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VOICE : Volatiles & Organics Isotopic Composition Experiment

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VOICE is an instrumental set proposed in response to the Call for Idea for the instrumentation of the PASTEUR rover, in the frame of the Aurora program, and selected for further study. It combines several complementary analytical tools, devoted to an in-depth investigation of isotopic ratios in the atmosphere and in evolved gases obtained by pyrolysis from solid samples : a cryo/ chemical separator-MS working in static mode for atmospheric noble gases, stable isotopes, and trace gases, a GCMS for molecular analysis of pyrolysis products, and a LMS using laser ablation for mineralogical analysis of solid samples. A 1-kg Time-of-Flight mass spectrometer has been developed at CETP/IPSL, and is presently under test. The cryo-chemical separator line is being developed at SA/IPSL and MAGIE, and the final prototype will be connected to the ToF MS and tested within one year (PALOMA project). Pyrolysis and flushing systems have been developed at SA/IPSL for ACP (Huygens), and GCs are used on ACP-GCMS (Huygens) and COSAC (Rosetta). Alternatively, new generation pyrolysis ovens and improved GC systems (e.g. 2DGC) might be provided by the US part of the team. Finally, a miniaturized LMS has been developed at Bern Univ. for the (cancelled) lander of BepiColombo. The VOICE instrument is planned to be proposed as a suite of instruments on future landers of Mars.