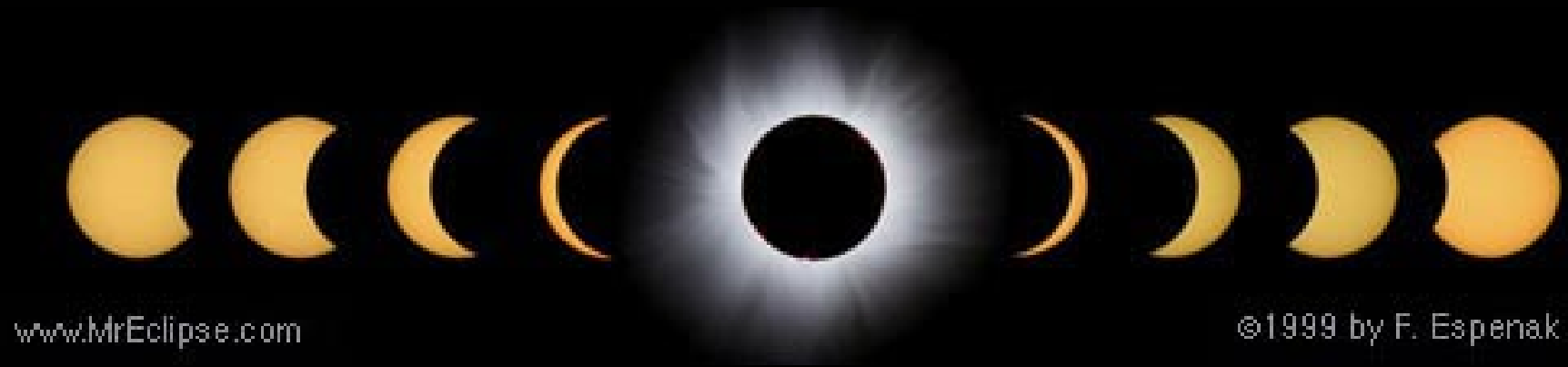
Fænomener på Solen

- optakt til total solformørkelse den 29. marts 2006 i Tyrkiet



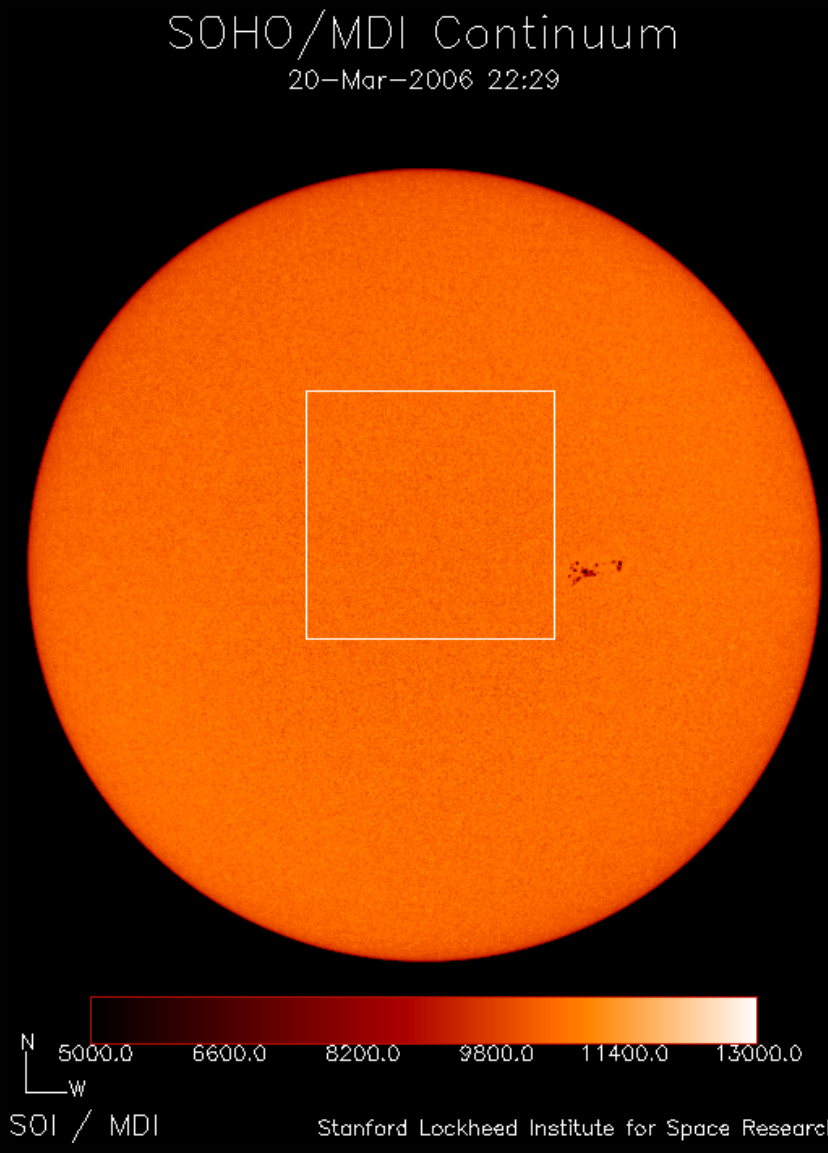
Michael Cramer Andersen

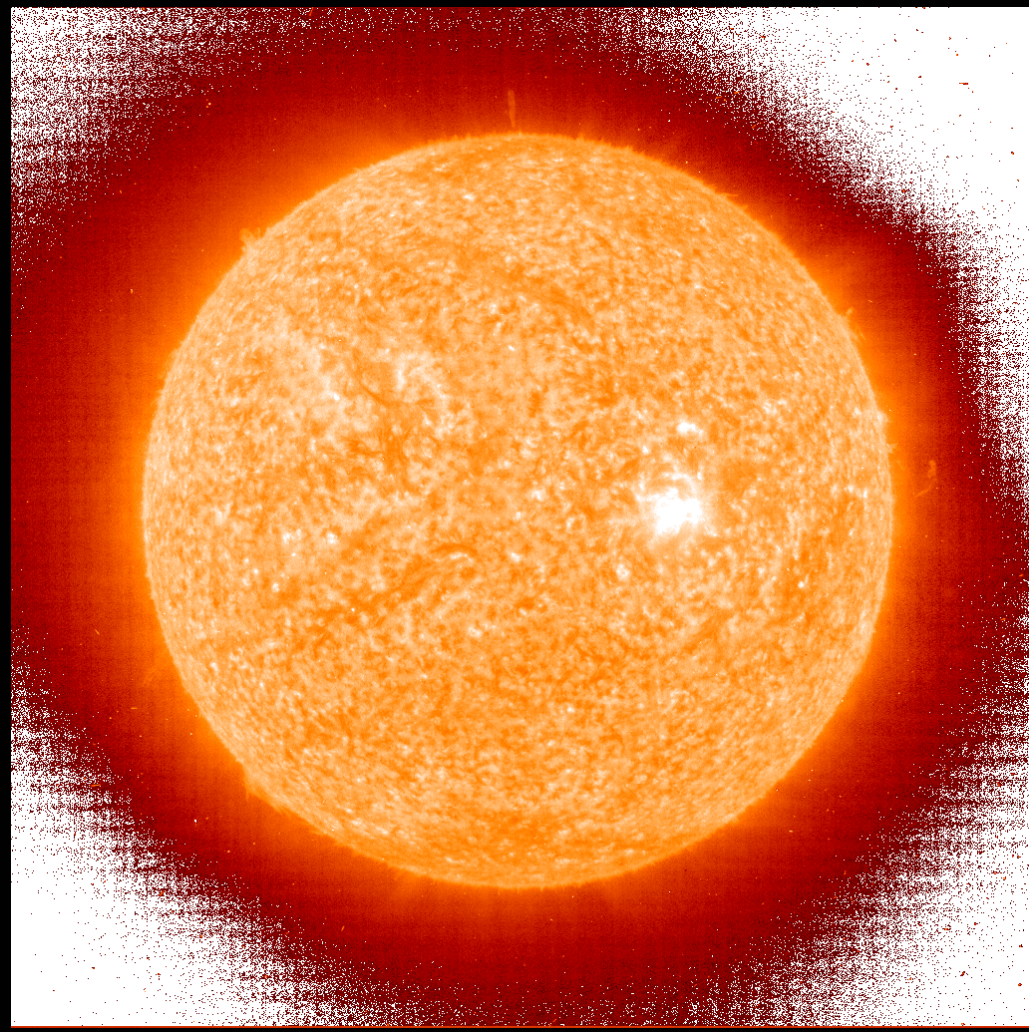
Astrofysiker og videnskabsformidler

Hovedaktørerne:

- Solen og Månen

Solens overflade:





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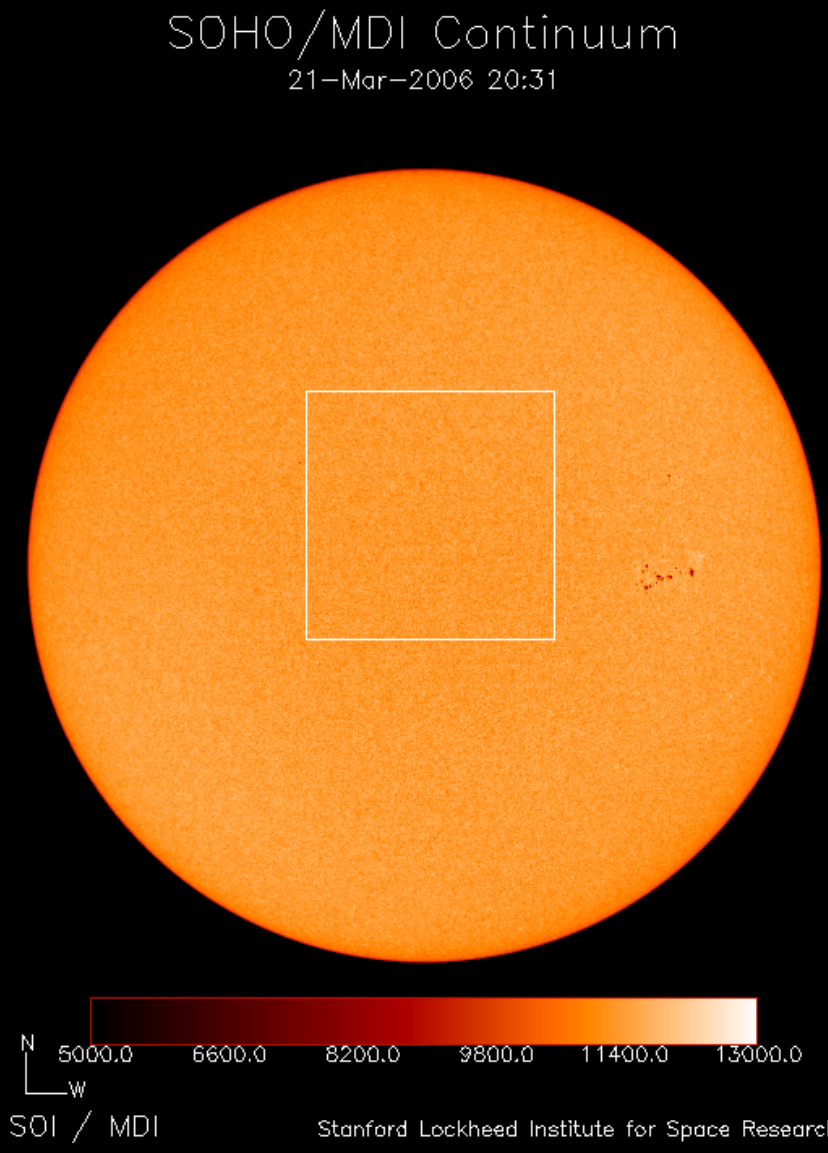

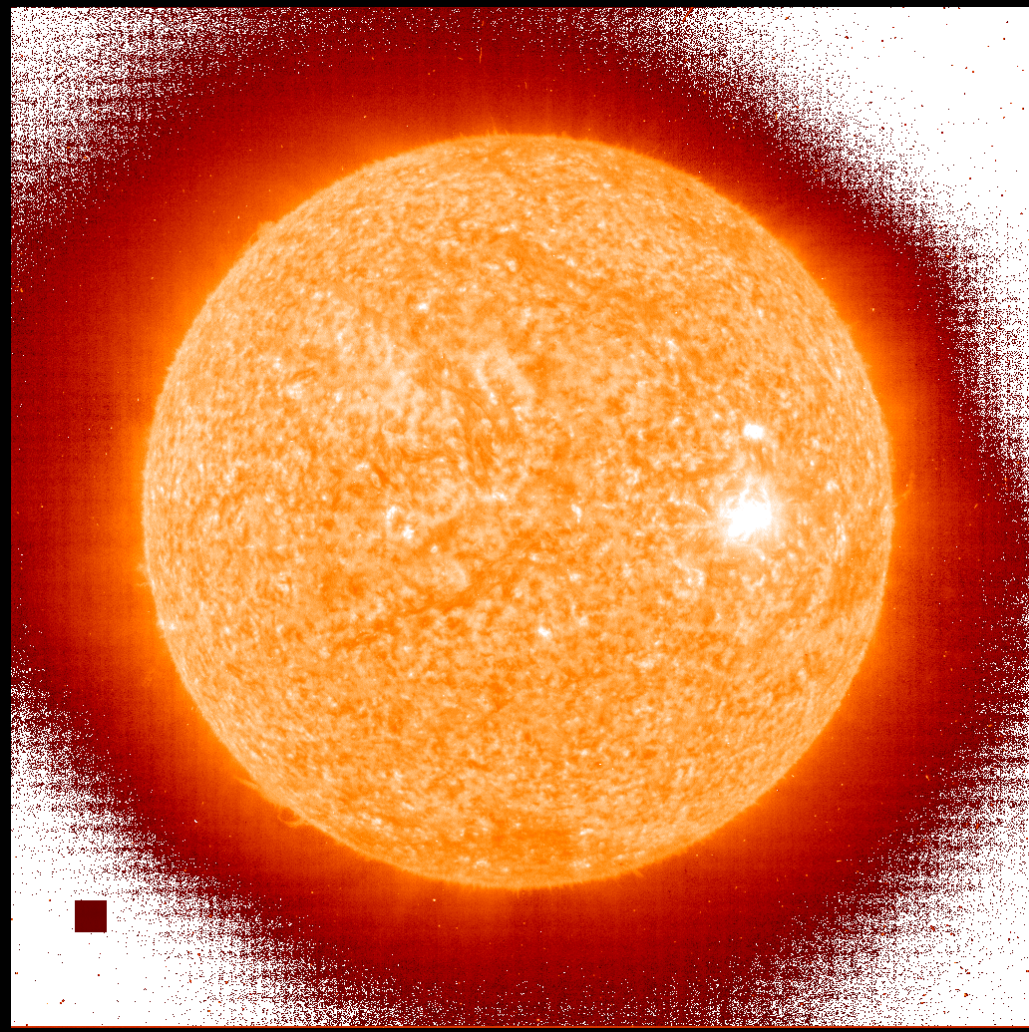

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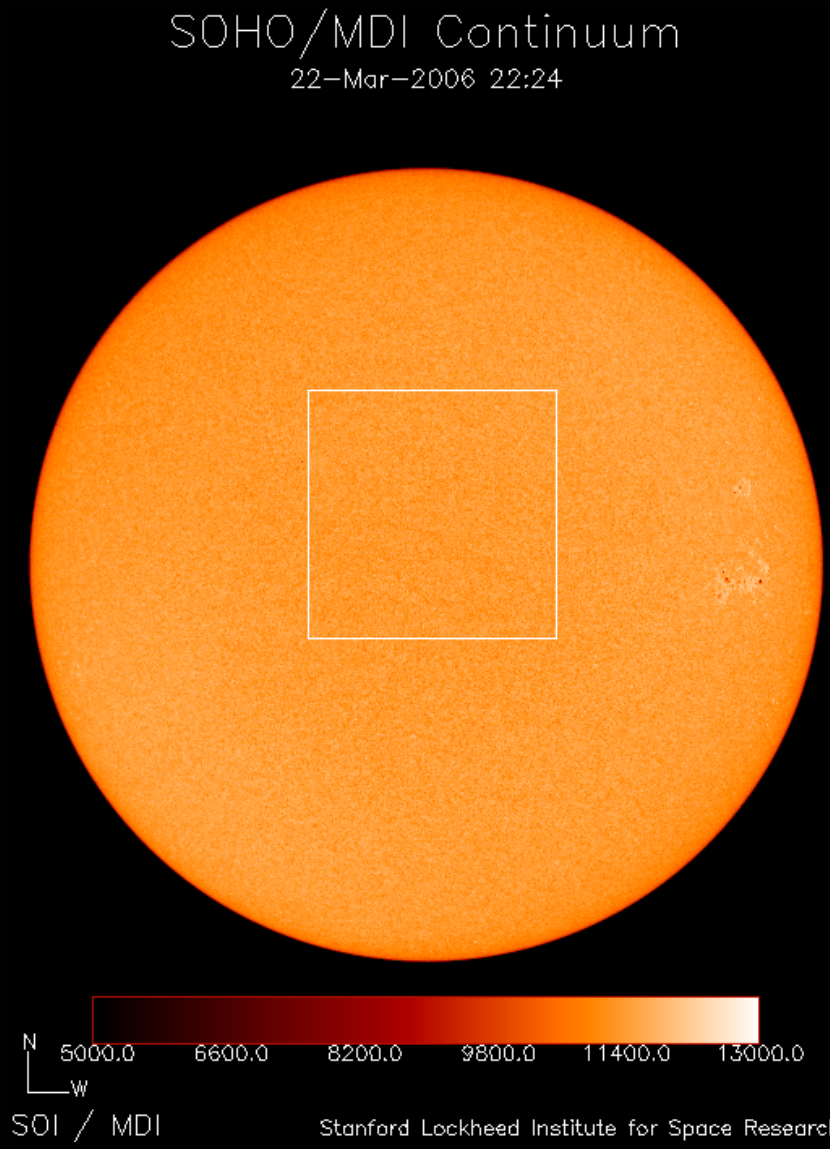

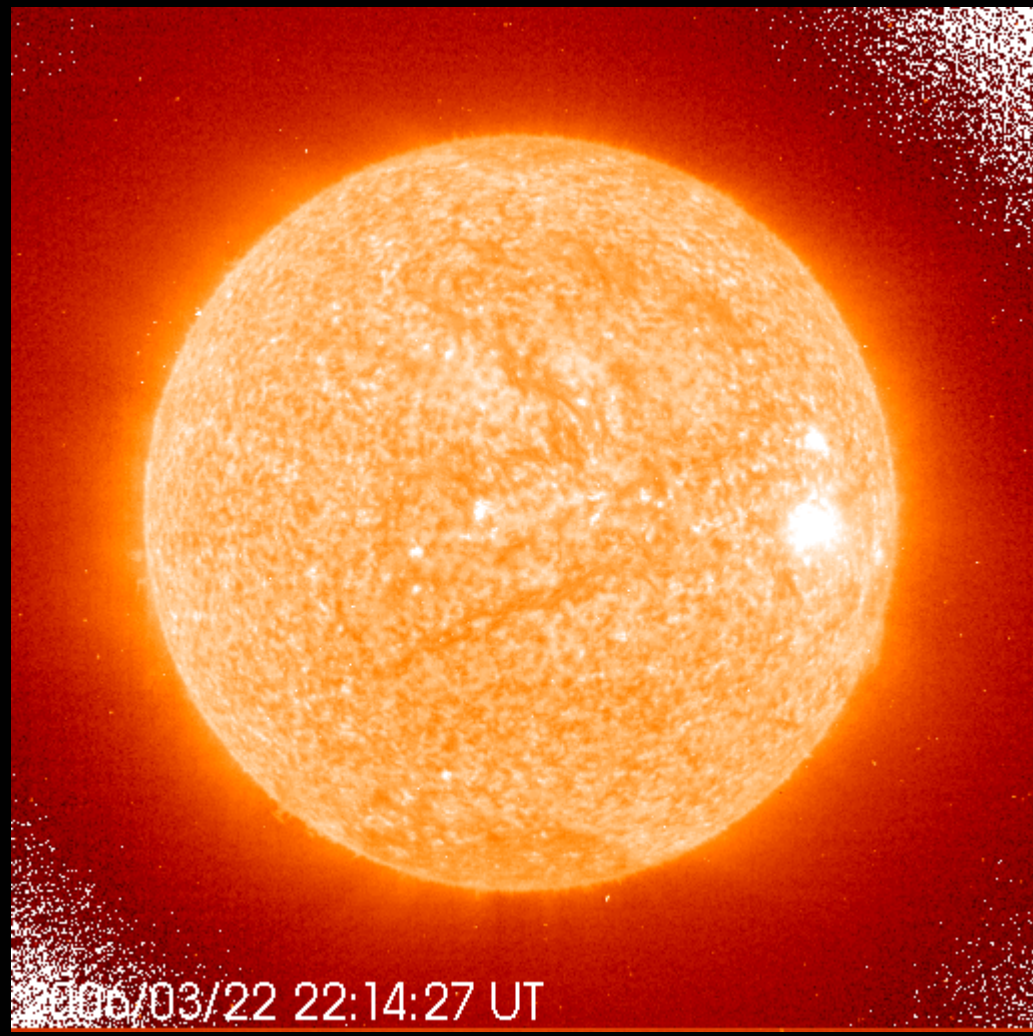

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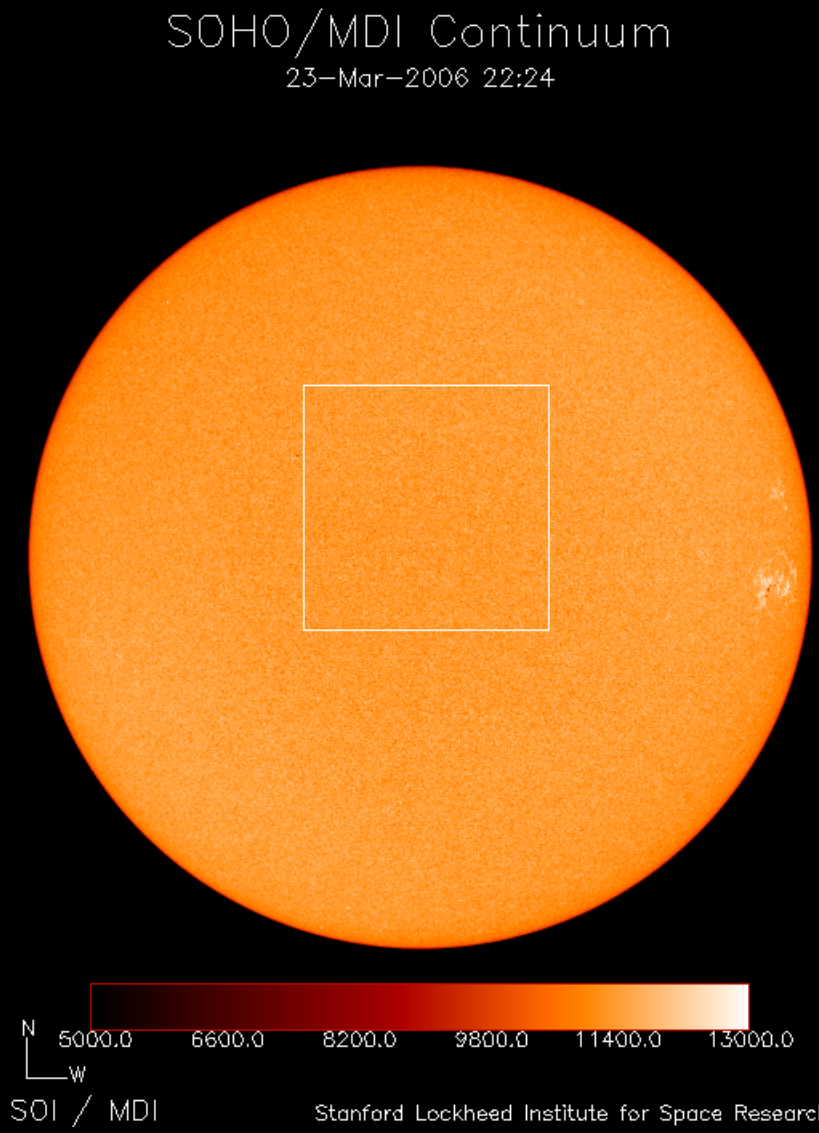

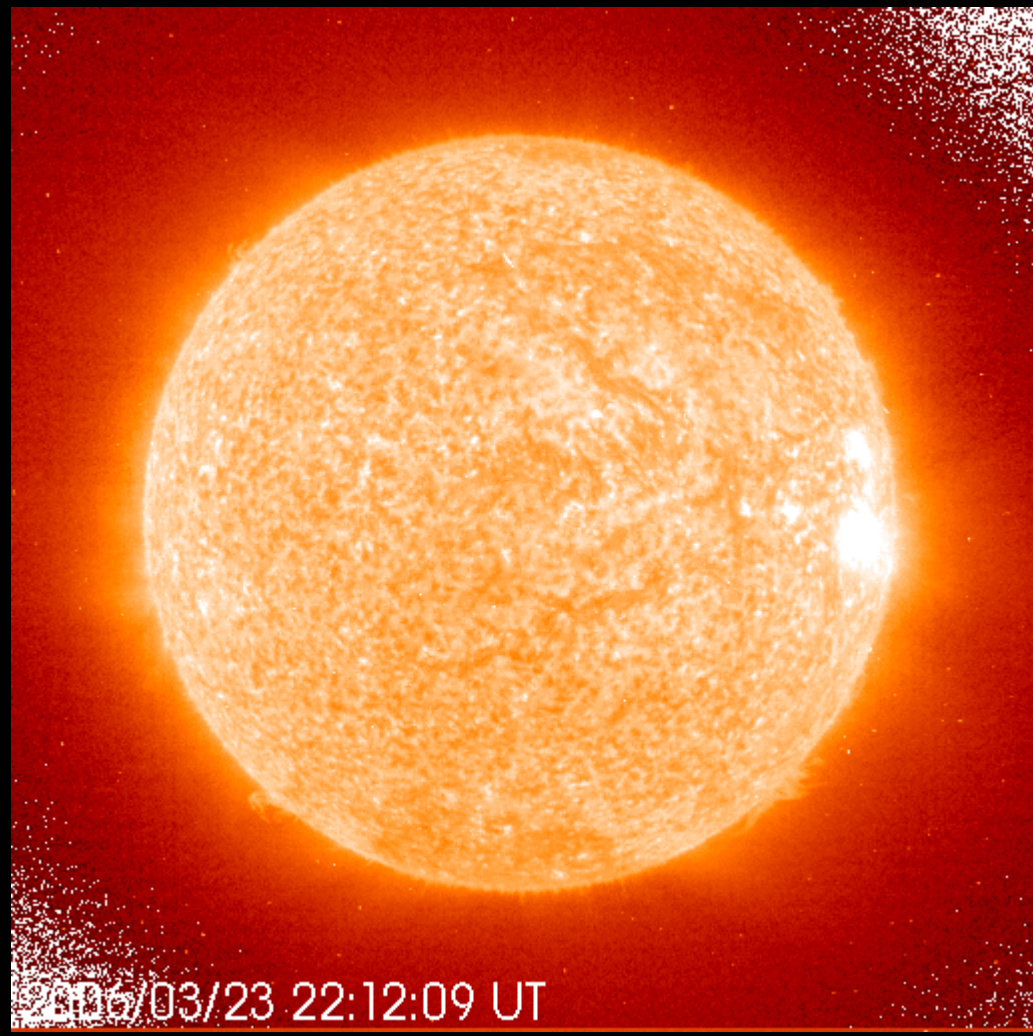

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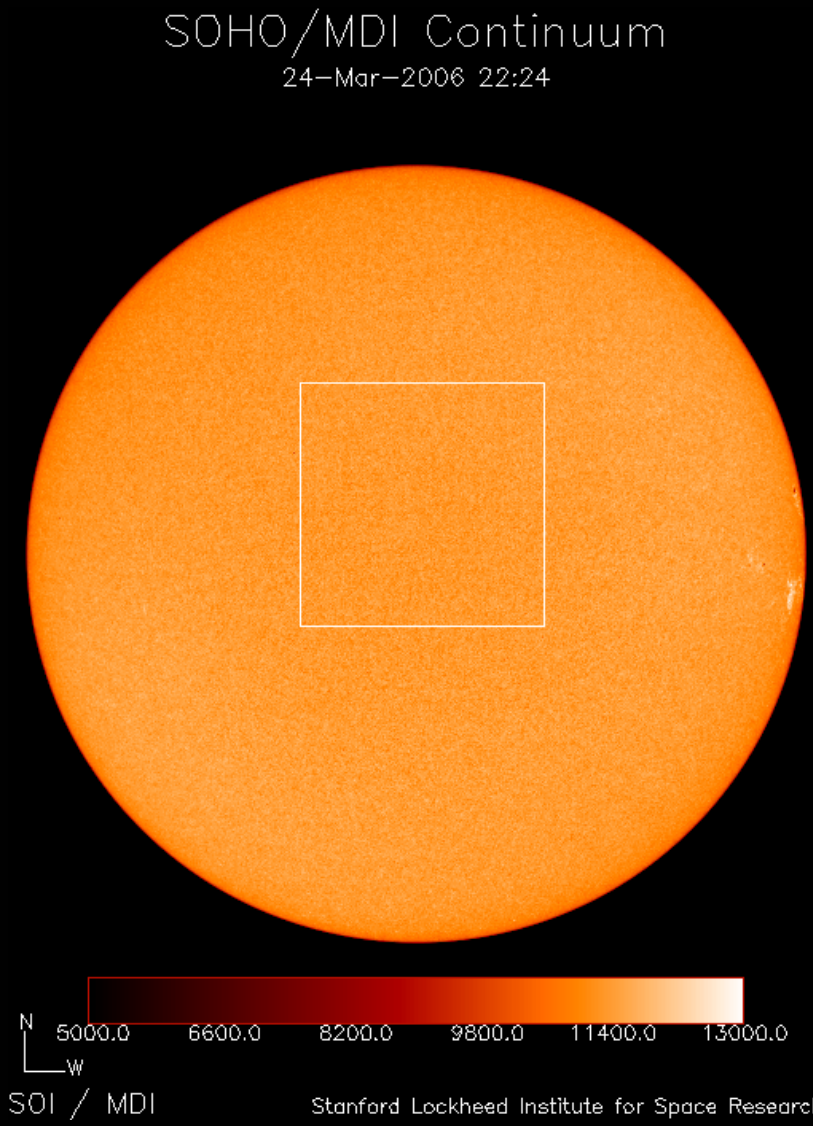

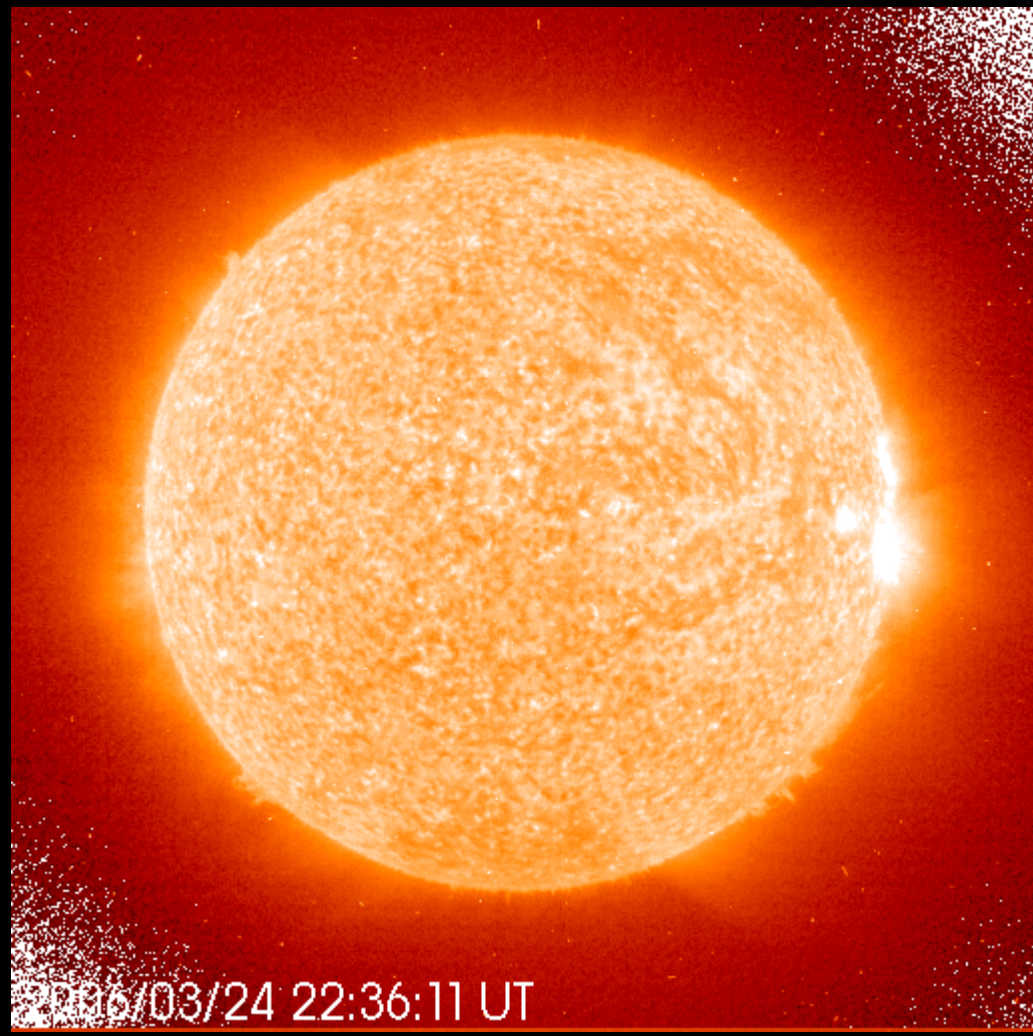

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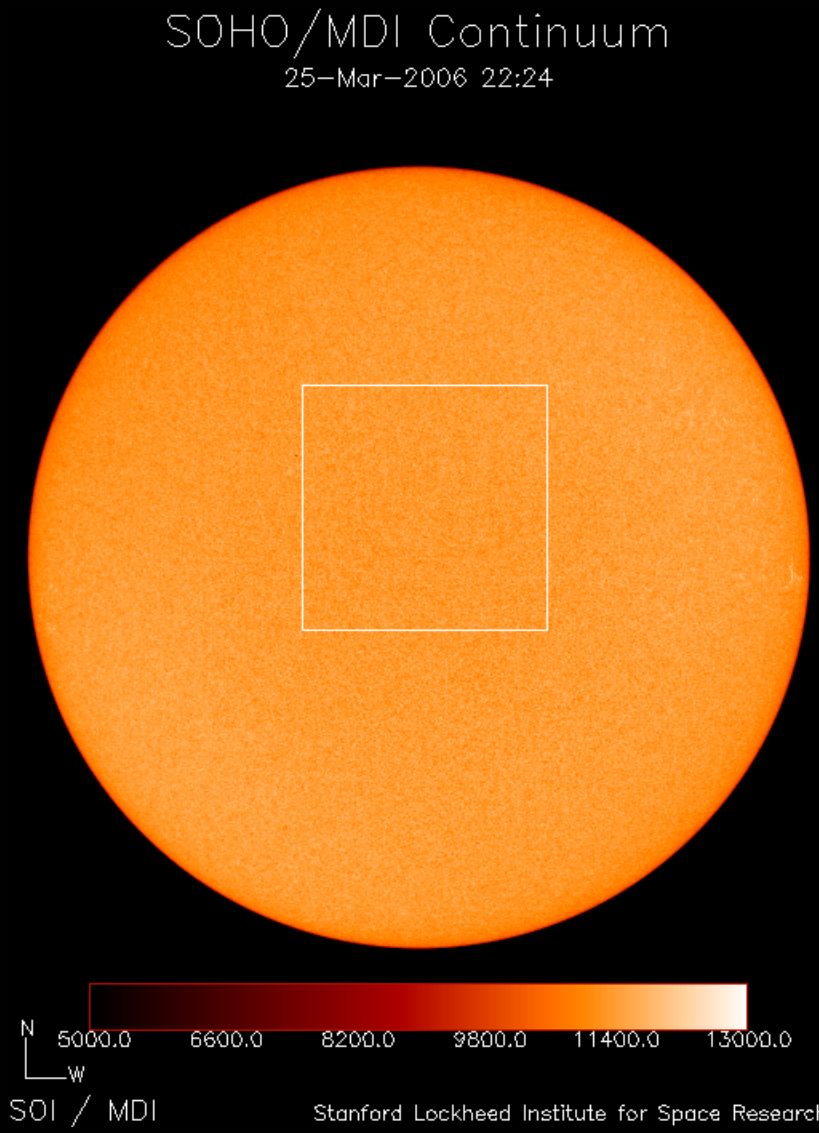

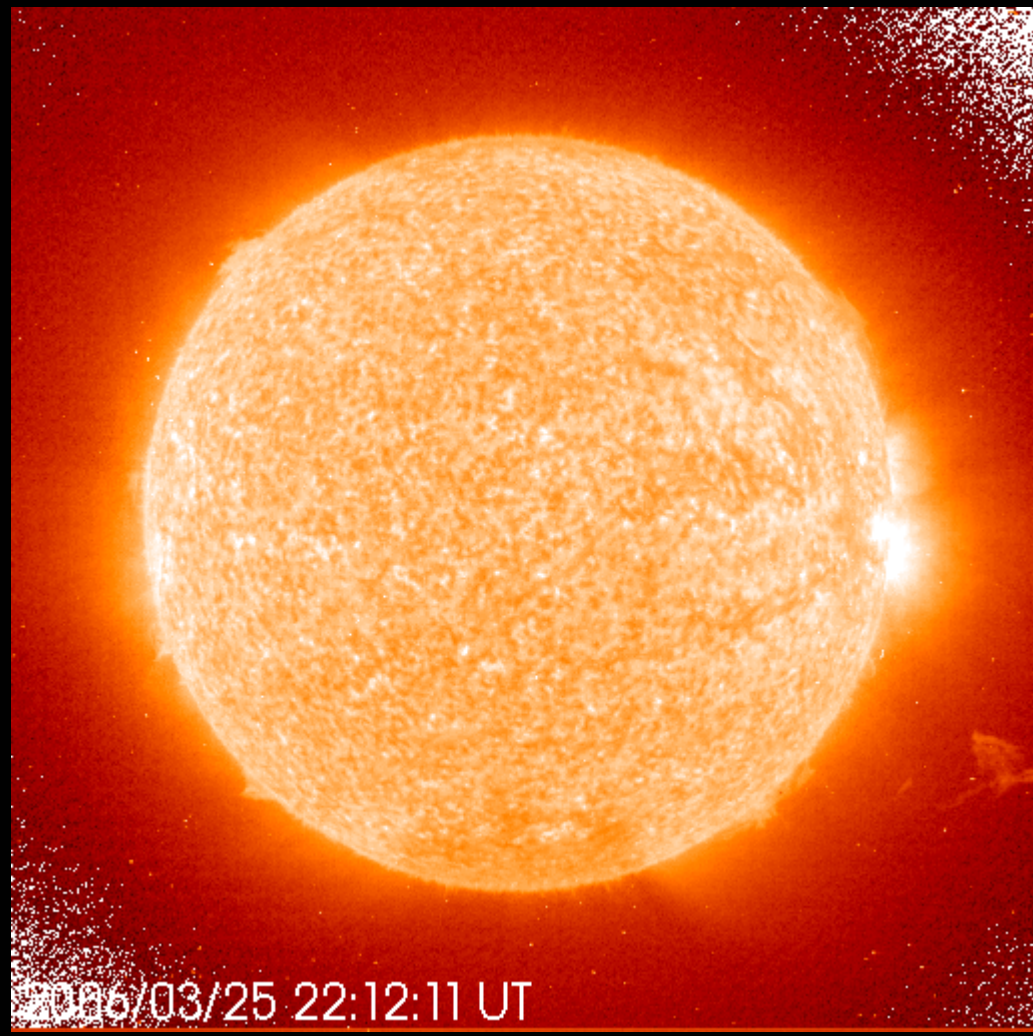

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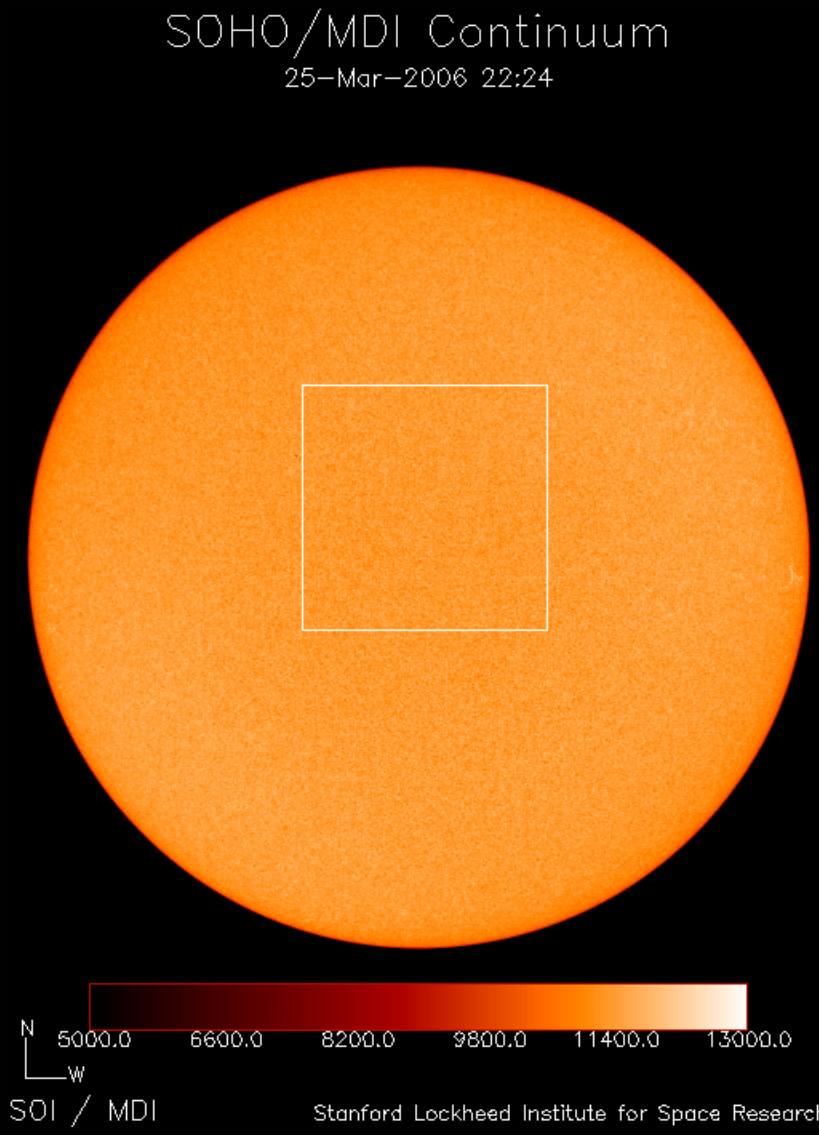

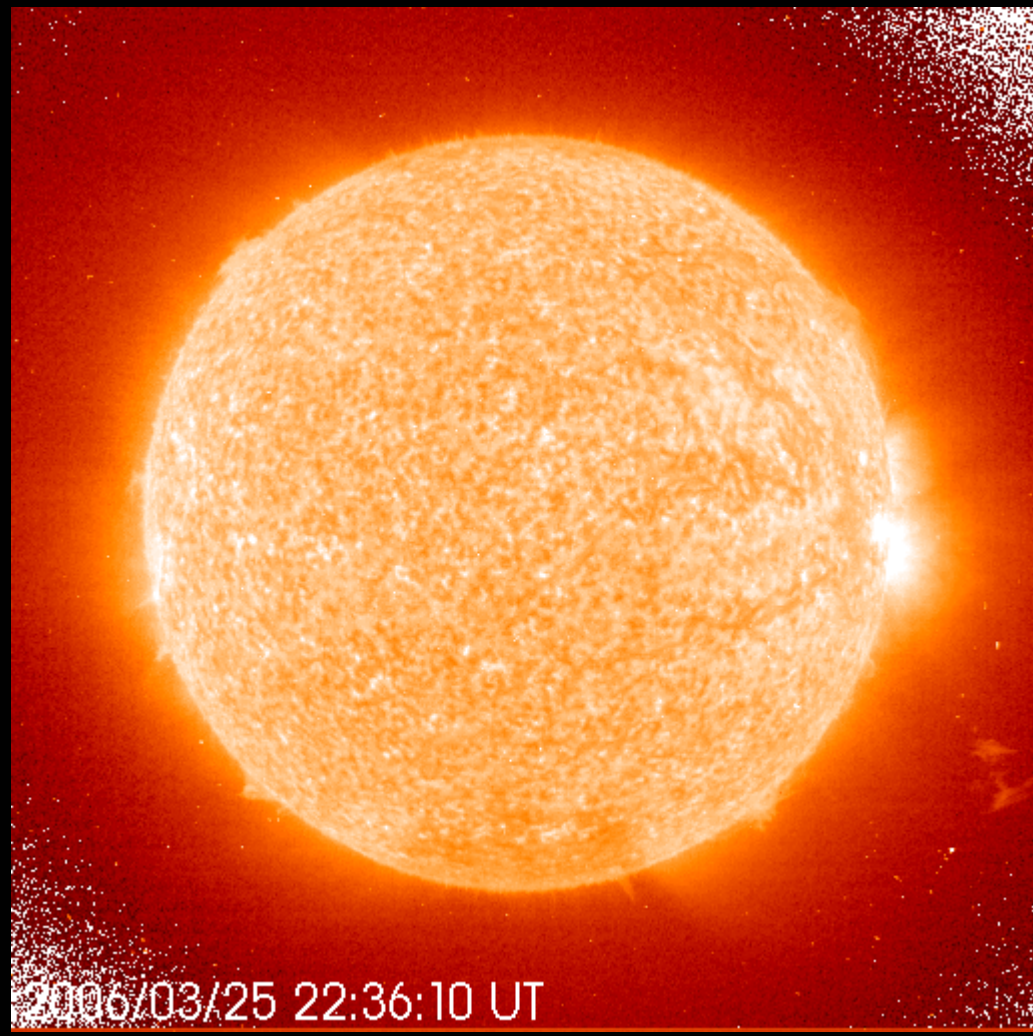

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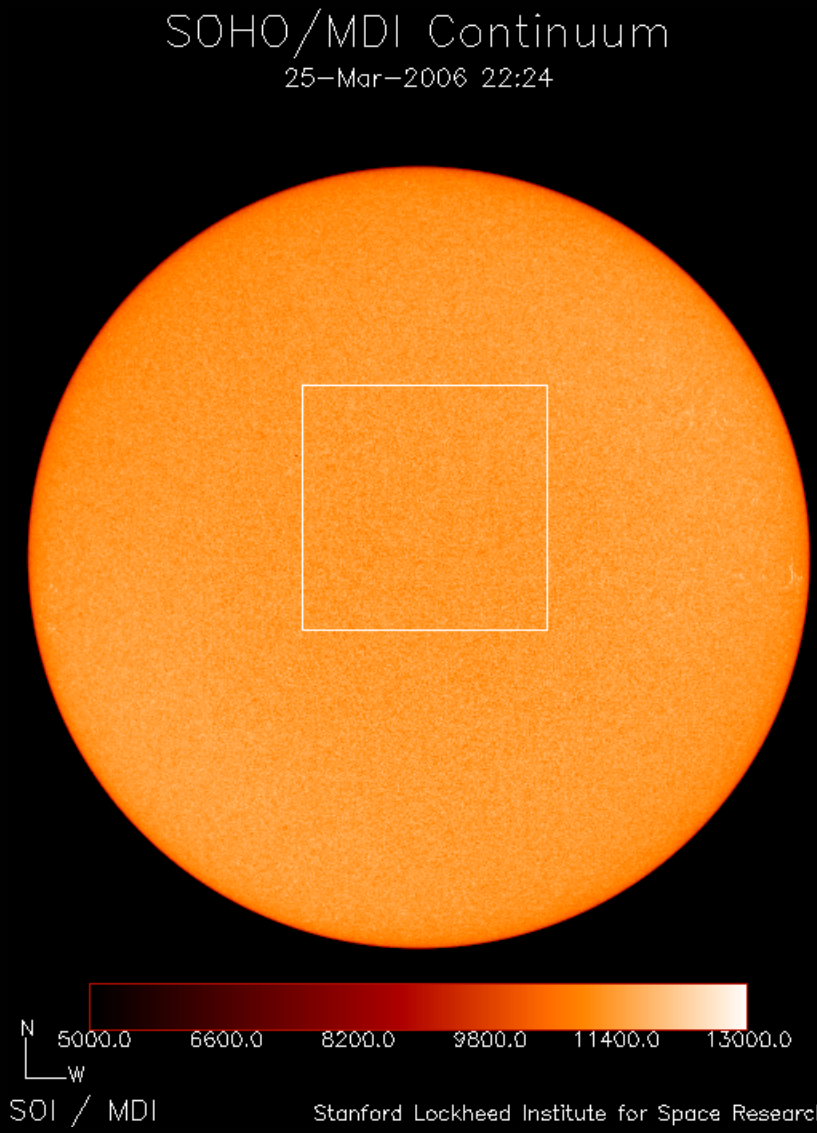
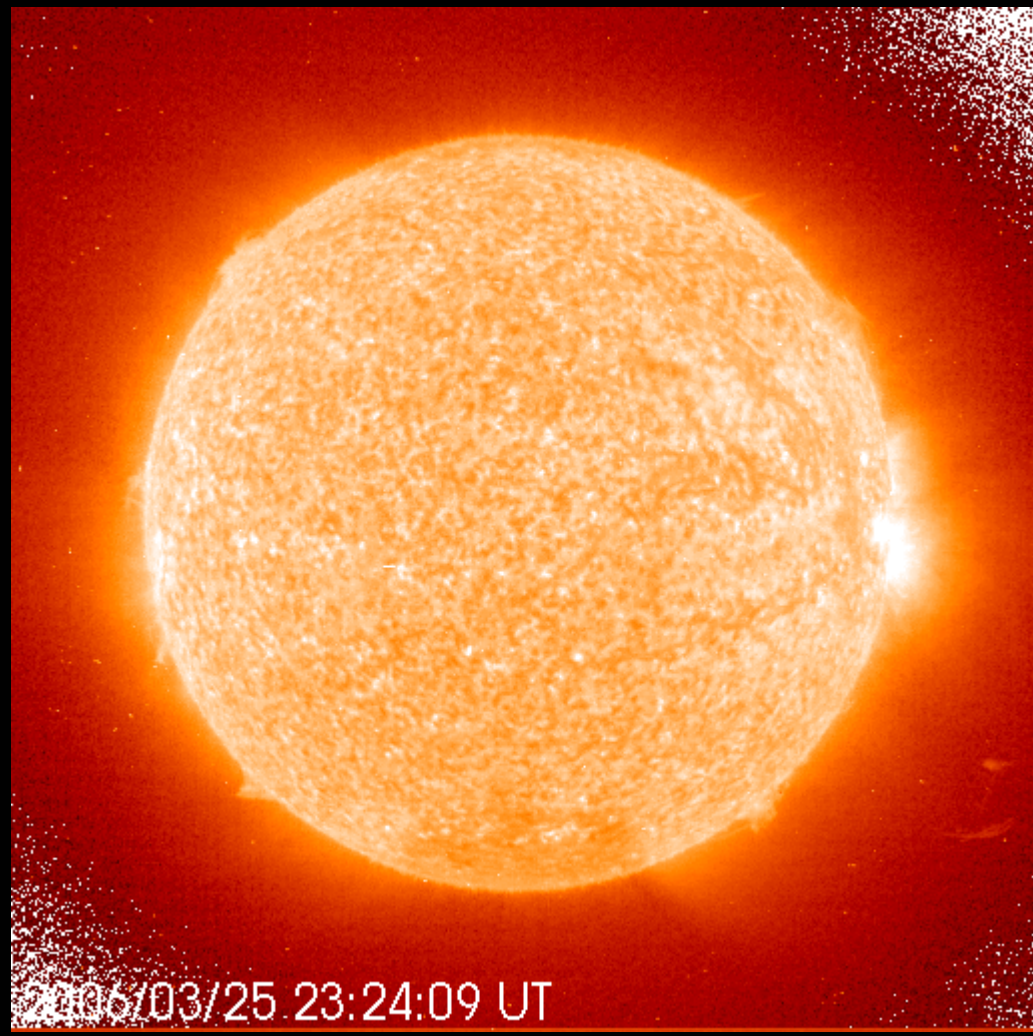
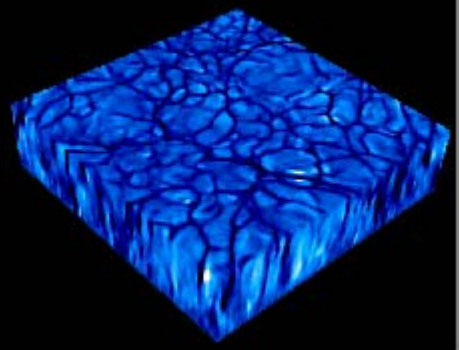
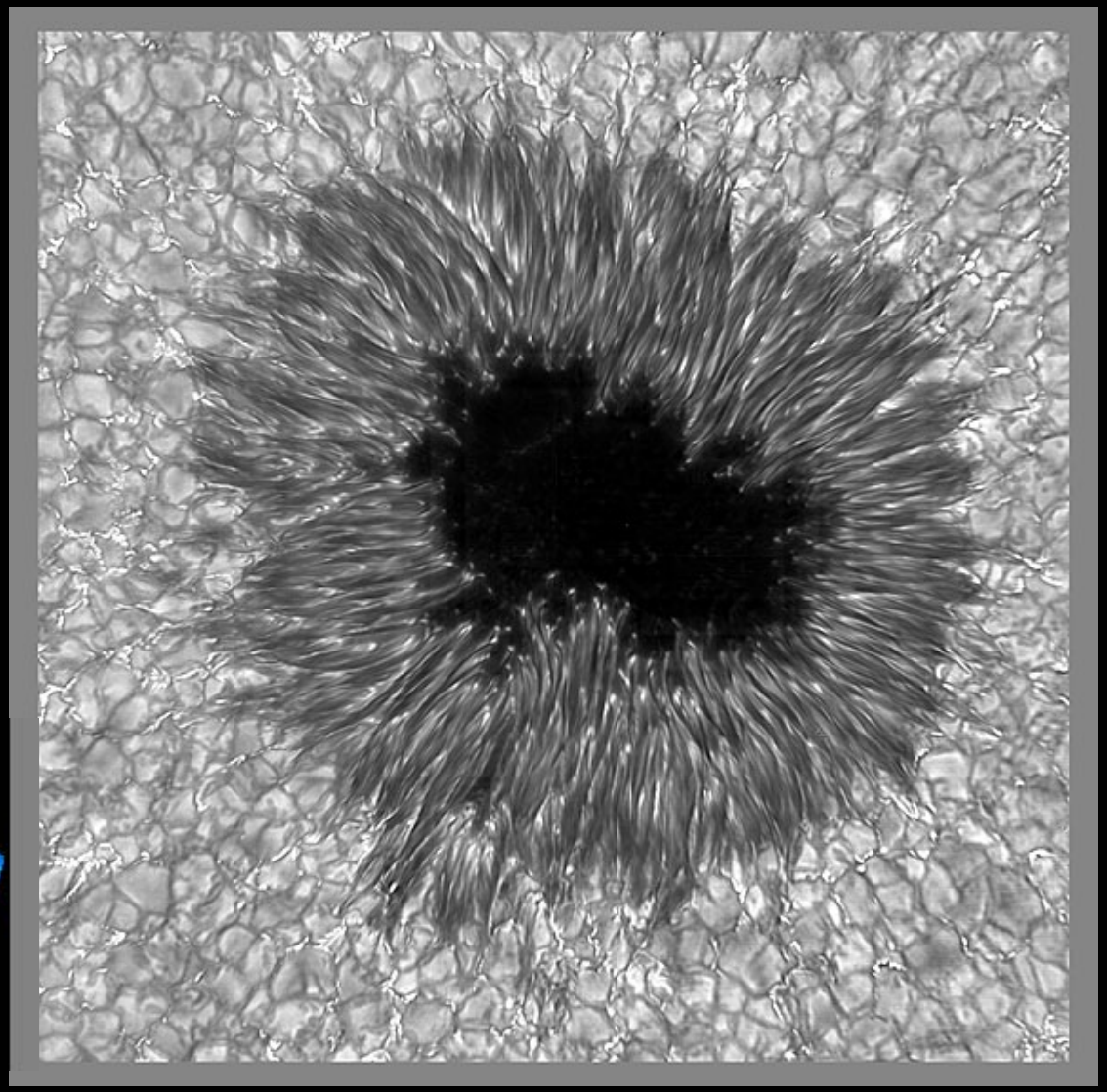




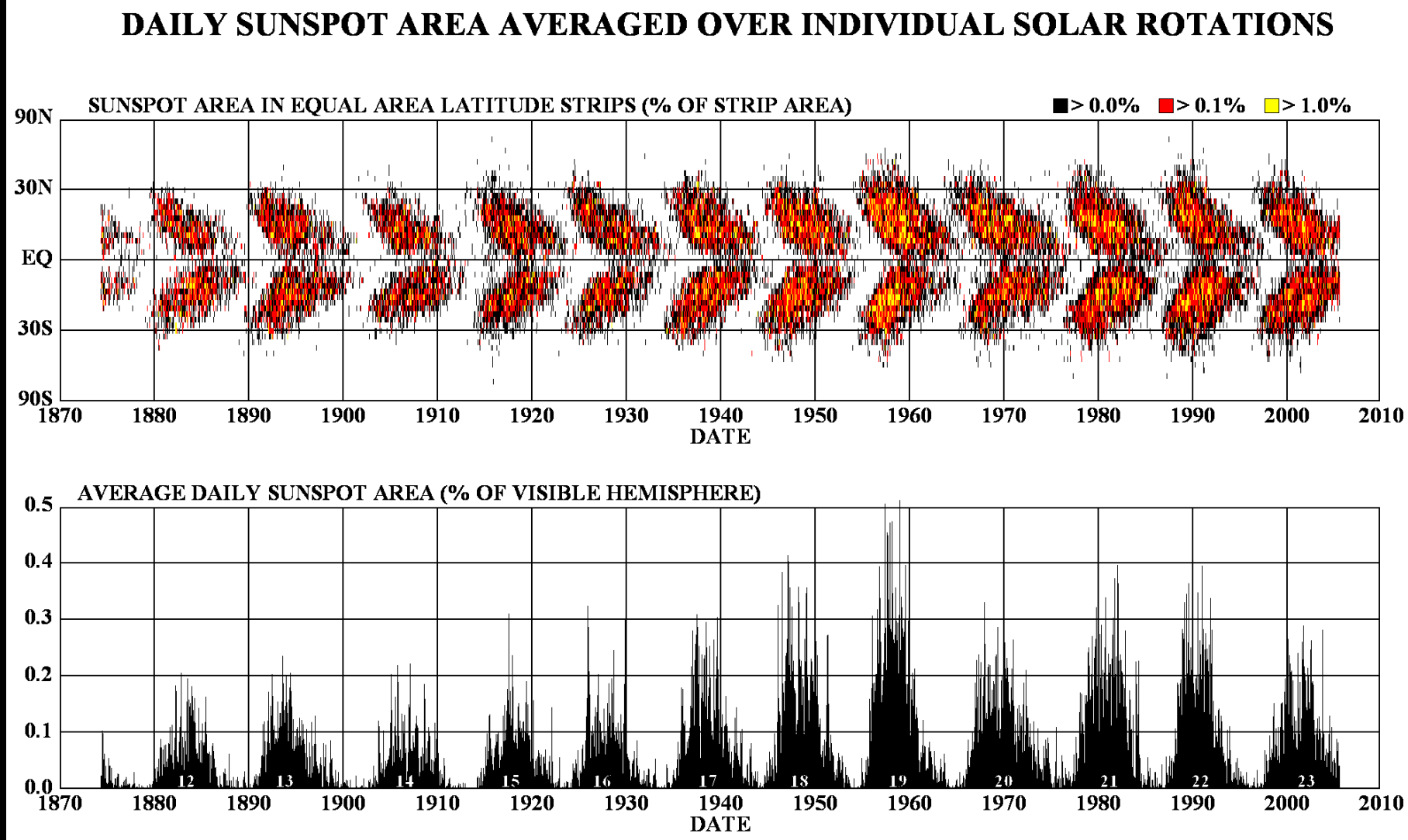
Solpletter: Store magnetiske storme

Granulation:

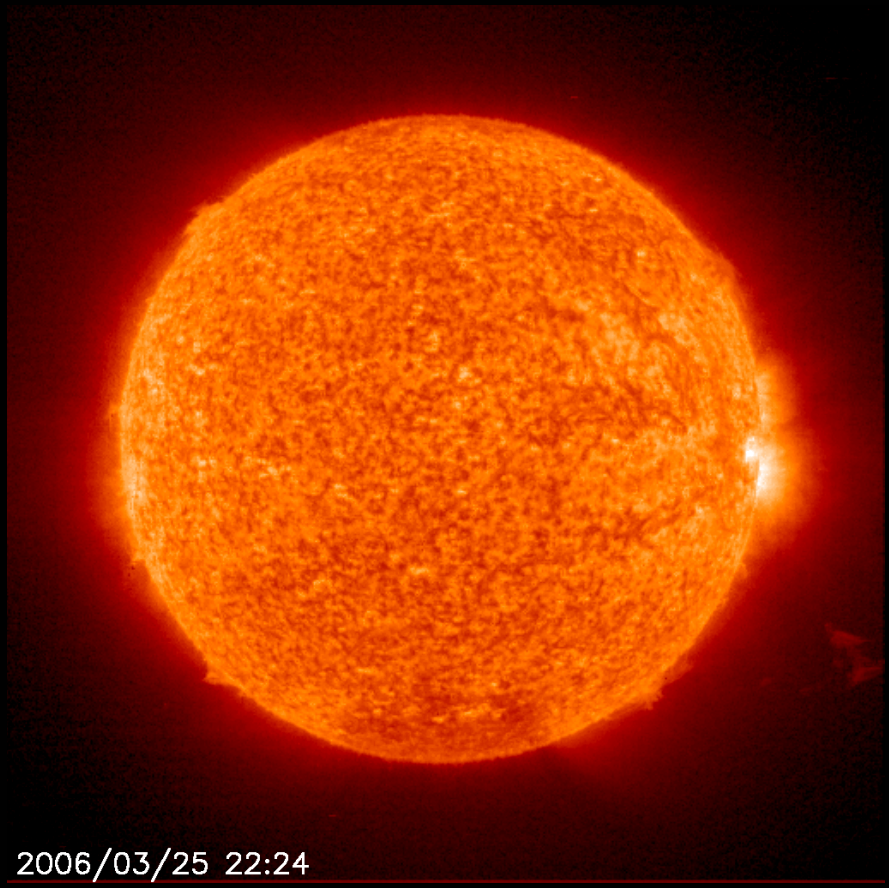


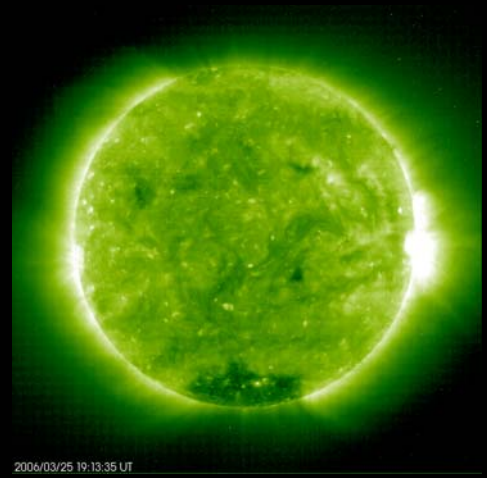


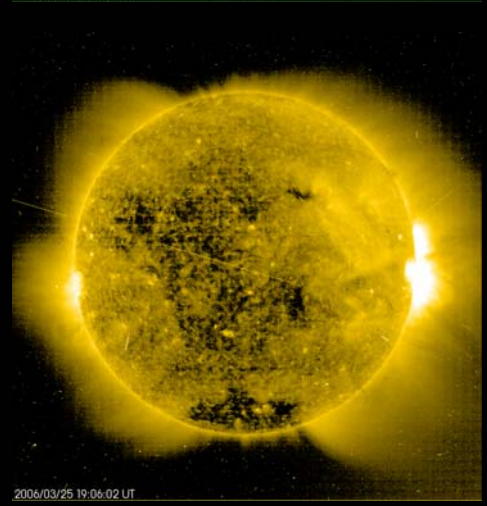
Solpletcyklus:

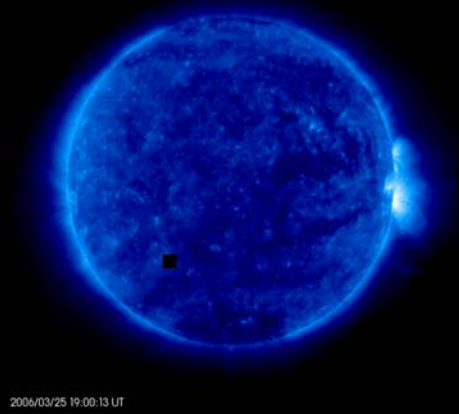


Solen set med SOHO:

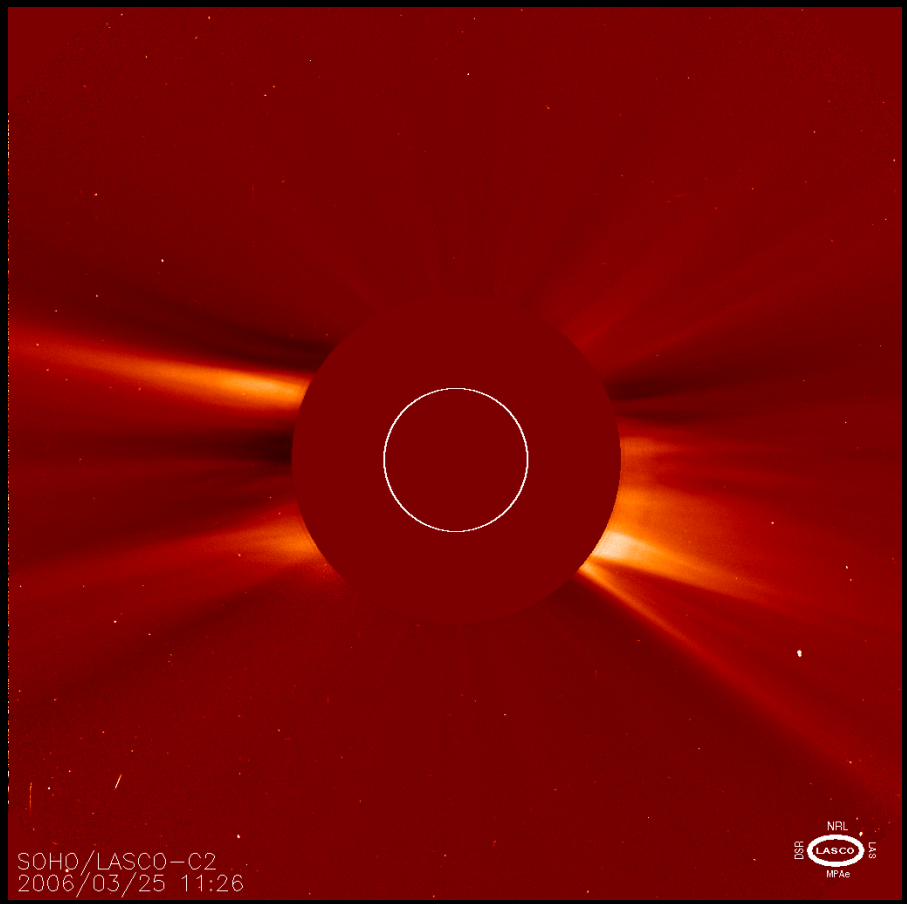


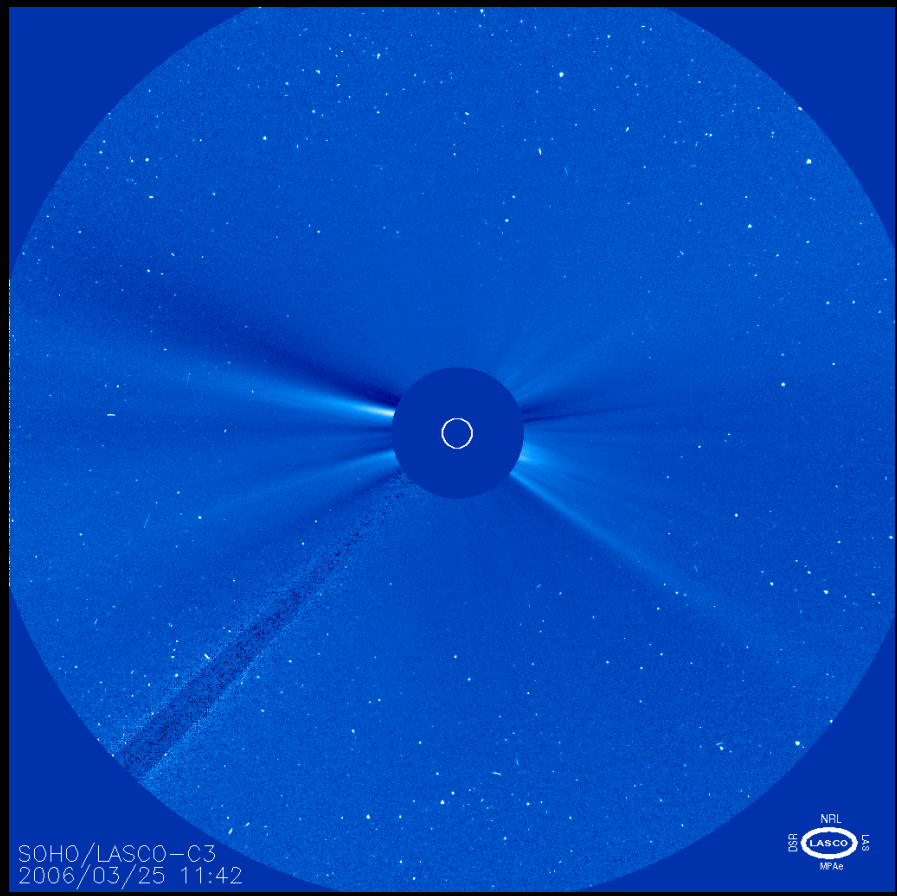






Solen set med SOHO:



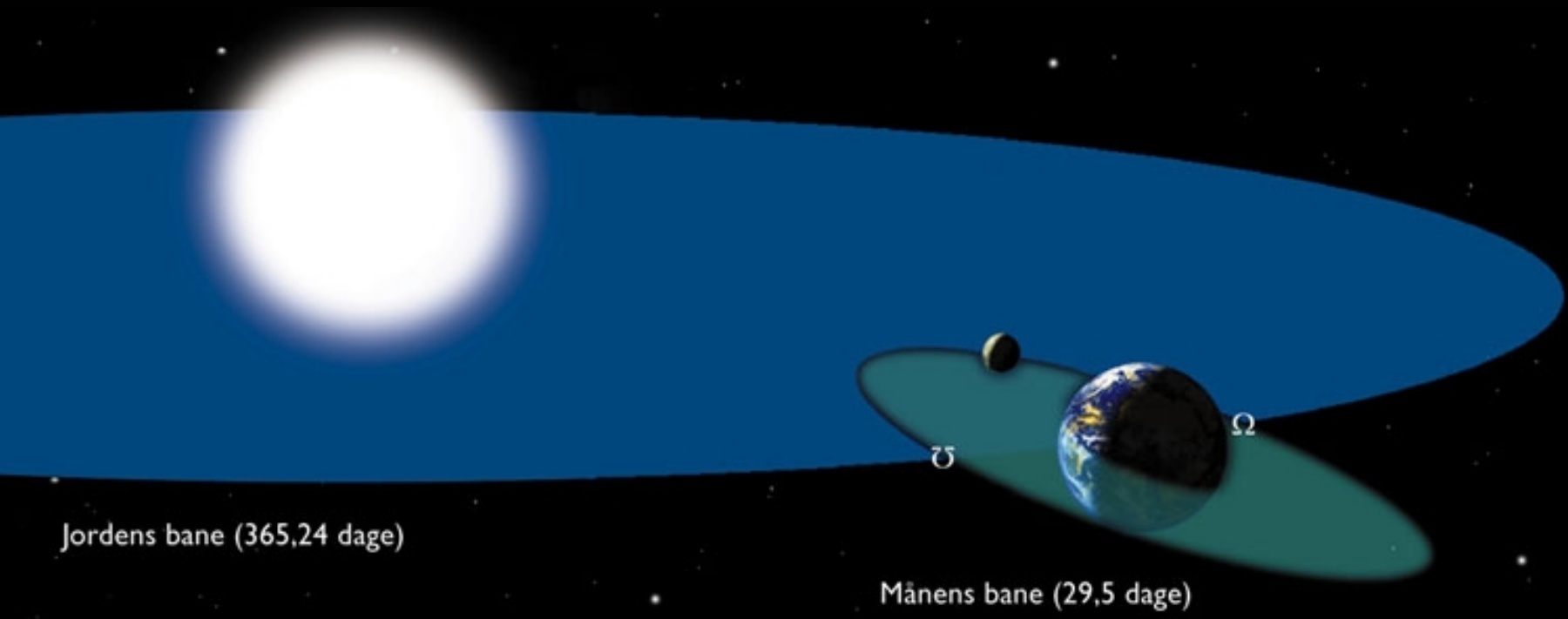


Ioniseret gas: Nordlys og komethaler

Hale Bopp (1997):

Månens faser:

Formørkelsesgeometri:



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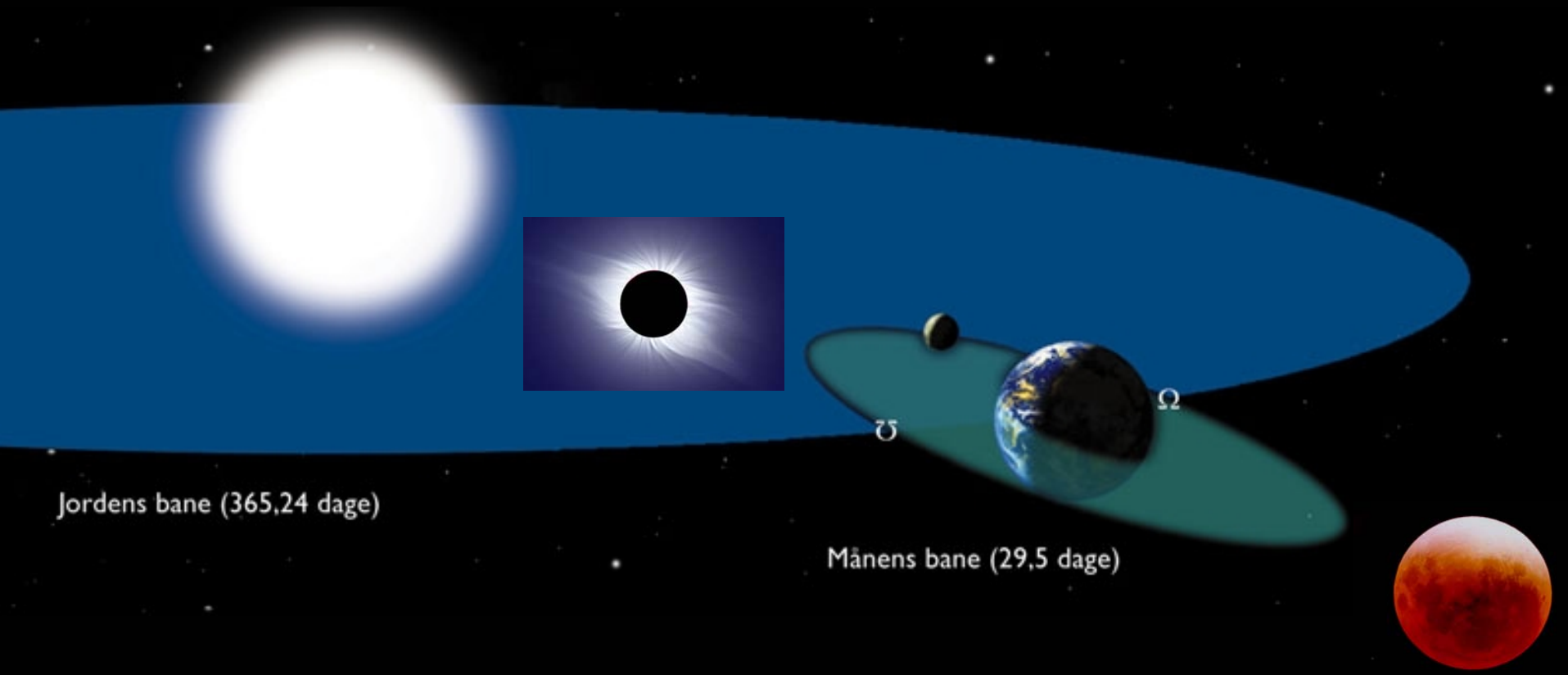
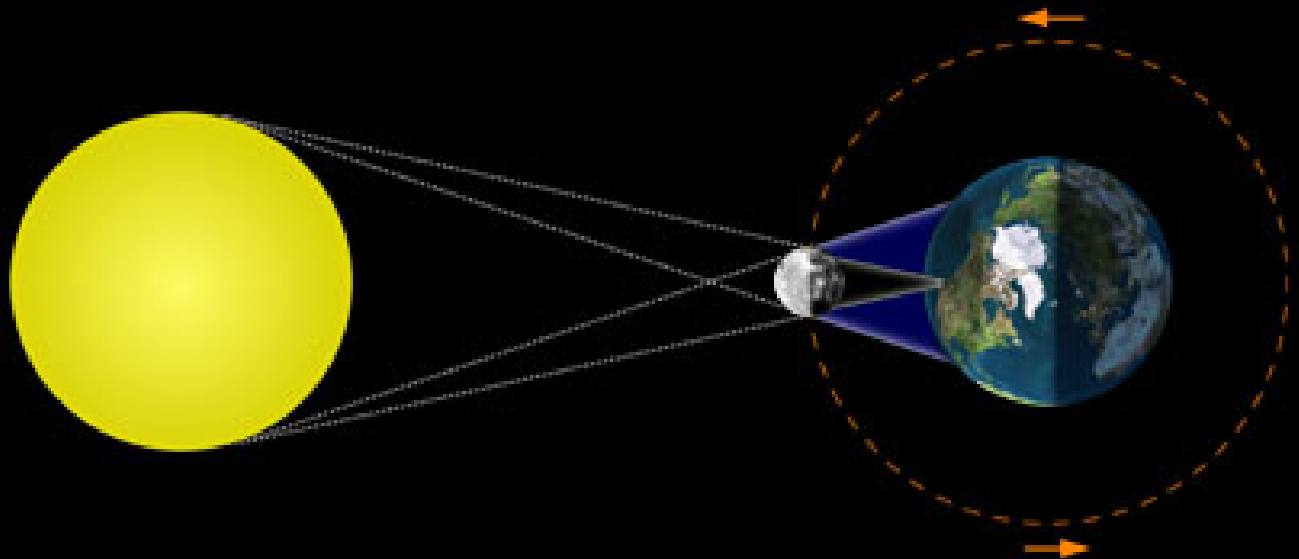
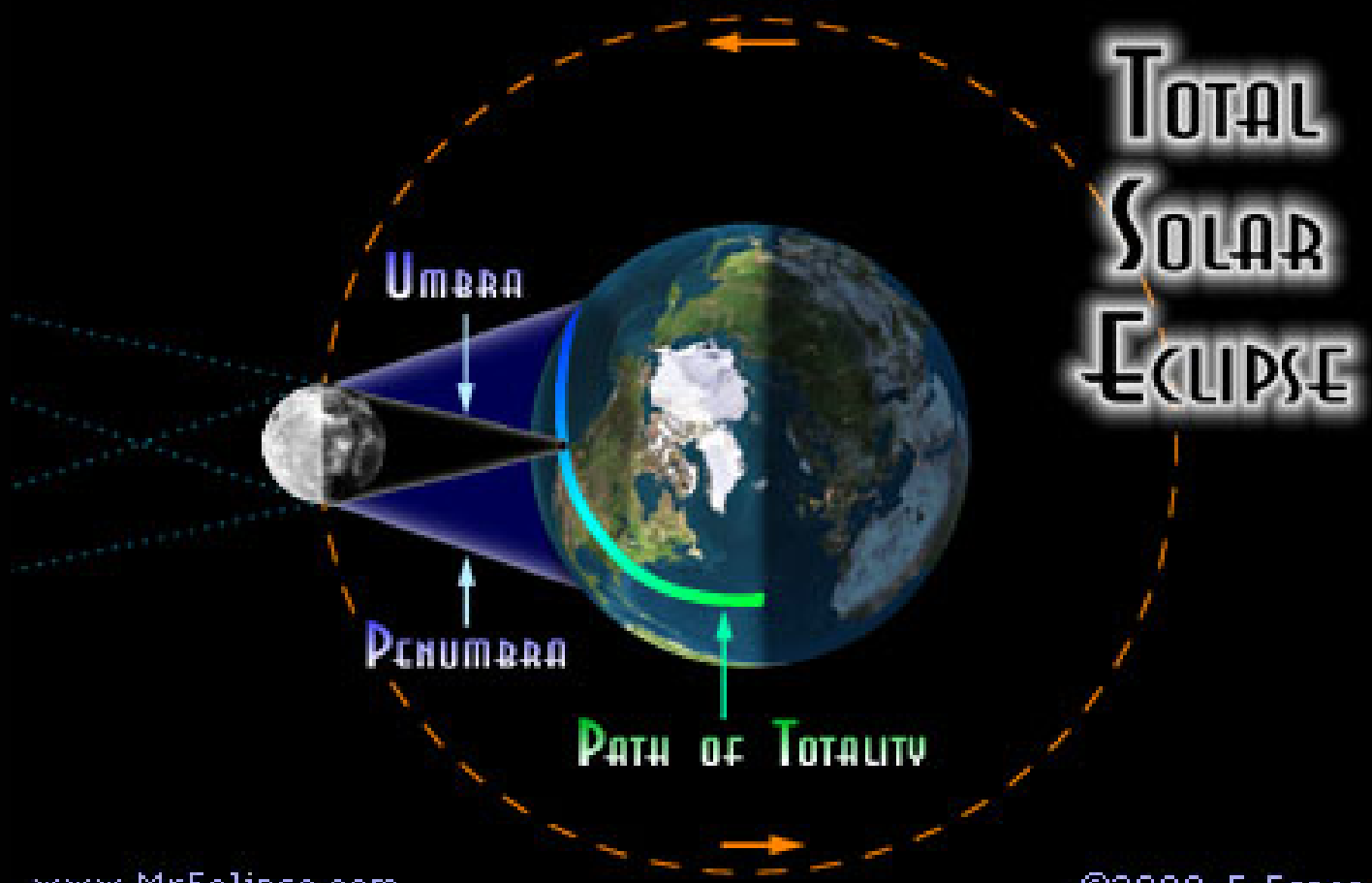


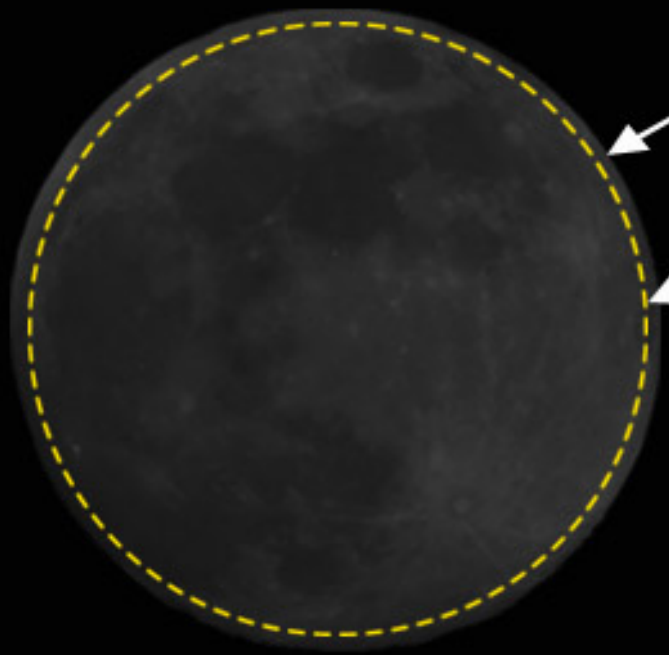
Solar Eclipse Geometry



Sun Moon Earth

www.MrEclipse.com

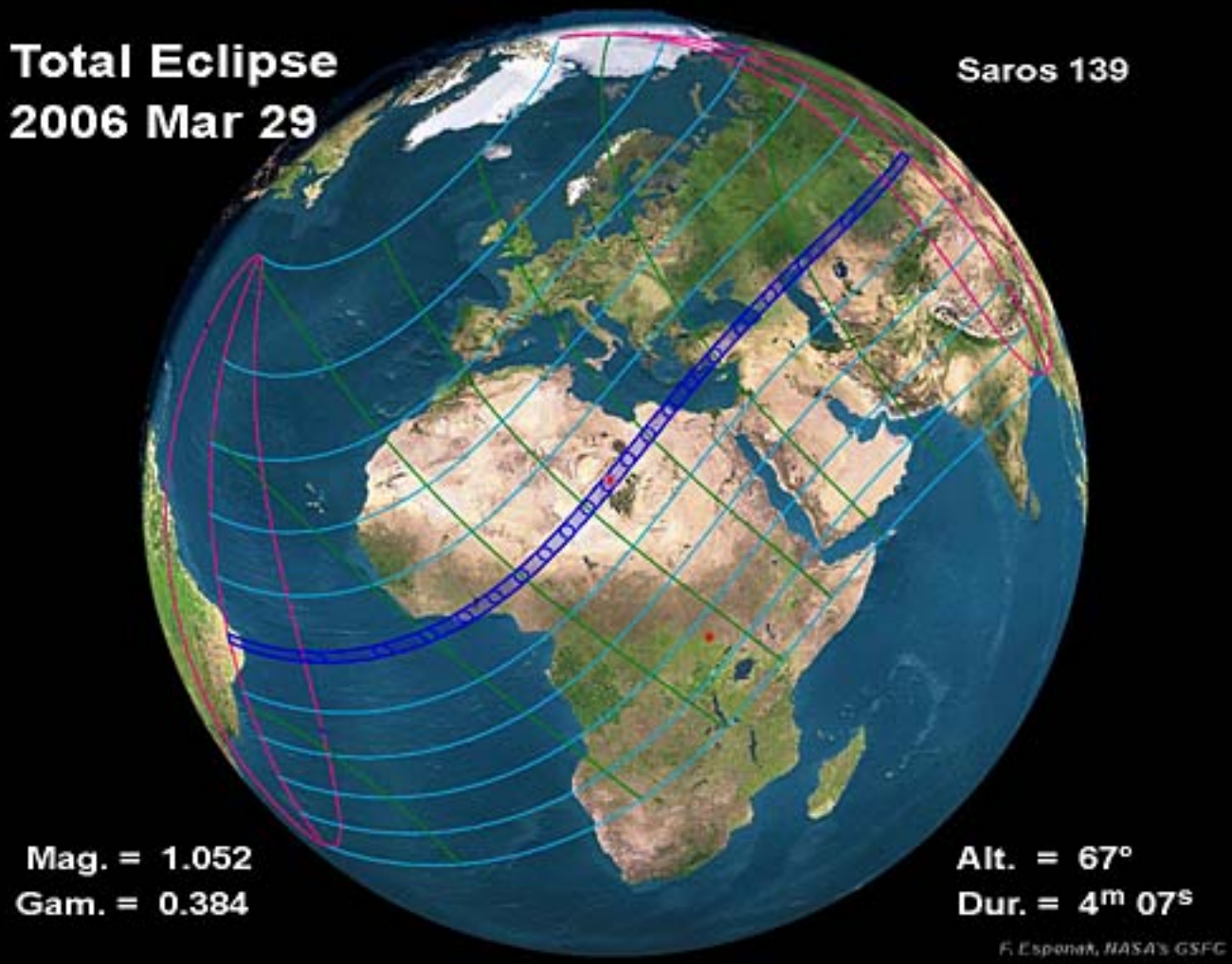

Total Solar Eclipse
Umbra
Penumbra
Path of Totality
www.MrEclipse.com
©2000 F. Espenak



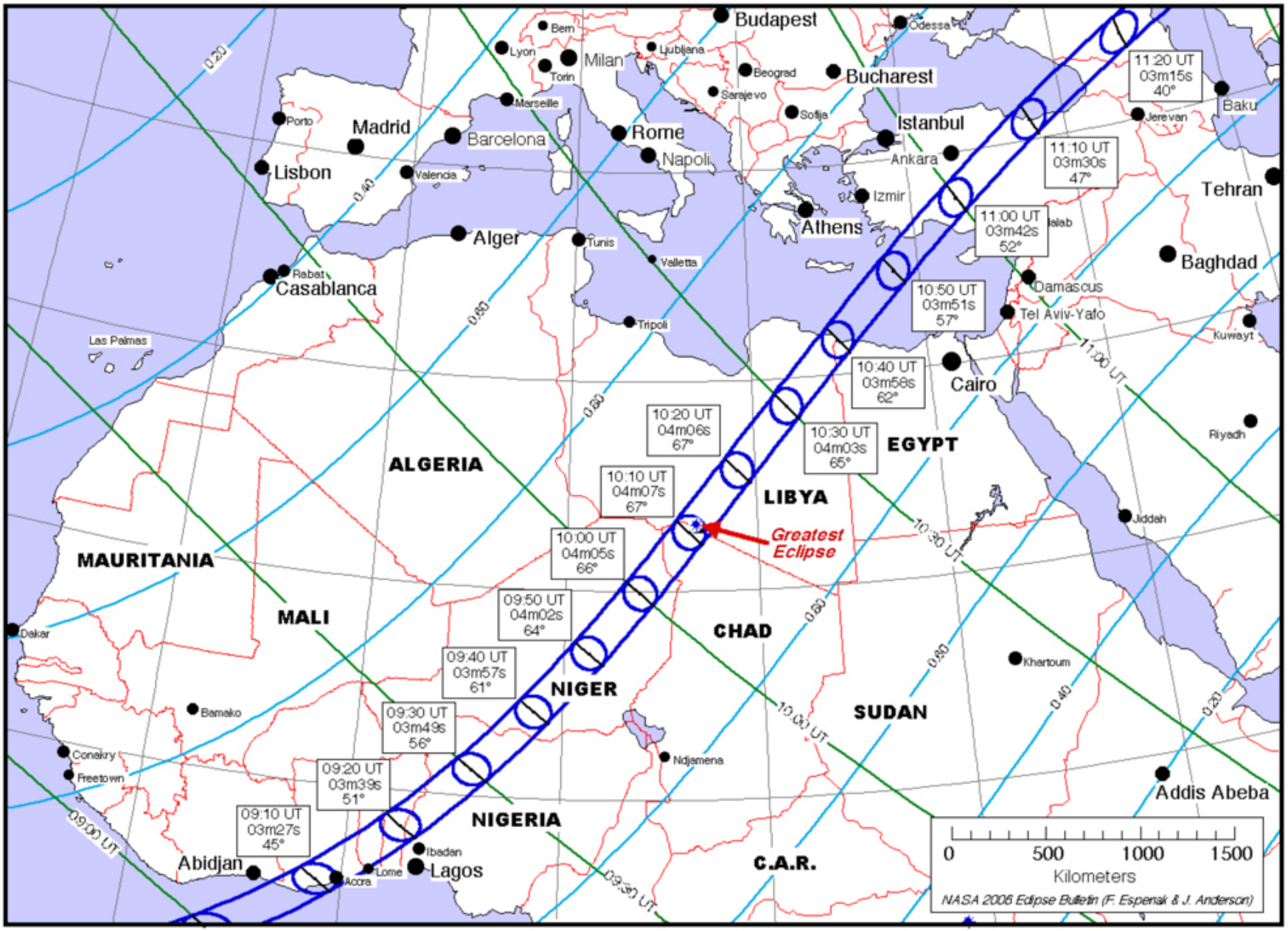
Distance of the Moon = 360,380 km
Apparent size of the Moon = 33' 09"

Distance of the Sun = 149,367,640 km
Apparent size of the Sun = 32' 02"

The apparent size of the moon will be slightly bigger than the that of the sun which indicates the longer totality.


Total Eclipse
2006 Mar 29
Saros 139
Mag. = 1.052
Gam. = 0.384
Alt. = 67°
Dur. = 4m 07s
F. Espenak, NASA's GSFC

Total Solar Eclipse of 2006 Mar 29



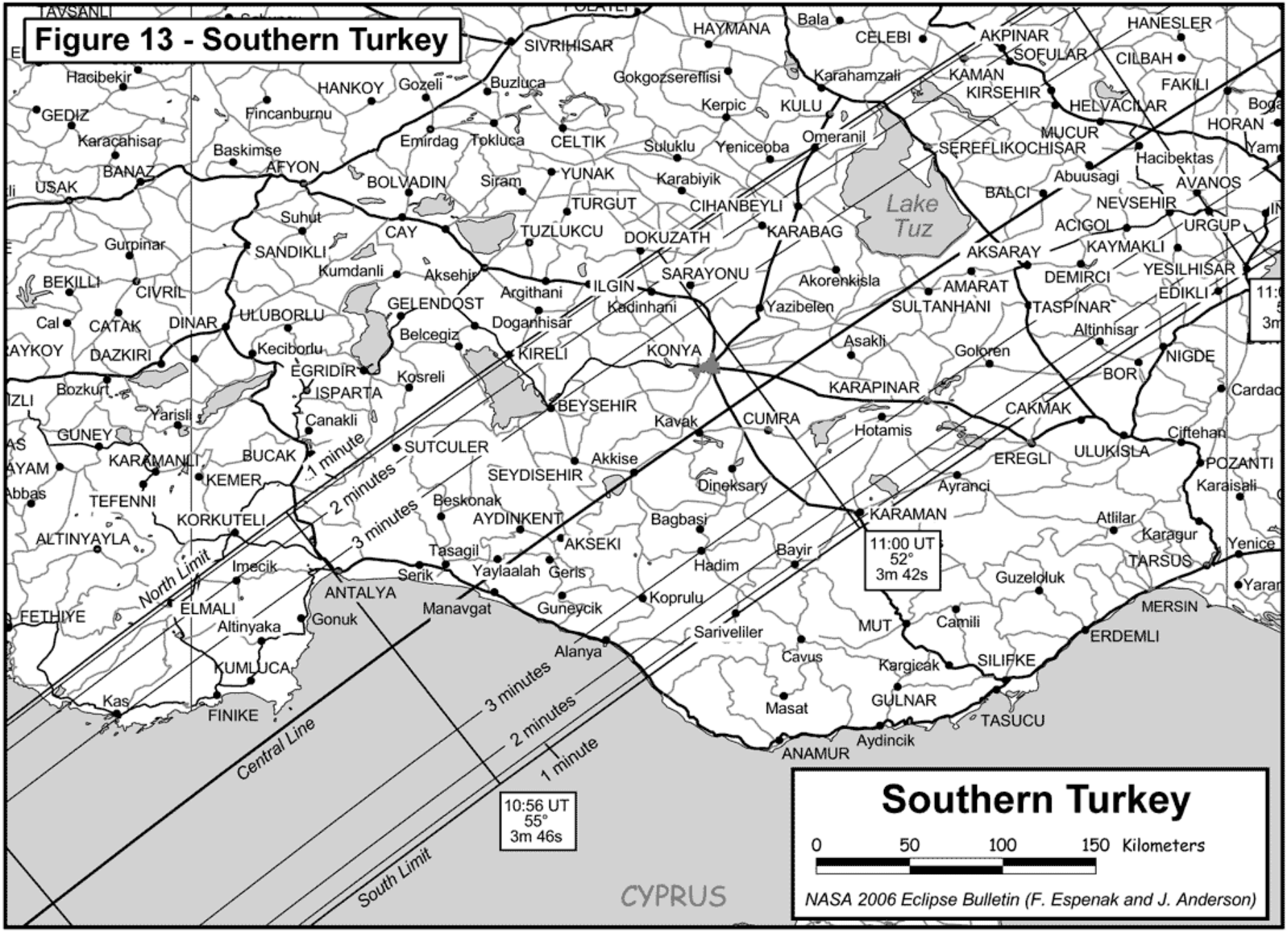


Figure 13 - Southern Turkey
TAVSANLI
Hacibekir
GEDIZ
Karacahisar
BANAZ
USAK
Gurpinar
BEKILLI
CIVRIL
Cal
CATAK
DINAR
AYKOY
DAZKIRI
Bozkurt
IZLI
Yarisli
GUNEY
AS
AYAM
Abbas
TEFENNI
ALTINYAYLA
FETHIYE
KARAMANLI
KEMER
KORKUTELI
Imecik
ELMALI
Altinyaka
KUMLUCA
Kas
FINIKE
HANKOY
Fincanburnu
Baskimse
AFYON
Suhut
SANDIKLI
ULUBORLU
Keciborlu
EGRIDIR
ISPARTA
Canakli
BUCAK
Gozeli
Buzluca
Emirdag
Tokluca
BOLVADIN
CAY
Kumdanli
Aksehir
GELENDOST
Belcegiz
Doganhisar
Kosreli
SUTCULER
SIVRIHISAR
CELTIK
Siram
YUNAK
TURGUT
TUZLUKCU
Argithani
ILGIN
Kadinhani
KIRELI
BEYSEHIR
SEYDISEHIR
Beskonak
AYDINKENT
AKSEKI
Tasagil
Yaylaalah
Serik
Manavgat
ANTALYA
Gonuk
Gokgozsereflisi
Kerpic
KULU
Suluklu
Yeniceoba
Karabiyik
CIHANBEYLI
DOKUZATH
SARAYONU
Yazibelen
Kavak
Akkise
Bagbasi
Gerls
Guneycik
Koprulu
Hadim
Sariveliler
Alanya
Cavus
Masat
Dineksary
CUMRA
KONYA
Karahamzali
Omeranil
KARABAG
Lake Tuz
Akorenkisla
Asakli
Goloren
KARAPINAR
Hotamis
Bala
HAYMANA
CELEBI
AKPINAR
SOFULAR
KAMAN
KIRSEHIR
MUCUR
SEREFLIKOCHISAR
BALCI
Abuusagi
AKSARAY
AMARAT
SULTANHANI
TASPINAR
Altinhisar
Ayranci
KARAMAN
Bayir
Camili
MUT
Kargicak
Gulnar
Aydincik
ANAMUR
TASUCU
SILIFKE
Guzeloluk
HANESLER
CILBAH
FAKILI
HELVACILAR
HORAN
Hacibektas
AVANOS
NEVSEHIR
ACIGOL
URGUP
KAYMAKLI
YESILHISAR
DEMIRCI
EDIKLI
NIGDE
BOR
CAKMAK
EREGLI
ULUKISLA
Ciftehan
POZANTI
Karaisali
Atlilar
Karagur
TARSUS
Yenice
MERSIN
ERDEMLI
Yaran
North Limit
Central Line
South Limit
1 minute
2 minutes
3 minutes
3 minutes
2 minutes
1 minute
11:00 UT
52°
3m 42s
10:56 UT
55°
3m 46s
CYPRUS
Southern Turkey
0 50 100 150 Kilometers
NASA 2006 Eclipse Bulletin (F. Espenak and J. Anderson)

Observation fra byen Side:

Hvad skal man bemærke under formørkelsen?

Huskeliste:

- En silhouet-tegnefilm (formørkelsesbriller)
- Dag bliver til nat og nat til dag på få minutter
- Lysstyrken falder (dyr tror det er nat)
- Skygger bliver mere skarpe i kanten
- Se efter aktivitet på Solens rand, Baily's perler
- Månens skygge (5 sek. før totalitet)
- Diamantring-effekten (5 sek. før totalitet)
- Temperaturen falder (et koldt gys)
- Kig efter planeter og stjerner (og kometer).

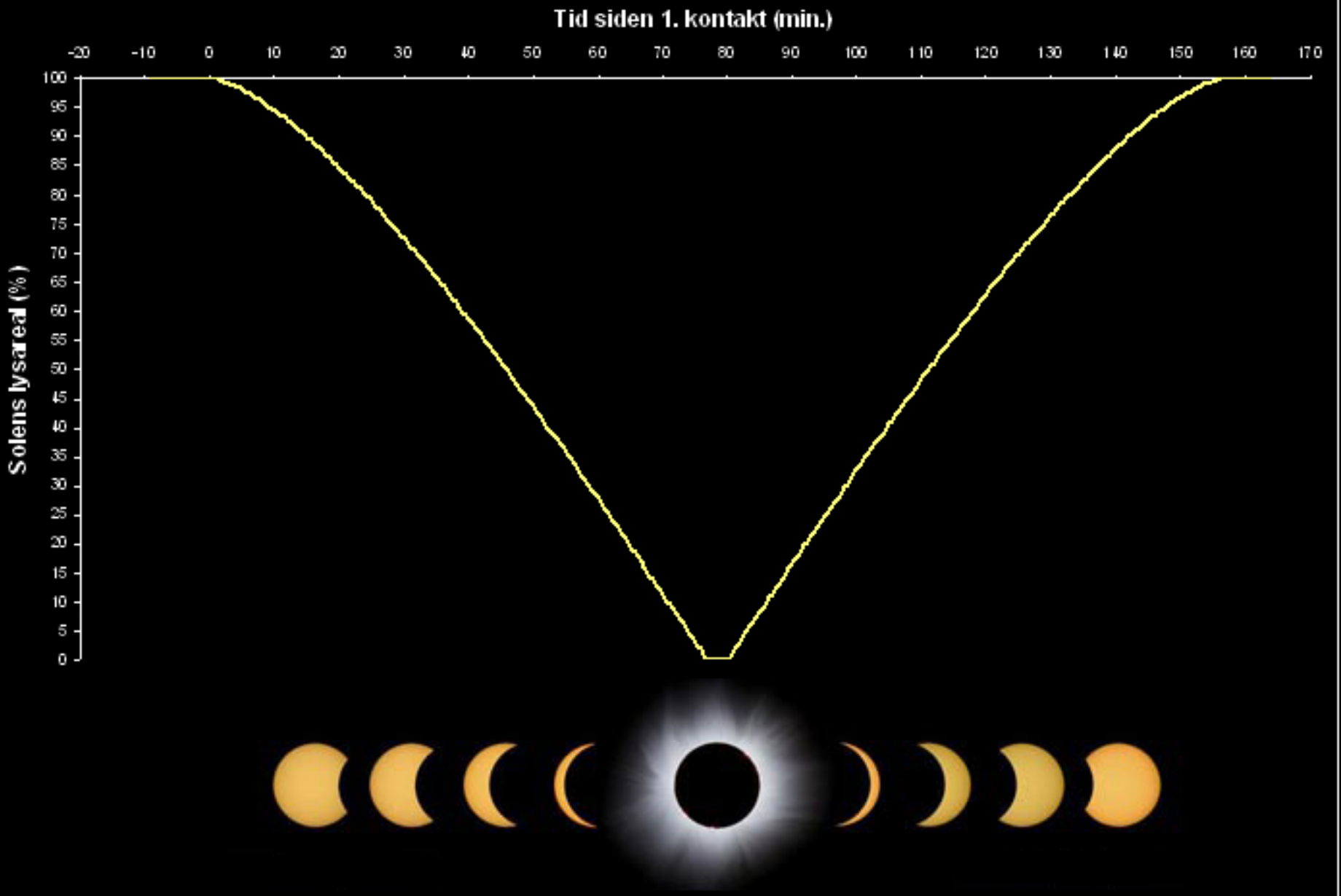
Vigtige tidspunkter:

- 11.37: 1. kontakt (Månens første kontakt med solranden)
- 12.54: 2. kontakt (totalitet starter)
- 12.58: 3. kontakt (totalitet slutter)
- 14.13: 4 kontakt (Månens sidste kontakt med solranden).

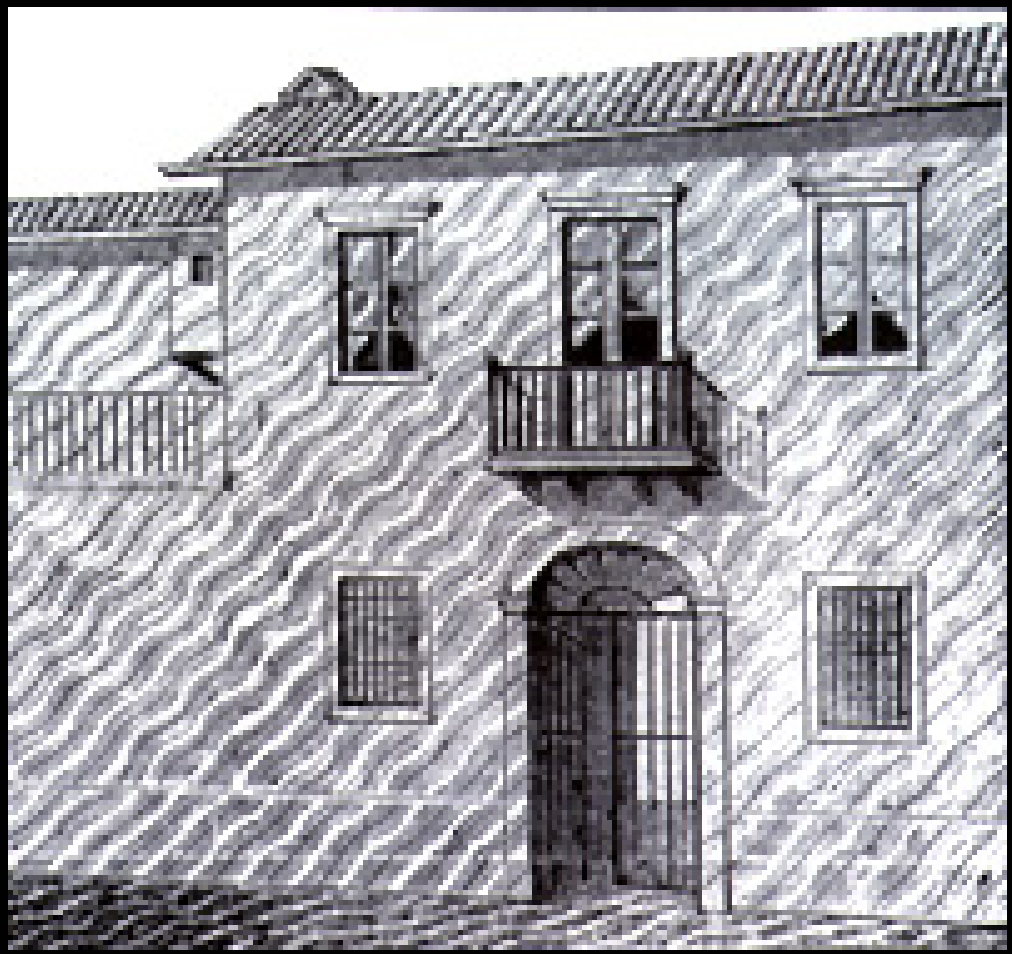
Lysstyrken falder mærkbart 5-10 min. før totaliteten og bliver ”normal” igen 5-10 min. efter.
Varighed i alt: 77 min. + 3½ min. + 75 min. = 2h 35m.

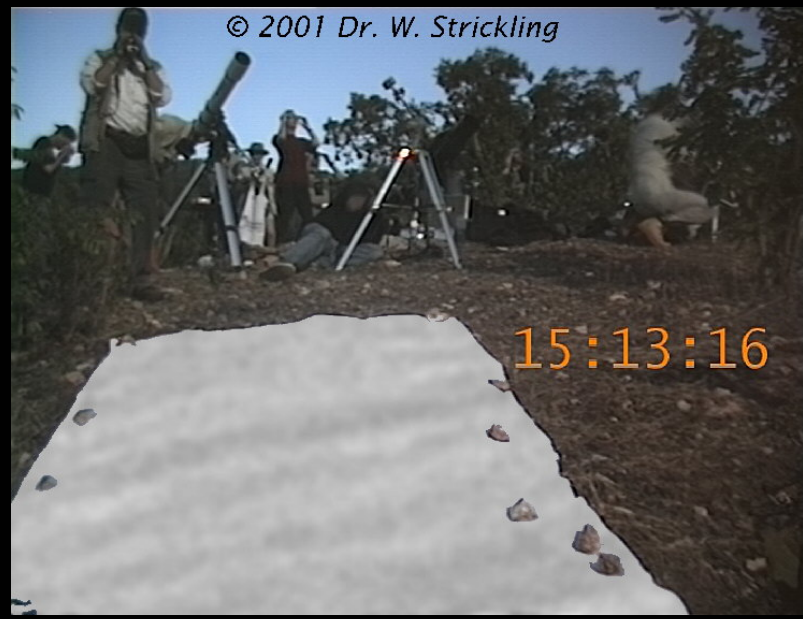
Solens højde under maksimal formørkelse: 54°.
Retning (azimutvinkel): 204° = SSV.

Lysstyrke under solformørkelse

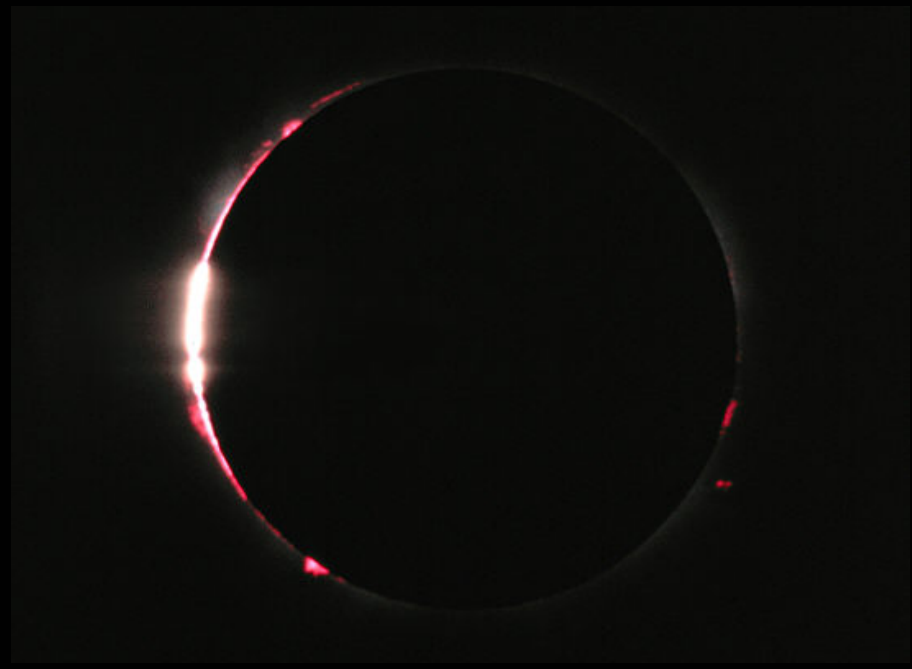


Bølgestriber:





Baily's perler:



Månens skygge og Diamantring-effekten

5 sek. før totaliteten starter:

- **Skyggen kommer farende – hurtigere end et jetfly.**
  Månens skygge vandrer fra Brasilien til Sibirien, i alt 14.500 km, på 3 timer og 12 min.
  Gennemsnitshastighed: 4531 km/t.

- **Diamantring-effekten sollyset slipper kun igennem et enkelt sted på Månens rand, i et dybt krater.**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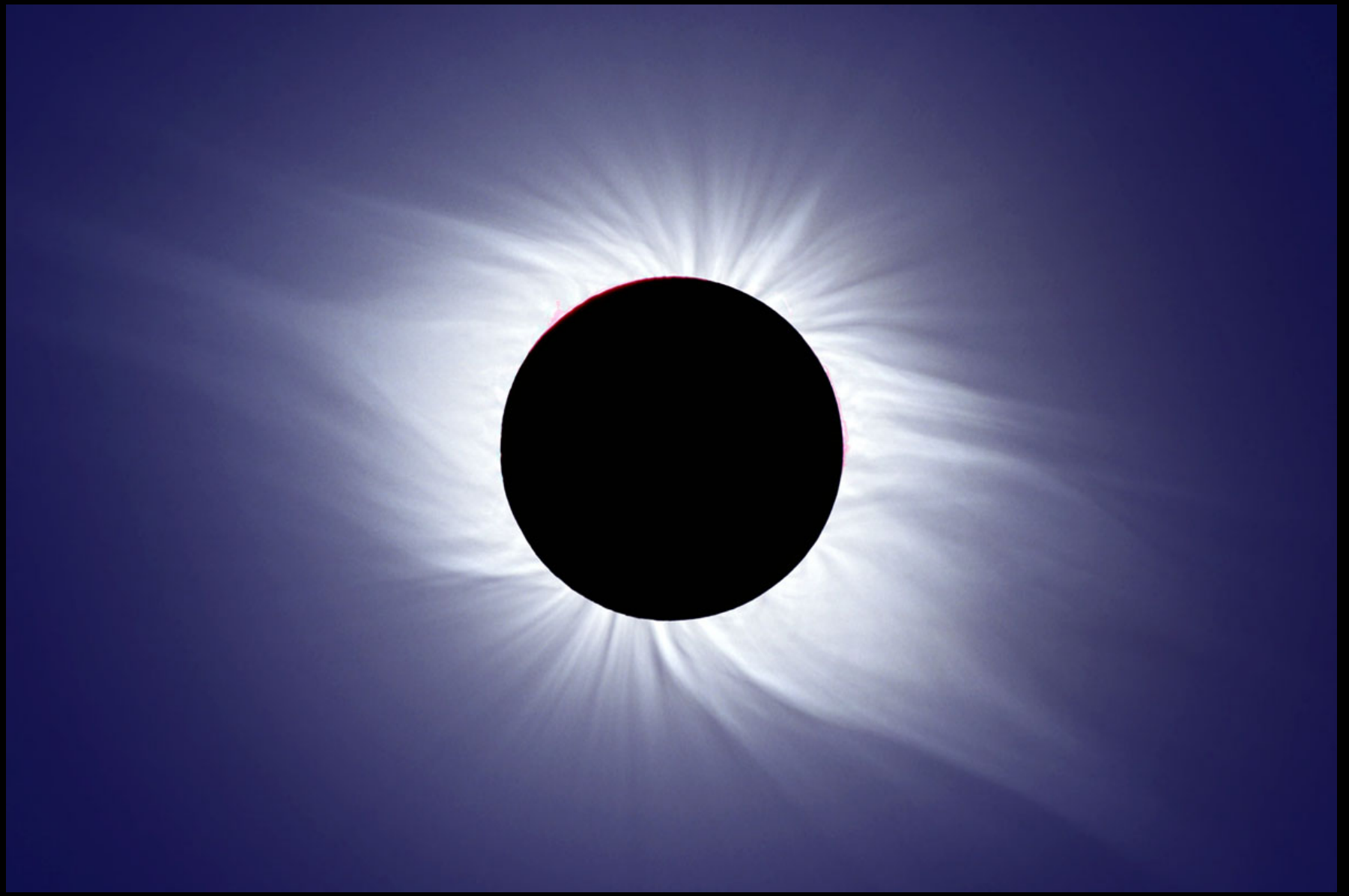
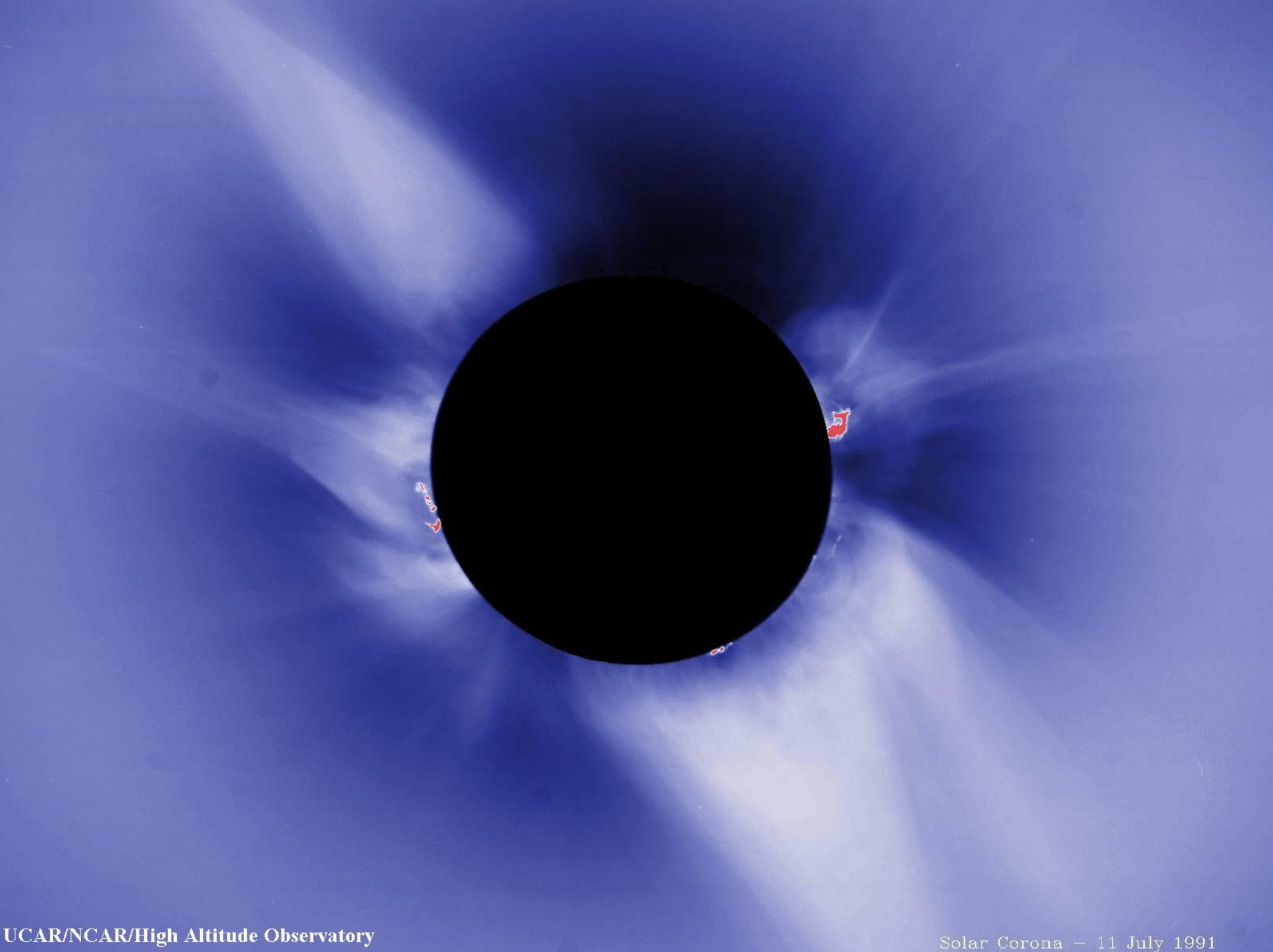
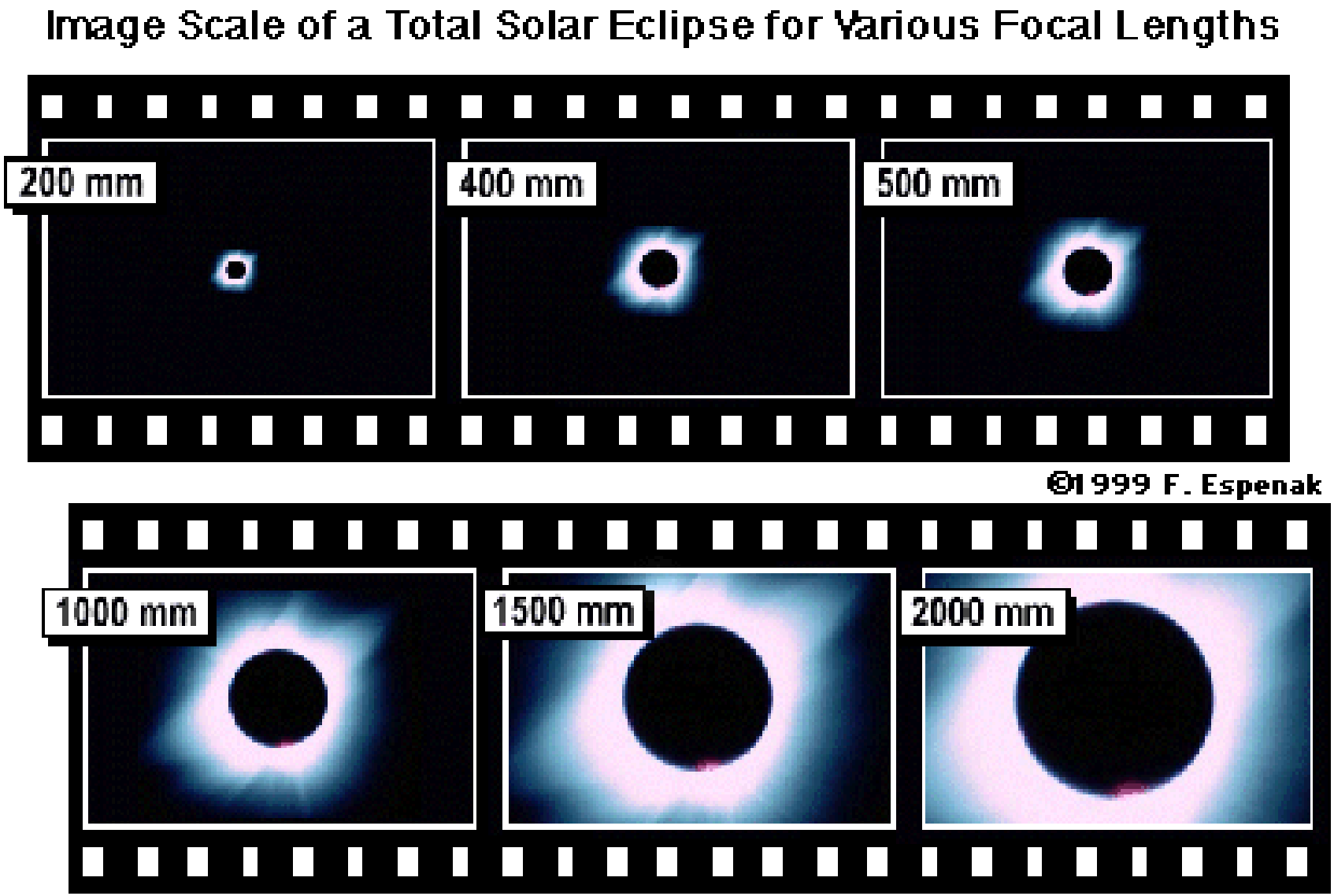
www.MrEclipse.com



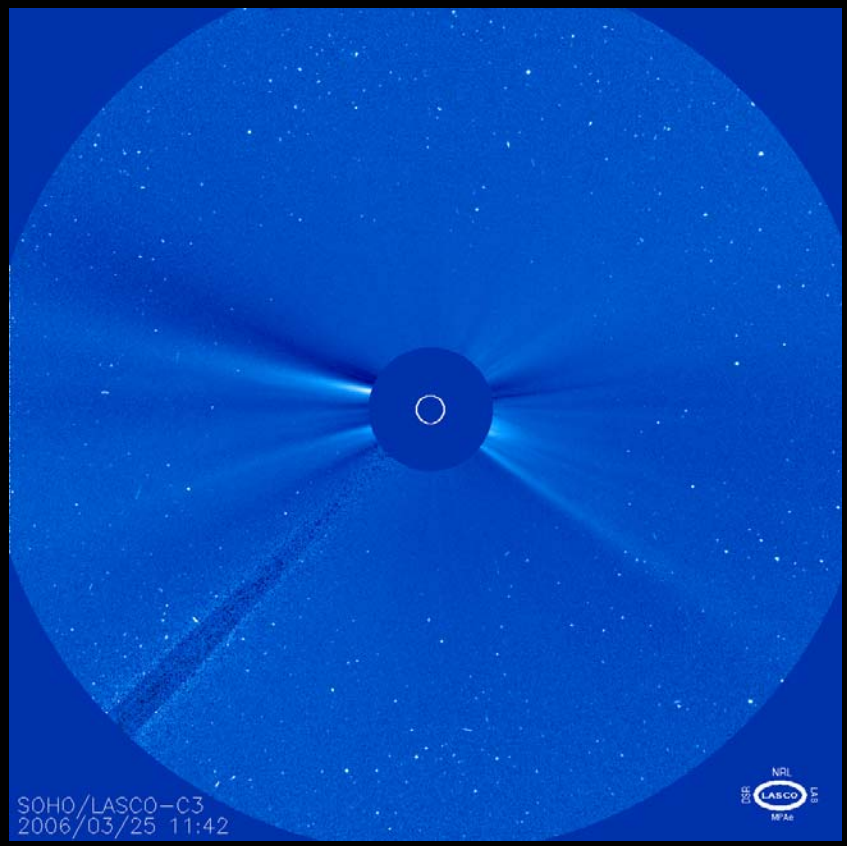

UCAR/NCAR/High Altitude Observatory
Solar Corona – 11 July 1991

Astrofotografering:

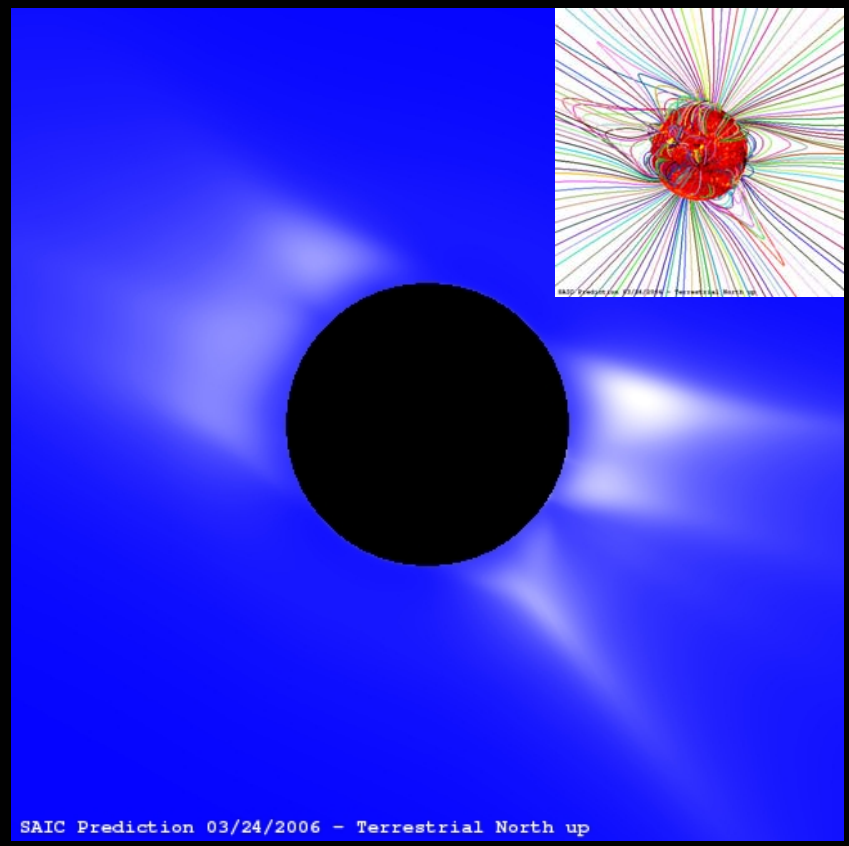


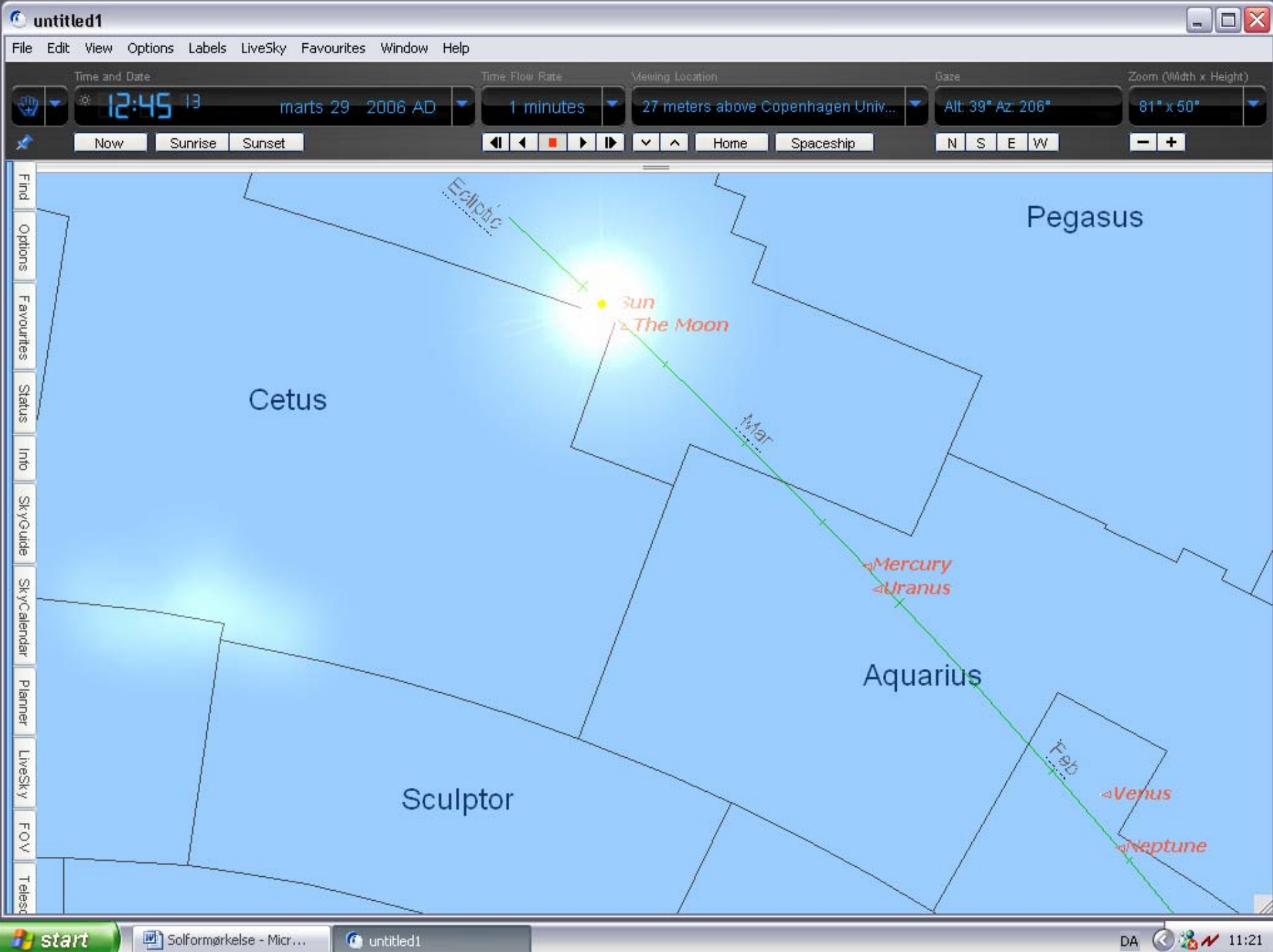
Hvordan vil koronaen se ud til "vores" solformørkelse?

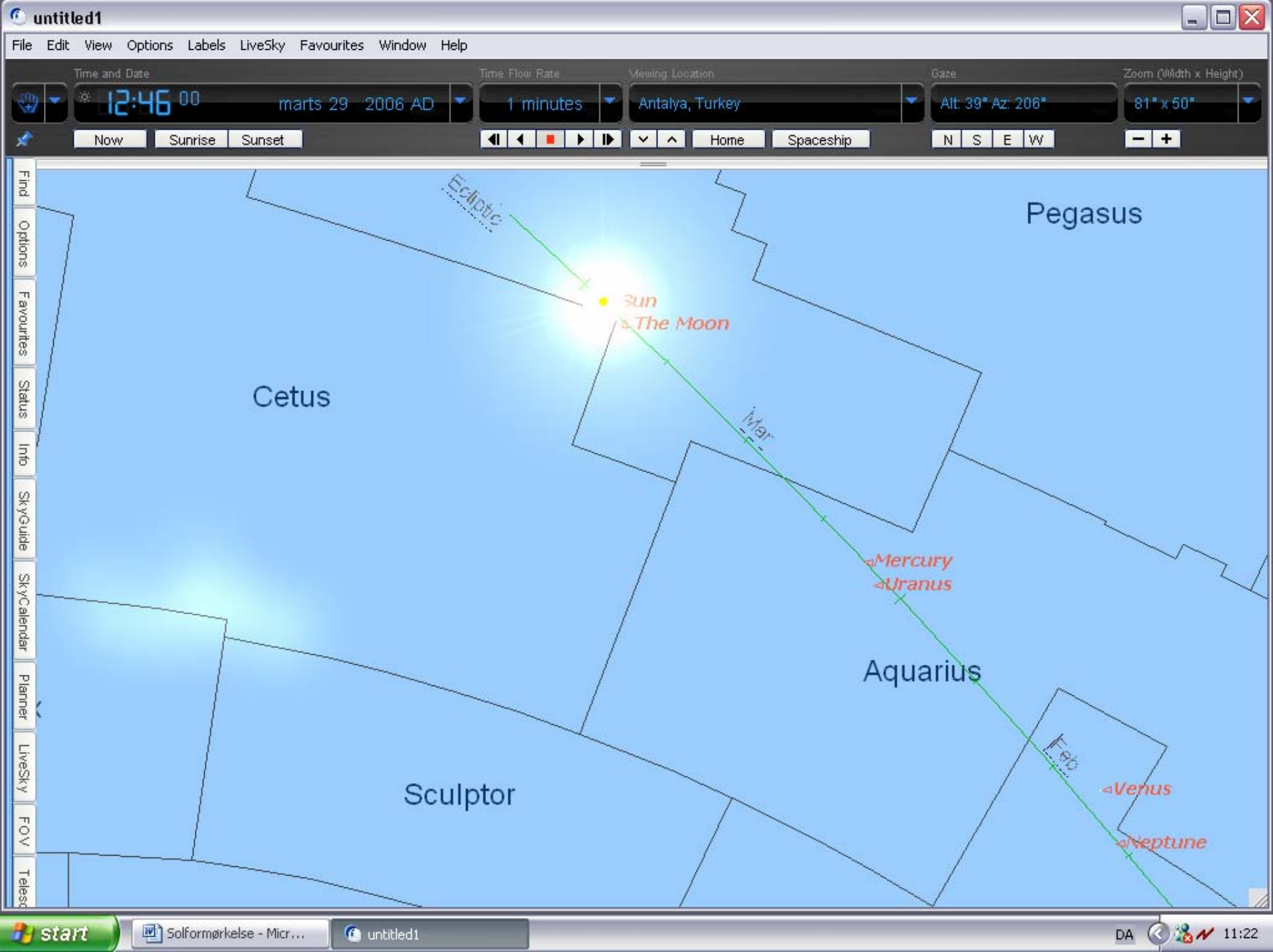
SOHO-billede:



Computersimulering (MHD):




untitled1
File Edit View Options Labels LiveSky Favourites Window Help
Time and Date
12:45 13 marts 29 2006 AD
Time Flow Rate
1 minutes
Viewing Location
27 meters above Copenhagen Univ...
Gaze
Alt: 39° Az: 206°
Zoom (Width x Height)
81° x 50°
Now Sunrise Sunset
Home Spaceship
N S E W
Find Options Favourites Status Info SkyGuide SkyCalendar Planner LiveSky FOV Teles
Ecliptic
Pegasus
Sun
The Moon
Cetus
Mar
Mercury
Uranus
Aquarius
Sculptor
Venus
Neptune
start
Solformørkelse - Micr...
untitled1
DA
11:21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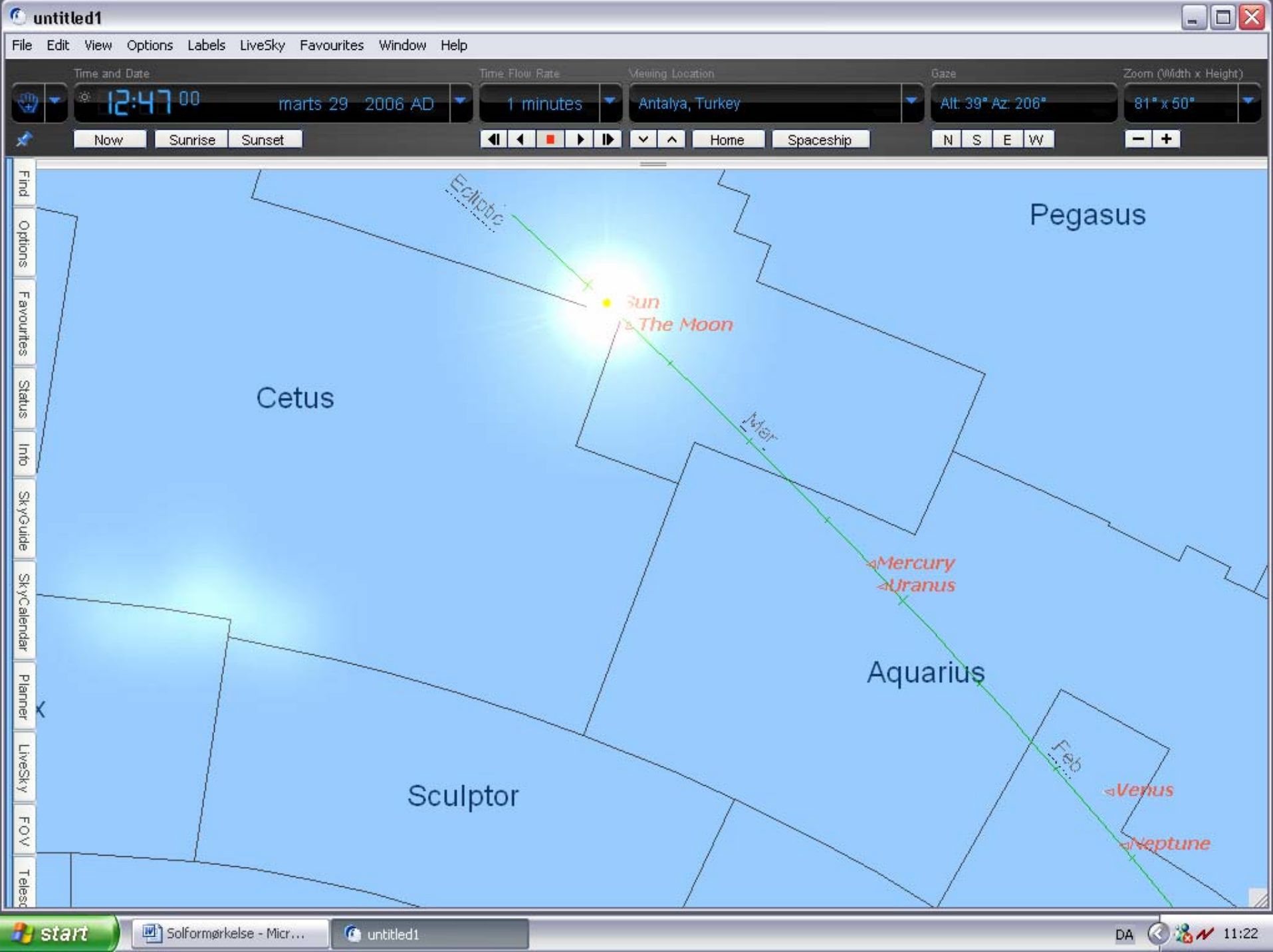
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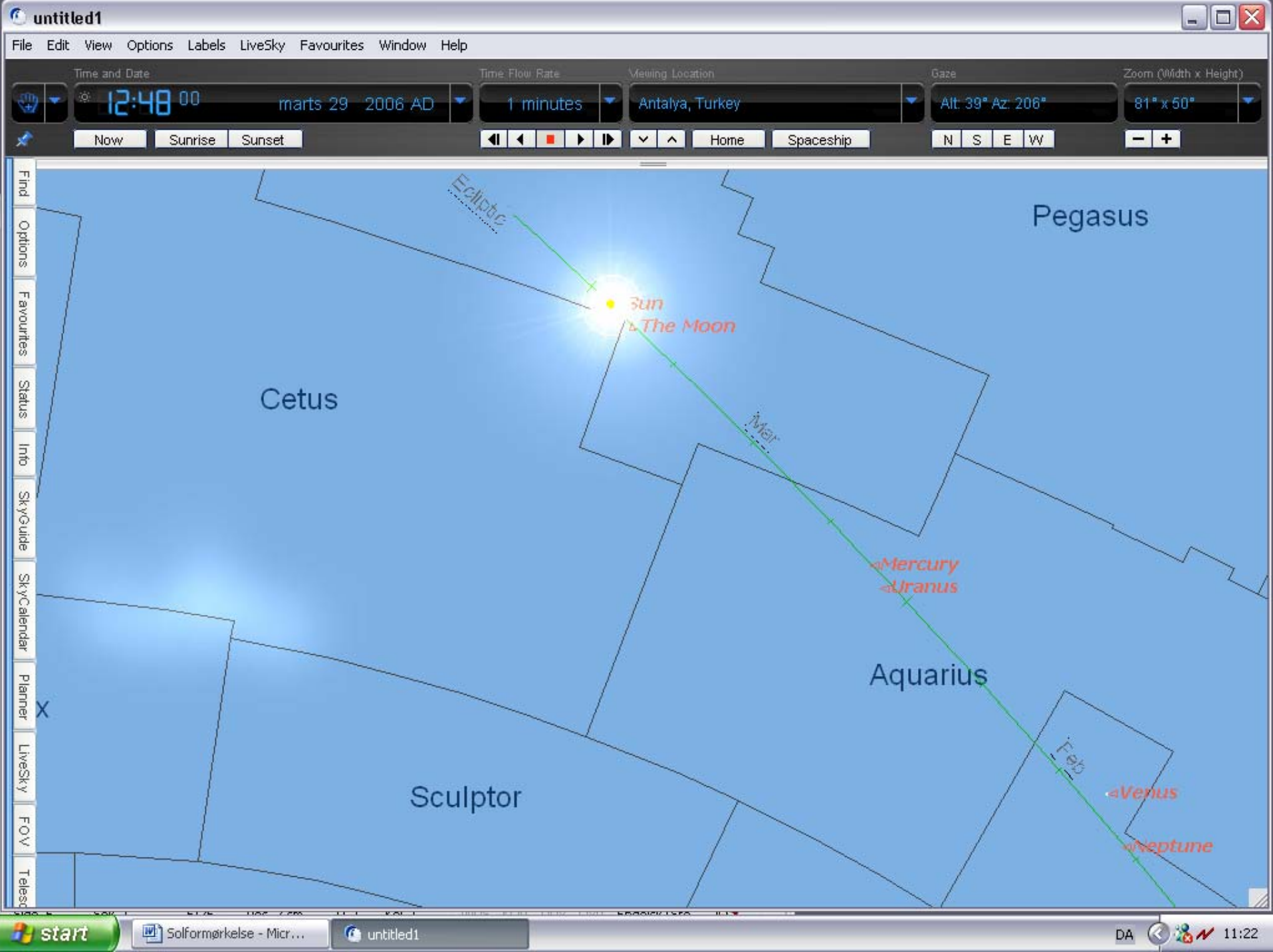
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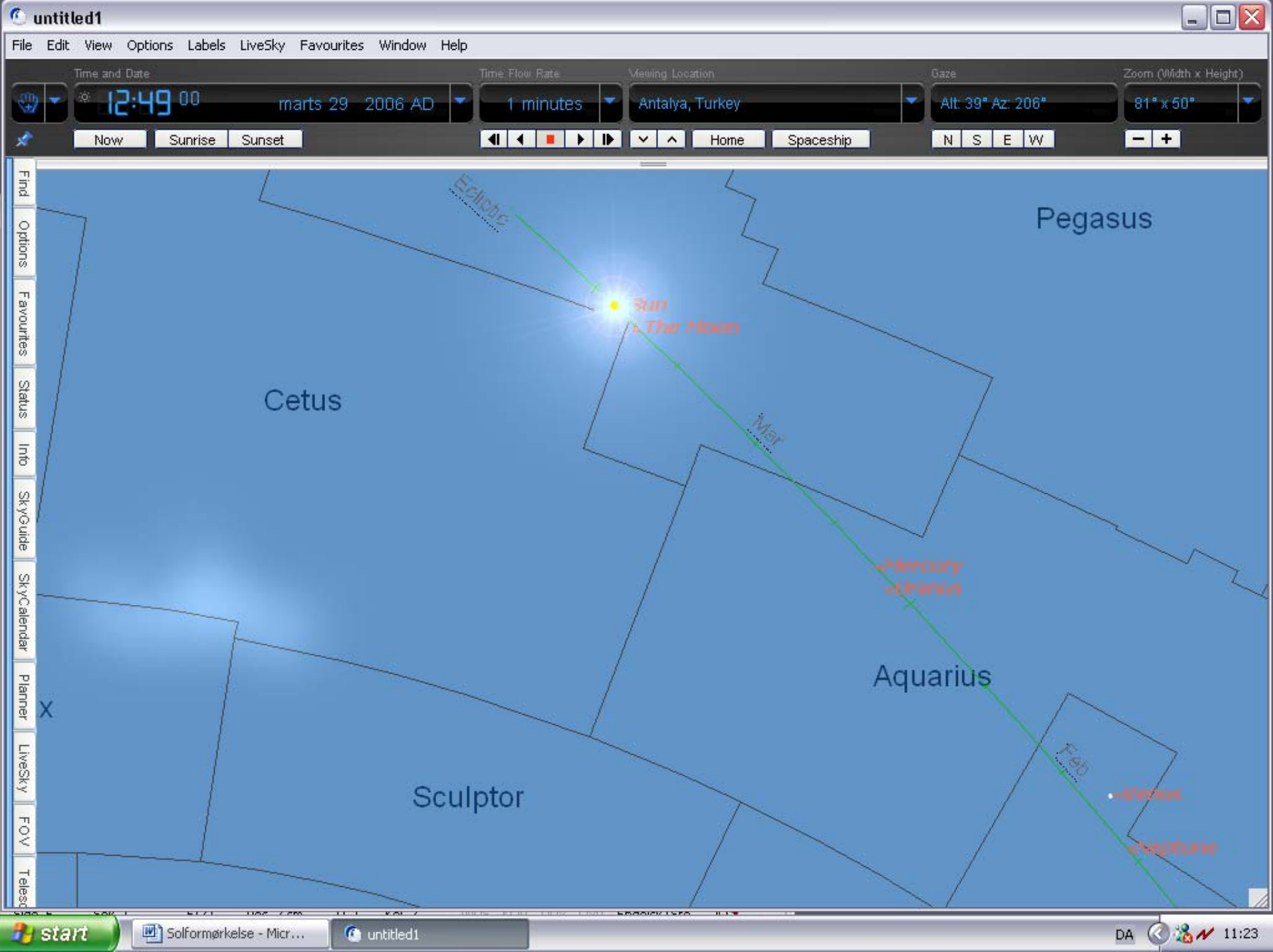
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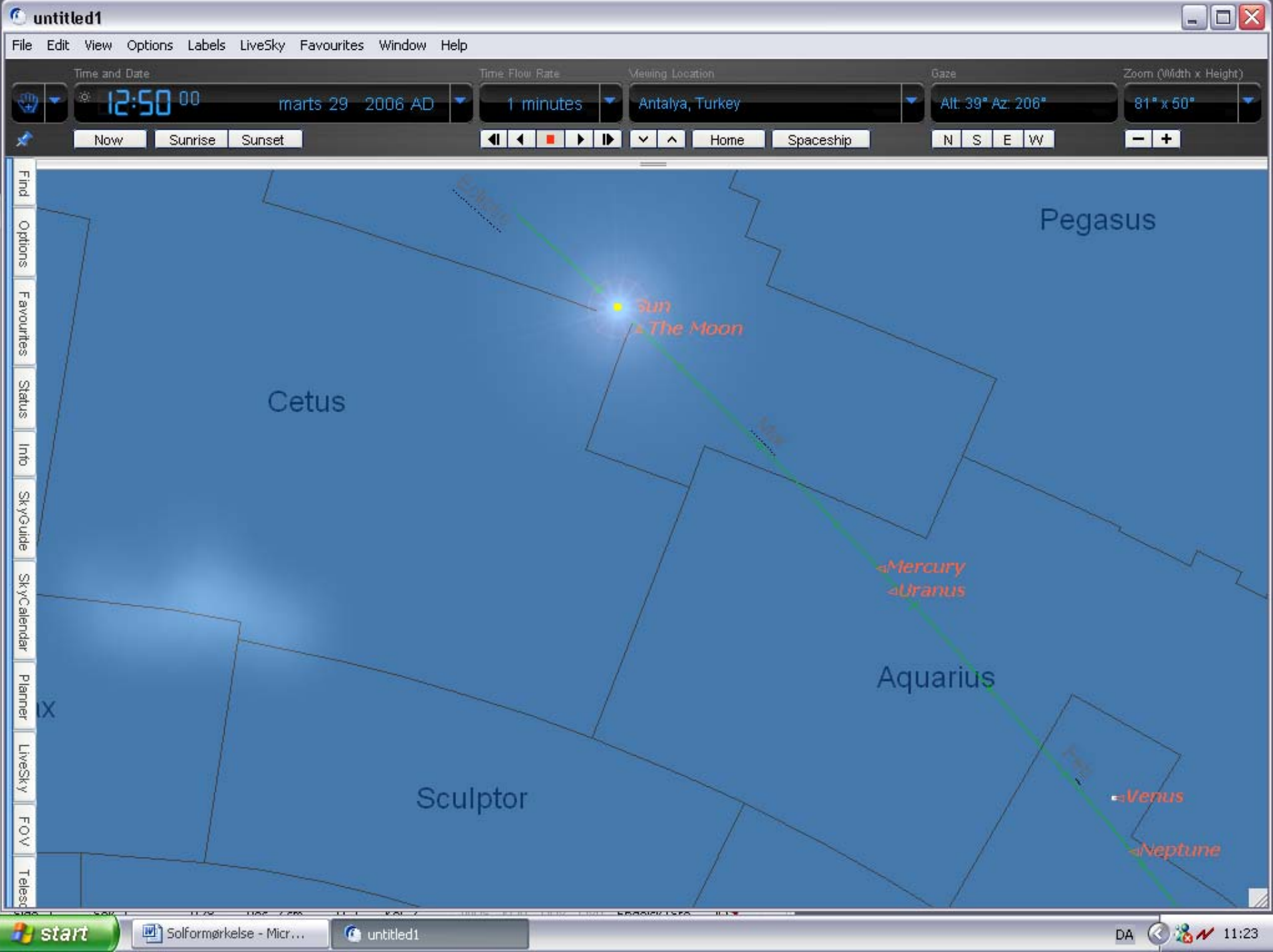
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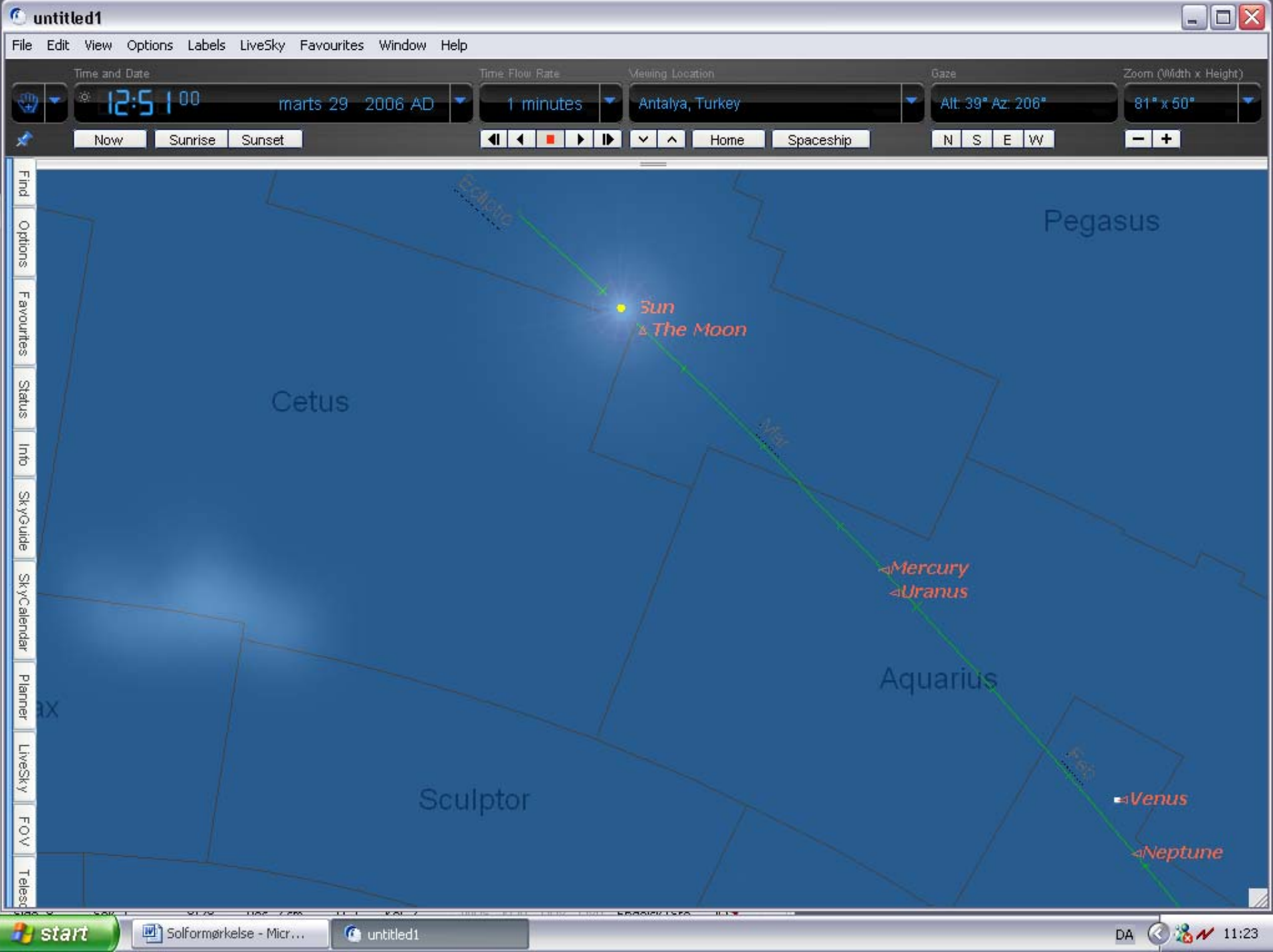
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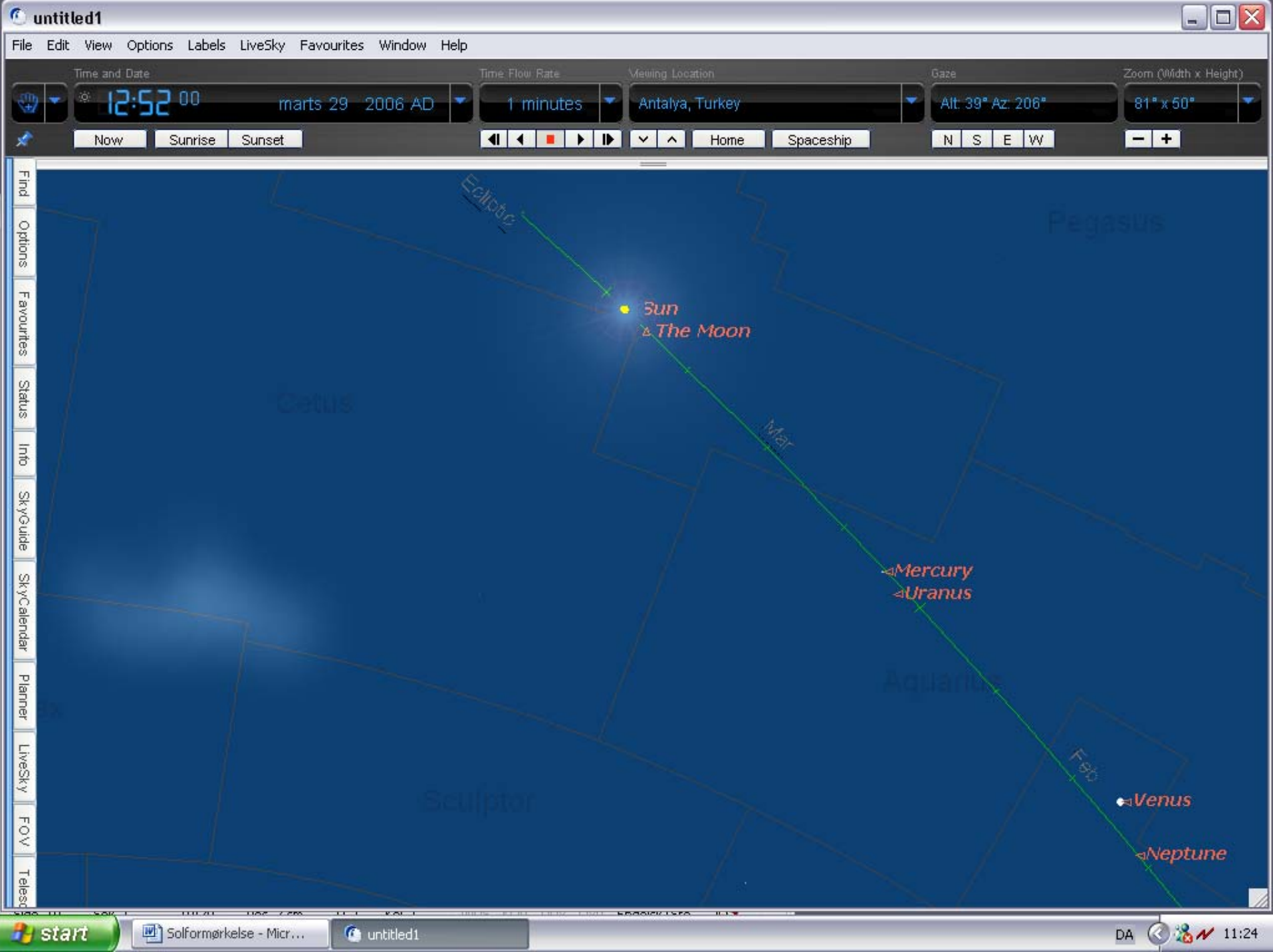
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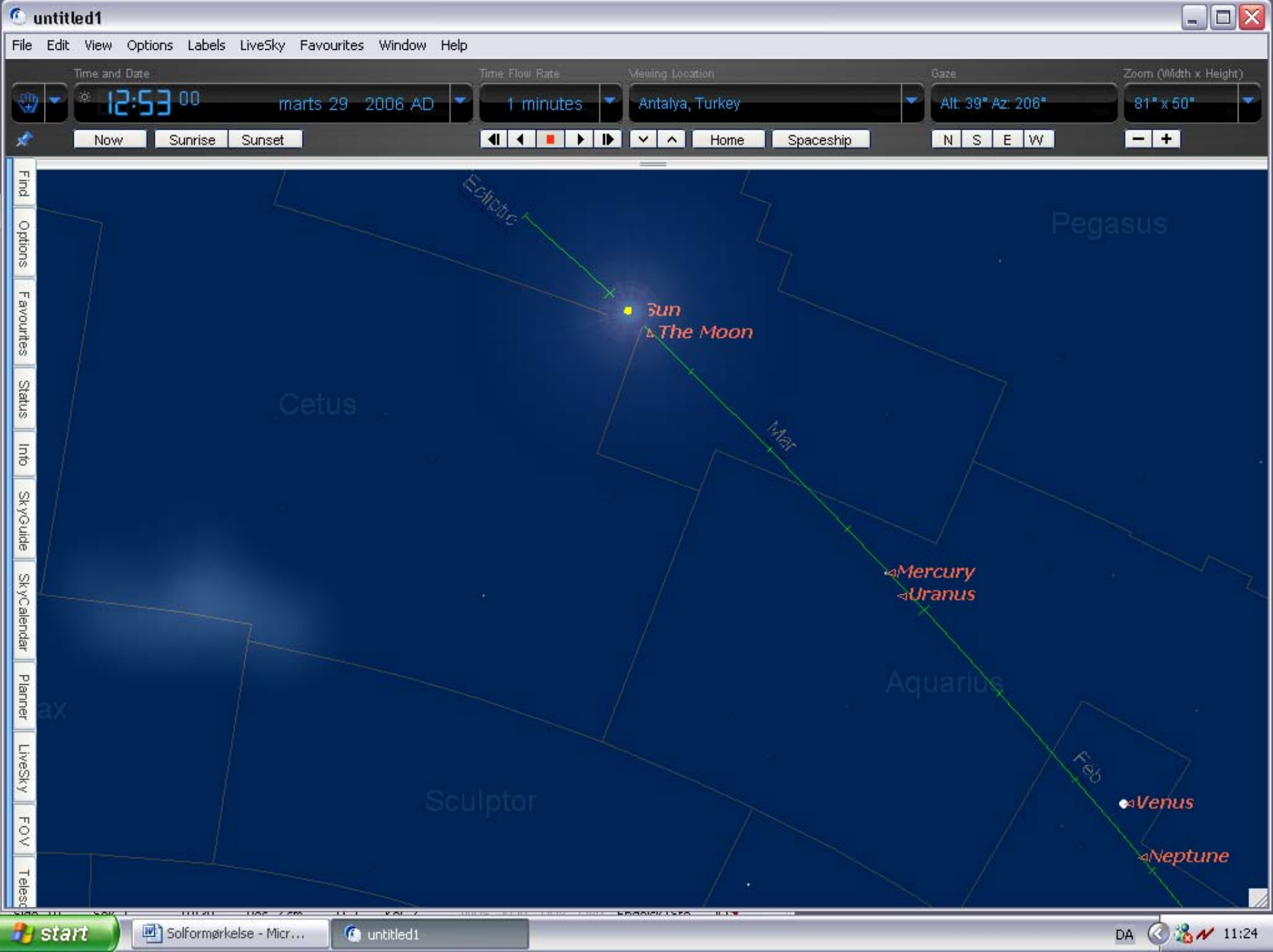
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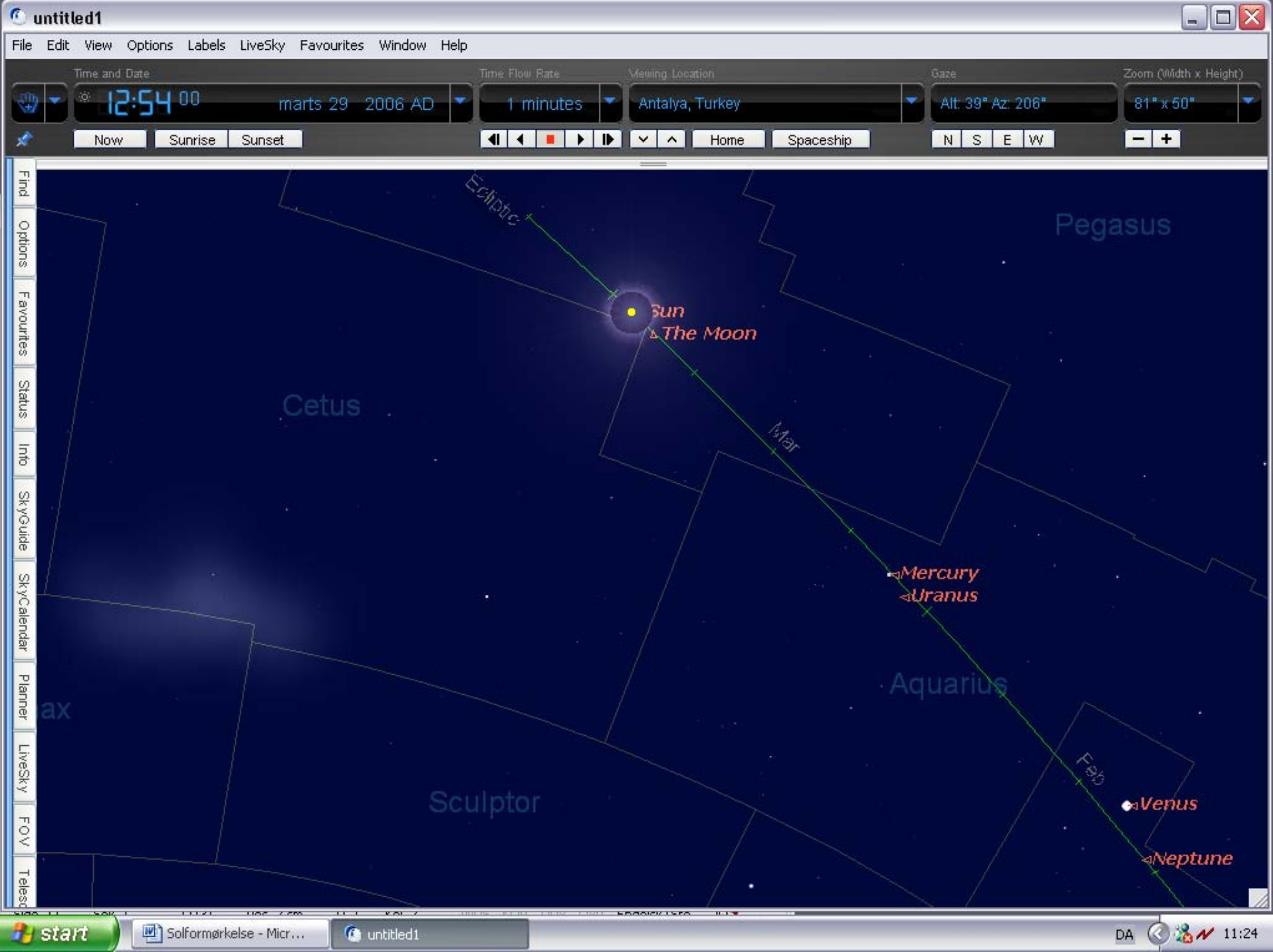
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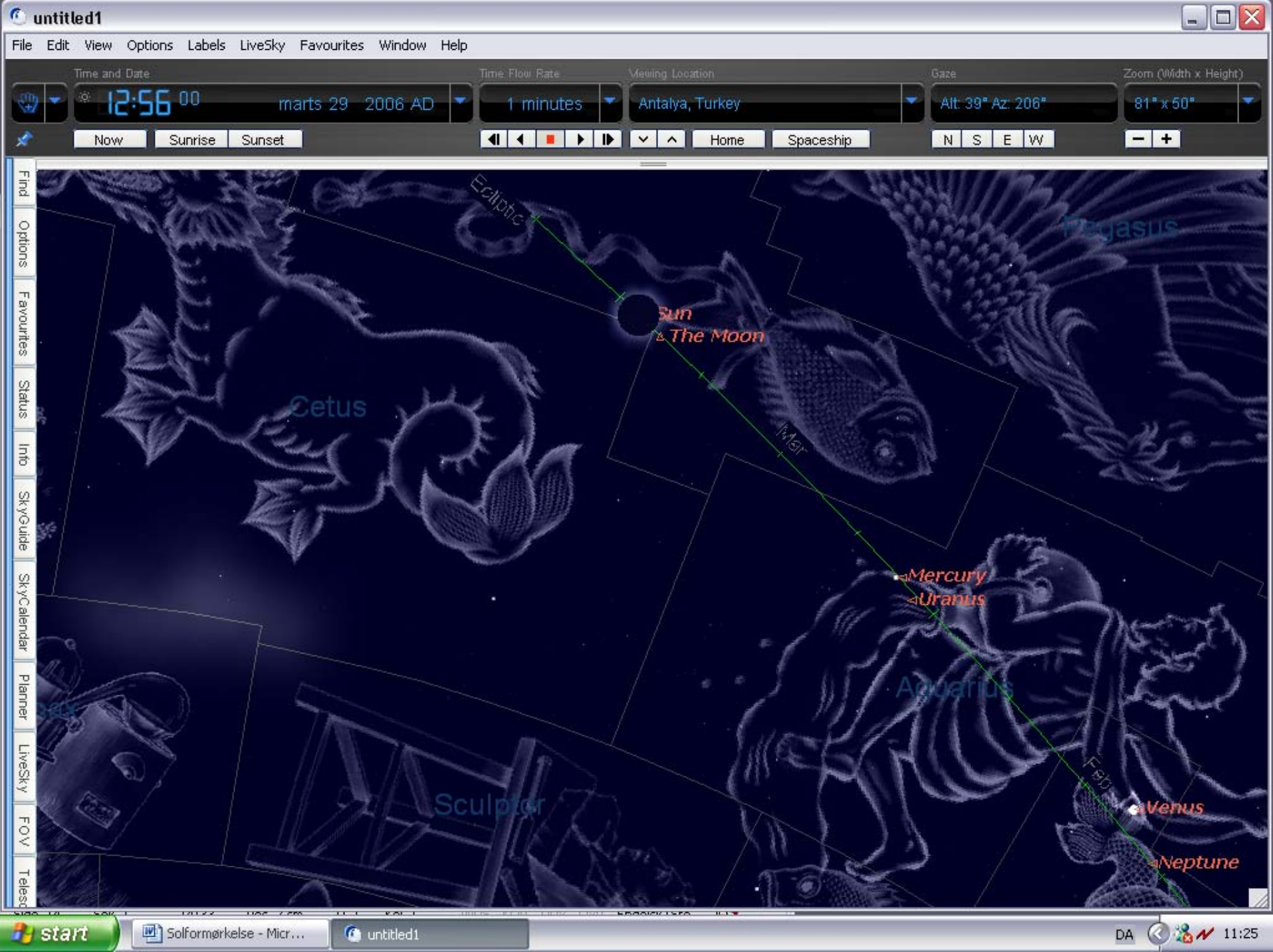
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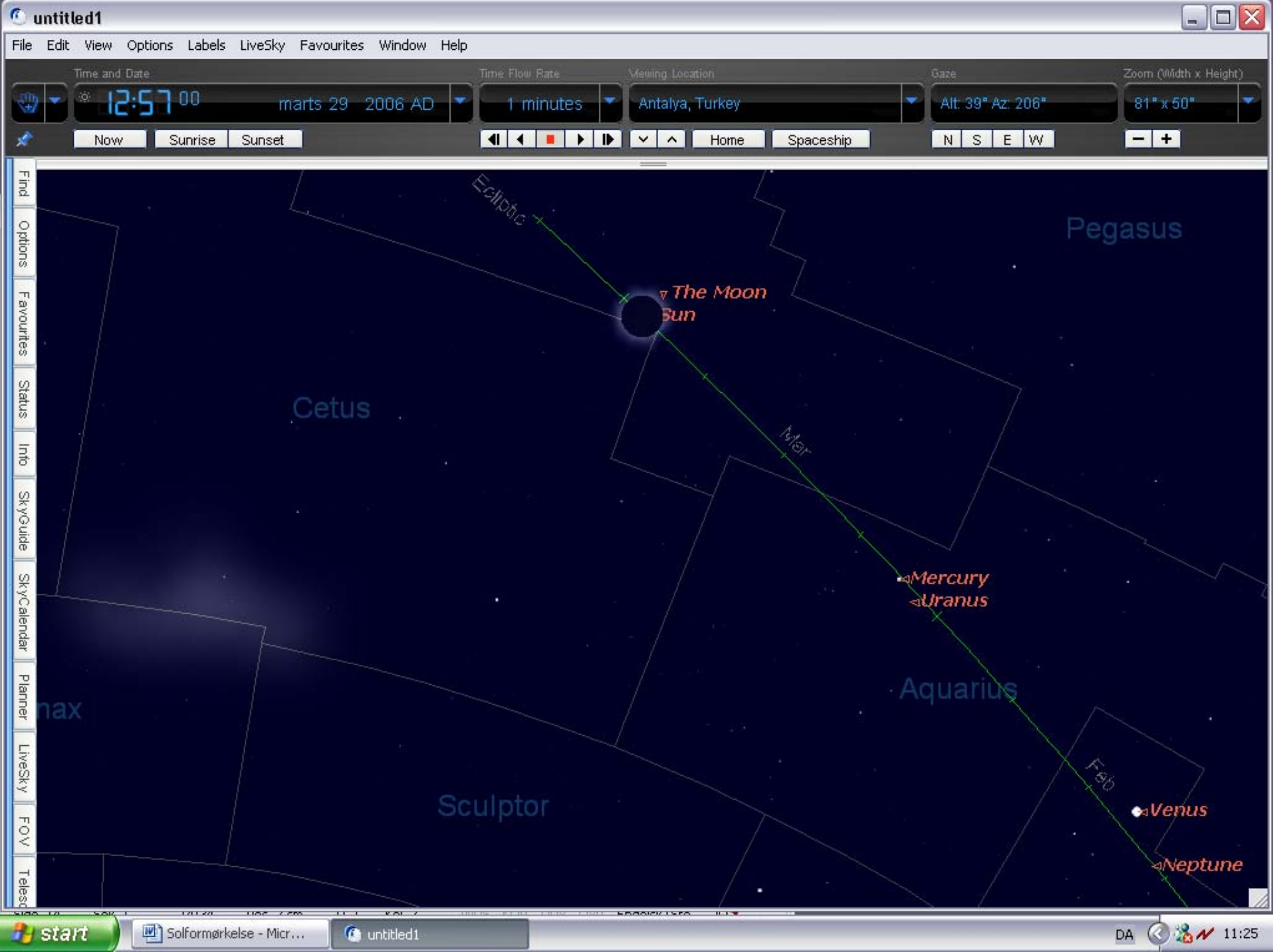
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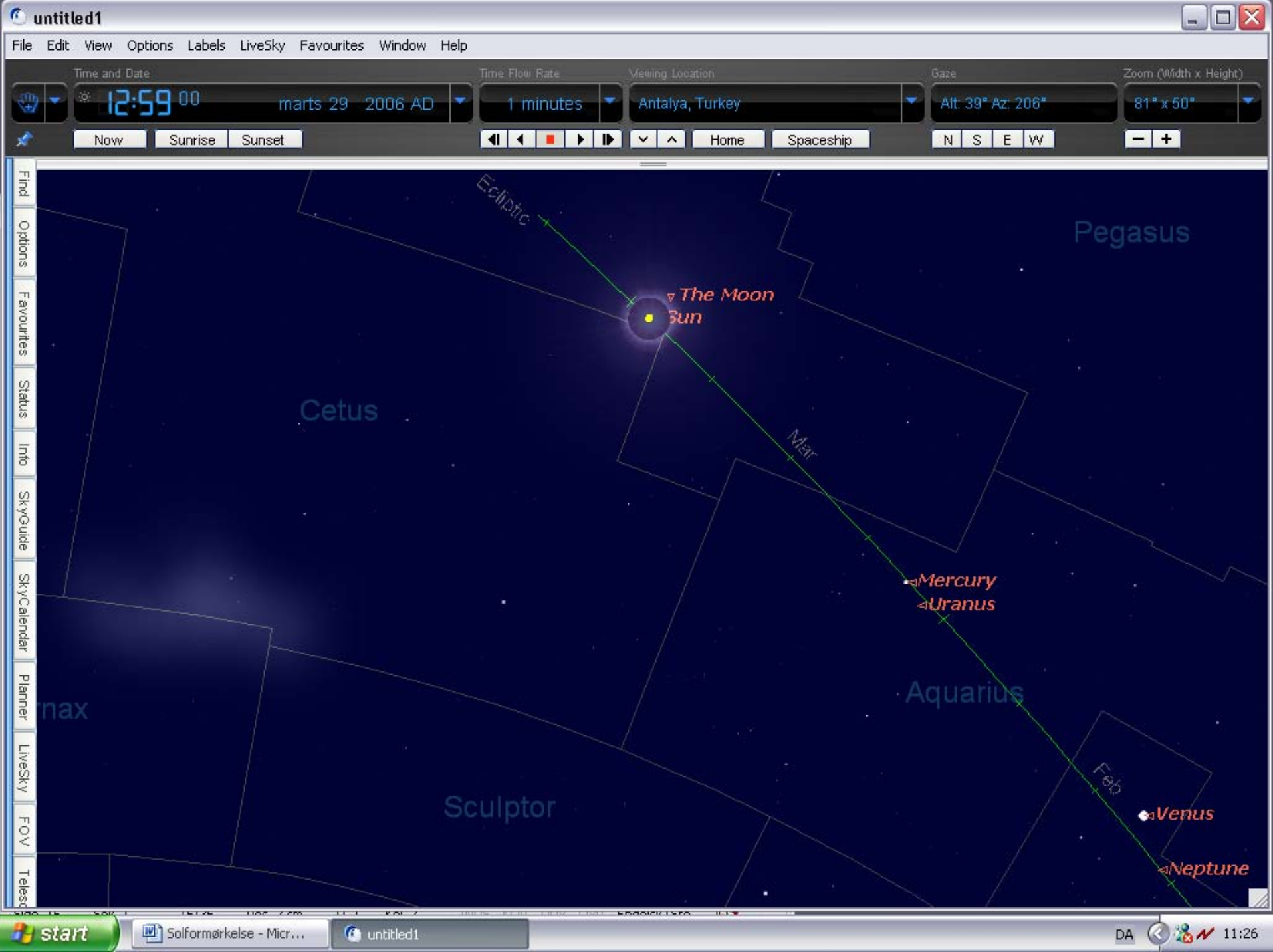
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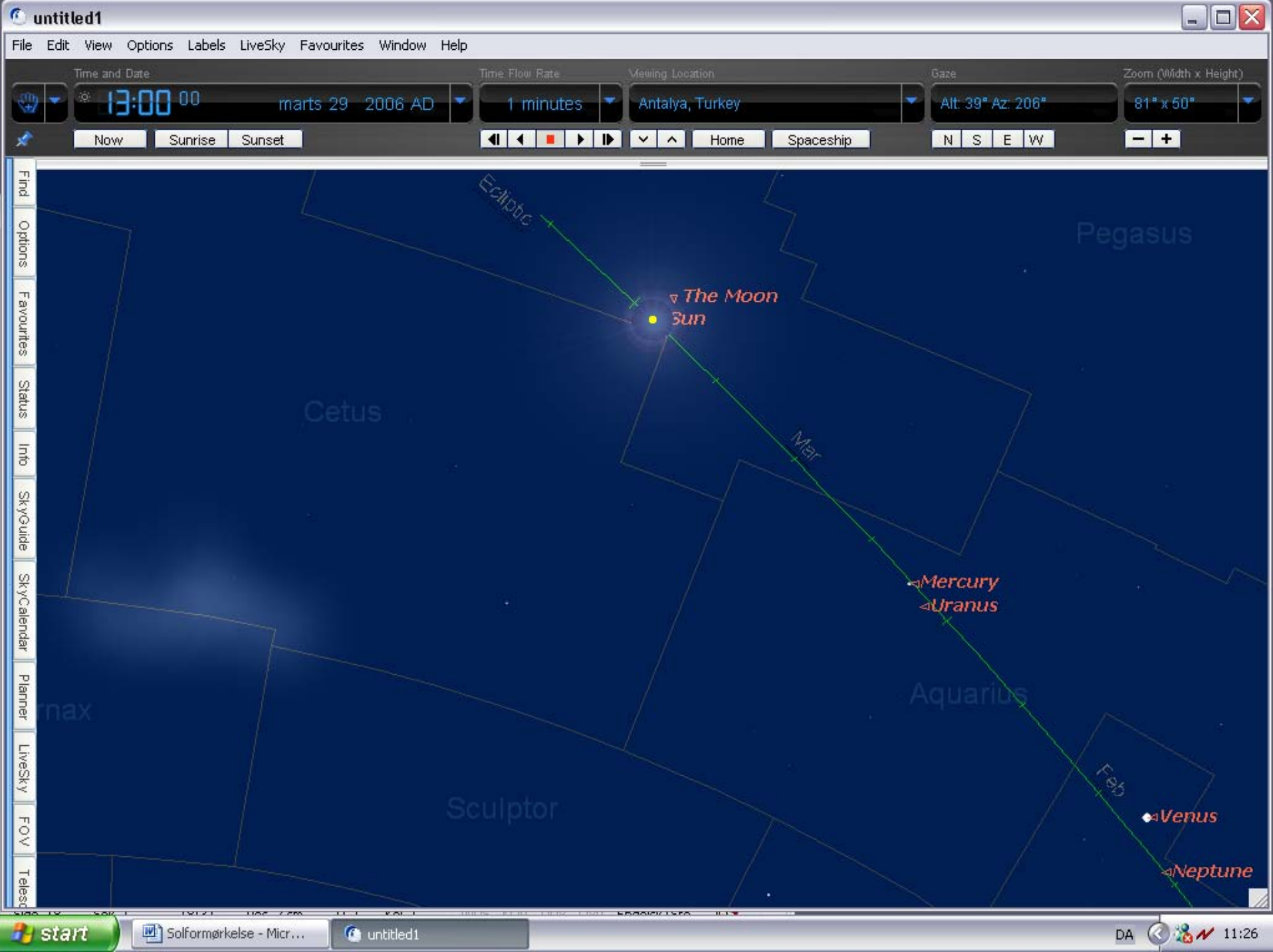
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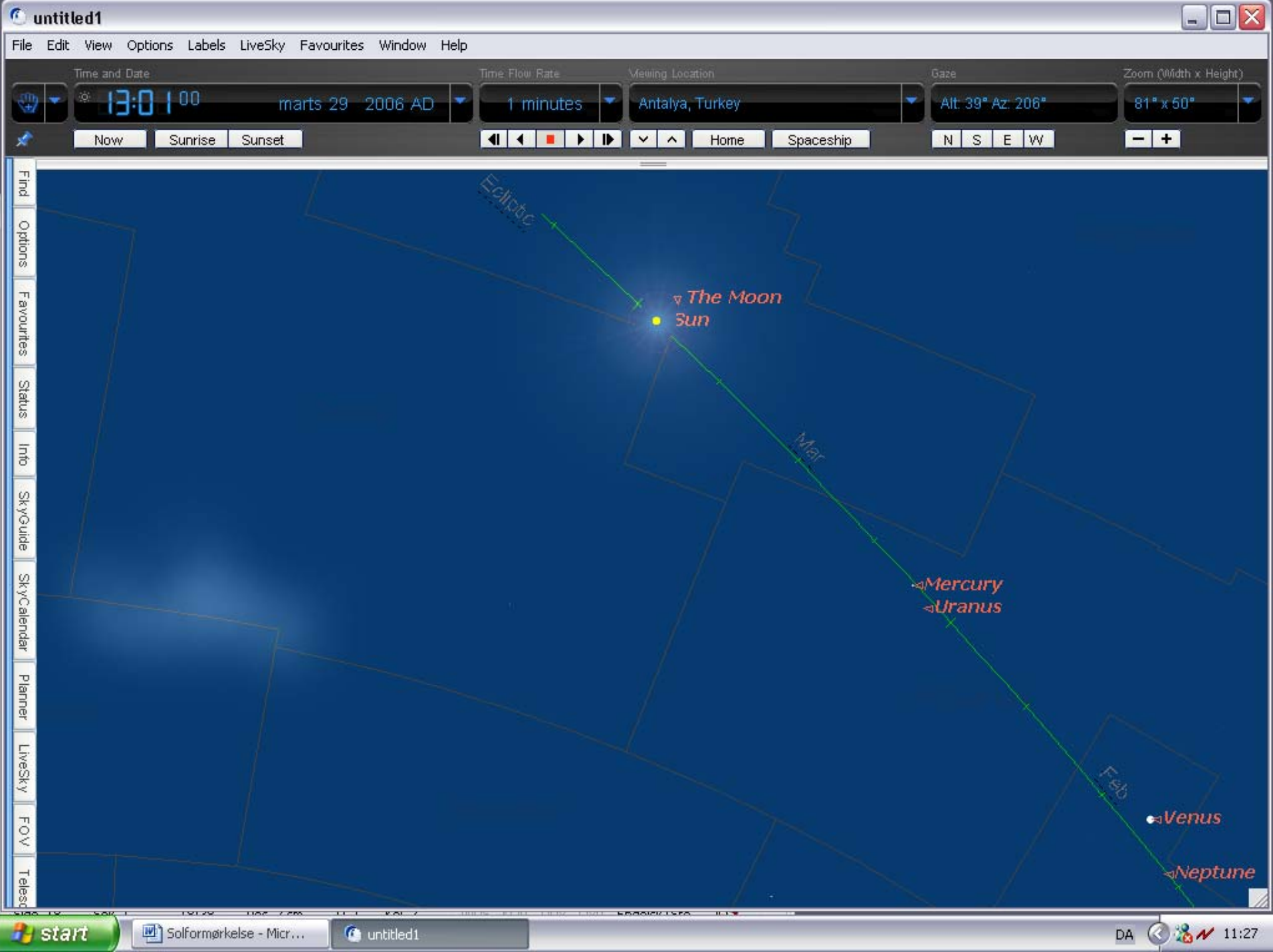
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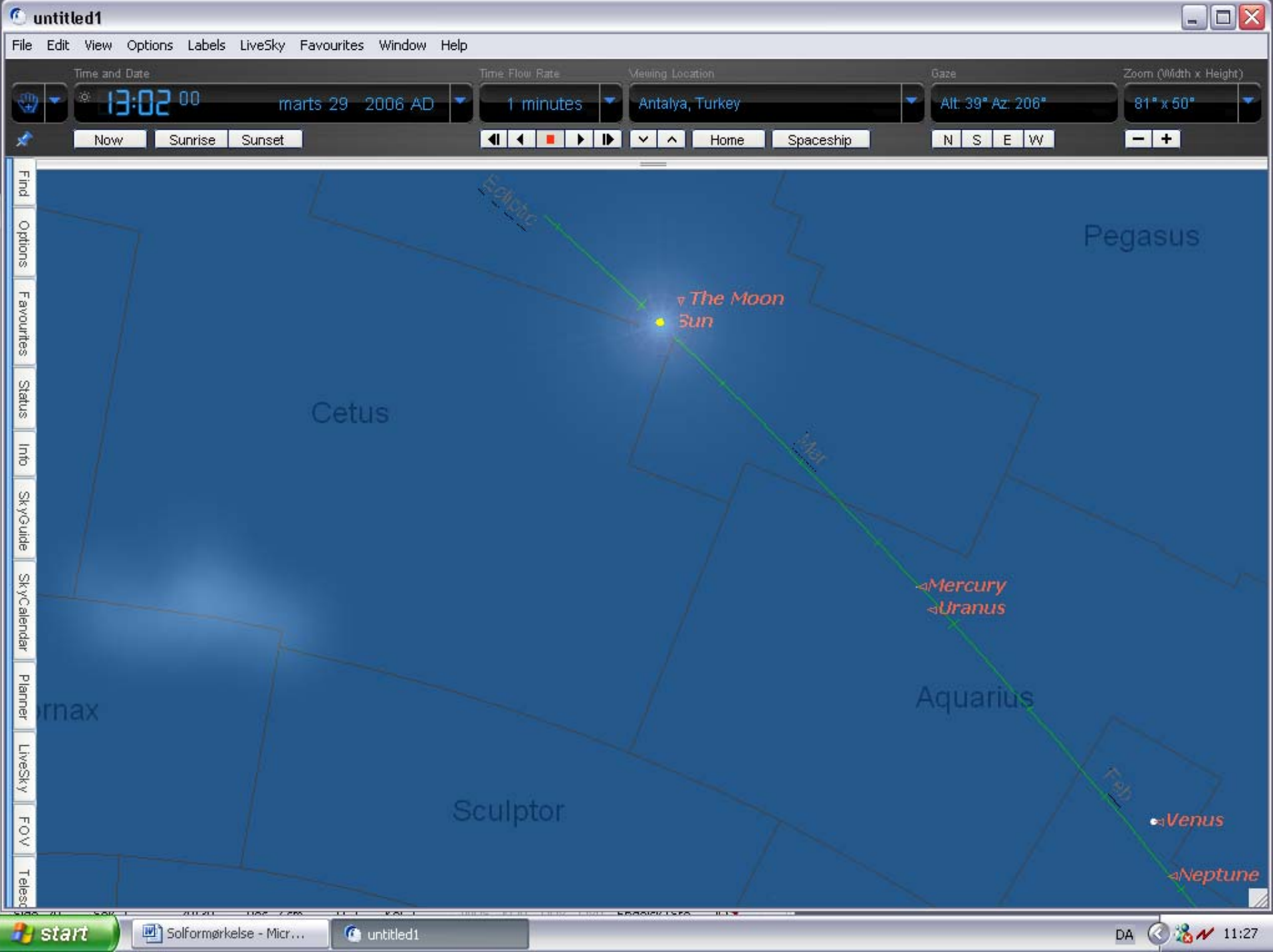
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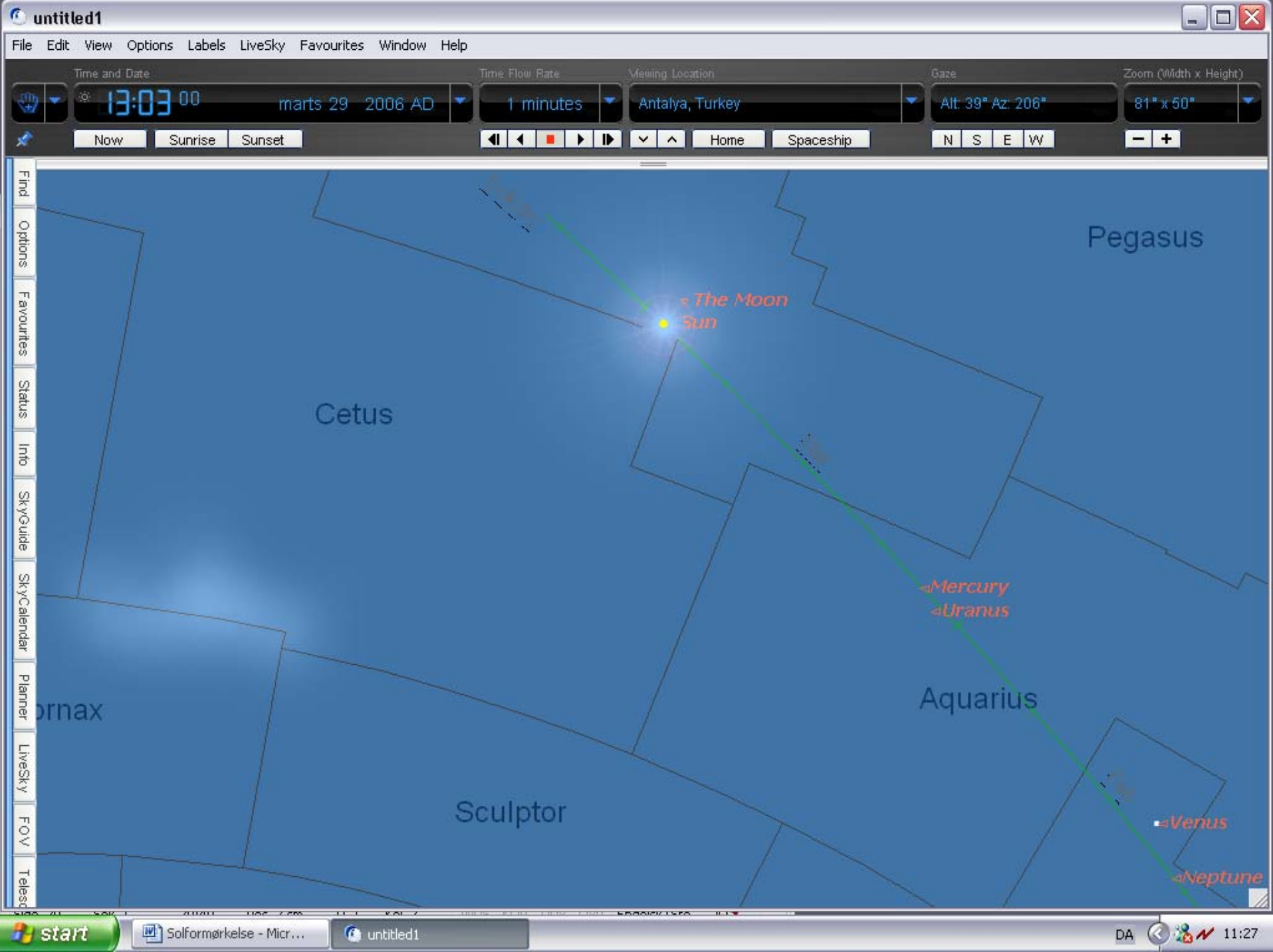
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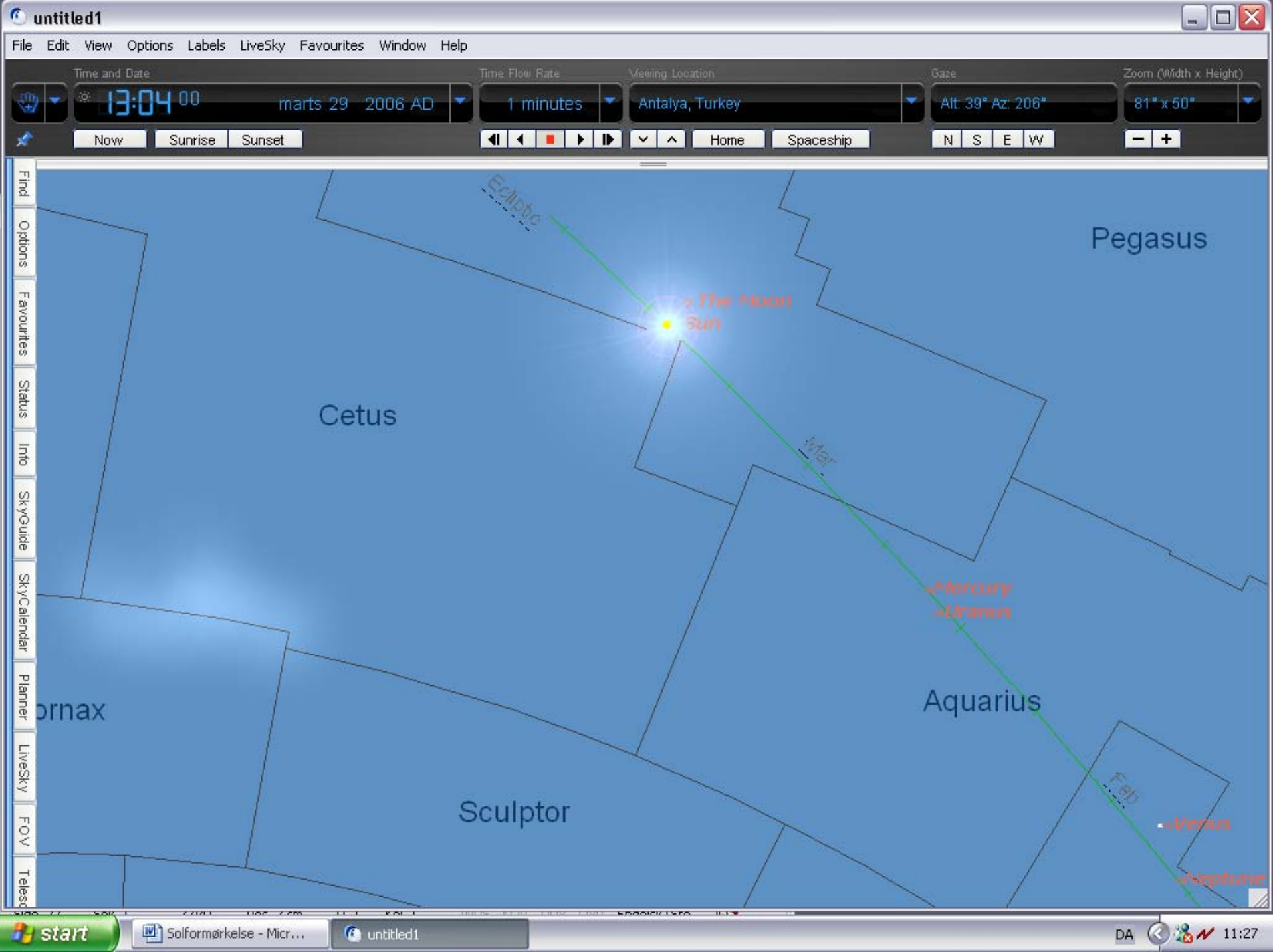
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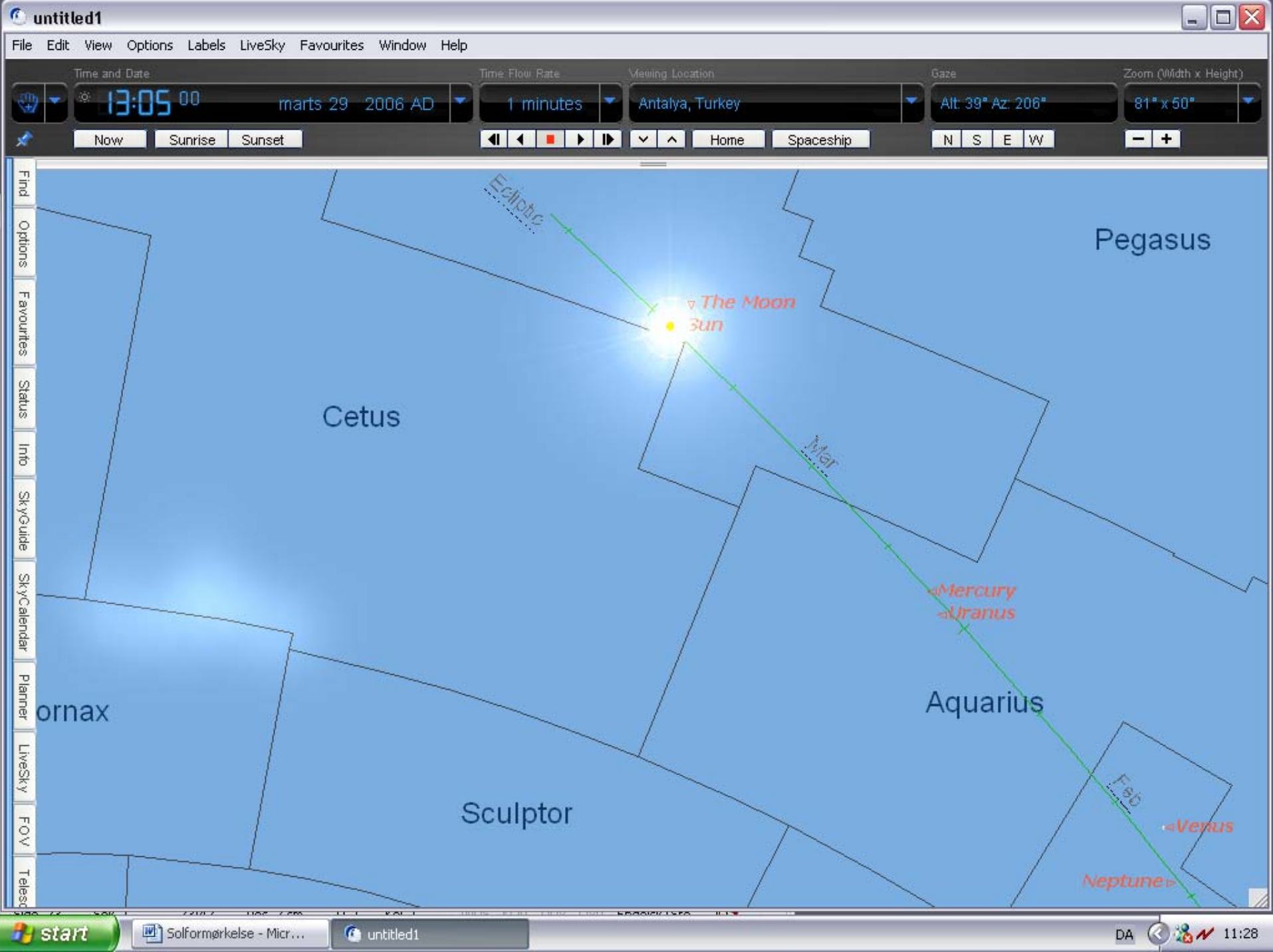
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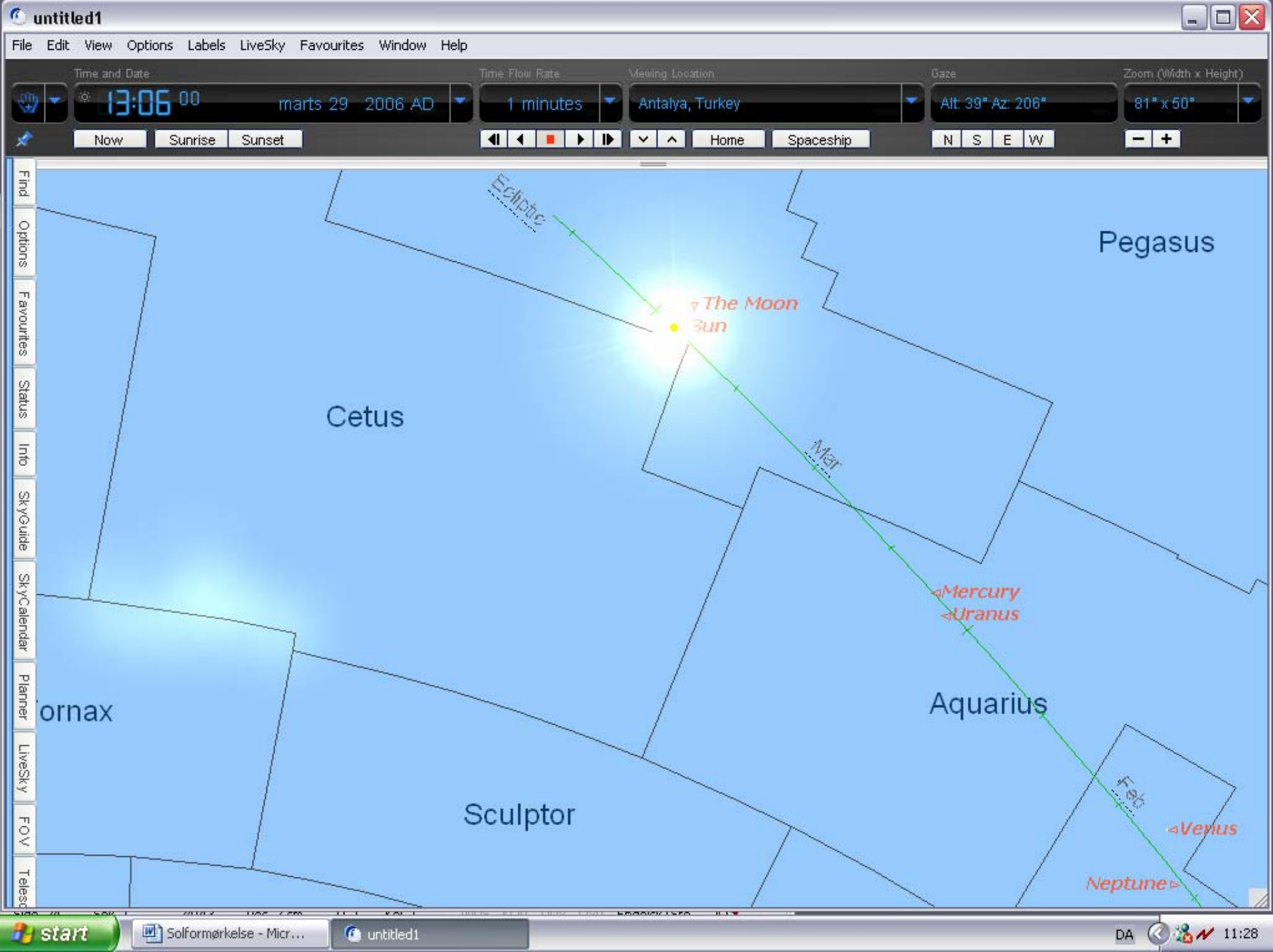
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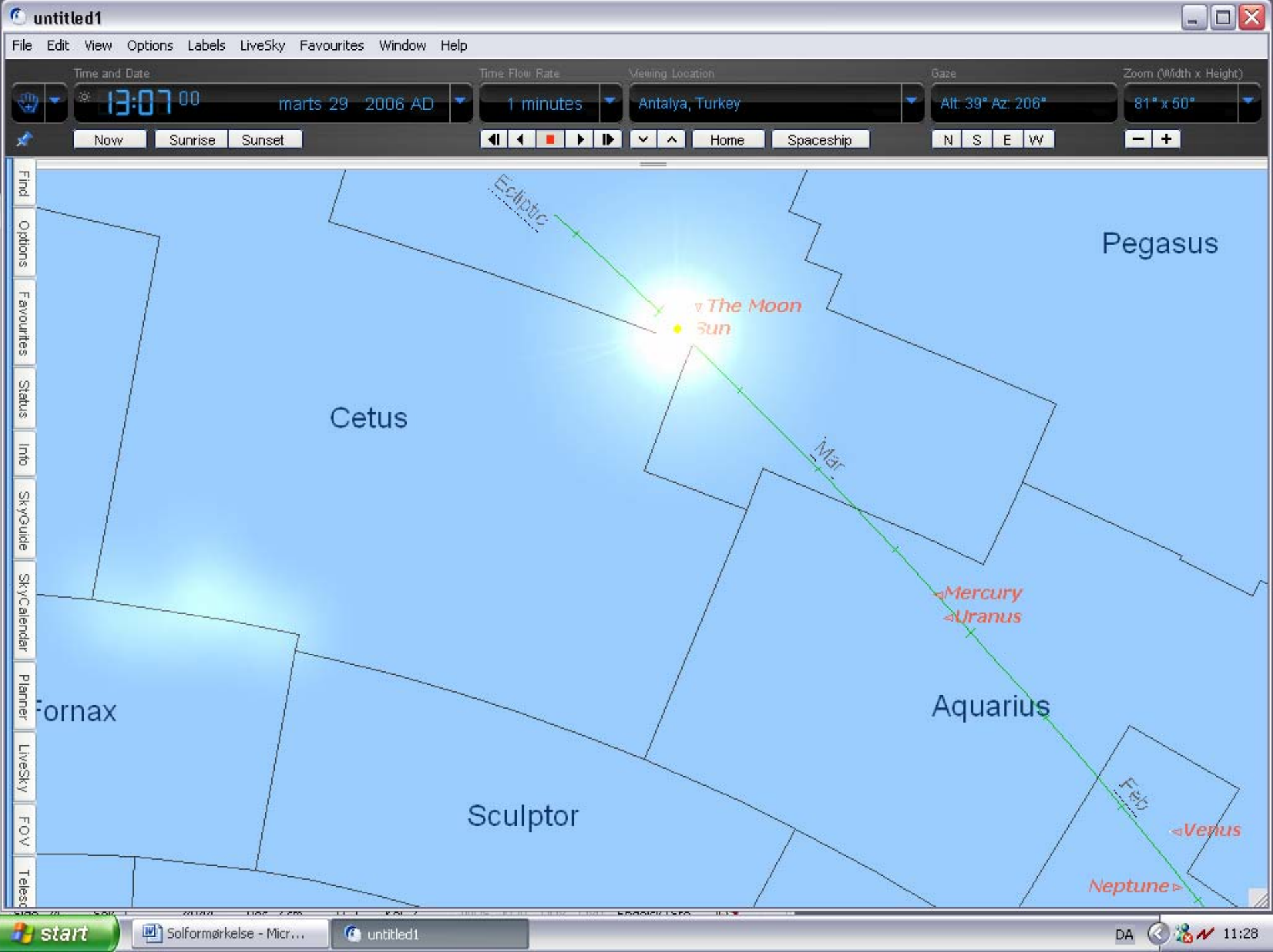
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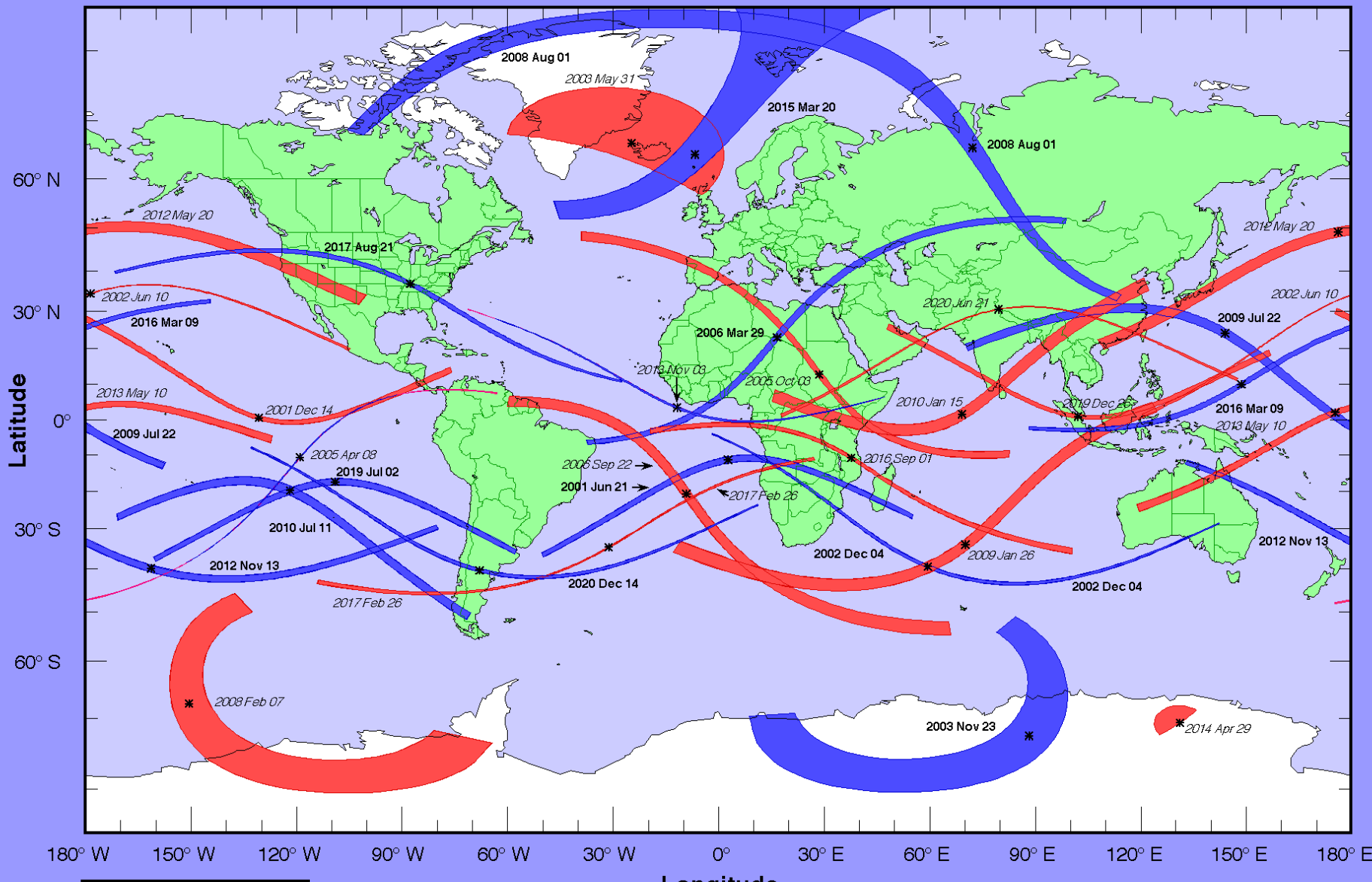
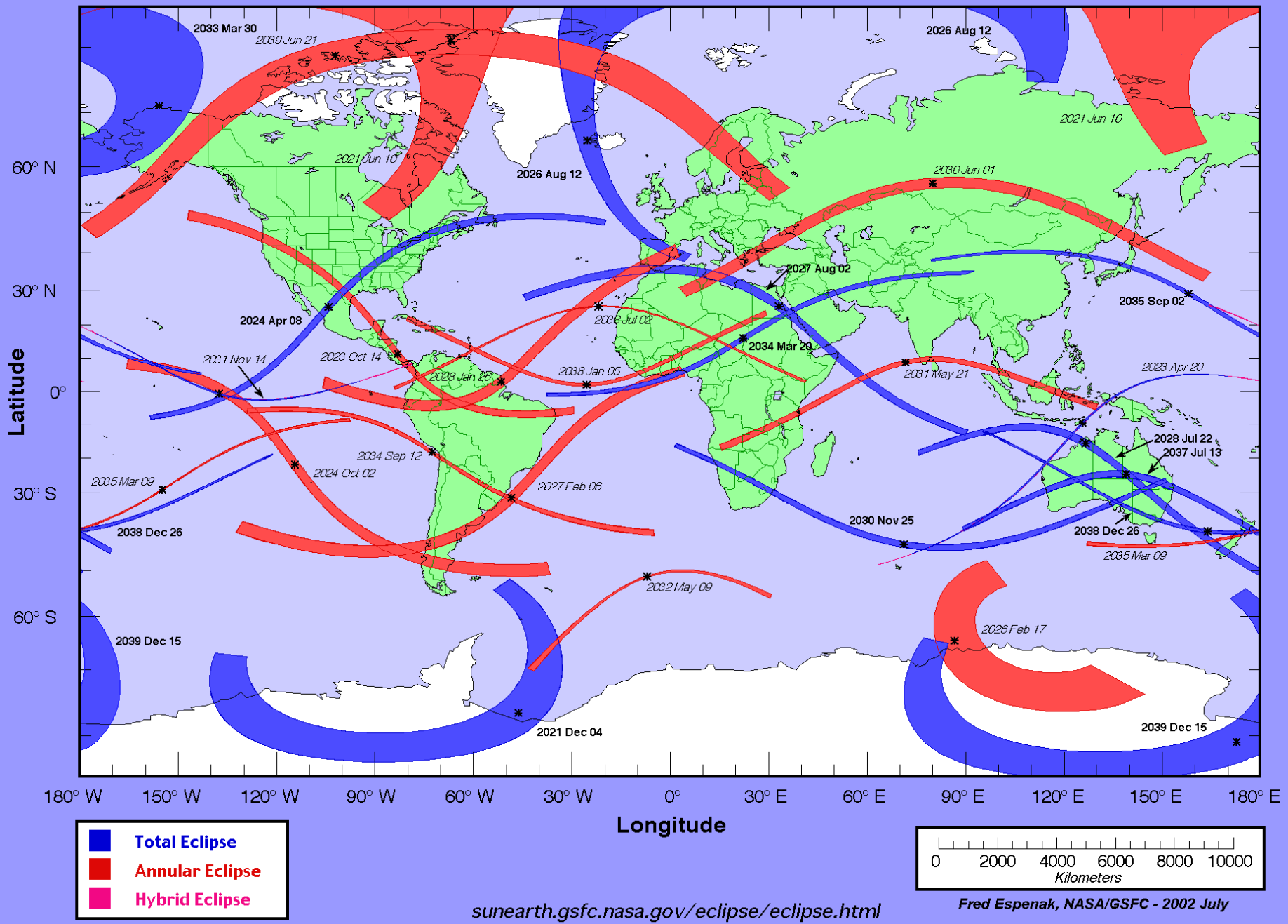
Total and Annular Solar Eclipse Paths: 2001 — 2020



sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Fred Espenak, NASA/GSFC - 2002 July

Total and Annular Solar Eclipse Paths: 2021 –2040



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Fred Espenak, NASA/GSFC - 2002 July

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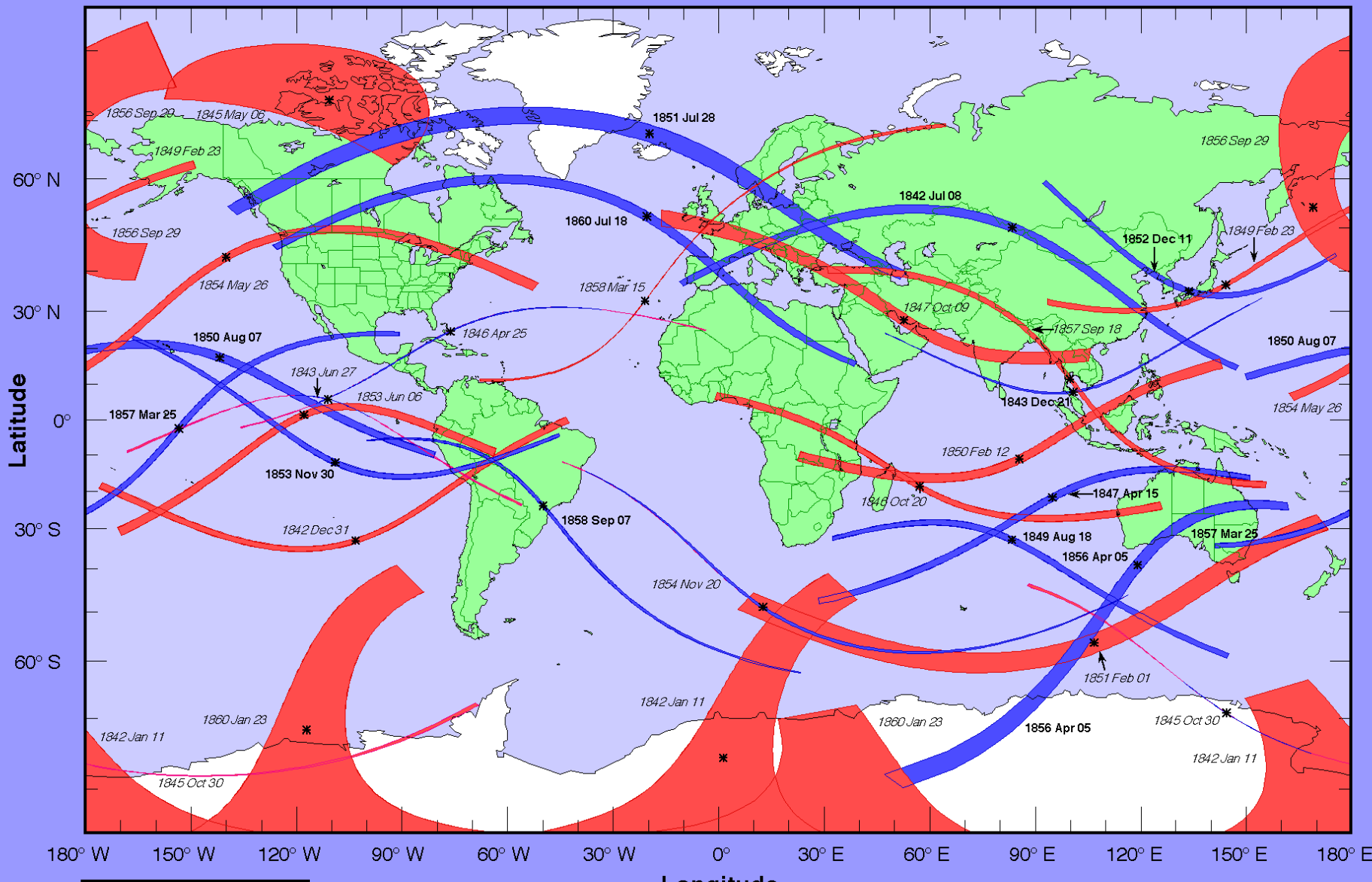

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Fred Espenak, NASA/GSFC - 2002 July