

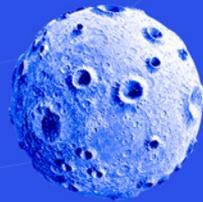
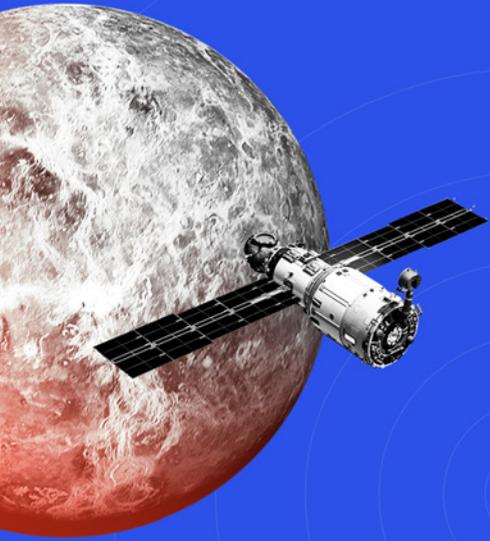
Leiden Observatory

# Astronomy & Society Group



Universiteit  
Leiden  
The Netherlands





We engage the public with the wonders of the Universe and share the scientific, technological, cultural and educational aspects of astronomy with society.



# Astronomy For Sustainable Development

As a knowledge-driven society, scientific literacy, knowledge and skills are essential to chart the course towards a sustainable future, while meeting the challenges set by the United Nations' Sustainable Development Goals.

Astronomy is an innovative and cost-effective tool for furthering sustainable global development due to its technological, scientific, educational and cultural dimensions. The Leiden University's Astronomy & Society Group works with the global network of astronomers to tackle systemic societal issues. For example, building gender equality and encouraging women and girls to study and work in STEM, prioritising sustainability and efficiency in the astronomy enterprise and by supporting North-South research collaborations as a catalyst for advancing STEM in developing countries.



Sustainable Development  
Goals Framework



# SUSTAINABLE DEVELOPMENT GOALS





*Old  
Observatory*

Est. 1633

LEIDEN,  
THE NETHERLANDS

# Oude Sterrewacht Old Observatory Leiden

The Old Observatory Leiden is the oldest university observatory in the world. The Old Observatory has been home to many world famous astronomers like Oort, Hertzsprung and De Sitter, who made discoveries and laid down theoretical frameworks that are still being used today.

The Old Observatory aims to share the beauty of the universe alongside the rich history of Leiden astronomy. The Visitors' Centre features a number of exhibitions about astronomy.

The Old Observatory offers educational programmes for schools, tours of the building and telescopes by Leiden University astronomy students, and hosts events like open days, public talks and stargazing events throughout the year.



A view of the Old Leiden Observatory from across the canal. Credit: V. Mullenders/Sterrewacht Leiden/Universiteit Leiden.



The biggest refractor telescope in the Netherlands, built in the 19th century, is housed in the Old Observatory Leiden. Credit: J. Passchier/Sterrewacht Leiden/Universiteit Leiden.



[www.oudesterrewacht.nl](http://www.oudesterrewacht.nl)



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**LEIDEN 2022**  
European City of Science

# Leiden, European City of Science 2022

In 2022, Leiden will be the European City of Science,  
under the overarching narrative of 'Who Knows'.  
Who has the monopoly of wisdom?  
Who decides what is true?  
And who knows what the future will look like?

In 2022, Leiden will be the stage for European knowledge and science, giving great momentum to the whole of the Netherlands. The Astronomy & Society Group is committed to contribute to a range of activities to celebrate and experience astronomy with society over the city. In addition, the Old Observatories societies will dedicate themselves during stargazing evenings, lectures on the size of the universe and workshops where children will be able to make their own rockets. Stay tuned for a fantastic celebration of science!



Bird's-eye view of Leiden Observatory and the city of Leiden, the stage for Leiden 2022.



Leiden, townhall and bridge (de Koornbrug).



[www.leiden2022.nl](http://www.leiden2022.nl)



[/leiden2022](https://www.facebook.com/leiden2022)





# IAU European Regional Office of Astronomy for Development

The International Astronomical Union's (IAU) European Regional Office of Astronomy for Development (OAD) is operated jointly by the European Astronomical Society and Leiden University.

The IAU European OAD Regional Office in Europe was established in February 2018 and will carry out and coordinate relevant astronomy-for-development activities in Europe and globally, focusing on accomplishing the United Nations' Sustainable Development Goals. These activities will fall under three objectives: building a network of astronomy for development in Europe; capacity building around research and development; and use astronomy as an educational tool for peacebuilding and global citizenship. All initiatives will be carried out in cooperation with existing activities of pan-European and national astronomical organisations.

The IAU OAD Regional offices work closely with the OAD to execute the vision of astronomy for a better world, with a focus on a geographic or cultural region. The other regional offices are located in Colombia, Jordan, Ethiopia, China, Portugal, Thailand, Armenia, Zambia, Nigeria and North America.



Children at an Internally Displaced Persons (IDP) camp in Nigeria enjoy astronomy activities (2019). Credit: IAU OAD / IDP CAO and Astronomers Without Borders Nigeria.



Astronomy for development activities in Yunnan, East-Asia. Credit: IAU OAD.



[www.astro4dev.eu](http://www.astro4dev.eu)





SKIES

# SKIES

## SKilled, Innovative and Entrepreneurial Scientists

SKIES provides training on open science, innovation and entrepreneurship topics for astronomy graduate students.

SKIES, a European Union-funded project, will work with astronomy PhD students in Germany, Poland, Portugal, South Africa and The Netherlands to develop the skills and entrepreneurial mindset that are an asset in any career path within or beyond academia. The focus will be on transferable skills from astronomy that can be used to address societal challenges.

The training modules will be co-created with local trainers, so that the materials will be tailored to each country's context and needs. Local trainers will be prepared to teach the training modules in a train-the-trainer event and subsequently implement the training in their country. After the project's completion, training modules will be consolidated into an open-access mini Online Open Course (mOOC).

SKIES will run from March 2021 to August 2022. While the first months of this project are for preparation, we will implement the majority of our activities during the second half.



SKIES is a global project with local impacts.



Madagascar Astro Python workshop 2017.





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# Public Engagement Training

Changing the way we train for  
Public Engagement with Science.

As institutions across the globe begin to drastically increase their participation in public engagement activities, training for scientists to more effectively participate are on the rise. However, the approach that most trainers use for these workshops may not be effective.

Recent studies have shown that most of the science communication training in the US focuses on tactical skills rather than strategy. Research suggests that developing strategic skills might be a more effective way to create long-lasting outreach programmes.

There are two teams under Astronomy & Society Group working in tandem to create evidence-based public engagement training: GlobalSCAPE, a Horizons 2020 project composed of a global consortium of science communication organizations who are performing research to take stock of science communication worldwide; and the Kavli-IAU Public Engagement Training Programme, a partnership between the International Astronomical Union and the Kavli Institute, whose goal is to change the way astronomers approach public engagement.



We are training the next generation of strategic science communicators. Credit: W. Schrier/TEMI/Leiden Univ.



During training workshops, people come together to discuss, listen, and learn from each other. Credit: W. Schrier/TEMI/Leiden Univ.





**citizen  
science  
lab**

# **Citizen Science Lab**

The Citizen Science Lab is an incubator for transdisciplinary projects, and a knowledge hub for Citizen Science.

The Citizen Science Lab (CSLab) brings together scientists, policy makers, citizens, and other stakeholders in participatory research projects that address scientific questions and/or urgent societal issues that can only be solved by actively involving volunteers in the scientific process.

In order to achieve this, the CSLab acts as a facilitator and incubator to co-create new citizen science projects that connect society with science. The CSLab also functions as a knowledge hub to build a collaborative and transdisciplinary knowledge-sharing network for citizen science practices in Leiden and across the Netherlands.



The Citizen Science Lab unites researchers, citizens and civil society organizations to bring about new ways to approach science in society.  
Credit: Oeverplanten.



Lab activities cover a wide range of themes such as air pollution, archaeology and languages & cultures.  
Credit: CSLab/Plastic Spotter.



[www.universiteitleiden.nl/en/citizensciencelab](http://www.universiteitleiden.nl/en/citizensciencelab)



[www.plasticspotter.nl](http://www.plasticspotter.nl)





# Open Science Hub

Open Science Hub is a learning space for Science, Technology, Engineering, Arts and Mathematics (STEAM) education that fosters sustainable development of local communities.

The first Open Science Hub (OSH) opened in July 2017, in Barca d'Alva – Figueira de Castelo Rodrigo (Portugal), a rural border town in the northeast of Portugal. OSH-Portugal links science, technology and innovation to the daily life of local and regional communities, promoting school performance and boosting entrepreneurship and innovation in a sustainable way, all while grounded in the reality of the community.

Since its initiation, the OSHub network has expanded to Switzerland, Austria, Czech Republic, France, Greece, Ireland and The Netherlands running various open schooling projects.



A view of the Open Science Hub – Portugal (Plataforma de Ciência Aberta) building during the opening ceremony of the exhibition “Conversations with the Earth: Indigenous Voices on Climate Change.”  
Credit: Sandra Invêncio/Gix.



Educational activity with high-school students in the context of the Citizen Science project “Insects in Order”, Open Science Hub – Portugal (Plataforma de Ciência Aberta), October 2017. Credit: Paulo Lourenço/Open Science Hub.



[www.oshub.network](http://www.oshub.network)



[www.plataforma.edu.pt](http://www.plataforma.edu.pt)





OPEN SCIENCE HUB  
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THE NETHERLANDS

# Open Science Hub in The Hague, the Netherlands

The Students for Education (Studenten voor Educatie-SvE) initiative is part of the Leiden University's Open Science Hub project aiming to guarantee quality education for every child.

Involving 26 schools and 40 higher education students in The Hague, SvE is currently running its first year of activities. The university students support primary school children in their day-to-day needs such as reading, spelling and mathematical activities. They receive training in didactics, pedagogy and methods in monitoring and evaluation. In this way, teachers have support, students have a job, and children have extra help.

The SvE pilot ran from May to December 2020, and was a partnership between the municipality of The Hague, the Primary School Boards in The Hague, Stichting Brede Buurtschool and four primary schools. In 2021, the project aims to reach at least 26 schools and 43 higher education students.

Within the project, a training programme was set up with experts from Leiden University and the primary school boards to ensure the support given by university students is of high quality. In addition, in cooperation with The Hague University of Applied Sciences, an evaluation and monitoring programme was set up to measure the experience of teachers and children with regard to the support provided and to adjust the project where necessary. A next step for the project is to guarantee the sustainability of the programme.



Online tutoring asks for creative solutions; during the project, students came up with innovative solutions such as online whiteboards and abacus.





International  
Day of Light

16 May

# International Day of Light

The International Day of Light, celebrated annually on 16 May, is a global initiative that provides an annual focal point for the continued appreciation of light and the role it plays in science, culture and art, education, and sustainable development, and in fields as diverse as medicine, communications, and energy.

The broad theme of light allows many different sectors of society worldwide to participate in activities that demonstrate how science, technology, art and culture can help achieve the goals of UNESCO – education, equality, and peace. Each year, around the International Day of Light, hundreds of events are organized at local, regional and national levels to celebrate light. The goals of the IDL include improving the public understanding of how light and light-based technologies touch the daily lives of everybody, and are central to the future development of the global society.



Each year, around the International Day of Light (May 16th), hundreds of events are organized at local, regional and national levels to celebrate light and the role it plays in our daily lives.



Visual Sonic Runway – SPIE, the international society for optics and photonics IDL Photo Contest. Credit: Steve Tambosso



[www.lightday.org](http://www.lightday.org)



@IDLOfficial



@DayofLight2021





# Universe Awareness

Universe Awareness (UNAWA) uses the beauty and grandeur of the Universe to inspire children between 4 and 10 years old and encourage them to develop an interest in science and technology.

The programme aims to introduce children to the idea of global citizenship at a crucial stage of their development – to show them that they are part of an international community.

Until the advent of UNAWE, there were no large-scale attempts to use astronomy as a tool for inspiring and educating young children. Therefore, while our resources are open to all, the programme is aimed at children aged 4 to 10 years, especially those from underprivileged communities. UNAWE is active in 63 countries and Leiden University Observatory is the founder and coordinator of the programme.



← Universe in a Box activity in the Ladakh region of the Himalayas, India. Credit: J. Polednikova.



↓ UNAWE at Mission X with ESA astronaut Andre Kuipers, the Netherlands. Credit: UNAWE.



[www.unawe.org](http://www.unawe.org)



[@unawe](https://twitter.com/unawe)



[/unawe](https://www.facebook.com/unawe)



[@unawe](https://www.instagram.com/unawe)





# Space Scoop

Space Scoop is a weekly astronomy news service for children aged 8 and up, delivering news from across the Universe to the young around the world.

Sharing the excitement of the latest scientific discoveries is one of the best tools that we have to inspire the public — including children. The question isn't whether astronomical news can inspire children, but how we can best communicate this information to the young.

In February 2011, Universe Awareness, in partnership with the European Southern Observatory (ESO), launched a weekly astronomy news service for children aged 8+, called Space Scoop. Space Scoop has now produced almost 500 astronomy news stories for young children, successfully tackling a wide variety of subjects — everything from exoplanets to cosmic reionisation.

The Space Scoop family has included a number of partner organisations throughout the years, and now partners include US National Science Foundation's NOIRLab, the National Astronomical Observatory of Japan (NAOJ), Las Cumbres Observatory (LCO), and the ALMA collaboration. Space Scoop has grown into the biggest astronomy news service for children, with voluntary translators making the content available in over a dozen languages.



A young girl enjoys a Space Scoop at an exhibition in the Romanian capital of Bucharest.



[www.spacescoop.org](http://www.spacescoop.org)



[@unawe](https://twitter.com/unawe)



[/unawe](https://www.facebook.com/unawe)



[/space-scoop](https://www.linkedin.com/company/space-scoop)



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# Research & Development

Research and development are central to improve the understanding of interactions among astronomy and society, as well as to develop innovative programmes, projects and tools to enhance and empower those interactions.

The Astronomy & Society Group is particularly interested in the following topics:

- Public understanding of astronomy
- Global programmes in astronomy communication and education
- Youth Engagement with Astronomy
- Science Communication Communities of Practice
- Public Engagement within Science-based Companies
- Astronomy and Sustainable Development
- Open Science in education and public outreach
- Astronomers' attitudes, views and motivations on public engagement initiatives
- Equity, Inclusion and Diversity-issues in science education
- Citizen science
- Society and science policy
- User-centric development of science communication projects and programmes



Educators trying an educational app during TEMI congress in Leiden, the Netherlands, April 2016.  
Credit: W. Schrier.



Development of new educational activities during TEMI congress in Leiden, the Netherlands, April 2016.  
Credit: W. Schrier.





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# Public Engagement Activities

Leiden Observatory strives to maximise its impact in bringing astronomy to society at large by encouraging all staff and students to participate in public engagement activities.

The myriad activities include media appearances (through newspapers, radio, tv and online interviews), activities at schools, exhibitions and public talks (e.g., Kaiser Spring lectures and talks at various societies). Due to the international nature of Observatory students and staff, these activities are carried out not only in the Netherlands but also in their home countries.



Leiden Observatory Open Day 2014. Credit: UNAWWE/W. Schrier.



Vincent Icke discussing black holes and Einstein's theory of general relativity at the Kaiser spring lecture series in 2015. Credit: Kaiser Society.





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# Art & Astronomy

Leiden Observatory supports and encourages the exploration of intersections between astronomy and art.

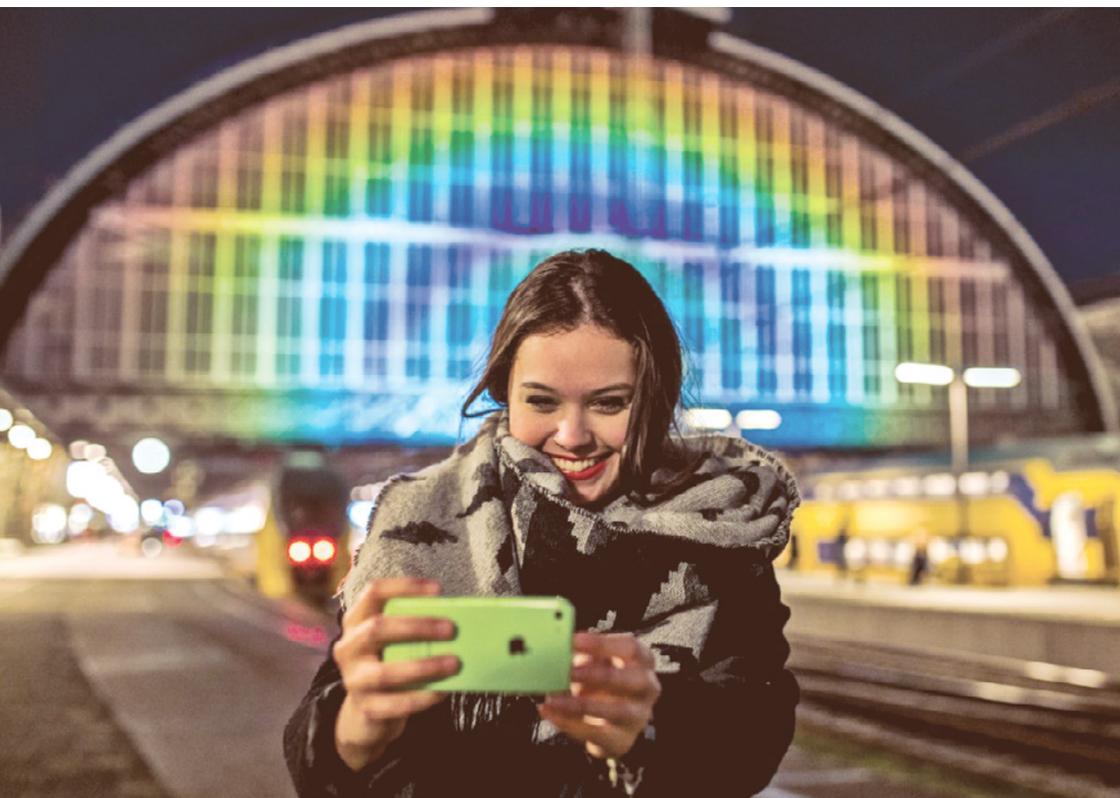
Leiden Observatory has developed a series of projects promoting collaboration between art and astronomy, such as the KNAW Prize for Astronomy & Art, collaborations with the Nederlands Dans Theatre, Ars Electronica, Studio Roosegaarde and a well established Artist-in-Residence programme.



Open Space 2021. Credit: Fernando Hernando Magadan.



To commemorate the 125th anniversary of the Amsterdam Central Station building, a rainbow could be observed every night in 2015 on the station building. The rainbow was created using the latest technology developed to detect exoplanets in a special collaboration between NOVA astronomers and Studio Roosegaarde. Credit: Studio Roosegaarde.





# Astronomers for Planet Earth

Astronomers for Planet Earth (A4E) is a growing volunteer network of astronomy students, educators, and scientists around the globe committed to address the climate crisis and act together for climate justice.

The Astronomers for Planet Earth network plans and develops resources and relevant science policy initiatives to tackle climate challenges. Different working groups are in place within the group to manage collective activities such as events, public outreach, communication, conference participation, public relations, developing educational materials, hosting regional specific discussions, and more. These activities are targeted both towards the professional astronomy community and to the general public through outreach.

Recently A4E released an ‘Open Letter’ calling on astronomy departments, institutions and societies worldwide to adopt sustainability as a primary goal. More than 2700 astronomers from 73 countries signed the pledge to fight the climate crisis.



Chemist and mission specialist Tracy Caldwell gazes at Earth from the International Space Station. Credit: NASA.



The Earth at night – Elements of this image furnished by NASA.



[www.astronomersforplanet.earth](http://www.astronomersforplanet.earth)



[@Astro4Earth](https://twitter.com/Astro4Earth)



[/astro4earth](https://www.facebook.com/astro4earth)



# Get involved!

We love new ideas and working with creative people. Contact us at any time if you want to share an idea or join one of our initiatives.

## Contacts

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[www.astro-and-society.org](http://www.astro-and-society.org)

Pedro Russo  
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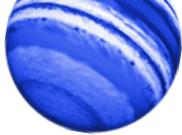


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**OPEN  
SCIENCE  
HUB**



**citizen  
science  
lab**

*Old  
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LEIDEN,  
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*SKIES*



OFFICE OF ASTRONOMY  
FOR DEVELOPMENT

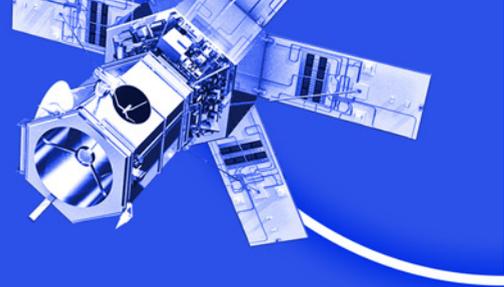


**ASTRONOMERS  
FOR PLANET EARTH**



**International  
Day of Light**  
16 May





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This brochure was produced  
and partly funded by  
EU programmes (H2020)





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