



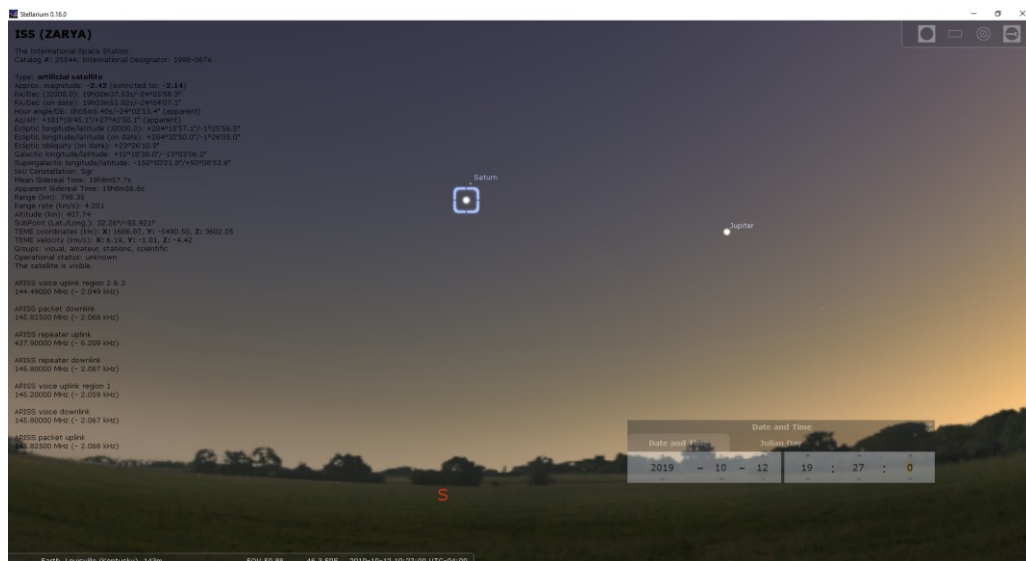
# The Observer

September 2019 (#47)

**Schedule of public programs on last page!**

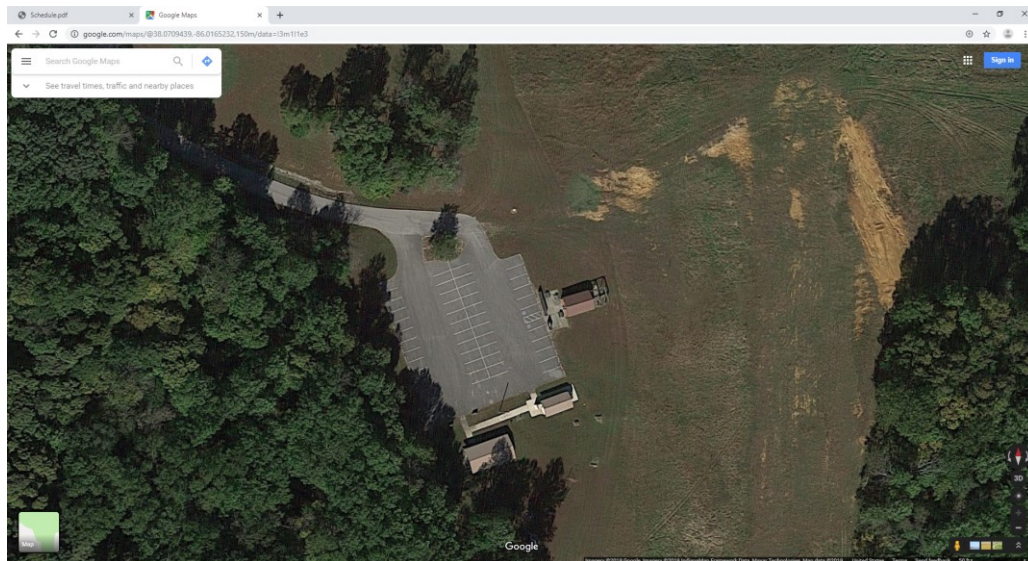
## THE INTERNATIONAL SPACE STATION— AND SATURN

When putting together a schedule for the observatory at South Harrison Park, we at the observatory try to find especially cool stuff around which to build programs. Flyovers of the International Space Station (ISS) are always cool. A night with a moon, planets, and an ISS flyover are great. Thus, the night of October 12 seems perfect for a program, because a quick look at the sky for that night using the *Stellarium* planetarium app shows the ISS passing through the evening sky, coming quite close to Saturn at 7:27 PM Eastern Time.



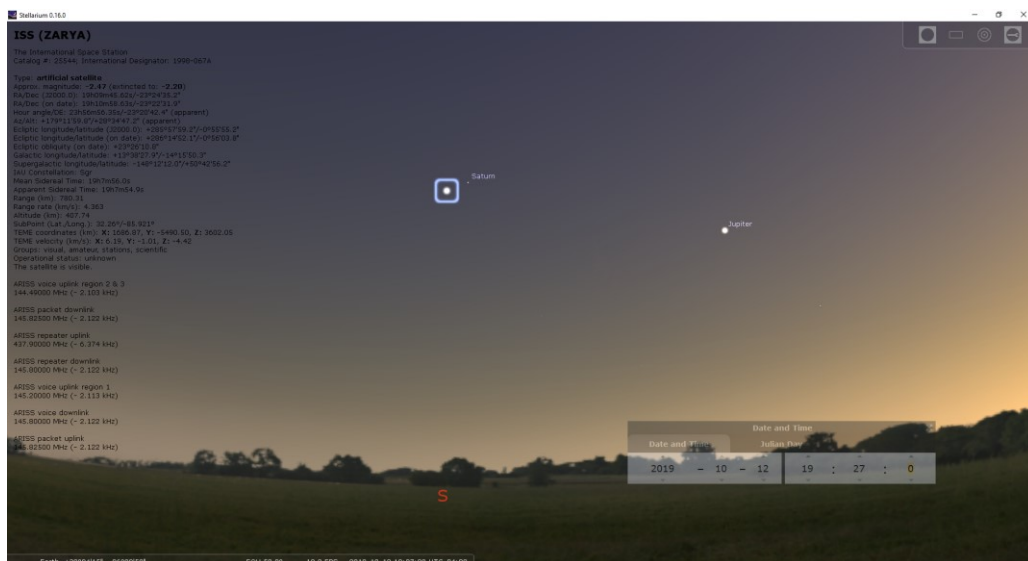
[www.jefferson.kctcs.edu/observatory](http://www.jefferson.kctcs.edu/observatory)

But that is the view *Stellarium* gives of the ISS from “Louisville, Kentucky”, latitude N 38° 15' 15.26", longitude W 85° 45' 33.87". The ISS is not very high above Earth—roughly 250 miles. That may seem like a lot, but it is not so much that a change of position of a couple dozen miles on Earth would not have an effect. Where will the ISS be at the same moment, as seen not from “Louisville”, but from South Harrison Observatory, to the south and west of Louisville, in Indiana? A quick look at Google Maps gives the coordinates of the Observatory: 38.070923° N, 86.016440° W.

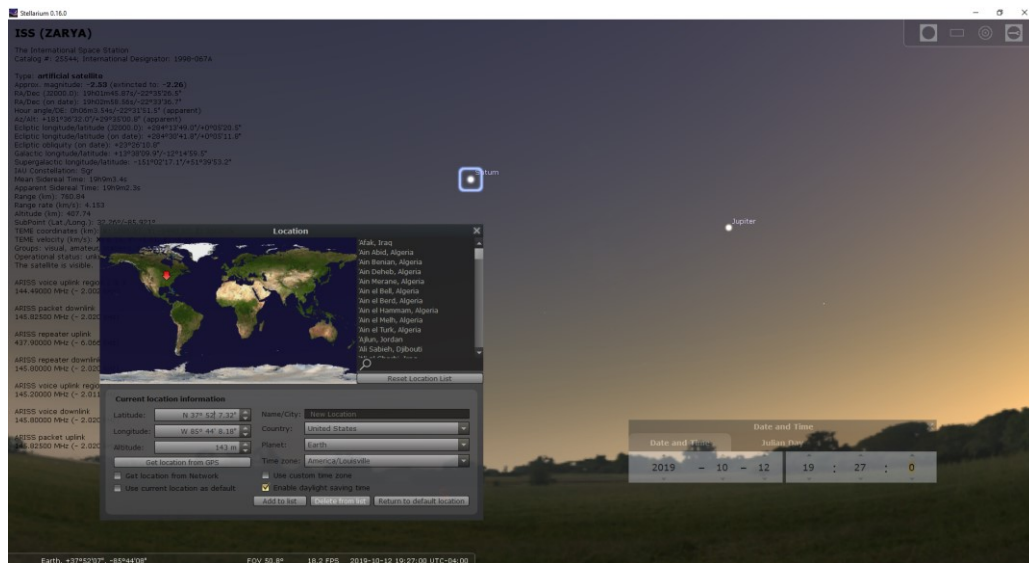


There's the observatory (middle).

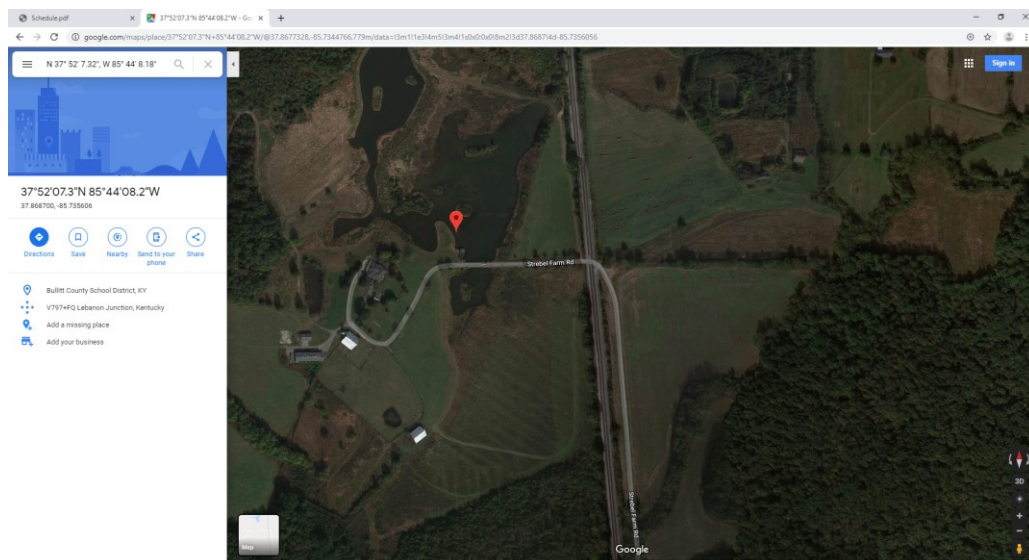
Let's plug those coordinates back into Stellarium, and see how the view changes. The result is noticeable:



If shifting position by a couple dozen miles changes the view, the next question is, what would our location have to be in order for us to see the ISS pass right by Saturn? That location can be determined by dialing the latitude and longitude coordinates in *Stellarium* back and forth until the ISS sits right on top of Saturn:

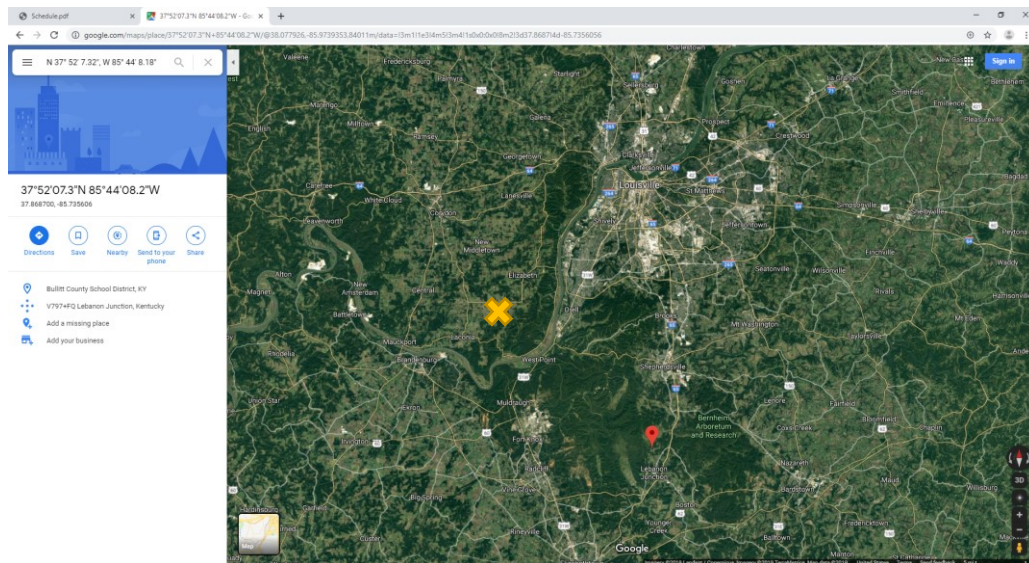


The coordinates for seeing this are, according to *Stellarium*, N 37° 52' 7.32", W 85° 44' 8.18" (note that Google Maps likes decimal degree values of latitude and longitude, whereas *Stellarium* likes minutes and seconds). Plugging this back into Google Maps reveals that this location is in a pond in Bullitt County, Kentucky:

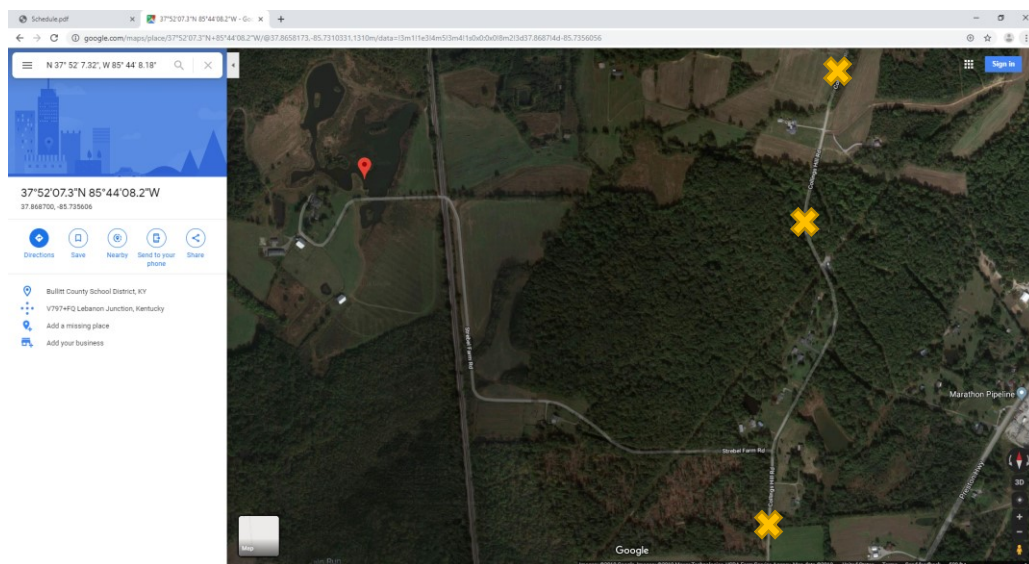




Zooming out further shows the location relative to South Harrison Observatory (gold cross, below) and Louisville:



The road nearest to this location is almost a private drive, serving only a couple of houses; chances are you might not be welcome were you to show up along it in the evening, and hop out of your car to view the ISS. However, a nearby road, Collings Hill Road (gold crosses, below), is clearly a public road, serving many houses. You might find a nice place, not too close to any house to disturb anyone, to pull off onto the shoulder and watch the ISS.



If you can find a safe place to set up a small telescope, you might even see the ISS zip through the field of view. The image below

shows *Stellarium*'s simulated view of this event (as seen from the pond location). Note how *Stellarium* does not show the ISS, just a big dot representing the station, which will be far brighter than Saturn will be.



Of course this all hinges on the accuracy of both *Stellarium* and Google Maps. If either is off in its latitude and longitude figures, then the ISS will not cross Saturn as seen from Collings Hill Road near that pond. Nevertheless, this might be a thing to try.

Or, of course, you could just come to the program at South Harrison Observatory instead!



## UPCOMING PROGRAMS AT THE OBSERVATORY

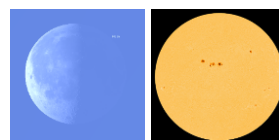
ALL TIMES ARE EASTERN TIME. **ALL PROGRAMS ARE HELD AT THE SOUTH HARRISON PARK LOCATION.** PROGRAMS WILL BE HELD EVEN IN THE EVENT OF CLOUDS OR LIGHT RAIN. HOWEVER, PROGRAMS WILL BE CANCELLED WHEN CONDITIONS MAY PRODUCE **HAZARDOUS**

**DRIVING ON THE TWO-LANE ROADS THAT LEAD TO THE OBSERVATORY (CONDITIONS SUCH AS HEAVY RAIN, THUNDERSTORMS, FOG, SEVERE WEATHER OR FLASH FLOOD WARNINGS, SNOW OR ICE, HIGH WIND, ETC.). IN SHORT, PLEASE DO NOT MAKE THE TRIP TO THE OBSERVATORY IN BAD WEATHER.**

**NOTE: IN RECENT MONTHS RESTROOM FACILITIES AT SOUTH HARRISON PARK HAVE OFTEN BEEN UNUSEABLE. PLEASE PLAN ACCORDINGLY.**

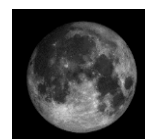
- **September 14, 2019 (daytime program).**

*Program begins at 10:00 am.* Come observe the sun through a safe solar filter, and learn about the sun, the seasons, and time; plus, the quarter moon might even be visible during the day—weather permitting (what we will be able to see depends on the weather).



- **October 12, 2019 (evening twilight program).**

*Program begins just before sunset (at approximately 7:00 pm).* Tonight we will be able to see: a full moon; the planets Jupiter and Saturn; a flyby of the International Space Station, which will pass right by Saturn at 7:27 pm; and the stars—weather permitting (what we will be able to see depends on the weather).



[Note, a previous version of this schedule stated the ISS would pass Jupiter at a later time.]

- **November 16, 2019 (daytime program).** *Program begins at 10:00 am.* Come observe the sun through a safe solar filter, and learn about the sun, the seasons, and time—weather permitting (what we will be able to see depends on the weather).

