Mars-Next, a Mars Sample Return precursor mission

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Mars Sample Return is a very challenging mission that presents several technical/operations problems that have never been faced before. Moreover MSR, even if based on two single launches by Ariane-5 class launcher, presents mass budget criticalities so that particular mass saving manoeuvres will likely be implemented; this is the case of Aerobraking for partial Target Orbit Acquisition (TOA) after the Mars Orbit Insertion (MOI) manoeuvre.

Mars-Next has the following objectives:
• delivery at least 3 small landers for Network science
• carry on 30 kg of P/L instruments for Orbital science.
• perform Aerobraking and acquire experience on it for partial TOA
• simulate in real environment the autonomous RendezVous and Capture phase of the Sample Container released in orbit, in the actual MSR mission, by the Mars Ascent Vehicle (MAV)

The Mars-Next program has started the Phase-A beginning 2008 under ESA contract.