

The first data scientist

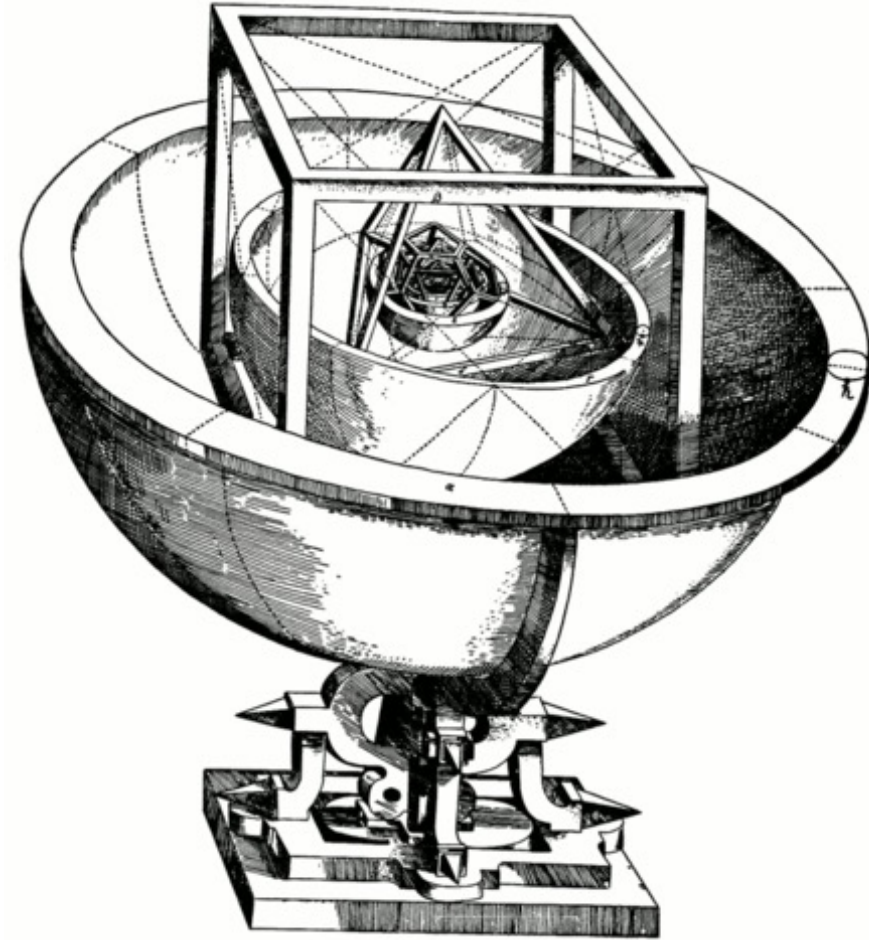
DS2000: Programming with Data



Johannes Kepler



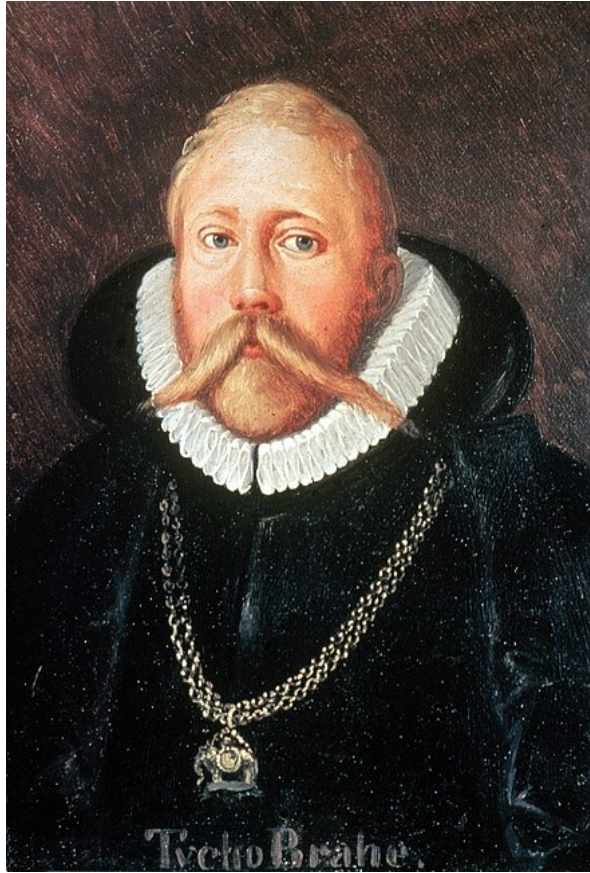
Johannes Kepler
1571 - 1630



Mysterium Cosmographicum (1596)



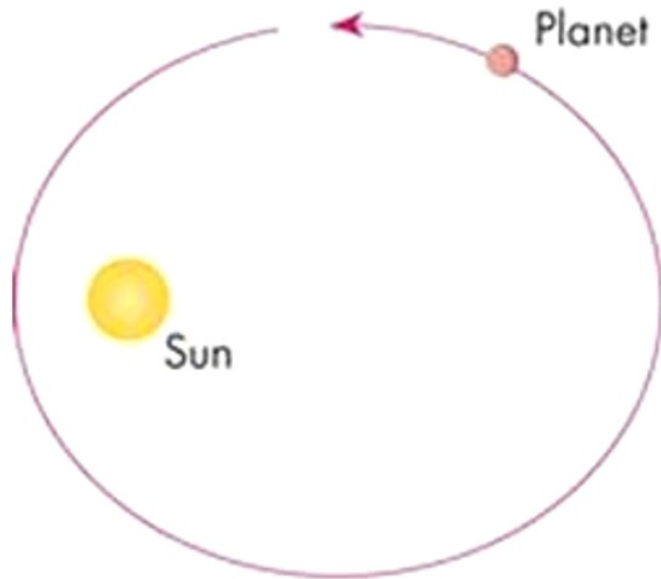
Collaboration with Tycho Brahe



Tycho Brahe
1546-1601

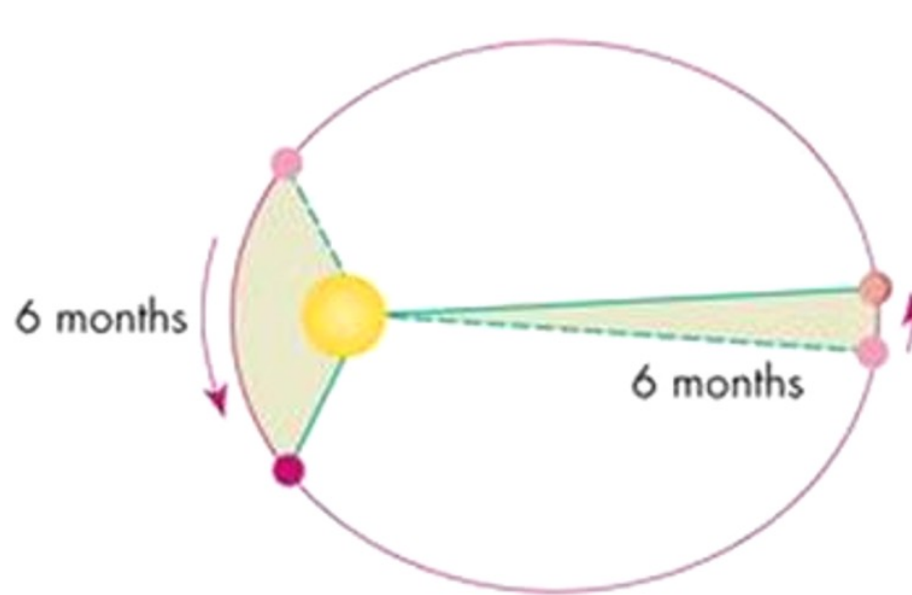


Kepler's Three Laws of Planetary Motion



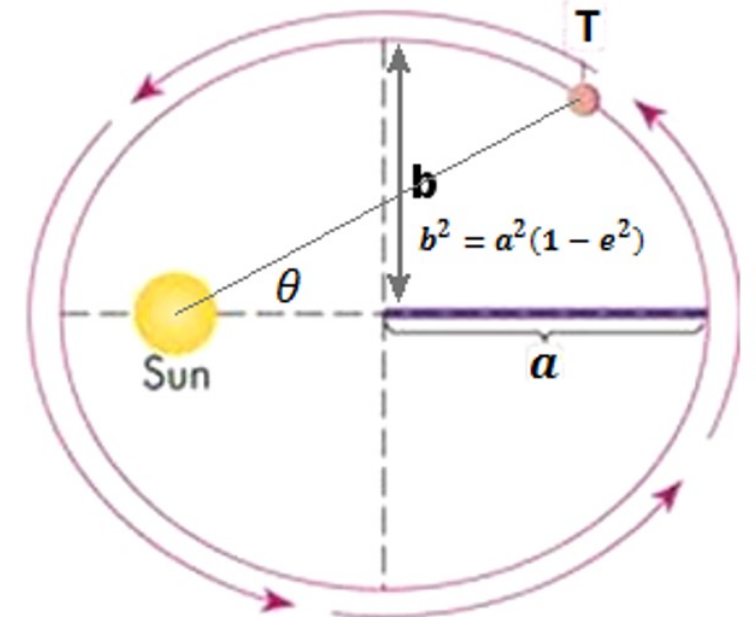
(1)

The orbits are ellipses



(2)

Equal areas in equal time



(3)

$T^2 \propto a^3$ T = time to complete orbit
 a = semi-major axis



Exoplanet detection: (Radial Velocity Method)

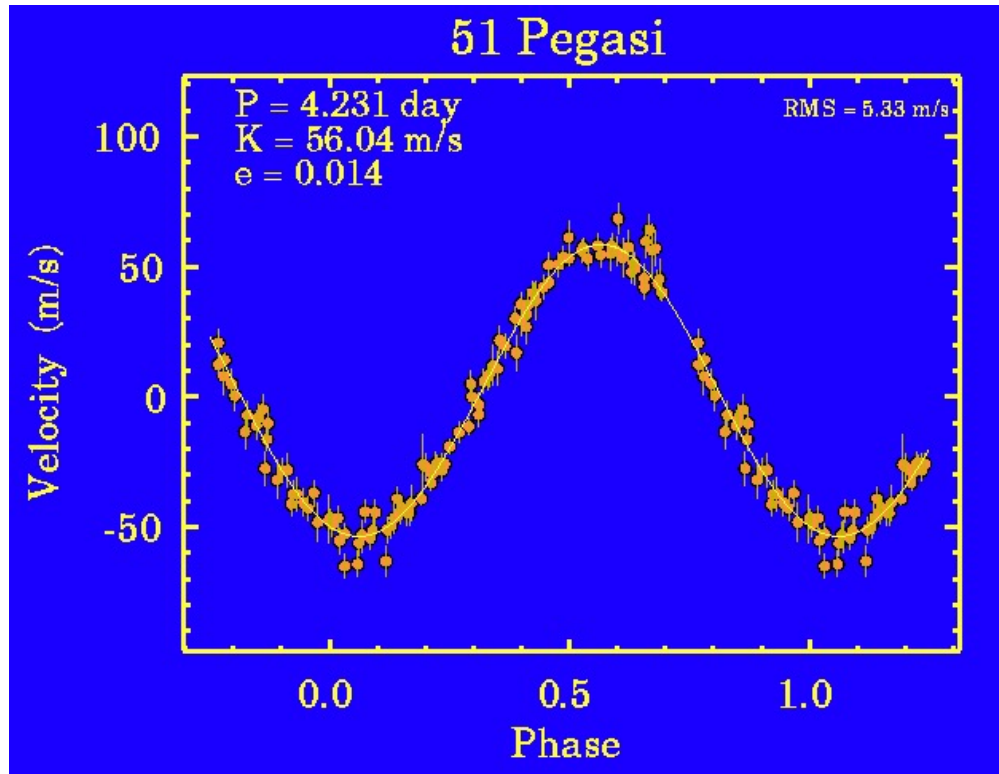
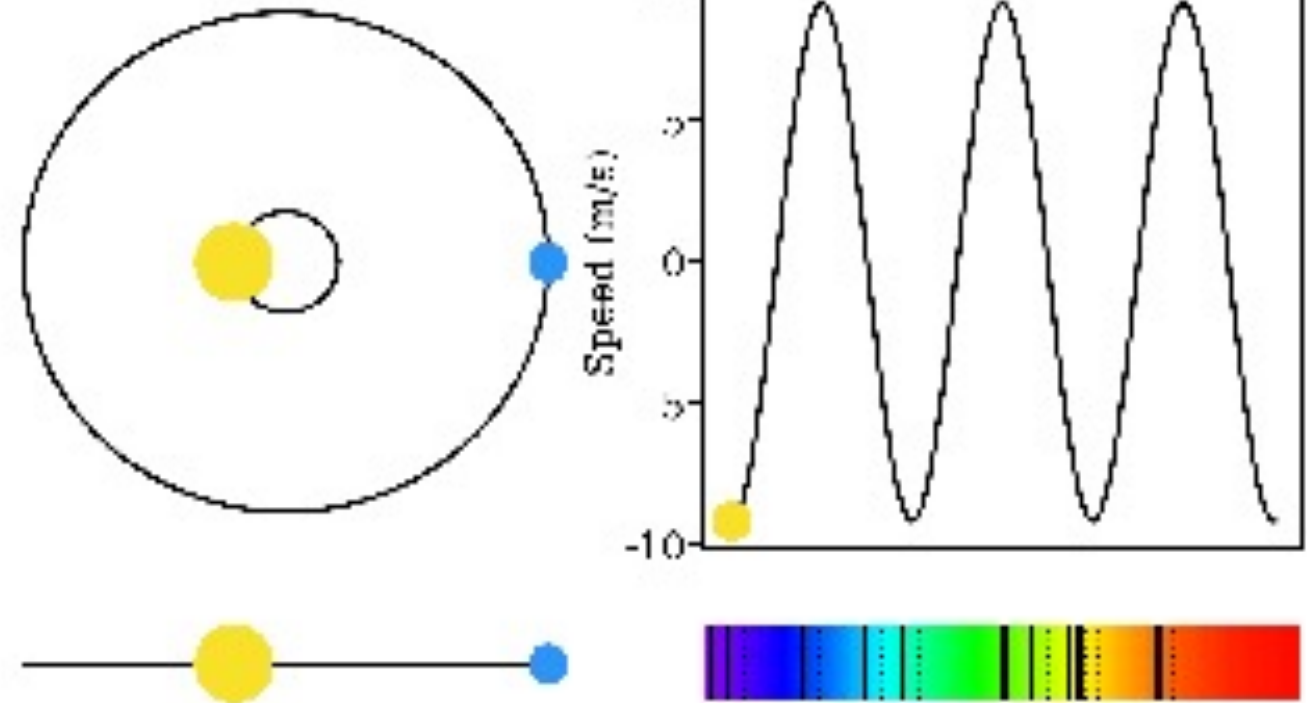
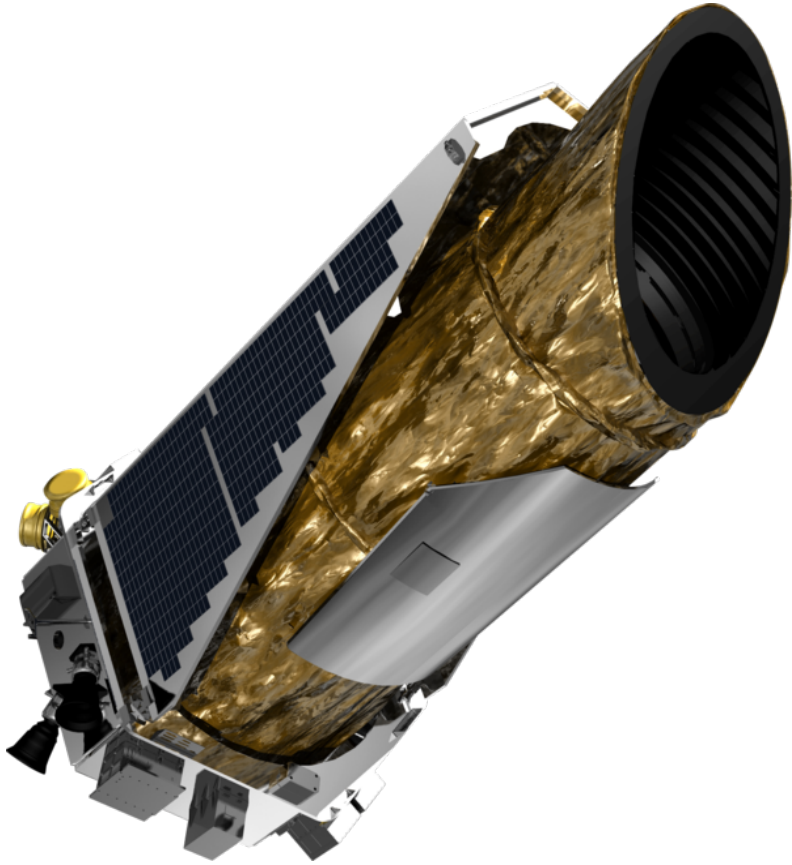


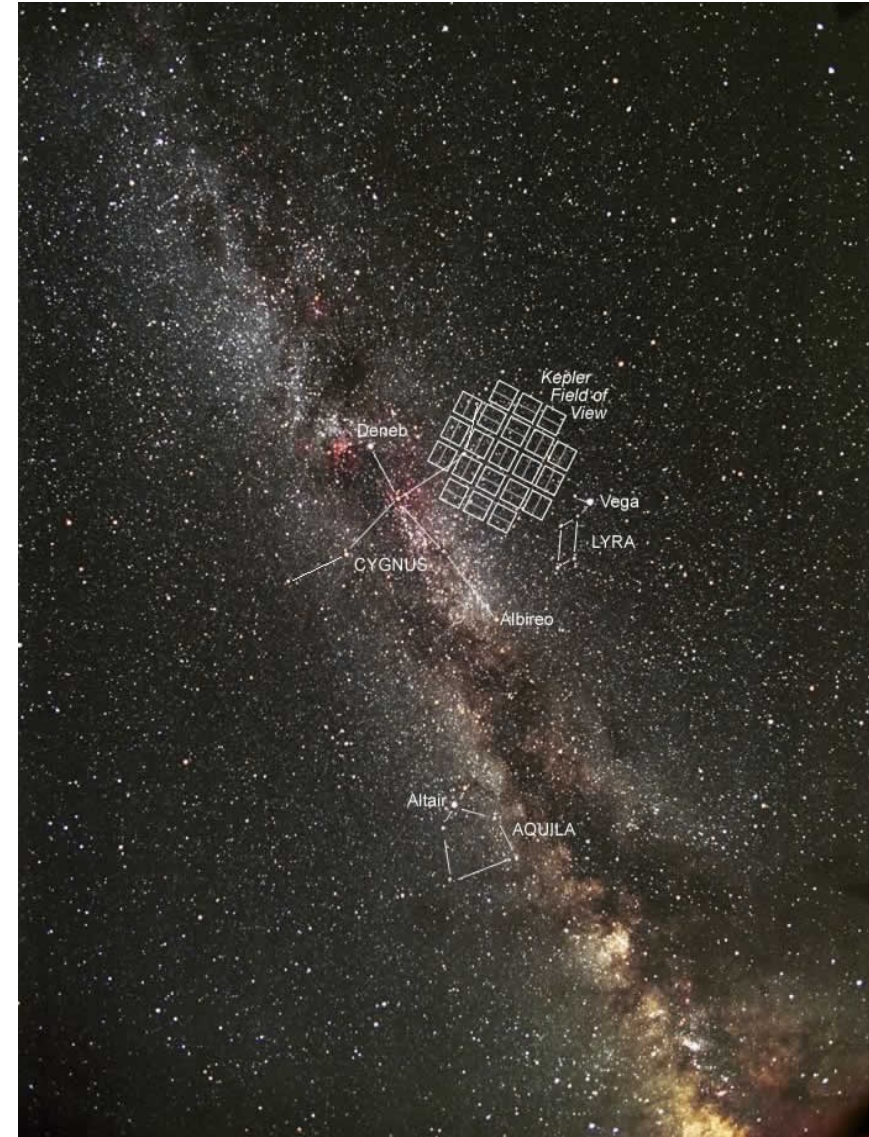
Figure 1: Diagram illustrating the radial velocity method for exoplanet detection.



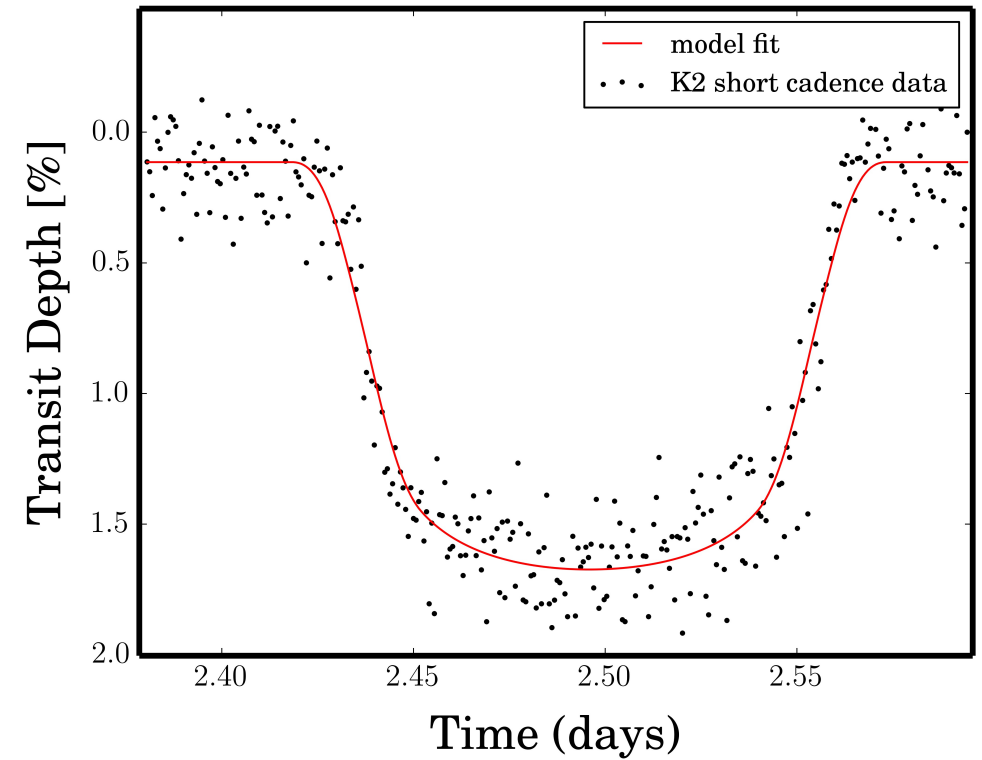
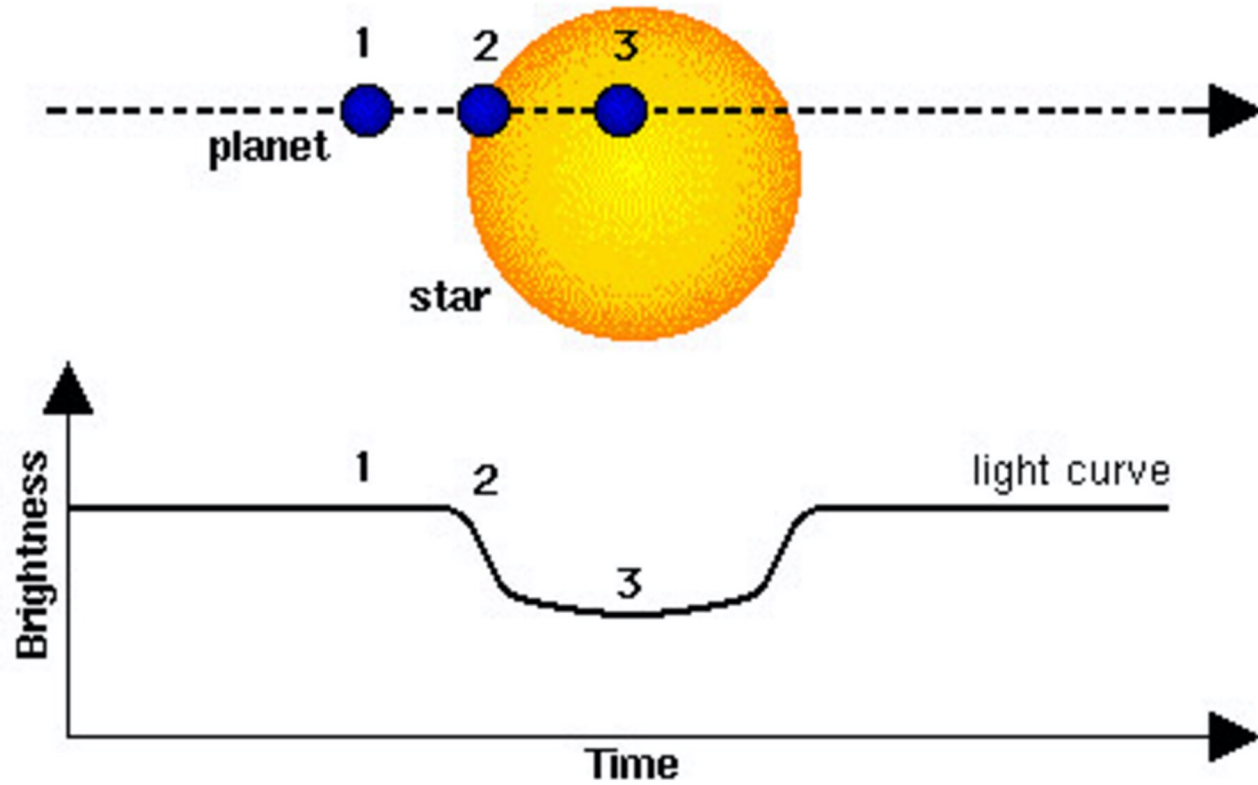
The Kepler Mission



The Kepler Spacecraft
2009 - 2018



Exoplanet Detection (Transit Method)



Data source: Open Exoplanet Catalog



Open Exoplanet Catalogue

The Open Exoplanet Catalogue is an open source database of all discovered extrasolar planets.

<http://openexoplanetcatalogue.com>

File source:

https://github.com/OpenExoplanetCatalogue/oec_tables/tree/master/comma_separated

Other data sources:

[NASA Exoplanet Archive](#)

[The Extrasolar Planets Encyclopaedia](#)

[The Exoplanet Orbit Database](#)

