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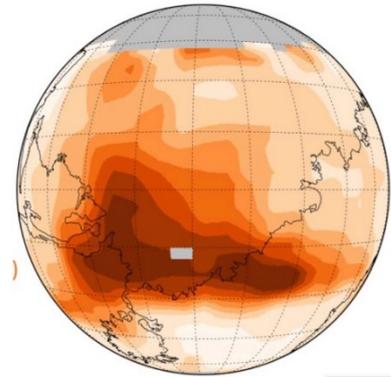
**DIPARTIMENTO DI
SCIENZE E
TECNOLOGIE
AEROSPAZIALI**

The Atmosphere of Mars: What to observe with SmallSat missions?

Luca Montabone

Abstract

The atmosphere of Mars has been the target of satellite observations since the era of NASA's Mariner spacecraft, and more recently even the target of in-situ observations by landers and rovers. ESA's Trace Gas Orbiter is currently aerobraking and preparing for its science mission phase, and other large satellites, landers and rovers are being prepared for launch by several space agencies worldwide in the next 3 to 5 years. What is left to observe for SmallSat missions in the categories of nano- and micro-satellites (i.e. respectively 1-10 kg and 10-100 kg, according to NASA's definition)? The objective of this talk is to provide a (very personal) overview of the atmospheric variables and phenomena that might be worth monitoring using such low-cost, high-risk missions, with a focus on the CubeSat mission to monitor martian dust storms and water ice clouds that I am specifically working on.



Bio. Luca Montabone obtained his "Laurea" in Physics in 1998 at the University of Turin and his PhD in Geophysics in 2002 at the University of Genoa, working on vortex dynamics and transport in two-dimensional turbulence. He held post-doc positions at the University of Oxford (UK), The Open University (Milton Keynes, UK) and the Laboratoire de Météorologie Dynamique/CNRS (Paris, France) between 2002 and 2013, working on satellite atmospheric data analysis, global climate models and atmospheric data assimilation for the planet Mars. He is currently research scientist at the Space Science Institute (Boulder, CO, USA), still working on the atmosphere of Mars and its weather, as well as looking at novel space mission concepts to the Red Planet. He divides his time between the USA and France, where he created a company that focuses on research, continuous education and outreach in space sciences and fluid dynamics, based at the Savoie-Technolac science and technology park on the shores of the Bourget lake, near Chambéry.
Sito Web DAER: <http://www.aero.polimi.it>

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