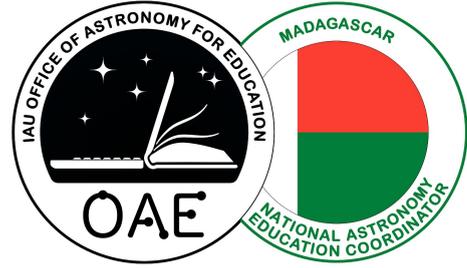


Astronomy Education in Madagascar



This overview is part of the project "Astronomy Education Worldwide" of the International Astronomical Union's Office of Astronomy for Education.

More information: <https://astro4edu.org/worldwide>

Structure of education: The majority of the education system in Madagascar is public (without tuition fees), about 75.6%, and private including laic (with tuition fees), about 24.4%. Children begin formal schooling at the age of 6 after preschool in public schools. The private schools slightly deviate from public schools. They allow children to start school at the age of 5 after preschools; and they mostly implement preschools in their program. Primary education is compulsory for 6 years of duration. Secondary education is about seven years, that includes four years at middle school and three years at high school. The number of students gradually drops until the end of high school time. In the final year of high school, students must pass the national exam, called "Baccalaureat" that allows them to be qualified for the Universities. Superior education lasts about two to eight years depending on the student's subject major.

The national language for education in Madagascar is both French and Malagasy. Most students can't speak French fluently.

Education facilities: The Malagasy education system, either in public or private was set for the teachers for their time slots to move from classroom to classroom throughout the day. Therefore students remain in the same classroom during the day. The Malagasy schools typically have one teacher for 45 students on average. The typical classroom is about 7m x 5m in size. Running water or water well is available almost for all schools. The majority of public schools do not have access to the internet and library. In some of private schools, all students have access to the internet.

Only a few private schools have school transport. The majority of the school building remains usable with clear and clean rooms. Some of the public schools need major maintenance. Madagascar is a place of cyclones. Every year, we have huge problems with schools that were destroyed by cyclones, especially in the coastal area. Consequently no walls, tables, and chairs for the students to finish up their school year.

Only a few private schools have access to small telescopes for outreach.

Governance and organisation: The department of education sets the curriculum for the primary, secondary I and II schools that follow the Malagasy Education system. The curriculum for high school was last reformed in 2018. The department of education is currently finalizing the middle school curriculum.

Teacher Training: Primary school teachers follow training in teaching at the National Institute of Pedagogical Training (INFP, Institut National de Formation Pédagogique). They need to have their high school diploma or "Baccalaureat" in order to follow this path. Some secondary physics teachers are trained at Ecole Normale Supérieure (ENS). They follow a three-year training course, mixing physics, chemistry, and didactics, for a professional bachelor's degree. After completing their training,

they can teach at the middle school. A two-year training course follows for a professional master's degree, which allows them to teach at the high school.

Other secondary physics teachers study for a degree in physics or chemistry at the university of their choice. Then they follow a short training at schools and pass their exam which was organized by the department of education, for a teaching certification.

Astronomy in the curriculum: For primary school, astronomy can be found in geography courses. The basic knowledge, mostly theory, of the solar system, satellite, orbits, and maths related hands-on activities. More labs and real practices are needed. For secondary school, the students learn about the solar system, galaxies, and the universe in geography courses. In physics courses, they learn about moon phases.

At the public universities in the capital, Antananarivo, there are specialized courses in astronomy with more complex topics including labs and various hands-on activities at Master I level. At Master II level, they can do their own research. Students learn the introduction to astronomy in the third year of physics and they can choose to pursue this field during postgraduate (Master's degree). Students in teacher training at ENS learn basic astronomy such as sky chart, constellation, telescopes, stargazing sessions, etc. in the first year of "Experimental Sciences", and the introduction to Astrophysics such as the solar system, the big bang, etc. at Master I level.

Astronomy education outside the classroom: Recently the astronomy outreach gained a lot of interest. Madagascar does not have big facilities in order to pursue research in astronomy yet. We are in the process of converting an old telecom dish to one of the African Very Long Baseline Interferometry Network (AVN) dishes.

Moreover, Madagascar is one of the SKA partner countries to host one of its dishes. We have, however, small facilities that are available for outreach. One of those facilities is at the university of Antananarivo, at the Institute and Observatory of Geophysics of Antananarivo (IOGA). A private observatory that is used mostly for public outreach is located in the suburbs of Antananarivo, Ankadiefajoro. There are two well-known outreach groups in Madagascar: the youth astronomy groups called "Haikintana" and the Malagasy Astronomy & Space Science.

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