worldwide audience

One of the tasks is to make teachers, students, and parents use AstroEDU all over the world. In the first 2 years of activities we mostly concentrated on reorganizing the editorial board and making AstroEDU known to the scientific community, searching for collaborators. So, very little effort was put on communication to a larger audience.

**Despite this, in the period of this report the number of visitors was aligned with the previous years, with a total of about 46000 users coming from all over the world visiting the website (for a mean value of 3800 each month).**

## 2. Planning for the future

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As stated in the AstroEDU Report 2022/2023, in the next years we want astroEDU to become a fundamental tool for the worldwide community of astronomy and, more in general, science teachers and educators. To reach this goal, we identified the following main targets for the next few years.

### 2.1. Collaboration with the IAU community

We are planning to continue to participate in IAU initiatives, presenting AstroEDU as much as possible and creating collaborations.

We also propose the creation of an AstroEDU Working Group inside OAE to foster and better organize the collaboration of the IAU community.

We are also planning to create as many collaborations as possible with Universities and other educational Institutions to create educational paths (thesis, stages) to involve students and non-staff members in AstroEDU.

### 2.2. Enlarge the use of astroEDU worldwide

One of the main tasks for the future will be to monitor and increase the number of monthly visitors, making sure that visitors are distributed as homogeneously as possible across the world and increasing their average time on astroEDU.

The target to **improve by 30% the current number of visitors decided in the Astroedu Report 2022/2023 will be addressed in the next future.**

**To improve the number of visitors we plan to improve SEO and analyze the user experience through a focus group of community members.**

The effort should of course include non English native speakers communities and to this aim, the board will encourage and support the establishment of local editorial boards.

### 2.3. Improve external communication

Effective communication is crucial to boosting the visibility and impact of astroEDU worldwide. Hence, in the next year, significant effort will be dedicated to this task. This will include the **development of a communication plan and application to funds for the creation of communication materials.**

## Conclusions

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In conclusion, astroEDU has made significant strides during its second year of activity, building on the foundations established in its inaugural year. The expansion into multiple language editions, the restructuring of editorial boards, and the optimization of publication processes have contributed to the platform's growing relevance in the global education and scientific communities. These achievements, coupled with increased community engagement and collaborations, position astroEDU as an invaluable resource for educators worldwide.

In particular, the work carried out has highlighted the importance of the following key aspects that will be addressed in the next years:

- AstroEDU has a strong potential impact on the scientific community and it is crucial to continue paying some effort in presenting the platform to Congresses, Conferences and schools and creating new collaboration within the scientific/educational community worldwide.
- Disseminating AstroEDU to a wider, worldwide audience involved in education at many levels is also a fundamental task for the coming years. Communication is therefore a key point and would strongly benefit from the availability of professionally designed communication materials such as leaflets, brochures, videos that need to be produced externally.

To successfully achieve the goals highlighted above, and fully accomplish the astroEDU mission, it is of the utmost importance that funding is made available. In particular, funds would allow to: i) enlarging the network of collaborators across the globe, by establishing synergies with organisations such as research institutions and universities; ii) involving in the review process additional staff (e.g. students or interns) and collaborators; iii) supporting the development of engaging and effective communication materials by outsourcing their production to professional graphic designers; iv) assisting in the development of activities, particularly for enhancements that arise during the peer-review process. Over the next year of activity, the Editorial Board will work towards the identification of possible sources of funds, thus informing the direction that the astroEDU project will take.

## Attachments

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### Attachment 1 - list of new educational activities published

- August 2023, *Become a geo-detective!*  
<https://astroedu.iau.org/en/activities/2301/become-a-geo-detective/>
- September 2023, *The Sun in our box*  
<https://astroedu.iau.org/en/activities/2308/the-sun-in-our-box/>
- September 2023, Orion constellation in 3D  
<https://astroedu.iau.org/en/activities/2306/orion-constellation-in-3d/>
- October, *How do telescopes work?*  
<https://astroedu.iau.org/en/activities/2307/how-do-telescopes-work/>
- November, *Can you find the exoplanet?*  
<https://astroedu.iau.org/en/activities/2304/can-you-find-the-exoplanet/>
- December, *Light Play*  
<https://astroedu.iau.org/en/activities/2312/light-play/>
- January 2024- activity of the Lampedusa collection  
[The sky at your fingertips | astroEDU \(iau.org\)](#)
- February 2024 - activity of the Lampedusa collection  
[Chasing the Moon | astroEDU \(iau.org\)](#)
- March 2024 - in collaboration with SKAO  
[SKAO and the mysteries of invisible light | astroEDU \(iau.org\)](#)

## Attachment 2- list of Congresses/Workshops

### **Astroedu Conference 2023, Toronto, May 10-12**

Workshop and poster: *Let's learn with AstroEDU!*, Livia Giacomini INAF / OAE Center Italy.

Co-authors: Edward Gomez, Stefano Sandrelli, Silvia Casu

<https://astroeducon.org/2023/>

### **ERIM Workshop, Bratislava, 19-23 June 2023**

Workshop, Livia Giacomini

<https://www.europlanet-society.org/europlanet-research-infrastructure-meeting-erim-2023-provisional-events/>

### **EduLearn, Palma de Mallorca, 3-5 July 2023**

LET'S LEARN WITH ASTROEDU!, L.Giacomini, E. Gomez, G. Mazzolo, G. Sanderson -

<https://iated.org/edulearn/>

### **II Workshop sobre enseñanza de la astronomía, 12 October 2023**

Online talk by Giulio Mazzolo

<https://accefyn.com/microsites/nodos/astroco/ii-workshop-ensenanza-de-la-astronomia/>

### **5th Shaw Workshop, 29th November -1st of december 2023**

Online Workshop by Livia Giacomini, Giulio Mazzolo, Federica Duras, Gwen Sanderson and Edward Gomez

<https://astro4edu.org/shaw-iau/5th-shaw-iau-workshop/>

### **Open science @ INAF, Rome, 14-15 december 2023**

Talk by Livia Giacomini

<https://indico.ict.inaf.it/event/2526/>