

## Segundas Astronômicas

### Open night sky observation activities at UFRGS Campus do Vale Observatory.

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**Abstract.** Astronomical observations, whether with the naked eye or through equipments, have the potential to spark interest in science and attract diverse audiences. In this work, we present the motivations that led to the creation of the project *Segundas Astronômicas*, carried out with the support of the Department of Astronomy at Universidade Federal do Rio Grande do Sul (UFRGS). The activities consist of nighttime astronomical observations every Monday at the Campus do Vale Observatory. We will also discuss the challenges we faced throughout the project's development, as well as the project's results and achievements.

**Resumo.** Observações astronômicas, seja a olho nu ou através de equipamentos, têm o potencial de despertar o interesse na ciência e atrair público diverso. Neste trabalho, apresentamos as motivações que levaram à criação do projeto de extensão Segundas Astronômicas, realizado com o apoio do Departamento de Astronomia da UFRGS. As atividades consistem em observações astronômicas noturnas todas as segundas-feiras no Observatório do Campus do Vale da UFRGS. Abordaremos, também, os desafios encontrados ao longo do desenvolvimento do projeto e os resultados observados desde sua retomada.

**Keywords.** Teaching of Astronomy – Sociology of Astronomy – Ensino da Astronomia – Sociologia da Astronomia

#### 1. Introduction

Sky observation activities, whether with the naked eye or using equipment, have the potential to awaken scientific curiosity and attract audiences of all ages. With this in mind, there was the motivation to create the project *Segundas Astronômicas* (Astronomical Mondays, Fig. 1). The project is a cultural activity held every Monday at the Astronomical Observatory of the Campus do Vale (OCV) of Universidade Federal do Rio Grande do Sul (UFRGS), focusing on astronomical observation of the night sky through telescopes and astrophotography. Created by Prof. Alan Alves Brito in 2016, the project remained active until 2019, when there was a pause. Activities only resumed in 2022, thanks to the students' initiative and coordination by Prof. Marina Trevisan. Observations are always free of cost and aimed at the general public. The team has more than 26 people, including volunteers, teachers, and students enrolled in the Observational Astronomy lectures, which are part of the Astrophysics undergraduate major.

The project contributes to the Porto Alegre region in different ways. Structural problems and light pollution prevent the UFRGS Central Observatory (OA) (located in the Central Campus) from receiving a large number of people. Thus, OCV has taken on the role of the only astronomical observatory capable of attending large audiences in Porto Alegre and the metropolitan region through the *Segundas Astronômicas* project.

The project also has an important contribution to the campus dynamics. Campus do Vale is one of UFRGS's campuses, located in one of the capital's peripheral neighbourhoods. Despite being open at night, the campus offers few cultural and scientific attractions to the local community (students, technicians and teachers) and to the community outside the campus. In this sense, the activity adds to the efforts to occupy this important space culturally and scientifically, both by the external and the academic communities. Therefore, our project activities contribute to creating a more welcoming environment on the campus



**FIGURE 1.** Astronomical observations at Campus do Vale Observatory.

during nighttime, which is particularly beneficial for students enrolled in night courses.

#### 2. Objectives

The importance of science communication becomes clear when we analyze that misunderstanding concepts can lead to alienation about the relevance of science in the development and progress of society, as well as increasing discredit and distrust in various important research results today (Farias & Maia 2020). In addition, extension projects such as *Segundas Astronômicas* ensure that the university is always open to the community, thus bringing the academic environment closer to the general public. This has the potential to encourage visitors to pursue careers and enrol in university courses (Barros, Langhi & Marandino 2018).

The project also contributes to the curricularization of extension at UFRGS. In December 2018, the National Education Council (CNE) established that higher education institutions should implement at least 10% of the workload of their undergraduate courses as extension activities. In this sense, the project

adds to the initiatives that meet this curricularization process. In practice, the project now integrates part of the workload of the Observational Astronomy lectures, besides allowing for independent practice hours to be added to non-enrolled volunteer students.

### 3. Development

The methodology is split into theoretical, technical and feedback aspects. In addition, we quantify the impact of our activities using qualitative and quantitative methodologies. Volunteers from any UFRGS course are encouraged to join the project. They are put through a selection process, followed by training. The training activities deal with the basic knowledge of Astronomy and the technical aspects of handling instrumentation. One important training activity is the Messier Marathon, which is open to the project staff only and helps them get acquainted with the telescope and the technical issues involved in the observations. The weekly observational activities open to the public always involve small teams of volunteers, which are defined a week earlier so that they all have the opportunity to plan ahead and to actively engage with equipment and the public, testing their skills and later reflecting on how to improve.

Another important skill required in the project is related to communication with a diversified audience (Barros, Langhi & Marandino 2018). Volunteers are encouraged to plan the observations ahead of time and to figure out how to describe best the targets they will show to the visitors. This involves the preparation of a catalogue of observational targets with their description. This is a means to stimulate scientific writing skills and to improve the transposition of science language to that of laymen.

To expand the project's reach, different methods were explored: creating the Observatory and project websites<sup>1</sup>; making flyers, bookmarks, posters and stickers; publicizing the project on social media platforms; partnerships with UFRGS News channels and with the Physics Students Bureau (DAEF). To measure the project's impact, the public was asked to document their visit in a guestbook. Through this data collection, we were also able to track the number of visitors per night and gather some basic information about our visitors.

### 4. Results

Since the project was resumed, the Observatory's social media pages, which mainly publicize Segundas' activities, have reached over one thousand followers.

As a way of measuring the impact on the volunteers' academic development, we proposed an online form. Of 10 respondents, 100% agreed that the project helped their academic development. When asked what taking part in the project means to them, the answers were surprising. We received statements that the project acted as an incentive to stay on the course. This is undoubtedly an encouraging result, given the high rate of 75% of students dropping out of Physics courses, according to the 2019 Higher Education Census (Inep). So, the project contributes not only to the qualification of these students but also to their permanence in the Physics course.

Due to the Observatory being far from the city centre, the biggest challenge has been reaching a more general public beyond the UFRGS Campus do Vale community. Even so, through the guestbook, we know that almost half of our public (43.2%) is from the community outside UFRGS. This shows us the efficiency of the dissemination methods explored. In addition, we

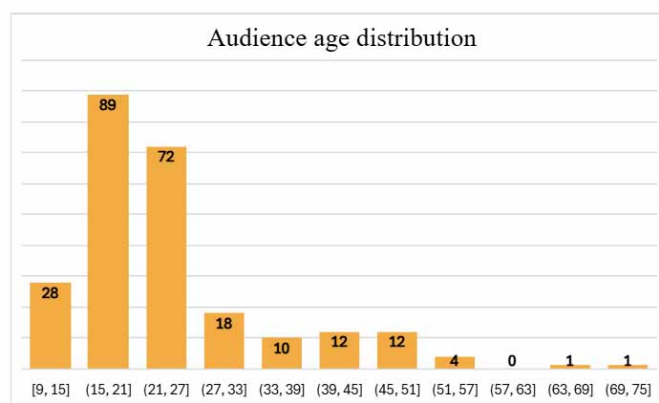


FIGURE 2. Histogram of the audience age distribution.

constructed a histogram showing the age distribution of the audience that attended the last 11 observation activities. (Fig. 2).

### 5. Conclusions

By analyzing the guestbook, we can see that the project mainly attracts young people, representing students from the campus, but also children and teenagers from all over Porto Alegre. Finally, our analysis shows the importance of the project's contribution to local access to culture, to the training of undergraduate students, and to the revitalization of the Campus at night.

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<sup>1</sup> <https://www.ufrgs.br/segundas-astronomicas/>