

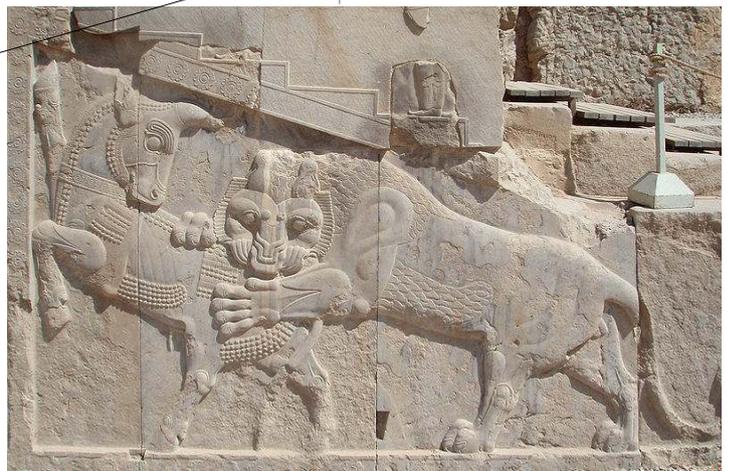
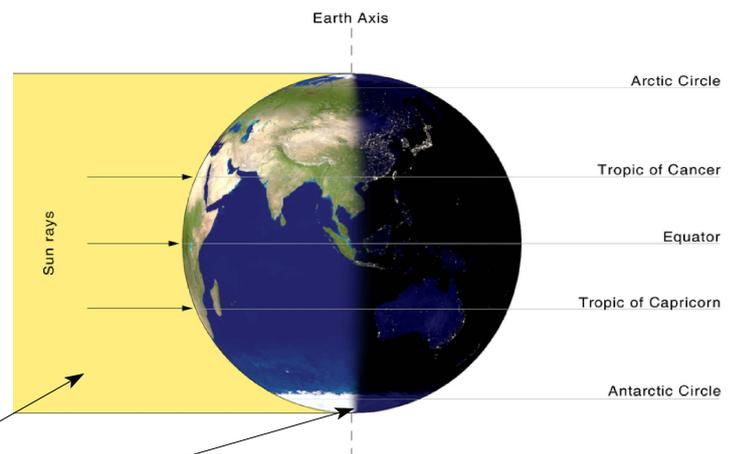
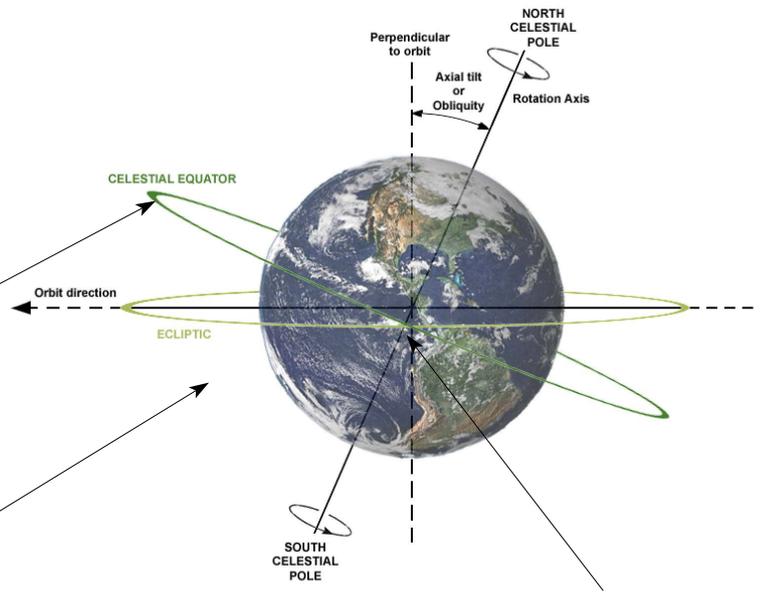
THE MARCH EQUINOX, AND THE FIRST POINT OF ARIES

An equinox occurs twice a year (around 20 March and 22 September), when the plane of Earth's equator passes the centre of the Sun. At this time the tilt of the Earth's axis is inclined neither away from nor towards the Sun. The term equinox can also be used in a broader sense, meaning the date when such a passage happens. The name "equinox" is derived from the Latin *aequus* (equal) and *nox* (night), because around the equinox, night and day are about equal length or, saying it another way, the night on both sides of the equator is of the same length.

At an equinox the Sun is at one of two opposite points on the celestial sphere where the celestial equator (i.e. declination 0) and ecliptic intersect. These points of intersection are called equinoctial points: classically, the vernal point (RA = 00h 00m 00s and longitude = 0°) and the autumnal point (RA = 12h 00m 00s and longitude = 180°). By extension, the term equinox may denote an equinoctial point.

The equinoxes are the only times when the subsolar point (the place on Earth's surface where the center of the Sun is exactly overhead) is on the Equator. The subsolar point crosses the Equator moving northward at the March equinox and moving southward at the September equinox. (Since the sun's ecliptic latitude isn't exactly zero it is not exactly above the equator at the moment of the equinox, but the two events usually occur less than 30 seconds apart.)

The equinoxes are also the only times when the terminator is perpendicular to Earth's equator. Thus the Northern and Southern hemispheres are illuminated equally. (At the solstices, that angle reaches its minimum of 66.5°, corresponding to 90° minus Earth's axial tilt).



Bas-relief in Persepolis – a symbol Iranian/Persian Nowruz – on the day of an equinox, the power of an eternally fighting bull (personifying the Earth) and that of a lion (personifying the Sun) are equal.



Gaius Julius Caesar, 100 BC – 44 BC) was a Roman general, statesman, Consul, and notable author of Latin prose

When Julius Caesar established his calendar in 45 BC he set 25 March as the spring equinox. Since a Julian year (365.25 days) is slightly longer than an actual year the calendar drifted with respect to the equinox, such that the equinox was occurring on about 21 March in AD 300 and by AD 1500 it had reached 11 March. This drift induced Pope Gregory XIII to create a modern Gregorian calendar. The Pope wanted to restore the edicts concerning the date of Easter of the Council of Nicaea of AD 325. (Incidentally, the date of Easter itself is fixed by an approximation of lunar cycles used in the Hebraic calendar.) So the shift in the date of the equinox that occurred between the 4th and the 16th centuries was annulled with the Gregorian calendar, but nothing was done for the first four centuries of the Julian calendar. The days of 29 February of the years AD 100, AD 200, AD 300, and the day created by the

