Japan's Mars Exploration Plan "MELOS"

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"MELOS" is Japan's new Mars exploration plan for the late 2010's. Since the unsuccess of "NOZOMI" mission (launched in 1998), we have not so far had an opportunity to return to the red planet. Now, with the success of an asteroid-rendezvous mission "Hayabusa", a lunar-orbiter mission "Kaguya", and soon-to-be-launched "Akatsuki" Venus Climate Orbiter mission, we are confident that it is time to plan again a Mars exploration mission. The name "MELOS" is an acronym of "**M**ars **E**xploration with **L**ander-**O**rbiter **S**ynergy". As this name indicates, the mission is being planned to include both an orbiter and a lander or two. The launch vehicle, H2A with 2 solid-propellant boosters, if used for the 2018 launch window, is capable of putting up to 2.4 tons of mass into Mars orbit.
After the detection of methane on Mars, interests in the Martian atmosphere now is stronger than ever before. The USA is to launch a volatile mission, MAVEN, in 2013, and ESA and NASA plan to launch a joint "trace gas" mission in 2016. Japan's MELOS will also focus on the atmosphere as part of the "meteorology of terrestrial planets" series following "Akatsuki". The mission configuration, the scientific objectives, as well as the candidate instruments are still under discussion. We will report the current plan of MELOS mission and would welcome comments, inputs, as well as instrument proposals from the world-wide community.

Keywords: Mars; atmosphere; meteorology; spacecraft mission; orbiter; lander; MELOS.

References

[1] V. Formisano, et al., *Science.* **306**, 1758 (2004).