The IAU’s Office of Astronomy for Education

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OAE and Haus der Astronomie

Global Hands-On Universe Conference, August 22, 2020
The International Astronomical Union

• Umbrella organisation for professional astronomers
• Defines astronomy community consensus where needed: Naming, coordinate conventions, units, definitions etc. (Resolutions at General Assemblies)
• Organises scientific meetings (notably IAU Symposia)

The mission of the International Astronomical Union is to promote and safe-guard astronomy in all its aspects (including research, communication, education and development) through international cooperation.
IAU Structure

IAU Executive Committee
(President, General Secretary etc.)

Self-organisation of astronomers

- 9 Divisions consisting of 35 Commissions with 40-50 Working Groups (mostly temporary)

Of particular interest to us:

- **Division C: Education, Outreach and Heritage**
  (President: Susana Deustua)

- **Commission C1: Astronomy Education and Development**
  (President: Paulo Bretones)

Current working groups include:
- Competitions;
- Education Research and Methods, Resources (astroEDU);
- NASE

https://www.iau.org

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since 1/2020
The mission of the International Astronomical Union is to promote and safe-guard astronomy in all its aspects (including research, communication, education and development) through international cooperation.

Goal 5

The IAU stimulates the use of astronomy for teaching and education at school level.

https://www.iau.org/static/administration/about/strategic_plan/strategicplan-2020-2030.pdf

Fundamental question: Which actions are appropriate for the IAU, on an international level?
Categories of OAE Activities

- Create and maintain infrastructure
- Foster professionalisation
- Networking
- Create, curate, disseminate basic education resources
- Help to include more astronomy in Curricula
- Establish standards, disseminate best practices

...in close interaction with the astronomy education community.

We do not want to re-invent wheels.

So many helpful initiatives (GHOU, GTTP, …) already out there!
Infrastructure:
Publication venues, data bases

Astronomy education is lagging behind astronomy research regarding findability and publication venues

- OAE supports astroEDU (editorial assistance)
- negotiations with NASA-ADS about listing educational resources
- Wider problem: How to create a good, common astronomy education review culture?
- Ideally: Something as widely accepted as arXiv, specifically for astronomy education?
Professionalisation:

Teachers

- Provide resources ("simple astronomy") for astronomy teaching by teachers with little previous training (collaboration with OAD)
- Online **Schools for Astronomy Education (SAEs)** in English (international) and other languages (regional) as low-threshold introduction (including current developments)
- International and regional SAEs for face-to-face training
- Coordinate with existing frameworks (GTTP, NASE, …)
- Define community standards for resources/trainings
Professionalisation:
Astronomers / astronomy educators

This includes both teachers and astronomers active in astronomy education

Help educators keep up with:

- AER developments
- modern teaching methods
- state-of-the-art evaluation techniques
- astronomy-specific topics (use of remote telescopes, daytime observations, use of authentic data, including indigenous astronomy…)
Specific resource: OAE Reviews

- Developed by experts from the community and beyond (specific OAE Review Board), with OAE support
- Rely on existing resources, provide compact review
- Meant to be minimally time-consuming for getting up to speed on a given topic
- Transparent process, living document: Material available online during creation, Review updated when needed
Planned OAE Reviews topics

General/methodology will include:

- How to evaluate resources and activities
- Diversity, equity and inclusion in astronomy education
- Online formats for astronomy education
- Mix of best-practice reports and AER reviews

More specific content topics:

- Remote observing
- Astronomy education with authentic data (e.g. Archives)
- Best practices/resources reviews for common topics: Cosmology, planetary atmospheres (climate change), ...
Fundamental astronomy resources

Lots of education resources already out there: create, curate, evaluate, disseminate for universal access to high-quality open educational resources

Specific support actions to start with:

● For teaching, resources in local language necessary: Astronomy Translation Network and friends
● Create multi-lingual astronomy glossary
● Input from „Big Ideas in Astronomy“ – literacy definition
● Create collection of corresponding images/animations available under suitable Creative Commons licenses
● Wikipedia Edit-a-thons – since that is where people look!
Fostering astronomy in curricula

Mid-term goal:

Support efforts to include more astronomy in national/state/regional (STEM) curricula

- Support studies on student interest and motivation (cf. ROSE, or planned successor ROSES)
- Create resources about lobbying best-practices
- Support National Astronomy Education Coordinators (NAEC Teams) with their national efforts
Networking within the astronomy education community

- Direct interaction with partners (starting with OAD, OAO, …)
- OAE Session at IAU General Assembly
- Annual Shaw-IAU Workshop (next: 6–9 October, 2020)
- Follow us on social media, subscribe to our mailing list
- Talks like this one 😊

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So – who will be doing the work?

- Office of Astronomy Education at Haus der Astronomie, Heidelberg
- OAE Centers and OAE Nodes
- Network of National Astronomy Education Coordinators
- Collaborators – e.g. OAE Review Board members
OAE at Haus der Astronomie

Markus Pössel  Carolin Liefke  Markus Nielbock  Niall Deacon  Juan Carlos Muñoz  Gwen Sanderson

Director & Deputy  Coordinators  Assistant

Based at Haus der Astronomie, Heidelberg, Germany

…supported by Haus der Astronomie staff

Currently hiring: 5-year postdoc in astronomy education research

Deadline August 26, 2020

OAE at Haus der Astronomie

Haus der Astronomie: Center for Astronomy Education and Outreach operated by: Max Planck Institute for Astronomy for the Max Planck Society

External funding bodies:
- Klaus Tschira Foundation
- Carl Zeiss Foundation
- Shaw Prize Foundation
OAE Centres and OAE Nodes

Institutions that are willing to marshal their own resources for the task are invited to become OAE Centres or OAE Nodes (difference in scale).

Currently in the process of establishing:

**Centers**
- Italy
- China
- India
- Cyprus

**Nodes**
- France
- Republic of Korea
- Nepal
NAEC Teams
National Astronomy Education Coordinators

- NAECs are the liaison between OAE and each country’s education community
- NAECs disseminate OAE material
- OAE asks NAECs for nation-specific needs
- Early task: survey of national practices/status quo in astronomy education
- For each country, think about ways for lobbying for more astronomy in curricula – and OAE ways of supporting this.
NAEC Teams
National Astronomy Education Coordinators

200 confirmed, from 70 countries
OAE and you?

• Volunteer contributions: OAE Review Boards, Reviewers, Wikipedia Edit-a-thon, volunteer translators
• Institutions: interested in hosting OAE Center or OAE Node?
• Join in community discussions, help with dissemination
• ...keep doing what you are doing!

Thank you for your attention!

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