LSGI522 Spatial Data Acquisition

Practical 1 – GPS

Aims

1. Learn the basics of the satellite positioning including static, DGPS, and RTK techniques.

2. Learn how to start up a GPS static measurement.

3. Learn how to configure and launch the network RTK and perform a fast point survey.

Arrangement

1. Group: work in group with **FIVE** to **SIX** people.

2. Location: 6F/ podium, Z block.

3. Data: 18:30-21:20, 6th Oct., Fall 2020. (We will give an advance notice if weather is not available)

Materials

1. Tutorials

    a. Practical-1 GPS tutorial.

2. Manual

    a. South Galaxy 6 user manual.

Equipment

1. South Galaxy 6 GNSS receiver / Data controller.

2. GPS pole.

Task

1. Static GPS survey (a demo).

2. Network RTK configuration:

    a. Device configuration: receiver and controller setting and connection.

    b. Job configuration: coordinate system, survey mode.

3. Point survey:

    a. Exploring different GNSS solutions (i.e., single, float and fixed).

    b. Fast point survey on the 6/F podium: each student needs to record 5 points (fixed solutions).

Submission

Each student is required to submit a word file (named with your student (e.g., 18000XX1g.docx) that contains the answers of the following questions:

1. There are different modes of GPS surveying. Discuss them with some example applications.

2. What is the minimum number of satellites required for RTK GPS? Why?

3. Discuss the differences between various GPS solutions (single, float and fixed).

4. What does the term "initialization" mean in RTK GPS surveying? Is it also required in DGPS surveying?

The report must reflect the understanding of each student to the tutorial and copied versions will be deprecated. What you have learned in this practical may be re-assessed in the final exam.

The report should be sent to (fekry.khaliel@connect.polyu.hk) before the submission deadline.

Submission deadline: 14th October 2019
Contact: fekry.khaliel@connect.polyu.hk
Room: **ZN617**