

# Final Presentation

## Training on GNSS Course T151-40

### GNSS Training, Team No: 14

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# Single Point Positioning of M8T Low Cost Receiver

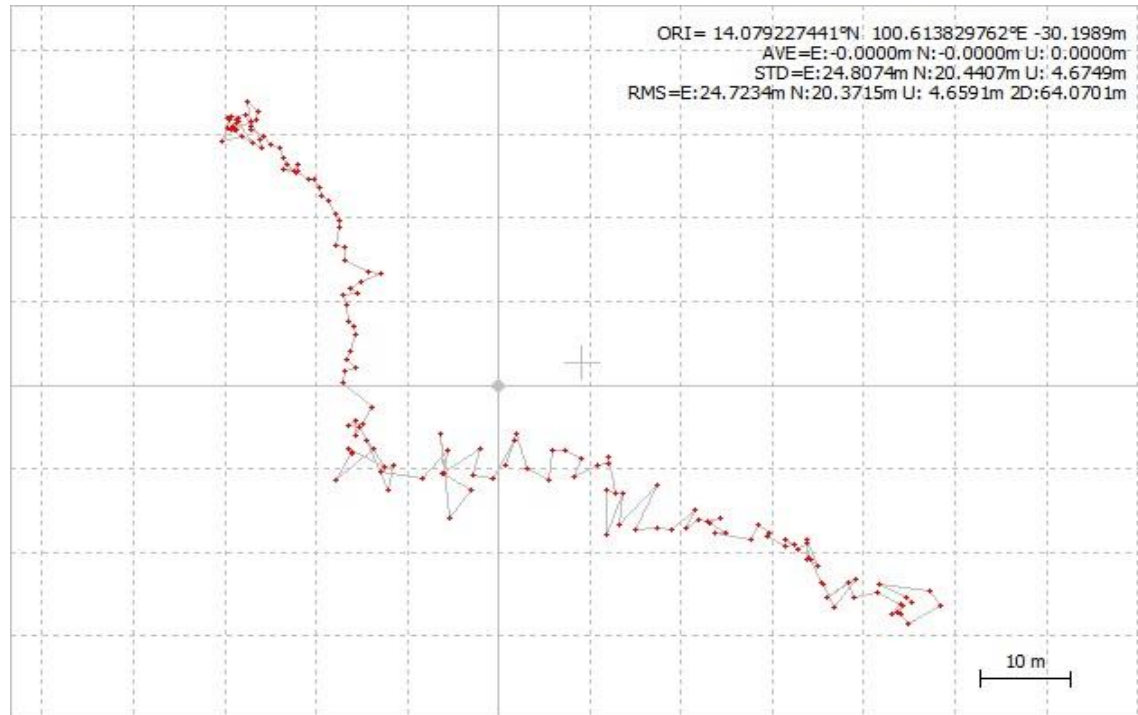


Fig: Dynamic Data  
M8T (SPP)

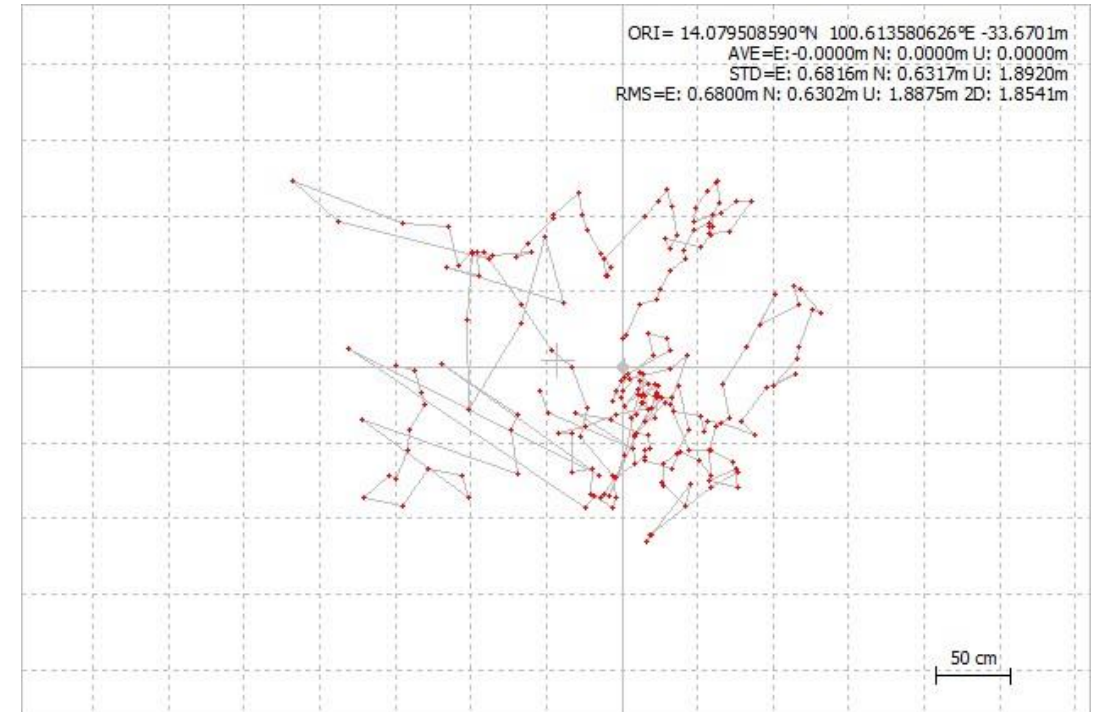


Fig: Static Data  
M8T (SPP)

# Single Point Positioning Comparison of M8T and F9

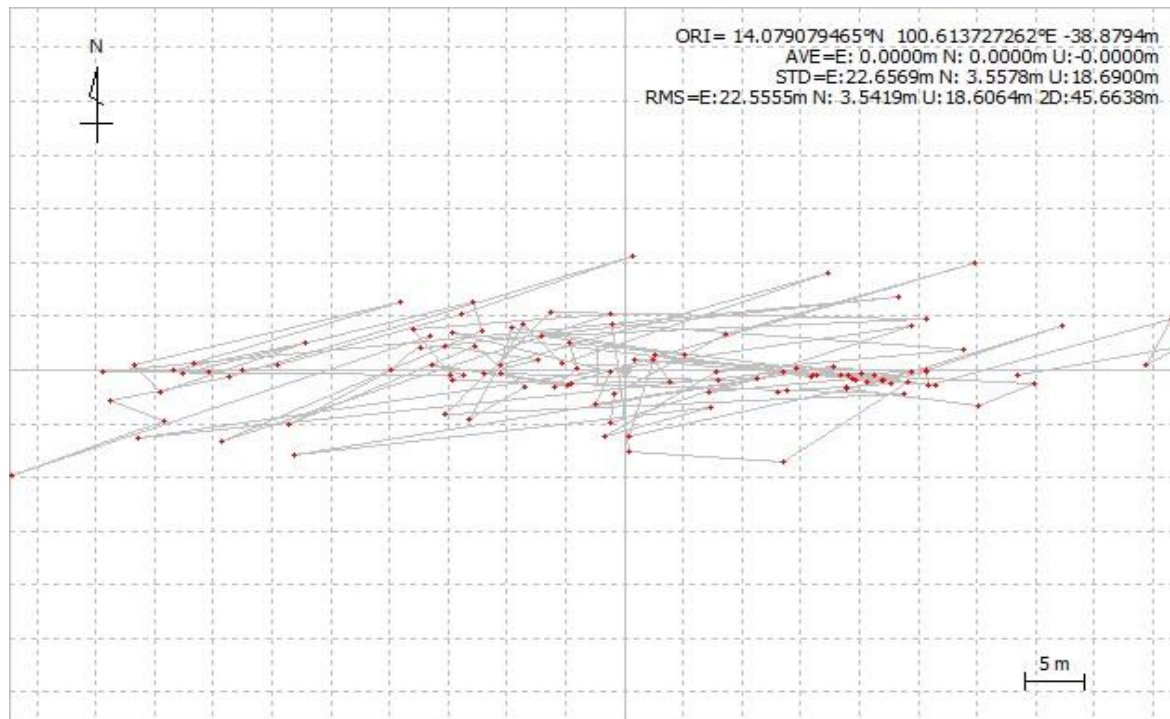


Fig: M8T (SPP)

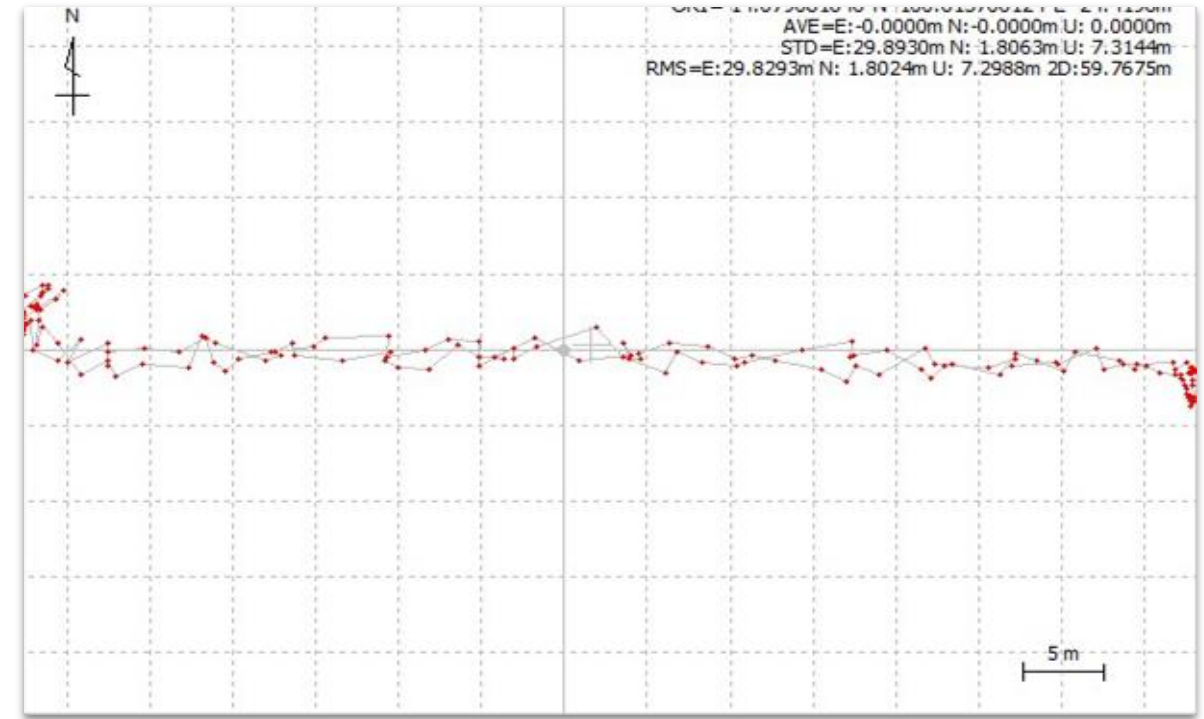
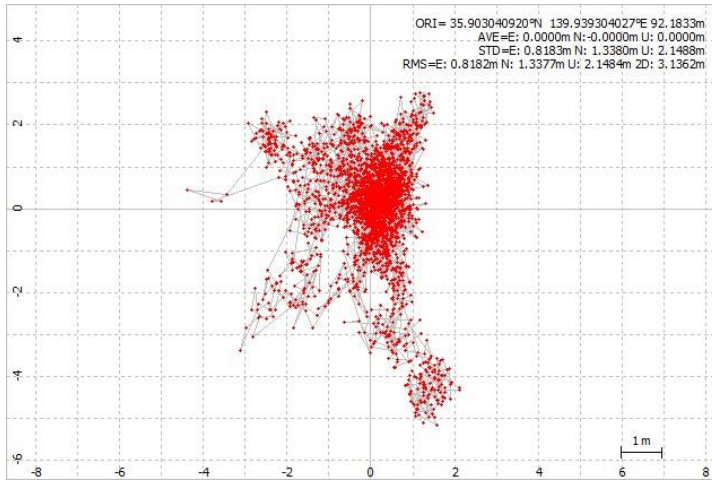


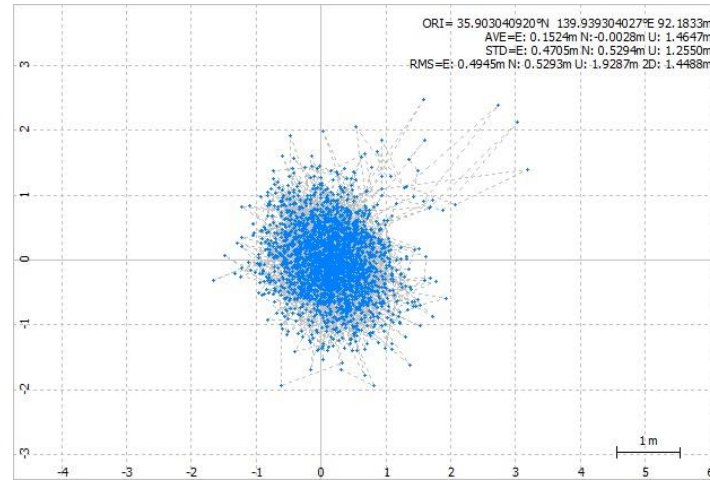
Fig: F9 (SPP)

# Zero Baseline Test for M8T



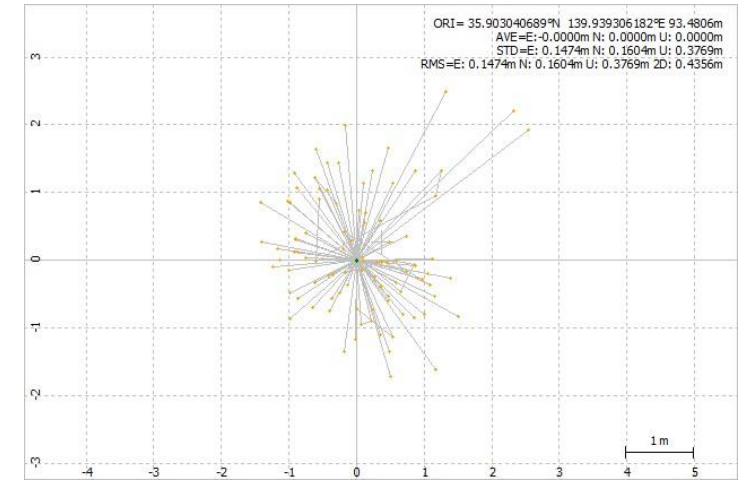
Accuracy in **SPP**

X	Y	Z
-0.929657202	0.531779548	0.726747918



Accuracy in **DGPS**

X	Y	Z
-0.07768854	0.11618718	0.129911627



Accuracy in **PPK**

X	Y	Z
-0.038146075	0.024143547	0.053605958

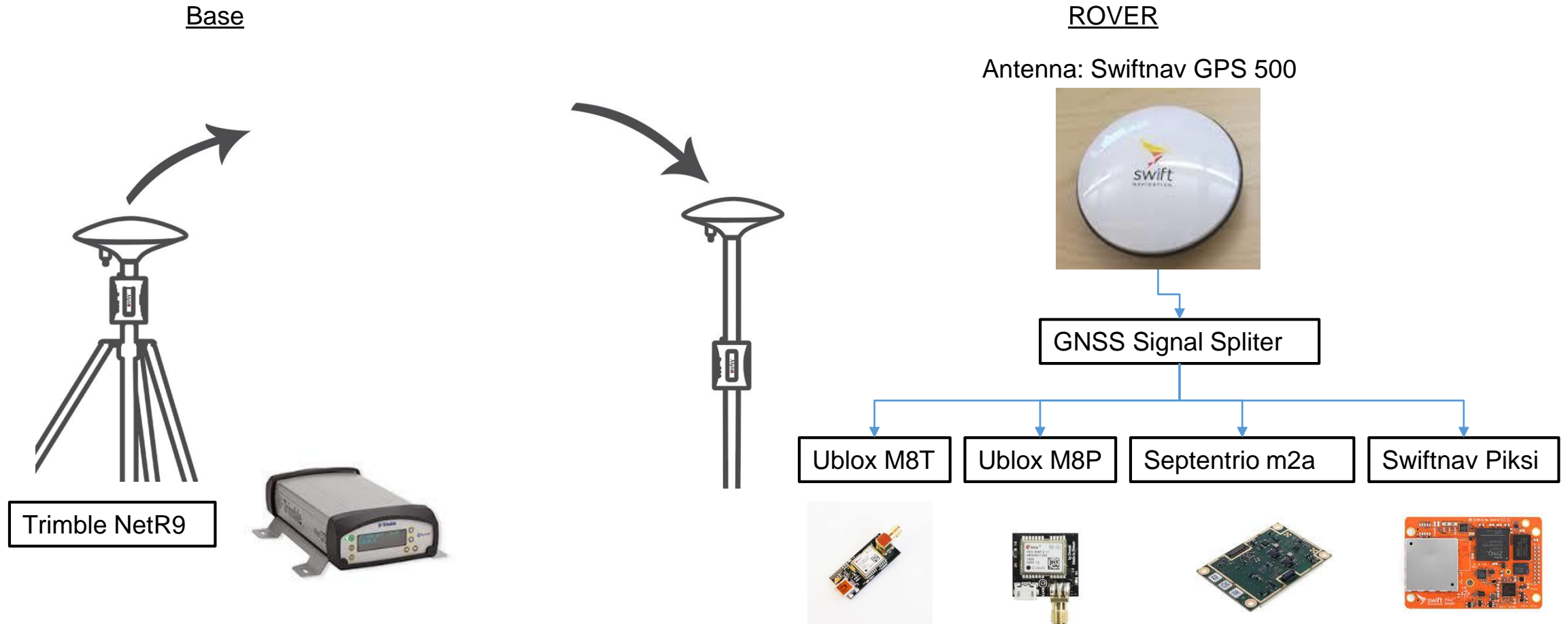
# Kinematic GNSS performance comparison of different receivers

## Receiver Specifications



	M8T	M8P	Septentrio m2a	SwiftNav Piksi
Price	*	**	****	***
Number of Channels	72	72	448	
Signals	L1, B1, E1	L1, B1	L1, L2, E1, E5b, B1, B2	L1, L2, G1, G2, B1, B2, E1, E5b
Power Consumption			1.1 W	2.9 W

## Kinematic GNSS performance comparison of Different Receivers - Setup



## Kinematic GNSS performance comparison of Different Receivers - Setup



12m



## Kinematic GNSS performance comparison of Different Receivers – Processing Parameters

Options

Setting1 Setting2 Output Statistics Positions Files Misc

Positioning Mode: Kinematic

Frequencies / Filter Type: L1+L2+L5 Forward

Elevation Mask (°) / SNR Mask (dBHz): 15 ...

Rec Dynamics / Earth Tides Correction: OFF OFF

Ionosphere Correction: Broadcast

Troposphere Correction: Saastamoinen

Satellite Ephemeris/Clock: Broadcast

Sat PCV  Rec PCV  PhWU  Rej Ed  RAIM FDE  DBCorr

Excluded Satellites (+PRN: Included):

GPS  GLO  Galileo  QZSS  SBAS  BeiDou  IRNSS

Load... Save... OK Cancel

SNR Mask

Rover  Base Station

	Elevation (deg)									(dBHz)
	<5	15	25	35	45	55	65	75	>85	
L1	30	30	30	30	30	30	30	30	30	30
L2	30	30	30	30	30	30	30	30	30	30
L5	30	30	30	30	30	30	30	30	30	30

OK Cancel

Options

Setting1 Setting2 Output Statistics Positions Files Misc

Integer Ambiguity Res (GPS/GLO/BDS): Instantz OFF ON

Min Ratio to Fix Ambiguity: 3

Min Confidence / Max FCB to Fix Amb: 0.9999 0.25

Min Lock / Elevation (°) to Fix Amb: 0 0

Min Fix / Elevation (°) to Hold Amb: 10 0

Outage to Reset Amb/Slip Thres (m): 5 0.050

Max Age of Diff (s) / Sync Solution: 30.0 ON

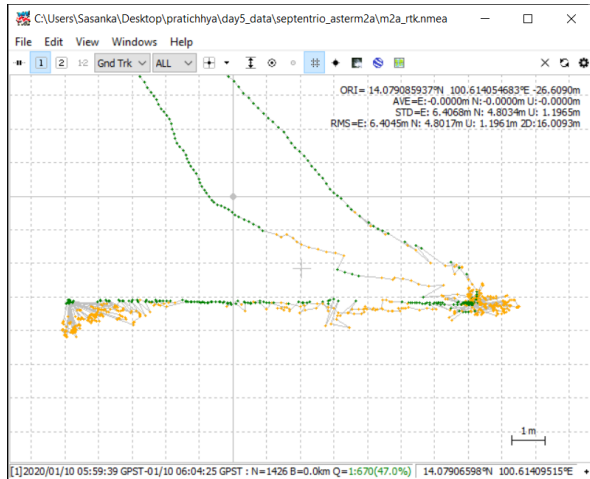
Reject Threshold of GDOP/Innov (m): 30.0 30.0

Max # of AR Iter/# of Filter Iter: 1 1

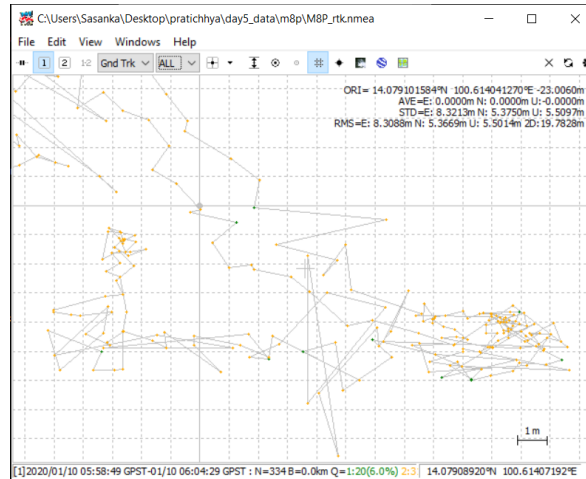
Baseline Length Constraint (m): 0.000 0.000

Load... Save... OK Cancel

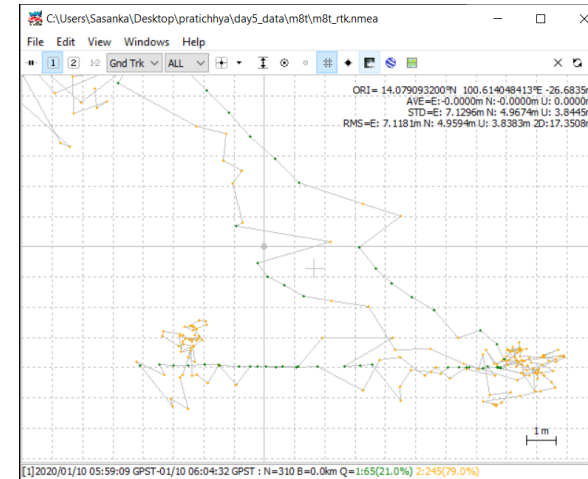
## Kinematic GNSS performance comparison of Different Receivers - Results



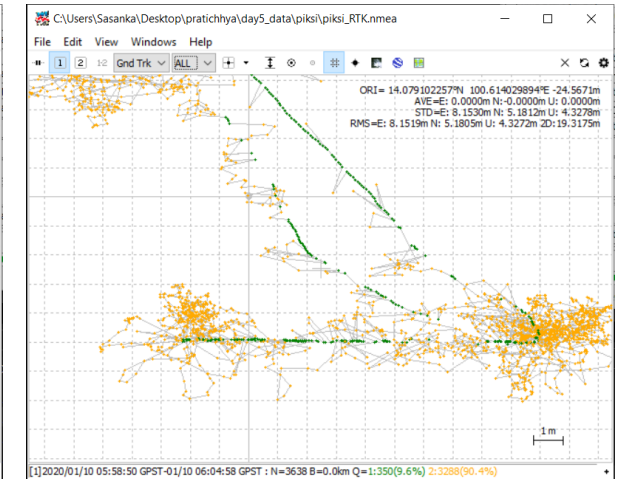
Septentrio m2a



Ublox M8P

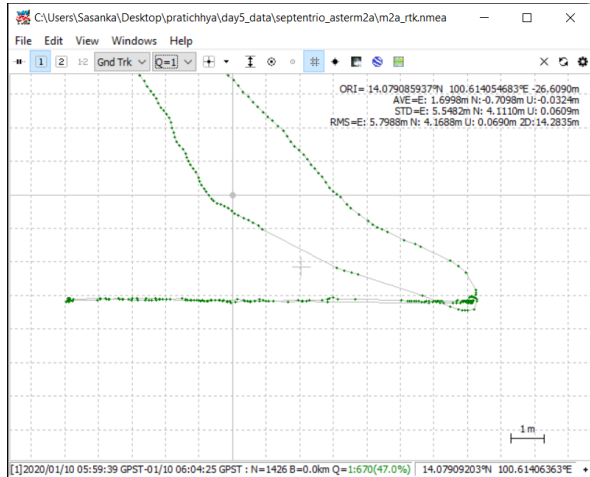


Ublox M8T

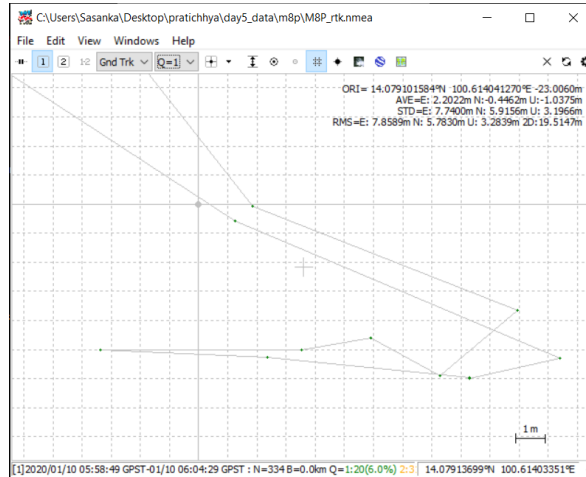


Swiftnav Piksi

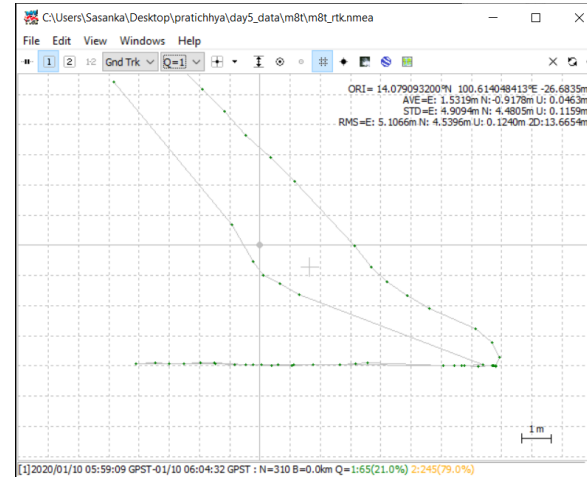
## Kinematic GNSS performance comparison of Different Receivers – Results (Fixed Solutions Only)



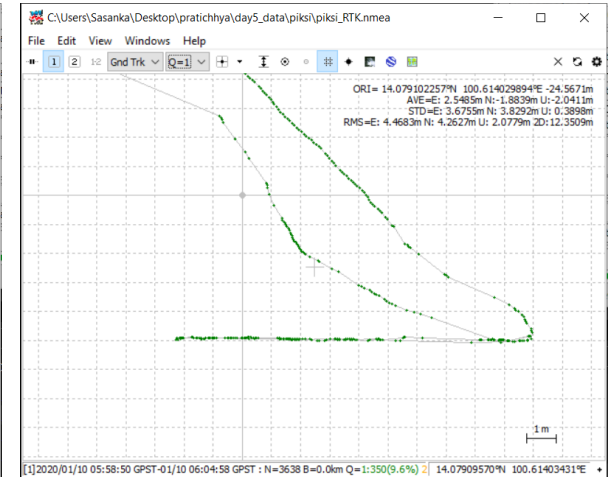
Septentrio m2a



Ublox M8P



Ublox M8T



Swiftnav Piksi

## Kinematic GNSS performance comparison of Different Receivers – Results

	Septentrio m2a	Ublox M8P	Ublox M8T	Swiftnav Piksi
Fix Rate	47%	6%	21%	9.6%
Measured Distance (Fixed Solutions)	12m	–	11.8m	12.2m
Bands Used	L1,L2	L1	L1	L1,L2

# Thank You

