IAU Office of Astronomy for Education

OAE Center Italy

Annual Report 2025

IAU

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The IAU Office of Astronomy for Education Center Italy (I-OAE) is part of the IAU Office of Astronomy for Education (OAE).

I-OAE is a project led and represented by Istituto Nazionale di Astrofisica (INAF, National Institute for Astrophysics), the IAU and the IAU OAE.
I-OAE Head Office is hosted by the INAF - Rome Astronomical Observatory, in Monte Porzio Catone.
Personnel is selected on a voluntary basis, according to their interests and skills, in agreement with the Institutes they work for.

Host Institution: INAF - Istituto Nazionale di Astrofisica, Osservatorio Astronomico di Roma
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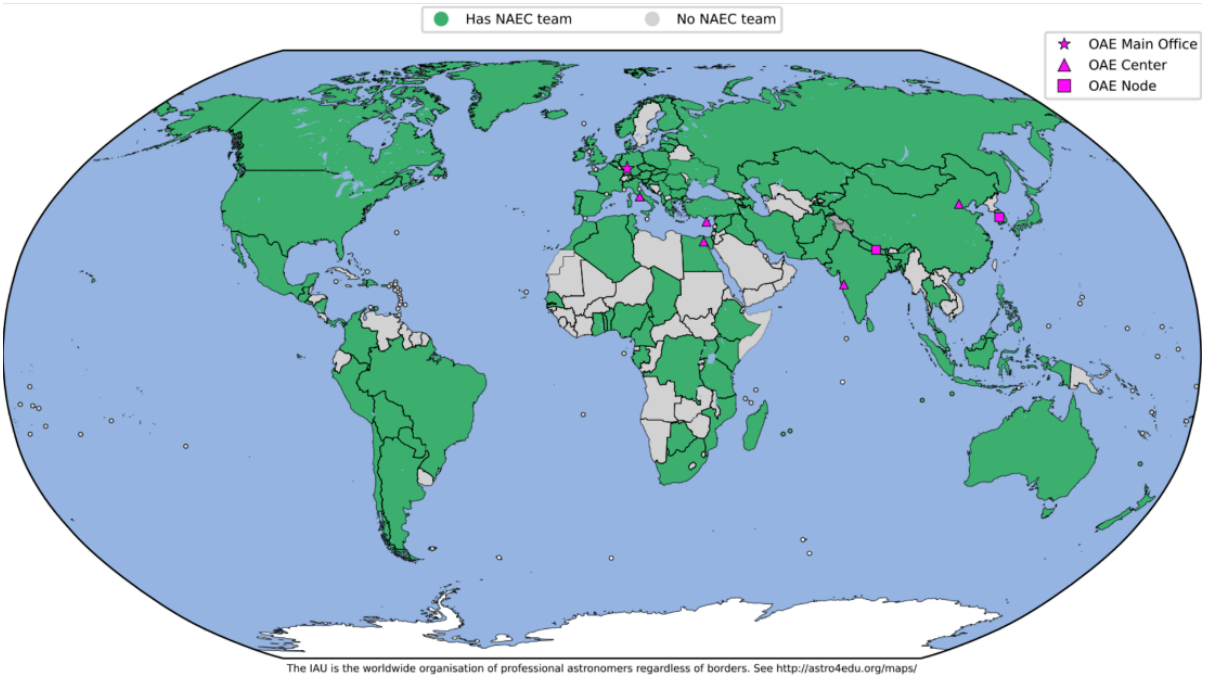

The worldwide map of the IAU National Astronomy for Education coordinators (NAEC). OAE Centers are shown as triangles, while OAE Nodes are squares. The star indicates the HQ in Heidelberg. Centres are hosted in Italy, China, India, Cyprus, Egypt, while Nodes in France, Republic of Korea and Nepal. The OAE Center Italy was the first to be set up after the OAE IAU official assignment.

Report compiled and edited by
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EXECUTIVE SUMMARY

The IAU OAE Center Italy was established on the 3rd of March 2021 through a Memorandum of Understanding signed by the International Astronomical Union (IAU), the Office of Astronomy for Education (OAE), and the Istituto Nazionale di Astrofisica (INAF). I-OAE is a joint project of a consortium of Italian partners led, represented, and operated by INAF.

In 2025, a revised Memorandum of Understanding entered into force, introducing updates in governance, staffing, and budget, and redefining one of the Center's focus areas toward person-centred learning. During the year, the Center consolidated its core initiatives while expanding its international collaborations and educational programmes.

0. Internal organisational structure

Staff, organisation, and the 2025 budget are described. The revised MoU and the updated organisational structure are presented, together with the projects approved for 2026.

1. Professionalize astronomy education

1.1 Sabir – a residency project

Sabir is a Mediterranean co-design initiative involving NAECs and educators aimed at fostering inquiry-based learning (IBL) in upper secondary education through the development and publication of co-designed astronomy activities.

1.2 FRESCO – Florence RESidency and COdesign

FRESCO is a co-design project focused on playful and game-based learning approaches for children up to 12 years old, supporting the development and evaluation of educational astronomy resources.

1.3 7th Shaw–IAU Workshop on Astronomy for Education

I-OAE contributed to the organisation and delivery of the seventh edition of the Shaw–IAU Workshop on Astronomy for Education, including scientific coordination and the organisation of a dedicated astroEDU workshop.

2. Provide access to good resources

2.1 astroEDU

The International Editorial Board of astroEDU continued meeting regularly and focused on the publication of new peer-reviewed activities, improvements to the platform, and the consolidation of its multilingual structure.

2.2 OAE Multilingual Glossary

I-OAE contributed to the consolidation and review of the Italian version of the OAE

Multilingual Glossary, an open educational resource designed to support astronomy education across languages.

2.3 Universe World / EduINAF column

Universe World continued as a column on EduINAF featuring interviews with astronomy educators, communicators, and researchers active in public engagement worldwide.

2.4 Accessible prints

I-OAE continued developing tactile and multisensory educational materials through dedicated printing systems producing tactile images and 3D models used in outreach and educational activities.

3. Promote astronomy in curricula

3.1 Italian Teacher Programme Galileo

The second edition of the Italian Teacher Programme Galileo was held in La Palma (Canary Islands), involving Italian STEM teachers in workshops, laboratories, and visits to the Roque de los Muchachos Observatory.

3.2 Teacher Training Programme (TTP)

I-OAE collaborated with the international Teacher Training Programme coordinated by OAE, contributing to the evaluation of proposals and supporting teacher training initiatives.

3.3 School activities from astroEDU

Several astroEDU activities were implemented in Italian classrooms and laboratories, involving students from different school levels and providing feedback on the use of open educational resources.

3.4 SPRITZ – STEAM Practices for Italian TeacherZ

The first edition of SPRITZ was organised in Naples, bringing together teachers from across Italy for an intensive programme on innovative STEAM teaching practices.

4. OAE networking

4.1 Erasmus+ ASTRO-EDU project

I-OAE participated in the launch of the Erasmus+ project ASTRO-EDU, a three-year collaboration aimed at empowering teachers as STEAM communicators through astronomy education.

4.2 Ramadan collaboration

As in previous years, I-OAE collaborated with the Islamic community in Italy in astronomical observations related to the beginning and end of Ramadan.

4.3 Equal Day

I-OAE coordinated the first edition of Equal Day, a global initiative promoting equality and inclusion through astronomy on the occasion of the March equinox.

4.4 SOCI – Seminari OAE Center Italy

A series of seminars organised across INAF institutes aimed at strengthening internal networking and promoting participation of researchers in I-OAE activities.

4.5 JEDI – Justice, Equity, Diversity and Inclusion

The JEDI working group continued its work on equity and inclusion in astronomy education, developing tools and guidelines to support inclusive educational practices.

4.6 Mediterranean and Arab Regional SHAW–IAU Workshop on Astronomy for Education (MARASE)

I-OAE contributed to the organisation of the MARASE workshop held in Cairo, supporting regional capacity building in astronomy education.

4.7 Euro-Asian IAU Shaw Workshop 2027 (Programme planning)

I-OAE participated in the initial planning of the Euro-Asian Shaw–IAU Workshop on Astronomy for Education, contributing to the development of a programme of seminars and collaborative activities leading to a future international workshop.

5. Spread the news

5.1 AMACA – Astronomy Education with a Multisensory, Accessible, and Circular Approach

AMACA continued its programme of inclusive astronomy education through teacher training, public engagement activities, and the Astronomy Festival *The Universe in All Senses*.

5.2 Conferences, workshops and scientific meetings

Members of I-OAE contributed to several international conferences and meetings in astronomy education.

5.3 Publications and outreach

A list of scientific publications, conference proceedings, and outreach articles documenting the activities of the Center.

0. Internal organisational structure

0.1 Introduction

The IAU OAE Center Italy (hereinafter I-OAE) was established on the 3rd of March 2021, thanks to a Memorandum of Understanding signed by IAU, the Office of Astronomy for Education and INAF.

The I-OAE is formally located at the INAF – Osservatorio Astronomico di Roma and is managed by INAF.

As part of the international OAE structure, I-OAE contributes to the implementation of the OAE mission by supporting professional development, resource production, teacher training, research-informed educational practices, networking, and inclusive approaches to astronomy education at national, regional, and international levels.

Focus areas

In 2025, a revised MoU entered into force, introducing a number of structural and strategic updates. In particular, one of the Center's focus areas was reframed from "primary school" to "person-centred learning", in order to better reflect the evolution of the Center's activities and vision. The revised MoU also formalised changes in staff composition, renewed officer roles, appointed a Deputy Head, and increased the annual budget.In 2025-2029 the I-OAE will focus on three areas:

A. Person-centred learning practices (PLP)

I-OAE embraces the concepts that "education is not an affair of 'telling' and being told, but an active and constructive process" and that "the best learning takes place when the learner takes charge".

I-OAE focuses on person-centred learning approaches, at any age range, to fully support autonomous development of learner's cognitive, social, experiential and creative potential (from playful learning to inquiry-based learning and so on)

B. Activities in the Mediterranean region (Med)

I-OAE will help to tailor and organise IAU OAE activities in the Mediterranean Area, highlighting the cultural richness of those areas and promoting activities that support astronomy education in the context of a multicultural society, intercultural and interreligious dialogue

C. astroEDU

Development and dissemination of AstroEDU, the open access, multi-language platform for peer reviewed educational activities.

0.1 Staff

During 2025, the I-OAE structure remained stable overall, while undergoing targeted adjustments in staffing, internal organisation, and workload distribution. These changes were closely connected to the expansion of activities, including the launch of a large-scale

Erasmus+ project, the consolidation of international co-design initiatives, and the strengthening of networking and inclusion-oriented actions.

The members of I-OAE during 2025 include staff formally assigned by the Italian partner institutions as well as volunteers contributing under the supervision of the Head and Officers, with approval from the full team. Throughout the year, additional INAF researchers and communicators expressed interest in joining I-OAE activities, following the SOCI internal outreach initiative. One new member (Chiara Badia, INAF – Osservatorio d'Abruzzo) officially joined the Center during the year.

The members of I-OAE during 2025 are listed in table 1, where staff contributions are expressed in Full-Time Equivalent (FTE) units, as defined in the MoU and internal planning documents. Personnel were involved in core coordination tasks, project leadership, working groups, evaluation, communication, and international organisational support activities.

Name	*Role*	*FTE*	*Core FTE*	*Institution, city*
Stefano Sandrelli	Manager	0.5		INAF, Milano
Livia Giacomini	Deputy	0.5	0.3	INAF, Roma
Gloria Tirabassi	Officer	1		INAF, Milano
Federica Duras	Officer	1	0.3	INAF, Roma
Chiara Badia*	member	0.1		INAF, Teramo
Caterina Boccato	member	0.1		INAF Padova
Silvia Casu	member	0.1		INAF Cagliari
Gianluigi Filippelli	member	0.2		INAF, Milano
Giuliana Giobbi	member	0.5	0.1	INAF, Monte Mario
Riccardo Leoni	member	0.2		INAF Roma
Claudia Mignone	member	0.1	0.1	INAF, Monte Mario
Sara Ricciardi	member	0.2	0.1	INAF, Bologna
Rachele Toniolo	member	0.2		INAF, Bologna
Stefania Varano	member	0.4	0.1	INAF, Bologna
Rosa Valiante	member	0.1	0.1	INAF Roma

Alessandra Zanazzi	member	0.2		INAF, Firenze
Anita Zanella	member	0.3		INAF, Padova
Administration	member	0.2		INAF, various

* Since February 2025

During 2025 the total FTE was 4.9

IAU OAE Organisation Support Team (OST)
- Federica Duras, INAF, 0.1 FTE
- Stefania Varano, INAF, 0.1 FTE
- Claudia Mignone, INAF, 0.1 FTE

Total FTE = 0.3
OST is supported also by Mariachiara Falco, teacher, FTE n/a

Infrastructure Working Groups (IWGs)
- Livia Giacomini, WG astroEDU, 0.3 FTE
- Federica Duras, WG astroEDU, 0.2 FTE
- Sara Ricciardi, WG resources, 0.1 FTE
- Rosa Valiante, WG resources, 0.1 FTE
- Giuliana Giobbi, WG resources, 0.1 FTE
- Giannandrea Inchingolo, WG NAEC, INAF, NAEC Team (not I-OAE formal member)

Total FTE = 0.8

JEDI Working Group
- Stefania Varano, INAF, 0.3 FTE
- Gloria Tirabassi, INAF, 0.1 FTE
- Rachele Toniolo, INAF, 0.1 FTE
- Silvia Casu, INAF, 0.1 FTE
- Stefano Sandrelli, INAF, 0.1 FTE

Total FTE = 0.8

SOCI volunteers
During the years some INAF volunteers expressed the wish to collaborate on specific projects. The process to engage them is ongoing.

0.2 I-OAE Internal and Joint Meetings

Online I-OAE members' meetings continued to be held on a regular basis throughout 2025, ensuring coordination across projects and working groups. Officers' meetings and general coordination meetings were complemented by dedicated project meetings organised by individual Working Groups.

Online I-OAE staff meetings are scheduled weekly on the Google Meet platform, with a 1-hour duration:

- on Tuesday at 12:00 CET: Officers' meeting
- on Wednesday at 14.30 CET: General communication and discussions

Link: https://meet.google.com/qgk-ubiz-vce

In addition, I-OAE staff actively participated in joint online meetings with the OAE, other OAE Centres and Nodes, NAECs, and international project consortia, in particular in the context of the Shaw–IAU Workshops, Erasmus+ activities, and Teacher Training Programmes.

0.3 Budget 2025

According to the revised OAE-MoU, the annual budget of the IAU Office of Astronomy for Education Center Italy was increased in 2025 from 100 keuros to 140 keuros.

Budget allocations in 2025 supported core activities of the Center, including international workshops, teacher training programmes, co-design projects, inclusion and accessibility initiatives, networking actions, and preparatory work for multi-year international projects.

Projects and expenditures

- Teacher Training Project, in collaboration with OAE Heidelberg: 10 Keuro (2 k for a Mediterranean TTP; 4 k for TTP in Italy; 4 k for other TTPs), PI Stefania Varano
- Spritz, 8.8 Keuro, PI Giannandrea Inchingolo
- JEDI, 3.5 Keuro, PI Stefania Varano
- SAIt, 0.95 Keuro
- MARASE, 5 Keuro, PI Alessandra Zanazzi
- Amaca, 6 Keuro, PI Anita Zanella
- SOCI: 2.7 Keuro, Office
- ITP Galileo@LaPalma (missions), 5 Keuro, PI Caterina Boccato, Stefano Sandrelli
- Sabir follow-up (missions): 7 Keuro (Girep, ESERA), Office
- Grants renewal: 65 Keuro, Office
- Software (Adobe Creative Clouds for Teams – three years): 5.7 Keuro, Office

0.4 Approved 2026 Projects and Strategic Activities

In order to support a coherent and sustainable planning of activities, the I-OAE continued in 2025 to adopt an internal project submission and evaluation procedure, already used in previous years

The scheme, inspired by the Horizon Europe Programme – Standard Application Form, is intended as an organisational and reflective tool, supporting strategic alignment, transparency in resource allocation, and awareness of workload distribution.

The internal call for 2026 projects was launched in late 2025. Taking into account the residual 2025 budget, the foreseen 2026 budget, and the strategic priorities of the Center, the following projects and initiatives were approved and funded for implementation in 2026.

Projects without dedicated budget

- **IAU–Shaw Workshop on Astronomy for Education**, coordinated by Claudia Mignone;

- **astroEDU**, coordinated by Livia Giacomini;

- **Astro EDU Asia-Europa Project**, coordinated by Gloria Tirabassi

These activities are considered core contributions of the I-OAE to the international OAE structure and are supported through staff time and ongoing operational resources.

Projects with dedicated budget

- **Teacher Training Programme (TTP)**, coordinated by Stefania Varano – **10,000 €**;
- **F.RES.CO follow-up**, coordinated by Alessandra Zanazzi – **2,000 €**;
- **AMACA – Astronomy Education with a Multisensory, Accessible, and Circular Approach**, coordinated by Anita Zanella – **6,000 €**;
- **Voices of the Night**, coordinated by Caterina Boccato – **6,000 €**;
- **SPRITZ – STEAM Practices for Italian TeacherZ**, coordinated by Giannandrea Inchingolo – **10,000 €**;
- **SOCI – Seminari OAE Center Italy**, coordinated by Stefano Sandrelli – **2,500 €**; **STEAM-Med Summer School 2026**, coordinated by Stefano Sandrelli – **30,000 €**.

Targeted and strategic initiatives

In addition to the projects listed above, the following targeted initiatives were approved and funded in view of their strategic relevance and specific operational needs:

- **Eclipsing Borders**, coordinated by Claudia Mignone and Federica Duras, with Stefano Sandrelli responsible for budget management – **5,500 €**;
- **Equal Day**, coordinated by Stefano Sandrelli and Jean-Pierre Saghbini – **2,500 €**;
- **Italian Teacher Programme Galileo (ITP@Galileo)**, coordinated by Chiara Badia and Federica Duras – **5,000 €**, allocated to support missions related to the Canary Islands programme.

The planning of activities for 2026 also builds on the experience gained through major international events organized in 2025, such as the Mediterranean and Arab Regional SHAW–IAU Workshop on Astronomy for Education (MARASE), to which I-OAE contributed through organisational, scientific, and educational support.

Overall, the approved 2026 projects reflect a balanced portfolio combining long-term strategic actions, consolidation of successful initiatives, innovation in teacher professional development, and international networking. Together, they contribute to strengthening the role of the I-OAE as a key actor within the IAU Office of Astronomy for Education framework at national, regional, and international levels.

1. Professionalize Astronomy Education

1.1 Sabir – a residency project

Coordination: Gloria Tirabassi, Stefano Sandrelli

Following the co-design residency held in Milan in September 2024, the Sabir project entered its consolidation and evaluation phase throughout 2025. Sabir is a Mediterranean co-design initiative aimed at strengthening the NAEC network and fostering inquiry-based learning (IBL) in upper secondary education through the joint development of classroom-ready astronomy activities.

During 2025, the project focused on transforming the outcomes of the residency into structured, assessable, and transferable educational resources. A key milestone was the continued publication of Sabir activities on the astroEDU platform, including **two new peer-reviewed activities released in early 2025** and collected within a dedicated Sabir collection, available at:https://astroedu.iau.org/en/collections/sabir/

In parallel, significant effort was devoted to the development of comprehensive supporting materials for each activity, namely Teacher's Guides (TG) and Student's Guides (SG). These resources are conceived as essential tools to support educators in implementing inquiry-based approaches in a coherent and comparable way across different contexts, and to enable systematic evaluation of the learning process.

In line with the project's Mediterranean scope, the Sabir team undertook an extensive translation effort. Teaching and learning materials are being translated into the project's official languages—English, Italian, Spanish, French, Arabic, and Turkish—to maximise accessibility and enable implementation in diverse sociocultural contexts.

A central component of Sabir's 2025 activities has been the structured evaluation of both individual learning activities and the overall co-design and implementation process. In collaboration with researchers from the University of Naples Federico II, evaluation tools were developed to investigate inquiry practices and participants' understanding of key aspects of the Nature of Science (NoS). This dual approach allows the project to assess both pedagogical implementation and conceptual outcomes.

1.2 FRESCO – Florence RESidency and COdesign

Coordination: Alessandra Zanazzi, Sara Ricciardi, Silvia Casu, Stefania Varano

Following the in-person residency held in Istanbul in October 2024, the FRESCO project entered in 2025 a phase of refinement, testing, and evaluation of educational resources focused on Playful Learning (PL) and Game-Based Learning (GBL) for children up to 12 years old. FRESCO builds on previous Mediterranean co-design experiences and aims at supporting international educators in developing engaging, playful, and classroom-ready astronomy activities for younger learners.

During 2025, the project concentrated on improving the quality, usability, and contextual flexibility of the designed activities. Following the first testing of prototypes carried out during the Mediterranean Regional SHAW–IAU Workshop on Astronomy for Education (MASTED),

participants implemented local testing activities in different countries. These experiences led to small but significant adaptations aimed at enhancing clarity, engagement, and adaptability to diverse educational settings.

In parallel, significant effort was devoted to the preparation and refinement of structured supporting materials, including teaching guides and detailed activity descriptions. These materials are intended to support educators in the implementation of Playful Learning and Game-Based Learning approaches and to ensure the transferability of the activities across different contexts. The publication of the final educational resources on the astroEDU platform is **planned for 2026**, at the conclusion of the project.

Alongside resource development, particular attention was devoted to the evaluation of the co-design process itself, conceived as a central component of the project. Data collected during online collaboration phases and in-person focus groups were transcribed and analysed, despite delays caused by the temporary unavailability of external evaluation support.

The analysis focused on collaboration dynamics among international educators, challenges encountered during the co-design process, and practices that proved effective in producing shared educational resources. The results were formalised in a scientific paper presented at the International Conference of Education, Research and Innovation (ICERI), contributing to the dissemination of FRESCO's methodological outcomes within the broader education research community.

In view of the planned closure of the project in 2026, preparatory work began to finalise the remaining Game-Based Learning activities and complete their validation prior to publication. Although some foreseen testing opportunities had to be cancelled due to last-minute constraints, coordination among NAECs continued throughout the year, ensuring continuity and consolidation of the project's outputs.

1.3 The 7th Shaw–IAU Workshop on Astronomy for Education

Coordination: Claudia Mignone

During 2025, the I-OAE Center Italy actively contributed to the organisation and delivery of the 7th Shaw–IAU Workshop on Astronomy for Education, held online from 18 to 21 November 2025. The Office provided scientific, organisational, and operational support across multiple phases of the workshop.

Several I-OAE members served on the Scientific Organising Committees (SOCs) of different thematic sessions, covering Astronomy Education in Practice, Astronomy Education Research, Teaching Methods and Tools, and the science-focused session on Galaxies. In addition, members of the I-OAE Organisational Support Team supported session chairs in the months preceding the workshop, assisting with communication with speakers, abstract management, and preparation of materials. During the workshop, I-OAE staff also provided technical support, monitoring communication channels and responding to participants' requests.

A dedicated AstroEDU workshop, “AstroEDU in Your Classroom”, was organised and delivered in two repeated sessions, attracting a total of 143 participants. The workshop introduced AstroEDU’s mission, peer-review process, and multilingual development, with a particular focus on the publication workflow. A distinctive feature of the 2025 edition was the direct involvement of authors of AstroEDU activities, who shared first-hand experiences with participants and engaged in discussions during the Q&A sessions. Following the workshop, an increase in submissions of new educational activity proposals was observed, confirming the impact of the sessions and the growing engagement of the international astronomy education community.

2. Provide Access to Good Resources

2.1 astroEDU

Coordination: Livia Giacomini

Throughout 2025, astroEDU continued providing high-quality, peer-reviewed astronomy education resources for teachers worldwide . The International Editorial Board met regularly on a weekly basis, coordinating editorial activities, platform development, and strategic collaborations.

In line with astroEDU's commitment to regular dissemination, new educational activities were published throughout the year, maintaining an approximately monthly release schedule. **A total of 13 new peer-reviewed activities were published in the English edition during 2025**, including activities developed within I-OAE projects, such as Sabir, as well as resources produced in collaboration with external partners. Notably, an agreement with the COST Action NanoSpace led to the co-design and publication of three educational activities focused on molecular nanostructures in space, strengthening interdisciplinary connections between astronomy, chemistry, and materials science. A subset of the activities published in English was also made available in **Italian and Spanish**, in continuity with the existing national editions.

A major focus of the year was the consolidation of astroEDU's multilingual vision and governance model. While the Italian and Spanish editions continued to exist and operate, their production pace slowed down over the year after an initial phase of strong enthusiasm. This evolution highlighted the structural limits of relying on small, language-specific editorial teams working on a largely voluntary basis.At the same time, initial attempts were made to develop additional national editions, in particular French and Greek. These efforts confirmed the strong interest of the community, but also made evident that the human and organisational resources available were not sufficient to sustainably support the launch and long-term maintenance of further language editions within the existing framework.

As a consequence, during the second half of 2025 the focus shifted from the creation of new national editions to the identification of more scalable and sustainable solutions. In this context, the proposal of an **AstroEDU Working Group** emerged, with the aim of supporting the International Editorial Board in editorial tasks, peer-review workflows, and community engagement, while reducing the dependency on language-specific teams.

In parallel, the possibility of fostering multilingual access to astroEDU resources through the use of emerging technologies has been explored. Rather than relying exclusively on fully independent national editions, future efforts will investigate how new technological solutions can support translation, adaptation, and dissemination of activities across languages in a more sustainable and inclusive way.

Several technical improvements were implemented on the platform. The DOI assignment procedure was renewed for 2025, ensuring continuity and traceability of published resources. The publication workflow was furtherly simplified.

astroEDU visibility and community engagement were further reinforced through its presentation at international events, including the Shaw–IAU Workshop on Astronomy for Education, where a dedicated workshop contributed to attracting new users, authors, and reviewers.

This momentum supported the growth of the astroEDU Working Group and increased interest in submitting new activities.

In parallel, work continued on a Master's thesis focused on the development of an AI assistant for astroEDU, carried out by a student from the University of Roma Tre. The project progressed steadily during 2025, with the thesis scheduled for completion in early 2026.

2.2 OAE Multilingual Glossary

Coordination: Giuliana Giobbi

In 2025, I-OAE continued its contribution to the OAE Multilingual Glossary, an open educational resource published under a Creative Commons Attribution licence (CC-BY-4.0) and designed to support astronomy education across languages and cultures.

The primary focus was on the consolidation, review, and validation of the Italian translation. Rather than expanding the scope of the resource, the year was devoted to strengthening its quality, internal consistency, and usability as a reference tool for both educators and the general public.

By the end of 2025, the large majority of the **497 glossary terms** and associated image captions had been finalised in Italian. This work was supported by an extensive community-based review process, which resulted in **more than 1,000 reviews** provided on a voluntary basis by researchers and teachers. This sustained level of engagement highlights both the robustness of the collaborative model and the educational relevance of the Glossary.

In addition to glossary terms, a large set of diagrams and constellation maps was introduced on the OAE website. During the year, **92 constellation diagrams** newly introduced on the OAE platform were translated into Italian, and the first review cycle for these visual resources was initiated. This effort represents an important step toward improving the accessibility and pedagogical value of astronomical terminology through complementary visual materials.

Throughout 2025, the OAE Multilingual Glossary was increasingly integrated into outreach initiatives and school activities, and actively promoted through the Institute's online magazine (Edu INAF) and its social media channels. These actions reinforced the role of the Glossary as a shared, open-access educational resource and as a long-term investment in multilingual and inclusive astronomy education.

A dedicated working group has been developing and testing activities for schools based on the OAE Multilingual Glossary as an educational resource.

2.3 Universe World

Coordination: Claudia Mignone

After a short hiatus in publication, Universe World continued in 2025 as a column on EduINAF, the online magazine of INAF dedicated to outreach and education, transitioning to a quarterly publication schedule to allow for a more sustainable rhythm while maintaining editorial quality.

Each issue features an interview with a scientist, researcher, science communicator, or educator from a different country, addressing themes related to astronomy education, public engagement, and science communication in diverse cultural and institutional contexts. The interviews explore challenges, best practices, and lessons learned, offering a comparative perspective on the rapidly evolving international landscape of astronomy education.

Two interviews were published during the year, in July and October, each featuring astronomy communicators and educators active in different international contexts (Colombia and the United States, respectively). The column continues to be published in Italian and English and promoted through the international OAE social media channels, contributing to the visibility of global experiences and strengthening connections within the NAEC and OAE networks.

2.4 Accessible Prints

Coordination: Stefania Varano

In 2025, I-OAE consolidated its capacity to produce accessible educational and outreach materials through the use of dedicated tactile printing systems. The available equipment includes a relief-printing system for producing tactile images on A4 sheets and a resin 3D printer for small-scale three-dimensional models, also used for prototyping purposes.

After installation and operator training, the printers were employed in real public engagement contexts for the first time. Tactile materials and 3D models were produced for multisensory paths designed for blind and visually impaired visitors during the “Macchine del Tempo” exhibition, held in Turin from March to June 2025. The materials included tactile reproductions of key astronomical images and 3D models of major telescopes.

These activities confirmed the effectiveness of tactile and multisensory resources as complementary access channels to astronomical content, supporting I-OAE’s broader commitment to inclusion and accessibility in science education and public outreach.

3. Promote Astronomy in Curricula

3.1 Italian Teacher Programme Galileo

Coordination: Chiara Badia, Federica Duras

In 2025, the second edition of the Italian Teacher Programme Galileo (ITP Galileo) was held on the island of La Palma (Canary Islands), from 19 to 24 October, involving **thirty Italian STEM teachers** selected at the national level. The programme was organised by INAF, Fundación Galileo Galilei (FGG-INAF), and ITP CERN, with the aim of strengthening teachers' understanding of contemporary astrophysics and supporting the transfer of scientific knowledge into classroom practice.

The OAE Center Italy played a central role in the educational design and implementation of the programme. Workshop activities were coordinated and co-led by members of I-OAE and focused on inquiry-based learning (IBL) approaches that could be directly adapted to school contexts. Hands-on laboratories and guided activities were designed to mirror authentic scientific practices, fostering interdisciplinary connections between astronomy, physics, data analysis, and coding.

Among the proposed activities, the laboratory *Hunting for Exoplanets with Arduino* allowed teachers to simulate the transit method using accessible technology and simple experimental setups. Participants built and tested Arduino-based systems, analysed light-curve data, and discussed strategies for classroom implementation. Evaluation questionnaires showed very positive feedback, with **60% of participants assigning the maximum score (5/5)** and the remaining **40% assigning a score of 4/5**.

Additional inquiry-based activities focused on estimating the mass of the black hole at the centre of the Milky Way, engaging participants in data interpretation and scientific reasoning. This activity also received highly positive evaluations, with approximately **75–80% of respondents assigning a score of 5/5** and about **15% assigning a score of 4/5**.

The programme was completed by a full-day visit to the Roque de los Muchachos Observatory, including guided tours of major telescopes and night-time sky observations. Overall, ITP Galileo 2025 confirmed the effectiveness of combining advanced scientific content with structured inquiry-based educational strategies, reinforcing the role of I-OAE in bridging astronomical research and school education.

3.2 Teacher Training Programme (TTP)

Coordination: Stefania Varano

In 2025, I-OAE confirmed its participation in the international Teacher Training Programme (TTP) promoted by the OAE, contributing both financially and through the involvement of its members in the evaluation process. A dedicated budget of **10 keuros** was allocated to support training initiatives at different levels and geographical scales, including Teacher Training Programmes in the Mediterranean region (excluding Italy), national initiatives in Italy, and other international TTPs. This differentiated allocation reflects a strategic effort to balance international capacity building with the consolidation of national teacher education activities.

Members of I-OAE served as jury members for the evaluation of proposals across school levels, contributing to the review of **49 eligible submissions**. The evaluation process highlighted a generally very high quality of proposals, confirming the increasing effectiveness of the shared standards and guidance provided by the OAE through the submission and evaluation framework. The high quality of the proposals also reflects the growing maturity of the international teacher training community engaged in astronomy education.

Within this framework, **two Italian groups coordinated by NAECs** submitted proposals targeting the funds reserved for national TTPs, confirming the strengthening engagement of the Italian teacher education community within the OAE programme.

Overall, I-OAE's involvement in the Teacher Training Programme continued to support the dissemination of inquiry-based and student-centred approaches in astronomy education, while reinforcing quality standards, fostering collaboration among NAECs and teachers, and strengthening connections between national and international educational networks.

3.3 School Activities from astroEDU

Coordination: Stefano Sandrelli, Gloria Tirabassi

Throughout 2025, I-OAE continued to monitor and document the use of IAU OAE open-access astroEDU activities in Italian classrooms, as part of an ongoing effort to assess their impact on teaching practices and student engagement. This activity represents a first step toward a more systematic understanding of how open educational resources are adopted and adapted in real school contexts.

Several inquiry-based and hands-on activities were implemented in school and laboratory settings, involving students from primary to lower and upper secondary levels. Activities such as *Exoplanets in a Box*, *3, 2, 1… Time for Water Rockets*, *Identikit of an Alien*, *Paper Planets*, and *Driving on Mars* were carried out repeatedly in different contexts. Overall, **more than 20 classroom and laboratory activities** were conducted during the year, **engaging approximately 470 students** across a wide age range.

These implementations provided valuable qualitative feedback on the adaptability of astroEDU resources to diverse educational settings and age groups. Observations collected during the activities highlighted high levels of student engagement, particularly when learners were encouraged to explore scientific questions autonomously, manipulate physical models, or simulate authentic research processes. Teachers reported that the inquiry-based structure of the activities facilitated active participation and supported the development of reasoning and problem-solving skills.

The systematic collection of usage data and qualitative observations contributes to a broader reflection on how open educational resources can be effectively integrated into school curricula. In this perspective, the experience gained in 2025 supports the role of astroEDU as a bridge between open-access educational resources and classroom practice, and provides a foundation for future, more structured impact assessments.

3.4 SPRITZ – STEAM Practices for Italian TeacherZ

Coordination: Giannandrea Inchingolo

The first edition of **SPRITZ – STEAM Practices for Italian TeacherZ** was held in Naples from 12 to 14 September 2025, hosted at Città della Scienza. The programme received a strong response, with **more than one hundred applications** and the selection of **twenty teachers** from lower and upper secondary schools across Italy.

SPRITZ was designed as an intensive professional development experience aimed at fostering innovative teaching practices through hands-on activities, co-design sessions, and the establishment of a national community of practice. Participants engaged in inquiry-based and game-based learning activities and worked collaboratively on the design of assessment tools to support classroom implementation and reflective teaching practices.

Experts from I-OAE played a central role in the educational design and delivery of the programme. They led sessions on Inquiry-Based Science Education (IBSE) and showcased astronomy-based activities as drivers for interdisciplinary STEAM education, highlighting their alignment with national curricula and international OAE quality standards. The activity *Exoplanets in a Box* proved particularly effective in illustrating how inquiry-driven approaches can be integrated into secondary school teaching.

Participant feedback indicated extremely high levels of satisfaction and a strong perceived relevance of the proposed methodologies for classroom practice. A distinctive element of SPRITZ was the activation of a **year-long mentoring programme**, coordinated by NAEC Italy, designed to support teachers during the implementation phase and to foster sustained collaboration beyond the residential training. In this perspective, SPRITZ laid the foundations for a motivated national network of teachers committed to innovative, inquiry-based STEAM education, fully aligned with the objectives of the OAE Teacher Training Programme.

4. OAE Networking

4.1 Erasmus+

Coordination: Alessandra Zanazzi, Stefano Sandrelli

In 2025, I-OAE significantly strengthened its engagement in European networking through the successful acquisition and launch of the Erasmus+ project *ASTRO-EDU: Empowering Teachers as STEAM Communicators in Astronomy Education*. Building on networks and collaborations developed in previous years, the proposal was awarded a grant of 250 keuros under the Erasmus+ KA220-SCH framework.

The project officially started in October 2025 and will run for three years. Its main objective is to empower primary and secondary school educators as effective STEAM communicators by enhancing their astronomy content knowledge, pedagogical skills, and digital competencies. The project aims to co-design and disseminate inquiry-based educational resources enriched with digital tools, fostering interdisciplinary learning and sustainable international collaboration.

The partnership includes institutions and organisations from Türkiye (project coordinator), Italy, Portugal, Malta, Greece, and Croatia, with associated partners from Morocco and Lebanon. Slovenia also contributes through the involvement of its NAEC, providing continuity with previous Mediterranean co-design initiatives.

During the final months of 2025, I-OAE led the first activities of the co-design work package. A series of online meetings was organised to align partners on inquiry-based learning principles and co-design methodologies. The consortium agreed on the development of eight inquiry-based learning activities across different school levels, marking the first concrete step toward the production of shared educational outputs.

4.2 Ramadan Collaboration

Coordination: Federico Di Giacomo, Caterina Boccato

The collaboration between INAF, the Unione Astrofili Italiani (UAI), and the Grand Mosque of Rome continued in 2025, focusing on astronomical observations to support the determination of the beginning and end of Ramadan.

As in previous years, observation sessions were organised to detect the crescent Moon under scientifically challenging conditions. On both occasions in 2025, adverse visibility conditions prevented a positive sighting from Italy. Nevertheless, external declarations of crescent sightings from neighbouring countries were accepted, despite astronomical calculations and simulations indicating their implausibility.

These recurring discrepancies prompted a critical reassessment of the collaboration framework, particularly regarding the criteria for accepting external observations when national observations are inconclusive. While the scientific and educational value of the collaboration remains high, I-OAE highlighted the need for clearer protocols and shared guidelines to ensure that astronomical expertise is fully integrated into decision-making processes.

Discussions are ongoing, and a dedicated meeting with representatives of the Grand Mosque of Rome is expected to clarify roles, responsibilities, and validation procedures for future observations.

4.3 Equal Day

Coordination: Stefano Sandrelli, Jean-Pierre Saghbini (NAEC Lebanon)

In 2025, I-OAE coordinated the first edition of *Equal Day*, a global initiative promoting a message of peace, equality, and inclusivity through astronomy. Conceived in collaboration with NAEC Lebanon, the initiative identified the March equinox as a symbolic date representing balance and shared heritage under the same sky.

The project invited institutions, schools, universities, and astronomy groups worldwide to organise local events on 20 March, each promoting equality, diversity, sustainability, and empathy through astronomy. Participating events were coordinated by NAECs and NOCs in the respective countries and registered through a shared online platform.

A total of 135 events were organised globally, spanning multiple continents and involving a strong participation from Mediterranean, Balkan, and Arab countries. Activities ranged from creative photography and artistic expressions to public talks and international online meetings.

Following the success of the first edition, the initiative was confirmed and funded by I-OAE for continuation. Preparatory work for the 2026 edition began in the second half of 2025, with Jean-Pierre Saghbini appointed as Principal Investigator and a dedicated budget allocated.

4.4 SOCI Project – Seminari OAE Center Italy

Coordination: Stefano Sandrelli

The SOCI project continued in 2025 as a strategic internal networking initiative aimed at strengthening connections between I-OAE and the various branches of INAF. A series of seminars and meetings was organised across multiple INAF observatories and institutes to present the activities, vision, and opportunities of the OAE Center Italy.

Meetings were held in Rome, Teramo, Padua, Cagliari, Milan, Bologna, and Tenerife, raising significant interest among researchers and staff. These encounters fostered dialogue between education specialists and researchers and led to expressions of interest from several INAF members willing to contribute to I-OAE activities as volunteers.

Due to scheduling constraints and increasing institutional commitments, some planned meetings were postponed to 2026. By the end of 2025, a detailed schedule for the continuation of the SOCI project in 2026 was defined, ensuring continuity and further expansion of internal engagement.

4.5 JEDI – Justice, Equity, Diversity, and Inclusion

Coordination: Stefania Varano

In 2025, the JEDI Working Group proposed by I-OAE consolidated its role at the international OAE level. The group focused on analysing equity, diversity, and inclusion aspects within Teacher Training Programmes, particularly through the thematic analysis of responses to the EDI section included in the 2025 TTP call.

This analysis led to the development of a set of guiding questions and a self-assessment checklist aimed at supporting proponents in designing more equitable and inclusive training programmes. The results were shared with the OAE TTP organising team, laying the groundwork for their integration into future calls.

In parallel, a collaboration with Italian teachers is ongoing, with the aim of refining and testing EDI-oriented design tools based on Universal Design for Learning (UDL) principles. Two complementary working tracks were established: one focusing on the redesign of existing activities through an inclusive lens, and another dedicated to the co-design of practical support resources for educators.

4.6 Mediterranean and Arab Regional SHAW–IAU Workshop on Astronomy for Education (MARASE)

Coordination: Federica Duras and Alessandra Zanazzi

In December 2025, the IAU Office of Astronomy for Education Center Italy (I-OAE) took part in the organisation of the Mediterranean and Arab Regional SHAW–IAU Workshop on Astronomy for Education (MARASE Workshop), held in person from 1 to 5 December 2025 at the National Research Institute of Astronomy and Geophysics (NRIAG) in Helwan, Cairo, Egypt.

In addition to providing financial support, I-OAE contributed actively to the scientific and educational programme of the workshop through its participation in the Scientific Organising Committee and the delivery of hands-on educational activities. While detailed quantitative data on participation were not reported in the 2025 Quarterly Reports, the workshop brought together educators and practitioners from the Mediterranean and Arab regions for an intensive, multi-day programme focused on astronomy education.

I-OAE proposed and facilitated three practical workshops aimed at supporting student-centred and inquiry-oriented approaches: a one-day workshop on constellation-based activities, a half-day workshop dedicated to Game-Based Learning, and a half-day workshop on the use and submission of educational resources to the astroEDU platform. Within these sessions, I-OAE members also presented the activity Paper Circuit Constellations and led a dedicated workshop introducing astroEDU resources and publication workflows.

Through these contributions, I-OAE supported regional capacity building and strengthened collaboration among educators, promoting active learning methodologies aligned with the OAE educational framework.

4.7 Euro-Asian IAU Shaw Workshop 2027 (Programme Planning)

Coordination: Stefano Sandrelli and Gloria Tirabassi

In the last quarter of 2025, I-OAE took part in the initiation and programme planning of the Euro-Asian IAU Shaw Workshop on Astronomy for Education, an international initiative proposed by the OAE France Node and developed in collaboration with OAE Center Italy and OAE Centres and Nodes in Europe and Asia.

A multi-phase programme covering the period 2026–2027 was outlined, with a first phase consisting of a cycle of online seminars planned for April–June 2026, followed by collaborative design activities and a final in-presence international workshop scheduled for 2027.

During this initial planning phase, online coordination meetings were held to establish the international organising committee and define the conceptual framework and timeline of the initiative. The activities carried out in 2025 represent the formal start of the initiative and correspond to its programme planning phase within the OAE framework.

5. Spread the News

5.1 AMACA – Astronomy Education with a Multisensory, Accessible, and Circular Approach

Coordination: Anita Zanella

In 2025, the AMACA project continued its integrated approach to astronomy education, combining professional development, public engagement, and inclusive practices. The course *Designing Multisensory Public Engagement Activities* was delivered from February to May and involved PhD students from the University of Padova. Participants were guided in designing, building, and testing multisensory astronomy activities focused on the theme of darkness.

The fifth edition of the Astronomy Festival *The Universe in All Senses – Journey into the Dark* took place in June 2025 in Castellaro Lagusello, attracting approximately 4,500 visitors. The festival featured exhibitions, multisensory workshops, public talks, performances, sky observations, and immersive experiences, with strong involvement of high-school students as facilitators.

In parallel, a teacher training programme was carried out between September and December 2025, involving teachers from kindergarten to lower secondary school. The programme combined peer-led sessions, classroom-based activities, and evaluation, with the aim of strengthening teachers' confidence in inclusive and multisensory educational approaches.

During the year, the scientific paper *"AMACA: Astronomy Education with a Multisensory, Accessible, and Circular Approach"* was accepted for publication, documenting the first four years of the project and its evaluation outcomes. Preparatory work for the 2026 edition of AMACA also began, with a new thematic focus identified.

5.2 Conferences, Workshops, and Scientific Meetings

Throughout 2025, members of the I-OAE Center Italy actively contributed to national and international conferences, workshops, and scientific meetings focused on astronomy education, public engagement, inquiry-based learning, inclusion, and co-design methodologies. These contributions supported the dissemination of I-OAE projects and reinforced dialogue between the education and research communities.

Conference contributions in 2025 included:

- **GIREP–EPEC 2025 Conference**, Leiden (The Netherlands), 30 June – 4 July 2025
  Poster presentation:
  Sabir: a codesign process to foster IBL in the Mediterranean
  S. Sandrelli, G. Tirabassi, D. Fabjan, H. Darhmaoui, A. Yelkenci,
  N. Rodríguez Eugenio, J.-P. Saghbini, Z. Belhaj, M. Bou Zeid, A. Goded Merino

- **EPSC–DPS Joint Meeting 2025**, Helsinki (Finland), 7–13 September 2025
  Talk contribution:

Eclipses as a bridge between Education and Outreach: a joint effort of the Italian OAE-I Center and OAO Node
F. Duras, F. Di Giacomo, G. Mantovani, C. Mignone, L. Giacomini, S. Sandrelli, C. Boccato

- **7th Shaw–IAU Workshop on Astronomy for Education**, online, November 2025
  Contributions by I-OAE members as session organisers, speakers, workshop leaders, and Organisational Support Team members, including the dedicated *AstroEDU in Your Classroom* workshop.

- **18th annual International Conference of Education, Research and Innovation**
  Seville & online: 10-12 November, 2025
  Talk contribution
  *FRESCO, a codesign project by the Italian office of astronomy for education: an evaluation of the process.*A. Zanazzi, S. Casu, S. Varano, S Ricciardi

- **Mediterranean and Arab Regional SHAW–IAU Workshop on Astronomy for Education (MARASE)**, Cairo (Egypt), 1–5 December 2025
  Contributions included hands-on workshops on constellations, Game-Based Learning, and AstroEDU resources, as well as presentations of co-designed activities.

These participations ensured visibility for I-OAE initiatives and contributed to the international exchange of practices and research results in astronomy education.

5.3 Publications, News Articles, and Outreach

In 2025, the activities of the I-OAE Center Italy were disseminated through a broad range of peer-reviewed publications, conference proceedings, institutional reports, and outreach articles. These outputs document both the scientific and educational dimensions of the Office's work and support transparency, impact assessment, and community engagement.

Peer-reviewed publications and proceedings

- **Toniolo, R., Zanella, A., Cottinelli, A., et al.**
  AMACA: Astronomy education with a multisensory, accessible, and circular approach
  Accepted for publication in *International Journal of Science Education*.
  The paper presents the first four years of the AMACA project, including evaluation results and lessons learnt.
  Published article:
  https://www.tandfonline.com/doi/abs/10.1080/21548455.2025.2594048
  arXiv link: https://arxiv.org/abs/2601.13326

- **Zanazzi, A., Casu, S., Ricciardi, S., Sandrelli, S., Tirabassi, G., Varano, S.**
  Bridging Cultures: The Office of Astronomy for Education Italy Initiatives for Student-centered Education in the Mediterranean, In *14th New Perspectives in Science Education International Conference – Proceedings*,
  Filodritto Editore, ISBN 979-12-80225-83-2, DOI: 10.26352/L319_2420-9732

- **Rini, S., Ricciardi, S.** *Tinkering in Primary School: From Episode to Science Practice* In *The Primary School as a Playful Space – Theories and Practices in an International Perspective*, DOI: 10.13124/9788860462053_24

- **A. Zanazzi, S. Casu, S. Varano, S Ricciardi**
  FRESCO, a codesign project by the Italian office of astronomy for education: an evaluation of the process.
  In 18th annual International Conference of Education, Research and Innovation Proceedings
  DOI co10.21125/iceri.2025

News articles and outreach publications (EduINAF and related platforms)

Throughout 2025, numerous outreach articles and reports were published on EduINAF, documenting I-OAE projects, teacher training activities, international collaborations, and public engagement initiatives. The following list provides a representative selection:

- *Un ITP alle Canarie con le stelle negli occhi* (22 January 2025) https://edu.inaf.it/approfondimenti/insegnare-astronomia/un-itp-alle-canarie-con-le-stelle-negli-occhi/
- *Alieni, razzi ed esopianeti* (23 January 2025) https://edu.inaf.it/news/per-la-scuola/alieni-razzi-ed-esopianeti/
- *Cieli del Paranal e inquinamento luminoso* (29 January 2025) https://edu.inaf.it/news/per-la-scuola/cieli-paranal-eso-inquinamento-luminoso/
- *Astronomia e glossario dell'Unione Astronomica Internazionale* (24 February 2025) https://edu.inaf.it/news/per-la-scuola/astronomia-glossario-unione-astronomica-internazionale/
- *Ramadan 2025: una collaborazione per avvistare la Luna* (27 February 2025) https://edu.inaf.it/news/eventi/ramadan-2025-una-collaborazione-per-avvistare-la-luna/
- *Equal Day 2025* (5 March 2025) https://edu.inaf.it/news/eventi/equal-day-2025/
- *Esci dal labirinto astrofisico usando il coding* (11 March 2025) https://edu.inaf.it/approfondimenti/insegnare-astronomia/esci-dal-labirinto-astrofisico-usando-il-coding/
- *Teacher Training Program 2025* https://edu.inaf.it/news/per-la-scuola/teacher-training-program-2025/
- *Equal Day 2025: il cielo come messaggio di pace* https://edu.inaf.it/approfondimenti/insegnare-astronomia/equal-day-2025-cielo-messaggio-pace/
- *SPRITZ 2025: insegnare l'astronomia* https://edu.inaf.it/news/per-la-scuola/2025-spritz-insegnare-astronomia/
- *Festival di astronomia a Castellaro Lagusello 2025* https://edu.inaf.it/news/eventi/festival-astronomia-castellaro-lagusello-2025/
- *SPRITZ 2025: insegnare la scienza indagando* (26 November 2025) https://edu.inaf.it/news/eventi/report/spritz-2025-insegnare-la-scienza-indagando/

- *Italian Teacher Programme Galileo 2025: formazione sotto il cielo delle Canarie* (10 November 2025) https://edu.inaf.it/news/eventi/report/italian-teacher-programme-galileo-2025-formazione-canarie/
- *Torna lo Shaw–IAU Workshop: astronomia, dati reali e didattica globale* (28 October 2025) https://edu.inaf.it/news/oae-italia/torna-lo-shaw-iau-workshop-astronomia-dati-reali-e-didattica-globale/
- *Italian Teacher Programme "Galileo" alle Canarie* (20 October 2025) https://edu.inaf.it/news/per-la-scuola/italian-teacher-programme-galileo-canarie-2025/
- Astronomy for equity and the power of inspiration (Universe World column, 6 October 2025) https://edu.inaf.it/in-english/universe-world/astronomy-for-equity-mike-simmons/
- Creativity at the planetarium: recipe for success (Universe World column, 14 July 2025) https://edu.inaf.it/in-english/universe-world/michelle-mora-creativity-planetarium/

Disclaimer

This Report involved the use of Artificial Intelligence tools as support for specific stages of the writing and development process. AI systems were used exclusively for linguistic revision, translation assistance, and technical support during the implementation of the software prototype.
All conceptual design, methodological choices, experimental analysis, and final interpretations presented in this work are the result of the authors' activity. The author takes full responsibility for the scientific content of the Report. The use of AI tools was limited to supportive functions and did not replace the critical, analytical, or creative contributions of the authors