Old questions and new enigma on planet Mars (No 2521)

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Friday Plenary & Closing ceremony

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Mars is currently monitored by not less than eight orbiters and locally studied with four operational rovers and landers. The red planet has been the objectives of many space agencies not only because it is relatively accessible, but also because of its unique scientific interest. On the one hand present-day Mars is a very active world with many similarities with the Earth. On the other hand, its geology shows that throughout its history Mars has seen era conducive to rivers and lakes, ice ages, and even periods with a collapsed atmosphere. These different epochs are the reason why Mars remains the objective of many space agencies, as they evoke the possibility of past habitability and spectacular climate changes.

In spite of the accumulation of observations - or rather because of this accumulation - the enigmas concerning the planet Mars are more and more numerous. Are there evidence for liquid water on present-day Mars? On past Mars ? Is methane a signature of current subsurface activity ? Why global dust storms form some years but not others ? What happened on Mars 4 billions years ago ? Why did Mars evolve so differently from Earth ? The questions are countless, and quite often paradigms that used to be common knowledge. are shifted.

In this talk, I will briefly review the latest developments in our understanding of Mars, with the goal of sharing with any curious astrophysicist up-to-date information on the scientific debates that characterize Mars exploration.