

ESOVNG: Zone Overpass Table Calculation Steps 0-2



0) Select the satellite

Select the mission (File→ New Scenario)

1) Set the orbit

In the Orbit tool window (tab on the right side of main window frame), select the orbit scenario file ('Use Orbit Scenario File' checkbox) or predicted orbit file ('Use Predicted Orbit File' checkbox).

By default, an orbit file may be preloaded, but please check if it is the latest Orbit Scenario File available.

Latest versions of Orbit Scenario Files or Predicted Orbit Files for the supported missions can be found in the EOP System Support web server, under the link (request username/password):

<https://eop-cfi.esa.int/index.php/applications/esov/esov-ng-download>

The orbit files are available in the sub-folder AUX_DATA/.

Click on the icon  to trigger the file selection dialog.

2) Set the absolute orbit or UTC time range of interest

After setting the orbit/time range, click on the “Apply” button

ESOVNG: Zone Overpass Table Result Calculation Steps 1-2



SENTINEL5P - <unnamed scenario> - Esov NG 2.4.2

Layer Manager

- Shore Lines
- Political Borders
- Grid
- Zones
- Stations
- POIs
- SENTINEL5P
 - ORBIT
 - Station Perimeters
 - Instruments

Style

<no layer selected>

SENTINEL5P - Instruments

Use Mission Timelines File (SCF):

Apply SZA [deg.]: 0.0

Id	Scope
ORBIT	ON
TROPOMI	OFF

Apply

Map 1

Mission: SENTINEL5P / Fir

<please select an instrument in the layer manager>

SENTINEL5P - Orbit

Use orbit parameters
 Use Orbit Scenario File
 Use Predicted / Restituted Orbit File Swath Update Interval (orbits): 1
 Use TLE

OSF File Selection

P:/OSF/S5P_OPER_MPL_ORBSCT_20171013T104928_99999999T999999_0005.EOF

OSF Orbit Settings

RepCycle	CycleLen	AbsRefOrb	LonAnx	FirstOrb	LastOrb	Drift	Quadratic	
<input type="radio"/>	285	4051	1	40.140000	1	59	1.00	0.0000...
<input type="radio"/>	179	2544	60	345.842296	60	184	0.90	0.0000...
<input type="radio"/>	399	5666	185	59.568711	185	283	0.10	0.0000...
<input type="radio"/>	127	1802	284	69.798150	284	353	-0.20	0.0000...
<input checked="" type="radio"/>	1045	14826	354	93.771513	354	99999	-0.20	0.0000...

Info

Orbital Period [s]: 6089.83 Equatorial Separation [km]: 2.70

Orbits per day: 14.19 Altitude (max/min/avg) [km]: 856/831/835

Anx. Date: 2017-11-07T07:15:08

Graphical Settings

Orbits Dates

Start Orbit: 354 Start Date: 2017-11-07T07:15:08

of Orbits: 1 Stop Date: 2017-11-07T08:56:37

Points per Orbit: 100 Show Orbits: FULL

Apply

Ready

197M of 558M

ESOVNG: Zone Overpass Table Calculation Steps 3-4



3) Select zones of interest

- a) Use pre-defined zones → skip step 4), go to step 5)
- b) To define or import user-defined zones → go to step 4)

4) Create user-defined zones

- a) Manually creating the zone using the Zone Database Editor with the menu option Edit --> Zone Database:
 - i. Option 'Default User Database' by inserting a new zone ('+' icon), either circle or polygon. A circle with very small diameter (e.g. 0.01 km) would be a ground point. The coordinates can be entered either manually or by clicking on the map.
 - ii. Option 'Other User Database': by loading a zone database file
- b) Converting from KML file or shapefile format to Zone Database file format (menu options Tools→Shapefile to Zones or Tools→KML to Zones) and then loading the resulting Zone Database file with the option 'Other User Database'

ESOVNG: Zone Overpass Table Calculation Steps 5-7



5) Add the zone to the scenario

Go to Zones tool window, click the '+' icon, 'Add zones to scenario' and select the zone(s) of interest

6) Set the scope of the ground-track (ORBIT) or INSTRUMENT swath to ZONE in the pull-down menu

The calculation is performed. The active instruments (i.e. with the scope not set to OFF) will appear in the Layer Manager, under the node 'Instruments'. Click on the arrow next to it to expand the child elements under the 'Instrument' node.

7) Inspect the resulting visibility time segments

Select the ORBIT or INSTRUMENT swath node in the Layer Manager (top-left panel) and check the contents of 'Segments' tool window. The list of segments is displayed

ESOVNG: Zone Overpass Table Result Calculation Steps 3-7



SENTINEL5P - <unnamed scenario> - Esov NG 2.4.2

Map 1

2139 km

180 2913 km -150 -120 -90 -60 -30

60 60 30 0

Map Orbit SSP Zones Stations Map Overview

Layer Manager

- Zones
- Stations
- POIs
- SENTINEL5P
 - ORBIT
 - Station Perimeters
 - Instruments
 - TROPOMI
 - User Shapes
 - Coastline

Style - Instrument TROPOMI (3 seg...)

Style Info

Opacity 50 %

Color #993366

Style

Show Orbit Numb... No

(Name)
(Description)

SENTINEL5P - Instruments

Use Mission Timelines File (SCF):

Apply SZA [deg.]: 0.0

Id Scope

ORBIT ON

TROPOMI ZONE

Apply

Mission: SENTINEL5P / First Orbit: 354 (2017-11-07T07:15:08) / Last Orbit: 356 (2017-11-07T12:19:37)

SENTINEL5P / TROPOMI - Segments

V	Id	Color	Start Orbit	Start Sec	Start UTC	Stop Orbit	Stop Sec	Stop UTC	Zone	Station	Geo
	0		354	1869	2017-11-07T07:46:16	354	2823	2017-11-07T08:02:10	ZNAM		
	1		355	1832	2017-11-07T09:27:09	355	2608	2017-11-07T09:40:05	ZNAM		
	2		356	1723	2017-11-07T11:06:50	356	2300	2017-11-07T11:16:27	ZNAM		

Ready

164M of 599M

ESOVNG: Zone Overpass Table Optional: Calculation Step 8



8) Export of Calculated Time Segments

With menu option File --> Export Segments

Several types of output file are available, in different formats
(.TXT, .CSV, .XML)

a) UTF (UTC times)

b) LLF (Longitude-Latitude files)

c) SCF (same as UTF, but with segment style associated to each segment).

d) KML (swath on Earth), Google Earth format

The exported data is saved in a folder , containing one file for each ORBIT or INSTRUMENT which is active (i.e. with the scope not set to OFF)

