

Spring Is Here!

By: Germán Morales Chávez

This Tuesday, **September 22 at 09:32,¹** spring begins in the southern hemisphere and autumn in the north.

This is so because, this **Tuesday 22**, the Sun in its apparent movement in the celestial sphere, will cross the Celestial Equator, passing from the northern hemisphere to the southern hemisphere; this instant is called the equinox (the other equinox occurs in March, when the Sun travels from the southern hemisphere to the north). The term derives from the Latin words *aequus noctis* (*aequinoctium*); this denomination is due to the fact that while the Sun is on the equator, the time it will be on the horizon is the same as below it (for the whole planet). In simple words, the duration of the day is equal (*aequus*) to that of the night (*nox* -the genitive in singular is *noctis*-).

There are those who think that these moments: equinoxes and solstices, should be markers of the middle moment of the seasons and not of the beginning. However, this is not the case, since the thermal response lags behind these moments, which is due to the fact that the thermal inertia of the water masses and the behaviour of the currents (both maritime and air, which are related) determine that the effects of solar radiation variation take time to become effective. Of course, these variations also depend on other microclimate factors of a certain region, due to the height above sea level, latitude, mountain ranges, proximity to a body of water, etc.²

As a curious fact, it is very common to see people celebrate the beginning of spring (In the southern hemisphere) on September 21, however, the spring equinox does not fall on that date, it happens around the 22nd or sometimes on the 23rd of September. On the other hand, the seasons do not have the same duration, although in round numbers, each of them lasts 3 months, but, due to the elliptical orbit of the Earth, which implies a variation in the speed of its movement



Fig. 1 By the last weeks of winter (late August / early September), the city of Cochabamba begins to wake up with Ceibo and Jacarandá trees decorating its streets (and, of course, the countryside as well). This really makes spring worth looking forward to and enjoying the exuberance and finery of nature. Like this white Jacaranda tree, that can be seen blooming every year at Centro "Simón Patiño".

(Photograph taken in September 2019 by the author of this article).

¹This corresponds to 1:32 p.m. in Coordinated Universal Time. For example: 10:32 in Argentina, 10:32 in Chile, 08:32 in Peru, 08:32 in Ecuador, ...

²We have commented on this in some of the previous articles on this subject, published on our web pages.

around the Sun, the number of days for each season is different. Other earth movements, such as the precession of the equinoxes, will cause these durations to change over the millennia.

For example, for our epoch, winter in our hemisphere (southern hemisphere) lasts about 4 days longer than our spring lasts. Is that the reason why people look forward to the flower season? Jokes aside, each season offers the pleasure of enjoying the various facets of nature and the conditions in which we have evolved and for which today we are adapted; however, the irrationality of the human being is altering this with consequences that can be catastrophic for our own species.

For now, let's celebrate the September equinox! Happy spring / fall to our friends in the southern / northern hemisphere respectively.

In addition, we take the opportunity to greet and thank all the people who have written to us over these years with such kind comments and support for our astronomical activity and especially this series of informative articles. Sometimes it is not possible to answer all of them, but please know that it is an incentive to continue our tasks, and we greatly appreciate your words and expressions of enthusiasm and appreciation for our work.

Article published on September 20, penultimate day of winter

(Translated by: Micaela Morales)



Germán Morales / ASO, Cochabamba 2020/09/18

Other articles with more explanations and comments on the seasons, equinoxes and solstices:

(written in Spanish, yet)

<http://www.astronomia.org.bo/astro/278-SolsticioJunio.pdf>

<http://www.astronomia.org.bo/astro/265-EquinoccioMarzo.pdf>

<http://www.astronomia.org.bo/astro/254-SolsticioInviero.pdf>

<http://www.astronomia.org.bo/astro/250-EquinoccioOtono.pdf>

<http://www.astronomia.org.bo/astro/246-Primavera.pdf>