To be prepared for the exercises on Jan 29, 2020
(10 points total)

DGPS and RTK with rtklib

General information:

Data sets:

(1) Rover = Static antenna INSB, Base = SAPOS SIGMARINGEN

- 66870397.19o
- 66870397.19n
- 66870397.19g
- $INS\_3250.19O$

(2) Rover = NovAtel OEM6 (L1/L2), Base = Trimble NetR9
Test drive on 02.09.2011

- 110902_092045.obs
- $INSA245gA.OBS$
- $INSA245gA.NAV$

Use your installation of rtklib v2.4.3 to process and analyse the data stream in post-processing mode with rtkpost.

Task 1 (6 points)

Use data set (1):

Process the data set of the static antenna INSB

(a) with the following options:

- processing mode: DGPS
- elevation cutoff: 15°
- System: GPS

(b) with the following options:

- processing mode: Kinematic
- elevation cutoff: 15°
- System: GPS

(c) with the following options:

- processing mode: Kinematic
- elevation cutoff: 15°
- System: GLO

Analyse and compare your results according to the following aspects using time series. Plot the information and give the statistical values of mean and standard deviation.

- Comparison of position in North, East und ellipsoidal height
- Investigate the <Ratio Factor of AR Validation>, that can be found as 3rd part in the figure of tab <NSat>. Compare it with the satellite changes.
- Percentage of time with fixed ambiguities and with float ambiguities
- Average of the pseudorange residuals
- Average of the carrier phase residuals

Task 2 (4 points)

Use data set (2):

Process the kinematic data set in relation to the reference antenna of type Trimble Zephyr Geodetic 2 with the following options:

- processing mode: Kinematic
- elevation cutoff: 5°
- System: GPS

Show the trajectory on google earth. Analyse your results according to the following aspects using time series. Plot the information and give the statistical values of mean and standard deviation.

- Comparison of position in North, East und ellipsoidal height
- Percentage of time with fixed ambiguities and with float ambiguities
- Average of the pseudorange residuals
- Average of the carrier phase residuals