



Kinneret Robotic Observatory Project supported by ICA

Background – establishing the Kinneret Center for Astronomy Education

Attracting young adults to engage in science and scientific research is fundamental for the development of the state of Israel. However, youngsters interested in entering the field face considerable challenges. The main problem is the severe shortage of resources available for learning the research process and carrying out the scientific research, particularly for children and youth just beginning their science education. The Kinneret Center for Astronomy Education was established in order to confront these challenges. The center aims to enable children, youth and college students to actively engage in science and scientific research by gathering and analyzing data and to use them to address areas they wish to explore.

Why Astronomy?

The relationship between human beings and the Universe has aroused the interest of people since the dawn of history. This affair led humans to develop astronomy, the first field of science in the history of humankind. Astronomy deals, explores and studies the Earth, the planets, the Sun and the billions of stars that produce energy in the same way the Sun does. A student who is exposed to the world of astronomy encounters an international community of researchers who are also trying to address the many questions that occupy us about the world in which we live. We get the answers to these questions are based on how we collect and analyze evidence. And thus students can explore fascinating topics, communicate with scientists and researchers from around the world, and be partners in the international scientific community.

The Observatory

The Kinneret Observatory will be founded at the Kinneret College. A robotic telescope will be installed in the observatory. It will enable users to carry out observations based on their requirements, without needing to visit the observatory. Every user can input a request for observations via the Internet on the observatory web site. The telescope will carry out the requested observations and will notify the user whenever it accomplished its task. The observatory will be constructed on the scenic balcony of the “Achi Building” of the Kinneret College. The balcony offers a view of the night sky to groups using a range of observation methods. The observatory structure has an open roof that allows observations in suitable visibility conditions (without clouds or high humidity levels). The observatory will be connected to a meteorological station that will check the weather conditions at the observation location and, based on the data, the system will decide about the observations. The observatory will be connected with a network of robotic observatories around the world, and it will be possible to obtain data from observatories abroad for different assignments and projects.

Examples of Observations and Projects

1. What is the source of the moon craters?
2. What can be learned from Mars?

3. Creating light curves from variable stars.
4. How to measure the speed of light using Jupiter's moons?
5. Analyzing solar radiation and determining the temperature of the Sun.
6. What is the meaning of absorption lines in a star spectrum?
7. Analyzing the light curve form double stars.
8. Exploring star clusters.
9. Measuring distances in space by using Cepheids.
10. How to measure the Hubble Constant?

Educational Activity

In order to enable young students to study so many questions in astronomy it is essential to create a "learning community" focused on astronomy. To meet this aim, a range of educational activities was developed for various levels of interest and skills:

1. Open evenings for the general public - to expose the listener to different astronomy topics.
2. Astronomy days at schools - exposing students to active astronomy studies.
3. Astronomy clubs for youth - where students study basic phenomena in astronomy.
4. Science camps - for more concentrated research activities in astronomical matters.
5. More advanced research work - carried out by 11th-12th grade high school students and engineering students at the college.

International Activity

The youth studying at the Kinneret Center for Astronomy Education will take part in international astronomy activities connected to various organizations, such as:

1. International Astronomy Union (IAU) – <https://www.iau.org/>
2. NASA – Educational Activities – <https://landsat.gsfc.nasa.gov/educational-activities/>
3. European Space Agency for Education – https://www.esa.int/Education/Online_material4

Partners in Establishing the Observatory

- a. The Ministry of Science, Technology and Space – the Israel Space Agency
- b. Kinneret College on the Sea of Galilee
- c. Jordan Valley Regional Council
- d. ICA – Jewish Charitable Association
- e. KKL – JNF – Jewish National Fund.

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