SPACE EXPLORATION SYMPOSIUM (A3)
Solar System Exploration (6)

Author: Dr. Elkin Konstantin
TSNIIMASH, Russian Federation

Mr. Gubaidullin Valery
TSNIIMASH, Russian Federation
Dr. Nataliya Tarasenko
TSNIIMASH, Russian Federation

EXPLORATION BALLOONS FOR VENUS, MARS AND TITAN: DESIGN CONCEPTS AND EVALUATION OF THEIR IMPLEMENTATION POSSIBILITIES.

Abstract

Report contains consideration of designing principles for prospective balloons exploring Venus, Mars and Titan. Basing on results of mathematical modeling of their long drift, it is suggested several versions of ballooning probes for Venus atmosphere and surface exploration (balloons with stable height of drift, and balloons with drift height, changed by one of lifting gas phase transition); versions of balloons for Mars exploration; versions of ballooning probes for experiments in Titan atmosphere. These projects concepts have been evaluated on base of modern technologies. The probes flight control systems layouts have been suggested. Also the balloons main systems ground tests have been discussed.