GEP, A Geophysical and Environmental integrated payload for ExoMars

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The goal of the GEP proposed onboard the ExoMars mission is to provide the first complete set of geophysical and environmental data of Mars. A full mass of 20 kg is envisaged, enabling a payload of about 5 kg serviced by common integrated subsystems. GEP will first monitor the present Martian climate and meteorology by providing a unique monitoring on potential hazards for future human exploration missions (radiations, atmospheric electricity, dust) and on atmospheric parameters (wind, pressure, temperature, humidity). Such a long term monitoring has never been performed since the Viking landers. GEP will then provide, for the first time, a complete geophysical monitoring of Mars. It will search for remote and regional seismic activity, will measure the heat flux of the planets, will monitor the rotation of Mars and will study the magnetic field at the surface and finally will constrain the subsurface in the vicinity of the ExoMars landing site and the deep interior. By providing these new geophysical data and associated constraints on the interior and on the actual geologic activity of the surface, GEP will provide a major step in our understanding of the geological evolution of the planet and the habitability conditions during the first billion years, enabling a full understanding of the surface and mineralogical observations performed by the Pasteur payload onboard the ExoMars rover and by the payload onboard the MSL NASA 2009 mission.