

## Chapter 4

# SBF Converter



## 4.1 Introduction

SBF Converter is a conversion utility which allows users to convert SBF logged files of the Septentrio Receiver to other formats such as RINEX, ASCII, GPX and KML. The commands, if logged in a file, can also be converted to a readable text format. Once SBF Converter 15.0.0 is installed, it can be launched by clicking the `SBF Converter` short-cut icon created by the installation program. Please consult the HTML help pages of SBF Converter 15.0.0 for more information on this program.

### 4.1.1 SBF Converter compatibility

**SBF Converter 15.0.0** can convert data logged using any Septentrio Receiver however, some older SBF blocks particular to the PolaRx2/2e may not be fully compatible with SBF Converter.

### 4.1.2 Launching SBF Converter

SBF Converter can be launched in several ways: using the RxLauncher GUI, from the Start menu on a Window's PC, a shortcut to the SBF Converter executable can be found under

'Septentrio RxTools'. You can also launch SBF Converter via the 'Tools' menu of any of the GUI tools, for example from RxControl as shown in Figure 4-2. Users who prefer to use the command line are advised to use the SBF Tools and are directed to Section 11 on page 164 for more information.

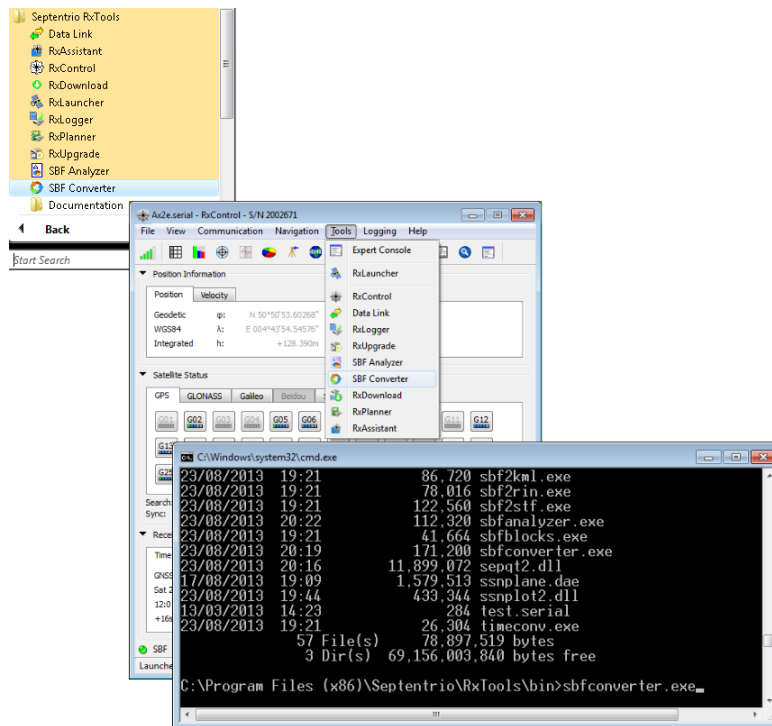


Figure 4-2: Launching the SBF Converter GUI

## 4.2 Using SBF Converter: a worked example

### 4.2.1 Conversion to RINEX

SBF files can be opened in SBF Converter by clicking on either the folder icon next to the *Single file* field or the *Choose file* button next to the *Multiple files* field as Figure 4-3 shows.

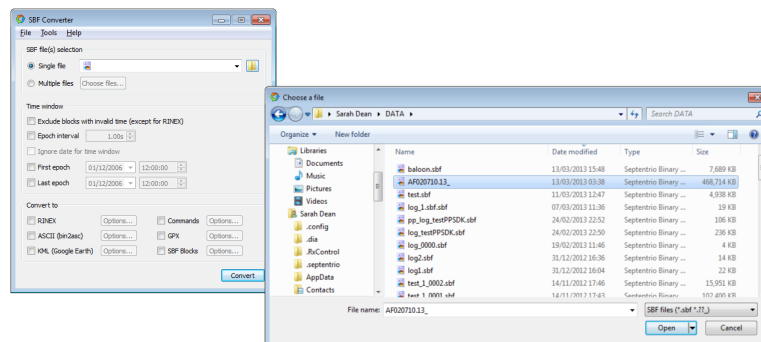
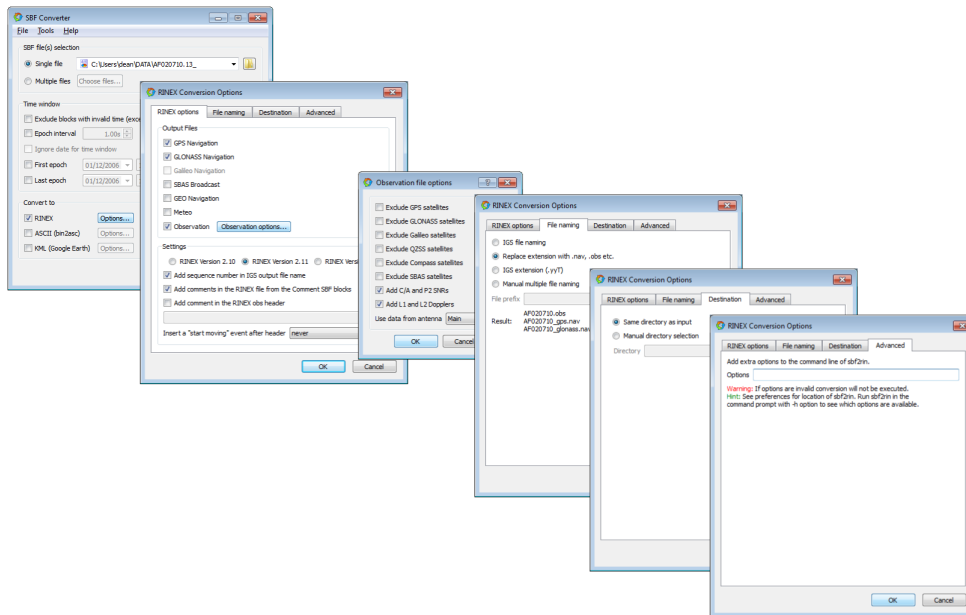


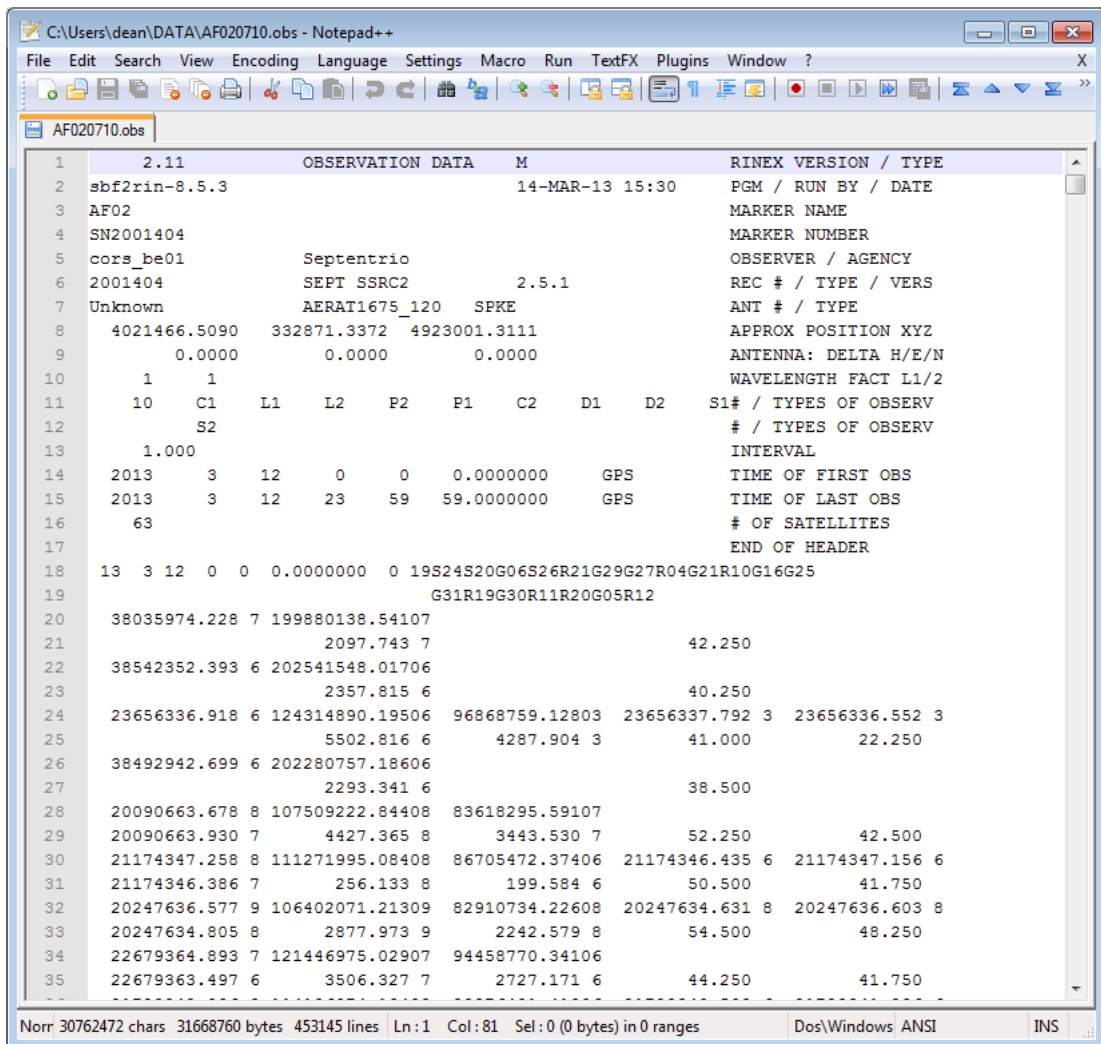
Figure 4-3: Opening a file with SBF Converter

The sequence of screenshots in Figure 4-4 on the following page show the steps involved in configuring SBF Converter to convert SBF data to the RINEX format.



**Figure 4-4:** Configurations for RINEX conversion

Having made the configuration for RINEX conversion, you can then click on the *Convert* button which will produce a RINEX file similar to the example shown in Figure 4-5 on the next page.



```

1 2.11 OBSERVATION DATA M RINEX VERSION / TYPE
2 sbf2rin-8.5.3 14-MAR-13 15:30 PGM / RUN BY / DATE
3 AF02 MARKER NAME
4 SN2001404 MARKER NUMBER
5 cors_be01 Septentrio OBSERVER / AGENCY
6 2001404 SEPT SSRC2 2.5.1 REC # / TYPE / VERS
7 Unknown AERAT1675_120 SPKE ANT # / TYPE
8 4021466.5090 332871.3372 4923001.3111 APPROX POSITION XYZ
9 0.0000 0.0000 0.0000 ANTENNA: DELTA H/E/N
10 1 1 WAVELENGTH FACT L1/2
11 10 C1 L1 L2 P2 P1 C2 D1 D2 S1# / TYPES OF OBSERV
12 S2 # / TYPES OF OBSERV
13 1.000 INTERVAL
14 2013 3 12 0 0 0.0000000 GPS TIME OF FIRST OBS
15 2013 3 12 23 59 59.0000000 GPS TIME OF LAST OBS
16 63 # OF SATELLITES
17 END OF HEADER
18 13 3 12 0 0 0.0000000 0 19S24S20G06S26R21G29G27R04G21R10G16G25
19 G31R19G30R11R20G05R12
20 38035974.228 7 199880138.54107
21 2097.743 7 42.250
22 38542352.393 6 202541548.01706
23 2357.815 6 40.250
24 23656336.918 6 124314890.19506 96868759.12803 23656337.792 3 23656336.552 3
25 5502.816 6 4287.904 3 41.000 22.250
26 38492942.699 6 202280757.18606
27 2293.341 6 38.500
28 20090663.678 8 107509222.84408 83618295.59107
29 20090663.930 7 4427.365 8 3443.530 7 52.250 42.500
30 21174347.258 8 111271995.08408 86705472.37406 21174346.435 6 21174347.156 6
31 21174346.386 7 256.133 8 199.584 6 50.500 41.750
32 20247636.577 9 106402071.21309 82910734.22608 20247634.631 8 20247636.603 8
33 20247634.805 8 2877.973 9 2242.579 8 54.500 48.250
34 22679364.893 7 121446975.02907 94458770.34106
35 22679363.497 6 3506.327 7 2727.171 6 44.250 41.750
    
```

Figure 4-5: Example of a RINEX file

Note that, in order to generate RINEX files, the SBF file must contain the relevant data for RINEX. The necessary blocks are selected automatically when checking the *Rinex* box in the *SBF* tab of either RxControl logger or RxLogger as shown in Figure 6-6 on page 128. If the SBF file does not contain the necessary blocks for the required conversion, SBF Converter will give an error such as that reported in Figure 4-6.

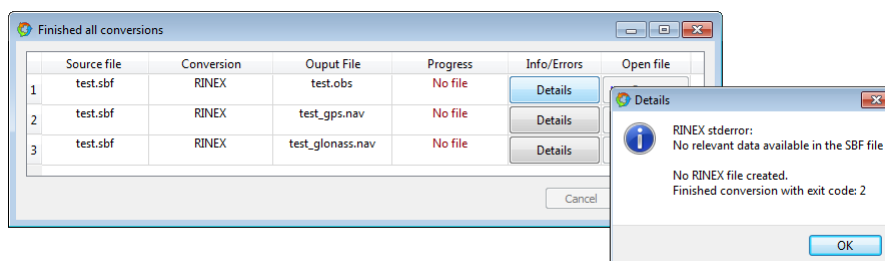
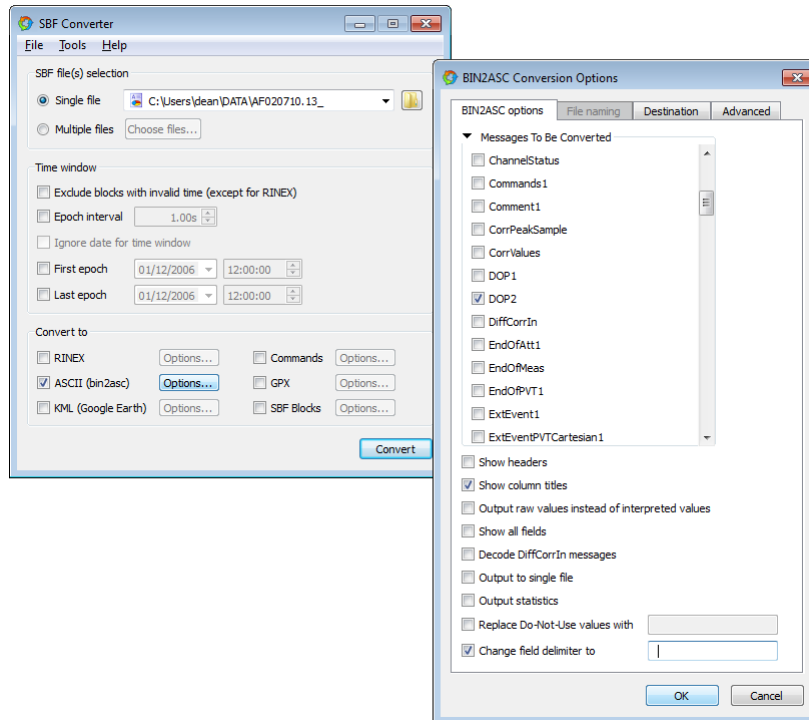


Figure 4-6: Error message when RINEX cannot be generated

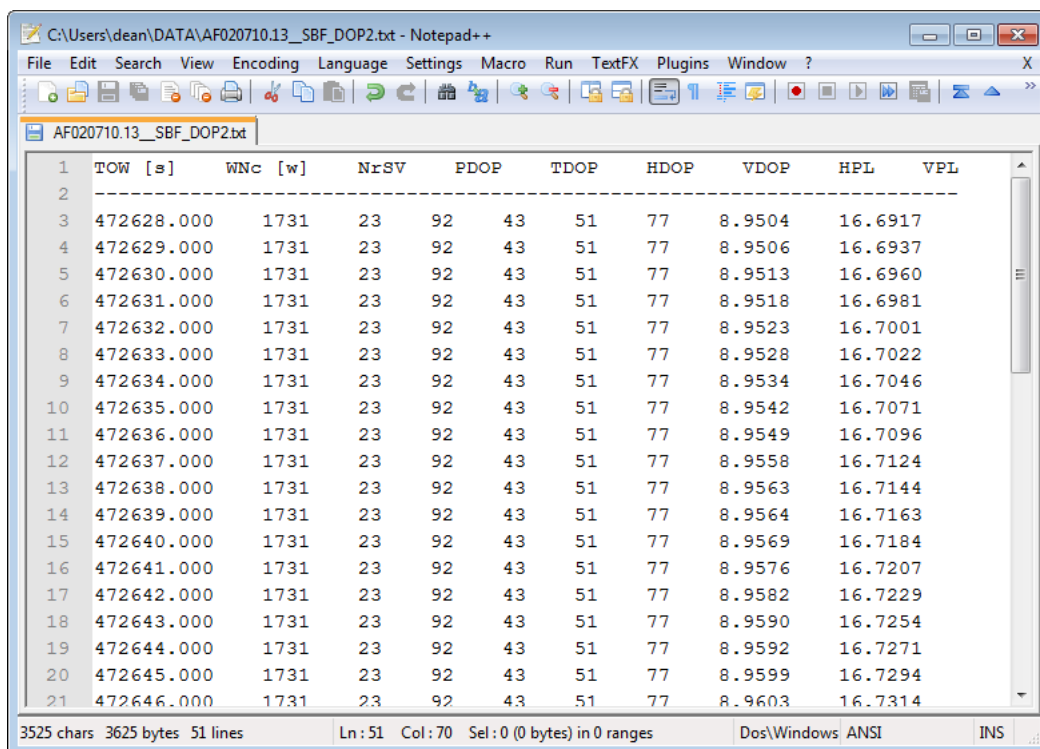
## 4.2.2 Conversion to ASCII

The contents of an SBF file can be converted to the more readable ASCII format as shown in the sequence of screenshots in Figure 4-7. There are various options that can be selected for ASCII generation two of the most useful being *Show column titles* and, in order to have the output in a format compatible with other analysis tools; the *Change field delimiter to* option.



**Figure 4-7:** Example of a converted DOP SBF block

Figure 4-8 on the next page show the ASCII conversion of the DOP SBF block where *Show column titles* has been selected and the field delimiter has been changed from the default comma to a double space.



1	TOW [s]	WNc [w]	NrSV	PDOP	TDOP	HDOP	VDOP	HPL	VPL
2									
3	472628.000	1731	23	92	43	51	77	8.9504	16.6917
4	472629.000	1731	23	92	43	51	77	8.9506	16.6937
5	472630.000	1731	23	92	43	51	77	8.9513	16.6960
6	472631.000	1731	23	92	43	51	77	8.9518	16.6981
7	472632.000	1731	23	92	43	51	77	8.9523	16.7001
8	472633.000	1731	23	92	43	51	77	8.9528	16.7022
9	472634.000	1731	23	92	43	51	77	8.9534	16.7046
10	472635.000	1731	23	92	43	51	77	8.9542	16.7071
11	472636.000	1731	23	92	43	51	77	8.9549	16.7096
12	472637.000	1731	23	92	43	51	77	8.9558	16.7124
13	472638.000	1731	23	92	43	51	77	8.9563	16.7144
14	472639.000	1731	23	92	43	51	77	8.9564	16.7163
15	472640.000	1731	23	92	43	51	77	8.9569	16.7184
16	472641.000	1731	23	92	43	51	77	8.9576	16.7207
17	472642.000	1731	23	92	43	51	77	8.9582	16.7229
18	472643.000	1731	23	92	43	51	77	8.9590	16.7254
19	472644.000	1731	23	92	43	51	77	8.9592	16.7271
20	472645.000	1731	23	92	43	51	77	8.9599	16.7294
21	472646.000	1731	23	92	43	51	77	8.9603	16.7314

**Figure 4-8:** Configuration for ASCII conversion

In addition to **bin2asc**, you can find in the preferences menu of SBF Converter that there are two other possibilities for conversion to text format: **sbf2asc** which was created primarily as a sample application to assist users in developing their own conversion tools and the older **sbf2stf** which is being phased out in favour of **bin2asc**. These tools can also be used in the command line as is explained in Section 11 on page 164.

## 4.2.3 Conversion to Google Earth KML

Logged data files containing any of the SBF positioning blocks (i.e. PVTCartesian, PVTGeodetic, IntPVCart and IntPVGeod) can be converted to KML format which can be displayed on Google Earth. By clicking on the 'Options...' button next to the KML checkbox, you can select various settings for KML generation. Standard settings are shown in Figure 4-9.

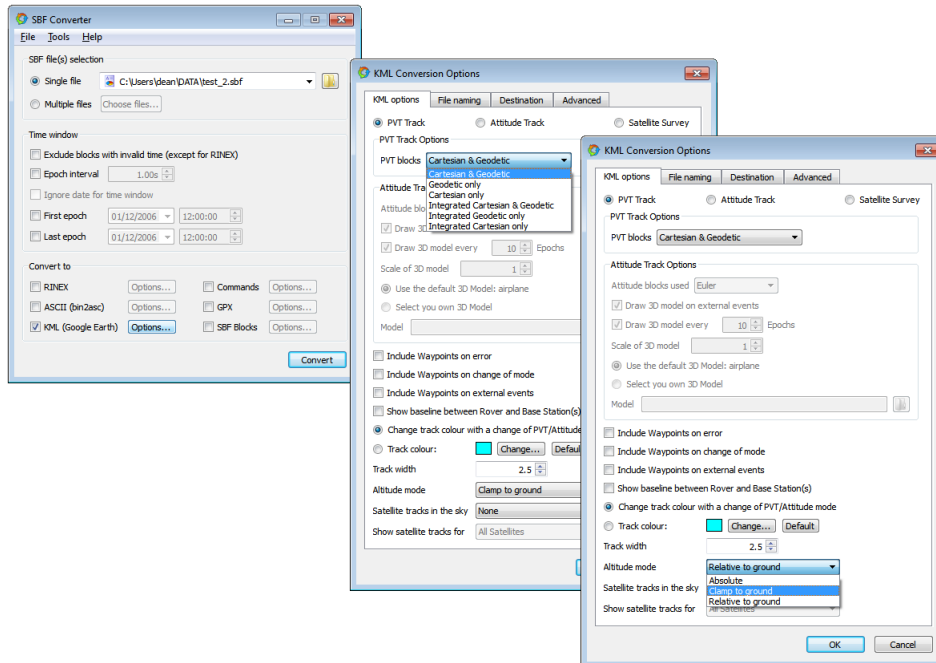


Figure 4-9: Configuration for KML conversion

When the conversion has finished, the file can be opened in Google Earth by clicking on the 'Open' button as shown in Figure 4-10.

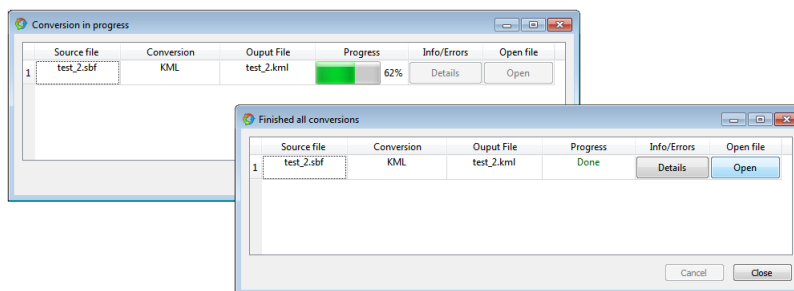


Figure 4-10: Opening the converted file

The results of the KML conversion are given in Figure 4-10 which shows the trajectory of a car test. The color of the trajectory indicates the positioning mode as given in the legend. The zoomed panel shows a fall-back from RTK fixed positioning mode to differential then RTK float which is due to the car going under a bridge.

For the AsteRx2eH and AsteRx2i receivers that can additionally output attitude, selecting 'Attitude Track' in the KML options tab will show the vehicle trajectory where the color indicates the attitude mode.

The color of the track when selecting the 'Satellite Survey' option indicates the satellite tracking status: no tracking, tracked or tracked and PVT.

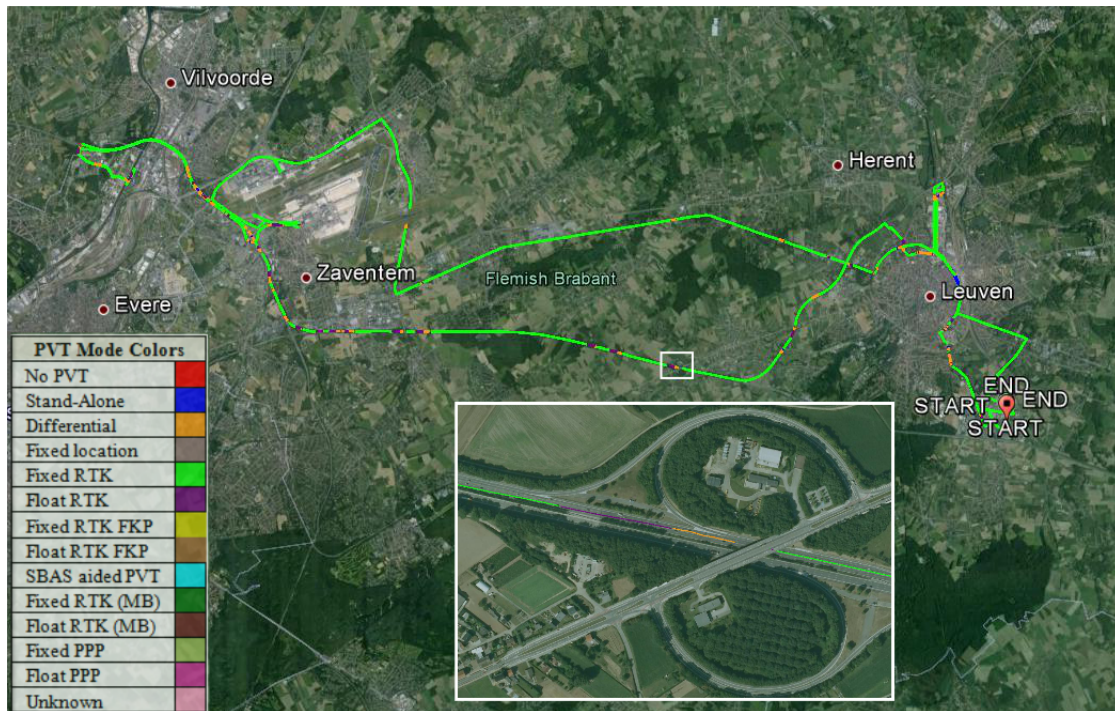


Figure 4-11: KML file displayed in Google Earth