

Spring and Neap tides

Spring and neap tides are dictated by the phase of the moon.



The phases of the Moon have been given the following names, which are listed in sequential order:

Phase	Northern Hemisphere	Southern Hemisphere
Darkened Moon	Not visible	Not visible
New Moon	Not visible, or traditionally, the first visible crescent of the Moon	
Waxing Crescent Moon	Right 1-49% visible	Left 1-49% visible
First Quarter Moon	Right 50% visible	Left 50% visible
Waxing gibbous Moon	Right 51-99% visible	Left 51-99% visible
Full Moon	Fully visible	Fully visible
Waning gibbous Moon	Left 51-99% visible	Right 51-99% visible
Last Quarter Moon	Left 50% visible	Right 50% visible
Waning Crescent Moon	Left 1-49% visible	Right 1-49% visible

The lunar phase depends on the Moon's position in orbit around the Earth, and the Earth's position in orbit around the sun. This diagram looks down on Earth from north. Earth's rotation and the Moon's orbit are both counter-clockwise here. Sunlight is coming in from the right, as indicated by the yellow arrows. From this diagram we can see, for example, that the full moon will always rise at sunset, and that the waning crescent moon is high overhead around 09:00 hrs local time.

Tides

A tide is a repeated cycle of sea level changes in the following stages:

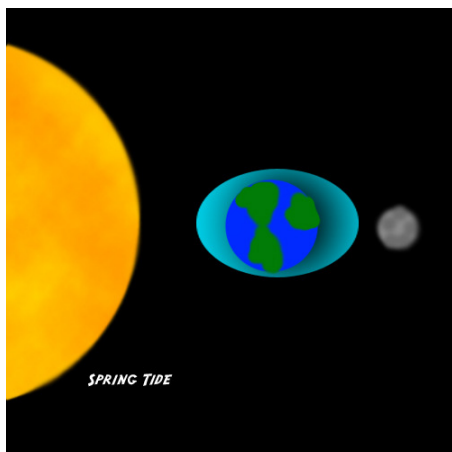
Over several hours the water rises or advances up a beach in the flood. The water reaches its highest level and stops at high water. Because tidal currents cease this is also called slack water or slack tide. The tide reverses direction and is said to be turning.

The sea level recedes or falls over several hours during the ebb tide.

The level stops falling at low water. This point is also described as slack or turning.

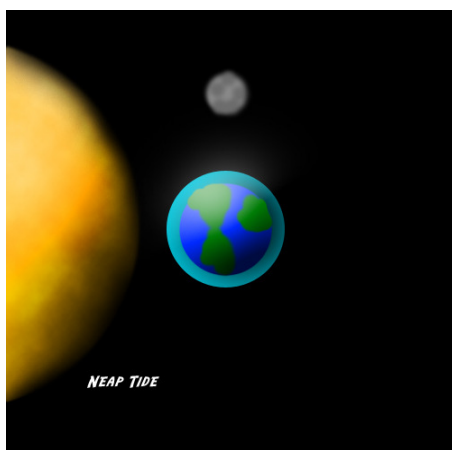
Tides may be semidiurnal (two high waters and two low waters each day), or diurnal (one tidal cycle per day). In most locations, tides are semidiurnal. Because of the diurnal contribution, there is a difference in height (the daily inequality) between the two high waters on a given day; these are differentiated as the higher high water and the lower high water in tide tables. Similarly, the two low waters each day are referred to as the higher low water and the lower low water. The daily inequality changes with time and is generally small when the Moon is over the equator.

Spring Tide



When the astronomical bodies (Sun, Earth and moon) are in line we have spring tides in which the difference between high and low tide is the greatest. In the sky this is indicated to us by a full moon where the moon is on the opposite side of the earth from the sun. More precisely, a full moon occurs when the geocentric apparent longitudes of the sun and moon differ by 180 degrees; the moon is then in opposition with the sun. We also get spring tides when we have new moon which occurs when the Moon lies between Earth and the Sun, and is therefore in conjunction with the Sun as seen from Earth. In these cases, their collective

gravitational pull on the Earth's water is strengthened.



Neap tides come twice a month in the first and third quarters of the moon. They occur when the astronomical bodies are perpendicular to each other from the earth. They are tides that occur when the difference between high and low tide is least; the lowest level of high tide.

Ref: *Wikipedia and the free dictionary by farlex.*

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