

GNSS Data Collection and Processing

GNSS Training, Team No: 09

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Objectives

Major objective :

- To know about GNSS and it's applications

Minor objectives :

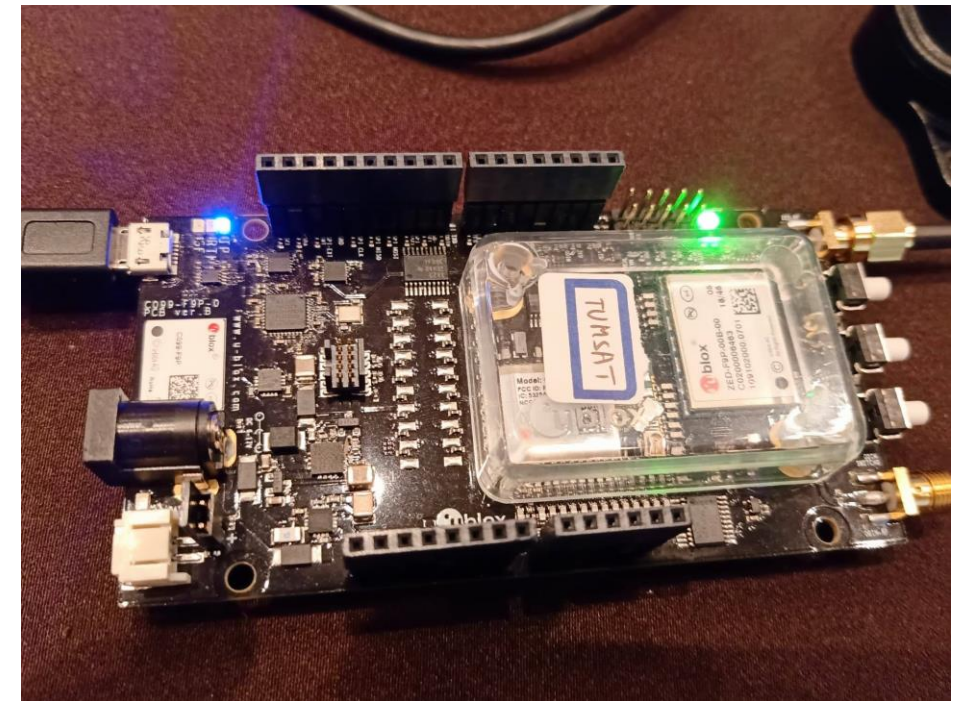
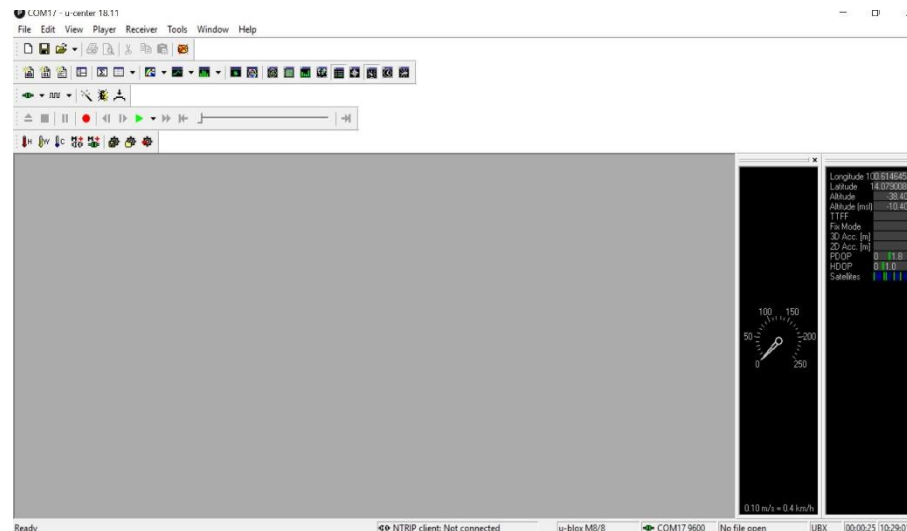
- To learn the use of RTKLIB
- To Learn Data collection and Processing Techniques

Instrument Used

- Ublox- F9P Receiver and Antenna

Software Used

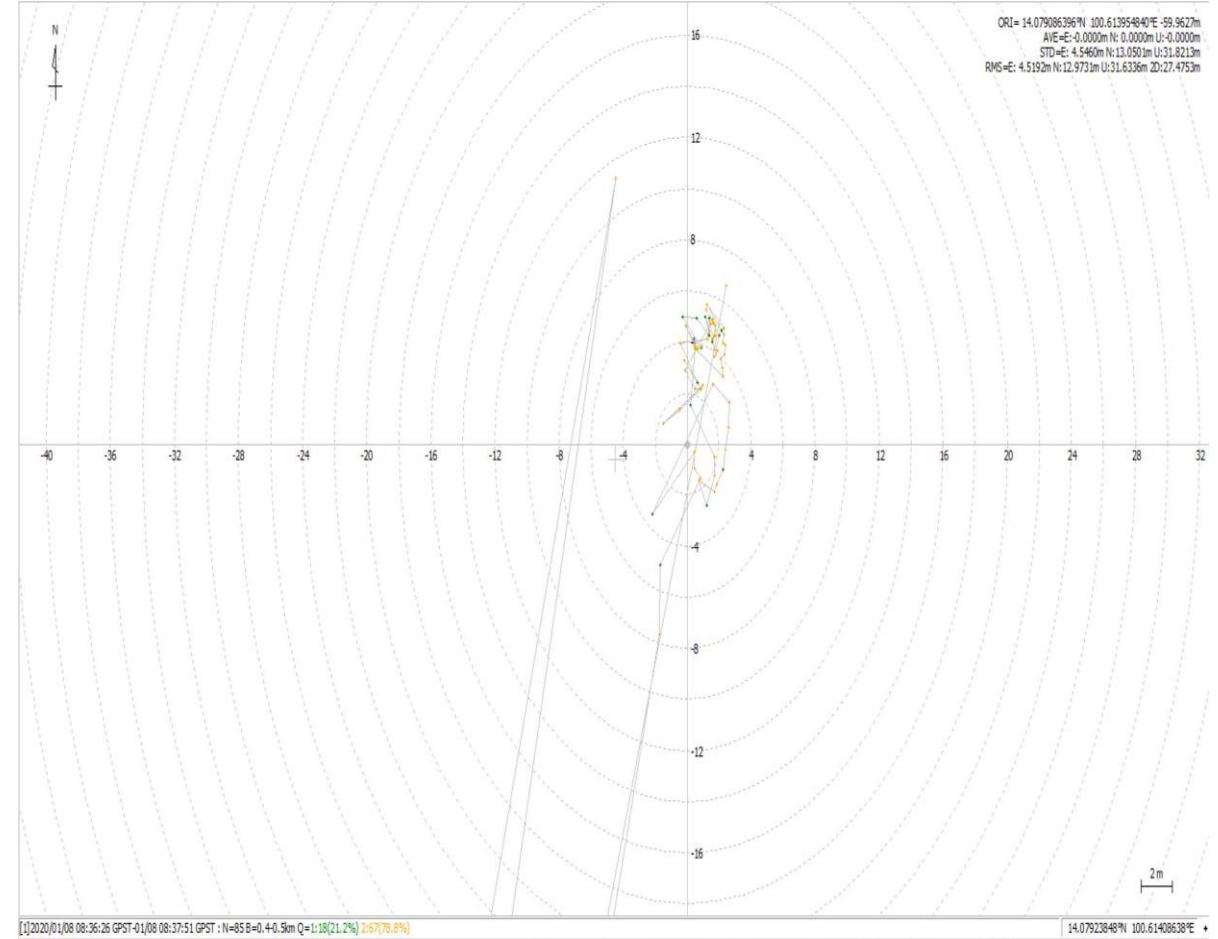
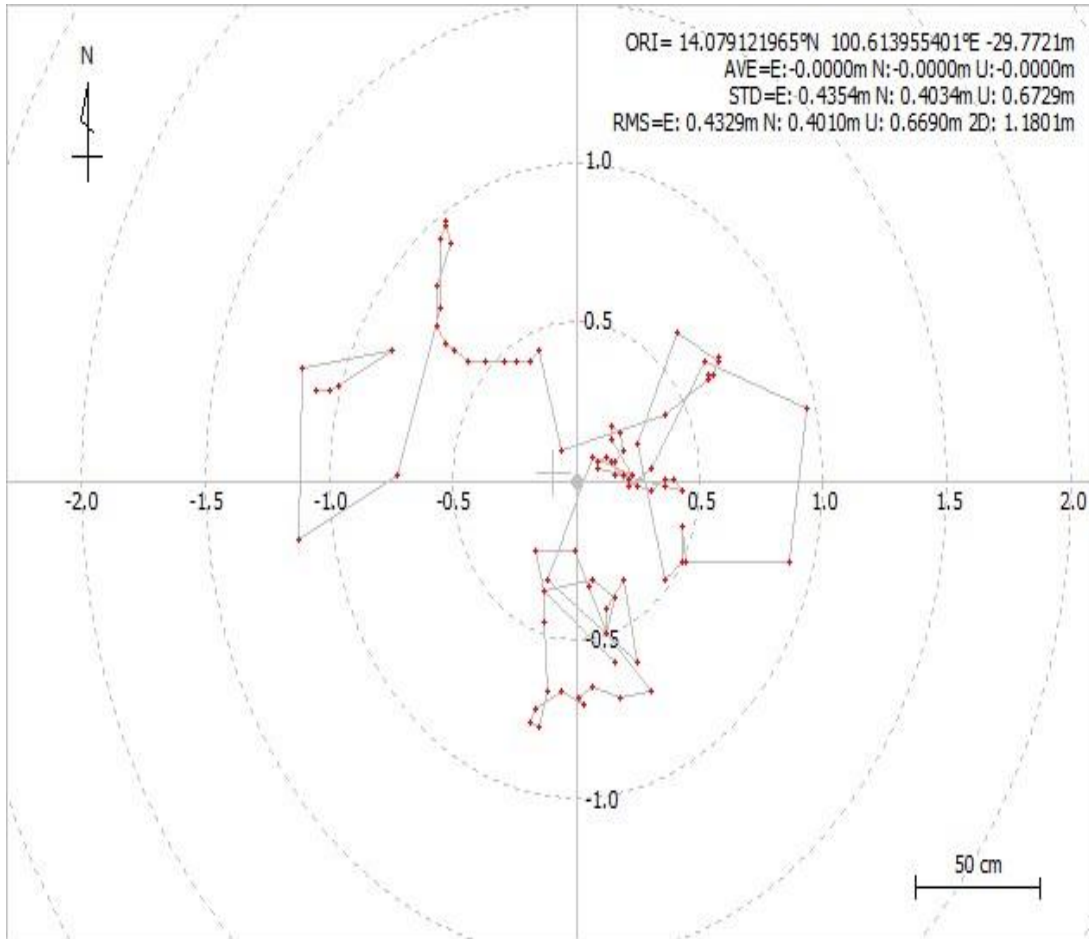
- Ucenter v18.11
- RTKLIB_2.4.3



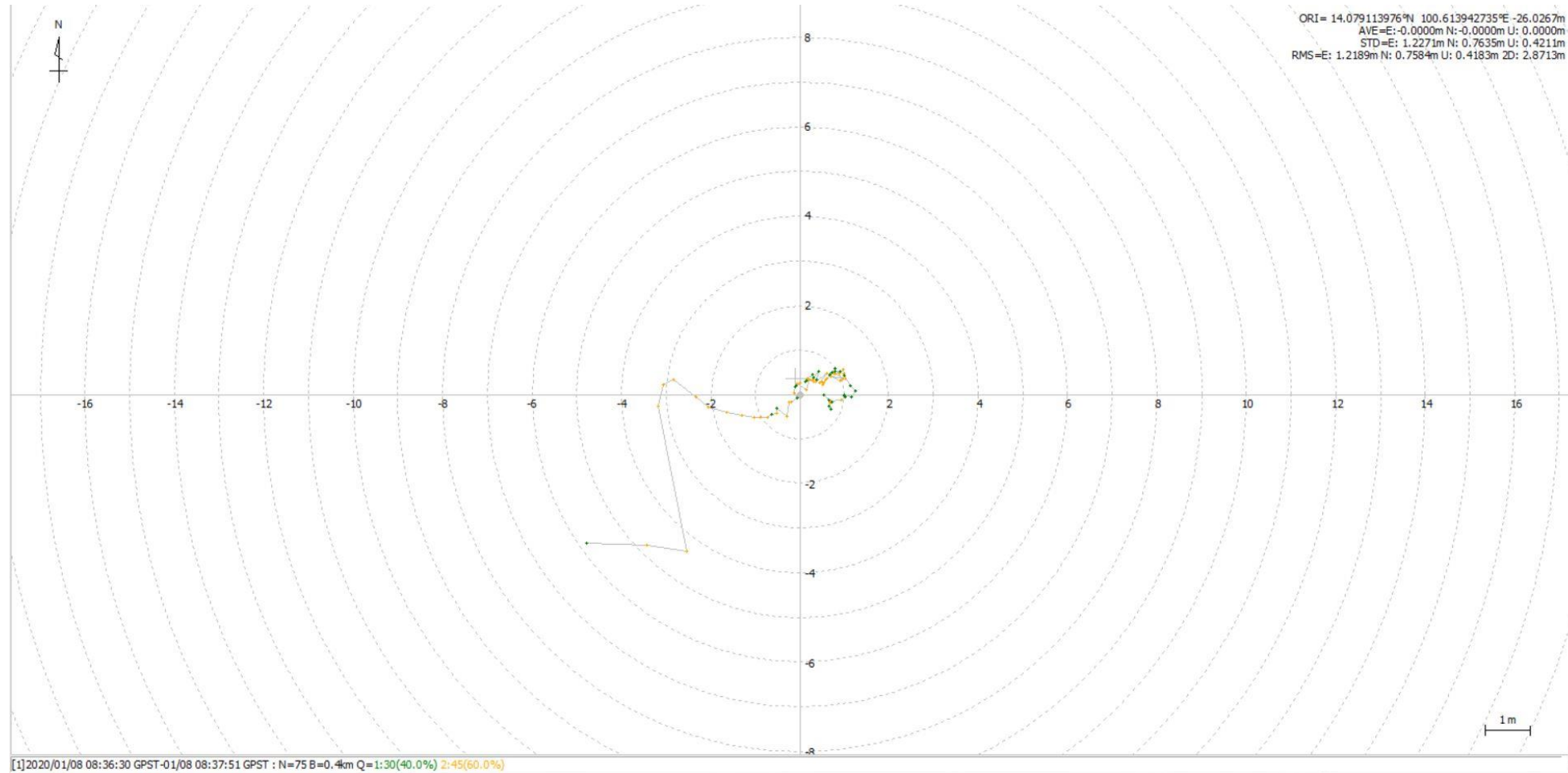
Results of Data Processing

F9P Receiver

SN SYSTEM	Q=1 %	Q=2%	REMARKS	POSITIONING MODE
GPS+QZ+GAL+BDU+GLO	10.80%	89.20%	*Minimum Fix %	Kinematic
GPS+QZ+BDU	14.10%	85.90%		Kinematic
GPS+QZ+GAL+BDU	21.20%	78.80%		Kinematic
GPS ONLY	27.70%	72.30%		Kinematic
GALLILEO ONLY	40%	60%	*Maximum Fix %	Kinematic



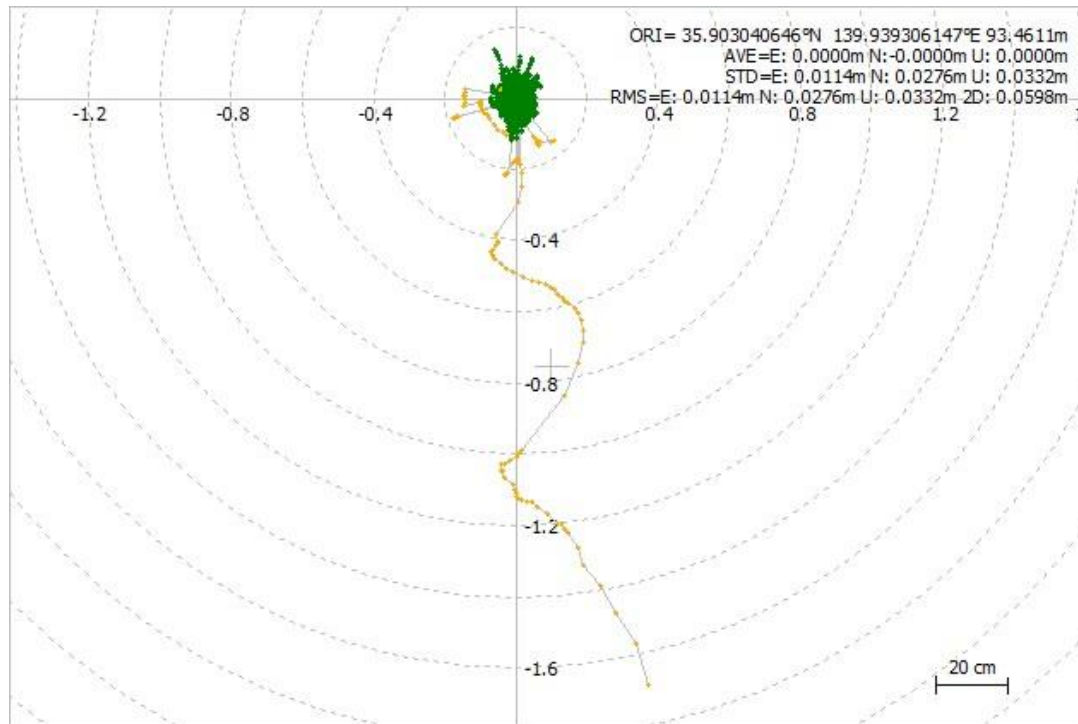
Initially Q1=0.42% & After correction Q1=21.2%(GPS+QZ+GAL+BDU)



Q1=40%(Galileo only)

Sample Data

RTK Results for NetR9 Base and M8P Rover



- $Q = 1.85233$ (99.7%)
- Standard Deviation of the Coordinates

$$e_x = 0.02225$$

$$e_y = 0.01935$$

$$e_z = 0.02117$$

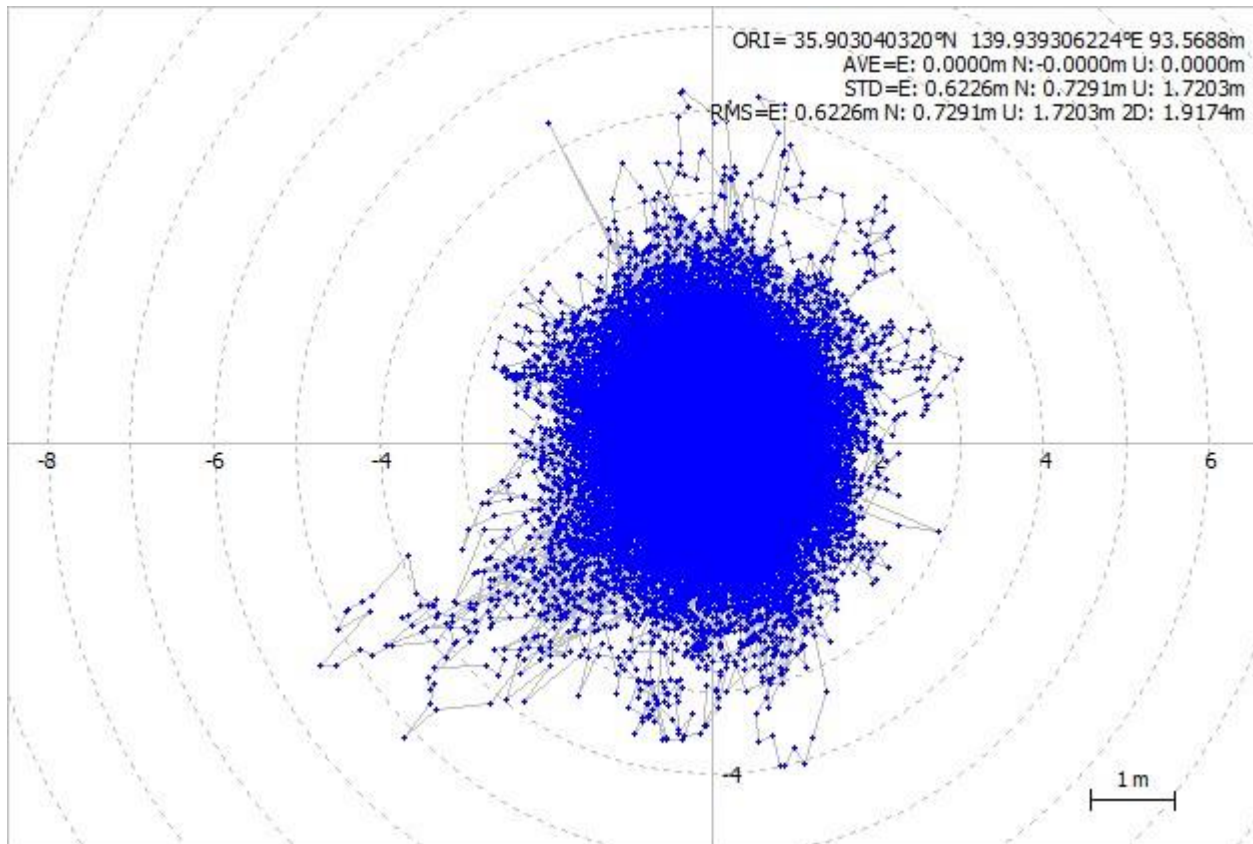
- Difference with the known coordinate

$$e_x = 0.0008$$

$$e_y = 0.0009$$

$$e_z = 0.4495$$

DGPS Results for NetR9 Base and M8P Rover



- $Q = 4.85449$ (100 %)
- Standard Deviation of the Coordinates

$$e_x = 1.30768$$

$$e_y = 0.98413$$

$$e_z = 1.09548$$

- Difference with the known coordinate

$$e_x = 0.0868$$

$$e_y = 0.0638$$

$$e_z = 0.4162$$

We had a great Time !!!!
Thank You !!!

