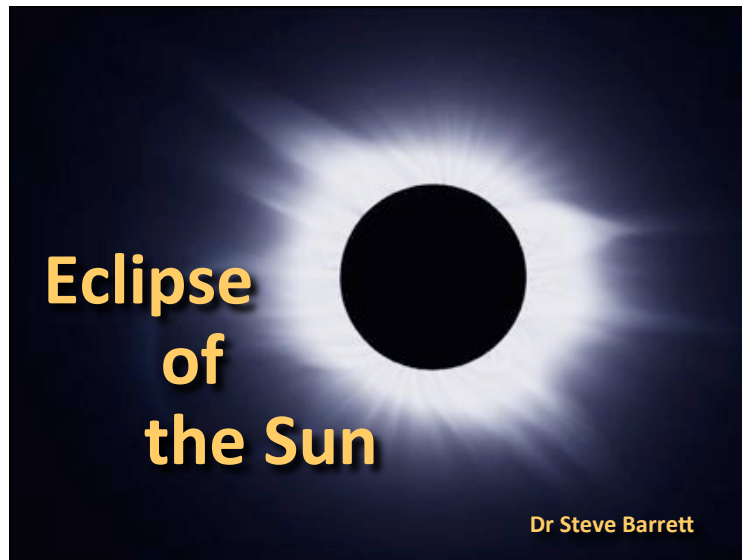


# Eclipse of the Sun



## Eclipse of the Sun

Eclipses

Why do they happen?  
When do they happen?

Total Eclipse  
in March 2006

Where was it seen?  
What was it like?

Partial Eclipse  
in March 2015

What will I see?

Eclipse of the Sun / Introduction

2

## Safety

Remember that you should **NEVER** look at the Sun without using special eclipse glasses like these:



Eclipse of the Sun / Safety

3

## Safety

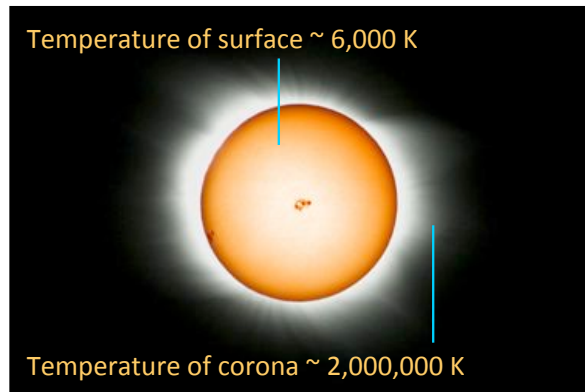


Eclipse of the Sun / Safety

4

# Eclipse of the Sun

## The Sun



Eclipse of the Sun / The Sun

5

## Aurora



Eclipse of the Sun / Sun and Earth / Aurora Borealis

6

## Aurora



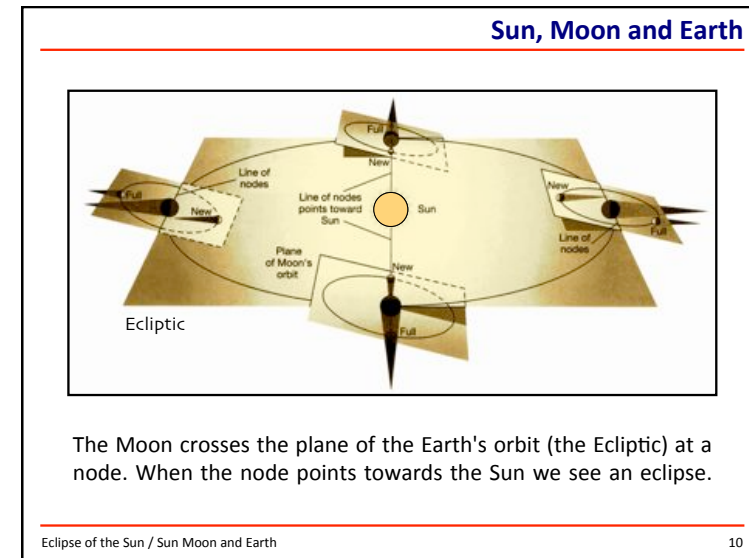
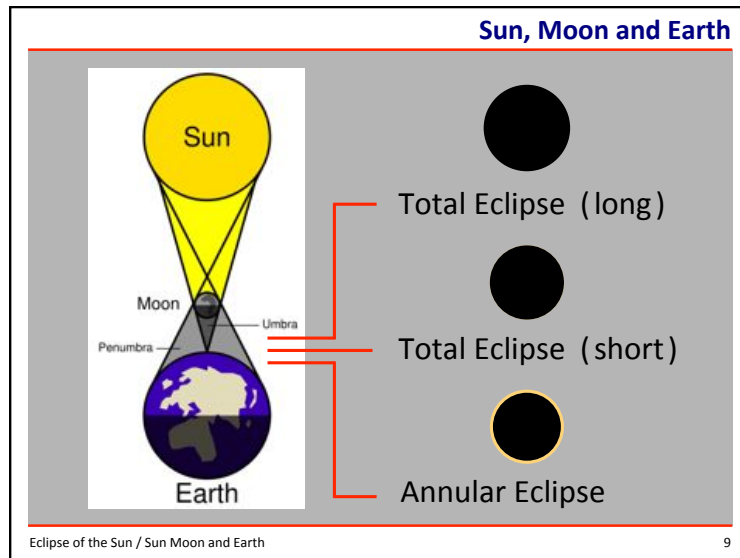
Eclipse of the Sun / Sun and Earth / Aurora Borealis

7

Our closest  
neighbour can  
be fascinating ...  
... watching the  
shadows of the  
craters and  
mountains  
change from  
night to night



# Eclipse of the Sun



**How Long is a Month?**

Synodic Month	
New Moon to New Moon	29.53 days
Draconic Month	
Node to Node	27.21 days
Anomalistic Month	
Perigee to Perigee	27.55 days

Eclipse of the Sun / Month

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**Periods Between Eclipses**

223 Synodic months	=	6585.32 days
242 Draconic months	=	6585.36 days
239 Anomalistic months	=	6585.54 days

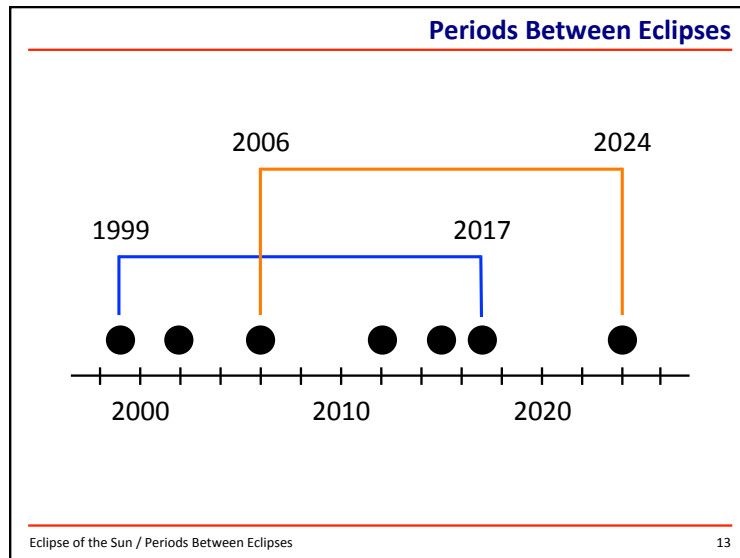
Over this time period, the so-called **saros** cycle, the Moon's orbital periods are back in 'synch'.

Two eclipses separated by one saros cycle have similar geometries and so the eclipses repeat.

Eclipse of the Sun / Periods Between Eclipses

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# Eclipse of the Sun



13

**Saros 139**

Date	$\phi M / \phi S$	Length	Seen from
1988 Mar 18	1.046	3 <sup>m</sup> 46 <sup>s</sup>	Asia
2006 Mar 29	1.052	4 <sup>m</sup> 07 <sup>s</sup>	Africa
2024 Apr 08	1.057	4 <sup>m</sup> 28 <sup>s</sup>	Americas
2042 Apr 20	1.061	4 <sup>m</sup> 51 <sup>s</sup>	Asia
2060 Apr 30	1.066	5 <sup>m</sup> 15 <sup>s</sup>	Africa
2078 May 11	1.070	5 <sup>m</sup> 40 <sup>s</sup>	Americas
2096 May 22	1.074	6 <sup>m</sup> 06 <sup>s</sup>	Asia

Eclipse of the Sun / Periods Between Eclipses

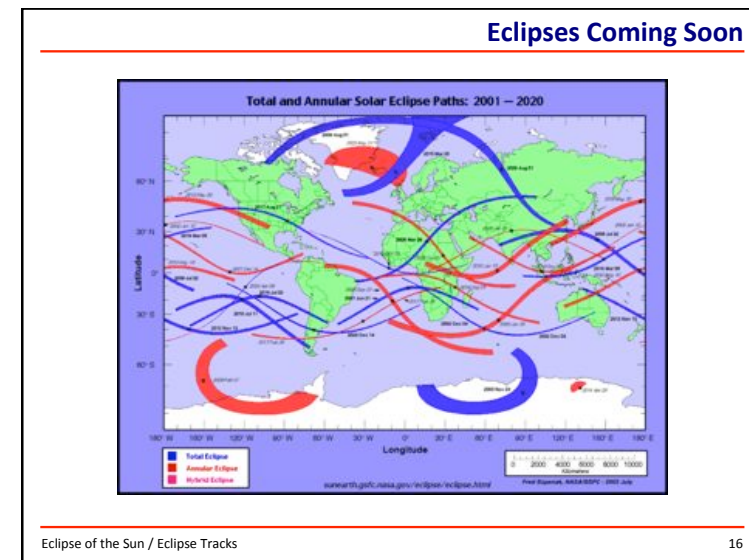
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**Eclipses Coming Soon**

Date	Total?	Length	Seen from
2006 Mar 29	Total	4 <sup>m</sup> 07 <sup>s</sup>	Africa, Turkey
2015 Mar 20	Total	2 <sup>m</sup> 47 <sup>s</sup>	N Atlantic, Faeroes
2016 Mar 09	Total	4 <sup>m</sup> 09 <sup>s</sup>	Australia
2016 Sep 01	Annular	3 <sup>m</sup> 06 <sup>s</sup>	Africa
2017 Feb 26	Annular	0 <sup>m</sup> 44 <sup>s</sup>	S America, Africa
2017 Aug 21	Total	2 <sup>m</sup> 40 <sup>s</sup>	N America
2019 July 02	Total	4 <sup>m</sup> 33 <sup>s</sup>	S Pacific, S America

Eclipse of the Sun / Periods Between Eclipses

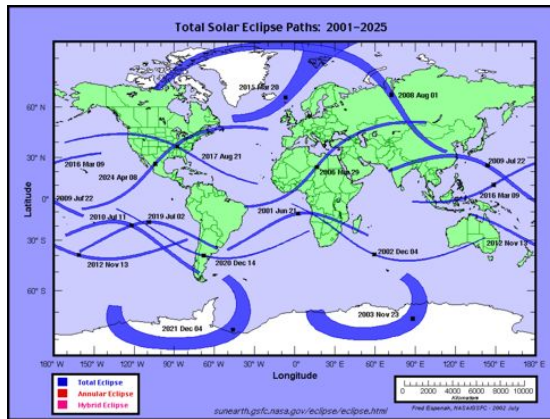
15



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# Eclipse of the Sun

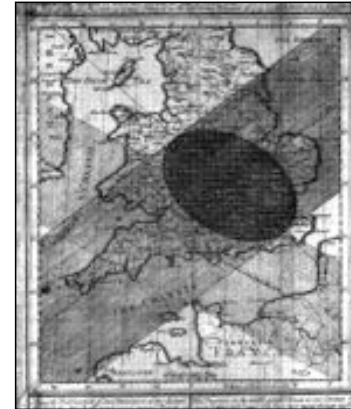
## Eclipses Coming Soon



Eclipse of the Sun / Eclipse Tracks

17

## Eclipses in the UK



1715

1724

Eclipse of the Sun / Eclipse Tracks

18

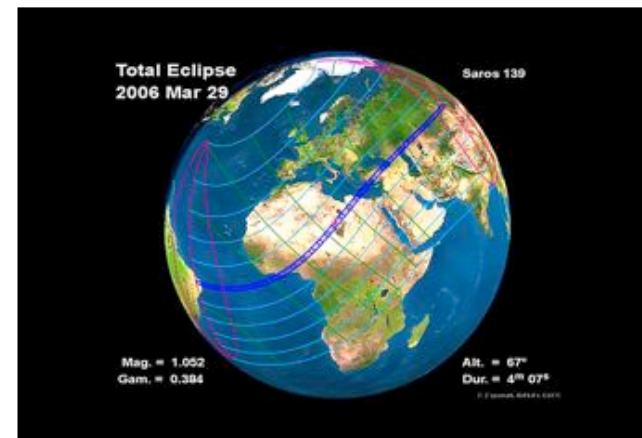
## Cornwall 11 Aug 1999



Eclipse of the Sun / 1999

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## Total Eclipse 2006



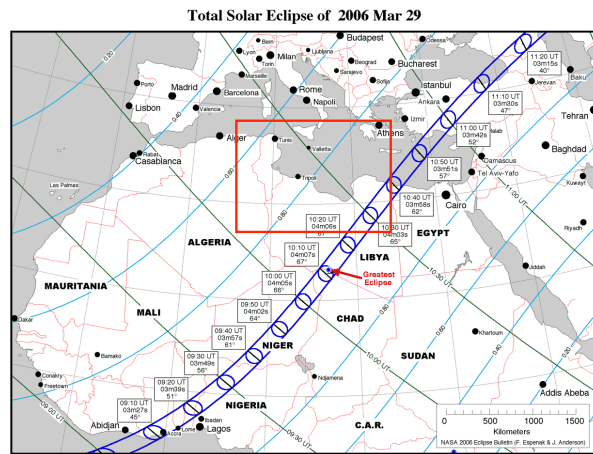
Eclipse of the Sun / Total Eclipse 2006

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# Eclipse of the Sun

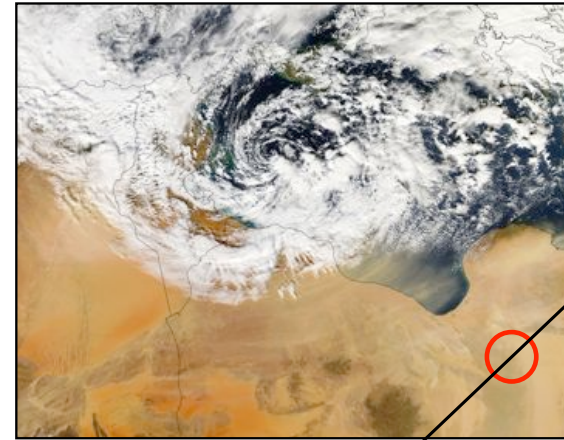
## Total Eclipse 2006



Eclipse of the Sun / Total Eclipse 2006

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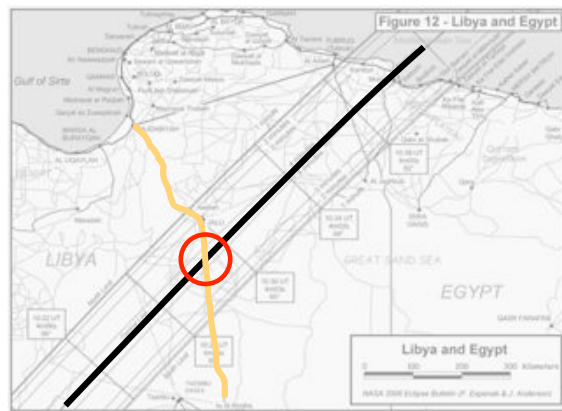
## Total Eclipse 2006



Eclipse of the Sun / Total Eclipse 2006

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## Total Eclipse 2006



Eclipse of the Sun / Total Eclipse 2006

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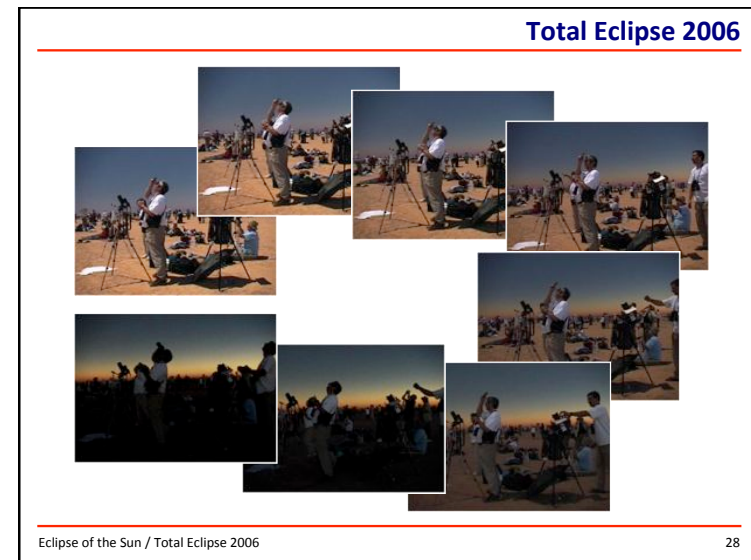
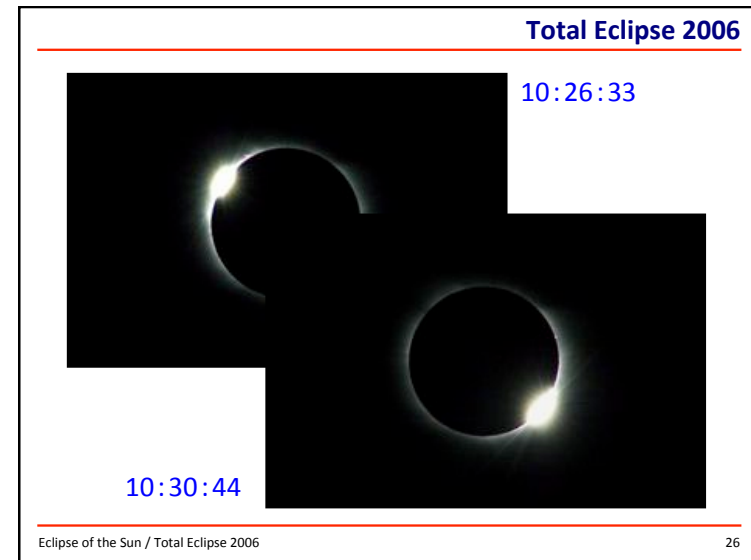
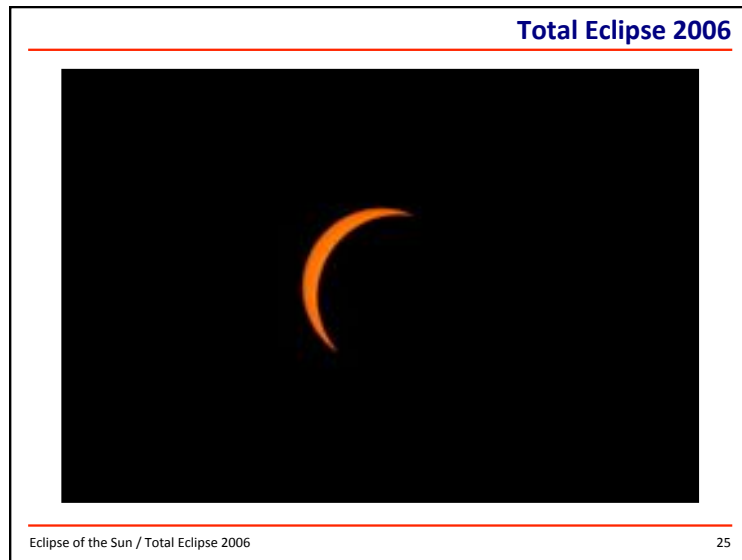
## Total Eclipse 2006



Eclipse of the Sun / Total Eclipse 2006

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# Eclipse of the Sun



# Eclipse of the Sun

