The Office of Astronomy for Education in Heidelberg

Markus Pössel und Carolin Liefke, Haus der Astronomie

Shaw-IAU OAE Workshop, Paris, 17 December 2019
The OAE Heidelberg Proposal

- What (and who) is Haus der Astronomie?
- OAE as a service organisation
- Infrastructure and how not to re-invent wheels
- OAE’s bridge function between Astronomy Education Research and Practice
- The OAE network, partnerships, collaboration
- Standards, concept inventories & Co.
Who we are: Haus der Astronomie

Center for Astronomy Education and Outreach in Heidelberg
Founded in 2008, galaxy-shaped building since 2011
Max Planck Society, Klaus Tschira Foundation, Heidelberg U & City of Heidelberg
Who we are: Haus der Astronomie

Our present focus: Outreach/Astronomy Education Practice

- Kindergarten, primary & secondary school
- Developing teaching resources
- Teacher training (pre-service & in-service, regional, national & international, in-house and elsewhere)
- Collaborations & projects (UNAWE, EUSPACE-AWE, NOC for IAU OAO)
- Lobbying (astronomy at state level)
Who we are/will be: HdA-OAE Team

Markus Pössel  
OAE Director  
PhD in Theoretical Physics  
HdA Managing Scientist 2009+  
Particularly interested in cosmology, data analysis

Carolin Liefke  
OAE Deputy Director  
PhD in Astronomy (Stellar activity)  
HdA staff 2010+  
Particularly interested in remote observing, pre-service training

Markus Nielbock  
OAE Coordinator  
PhD in Astronomy (Star formation)  
HdA staff 2015+  
Particularly interested in spaceflight, teaching materials

N.N.  
OAE AER Coordinator  
5-year Astronomy Education Research postdoc  
Suitable for early career scientists

N.N.  
OAE administrative assistant  
general support

...plus additional HdA staff as advisors/supporters

1st Shaw Prize-IAU Workshop “Astronomy for Education”
Basic role of the OAE

The astronomy education (practitioner and research) community within the IAU:

Commission C1 as **self-organizing, representative body** of the community

Office of Astronomy for Education as **service organization**:

**OAE** supports the community in using astronomy as a stimulus for STEM teaching/education from elementary to high school level.
Support means **infrastructure**

- Venues for **publishing** educational resources not re-inventing wheels: arXiv? Zenodo.org?
- **Peer-reviewed publishing** of edu. Resources support for astroEDU – and will there be a new journal?
- Tools for **finding** suitable/best educational resources
  In talks with NASA ADS. Make good existing materials visible.
- Take action to make sure **Wikipedia** has good astronomy information
- **Translations!**
Support means **professionalisation**

Training astronomy educators – both new and seasoned:

- New/inexperienced educators: Provide **basic training**, access to suitable resources
- Everybody: Provide (compact, minimally time-consuming) resources to self-teach/refresh **key competencies** and to **keep up with results** of astronomy education research
- Professionalisation of **review activities** (e.g. astroEDU)

Means to that end: “OAE Reviews”, Schools for Astronomy Education (online formats and face-to-face), future Shaw Prize-IAU workshops
Support means professionalisation: OAE Reviews

Resource collections, videos etc. as appropriate

Similarity: systematic reviews (technical term, e.g. medicine)

General topics will include:

- How to evaluate resources and activity
- Accessibility and inclusion in astronomy education
- Online formats for astronomy education

More specific topics such as:

- Remote observing, handling authentic data
- Best practices for: Cosmology, planetary atmospheres, ...
Support means networking

- **NAECs** – National Astronomy Education Coordinators, per country as liaison OAE and national community

- **OAE Centres** and **OAE Nodes** – institutions that invest their own resources to support OAE goals, and (with IAU approval) become part of the OAE

- Knowing how things are done elsewhere – analysing astronomy education in different countries (OAE Review)

- Direct interactions at the GAs and the annual Shaw Prize-IAU Workshop on Astronomy for Education

- Collaboration with OAD/OAO networks
Support means anchoring astronomy in curricula

- Key role in each country: NAECs
- First, take stock: collecting information on each country’s astronomy education landscape (OAE Review)
- Marshalling good arguments: student interest and motivation (ROSE), astronomy as “gateway science”
- Lobbying with the help of the IAU Executive
Support means **standards and best practices**

- Finding the right **balance** between standards and individual diversity in practices
- Collecting and **showcasing** best-practice examples for resources, methods and activities
- Work on **consensus documents**, such as Big Ideas, concept inventories and more
- Recommendations for professionalisation in OAE Reviews – create **culture of evaluation**
- *Setting* standards must be a community (C1) discussion
...more discussions on all of this over the next days!