

# A Study on Yahuah's "Book of the Covenant" Calendar

Rightly Divide

the WORD

of

TRUTH



Determining the 2018 Spring Equinox

This study will attempt to answer a very important question:



How do we determine the spring equinox to then find the 1<sup>st</sup> day of the year on Covenant Calendar?



An equinox, sometimes called an even night, is commonly regarded as the moment when the plane (extended indefinitely in all directions) of **Earth's equator** passes through the **center of the Sun**, which occurs twice each year: around **20 March and 22–23 September**.

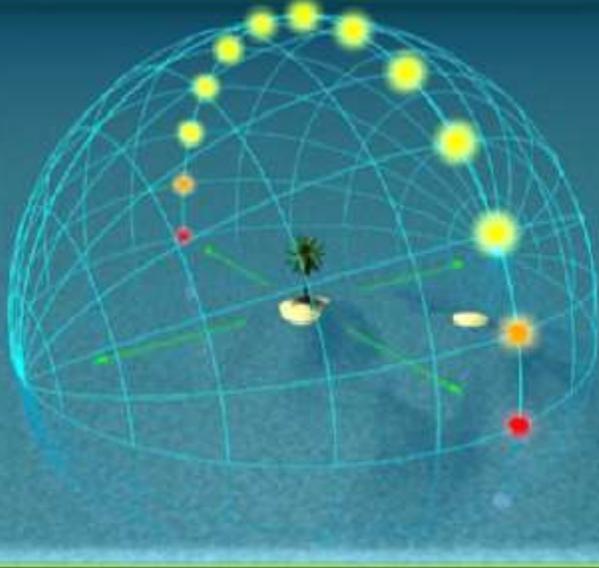
In other words, it is the point at which the center of the visible Sun is directly above the Equator.

**The Equator** of earth is an imaginary line/circle that divides the earth into two halves.

**Celestial pole:** the point on the celestial sphere directly above either of the earth's geographic poles, around which the stars and planets appear to rotate during the course of the night.

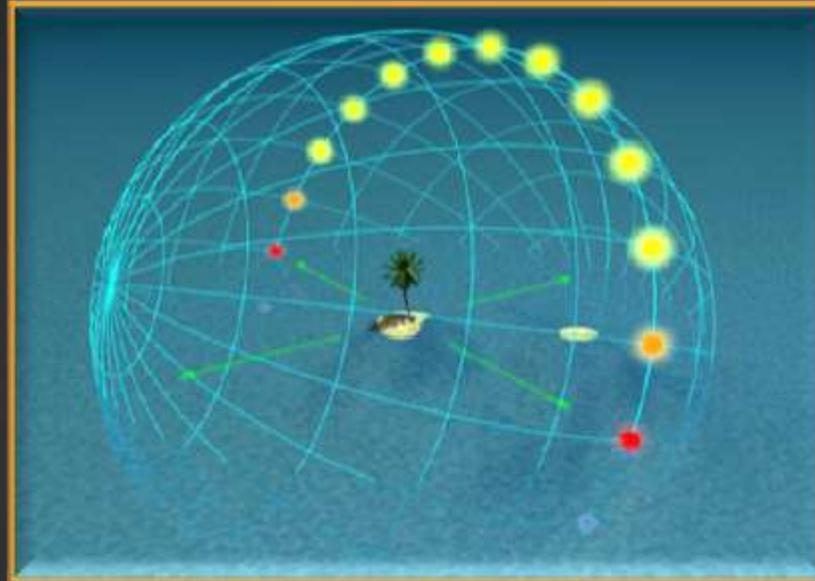
# APPEARANCE OF EQUATOR AT VARIOUS PLACES

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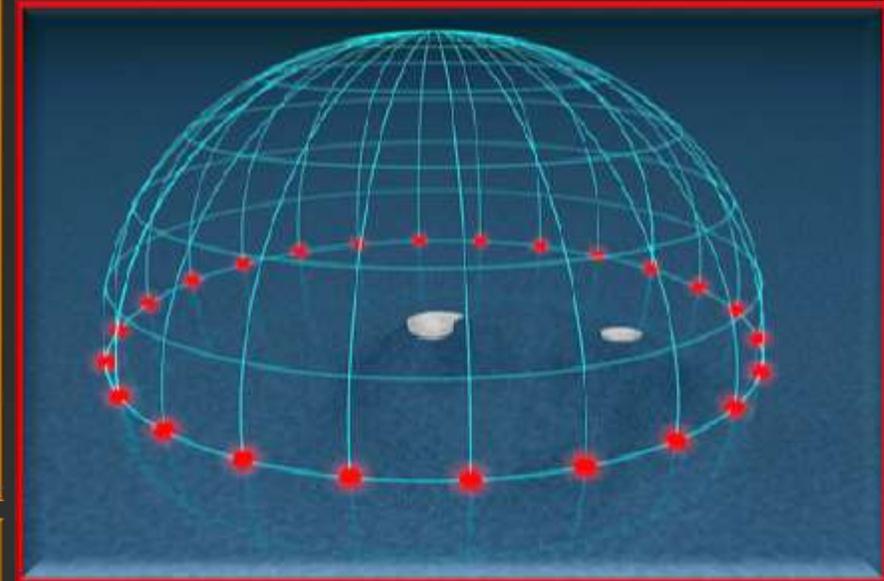
## Day arc at 0° latitude (equator)

The arc passes through the zenith, resulting in almost no shadows at high noon.



## Day arc at 20° latitude

The Sun culminates at 70° altitude and its path at sunrise and sunset occurs at a steep 70° angle to the horizon.

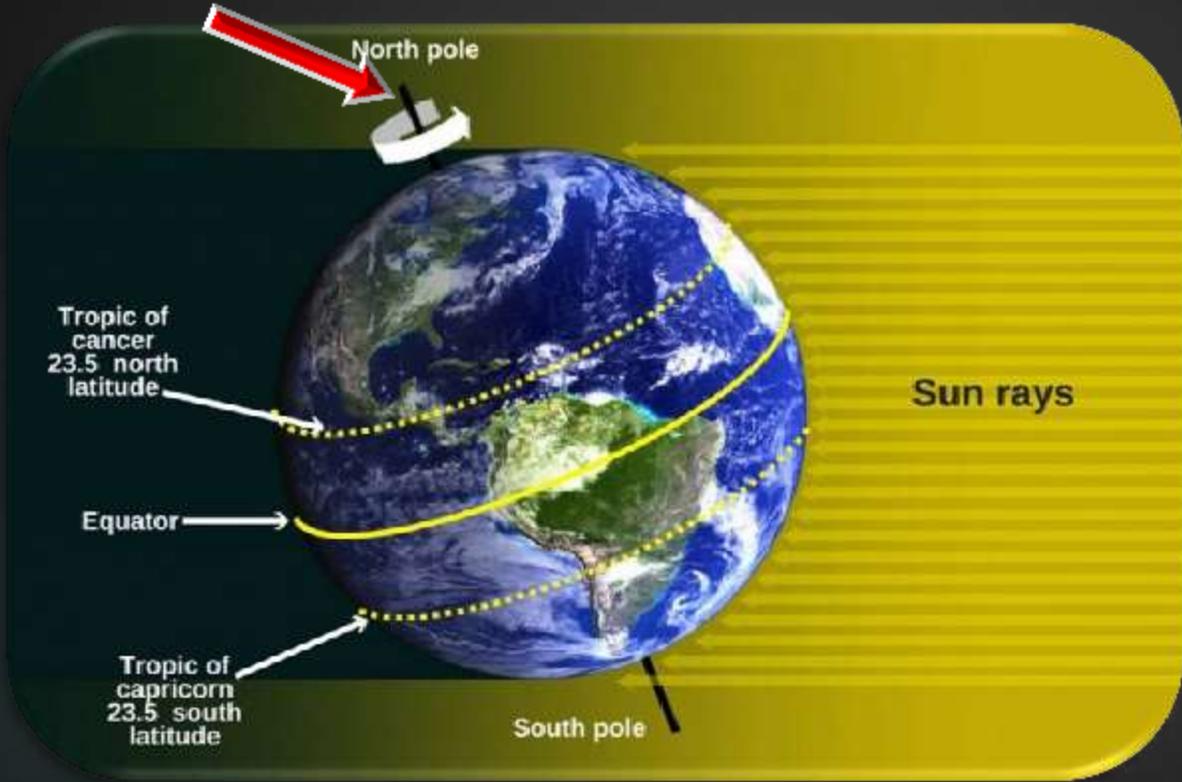


## Day arc at 90° latitude (pole)

If it were not for atmospheric refraction, the Sun would be on the horizon all the time.

# CELESTIAL POLE AND EQUATOR

## North Celestial Pole



## NORTH POLE STAR



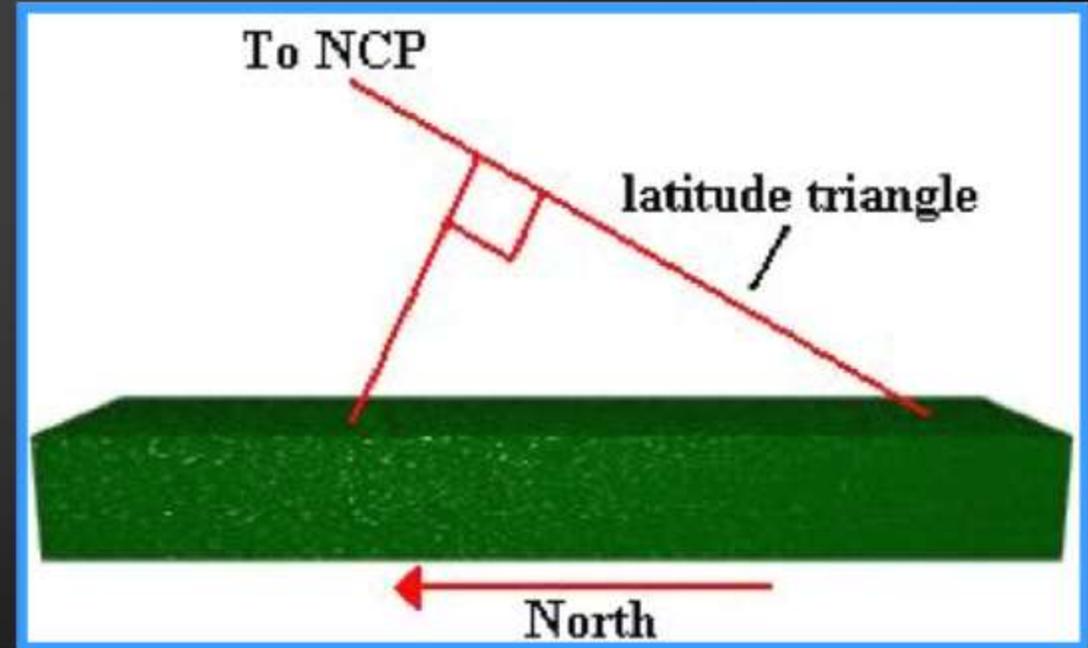
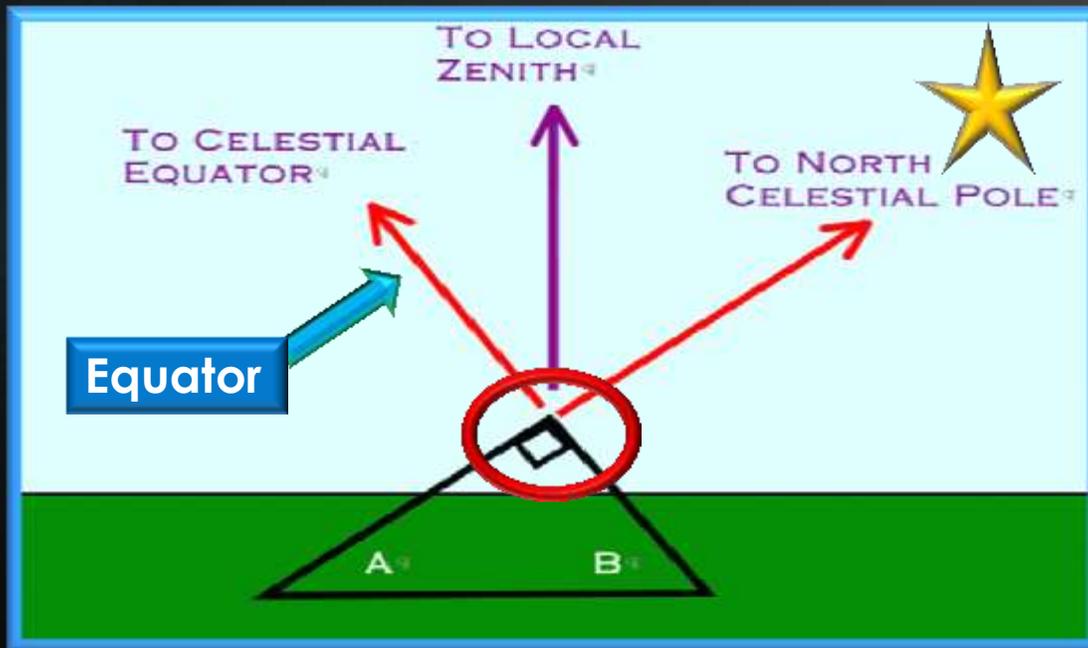
Many might wonder what's with this **celestial equator**. Was it discovered in ancient times ??

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People may or may not have figured out the **celestial equator** but one thing for sure is that **celestial equator** and north celestial pole are related .

In the night sky the North pole star would always be constant at particular place .  
So people would look to this star and construct an imaginary line as in the below figure .  
Using this north pole star, we can determine the equator.

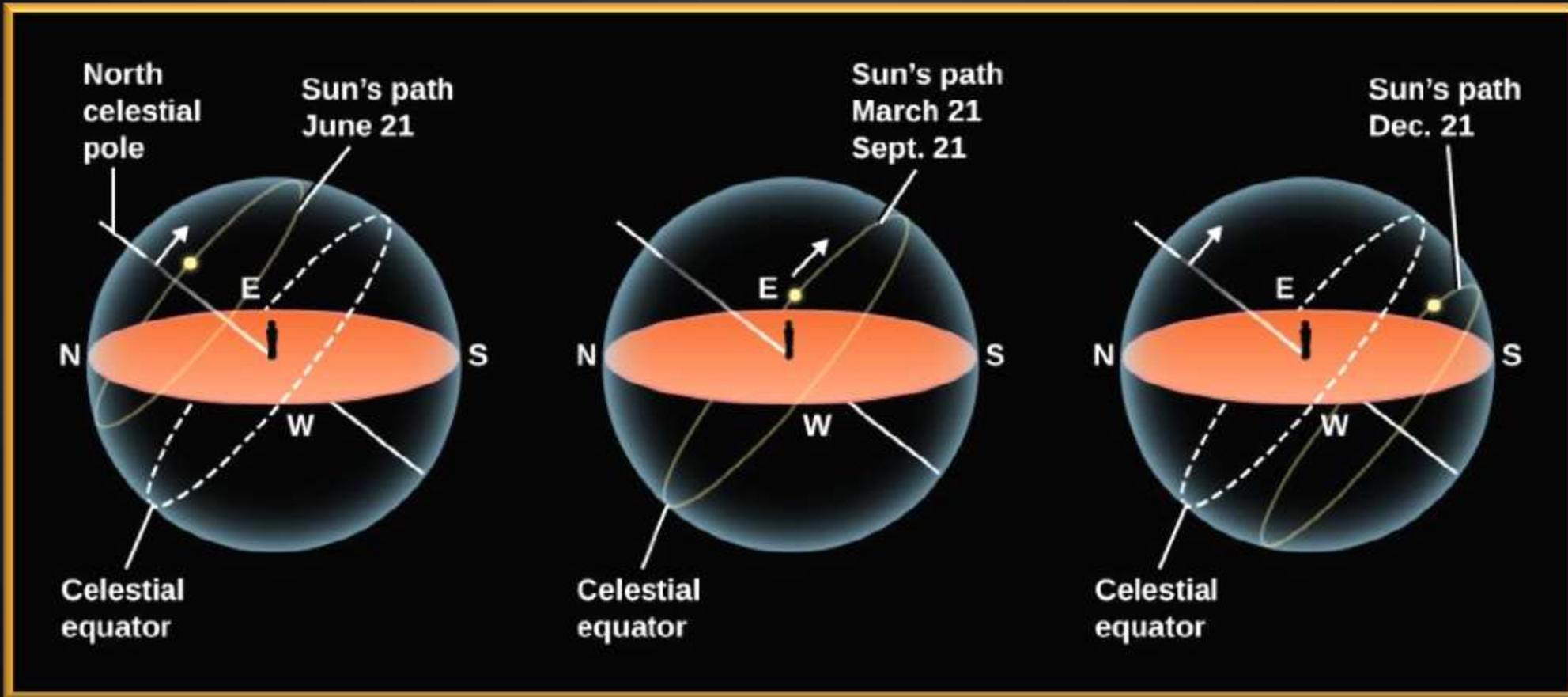
The **Equator** and the north pole star are at an angle of 90 degrees .  
This principle is involved in the construction of an equatorial sundial .



Now we know what an equator is. Coming back to the definition of equinox , it says it's an event wherein the sun crosses the celestial equator .

The figure below illustrates how this event happens. On Sept 21 or March 21 we see the sun's path matching with the Earth's equator. The **yellow circle** is the sun's path; the dotted line is equator.

We can see the sun's path moving from left to right when we observe the three figures .



Location	Local Time	Time Zone	UTC Offset
Australian Eastern Time	Wed, 21 Mar 2018	AET	(UTC +11)
<u>Bangalore (India - Karnataka)</u>	Tuesday, 20 March 2018, 21:45:00	<u>IST</u>	UTC+5:30 hours
<u>Jerusalem (Israel)</u>	Tuesday, 20 March 2018, 18:15:00	<u>IST</u>	UTC+2 hours
Corresponding UTC (GMT)	<u>Tuesday, 20 March 2018, 16:15:00</u>		
<u>Calgary (Canada - Alberta)</u>	Tuesday, 20 March 2018, 10:15:00	<u>MDT</u>	UTC-6 hours

The Tekufah time which NASA gave was the mean/average time from the beginning of Tekufah to the ending of Tekufah.

I have taken IST (**Indian standard time**) as an example to determine the **Tekufah**. As per NASA, the peak **Tekufah** time is **Tuesday, 20 March 2018, 21:45:00 [9:45 PM]**.

For this time I have the day as found on the table below:

ROMAN RECKONING	TUESDAY
GOD'S DAY	3 <sup>rd</sup> cycle (Tuesday)

Now we are going to use the Stellarium software for the equinox study.

Going through the Stellarium software I was able to search for the beginning of Tekufah time ,where the sun is just about to **cross the equator line** – and the ending of Tekufah time where the sun **leaves the equator line**.

The beginning of Tekufah time is Tuesday, 20 March 2018, 5:22:00 [5:22 AM].

ROMAN RECKONING	TUESDAY
GOD'S DAY	2 <sup>nd</sup> cycle (Monday)

*At this time, [the mixing of light and darkness], Tekufah hasn't happened yet.*

The ending of Tekufah time is Wednesday, 21 March 2018, 13:52:00 [1:52 PM].

ROMAN RECKONING	WEDNESDAY
GOD'S DAY	4 <sup>th</sup> cycle (Wednesday)

Based on the beginning and ending of the Tekufah event, I was able to calculate the time ranges for the entire event at various places.

	AUSTRALIA	INDIA	JERUSALEM	CANADA
TEKUFAH MOMENT	AET	IST	IST	CALGARY CANADA
0.00%	20-03-18 11:00	20-03-18 5:30	20-03-18 2:00	19-03-18 18:00
10.00%	20-03-18 12:37	20-03-18 7:07	20-03-18 3:37	19-03-18 19:37
20.00%	20-03-18 14:15	20-03-18 8:45	20-03-18 5:15	19-03-18 21:15
30.00%	20-03-18 15:52	20-03-18 10:22	20-03-18 6:52	19-03-18 22:52
40.00%	20-03-18 17:30	20-03-18 12:00	20-03-18 8:30	20-03-18 0:30
50.00%	20-03-18 19:07	20-03-18 13:37	20-03-18 10:07	20-03-18 2:07
60.00%	20-03-18 20:45	20-03-18 15:15	20-03-18 11:45	20-03-18 3:45
70.00%	20-03-18 22:22	20-03-18 16:52	20-03-18 13:22	20-03-18 5:22
80.00%	21-03-18 0:00	20-03-18 18:30	20-03-18 15:00	20-03-18 7:00
90.00%	21-03-18 1:37	20-03-18 20:07	20-03-18 16:37	20-03-18 8:37
100.00%	21-03-18 3:15	20-03-18 21:45	20-03-18 18:15	20-03-18 10:15
90.00%	21-03-18 4:52	20-03-18 23:22	20-03-18 19:52	20-03-18 11:52
80.00%	21-03-18 6:30	21-03-18 1:00	20-03-18 21:30	20-03-18 13:30
70.00%	21-03-18 8:07	21-03-18 2:37	20-03-18 23:07	20-03-18 15:07
60.00%	21-03-18 9:45	21-03-18 4:15	21-03-18 0:45	20-03-18 16:45
50.00%	21-03-18 11:22	21-03-18 5:52	21-03-18 2:22	20-03-18 18:22
40.00%	21-03-18 13:00	21-03-18 7:30	21-03-18 4:00	20-03-18 20:00
30.00%	21-03-18 14:37	21-03-18 9:07	21-03-18 5:37	20-03-18 21:37
20.00%	21-03-18 16:15	21-03-18 10:45	21-03-18 7:15	20-03-18 23:15
10.00%	21-03-18 17:52	21-03-18 12:22	21-03-18 8:52	21-03-18 0:52
0.00%	21-03-18 19:30	21-03-18 14:00	21-03-18 10:30	21-03-18 2:30

INDEX
EXCELLENT
GOOD
POOR
BAD

The screenshot displays the Stellarium interface. On the left, a data panel for a star is visible:

```

Type: star
Magnitude: 0.00
Color Index (B-V): 1.42
RA/Dec (J2000.0): +356.64588°/-0.5653°
RA/Dec (on date): +356.88258°/-0.4825°
MA/Dec: 18.04000h/-0.4825°
Az./Alt.: +90.8992°/+0.4825°
Gal. long./lat.: +93.3722°/-60.528°
Superf. long./lat.: +66.3104°/+14.3668°
Ecl. long./lat. (J2000.0): +356.5249°/+0.0015°
Ecl. long./lat. (on date): +356.7829°/+0.0017°
Ecliptic obliquity (on date): +23.4353°
Mean Sidereal Time: 17h57m56.6s
Apparent Sidereal Time: 17h57m55.6s
Rise: 0h29m
Transit: 12h29m
Set: 18h30m
IAU Constellation: Psc
Proper motions by axes: 15.6 -15.5 (mas/yr)
Position angle of the proper motion: 134.0°
Angular speed of the proper motion: 22.0 (mas/yr)

```

In the center, a date and time window shows:

Date and Time		Julian Day	
2018	- 3 - 20	6	: 31 : 17

A blue line is drawn across the sky, representing Earth's equator. A red arrow points to this line. The bottom status bar shows: Earth, Mysore, 757 m; FOV 9.9°; 18.2 FPS; 2018-03-20 06:31:17 UTC+05:30.

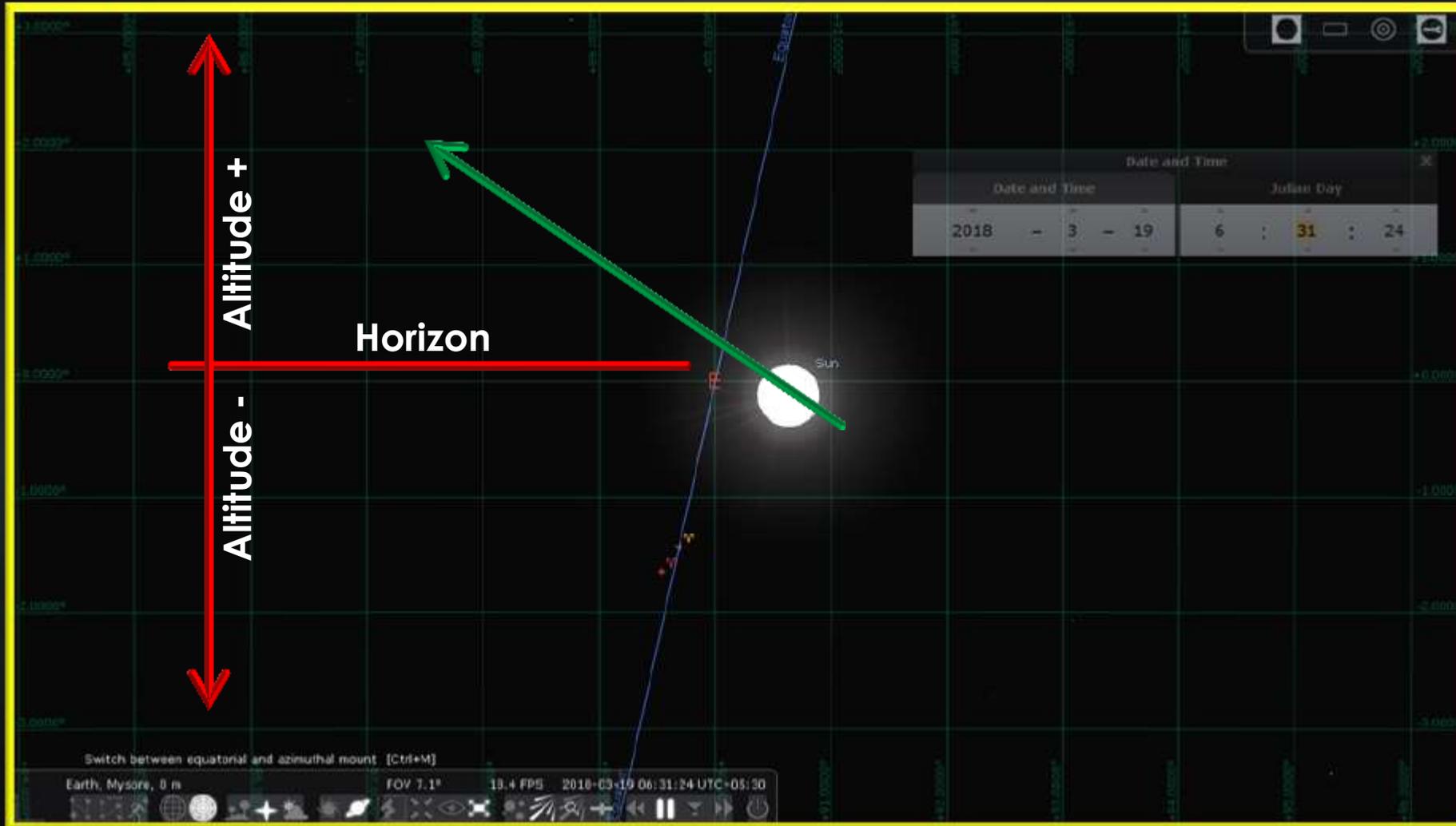
In this software, the Stellarium blue line indicates the equator of the earth.

The **BLUE line** is the equator line and

the **green line** is the direction in which sun crosses the Equator.

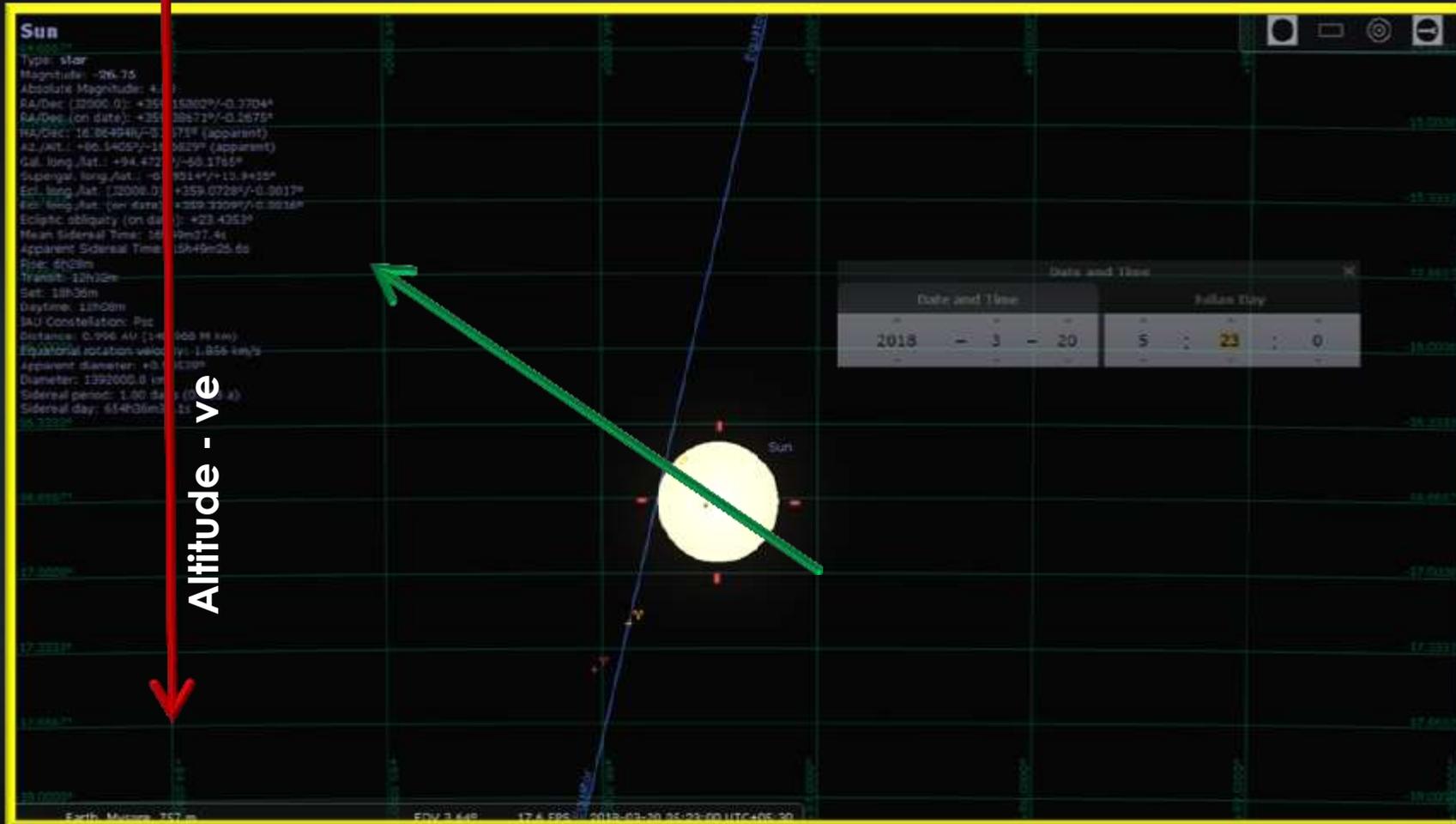
Note: this is not to be confused with sun's actual movement in the sky from east to west.

ON 19th Monday, the sun hasn't touched the equator line and Tekufah hasn't begun yet.



At the beginning of Tekufah, Tuesday, 20 March 2018, 5:22:00 [5:22 AM], the sun is just about to touch/cross the equator line.

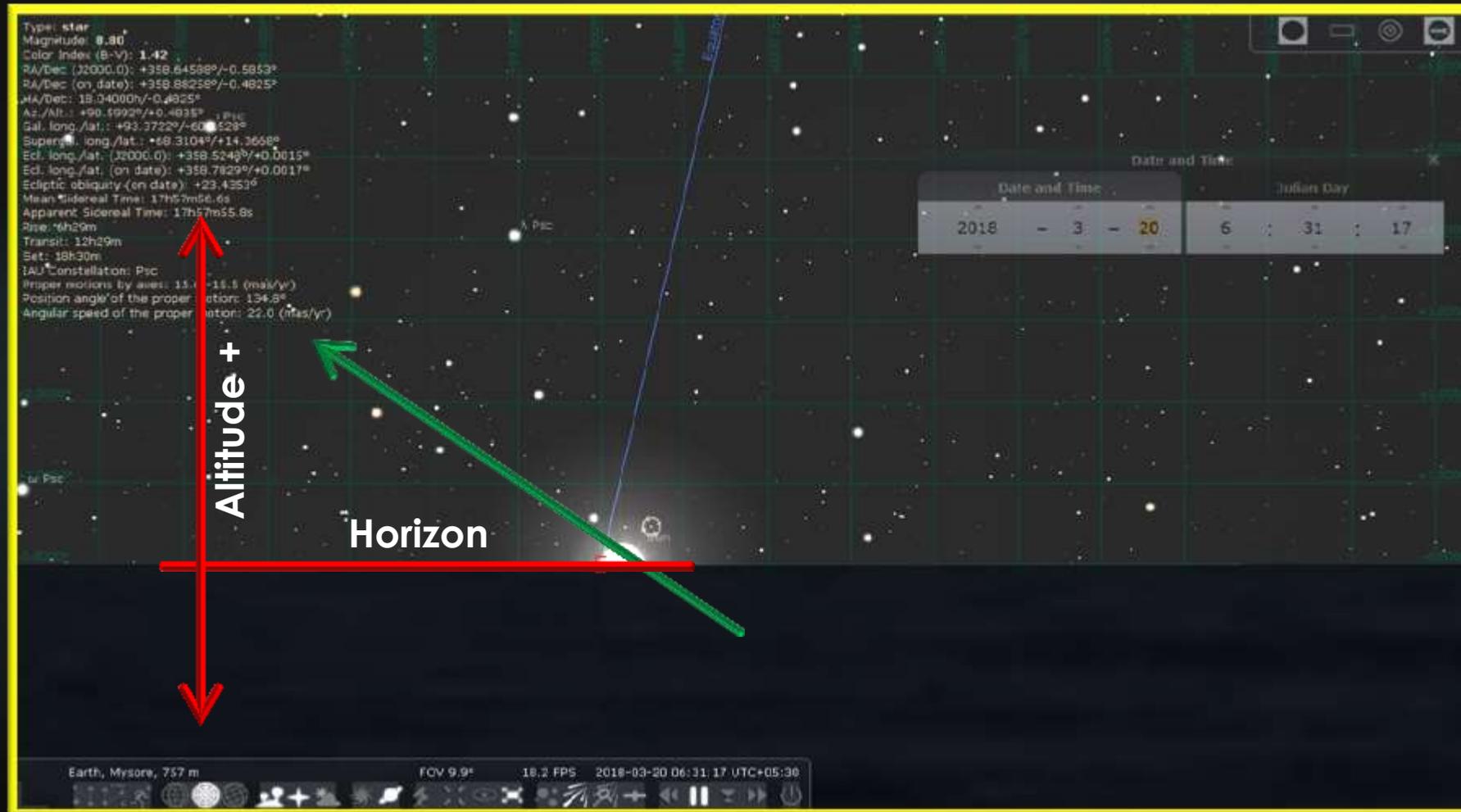
ROMAN RECKONING	TUESDAY
GOD'S DAY	2 <sup>nd</sup> cycle (Monday)



On Tuesday, 20 March 2018, 6:31:00 [6:31 AM], we have the chance to watch for the shadow arc. It will be only 5% as it has just begun.

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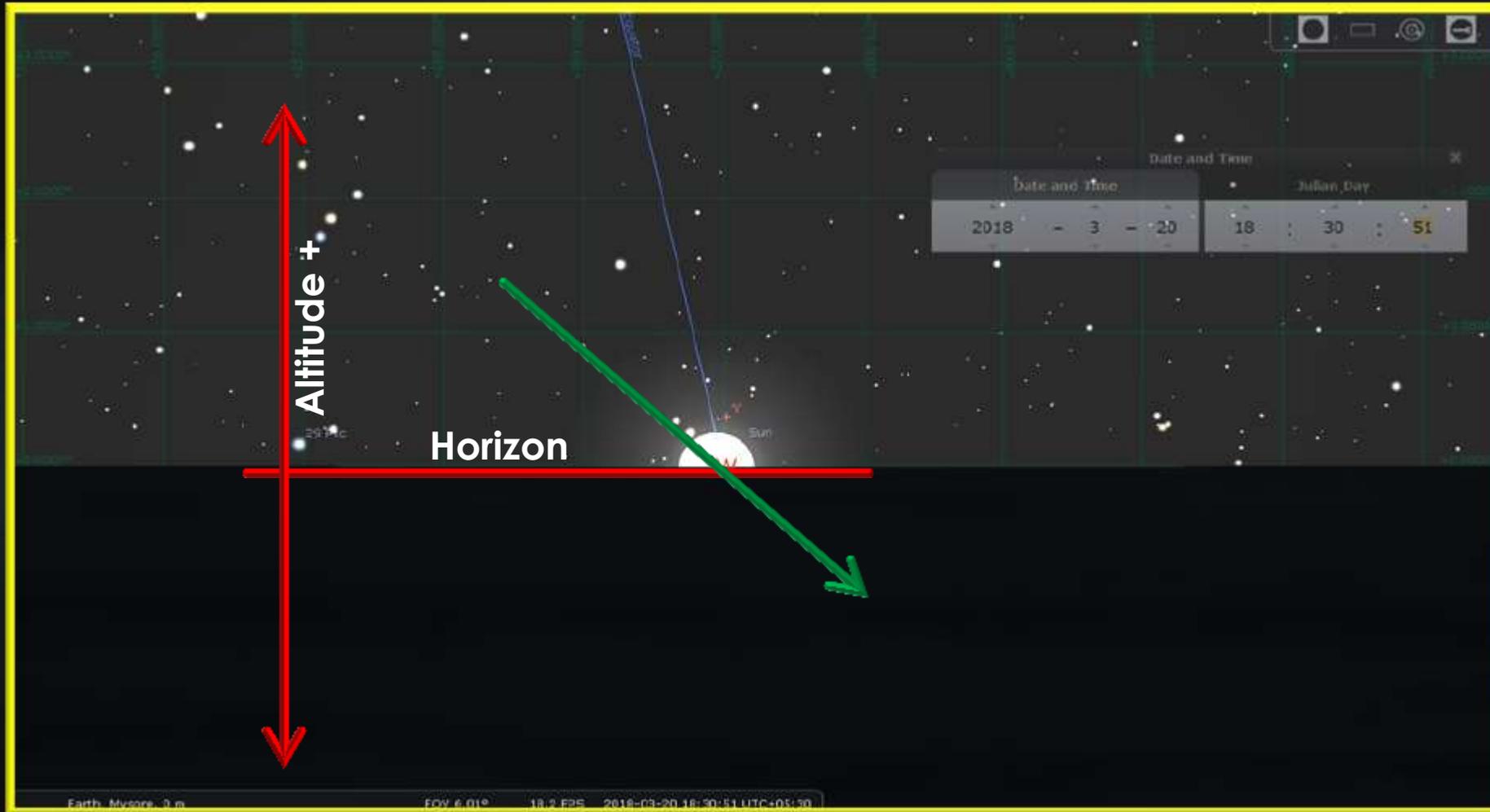
ROMAN RECKONING	TUESDAY
GOD'S DAY	3 <sup>rd</sup> cycle (Tuesday)



At this time the “mixing of light and darkness” has happened.

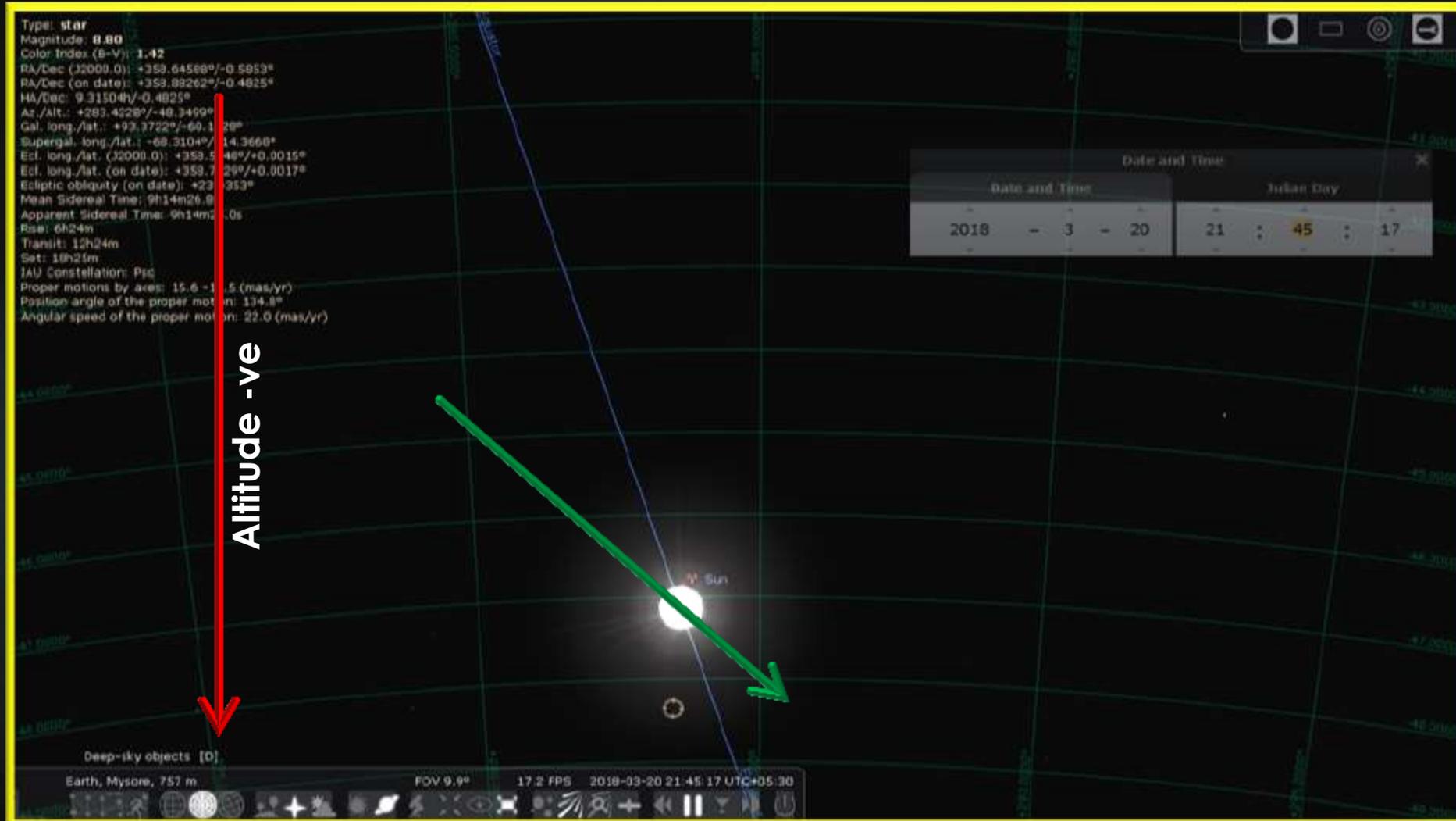
Tuesday, 20 March 2018, 18:30:51 [6:30 PM], we have another chance to watch for the shadow arc. It is getting more accurate. At this moment the Tekufah observed will be **80%**.

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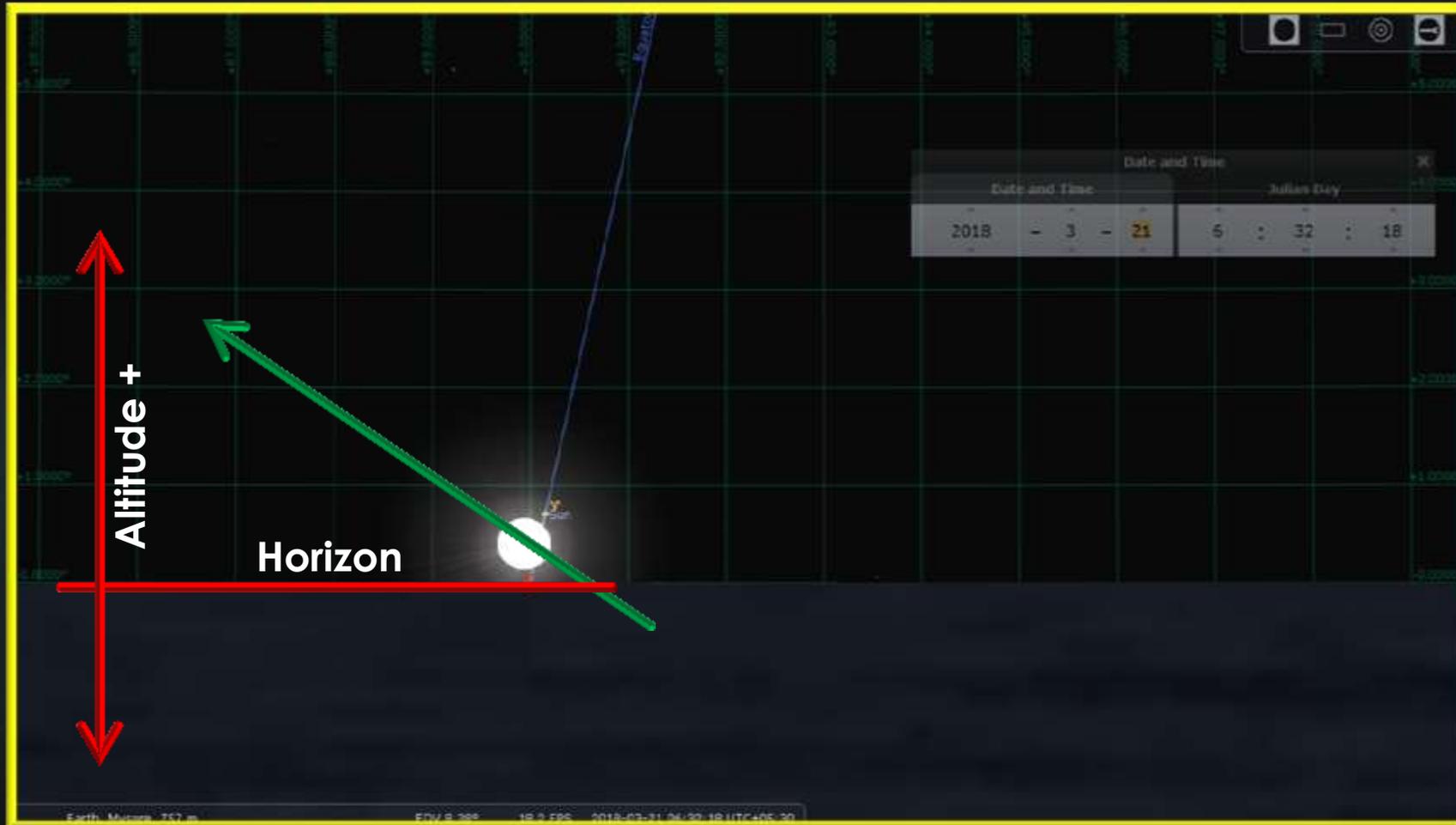


Tuesday, 20 March 2018, 21:45:00 [9:45 PM], we have the peak time. Tekufah seen at this moment is **100%**. In India we won't be able to see this event because we have entered the night season. This is the NASA time.

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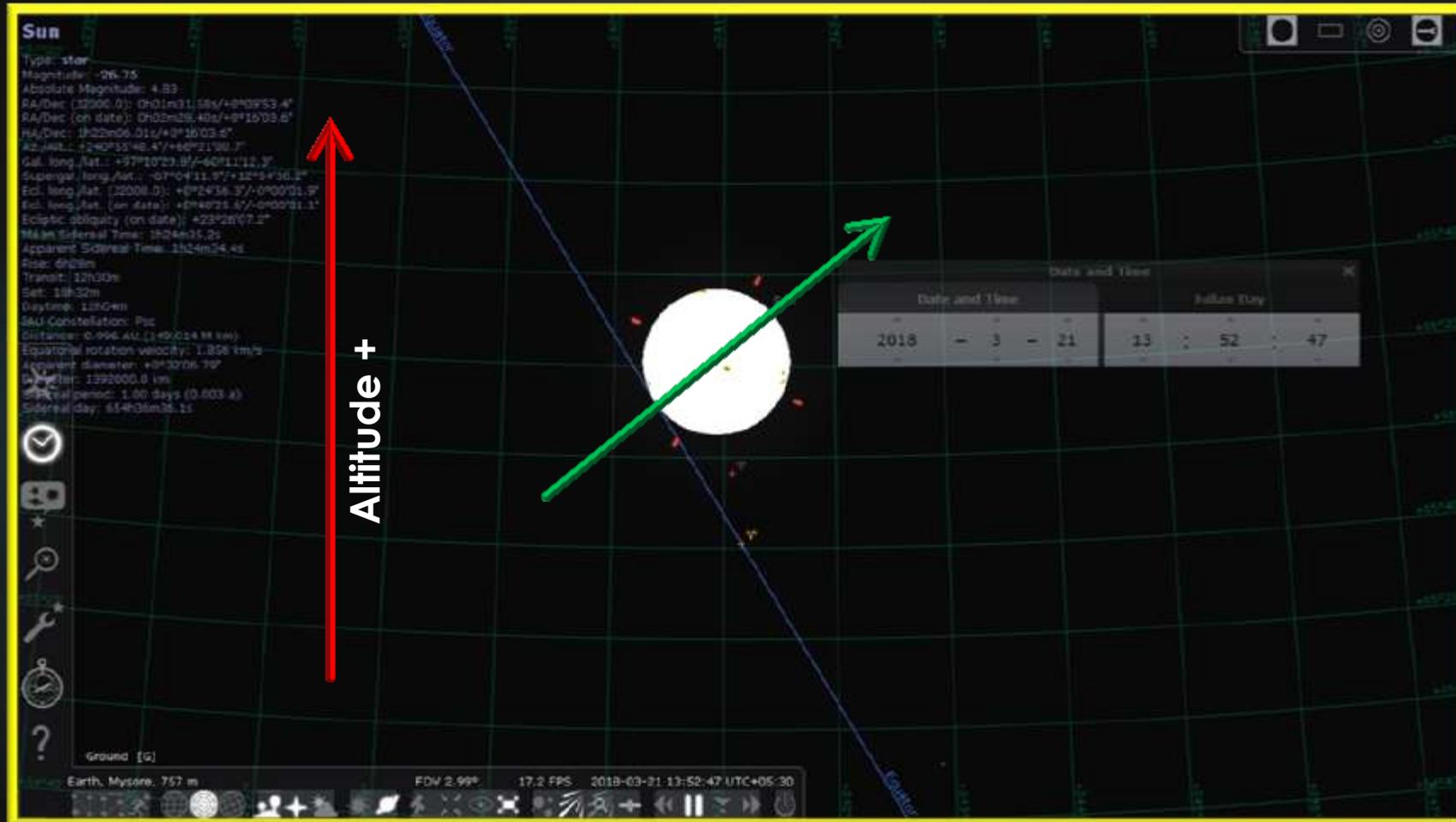
Tekufah at this moment of time, Wednesday, 21<sup>st</sup> March 2018, 06:30:00 [6:30 AM] the accuracy is **43-36%**, as Tekufah is beginning to fade away.



At this time Wednesday, 21 March 2018, 13:52:00 [1:52 PM], Tekufah has ended as it has passed through the equatorial line.

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Probability of watching Tekufah is now **0%**.



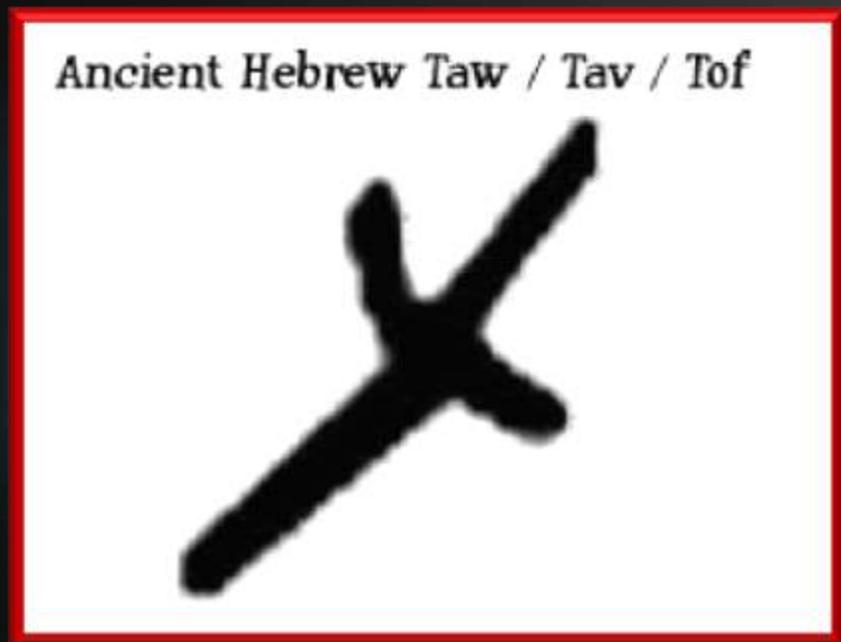
CONDITION	REASON	Tekufah MOMENT	DATE AND TIME
BAD	NO LIGHT	0.00%	20-03-2018 05:30
OBSERVABLE	LIGHT	10.00%	20-03-2018 07:07
OBSERVABLE	LIGHT	20.00%	20-03-2018 08:45
OBSERVABLE	LIGHT	30.00%	20-03-2018 10:22
OBSERVABLE	LIGHT	40.00%	20-03-2018 12:00
EXCELLENT	LIGHT	50.00%	20-03-2018 13:37
EXCELLENT	LIGHT	60.00%	20-03-2018 15:15
EXCELLENT	LIGHT	70.00%	20-03-2018 16:52
EXCELLENT	LIGHT	80.00%	20-03-2018 18:30
BAD	NO LIGHT	90.00%	20-03-2018 20:07
BAD	NO LIGHT	100.00%	20-03-2018 21:45
BAD	NO LIGHT	90.00%	20-03-2018 23:22
BAD	NO LIGHT	80.00%	21-03-2018 01:00
BAD	NO LIGHT	70.00%	21-03-2018 02:37
BAD	NO LIGHT	60.00%	21-03-2018 04:15
BAD	NO LIGHT	50.00%	21-03-2018 05:52
OBSERVABLE	LIGHT	40.00%	21-03-2018 07:30
OBSERVABLE	LIGHT	30.00%	21-03-2018 09:07
OBSERVABLE	LIGHT	20.00%	21-03-2018 10:45
OBSERVABLE	LIGHT	10.00%	21-03-2018 12:22
BAD	ENDED	0.00%	21-03-2018 14:00

From this table , there is a better chance of watching Tekufah on 20<sup>th</sup> March than 21<sup>st</sup> March.

So we can now say that Tekufah has happened on 20<sup>th</sup> March.

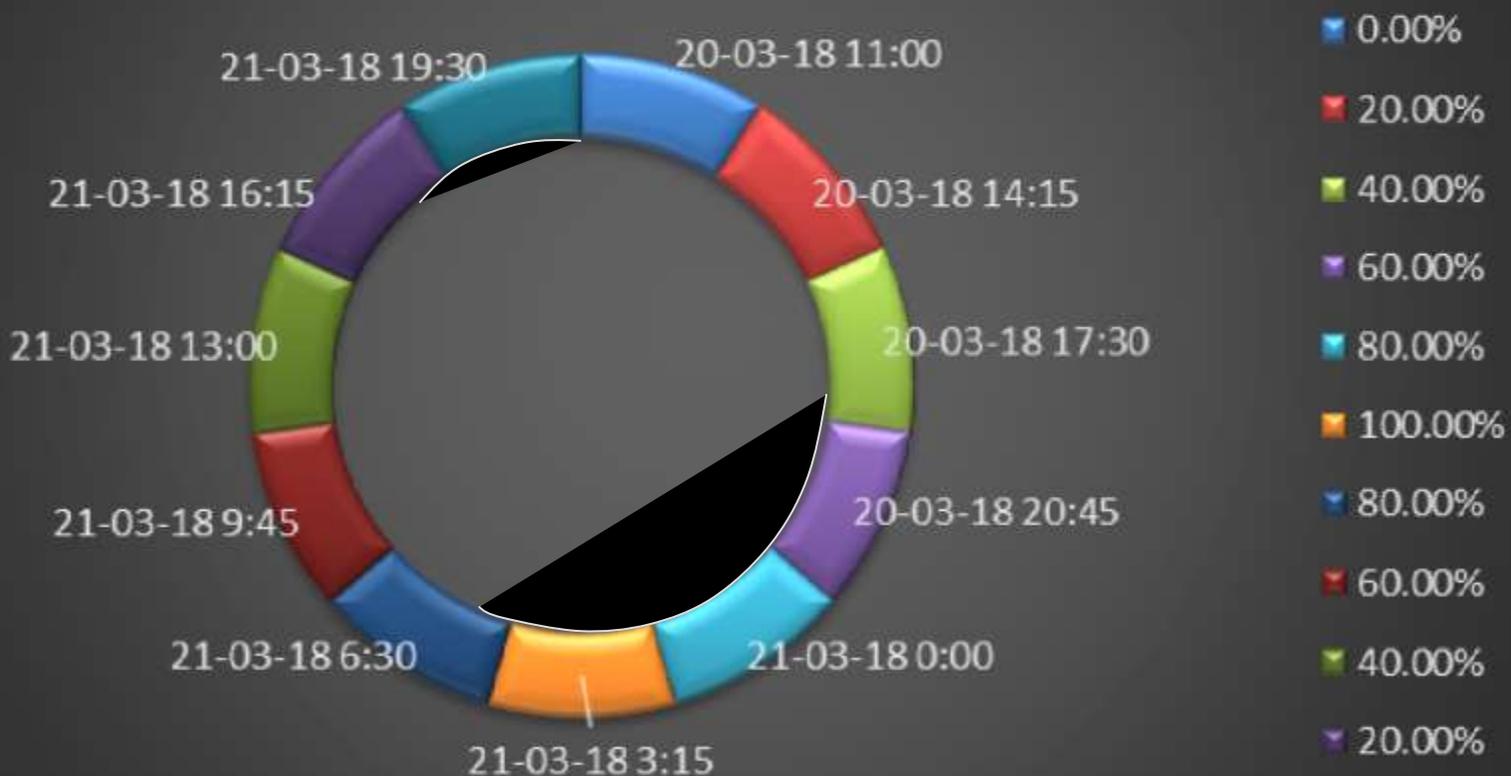
Therefore 21<sup>st</sup> March will be day 1 of the new year. Why? Because the shadow casted by the device would have already surpassed, or crossed, the equinox marking (NASA time).

So we know we always have to watch for the mark or sign. Assuming the fact that the Equinox measuring device has markings on it, we can come to conclusions regarding the beginning of the day.



# Let us use an example from Australia.

## AUSTRALIA AET



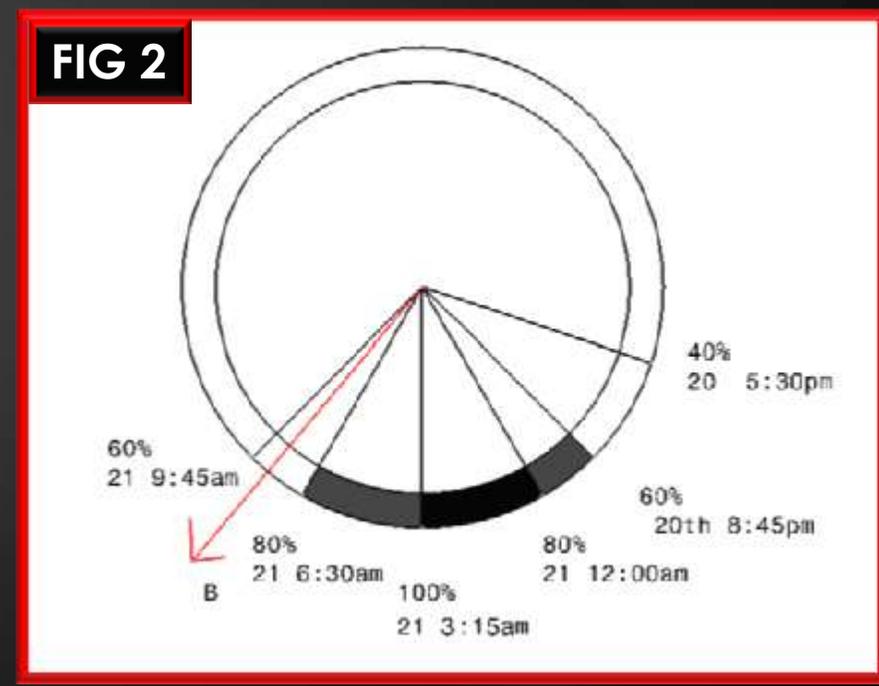
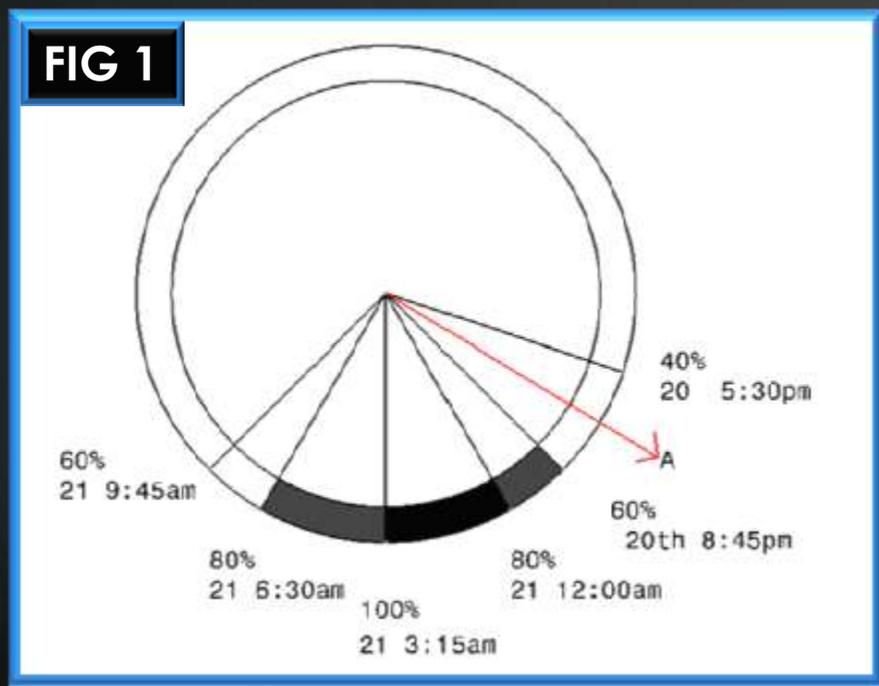
AUSTRALIA	
TEKUFAH MOMENT	AET
0.00%	20-03-18 11:00
20.00%	20-03-18 14:15
40.00%	20-03-18 17:30
60.00%	20-03-18 20:45
80.00%	21-03-18 0:00
100.00%	21-03-18 3:15
80.00%	21-03-18 6:30
60.00%	21-03-18 9:45
40.00%	21-03-18 13:00
20.00%	21-03-18 16:15
0.00%	21-03-18 19:30

In Australia, Tekufah seems to happen on both day 21 and 22.

On day 20, in FIG 1, at the observation of the time around 5:30 to 6:30 PM, one can witness a 40-50% Tekufah .

On day 21 in FIG 2, at the observation of the time around 6:30 to 9:45 AM, one can witness a 70% Tekufah moment .

From the above scenario, a person can decide the 21st as day 1 because, they will have seen the shadow marker would have already surpassed the equinox markings on the device (Tekufah time as per NASA).



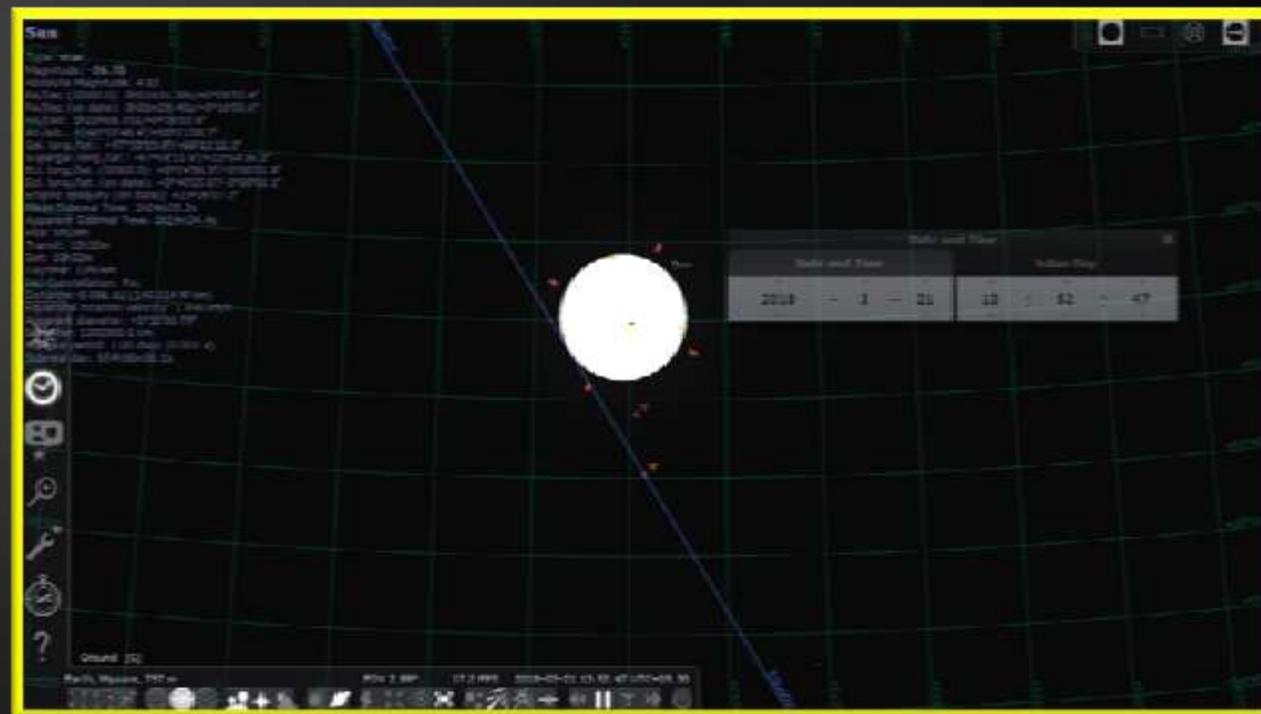
## Closing Remarks:

I came to this conclusion by using only Stellarium software and assuming the size of sun and equatorial line is well designed and relative to real objects.

I trust the time taken for the sun to cross the equatorial line is true as per the software.

I came to realize the Tekufah event happens for approx. 33 hours from beginning to end as per this software.

*The End*



If you need assistance  
please email your  
questions to:

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[info@t4study.com](mailto:info@t4study.com)

[www.t4study.com/resources](http://www.t4study.com/resources)

*Thank you!*

Presented by Nuthan G Nuthu ~ 21 Sept 2018

