

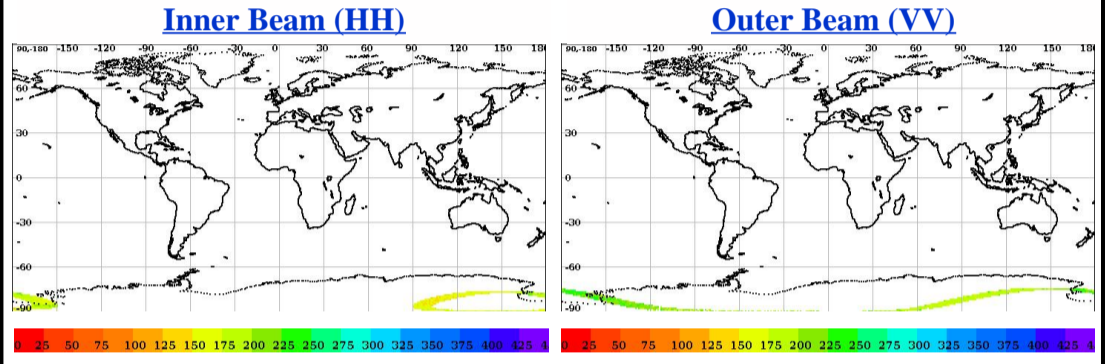
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	2791	<b>Total Scans</b>	12
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	2792	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	1.1.1	<b>Rev. Number</b>	02791_02792	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	06-04-2017	<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

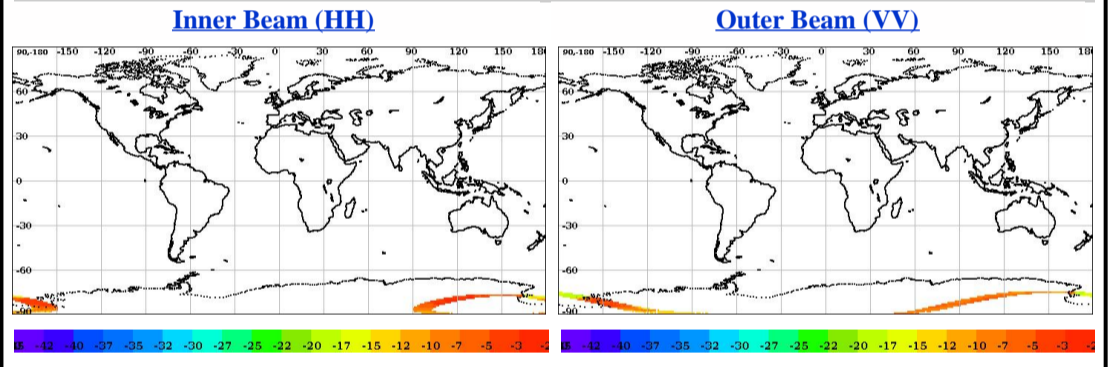
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



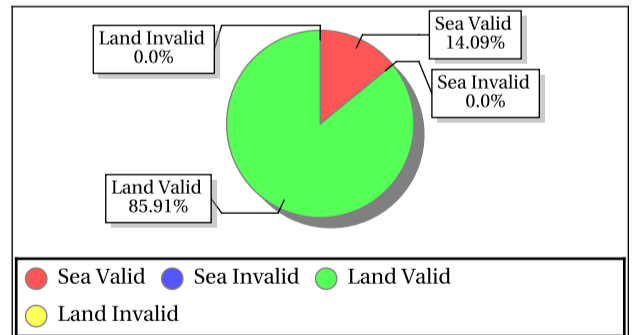
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.00	0.00
Data Not Available From Payload (%)	0.0	0.0
Slice not within sample array limits (%)	0.00	0.00
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
Poor Sigma0(%)	0.00	0.00
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 (%)	0.0	0.0

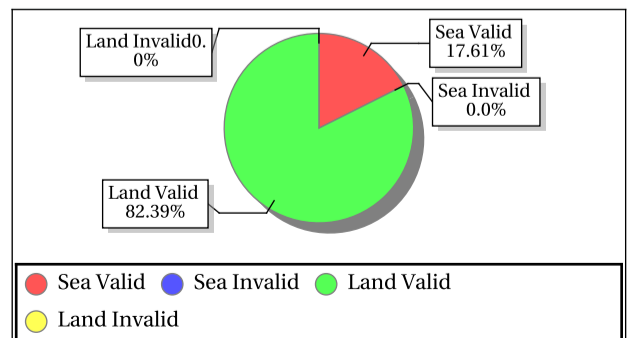
\*DP Format Document

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

### Inner Beam (HH)



### Outer Beam (VV)



## Invariant Site Sigma-0 Statistics for Ascending/Descending, Fore/Aft in HH/VV beams

Site Name	Center Lat	Center Lon	Beam	Node	ScanDir	Sigma0 Min	Sigma0 Max	Sigma0 Mean	Sigma0 Std	BT Min	BT Max	BT Mean	BT Std
ANT_1	-75.00	121.00	Outer	DSC	Fore	-8.29	-6.48	-7.42	0.59	167.17	206.47	185.65	11.24



## 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>	0.10	0.11	0.11	0.000	10000.00	-10000.00	0.00	0.000	0.10	0.11	0.10	0.000	0.10	0.10	0.10	0.000
<b>Kpa</b>	0.01	0.01	0.01	0.000	10000.00	-10000.00	0.00	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	10000.00	-10000.00	0.00	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	10000.00	-10000.00	0.00	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>SNR</b>	9.93	17.76	13.46	0.000	10000.00	-10000.00	0.00	0.000	12.09	27.01	22.55	68.797	15.86	28.68	23.75	77.600

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>	0.08	0.11	0.09	0.000	10000.00	-10000.00	0.00	0.000	0.08	0.10	0.08	0.000	0.08	0.08	0.08	0.000
<b>Kpa</b>	0.01	0.01	0.01	0.000	10000.00	-10000.00	0.00	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	10000.00	-10000.00	0.00	0.000	0.01	0.01	0.01	0.000	0.01	0.01	0.01	0.000
<b>Kpc</b>	0.00	0.00	0.00	0.000	10000.00	-10000.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000
<b>SNR</b>	2.87	10.16	6.77	0.000	10000.00	-10000.00	0.00	0.000	3.42	21.79	15.88	0.000	11.25	20.77	16.44	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 (VV)				Outer Beam (VV)				Parameter Specifications		
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Parameter	Min	Max
<b>Incidence Angle (deg)</b>	49.14	49.26	49.20	0.000	58.09	58.22	58.16	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	100000.0000	-100000.0000	0.00	0.000	0.2122	0.63	0.18	0.336	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1082.81	1085.25	1084.05	0.000	1273.76	1277.52	1275.67	0.000	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-90.79	-90.74	-90.76	0.000	-92.78	-92.73	-92.75	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.95	16.55	16.15	0.000	7.02	33.25	21.37	6.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	19.15	19.56	17.76	0.000	18.83	20.22	17.70	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

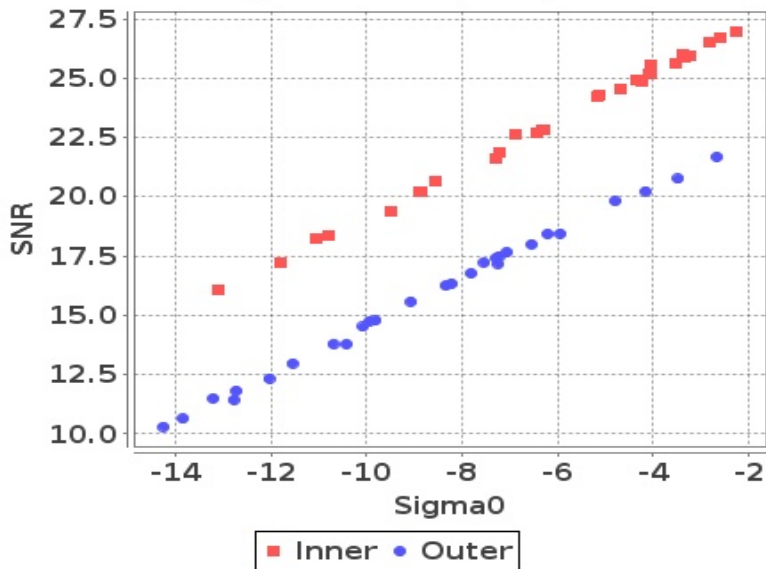
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

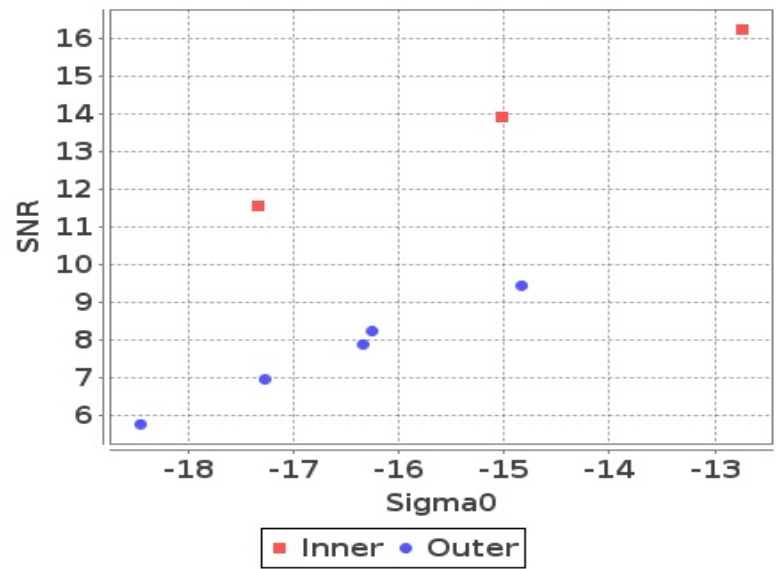
**Footprint-Land**

Sigma0 Vs SNR (Land)



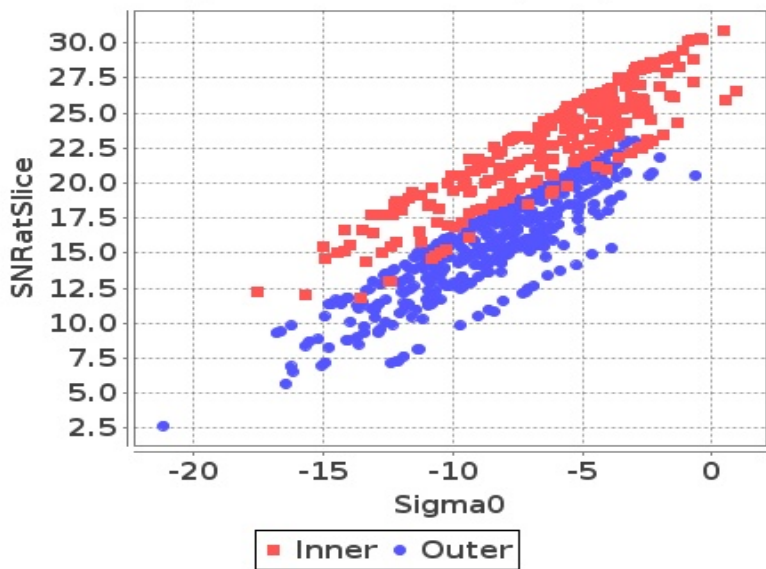
**Footprint-Sea**

Sigma0 Vs SNR (Sea)



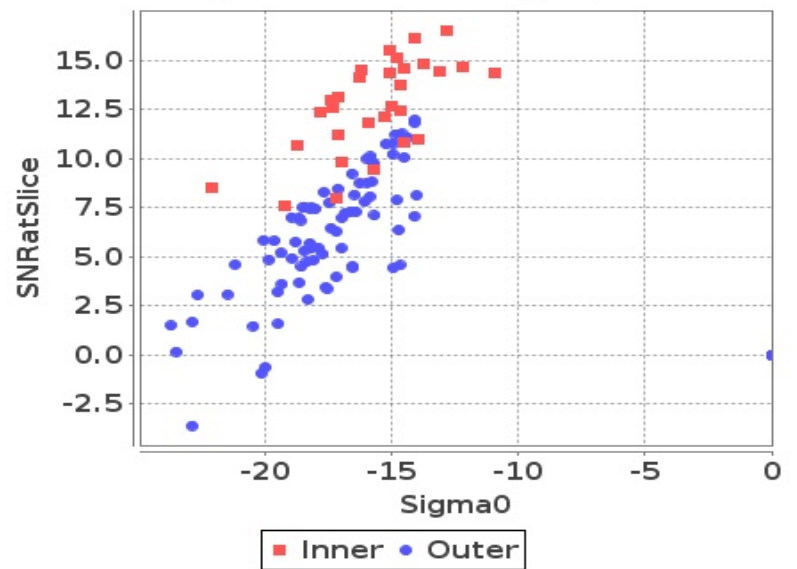
**Slice-Land**

Sigma0 Vs SNRatSlice (Land)



**Slice-Sea**

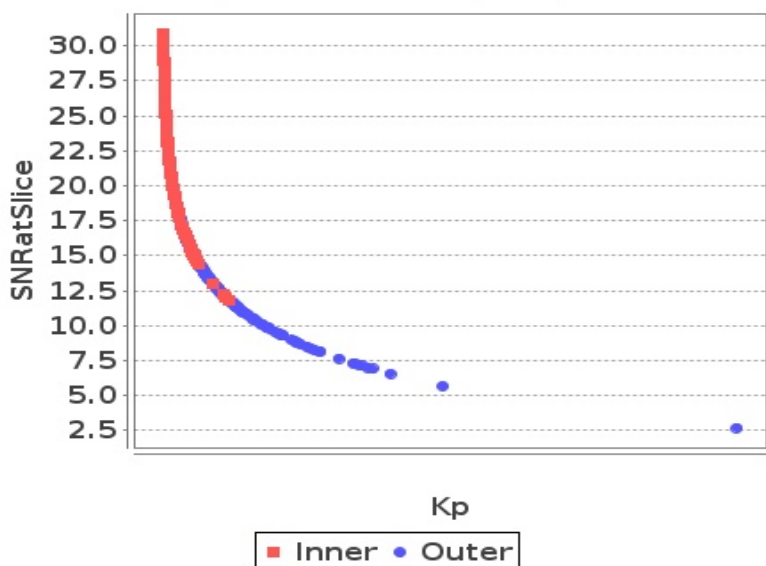
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

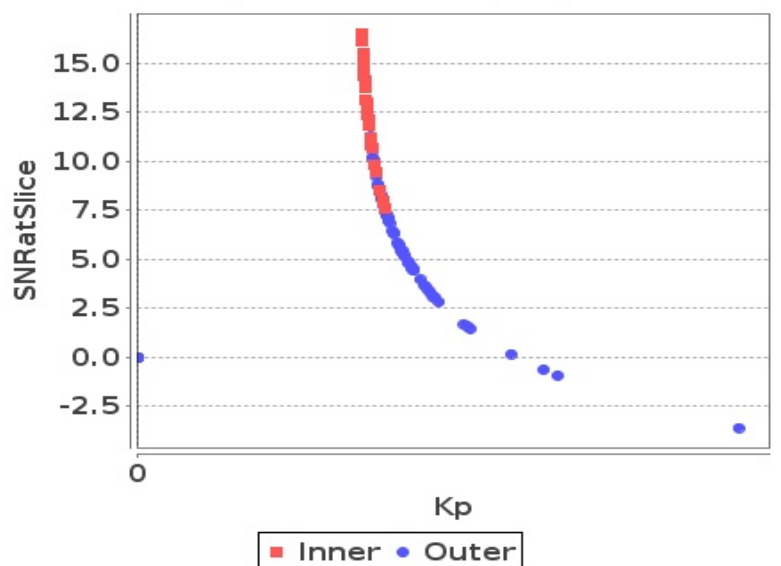
**Slice**

Kp Vs SNRatSlice (Land)



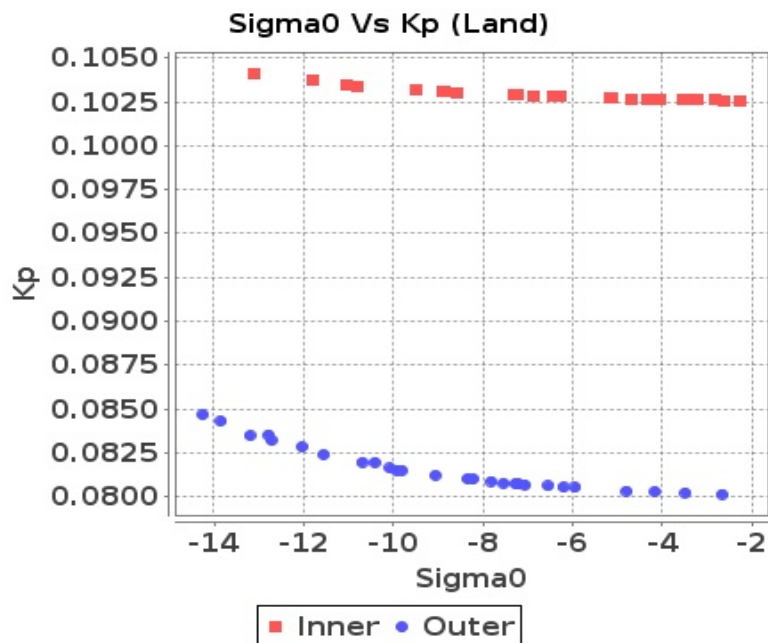
**Slice**

Kp Vs SNRatSlice (Sea)

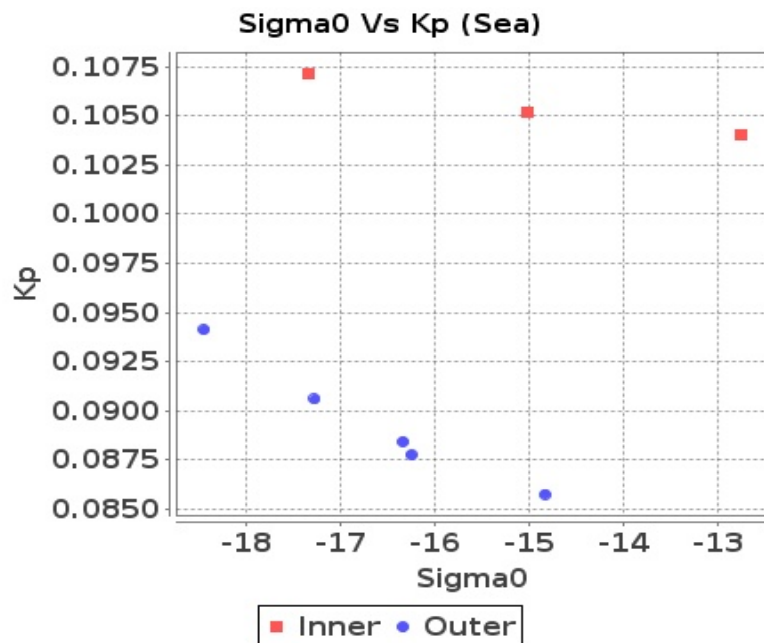


# Sigma0 Behaviour(Sigma0 Vs Kp)

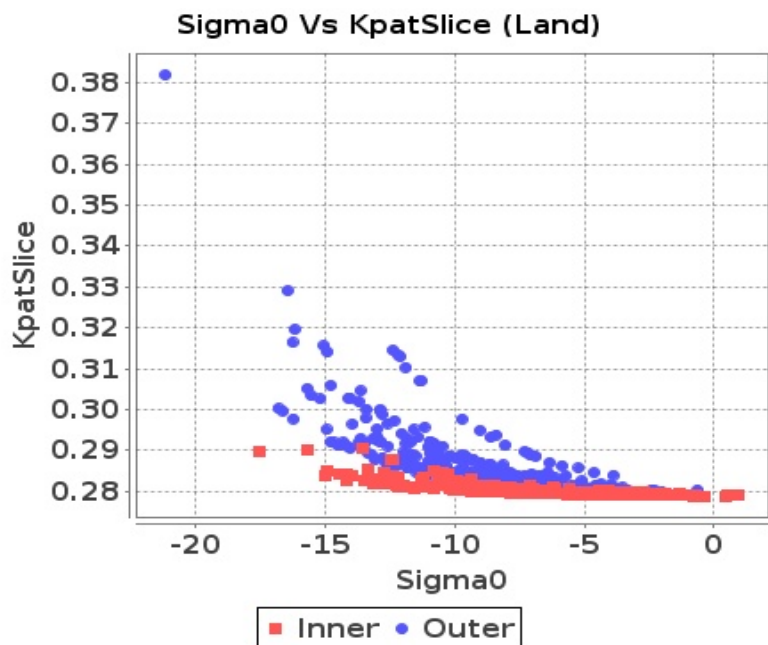
## Footprint-Land



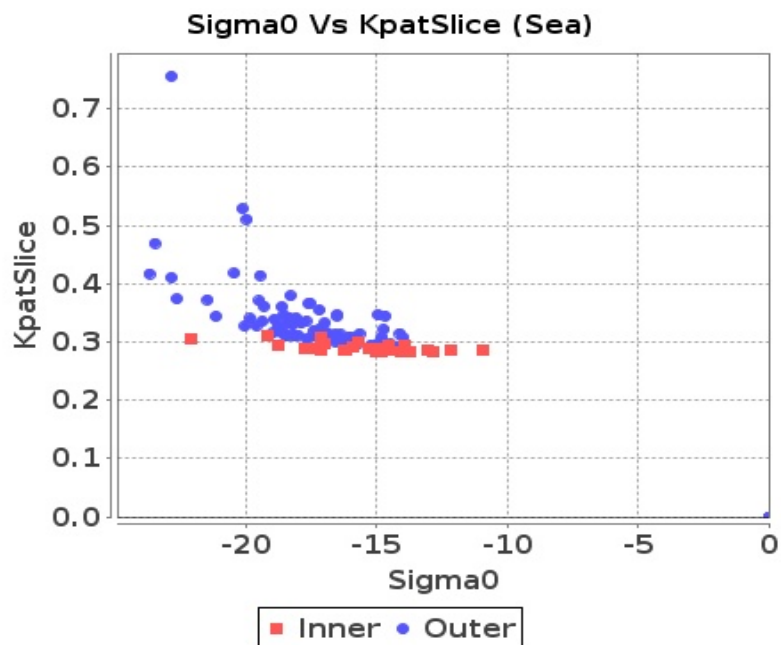
## Footprint-Sea



## Slice-Land



## Slice-Sea

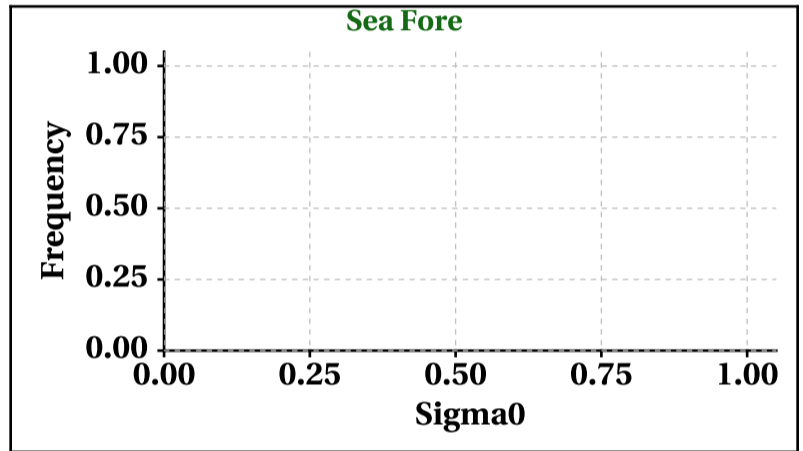
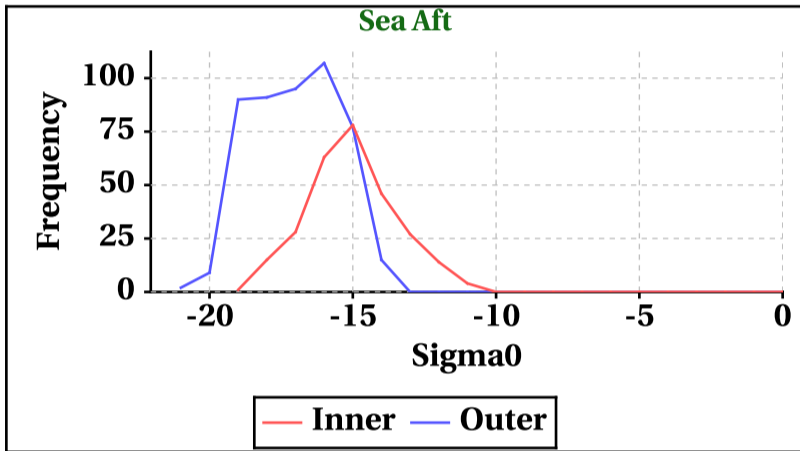
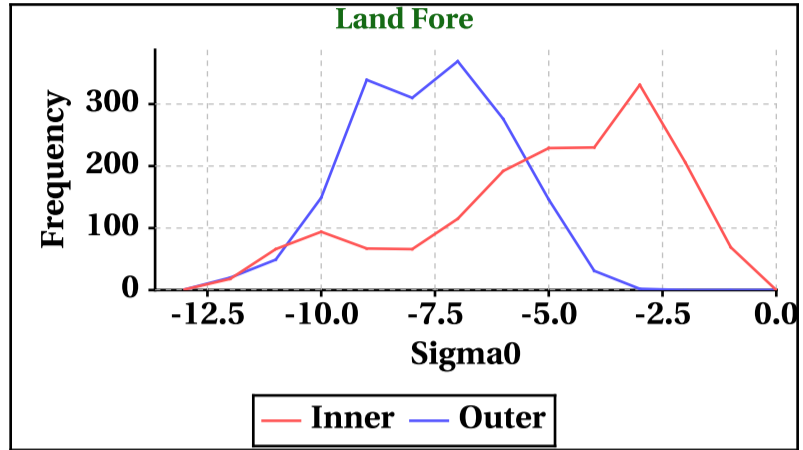
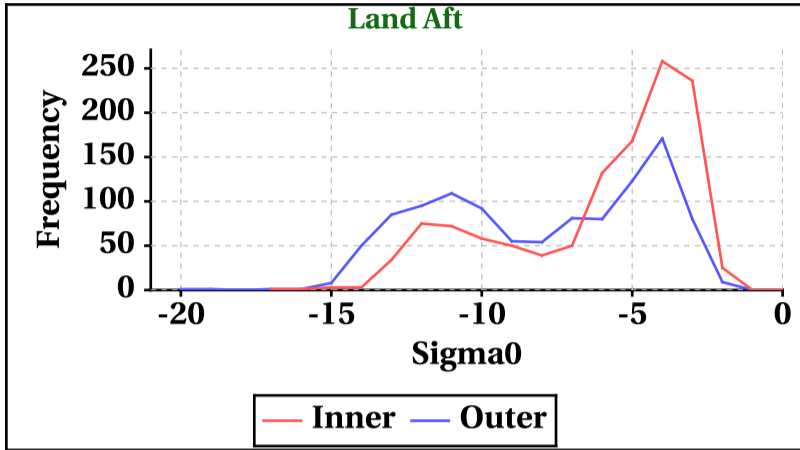


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-17	-13	-19	0
Max	0	0	0	0

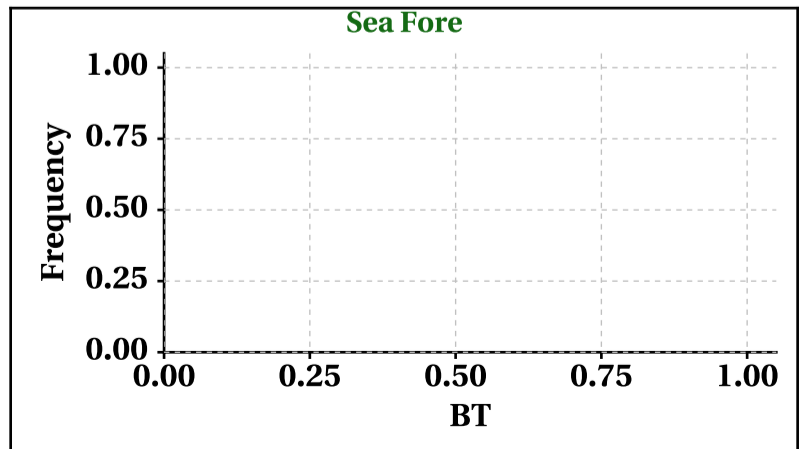
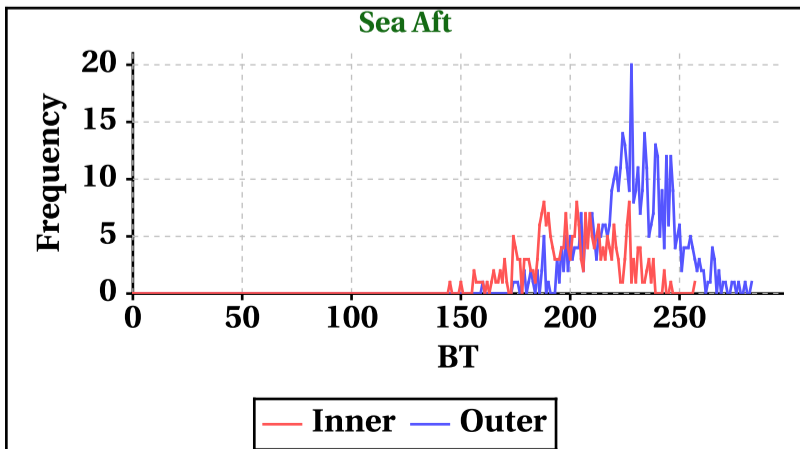
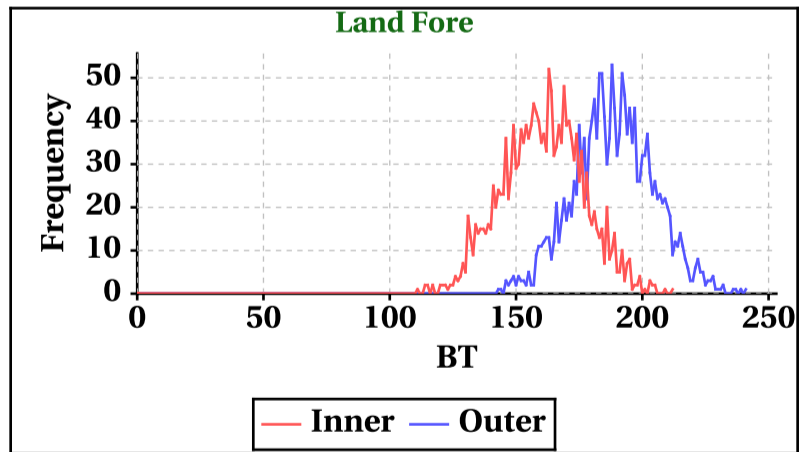
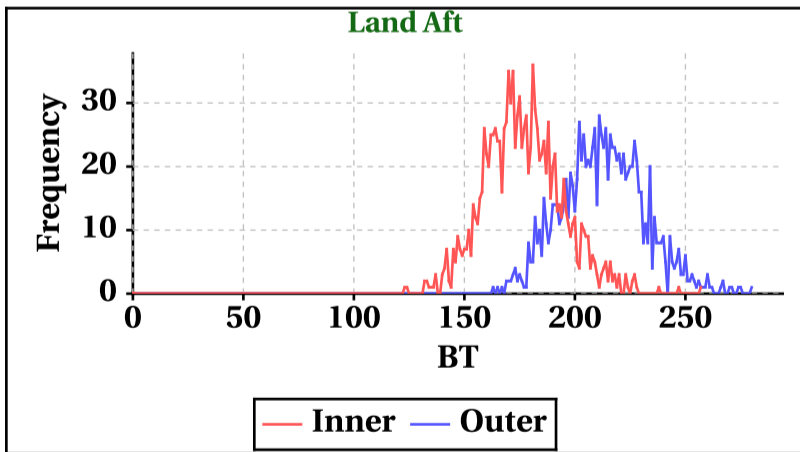
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-20	-13	-21	0
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	257	212	257	0

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	280	241	283	0

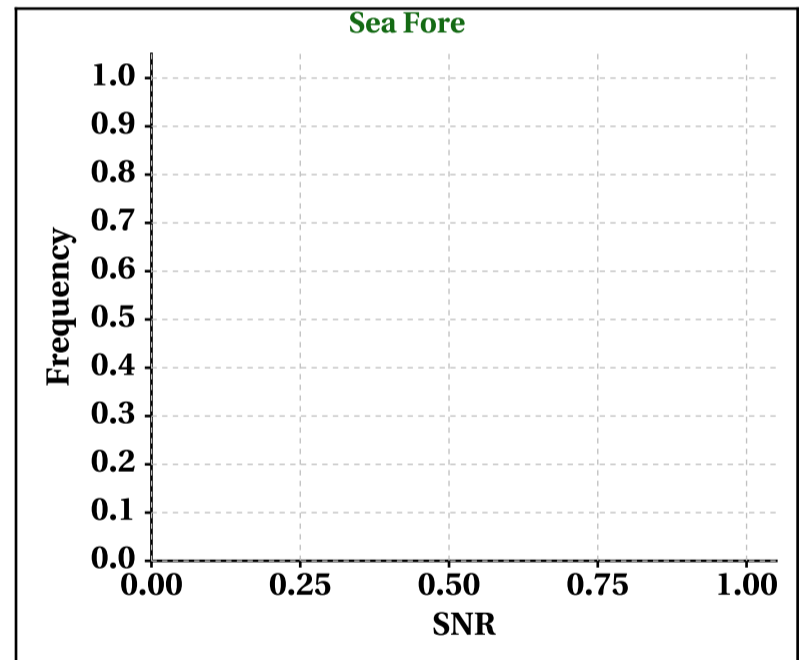
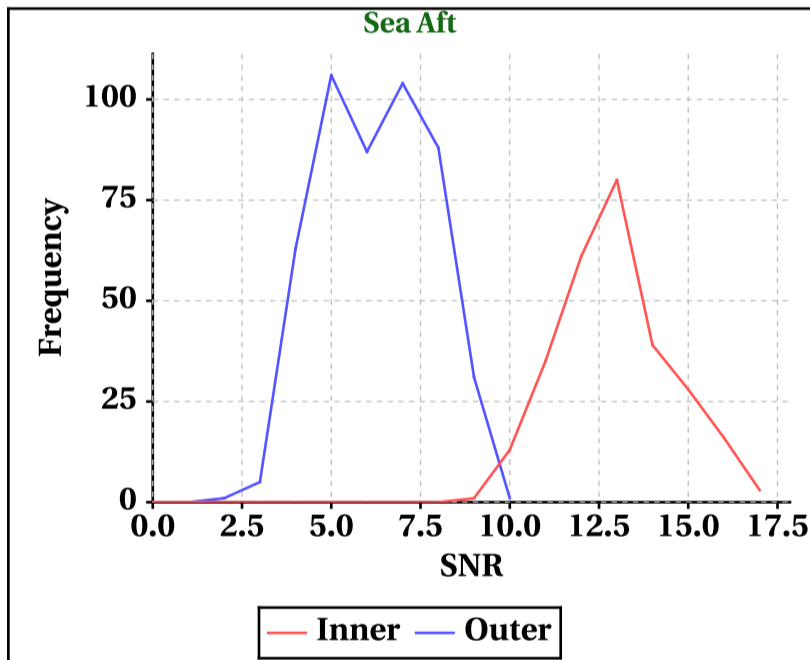
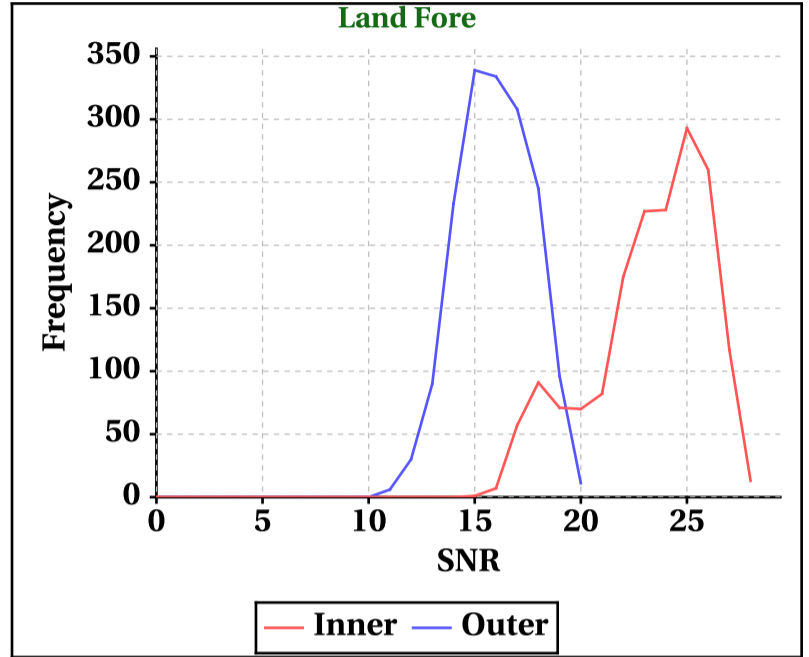
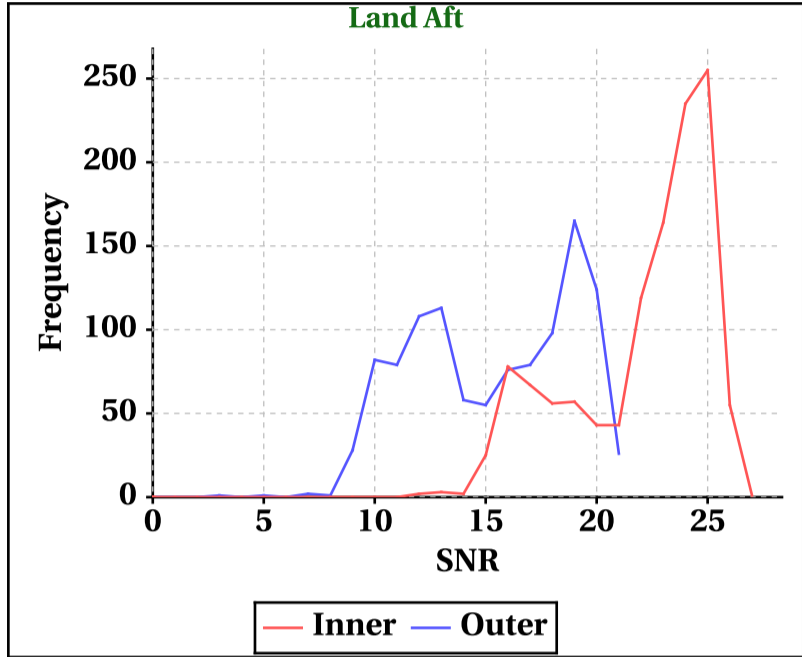


# Dynamic Range (Data Histograms)

## SNR(dBm)

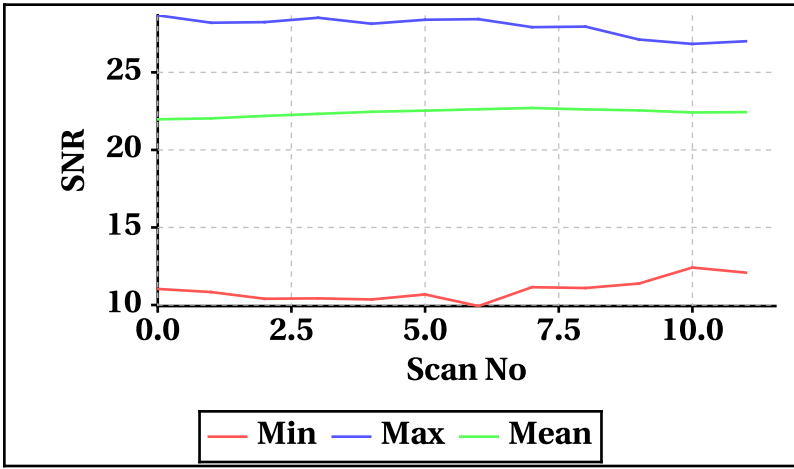
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	27	28	17	0

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	21	20	10	0

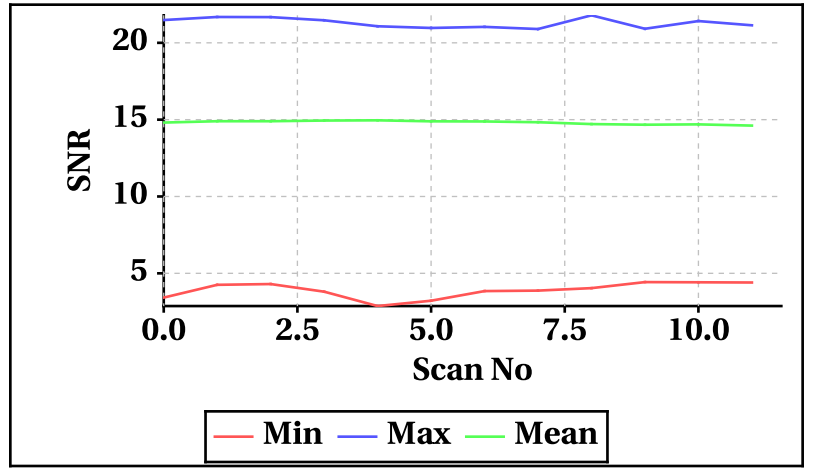


## Orbit-wise behaviour of SNR

**Inner Beam (HH)**

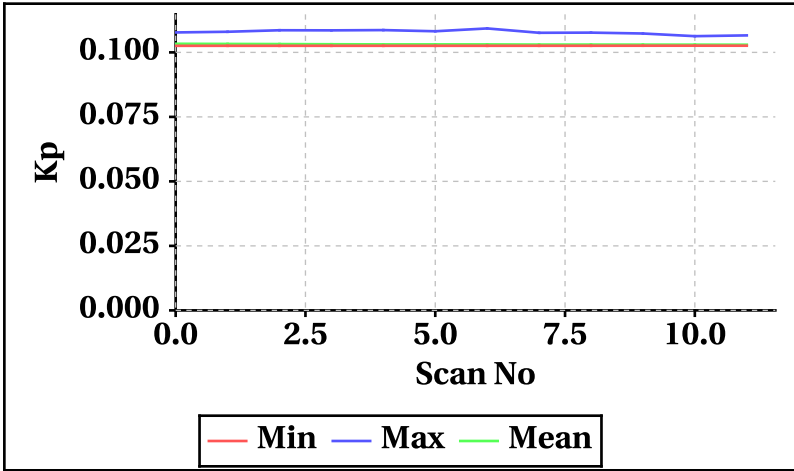


**Outer Beam(VV)**

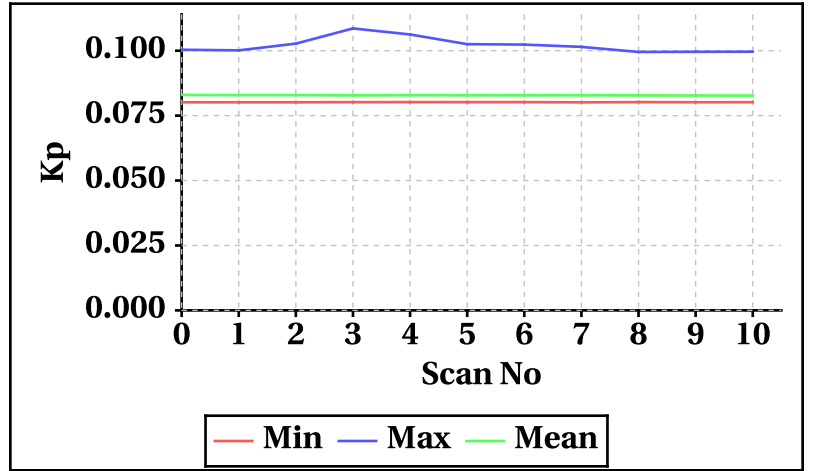


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

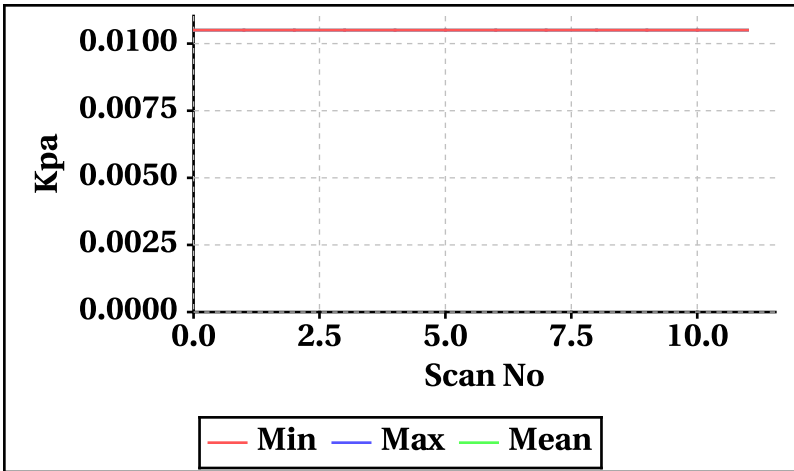
**Inner Beam(HH)**



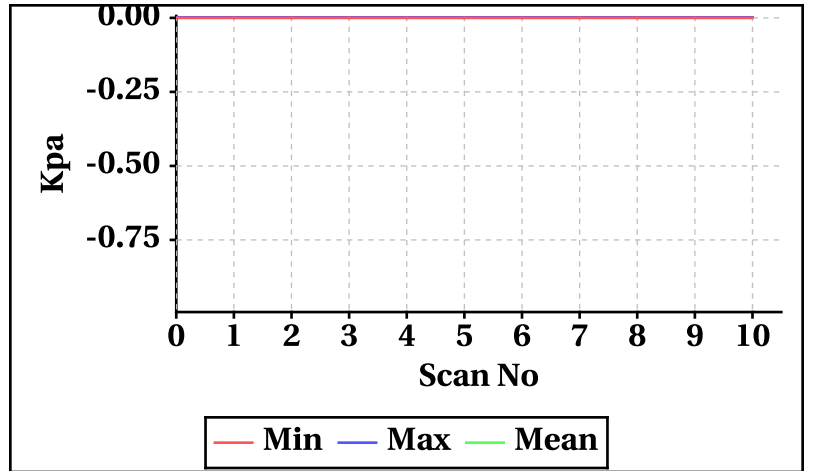
**Outer Beam(VV)**



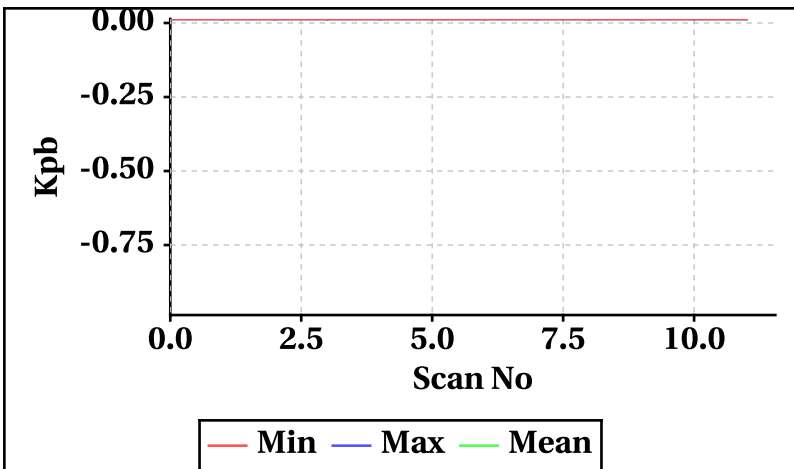
**Inner Beam(HH)**



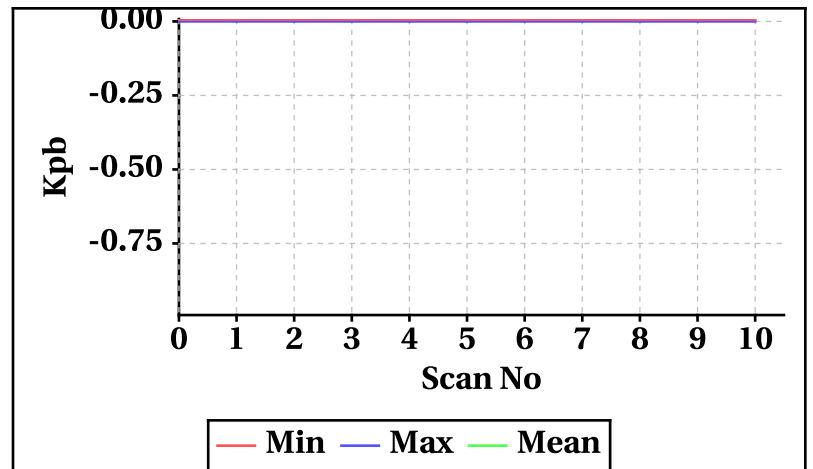
**Outer Beam(VV)**



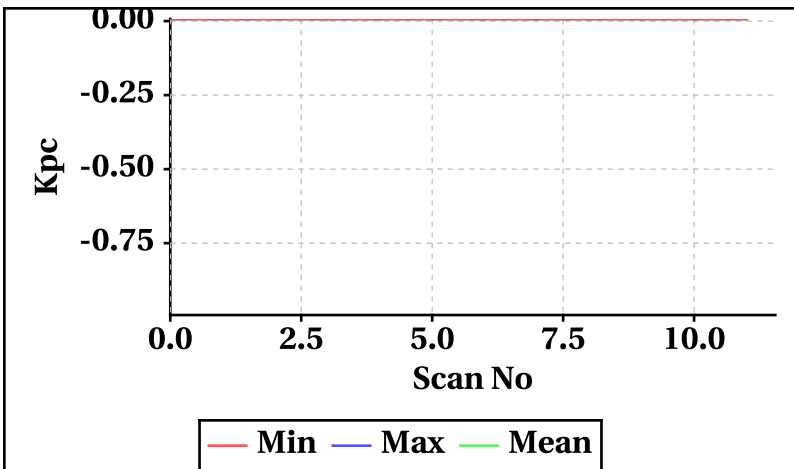
**Inner Beam(HH)**



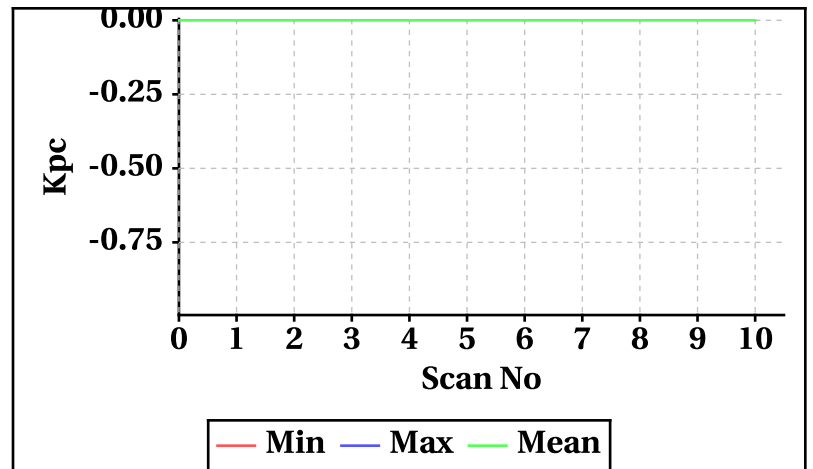
**Outer Beam(VV)**



**Inner Beam(HH)**



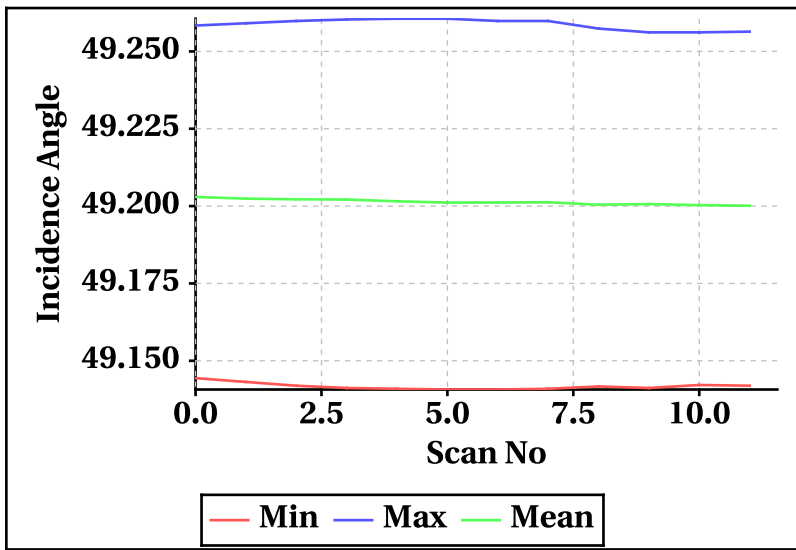
**Outer Beam(VV)**



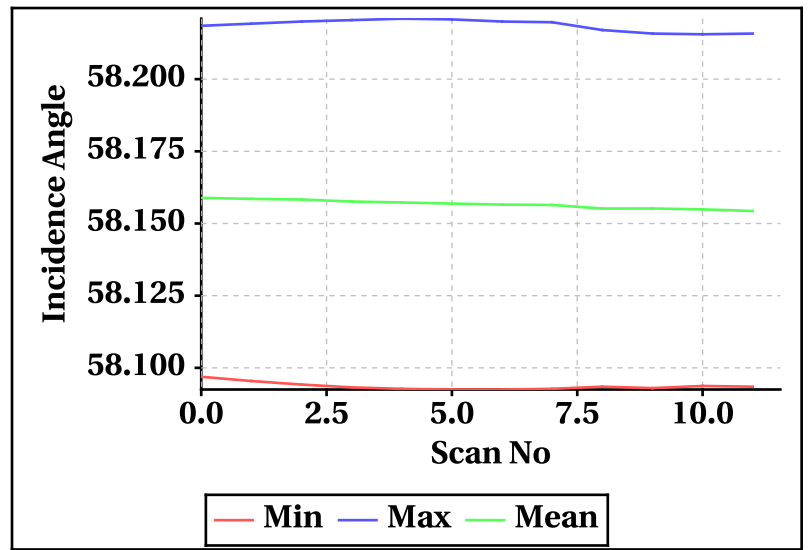


Orbt-wise behaviour of Incidence,Azimuth,Range,X-Factor

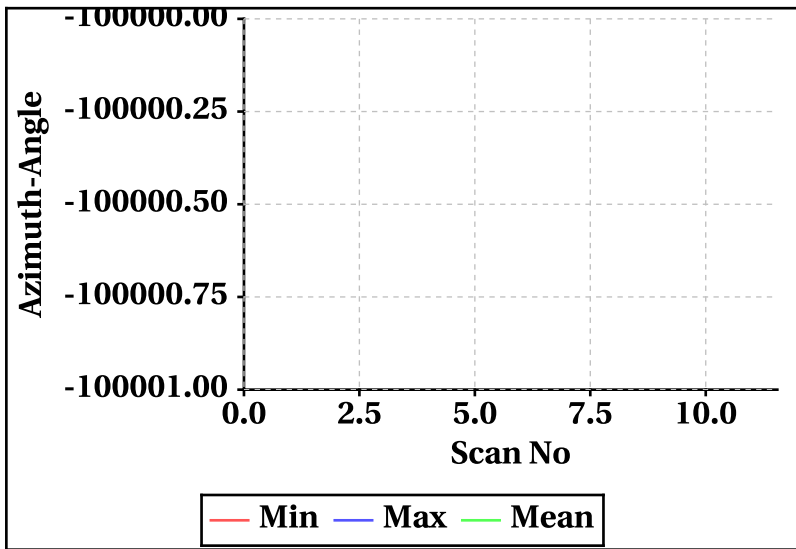
Inner Beam (HH)



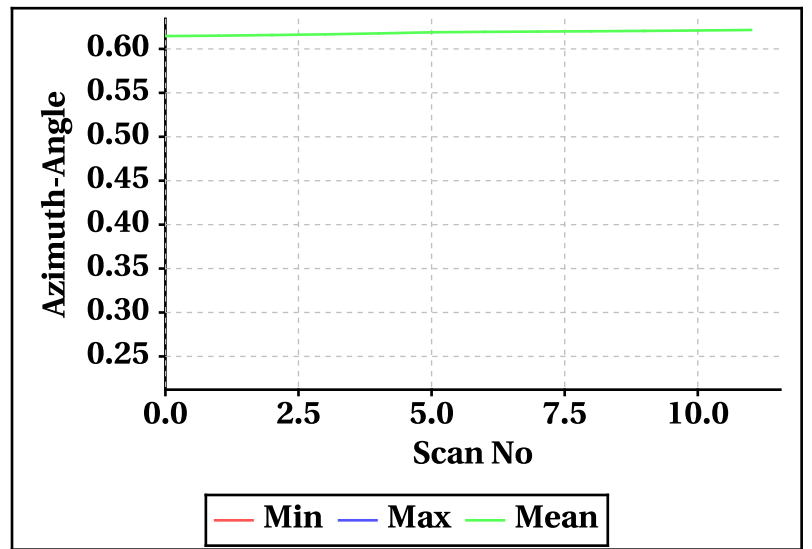
Outer Beam(VV)



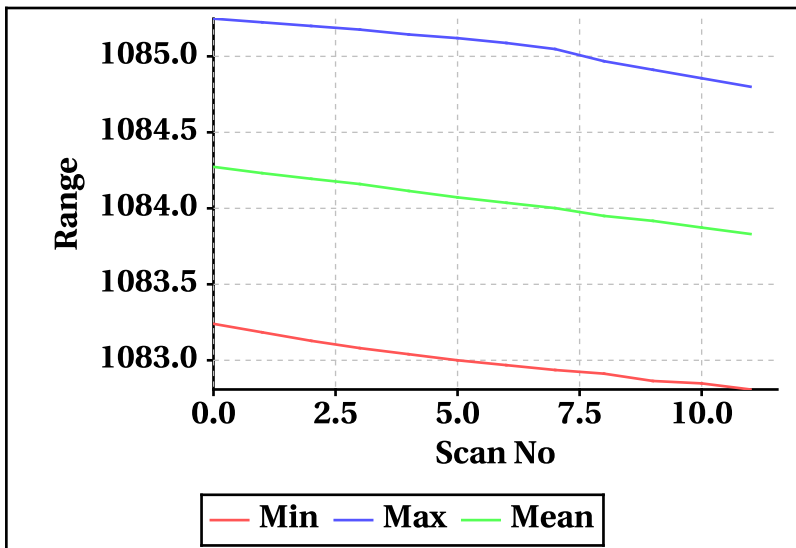
Inner Beam (HH)



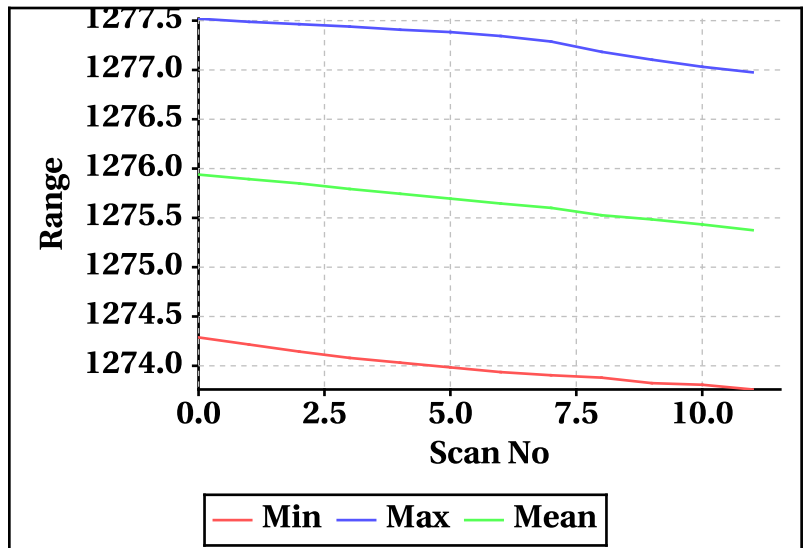
Outer Beam(VV)



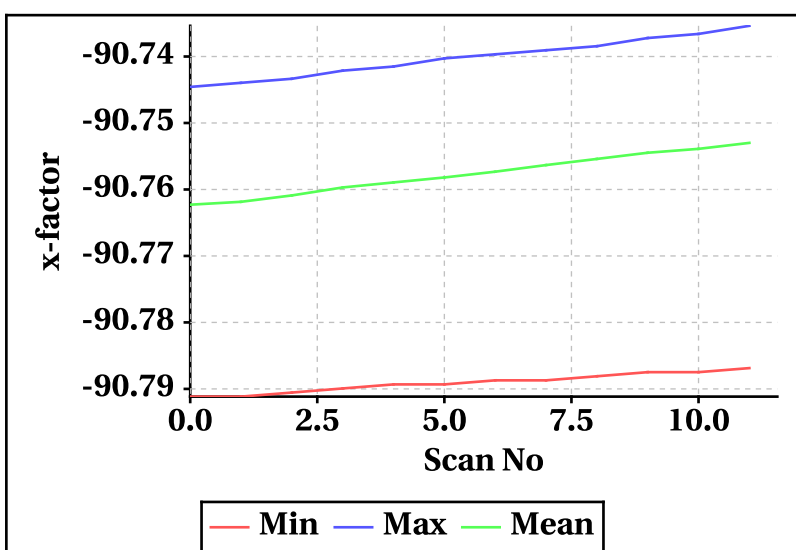
Inner Beam (HH)



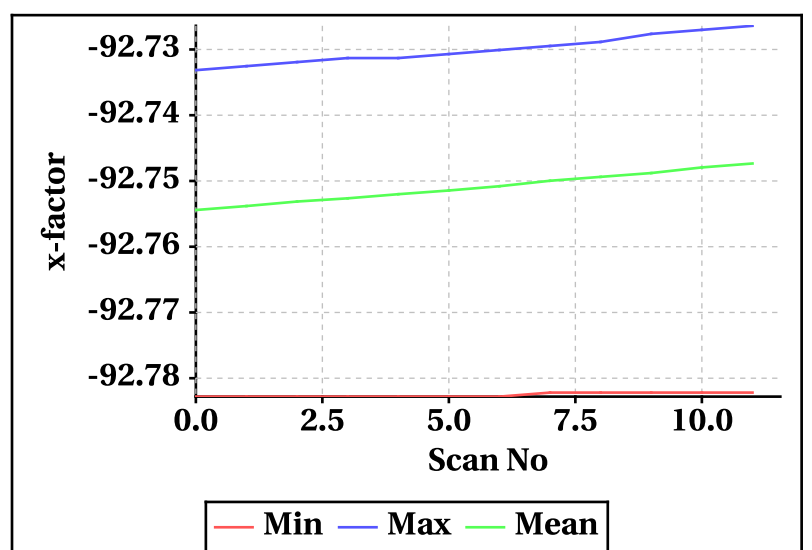
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)

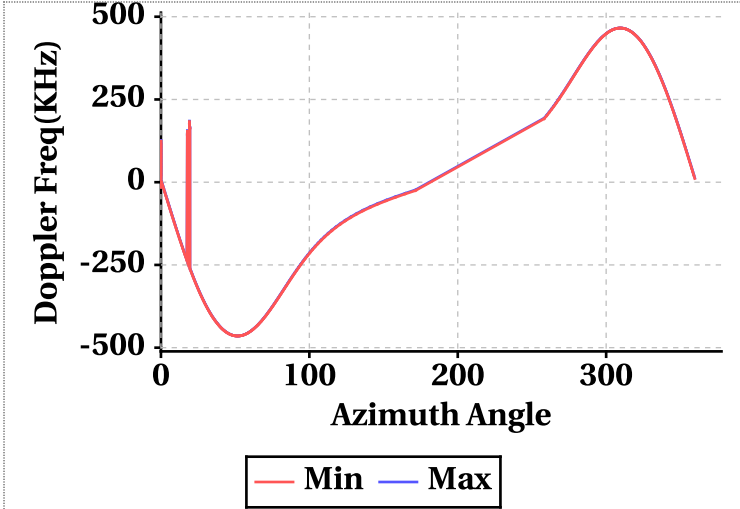


# Doppler Frequency Variation

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

	Inner Beam (HH)	Outer Beam (VV)
<b>Min</b>	-464.70	-520.92
<b>Max</b>	465.76	521.88

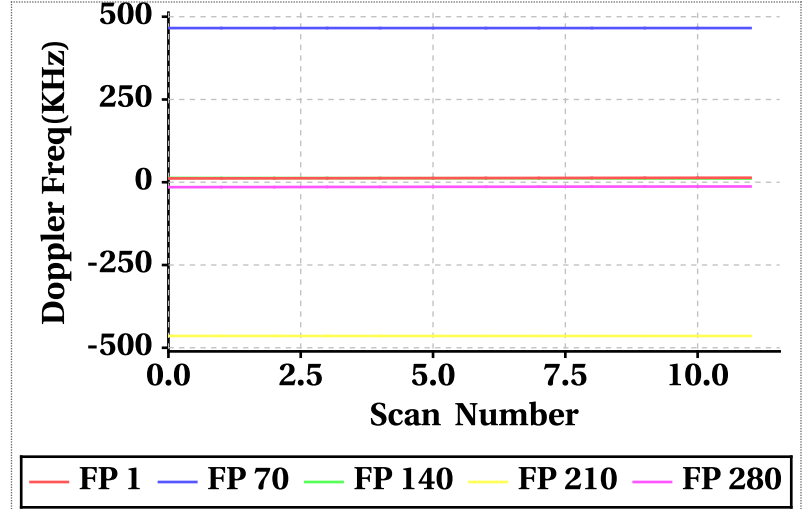
**Footprint wise Doppler frequency variation Inner Beam (HH)**



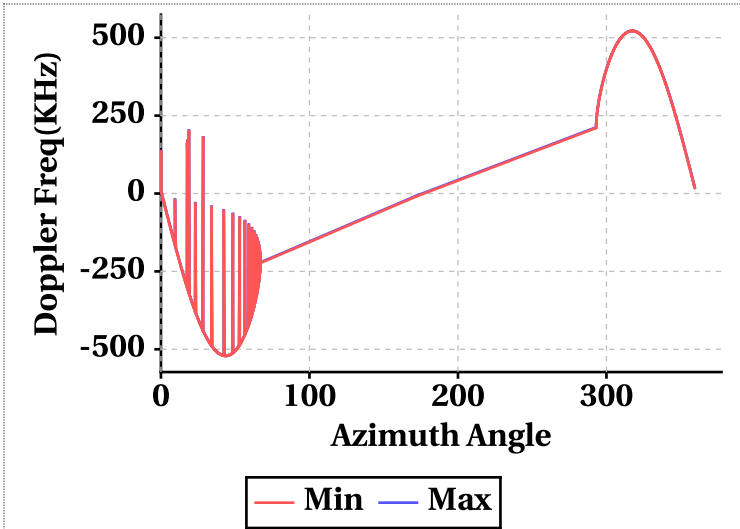
**Doppler Frequency(KHz) variation**

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	11.58	13.72	12.64	7.68	10.08	8.89
Doppler_70	465.74	465.76	465.75	521.72	521.78	521.75
Doppler_140	11.06	13.10	12.09	5.78	8.08	6.93
Doppler_210	-464.40	-464.28	-464.34	-520.76	-520.66	-520.72
Doppler_280	-14.90	-12.78	-13.77	-10.34	-7.96	-9.08

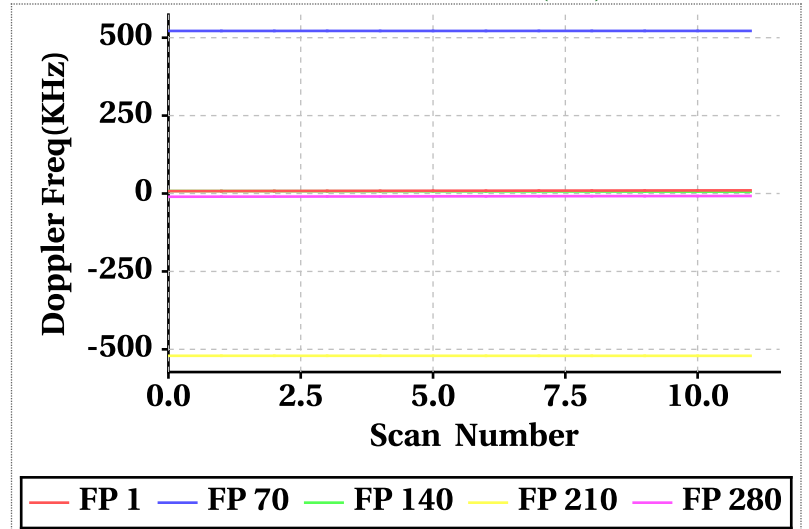
**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)**



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

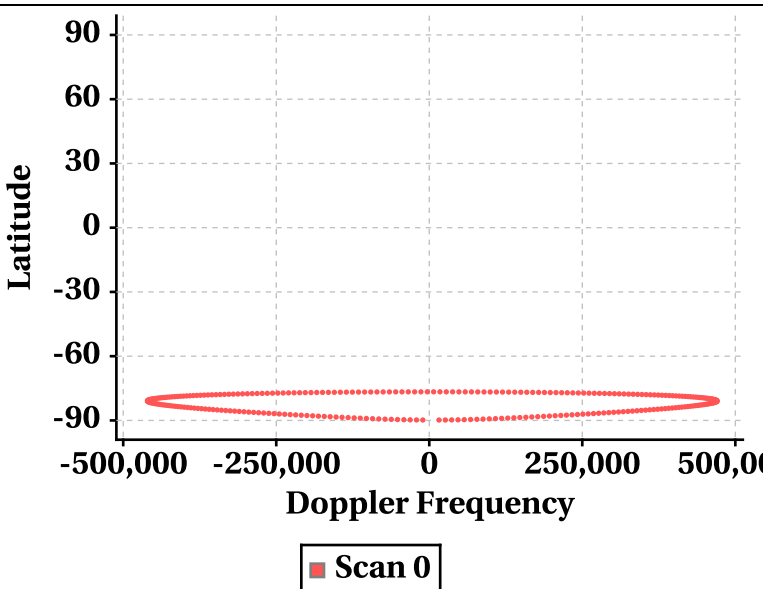


**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)**

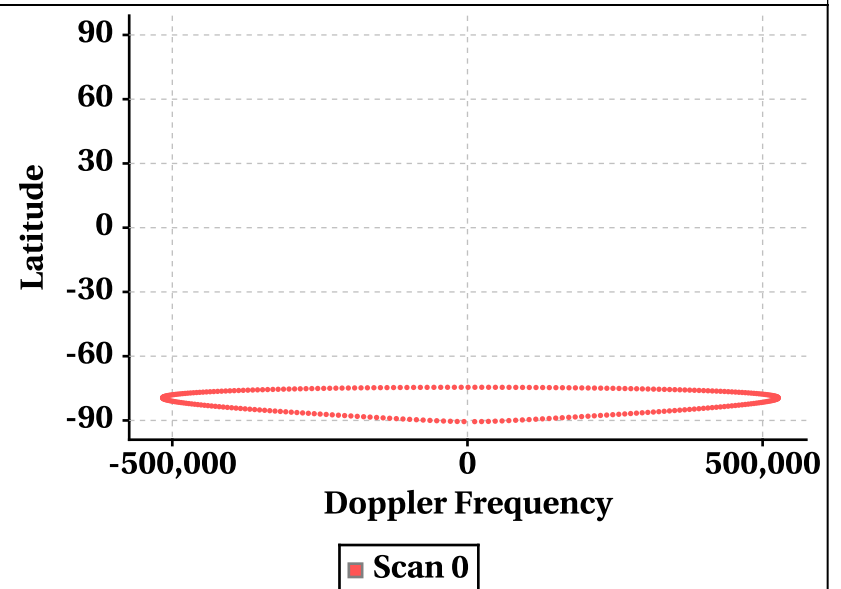


# Latitude Vs Doppler Frequency

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



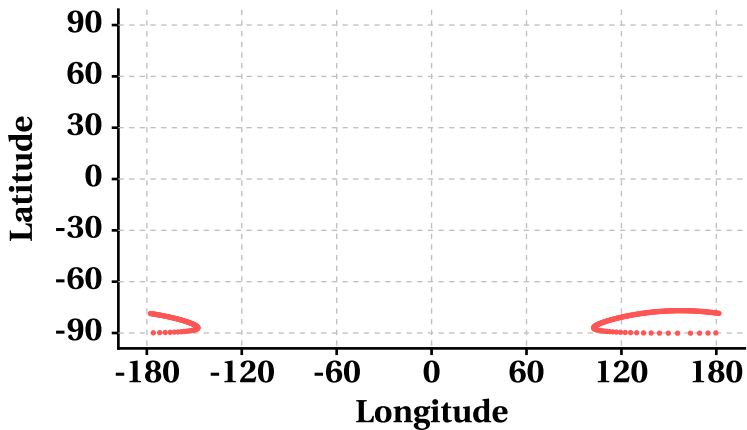
**Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]**



# Parameter as a function of Latitude

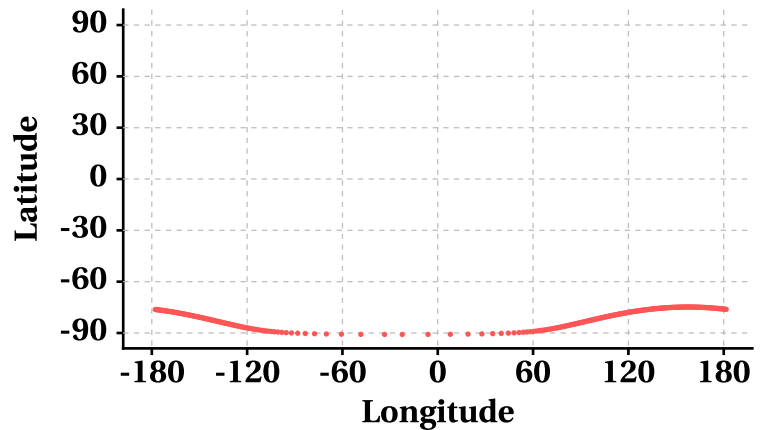
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



Scan 0

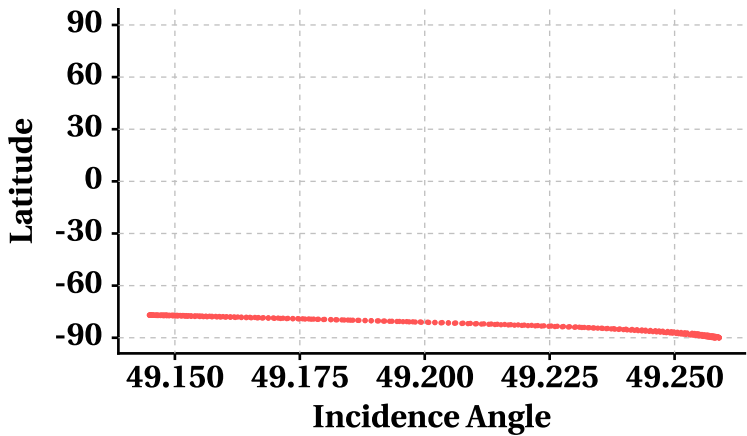
Scan Trace [Outer Beam (VV)]



Scan 0

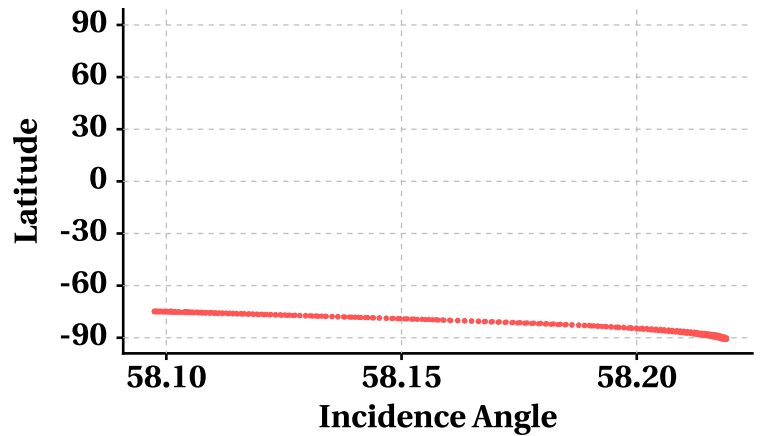
## Latitude Vs Incidence Angle

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



Scan 0

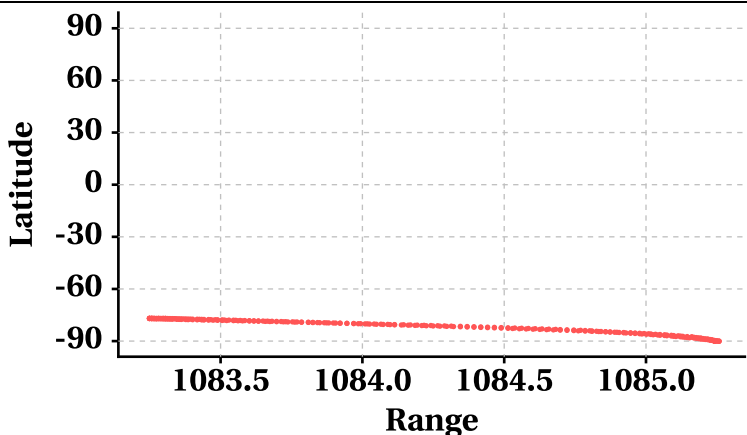
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



Scan 0

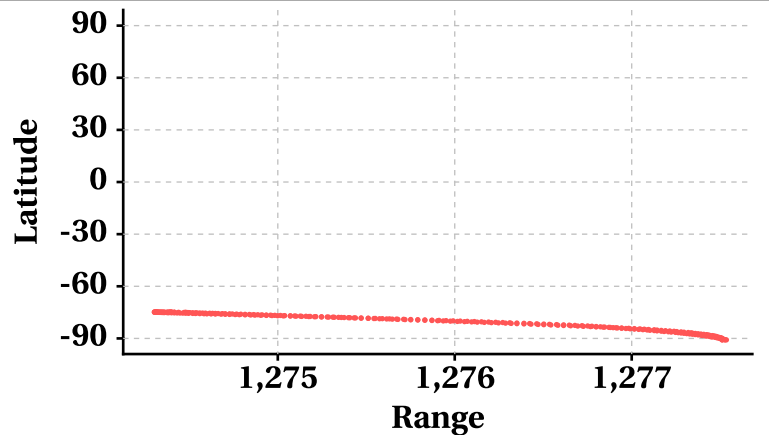
## Latitude Vs Range

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



Scan 0

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



Scan 0



# Variation in Orbit and Attitude Parameters

