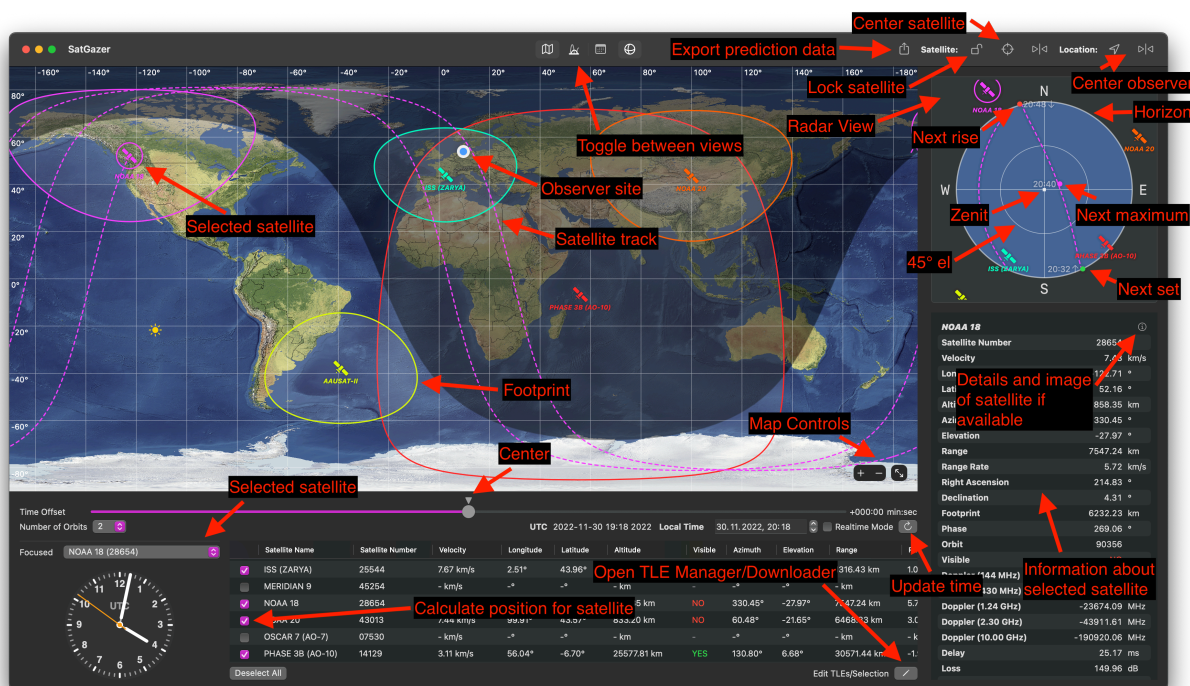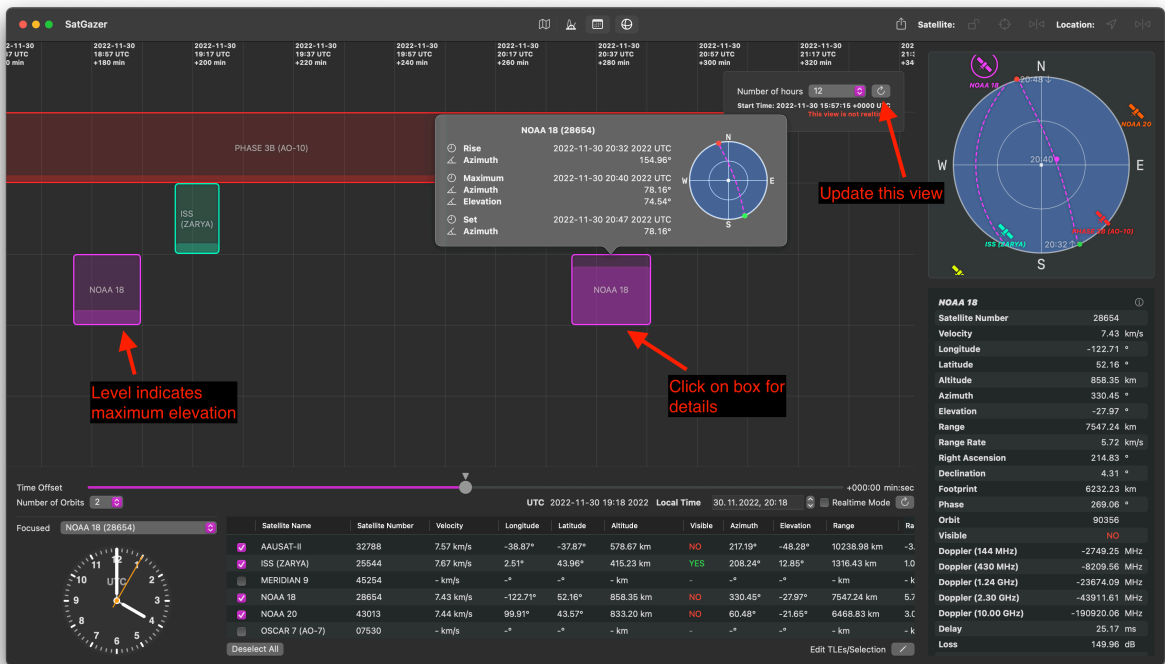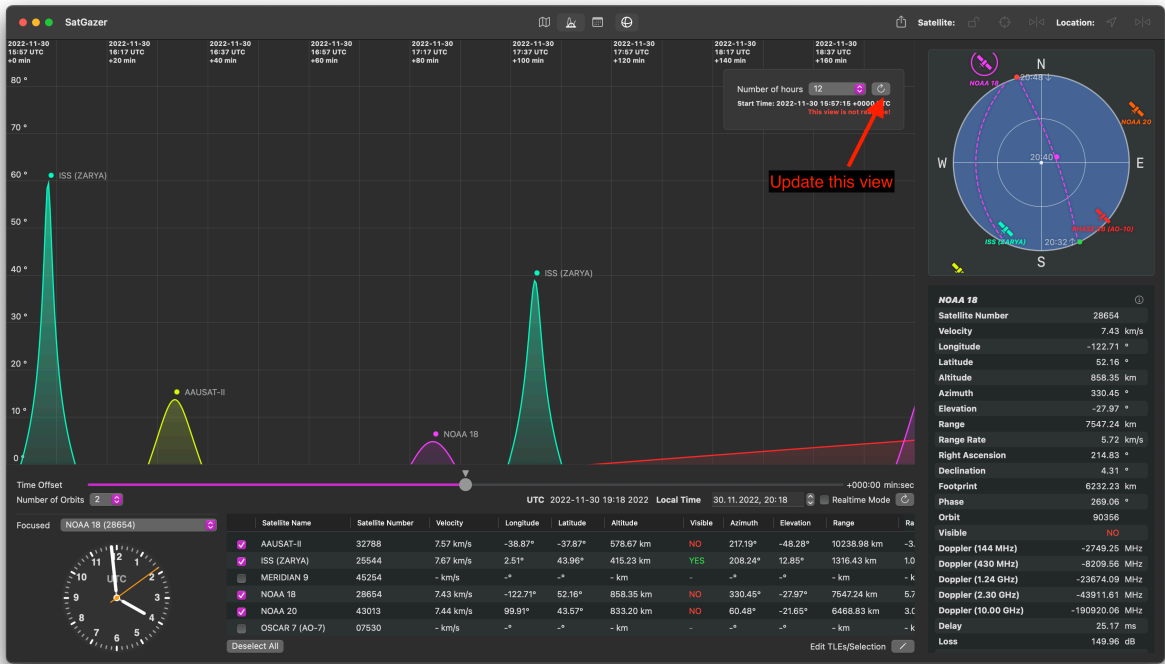# SatGazer - Documentation

General

SatGazer works with the following concept. Select a satellite either by clicking on it in the map, the radar view or the popup button in the controls. For this satellite you will see the track in the map and the radar view if the number of orbits is greater than 0. In the detailed information view on the right, **SatGazer** shows detailed information about the selected satellite. You can click on the information symbol and further detailed information is shown if available.

You toggle between the map, the predictions and the timetable with the segmented control in the toolbar. The **predictions and the timetable are independent of the selected satellite and the selected date**.

Satellite: Location:

2022-11-30 15:57 UTC +0 min
2022-11-30 16:17 UTC +20 min
2022-11-30 16:37 UTC +40 min
2022-11-30 16:57 UTC +60 min
2022-11-30 17:17 UTC +80 min
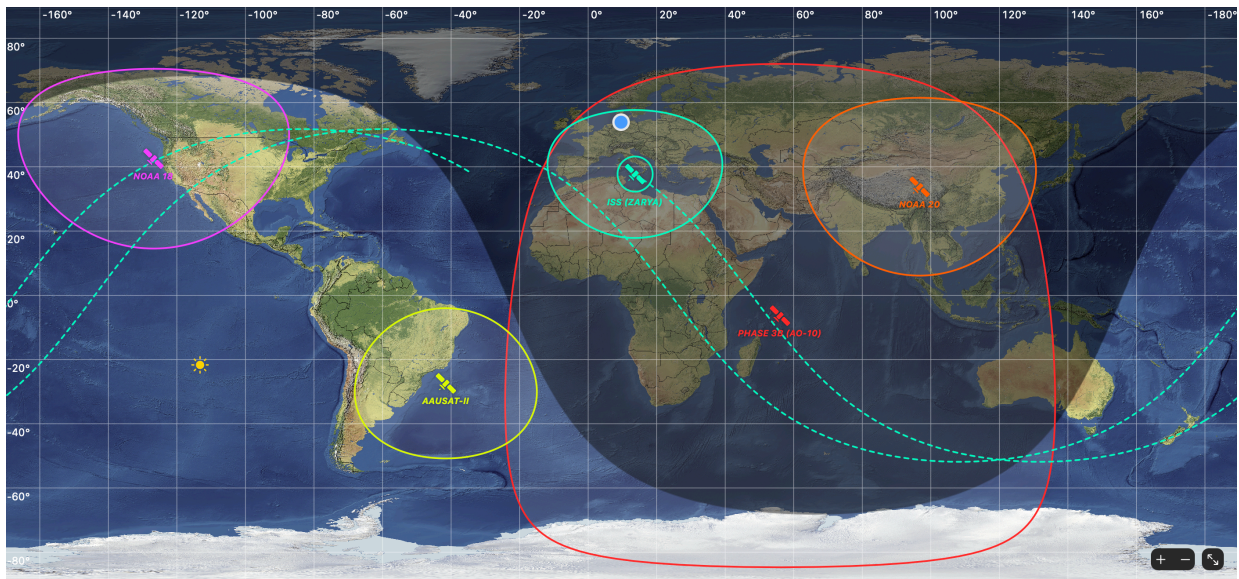2022-11-30 17:37 UTC +100 min
2022-11-30 17:57 UTC +120 min
2022-11-30 18:17 UTC +140 min
2022-11-30 18:37 UTC +160 min

80 °
70 °
60 °
50 °
40 °
30 °
20 °
10 °
0

Number of hours 12
Start Time: 2022-11-30 15:57:15 +0000 UTC
This view is not realtime!

Update this view

ISS (ZARYA)
AAUSAT-II
ISS (ZARYA)
NOAA 18

Time Offset +000:00 min:sec
Number of Orbits 2

Focused NOAA 18 (28654)

UTC 2022-11-30 19:18 2022 Local Time 30. 11. 2022, 20:18 Realtime Mode

Satellite Name	Satellite Number	Velocity	Longitude	Latitude	Altitude	Visible	Azimuth	Elevation	Range	Ra
AAUSAT-II	32788	7.57 km/s	-38.87°	-37.87°	578.67 km	NO	217.19°	-48.28°	10238.98 km	-3.
ISS (ZARYA)	25544	7.67 km/s	2.51°	43.96°	415.23 km	YES	208.24°	12.85°	1316.43 km	1.0
MERIDIAN 9	45254	– km/s	–°	–°	– km	–	–°	–°	– km	– k
NOAA 18	28654	7.43 km/s	-122.71°	52.16°	858.35 km	NO	330.45°	-27.97°	7547.24 km	5.7
NOAA 20	43013	7.44 km/s	99.91°	43.57°	833.20 km	NO	60.48°	-21.65°	6468.83 km	3.0
OSCAR 7 (AO-7)	07530	– km/s	–°	–°	– km	–	–°	–°	– km	– k

Deselect All
Edit TLEs/Selection

NOAA 18

Satellite Number	28654
Velocity	7.43 km/s
Longitude	-122.71 °
Latitude	52.16 °
Altitude	858.35 km
Azimuth	330.45 °
Elevation	-27.97 °
Range	7547.24 km
Range Rate	5.72 km/s
Right Ascension	214.83 °
Declination	4.31 °
Footprint	6232.23 km
Phase	269.06 °
Orbit	90356
Visible	NO
Doppler (144 MHz)	-2749.25 MHz
Doppler (430 MHz)	-8209.56 MHz
Doppler (1.24 GHz)	-23674.09 MHz
Doppler (2.30 GHz)	-43911.61 MHz
Doppler (10.00 GHz)	-190920.06 MHz
Delay	25.17 ms
Loss	149.96 dB

2-11-30 7 UTC 0 min
2022-11-30 18:57 UTC +180 min
2022-11-30 19:17 UTC +200 min
2022-11-30 19:37 UTC +220 min
2022-11-30 19:57 UTC +240 min
2022-11-30 20:17 UTC +260 min
2022-11-30 20:37 UTC +280 min
2022-11-30 20:57 UTC +300 min
2022-11-30 21:17 UTC +320 min
202 2113 +34

PHASE 3B (AO-10)

ISS (ZARYA)

NOAA 18
NOAA 18

NOAA 18 (28654)

Rise	2022-11-30 20:32 2022 UTC
Azimuth	154.96°
Maximum	2022-11-30 20:40 2022 UTC
Azimuth	78.16°
Elevation	74.54°
Set	2022-11-30 20:47 2022 UTC
Azimuth	78.16°

Number of hours 12
Start Time: 2022-11-30 15:57:15 +0000 U
This view is not realtime!

Update this view

Level indicates maximum elevation

Click on box for details

Time Offset +000:00 min:sec
Number of Orbits 2

Focused NOAA 18 (28654)

UTC 2022-11-30 19:18 2022 Local Time 30. 11. 2022, 20: 18 Realtime Mode

Satellite Name	Satellite Number	Velocity	Longitude	Latitude	Altitude	Visible	Azimuth	Elevation	Range	Ra
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MERIDIAN 9	45254	– km/s	–°	–°	– km	–	–°	–°	– km	– k
NOAA 18	28654	7.43 km/s	-122.71°	52.16°	858.35 km	NO	330.45°	-27.97°	7547.24 km	5.7
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OSCAR 7 (AO-7)	07530	– km/s	–°	–°	– km	–	–°	–°	– km	– k

Deselect All
Edit TLEs/Selection

NOAA 18

|	
Satellite Number	28654
Velocity	7.43 km/s
Longitude	-122.71 °
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Altitude	858.35 km
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Map

The map is very interactive. You can click on satellites to select them, move the map around by dragging it and zoom in and out. You can also center the observer location or the selected satellite, either zoomed in or at minimum zoom. By clicking the lock symbol you can lock a satellite and it will always be centered in the map.

You can hide or show the footprints as well as the coordinate grid in the settings. There you can also select one of the map styles.

Functions

- **Zooming** (Zoom in with the button in the lower left corner)
- **Dragging** (Move the map to view the part of the earth you are interested in)
- **Fullscreen** (Enter fullscreen with the button on the lower left corner)
- **Selecting a satellite** (Click on any satellite on the map and it will be selected)

Radar View
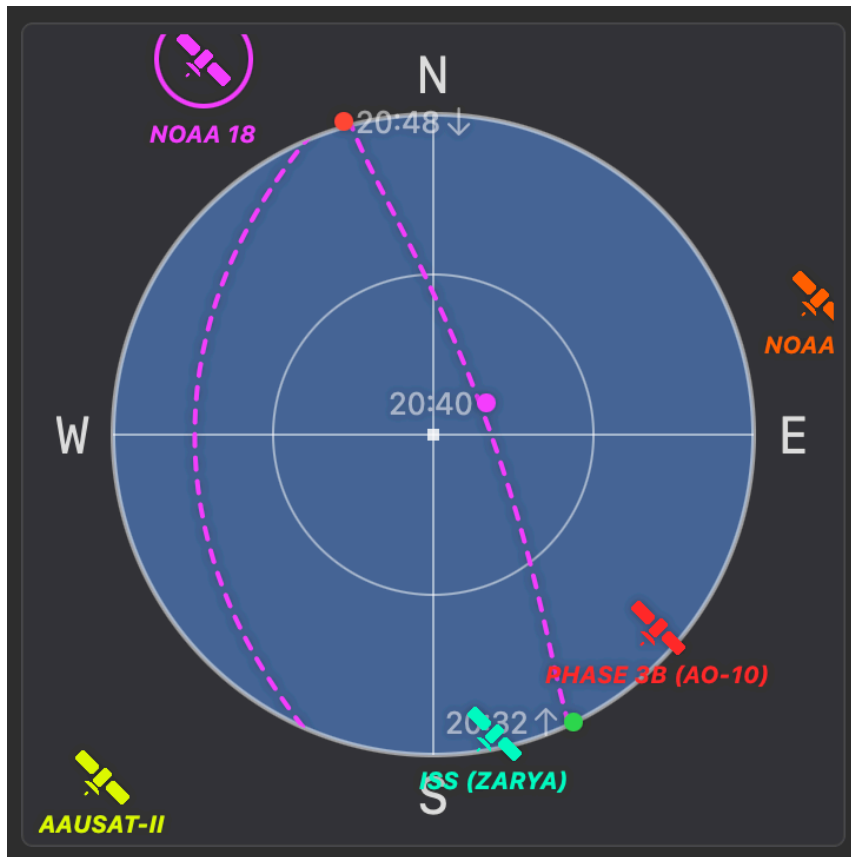
The radar view shows the view of the sky based on the location of the observer site. The center of this view represents the zenit (elecation 90°) and the inner circle represents an elevation of 45°. The border of the view is the horizon. You can click on a satellite to select it. For the next pass, the rise time, maxumum time and set time are shown.

Functions

- **Selecting a satellite** (Click on any satellite on the map and it will be selected)

Predictions View
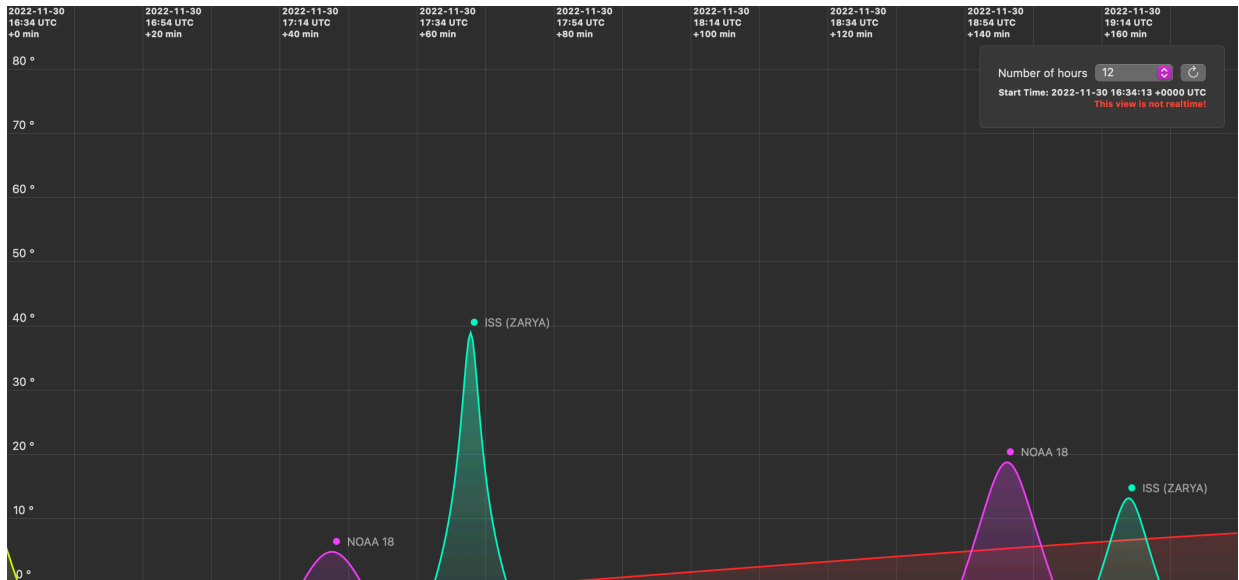
The predictions view displays the elevation of all observed satellites for the selected time interval. The view is not realtime. You will have to refresh the view if you change the selection of satellites. The start date of this view is the date at which the predictions have been calculated/refreshed.

Timetable
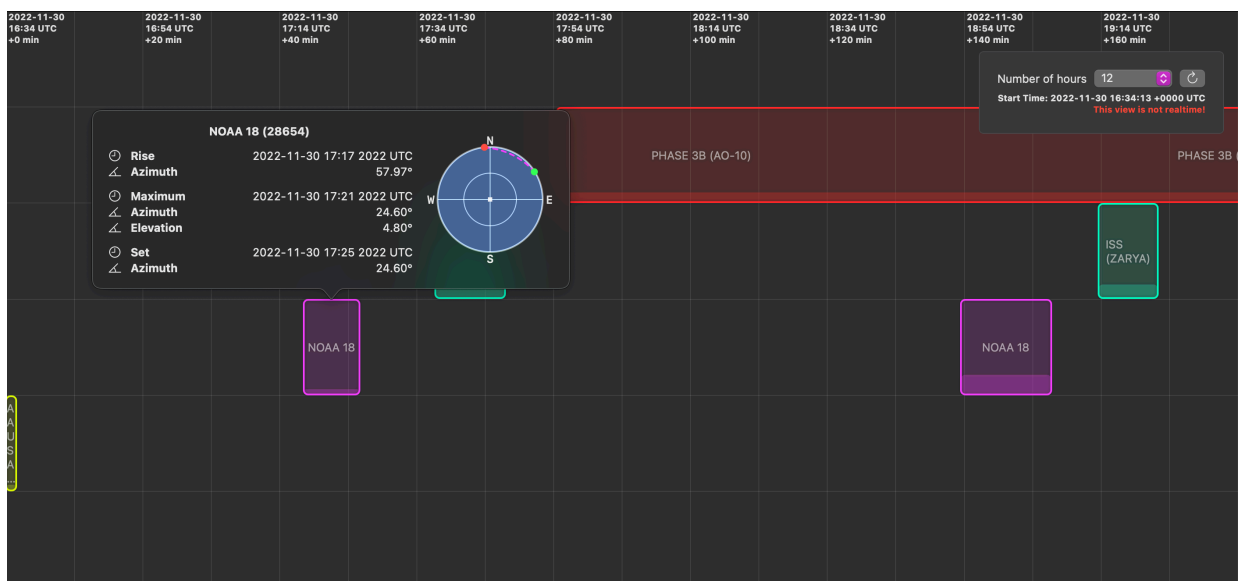
The timetable displays the times at which the satellites are visible. The level indicated the maximum elevation for the pass. You can click on the boxes to more information about the pass. The view is not realtime. You will have to refresh the view if you change the selection of satellites. The start date of this view is the date at which the predictions have been calculated/refreshed.

TLE Manager/Downloader
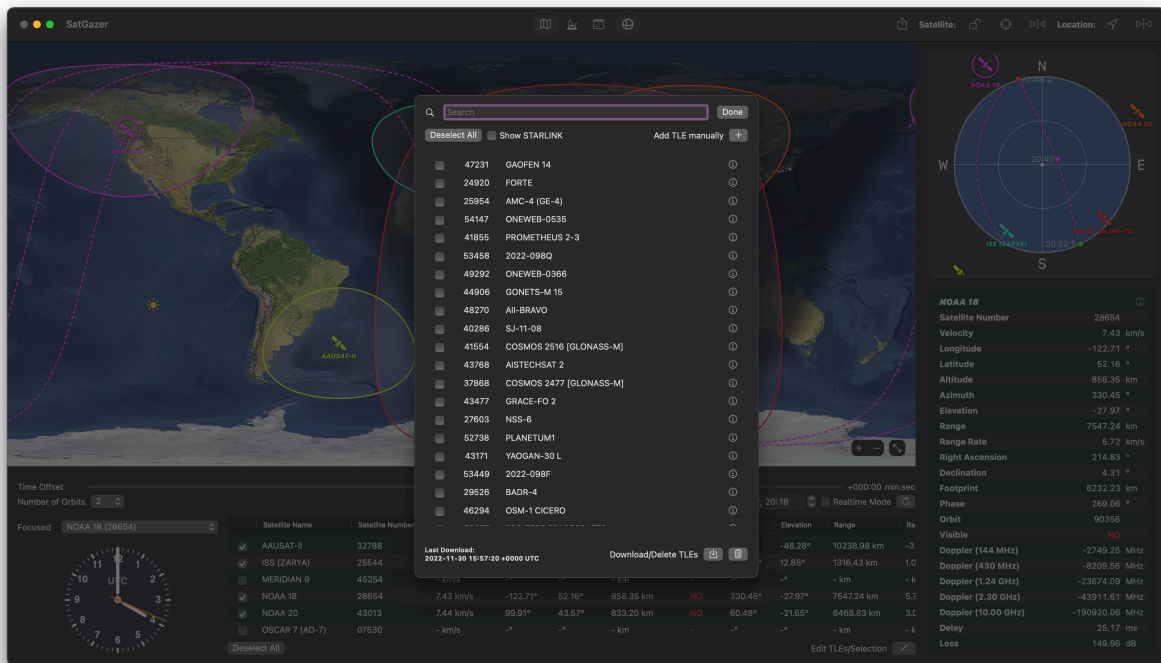
To open the TLE Manager/Downloader, click on the button with the pen below the table view with all satellites.

You can select the satellites that will show up in the table view. You can also add TLE data manually, by clicking on the plus button. Then you can select a correctly formatted text file with TLE data. For the format check the TLE data format on the default websites.