

LETTER TO THE EDITOR

# Internship at the Geneva Observatory

## Summary of the astronomers' life

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### ABSTRACT

## 1. Introduction

### 1.1. Motivations

In the framework of our one-week internship, we decided to experience the work of the astronomers (and aspiring astronomers) at the Observatory of Geneva. In fact, some of us would like to orient ourselves in science, maths, physics, or computer science. We are also curious about (exo)planets, galaxies, stars, supernovæ, black holes, quasars, dark matter, as well as the technologies that are used to study these phenomena, such as the telescopes, satellites, mechanics, electronics and optics.

### 1.2. Presentation of the Observatory

The Geneva Observatory (Observatoire de Genève) is the Department of Astronomy in the Faculty of Science at the University of Geneva (Université de Genève). The observatory building also hosts the laboratory of astrophysics of the École Polytechnique Fédérale de Lausanne (EPFL).

The Observatory was established in 1772, exactly 250 years ago, in downtown Geneva. It was moved to its current location in 1966<sup>1</sup>. It is located at chemin Pegasi 51, Versoix (GE), Switzerland. The street address is named after the name of the star 51 Pegasi, around which the first exoplanet was detected in 1995 by Michel Mayor and Didier Queloz, two astronomers from the observatory who won the Nobel Prize in Physics in 2019.

## 2. Methods

We spent one week at the Observatory. Each day, we experience different aspects of an astronomer's life, as well as all the different jobs that are needed to run a research institute. We met several people doing various jobs, at different stages of their careers. We observed PhD students in astronomy, professional

astronomers, professors, postdoctoral fellows, engineers, opticians, electronics and mechanics. Other jobs that we saw at the Observatory are the cooks, janitors, receptionists and administrative staff.

At lunch time, we ate with all the staff at the Observatory cafeteria. We enjoyed the relaxation area such as football, table tennis, sofas. We saw a lot of coffee machines. These equipments are critically important for researchers to discuss, exchange ideas and information and stay stimulated. In fact, most of the work of researchers is otherwise performed in front of their computers.

## 3. Results

During our week of observation, we discovered the following things:

- In astronomy, there are different careers and jobs.
- The researchers working at the observatory are working on specialised subjects, such as galaxies, exoplanets, stars and black holes.
- Astronomers can also specialise in different technics, such as observations, theory, programming, conception of instruments and telescopes.
- Some of tools used for the conception of instruments, in the electronic lab (we built an electronic dice) and in the mechanical workshop, where we used SolidWorks and made an aluminium keychain.
- Most major discoveries are made with telescopes that are bigger and more advanced than the one at the Observatory. These telescopes are located in the arid desert of Chile. We visited the remote control room for some of these telescopes.
- There is a computing centre that researchers use to do calculations.
- The space telescope CHEOPS is controlled from the Observatory.

<sup>1</sup> See <https://www.unige.ch/sciences/astro/fr/services/historique/>

#### 4. Conclusion

We liked a lot our experience in the electronics lab, building an electronic dice and in the mechanical workshop, building a key-chain. We liked hearing about the astronomical research topics. We enjoyed our experience with the kinetic sand pit and the 3D movie, as well as the visit of the dome with the telescope. We found that certain rooms next to optical lab had a peculiar smell linked with chemicals used to clean hardware. We did not enjoy having to queue for the microwave oven at lunch. Some of the theoretical parts were a bit long for our limited attention span. We are very grateful to the people who have dedicated their time to guiding us through the week.

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