

Astronomy Outreach Activities in Uruguay

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Abstract. We present here some of the outreach activities done in Astronomy during the last years, or in progress, in Uruguay. Uruguay is a small country in the southern-east of South America bordering the Atlantic ocean, with a valuable tradition in astronomy education and outreach, as well as in research on planetary sciences. Many of these activities involve teachers mostly from high schools of the national council for secondary education (CES), as well as undergraduate or graduate students and professional astronomers from the the public national university (Universidad de la República - UdelaR), the observatory *Los Molinos* (OALM) of the Ministry of Education and Culture (MEC), the observatory of the Instituto de Profesores Artigas (IPA) of the national council for formal training of teachers (CFE), and the Planetarium of Montevideo *Agrimensor Germán Barbato*. Other important state institutions like the Observatory of Montevideo of the CES also contribute to outreach activities, as well as amateur astronomers, a few media communicators, private observatories and cultural enterprises like the mobile planetarium *Kappa Crucis*.

1. High School Observatories and Inspección Nacional de Astronomía (CES)

Uruguay has several public high school observatories equipped with telescopes and or/computing facilities. We resume here some of their most recent outreach activities. The *Liceo Nro. 1 of Durazno* conducted activities like the observation of the partial solar eclipses of 2017 and 2018, attended by hundreds of people. The *Liceo Nro. 65 of Montevideo* offered observations by a portable telescope, astro-photography, and observations of particular events like the transit of Mercury. Since 2012 volunteer students of 15 to 16 years old from several high schools, e.g. *Liceo Nro. 9 of Montevideo*, participate in the *International Astronomical Search Collaboration* (IASC) campaign, processing astronomical images for astrometry of asteroids, and confirming several objects. These activities were also supported by the national astronomy inspection of the CES *Inspección Nacional de Astronomía*, which has being organizing several activities since a long time. One of the most recent was an astro-photography contest for high schools teachers and students in 2017.

2. Instituto de Profesores *Artigas* (IPA)

The observatory of the IPA does several activities like telescope observations of the Moon, the planets, the Sun, and courses about astro-photography and astronomical tourism, among others, to students and general public.

3. Observatorio Astronómico *Los Molinos* (OALM)

The OALM is located at the outskirts of Montevideo. It is the main State astronomical observatory of Uruguay, and is open to the public one Saturday evening every two months, with talks, access to the telescopes and sky observation. Is also open from April to November to school and high-school groups during the day, receiving from 1 to 4 groups per week. In addition to the regular visits, the OALM covers the main astronomical events that can be observed from Montevideo, being at the observatory itself or taking portable telescopes to other locations for a better view.

4. Observatorio Astronómico del Centro Universitario Regional del Este (OCURE)

We present some joint activities done by the OCURE (the only observatory of the national university Udelar, located in Rocha) with the *Instituto de Formación Docente de Rocha* of the CFE, the *elementary schools Nro. 72 y Nro. 97 of Rocha* (which depends on the national council for initial and primary education or CEIP), and the museum *Museo Regional de Rocha* during 2018, like *The Astronomy Week of Rocha*, with a participation of more than 4,000 people, mostly children. Teachers and students were more motivated to study astronomy not only as a science, but also as a powerful tool to learn about the diversity of nature and our place in the cosmos. The CURE Observatory also offers courses on fundamental observational astronomy, astro-photography and telescopes to tertiary students, teachers and general public.

5. Planetario de Montevideo *Agrimensor Germán Barbato*

The Planetarium of Montevideo was inaugurated in 1955, becoming the first planetarium of Ibero- America. It has a Splitz Model B projector since the planetarium installation, which was the oldest projector in the world still working, until the middle of 2017 when the Government of Montevideo finally approved the acquisition of a modern digital projection system. The Planetarium will be also restored, to improve comfort and accessibility. The reopening of the Planetarium is expected by the middle of 2019.

6. Planetario Móvil *Kappa Crucis*

The *Kappa Crucis Mobile Planetarium* is a cultural enterprise dedicated to the promotion of astronomy. It has been traveling around the country since 2005, offering sessions addressed to audiences of all ages. The project was highly successful and had a significant impact in each of the places visited. For many of the attendees it was their first planetarium experience. The main objectives (decentralizing and democratizing the astronomical knowledge) were accomplished. The feedback gathered from both teachers and students on both the contents and the proposal was extremely favourable. From March 2016 to July 2018 56,000 people attended the Planetarium.

7. Media communicators

TeleCosmos is a radio program via internet, with an emission per week, reaching an audience of about 200 people of 9 countries. The program broadcast topics on Astronomy and Space Sciences.