Building 150 (25’ solar simulator) at Jet Propulsion Laboratory (JPL) NASA; Nitrogen Gas at **-125°C** is venting from the wall shrouds of the Space Simulator during Mars (MSL) Rover testing. Since 1992 Trimax Systems has been providing, PLC, HMI and SCADA control systems and ongoing support at the environmental laboratories of JPL. Building 150 at JPL is a historical building where early to present day spacecraft and satellites are tested. The chamber inside the building is 60’ tall and 25’ in diameter and the building is built around the chamber. The chamber houses the world’s largest single piece mirror, 15 tons and 23’ in diameter. The space chamber simulates the space environment: Vacuum, Sunlight, Darkness, Heat and Cold.

Jobs completed at JPL:

1992 to present – ongoing support services, maintenance, upgrades, service calls and training.

1992 - Redundant PLC, I/O and communication for Building 150 for control of (10) vacuum pumps, (10) turbo vacuum pumps, (4) stage pumps, (1) axial compressor pump, (4) stage pumps, (37) 40kw lights and complete Liquid Nitrogen **(**LN^2**)** and Gases Nitrogen **(**GN^2**)** process control. Trimax provided all panels, power panels, PLC’s and I/O panels, 40’ graphic panel and all start-up, training and commissioning services.

1994 - Redundant PLC, I/O and communications for transferring Liquid Nitrogen to/from Tank T6 which holds 3,000 gallons to/from Tank T10 which holds 15,000 gallons. During testing constant deliveries of LN^2 are made but in the event of traffic a late delivery would cause the test to be aborted. With the installation of a common header between tanks and with the required valves, and monitoring equipment and a complete LN^2 pumping system, now in an emergency LN^2 is transferred from one tank to the other.

1996 – SCADA is implemented in building 150 to provide additional information and control.

2002 – Upgrade project for computers, monitors and software.

2004 – LN^2 system is expanded with the addition of a 6,000 gallon vertical tank.

2005 – Engineering study for building 244 10' solar simulator.

2008 – Building 144 automates 10 small simulators with a two separate SCADA systems, 10 PLC's, 10 on board HMI's.

2009 - LN^2 system is expanded again with the addition of 50,000 gallon horizontal tank and the deletion of tank T10. New pumps and new valving are added.