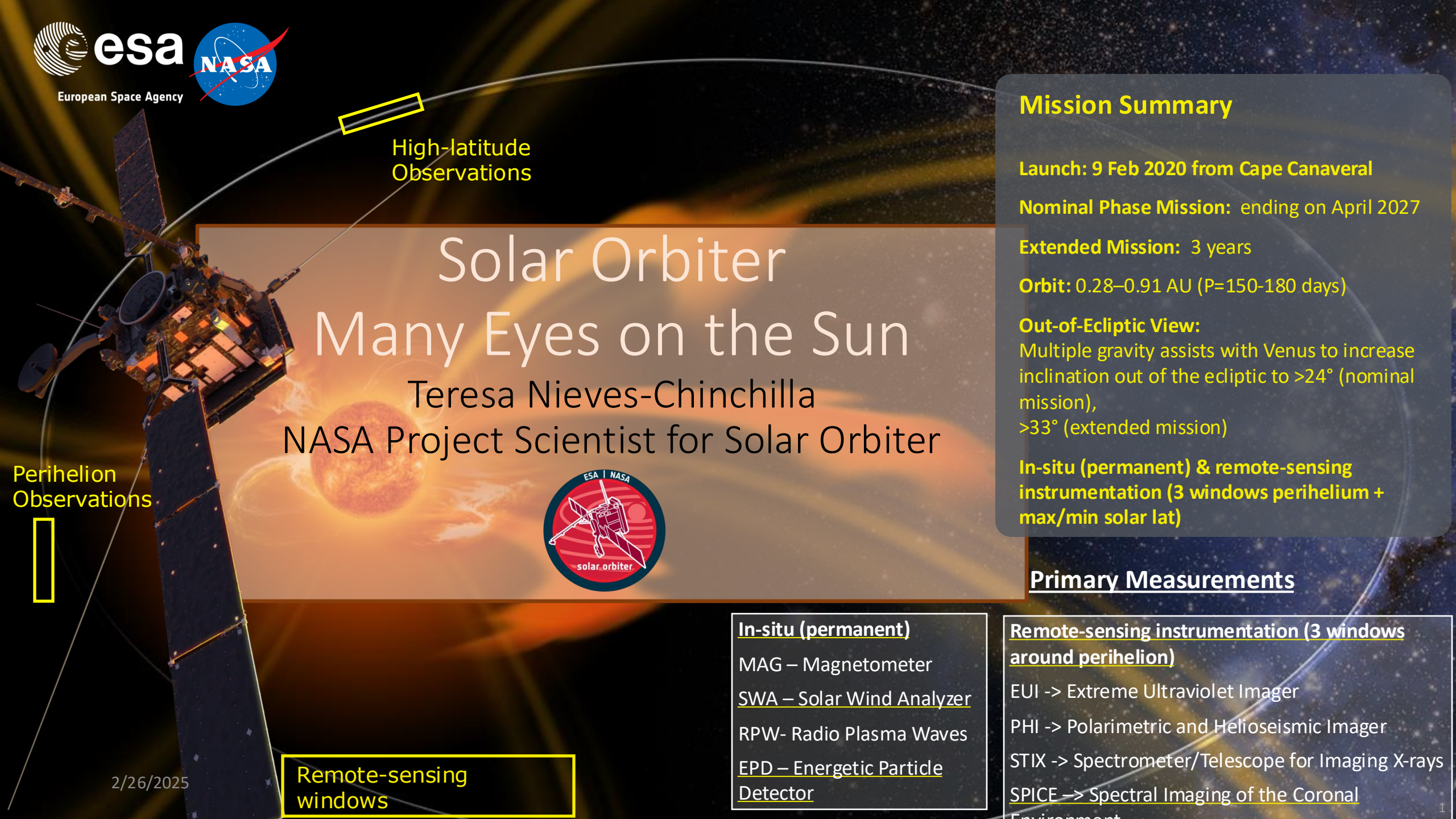


Solar Orbiter
Many Eyes on the Sun

Teresa Nieves-Chinchilla
NASA Project Scientist for Solar Orbiter

Mission Summary

Launch: 9 Feb 2020 from Cape Canaveral

Nominal Phase Mission: ending on April 2027

Extended Mission: 3 years

Orbit: 0.28–0.91 AU (P=150-180 days)

Out-of-Ecliptic View:
Multiple gravity assists with Venus to increase inclination out of the ecliptic to >24° (nominal mission),
>33° (extended mission)

In-situ (permanent) & remote-sensing instrumentation (3 windows perihelium + max/min solar lat)

Primary Measurements

In-situ (permanent)

MAG – Magnetometer

SWA – Solar Wind Analyzer

RPW- Radio Plasma Waves

EPD – Energetic Particle Detector

Remote-sensing instrumentation (3 windows around perihelion)

EUI -> Extreme Ultraviolet Imager

PHI -> Polarimetric and Helioseismic Imager

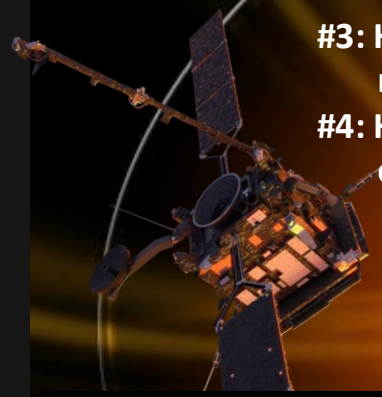
STIX -> Spectrometer/Telescope for Imaging X-rays

SPICE –> Spectral Imaging of the Coronal Environment

Solar Orbiter Collaboration

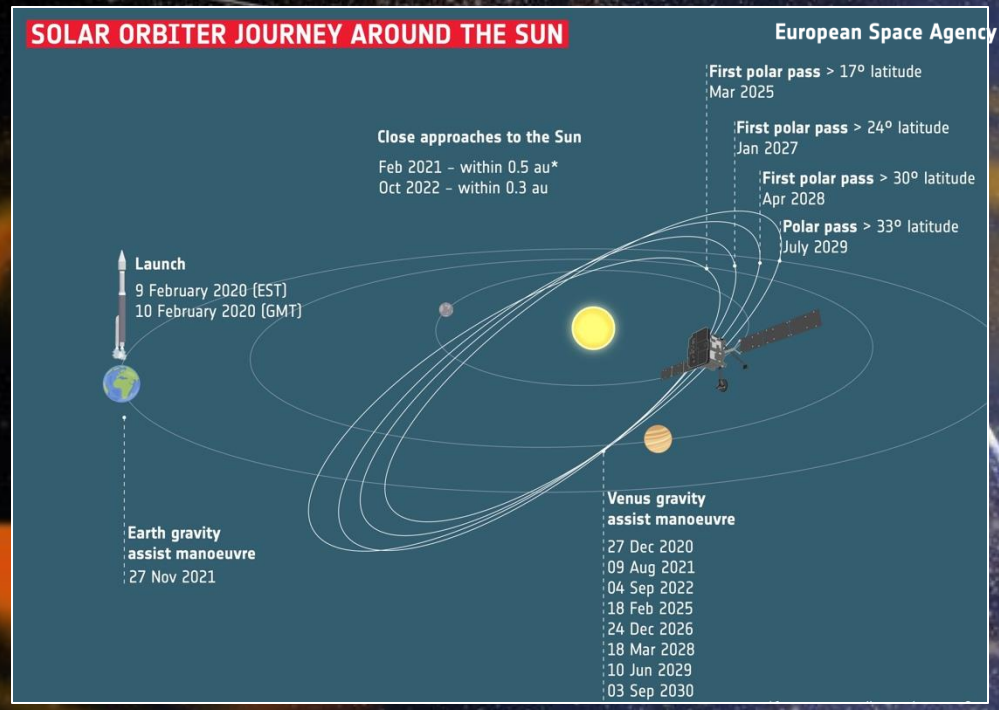
Science Objectives

#1: How and where do the solar wind plasma and magnetic field originate?
#2: How do solar transients drive heliospheric variability?
#3: How do solar eruptions produce energetic particle radiation that fills the heliosphere?
#4: How does the solar dynamo work and drive connections between the Sun and the heliosphere?

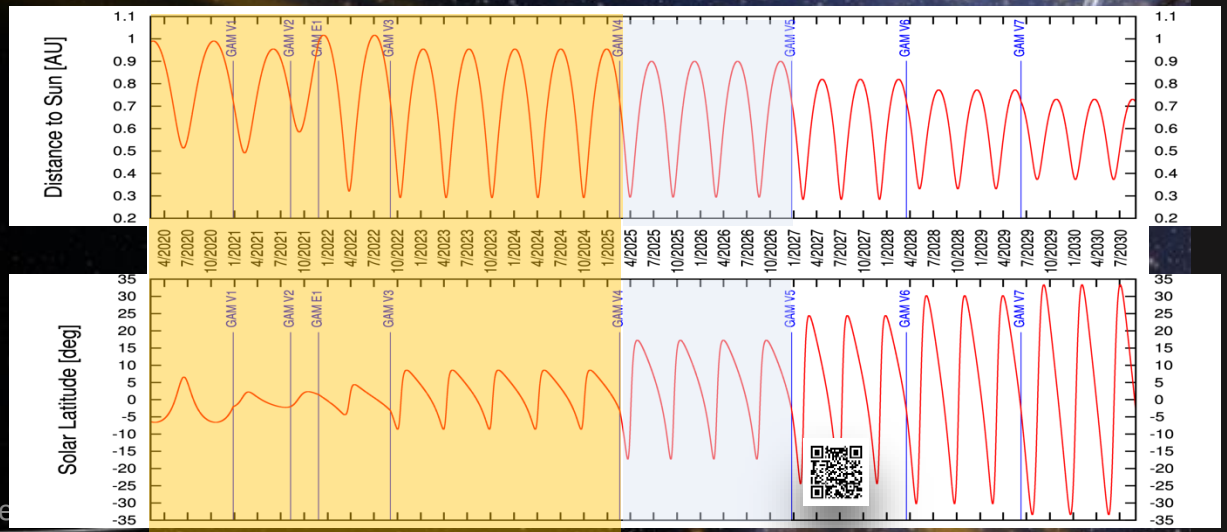


On February 18, 2025

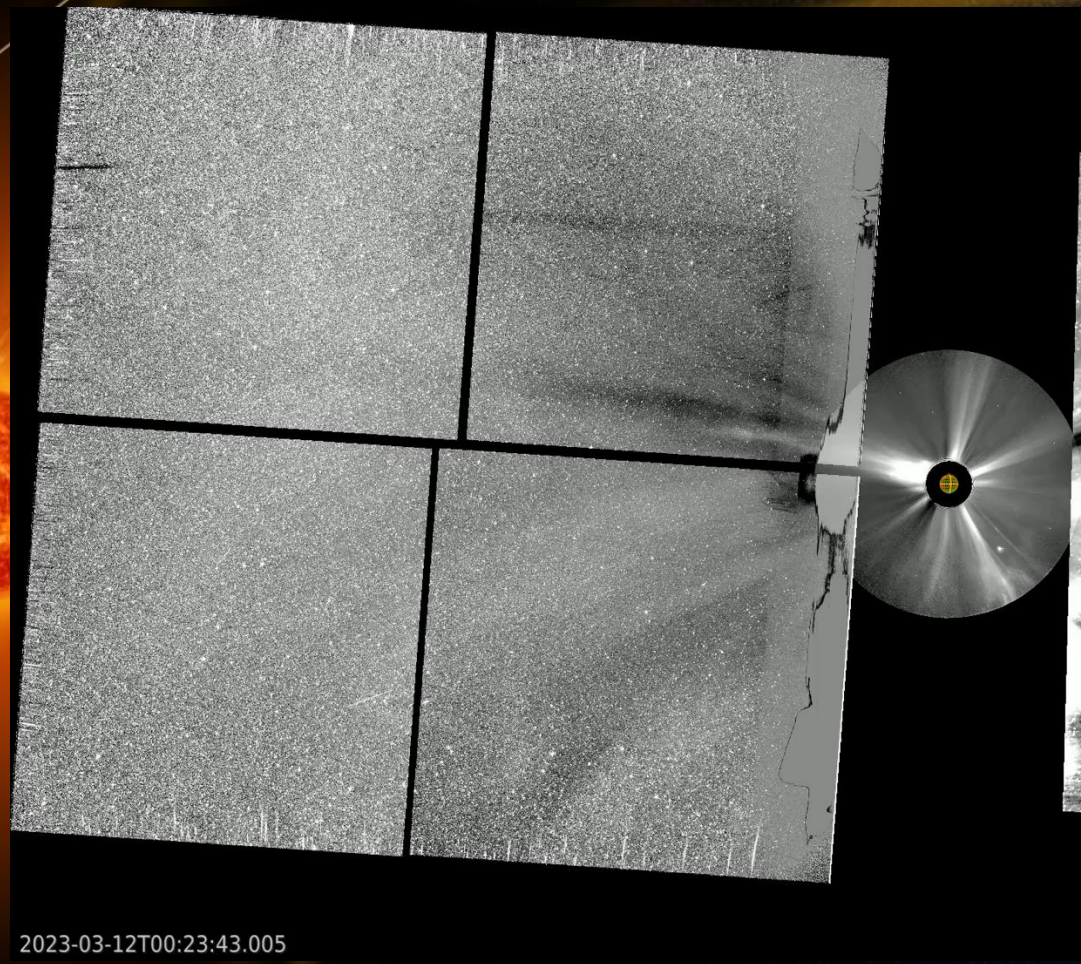
Mission Description & Graphic



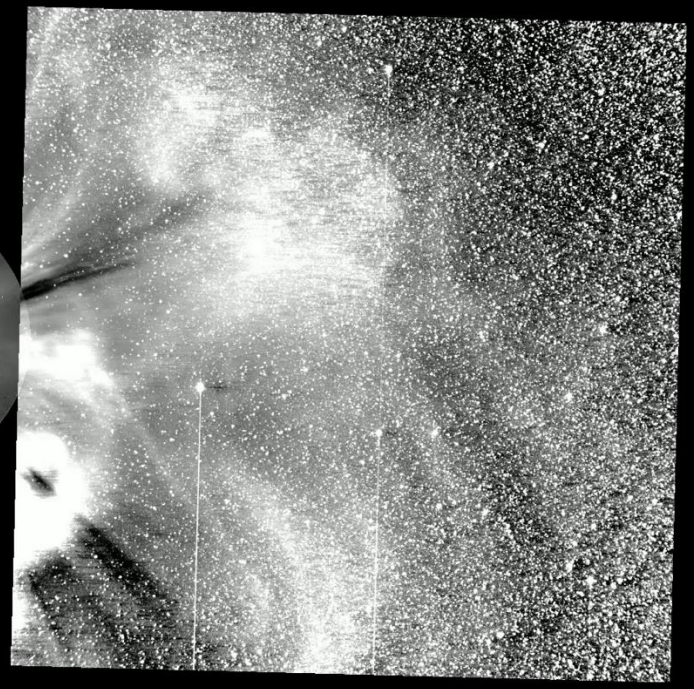
Mission Timeline



Synergies with PUNCH



SolO/SOLOHI & STEREO/H1



Courtesy of Phill Hess!

POSTER – Paulett Liewer et al