Abstract

The project has two categories of objectives:

1. Scientific research:
   - Introduction, supporting and imparting Astronomical and Astrophysics courses in Tunisian Universities.
   - Spontaneous collaboration and research projects.
   - Give access to researchers to do their measurements and observe Astronomical phenomena.
   - Work in collaboration with the National Institute of Metrology of Tunisia.
   - Offer a course for students, and give them the opportunity to use good equipment and develop their knowledge.
   - Courses in research methodology and internship for students.
   - Summer and winter school for researchers and Ph.D. students.

2. Outreach activities:
   - Share the culture of Astronomy, astrophysics, and planetary sciences in particular inside a university environment.
   - Encourage students and children to study and explore more about the universe and the planets which are relatively close to us.
   - Organize public events and observations, and present the importance of astronomy both as a scientific value and an economic opportunity.

Fig. 3. The different Work Packages of the project

WP1: Dedicated to the study of the comets, discover and characterize planetary systems and earthly planets around nearby stars, which provides an essential step forward toward the goal of discovering habitable planets and evidence of life beyond.

WP2: In this work package, we will study the comets, which are the remnants of material formed in the coldest part of our solar system. Some comets, could be a source of primitive life forms, e.g., bacteria, some comets are made of ice in which small particles from billions of years old, are included, and that provides insight into the history of the universe.

WP3: The biggest reason for this work package is to study and analyze the composition and the mineralogy of asteroids as they are considered to be the building blocks of planetary formation, and because some asteroids cross Earth's orbit every so often. And sometimes, they come very close to Earth itself.

WP4: Through this unit, we aim to study the ionosphere, since it is constantly changing in response to the sun's activity and space weather. The ionosphere plays an important role in atmospheric electricity and forms the inner edge of the magnetosphere. It influences radio propagation to distant places on the Earth and can cause disruptions to communication and navigation signals.

WP5: This package will be oriented to the study of eclipses, apparent retrograde motion/planetary stations, planetary ingresses, sidereal time, the positions of the mean and true nodes of the moon, the phases of the Moon, and the positions of minor celestial bodies.

WP6 and WP7 will be specified for dissemination, outreach activities, administrative procedures, and management of the observatory.

Expected results and risk

Through the Astronomical Observatory in Djebel Orbata, we pursue to collaborate with several Universities and Faculties inside and outside Tunisia to benefit from institutes that have prior and better experience in such a project. The aim, also, to coordinate this project with the Ministry of Higher Education and Scientific Research, the Ministry of Education, and the Ministry of Youth and Sport in Tunisia, especially that the idea is new and unique in a country where astronomy is absent.

Among the qualities that this project will offer is:
- Contribution to research and scientific programs. We are estimating to have around 15 to 20 thesis projects per year.
- Improve the quality of education, leading to other research projects and international collaborations.
- Promote an exchange program for students and researchers between Tunisia and other countries to develop their skills, knowledge and gain new experiences.
- Allow astronomers and researchers to work with good equipment remotely or on site, to enjoy the dark and quiet Sky in Tunisia, especially for countries lacking a good sky quality.
- Improve access to foreign students and children to continue their research Eastern learning programs.

This package is part of continued programs for students and researchers to work with good equipment remotely or on site, to enjoy the dark and quiet Sky in Tunisia, especially for countries lacking a good sky quality. The facilities are part of a continuing program for students and researchers to work with good equipment remotely or on site, to enjoy the dark and quiet Sky in Tunisia, especially for countries lacking a good sky quality.

The particular risks to the project might be:
- The loss of specific beneficiaries/partners and the loss of essential knowledge or experience.
- Failure to recruit.
- Failure to comply with the project’s work plan in terms of delivery date or quality.
- Failure to achieve an adequate budget.
- Failure to achieve a site/location/property for the observatory.
- Problems in the transportation of the equipment to Tunisia from abroad.


References


Contact

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