THE AURORA EXPLORATION PROGRAM – THE EXOMARS MISSION. G. Kminek[1] and J. L. Vago[2], [1]European Space Agency, ESTEC, SER-ACT, Keplerlaan 1, 2200 AG Noordwijk, The Netherlands, Gerhard.Kminek@esa.int, [2]European Space Agency, ESTEC, MSM-GAP, Keplerlaan 1, 2200 AG Noordwijk, The Netherlands, Jorge. Vago@esa.int.

Introduction: In the framework of the Aurora Exploration Program, the European Space Agency (ESA) plans to launch the ExoMars mission in 2009. ExoMars will deploy a high-mobility rover on the Martian surface, carrying a comprehensive suite of scientific instruments – the Pasteur payload – whose objectives will be to search for traces of past and present life, and to identify surface hazards to future human missions. Although the final programmatic decision concerning ExoMars will only be taken in late 2004, at the next ESA Ministerial Conference, to be able to meet the 2009 launch opportunity, the payload definition activities must begin now. ESA issued a Call for Ideas for scientific instruments and investigations to be performed by the ExoMars mission on 14. February 2003. Out of the 50 proposals received, 22 were ranked better then "Very Good" in the first peer review that took place in fall 2003.

Scientific Objectives of ExoMars: The ExoMars scientific objectives are:

- To search for signs of past and present life on Mars by deploying a mobile exobiology instrumentation package on the Martian surface and performing *in-situ* soil sample analysis;
- To identify and characterize possible hazards to human exploration (e.g. ionizing radiation, dust);
- To enhance the knowledge of the Martian environment.

Technological Objectives of ExoMars: The ExoMars mission will build on existing know-how, and provide Europe with enhanced capability in the following areas:

- Landing of large payloads on the surface of Mars;
- Solar electric power application on the surface of Mars;
- Mars surface mobility;
- Rendezvous in Mars orbit; a specific technological objective is to demonstrate rendezvous operations in a representative environment by means of a Rendezvous Experiment (RVE). This experiment is a key element to validate the Rendezvous and Docking Technology required for the Mars Sample return Mission.

Results of the Call for Ideas Review: The available payload mass on ExoMars is 33 kg of which half is taken by the Drill System and the Sample Handling and Distribution System (SHDS). The remaining part is divided between three instrument classes: context – organic chemistry – hazards and environment. At least one, and in some cases two, proposals were identified for each major instrument category. The instrument complement will be presented at the LPSC.

The next step: A working meeting, with the participation of representants of all selected proposals, will take place in early 2004. Three working groups , one for past life, one for present life, and one for hazards, will have to define the target to be analyzed, the most appropriate method to perform the analysis, and an integrated instrument complement considering the engineering and mission operation constraints. The result of this working meeting will form the basis for the industrial Phase B study on the ExoMars mission.

If you have any questions or need additional information regarding the ExoMars project, please contact the ExoMars project scientist Jorge L. Vago: Jorge.Vago@esa.int.