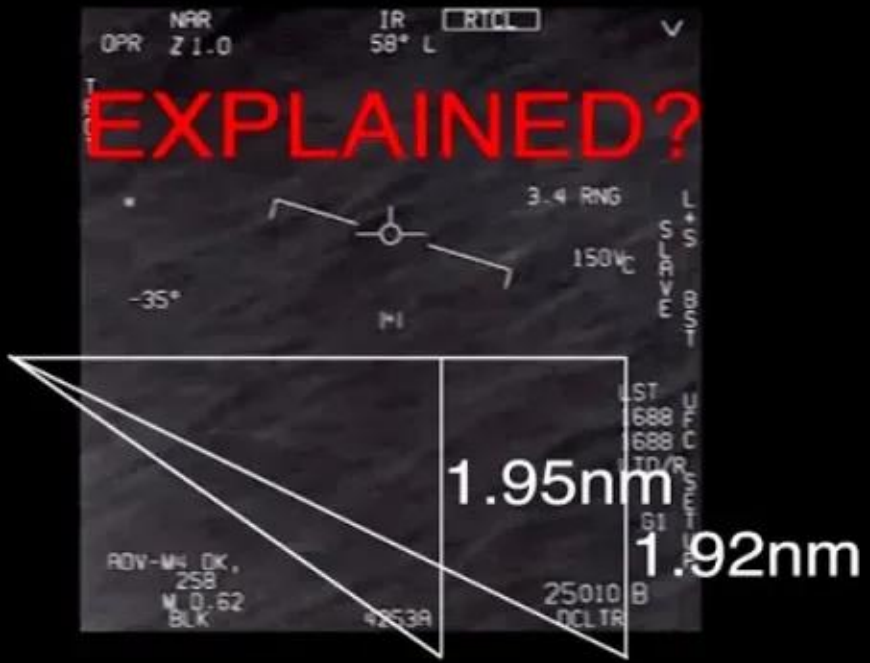
NAR
OPR Z 1.0
IR
58° L
RTCL
EXPLAINED?
3.4 RNG
150KC
-35°
1.95nm
1.92nm
ROV-MH DK,
258
M 0.62
BLK
25010 B
DCLTR

1
00:00:05,800 --> 00:00:03,519
episode 4 of The History Channel's show

2
00:00:08,360 --> 00:00:05,810
unidentified inside America's UFO

3
00:00:12,799 --> 00:00:08,370
investigation centers around three

4
00:00:15,980 --> 00:00:12,809
videos : refer to as nimitz go fast and

5
00:00:17,980 --> 00:00:15,990
gimbal all three videos are extensively

6
00:00:20,890 --> 00:00:17,990
analyzed on meta bunk over a year ago

7
00:00:23,840 --> 00:00:20,900
nimitz is probably just a distant jet

8
00:00:25,609 --> 00:00:23,850
gimbal is also probably a distant jet

9
00:00:27,290 --> 00:00:25,619
but this time with a rotating glare

10
00:00:29,990 --> 00:00:27,300
that's just an artifact of the gimbal

11
00:00:34,130 --> 00:00:30,000
mounted camera system but what I want to

12
00:00:36,020 --> 00:00:34,140
discuss here is the go-fast video this

13
00:00:38,119 --> 00:00:36,030

video appears to show an object flying

14
00:00:41,180 --> 00:00:38,129
very close to the water which is how its

15
00:00:43,250 --> 00:00:41,190
presented on unidentified that thing is

16
00:00:44,630 --> 00:00:43,260
hauling exactly my point

17
00:00:47,209 --> 00:00:44,640
it's a little less than two-thirds of

18
00:00:49,250 --> 00:00:47,219
speed of sound this description is

19
00:00:52,279 --> 00:00:49,260
repeated on the to the Stars Academy

20
00:00:54,819 --> 00:00:52,289
page where the video is first released a

21
00:00:58,970 --> 00:00:54,829
white oval shape moving at high speed

22
00:01:02,779 --> 00:00:58,980
flying very low over the water but is it

23
00:01:05,810 --> 00:01:02,789
really low and fast no it's not it's

24
00:01:07,960 --> 00:01:05,820
actually high and slow and we can prove

25
00:01:11,149 --> 00:01:07,970
this with the information in the video

26
00:01:12,679 --> 00:01:11,159
there's a bunch of numbers on screen the

27
00:01:16,880 --> 00:01:12,689
amplitude of the jet is pretty constant

28
00:01:19,130 --> 00:01:16,890
at 25,000 feet a calibrated airspeed in

29
00:01:22,760 --> 00:01:19,140
the lower left is also fairly constant

30
00:01:25,910 --> 00:01:22,770
at around 255 knots which gives a true

31
00:01:29,050 --> 00:01:25,920
airspeed of 370 knots when you correct

32
00:01:32,480 --> 00:01:29,060
for the 25,000 feet pressure altitude

33
00:01:34,760 --> 00:01:32,490
the jet is flying straight at first but

34
00:01:37,100 --> 00:01:34,770
after locking on it banks about 13

35
00:01:38,840 --> 00:01:37,110
degrees to the left I extracted this

36
00:01:41,359 --> 00:01:38,850
information by feature tracking the ends

37
00:01:42,499 --> 00:01:41,369
of the horizon line so the Jets turning

38
00:01:44,810 --> 00:01:42,509

a little bit to the left

39
00:01:46,340 --> 00:01:44,820
the number at the top is the angle of

40
00:01:50,480 --> 00:01:46,350
the camera relative to the front of the

41
00:01:53,359 --> 00:01:50,490
jet it goes from 35 degrees left to 58

42
00:01:55,880 --> 00:01:53,369
degrees left the number of the middle

43
00:01:59,120 --> 00:01:55,890
left is the cameras downward tilt it

44
00:02:03,139 --> 00:01:59,130
goes from 22 degrees down to 35 degrees

45
00:02:05,480 --> 00:02:03,149
down one of the more important numbers

46
00:02:08,719 --> 00:02:05,490
here is the range number on the right

47
00:02:10,910 --> 00:02:08,729
hand side labeled RNG this is the

48
00:02:13,640 --> 00:02:10,920
distance to the target in nautical miles

49
00:02:13,820 --> 00:02:13,650
it does not show up until the target is

50
00:02:16,760 --> 00:02:13,830
of

51
00:02:21,560 --> 00:02:16,770
quiet but then it goes from 4.4 nautical

52
00:02:23,150 --> 00:02:21,570
miles to 3.3 nautical miles so we can

53
00:02:26,080 --> 00:02:23,160
use all these numbers and how they

54
00:02:28,940 --> 00:02:26,090
change over time to do two things

55
00:02:32,690 --> 00:02:28,950
firstly we can calculate how high the

56
00:02:34,130 --> 00:02:32,700
object is that isn't too complicated we

57
00:02:36,410 --> 00:02:34,140
know the angle the camera is looking

58
00:02:39,560 --> 00:02:36,420
down at and we know the distance to the

59
00:02:41,480 --> 00:02:39,570
object so the height of the object below

60
00:02:42,380 --> 00:02:41,490
the camera it's really just simple

61
00:02:45,380 --> 00:02:42,390
trigonometry

62
00:02:47,120 --> 00:02:45,390
it's the range multiplied by the sine of

63
00:02:49,040 --> 00:02:47,130

the downward angle if you take the

64
00:02:51,860 --> 00:02:49,050
object to the start and the end of a

65
00:02:55,580 --> 00:02:51,870
tracking we get four point four nautical

66
00:02:57,380 --> 00:02:55,590
miles times the sine of 26° gives us one

67
00:03:01,130 --> 00:02:57,390
point nine two nautical miles below the

68
00:03:03,350 --> 00:03:01,140
plane then at the end three point four

69
00:03:05,690 --> 00:03:03,360
nautical miles times the sine of thirty

70
00:03:09,680 --> 00:03:05,700
five degrees gives us one point nine

71
00:03:12,199 --> 00:03:09,690
five nautical miles about the same then

72
00:03:15,949 --> 00:03:12,209
it's an object that's around 13,000 feet

73
00:03:19,340 --> 00:03:15,959
above the water it's also being viewed

74
00:03:21,290 --> 00:03:19,350
from a jet at 25,000 feet so basically

75
00:03:25,850 --> 00:03:21,300
it's halfway between the jet and the

76
00:03:28,190 --> 00:03:25,860
ocean surface this is very important

77
00:03:29,979 --> 00:03:28,200
because it means the perceived motion of

78
00:03:32,870 --> 00:03:29,989
the object against the ocean surface

79
00:03:35,479 --> 00:03:32,880
even if it were moving very slowly or

80
00:03:37,130 --> 00:03:35,489
even if it were not moving at all would

81
00:03:40,970 --> 00:03:37,140
be the same as the speed of the jet

82
00:03:43,610 --> 00:03:40,980
itself this parallax effect is hugely

83
00:03:46,790 --> 00:03:43,620
magnified by the high zoom which is set

84
00:03:50,210 --> 00:03:46,800
to na are narrow or around 1.5 degrees

85
00:03:53,630 --> 00:03:50,220
field of view so we've already seen the

86
00:03:56,030 --> 00:03:53,640
unidentified analysis is wrong it's not

87
00:04:00,110 --> 00:03:56,040
close to the water at all it's a 13,000

88
00:04:01,370 --> 00:04:00,120

feet but is it as they say Halling yeah

89
00:04:02,720 --> 00:04:01,380
exactly my point

90
00:04:06,110 --> 00:04:02,730
it's a little less than two-thirds of

91
00:04:09,890 --> 00:04:06,120
speed of sound hauling ass and 2/3 the

92
00:04:12,229 --> 00:04:09,900
speed of sound no not even close it's

93
00:04:15,050 --> 00:04:12,239
going as slow as twenty to forty knots

94
00:04:17,030 --> 00:04:15,060
just wind speed at that altitude we can

95
00:04:20,659 --> 00:04:17,040
determine this with some slightly more

96
00:04:22,279 --> 00:04:20,669
complex analysis so we know that the jet

97
00:04:25,340 --> 00:04:22,289
and the object maintain constant

98
00:04:27,260 --> 00:04:25,350
altitude the object of 13,000 feet the

99
00:04:30,080 --> 00:04:27,270
jet at 26,000 feet

100
00:04:33,100 --> 00:04:30,090
so we can restrict the analysis of the

101
00:04:36,170 --> 00:04:33,110
speed of the object to an overhead view

102
00:04:37,580 --> 00:04:36,180
now given the range and the angle

103
00:04:39,379 --> 00:04:37,590
relative to the front of the jet we can

104
00:04:42,740 --> 00:04:39,389
plot an initial position for that object

105
00:04:44,900 --> 00:04:42,750
relative to the jet then we know the

106
00:04:48,140 --> 00:04:44,910
speed of the jet and the time of the

107
00:04:49,760 --> 00:04:48,150
locked portion of the video so we can

108
00:04:52,670 --> 00:04:49,770
plot where it will be at the end of the

109
00:04:54,650 --> 00:04:52,680
video then using the final range in the

110
00:04:57,080 --> 00:04:54,660
angles we can plot the end position of

111
00:04:59,629 --> 00:04:57,090
the object we can then divide this

112
00:05:03,290 --> 00:04:59,639
distance traveled by the time and we get

113
00:05:04,850 --> 00:05:03,300

the speed of the object this depends on

114
00:05:06,800 --> 00:05:04,860
how much the jet is turning to the left

115
00:05:08,510 --> 00:05:06,810
but putting in a reasonable turn rate

116
00:05:10,999 --> 00:05:08,520
and we get the object speeds in the

117
00:05:13,390 --> 00:05:11,009
range of 20 to 40 knots maybe a bit more

118
00:05:16,159 --> 00:05:13,400
it's all consistent with wind speed of

119
00:05:20,059 --> 00:05:16,169
13,000 feet not another jet that's

120
00:05:21,589 --> 00:05:20,069
certainly not 2/3 of speed of sound we

121
00:05:23,300 --> 00:05:21,599
can also make a rough estimate of the

122
00:05:25,730 --> 00:05:23,310
size of the object based on the field of

123
00:05:27,980 --> 00:05:25,740
view the range and the fraction of the

124
00:05:29,960 --> 00:05:27,990
field of view covered by the object this

125
00:05:32,620 --> 00:05:29,970
gives us a size of about 6 or 7 feet

126
00:05:36,260 --> 00:05:32,630
about the size of say a weather balloon

127
00:05:38,300 --> 00:05:36,270
in unidentified they notice that the

128
00:05:40,490 --> 00:05:38,310
craft appears cold on the infrared and

129
00:05:42,200 --> 00:05:40,500
the narrator says there is no known

130
00:05:46,350 --> 00:05:42,210
aircraft that can stay aloft for long

131
00:05:50,470 --> 00:05:48,970
which is false because there's an

132
00:05:52,480 --> 00:05:50,480
obvious type of aircraft a helium

133
00:05:55,540 --> 00:05:52,490
balloon which appears cold infrared and

134
00:05:56,860 --> 00:05:55,550
could stay aloft for hours even days you

135
00:05:58,450 --> 00:05:56,870
can also look like is moving really fast

136
00:06:01,270 --> 00:05:58,460
over the ground when exactly just

137
00:06:03,160 --> 00:06:01,280
parallax here's another example where a

138
00:06:04,930 --> 00:06:03,170

balloon is clearly just a balloon it's

139
00:06:07,380 --> 00:06:04,940
also barely moving and it looks like

140
00:06:09,610 --> 00:06:07,390
it's moving really fast

141
00:06:11,500 --> 00:06:09,620
balloons themselves don't reflect radar

142
00:06:13,690 --> 00:06:11,510
but weather balloons carry radar

143
00:06:15,070 --> 00:06:13,700
reflectors which will be very easy for

144
00:06:18,850 --> 00:06:15,080
their range finding where to lock on to

145
00:06:21,070 --> 00:06:18,860
and finally in the Defense Department's

146
00:06:22,720 --> 00:06:21,080
forum 1910 that authorized public

147
00:06:28,630 --> 00:06:22,730
release of this video the description

148
00:06:31,420 --> 00:06:28,640
specifically mentioned balloons does

149
00:06:33,310 --> 00:06:31,430
this solve this one particular video not

150
00:06:34,600 --> 00:06:33,320
a hundred percent where's a quite

151
00:06:36,490 --> 00:06:34,610
plausible answer that people are

152
00:06:38,140 --> 00:06:36,500
ignoring maybe they just didn't do the

153
00:06:39,850 --> 00:06:38,150
math maybe they didn't like the answer