

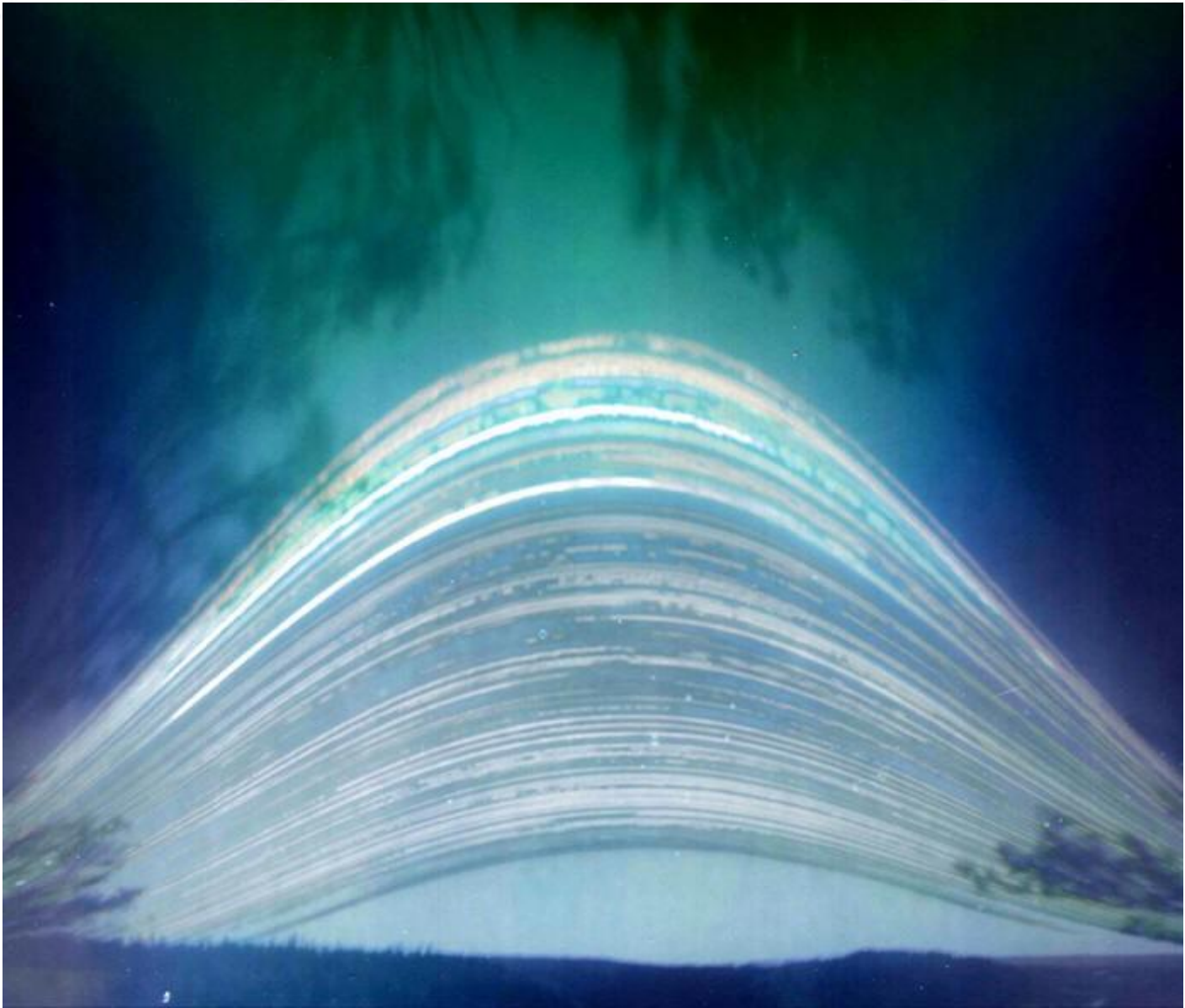
The background features a complex pattern of overlapping circular diagrams. These include solid and dashed lines forming concentric circles, arcs, and full circles. Some of these diagrams have numerical scales around their perimeters, with values ranging from 40 to 260. Small arrows are placed at various points along these circles, indicating direction or flow. The overall aesthetic is technical and scientific, rendered in shades of purple and blue.

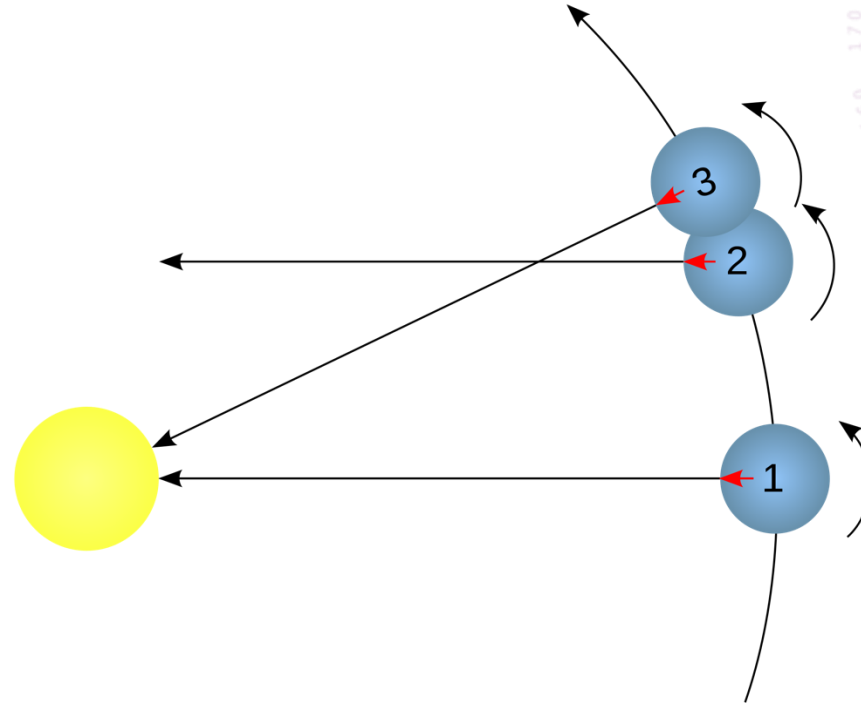
# Ανάλημμα

Θέμος Κάλλος  
Νοέμβριος 2020μΧ









Διάρκεια περιστροφής:  $23\text{h } 56\text{m } 4.091\text{s} \pm 0.003\text{s}$

(μέση) Διάρκεια ημέρας με βάση τον ήλιο:  $24\text{h } 0\text{m } 0.002\text{s}$

Αλλά:

Υπάρχουν φαινόμενα τα οποία προκαλούν  
διαφορά μέχρι και  $20^+s$  τη μέρα.

Πηγάζουν από την τροχιά και το σχήμα της γης.

Επηρεάζουν τη θέση που εμφανίζεται ο ήλιος  
κάθε μέρα.







## Λόγοι για την καμπύλη του αναλήματος

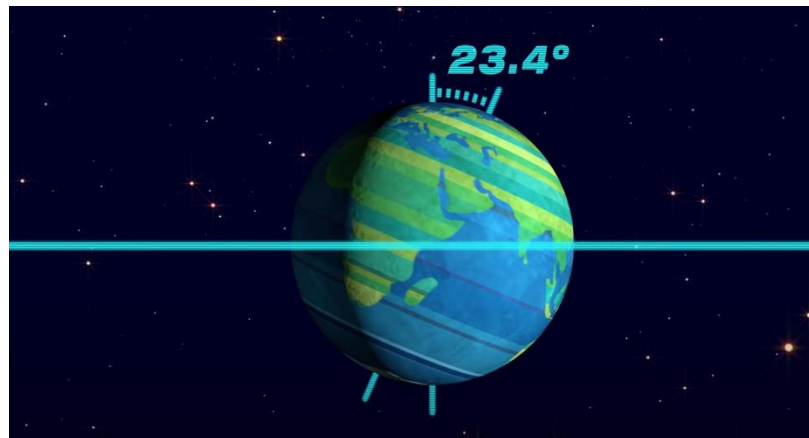
- Ο άξονας της γης δεν είναι κάθετος στο επίπεδο της τροχιάς της
- Η τροχιά της γης δεν είναι κυκλική
- Η γη δεν είναι επίπεδη

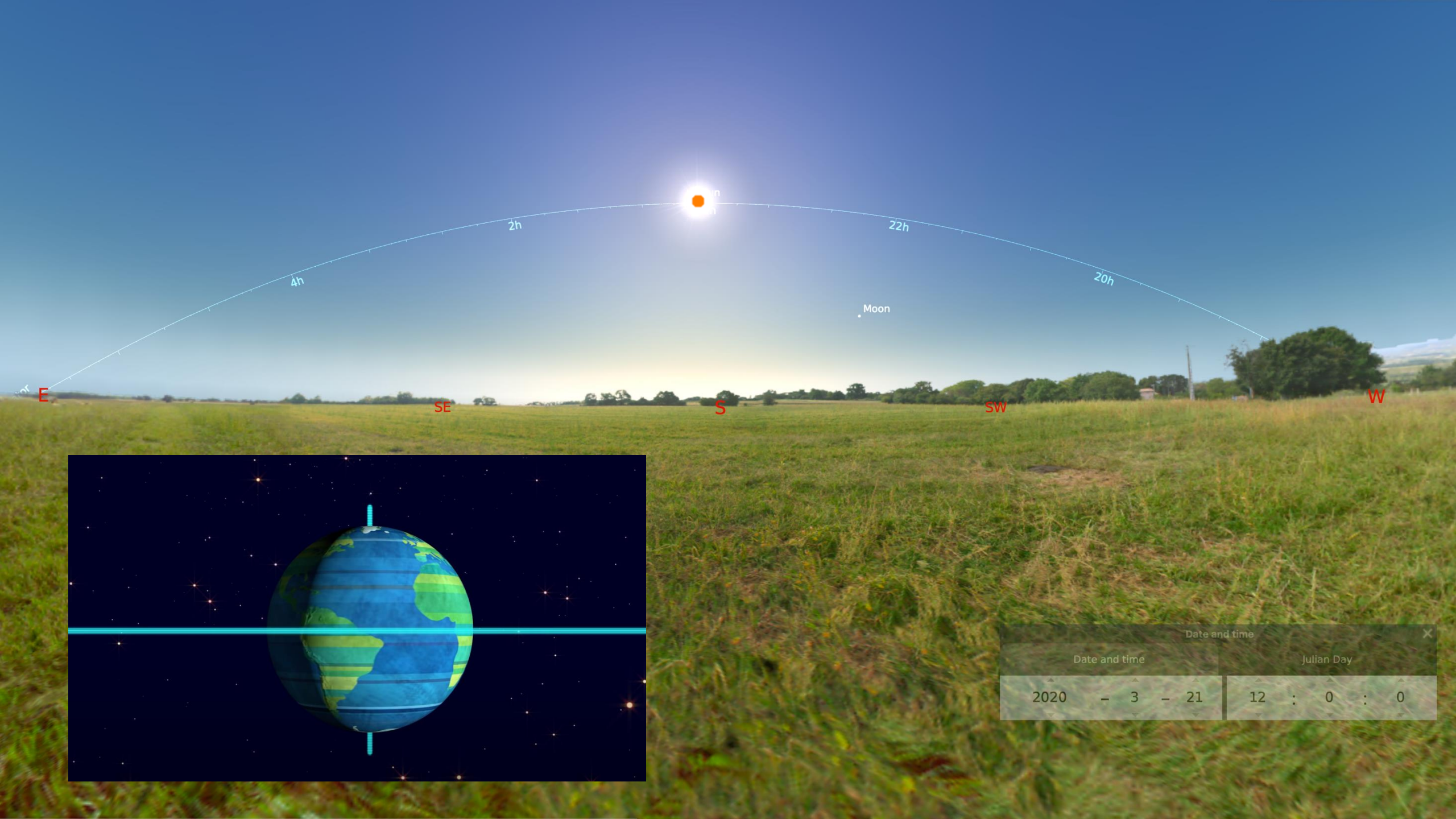


The background features a light blue and purple color palette. It is decorated with several circular motifs: large concentric circles with numerical scales (0 to 360) and arrows, smaller solid circles, and dashed circles with arrows. The text is centered in a purple serif font.

# Τα Εύκολα

Ο άξονας της γης δεν είναι  
κάθετος στο επίπεδο της  
τροχιάς της





Sun

Moon

E

SE

S

SW

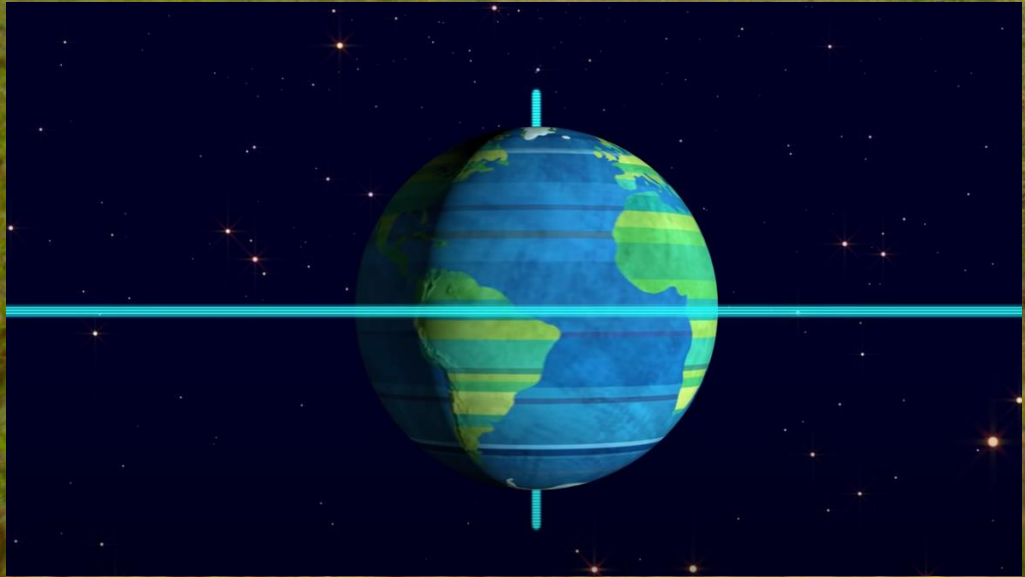
W

4h

2h

22h

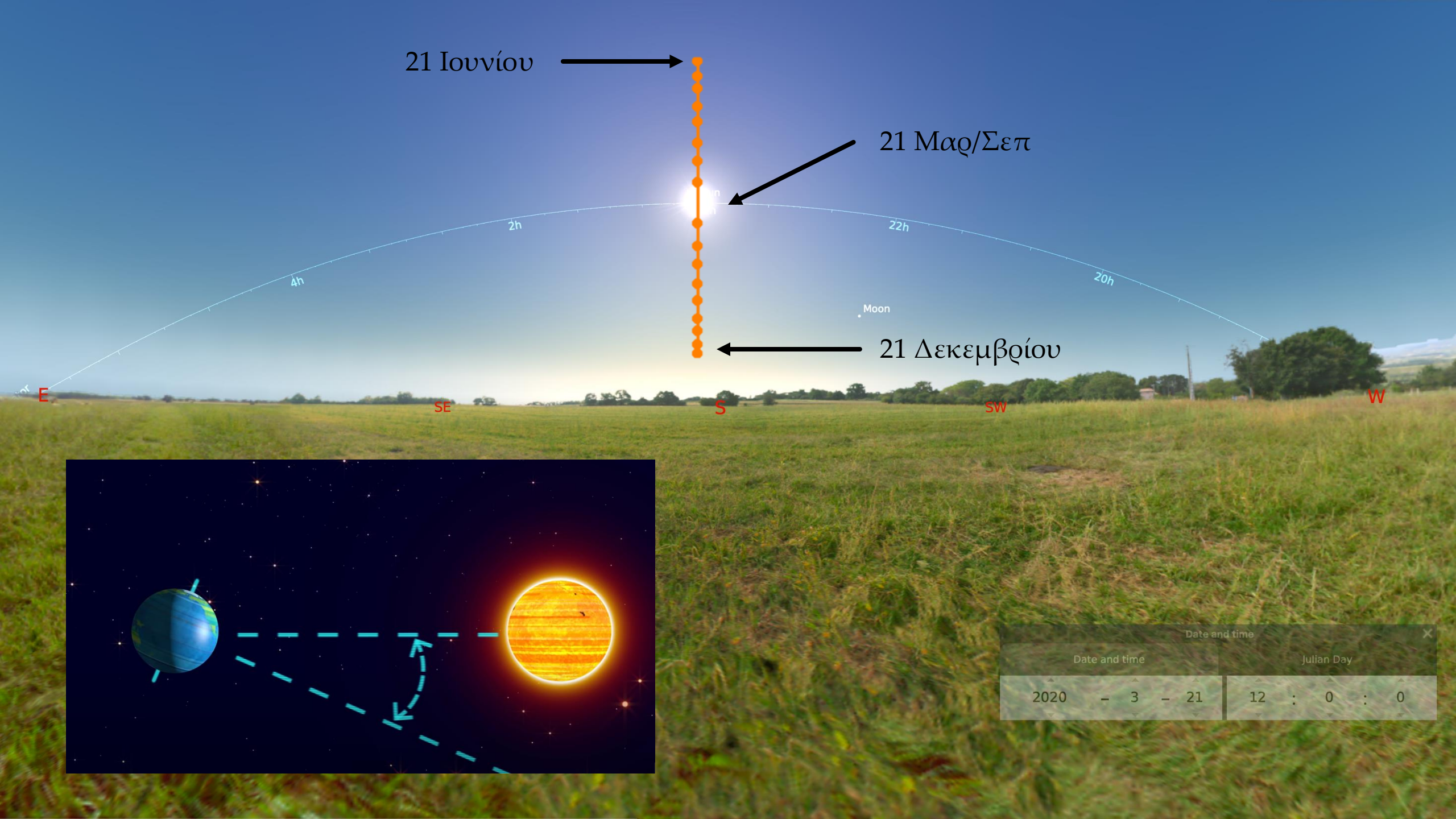
20h



Date and time

Date and time			Julian Day		
2020	-	3 - 21	12	:	0 : 0





21 Ιουνίου →

↙ 21 Μαρ/Σεπ

← 21 Δεκεμβρίου

4h

2h

22h

20h

Moon

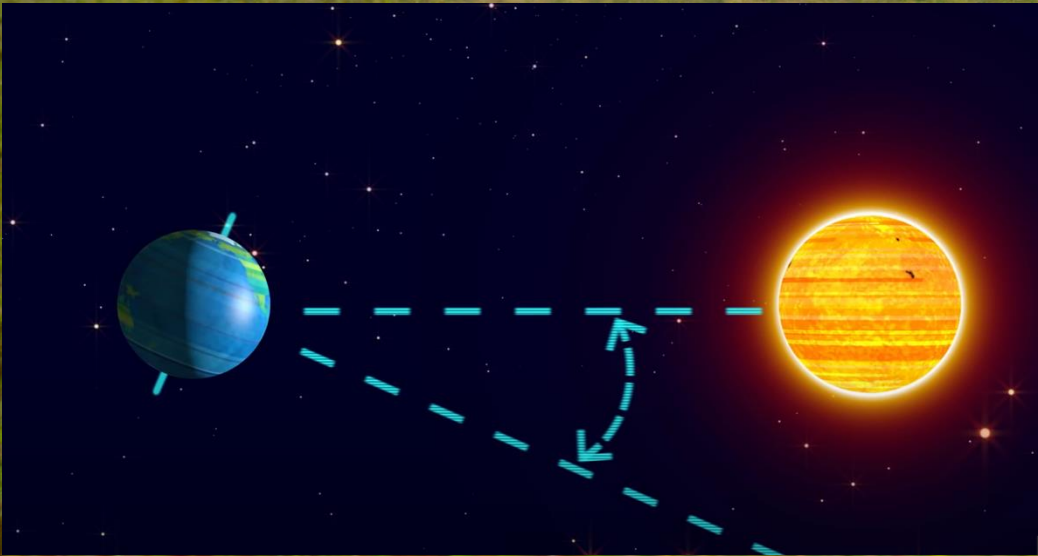
E

SE

S

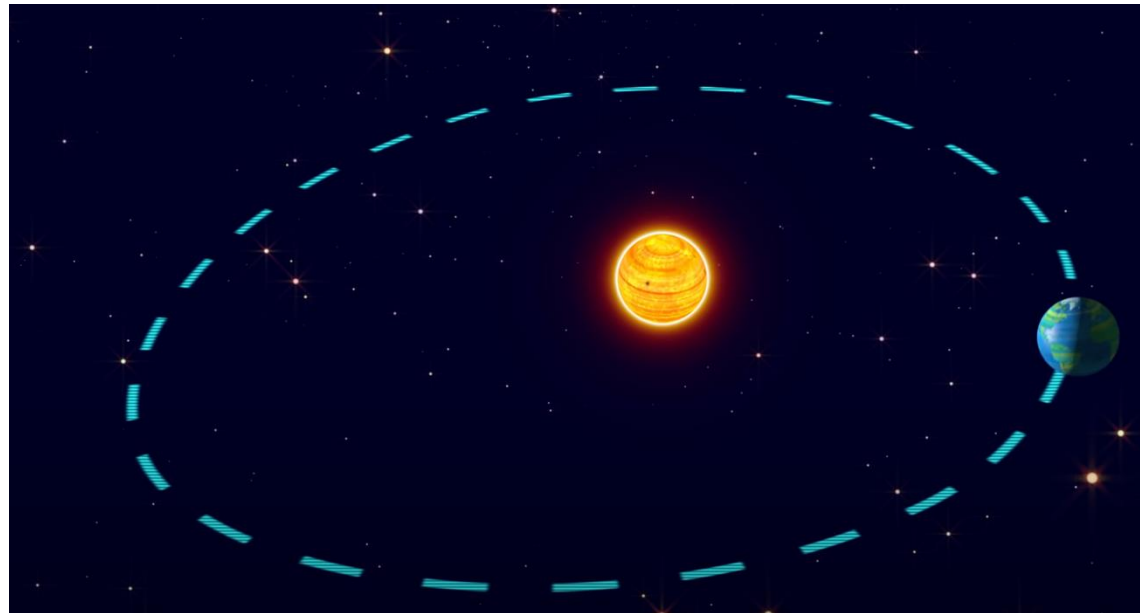
SW

W

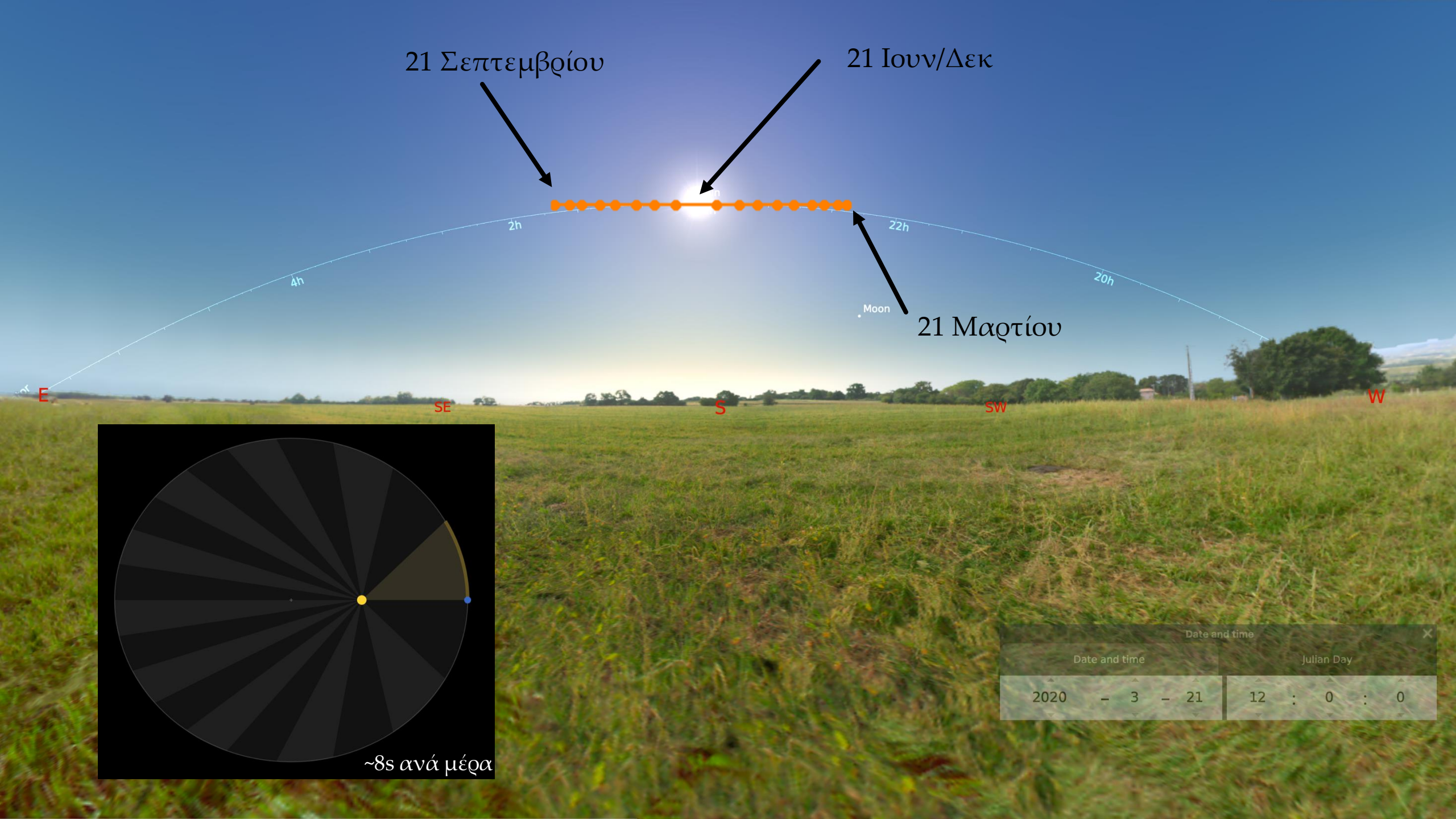


Date and time		Julian Day		
2020	- 3 - 21	12	:	0 : 0

Η τροχιά της γης δεν είναι  
κυκλική







21 Σεπτεμβρίου

21 Ιουν/Δεκ

21 Μαρτίου

4h

2h

22h

20h

E

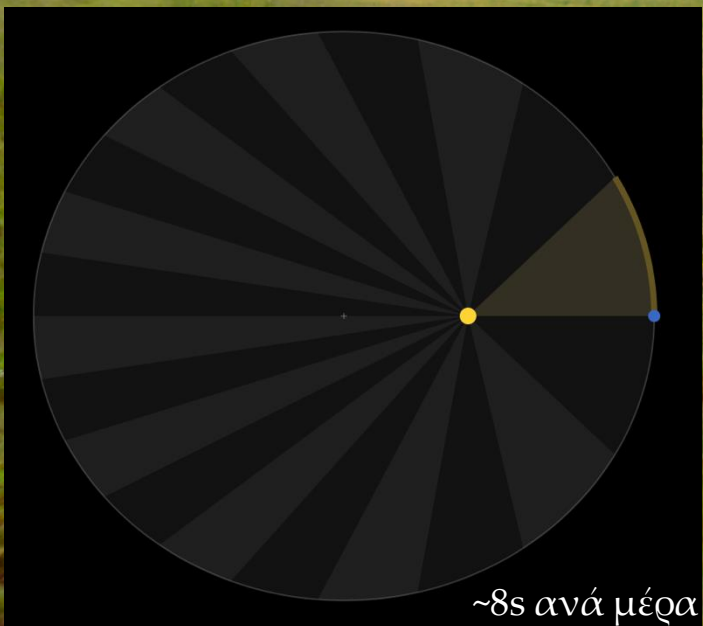
SE

S

SW

W

Moon

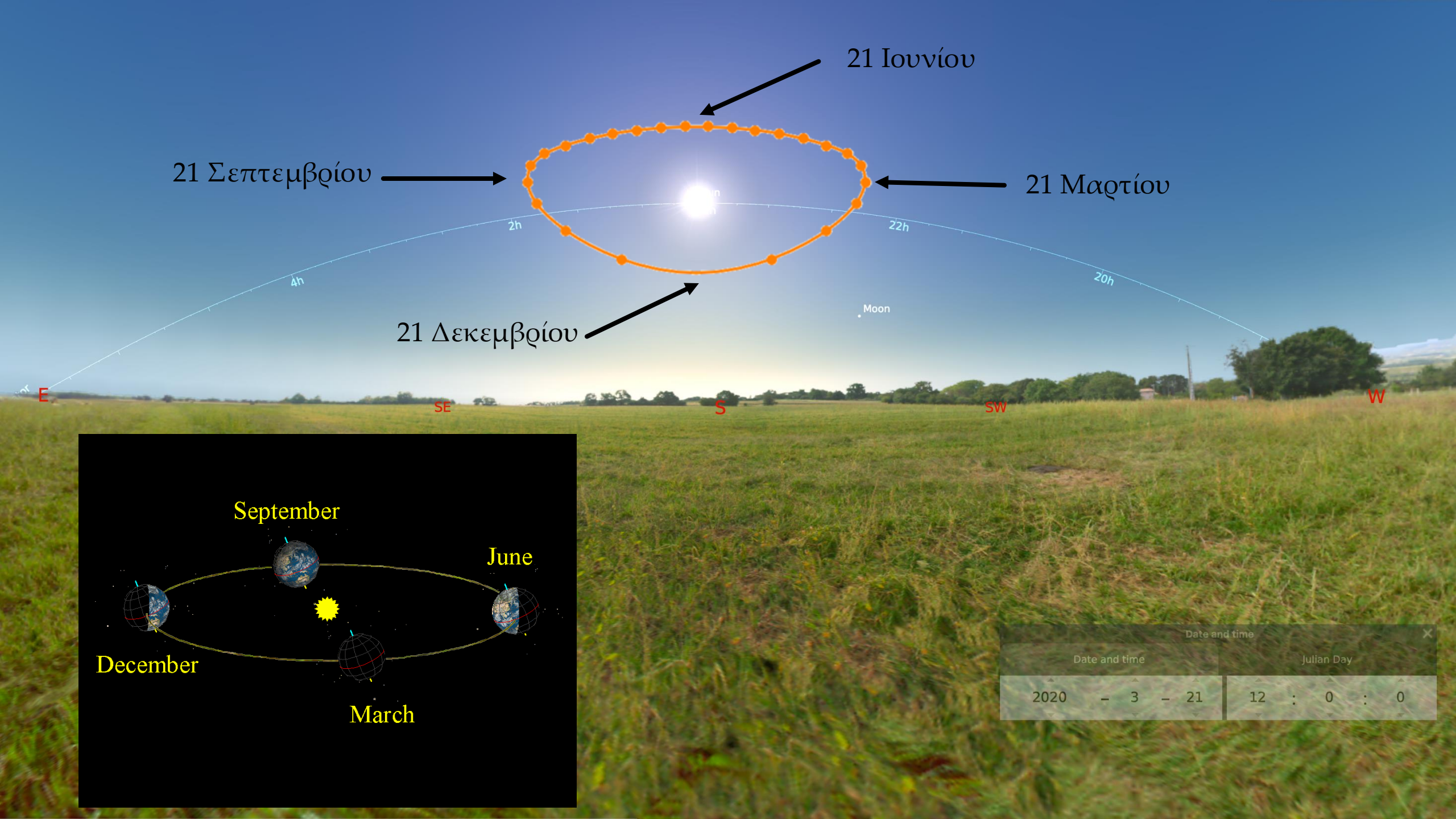


Date and time		Date and time		Julian Day		
2020	-	3	-	21	12	: 0 : 0



The background features several circular diagrams and axes. On the left, there is a large circular diagram with concentric circles and a radial scale from 0 to 360 degrees. Below it, a smaller diagram shows a circular path with a dashed line and an arrow. On the right, another large circular diagram with a radial scale from 0 to 240 degrees is visible. Below it, a smaller diagram shows a circular path with a dashed line and an arrow. The overall theme is related to geometry, specifically axes and circles.

# Άξονας + Τροχιά



21 Ιουνίου

21 Σεπτεμβρίου

21 Μαρτίου

21 Δεκεμβρίου

Moon

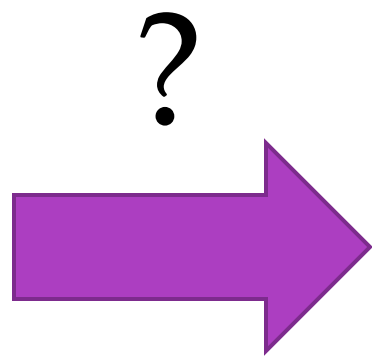
September

June

December

March

Date and time		Julian Day	
2020	- 3 - 21	12	: 0 : 0





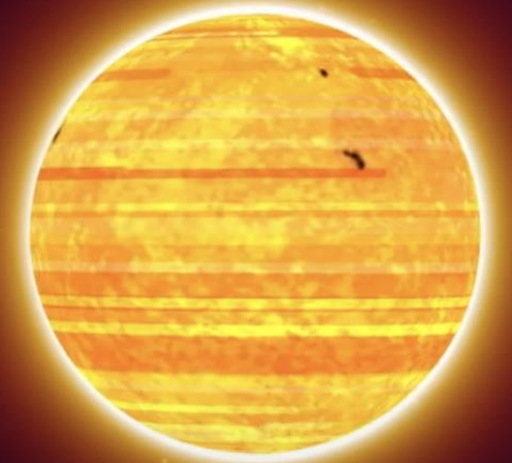
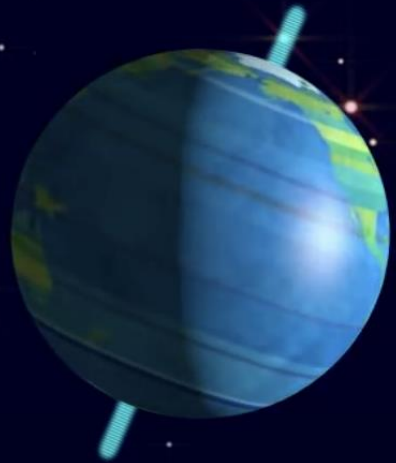
The background features several circular diagrams and scales. On the left, there is a large circular scale with numbers from 0 to 315 in increments of 45, and a smaller inner circle with arrows. On the right, there is a similar circular scale with numbers from 0 to 240 in increments of 30, and a smaller inner circle with arrows. In the bottom left and bottom right, there are dashed circular arrows. The overall design is clean and technical.

# Τα Δύσκολα

Η Γη δεν είναι επίπεδη

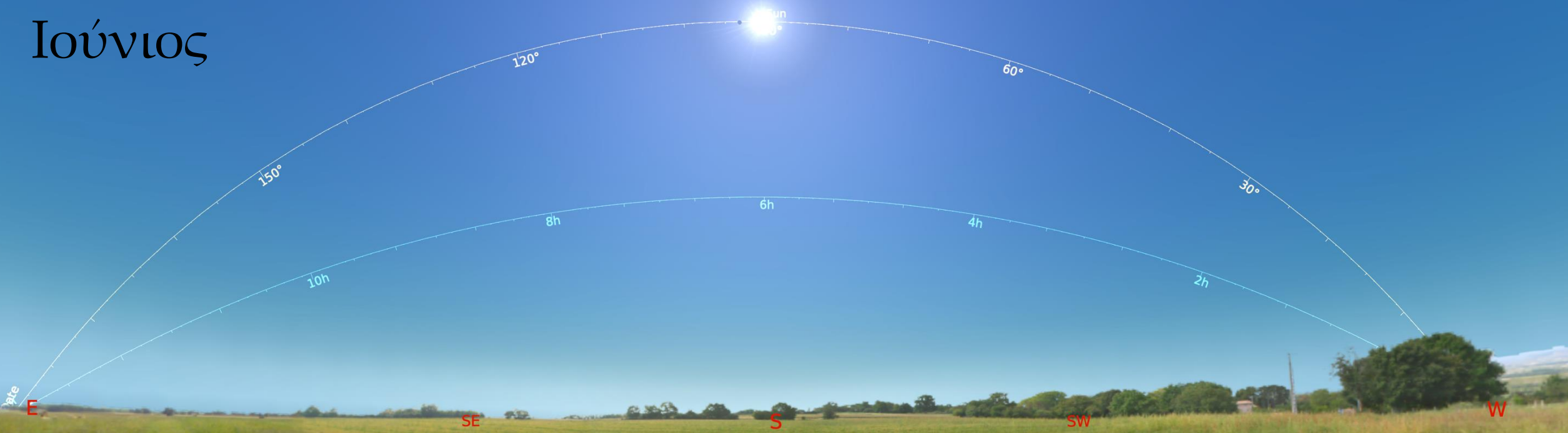


Για τέλεια κυκλική τροχιά





# Ιούνιος

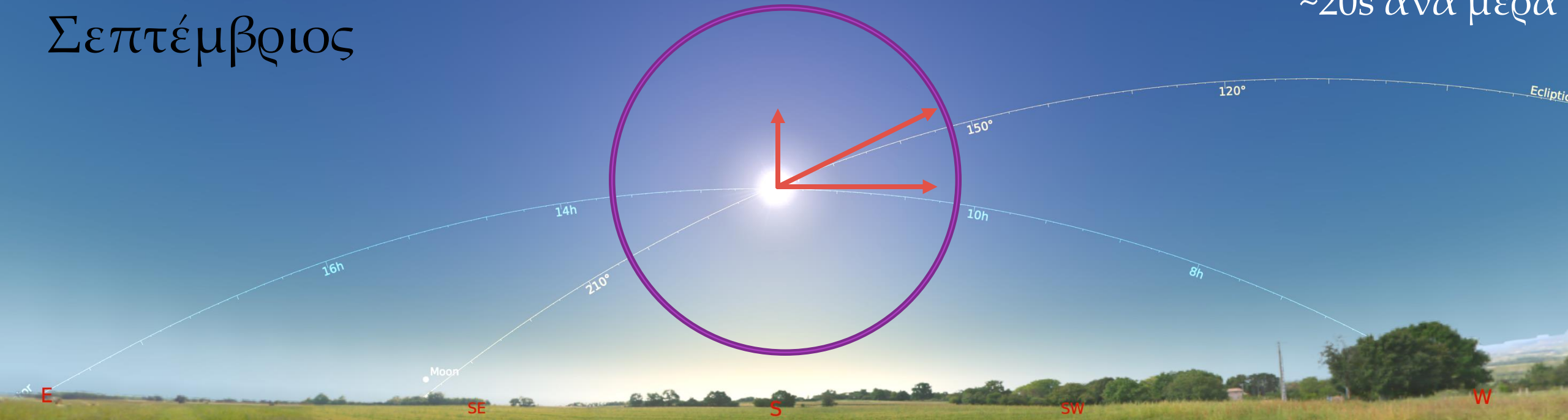


Date and time		Date and time		Julian Day		
2020	- 6 - 21	13	:	0	:	0



# Σεπτέμβριος

~20s ανά μέρα



Date and time		Date and time		Julian Day					
2020	-	9	-	21	13	:	0	:	0



# Ιούνιος



Date and time		Date and time		Julian Day		
2020	-	6	-	21	13	: 0 : 0

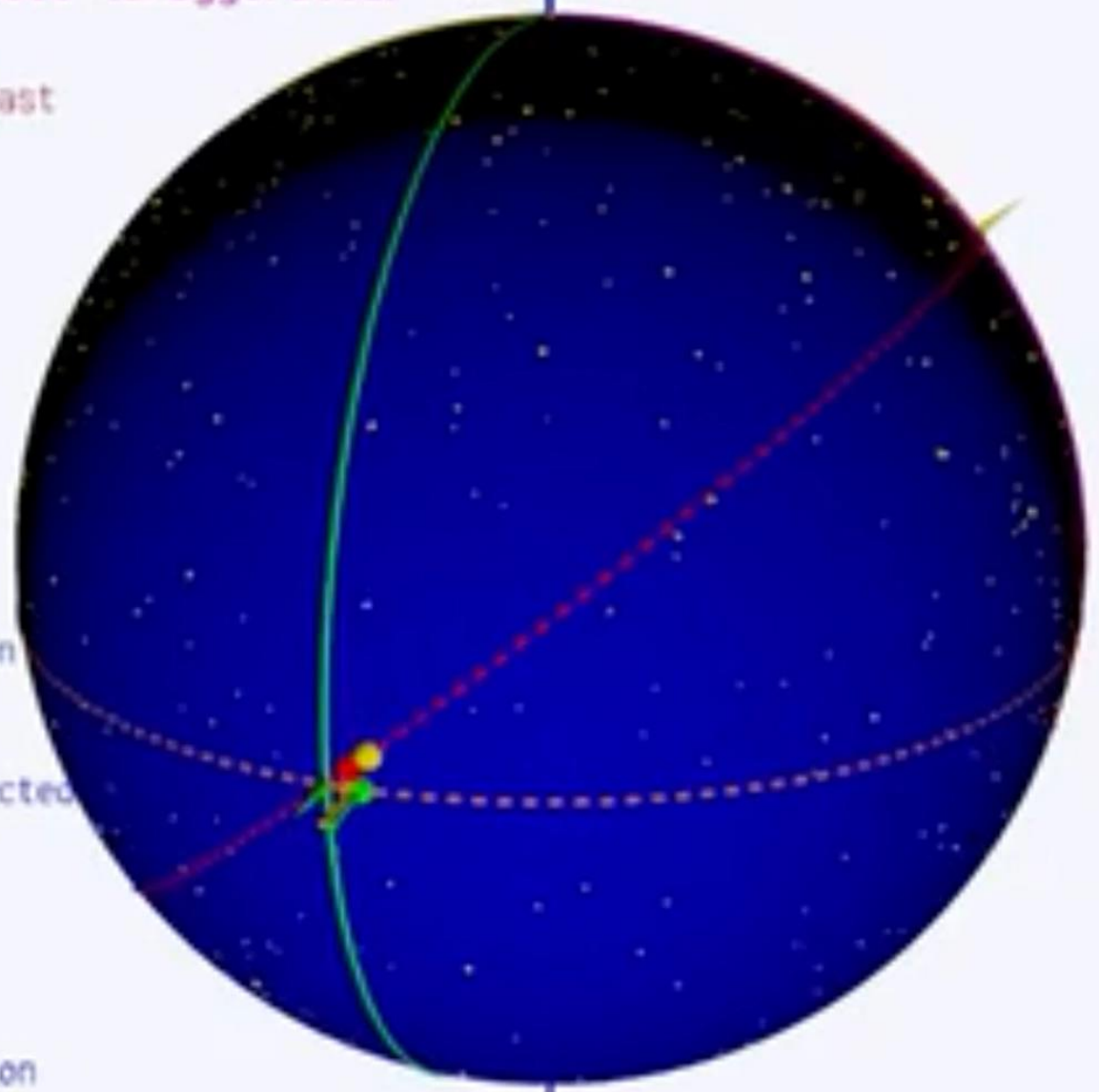


# The Celestial Sphere - following the Sun

Eccentricity = 0.0167 (True Value)  
Obliquity = 40.000 (Exaggerated)

26 Mar

Vernal Equinox just past



- Stars • Plough/Orion
- True Sun
- Dynamical Mean Sun
- Dyn: Mean Sun Projected
- Civil Mean Sun
- Equator
- - - Ecliptic
- ▲ Equinoxes
- ▲ Solstices
- ▲ Aphelion & Perihelion
- ▲ 1st Jan



E SE S SW W

4h

2h

22h

20h

Moon

Date and time ✕

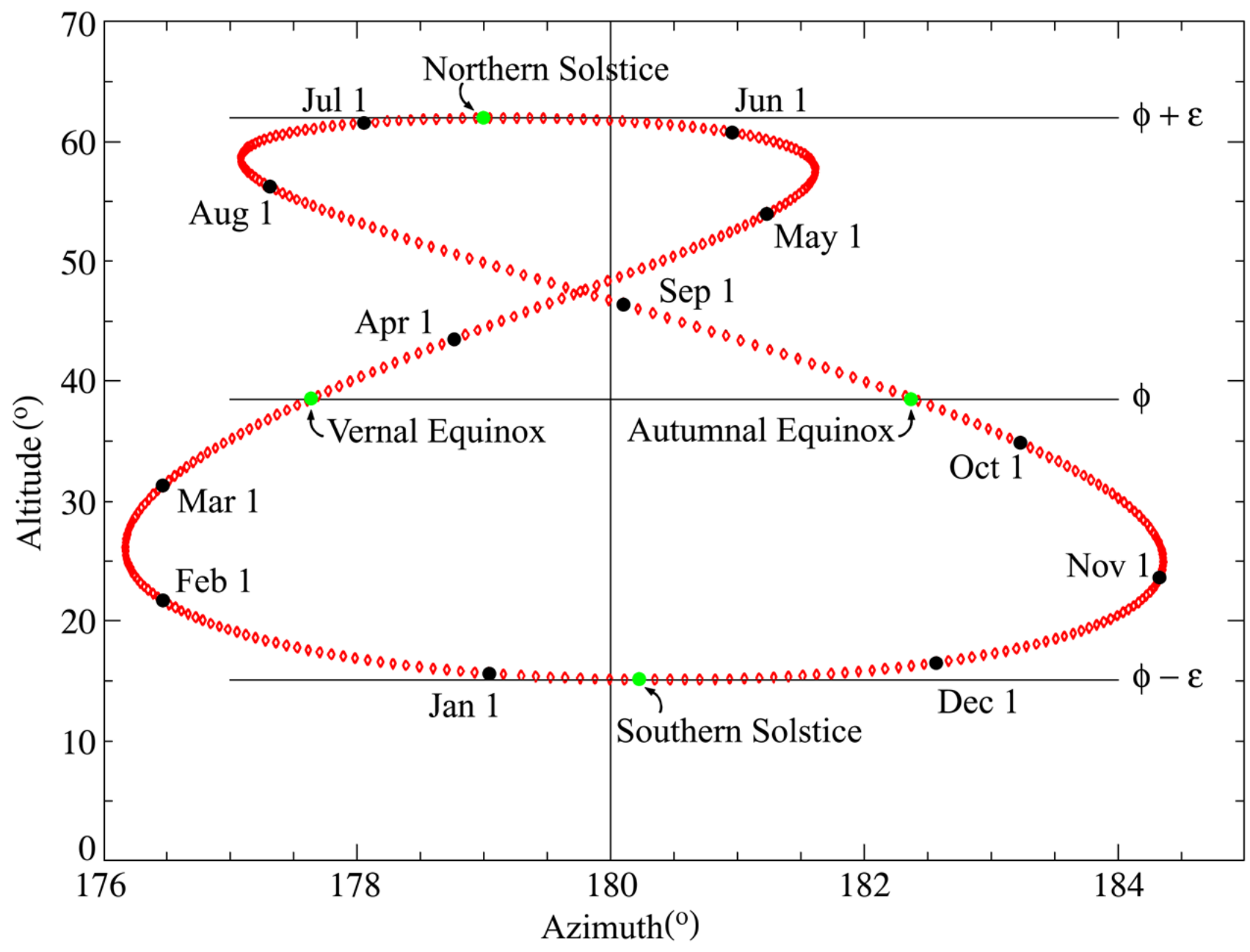
Date and time			Julian Day		
2020	-	3 - 21	12	:	0 : 0

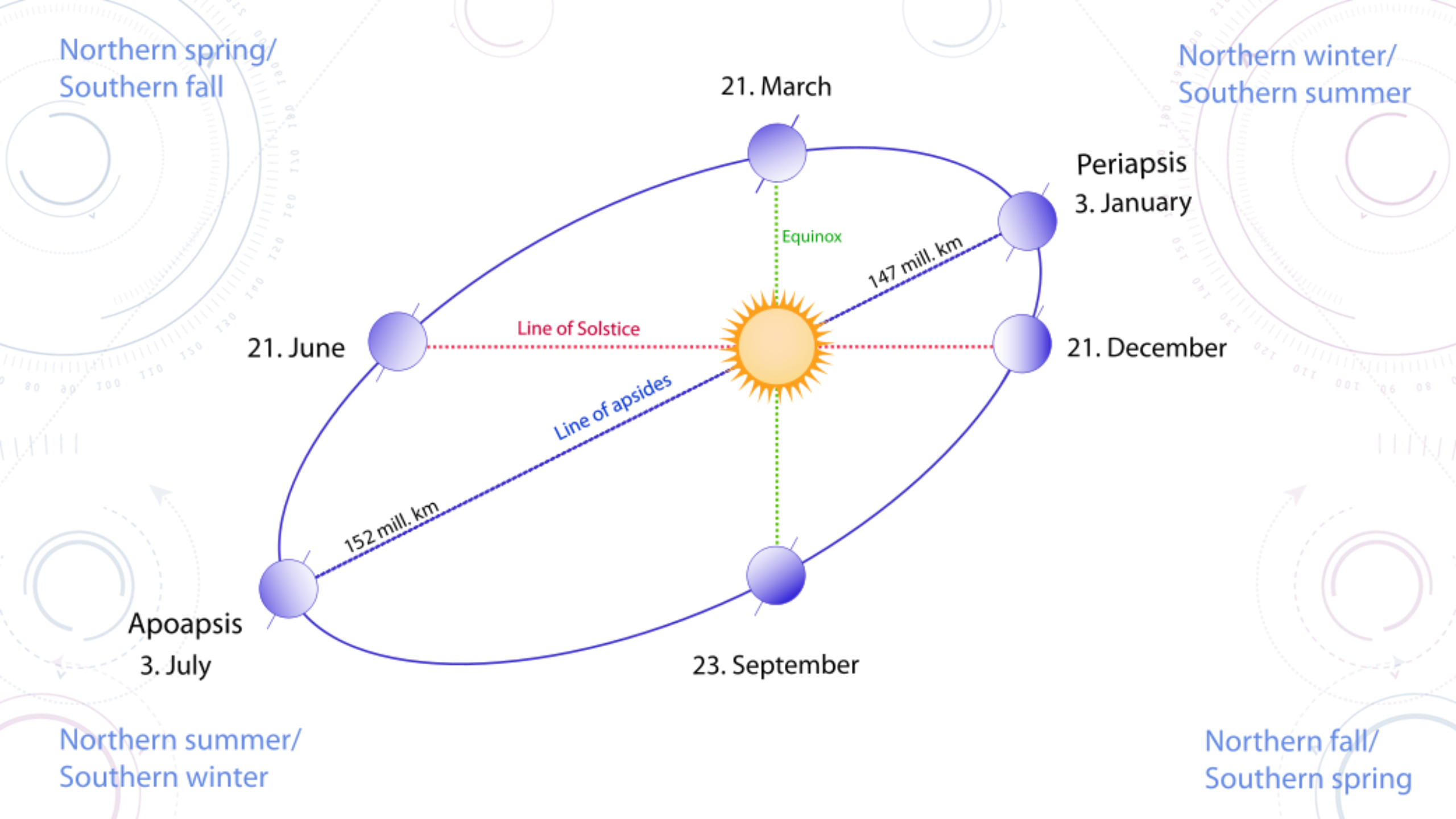


The background features several circular diagrams. On the left, a large blue circular scale with numbers from 0 to 315 is visible. On the right, a purple circular scale with numbers from 0 to 240 is shown. There are also smaller circular icons with arrows, some solid and some dashed, scattered across the page.

Και κάτι ακόμα...







Northern spring/  
Southern fall

Northern winter/  
Southern summer

21. March

Periapsis  
3. January

Equinox

147 mill. km

Line of Solstice

21. June

21. December

Line of apsides

152 mill. km

Apoapsis  
3. July

23. September

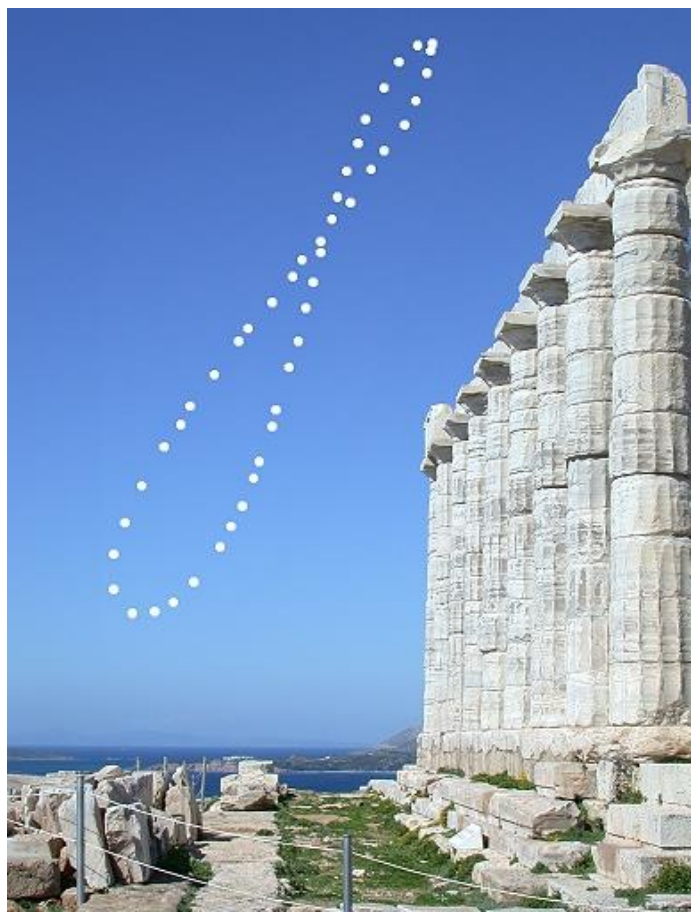
Northern summer/  
Southern winter

Northern fall/  
Southern spring

The background features several circular diagrams and scales. On the left, there is a large circular scale with numbers from 0 to 360, and a smaller circular diagram with arrows indicating a clockwise cycle. On the right, there is a similar circular scale with numbers from 0 to 360, and another smaller circular diagram with arrows. The overall design is clean and technical, with a light blue and purple color palette.

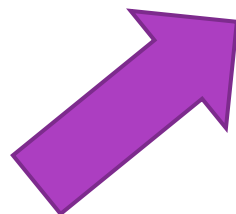
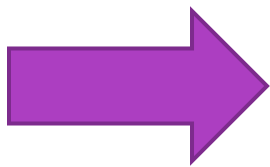
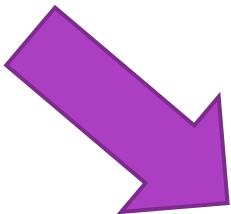
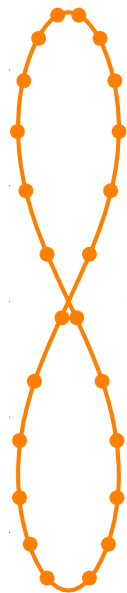
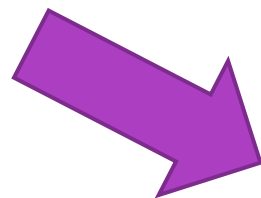
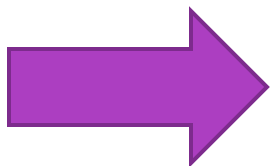
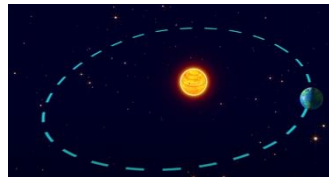
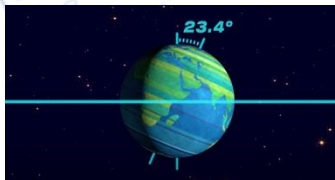
Και η κλίση;





The background features a light blue and purple color palette. It is decorated with several circular motifs: large concentric circles with dashed lines and arrows indicating a clockwise direction, and smaller solid-line circles with arrows. Some of the larger circles have numerical scales around their perimeters, ranging from 0 to 240. The overall design is clean and technical, suggesting a theme of engineering or data analysis.

# Περίληψη





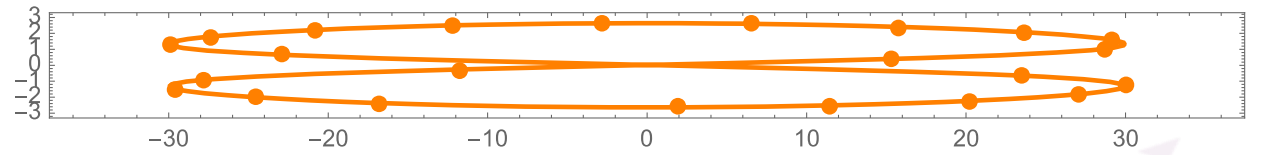
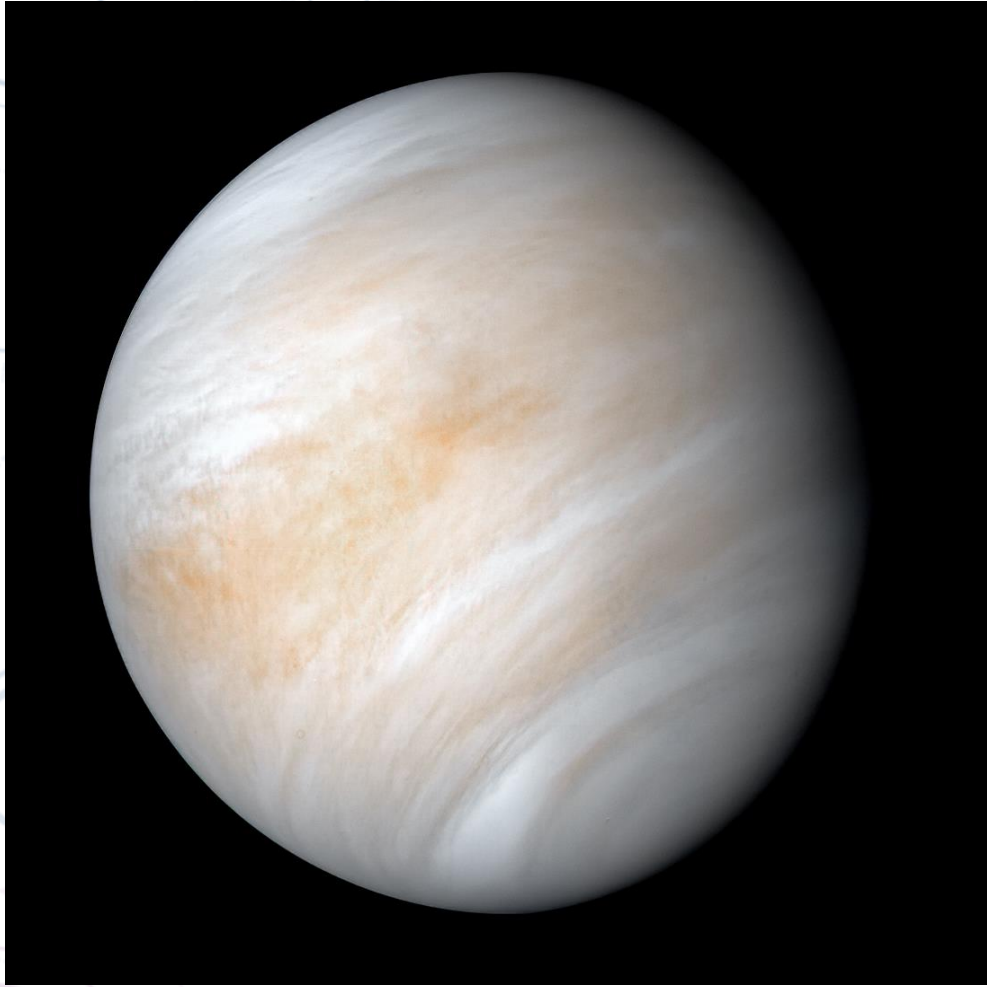
The background features a light blue and purple color scheme with various circular patterns. On the left and right sides, there are large circular gauges with numerical scales (0 to 360) and arrows indicating rotation. Smaller circular motifs, including dashed lines and solid lines with arrows, are scattered throughout the background.

# Επίλογος

Ερμής: Χωρίς κλίση!

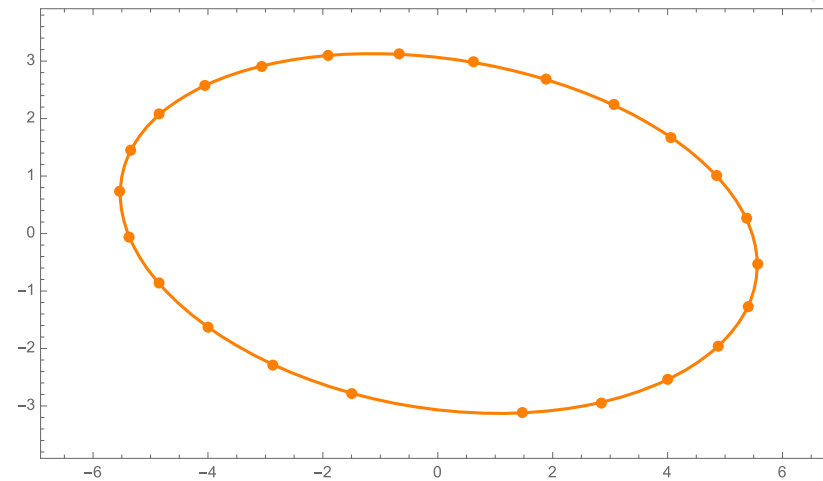
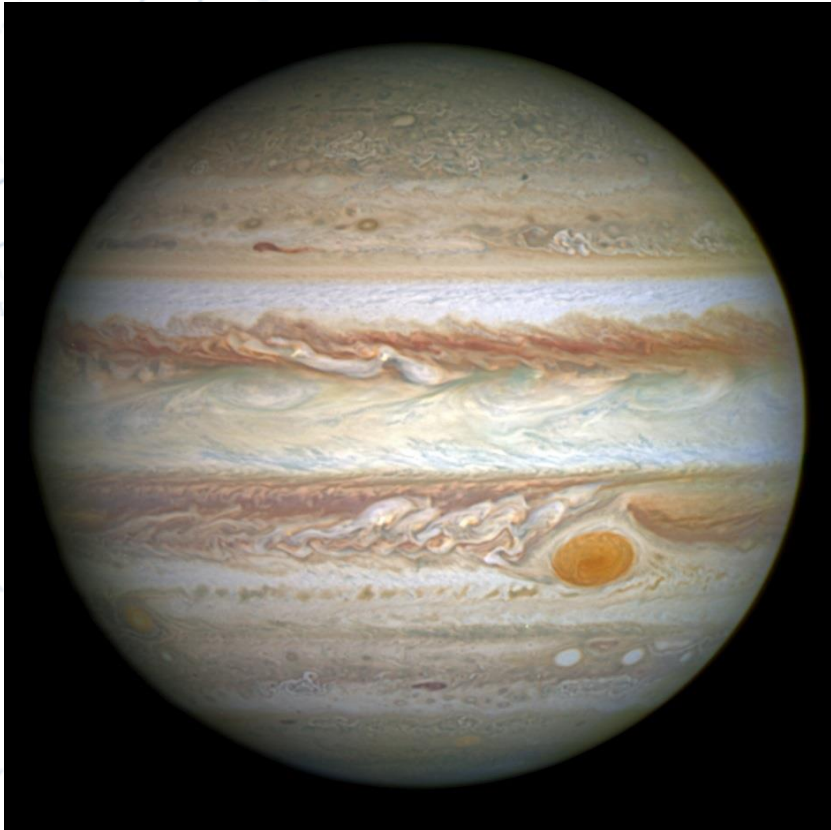


# Αφροδίτη: Ισημερία στο αφήλιο

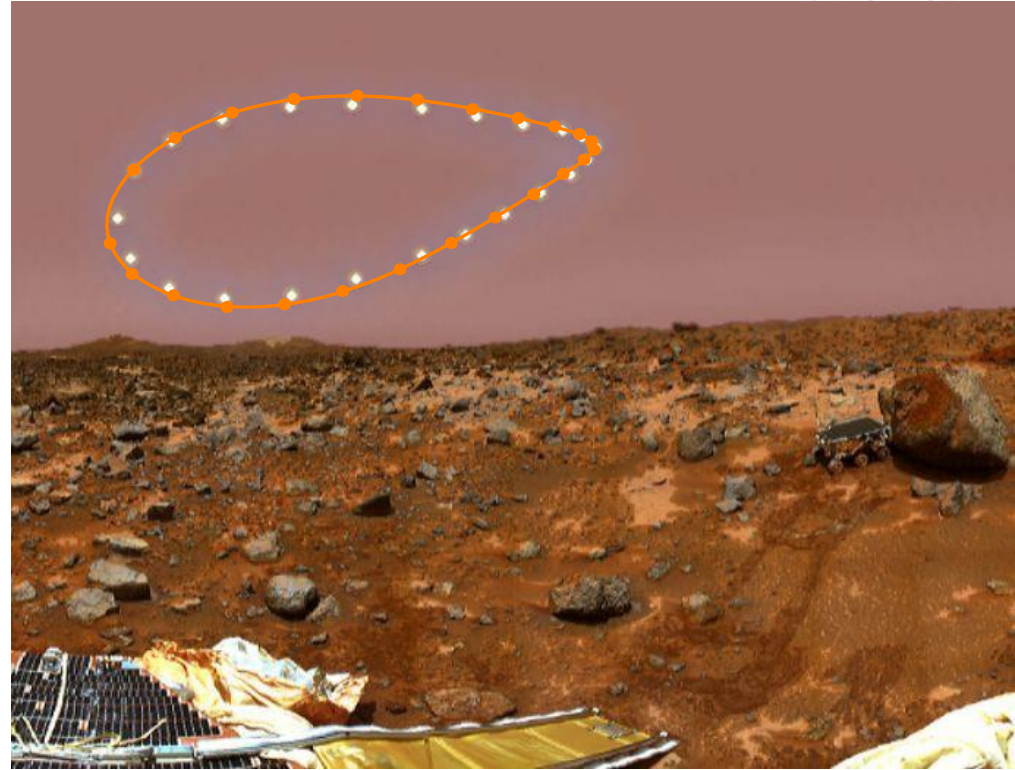
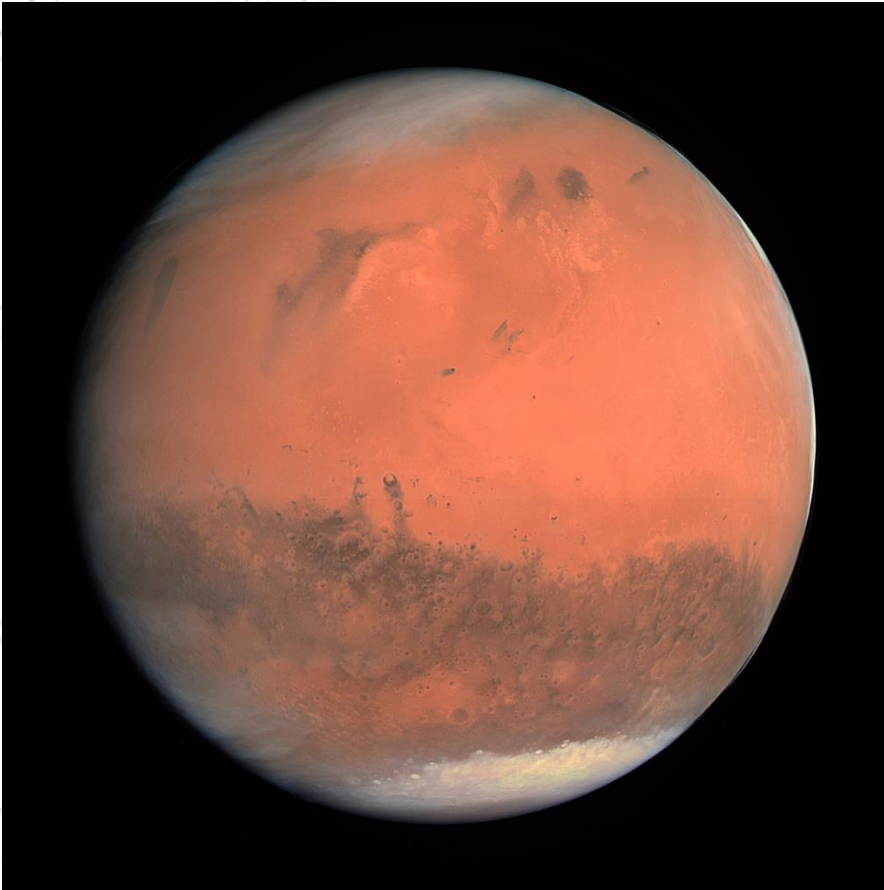




# Δίας: Μικρή κλίση ( $3^\circ$ vs. $23^\circ$ )



Άρης: 4x εκκεντρότητα



The background features a light blue and purple color palette. It is decorated with various circular motifs, including concentric circles, dashed lines, and arrows indicating clockwise or counter-clockwise rotation. Two prominent orange teardrop-shaped outlines, each composed of small circular dots, are positioned on the left and right sides of the page. The central text is rendered in a purple, serif font.

Ευχαριστώ



# Some References

<http://mb-soft.com/public3/equatime.html>

<https://ciechanow.ski/earth-and-sun/>

<https://medium.com/starts-with-a-bang/throwback-thursday-the-earths-analemma-590ce068eee2#.dorfk9tet>

<https://medium.com/sentinel-hub/the-shadow-of-a-celestial-dance-90968f1f42fb>