
August 21, 2017
10:23:12 a.m. PDT
Center
44°34'03"N, 119°12'34"W, 1385m
Duration
2m 6.9s
Sun Alt, Az
43.2°, 122.0°
Moon L, B, C
5.22°, -0.16°, 21.87°
Moon Distance
367544.1 km
Vancouver
Portland
Oregon City
Mount Hood Village
McMinnville
Mount Angel
Keizer
Salem
Monmouth
Jefferson
Mill City
Detroit
Sweet Home
Corvallis
Albany
Junction City
Coburg
Eugene
Creswell
Cottage Grove
Oakridge
Sisters
Redmond
Tumalo
Bend
Deschutes River Woods
Three Rivers
La Pine
Camp Sherman
Black Butte Ranch
Madras
Culver
Warm Springs
Metolius
Odell
Hood River
The Dalles
Vasco
Parkdale
Dufur
Moro
Grass Valley
Pine Hollow
Maupin
Pine Grove
Condon
Fossil
Spray
Monument
Long Creek
Mitchell
Dayville
John Day
Seneca
Burns
Crane
Heppner
Lexington
Ione
Pilot Rock
Pendleton
Umatilla
Milton-Freewater
Athena
Elgin
Wallowa
Imbler
Lostine
Enterprise
Joseph
La Grande
Union
Ukiah
North Powder
Haines
Halfway
Baker City
Sumpter
Richland
Council
Cambridge
Midvale
Huntington
Weiser
Ontario
Vale
Nyssa
Harper
Parma
Wilder
Emmett
Eagle
Kuna
Melba
Riggins
New Meadows
OREGON

1
00:00:10,070 --> 00:00:06,630
what we're talking about is several

2
00:00:12,789 --> 00:00:10,080
visualizations of the path of the moon's

3
00:00:14,709 --> 00:00:12,799
shadow during the eclipse in 2017.

4
00:00:17,349 --> 00:00:14,719
everything in it is driven by the data

5
00:00:19,990 --> 00:00:17,359
so the color of the ground the position

6
00:00:22,150 --> 00:00:20,000
of the path of totality the lighting

7
00:00:22,950 --> 00:00:22,160
from the sun the sun angle all of those

8
00:00:26,790 --> 00:00:22,960
are

9
00:00:28,950 --> 00:00:26,800
nasa products were used to create this

10
00:00:30,870 --> 00:00:28,960
visualization i used the lunar

11
00:00:33,910 --> 00:00:30,880
reconnaissance orbiter the laser

12
00:00:35,990 --> 00:00:33,920
altimetry data from that which gives us

13
00:00:37,990 --> 00:00:36,000

a digital map of the elevations on the

14
00:00:40,069 --> 00:00:38,000
moon for the earth i used something

15
00:00:41,750 --> 00:00:40,079
called srtm this was a radar that was

16
00:00:43,510 --> 00:00:41,760
flown on the space shuttle for the

17
00:00:46,229 --> 00:00:43,520
positions of the

18
00:00:48,950 --> 00:00:46,239
the earth the moon and the sun i used a

19
00:00:50,709 --> 00:00:48,960
jpl ephemeris and a femoris is just a

20
00:00:52,790 --> 00:00:50,719
list of positions

21
00:00:54,630 --> 00:00:52,800
but it's the most it's the most accurate

22
00:00:56,470 --> 00:00:54,640
tabulation of those positions this

23
00:00:58,549 --> 00:00:56,480
visualization is unique because it shows

24
00:01:00,310 --> 00:00:58,559
the effect of both

25
00:01:02,069 --> 00:01:00,320
the irregular

26
00:01:03,750 --> 00:01:02,079
edge of the moon the limb of the moon we

27
00:01:06,550 --> 00:01:03,760
call it and the elevation of the

28
00:01:08,550 --> 00:01:06,560
observer now we've known for a long time

29
00:01:10,550 --> 00:01:08,560
that the elevation of the observer

30
00:01:12,390 --> 00:01:10,560
affects where the shadow is

31
00:01:14,870 --> 00:01:12,400
we've also known that the

32
00:01:17,510 --> 00:01:14,880
mountains and the valleys along the edge

33
00:01:19,670 --> 00:01:17,520
of the moon affect the shadow so you may

34
00:01:22,630 --> 00:01:19,680
have seen on on eclipse maps in the past

35
00:01:24,550 --> 00:01:22,640
that the image of the umbra

36
00:01:26,950 --> 00:01:24,560
that shape of the shadow on the earth is

37
00:01:28,789 --> 00:01:26,960
drawn as a smooth oval but we know that

38
00:01:31,190 --> 00:01:28,799

the moon isn't smooth around the edge of

39
00:01:33,910 --> 00:01:31,200
the moon we have these sort of jagged

40
00:01:35,590 --> 00:01:33,920
peaks and valleys and a peak can block

41
00:01:37,910 --> 00:01:35,600
the sun a little bit earlier than you

42
00:01:39,910 --> 00:01:37,920
thought and a valley can let the sun in

43
00:01:41,910 --> 00:01:39,920
a few seconds longer than you thought

44
00:01:44,469 --> 00:01:41,920
the combined effect of these peaks and

45
00:01:47,109 --> 00:01:44,479
valleys is to create a shape that's not

46
00:01:49,190 --> 00:01:47,119
really an oval it's more like a polygon

47
00:01:51,830 --> 00:01:49,200
but it hasn't actually been seen in

48
00:01:54,069 --> 00:01:51,840
exactly this way before where

49
00:01:56,709 --> 00:01:54,079
we calculate those circumstances for

50
00:01:57,590 --> 00:01:56,719
every point on the map and draw that

51
00:02:00,069 --> 00:01:57,600
shape

52
00:02:02,469 --> 00:02:00,079
totality is that is that two minutes

53
00:02:05,030 --> 00:02:02,479
when the or two and a half minutes when

54
00:02:07,030 --> 00:02:05,040
the moon completely covers the sun the

55
00:02:09,029 --> 00:02:07,040
sudden darkness of totality is just

56
00:02:10,869 --> 00:02:09,039
something that a lot of people can't

57
00:02:13,030 --> 00:02:10,879
compare to anything else

58
00:02:15,190 --> 00:02:13,040
i love the idea that i'm giving this

59
00:02:17,350 --> 00:02:15,200
kind of map to other people and

60
00:02:19,510 --> 00:02:17,360
especially that it's more detailed and