

Playa Events for the Watchless Adventurer

Introduction

Burners without Timepieces

August 10, 2014

Time has existed since before the watch or clock was invented. Time originally was measured in the intervals during which the Earth would spin on its axis (the day), revolve around the Sun (the year), and the time it takes the Moon to go around the Earth (the month). With the sundial came the further division of the day into hours, and with water clocks, candle clocks, and eventually the hourglass came minutes.

The rise of the second comes with the invention of the pendulum clock. A unit of time so small as to become practically divorced from the fact that it is a subdivision of the minute, which is a subdivision of the hour, which itself is a subdivision of the day.

In 1967 the second lost its definition as an integral subdivision of a day and instead has become the duration of 9,192,631,770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium 133 atom at a rest temperature of 0 K. There is even talk of redefining the day itself to be tied not to the natural rotation of the Earth, but to the definition of a second, eliminating the last tie to our most fundamental clock: the sky.

Burning Man is a lot of things to a lot of people. I invite you to experience part of what Burning Man means for me. It means a time to get away from seconds, minutes, even hours and to use the sky to mark the passing of time. One thing which has always interfered with this experience, for me, was trying to get to a specific event from the event guide without carrying a watch. I have therefore created an event guide which replaces standard times with times that can be derived from the positions of the stars and the Sun.

1 Daytime Events

The daytime is all about the Sun, however looking directly at the Sun is dangerous, and can be disorienting. The easiest way to tell time is to use a Sundial, but who wants to carry that around? Instead use your body as the sundial and your shadow becomes the clock. This event guide divides the day into the following categories:

- *morning twiling*
- *sunrise*
- *when the Sun is low in the morning sky*
- *in the morning when your shadow's length is twice your height*
- *before midday when your shadow's length is equal to your height*
- *before midday when your shadow's length is half your height*
- *when the Sun is overhead*
- *after midday when your shadow's length is half your height*
- *after midday when your shadow's length is equal to your height*
- *in the evening when your shadow's length is twice your height*
- *when the Sun is low in the evening sky*

- *sunset*
- *evening twilight*

This divides the day into 13 intervals, which is a pretty good division of the day into units nearly equivalent to hours. Many of these depend on measuring your shadow relative to your own height. We owe a debt of gratitude to the Greek philosopher and mathematician Thales who discovered that these ratios (an object's height to the length of its shadow) remained constant for all sized objects at a particular time of day. It takes some practice estimating the length of your shadow, especially finding when your shadow is twice your height.

2 Evening Events

Evening events can be a little more challenging as we are generally less familiar with the night sky than our ancestors due to light pollution. This guide relies on several bright objects to help you figure out the time of night. It can be useful to look for these before going to Burning Man in order to prepare.

2.1 The Moon

The Moon is a great object by which to tell time, however it will be New Moon at the beginning of Burning Man this year, meaning the Moon will only start to become a landmark around the time of the burn. When it does start to show later in the week it will be low in the west after sunrise.

2.2 Summer Triangle

The summer triangle is made up of three very bright stars which tend to be visible in the early evening of the Summer in the northern hemisphere. These stars are not part of one constellation, but form an asterism which can be easily identified in the night sky. The summer triangle is quite large, approximately 30 degrees along each leg of the triangle (roughly the width of three fists held at arms length).

During the week of Burning Man the Summer Triangle, shown in figure 1, is overhead and slightly to the East after sunset. The star Vega is directly overhead around 9pm. Altair is to the Southeast of Vega and Deneb is more directly East from Vega. By midnight the Summer Triangle is slightly to the west of overhead. The Summer Triangle will begin to set in the west around 4am.

2.3 Mars & Saturn

Mars and Saturn are about a hand-width apart in the southwest right after sunset. They will appear to be bright and potentially slightly reddish or yellowish. They will set in the west between 10 and 11pm at night and therefore only be of guidance in the early evening.

2.4 Orion

Night owls will notice Orion rising in the east around 3am. At that time the red star Betelgeuse will be on the left, the belt will point vertically upward in the middle, and the blue star Rigel will be on the right. Orion will guide you through until morning twilight, at which time it will be fairly high in the southeast.

2.5 Jupiter and Venus

About an hour or two before morning twilight, Jupiter will appear in the eastern sky. Followed an hour later by Venus. Jupiter will be very bright, but remain low in the sky until the Sun rises. Venus will not appear as bright as usual due to its appearance so soon before sunrise.

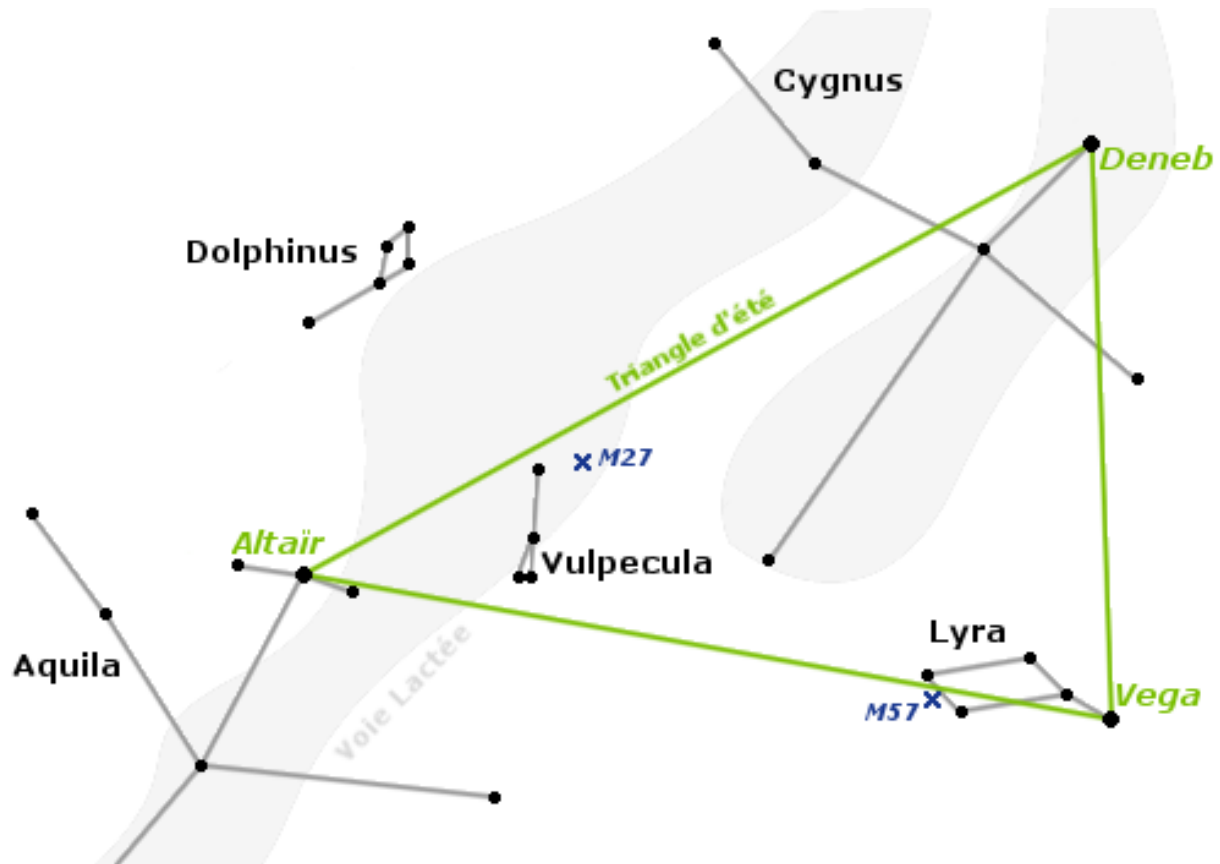


Figure 1: The Summer Triangle - "Triangle d'été Carte du ciel". Licensed under [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/) via [Wikimedia Commons](https://commons.wikimedia.org/wiki/File:Triangle_d'été_Carte_du_ciel).

3 Thank You

If you find this guide to be of use, or just amusing, please take a few minutes to tweet to the International Telecommunications Union (ITU) a short message urging them to keep the leap second in coordinated universal time. The leap second is the mechanism by which our measurement of the day is kept in line with the Earth's rotation. Leap seconds occur rarely (there have been 25 since 1972). There is an existing system of time measurement without leap seconds called TAI which does not include leap seconds.

The ITU's twitter account is [@ITU](https://twitter.com/ITU). To learn more about the leap second, visit the [Earth Orientation Center](https://www.earth-orientation.org/).