

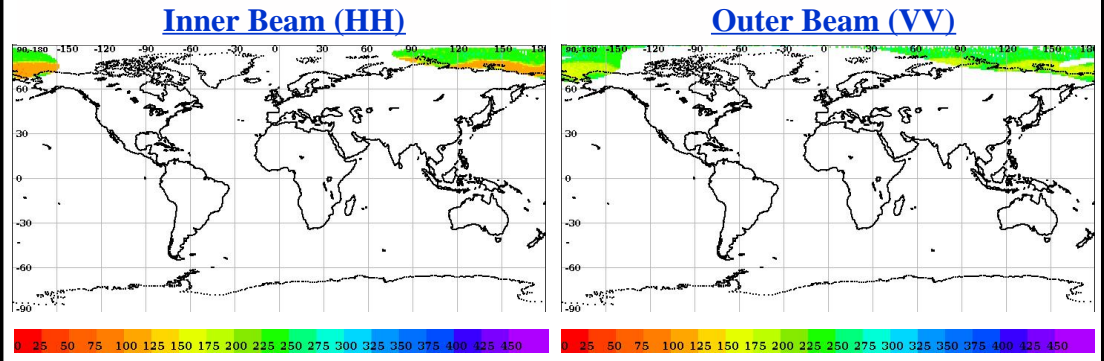
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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- Half Orbit OAT Behaviour

<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	16225	<b>Total Scans</b>	77
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	16226	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.3	<b>Rev. Number</b>	16225_16226	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	20-10-2019	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	01-01-1970	<b>Equator Crossing Time</b>	null	<b>No Of Outer Slices</b>	15

## Brightness Temperature(k) Footprint trace



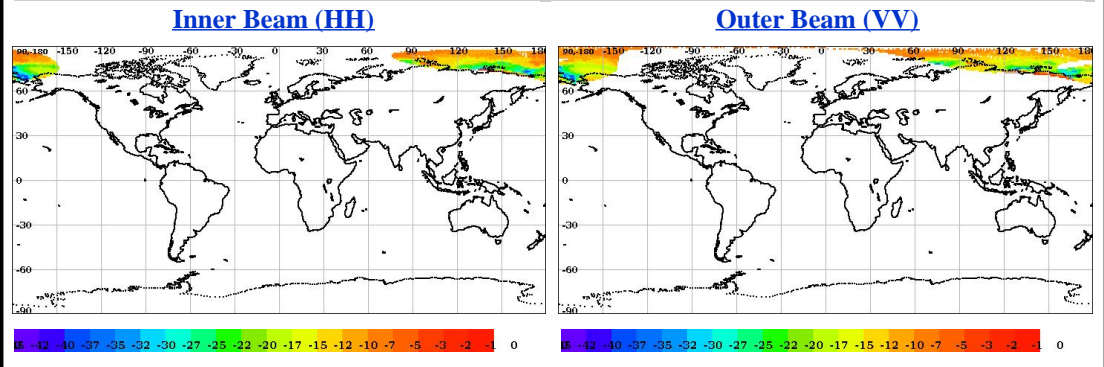
## Image Snapshot for Inner & Outer Beam

Inner (HH)

Outer (VV)



## Sigma0(dB) Footprint trace



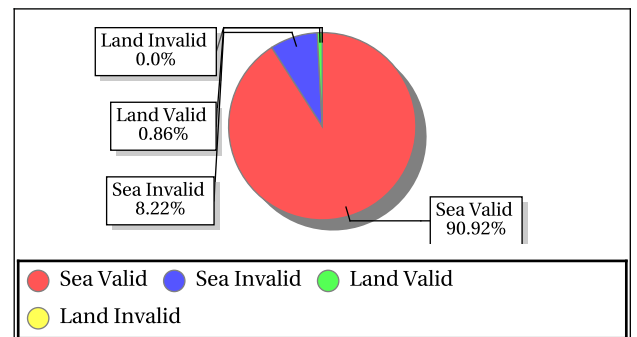
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	8.22	8.19
Data Not Available From Payload (%)	5.96101	5.961755
Slice not within sample array limits (%)	94.04	94.04
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
Poor Sigma0(%)	22.12	13.27
Noise samples for blending Saturated	0.0	0.0
Count samp. for interpol. saturated (%)	0.00	0.00
Sigma0 < lower bound (-96dB) (%)	0.0	0.0
Sigma0 > upper bound (0 dB) (%)	0.00	0.00
SNR < -65 dB (%)	0.023218	0.062445

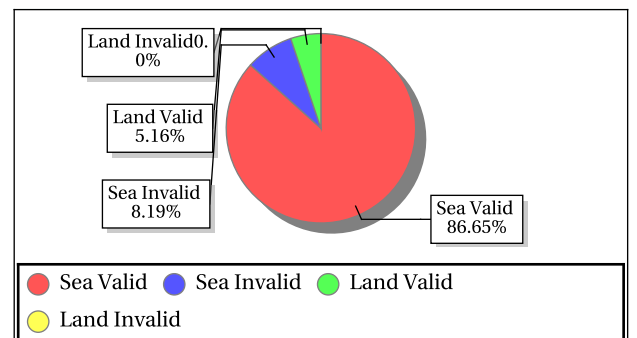
\*DP Format Document

## Sigma-0 Quality Flag Statistics for Inner/Outer Footprints

Inner Beam (HH)



Outer Beam (VV)



## Overall statistics for the Static Parameters (Footprint-wise)

Inner Beam (HH)																
	Sea Aft				Sea Fore				Land Aft				Land fore			
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)
<b>Kp</b>	0.12	76.47	0.25	1.877	0.12	84.86	0.14	0.237	0.12	0.13	0.12	0.000	0.12	0.12	0.12	0.000
<b>Kpa</b>	0.01	0.02	0.01	0.000	0.01	0.02	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>Kpb</b>	0.02	0.02	0.02	0.000	0.02	0.02	0.02	0.000	0.02	0.02	0.02	0.000	0.02	0.02	0.02	0.000
<b>Kpc</b>	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>SNR</b>	-28.75	21.82	8.15	0.000	-29.42	22.56	14.57	0.095	8.82	19.89	16.22	0.000	18.32	27.00	20.88	14.286

Outer Beam (VV)																
	Sea Aft				Sea Fore				Land Aft				Land fore			
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)
<b>Kp</b>	0.09	130.24	0.30	2.651	0.09	12.60	0.12	0.593	0.09	0.10	0.09	0.000	0.09	0.10	0.09	0.000
<b>Kpa</b>	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>Kpb</b>	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>Kpc</b>	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>SNR</b>	-32.45	17.46	6.02	0.000	-22.28	18.05	10.43	0.000	7.22	14.16	10.98	0.000	5.59	14.27	10.38	0.000

Parameter Specifications					
Parameter	Kp	Kpa	Kpb	Kpc	SNR
Min	0.00	0.00	0.00	0.00	-65.00
Max	1.00	1.00	1.00	1.00	22.00

- Normal
- Deviations
- Alarming
- High Errors

## Overall statistics for static parameter (Footprint-wise)

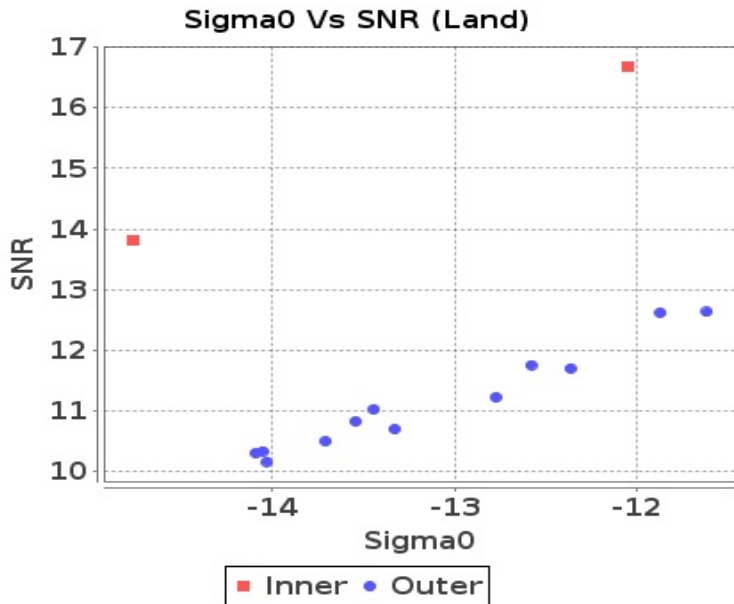
	Inner Beam (HH)				Outer Beam (VV)				Parameter Specifications		
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Parameter	Min	Max
<b>Incidence Angle (deg)</b>	48.90	49.20	49.09	0.000	57.76	58.01	57.90	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0249	6.07	1.27	16.742	0.0000	295.96	1.26	20.481	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1054.93	1061.00	1058.32	0.000	1237.67	1245.84	1242.22	0.000	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.63	-90.23	-90.69	0.000	-93.05	-92.28	-92.51	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.53	16.08	15.74	0.000	3.53	54.68	20.97	7.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	19.06	20.30	19.50	0.000	19.13	20.36	19.46	0.000	X-Factor	-100.00	-80.00
									Ac.Distance(Inner)	15.00	20.00
									Ac.Distance(Outer)	15.00	22.00
									Al.Distance(Inner)	15.00	30.00
									Al.Distance(Outer)	10.00	30.00

- Normal
- Deviations
- Alarming
- High Errors

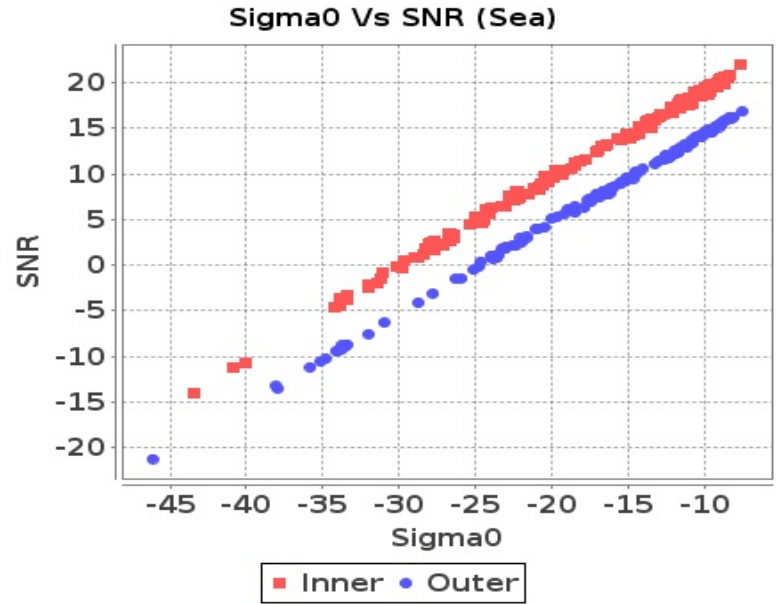


## Sigma0 Behaviour (Sigma0 Vs SNR)

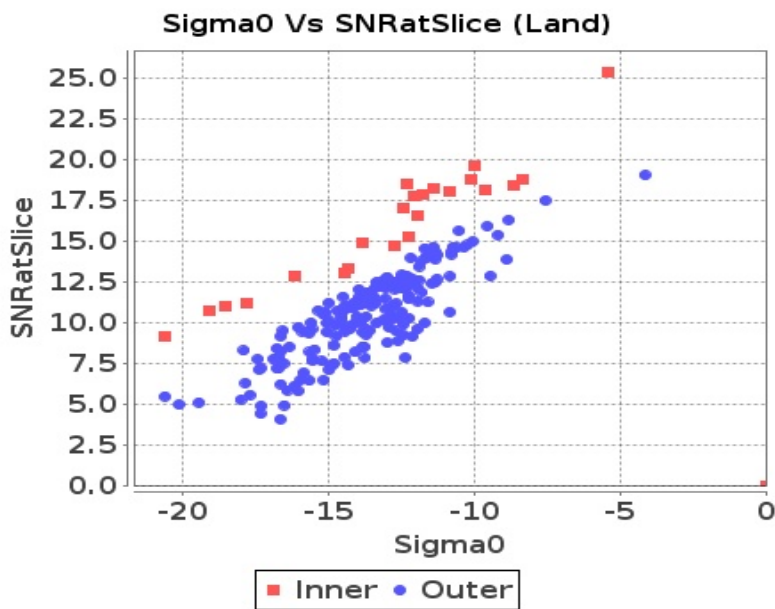
Footprint-Land



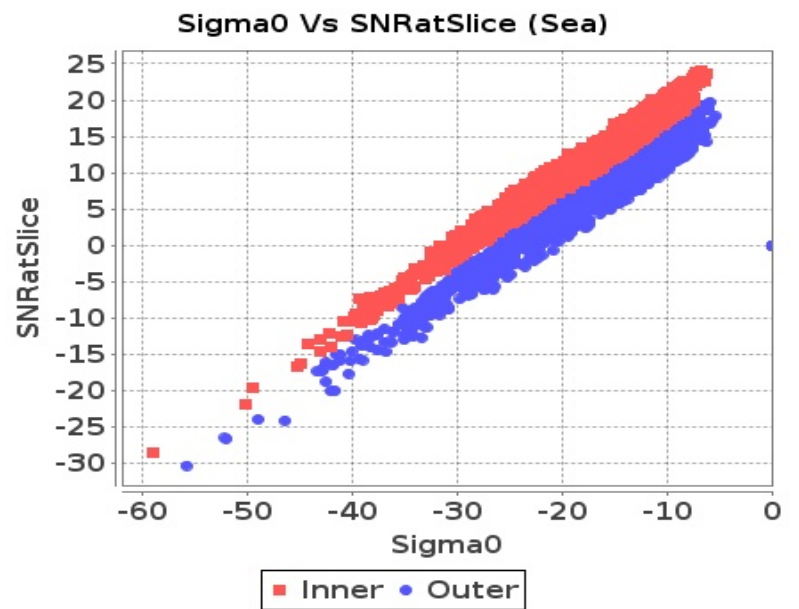
Footprint-Sea



Slice-Land

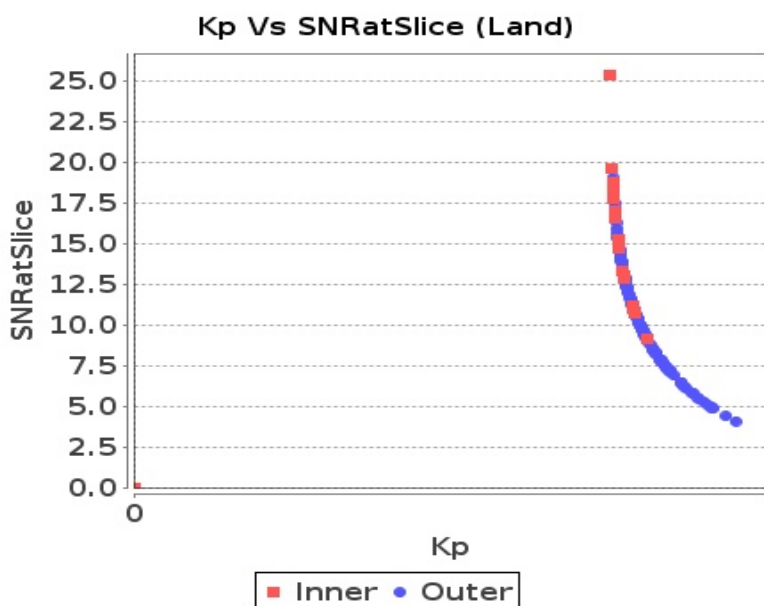


Slice-Sea

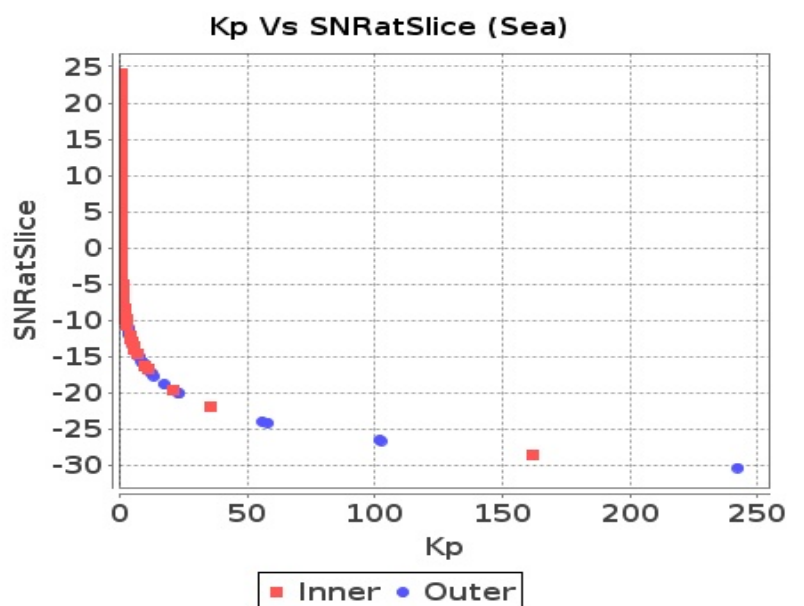


## Sigma0 Behaviour (Kp Vs SNR)

Slice

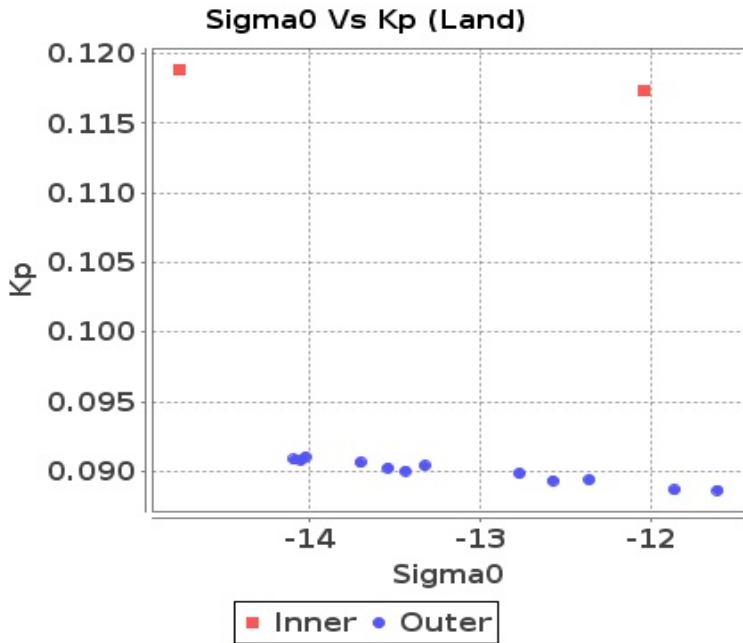


Slice

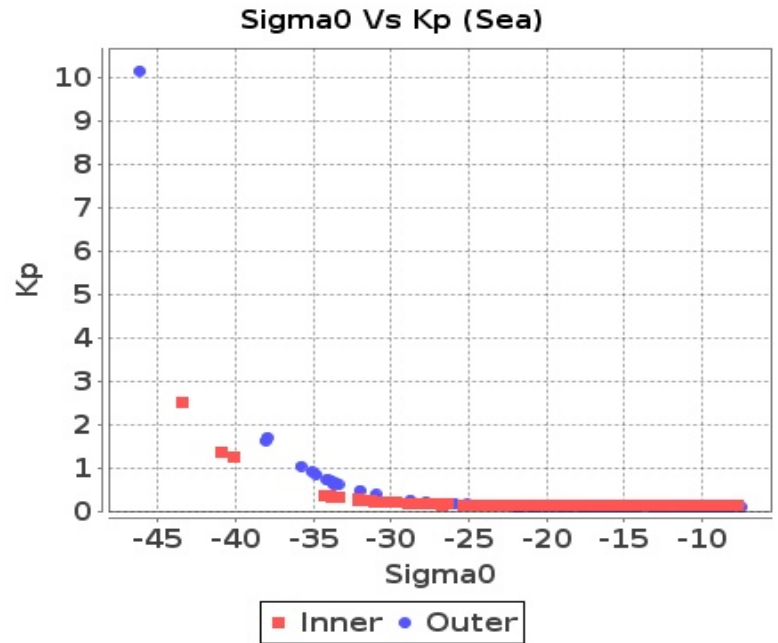


# Sigma0 Behaviour(Sigma0 Vs Kp)

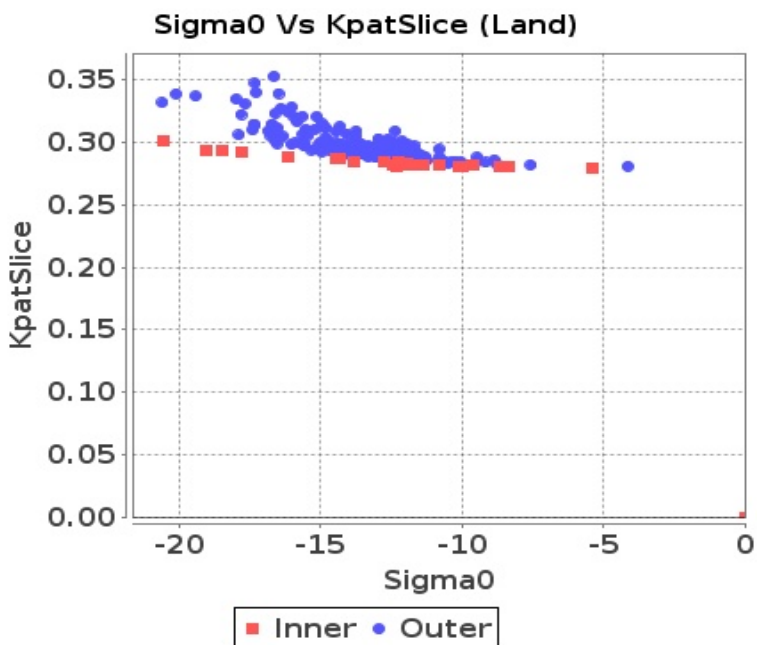
## Footprint-Land



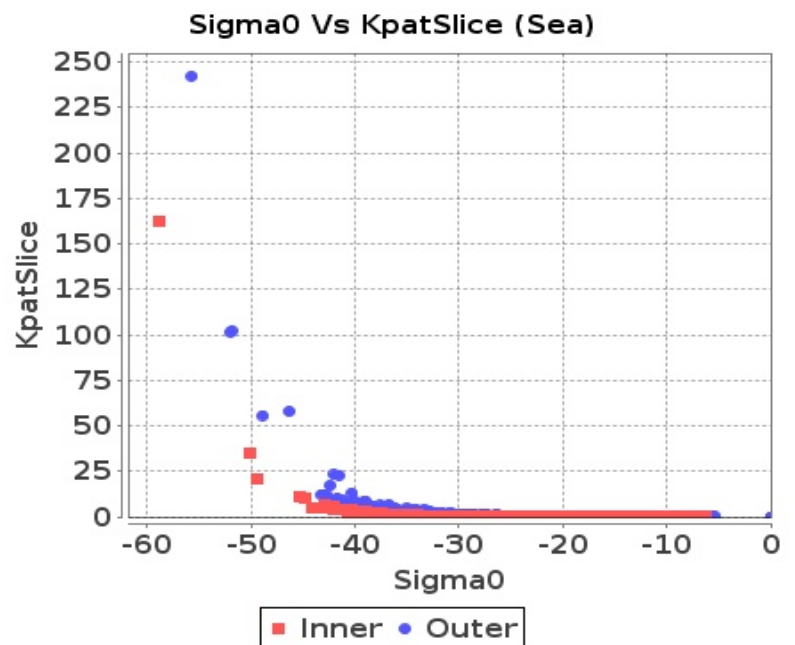
## Footprint-Sea



## Slice-Land



## Slice-Sea

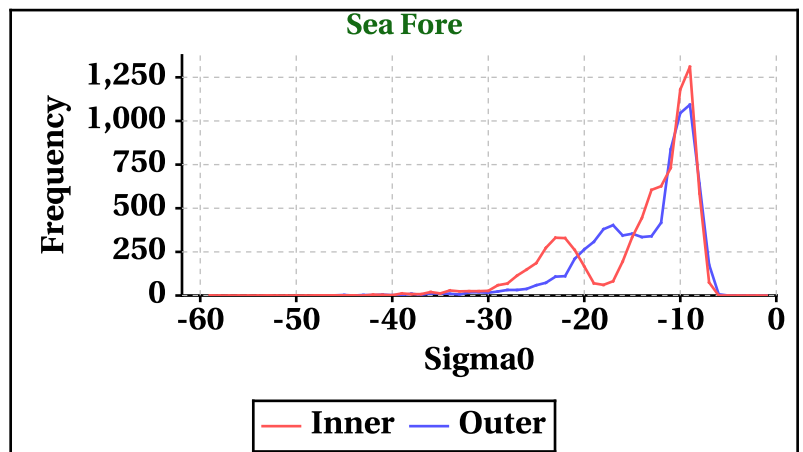
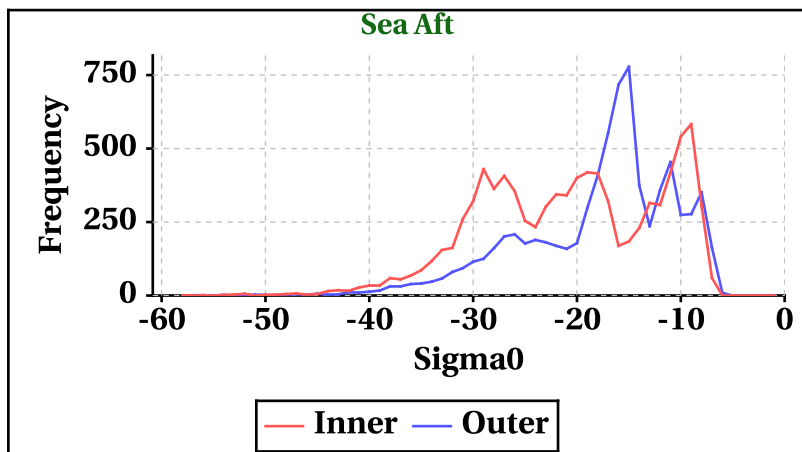
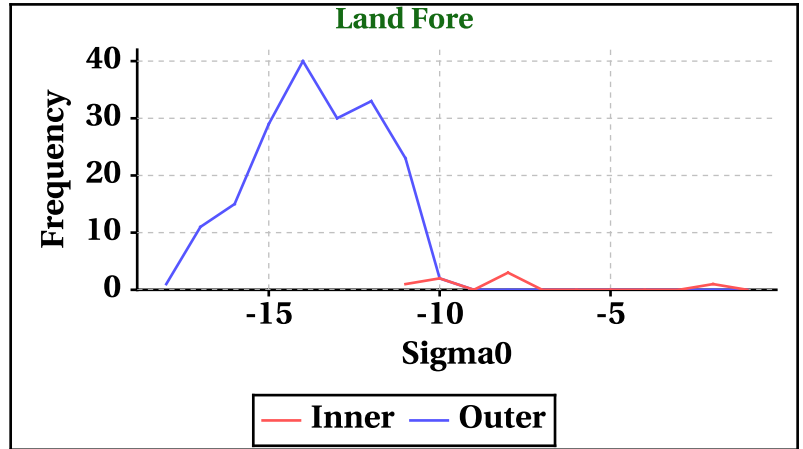
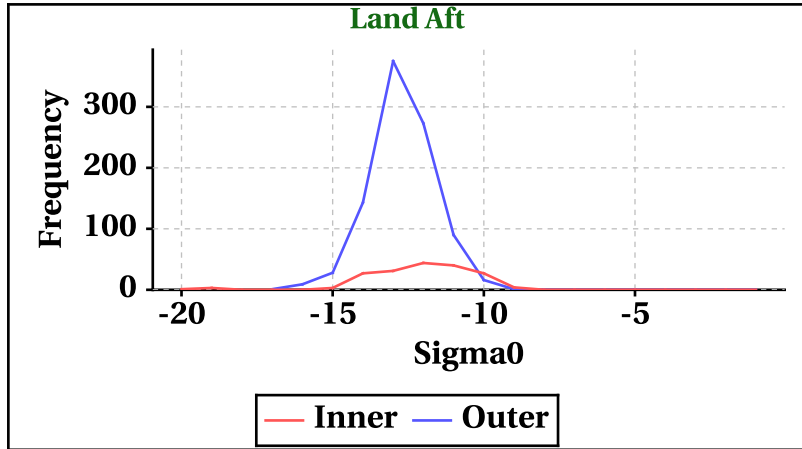


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-20	-11	-58	-59
Max	0	0	0	0

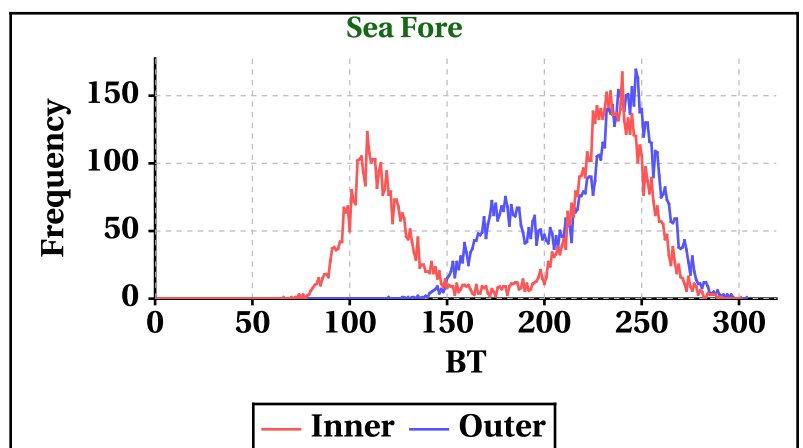
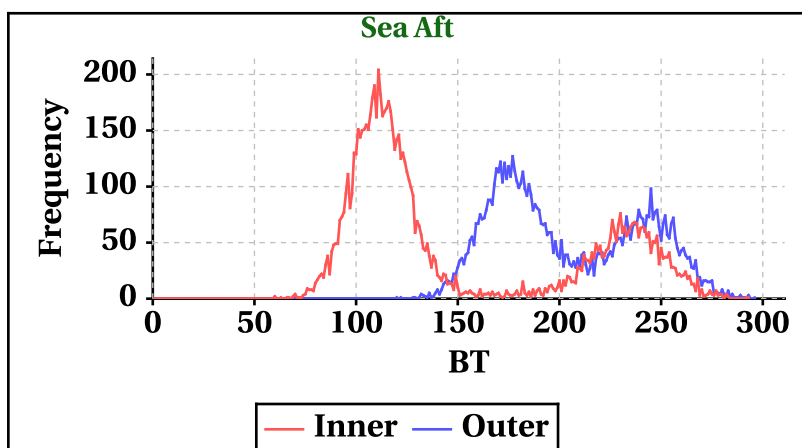
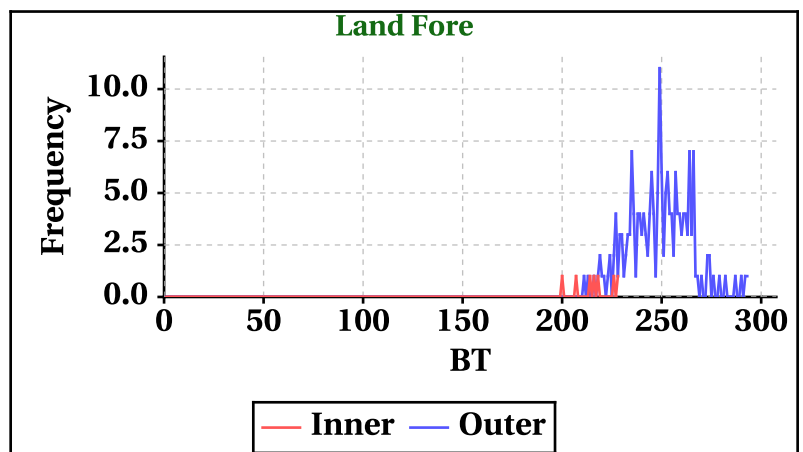
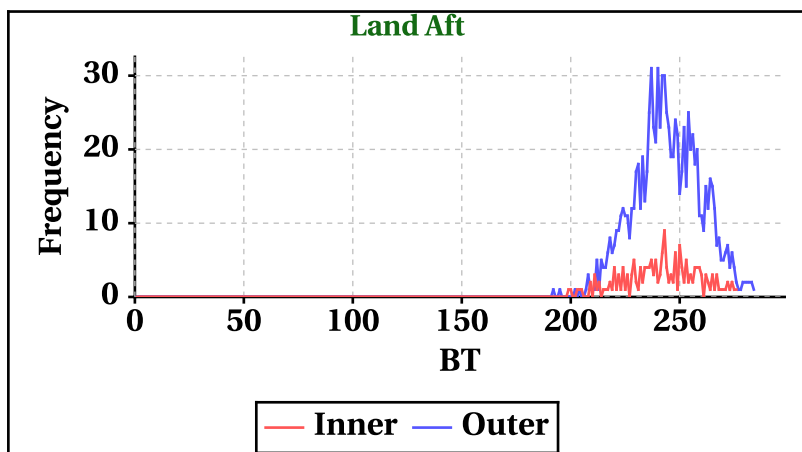
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-17	-18	-57	-47
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	276	228	293	301

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	284	293	296	304



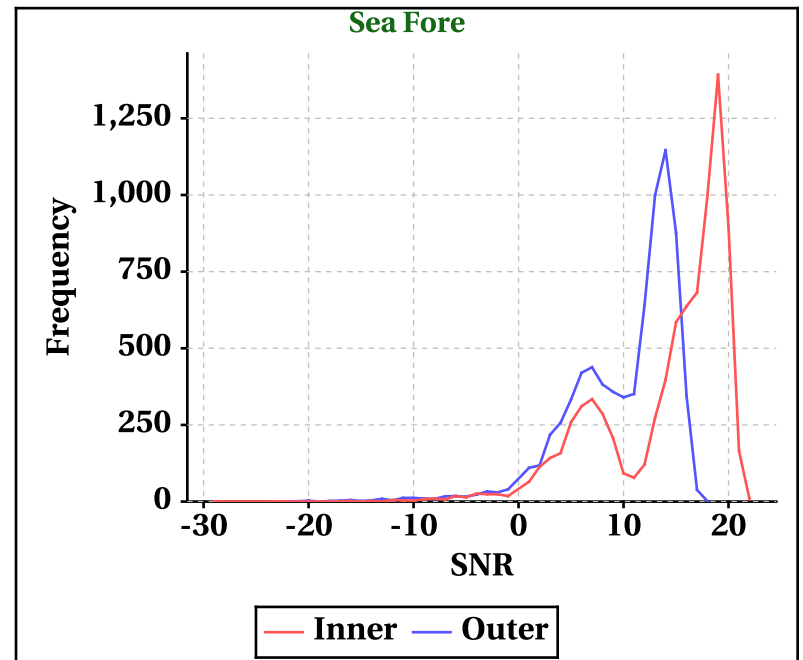
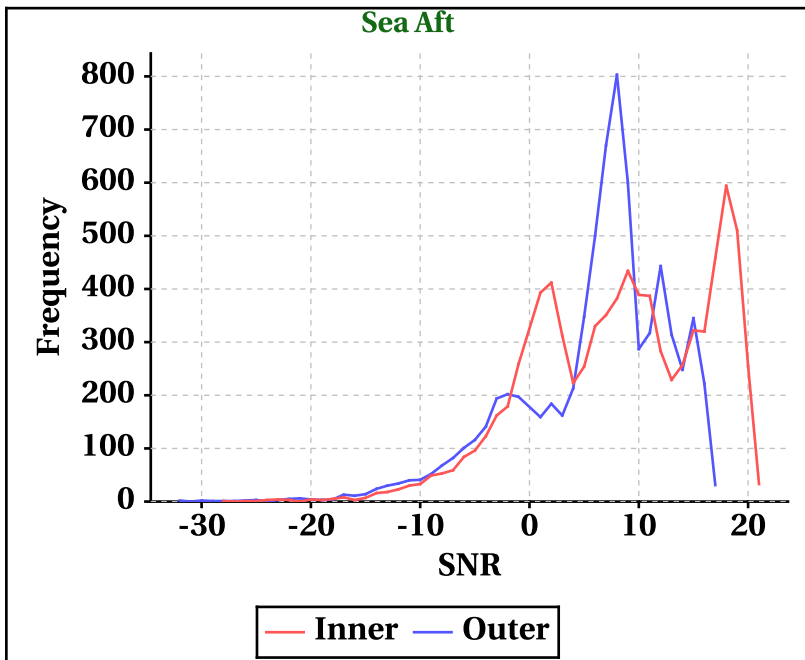
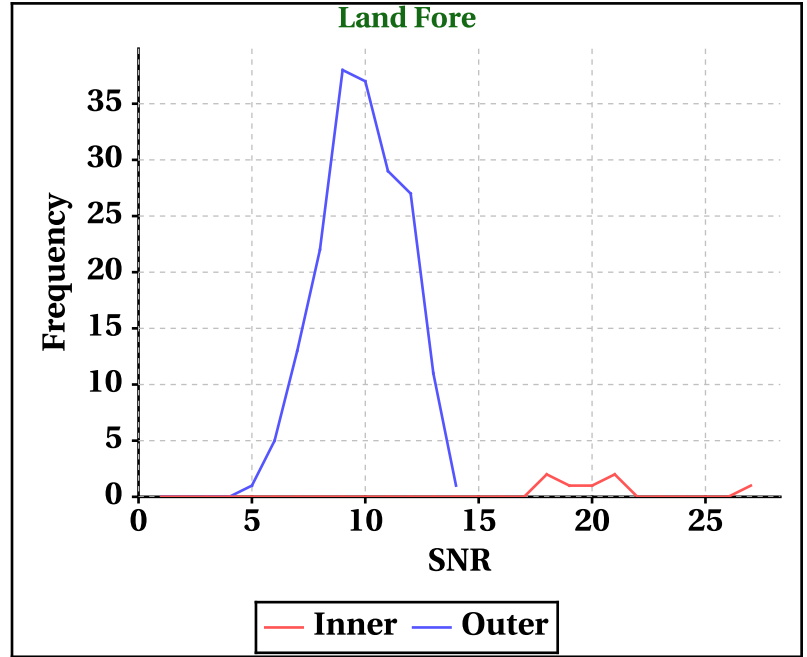
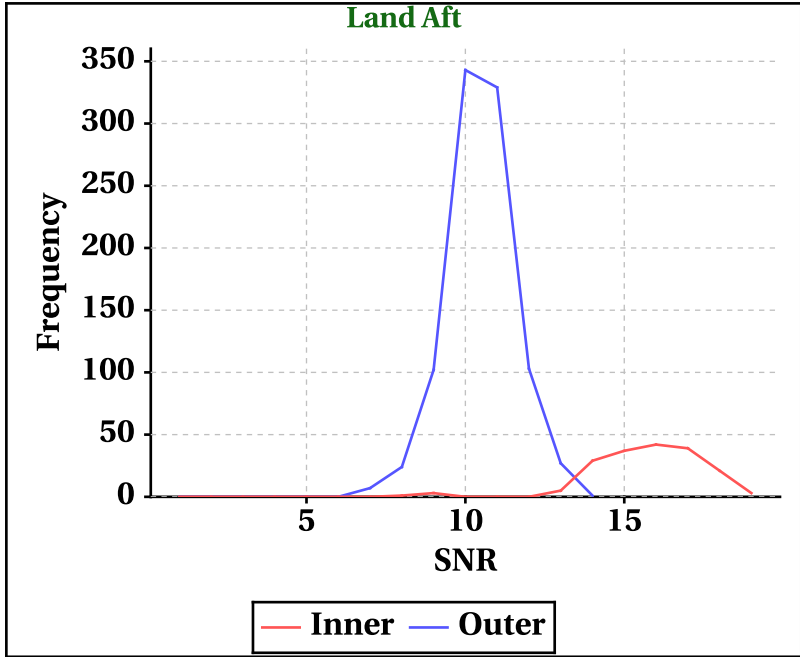


# Dynamic Range (Data Histograms)

## SNR(dBm)

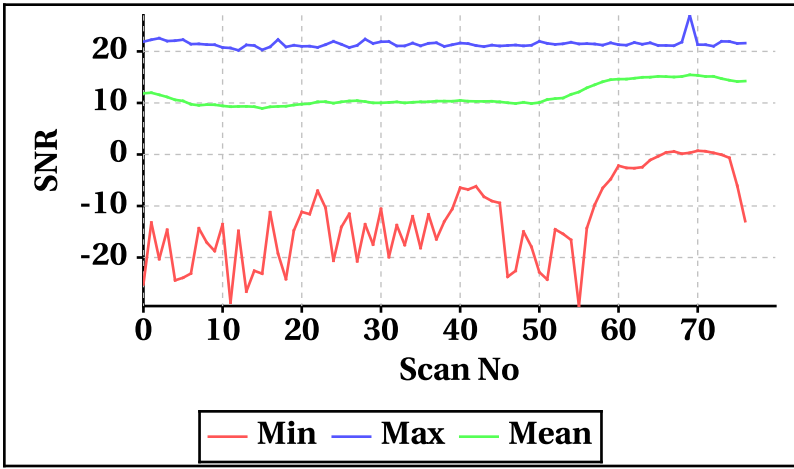
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-28	-29
Max	19	27	21	22

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-32	-22
Max	14	14	17	18

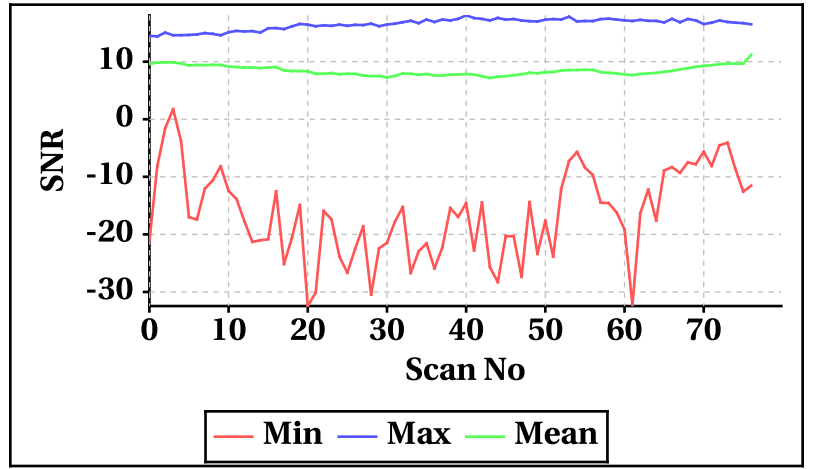


## Orbit-wise behaviour of SNR

**Inner Beam (HH)**

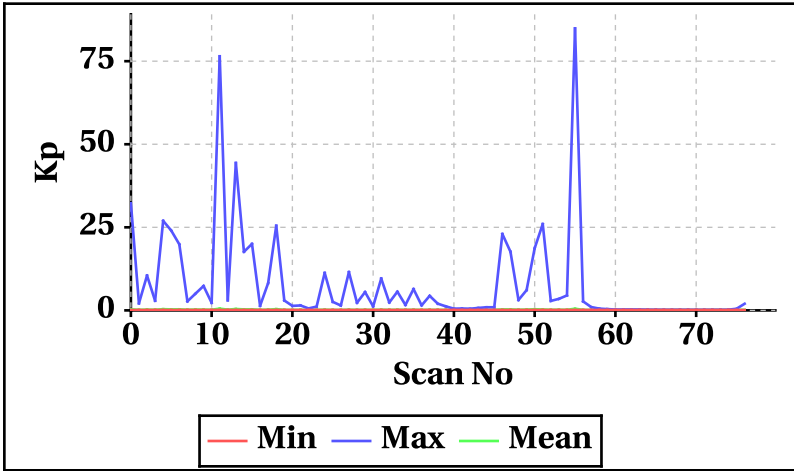


**Outer Beam(VV)**

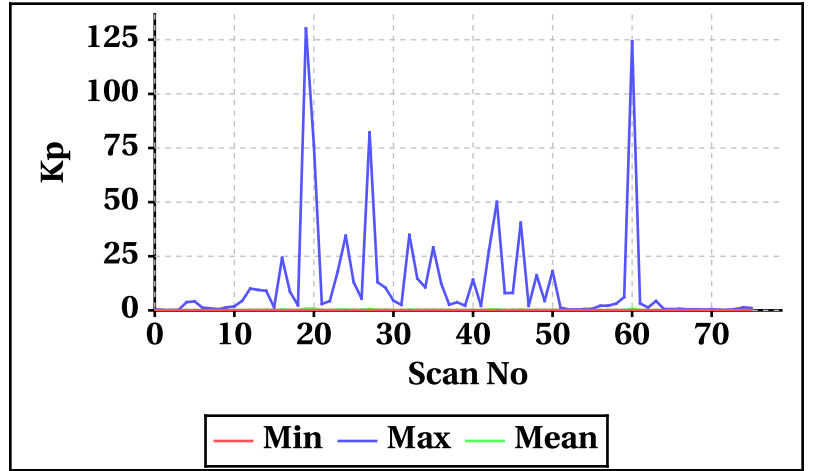


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

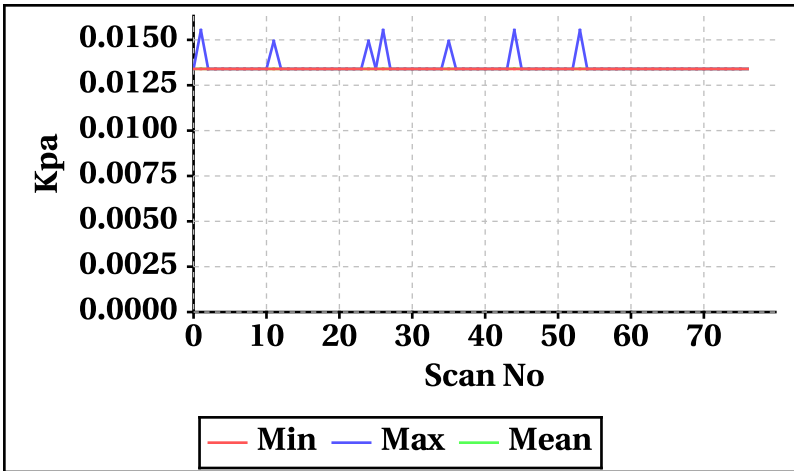
**Inner Beam(HH)**



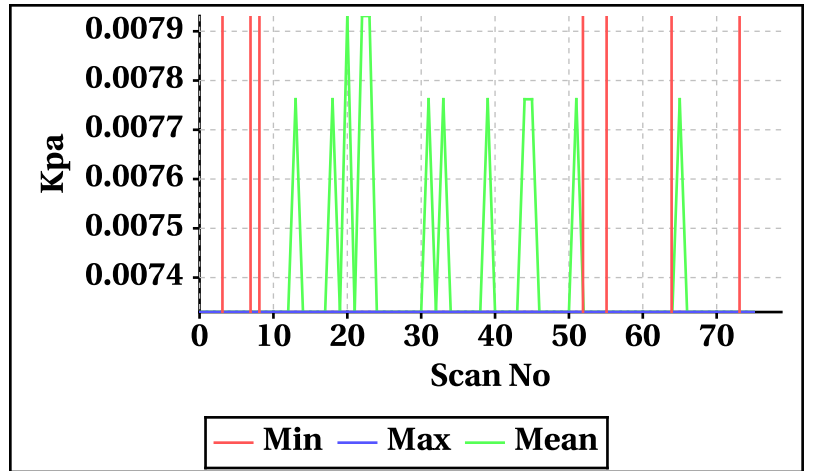
**Outer Beam(VV)**



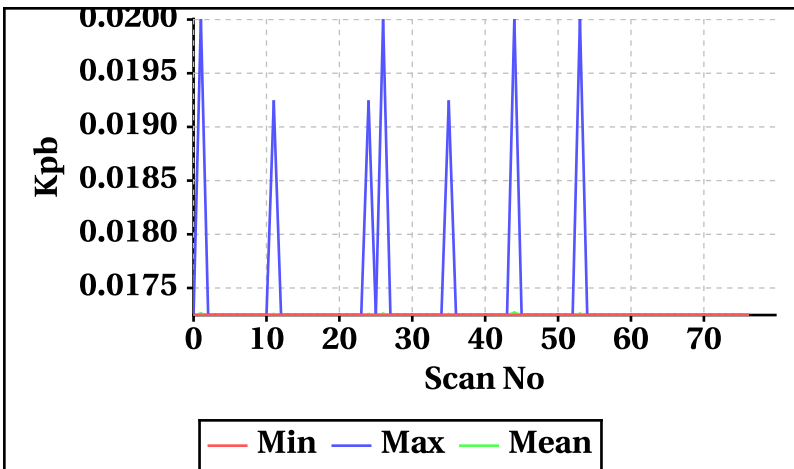
**Inner Beam(HH)**



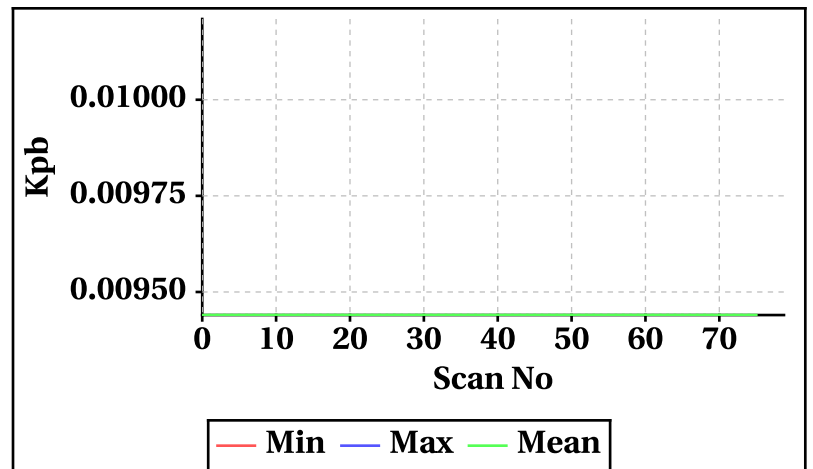
**Outer Beam(VV)**



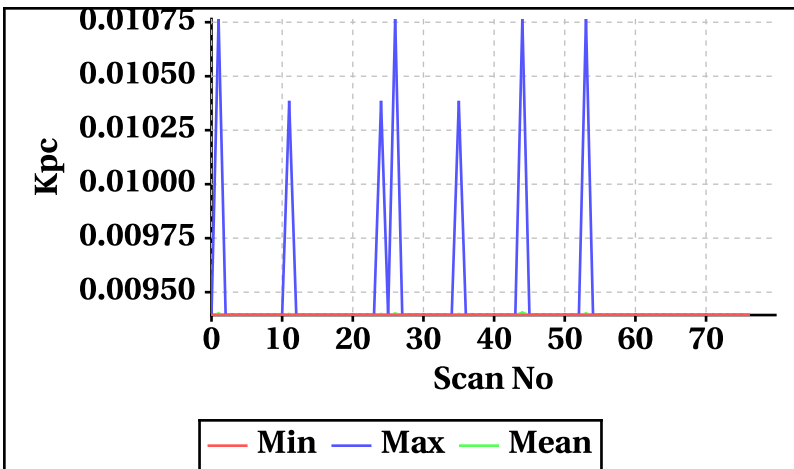
**Inner Beam(HH)**



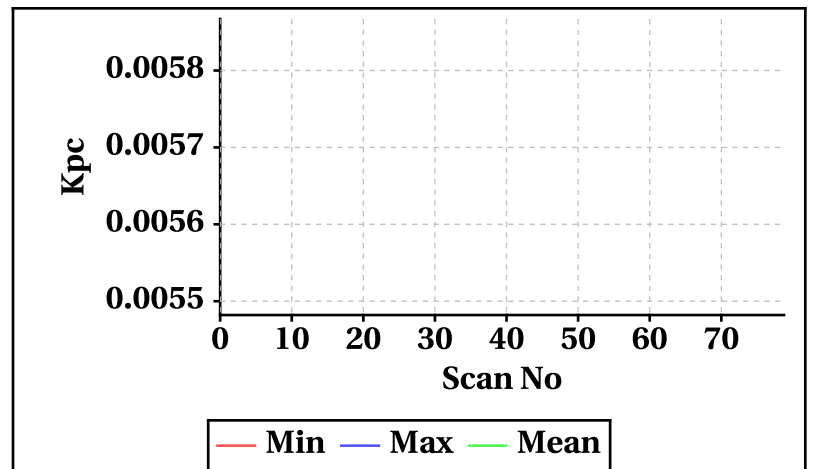
**Outer Beam(VV)**



**Inner Beam(HH)**

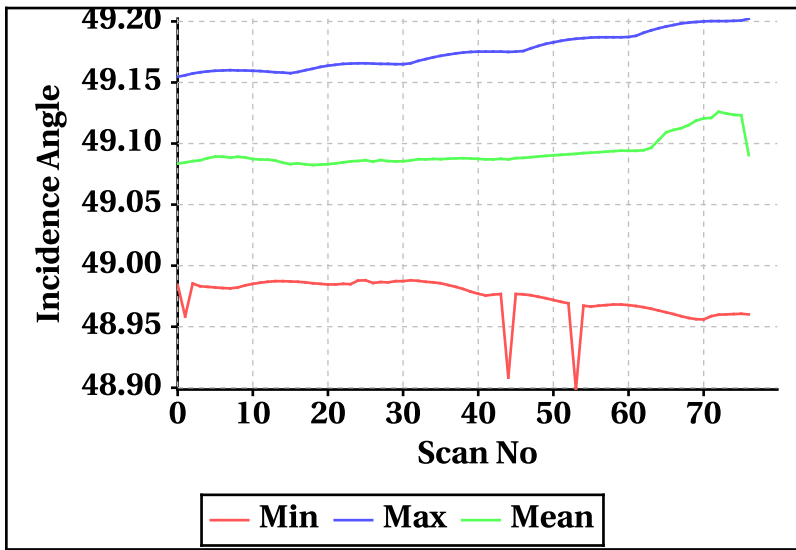


**Outer Beam(VV)**

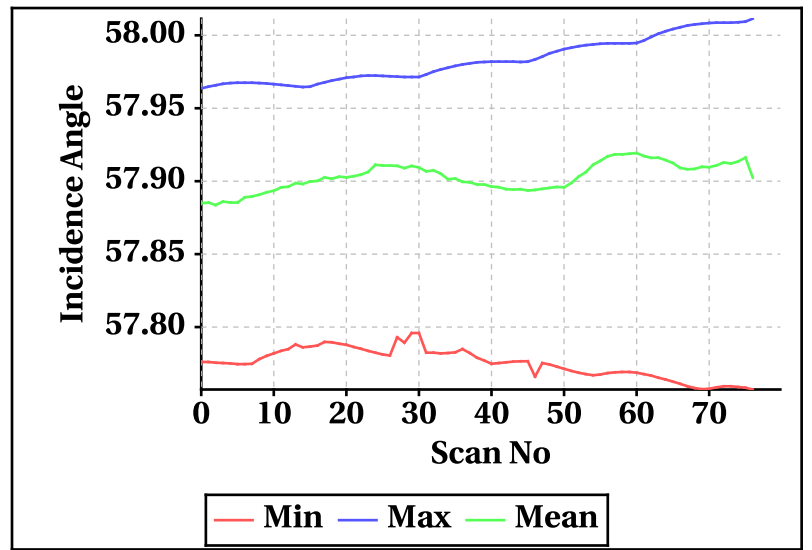


Orbit-wise behaviour of Incidence,Azimuth,Range,X-Factor

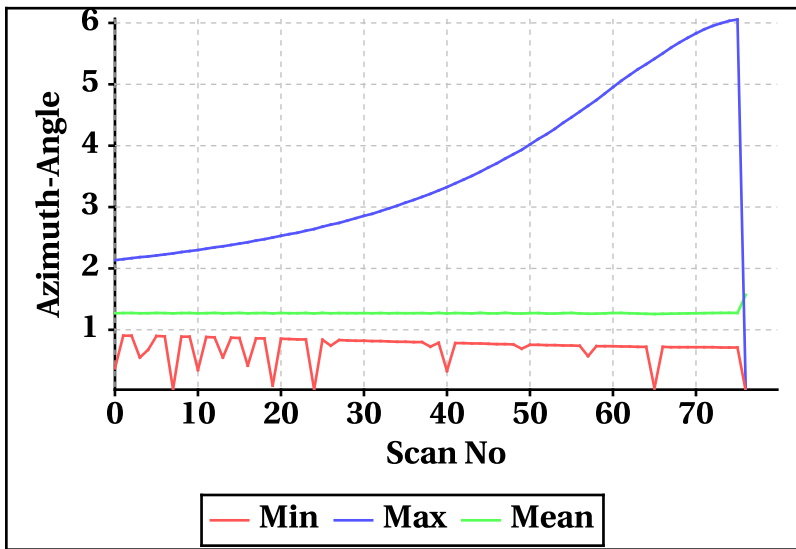
Inner Beam (HH)



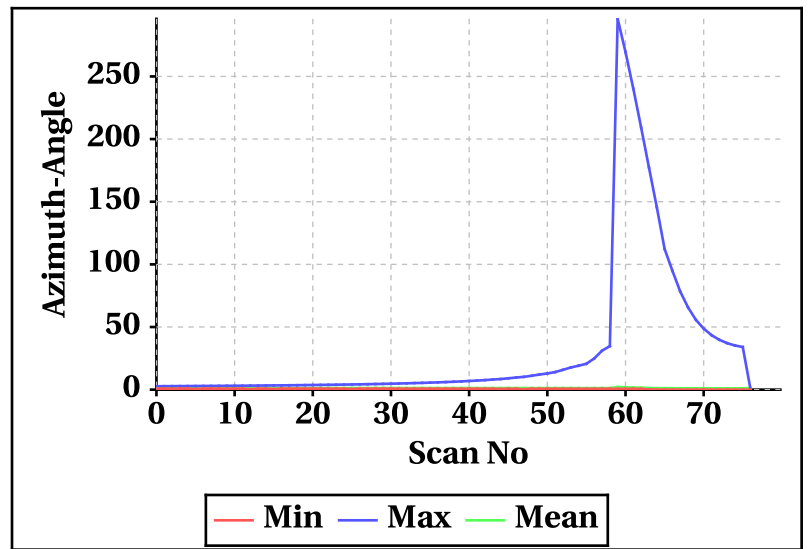
Outer Beam(VV)



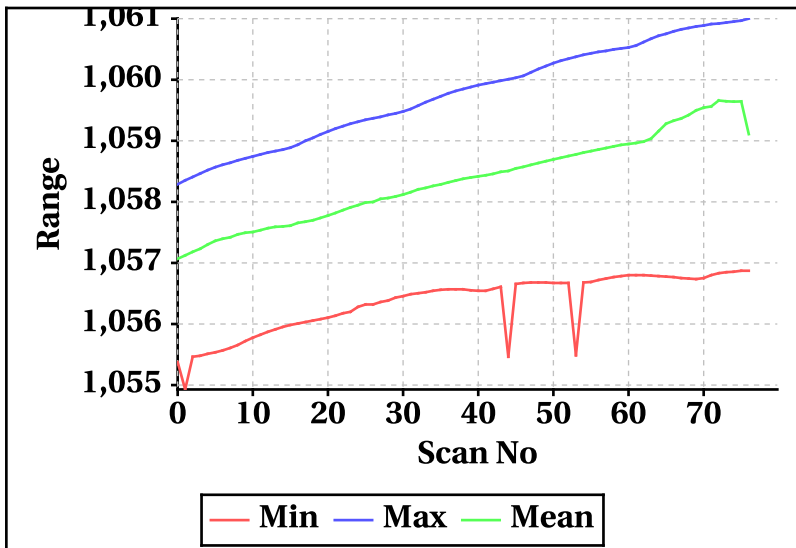
Inner Beam (HH)



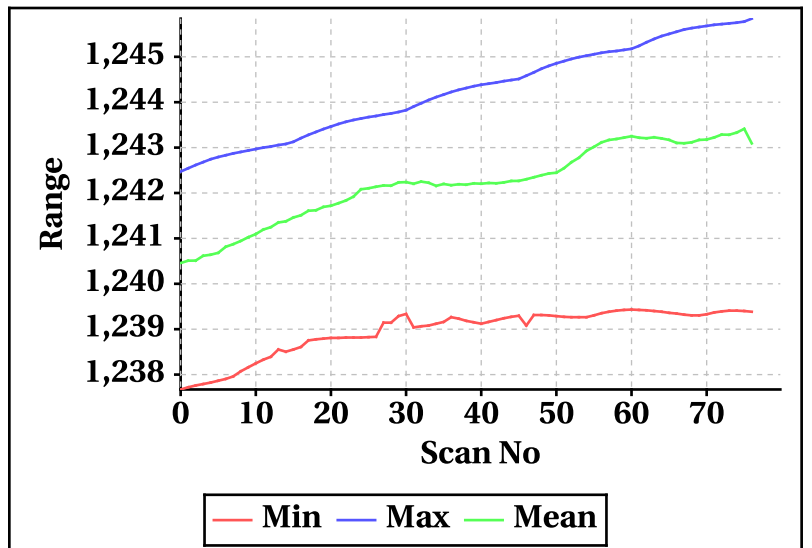
Outer Beam(VV)



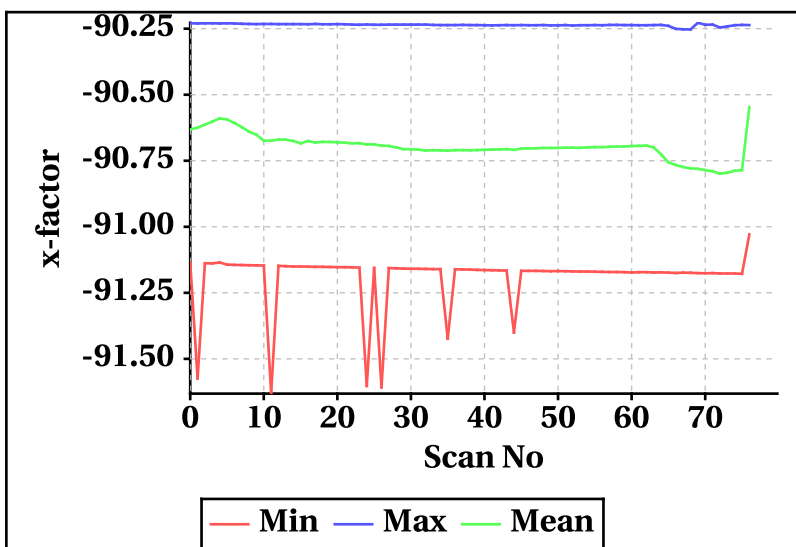
Inner Beam (HH)



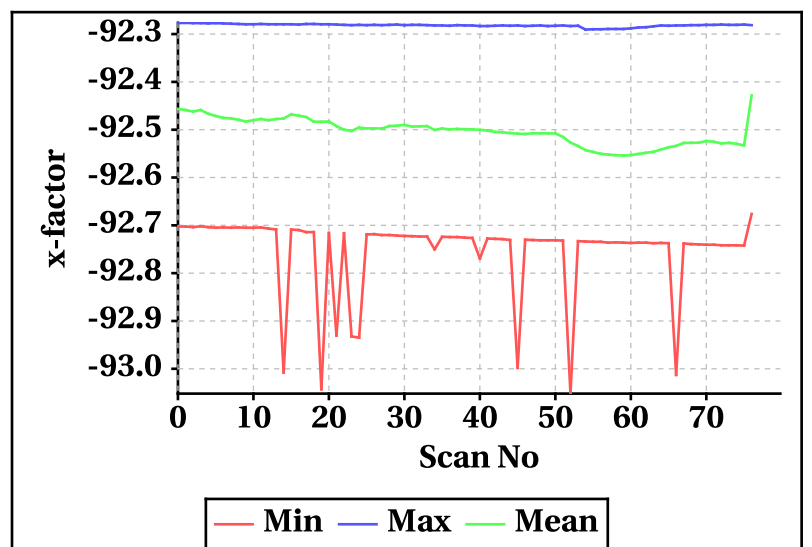
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)



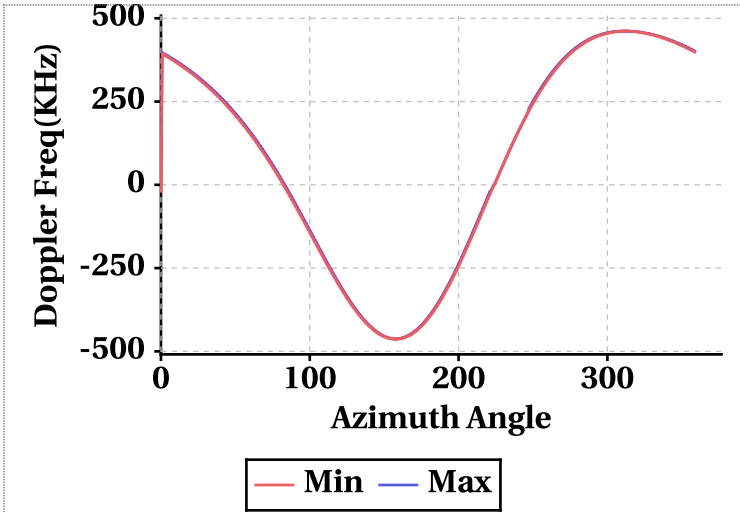


# Doppler Frequency Variation

**Doppler Frequency(KHz) variation statistics Over the half Orbit**

	Inner Beam (HH)	Outer Beam (VV)
<b>Min</b>	-462.84	-518.54
<b>Max</b>	461.66	517.52

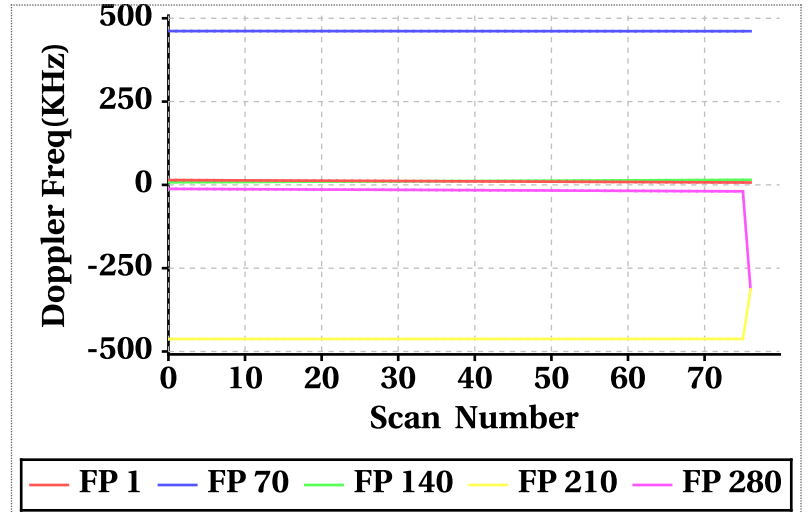
**Footprint wise Doppler frequency variation Inner Beam (HH)**



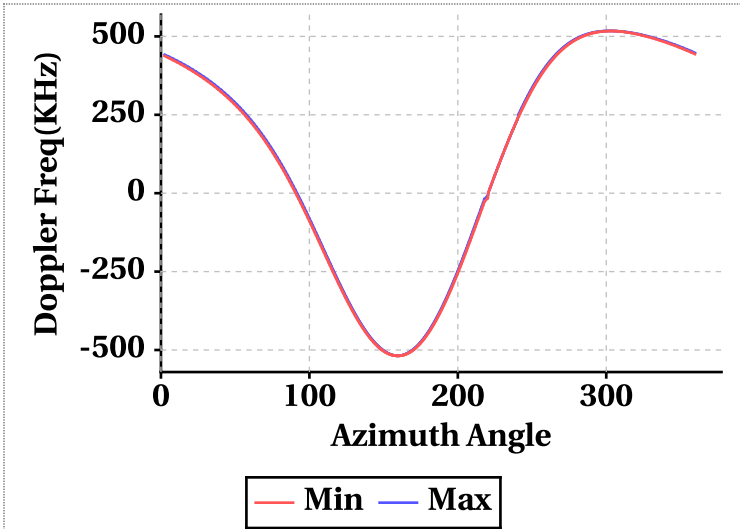
**Doppler Frequency(KHz) variation**

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	7.02	14.52	10.77	2.40	10.74	6.58
Doppler_70	461.26	461.66	461.46	516.98	517.46	517.22
Doppler_140	7.96	15.08	11.46	3.18	11.22	7.13
Doppler_210	-462.52	-313.66	-460.48	-518.38	-355.64	-516.17
Doppler_280	-313.66	-12.02	-19.56	-355.64	-7.48	-16.03

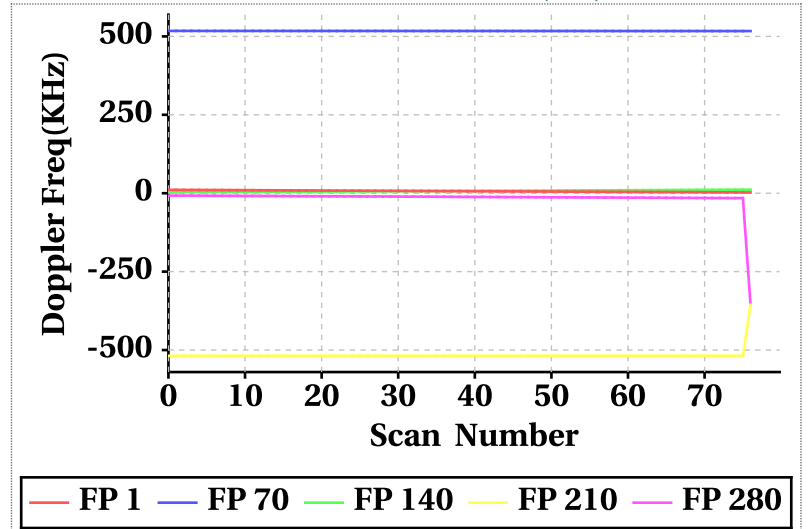
**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)**



**Footprint wise Doppler frequency variation Outer Beam (VV)**

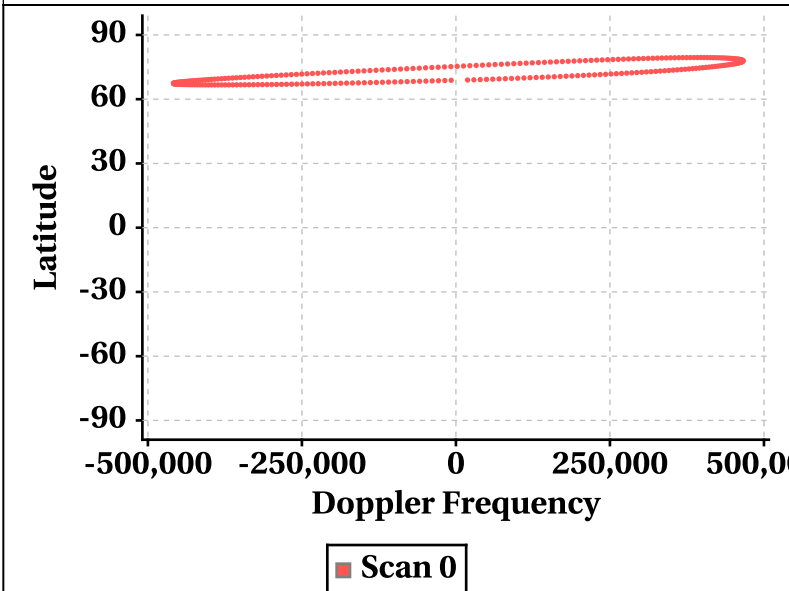


**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)**

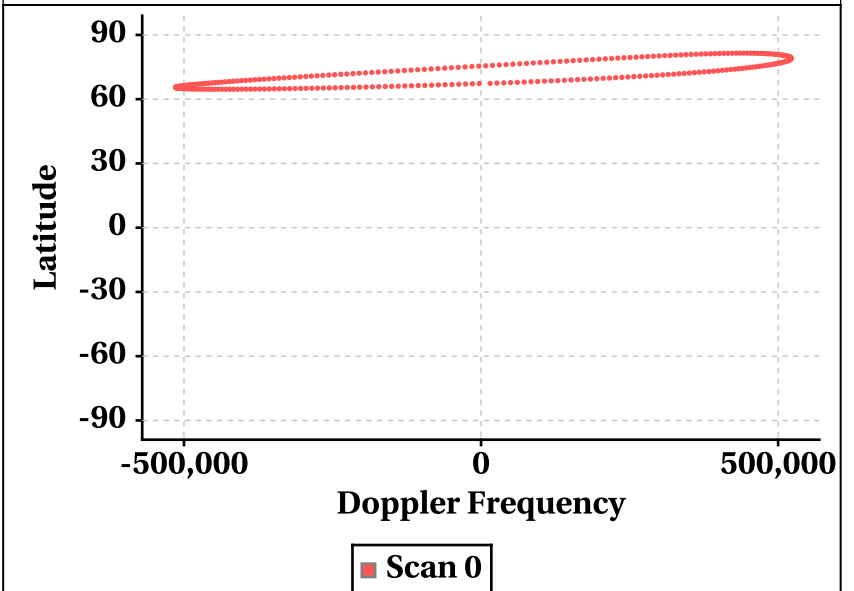


# Latitude Vs Doppler Frequency

**Doppler Frequency at Scan Interval of 200 [Inner Beam(HH)]**



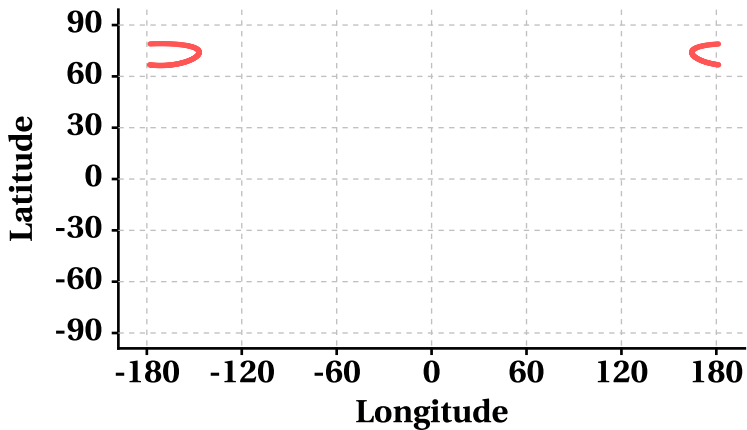
**Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]**



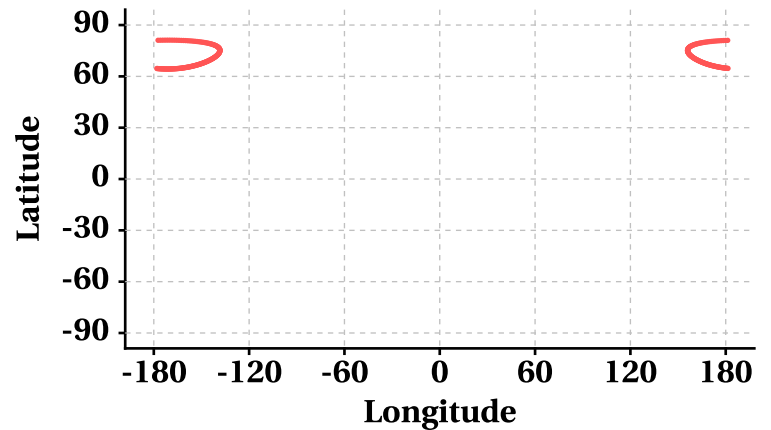
# Parameter as a function of Latitude

## Latitude Vs Longitude

### Scan Trace [Inner Beam(HH)]

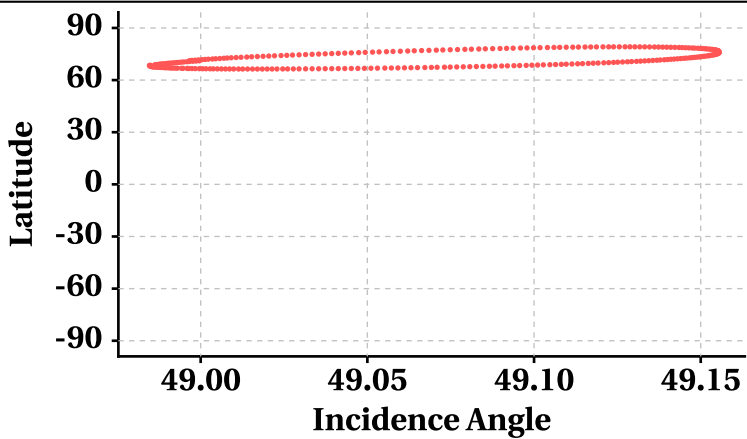


### Scan Trace [Outer Beam (VV)]

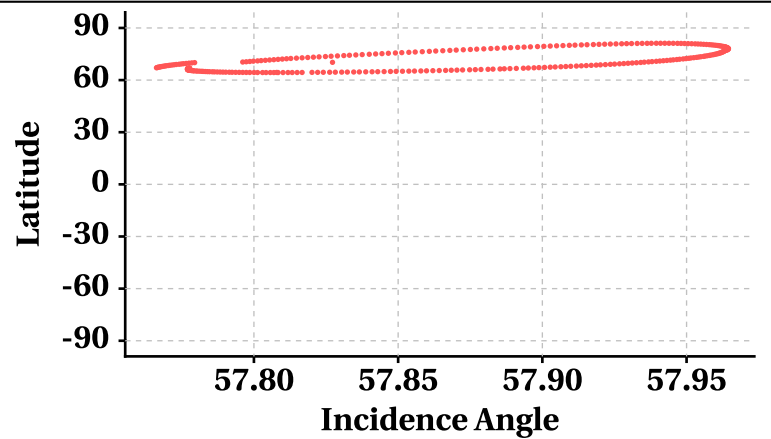


## Latitude Vs Incidence Angle

### Incidence Angle at Scan Interval of 200 [Inner Beam(HH)]

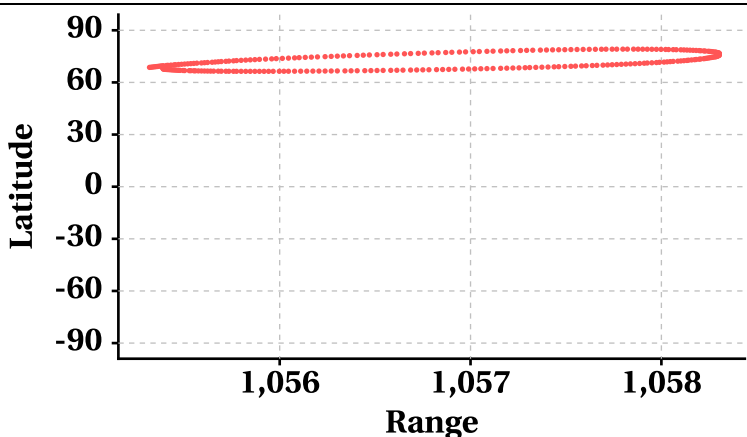


### Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]

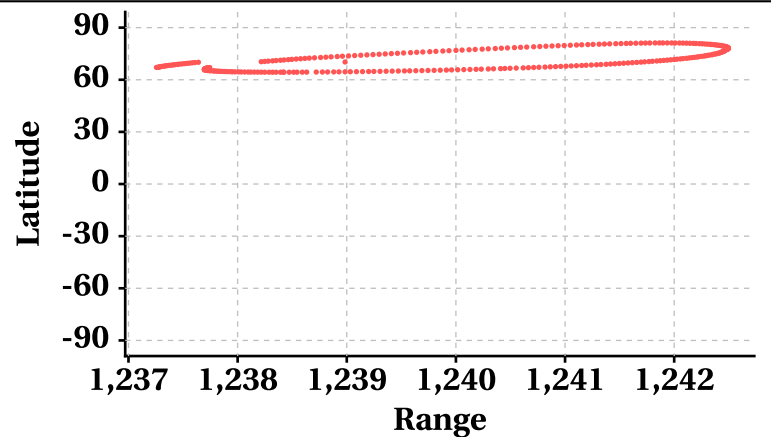


## Latitude Vs Range

### Range at Scan Interval of 200 [Inner Beam(HH)]



### Range at Scan Interval of 200 [Outer Beam(VV)]



# Variation in Orbit and Attitude Parameters

