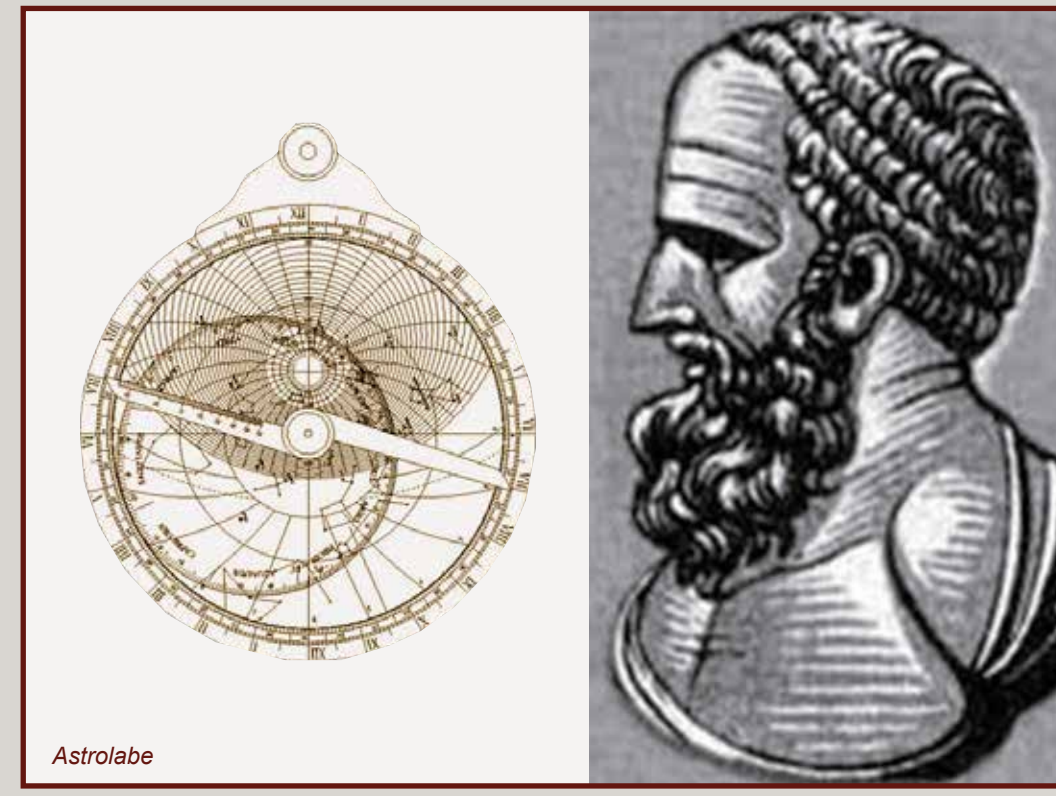


The conquest of the sky

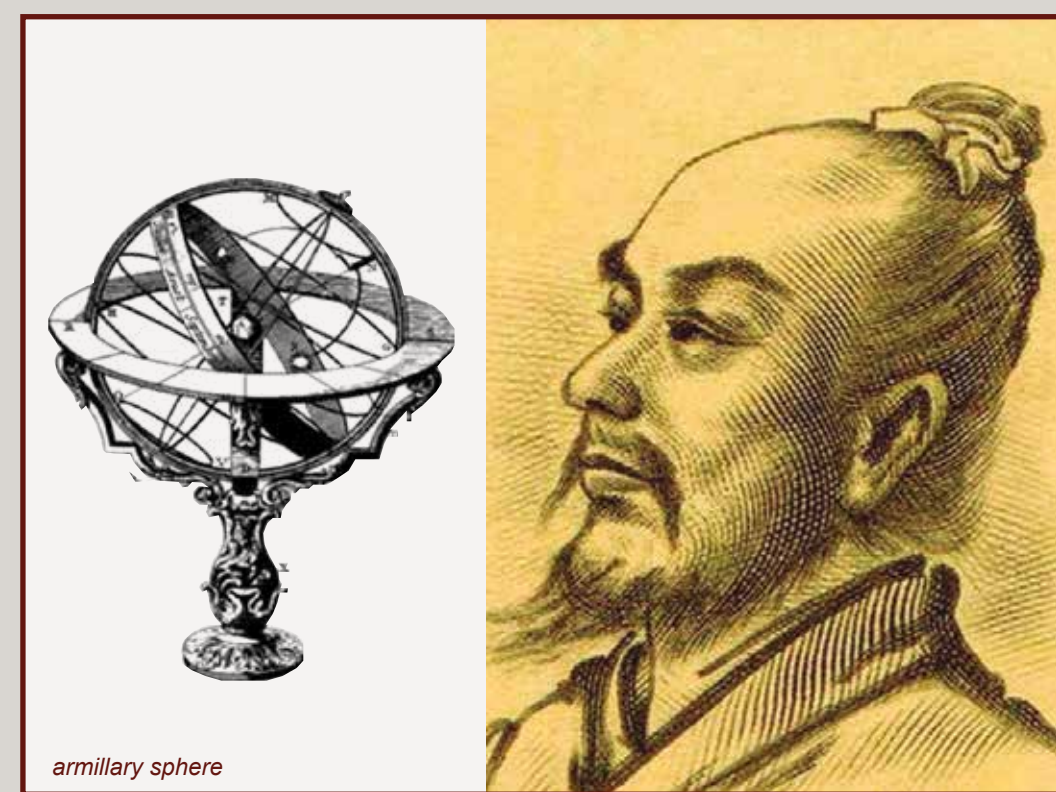
Ancient civilizations already knew that heavenly bodies move regularly and their observation could settle practical problems like setting the optimal dates for sowing and harvesting. This marked the beginning of astrometry, the branch of astronomy in charge of studying the positions and movements of stars.

300 BC First star catalogues in China and Egypt.



Hipparchus of Nicaea compiled a catalogue of 1080 stars with a positional accuracy of 1 degree.

150 BC



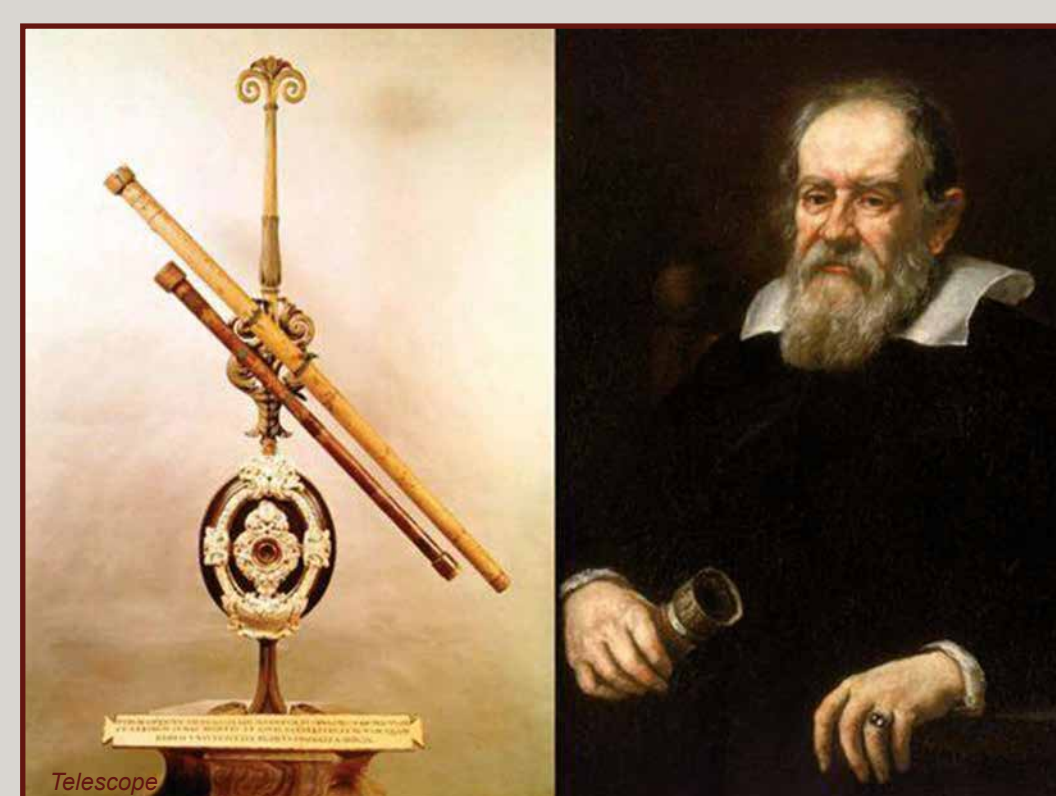
Zhang Heng built the first water-powered equatorial armillary sphere that was connected to a water-clock (clepsydra) to improve the measuring accuracy.

2nd century



Tycho Brahe produced a catalogue with an accuracy of 1 arcminute, the limit of the human eye.

16th century



Using a telescope for the first time Galileo Galilei achieved arcsecond accuracies.

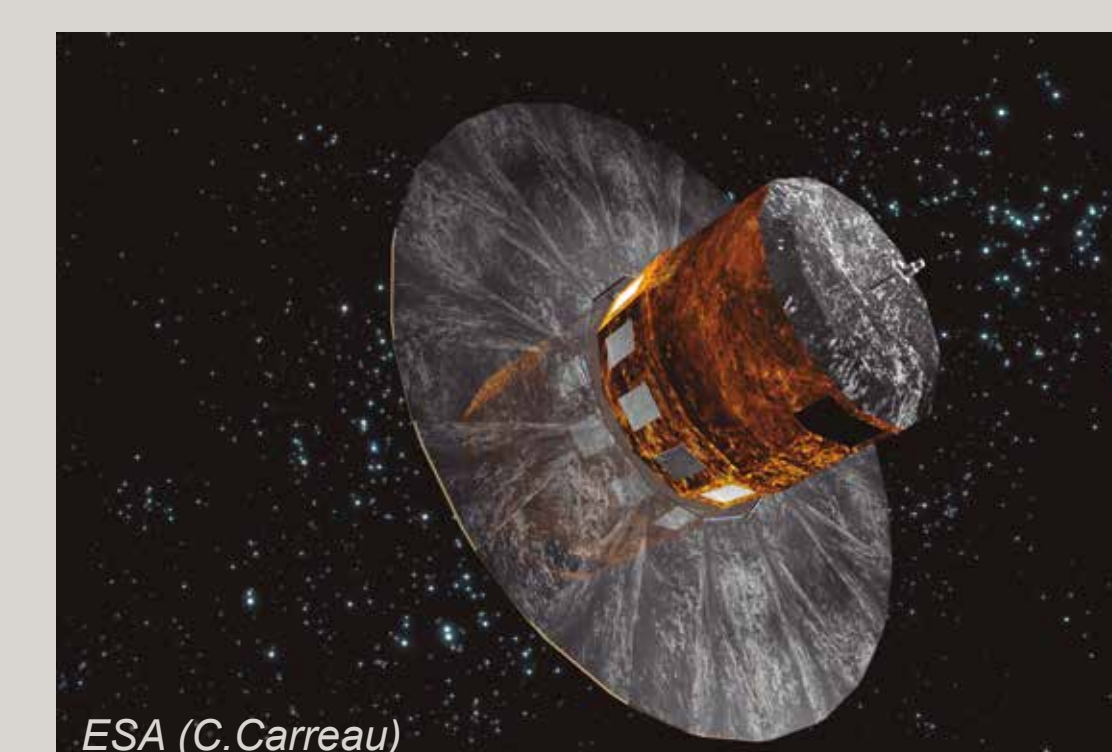
17th century

The Hipparcos satellite (ESA 1989-1993) achieved milliarcsecond accuracies for 120,000 stars. Hipparcos data revolutionized most fields of astrophysics.



1989-1993

Gaia will achieve up to microarcsecond accuracies for a total of one billion stars.



2013-2019



Oldest known sky map of the northern hemisphere (Tang dynasty, China 649-684). Dunhuang manuscripts (<http://idp.bl.uk>)

Gaia is able to discern a butterfly on the Moon as seen from Earth.

The accuracy of Hipparcos corresponded to the angular size of an elephant on the Moon as seen from Earth.

The full Moon on the sky measures about half a degree.

