The Stellar Revolution:

Stellar Astrophysics in the Era of Big Data

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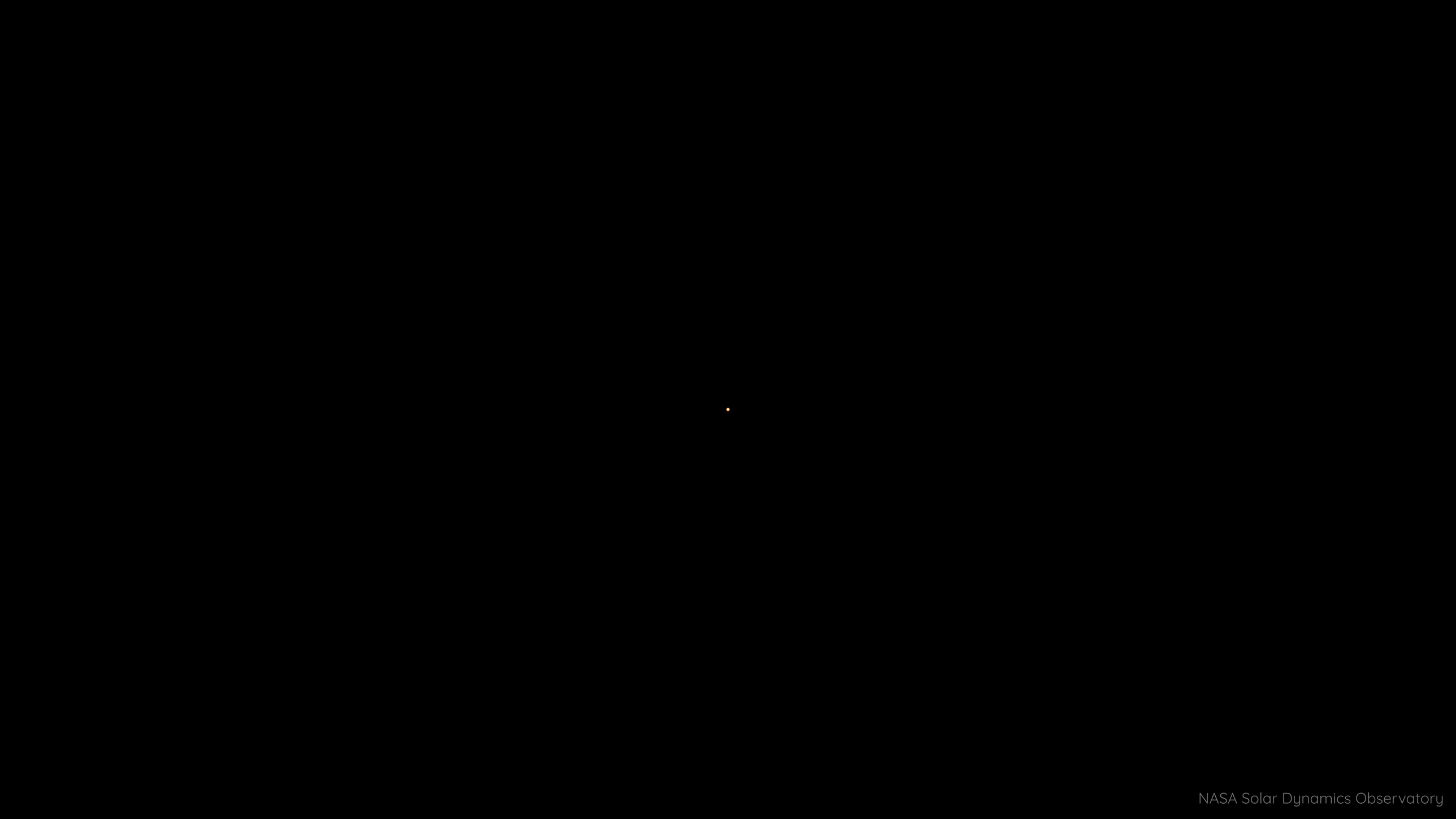
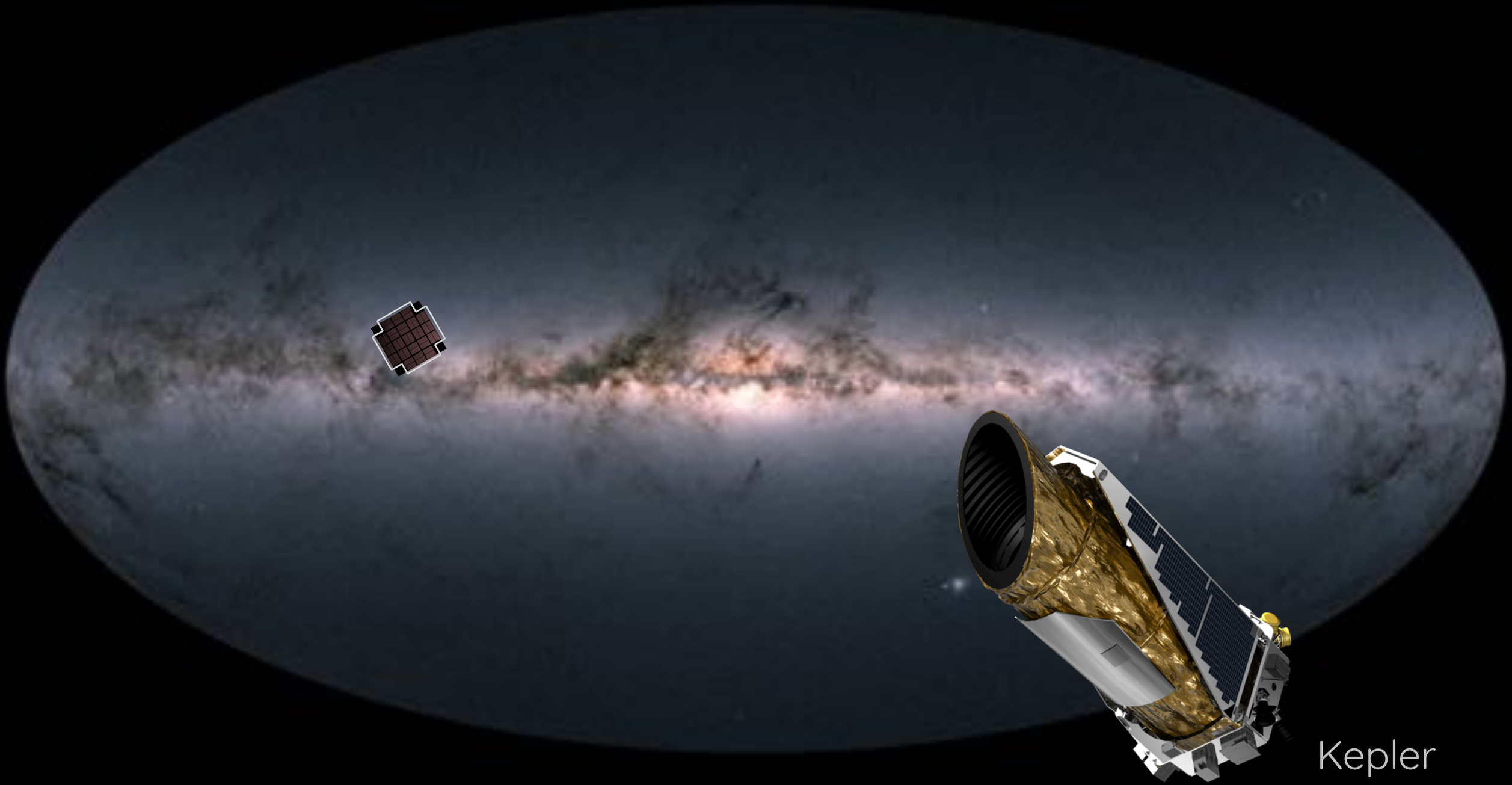
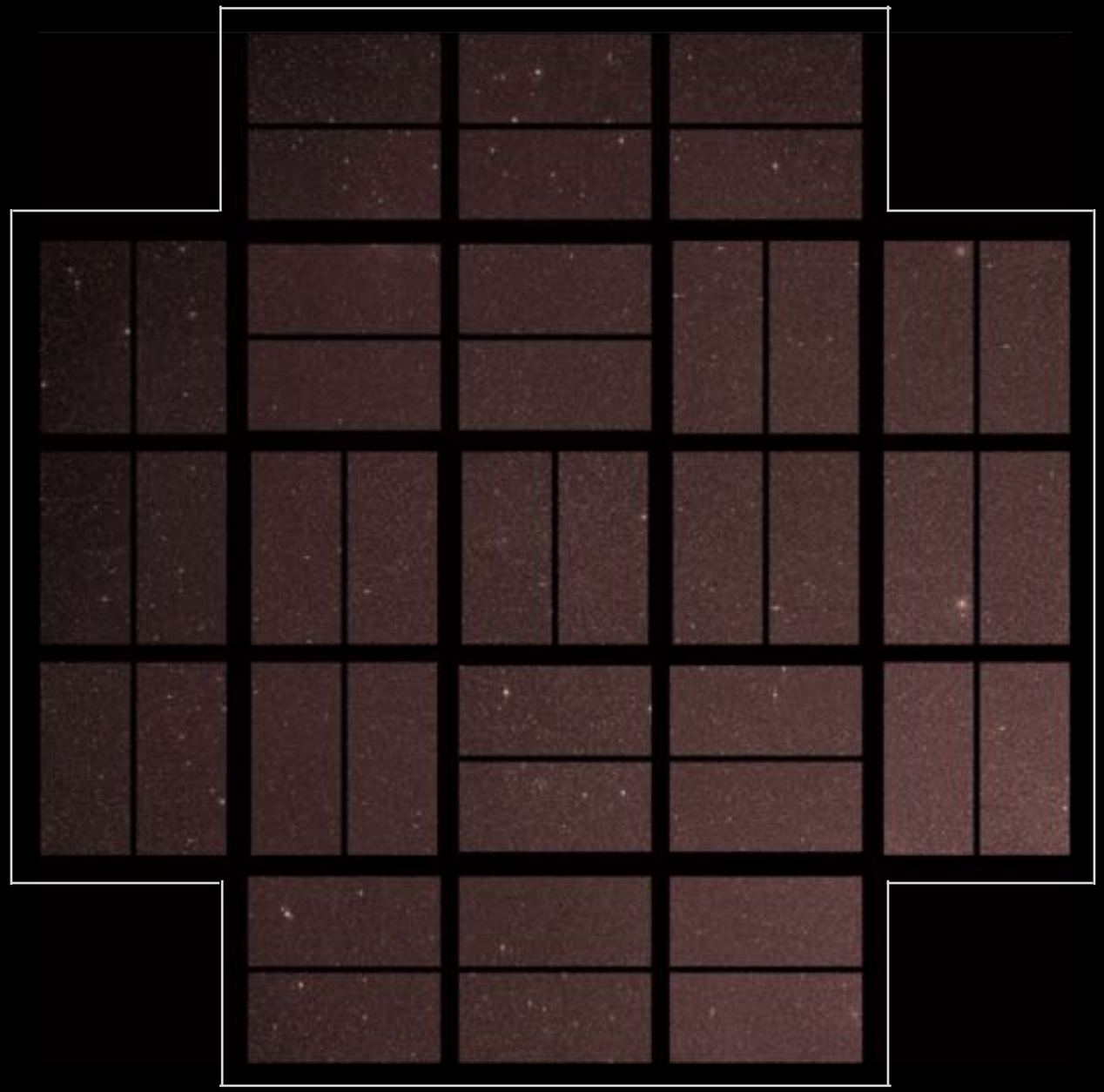
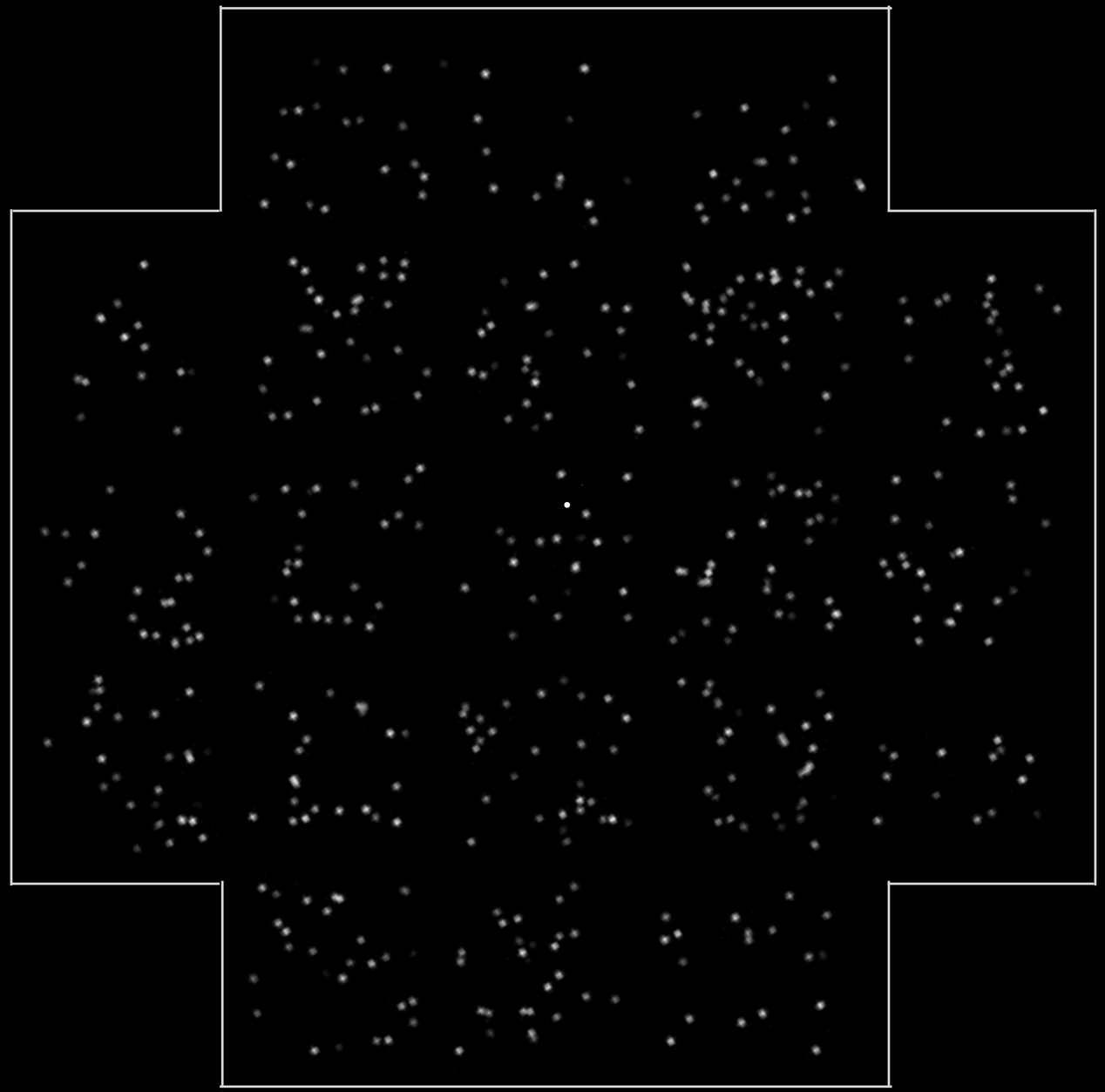
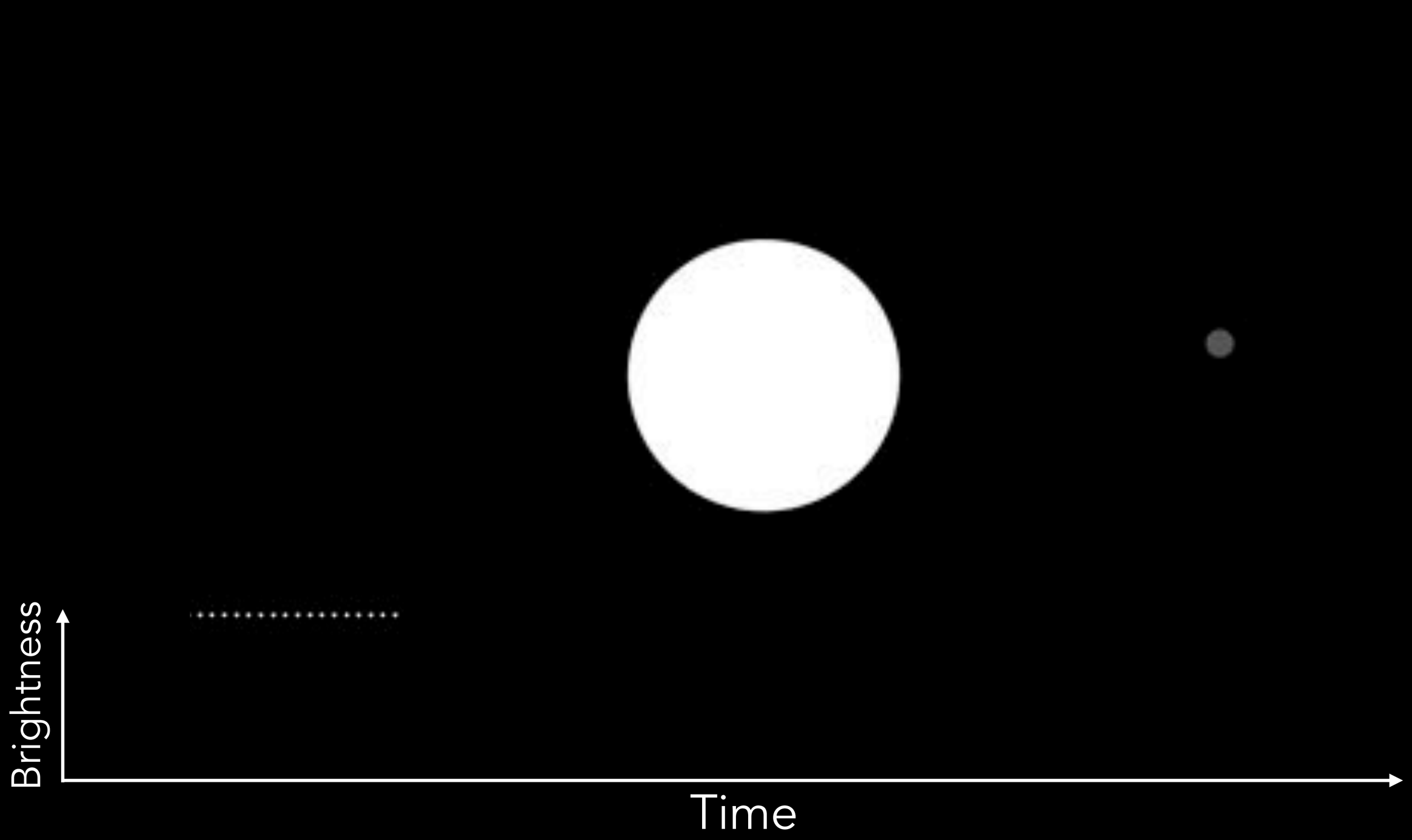
NASA Solar Dynamics Observatory

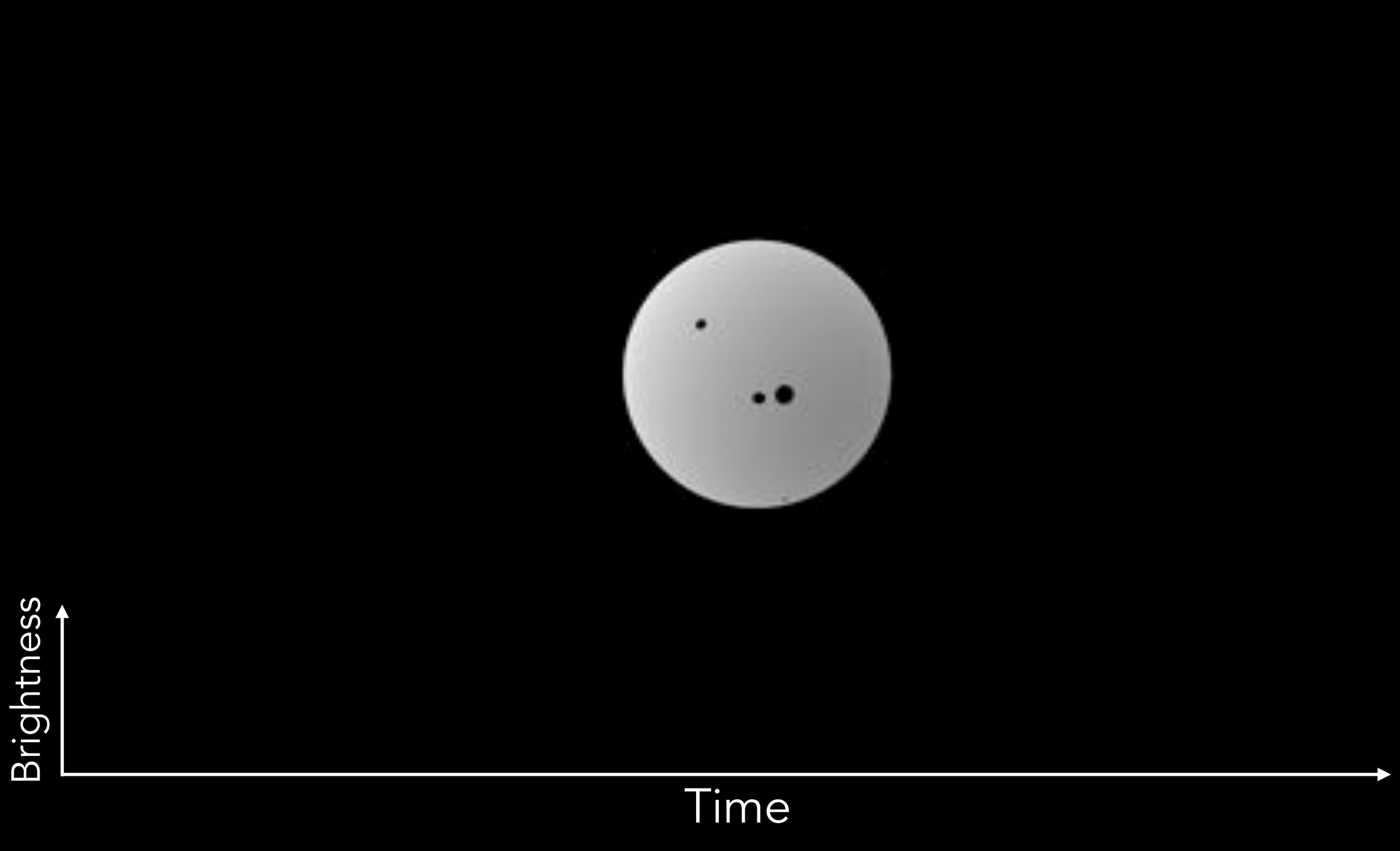

NASA Solar Dynamics Observatory


Kepler

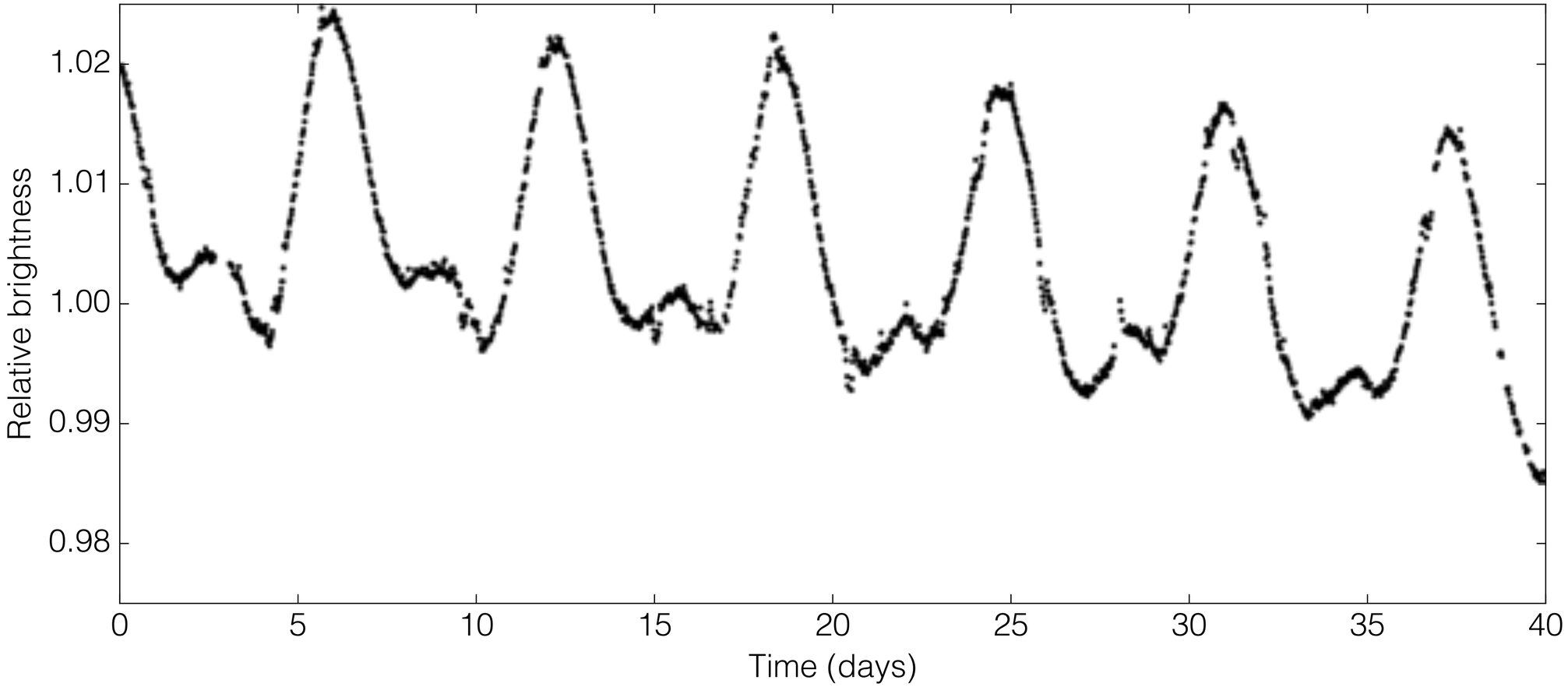


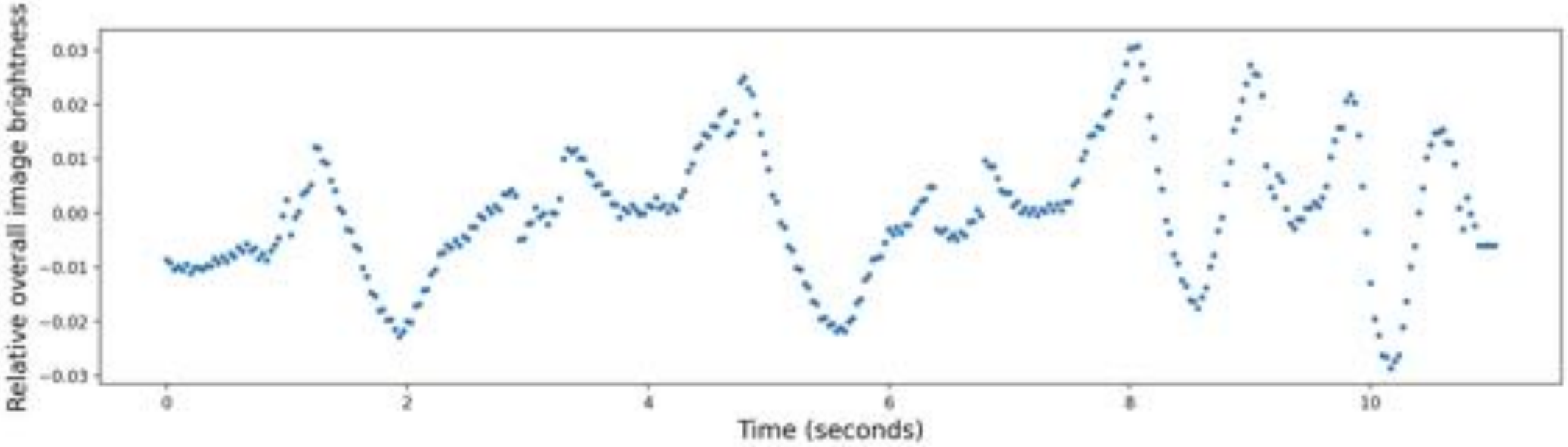



Brightness
Time

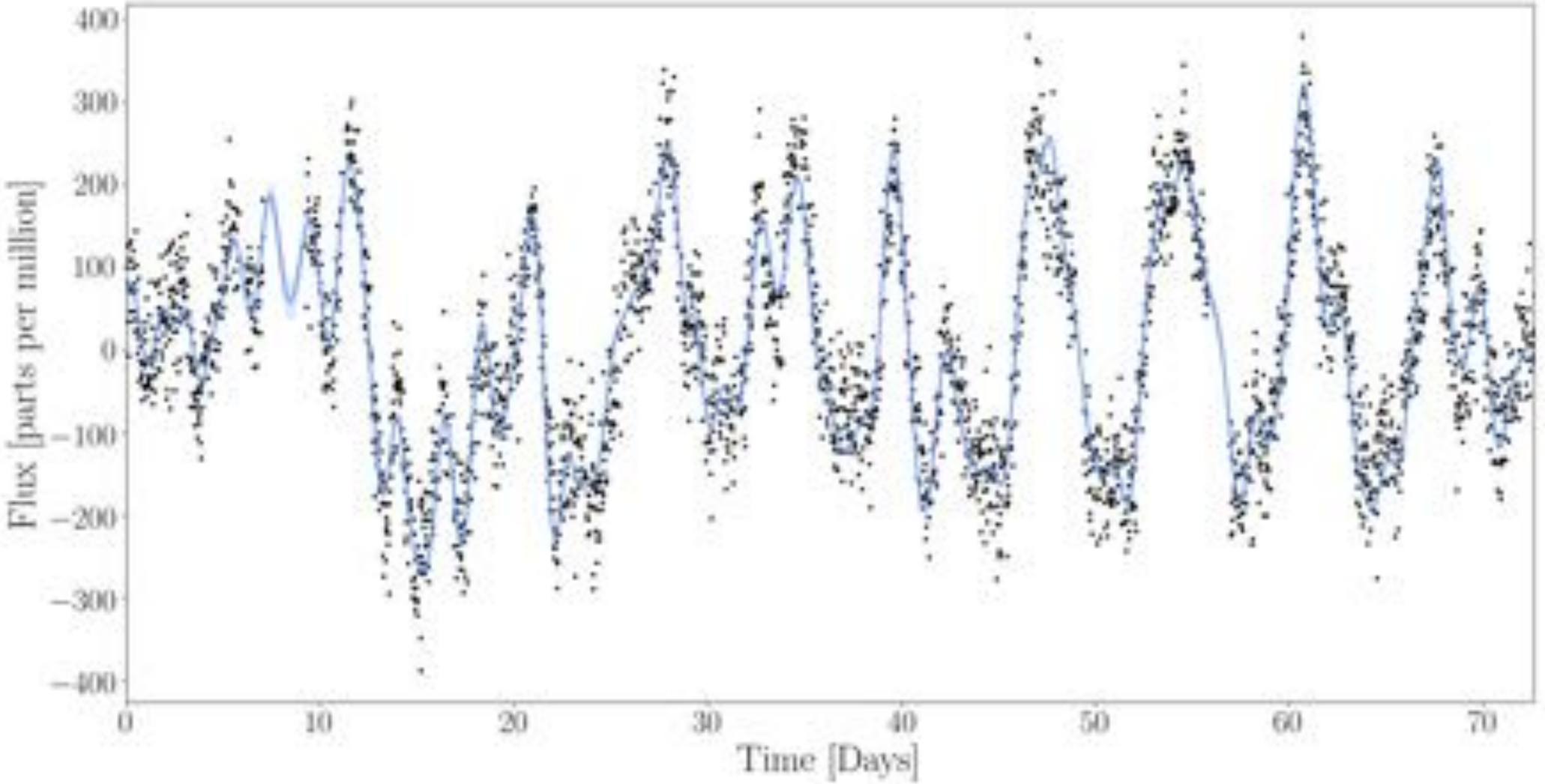

Brightness
Time

Real data: a Kepler light curve

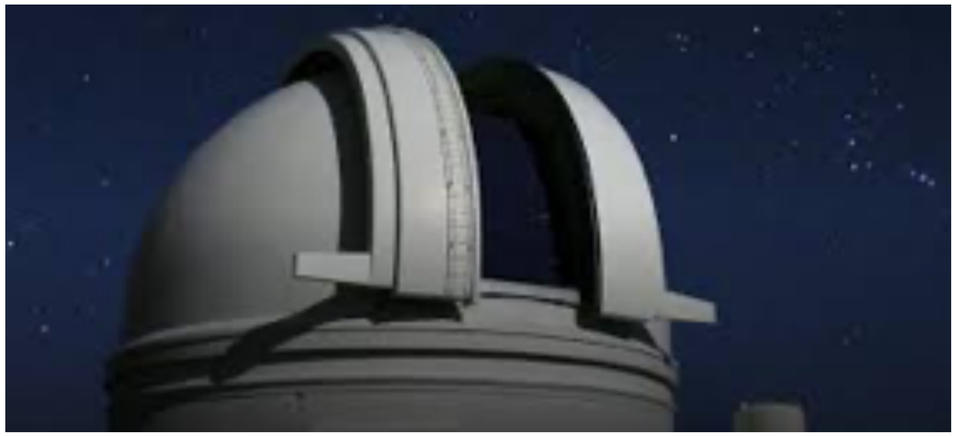



Relative overall image brightness
0.03
0.02
0.01
0.00
−0.01
−0.02
−0.03
0
2
4
6
8
10
Time (seconds)

Tools: Gaussian processes

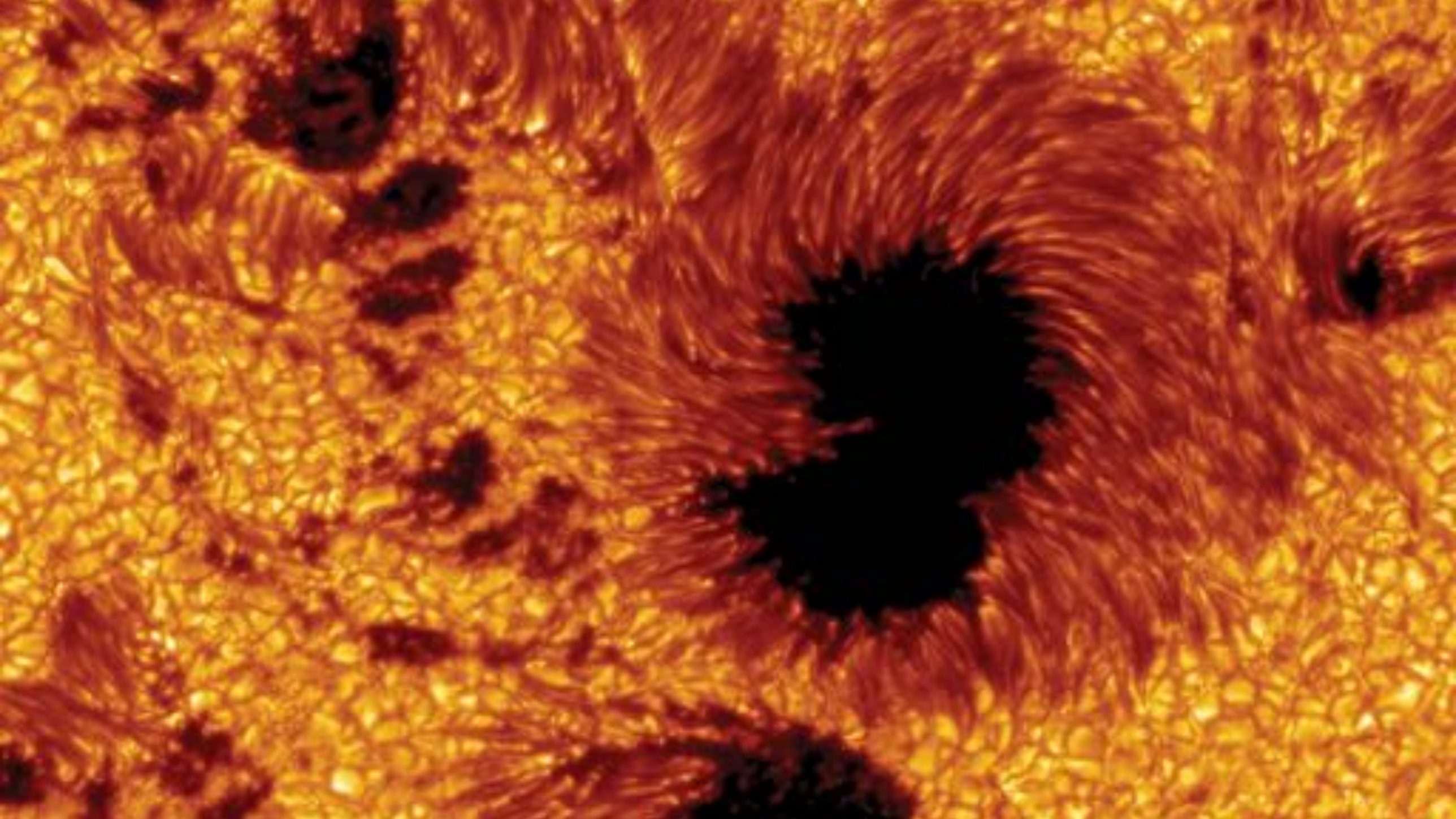


The future of stellar rotation: massive, ground-based surveys



ZTF

Vera C. Rubin Observatory



The project:

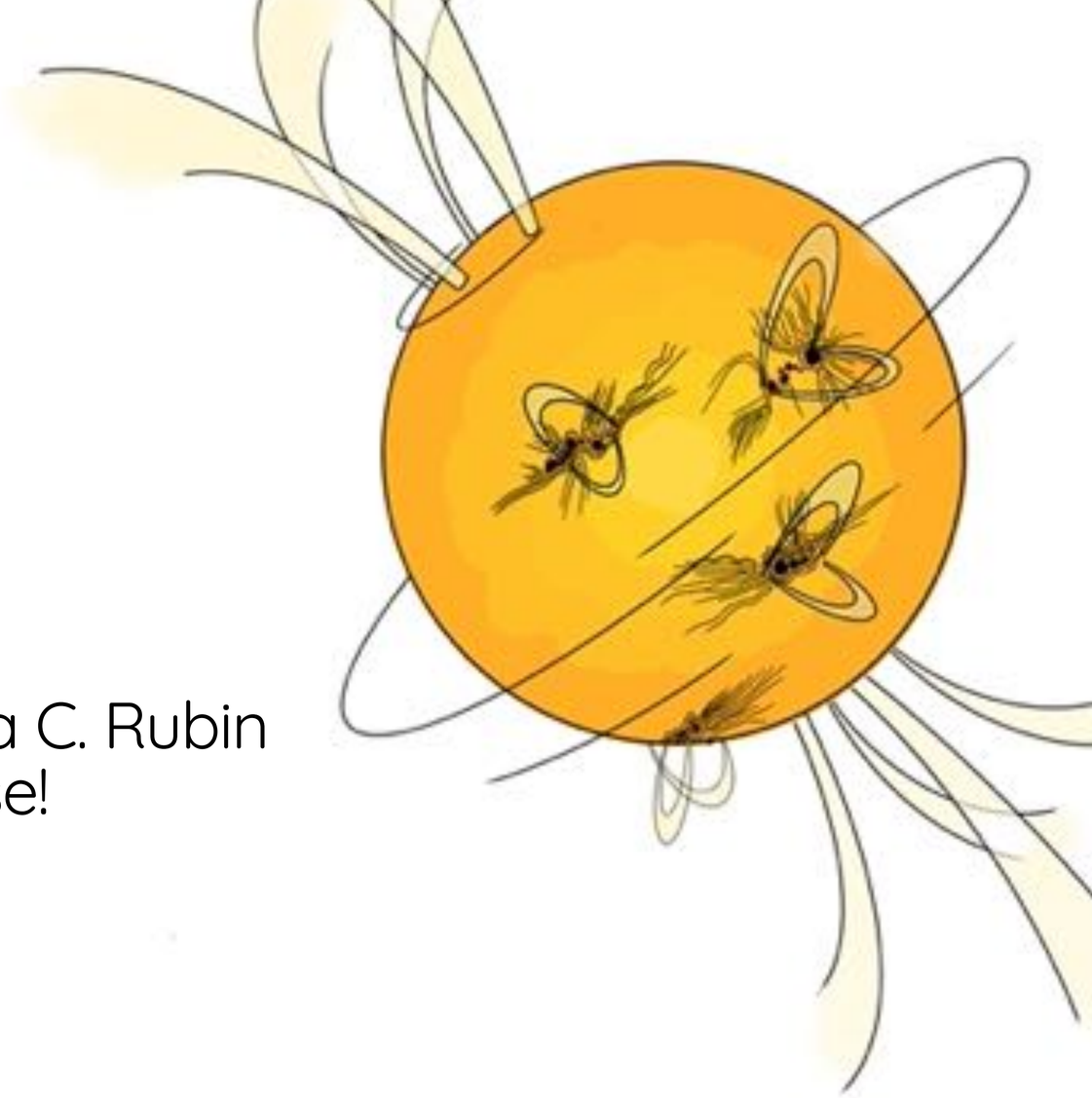
Measuring rotation periods of stars from multi-band ZTF light curves, to reveal the rotational evolution of stars, the evolution of the Galaxy, and the temperatures of star spots.

What you'll learn:

Stellar astronomy, machine learning, stats, Gaussian processes, time-series analysis, software development.

Bonus:

You'll be ready to work with data from the Vera C. Rubin Observatory in time for LSST's first data release!



Interested in theater? Let’s talk!