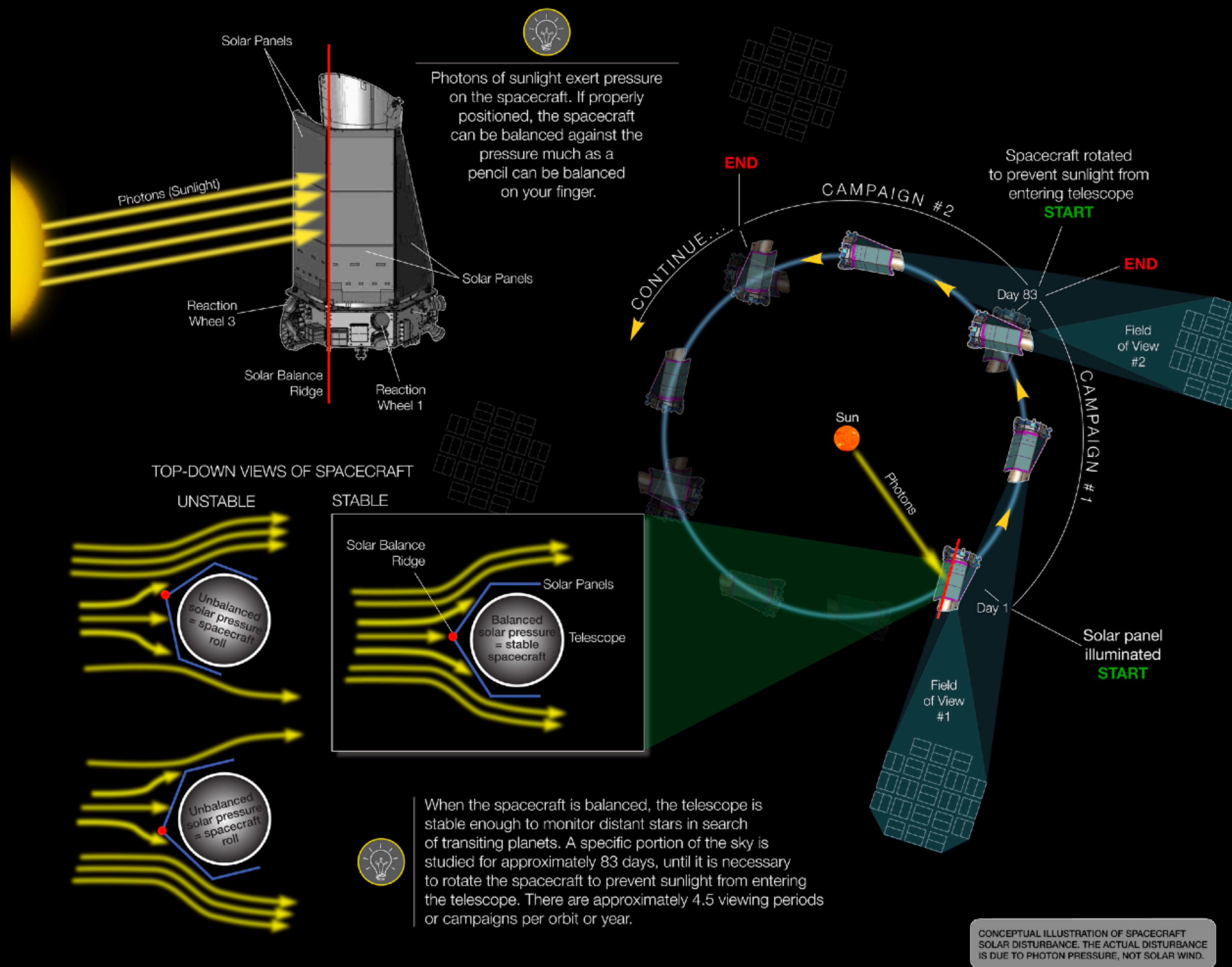




Kepler's Second Light: How K2 Will Work

Appendix



https://www.nasa.gov/sites/default/files/k2_explained_25nov_story.jpg

Appendix

Aperture mask and de trended

- Due to the large pixel size, there is evidence of blending between stars
- 3 steps:
 - 1) custom individual mask
(aperture masks for each star were initially found using an automated method which includes pixels that were within a certain threshold level of the brightest pixel (assumed to be around the centre of the star)) and then manual check
 - 2) A pixel level decorrelation
(based on the method by Deming et al. 2015) to remove systematic effects from individual pixels (e.g. instrumental drifts))
 - 3) Self flat fielding corrector
(SFF) on the light curve (Vanderburg & Johnson 2014)., removed long-term trends to produce a finalized flattened light curve. For this detrender, we used a time-scale of 9 d, which is significantly larger than the typical 1.5 d that is used in the literature (e.g. Stello et al. 2016; Wallace et al. 2019). In our tests, we found that at smaller time-scales the low-frequency end of the spectrum was attenuated. This will affect the background fitting to the spectrum, and also the measurement of the global seismic parameters)

Lomb-Scargle periodograms

