Astronomy Education in Greece

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Abstract Astronomy, being an interdisciplinary science having to do with economics, technology, biology, chemistry, math, and physics, can enhance students' interest and overcome the educational problems we face daily in the classroom. Astronomy education, as with education in general, requires an approach from different aspects. Through it students must come into contact with their natural, historical, social, and technological environments. Having this in mind, we began to develop further astronomy education in Greece. According to the natural environment approach, the study of variable stars is of extreme interest to Greek students.

1. Discussion

Contemporary teaching requires connecting with events in our everyday lives. The reasons for this are: (a) the enormous advances which have taken place this century, and (b) increasing competitiveness. Astronomy as an interdisciplinary science is related to various subjects. By using all the aspects of astronomy in the classroom, we can enhance students' interest and overcome the problems we face daily in the classroom. The environment to which astronomy education, as with education in general, must be related in the classroom is: (a) Natural; (b) Historical; (c) Social; and d) Technological. Having this in mind, we began to develop further astronomy education in Greece. Some of our activities are:

Summer school for students: Fifty school students from Athens gather at the National Observatory of Athens in order to participate in the School early every September. The program contains lectures by professional astronomers, and students are familiarized with the instrumentation of the Observatory. The goal of this school is:

> the development of citizens/people with knowledge, sensitivity, imagination and an understanding of their relationship with their physical and human environment, ready to suggest solutions and participate in decision making and implementation.

Introduce students to research: We are particularly interested in introducing school students to research. Students who are involved in research projects can learn more about science and feel more confident in themselves. Research can be done using Schmidt plates, and the computational part of it can be done using a personal computer. Students coming from the Arsakeio Astrolaboratory have worked on various research projects—which serve as pilot projects for Greece—and have won first prizes at various international competitions.

Laboratory exercises: It is better for students to do science than just to learn about it. We thus have introduced lab exercises at the Arsakeio Astrolaboratory involving the study of (1) a supernova remnant—using Schmidt plates; (2) classification of galaxies—again from Schmidt plates; and (3) the celestial sphere.

Contact with professional astronomers and institutes: By being brought into contact with professional astronomers and institutions, students learn about the scientific social environment and become interested in careers in science.

Internet programs: Through these programs our students familiarize themselves with and enhance their knowledge of their technological environment. At present, two internet programs have been implemented:

a. *Astronomy On-Line*—organized by EAAE/ESO during November 1996;

b. *Exploring the Universe with the Classroom of the Future*—fifty-six groups from fifteen countries (250 students) participated in this program, organized by Arsakeio Astrolaboratory of Greece during March 1997—visit the web page at http://www.arsakeio.gr/universe.htm.

Hands-on activities: We always have in mind that we must encourage our students to be close to their natural environment. This can be done through various activities. Some of the activities that our students participate in cover variable stars (AAVSO), the Eratosthenes project, solar eclipses, sunspots, and comets. It is certain that astrophysics and space technology and the introduction into schools of modern teaching methods has much to offer to education—particularly in helping to fill us with respect and humility, which are essential elements in our cultural development.

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