

The roles of OAE Centers and OAE Nodes

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This document is meant to put OAE Centers and OAE Nodes – supporting institutions for the IAU Office of Astronomy for Education – into a broader context. Let's start at the beginning:

Some students come to astronomy by themselves – through reading, through their own fascination for the night sky. But usually, at some point in students' journeys through astronomy, an educator is involved. Sometimes, that educator is a school teacher with a special interest in the cosmos. On other occasions, an astronomer plays a role – giving a public talk, acting as tutor for an internship, mentoring. On a second level, there is support for that educator, or that astronomer: Via a teacher training workshop, or by providing resources, or ideas for activities.

Our mission

The mission of the new IAU Office of Astronomy for Education is to support those astronomy educators, whatever their background, in the following specific ways:

For one, in order to teach about astronomy, educators need high-quality **resources** – texts, images, videos, ideas for hands-on activities, sample lesson plans, and much more. We support educators by helping them find the quality resources they need, and we support the creators of astronomy education resources by making their work visible, and providing **infrastructure** for publishing such resources. While we try to avoid re-inventing any wheels, we are also involved in the creation of useful resources directly – from supporting the "Big Ideas in Astronomy" through supporting the translation of resources into different languages to making sure that resources are available as freely as possible, under accessible licenses.

The second major part of our mission is **professionalization**. Astronomy educators who were trained as teachers are likely to have a solid background in pedagogy, but might not have learned about astronomy, in particular the more recent results, in their training. Those of us who have come to astronomy education from astronomy research, or amateur astronomy, are likely to have a solid background in the subject, but in a number of cases no training, formal or otherwise, in the methodology of teaching and education. We want to help change that. That is what our *OAE Reviews* are meant to help with – each review should help astronomy educators to quickly and efficiently get up to scratch with a certain facet of professional astronomy education.

A particular aspect of professionalization that is very close to the IAU's heart involves the **evaluation** of activities and resources. We are, after all, scientists – so why do so many of us just trust their own impressions when it comes to judging whether or not a specific resource or activity works, instead of attempting at least some kind of systematic evaluation?

Both high-quality resources for astronomy education directly, as well as resources for professionalization, only help when practitioners are aware of them. That is why **dissemination** is a key part of our mission as well: Online, and via **Schools for Astronomy Education** where practitioners (at least in post-Corona times) are present directly.

Note that this mission is much more specific than just promoting good astronomy education (which is where we know that all of you are doing an amazing array of activities). It is about providing specific kinds of support. And for that, we need the right amount of resources – which is where OAE Centers and OAE Nodes become important.

OAE Centers and OAE Nodes

Fulfilling our particular mission takes considerable work. Some of that work relies on volunteers from astronomy, astronomy education and teaching. This is true for the OAE Review Panels (that is, the groups responsible for creating OAE Reviews), and for the members of the National Astronomy Education Coordinator Teams (NAEC Teams). In scope, this kind of volunteer work is comparable e.g. to what scientists know as "Service activities"; in science, that typically involves organizing conferences, serving on committees, or providing peer review.

Another portion of the work is beyond the usual scope of scientific (or educational) service. It requires more of a supporting role, and that is not fair to ask from individual volunteers. This is where **OAE Nodes** and **OAE Centers** come into play. Those are institutions volunteering their contribution to the work that needs to be done for the OAE, usually with the help of internal or external funding they have secured for the purpose.

For OAE Reviews, this support includes work such as compiling references, editing, proofreading, as well as organizational work such as contacting (sometimes repeatedly) individuals we hope will contribute. In fact, each OAE Review Panel (working on one particular review) should be supported by at least one OAE support scientist helping with such work, so the panel members can concentrate on those tasks where their expertise is required.

For the Schools of Astronomy Education, there are regional editions: **Regional Schools for Astronomy Education**, which have a target group that is decidedly more than local – and in this way are more complex to organize than local training events. Taking responsibility for such RSAEs is another task an OAE Center or OAE Node could decide to take on.

Then there are the **evaluation tasks** – after all, sensible and effective evaluation of resources, activities, methods, and training events, is something that the IAU is very keen on, and supporting those practitioners and researchers who are taking on larger-scale evaluations is definitely something that OAE Nodes or OAE Centers need to do.

In essence, an institution willing to host an OAE Node or OAE Center is saying: we believe in supporting the OAE mission, and that is why we will dedicate a certain number of personnel-hours, and a certain amount of funds, to supporting that mission over a given period of time.

In each specific case, there is more to it than that, of course. Host institutions typically are active in astronomy education in their own right, and they have an understandable interest in synergies: Their OAE Node or OAE Center activities should fit in with their additional astronomy education activities. That is why, in practice, we compromise. As each OAE Center or OAE Node is created, the OAE and the host get together to see what will work for this particular OAE Center and OAE Node: Which parts of the OAE mission are particularly interesting to the host institution? What could the new OAE Center and OAE Node specialize in? What activities/specializations of the host institution could be added to the activities and responsibilities of this particular node? But at the center of each application should be how each OAE Node and OAE Center can contribute to the OAE's main mission – that is and remains the main function of an OAE Node or OAE Center.

A number of host institutions are already involved in producing resources for astronomy education research. That, too, is a natural synergy with hosting an OAE Node or OAE Center, given that part of the OAE's mission is to support the collection, showcasing and creation of suitable materials and best-practice examples tailored to the needs of school curricula in different nations.

There are two particularly important aspects of this. First of all, the service character of the OAE. All of us who create resources and materials of our own (including Haus der Astronomie) are naturally keen to contribute and showcase those. Still, we mustn't be partial – it's our mission to promote *all* excellent materials, and we must take care to be inclusive in this, seeking out and curating materials produced by all participating institutions. Quite a number of institutions are creating astronomy education resources. As OAE, we should not re-invent any wheels; we should search for what is already out there, and help to disseminate existing excellent resources.

Secondly, a key part of the professionalization that OAE is meant to foster within the community involves properly evaluating materials. Quite a number of us (again including Haus der Astronomie) have resources that we believe to be very good, but that have not been in any way systematically evaluated. In that regard, too, both the OAE and OAE Centers and OAE nodes will need to lead by example – once we have agreed on community standards for evaluation, we need to put them into practice.