

TEACHING AND PUBLIC OUTREACH ACTIVITIES AT THE OBSERVATOIRE DE LYON

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Abstract. The Observatoire de Lyon receives young and large public since more than thirty years. We propose and are largely involved in numerous events destined to scolar and large publics. We reach an annual average of 3500 pupils as well as 2500 to 6000 (the years with open house days) people with our actions. The public is largely satisfied with our events and the pupils get involved with enthousiasm when they work on "astronomy" projects.

Keywords: Outreach, teaching

1 Introduction

Besides beeing a very active research laboratory, the Observatoire de Lyon posseses a remarquable historical patrimony including interesting astronomical instruments. An equatorial coudé refractor dating from 1880, still in its original state, together with others ancient measuring instruments are classified as "Monuments Historiques".

To take advantage of these resources, a specific department named "Service de Diffusion des Connaissances"(SDC) has been created in 1998 with the charge of organizing various activities for school population and large publics (visits, astronomical evenings, open house days...). The SDC is led by an astronomer, has two scientific mediators(not in a permanent position!) and an assistant in charge of the logistics.

About 3 500 school children and 3 000 to 6 000 visitors are concerned every year by our actions.

2 Setting the scene

Even if the Lyon observatory had a long tradition of contacts with the publics, we put a new dynamics to these activities over the last years seizing several regional and international opportunities.

In 2007, we have set and managed a regional network financially supported by the Région Rhône-Alpes during four years (2007-2010) and federating all the astronomical activities intended for the publics in Rhône-Alpes. During the International Polar Year (IPY, 2007-2008), we have led an ANR programm for communication and public activities dedicated to polar researches, proposed in collaboration with the Nice, Marseille and Liège observatories.

In 2009, the International Year of Astronomy IYA09, we have developped numerous local and regional actions and we participated to several national and international programms for IYA09.

Moreover, we participate every year to the Journées européennes du Patrimoine, to the week called Fête de la Science and we support classes taking part to regional and national competitions like ExpoSciences, CGénial contest, Rallye des Mathématiques or Olympiades de Physique.

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3 Actions towards pupils

Begining with the worrying established fact that, since several years, there is a disturbing falling off interest among the youngs for scientific studies, we are willing to attract younger generation to mathematics and sciences through the captivating astronomy. Our goal is to lead children to discover the scientific approach, that is: observations, analysis and interpretation. If they are doing this through an astronomical project, they are usually very interested and attracted.

We proposed different actions: The pupils can make a visit of the observatory, an astronomer can go in their classrooms, and we bring a scientific support to teachers leading astronomical projects with their students over the school year. Different actions are proposed also to teachers: in-service training course , workshops one afternoon per month, educational documents (Brémond et al., 2009), demonstration models.

We participate to the national ASTEP program (Accompagnement en Sciences et Technologie à l'École Primaire), we are partner of the departemental programm for secondary schools with "Odyssée Spatiale" in La-Classe.com. For high school pupils, we have built experiments for physic classes: the experiment to measure the light velocity, the Foucault pendulum and the Cavendish balance.

Our actions concern about 3 500 pupils per year from primary to high schools. A dedicated web page presents all these actions on the web site of the Lyon Observatory:

<http://www.http://www-obs.univ-lyon1.fr/spip.php?rubrique126&lang=fr/>

The results of this work with schools are very encouraging: every year several classes with which we are worked award a prize or are winners in different contests and more generally the youngs are very involved in their project, really enthusiastic at the end of the year and proud of what they succeeded to do.



Fig. 1. Left: High school students visiting the lab. **Right:** Classical music concert in the park of the observatory.

4 Large public

Through these actions again, we aim at opening our visitors to the understanding of the scientific process besides to valorize the advance scientific research made in the laboratory. The large number of people coming to our actions prove the interest that the public demonstrate to this domain of science.

Our main event are the open house days, every other year, that the general public are waiting for: we have 2500 to 4500 visitors during this week-end. Another success is the Journée européenne du Patrimoine (one day) during which 1200 to 1600 persons are visiting the observatory. We organize also exhibitions with public libraries and museum, multi-cultural events with theater, orchestra...

With the financial support of SF2A in 2012, we have organized in the park of the observatory two classical music concerts in collaboration with musicians from the Orchestre National de Lyon. They both have been great success.

And to answer to a real demand from the public, we organize one evening per month a visit of the observatory

with observations with the 1m telescope and the ancient Coudé refractor as well as public observations of all astronomical phenomenon such as lunar eclipses, Venus transits, planets' occultations and so on (Merlin et al., 2011).

5 New technology in science mediation

For over a year, the Observatoire de Lyon tries to innovate in scientific mediation. We opened a Twitter account (@obslyon) in May 2011. It has more than 400 followers, we can put forward scientific news from our laboratory but also from our partners and more generally on astronomy. The implementation of a tool like Twitter in a research institution requires to define precisely an editorial and a policy of communication and interaction.

The moments of exchanges are uninterrupted via Twitter. Every day we are asked through this media about questions related to our disciplines, we must answer the questions and breed the desire to visit the lab (at open days or observation evenings). Twitter opens new possibilities in the field of mediation and scientific communication, emphasizing horizontal interactions rather than top-down relations.

In addition, we acquired a touchpad late 2011, which allows: first, to have with us a portable and lightweight device at conferences outside the laboratory. Second, to use the numerous applications of sky charts. These applications allow touchpad, thanks to the 10-inch screen to show in real time what the public has above his head. Late, the last and probably the most innovative, is to offer substantially improved visits of Observatoire de Lyon. With this tool, we can illustrate our talks with pictures and videos of sky objects or instruments developed at the Observatory.

Scientific mediation in astronomy is at a turning point for us to make the right choices in the tools, by remaining close from scientific facts.

6 Conclusions

The developpement of our activities of public outreach have been establish in close collaboration with :

- the CNRS DR7 communication service for which the observatory is a reference laboratory and with which we are working on a project to catch the 15-25 years-old public,
- the Lyon1 University communication service which recognize our know-how in science diffusion to the public, specifically to reach the high school pupils. Although being a rather small laboratory in the university, we are doing 80% of the outreach of all the Lyon1 university.
- the Rectorat of Lyon which also recognize our expertise and awarded us a teacher position "professeur-relais" to help us in the relations with the teachers'world and to adapt as well as possible our actions to the needs of the teaching profession.

All these actions are very time-consuming but our results are really encouraging: the public is always very pleased with their visits and the teachers are astonished by the enthousiasm and involvement of the class in astronomical projects. And we are not able to answer to all the demands. So, our experiments prove that the young generation can be very much interested with maths and physics tackled with the attractive aspect of astronomy.

These actions towards pupils can be driven thanks to the contribution of several researchers and engineers of the lab and all the public events are made possible thanks to the large involvement of the complete staff of the Observatoire de Lyon. But we are worried not having any scientific mediator permanent position in the SDC, who is however compulsory to maintain these public outreach activities over the time.

References

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