

Real Horizon



False Horizon

1
00:00:03,990 --> 00:00:02,230
ship floating in the clouds off cornwall

2
00:00:07,749 --> 00:00:04,000
leaves man baffled

3
00:00:09,430 --> 00:00:07,759
or does it this uh story in cornwall

4
00:00:11,589 --> 00:00:09,440
live is something that crops up from

5
00:00:12,310 --> 00:00:11,599
time to time we see very similar stories

6
00:00:15,509 --> 00:00:12,320
to this

7
00:00:18,630 --> 00:00:15,519
in the media over the years and

8
00:00:21,510 --> 00:00:18,640
we see what looks like a ship

9
00:00:23,429 --> 00:00:21,520
floating above the horizon and this

10
00:00:24,790 --> 00:00:23,439
version of the story in cornwall live

11
00:00:26,550 --> 00:00:24,800
they actually talk to the guy who took

12
00:00:29,509 --> 00:00:26,560
the photograph and he

13
00:00:30,070 --> 00:00:29,519

has in fact seen the phenomenon before

14

00:00:31,750 --> 00:00:30,080

and he

15

00:00:33,990 --> 00:00:31,760

explains what he does now he was

16

00:00:35,350 --> 00:00:34,000

actually there and he had the wider view

17

00:00:35,910 --> 00:00:35,360

he could see the whole context and he

18

00:00:37,670 --> 00:00:35,920

could tell

19

00:00:39,750 --> 00:00:37,680

kind of where the ship was relative to

20

00:00:41,030 --> 00:00:39,760

the the actual horizon

21

00:00:43,350 --> 00:00:41,040

and you can see what was actually going

22

00:00:46,709 --> 00:00:43,360

on and he explains that what's actually

23

00:00:48,549 --> 00:00:46,719

actually happening here is that uh

24

00:00:50,709 --> 00:00:48,559

due to the similar coloring of the sea

25

00:00:52,310 --> 00:00:50,719

and sky the large vessel appears to be

26

00:00:53,430 --> 00:00:52,320

sitting amongst the clouds

27

00:00:55,590 --> 00:00:53,440

and that's what's actually happening

28

00:00:58,389 --> 00:00:55,600

here and we we know this because this is

29

00:01:00,549 --> 00:00:58,399

the type of thing that we've seen

30

00:01:02,069 --> 00:01:00,559

many times before and a lot of the times

31

00:01:03,590 --> 00:01:02,079

you get better quality photos that are a

32

00:01:05,270 --> 00:01:03,600

bit wider and you can actually adjust

33

00:01:07,190 --> 00:01:05,280

the contrast and you can see that what's

34

00:01:09,990 --> 00:01:07,200

underneath the ship here isn't

35

00:01:12,390 --> 00:01:10,000

is in fact just the sea and there's

36

00:01:15,429 --> 00:01:12,400

quite a few examples like this one here

37

00:01:17,910 --> 00:01:15,439

of a boat that appears uh at a distance

38

00:01:19,030 --> 00:01:17,920

to be floating above the horizon here

39

00:01:21,270 --> 00:01:19,040

but in fact this

40

00:01:23,190 --> 00:01:21,280

region here is in fact just just the sea

41

00:01:25,030 --> 00:01:23,200

just the the ocean and it's just

42

00:01:27,270 --> 00:01:25,040

a change in the color which is possible

43

00:01:29,670 --> 00:01:27,280

to do with the reflection of the clouds

44

00:01:31,429 --> 00:01:29,680

possibly to do with like a bit of haze

45

00:01:33,030 --> 00:01:31,439

over the ocean but basically there's

46

00:01:34,950 --> 00:01:33,040

there's nothing um

47

00:01:36,550 --> 00:01:34,960

nothing weird going on here other than a

48

00:01:37,670 --> 00:01:36,560

bit of an optical illusion because the

49

00:01:40,710 --> 00:01:37,680

surface of the sea

50

00:01:42,710 --> 00:01:40,720

is blending in with the sky and we see

51

00:01:44,550 --> 00:01:42,720

this uh in in bunch of

52

00:01:46,710 --> 00:01:44,560

other images here here's a classic one

53

00:01:49,749 --> 00:01:46,720

here a boat appears to be

54

00:01:51,350 --> 00:01:49,759

floating up above the horizon but

55

00:01:53,350 --> 00:01:51,360

again it's the same type of thing it's

56

00:01:54,950 --> 00:01:53,360

just this is the area of the sea that

57

00:01:57,270 --> 00:01:54,960

kind of blends in with

58

00:01:59,590 --> 00:01:57,280

with the sky and you actually see these

59

00:02:02,069 --> 00:01:59,600

these real horizons if you

60

00:02:03,590 --> 00:02:02,079

magnify the uh the contrast and you'll

61

00:02:04,789 --> 00:02:03,600

see a little line where the actual

62

00:02:06,870 --> 00:02:04,799

horizon is

63

00:02:08,150 --> 00:02:06,880

and here's the the one we're looking at

64

00:02:11,270 --> 00:02:08,160

here you can actually see

65

00:02:14,309 --> 00:02:11,280

that right here the real horizon and the

66

00:02:18,390 --> 00:02:16,630

and what's happened with this is of

67

00:02:19,750 --> 00:02:18,400

course the the media picks it up and

68

00:02:20,550 --> 00:02:19,760

because it looks quite like an amazing

69

00:02:23,510 --> 00:02:20,560

image

70

00:02:23,830 --> 00:02:23,520

and they go with it being a mirage which

71

00:02:30,470 --> 00:02:23,840

it

72

00:02:31,830 --> 00:02:30,480

unfortunately a lot of meteorologists

73

00:02:34,309 --> 00:02:31,840

will say it's a mirage they'll say

74

00:02:35,750 --> 00:02:34,319

things like it's a superior mirage

75

00:02:37,350 --> 00:02:35,760

because it's above the horizon meaning

76
00:02:38,710 --> 00:02:37,360
superior inferior image below the

77
00:02:41,910 --> 00:02:38,720
horizon

78
00:02:44,949 --> 00:02:41,920
and if we we go to google and we type in

79
00:02:47,509 --> 00:02:44,959
um a superior mirage

80
00:02:49,350 --> 00:02:47,519
and we look at the the images we'll see

81
00:02:50,949 --> 00:02:49,360
what an actual superior mirage looks

82
00:02:53,350 --> 00:02:50,959
like it looks like something like this

83
00:02:54,869 --> 00:02:53,360
it's uh very kind of distorted and

84
00:02:56,150 --> 00:02:54,879
there's like a couple of things one on

85
00:02:58,309 --> 00:02:56,160
top of the other

86
00:02:59,830 --> 00:02:58,319
it's all stretched out but we'll also

87
00:03:02,790 --> 00:02:59,840
see things like this

88
00:03:03,190 --> 00:03:02,800

this uh this this image here this again

89

00:03:06,710 --> 00:03:03,200

is

90

00:03:07,910 --> 00:03:06,720

horizon you can magnify and see the real

91

00:03:09,910 --> 00:03:07,920

horizon here

92

00:03:11,910 --> 00:03:09,920

and people think it's a superior mirage

93

00:03:13,670 --> 00:03:11,920

it's not we see the same thing here's

94

00:03:15,910 --> 00:03:13,680

the classic examples here is this

95

00:03:19,030 --> 00:03:15,920

another one not a superior mirage

96

00:03:21,509 --> 00:03:19,040

this over here this is a superior mirage

97

00:03:22,790 --> 00:03:21,519

not a superior mirage yes a superior

98

00:03:25,910 --> 00:03:22,800

mirage

99

00:03:27,589 --> 00:03:25,920

and you also see fatter morganas now

100

00:03:29,670 --> 00:03:27,599

a big part of the problem here are these

101
00:03:32,149 --> 00:03:29,680
uh helpful little diagrams which

102
00:03:33,990 --> 00:03:32,159
supposedly show

103
00:03:35,670 --> 00:03:34,000
a superior mirage but they don't

104
00:03:37,030 --> 00:03:35,680
actually show a superior mirage they

105
00:03:39,589 --> 00:03:37,040
show a phenomena called

106
00:03:41,270 --> 00:03:39,599
looming where an object is raised up

107
00:03:45,430 --> 00:03:41,280
without being

108
00:03:48,070 --> 00:03:45,440
inverted with a superior mirage you're

109
00:03:49,830 --> 00:03:48,080
actually seeing something that is uh

110
00:03:51,350 --> 00:03:49,840
flips upside down

111
00:03:53,750 --> 00:03:51,360
the two very very different things but

112
00:03:55,270 --> 00:03:53,760
with with looming what we see here

113
00:03:57,750 --> 00:03:55,280

if that was what was going on we would

114

00:03:58,309 --> 00:03:57,760

actually see the water underneath the

115

00:04:00,070 --> 00:03:58,319

boat

116

00:04:01,830 --> 00:04:00,080

and we don't see that so we know it's

117

00:04:03,589 --> 00:04:01,840

not looming we know it's not

118

00:04:08,149 --> 00:04:03,599

a superior mirage because it's not

119

00:04:09,750 --> 00:04:08,159

upside down this is a superior mirage

120

00:04:11,429 --> 00:04:09,760

you can see the image is upside down

121

00:04:14,229 --> 00:04:11,439

it's inverted

122

00:04:14,630 --> 00:04:14,239

but very similar diagrams supposedly

123

00:04:16,870 --> 00:04:14,640

show

124

00:04:18,469 --> 00:04:16,880

a superior mirage but they're actually

125

00:04:20,550 --> 00:04:18,479

showing looming something completely

126

00:04:22,069 --> 00:04:20,560

different

127

00:04:24,150 --> 00:04:22,079

if you want to understand more about

128

00:04:26,070 --> 00:04:24,160

what a superior mirage is and what an

129

00:04:28,150 --> 00:04:26,080

inferior mirage is and why this isn't

130

00:04:29,510 --> 00:04:28,160

either of those two things

131

00:04:31,909 --> 00:04:29,520

what i recommend you do is go to

132

00:04:33,430 --> 00:04:31,919

metabunk.org refraction

133

00:04:35,990 --> 00:04:33,440

and this is something i wrote a couple

134

00:04:38,950 --> 00:04:36,000

of years ago it's a refraction simulator

135

00:04:39,350 --> 00:04:38,960

and we have kind of a magnify side view

136

00:04:43,030 --> 00:04:39,360

here

137

00:04:46,230 --> 00:04:43,040

which we can edit

138

00:04:47,670 --> 00:04:46,240

and then we have the resultant image

139

00:04:49,030 --> 00:04:47,680

and what we can do is we can create a

140

00:04:49,909 --> 00:04:49,040

temperature profile we can do things

141

00:04:51,830 --> 00:04:49,919

like make

142

00:04:53,189 --> 00:04:51,840

the surface of the water colder and then

143

00:04:55,909 --> 00:04:53,199

make the

144

00:04:56,710 --> 00:04:55,919

gradient steeper and we can do you know

145

00:04:58,550 --> 00:04:56,720

all kinds of things

146

00:05:00,070 --> 00:04:58,560

and move it around and we can see the

147

00:05:01,189 --> 00:05:00,080

various different optical effects that

148

00:05:03,110 --> 00:05:01,199

you can get

149

00:05:04,390 --> 00:05:03,120

now if you go down here i have a bunch

150

00:05:06,230 --> 00:05:04,400

of presets

151
00:05:08,390 --> 00:05:06,240
and it starts out at oil tanker one

152
00:05:10,790 --> 00:05:08,400
which is just just the normal

153
00:05:12,390 --> 00:05:10,800
view you might expect on a regular day

154
00:05:14,710 --> 00:05:12,400
and if we go to the second one though

155
00:05:16,150 --> 00:05:14,720
this is the superior mirage

156
00:05:18,070 --> 00:05:16,160
and inversion and as you can see it kind

157
00:05:19,670 --> 00:05:18,080
of looks like those examples that we saw

158
00:05:23,029 --> 00:05:19,680
before it's a

159
00:05:26,070 --> 00:05:23,039
uh inverted version of the ship above

160
00:05:27,590 --> 00:05:26,080
the normal ship and this is a a superior

161
00:05:29,670 --> 00:05:27,600
mirage because there's a mirage above

162
00:05:32,629 --> 00:05:29,680
the actual ship

163
00:05:34,390 --> 00:05:32,639

next one is the inferior mirage also

164

00:05:36,150 --> 00:05:34,400

known as the hot road effect and you see

165

00:05:37,510 --> 00:05:36,160

this on hot roads it looks like a pool

166

00:05:39,670 --> 00:05:37,520

of water

167

00:05:41,670 --> 00:05:39,680

on the road above you in front of you

168

00:05:45,270 --> 00:05:41,680

reflecting the sky

169

00:05:46,870 --> 00:05:45,280

and this is what that looks like now

170

00:05:49,270 --> 00:05:46,880

you can play around with these curves

171

00:05:51,270 --> 00:05:49,280

and you can understand what's going on

172

00:05:54,390 --> 00:05:51,280

here if you look at this curve here

173

00:05:56,070 --> 00:05:54,400

and you look at this side view here it

174

00:05:59,670 --> 00:05:56,080

shows you all the rays of light and

175

00:06:03,189 --> 00:05:59,680

where they go when something

176
00:06:04,870 --> 00:06:03,199
is hot

177
00:06:06,550 --> 00:06:04,880
the air is less dense which means that

178
00:06:07,430 --> 00:06:06,560
the air will bend towards the more dense

179
00:06:09,350 --> 00:06:07,440
air so when

180
00:06:11,510 --> 00:06:09,360
something is light beam is coming down

181
00:06:14,070 --> 00:06:11,520
it will bend up and you get this kind of

182
00:06:15,029 --> 00:06:14,080
inversion here it gives you essentially

183
00:06:17,590 --> 00:06:15,039
just a mirror

184
00:06:19,350 --> 00:06:17,600
in in the water if i make it less

185
00:06:20,309 --> 00:06:19,360
dramatic you get less and less of an

186
00:06:23,110 --> 00:06:20,319
effect

187
00:06:24,950 --> 00:06:23,120
and eventually i'll just go back down to

188
00:06:26,070 --> 00:06:24,960

a bit of a distortion and then down to

189

00:06:28,390 --> 00:06:26,080

normal

190

00:06:30,309 --> 00:06:28,400

but you know this this effect here this

191

00:06:33,350 --> 00:06:30,319

uh inferior mirage

192

00:06:36,950 --> 00:06:36,309

is not what we're seeing in in these

193

00:06:38,870 --> 00:06:36,960

photos

194

00:06:41,270 --> 00:06:38,880

in the hovering ships because if it was

195

00:06:43,830 --> 00:06:41,280

an inferior mirage you would see

196

00:06:44,790 --> 00:06:43,840

a inverted ship underneath this ship

197

00:06:47,270 --> 00:06:44,800

because we're seeing

198

00:06:48,870 --> 00:06:47,280

if you know in an inferior mirage we see

199

00:06:50,790 --> 00:06:48,880

reflection of the sky but we also see

200

00:06:54,710 --> 00:06:50,800

reflections of things like

201
00:06:57,749 --> 00:06:54,720
cars and buildings uh in in these

202
00:06:58,469 --> 00:06:57,759
pools of of of water that appear on the

203
00:07:00,230 --> 00:06:58,479
road

204
00:07:02,550 --> 00:07:00,240
and we don't see that here it's just

205
00:07:06,550 --> 00:07:02,560
simply blending in with the sky behind

206
00:07:08,390 --> 00:07:06,560
and number four is lofting now lofting

207
00:07:10,070 --> 00:07:08,400
is when just simply something is raised

208
00:07:12,629 --> 00:07:10,080
up and this is often mistaken for

209
00:07:13,350 --> 00:07:12,639
an inferior mirage a superior mirage

210
00:07:15,510 --> 00:07:13,360
because

211
00:07:16,469 --> 00:07:15,520
it's above where it should be but in

212
00:07:18,629 --> 00:07:16,479
fact uh

213
00:07:20,550 --> 00:07:18,639

everything you'd look at pretty much is

214

00:07:22,390 --> 00:07:20,560

being lofted because the natural state

215

00:07:23,830 --> 00:07:22,400

of the atmosphere is to be more dense

216

00:07:25,430 --> 00:07:23,840

lower down and so

217

00:07:27,510 --> 00:07:25,440

it generally will raise things up a

218

00:07:30,550 --> 00:07:27,520

little bit now when you've got

219

00:07:33,029 --> 00:07:30,560

a rather dramatic

220

00:07:34,870 --> 00:07:33,039

cooling down or a lower level you get

221

00:07:38,390 --> 00:07:34,880

this effect here

222

00:07:42,309 --> 00:07:38,400

where the light rays bend around

223

00:07:44,390 --> 00:07:42,319

the the curve of the earth

224

00:07:45,749 --> 00:07:44,400

and you will see further than you will

225

00:07:46,550 --> 00:07:45,759

normally see what you can do here is you

226

00:07:48,629 --> 00:07:46,560

can turn this

227

00:07:49,909 --> 00:07:48,639

turn refraction on and off to see what

228

00:07:51,749 --> 00:07:49,919

it would look like if there was no

229

00:07:53,270 --> 00:07:51,759

atmospheric refraction all the rays go

230

00:07:55,350 --> 00:07:53,280

straight and you can see the ship is

231

00:07:56,950 --> 00:07:55,360

just down below the horizon

232

00:07:58,309 --> 00:07:56,960

turn refraction back on and it pops up

233

00:07:59,670 --> 00:07:58,319

above because you've got this this

234

00:08:01,430 --> 00:07:59,680

curving effect

235

00:08:03,270 --> 00:08:01,440

normally the atmosphere looks more like

236

00:08:04,550 --> 00:08:03,280

this and you've just got a simple

237

00:08:05,510 --> 00:08:04,560

temperature gradient and you can just

238

00:08:08,710 --> 00:08:05,520

see a little bit of

239

00:08:10,629 --> 00:08:08,720

bit more of the ship but

240

00:08:11,990 --> 00:08:10,639

with uh the more extreme thing we have

241

00:08:13,589 --> 00:08:12,000

here you see quite a lot

242

00:08:16,150 --> 00:08:13,599

of it it's probably gonna be more like

243

00:08:18,710 --> 00:08:16,160

uh like this eventually

244

00:08:20,150 --> 00:08:18,720

so we have cold water lower down which

245

00:08:21,670 --> 00:08:20,160

allows you to see

246

00:08:24,710 --> 00:08:21,680

around this bit and then the higher up

247

00:08:27,029 --> 00:08:24,720

bits are fairly straight

248

00:08:29,270 --> 00:08:27,039

this is kind of fun to play around with

249

00:08:29,670 --> 00:08:29,280

uh number five is fatter morgana which

250

00:08:32,149 --> 00:08:29,680

is just

251

00:08:33,350 --> 00:08:32,159

you know it's a more complicated uh

252

00:08:35,509 --> 00:08:33,360

series of

253

00:08:37,110 --> 00:08:35,519

uh mirages and yeah i don't think we

254

00:08:39,750 --> 00:08:37,120

even need this one here

255

00:08:41,430 --> 00:08:39,760

uh it's kind of like uh weird inversions

256

00:08:43,110 --> 00:08:41,440

giving various effects and you can move

257

00:08:45,350 --> 00:08:43,120

it around and you can see

258

00:08:47,110 --> 00:08:45,360

see what happens if there's different uh

259

00:08:49,030 --> 00:08:47,120

different sets of temperatures

260

00:08:50,710 --> 00:08:49,040

temperature gradients in the air but