

Hochschule Bremen  
City University of Applied Sciences



HSB - Satellite Communication  
Satellite Tracker App - Manual

# Main Menu

After running the .exe file, your default browser will automatically open the web application for the Satellite Tracker.

The Main Menu serves as the central hub of the application and contains several collapsible buttons. These buttons will reveal their contents when clicked, allowing you to interact with and visualize the respective data and plots.

## Important: Select a Satellite First

First a satellite must be selected. The selection of a satellite is essential, as it generates the necessary data.

To select the Satellite, click on the button „Select Satellite“ to expand its container.

HSB - Satellite Communication - Satellite Tracker

Select Satellite

Data Table

Description

Radio

Plot

# Satellite Selection

First, choose a group from the dropdown menu labeled "Select Group", where you can select either Cubesat or Station.

Once a group is selected, the application will display the number of satellites available. The second dropdown menu labeled "Select Satellite" will now automatically be filled with the names of the satellites in the selected group.

After making your selection, the application will load the data for the container Description and Radio.

For generating the orbit data the values for location (default: Bremen), time (default: current day & time – tomorrow) and elevation (default: 10°) must be set. After that, click on create data table.

Select Satellite

Please select group:

Please select satellite:

Number of currently available satellites:

location:

Bremen

latitude:

53.0793

longitude

8.8017

start:

07.12.2024 20:00

end:

08.12.2024 20:00

elevation:

10

Create data table

Select Satellite

Please select group:

cubesat

Please select satellite:

#27844 - CUTE-1 (CO-55)

Number of currently available satellites: 116

location:

Bremen

latitude:

53.0793

longitude

8.8017

start:

07.12.2024 20:00

end:

08.12.2024 20:00

elevation:

10

Create data table

## Description & Radio

After selecting a satellite, the application will download the necessary data for the Description and Radio sections. This data is retrieved from the website [n2yo.com](http://n2yo.com).

Please note that the downloading process may take some time.

Additionally, if the corresponding container (e.g., Description or Radio) is already open during the download, its size may not update correctly to fit the newly loaded content. To resolve this, simply close the collapsible button for the section and reopen it. This will ensure the container adjusts to display the information properly.

Description			
<b>perigee:</b>	553.5 km	<b>apogee:</b>	610.6 km
<b>inclination:</b>	97.7 °	<b>period:</b>	96.2 minutes
<b>semi major axis:</b>	6953 km	<b>rsc:</b>	
<b>launch site:</b>	Orenburg, Russia (OREN)	<b>launch date:</b>	November 21, 2013
<b>source:</b>	United Kingdom (UK)		
<b>info:</b>			
FUNcube-1 is a complete educational single CubeSat project with the goal of enthusing and educating young people about radio, space, physics and electronics.			

Radio						
#	Call Sign	Uplink (Mhz)	Downlink (Mhz)	Beacon (Mhz)	Mode	Status
1		435.130-435.150	145.970-145.950	145.935	1200*bps BPSK SSB	Active
2		435.130-435.150	145.970-145.950	145.935	1200*bps BPSK SSB	Active

## Data Table

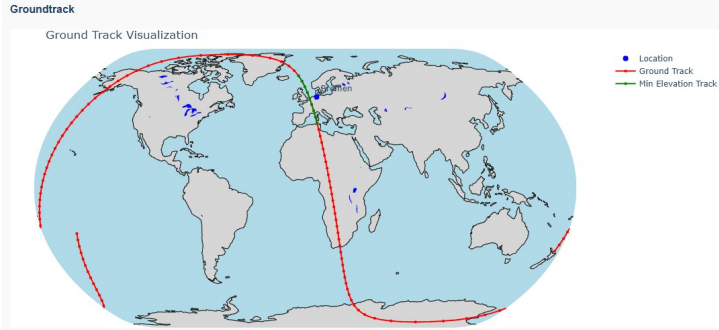
Once the data table is generated, it can be found under the Data Table section.

This table provides a comprehensive list of all possible orbits for the selected satellite based on the given location and within the specified elevation range. For each orbit, the table displays key details, including the date and time of the satellite's rise and set, as well as the latitude and longitude coordinates for both events.

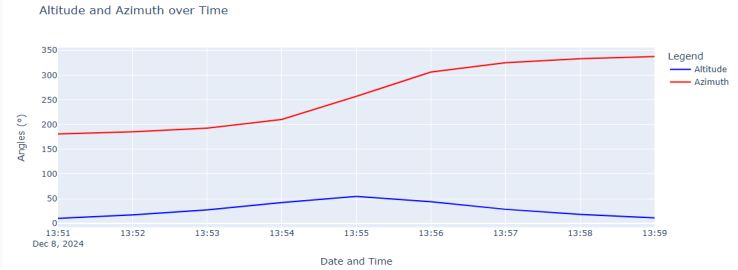
To create plots for a specific orbit, simply click on the corresponding row in the table.

#	from	latitude	longitude	to	latitude	longitude
1	2024-12-08 01:23	60.29	35.13	2024-12-08 01:27	45.82	28.43
2	2024-12-08 02:57	68.12	17.60	2024-12-08 03:05	39.33	2.29
3	2024-12-08 04:34	65.42	-9.12	2024-12-08 04:37	54.73	-16.05
4	2024-12-08 12:17	45.72	29.96	2024-12-08 12:23	67.27	17.59
5	2024-12-08 13:51	37.55	8.46	2024-12-08 13:59	66.49	-5.68

# Plots

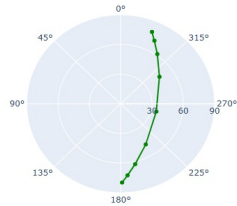


## Altitude & Azimuth



## Polar

### Polar Plot (Altitude vs Azimuth)



## Doppler shift

### Distance and Rate of Change over Time

