Watching the Moon Travel the Zodiac

A part of ASTRONOMY 101 is actual observing experience -- real time spent observing the heavens.

This project, added on April 17, will satisfy that requirement, and serve as an alternative to the observatory visit project (which may be difficult if observatories are closed on account of COVID-19).

This project is a "last chance" project for students who have not completed the observatory visit, wandering stars, or sun projects. **I do not recommend this project**, because it relies on the weather cooperating for more than a week. However, if the weather smiles on you, you can complete this project.

In the first chapters of this class, we learned how the moon falls behind the sun by about 48 minutes each day. In this way, the moon travels through the constellations of the zodiac with prograde motion. In this project you will see that happen (weather permitting). From April 24 through May 4, the moon will be visible (weather permitting) night by night, and you can photograph it (and yourself). You will need a place with a clear western horizon where you can be shortly after sunset every night.

To do this project, you will first download a sky app to your phone. These apps turn your phone into a "sky map", which changes as you move your phone around, to help you find and identify objects in the sky. There are many of these apps, such as Google Sky Map, Stellarium Mobile, Night Sky, etc. Many are free. Those that are not free are usually cheap. The most elaborate ones work with your phone's camera to provide an "augmented reality" view of the sky.

Your task is to go out *at the same time* every clear night from April 24 through May 4 and take a "selfie" with the moon and the western horizon, so you can see where the moon is in the photo (if it is too dark you may need a small flashlight to illuminate yourself a bit for the photo). The exact time you can choose, but it will have to be shortly after sunset, just as it is getting dark. On the first few nights the moon will be low, faint and hard to find—you can use your phone app to help you locate the moon. I have included "simulated selfies" for each night, to give you some idea of what to expect.

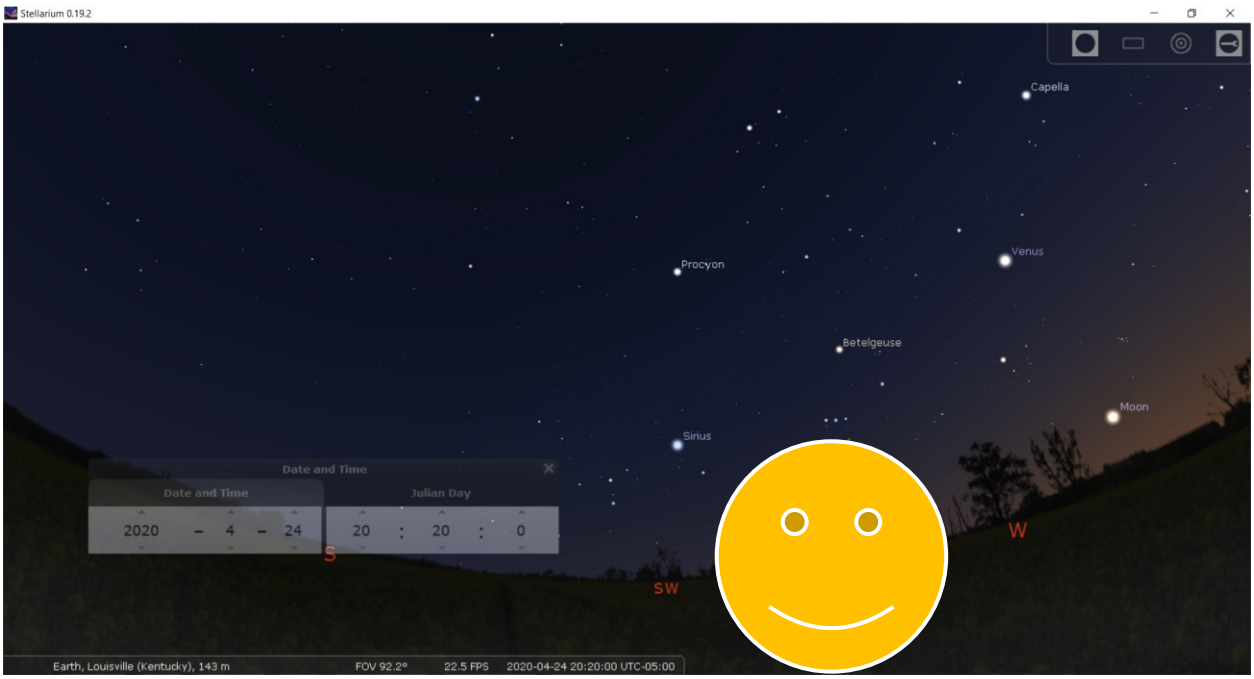
Use your phone app to see what constellation the moon is in on that night. Record the moon's phase (make a drawing, or take a photo, or screen shot the phase from the app, etc.).

There are eleven evenings in this project, so if the weather ruins a few evenings, or you can't make an evening or two for various reasons, that will be OK—you will still be able to see the moon move through the stars. But too much bad weather will ruin the project. *That is the chance you take with this project.*

Write up a 500-word discussion of what you learned from this project, and what were your successes and problems in the project.

What to turn in:

- **Your selfie photos of the moon, moon phases, and moon zodiac constellations, with dates for each.**
- **Your 500-word discussion.**


Stellarium 0.19.2
Capella
Procyon
Venus
Betelgeuse
Moon
Sirius
Date and Time
Date and Time
Julian Day
2020 - 4 - 24
20 : 20 : 0
S
SW
W
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22.5 FPS
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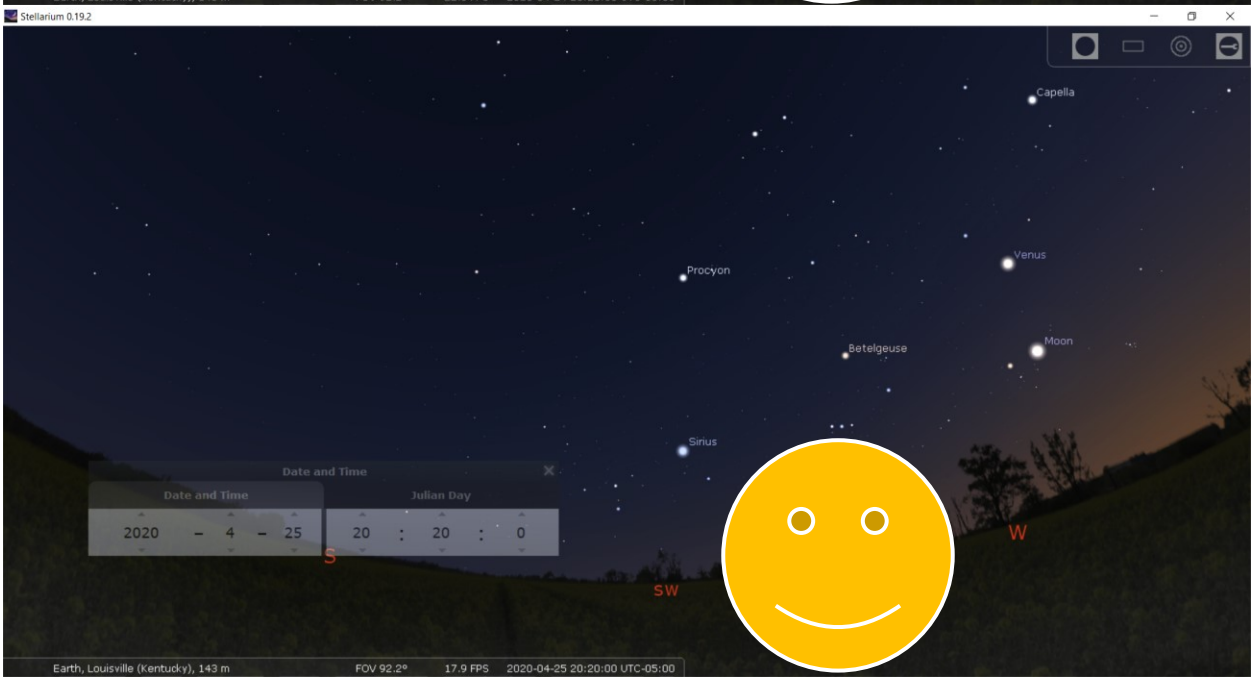
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Procyon
Venus
Betelgeuse
Moon
Sirius
Date and Time
Date and Time
Julian Day
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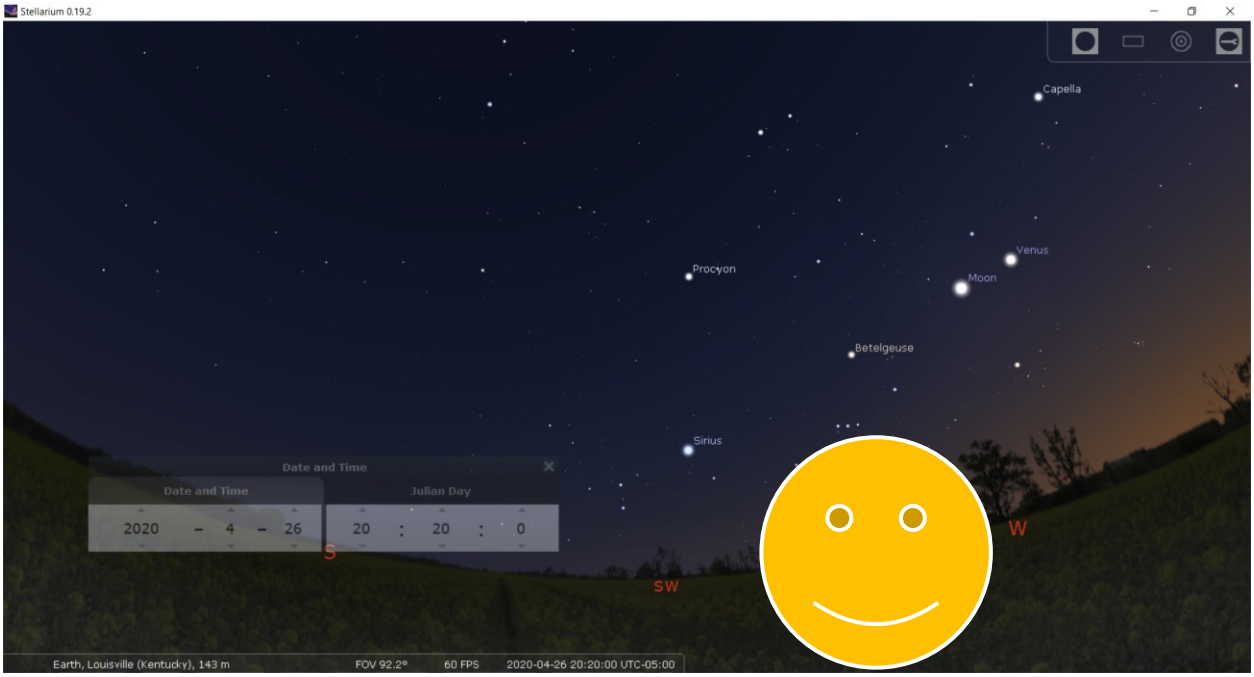
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Venus
Procyon
Moon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
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W
SW
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60 FPS
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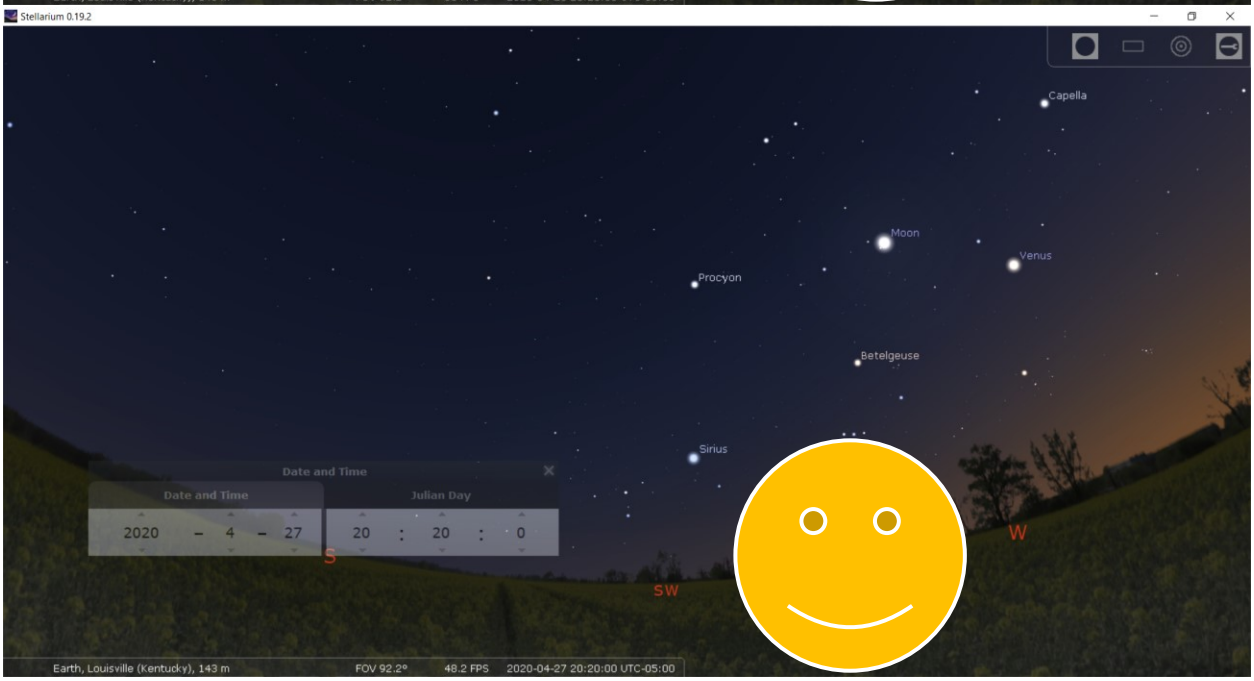
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Capella
Moon
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
2020 - 4 - 27
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S
W
SW
Earth, Louisville (Kentucky), 143 m
FOV 92.2°
48.2 FPS
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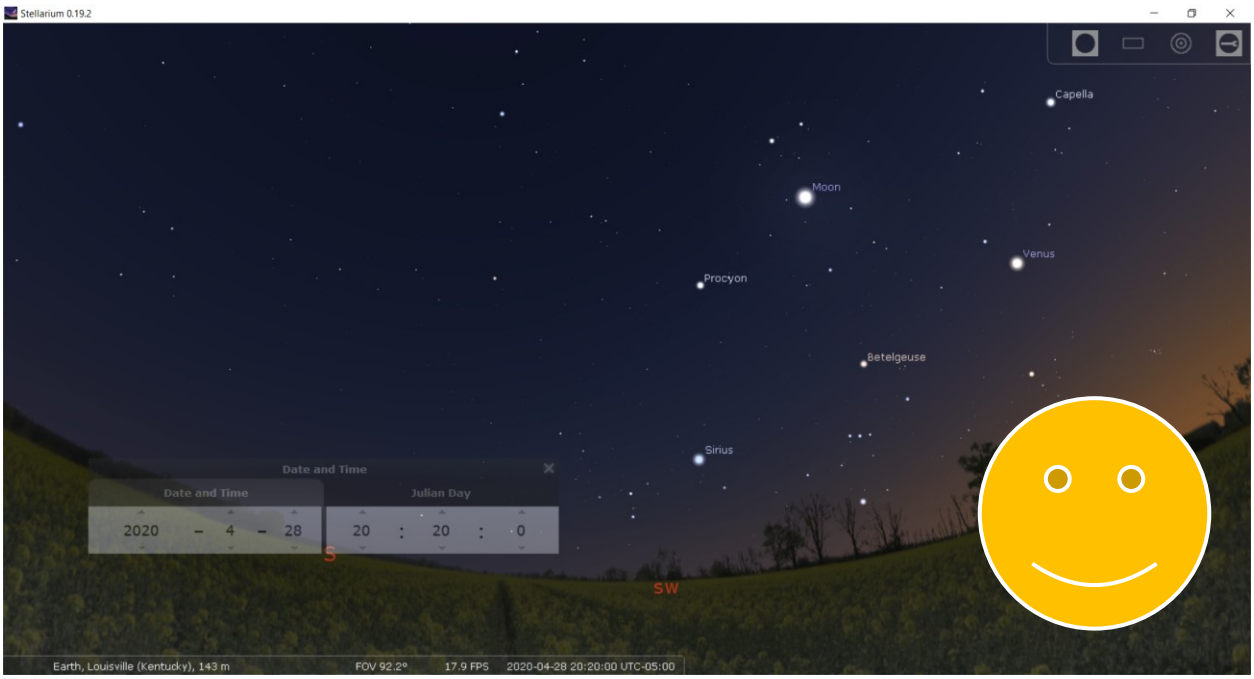
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Capella
Moon
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
2020 - 4 - 28
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S
SW
Earth, Louisville (Kentucky), 143 m
FOV 92.2°
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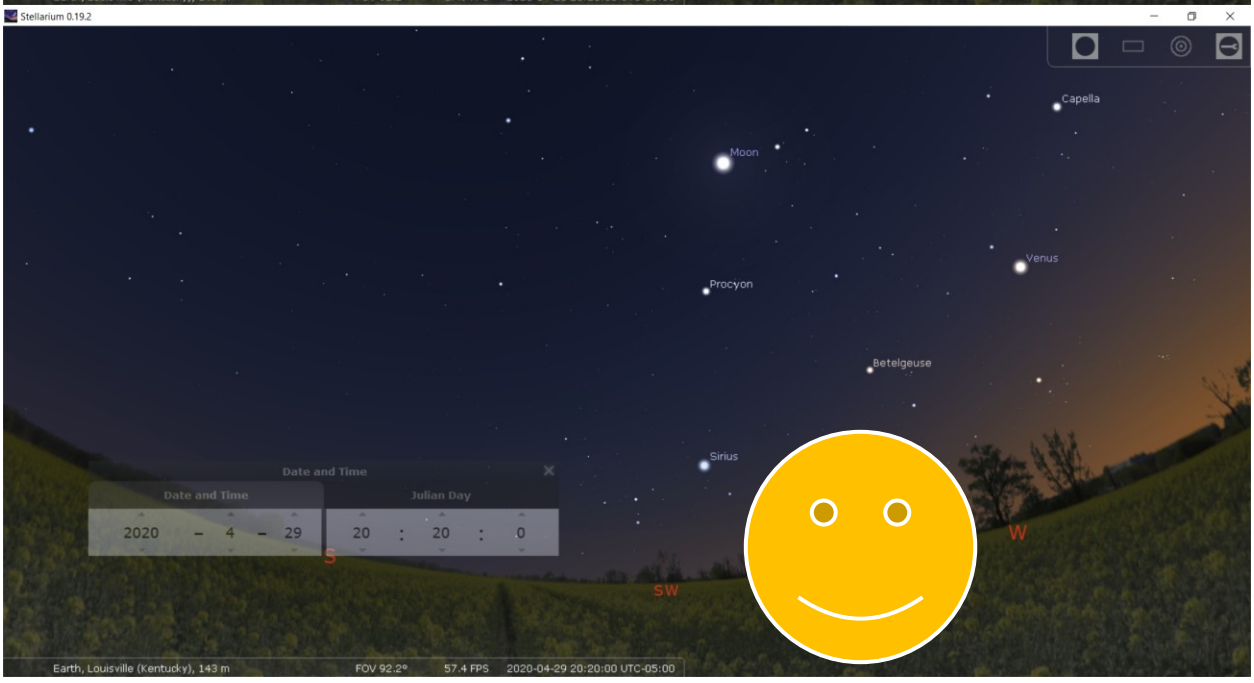
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Moon
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
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SW
W
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57.4 FPS
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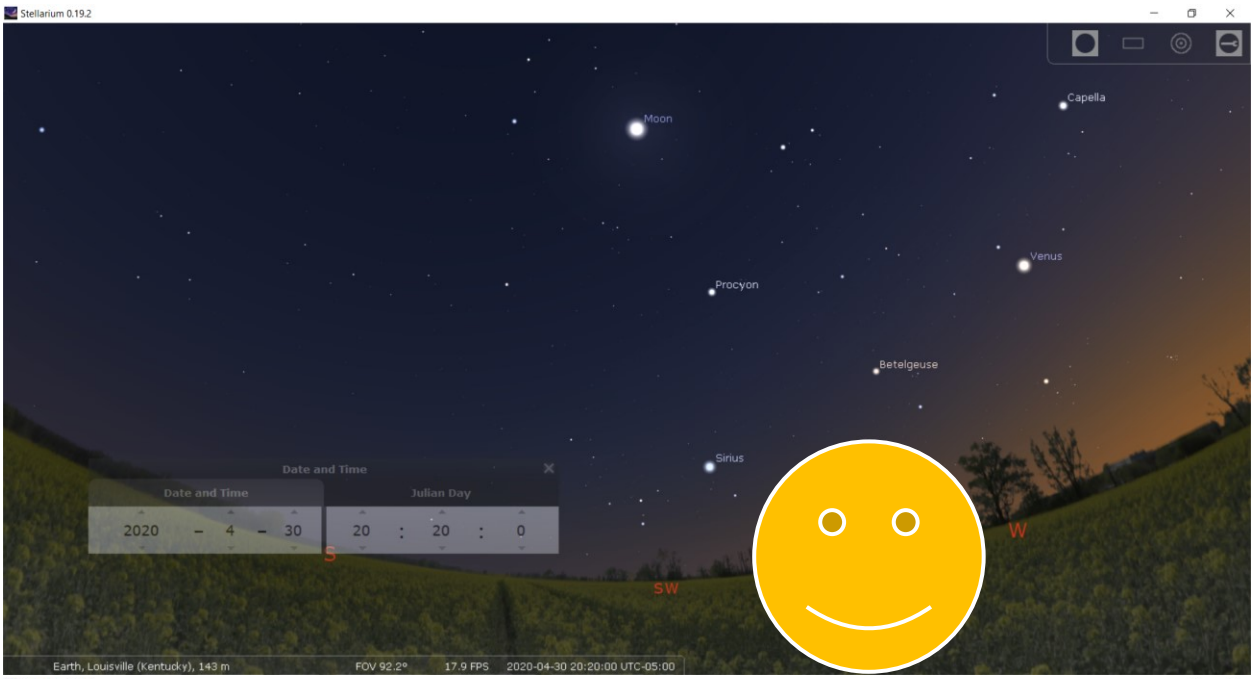
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Moon
Capella
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
2020 - 4 - 30
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SW
W
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FOV 92.2°
17.9 FPS
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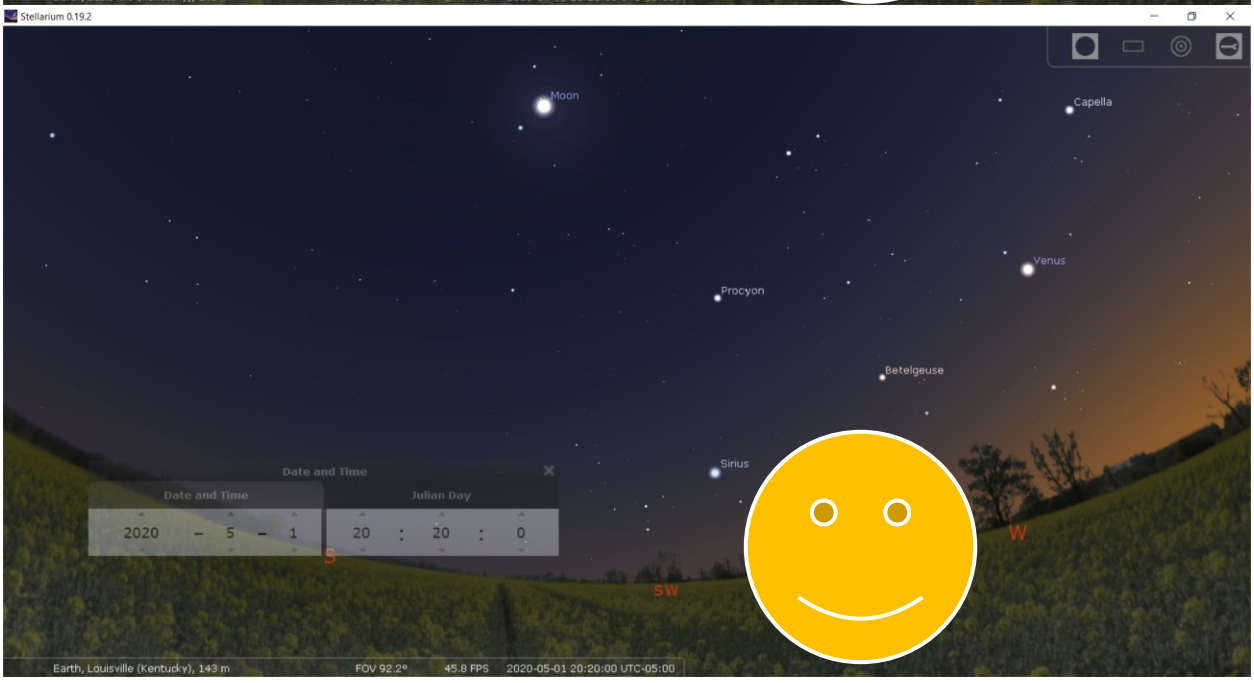
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Moon
Capella
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
2020 - 5 - 1
20 : 20 : 0
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SW
W
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FOV 92.2°
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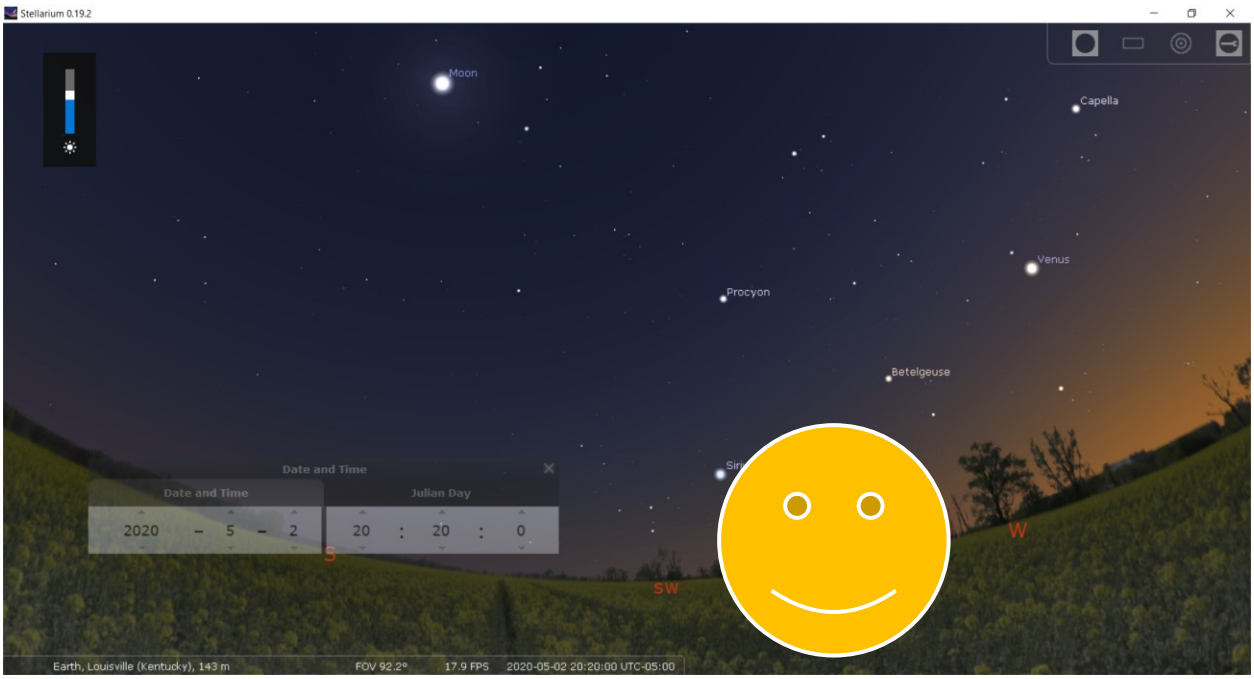
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Moon
Capella
Venus
Procyon
Betelgeuse
Date and Time
Date and Time
Julian Day
2020 - 5 - 2
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SW
W
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FOV 92.2°
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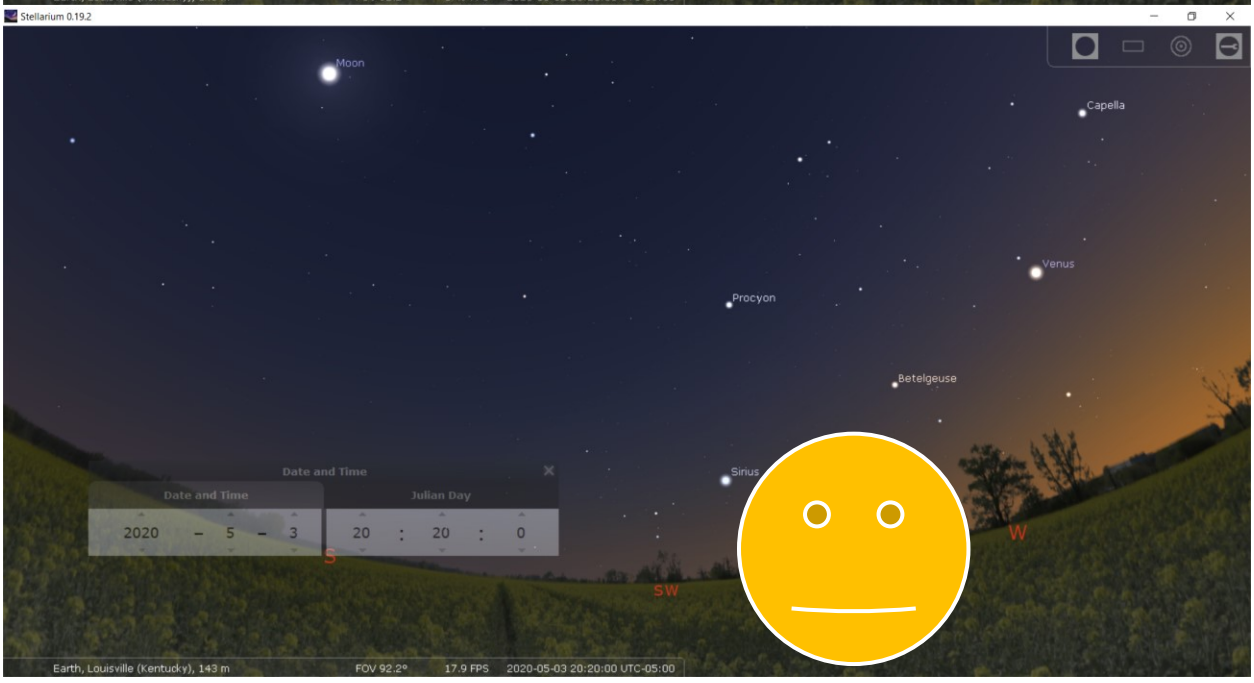
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Moon
Capella
Venus
Procyon
Betelgeuse
Sirius
Date and Time
Date and Time
Julian Day
2020 - 5 - 3
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SW
W
Earth, Louisville (Kentucky), 143 m
FOV 92.2°
17.9 FPS
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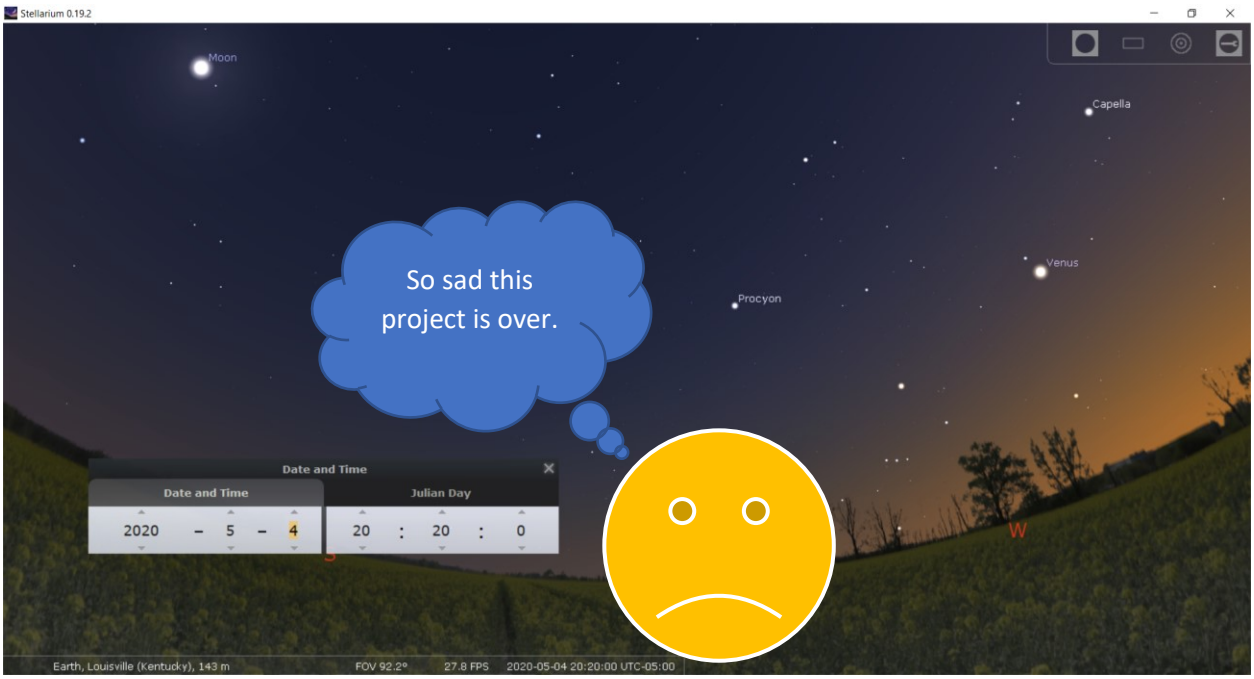
Stellarium 0.19.2
Moon
Capella
Venus
Procyon
So sad this project is over.
Date and Time
Date and Time
Julian Day
2020 - 5 - 4
20 : 20 : 0
W
Earth, Louisville (Kentucky), 143 m
FOV 92.2°
27.8 FPS
2020-05-04 20:20:00 UTC-05:00