The Solar Ultraviolet Imager (SUVI) is one of several instruments being fabricated for use on board the up-coming Geostationary Operational Environmental Satellites, GOES-R and -S platforms, as part of NOAA's (National Oceanic and Atmospheric Administration ) space weather monitoring fleet. SUVI images will be used by scientists and engineers to monitor solar coronal structure and conditions, in order to better predict the occurrence of solar storms and flares that affect space weather. SUVI is a generalized Cassegrain telescope with a large field of view that employs multilayer coatings optimized to operate in six extreme ultraviolet (EUV) narrow bandpasses centered at 9.4, 13.1, 17.1, 19.5, 28.4 and 30.4 nm. Over the course of its 10-year operational lifetime, SUVI will image and record full disk, EUV spectroheliograms every few minutes, and telemeter the data to the ground for digital processing. The four SUVI instruments will provide continuous monitoring of the Sun in EUV wavebands for the next two decades and will provide reference images for other Solar EUV missions. This paper presents the plans for the Post-Launch Test (PLT) campaign, it's flexible on-orbit calibration and validation approach, and will show simulations of the SUVI data products and their value for understanding space weather.