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IAU Astronomy for Equity and Inclusion Working Group

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Abstract

In this talk we present the aims, goals and activities that have been started by the working group on Astronomy for Equity and Inclusion. This working group is part of Commission 1 "Astronomy Education and Development" of Division C "Education, Outreach and Heritage" of the International Astronomical Union (IAU).
The working group was born with the aim of developing new strategies and resources to promote the access to Astronomy, both at the profesional and outreach levels, for persons with special needs or for those who could be excluded because of race or sexual orientation (among other reasons). It is composed of astronomers affiliated with the IAU and other volunteers who work in astronomy, education and special needs, as well as partner organizations like the IAU Office of Astronomy for Development (OAD), Astronomers without Borders (AWB), the Galileo Teacher Training Program (GTTP) or Universe Awareness (UNAWE).
To reach those goals we have started different initiatives which are outlined at the working group's website, like a repository of resources or the creation of a document about good practices, and the establishment of a tight collaboration with the Working Group about Accessibility of the American Astronomical Society, which was formed recently too.

1 Introduction

The Principle of Universality (freedom and responsibility) of Science states that "the free and responsible practice of science is fundamental to scientific advancement and human and environmental well-being. Such practice, in all its aspects, requires freedom of movement, association, expression and communication for scientists, as well as equitable access to data, information, and other resources for research. It requires responsibility at all levels to carry out and communicate scientific work with integrity, respect, fairness, trustworthiness, and

transparency, recognizing its benefits and possible harms"[1]. It also notes that "In advocating the free and responsible practice of science, ICSU promotes equitable opportunities for access to science and its benefits, and opposes discrimination based on such factors as ethnic origin, religion, citizenship, language, political or other opinion, sex, gender identity, sexual orientation, disability, or age".

The International Astronomical Union, as a member of the International Council for Science (ICSU), embraces this Principle of Universality of Science and has promoted the creation of a new working group on Astronomy for Equity and Inclusion to deal with the topics of accessibility and equity in the field of Astronomy. This working group is part of Commission 1 on "Astronomy Education and Development" which is one of the Commissions in Division C, "Education, Outreach and Heritage".

2 The IAU Working Group on Astronomy for Equity and Inclusion

The working group is mainly composed of astronomers, but there are some collaborators who are experts in accessibility as well as outreach agents and educators. Among the main topics to be addressed are those related to visual impairments, deafness, motor disabilities, intellectual impairments, hospitals and behavioral disabilities.

There are also a few organizations which are collaborating with the working group: Astronomers without Borders (AWB), Universe Awareness (UNAWE), the Galileo Teacher Training Program (GTTP) and the Galileo Mobile (GM), as well as the American Astronomical Society Working Group on Accessibility and Disability (AAS-WGAD).

The main accessibility goals of the working group are rooted on the Universal Design of Learning ([1], [2]) for the development of new tools, methods, strategies, and best practices. Together we want to identify the problems and look for solutions that will accommodate most or all of the different needs that can arise in a diverse audience.

The Universal Design of Learning (UDL) is a framework based on technologies that support multiple learning modalities, including visual, auditory, kinesthetic and tactile. Therefore, activities and tools have to be produced in such a way that they can be accessed through as many different senses or means as possible. One example is the box of astronomy resources from the project "A Touch of the Universe" [3] with materials that can be used by people regardless of their vision abilities (See Fig. 1).

3 Work in progress

The working group was formed a few months ago and we have already started to address some of the main goals. For example, we are in the process of gathering resources that have been already developed in the fields of astronomy for the visually impaired, the deaf and heard-of-hearing, or those with motor impairments (see Fig. 2).

[1]International Council for Science, Statute 5.

Figure 1: "A Touch of the Universe" kit, a box of educational resources built following the principles of the Universal Design of Learning. The activities are accessible to persons with normal vision and also to persons with visual impairments or blind.

A few documents on good practices have been compiled in order to provide support to those who are willing to carry out this kind of activities. They are very general and we expect to produce more specific ones in the future. For example, we have just released a document on good practices addressed to publishers on how to improve the accessibility to astronomical publications, in collaboration with the WGAD. The document can be found at the working group website.

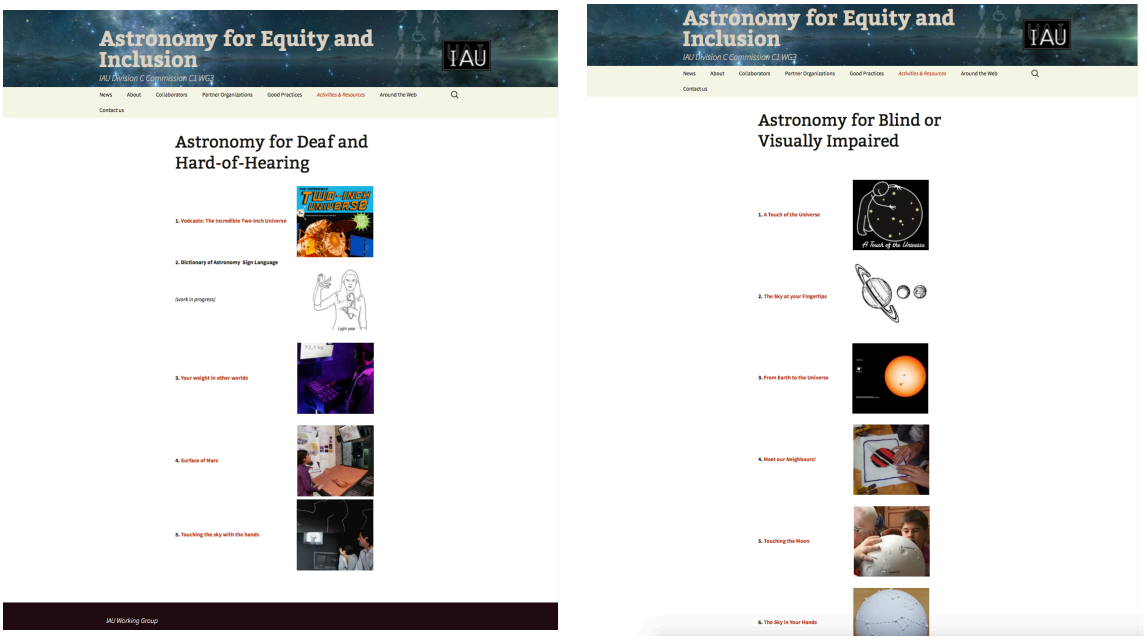

Figure 2: Snapshots of the website with a list of some of the resources that have been compiled so far.

We are also in the final stages of compiling an international dictionary of astronomical terms in sign language, that will be available online by the end of this year. The dictionary is composed by signs from the French, Japanese, Spanish-Argentina and Spanish-Spain sign languages, hoping to expand it to other languages in the next future. The final goal is to identify common signs for specific terms across the different languages that could be adopted as suggested signs for the international community, specially in the case of languages which still lack a sign for those particular terms.

These and other resources are available from the working group website: `http://sion.frm.utn.edu.ar/iau-inclusion`.

4 Astronomy beyond the Common Senses

On October 2016 the working group organized the first workshop on "Astronomy beyond the common senses" that took place in Cartagena de Indias (Colombia). It was an interdisciplinary meeting between astronomers, educators and disability specialists, developed as part of the LARIM 2016, with support from the Universidad Nacional de Colombia, Sede Bogotá-Facultad de Ciencias, Universidad de Cartagena, Parque Explora y Planetario de Medellín, Idartes-Planetario de Bogotá, and the AAS.

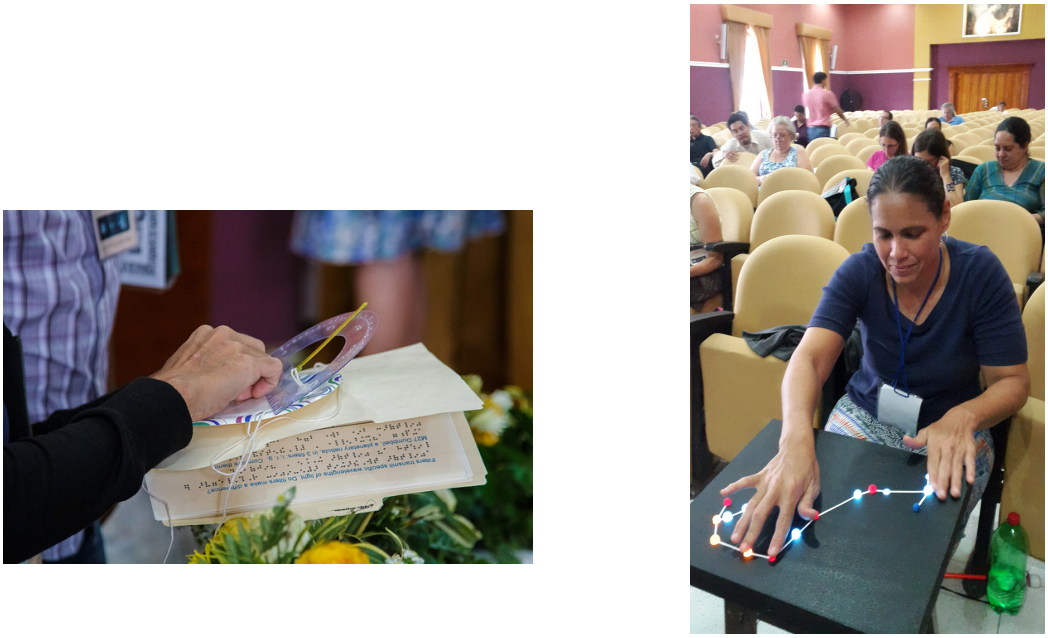

Figure 3: Tactile materials for the visually impaired shown at the workshop "Astronomy beyond the common senses". Credit: Ricardo García Soto.

Worldwide experts gathered for a day to talk about different issues in relation with accessibility of astronomy resources both in informal and formal environments, from school to college. The workshop provided an opportunity to learn about new strategies, work toward specific objectives, share experiences, and discuss recent applications developed for audiences with disabilities.

For the first time, a blind astronomer was the chair of the SOC, Wanda Diaz-Merced, who is an associated member of the Division C of the IAU.

Acknowledgments

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