

THE ROLE OF PROFESSIONAL ASTRONOMERS IN THE EDUCATION AND DEVELOPMENT OF ASTRONOMY

B. García^{1,2}

RESUMEN

En esta contribución presentamos las metas y planes futuros de la Comisión de Educación y Desarrollo de la Astronomía de la UAI y el rol de los astrónomos profesionales para alcanzar los objetivos planteados para los próximos años.

ABSTRACT

In this contribution we present the goals and future plans of the IAU Commission of Education and Development of Astronomy and the role of the professional astronomers to reach the proposed objectives for the next years.

Key Words: education

1. INTRODUCTION

The Commission of Education and Development of Astronomy of the IAU-Division C (CC1), was created to be part of the new structure of the Union. As consequence of the meetings at the IAU-GA-XXIXa, in Hawaii during 2015, the CC1 designed a plan for the next years, which has two main purposes: to establish the needs of the astronomical community in terms of education, based on the experience that the members at Commission have, and transform the commission in a facilitator and a link between members of the IAU and the Office for Astronomy Development and other commissions, taking into account the IAU Strategic Plan. The commission has the knowledge to produce a real change in the approach to education at the present time.

In this sense, the CC1 has established new objectives and a new way of working, including new working groups and activities. On the other hand, a new role was established for the CC1 as partner of the Offices for Astronomy Development, for Young Astronomers and of Astronomy Outreach, which improve the future development in scientific research in all sorts of methodological transfer of astrophysical knowledge towards different audiences (see the new structure of C.C1 in Fig. 1).

2. WORKING GROUPS

The CC1 has enlarged the participation of the IAU members in different task, and incorporated

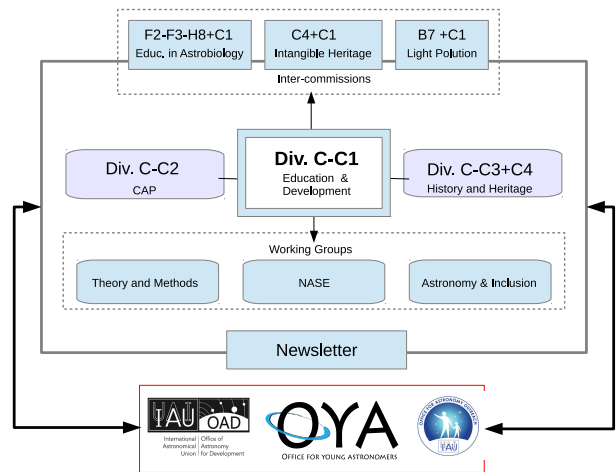


Fig. 1. Scheme of the C1 Structure

researchers in the field of education, members of “teacher training schools” and specialists in disabilities, by the creation of new and special working groups such as:

- Theory and Methods in Astronomical Research in Education (WG1).

The main goals of this WG is to produce a data base with the existent material, in different regions and continents, connected to surveys and literature reviews of scholarly production on PhD and MSc Thesis, Proceedings of meetings and published papers in Journals on Physics and Science Education, as well as to establish links with other groups with strong structures and successful practices, such as the Galileo Teaching Training Program (GTTP) or the Universe Awareness (UNAWA).

¹Instituto de Tecnologías en Detección y Astropartículas, CNEA, CONICET, UNSAM, Figueroa Alcorta 122, 5501 Godoy Cruz, Mendoza, Argentina (beatriz.garcia@iteda.cnea.gov.ar).

²Universidad Tecnológica Nacional, Regional Mendoza

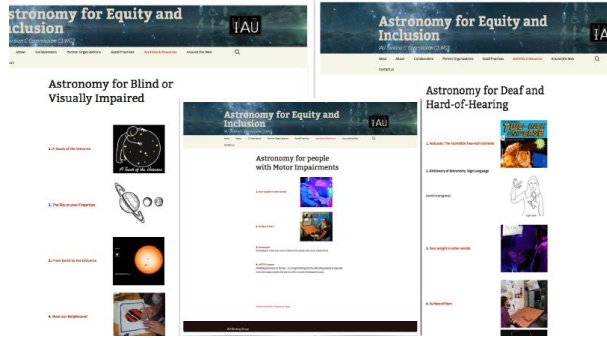


Fig. 2. CC1 Accessibility repository. Designed by Silvina Pérez

- The Network for Astronomy School Education-NASE (WG2).

This WG has as a mission to promote the teaching of astronomy forming teachers (secondary and primary), encourage the active teaching / learning process of Astronomy by observing patterns and phenomena, motivate teachers and students to observe the natural world and especially to associate these observations with astronomical topics and establish Local NASE groups. The NASE program intends to become the benchmark in didactics of astronomy training for mid-level teachers in each country. Between 2010 and 2016, 90 NASE courses were performed in all continents, the program has trained more that 3500 teachers and published several books on Didactics of Astronomy (Ros et al. 2012, 2015), (Ros and Garcia 2016).

- Astronomy for Equity and Inclusion (WG3).

This group pursues the development of new tools and methods to teach astronomy for special audiences, identify problems and find solutions, gathering a community of experts to assure best practices and, finally, to create a database of available resources for accessibility (<http://sion.frm.utn.edu.ar/iau-inclusion/>, see Fig. 2).

3. INTER-COMMISSION WORKING GROUPS

Since the beginning of 2016 new inter-commission groups (ICWG) were proposed. These ICWG are:

- Education and Training in Astrobiology (Commissions C1, F2, F3, H2), which is working creating an international network for education and providing training material for basic, secondary and higher education, providing a com-

prehensive multidisciplinary astrobiology curriculum for undergraduate, graduate students, and early career scientists and initiating, coordinating and carrying out initiatives in outreach for the general public and training the specialists (journalists, etc.) to improve the university lecturers in astrobiology (for example, how to teach biology to astronomers or astronomy to biologists) and training the high-school biology, geology, physics and chemistry teachers and educators to teach astrobiology within their own disciplines.

- Achieving Sustainable Development within a Quality Lighting Framework. Focus on education for achieving sustainable development within a quality lighting framework, since through educating future citizens will help reorient education towards sustainable development, the WG connects commissions B7 and C1.
- Intangible Astronomical Heritage (C1 and C4).

4. CONCLUSIONS

The new era of the IAU is a unique opportunity to integrate programs, show the power of astronomy in everyday life, and play a fundamental role in the development of Science Education. After centuries of evolution of ideas, theories and knowledge, humans have the tools to explain how the Universe works.

The activities of the CC1 during the first years of application of this “new vision” in education and development, as well as the proposals developed by the new working groups, will permit analyse the impact of the work performed and design the future plans.

Education in Astronomy can help us to defend one of the great world heritages: the starry night.

REFERENCES

- Ros, R. et al. (2012), 14 steps to the Universe Eds. R. M. Ros, M. K. Hemenway.(Barcelona: Albedo, ISBN: 978-84-15771-46-3), (http://sac.csic.es/astrosecundaria/en/cursos/formato/materiales/libro/llibre_angles.pdf)
- Ros, R. et al. (2015), Geometry of Light and Shadows Eds. R. M. Ros, M. K. Hemenway.(Barcelona: Albedo, ISBN: 978-84-15771-47-0), (http://sac.csic.es/astrosecundaria/en/cursos/formato/materiales/libro/geometria_ingles.pdf)
- Ros, R. & García, B. (2016), Sol y Eclipses (Buenos Aires: CONICET, ISBN 978-950-692-136-1), (http://www.conicet.gov.ar/wp-content/uploads/SolyEclipses_cast2.pdf)