Training in observation from robotic telescopes and data analysis in Python in Senegal

Salma Sylla Mbaye[1,2], Modou Mbaye[1], Katrien Kolenberg[3,4], David Baratoux[5] François Colas[2],Eric Lagadec[6], Mamadou Ndiaye[6], Benoit Cary[6], Michèle Gerbaldi[7], Georges kardopalis[6], Gayane Faye[1], Absa Gassama[8]

1 Université cheikh Anata Diop, 2 Observatoire de Paris, 3 Université d'Anvers, 4 KU Leuven, 5 Institut de Recherche pour le Développement-France, 6 Observatoire de la Côte d'Azur, 7 Institut d'Astrophysique de Paris, 8 Université Virtuelle du Sénégal

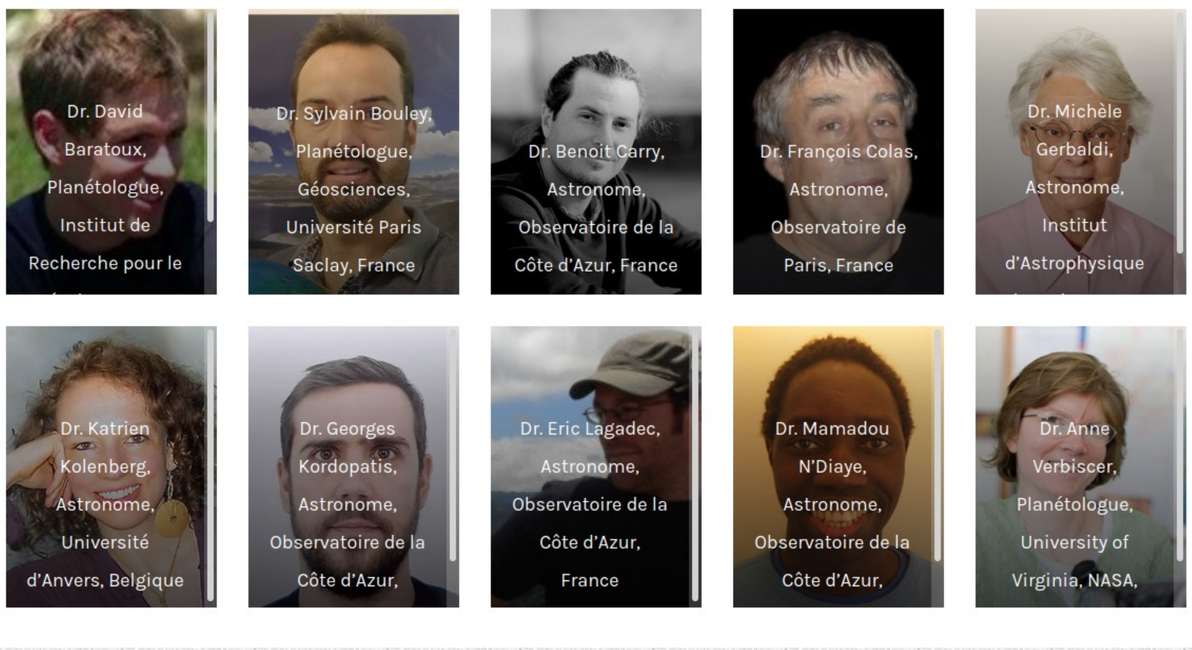
Introduction

In this poster, we present the two days of online training course organized in May 2021 thanks to OAD fundings . The participants were gathered at the university in Senegal and the trainers were online. There were 20 selected participants, including 18 Senegalese from four different universities in Senegal and two PhD students from Burkina Faso. The training was dedicated to candidates with at least a Master's degree, particularly in physics, mathematics and computer science. The trainers were researchers from the French Institute of Research for Sustainable Development of France (IRD), the Observatory of the Côte d'Azur of Nice (OCA), the Paris Institute of Astrophysics (IAP), the Paris Observatory, the University of Paris Saclay, and the University of Antwerp Belgium.

The training focused on Python programming, observational astronomy and the analysis of astronomical data on Python via its Astropy module. The observational data used were obtained from the "Centre Pédagogique Planète Univers (https://www.oca.eu/fr/c2pu-accueil)" .

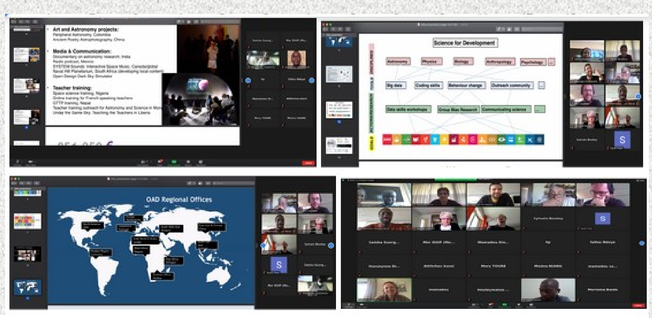
Partners

Trainers



Content and Program

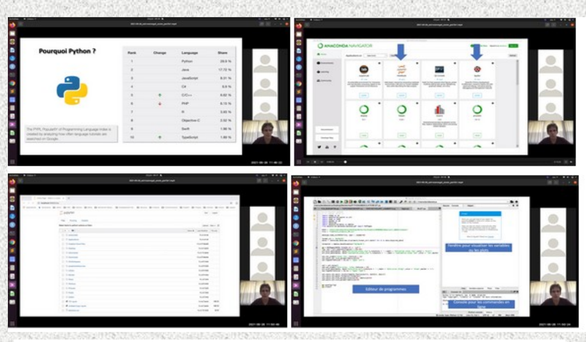
The training is composed of plenary sessions on scientific and technical topics in line with the scientific prospective for astronomy in Senegal: analysis of observation data with telescopes, photometry, sensors, stellar occultations, variable stars. The practical work allows students to learn the Python programming langage.



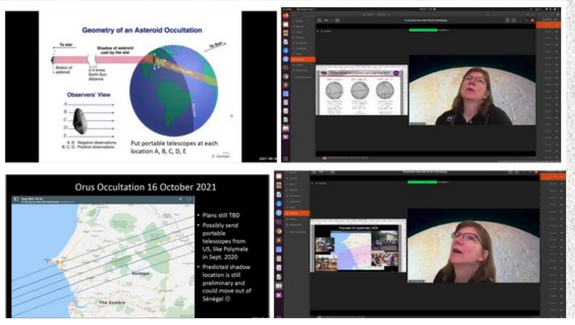
Overview on OAD by Prof. Katrien Kolenberg

The content of the course was firstly an introduction to Python, followed by tutorials on photometry in astronomy. In order to convey the interest of the proposed photometric study, half a day is devoted to observational astronomy.

The tutorials also allow students to discover the Python modules specific to astronomy (e.g. astropy). The observational data used are obtained from the Centre Pédagogique Planète Univers (C2PU, https://www.oca.eu/fr/c2pu-accueil) thanks to colleagues from the Observatory of Côte d'Azur, Nice.



Introduction to Python by David Baratoux



An Verbiscer from New Horizon-NAZA, talking about Stellar Occulation

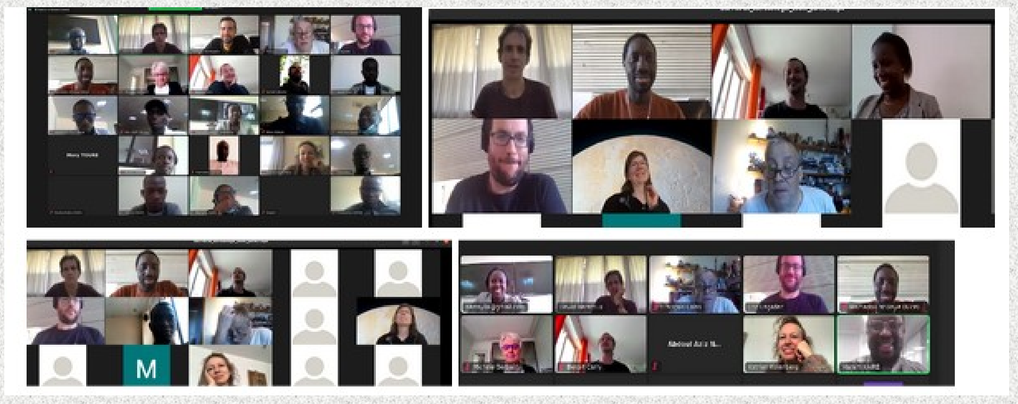
Astronomy Observational by Eric Lagadec from Cote d'Azur Observatory, Nice

The second and last day of the school consisted in putting into practice the knowledge of the previous day through the analysis and processing of astronomical observation data from the C2PU. The morning was dedicated to workshops on the different steps of data reduction, and the afternoon was reserved for the photometric analysis of the data. These sessions were presented by Dr Benoit Carry (OCA).

At the end of the school, projects were proposed to allow participants to work in small groups with two supervisors per group. The project consists of the analysis to reproduce the rotation light curve of the asteroid using C2PU data over five (5) nights of observations.

All the sessions of the school were recorded and it is possible for the participants to review the lessons on http://astrosenegal.org

Participants



Participants and trainers trough the zoom platform

The training brought together participants from four different universities in Senegal, UCAD, UVS, Université Gaston Berger de Saint Louis (UGB, http://www.ugb.sn), Universite Alioune Diop de Bambey (UADB, http://www.uadb.edu.sn), and also two participants from Burkina Faso. The training targeted participants at Master's level in STEM fields.

Particpants on site in Senegal

CONCLUSION ET PERSPECTIVES

Given the enthusiasm of the participants and the trainers, we are planning to hold a second school next year, and hope to have the equipment available to enable participants to make observations and measurements during the workshops, and in the long term to offer a school every year, if possible as part of a master's module at Cheikh Anta Diop University.

In the years to come, we hope to be able to extend this training on a regional scale with the collaboration of other French-speaking African countries.

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