

International Cooperation for Space Exploration (1)
International Cooperation for Space Exploration (3) (3)

Author: Mr. Vladimir Nazarov
Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation

Dr. Alexander Chebotarev
Russian Federation
Mr. Daniel Firre
European Space Agency (ESA), Germany
Mr. Michel Denis
European Space Agency (ESA), Germany
Mr. Leonid Elshanskiy
State Space Corporation ROSCOSMOS, Russian Federation
Dr. Valery Grachev
Russian Federation
Mr. Konstantin Ivanov
Russian Federation
Mr. Khlebnikov Denis
Russian Federation
Mr. Yaroslav Markov
Space Research Institute (IKI), Russian Academy of Sciences (RAS), Russian Federation
Prof. Ravil Nazirov
Space Research Institute (IKI), RAS, Russian Federation
Mr. Oleg Prokopenko
Central Research Institute of Machine Building (TSNIIMASH), Russian Federation
Mr. Peter Schmitz
European Space Operations Centre, Germany

RUSSIAN COMPLEX OF RECEIVING OF SCIENCE DATA AS PART OF JOINT GROUND
SEGMENT FOR EXOMARS MISSION

Abstract

RKPNI is Russian Complex of Receiving of Science Data. It was created in frame of joint ESA-Roscosmos space project ExoMars and it is intended to support the network of ESA' ground stations for receiving of science data from Martian Trace Gas Orbiter (TGO) spacecraft. The geography of the RKPNI is quite wide: it covers two ground stations with 64-meter antennas located in the Moscow and Tver regions, and in addition to this, the system nodes are located in Moscow, Khimki and ESOC (Darmstadt, Germany). RKPNI built jointly by Russian and ESA specialists since starting of nominal science program of ExoMars TGO mission at the end of 2018 till now it provides receiving of significant part of TGO science data and is a successful example of international cooperation in the field of deep space exploration.

The article describes the technical and organizational problems that the authors had to overcome when creating the system, system architecture and principles of operations. Prospects for the evolution of the RKPNI, including uplink possibilities for the ExoMars RSP mission, as well as the use of RKPNI in

other space projects are also discussed in the article.