Stellarium

Mon Nov 8 12:22 PM

Stellarium 0.21.0

FINDING STARS

Jupiter

Type: planet
Magnitude: -2.70 (reduced to -2.42 by 2.16 Airmasses)
Absolute Magnitude: -9.40
Mean Opposition Magnitude: -2.70
RA/Dec (J2000.0): 19h05m18.17s/-22°49'39.4"
RA/Dec (on date): 19h05m50.06s/-22°48'56.0"
HA/Dec: 22h21m58.68s/-22°47'10.7" (apparent)
Az./Alt.: +154°25'37.2"/+27°38'13.9" (apparent)
Gal. long./lat.: +13°45'35.7"/-13°05'27.4"
Supergal. long./lat.: -149°45'02.3"/+51°22'52.9"
Ecl. long./lat. (J2000.0): +285°00'56.2"/-0°14'07.1"
Ecl. long./lat. (on date): +285°08'19.3"/-0°14'10.9"
Ecliptic obliquity (on date): +23°26'24.1"
Mean Sidereal Time: 17h27m44.8s
Apparent Si
Rise: 18h53
Transit: 23h
Set: 4h43m
Parallactic A
IAU Constell
Hourly moti
Hourly moti
Elongation:
Phase angle
Illuminated:
Distance fro
Distance: 4.
Light time: (
Orbital velo
Sidereal per
Synodic per
Apparent di
Equatorial d
Sidereal day
Mean solar
Equatorial r
Position Ang
Center point
Subsolar po
Albedo: 0.5

Jupiter

Jupiter

Date and Time

Date and Time | Julian Day

2008 – 7 – 27 | 22 : 9 : 33

Earth, Albuquerque, 1513 m | FOV 5.97° | 17.9 FPS | 2008-07-27 22:09:33 UTC-06:00

1
00:00:04,309 --> 00:00:02,550
hello so the other day we had this uh

2
00:00:06,070 --> 00:00:04,319
this photograph of some stars and i

3
00:00:08,870 --> 00:00:06,080
needed to figure out like where these

4
00:00:12,310 --> 00:00:08,880
stars actually were the uh

5
00:00:13,910 --> 00:00:12,320
image came from this pdf here it says

6
00:00:16,470 --> 00:00:13,920
you know the location of the starlight

7
00:00:19,750 --> 00:00:16,480
object and it shows this little circle

8
00:00:23,349 --> 00:00:19,760
here now uh if you zoom in on this image

9
00:00:25,189 --> 00:00:23,359
and uh crop it you get this

10
00:00:26,470 --> 00:00:25,199
this image here which isn't you know

11
00:00:28,550 --> 00:00:26,480
super good but you can actually see a

12
00:00:31,029 --> 00:00:28,560
whole bunch of stars now the person who

13
00:00:33,030 --> 00:00:31,039

took this image has drawn this this

14
00:00:34,870 --> 00:00:33,040
constellation on which supposedly looks

15
00:00:37,430 --> 00:00:34,880
like us a minor but it isn't doesn't

16
00:00:39,270 --> 00:00:37,440
minor so what i did was i

17
00:00:40,709 --> 00:00:39,280
uh took this image and you zoom in you

18
00:00:42,630 --> 00:00:40,719
can see that there are actually stars

19
00:00:46,069 --> 00:00:42,640
visible i took this image

20
00:00:47,830 --> 00:00:46,079
and i removed the lines over there now i

21
00:00:49,830 --> 00:00:47,840
did that without removing any stars so

22
00:00:51,350 --> 00:00:49,840
it's all exactly the same and i just

23
00:00:53,750 --> 00:00:51,360
brightened it up a bit so you can see

24
00:00:55,350 --> 00:00:53,760
the stars a little bit better and then i

25
00:00:58,069 --> 00:00:55,360
kind of went through each of the stars

26
00:01:01,110 --> 00:00:58,079
that are visible and i stuck just a

27
00:01:03,110 --> 00:01:01,120
brighter spot on them so i could see

28
00:01:04,869 --> 00:01:03,120
the uh the shape of things a bit better

29
00:01:06,630 --> 00:01:04,879
and you can see we've got some really

30
00:01:08,630 --> 00:01:06,640
distinctive features there's like a

31
00:01:10,630 --> 00:01:08,640
little box of stars here there's one

32
00:01:12,390 --> 00:01:10,640
very bright star here

33
00:01:13,910 --> 00:01:12,400
which is the star in question

34
00:01:15,590 --> 00:01:13,920
and there's two little stars next to

35
00:01:18,149 --> 00:01:15,600
each other right here and then some more

36
00:01:20,950 --> 00:01:18,159
over here and then i basically went into

37
00:01:23,190 --> 00:01:20,960
the solarium program and i found uh

38
00:01:25,350 --> 00:01:23,200

where these stars are here's the two

39
00:01:27,590 --> 00:01:25,360
little stars there and here's the bright

40
00:01:29,270 --> 00:01:27,600
star here antares and a couple of other

41
00:01:31,510 --> 00:01:29,280
bright stars and this little

42
00:01:33,190 --> 00:01:31,520
line of stars and the star down here and

43
00:01:35,830 --> 00:01:33,200
you can see i can go between

44
00:01:37,510 --> 00:01:35,840
uh the two and you can see everything

45
00:01:39,510 --> 00:01:37,520
matches all the stars are in the same

46
00:01:41,350 --> 00:01:39,520
place so this

47
00:01:42,870 --> 00:01:41,360
obviously is

48
00:01:45,350 --> 00:01:42,880
what we are looking at we're looking at

49
00:01:47,749 --> 00:01:45,360
the star antares and we can go back

50
00:01:49,910 --> 00:01:47,759
to uh the the original

51
00:01:52,550 --> 00:01:49,920
image here and we can see everything

52
00:01:54,630 --> 00:01:52,560
matches up if you uh look carefully you

53
00:01:57,030 --> 00:01:54,640
see these four stars here these two over

54
00:01:58,630 --> 00:01:57,040
here and then go back into stellarium

55
00:02:01,670 --> 00:01:58,640
there's thus far and those those two

56
00:02:04,550 --> 00:02:01,680
there so everything lines up but uh the

57
00:02:06,469 --> 00:02:04,560
question i got from a few people was how

58
00:02:08,630 --> 00:02:06,479
do you actually do this how do you

59
00:02:11,270 --> 00:02:08,640
actually go into stellarium which is

60
00:02:15,670 --> 00:02:11,280
this astronomy program very useful

61
00:02:17,910 --> 00:02:15,680
and find uh stars based on just this uh

62
00:02:19,750 --> 00:02:17,920
this crappy little

63
00:02:22,150 --> 00:02:19,760

photograph that we have i'm going to

64
00:02:23,589 --> 00:02:22,160
explain how i actually did that and some

65
00:02:24,550 --> 00:02:23,599
other options

66
00:02:25,990 --> 00:02:24,560
now

67
00:02:27,830 --> 00:02:26,000
when you're looking for stars there's a

68
00:02:29,110 --> 00:02:27,840
number of things to keep in mind uh

69
00:02:30,550 --> 00:02:29,120
obviously when you look up at the sky

70
00:02:33,110 --> 00:02:30,560
there are some things that are fairly

71
00:02:34,390 --> 00:02:33,120
recognizable you've got the big dipper

72
00:02:36,550 --> 00:02:34,400
everyone knows where that is you look

73
00:02:38,790 --> 00:02:36,560
towards the the north and you'll see the

74
00:02:40,949 --> 00:02:38,800
big dipper going around polaris uh

75
00:02:42,790 --> 00:02:40,959
there's a ryan's belt which is three

76
00:02:44,150 --> 00:02:42,800
three stars in a line very very

77
00:02:45,990 --> 00:02:44,160
noticeable and there's a few other

78
00:02:47,990 --> 00:02:46,000
things like that that's a lot of people

79
00:02:49,350 --> 00:02:48,000
will recognize but you know in this

80
00:02:51,670 --> 00:02:49,360
image there was nothing that was

81
00:02:54,150 --> 00:02:51,680
recognizable he kind of tried to force

82
00:02:55,990 --> 00:02:54,160
uh this this shape onto there but it was

83
00:02:57,270 --> 00:02:56,000
it was wrong

84
00:02:58,710 --> 00:02:57,280
uh

85
00:03:00,949 --> 00:02:58,720
and part of the reason is that this is

86
00:03:03,030 --> 00:03:00,959
zoomed in it's a small region of the sky

87
00:03:04,390 --> 00:03:03,040
it's it's not like the you know the big

88
00:03:06,630 --> 00:03:04,400

picture of this guy that we're used to

89
00:03:08,550 --> 00:03:06,640
seeing and

90
00:03:11,030 --> 00:03:08,560
it it it doesn't actually have any

91
00:03:12,790 --> 00:03:11,040
recognizable constellations in it it's

92
00:03:14,309 --> 00:03:12,800
just got a few bits of

93
00:03:16,309 --> 00:03:14,319
other constellations you might actually

94
00:03:18,630 --> 00:03:16,319
recognize but uh

95
00:03:21,270 --> 00:03:18,640
even if you did there's not enough of it

96
00:03:24,229 --> 00:03:21,280
now uh we can use

97
00:03:26,070 --> 00:03:24,239
stellarium to look at the the sky but

98
00:03:28,550 --> 00:03:26,080
there's a number of

99
00:03:30,470 --> 00:03:28,560
complications uh that we need to be

100
00:03:33,110 --> 00:03:30,480
aware of before we start doing this

101
00:03:35,830 --> 00:03:33,120
first of all is the stars move stars do

102
00:03:37,670 --> 00:03:35,840
not appear at a fixed point in the sky

103
00:03:40,149 --> 00:03:37,680
other than the north star all the other

104
00:03:41,830 --> 00:03:40,159
stars rotate uh they appear to rotate

105
00:03:44,229 --> 00:03:41,840
around it they appear to rise in the

106
00:03:45,990 --> 00:03:44,239
east and set in the west so they move

107
00:03:48,149 --> 00:03:46,000
across the sky and so they'll rotate in

108
00:03:49,750 --> 00:03:48,159
their orientation as well with stars

109
00:03:51,910 --> 00:03:49,760
constellations that rise and one

110
00:03:54,710 --> 00:03:51,920
orientation will rotate and end up

111
00:03:56,229 --> 00:03:54,720
setting in the other orientation so

112
00:03:57,750 --> 00:03:56,239
if you look at the big dipper you see it

113
00:03:59,990 --> 00:03:57,760

doesn't always point the same way up it

114
00:04:02,229 --> 00:04:00,000
depends and it varies throughout the day

115
00:04:03,190 --> 00:04:02,239
after other night rather and it also

116
00:04:05,030 --> 00:04:03,200
varies

117
00:04:06,869 --> 00:04:05,040
uh with different times of the year

118
00:04:08,949 --> 00:04:06,879
because we're moving relative to the sun

119
00:04:10,229 --> 00:04:08,959
so the stars that we see during the

120
00:04:11,670 --> 00:04:10,239
night are different

121
00:04:13,429 --> 00:04:11,680
in different times of the year so you

122
00:04:15,270 --> 00:04:13,439
need to know both the time of the day

123
00:04:16,789 --> 00:04:15,280
and the time of the year

124
00:04:19,189 --> 00:04:16,799
there's also issues of of light

125
00:04:21,189 --> 00:04:19,199
pollution we can't see all of the stars

126
00:04:22,870 --> 00:04:21,199
so if we bring up a star chart you can

127
00:04:24,310 --> 00:04:22,880
have all these stars in it and we might

128
00:04:26,230 --> 00:04:24,320
only be able to see a few of them like

129
00:04:27,110 --> 00:04:26,240
the brightest stars that are in the sky

130
00:04:29,350 --> 00:04:27,120
with the

131
00:04:31,749 --> 00:04:29,360
light pollution sometimes there's clouds

132
00:04:33,430 --> 00:04:31,759
and other obstructions uh that cover up

133
00:04:35,590 --> 00:04:33,440
the stars and we have to

134
00:04:37,430 --> 00:04:35,600
uh be aware that we're working with with

135
00:04:39,510 --> 00:04:37,440
limited data here there's a there's a

136
00:04:41,350 --> 00:04:39,520
tree down here which is could have

137
00:04:42,870 --> 00:04:41,360
covered up some beautiful useful stars

138
00:04:45,189 --> 00:04:42,880

probably didn't

139
00:04:47,909 --> 00:04:45,199
and then finally uh there is the issue

140
00:04:50,710 --> 00:04:47,919
of planets now planets

141
00:04:52,390 --> 00:04:50,720
like venus and jupiter and mars are the

142
00:04:54,070 --> 00:04:52,400
ones that you most commonly see they

143
00:04:55,030 --> 00:04:54,080
kind of look like stars they're very

144
00:04:57,270 --> 00:04:55,040
bright

145
00:04:58,550 --> 00:04:57,280
and but they move around in a different

146
00:05:01,510 --> 00:04:58,560
way they're in different positions

147
00:05:04,629 --> 00:05:01,520
relative to the stars and so that varies

148
00:05:06,390 --> 00:05:04,639
greatly a little bit through the day but

149
00:05:08,950 --> 00:05:06,400
quite a lot depending on which day of

150
00:05:11,749 --> 00:05:08,960
the year it is and not even just the day

151
00:05:14,790 --> 00:05:11,759
of the year it varies based on the

152
00:05:16,150 --> 00:05:14,800
the year length of the planet itself so

153
00:05:17,909 --> 00:05:16,160
it uh

154
00:05:19,510 --> 00:05:17,919
you you need to know

155
00:05:22,550 --> 00:05:19,520
if you suspect you're looking at a

156
00:05:25,110 --> 00:05:22,560
planet you need to know the exact date

157
00:05:27,270 --> 00:05:25,120
i use a stellarium to find this and i'll

158
00:05:29,350 --> 00:05:27,280
get into how i did that in a minute but

159
00:05:31,990 --> 00:05:29,360
there are actually other options which

160
00:05:33,510 --> 00:05:32,000
are easier if they work for you

161
00:05:35,350 --> 00:05:33,520
one of those options is the site

162
00:05:37,749 --> 00:05:35,360
astrometry.net

163
00:05:40,950 --> 00:05:37,759

and that is this very useful site so you

164
00:05:43,270 --> 00:05:40,960
go to nova.astrology.net

165
00:05:45,990 --> 00:05:43,280
upload and it lets you

166
00:05:49,350 --> 00:05:46,000
upload a file so figure one you can just

167
00:05:50,710 --> 00:05:49,360
drop it in and you can upload it and

168
00:05:52,150 --> 00:05:50,720
if you're lucky

169
00:05:53,830 --> 00:05:52,160
you will actually get a result and in

170
00:05:56,390 --> 00:05:53,840
this case we actually did i was quite

171
00:05:58,150 --> 00:05:56,400
surprised because i've used this site

172
00:06:00,950 --> 00:05:58,160
uh several times before

173
00:06:03,749 --> 00:06:00,960
and it didn't actually give me a good

174
00:06:05,590 --> 00:06:03,759
result uh this is using the the cleaned

175
00:06:07,510 --> 00:06:05,600
up version that i created but it

176
00:06:09,029 --> 00:06:07,520
actually works with the original image

177
00:06:10,550 --> 00:06:09,039
with with the lines drawn on it and it

178
00:06:12,710 --> 00:06:10,560
does actually find

179
00:06:15,430 --> 00:06:12,720
uh which stars we're looking at and what

180
00:06:17,510 --> 00:06:15,440
direction we're looking at and so

181
00:06:19,830 --> 00:06:17,520
this is a little bit of a fiddly site to

182
00:06:21,909 --> 00:06:19,840
use it takes quite a long time sometimes

183
00:06:23,510 --> 00:06:21,919
you get the errors when you're uploading

184
00:06:24,629 --> 00:06:23,520
it you just have to keep refreshing the

185
00:06:25,430 --> 00:06:24,639
page

186
00:06:27,909 --> 00:06:25,440
but

187
00:06:31,189 --> 00:06:27,919
it will actually give you a result and

188
00:06:34,710 --> 00:06:31,199

here's here's the actual result

189
00:06:36,070 --> 00:06:34,720
takes a long time it's rather slow

190
00:06:37,670 --> 00:06:36,080
it was actually quicker i think for me

191
00:06:40,070 --> 00:06:37,680
to do it manually than to use this

192
00:06:41,110 --> 00:06:40,080
program but i think it's a great option

193
00:06:43,110 --> 00:06:41,120
if you

194
00:06:45,029 --> 00:06:43,120
want to try this first it's probably the

195
00:06:47,430 --> 00:06:45,039
easiest thing to do

196
00:06:48,790 --> 00:06:47,440
might not work but if it does gives you

197
00:06:54,309 --> 00:06:48,800
the result

198
00:06:55,909 --> 00:06:54,319
a mess but if you click on let's say

199
00:06:58,150 --> 00:06:55,919
full size

200
00:07:00,390 --> 00:06:58,160
it gives you a a better

201
00:07:02,790 --> 00:07:00,400
version of this image and here's the the

202
00:07:06,710 --> 00:07:02,800
result we could see that the bright star

203
00:07:07,909 --> 00:07:06,720
here is antares and uh we're in scorpio

204
00:07:09,189 --> 00:07:07,919
and it

205
00:07:11,510 --> 00:07:09,199
basically tells you what we're looking

206
00:07:13,749 --> 00:07:11,520
at in here's and yes the original image

207
00:07:15,430 --> 00:07:13,759
shows you the stars that match

208
00:07:27,830 --> 00:07:15,440
and

209
00:07:29,830 --> 00:07:27,840
works with the the original image as

210
00:07:30,710 --> 00:07:29,840
well you see here is the original image

211
00:07:33,350 --> 00:07:30,720
with

212
00:07:34,790 --> 00:07:33,360
no enhancements whatsoever and it found

213
00:07:37,029 --> 00:07:34,800

they found the star so i was quite

214
00:07:38,309 --> 00:07:37,039
surprised that that worked as well as it

215
00:07:47,270 --> 00:07:38,319
did

216
00:07:49,510 --> 00:07:47,280
a look at uh what that actually entails

217
00:07:52,390 --> 00:07:49,520
so here's stellarium stellarium is a

218
00:07:54,629 --> 00:07:52,400
program for looking at the night sky

219
00:07:56,710 --> 00:07:54,639
and you can kind of scroll around by

220
00:07:58,230 --> 00:07:56,720
just grabbing with a mouse and you can

221
00:07:59,749 --> 00:07:58,240
zoom in on various different parts of

222
00:08:00,869 --> 00:07:59,759
the sky and you can tell which direction

223
00:08:03,589 --> 00:08:00,879
you're looking in here we're looking

224
00:08:06,629 --> 00:08:03,599
towards the west we know what time it is

225
00:08:09,350 --> 00:08:06,639
here 22 100 hours it gives you the time

226
00:08:11,589 --> 00:08:09,360
in in local time which depends on where

227
00:08:13,909 --> 00:08:11,599
you are actually set now the first thing

228
00:08:15,589 --> 00:08:13,919
you want to do is set the location so

229
00:08:18,150 --> 00:08:15,599
you come over here to this little menu

230
00:08:20,230 --> 00:08:18,160
pop out menu on the bottom left

231
00:08:22,469 --> 00:08:20,240
click on location window

232
00:08:24,950 --> 00:08:22,479
and you can just type in the location

233
00:08:27,270 --> 00:08:24,960
you want in this case it's albuquerque

234
00:08:29,990 --> 00:08:27,280
but here you can just

235
00:08:31,350 --> 00:08:30,000
type it in albuquerque united states and

236
00:08:35,269 --> 00:08:31,360
it will just set

237
00:08:38,469 --> 00:08:35,279
down here it will set you to albuquerque

238
00:08:40,949 --> 00:08:38,479

uh we want to set the time and date

239
00:08:43,589 --> 00:08:40,959
now we know that this this first image

240
00:08:47,350 --> 00:08:43,599
that we're looking at field one

241
00:08:50,710 --> 00:08:47,360
is was taken on august the first of uh

242
00:08:58,710 --> 00:08:50,720
was 2008.

243
00:09:02,470 --> 00:08:59,910
first

244
00:09:06,550 --> 00:09:02,480
so uh now we've got things set correctly

245
00:09:08,870 --> 00:09:06,560
to albuquerque and august the first 2008

246
00:09:10,710 --> 00:09:08,880
and the time zone is u to c minus six

247
00:09:11,829 --> 00:09:10,720
which is uh mountain time which i think

248
00:09:14,790 --> 00:09:11,839
is correct for

249
00:09:18,550 --> 00:09:14,800
albuquerque so we're all good

250
00:09:20,310 --> 00:09:18,560
now often the the times that people give

251
00:09:23,110 --> 00:09:20,320
for photographs are approximate it's

252
00:09:24,550 --> 00:09:23,120
it's helpful if you can get the uh the

253
00:09:26,389 --> 00:09:24,560
exact time

254
00:09:27,509 --> 00:09:26,399
uh from the the image but sometimes

255
00:09:29,030 --> 00:09:27,519
that's off by an hour because of

256
00:09:30,710 --> 00:09:29,040
daylight savings time and things like

257
00:09:32,630 --> 00:09:30,720
that so

258
00:09:33,990 --> 00:09:32,640
be prepared to kind of mess around with

259
00:09:35,990 --> 00:09:34,000
us a little bit perhaps it's an hour

260
00:09:38,870 --> 00:09:36,000
later perhaps it's an hour earlier but

261
00:09:40,949 --> 00:09:38,880
in this case we're going to go with uh

262
00:09:46,710 --> 00:09:40,959
22

263
00:09:47,509 --> 00:09:46,720

i think is the time that uh it seemed to

264
00:09:50,550 --> 00:09:47,519
be

265
00:09:53,750 --> 00:09:50,560
so let's leave that there now how do we

266
00:09:55,750 --> 00:09:53,760
find uh what we're looking for

267
00:09:57,190 --> 00:09:55,760
so here's the image and something you

268
00:09:59,509 --> 00:09:57,200
notice is we've got some bright stars

269
00:10:03,190 --> 00:09:59,519
and we've got some fairly dim stars

270
00:10:04,630 --> 00:10:03,200
smaller stars and but we also have some

271
00:10:06,150 --> 00:10:04,640
i guess you could call them mini

272
00:10:08,710 --> 00:10:06,160
constellations where you've got things

273
00:10:10,870 --> 00:10:08,720
like squares you've got a little pair of

274
00:10:12,630 --> 00:10:10,880
stars right here you've got this

275
00:10:14,710 --> 00:10:12,640
two stars in the line that two stars

276
00:10:16,630 --> 00:10:14,720
close together two bright stars

277
00:10:18,630 --> 00:10:16,640
uh and then you've got these little kind

278
00:10:20,069 --> 00:10:18,640
of little arc of stars like this and

279
00:10:22,949 --> 00:10:20,079
then this kind of

280
00:10:24,710 --> 00:10:22,959
t-shaped cross over here so you could

281
00:10:26,069 --> 00:10:24,720
just go around looking for those but

282
00:10:28,389 --> 00:10:26,079
before you do that there's a few things

283
00:10:31,430 --> 00:10:28,399
you might want to kind of set up in the

284
00:10:32,870 --> 00:10:31,440
settings if you go to the sky and

285
00:10:34,870 --> 00:10:32,880
viewing options

286
00:10:37,509 --> 00:10:34,880
here

287
00:10:39,670 --> 00:10:37,519
what i like to do is

288
00:10:41,590 --> 00:10:39,680

you can boost the size of the stars a

289
00:10:42,630 --> 00:10:41,600
bit change their their absolute scale

290
00:10:43,509 --> 00:10:42,640
and you see they're kind of getting

291
00:10:45,190 --> 00:10:43,519
bigger

292
00:10:46,790 --> 00:10:45,200
you see you can see

293
00:10:48,550 --> 00:10:46,800
the star's a bit clearer and it probably

294
00:10:50,310 --> 00:10:48,560
shows a lot better in on the video too

295
00:10:51,110 --> 00:10:50,320
so i'm gonna boost that all the way up

296
00:10:52,630 --> 00:10:51,120
to

297
00:10:54,389 --> 00:10:52,640
four i think

298
00:10:56,790 --> 00:10:54,399
i'm also going to limit the magnitude

299
00:10:58,389 --> 00:10:56,800
because we can't see all the stars now

300
00:11:00,150 --> 00:10:58,399
you can do this in a couple of ways you

301
00:11:02,230 --> 00:11:00,160
can do it with uh simulating light

302
00:11:04,230 --> 00:11:02,240
pollution like over here

303
00:11:06,069 --> 00:11:04,240
you can just turn up the light pollution

304
00:11:08,710 --> 00:11:06,079
and it'll turn off the stars or you can

305
00:11:10,389 --> 00:11:08,720
just limit the magnitude of the stars

306
00:11:13,509 --> 00:11:10,399
over here

307
00:11:15,509 --> 00:11:13,519
and it will automatically remove

308
00:11:17,190 --> 00:11:15,519
the ones that you

309
00:11:19,110 --> 00:11:17,200
wouldn't be able to see yeah if they're

310
00:11:20,550 --> 00:11:19,120
below a certain brightness

311
00:11:22,710 --> 00:11:20,560
and this kind of

312
00:11:25,190 --> 00:11:22,720
perhaps does it more this actually makes

313
00:11:27,430 --> 00:11:25,200

the sky look lighter as well so i kind

314
00:11:30,150 --> 00:11:27,440
of prefer to just leave this down

315
00:11:32,310 --> 00:11:30,160
and change the limit magnitude to a

316
00:11:33,590 --> 00:11:32,320
certain amount so we can see the stars

317
00:11:35,750 --> 00:11:33,600
more clearly

318
00:11:36,790 --> 00:11:35,760
something else you want to do is change

319
00:11:39,829 --> 00:11:36,800
the

320
00:11:43,190 --> 00:11:39,839
projection from stereographic which is

321
00:11:45,190 --> 00:11:43,200
the default to perspective perspective

322
00:11:47,269 --> 00:11:45,200
is basically

323
00:11:48,710 --> 00:11:47,279
what a camera would use it's a reason a

324
00:11:51,269 --> 00:11:48,720
reasonable camera that which uses

325
00:11:53,350 --> 00:11:51,279
rectilinear projection meaning that

326
00:11:55,829 --> 00:11:53,360
straight lines remain straight

327
00:11:57,910 --> 00:11:55,839
it's just a standard projection and if

328
00:11:58,790 --> 00:11:57,920
you're taking pictures with your cell

329
00:11:59,750 --> 00:11:58,800
phone

330
00:12:03,350 --> 00:11:59,760
or a

331
00:12:05,030 --> 00:12:03,360
normal dslr it's probably going to be

332
00:12:06,550 --> 00:12:05,040
perspective projection so if you want to

333
00:12:08,790 --> 00:12:06,560
get something that matches what you see

334
00:12:10,389 --> 00:12:08,800
without too much distortion or too

335
00:12:13,190 --> 00:12:10,399
different distortion

336
00:12:14,710 --> 00:12:13,200
then use perspective projection

337
00:12:17,670 --> 00:12:14,720
you can also go to the landscape

338
00:12:19,590 --> 00:12:17,680

settings and you can change uh

339
00:12:21,910 --> 00:12:19,600
what type of landscape we're on now i

340
00:12:23,509 --> 00:12:21,920
like to use the ocean one because it

341
00:12:25,509 --> 00:12:23,519
gives you a nice clean horizon but you

342
00:12:29,110 --> 00:12:25,519
can change it to various other ones and

343
00:12:31,350 --> 00:12:29,120
it will uh show things like trees and

344
00:12:32,629 --> 00:12:31,360
and whatnot but i think he's using using

345
00:12:34,629 --> 00:12:32,639
the ocean one

346
00:12:36,069 --> 00:12:34,639
works well because we're in uh

347
00:12:37,590 --> 00:12:36,079
albuquerque which is nowhere near the

348
00:12:39,430 --> 00:12:37,600
ocean so perhaps something else might be

349
00:12:41,509 --> 00:12:39,440
better it doesn't really make too much

350
00:12:43,110 --> 00:12:41,519
difference here but uh if you want to be

351
00:12:46,629 --> 00:12:43,120
able to see all the way down to horizon

352
00:12:53,030 --> 00:12:49,590
okay so here we have a very colorful sky

353
00:12:54,790 --> 00:12:53,040
and we want to try to find

354
00:12:57,430 --> 00:12:54,800
uh this location oh you can see i've got

355
00:12:58,949 --> 00:12:57,440
some stars like arcturus here

356
00:13:00,310 --> 00:12:58,959
have labels on this is something else

357
00:13:03,190 --> 00:13:00,320
that you can set

358
00:13:06,150 --> 00:13:03,200
here you can go into the sky settings

359
00:13:09,190 --> 00:13:06,160
and the labels here you can adjust this

360
00:13:11,030 --> 00:13:09,200
slider so you can get more labels

361
00:13:13,990 --> 00:13:11,040
or less labels i like to do it just so

362
00:13:16,470 --> 00:13:14,000
that the bright stars have labels on so

363
00:13:18,870 --> 00:13:16,480

we just get a vague idea of

364
00:13:20,629 --> 00:13:18,880
where we are

365
00:13:22,069 --> 00:13:20,639
so we were told we were looking towards

366
00:13:24,310 --> 00:13:22,079
the west and i thought maybe it was this

367
00:13:28,069 --> 00:13:24,320
star speaker down here

368
00:13:29,750 --> 00:13:28,079
uh but you know you start to compare

369
00:13:31,350 --> 00:13:29,760
this you know there's two stars one two

370
00:13:33,030 --> 00:13:31,360
it kind of kind of matches you know

371
00:13:34,389 --> 00:13:33,040
that's how much is that one that matches

372
00:13:36,230 --> 00:13:34,399
that one but then

373
00:13:38,710 --> 00:13:36,240
there's these four stars here

374
00:13:41,030 --> 00:13:38,720
they don't really match and uh

375
00:13:42,470 --> 00:13:41,040
there's no two stars over there so no

376
00:13:43,750 --> 00:13:42,480
so you know what i did basically was

377
00:13:46,230 --> 00:13:43,760
just start

378
00:13:50,310 --> 00:13:46,240
with this just move around

379
00:13:51,910 --> 00:13:50,320
uh looking for little pairs of stars

380
00:13:53,910 --> 00:13:51,920
like there's two stars next to each

381
00:13:56,230 --> 00:13:53,920
other but what i'm looking for

382
00:13:58,870 --> 00:13:56,240
is two stars like this going up to the

383
00:13:59,670 --> 00:13:58,880
left to the right at a 45 degree angle

384
00:14:02,550 --> 00:13:59,680
so

385
00:14:05,750 --> 00:14:02,560
i just kind of kept looking around

386
00:14:07,990 --> 00:14:05,760
uh until until i found

387
00:14:09,490 --> 00:14:08,000
two stars that did that and it took a

388
00:14:10,629 --> 00:14:09,500

while but eventually

389
00:14:11,750 --> 00:14:10,639
[Music]

390
00:14:13,670 --> 00:14:11,760
yeah there they were i've actually

391
00:14:15,509 --> 00:14:13,680
turned the labels up too much so i'm

392
00:14:16,550 --> 00:14:15,519
going to turn those down

393
00:14:21,189 --> 00:14:16,560
you don't want to have too many labels

394
00:14:25,590 --> 00:14:23,750
all right so here

395
00:14:28,470 --> 00:14:25,600
we found two stars

396
00:14:30,389 --> 00:14:28,480
let's see how well they match

397
00:14:32,629 --> 00:14:30,399
there's two stars and there's a star

398
00:14:35,350 --> 00:14:32,639
there's a star there's another star by

399
00:14:37,590 --> 00:14:35,360
george i think we've got it

400
00:14:39,189 --> 00:14:37,600
so of course i knew where this was but

401
00:14:40,550 --> 00:14:39,199
this is basically the process i use i

402
00:14:43,269 --> 00:14:40,560
looked around

403
00:14:45,110 --> 00:14:43,279
picked the distinctive bits of uh this

404
00:14:46,870 --> 00:14:45,120
image

405
00:14:49,430 --> 00:14:46,880
and

406
00:14:50,550 --> 00:14:49,440
basically just looked until i found

407
00:14:51,910 --> 00:14:50,560
something that matched you see we're

408
00:14:54,069 --> 00:14:51,920
matching here and of course all these

409
00:14:56,829 --> 00:14:54,079
stars down here they all match

410
00:15:01,269 --> 00:14:56,839
and which means that these two stars

411
00:15:03,910 --> 00:15:01,279
here are the stars antares

412
00:15:05,350 --> 00:15:03,920
and this one this one is antares and

413
00:15:07,350 --> 00:15:05,360

this one here is

414
00:15:09,189 --> 00:15:07,360
pika haley i don't know why they use

415
00:15:11,189 --> 00:15:09,199
these weird names in uh

416
00:15:14,069 --> 00:15:11,199
in stellarium but there you go so we

417
00:15:15,990 --> 00:15:14,079
found it we found the location

418
00:15:17,990 --> 00:15:16,000
and we know now

419
00:15:21,590 --> 00:15:18,000
what we were looking at that bright star

420
00:15:25,350 --> 00:15:21,600
in the sky is in fact the star antares

421
00:15:27,030 --> 00:15:25,360
um now if we want to demonstrate this

422
00:15:29,189 --> 00:15:27,040
the best way to do it is to take a

423
00:15:31,590 --> 00:15:29,199
screenshot i like to use leave the date

424
00:15:35,110 --> 00:15:31,600
and time on the screenshot you want to

425
00:15:37,350 --> 00:15:35,120
make it so that the image is centered

426
00:15:38,550 --> 00:15:37,360
in the same position as the actual

427
00:15:40,470 --> 00:15:38,560
photograph

428
00:15:43,030 --> 00:15:40,480
as you might notice when you move things

429
00:15:44,949 --> 00:15:43,040
around the kind of relative position of

430
00:15:46,150 --> 00:15:44,959
things changes if it's a bit to the left

431
00:15:47,829 --> 00:15:46,160
or the right

432
00:15:49,910 --> 00:15:47,839
especially in the wider angle not so

433
00:15:52,069 --> 00:15:49,920
much when you're zoomed in but still

434
00:15:54,710 --> 00:15:52,079
just to make it as accurate as possible

435
00:15:55,829 --> 00:15:54,720
try to get roughly the same size

436
00:15:58,310 --> 00:15:55,839
now another thing you can do at this

437
00:15:59,350 --> 00:15:58,320
point is it's fine tune the time

438
00:16:01,910 --> 00:15:59,360

uh

439
00:16:03,910 --> 00:16:01,920
you see we have this star at the top

440
00:16:05,910 --> 00:16:03,920
but that's the star next to it doesn't

441
00:16:08,310 --> 00:16:05,920
actually appear if the time was a bit

442
00:16:10,150 --> 00:16:08,320
different if we were a little bit later

443
00:16:11,269 --> 00:16:10,160
you would see that stop kind of pops

444
00:16:13,030 --> 00:16:11,279
into view

445
00:16:14,949 --> 00:16:13,040
so it kind of shows you that if that

446
00:16:17,509 --> 00:16:14,959
starts right at the top we need to be

447
00:16:18,629 --> 00:16:17,519
about this time 10 past 10. then once

448
00:16:20,870 --> 00:16:18,639
you've got

449
00:16:23,269 --> 00:16:20,880
that screenshot you can just take it

450
00:16:26,069 --> 00:16:23,279
into photoshop or some other program

451
00:16:29,110 --> 00:16:26,079
that you can use to layer the images

452
00:16:31,189 --> 00:16:29,120
i put the original image and the bottom

453
00:16:32,949 --> 00:16:31,199
layer then on top of that i

454
00:16:35,110 --> 00:16:32,959
did the cleanup version let me show you

455
00:16:37,670 --> 00:16:35,120
real quick how i do that cleanup

456
00:16:39,590 --> 00:16:37,680
uh in photoshop

457
00:16:42,310 --> 00:16:39,600
you can just use

458
00:16:43,269 --> 00:16:42,320
the spot healing brush tool and then you

459
00:16:45,189 --> 00:16:43,279
just

460
00:16:46,629 --> 00:16:45,199
click on one end of the line and then

461
00:16:48,230 --> 00:16:46,639
you shift-click

462
00:16:49,670 --> 00:16:48,240
on the other end of the line and just

463
00:16:51,670 --> 00:16:49,680

repeat that

464
00:16:53,910 --> 00:16:51,680
just be careful when you're going around

465
00:16:56,629 --> 00:16:53,920
these stars to not remove them you see

466
00:16:59,110 --> 00:16:56,639
that star silver that star is uh

467
00:17:00,550 --> 00:16:59,120
still there more or less

468
00:17:01,910 --> 00:17:00,560
you might want to use a slightly smaller

469
00:17:04,789 --> 00:17:01,920
brush

470
00:17:09,829 --> 00:17:04,799
that seems that's all i did just remove

471
00:17:14,949 --> 00:17:11,189
and then i adjusted the contrast and

472
00:17:17,510 --> 00:17:16,309
where we can see the stars a little bit

473
00:17:18,870 --> 00:17:17,520
better then i'm going to went through

474
00:17:19,750 --> 00:17:18,880
them as i said

475
00:17:21,270 --> 00:17:19,760
and

476
00:17:23,750 --> 00:17:21,280
put the stars in

477
00:17:25,350 --> 00:17:23,760
and then eventually took the the image

478
00:17:28,069 --> 00:17:25,360
from stellarium

479
00:17:29,909 --> 00:17:28,079
and just moved it around until it

480
00:17:31,110 --> 00:17:29,919
matched you need to set the transparency

481
00:17:32,710 --> 00:17:31,120
to 50

482
00:17:35,270 --> 00:17:32,720
and you can move it around and you can

483
00:17:37,350 --> 00:17:35,280
see it's readily apparent

484
00:17:39,190 --> 00:17:37,360
that everything matches up

485
00:17:40,310 --> 00:17:39,200
and you can even here you can take out

486
00:17:41,830 --> 00:17:40,320
the uh

487
00:17:43,190 --> 00:17:41,840
enhanced versions and go back to the

488
00:17:44,549 --> 00:17:43,200

original

489
00:17:47,430 --> 00:17:44,559
and you can see

490
00:17:49,110 --> 00:17:47,440
i'm moving around the stellarium version

491
00:17:51,830 --> 00:17:49,120
that uh

492
00:17:53,110 --> 00:17:51,840
everything does actually match up

493
00:17:57,430 --> 00:17:53,120
so there was another

494
00:17:59,029 --> 00:17:57,440
image as well this one here figure three

495
00:18:00,230 --> 00:17:59,039
zoomed in

496
00:18:01,430 --> 00:18:00,240
uh

497
00:18:02,630 --> 00:18:01,440
which

498
00:18:04,950 --> 00:18:02,640
is an interesting image because it's

499
00:18:06,310 --> 00:18:04,960
showing this kind of uh bright light

500
00:18:07,990 --> 00:18:06,320
here with something coming off to the

501
00:18:09,190 --> 00:18:08,000
side and perhaps something on this side

502
00:18:11,270 --> 00:18:09,200
as well

503
00:18:13,430 --> 00:18:11,280
and it's not saying shown so many stars

504
00:18:15,430 --> 00:18:13,440
there's one two brighty stars there

505
00:18:17,750 --> 00:18:15,440
couple there nice couple

506
00:18:19,430 --> 00:18:17,760
and some more over here

507
00:18:21,270 --> 00:18:19,440
uh it was claimed that this was actually

508
00:18:23,029 --> 00:18:21,280
the same thing but it actually obviously

509
00:18:25,270 --> 00:18:23,039
isn't because these stars don't match up

510
00:18:27,430 --> 00:18:25,280
at all so i had to kind of go back into

511
00:18:29,510 --> 00:18:27,440
stellarium you know i actually i tossed

512
00:18:31,110 --> 00:18:29,520
this one into astrometry.net and it

513
00:18:34,390 --> 00:18:31,120

didn't come up with any results so i had

514
00:18:36,630 --> 00:18:34,400
to be manual with this one so back into

515
00:18:39,510 --> 00:18:36,640
stellarium we go yeah i was looking

516
00:18:41,909 --> 00:18:39,520
around looking around and i thought yeah

517
00:18:44,390 --> 00:18:41,919
what if it was uh what if it was jupiter

518
00:18:45,590 --> 00:18:44,400
a bright object and you know you zoom in

519
00:18:47,830 --> 00:18:45,600
and you see

520
00:18:49,590 --> 00:18:47,840
well if you look at jupiter and celerium

521
00:18:50,789 --> 00:18:49,600
it actually has these little little

522
00:18:52,710 --> 00:18:50,799
lines on it

523
00:18:54,950 --> 00:18:52,720
and

524
00:18:57,029 --> 00:18:54,960
you can kind of see you know it's like

525
00:18:58,150 --> 00:18:57,039
these they are in fact the moons of

526
00:18:59,909 --> 00:18:58,160
jupiter

527
00:19:01,510 --> 00:18:59,919
which appear as tiny little bright

528
00:19:03,830 --> 00:19:01,520
lights yeah they're light stars but

529
00:19:05,270 --> 00:19:03,840
they're really the moons of jupiter

530
00:19:07,750 --> 00:19:05,280
and we can see

531
00:19:09,510 --> 00:19:07,760
once we zoomed in on jupiter that we

532
00:19:10,950 --> 00:19:09,520
have these

533
00:19:13,510 --> 00:19:10,960
stars

534
00:19:15,190 --> 00:19:13,520
in the correct position so

535
00:19:18,070 --> 00:19:15,200
for this

536
00:19:22,789 --> 00:19:20,150
here's jupiter down here

537
00:19:25,110 --> 00:19:22,799
there is two stars there and two little

538
00:19:27,029 --> 00:19:25,120

dim stars there and then there's another

539
00:19:28,870 --> 00:19:27,039
star up there which is gonna be that one

540
00:19:31,830 --> 00:19:28,880
there these ones are obscured by this

541
00:19:34,310 --> 00:19:31,840
chart here but uh they would be visible

542
00:19:36,549 --> 00:19:34,320
so it's jupiter uh interesting though

543
00:19:38,870 --> 00:19:36,559
it's not quite in the right position if

544
00:19:41,510 --> 00:19:38,880
you compare this

545
00:19:43,750 --> 00:19:41,520
to this i think we'd have to kind of

546
00:19:48,150 --> 00:19:43,760
zoom out a little bit more

547
00:19:53,909 --> 00:19:51,590
so if you compare this to this this this

548
00:19:55,830 --> 00:19:53,919
jupiter is actually closer

549
00:19:56,950 --> 00:19:55,840
to this star so that kind of implies

550
00:20:00,630 --> 00:19:56,960
that

551
00:20:03,029 --> 00:20:00,640
have the date wrong

552
00:20:05,590 --> 00:20:03,039
so let's go and try just that now the

553
00:20:07,350 --> 00:20:05,600
way you adjust that for a planet is you

554
00:20:09,029 --> 00:20:07,360
click on the planet

555
00:20:10,870 --> 00:20:09,039
and then you

556
00:20:11,990 --> 00:20:10,880
select

557
00:20:13,750 --> 00:20:12,000
um

558
00:20:15,430 --> 00:20:13,760
center on selected object which you can

559
00:20:17,029 --> 00:20:15,440
also do by just pressing the space bar

560
00:20:19,110 --> 00:20:17,039
and it'll move the screen so we're now

561
00:20:21,350 --> 00:20:19,120
centered on this object and the good

562
00:20:22,789 --> 00:20:21,360
thing about that is that if you change

563
00:20:25,029 --> 00:20:22,799

the date

564
00:20:26,870 --> 00:20:25,039
it stays centered on that object so we

565
00:20:29,510 --> 00:20:26,880
have jupiter and we have our four stars

566
00:20:31,990 --> 00:20:29,520
just as what it was in the previous day

567
00:20:35,669 --> 00:20:32,000
uh the day before or day before that

568
00:20:37,590 --> 00:20:35,679
and we can keep going back

569
00:20:40,230 --> 00:20:37,600
a few days until we get something that

570
00:20:41,990 --> 00:20:40,240
actually looks the same

571
00:20:43,750 --> 00:20:42,000
as in this image

572
00:20:45,510 --> 00:20:43,760
and you see here

573
00:20:46,950 --> 00:20:45,520
we've got the two stars and then more

574
00:20:49,430 --> 00:20:46,960
straight down

575
00:20:51,830 --> 00:20:49,440
and here's jupiter with the moons of

576
00:20:53,430 --> 00:20:51,840
jupiter sticking out the side now i'm

577
00:20:54,149 --> 00:20:53,440
not entirely sure about this it doesn't

578
00:20:56,230 --> 00:20:54,159
look

579
00:20:59,270 --> 00:20:56,240
exactly right but you can see obviously

580
00:21:00,950 --> 00:20:59,280
there's uh yeah sufficient

581
00:21:02,470 --> 00:21:00,960
proof there with those two stars and

582
00:21:04,789 --> 00:21:02,480
those two stars and the fact that we

583
00:21:06,549 --> 00:21:04,799
have something that looks like jupiter

584
00:21:07,510 --> 00:21:06,559
so basically we're looking at jupiter

585
00:21:08,390 --> 00:21:07,520
and

586
00:21:10,070 --> 00:21:08,400
uh

587
00:21:11,669 --> 00:21:10,080
it's not actually very close to where we

588
00:21:14,310 --> 00:21:11,679

were looking with the other stars which

589
00:21:16,070 --> 00:21:14,320
are where are we all the way over here

590
00:21:18,789 --> 00:21:16,080
antares

591
00:21:20,470 --> 00:21:18,799
and and friends over here so

592
00:21:22,870 --> 00:21:20,480
he took two photographs on different

593
00:21:24,230 --> 00:21:22,880
parts of the sky on different days and

594
00:21:26,470 --> 00:21:24,240
thought they were the same thing that

595
00:21:30,390 --> 00:21:26,480
they both showed that nothing was there

596
00:21:32,149 --> 00:21:30,400
or in one photograph he had antares and

597
00:21:35,990 --> 00:21:32,159
in the other photograph

598
00:21:38,789 --> 00:21:36,000
he had jupiter and the moons of jupiter

599
00:21:40,310 --> 00:21:38,799
so there you go

600
00:21:42,789 --> 00:21:40,320
i know stellarium can be very

601
00:21:44,630 --> 00:21:42,799
intimidating but ultimately

602
00:21:46,470 --> 00:21:44,640
all it is is something that shows you

603
00:21:48,789 --> 00:21:46,480
what the sky looks like on a certain

604
00:21:51,350 --> 00:21:48,799
date if you get past the the simple

605
00:21:53,590 --> 00:21:51,360
navigation of being able to

606
00:21:56,789 --> 00:21:53,600
zoom in and out knowing where the menus

607
00:21:58,950 --> 00:21:56,799
are the location menu here there's the

608
00:22:01,669 --> 00:21:58,960
time and date menu

609
00:22:03,909 --> 00:22:01,679
and then the the settings menu for the

610
00:22:04,789 --> 00:22:03,919
view settings and being able to change

611
00:22:15,029 --> 00:22:04,799
the

612
00:22:18,310 --> 00:22:15,039
don't have to do that

613
00:22:19,909 --> 00:22:18,320

it shows a lot better on video but i'm i

614
00:22:21,029 --> 00:22:19,919
can actually see these stars fairly well

615
00:22:22,630 --> 00:22:21,039
i think if you actually have the correct

616
00:22:24,549 --> 00:22:22,640
size of the stars it can be a little

617
00:22:27,110 --> 00:22:24,559
easier to actually see so it's kind of

618
00:22:30,230 --> 00:22:27,120
up to you what you find to be better

619
00:22:31,669 --> 00:22:30,240
and then changing the labels

620
00:22:32,789 --> 00:22:31,679
over here very important because you

621
00:22:34,630 --> 00:22:32,799
don't want it looking like this because

622
00:22:36,230 --> 00:22:34,640
you won't be able to see anything but

623
00:22:38,230 --> 00:22:36,240
it's also handy to have one or two

624
00:22:41,029 --> 00:22:38,240
labels just so you get a

625
00:22:44,950 --> 00:22:41,039
just a little anchor and then changing

626
00:22:48,950 --> 00:22:46,710
and that's about it

627
00:22:51,669 --> 00:22:48,960
if you like this video and you would