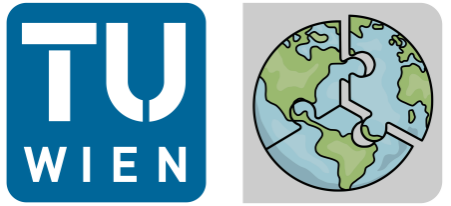
TECHNISCHE UNIVERSITÄT WIEN

VIEVS DAYS 2026



VIECOMPY

Helene Wolf | TU Wien

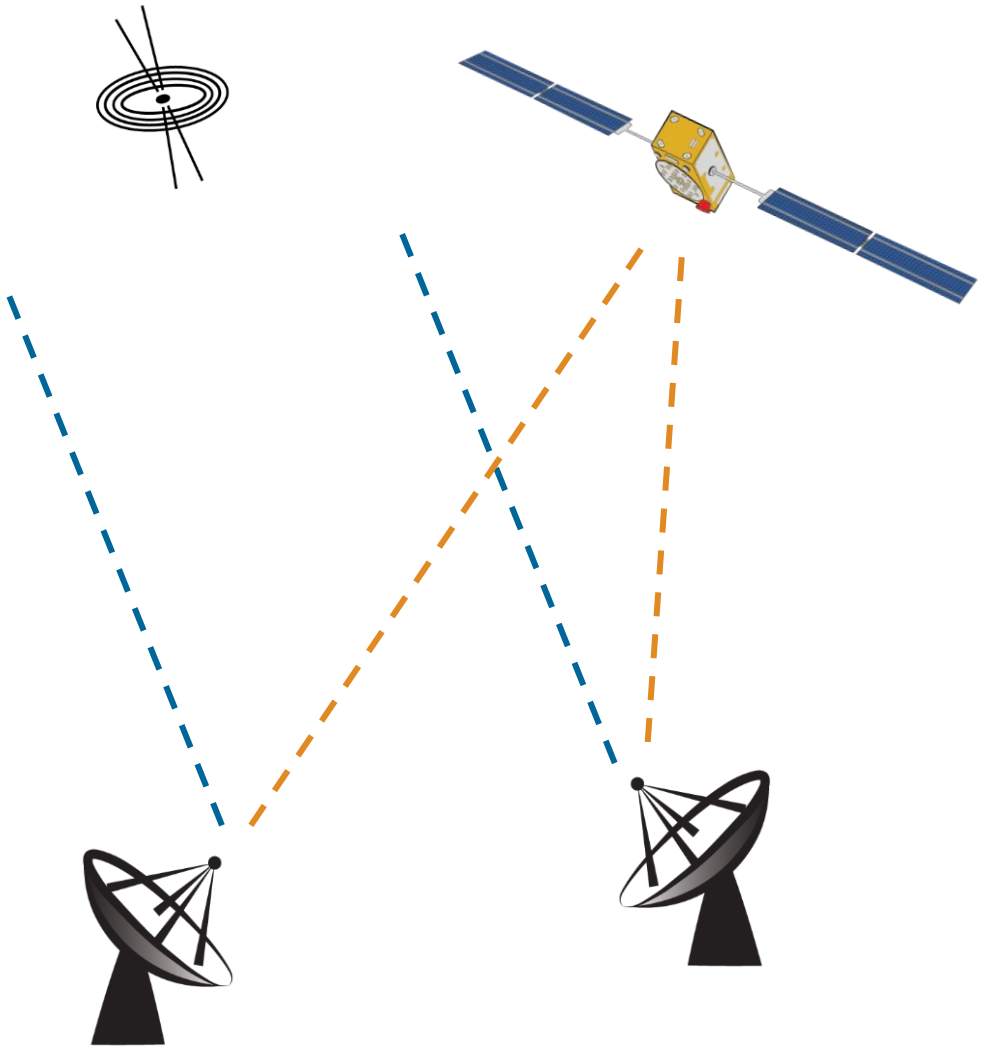
VieCompy

- developed by Lisa Kern
- stand-alone and flexible software
- written in Python
- will enable intra- and inter-technique combinations
- includes possibilities to combine
  - station coordinates based on satellite observations
  - orbital parameters

Station Coordinates

- estimation of station coordinates based on
  - all observations
  - satellite observations only
  - quasar observations only
  - satellite and quasar observations **separately**

→ all options can be combined in VieCompy



SINEX File

- SINEX file inlcuding two sets of station coordinates
  - one estimated based on **satellite** observations → *STAX_S, STAY_S, STAZ_S*
  - one estimated based on **quasar** observations → *STAX, STAY, STAZ*

```
+SOLUTION/APRIORI
*Index Type__ CODE PT Soln Ref_epoch___ Unit S Apriori_value________ Std_Dev____
     1 STAX_S 7399  A    1 22:239:43200 m    2  5.08550266339029e+06 0.00000e+00
     2 STAY_S 7399  A    1 22:239:43200 m    2  2.66836827435325e+06 0.00000e+00
     3 STAZ_S 7399  A    1 22:239:43200 m    2 -2.76849307939661e+06 0.00000e+00
     4 STAX_S 7299  A    1 22:239:43200 m    2  4.64182364100000e+06 0.00000e+00
     5 STAY_S 7299  A    1 22:239:43200 m    2  1.39301136200000e+06 0.00000e+00
     6 STAZ_S 7299  A    1 22:239:43200 m    2  4.13344541200000e+06 0.00000e+00

    61 STAX   7399  A    1 22:239:43200 m    2  5.08550266339029e+06 0.00000e+00
    62 STAY   7399  A    1 22:239:43200 m    2  2.66836827435325e+06 0.00000e+00
    63 STAZ   7399  A    1 22:239:43200 m    2 -2.76849307939661e+06 0.00000e+00
    64 STAX   7299  A    1 22:239:43200 m    2  4.64182364100000e+06 0.00000e+00
    65 STAY   7299  A    1 22:239:43200 m    2  1.39301136200000e+06 0.00000e+00
    66 STAZ   7299  A    1 22:239:43200 m    2  4.13344541200000e+06 0.00000e+00
```

SINEX File

- SINEX file including orbital parameters
  - 6 orbital elements
  - 9 solar radiation pressure parameters

```
131 ORBSMA 0001 --    1 22:239:40561 m    2  0.00000000000000e+00 0.00000e+00
132 ORBECC 0001 --    1 22:239:40561 -    2  0.00000000000000e+00 0.00000e+00
133 ORBINC 0001 --    1 22:239:40561 mas  2  0.00000000000000e+00 0.00000e+00
134 ORBRAN 0001 --    1 22:239:40561 mas  2  0.00000000000000e+00 0.00000e+00
135 ORBAOP 0001 --    1 22:239:40561 mas  2  0.00000000000000e+00 0.00000e+00
136 ORBAOL 0001 --    1 22:239:40561 mas  2  0.00000000000000e+00 0.00000e+00
137 ORB_D0 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
138 ORB_Y0 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
139 ORB_B0 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
140 ORB_DC 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
141 ORB_YC 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
142 ORB_BC 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
143 ORB_DS 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
144 ORB_YS 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
145 ORB_BS 0001 --    1 22:239:43200 nm/s2 2  0.00000000000000e+00 0.00000e+00
```

Demonstration

- combined TRF
- separate TRF Combination
  - based on quasar observations
  - based on satellite observations
- combination of orbital parameters