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Summer school in the field of Space Technologies: A novel approach for teenage education

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This paper presents the main practical aspects regarding the organization of a summer school in the field of Space Technologies and Radio Science. This one-week summer school is aimed for education of teenagers between 12 and 16 years. Currently, the summer school reached its third edition.
During this educational activities some especially designed prototype equipments were used with the main purpose of educating adolescents towards a scientific career in the field of Space Technologies and Radio Science. The main equipments and associated experiments are presented as follows:
1. A teaching purpose radio telescope emphasizing the working principle of professional radio telescopes. The experiments were focused on scanning the sky for identifying the positions of geostationary satellites and the Sun.
2. A weather satellite reception equipment used for downloading real-time APT (Automatic Picture Transmission) weather data from NOAA (National Oceanic and Atmospheric Administration) weather satellite fleet. The visual images were used for emphasizing the clouds and cloud systems over Europe.
3. A prototype equipment for receiving electromagnetic waves in the field of VLF (Very Low Frequency) with the purpose of analyzing the electromagnetic radio frequency spectrum. The main emphasized phenomenons in the VLF band (3 kHz – 30 kHz) are related to radio transmitters, electrical discharges in the atmosphere (lightning) and the electromagnetic pollution.
4. An equipment designed for initiating teenagers in the field of radio communication. This equipment was used for transmission and reception of images and sound over a distance of few kilometers, by using high-gain directional antennas.
5. Other sets of experiments were undertaken with the main purpose of mapping the countryside area in which the experiments had taken place. For this activity GPS devices were used.
This paper may be considered a practical guideline for those who want to attract young students towards a scientific carrier. This is a new approach of educating teenagers in the field of STEM (Science, Technology, Engineering and Mathematics).