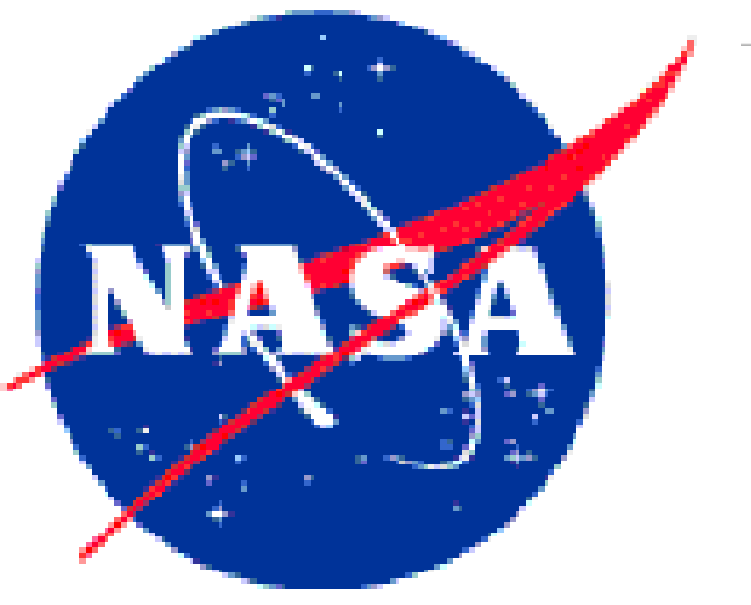
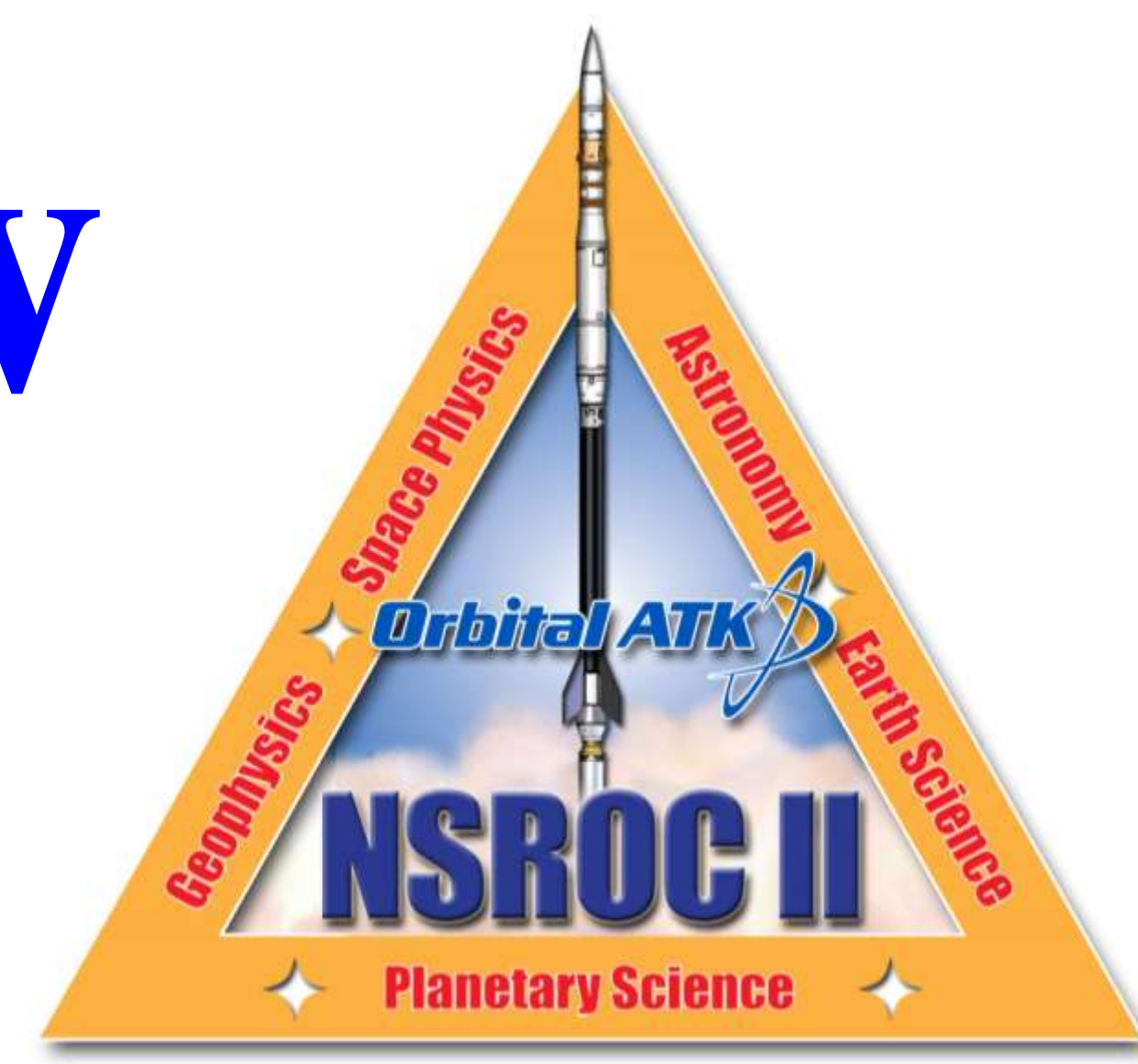


# NASA 36.318 Overview

Launch from WSMR: 25 May 2016

PI: Tom Woods, Univ. of Colorado



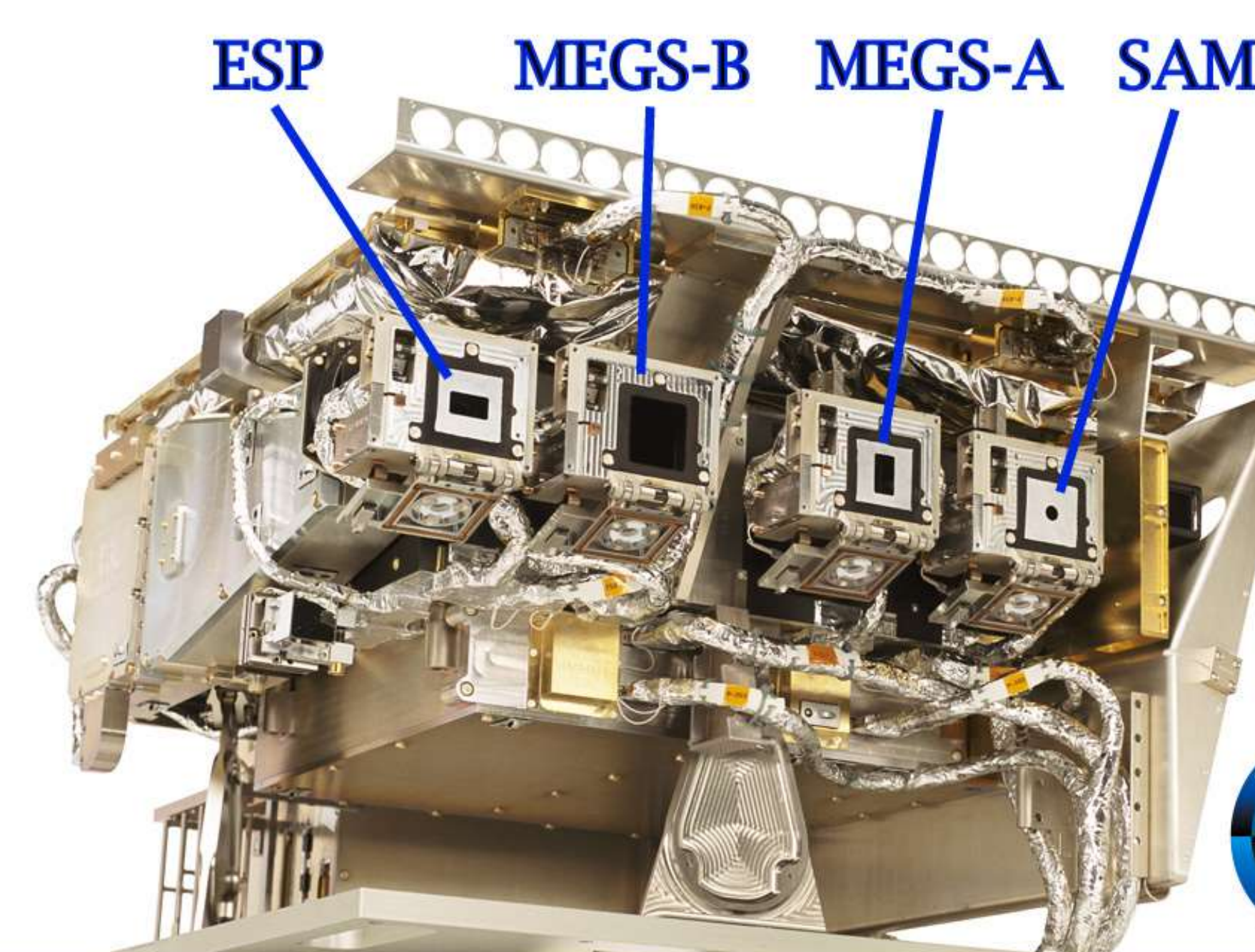
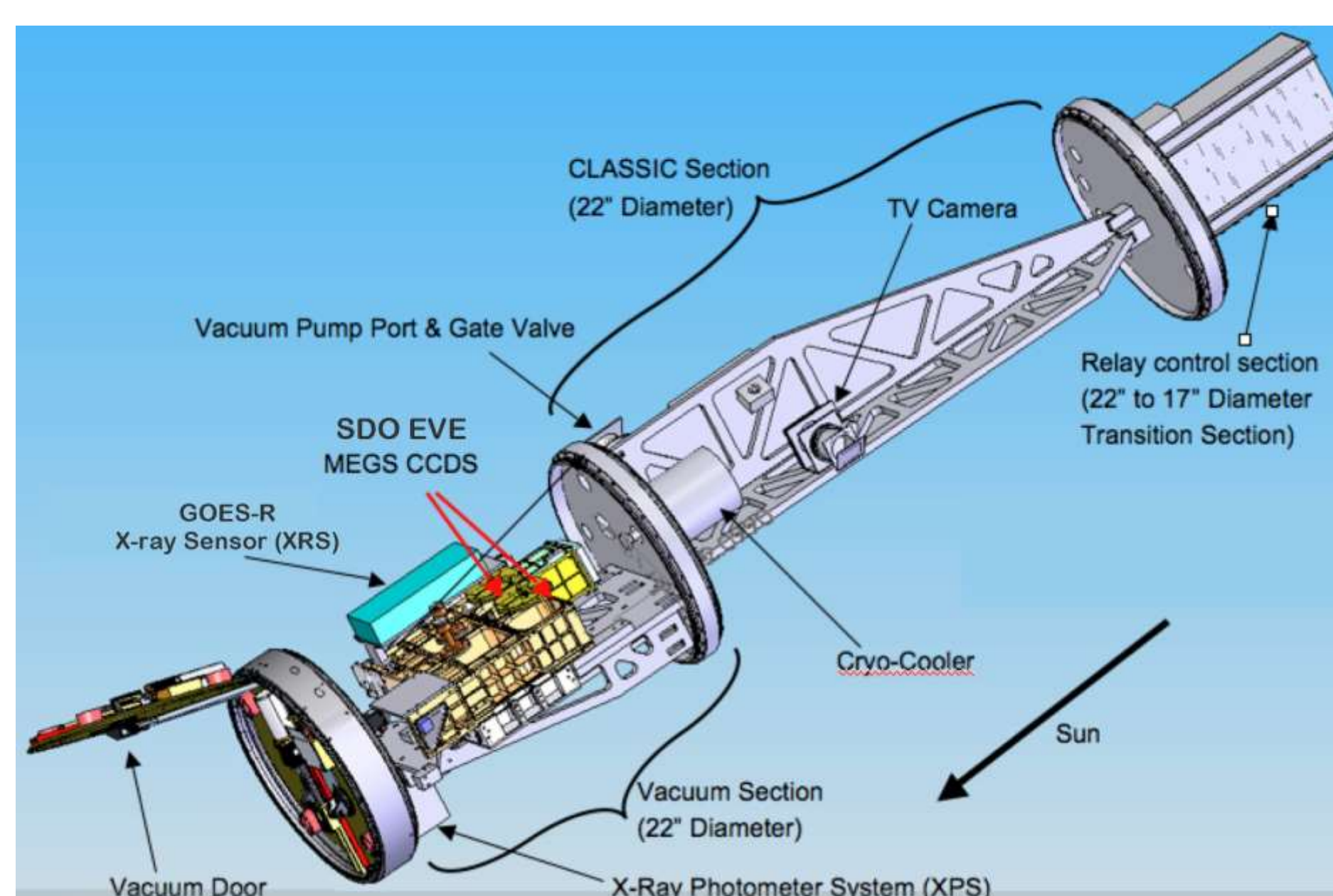
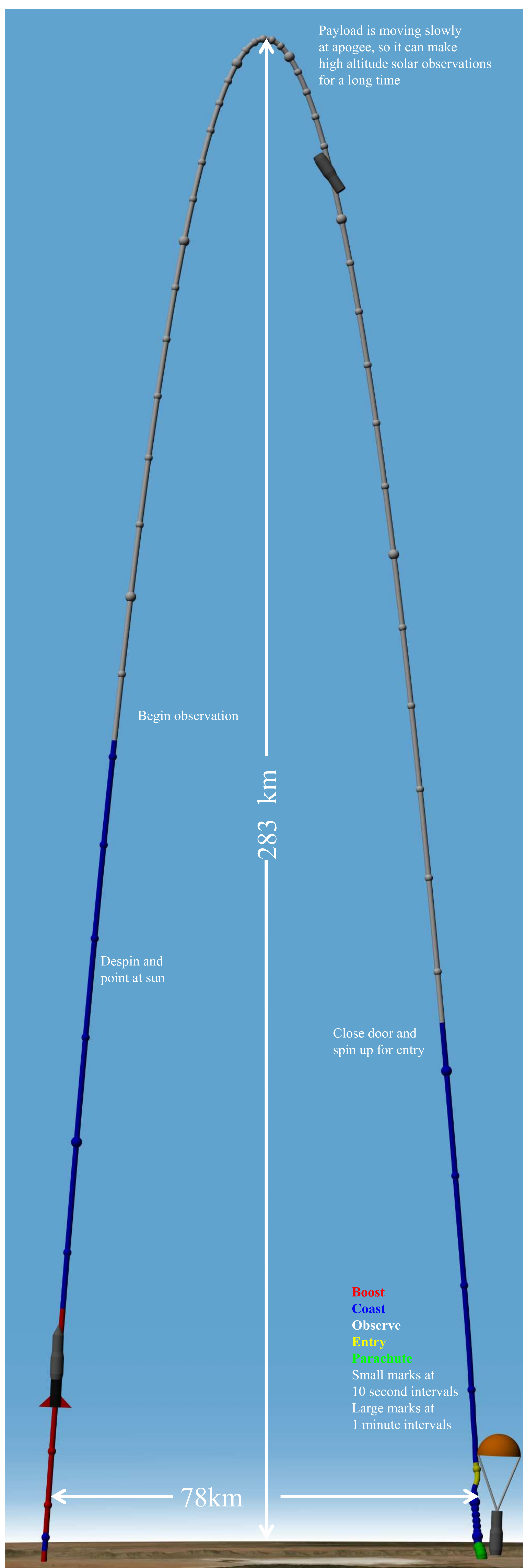
NASA 36.318 sounding rocket is designed to:

- ❖ Measure the solar extreme ultraviolet (EUV) irradiance in order to provide the third underflight calibration for the EUV Variability Experiment (EVE) aboard the NASA Solar Dynamics Observatory (SDO) satellite.
- ❖ These solar EUV irradiance measurements are made using the prototype SDO EVE instruments, engineering test unit of X-Ray Sensor (XRS) from the GOES-R program, and X123 X-Ray Spectrometer from the MinXSS CubeSat project.
- ❖ These rocket observations also provide calibration / validation for several other solar instruments: TIMED/SEE, SORCE/XPS, SDO/AIA, SOHO/SEM, SOHO/EIT, SOHO/CDS, Hinode/EIS, Hinode/XRT, STEREO/EUVI, GOES/XRS, GOES/EUVS, GOES/SXI.

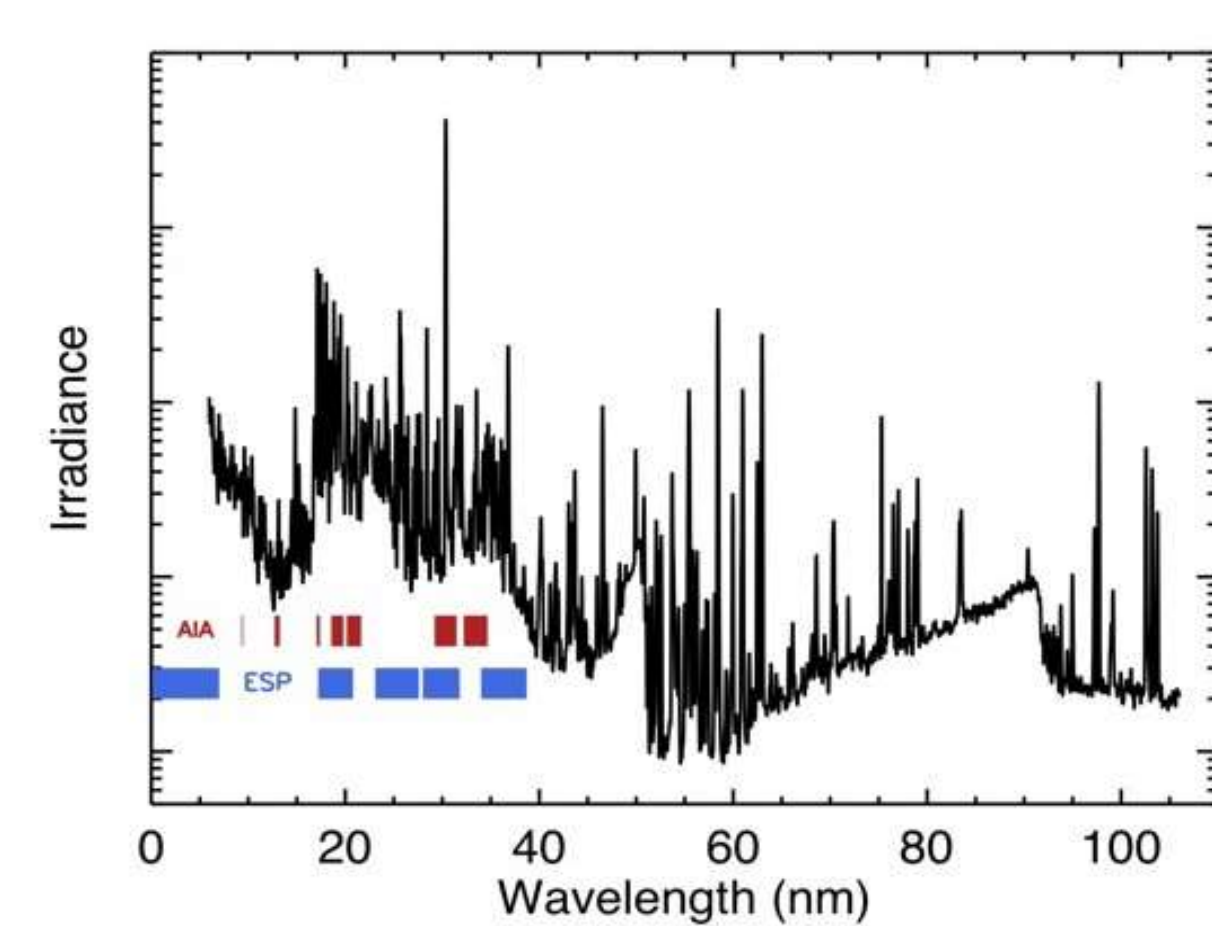
### Predicted Flight Timeline

Note that the term "L+X" means X seconds after launch  
 Mach 1 = speed of sound = 340 m/s = 760 miles/hr  
 1km = 0.62 miles

L+0 to L+6 sec	1.2 – 3 km	Terrier motor burn (Mach 1.8 after burnout)
L+12 to L+44	6 – 40 km	Black Brant motor burns (Mach 7 after burnout)
L+75	105km	Despin payload (despin weights/cable released)
L+80	115km	SPARCS (attitude control) points aft end towards Sun
L+90	130km	Forward TV view – Horizon view away from the Sun
L+120 to L+439	> 140 km	Prime solar observation time
L+274	283 km	Apogee (highest point)
L+439	128 km	Attitude control disabled, spin up payload for reentry
L+580	20 km	Aft TV view – towards ground once chute opens
L+607	5 km	Parachute deployed; video camera stays on
L+900	1.2km	Impact is 78 km from launch site



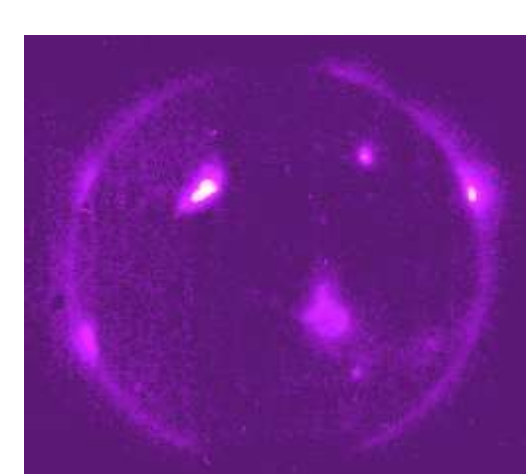
**Solar Dynamics Observatory (SDO) EUV Variability Experiment (EVE)**



**Solar EUV Irradiance Spectrum from SDO EVE**

**SDO EUV Variability Experiment (EVE)**  
 Measures the solar EUV irradiance from 5 to 105 nm with 0.1 nm resolution and from 0.1-5 nm

**GOES-R X-Ray Sensor (XRS)**  
 Measures the solar X-ray irradiance in two bands: 0.05-0.4 nm and 0.1-0.8 nm

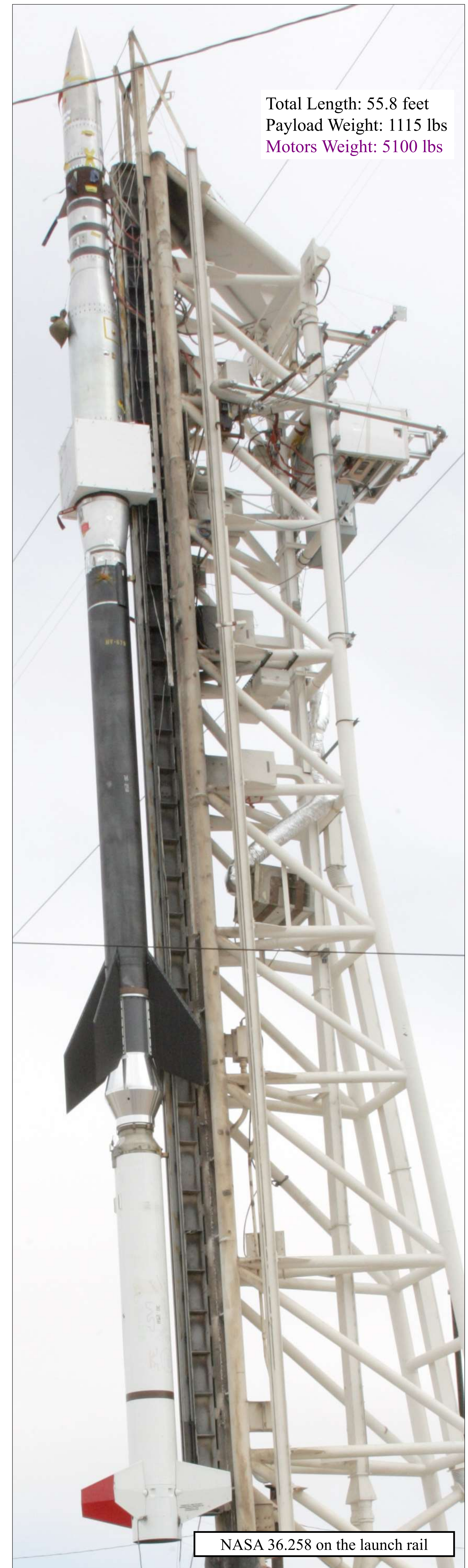


### X-ray Spectrometers

- **EVE SAM** is a pinhole camera and provides low-resolution solar images in the X-ray (0.1-7 nm) and was modified for this flight with a transmission grating to also provide X-ray spectra with 0.1 nm resolution.

### Flight History

Rocket	Date
36.233	Oct. 28, 2006
36.240	Apr. 14, 2008
36.258	May 3, 2010
36.275	Mar 23, 2011
36.286	June 23, 2012
36.290	Oct. 21, 2013
36.300	May 21, 2015



Total Length: 55.8 feet  
 Payload Weight: 1115 lbs  
 Motors Weight: 5100 lbs

NASA 36.258 on the launch rail