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Mars 94 Mission: Current Plans and Science

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The Soviet Space Program proposes large-scale investigations of Mars as one of the most important trends for the nearest 10-15 years. The objectives include global studies of the surface of Mars, its atmosphere, and the return of soil samples to Earth. The first stage of the program is to be implemented in the mid-90's. It includes measurements from an orbiter and a balloon in the atmosphere and on the surface from a rover as well. This can be done using the high energy upper stage of the launch vehicle. The payload mass could amount to about 1500-1700 kg.

This presentation discusses the capabilities of the Mars Mission in 1994. As presently planned, Mars will be studied concurrently with the following facilities:

- an orbiter with instruments for remote sensing from a polar orbit
- a balloon deployed in the Martian atmosphere (for studies of the atmosphere and surface)
- a rover on the surface (studies of the surface)
- a network of smaller stations on the surface (global meteorological studies)
- a subsatellite (studies of the Mars gravitational field)
- a device to return a container with photo films of the Martian surface taken with a super high resolution (to test a cargo return from the orbit of Mars).

If the exploration of Mars with the MARS-94 spacecraft begins late in 1994 the American Mars-Observer will still be functioning in the near-Mars orbit. Thus, joint operation of the two satellites becomes possible providing coordinated exploration, the creation of joint data banks, joint data interpretation and the development of a joint engineering model of Mars for its further exploration.

There is an opportunity for experiments and instrumentation on the Soviet missions that address questions of interest to exobiology. We invite American scientists to participate in the upcoming Soviet missions, and lend their expertise to the further understanding of the relationship between the physical and chemical evolution of the solar system and the appearance of life.