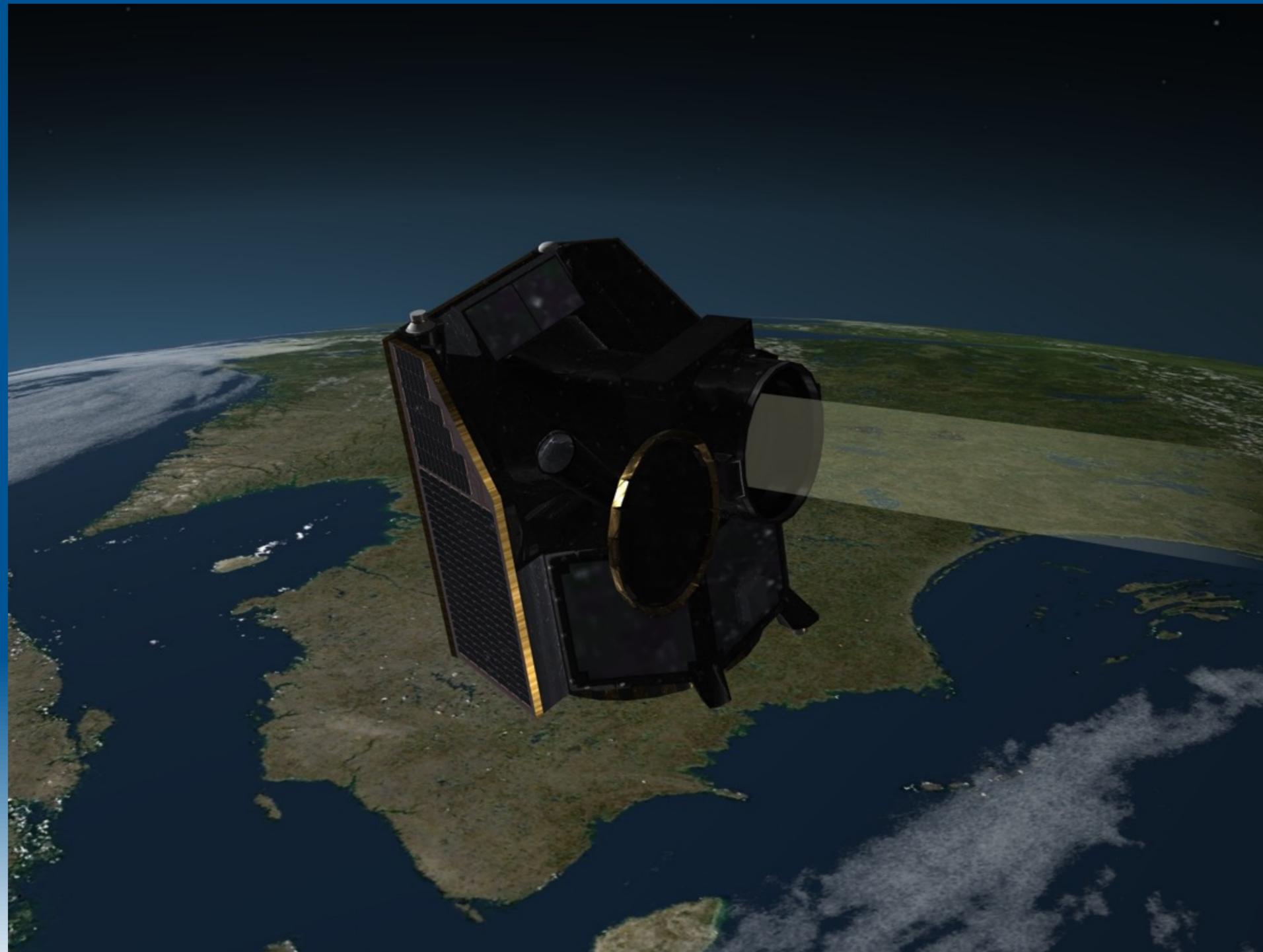


SAMIEdit - Getting Started

CHEOPS

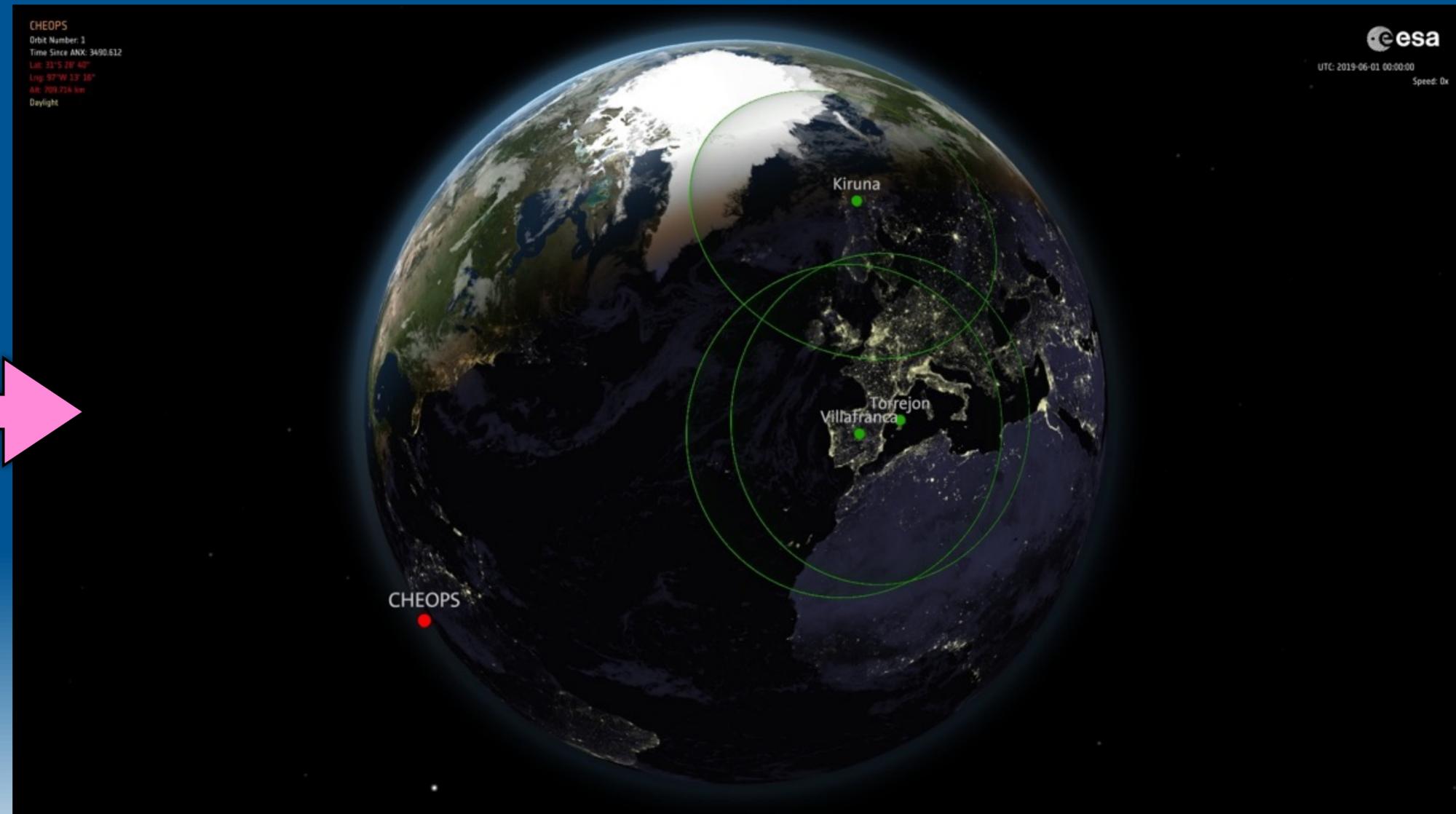
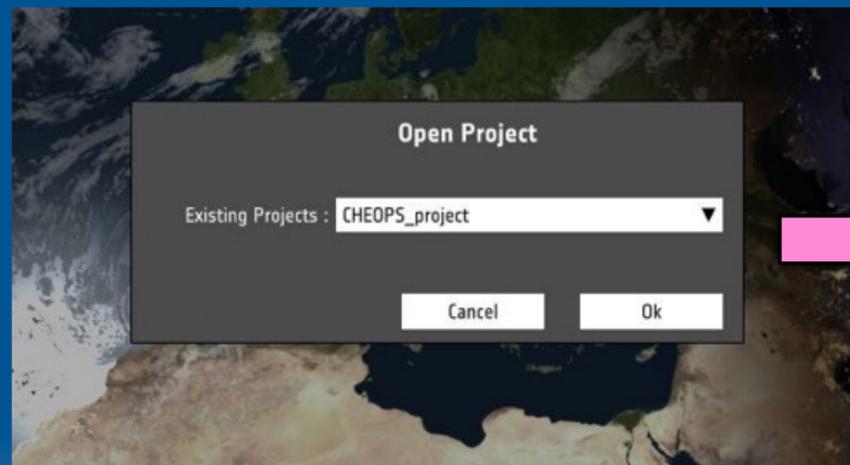


Load Example Project

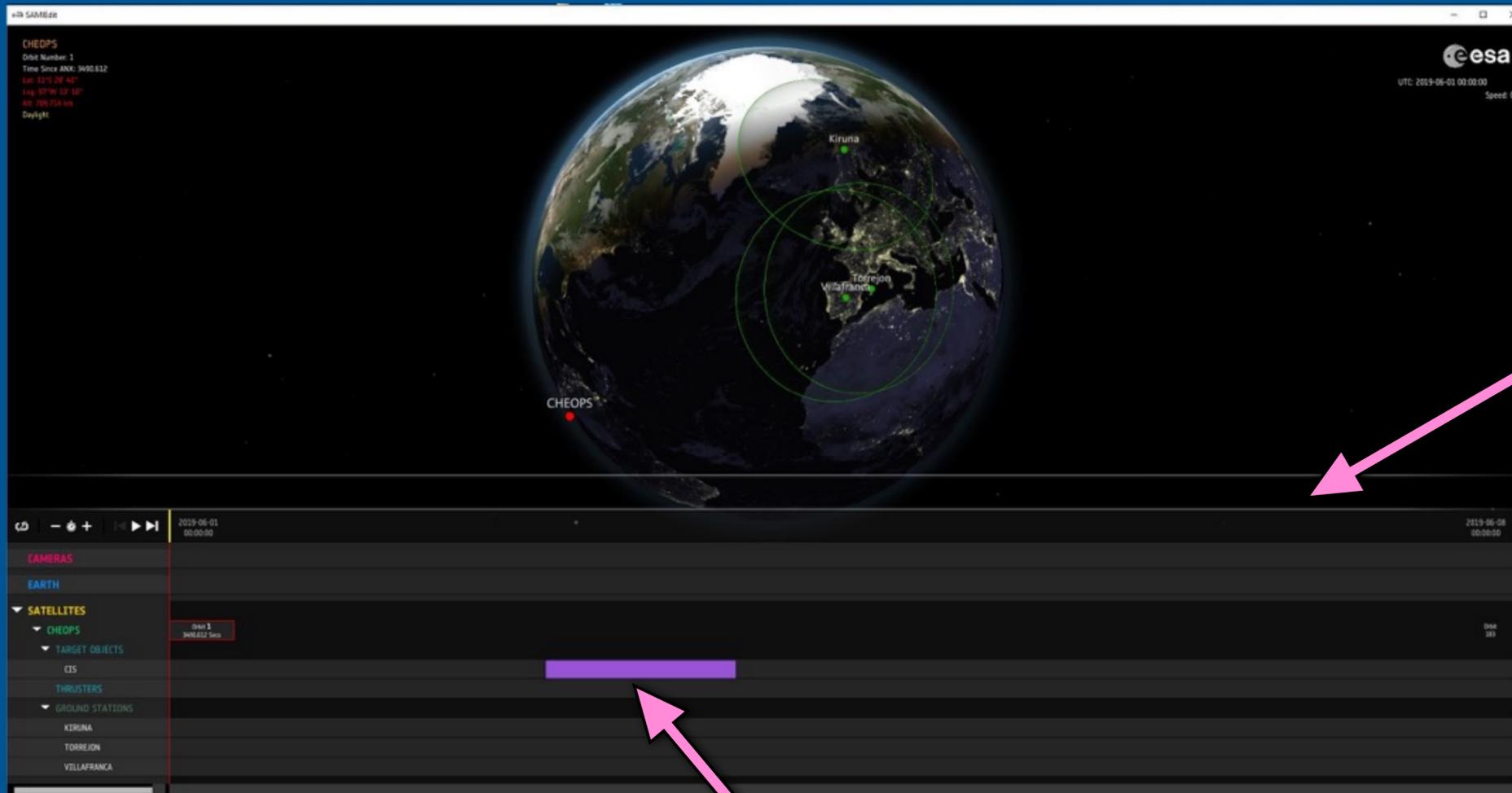
- Project —> Open



- Select CHEOPS_project



Inspect Example Project



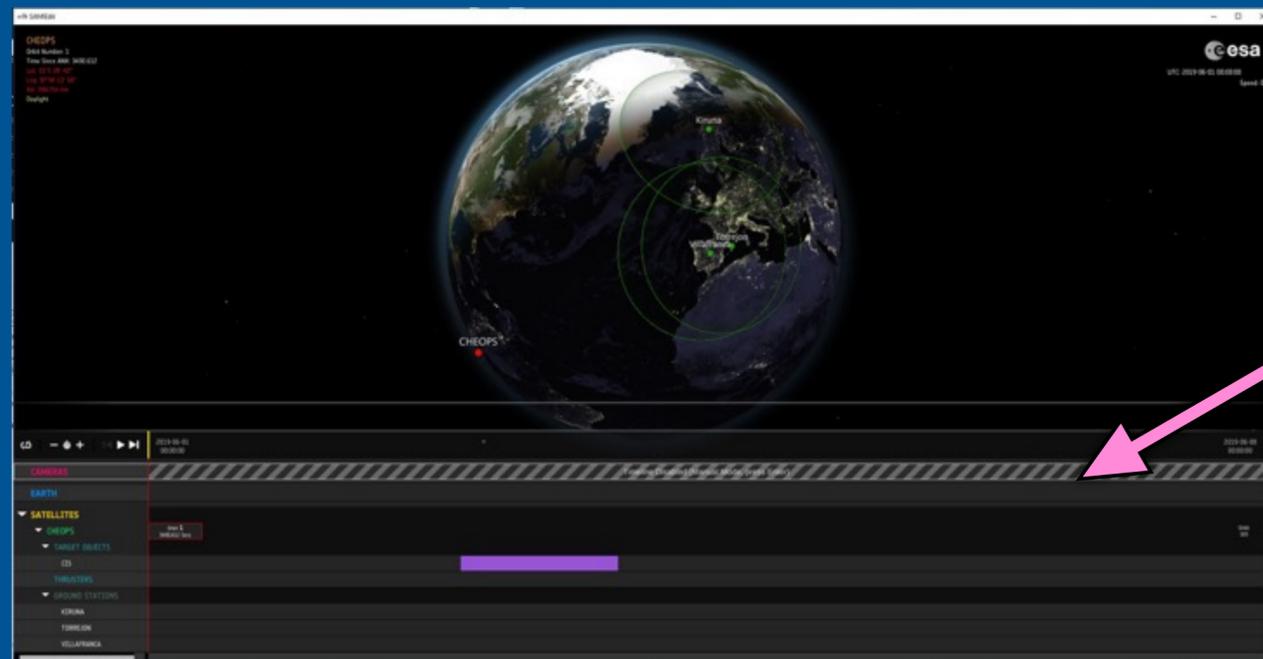
Mouse click and drag up/down to display the Timeline editor

Time block indicating when the instrument is observing a star

Set Camera to Manual Mode

- Cameras —> Enable Manual Camera Mode

Application	Project	Simulation	Cameras	Ground Stations	Satellites	Export	?
Enable Manual Camera Mode							

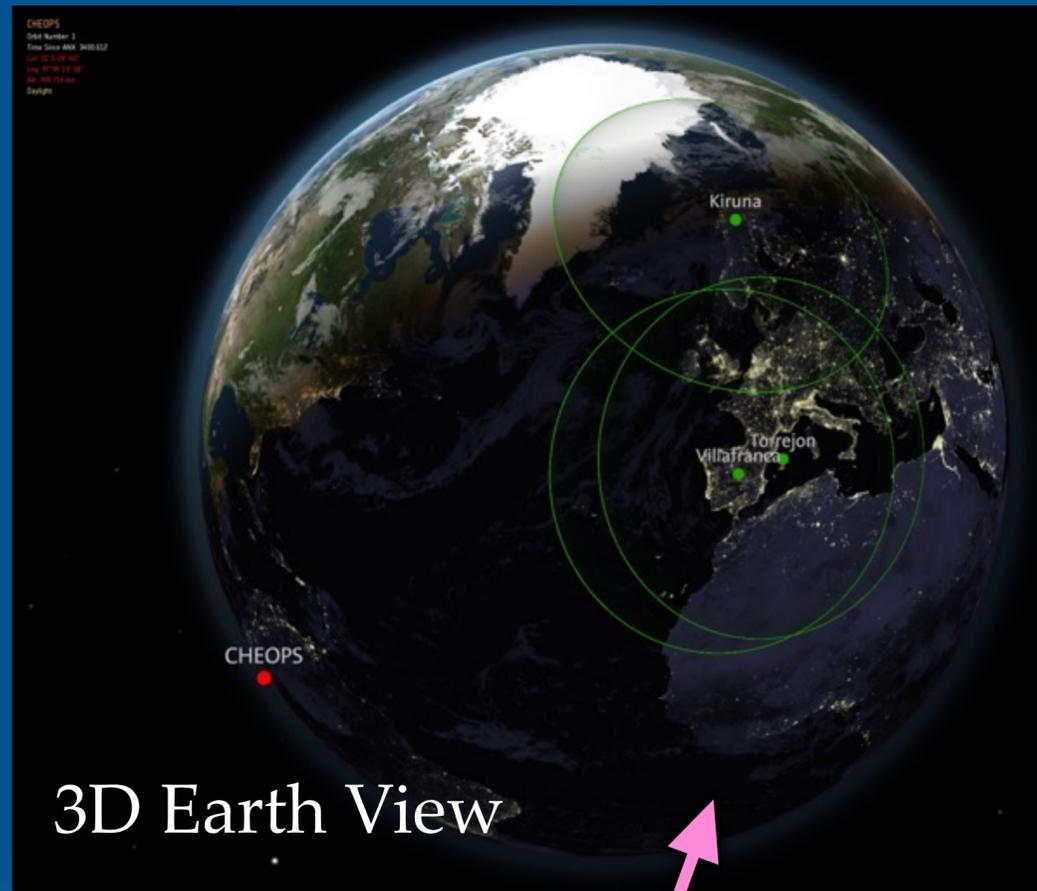


Camera in Timeline Mode is disabled

- Changes in camera view are triggered manually by pressing the 'Enter' key

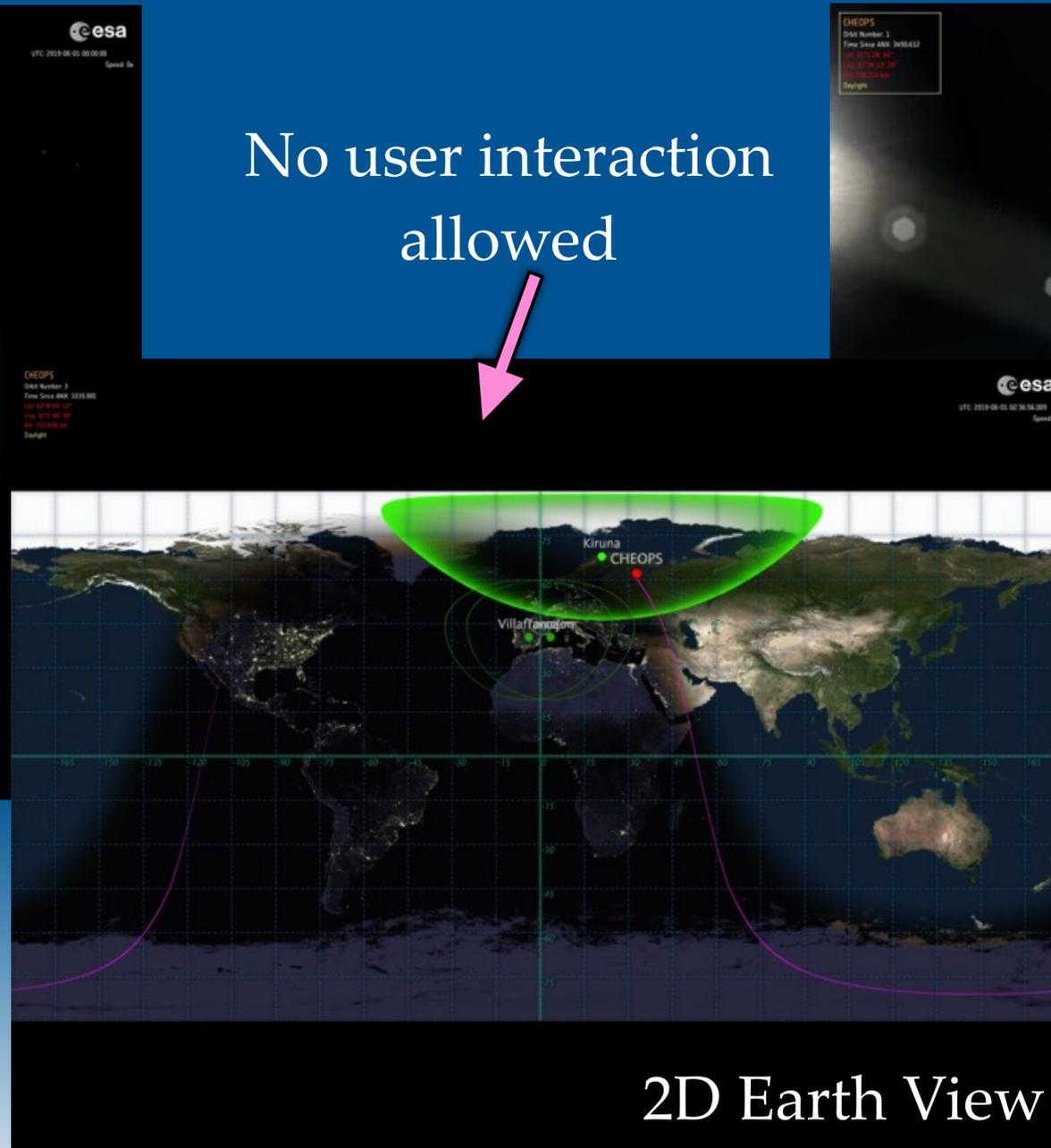
Change Manually Camera View

- Three camera views available by default



3D Earth View

Allowed user interaction:
Rotate, zoom and pan



2D Earth View

No user interaction
allowed

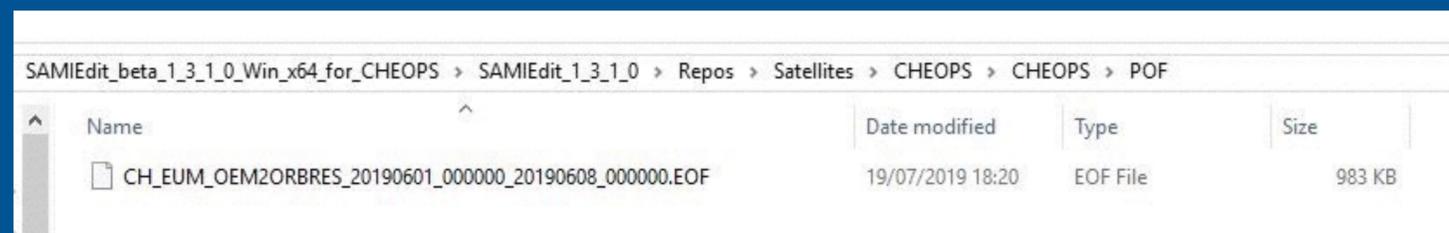


Satellite View

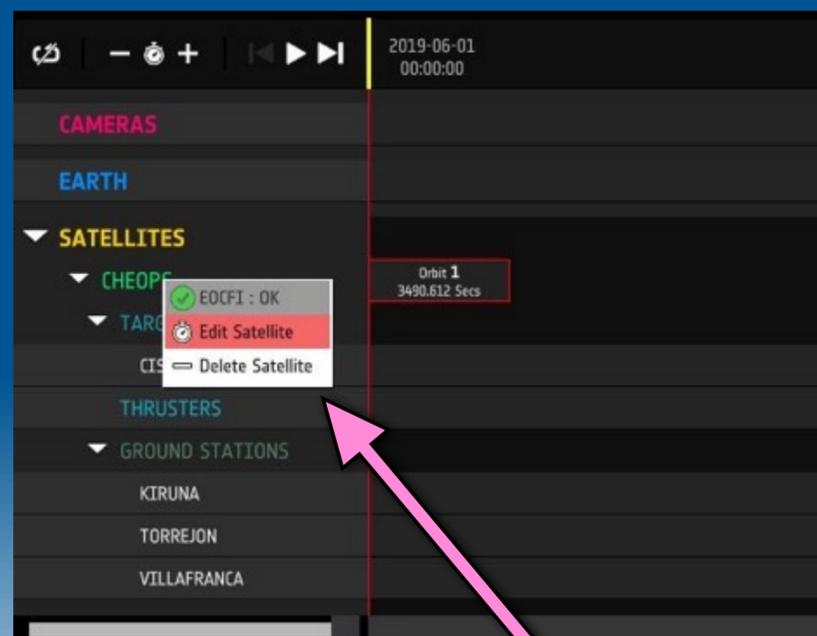
Allowed user interaction:
Rotate, zoom and pan
Double-click on telescope
cover to open/close

CHEOPS Orbit

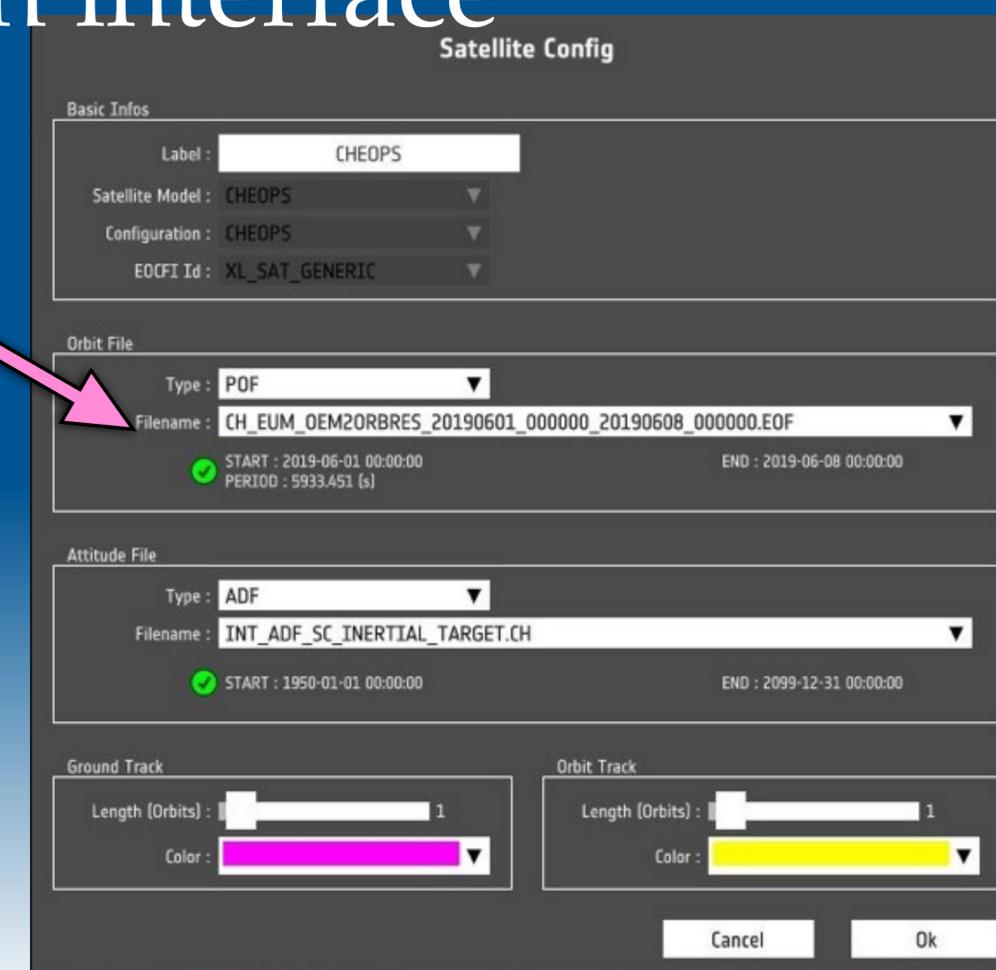
- Orbit File (in EO XML GS format) copied into “POF” folder



- Orbit File loaded through application interface



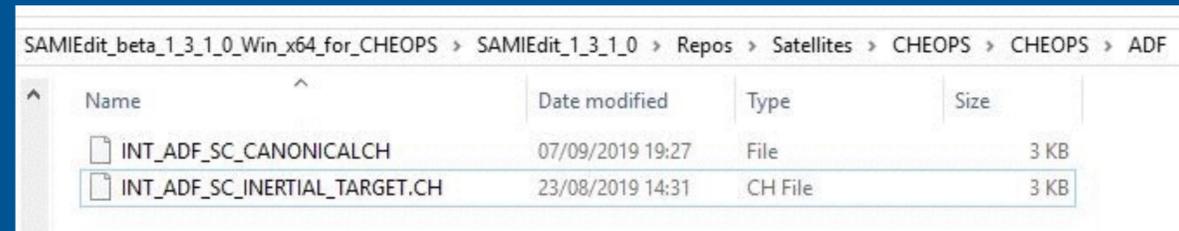
Select Orbit filename
in POF folder



Right-click on CHEOPS

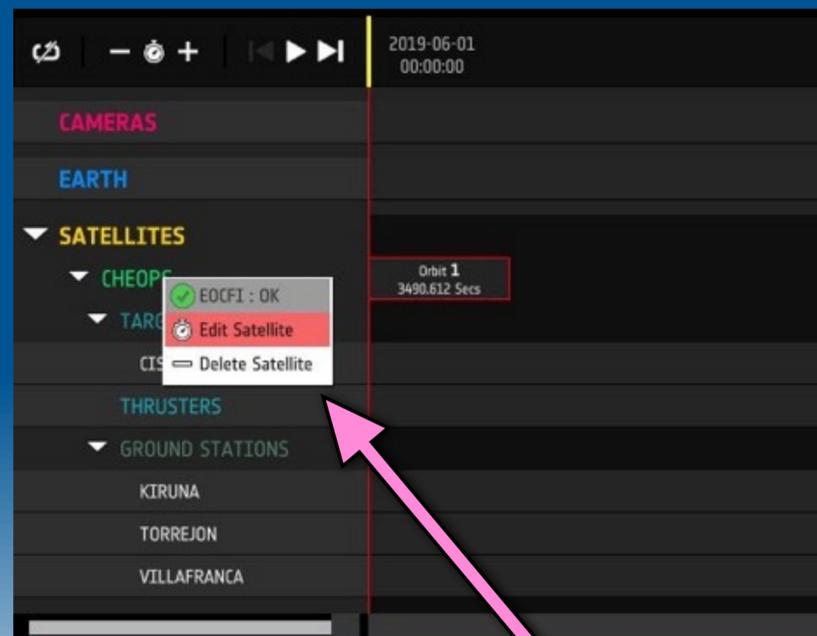
CHEOPS Attitude

- Attitude Definition File (in EO XML GS format) copied into “ADF” folder



Name	Date modified	Type	Size
INT_ADF_SC_CANONICALCH	07/09/2019 19:27	File	3 KB
INT_ADF_SC_INERTIAL_TARGET.CH	23/08/2019 14:31	CH File	3 KB

- Attitude Definition File loaded through application interface



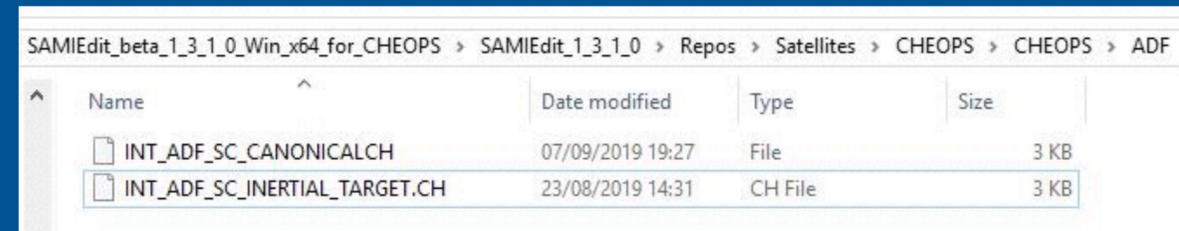
Right-click on CHEOPS

Select Attitude filename
in ADF folder



CHEOPS Attitude

- Two attitude Definition Files are provided by default in the “ADF” folder



Name	Date modified	Type	Size
INT_ADF_SC_CANONICAL.CH	07/09/2019 19:27	File	3 KB
INT_ADF_SC_INERTIAL_TARGET.CH	23/08/2019 14:31	CH File	3 KB

- ★ Canonical —> Primary axis pointing to the opposite direction to the Sun
- ★ Inertial Target —> Primary axis pointing to the star location

```
27 <Data_Block type="xml">
28   <Attitude_Definition>
29     <Sat_Nominal_Att>
30       <Parameter_Model>
31         <Model>GENERIC</Model>
32         <List_of_Parameters count="10">
33           <Parameter>0</Parameter>
34           <Parameter>6</Parameter>
35           <Parameter>255.0</Parameter>
36           <Parameter>0.0</Parameter>
37           <Parameter>0.0</Parameter>
38           <Parameter>2</Parameter>
39           <Parameter>2</Parameter>
40           <Parameter>0.0</Parameter>
41           <Parameter>0.0</Parameter>
42           <Parameter>0.0</Parameter>
43         </List_of_Parameters>
44       </Parameter_Model>
45     </Sat_Nominal_Att>
```



Coordinates of the target star (RA,DEC)

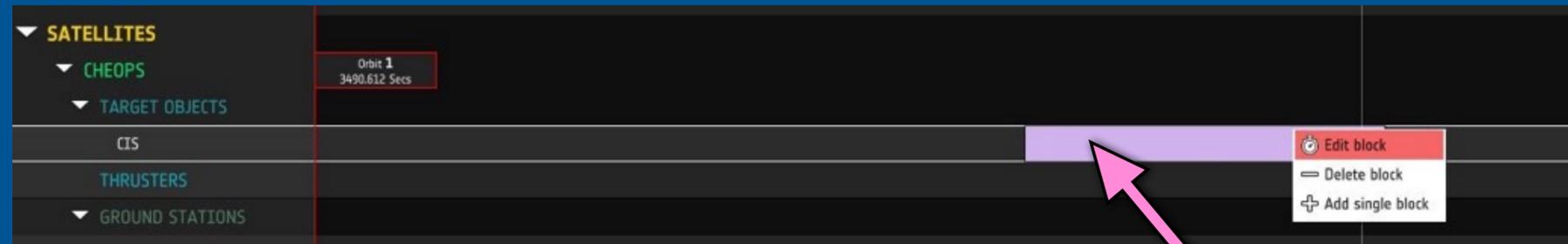
CHEOPS Attitude (II)



- It is also possible to supply attitude quaternion data (in EO XML GS file format) through the “ATT” folder
- Useful to display transitions between attitude modes

Display Instrument Field-of-View

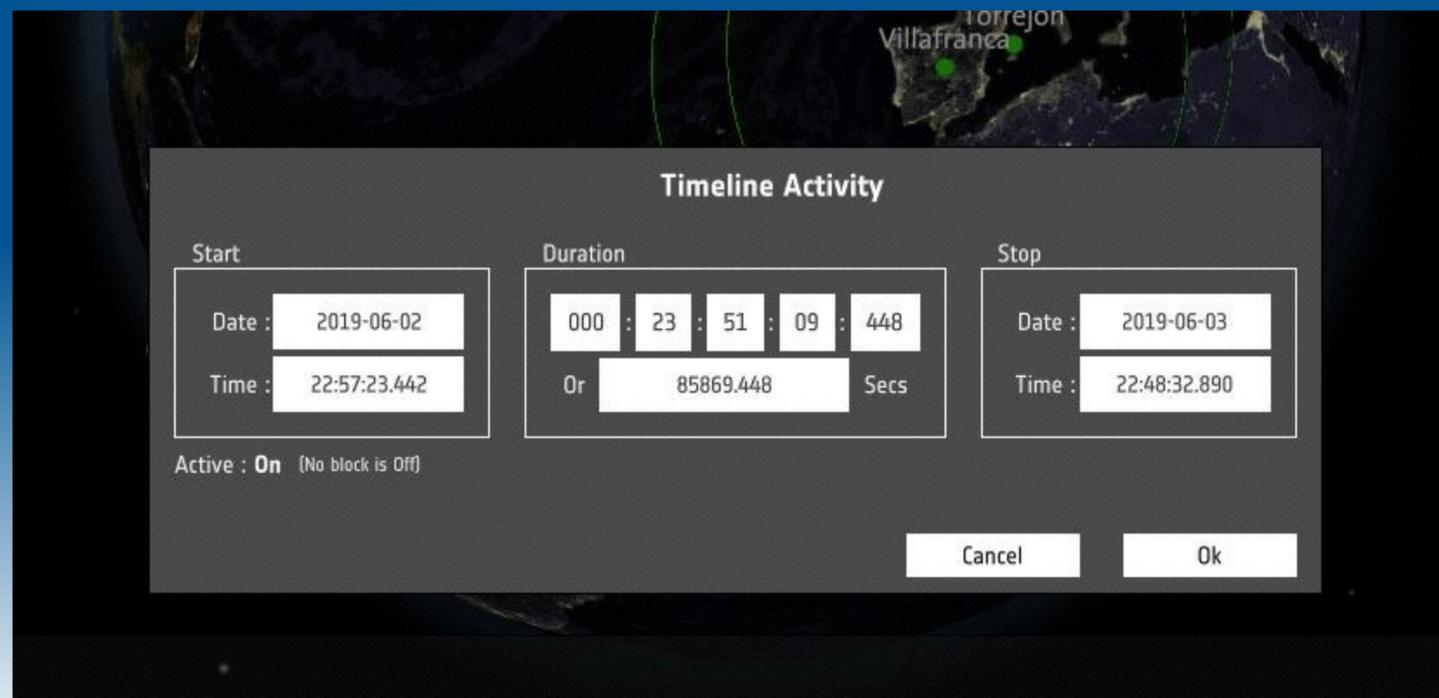
- Add a time block in the “Target Objects” timeline element



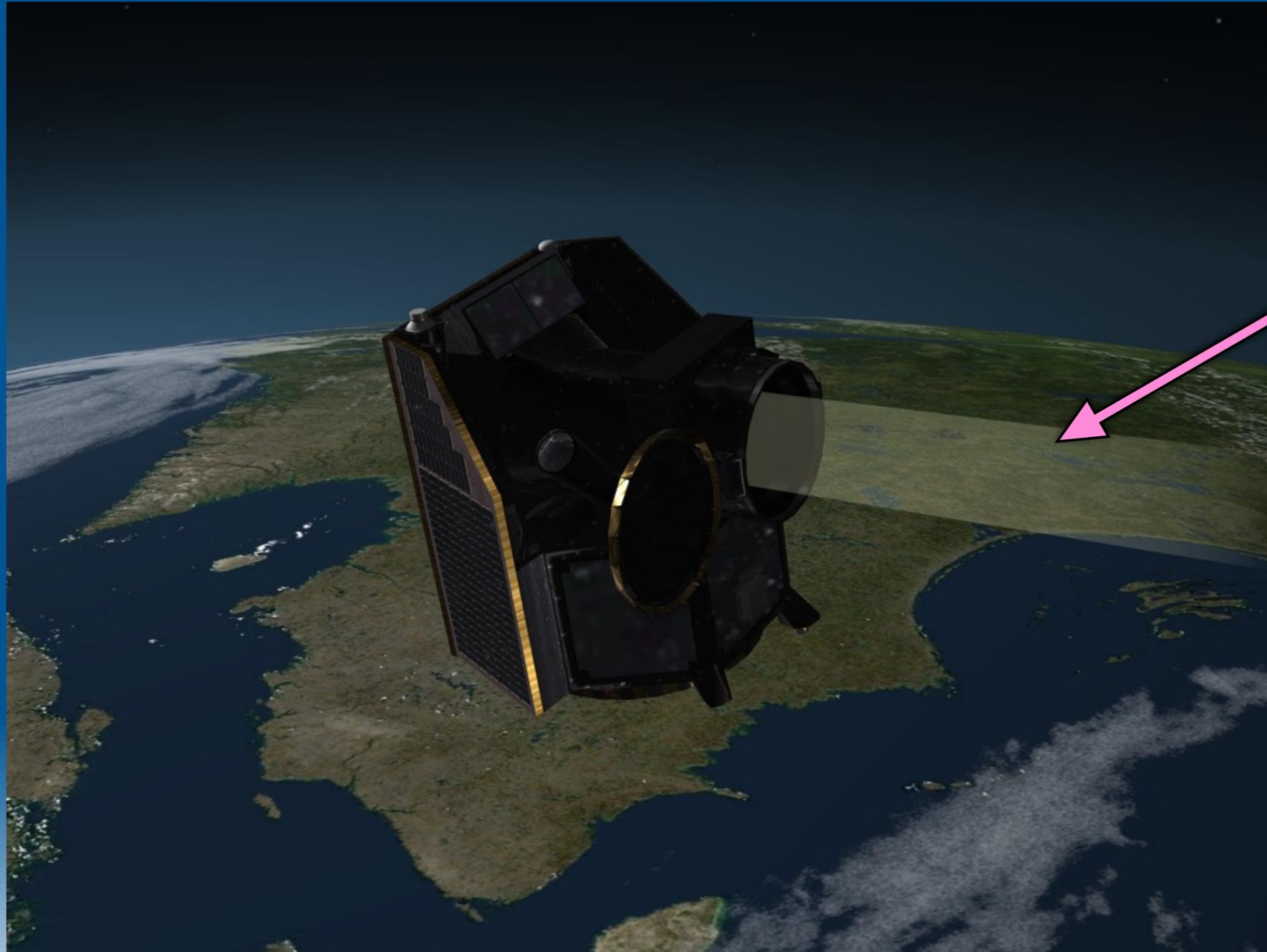
Right-click and drag to create blocks

Right-click on block to edit

- The Start/Stop UTC times can be edited



Display Instrument Field-of-View (II)



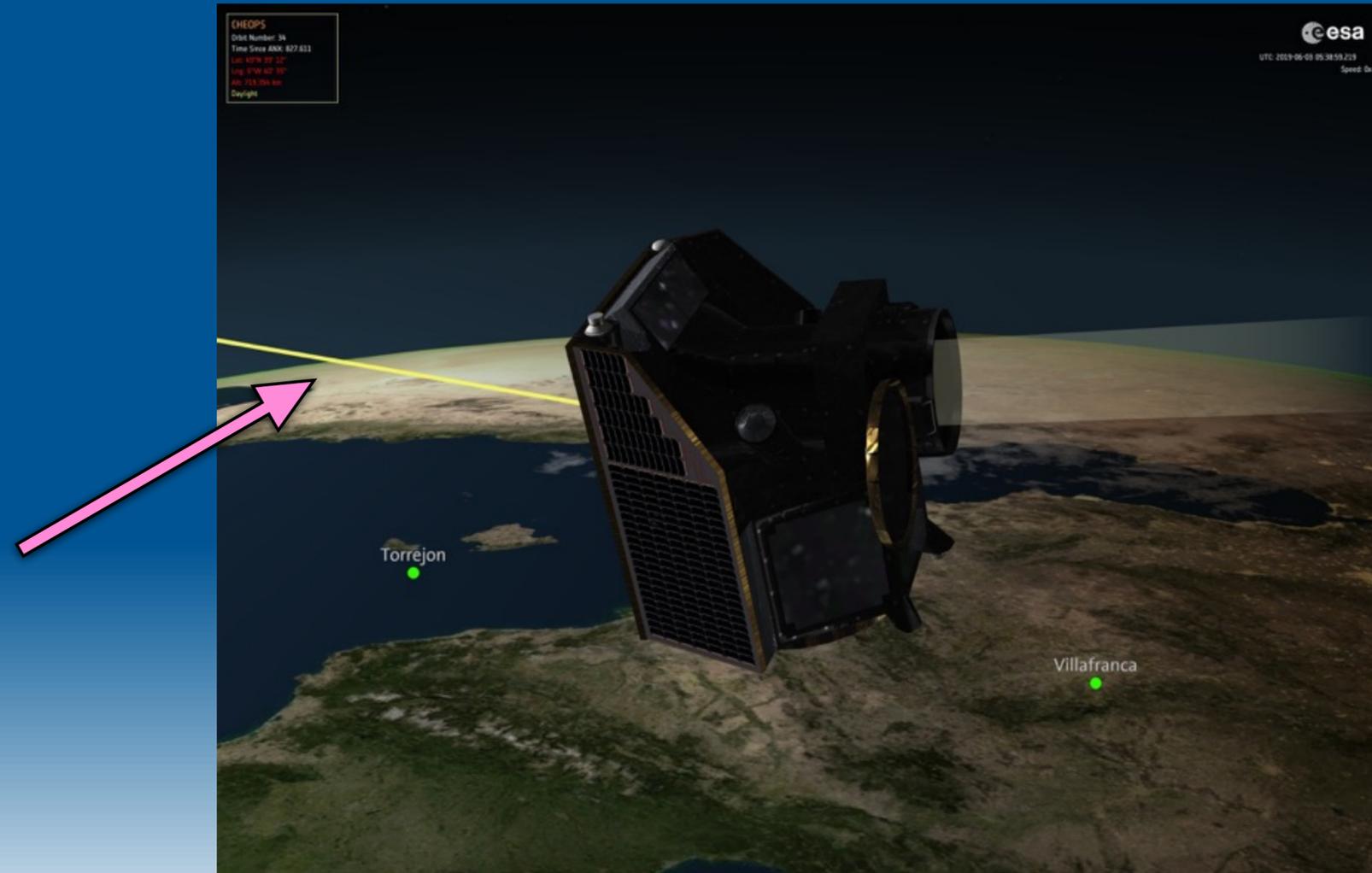
Whenever the simulation time goes through an instrument time block, the field-of-view of the telescope is displayed

Display Sunlight Ray Direction

- Application —> Show Sunlight Rays

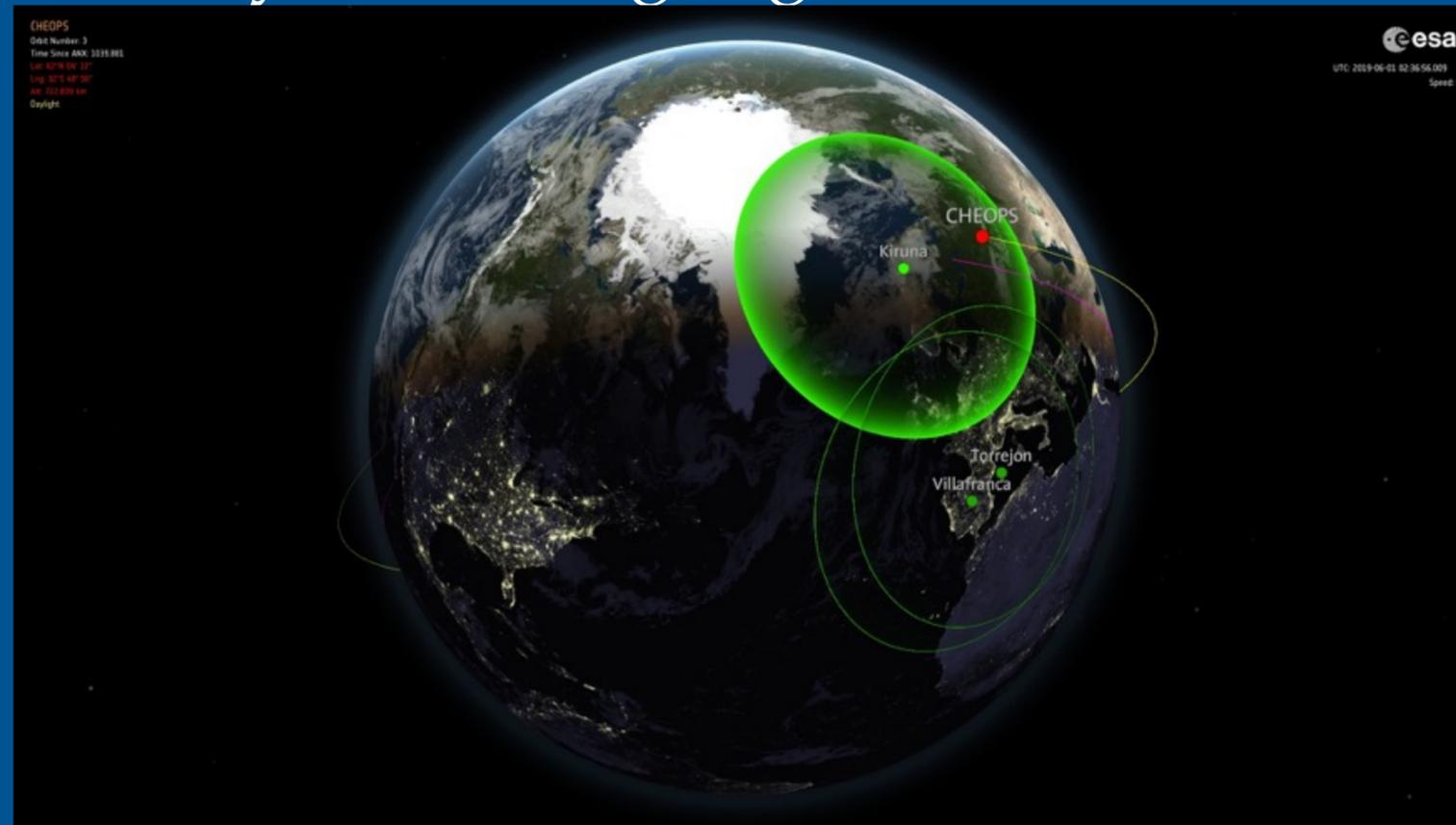
Application	Project
Set FullScreen	F11
Show FPS	Ctrl F
Hide UI Overlay	Ctrl U
Show Sunlight Rays	Ctrl L
Quit	Esc

Direction to the Sun can be displayed
to check satellite Sun illumination



Ground Station Visibility

- Ground Station visibility area is highlighted whenever CHEOPS is in visibility



- List of default CHEOPS Ground Stations can be found in file “GroundStations_Ids.txt”

The image is a screenshot of a Windows File Explorer window. The address bar shows the path: SAMIEdit_beta_1_3_1_0_Win_x64_for_CHEOPS > SAMIEdit_1_3_1_0 > Repos > Satellites > CHEOPS. The main area displays a list of files and folders with columns for Name, Date modified, Type, and Size. The file 'GroundStations_Ids' is highlighted in blue.

Name	Date modified	Type	Size
CHEOPS	09/09/2019 16:25	File folder	
cheops_def_win.bundle	22/08/2019 20:25	BUNDLE File	5,307 KB
cheops_def_win.bundle.manifest	22/08/2019 20:25	MANIFEST File	4 KB
EOCFI_Ids	01/05/2019 15:25	Text Document	1 KB
GroundStations_Ids	23/07/2019 09:57	Text Document	1 KB

Support Tools

- Executable tool [OEM_XML2OrbitFile](#) to transform from OEM XML orbit file to EO XML GS Orbit File format
- Executable tool [TLE2ORBP](#) to transform from TLE orbit file to EO XML GS Orbit File format

Example of
TLE file, saved as
tle_20_DEC_2019_1.txt



```
CHEOPS
1 44874U 19092B 19354.15736652 -.00000046 00000-0 00000+0 0 9995
2 44874 98.2275 175.8674 0007499 299.9362 60.1092 14.56925462 258
```

Example of input configuration file



```
GENERIC
CHEOPS
44874
19092B
tle_20_DEC_2019_1.txt
30.0
```

Note: TLE files for CHEOPS mission cannot be loaded directly in SAMI as type 'TLE'.
The TLE file needs to be converted EO XML GS orbit file using TLE2ORBP.
The output orbit file can then be ingested in SAMI as type 'POF', see Slide 6

User Support



- SAMI User Support contact e-mail sami@eopp.esa.int
- For further details on the application interface and available features, please have a look to the SAMI Quick Start Guide [SAMIEdit_Quick_Start_Guide_Desktop_v1_3_4.pdf](#)