

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Astronauts: Those Who Make it Happen (5)

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STUDYING EARTH'S SURFACE FROM ISS BOARD ACCORDING TO URAGAN RESEARCH
PROGRAM

Abstract

The URAGAN research program is implemented aboard Russian Segment (RS) of the International Space Station (ISS) for past 10 years. The main purpose of this program is to study disasters and critical environmental situation arising on the Earth. The paper provides a retrospective overview of URAGAN program. The basic concepts and objectives, which were set at the beginning of the experiment and directions of its future development, are examined. The ISS crewmembers play an important role in the experiment implementation. The paper explores key features of the experiment preparation, planning and carrying out, as well as processing and analysis of the data obtained. Application methods of the onboard research equipment, including newly developed the PhotoSpectral System (PSS) and digital photo cameras, as well as Sigma software developed for the experiment implementation support are discussed in details. The principle of their work, concepts, inherent in the design stage, output samples; details about working with different equipment are listed. The new hardware improves the experiment comprehension but requires development and application of new approaches and methods for remote sensing data processing. The paper illustrates new concept of data processing methods, derived from the PSS, including a unique technique of spatial interpolation of the recorded spectrum.