

Participatory Exploration for Inspiration and Education (12)
Engaging Citizens: Results and Future Concepts (1)

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SPACE EXPERIMENT "SHADOW-BEACON" ON INTERNATIONAL SPACE STATION FOR
EDUCATIONAL PURPOSES**Abstract**

Use of space flights for stimulation of public interest to an advanced science and techniques and also for the educational purposes is the standard and successful practice. Museums of astronautics are usually quite popular. Pupils of some schools chosen in turn with great interest take part in radio meetings with astronauts onboard as a result of activity of public group ARISS for assistance to amateur radio on ISS. The considerable interest is shown also to creation of student's and radio amateur satellites. Long-term Program of Science and Experiments Planned for the Russian Segment of the ISS includes space experiment (SpEx) Work out of a method of radio sounding of undersatellite space with use of a network of ground receivers, the code name "Shadow-beacon", one of which purposes is reception of experimental issue for development of offers on use of its methodology in the educational practice. SpEx "Shadow-beacon" simulates a "multibeam" method of radio sounding of undersatellite space. It is planning to run the available onboard radio amateur equipment "Sputnik" in 145/430 MHz range. While performing this SpEx in the chosen geographical region the onboard radio beacon transmits VHF sounding signals containing time marks. The task of every participant is to register receipted signal and to address this log-file and its geographical position to the Information Storing Center. These data and knowledge of instant positions of the ISS and each receiver allows to define the basic properties of this "multibeam" method of radio sounding of undersatellite space. Simplicity of such method of radio sounding allows to carrying out SpEx "Shadow-beacon" by nonprofessional operators - radio amateurs, even by pupils and so may be inserted in school-educational programs, particularly in a laboratory routine. Certainly, for carrying out of such laboratory routine an educational institution needs to have got an amateur radio station and to make the coordination of learning process with the current flight task of ISS crew. The repeater mode of the probing signal generation was successfully used while performing 45 sessions of SpEx "Shadow-beacon" in October-November, 2011 with participation more than 100 ground operators including pupils. It is planned that program of SpEx "Shadow-beacon" will be completely fulfilled within 2012.