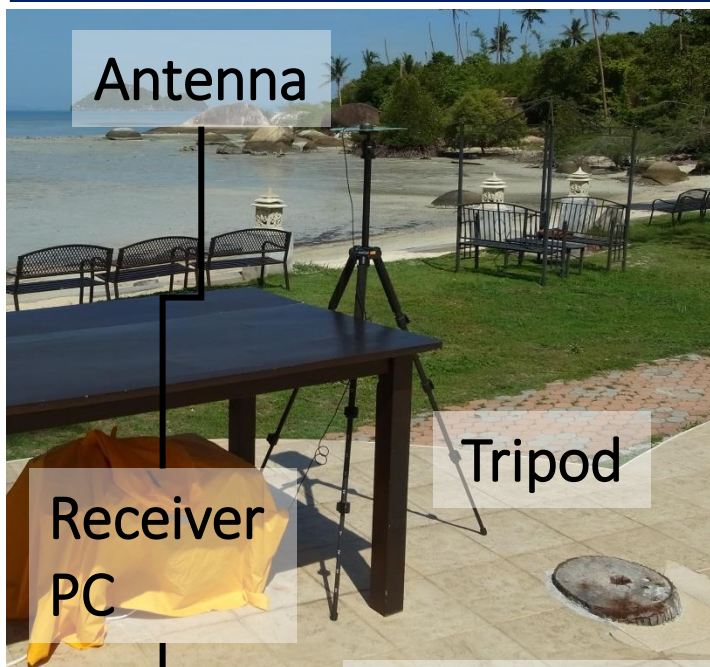


# How to set up a portable reference station using a u-blox receiver

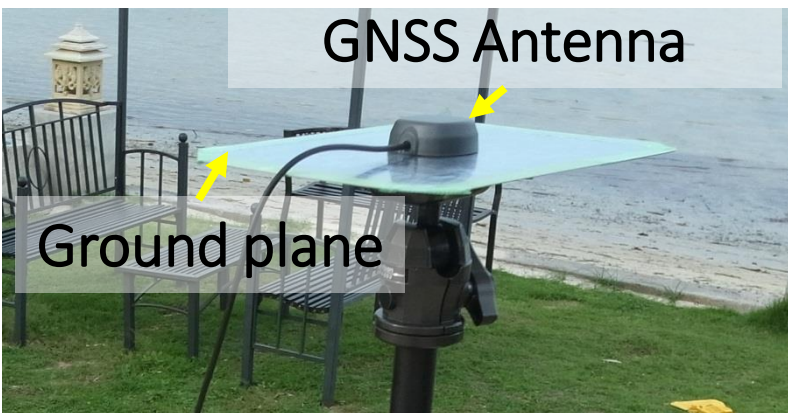


to electric outlet

Antenna (zoomed-in)

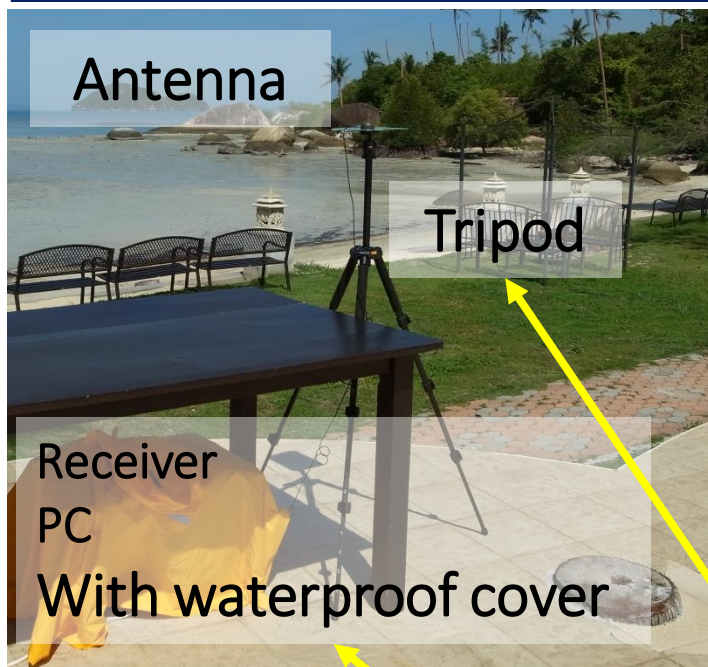
Equipment (in this example)

- GNSS receiver (u-blox M8T)
- GNSS antenna (Tallysman antenna)
- PC to take data
- Antenna cable
- Electric Power
- Tripod
- Ground plane (to mitigate multipath error from the ground)



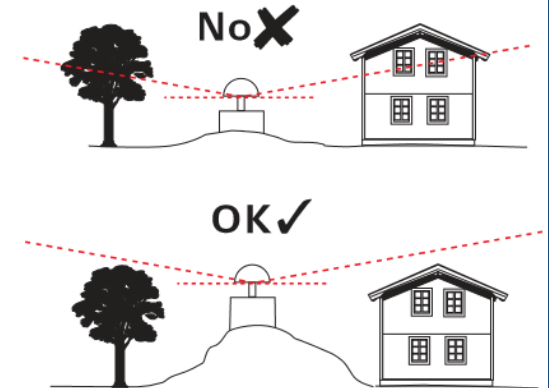
[http://www.denshi.e.kaiyodai.ac.jp/jp/assets/files/pdf/content1/yuasa\\_m.pdf](http://www.denshi.e.kaiyodai.ac.jp/jp/assets/files/pdf/content1/yuasa_m.pdf)

# How to set up a portable reference station using a u-blox receiver



## Optimal surroundings for Reference station

- Open view of the sky
- No objects in the vicinity
- No other transmitters near GNSS band
- Safe from theft
- Close to an electric outlet



To keep the reference antenna stable and horizontal

To prevent rain damage

## For reference station data

- Reference station data must be collected for a period that covers the entire period of rover data collection
- Reference station data should be collected at a minimum rate of 1 Hz
- Multi-constellation GNSS data is better than only GPS (for the u-blox M8T, we recommend GPS, QZSS, BeiDou and Galileo)
- A very accurate pre-surveyed position of the reference station antenna is required for RTK