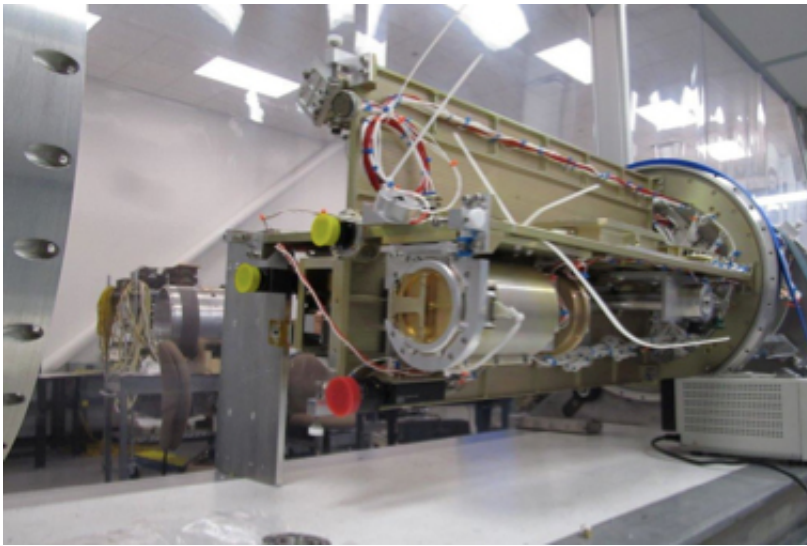


Degradation free spectrometers sounding rocket

July 20 2012, By Jennifer Rumburg



Partial interior assembly of Degradation Free Spectrometers sounding rocket.
Credit: University of Southern California

(Phys.org) -- The July 24, 2012 Degradation Free Spectrometers (DFS) sounding rocket mission's ultimate objective is to significantly advance the state of the art in short wavelength observing solar spectrometers to permit more detailed investigation and understanding of the physics, and hence behavior, of our dynamic sun. Such spectrometers must be capable of high cadence measurements of the highly variable Extreme Ultraviolet (EUV) solar flux and have minimal degradation over multi-year time scales while observing the sun 24/7, in order to improve previous state of the art instruments such as the still active SEM

instrument on the Solar and Heliospheric Observatory (SOHO) spacecraft launched in December of 1995.

The present flight will carry two newly developed [spectrometers](#) which meet the observational challenge and will be proven flight ready on the present mission and are discussed below. This is also a calibration flight. The mission carries a clone of the SOHO Solar [Extreme Ultraviolet Monitor \(SEM\)](#) which is calibrated at the National Institute of Standards and Technology, both before and after flight, to provide a calibration check on the on-orbit SEM.

This on-orbit SOHO instrument is observing the sun from the La Grange point along the Earth-Sun line where the solar gravitational pull on the spacecraft is equal and opposite to the [gravitational pull](#) of the Earth. This position is about 1% of the distance from the Earth to the sun, or about one million miles from Earth, well outside the Earth's atmosphere and also outside the Earth's magnetic field. The current [sounding rocket](#) payload also carries rare gas ionization cells which integrate the solar flux over much of the EUV spectral range to provide independent absolute solar flux data, which will help to validate the underflight calibration data.

Launch is currently scheduled for July 24 1:11 p.m. MDT at the White Sands Missile Range in New Mexico.

Provided by NASA

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