



## **MEDIA RELEASE**

### **Ontario-based geological technology to unearth Mars' mystery**

**TORONTO, ON. (Dec. 11, 2007)** – A University of Guelph physics professor believes that studying clay samples on Mars might be the key to unlocking the mystery of the planet's past water activity. And with support from the Ontario Centres of Excellence (OCE), he will develop a sophisticated geologic instrument that may unveil Mars' secrets.

In 2009, NASA will send a new rover to Mars equipped with an Alpha Particle X-ray Spectrometer (APXS) to crawl along Mars' surface and study the elemental composition of rock and soils. And through a \$270,000 research contract from OCE's Centre of Excellence for Earth and Environmental Technologies, Dr. Ralf Gellert will be able to further develop the APXS technology for this upcoming mission as well as future missions.

"To be involved in the exploration of Mars, specifically, to know that Ontario researchers and universities are playing vital roles in its execution and success is extremely gratifying for this organization," said Mark Romoff, OCE's President and CEO. "It reinforces the idea that Ontario has the knowledge, skills and talent to be part of the world's foremost scientific research endeavors, including space exploration."

The 2009 mission will build on the successful exploration of Mars by NASA's two rovers, Spirit and Opportunity. They have been sending scientists ground-breaking research for over three years that suggests the planet once housed large quantities of water, and possibly life.

"The APXS will be one of the many important instruments on this mission," said Gellert. The lead scientist for the APXS on Spirit and Opportunity, Gellert is heading an international group of scientists to develop this new model that will be built by MacDonald Dettwiler Associates (MDA) in Brampton. "The ability of this instrument to measure rocks and soils will make it possible to perform investigations that no other instrument on the rover can deliver," he continued. With this device, the clues left behind from water interacting with rock can be detected – and those clues may be uncovered by analyzing clay deposits.

"Clays are indicative of more earth-like conditions, as near neutral water is required for clay to be formed," said Gellert. "To date, no samples of clays have been identified on the surface, but there is evidence from orbit that clay minerals still exist in Mars' oldest regions."

Back on earth, the APXS technology – specifically the techniques to analyze geological data – could greatly benefit Ontario's mining sector. "The limitations in obtaining data in space exploration are similar to those in field geology or mining," explained Gellert. "Mars exploration is about squeezing out every bit of information out of the available data with scientific creativity and exact knowledge of the scientific principles of the measuring method." Perfecting this data analysis will not only better the chances of discovering Mars' history, these techniques will open new doors for geological and mining exploration.

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