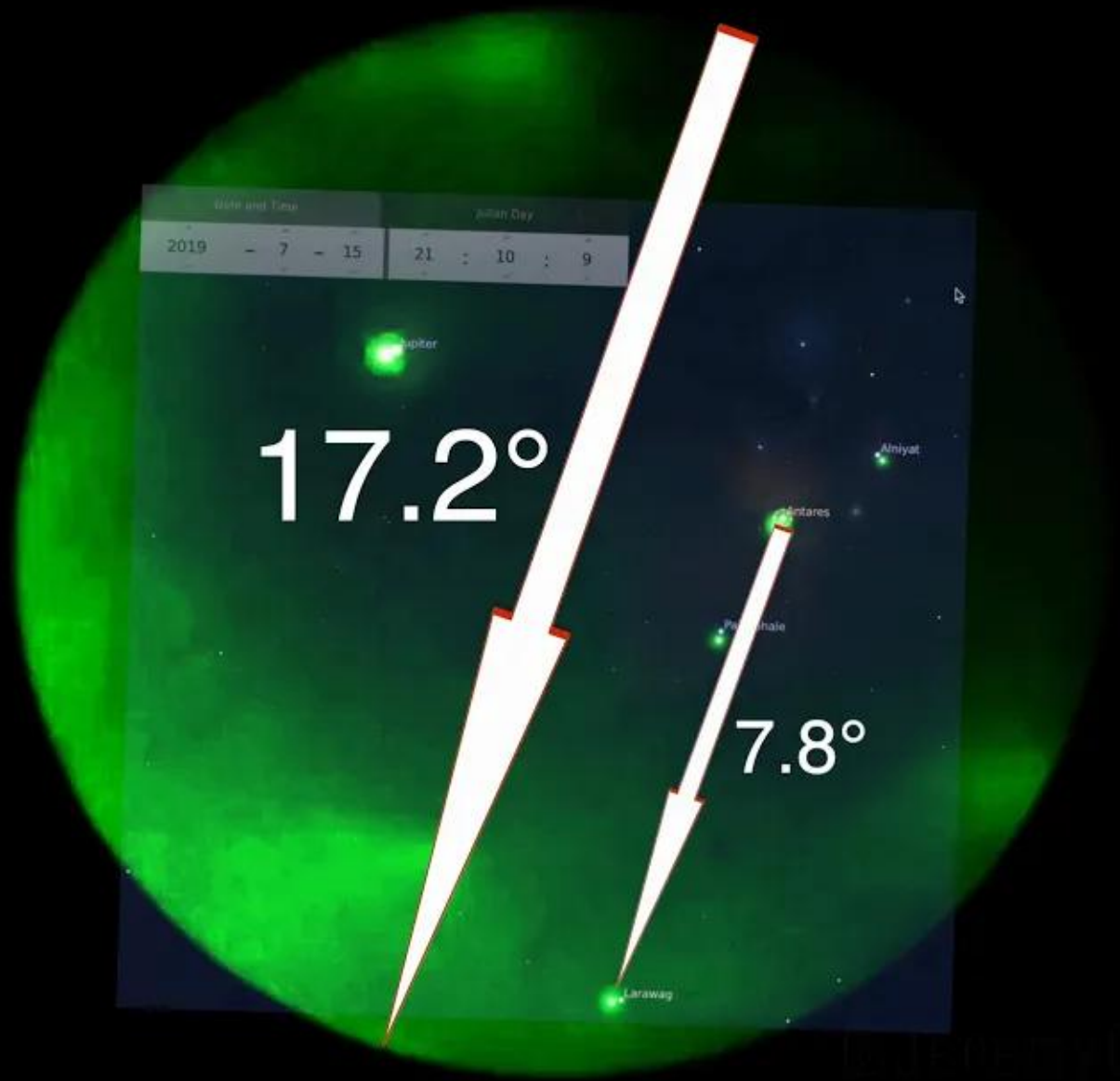
Date and Time
Julian Day
2019 - 7 - 15
21 : 10 : 9
Jupiter
17.2°
Alniyat
Antares
7.8°
Larawag

1
00:00:05,630 --> 00:00:02,990
I think it has been fairly conclusively

2
00:00:07,730 --> 00:00:05,640
demonstrated that this pyramid UFO is

3
00:00:10,490 --> 00:00:07,740
actually just out of focus with the

4
00:00:12,470 --> 00:00:10,500
triangle shape being bulky it's probably

5
00:00:13,970 --> 00:00:12,480
just a plane because it moves on flashes

6
00:00:15,770 --> 00:00:13,980
like a plane

7
00:00:17,870 --> 00:00:15,780
you can see a summary of all that in my

8
00:00:19,730 --> 00:00:17,880
last video but a few interesting

9
00:00:22,070 --> 00:00:19,740
questions remain for the sky identify

10
00:00:23,450 --> 00:00:22,080
nerds out there like these two triangles

11
00:00:25,849 --> 00:00:23,460
what are they

12
00:00:29,810 --> 00:00:25,859
are actually stars in the constellation

13
00:00:31,609 --> 00:00:29,820

Akila called ocab and okaborealis I'll

14
00:00:32,810 --> 00:00:31,619
explain how I figured this out and how

15
00:00:34,610 --> 00:00:32,820
we can use it to get some rough

16
00:00:37,250 --> 00:00:34,620
estimates of the speed of the plane like

17
00:00:41,630 --> 00:00:39,350
when you are looking to identify stars

18
00:00:44,209 --> 00:00:41,640
is really helpful to know the dates time

19
00:00:46,010 --> 00:00:44,219
and location of the photo or video

20
00:00:48,410 --> 00:00:46,020
we don't really have specifics about

21
00:00:51,410 --> 00:00:48,420
this video but it seems to be related to

22
00:00:55,369 --> 00:00:51,420
the events described in the USS Russell

23
00:00:57,590 --> 00:00:55,379
logbook July 14 2019 sometime after nine

24
00:00:59,930 --> 00:00:57,600
in the evening we also have a location a

25
00:01:01,250 --> 00:00:59,940
latitude and a longitude at the very

26
00:01:04,910 --> 00:01:01,260
start of the video we see a

27
00:01:06,230 --> 00:01:04,920
constellation of stars at Dylan DTV on

28
00:01:08,210 --> 00:01:06,240
Twitter discovered that this was

29
00:01:10,429 --> 00:01:08,220
actually Jupiter and teres and some

30
00:01:12,590 --> 00:01:10,439
other stars we can use the free software

31
00:01:14,570 --> 00:01:12,600
stellarium into the location and the

32
00:01:16,490 --> 00:01:14,580
time and then look towards Jupiter a

33
00:01:19,370 --> 00:01:16,500
planet not a star and it is a perfect

34
00:01:21,410 --> 00:01:19,380
fit for around 10 past 9 Pacific time in

35
00:01:22,910 --> 00:01:21,420
that location

36
00:01:24,950 --> 00:01:22,920
watching the full video there's another

37
00:01:26,990 --> 00:01:24,960
style that makes a brief appearance

38
00:01:28,910 --> 00:01:27,000

and then we see these two

39
00:01:30,289 --> 00:01:28,920
they're pretty much vertical and the

40
00:01:32,510 --> 00:01:30,299
lower one is a bit brighter but

41
00:01:33,710 --> 00:01:32,520
otherwise not super distinctive so hard

42
00:01:35,450 --> 00:01:33,720
to find

43
00:01:37,310 --> 00:01:35,460
I realized though that the camera did

44
00:01:38,810 --> 00:01:37,320
not move very far and we could roughly

45
00:01:41,030 --> 00:01:38,820
track the motion by looking at the

46
00:01:42,889 --> 00:01:41,040
clouds after boosting the contrast

47
00:01:45,350 --> 00:01:42,899
so I tracked from the initial position

48
00:01:48,170 --> 00:01:45,360
looking towards Jupiter past the single

49
00:01:51,050 --> 00:01:48,180
star which is probably Russell Hague and

50
00:01:53,270 --> 00:01:51,060
then on to the two final Stars bingo

51
00:01:56,450 --> 00:01:53,280
pretty much at that exact spot there are

52
00:01:59,450 --> 00:01:56,460
the two stars ocab and ocab Borealis

53
00:02:01,490 --> 00:01:59,460
also called Epsilon achille

54
00:02:02,870 --> 00:02:01,500
this shows that the plane is moving in a

55
00:02:05,270 --> 00:02:02,880
straight line and that it flies just

56
00:02:06,350 --> 00:02:05,280
under ocap without context this kind of

57
00:02:08,089 --> 00:02:06,360
looks like there's another triangle

58
00:02:10,910 --> 00:02:08,099
flying around but it's just the lowest

59
00:02:12,350 --> 00:02:10,920
star of the two ocab

60
00:02:14,150 --> 00:02:12,360
and now we've got a good handle on where

61
00:02:15,470 --> 00:02:14,160
in the sky the plane is and what the

62
00:02:17,210 --> 00:02:15,480
stars are we can have a Basher

63
00:02:19,610 --> 00:02:17,220

estimating its speed

64
00:02:21,830 --> 00:02:19,620
if we take these two stars Antares and

65
00:02:23,750 --> 00:02:21,840
larawag we can enter in their Celestial

66
00:02:26,449 --> 00:02:23,760
coordinates to this calculator and we

67
00:02:28,670 --> 00:02:26,459
can see they're about 7.8 degrees apart

68
00:02:30,110 --> 00:02:28,680
we can then scale that up to the

69
00:02:33,229 --> 00:02:30,120
diameter of the night vision camera and

70
00:02:35,150 --> 00:02:33,239
we find the field of view is 17.2

71
00:02:37,070 --> 00:02:35,160
degrees

72
00:02:39,710 --> 00:02:37,080
at this point in the video the plane is

73
00:02:41,990 --> 00:02:39,720
in the middle and ocab is nearly at the

74
00:02:43,970 --> 00:02:42,000
edge we know that the plane passes ocav

75
00:02:45,710 --> 00:02:43,980
so the time it takes to get there is the

76
00:02:47,509 --> 00:02:45,720
time it will take to Traverse just under

77
00:02:50,270 --> 00:02:47,519
half the field of view about eight

78
00:02:52,790 --> 00:02:50,280
degrees we time that in these 10 seconds

79
00:02:55,130 --> 00:02:52,800
so the angular speed of the plane at

80
00:02:57,290 --> 00:02:55,140
this point is about 0.8 degrees per

81
00:03:00,110 --> 00:02:57,300
second looking at the traffic in the

82
00:03:00,890 --> 00:03:00,120
area a typical altitude is around 33 000

83
00:03:04,670 --> 00:03:00,900
feet

84
00:03:06,589 --> 00:03:04,680
ocab is at around 42 degrees so let's

85
00:03:08,630 --> 00:03:06,599
round that up to 45 degrees as we don't

86
00:03:10,729 --> 00:03:08,640
know the exact time so the plane will be

87
00:03:11,690 --> 00:03:10,739
about as far away horizontally as it is

88
00:03:13,430 --> 00:03:11,700

high

89
00:03:17,869 --> 00:03:13,440
we can then use Pythagoras to get a line

90
00:03:20,270 --> 00:03:17,879
of slight distance of around 45 000 feet

91
00:03:23,089 --> 00:03:20,280
assuming it's flying perpendicular to us

92
00:03:24,830 --> 00:03:23,099
then we can take the 0.8 degrees per

93
00:03:27,110 --> 00:03:24,840
second and see how far along the

94
00:03:29,750 --> 00:03:27,120
circumference of a circle of radius 45

95
00:03:31,729 --> 00:03:29,760
000 feet will gives you 0.8 degrees

96
00:03:34,070 --> 00:03:31,739
that will show how far the plane moves

97
00:03:34,910 --> 00:03:34,080
in one second I.E the speed in feet per

98
00:03:36,710 --> 00:03:34,920
second

99
00:03:39,289 --> 00:03:36,720
we can work this out and do the unit

100
00:03:41,630 --> 00:03:39,299
conversion to not with Google 45 000

101
00:03:44,649 --> 00:03:41,640
times 2 times pi divided by 360 times

102
00:03:47,930 --> 00:03:44,659
0.8 feet per second in knots which gives

103
00:03:50,030 --> 00:03:47,940
372 knots the ground speed

104
00:03:51,949 --> 00:03:50,040
so that's consistent with the plane uh

105
00:03:53,990 --> 00:03:51,959
but given the ocab is in our bearing of

106
00:03:55,309 --> 00:03:54,000
a 100 degrees and the planes in the

107
00:03:58,190 --> 00:03:55,319
region are generally on a heading of

108
00:03:59,690 --> 00:03:58,200
around 40. then the plane is probably

109
00:04:01,670 --> 00:03:59,700
not flying perpendicular to the camera

110
00:04:04,250 --> 00:04:01,680
so the actual speed will be a bit higher

111
00:04:06,949 --> 00:04:04,260
like 400 plus knots which is the same as

112
00:04:09,170 --> 00:04:06,959
the traffic overhead

113
00:04:12,050 --> 00:04:09,180

what if it were just 700 feet up around

114
00:04:14,210 --> 00:04:12,060
1 000 feet away that's about eight knots

115
00:04:16,610 --> 00:04:14,220
around nine mile per hour so it could be

116
00:04:18,890 --> 00:04:16,620
a nearby drone moving slowly but I think

117
00:04:20,689 --> 00:04:18,900
a plane is a better fit as we know there

118
00:04:23,450 --> 00:04:20,699
were planes there and the angular speed