

**November 2007- SEL is the procurement arm for RAL, for the GOES-R Satellite and RAMAN/LIBS Spectrometer**

SEL offer RAL a component procurement thru assembly service and have manufactured assemblies for all RAL's contract work over the last 8 years. Spur is currently contracted to manufacture assemblies for the GOES-R satellite being built as a collaborative development and acquisition effort between the NOAA and NASA.

*the next generation*  
**GOES-R**  
*the nation's weather satellite.*



**The Geostationary Operational Environmental Satellite-R Series (GOES-R) program** is a key element of the National Oceanic and Atmospheric Administration's (NOAA) operations. As such, the GOES-R series of satellites will be comprised of improved spacecraft and instrument technologies, which will result in more timely and accurate weather forecasts, and improve support for the detection and observations of meteorological phenomena that directly affect public safety, protection of property, and ultimately, economic health and development. The first launch of the GOES-R series satellite is scheduled for FY2015.

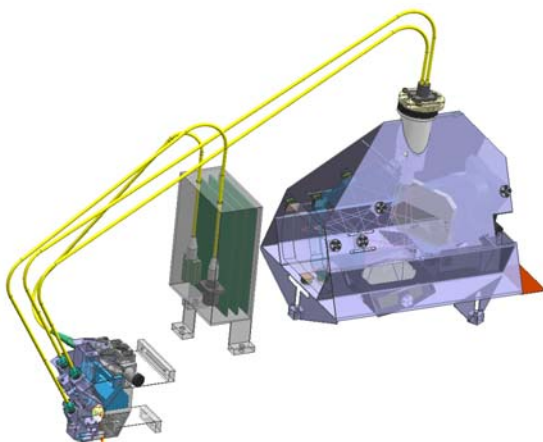
**In addition to GOES-R, Spur is also contracted to manufacture assemblies for RAMAN/LIBS**



**Exomars Rover**

The ExoMars mission will be the next European mission to Mars. It consists of a rover of 100 kg class with a dedicated payload within the range 8-14 kg to be confirmed aimed at detecting possible signs of past/present life forms on Mars as well as improving our knowledge of Earth's most hospitable neighbour planet.

Rull Perez is working in Rio Tinto on a special in situ tool that will form part of the European Space Agency's ExoMars mission to MARS, due to launch in 2013. The instrument is known as Raman/LIBS, after the scientist Sir Chandrasekhara Raman, and LIBS for Laser Induced Breakdown Spectroscopy.



This tool is a spectrometer that uses a laser to excite atoms and molecules. These agitated atoms exhibit more movement than normal, and this atomic dancing can indicate what kinds of molecules are present. It's a cutting edge system which to date has been almost exclusively laboratory-based, so using it in situ is an experiment in itself.

Current plans are to dig down to 2 meters (6.5 feet) beneath the martian surface. Delving this deep will allow scientists to investigate the possibility of past or present water - and even life -- on the Red Planet.

The Raman/LIBS spectrometer has an advantage over other spectrometers because it's non-destructive: the laser used to probe the matter doesn't cause any harm. This means that it will be deployed before any other instruments on ExoMars mission.