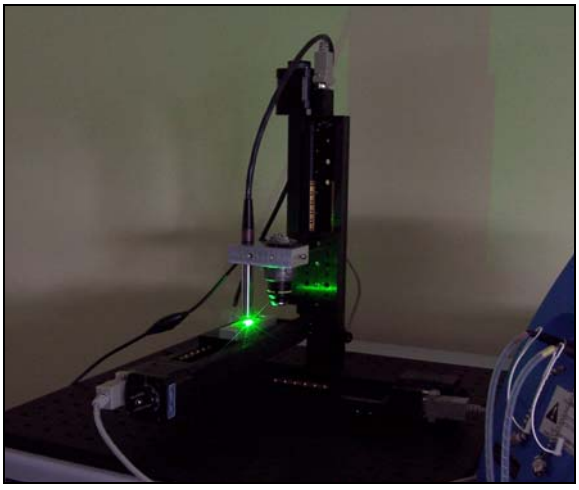
**ACTIVITIES OF EXOMARS' RAMAN LASER SPECTROMETER SCIENTIFIC TEAM DURING THE CAMPAIGN AMASE 2010.** A. Sansano[1] , G. López[1] , F. Rull[1] and the AMASE 2010 team. [1]Unidad Asociada UVA-CSIC a traves del Centro de Astrobiología. Parcela 203. Parque Tecnológico de Boecillo. E47151 Valladolid SPAIN <asansanoc@gmail.com>

**Introduction.** AMASE (Arctic Mars Analog Svalbard Expedition) has been working from 1997 in the study of sites on the Svalbard islands, a very special Mars analog place with several scenarios with different geologies. In particular, the Bockfjord Volcanic Complex (BVC), with a special combination of volcanoes and permafrost, is a unique place on Earth with carbonate deposits similar to carbonates found in the Martian meteorite ALH84001[1]. Raman Laser Spectrometer was selected as part of the payload of EXOMARS mission that will be launched to Mars in 2018.

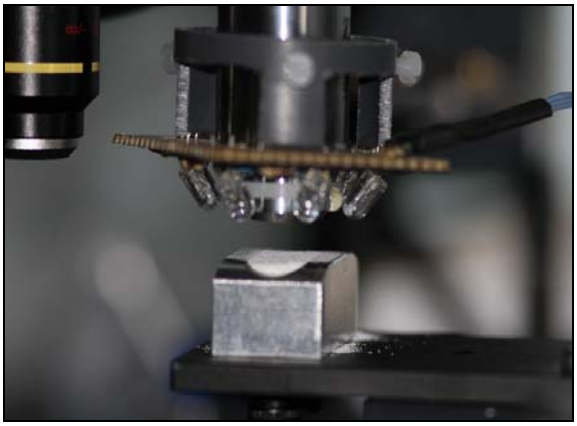
On the 2010 campaign, members of the scientific team of RLS have tested a simulation system of the operation mode with the aim of evaluating the performance of the instrument with different operating procedures

**Instrumentation.** The Raman spectrometer used was a B&WTEC Inc. Compass illuminated with a 532nm wavelength laser (Prototype II ExoMars developed by Monocrom) with about 50mW power on the sample and a spot diameter of 50 microns. The raman probehead is coupled to a three degrees of freedom stepper motion system (spatial resolution of 2.5 microns) to be positioned over the sample. This system simulates the motion of the sample in the Exomars rover's sample carrousel as well as the autofocus system.



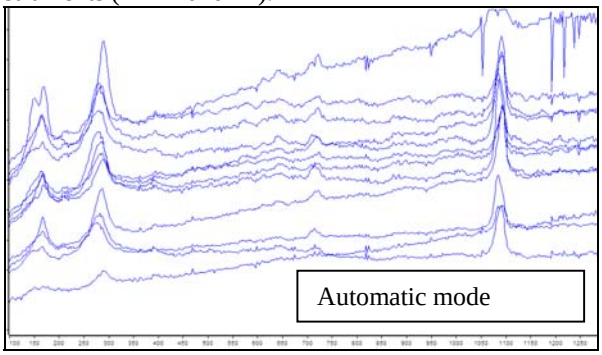
With the aim of evaluating the precision of the system and the effects on the sample due to the laser radiation, the system has a camera to verify the spot's position, the sample anomalies etc. The system this programmed to automatically evaluate the integration time and accumulations based in the restrictions of operation in the mission.

**Activities.** During the campaign several analysis were accomplished, either in conjunction with the other participating instruments in the expedition, either simulating several operation modes. Among others, an automatic mode of analysis was realized and compared to a system of analysis based on observation.



In the first case, the probe head goes over the sample along evenly spaced steps and takes spectra at each point. In the second one, the selection of the targets on the sample is made based onin basis of the images and an observer and the experience choose the targets of analysis.

**Results and conclusions.** Both methods were tested on the same samples yielding interesting results. The detected compositions were verified by other instruments ( XRD and IR).



The automatic method takes longer times but implies risks of damage in the thermolabile samples, however, it has shown to be a more accurate procedure, being able to detect mineral species that were not detected by visual exploration in brilliant samples.

In addition the directed method, is faster, and careful with the sample, and more efficient to detect species in dark samples.

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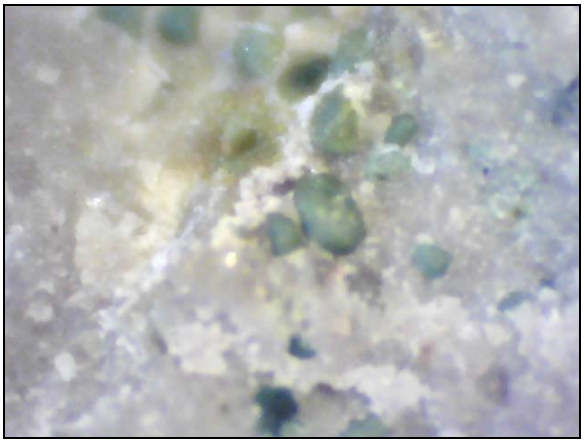

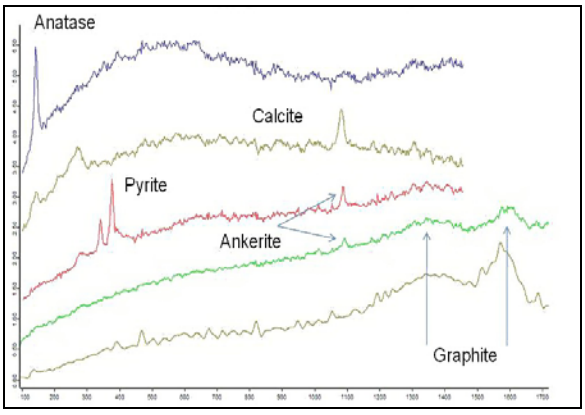


These first tests indicate the need to delve deeply into these analysis to design a mode of operation able to give the largest quantity of information possible when the rover be in operation.

**References:**

[1]Blake D. et al. (1999) LPSC XXX, Abstract #1683.

**Acknowledgements**

The team wishes to thank AMASE organizers and ESA for the invitation and support to participate in the 2010 expedition. Also to CAB and the Spanish MICINN Project AYA2008_04529-ESP.