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SETI I : SETI Science and Technology (1.)

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FAST DIGITAL REAL TIME PROCESSING SYSTEMS FOR SETI AND RADIO SCIENCE: S/C
SIGNAL DETECTION AND TRACKING.

Abstract

Recently at the Medicina radioastronomical station our group has developed a S/C signal detection and tracking program in order to test the applications of the SETI fast digital real time backends to space science activities. In the framework of this project efforts were spent in order to develop dedicated telemetric data acquisition and post processing softwares. One of the most successful results is the detection of the Voyager-1 carrier performed with the X receiver mounted on the Medicina 32 mt parabolic antenna. Data were collected when the spacecraft was at 106 UA and were successively doppler corrected. The result has shown that our fast digital real time processing systems can be successfully used for space science applications. Further detections were obtained from SMART-1, Venus Express, Mars Express, Mars Reconnaissance Orbiter, Mars Odyssey, Rosetta and Stereo-A spacecrafts. An UHF observational program was also started in order to test the upgraded Northern Cross interferometer. The observations performed so far resulted into the detection of the martian lander PHOENIX carrier.