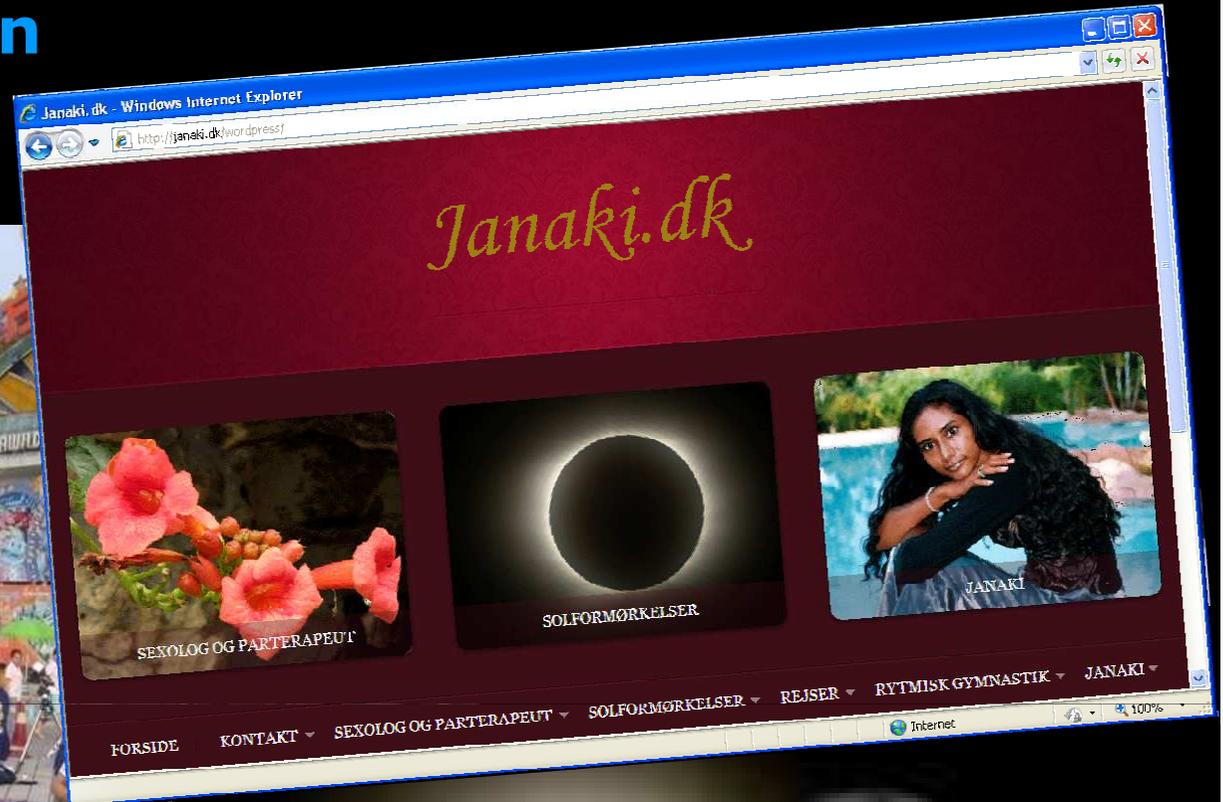


***Ringformet solformørkelse i Indien
15. januar 2010***



v. Janaki Lund Jensen og Mikael Svalgaard

Janaki Lund Jensen



Mikael Svalgaard



Hovedaktørerne: Solen og Månen



**Solen er 400 gange større end Månen
og 400 gange længere væk!**

- derfor har de samme størrelse på himlen

-næsten!

Hovedaktørerne: Solen og Månen

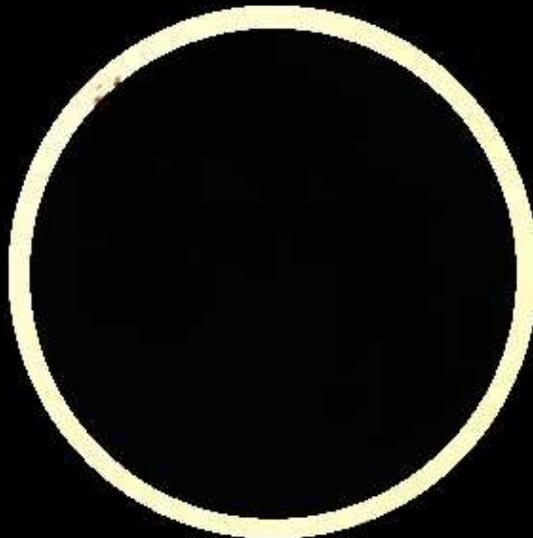


Solens afstand: 147.152.500 km
Solens vinkeldiameter: 0.542 grader



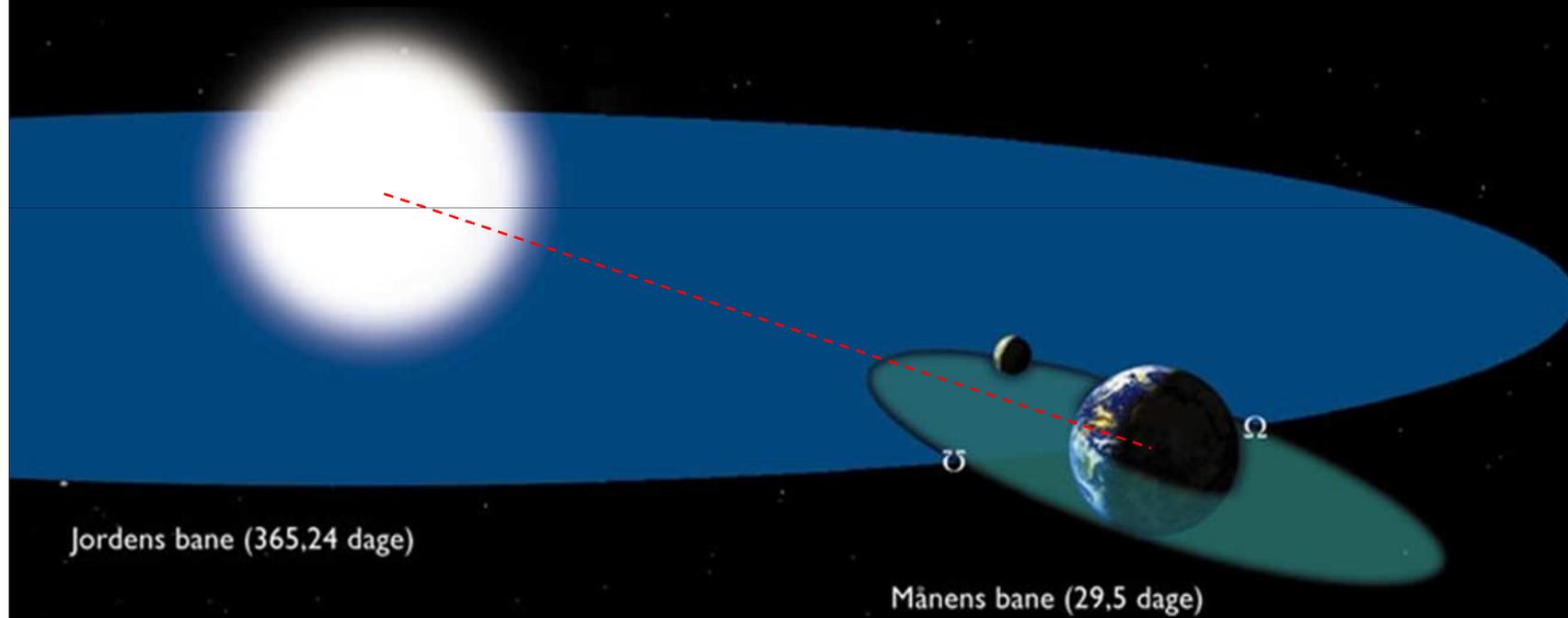
Månens afstand: 399.980 km
Månens vinkeldiameter: 0.498 grader

(84% dækket)

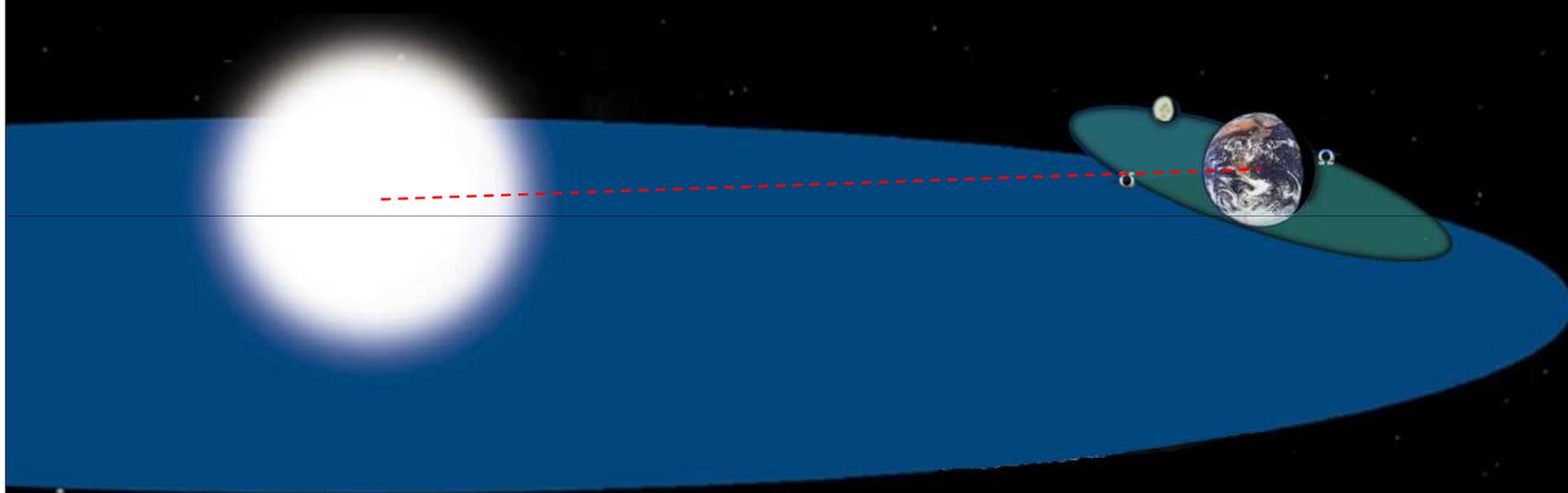


Denne formørkelse er ekstrem!
I deres periodiske bevægelser
er Solen tættest på
og Månen længst væk.
↓
langvarig ring, 11 minutter!

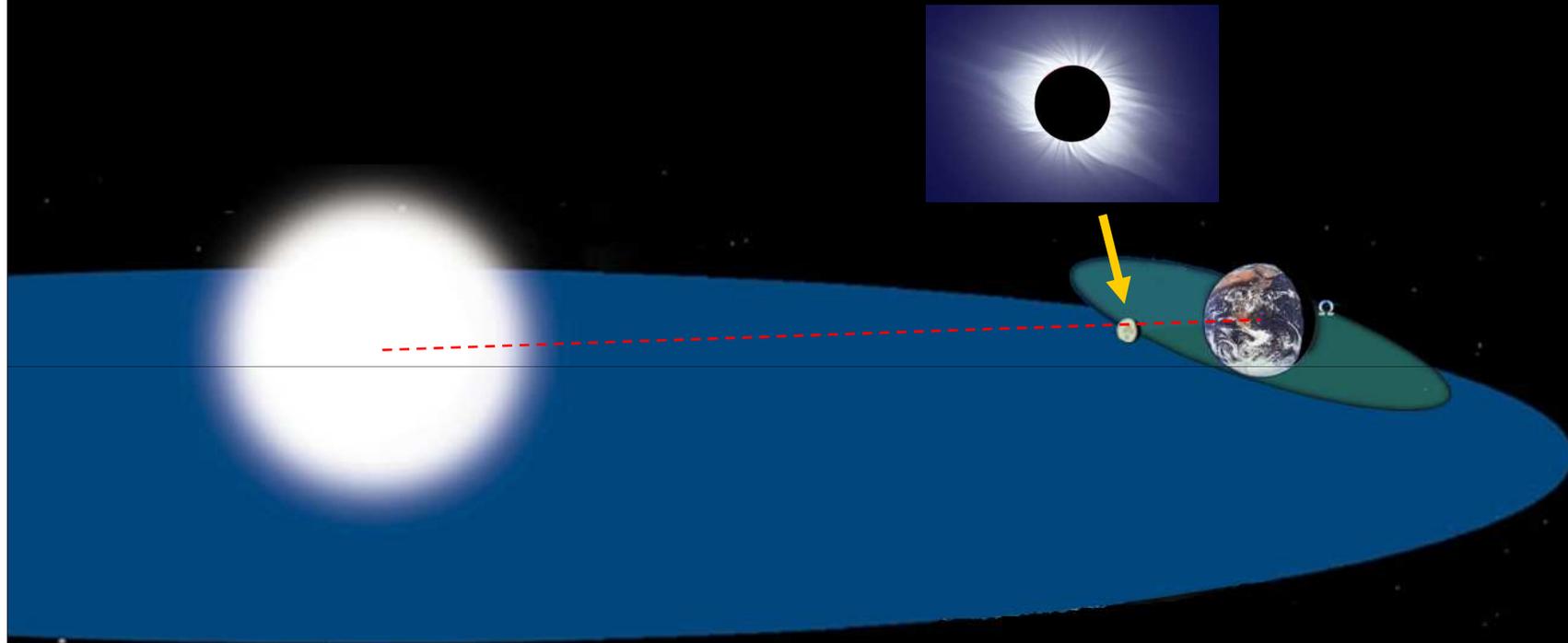
Formørkelsesgeometri:



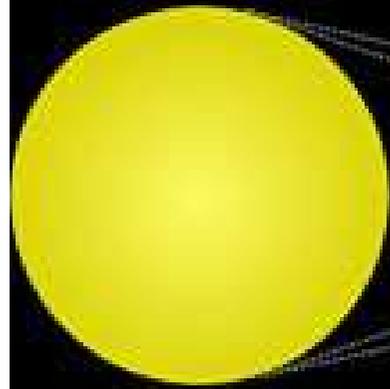
Formørkelsesgeometri:



Formørkelsesgeometri:

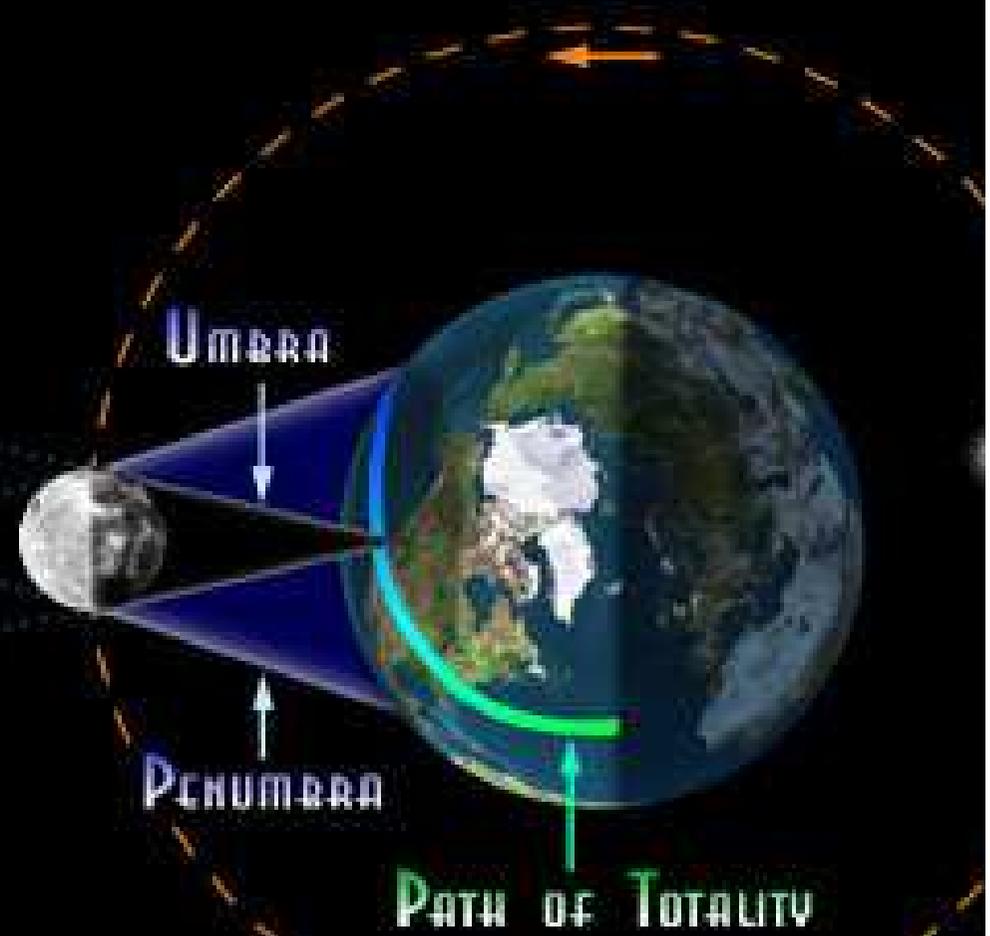
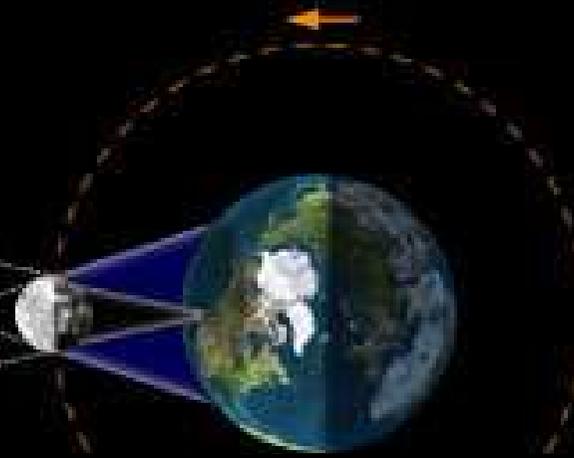


Total solformørkelse



SUN

www.MrEclipse.com



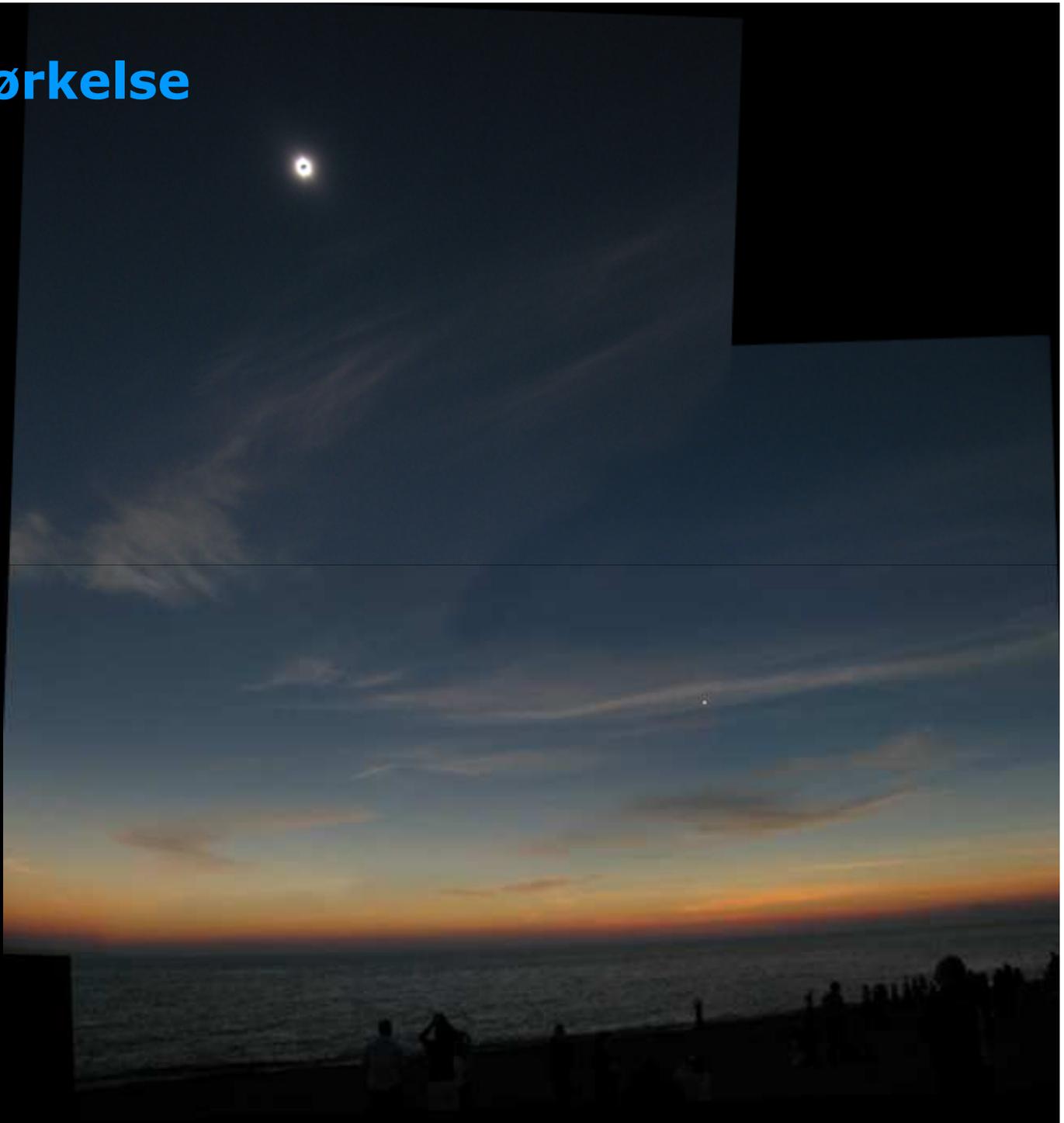
Ringformet solformørkelse



Total solformørkelse

- Dag bliver til nat
- Planeter synlige
- Korona, m.m
- Kold luft
- Morgenrøde
- Forudsigelighed
- Eksotiske steder

Michael Cramer Andersen



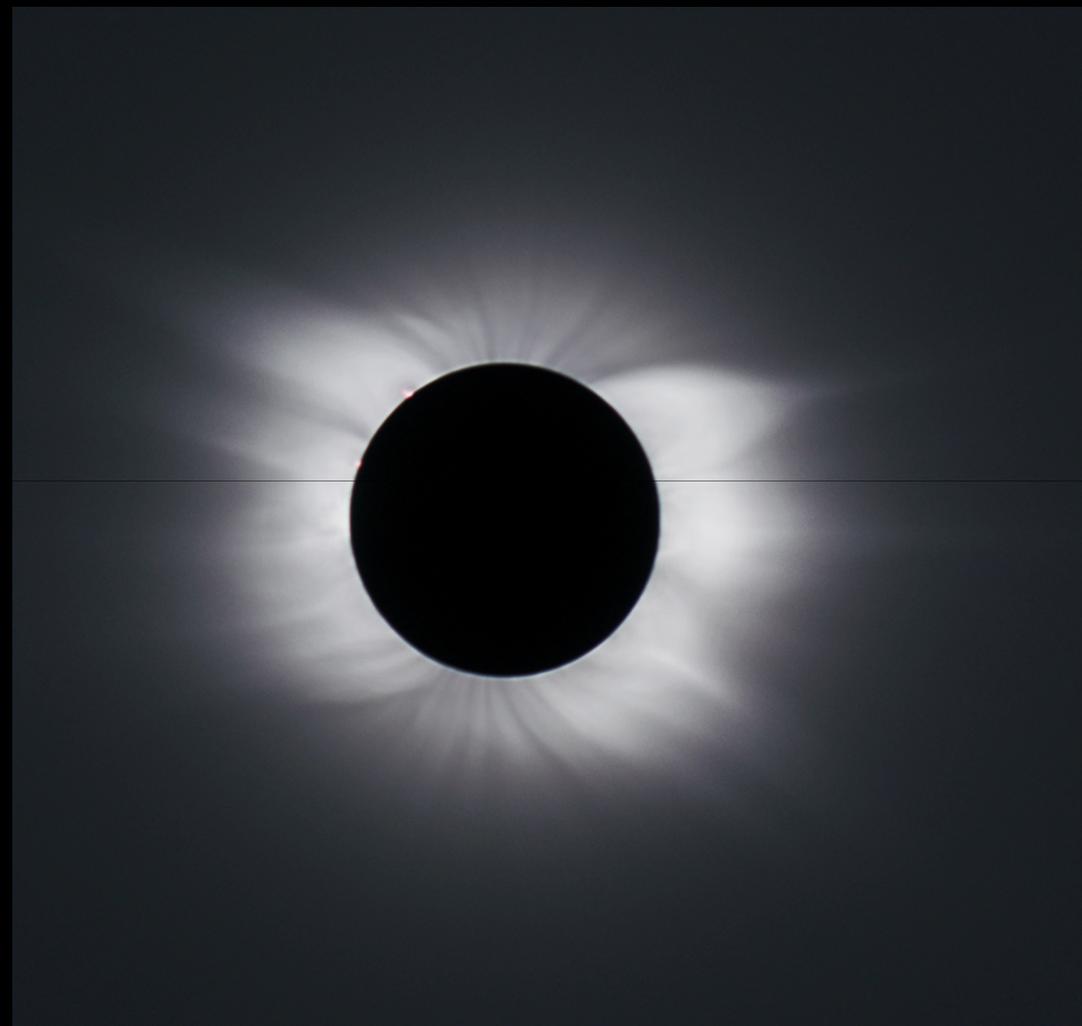
Ringformet solformørkelse

- Kræver oftest udstyr for at se ringen direkte
- Køliger luft
- Underlige lyseffekter
- Forudsigelighed
- Eksotiske steder

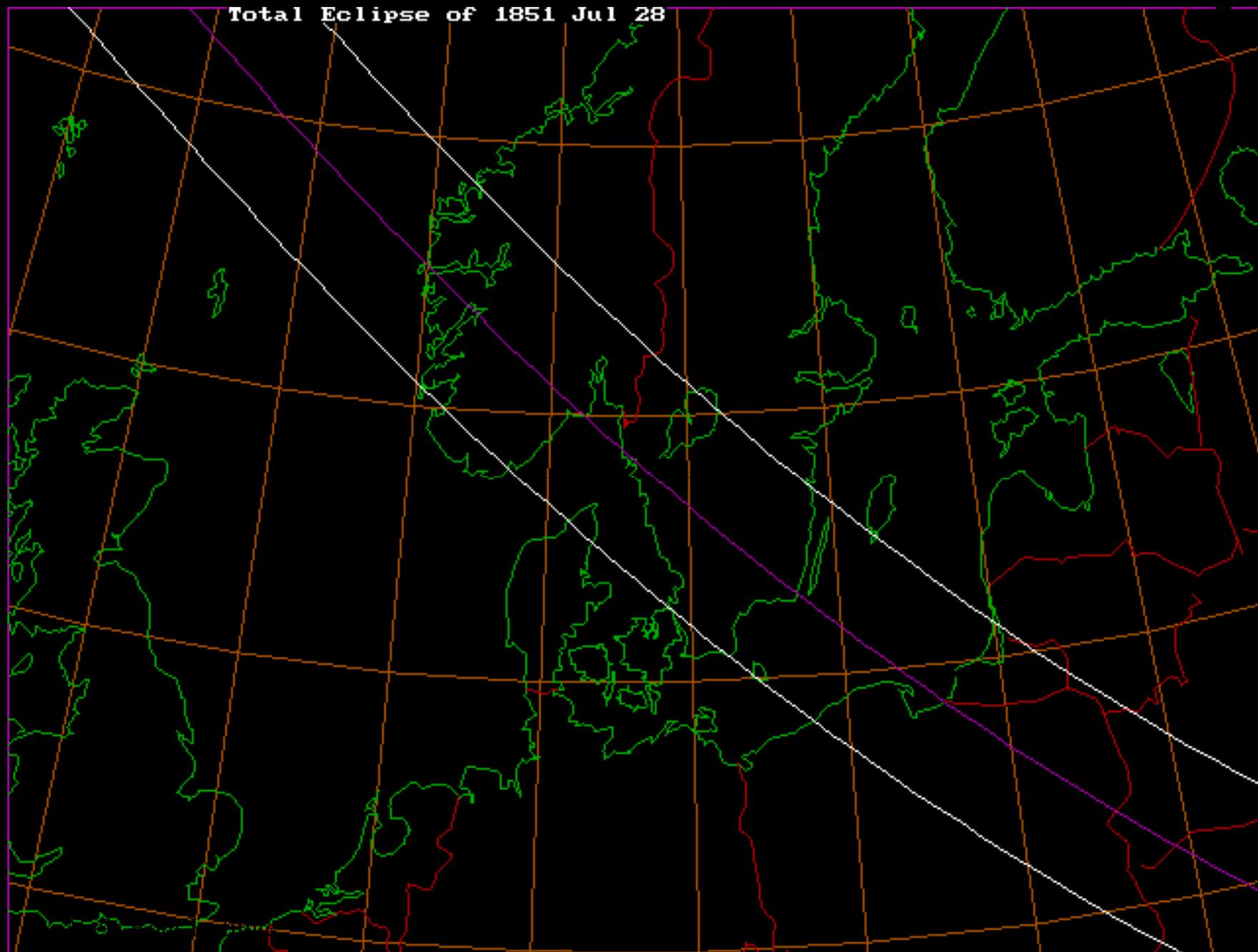


Totale solformørkelser synlige fra Danmark perioden 1501 - 2600

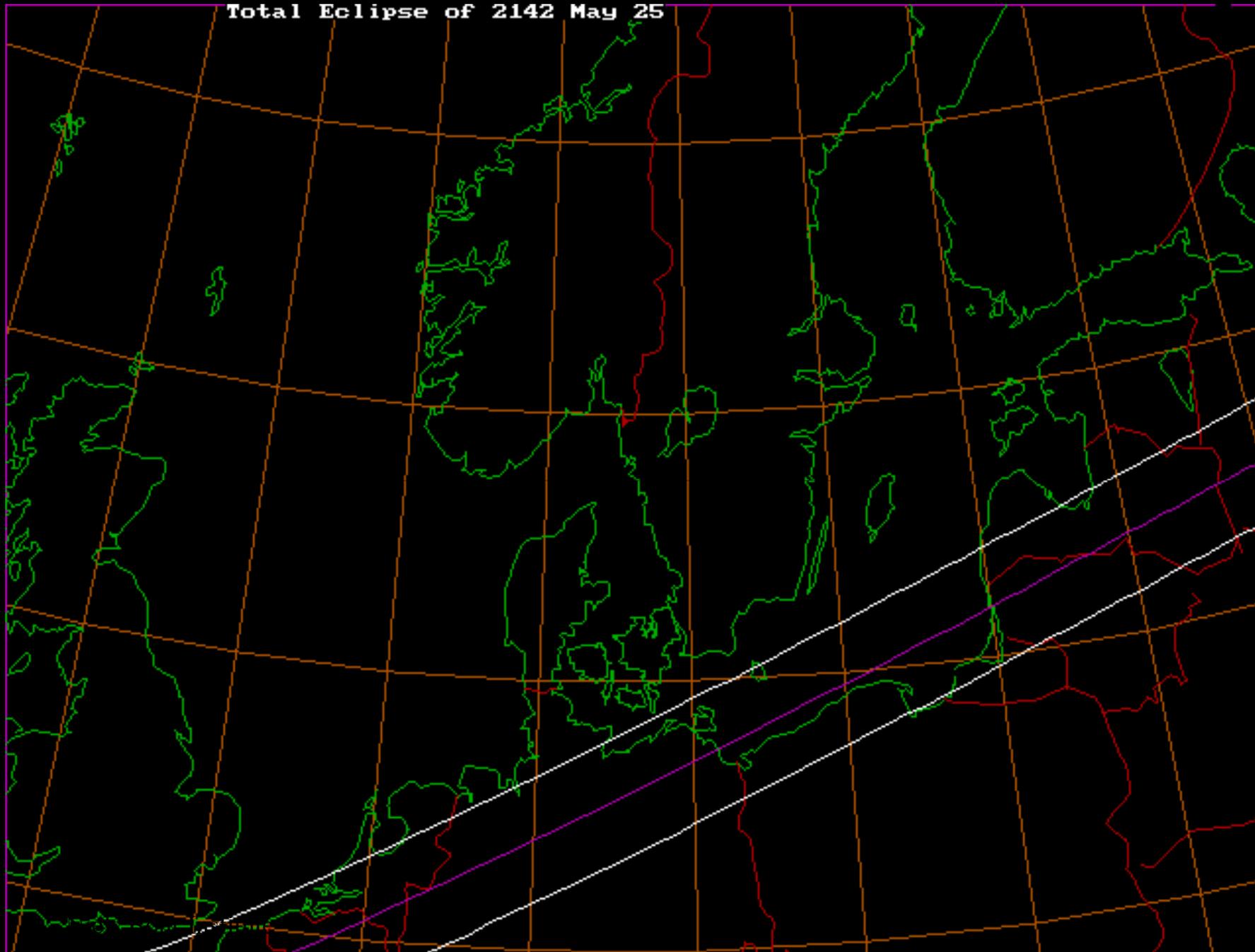
- 1654 Aug 12
- 1699 Sep 23
- 1715 May 3
- 1733 May 13
- 1816 Nov 19
- 1851 Jul 28
- 2142 May 25
- 2426 Sep 2
- 2536 Mar 23



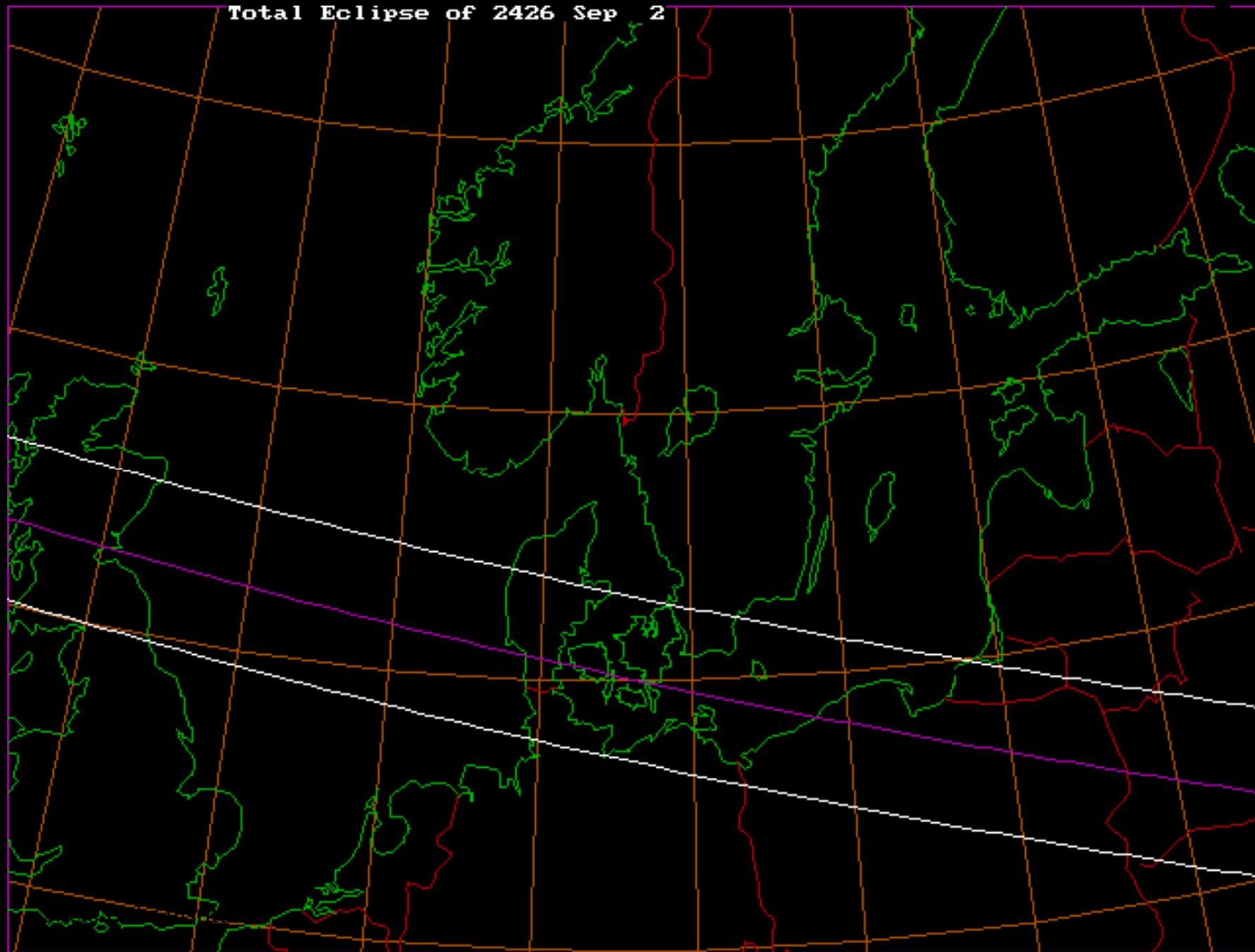
Total Eclipse of 1851 Jul 28



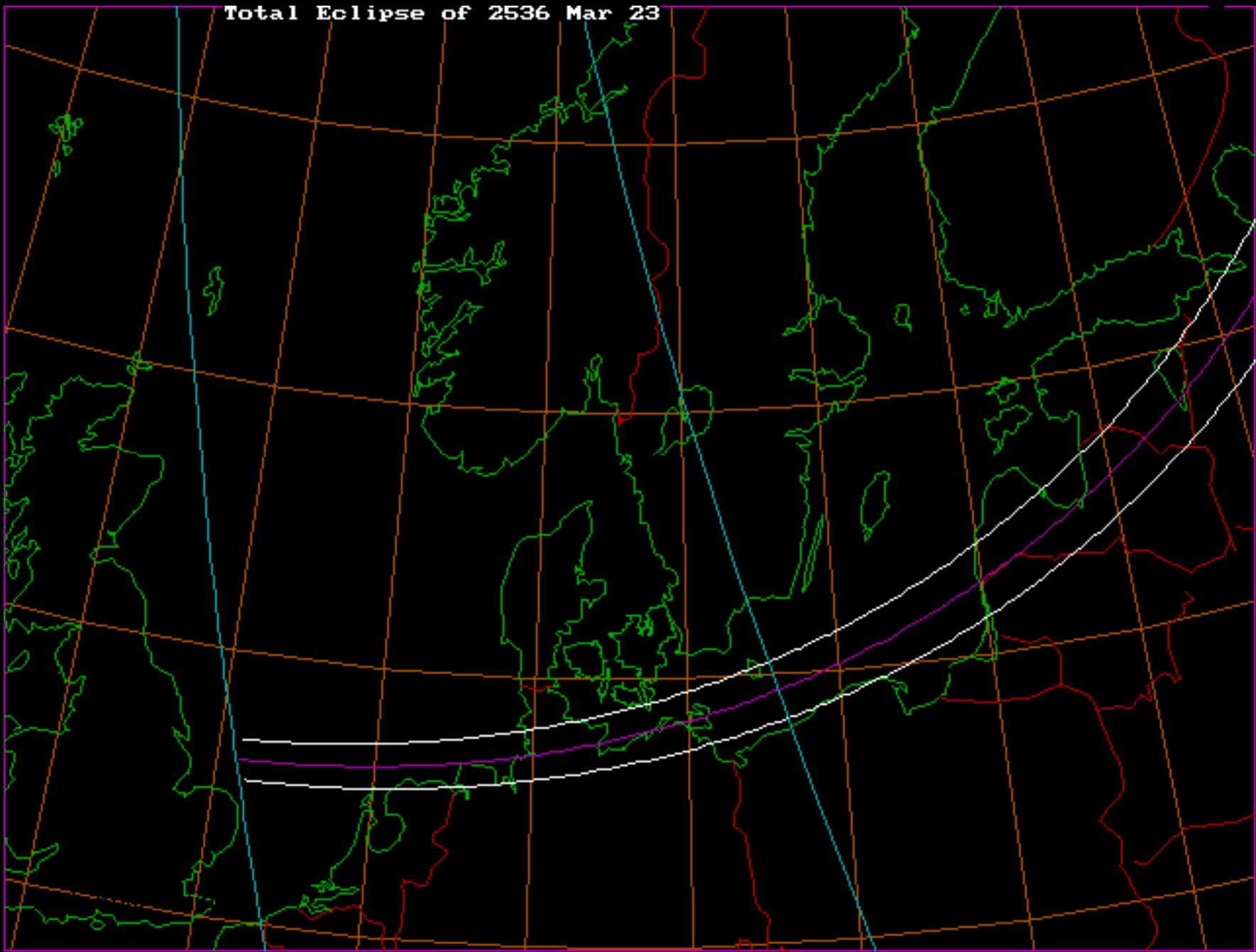
Total Eclipse of 2142 May 25



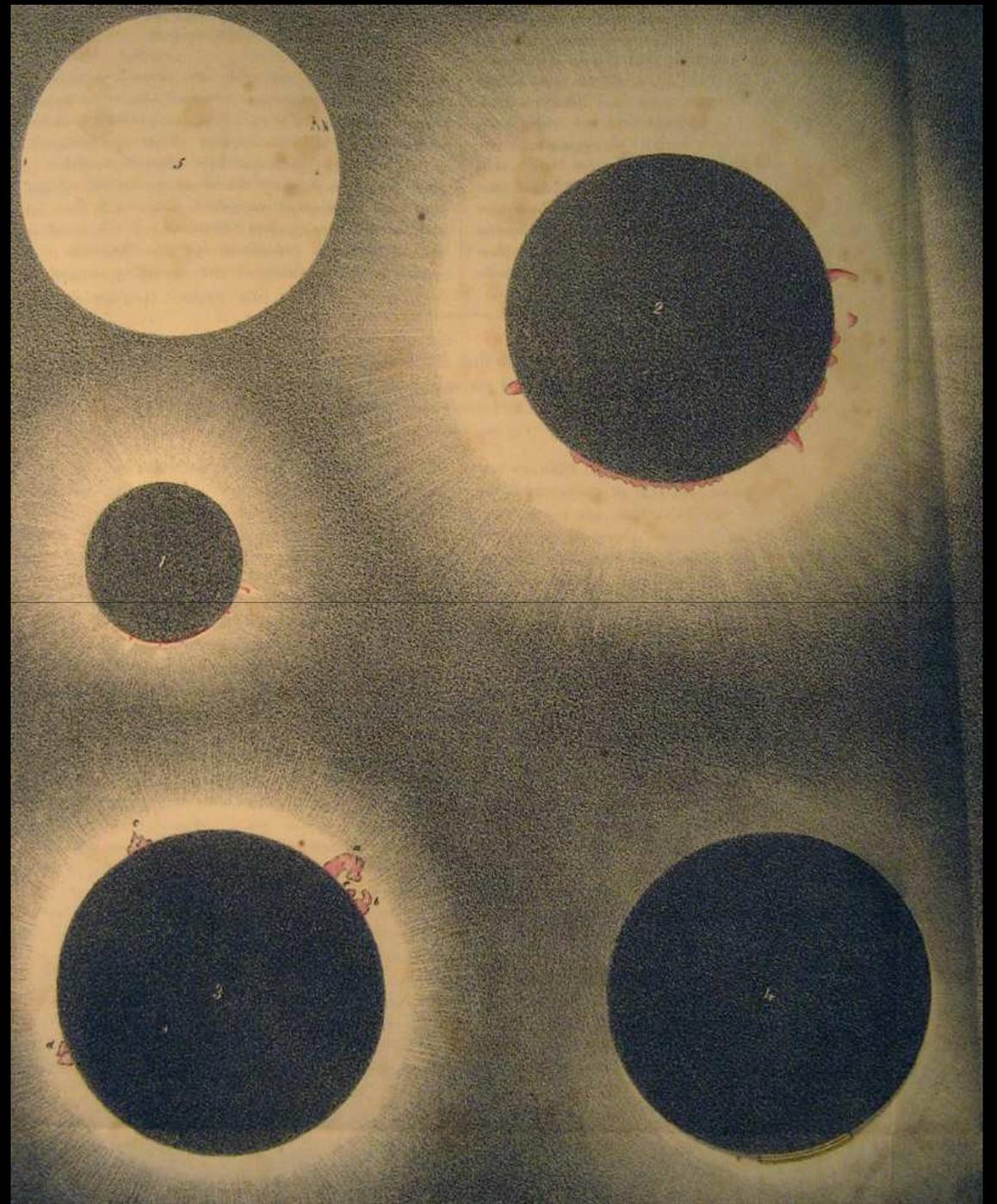
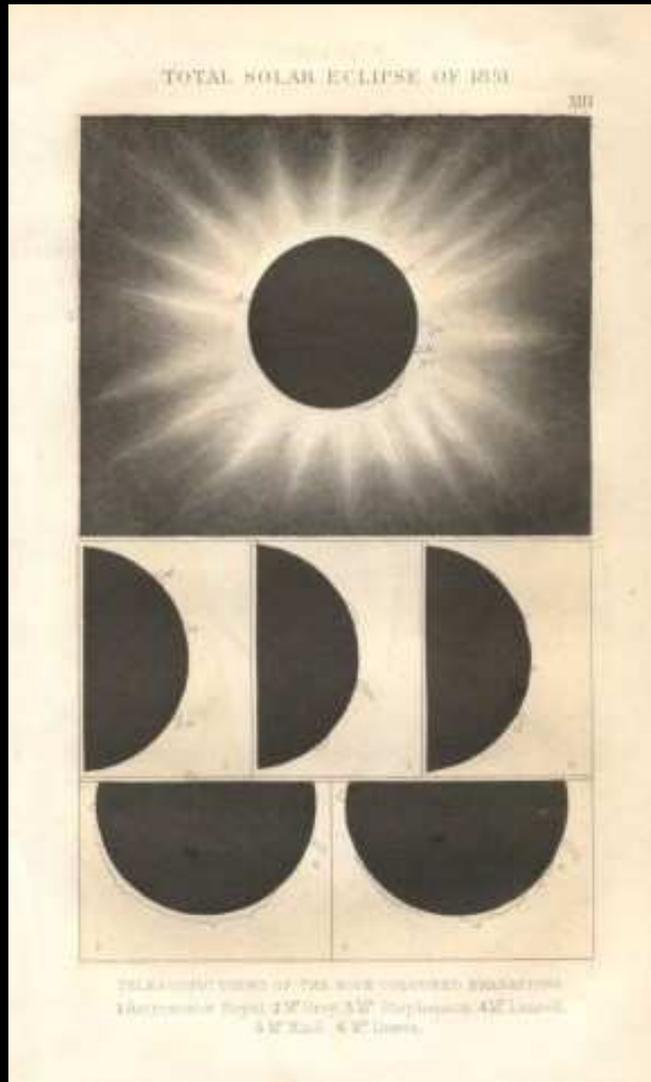
Total Eclipse of 2426 Sep 2



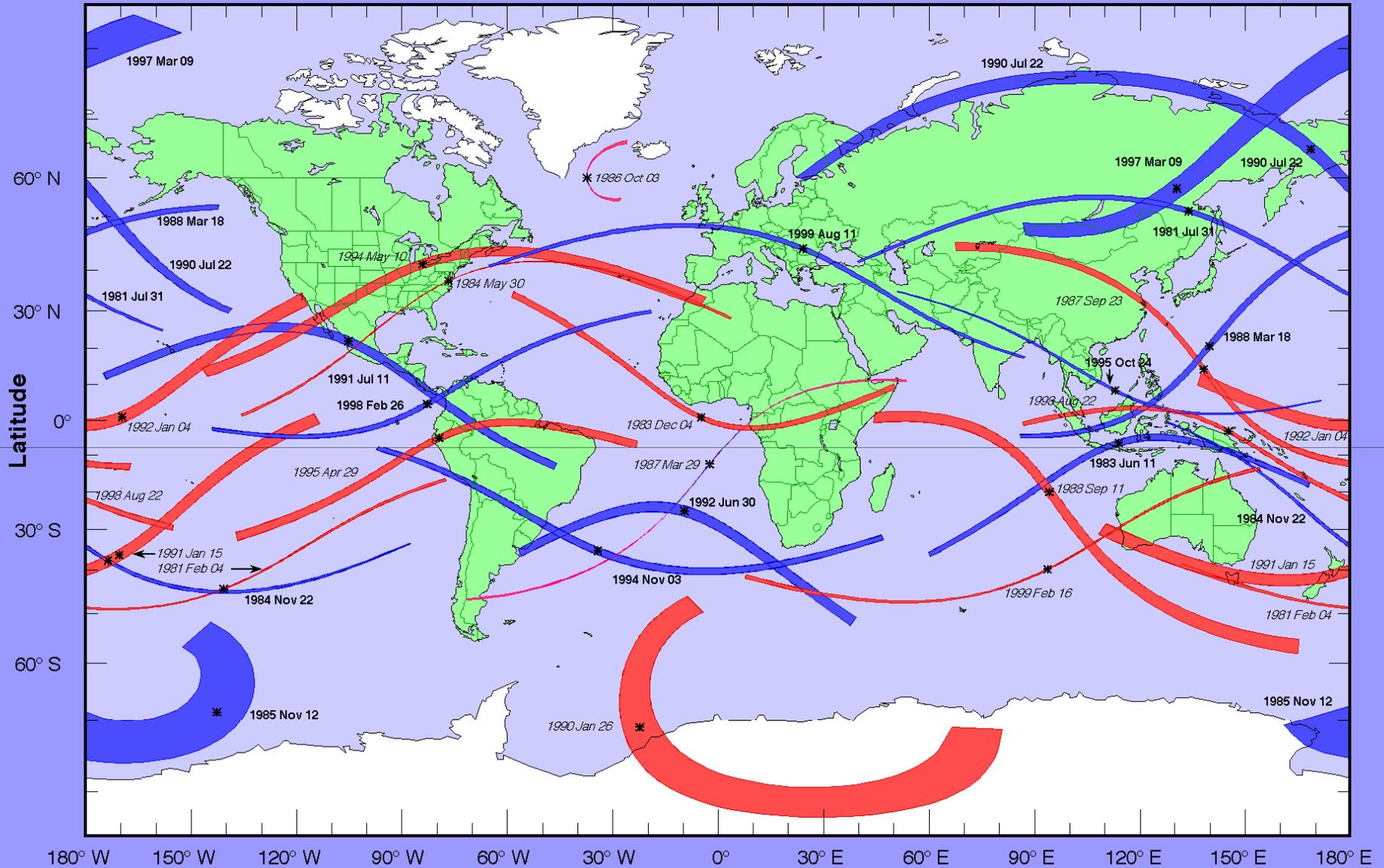
Total Eclipse of 2536 Mar 23



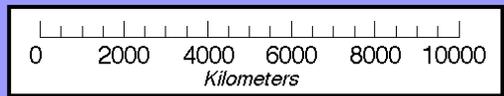
Billeder af total solformørkelse i Danmark 28. juli 1851



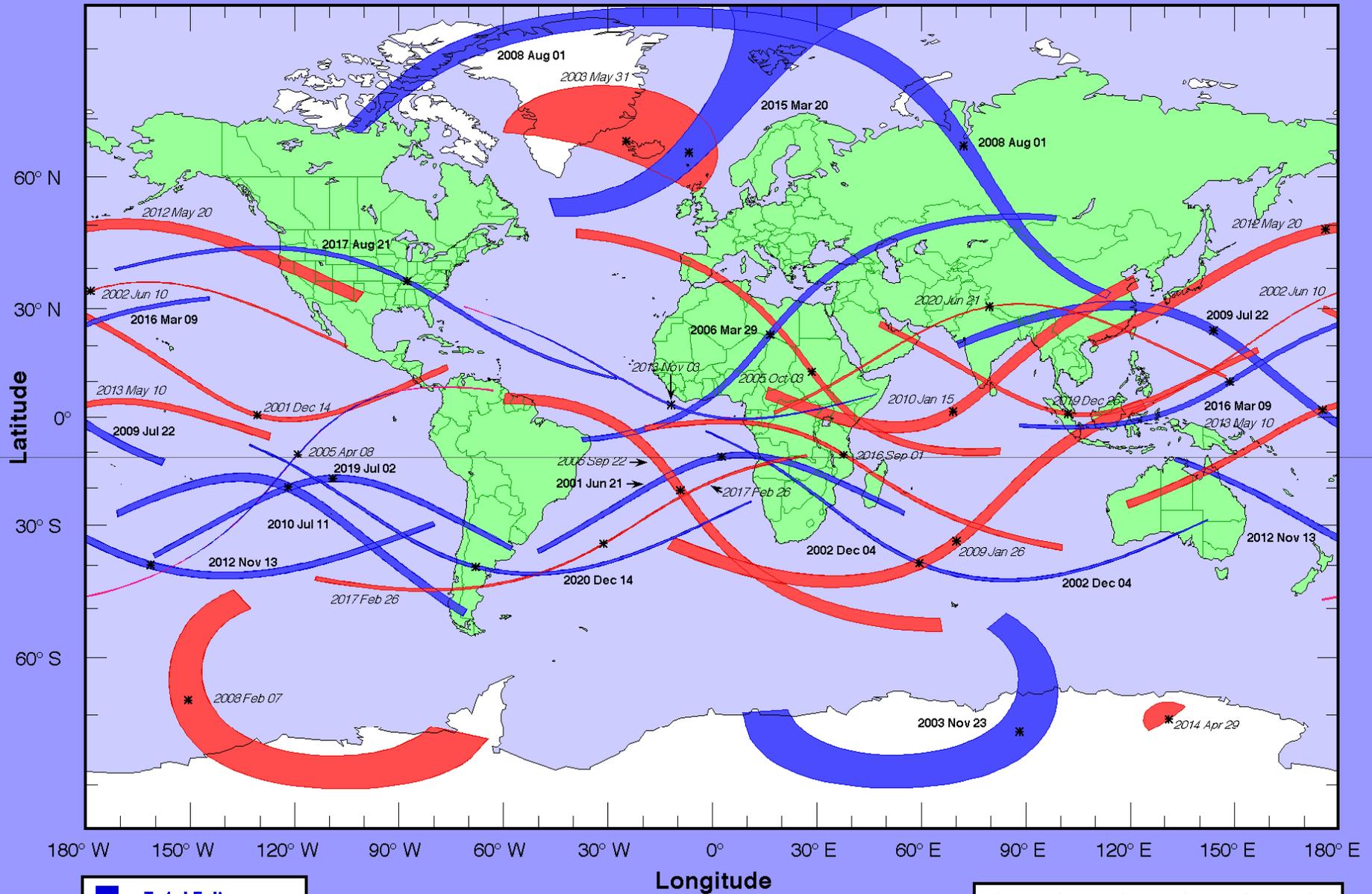
Total and Annular Solar Eclipse Paths: 1981–2000



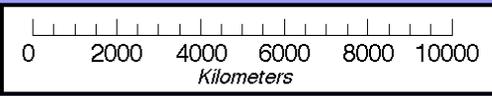
- Total Eclipse
- Annular Eclipse
- Hybrid Eclipse



Total and Annular Solar Eclipse Paths: 2001 – 2020



Total Eclipse
Annular Eclipse
Hybrid Eclipse



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

Fred Espenak, NASA/GSFC - 2002 July

Janaki's curriculum (indtil videre):

8 Totale og 3 Ringformede Solformørkelser fra 1995 - 2009

1. Sabah, Borneo, 24. oktober 1995 (total 2:14)
2. Aruba, Caribien, 26. februar 1998 (total 3:52)
3. Shabla, Bulgarien, 11. august 1999 (total 2:21)
4. Maravudonha, Zimbabwe, 21. juni 2001 (total 3:05)
5. Ceduna, Australien, 4. december 2002 (total 0:32)
6. Penonome, Panama, 8. april 2005 (ringformet)
7. Madrid, Spanien, 3. oktober 2005 (ringformet)
8. Saloum, Egypten, 29. marts 2006 (total 3:58)
9. Cayenne, Fransk Guyana, 22. september 2006 (ringformet)
10. Dunhuang, Kina, 1. august 2008 (total 1:41)
11. Chonqing, Kina 22. juli 2009 (total 4:09)





Tyrkiet
29. marts 2006

Kl. 13:53:57



Kl. 13:55:07



Solformørkelsesbriller



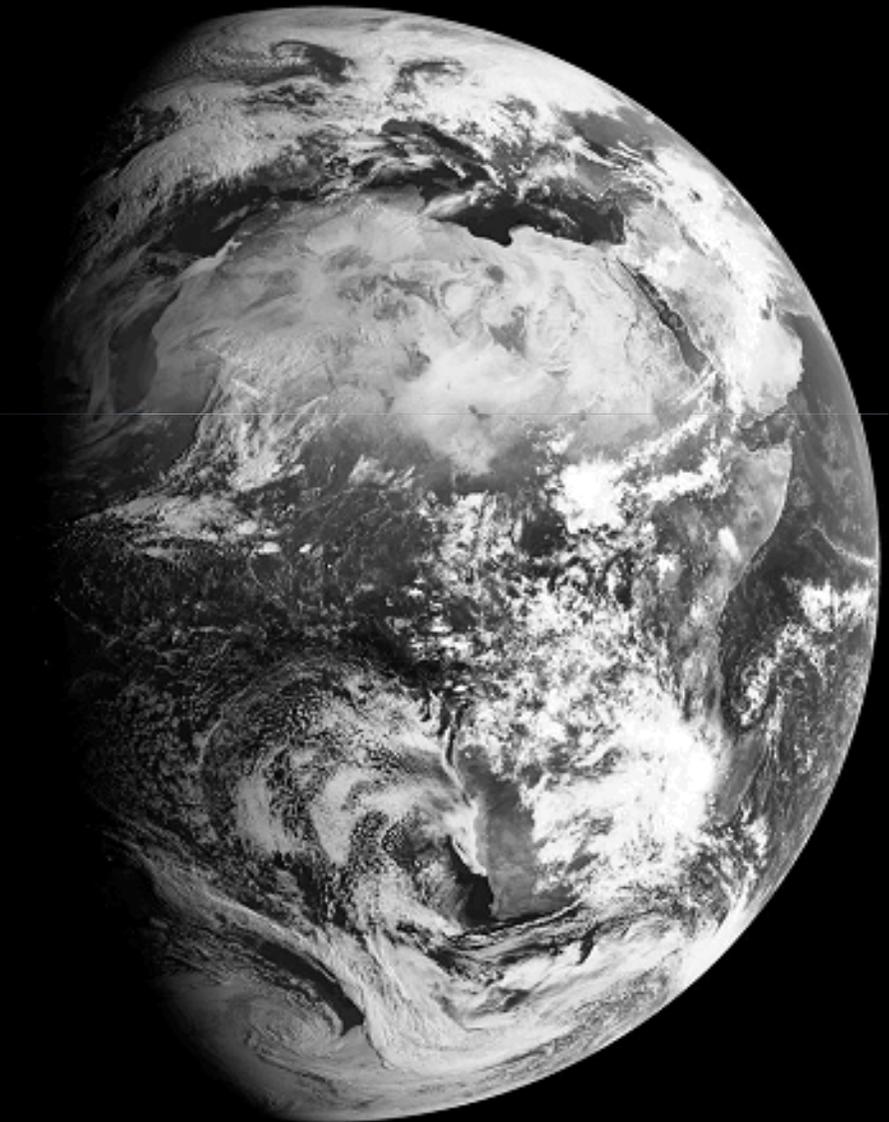






Månens skygge:

Månens skygge bevæger sig
med ca. 3000 km/t
– som et jagerfly på fuld kraft...



**Satellitfilm:
Solformørkelsen den
29. marts 2006.**

Månens skygge:

Månens skygge bevæger sig
med ca. 3000 km/t

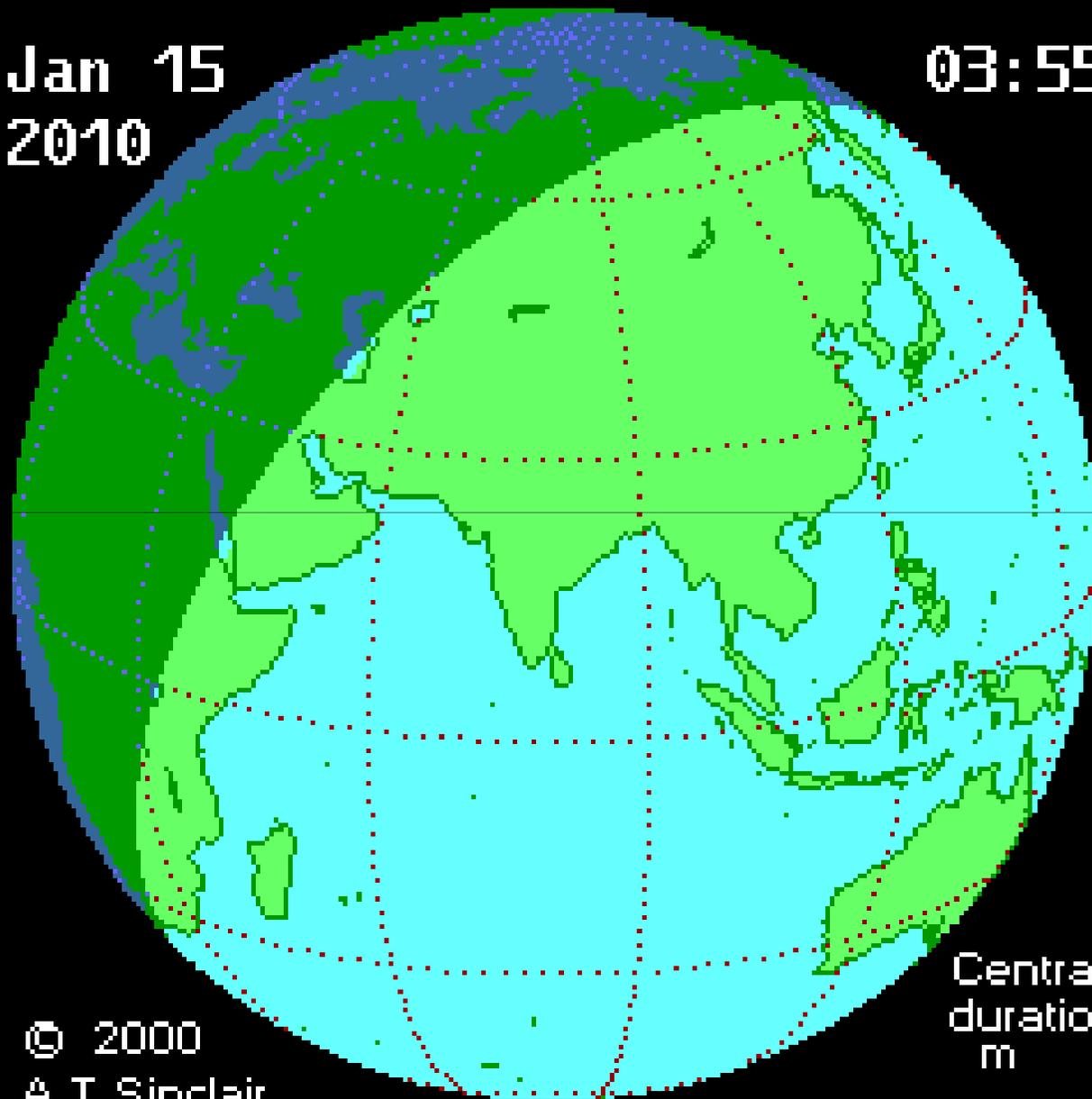
– som et jagerfly på fuld kraft...



Den kommende formørkelse i Indien

Jan 15
2010

03:55

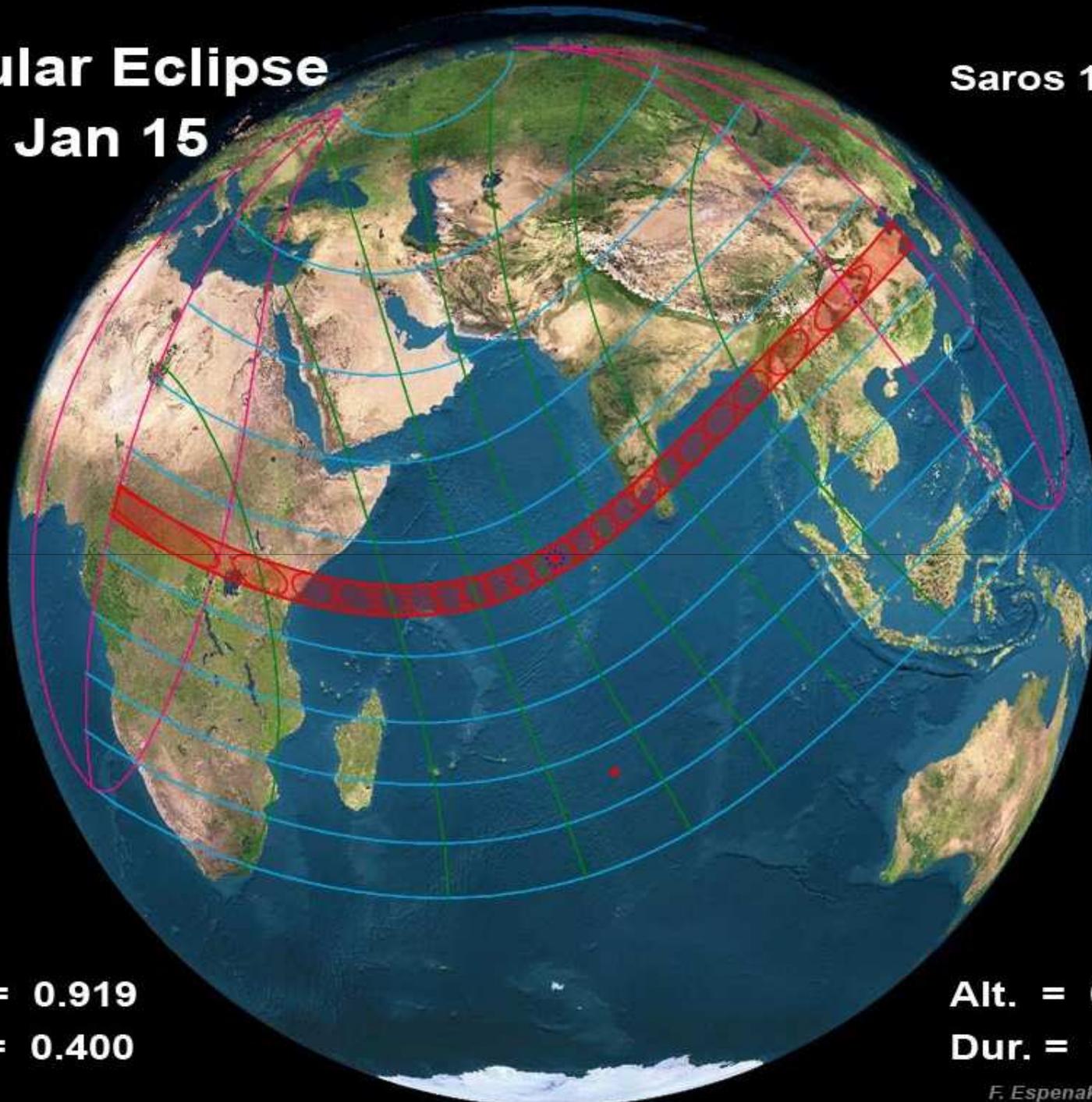


© 2000
A.T. Sinclair

Central
duration
m s

Annular Eclipse 2010 Jan 15

Saros 141

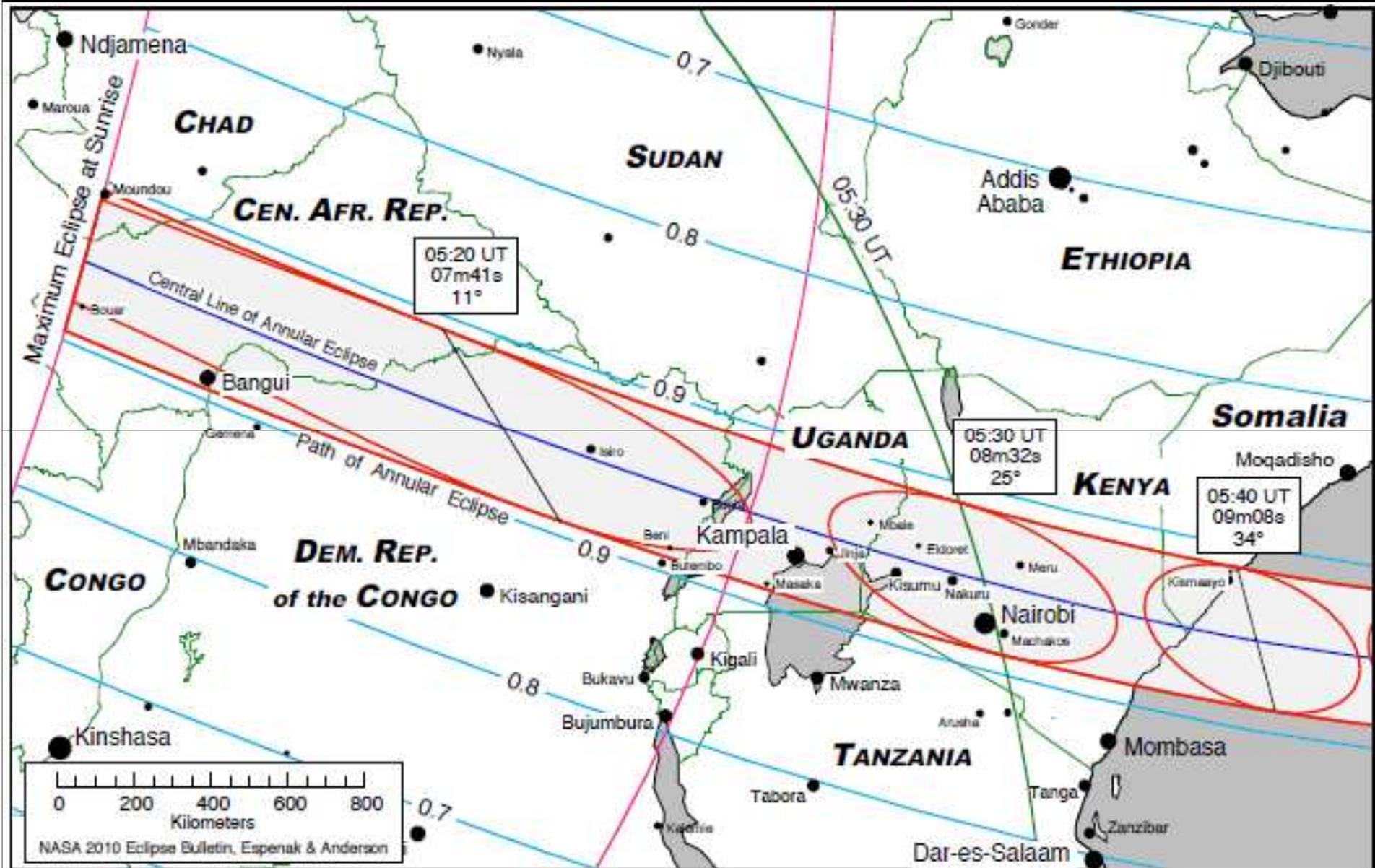


Mag. = 0.919
Gam. = 0.400

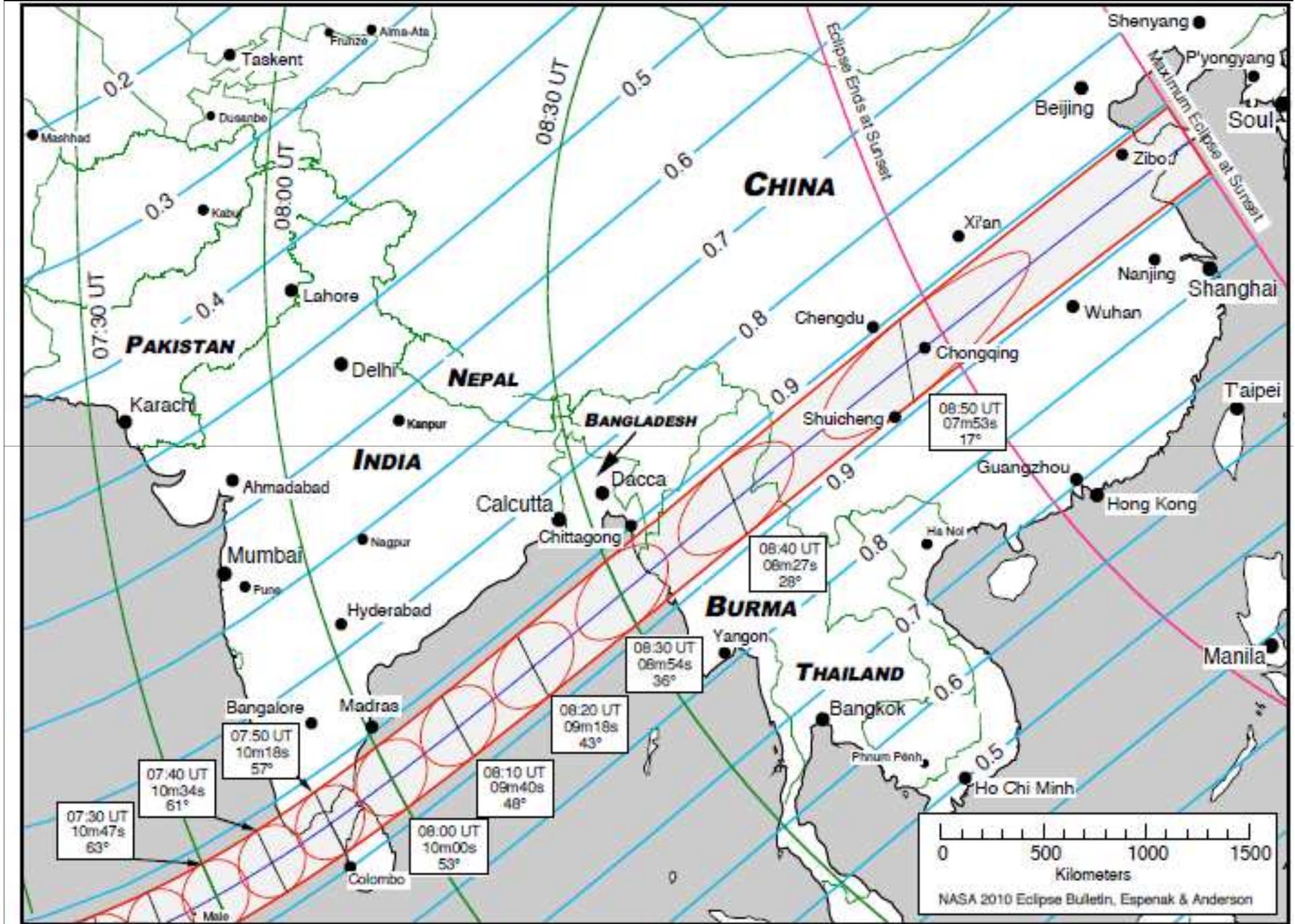
Alt. = 66°
Dur. = 11^m 08^s

F. Espenak, NASA's GSFC

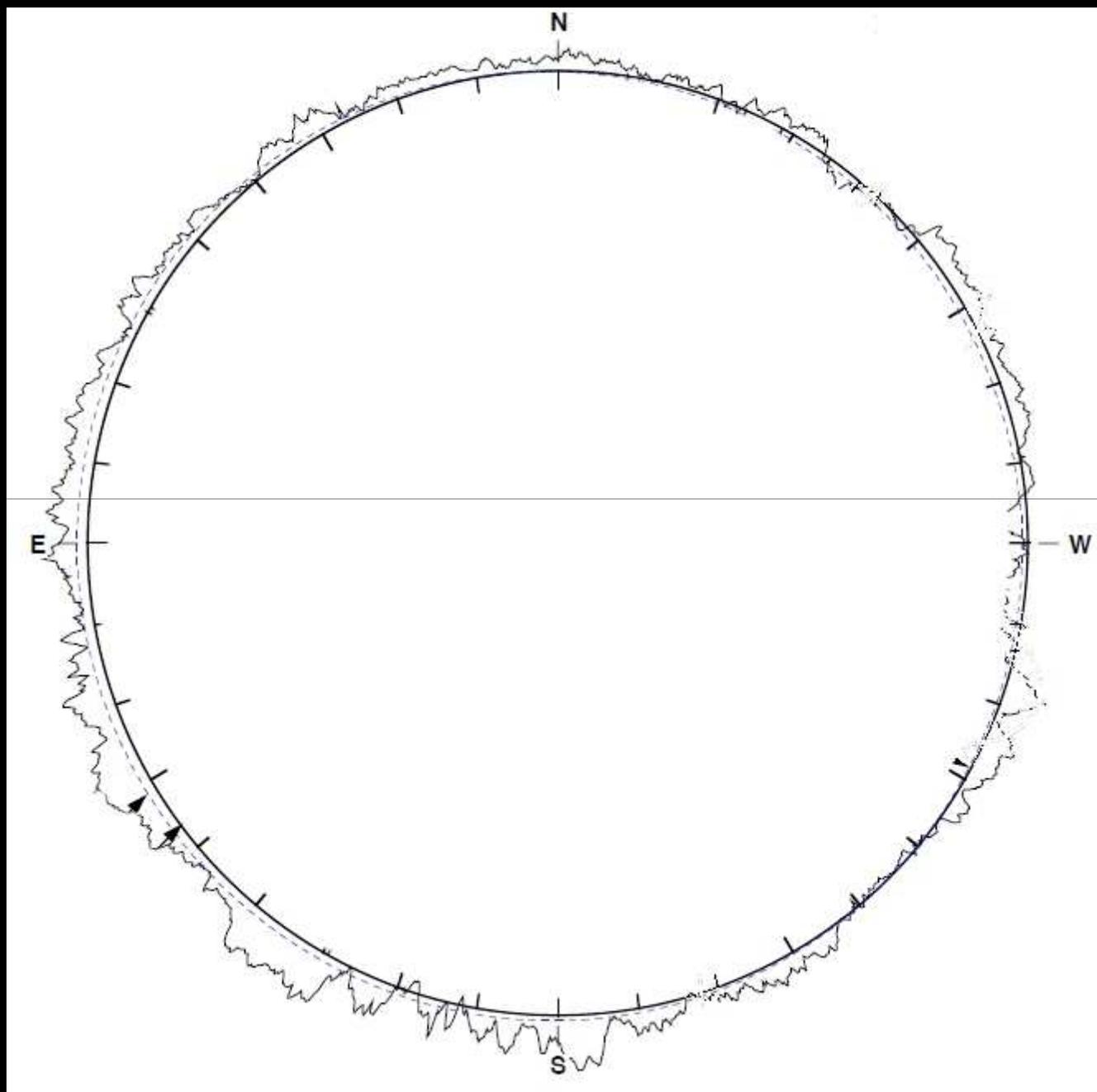
Formørkelse start ved solopgang i Afrika



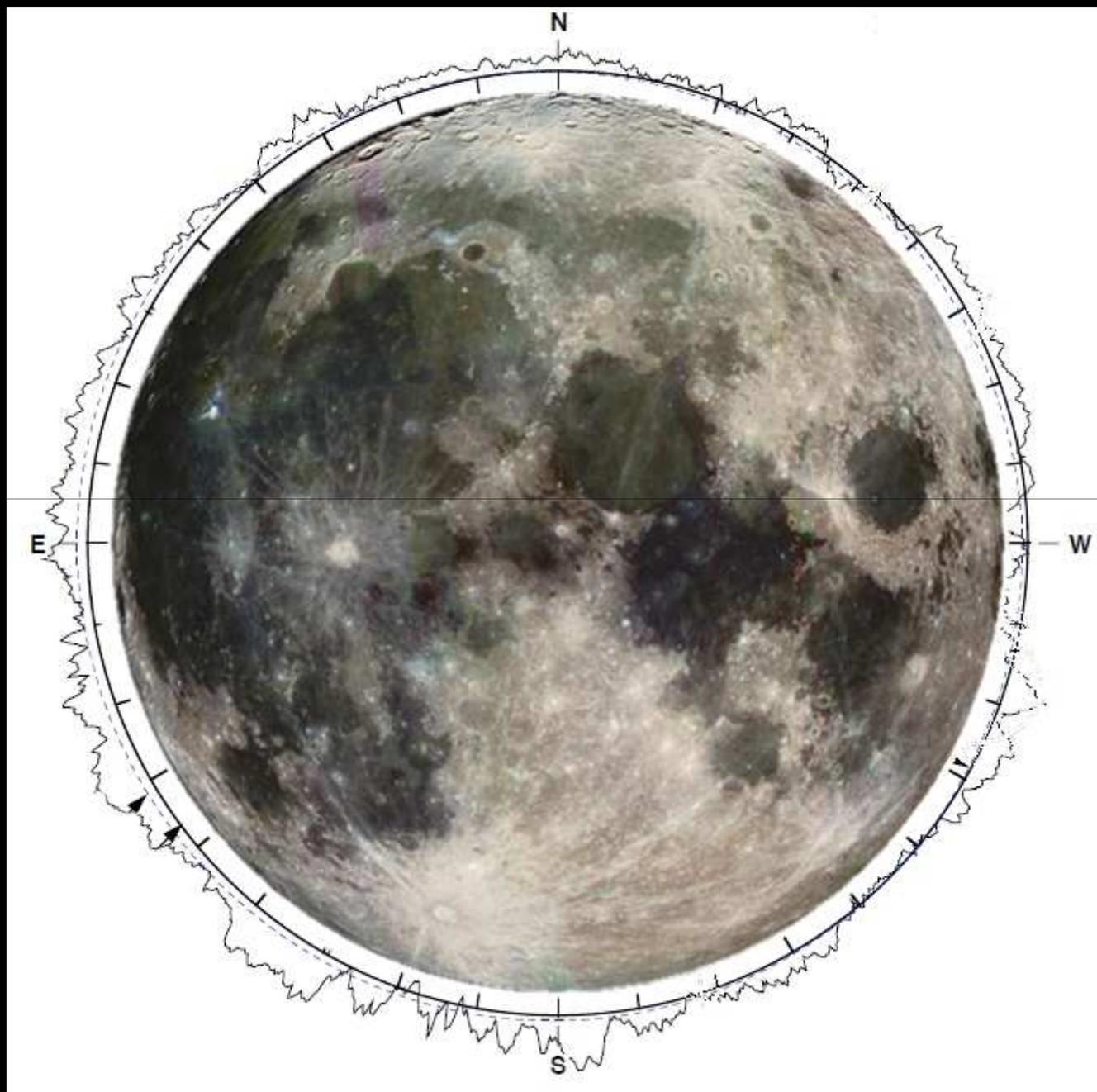
Formørkelse i Asien



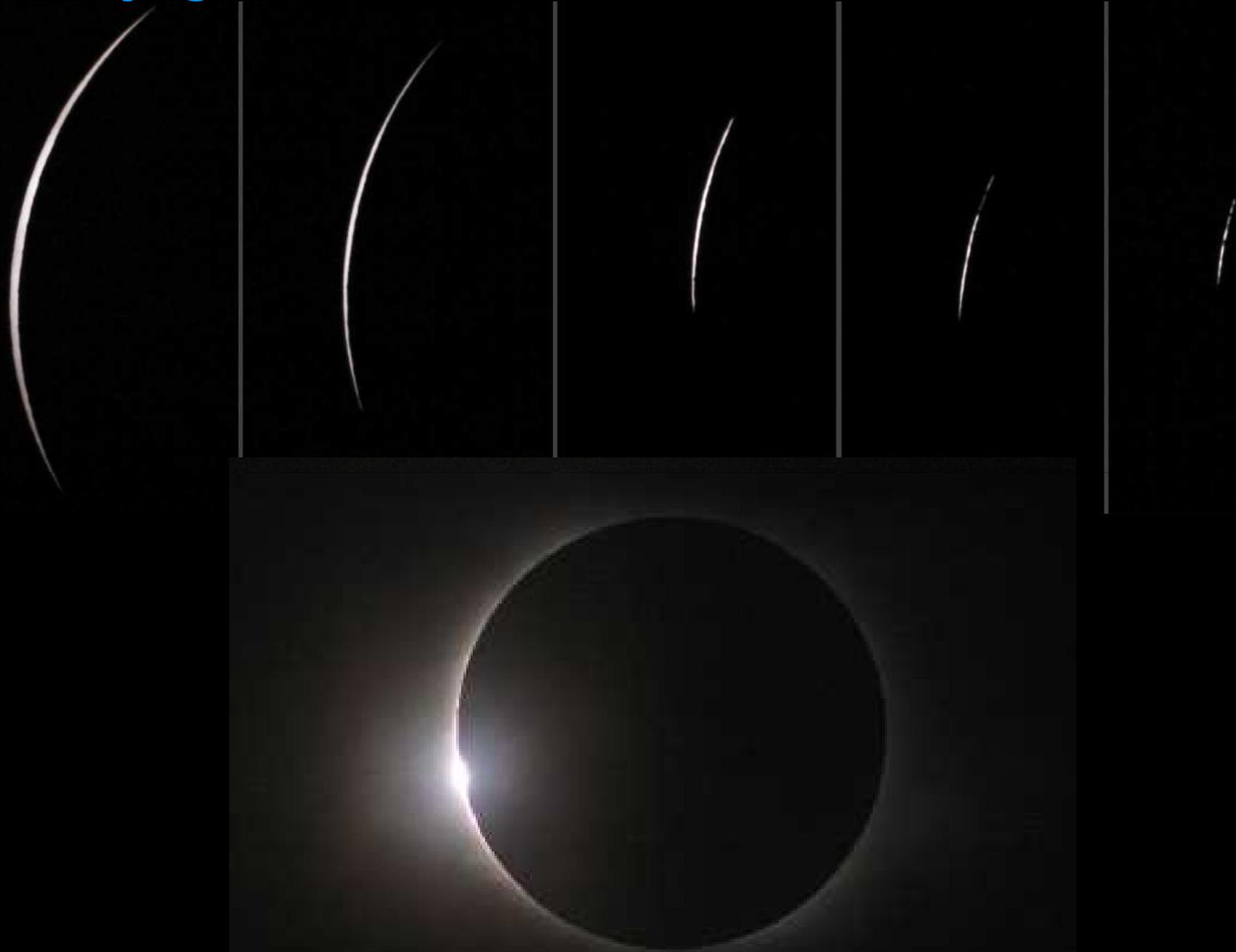
Månebjerge i silhuet under formørkelsen



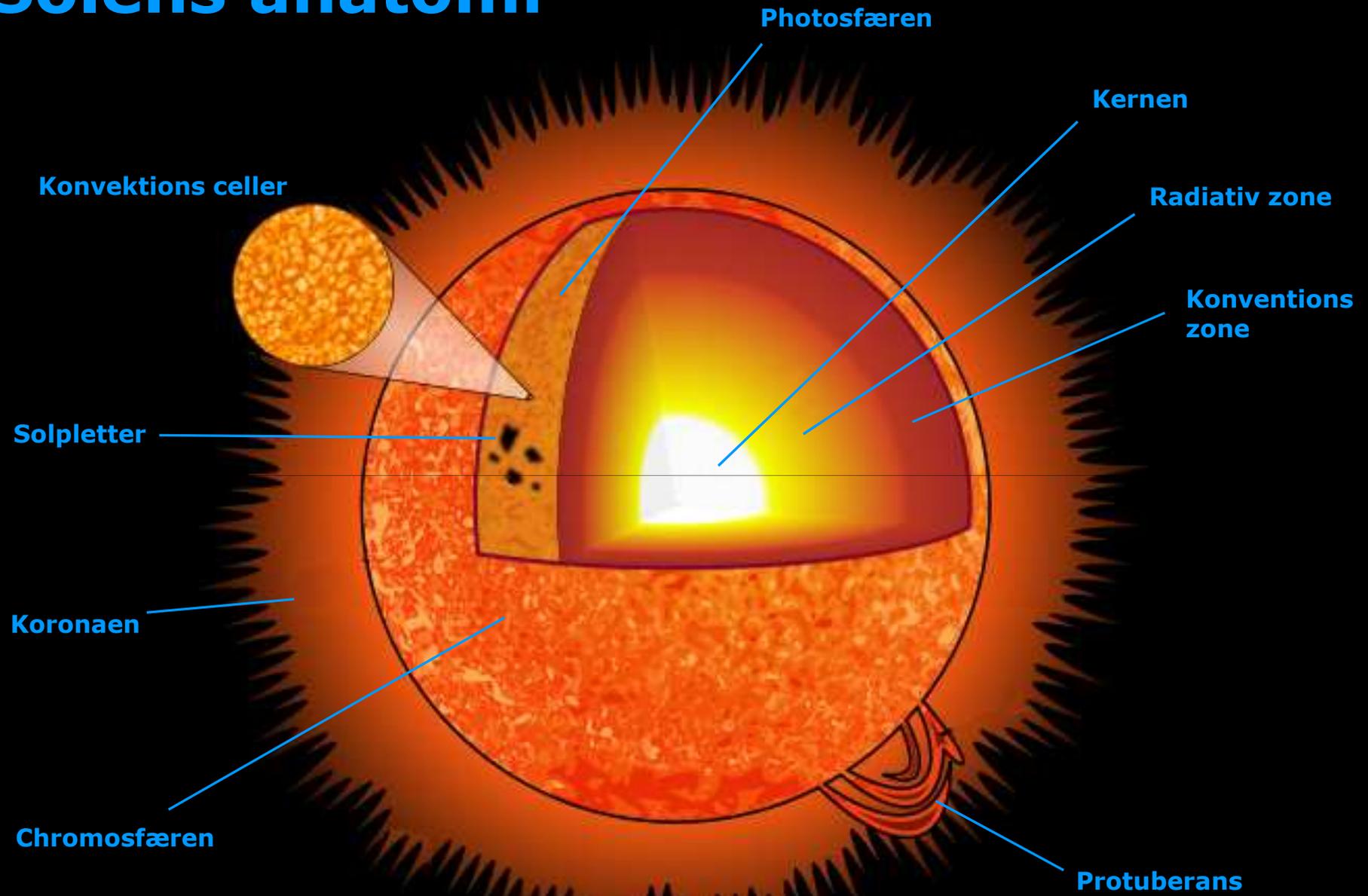
Månebjerge i silhuet under formørkelsen



Månebjerge ved total solformørkelse



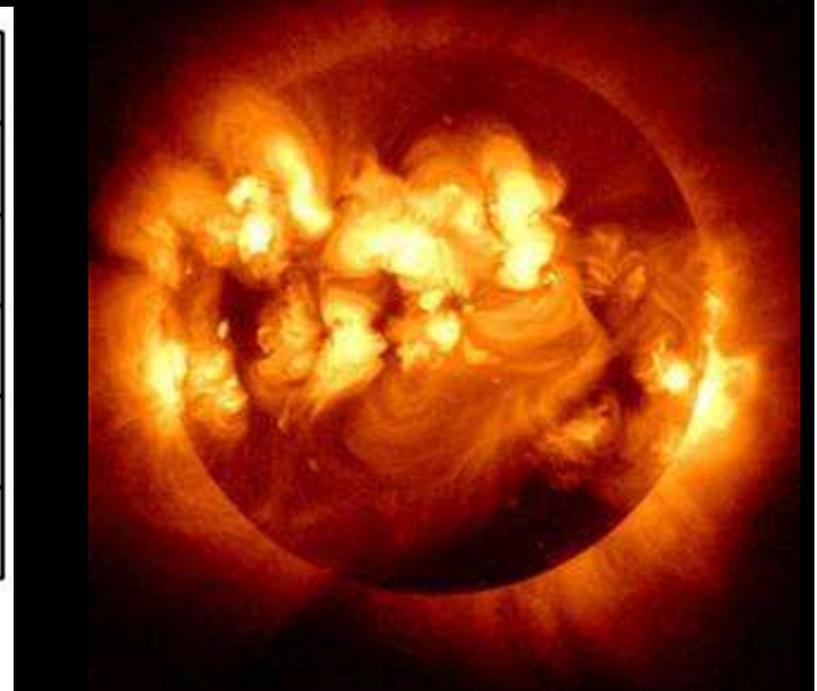
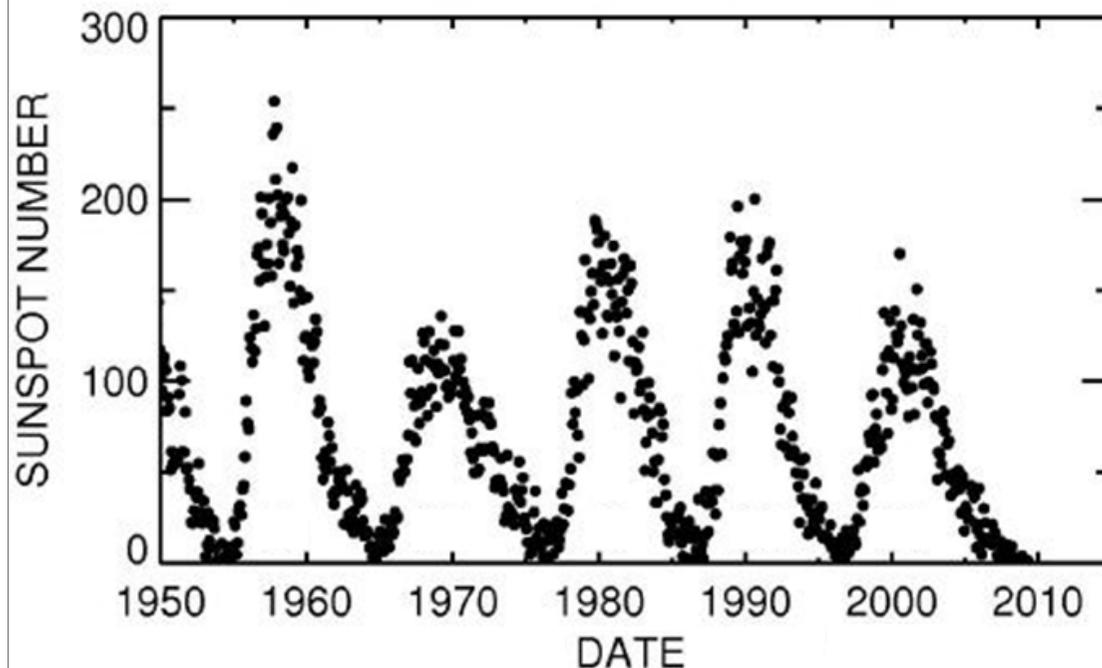
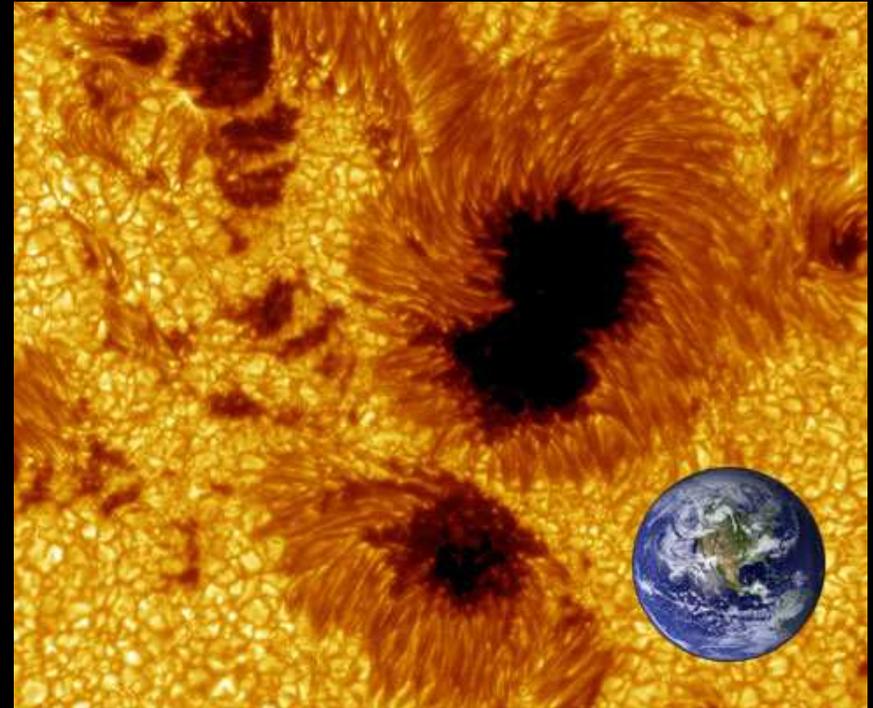
Solens anatomi



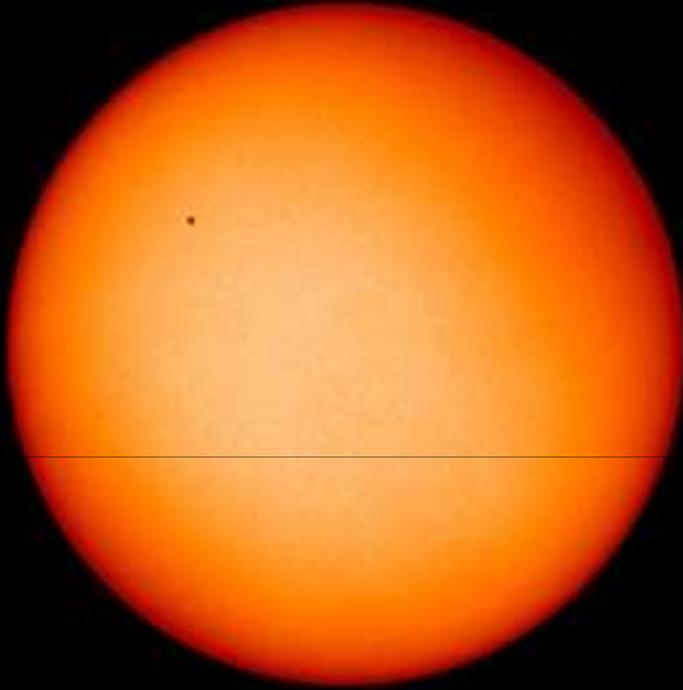
Solaktivitet:

Antallet af solpletter er et mål for Solens magnetiske aktivitet.

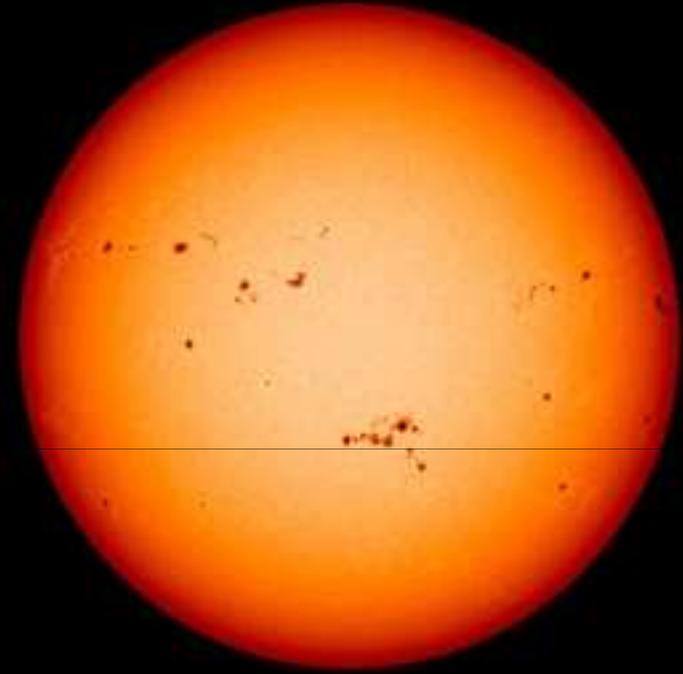
Der har næsten ikke været nogen solpletter i de seneste år og aktiviteten er nu ved at vokse igen.



Fotosfæren ved solplet minimum og maksimum

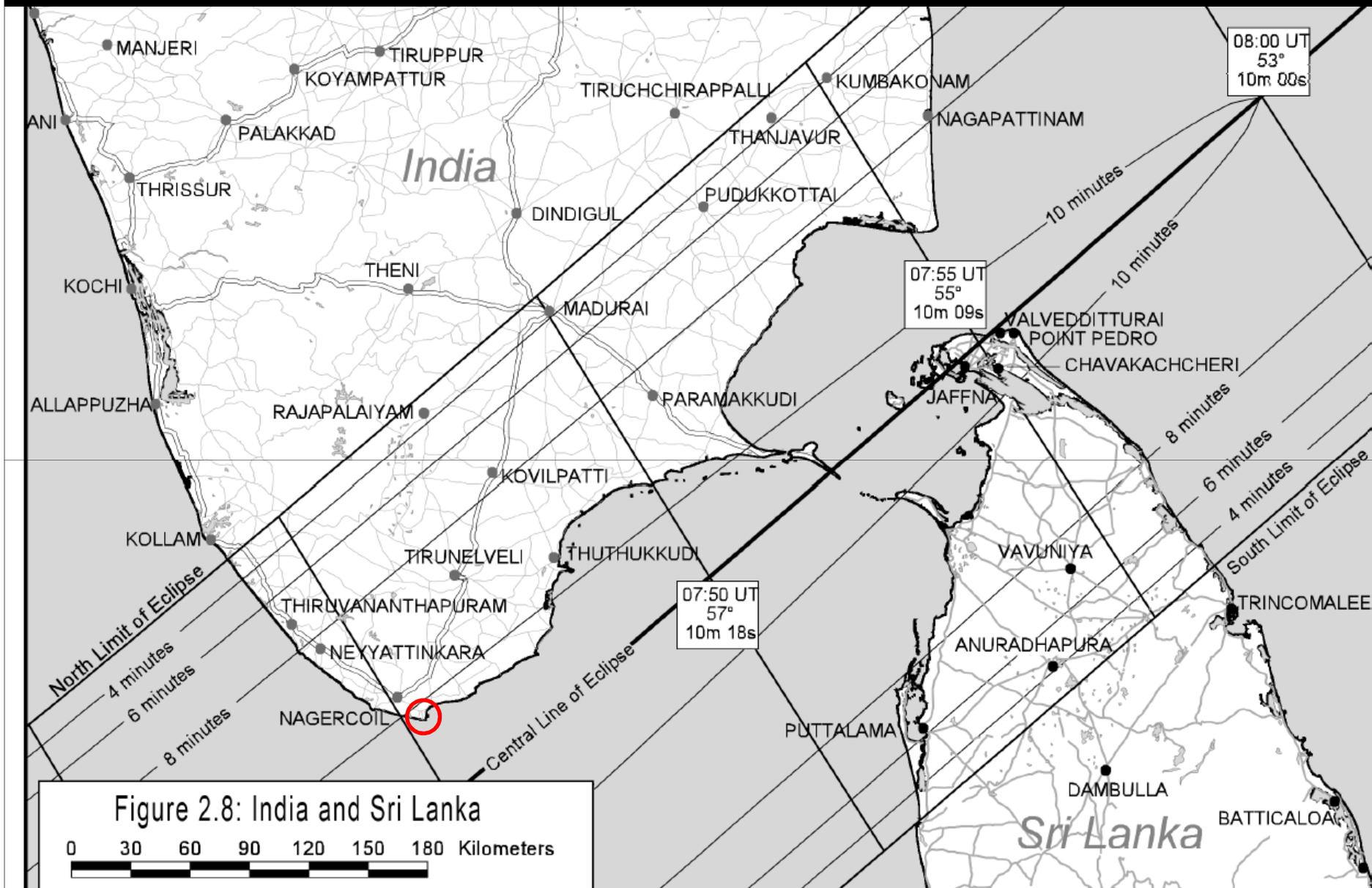


(Indien - 2010)



(USA - 2012)

Formørkelse i syd-Indien



Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:35:15.0 UTC No PPS *SIMULATED TIME*
 Script: Emer Script:
 Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
 GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
 Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

Sunrise
 1st Contact
 2nd Contact
 Max Eclipse
 3rd Contact
 4th Contact
 Sunset

Current
 Countdown Dy

Map - Width 1194 km - 10:41.4

Simulated View & Countdown

C2 -04:60.0

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

Windows taskbar showing: start, Paint Shop Pro - Image1, Eclipse Orchestrator ..., Microsoft PowerPoint ..., DA, system tray icons, 14:15

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:37:15.9 UTC No PPS *SIMULATED TIME*
 Script: Emer Script:
 Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
 GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
 Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C2 -02:59.1

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

Windows taskbar showing: start button, Paint Shop Pro - Image3, Eclipse Orchestrator ..., Microsoft PowerPoint ..., system tray with network, volume, and clock (14:15).

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:39:15.2 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C2 -00:59.8

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:41:15.8 UTC No PPS *SIMULATED TIME*
 Script: Emer Script
 Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
 GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
 Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

-----Event----- -----Countdown----- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Data View

Simulated View & Countdown

MAX -04:01.9

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

Windows taskbar showing: start, Paint Shop Pro - Image5, Eclipse Orchestrator ..., Microsoft PowerPoint ..., DA, system tray icons, 14:16

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:43:15.0 UTC No PPS *SIMULATED TIME*
 Script: Emer Script:
 Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
 GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
 Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

MAX -02:02.7

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:45:16.9 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra! dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset

Current

Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

MAX -00:00.8

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:47:15.6 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset

Current

Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C3 -02:59.0

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

start Paint Shop Pro - Image8 Eclipse Orchestrator ... Microsoft PowerPoint ... DA 14:18

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:48:18.3 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C3 -01:56.3

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:50:17.0 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C4 -01h45.5

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:52:16.6 UTC No PPS *SIMULATED TIME*
 Script: Emer Script:
 Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
 GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra1 dur: 9m 59.6s
 Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

- Sunrise
- 1st Contact
- 2nd Contact
- Max Eclipse
- 3rd Contact
- 4th Contact
- Sunset
- Current
- Countdown Dy

Map - Width 1194 km

Simulated View & Countdown

C4 -01h43.5

For Help, press F1

Image: 1280 x 800 x 16 Million - 2.9 MBytes

start | Paint Shop Pro - Imag ... | Eclipse Orchestrator ... | Microsoft PowerPoint ... | DA | 14:20

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:54:18.8 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra! dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

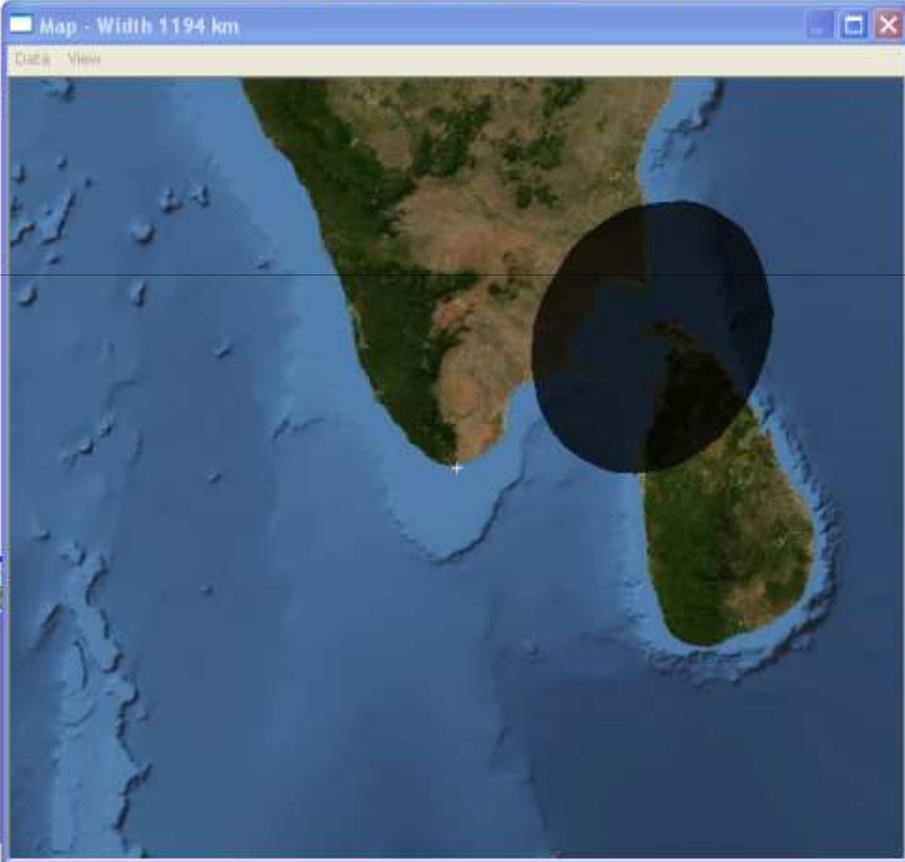
Sunrise
1st Contact
2nd Contact
Max Eclipse
3rd Contact
4th Contact
Sunset

Current

Countdown Dy

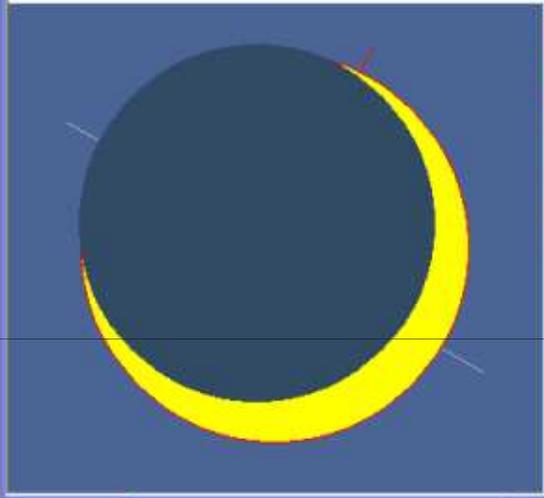
Map - Width 1194 km

Data View



Simulated View & Countdown

C4 -01h41.5



For Help, press F1

start Paint Shop Pro - Image1 Eclipse Orchestrator ... Microsoft PowerPoint ... DA 14:20

Eclipse Orchestrator Pro *SIMULATED TIME*

File Location/Time Camera View Setup Window Help

2010/01/15 07:56:20.6 UTC No PPS *SIMULATED TIME*
Script: Emer Script:
Set Lat: 8° 04.8000' Set Lon: 77° 33.0400' Set Alt: 0.0m
GPS not present.

Type: Annular Penum. dur: 3h 59m 38.7s Umbra! dur: 9m 59.6s
Centerline: 38.248km 20.7nm Bearing: 140.1degT CL Duration: (10m 16.9s)

---Event--- ---Countdown--- -Alt- --Az- -P- Z/V -Mag- --A-- Extn

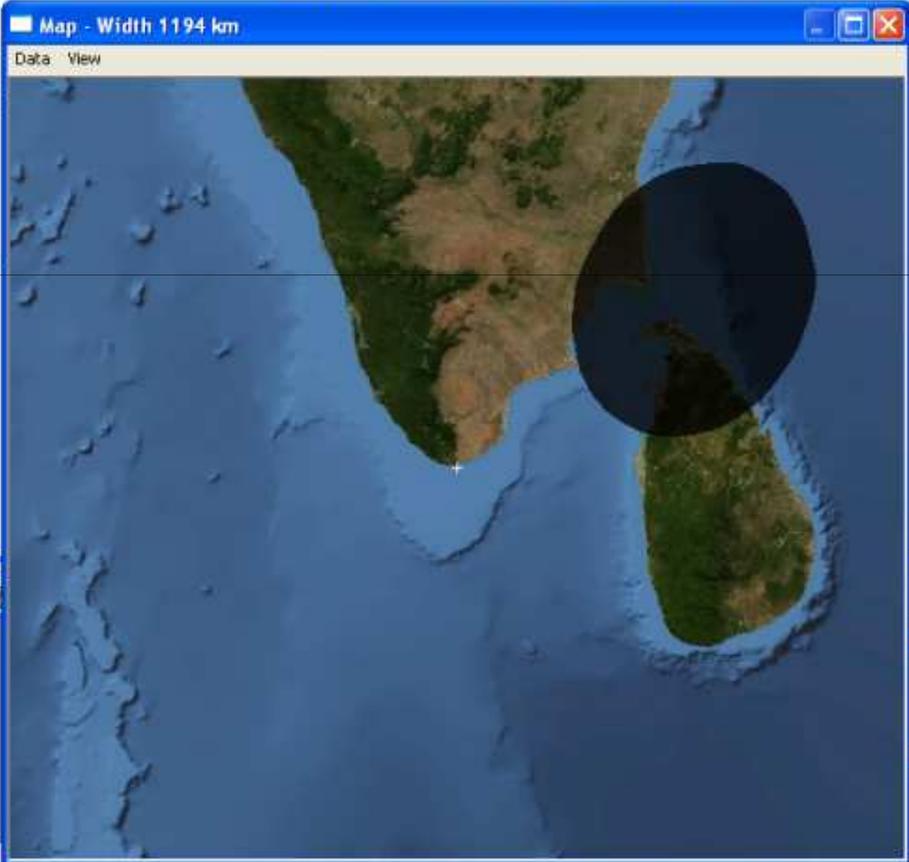
Sunrise
1st Contact
2nd Contact
Max Eclipse
3rd Contact
4th Contact
Sunset

Current

Countdown Dy

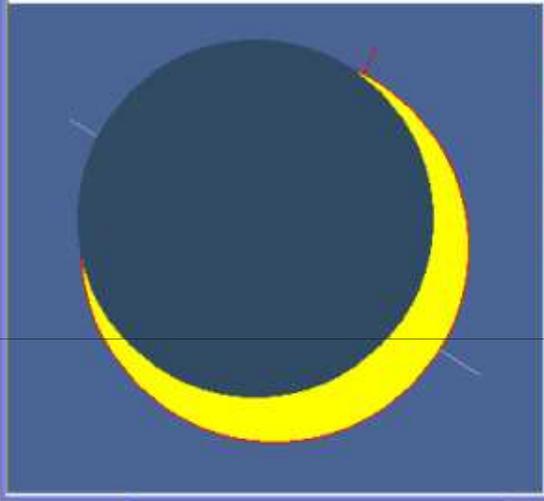
Map - Width 1194 km

Data View



Simulated View & Countdown

C4 -99:28.1



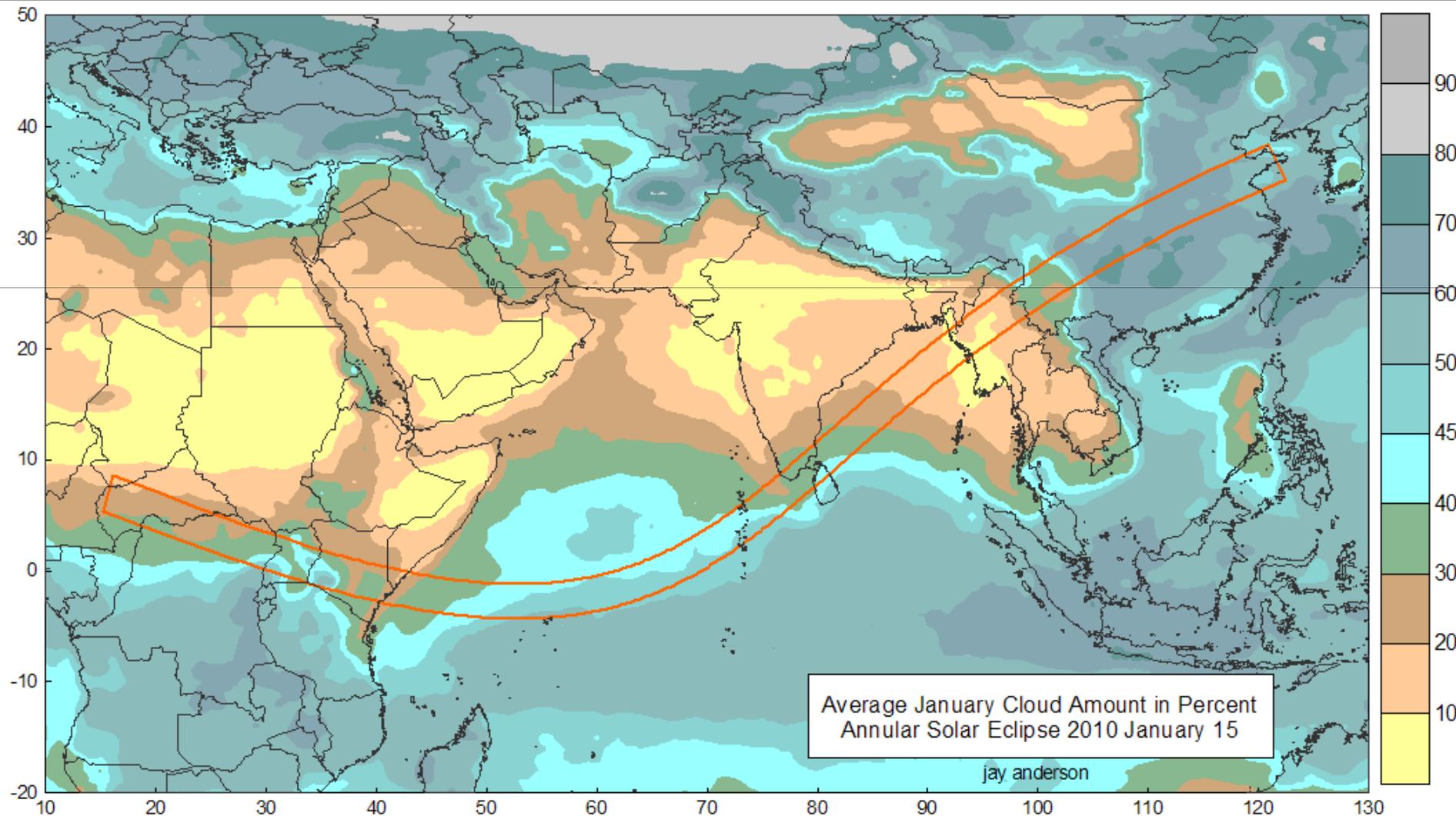
Intel PROSet/Wireless WiFi X

Devices with WiFi Protected Setup capability are within range of your computer. Click to connect.

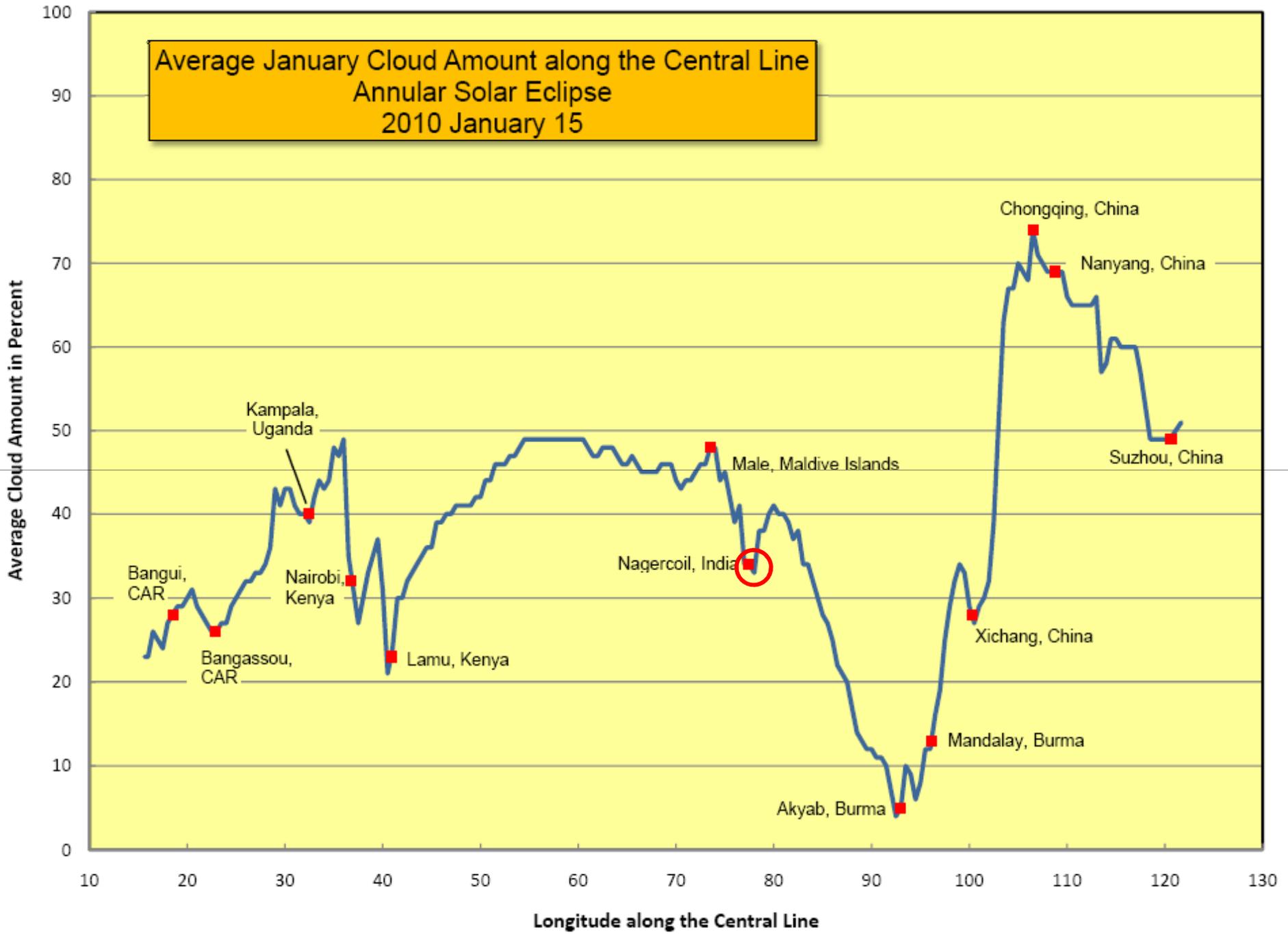
start Paint Shop Pro - Imag ... Eclipse Orchestrator ... Microsoft PowerPoint ... DA 14:21

Skydække:

(Gennemsnit ud fra 23 års satellit målinger)

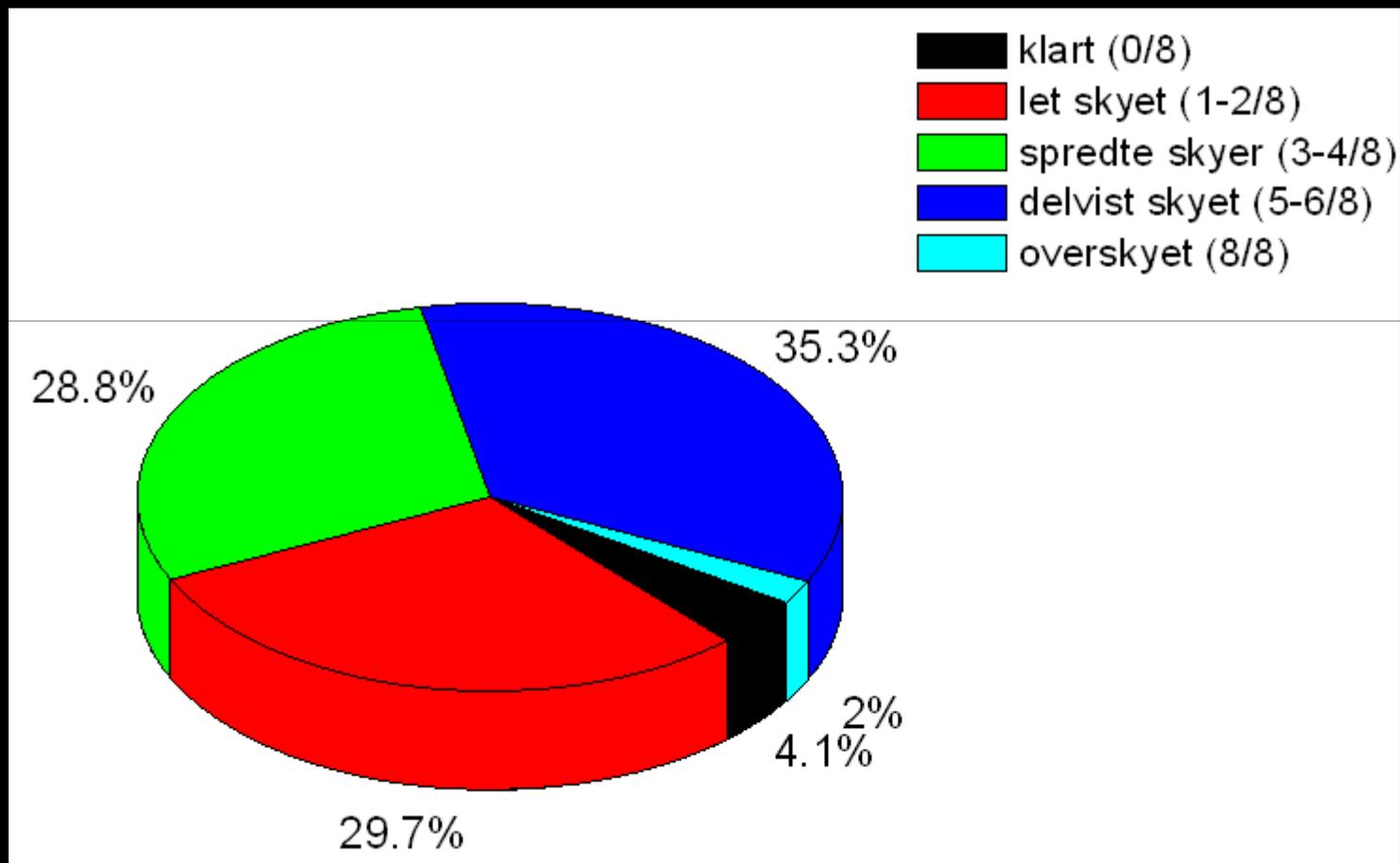


Average January Cloud Amount along the Central Line
Annular Solar Eclipse
2010 January 15



Skyforhold på formørkelsestidspunktet:

Sandsynlighed for at vi ser formørkelsen: ca. 70-80 %



Nøgletal for formørkelsen:

(lokal tid, position 8.080°N, 77.551°Ø)

- 1. kontakt – Månen rører solranden 11:06:09
- 2. kontakt – Ringformet starter 13:10:14
- 3. kontakt – Ringformet slutter 13:20:13
- 4. kontakt – formørkelsen afsluttet 15:05:48

Varighed i alt: 4 timer
Varighed af ringformen: 9 min. 59.6 sek.
Max. dækning af Solen: 84%
Højde over horisonten: 59°
Retning: 201°(SSV)



125 min.

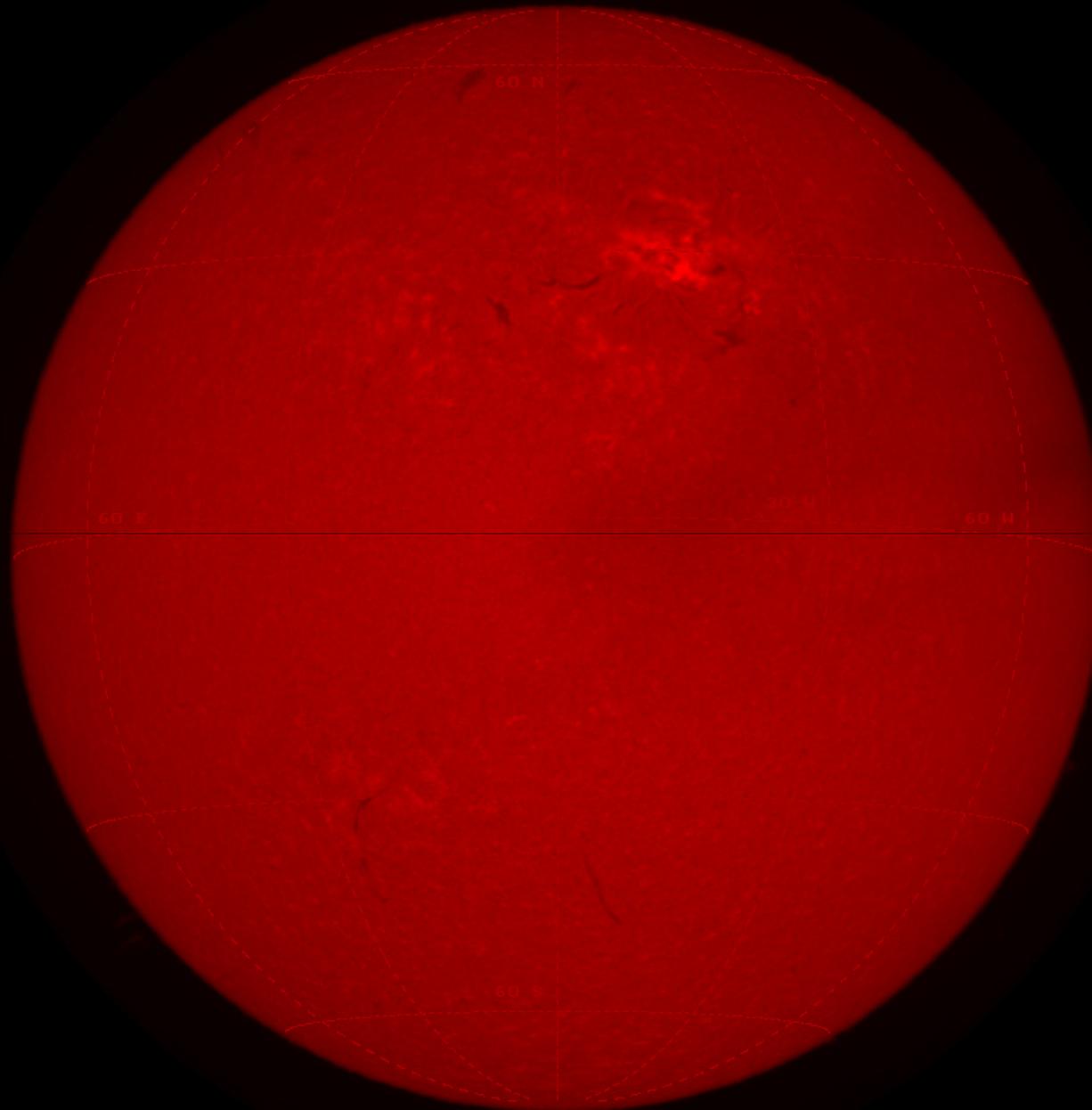
10 min.

105 min.

De seneste billeder af Solen (14/1-10, hvidt lys)



De seneste billeder af Solen (14/1-10, hydrogen-alfa lys)



Simuleret – formørkelse start:



Simuleret – formørkelse maksimal:



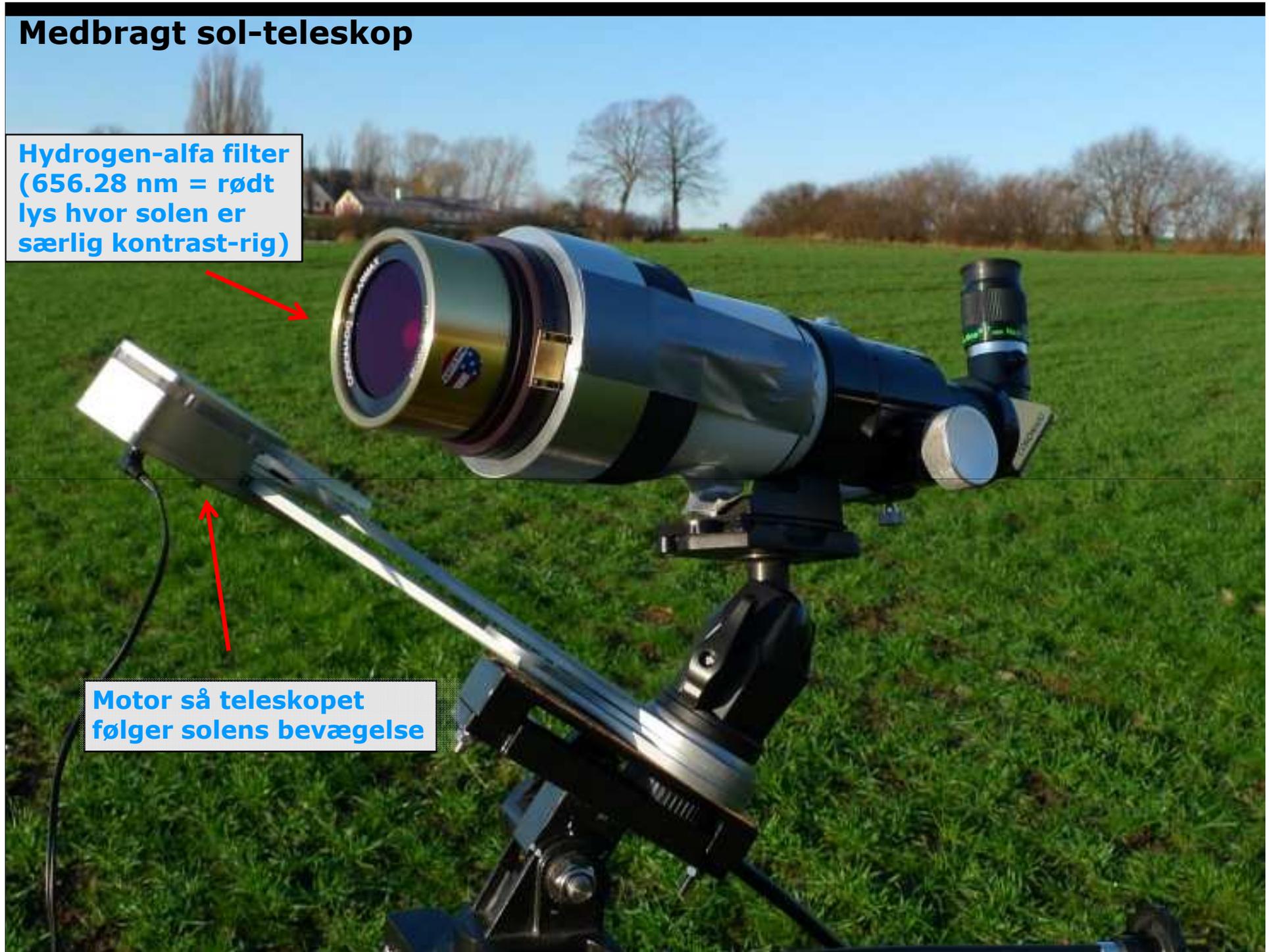
Simuleret – formørkelse slut:



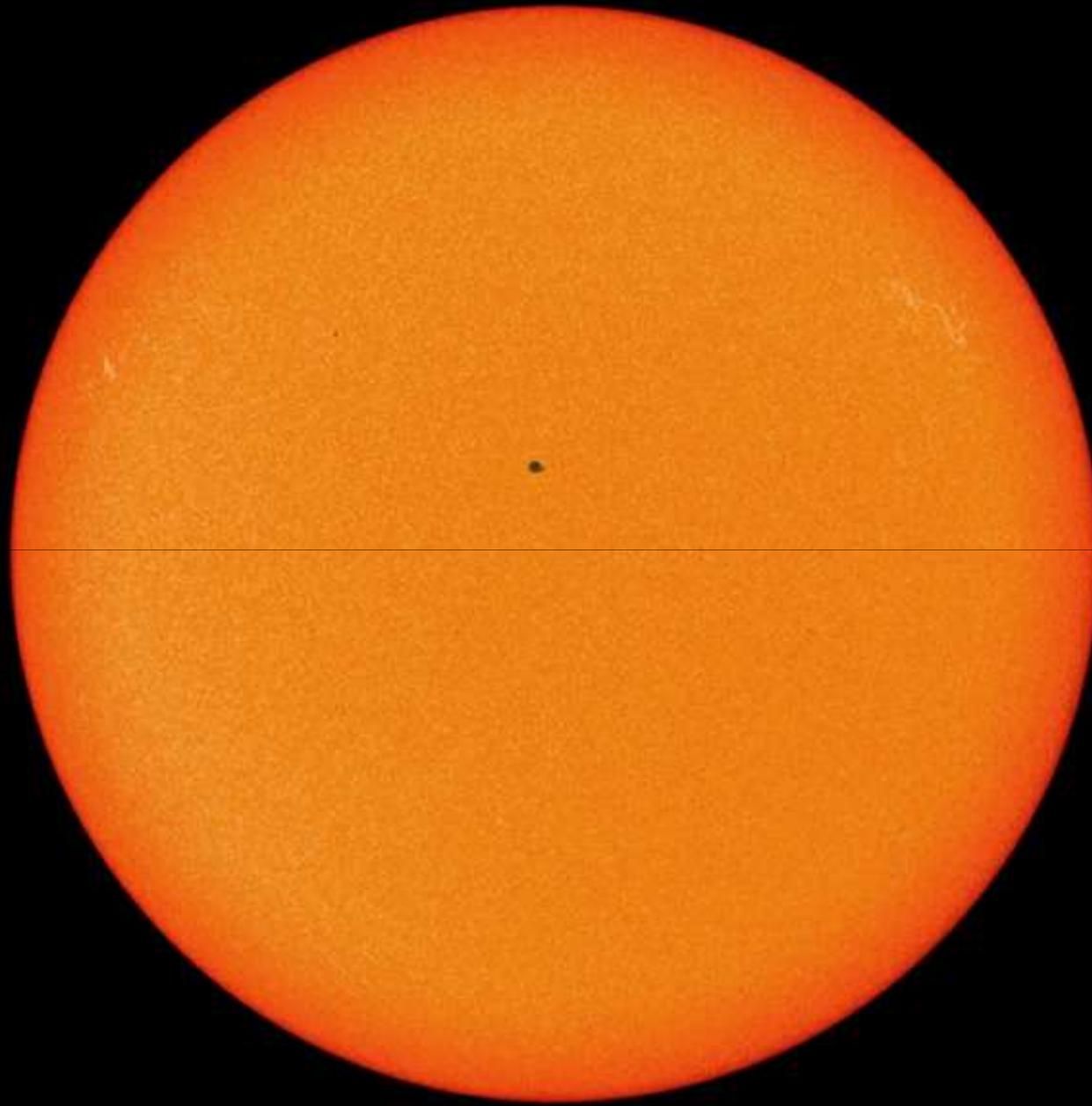
Medbragt sol-teleskop

Hydrogen-alfa filter
(656.28 nm = rødt
lys hvor solen er
særlig kontrast-rig)

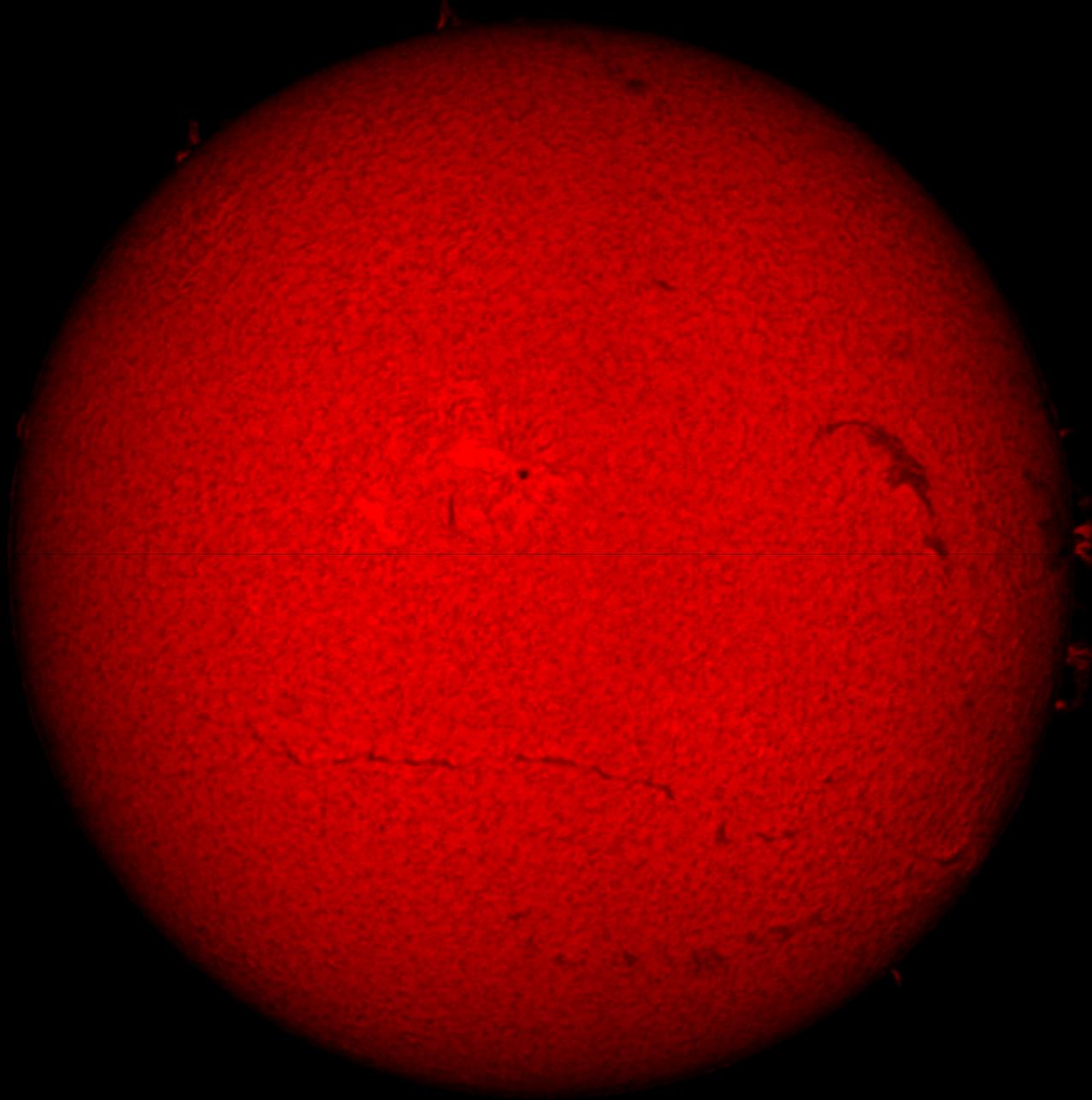
Motor så teleskopet
følger solens bevægelse



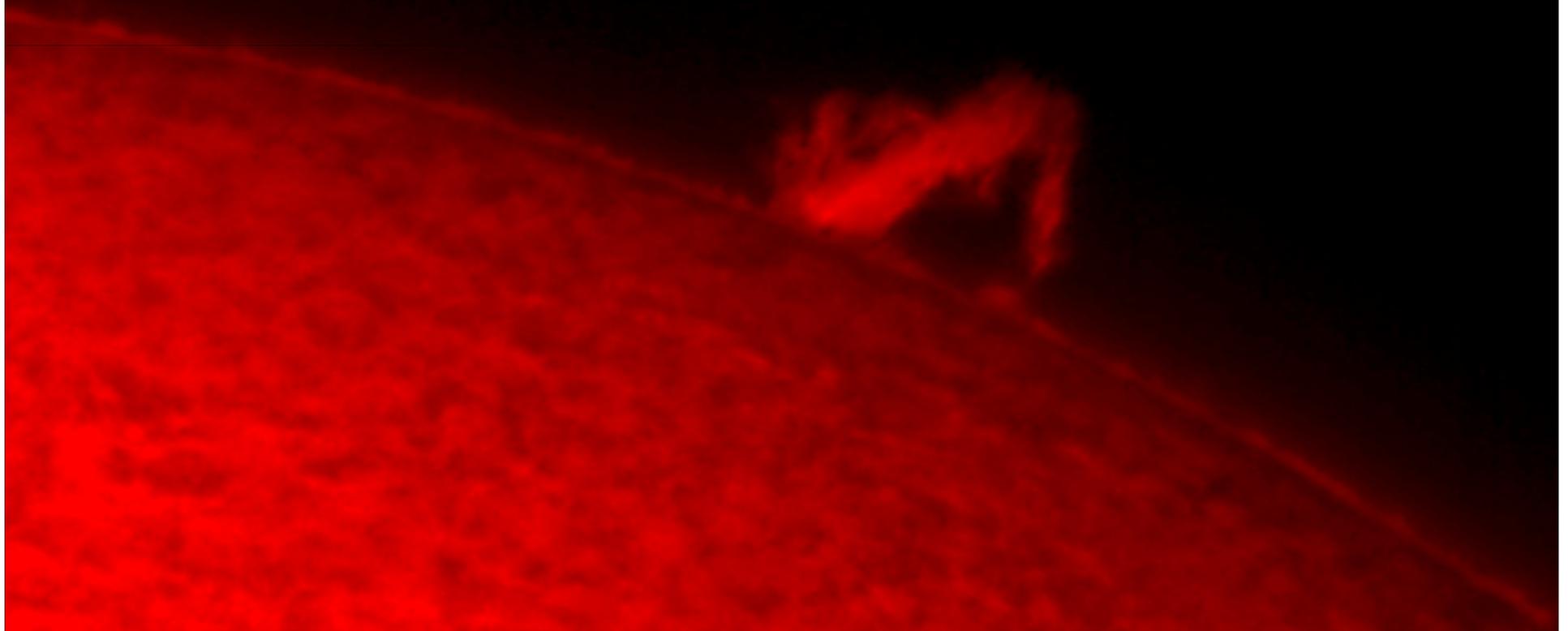
Almindeligt solfilter (hvidt lys)



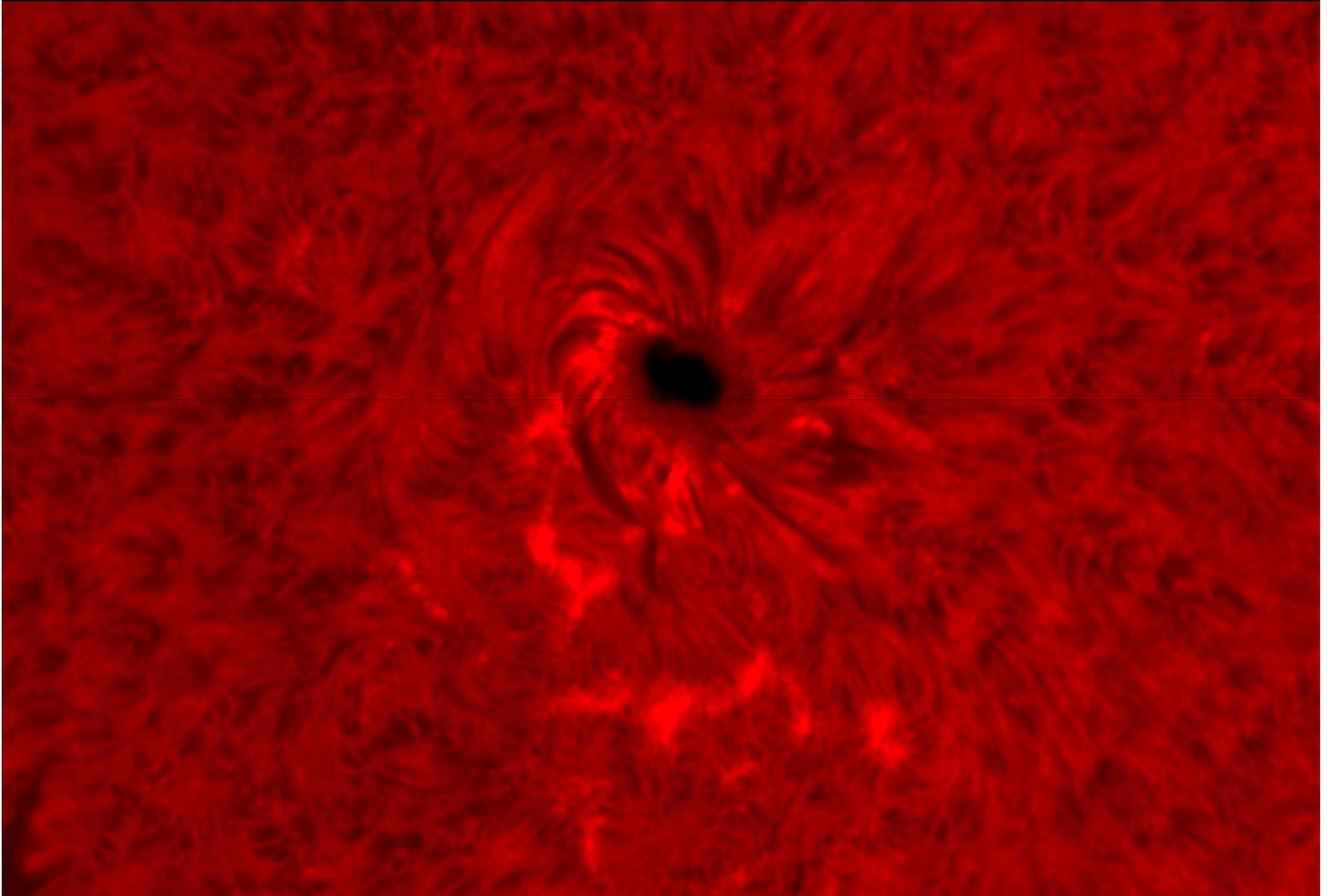
Hydrogen-alfa solfilter



Protuberans



Solplet



Praktiske oplysninger:

Viktors Farmor sørger for:

- Solformørkelsesbriller (Janaki deler dem ud imorgen)
- Teleskop med solfilter
- Frugt, kiks, vand
- Klart vejr?!
- Fejring af succes
- Samling af video og fotografier på hjemmeside

Sørg gerne selv for:

- Ekstra vand+snacks
- Sol creme + sol hat (5 timer i sol!!)
- Noget til at sidde på



http://www.leif.org/mikael/eclipse_index2

File Edit View Favorites Tools Help

Total Solformørkelse - Rusland 2008

En total solformørkelse er en oplevelse så stor og så kort, at det enkelte menneske ikke kan registrere alle facetterne. Bagefter føler man en samhørighed med sine rejsefæller som ikke var der før; man snakker om det igen og igen for at høre hvad de andre så og følte. Dem som ikke var tilstede betragter ofte deltagerens nyfunde fællesskab med en vis skepsis og ser frem til at vanviddet fortager sig. Denne web-side er et forsøg på at samle oplevelser i billeder, film og lyd som de blev registreret af deltagerne på en rejse til Sibirien i August, 2008, arrangeret af [Viktors Farmor](#).

Video optagelser af formørkelsen:

Før totaliteten (2 MB): 

Solformørkelse start (31 MB): 

Done Internet 100%

Praktiske oplysninger:

Solopgang gruppe mødes 6:30:00 i receptionen

Sørg for at al bagage er ude af værelser inden kl. 10; anbringes i receptionen

Behold gerne nøgle til nød-brug, afleveres senest kl. 12

Afgang fra hotel ~15.30, ca. 3 timers kørsel



http://www.leif.org/mikael/eclipse_index2

File Edit View Favorites Tools Help

 **Total Solformørkelse - Rusland 2008** 

En total solformørkelse er en oplevelse så stor og så kort, at det enkelte menneske ikke kan registrere alle facetterne. Bagefter føler man en samhørighed med sine rejsefæller som ikke var der før; man snakker om det igen og igen for at høre hvad de andre så og følte. Dem som ikke var tilstede betragter ofte deltageres nyfunde fællesskab med en vis skepsis og ser frem til at vanviddet fortager sig. Denne web-side er et forsøg på at samle oplevelser i billeder, film og lyd som de blev registreret af deltagerne på en rejse til Sibirien i August, 2008, arrangeret af [Viktors Farnor](#).

Video optagelser af formørkelsen:

Før totaliteten (2 MB): 

Solformørkelse start (31 MB): 

Done Internet 100%