

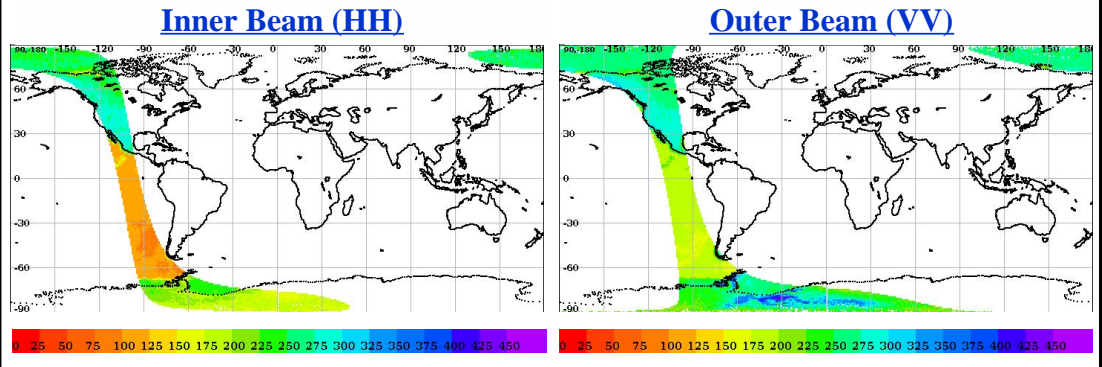
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	8959	<b>Total Scans</b>	1007
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	8960	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.3	<b>Rev. Number</b>	08959_08960	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	06-06-2018	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	06-06-2018	<b>Equator Crossing Time</b>	03:22:22.000	<b>No Of Outer Slices</b>	15

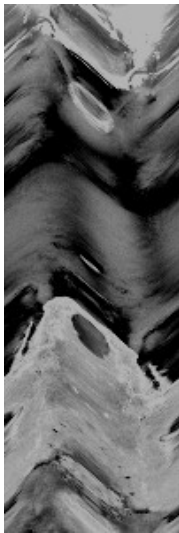
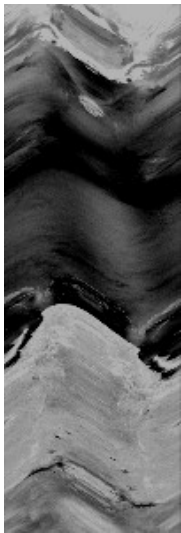
## Brightness Temperature(k) Footprint trace



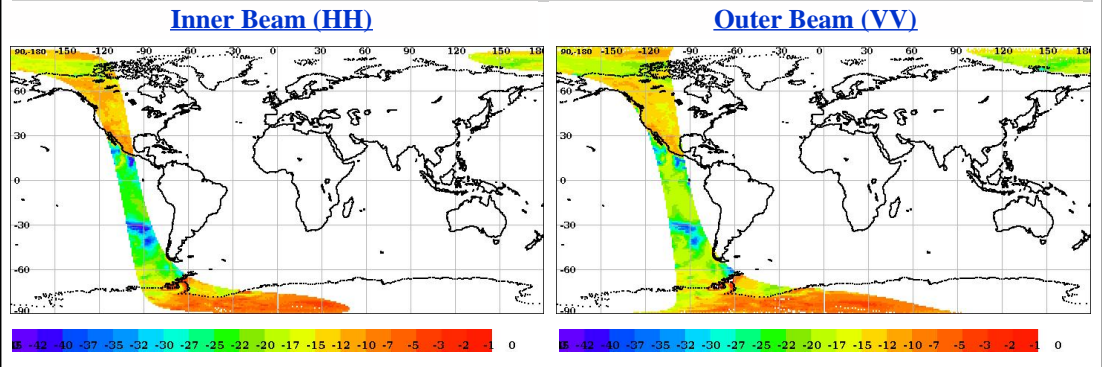
## Image Snapshot for Inner & Outer Beam

Inner (HH)

Outer (VV)



## Sigma0(dB) Footprint trace



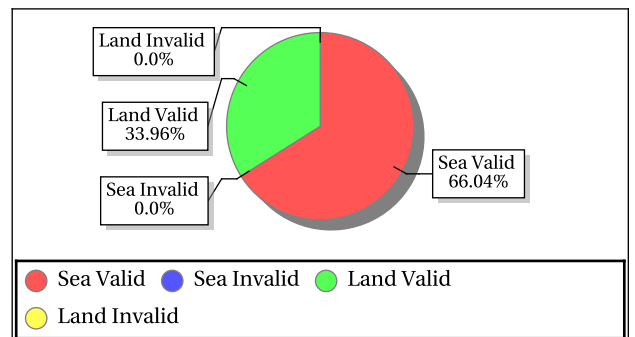
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.00	0.22
Data Not Available From Payload (%)	0.0	0.0
Slice not within sample array limits (%)	0.00	100.00
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
Poor Sigma0(%)	22.23	13.43
Noise samples for blending Saturated	0.00159	0.823034
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 (%)	0.023144	0.054694

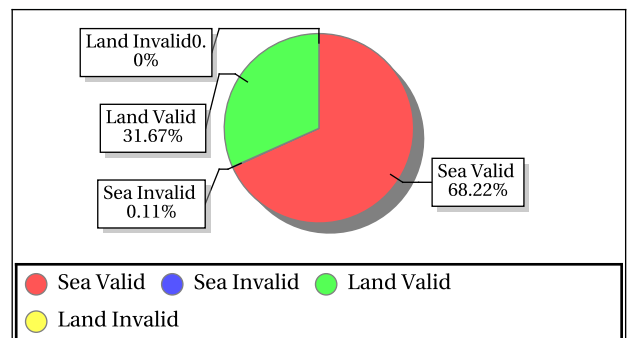
\*DP Format Document

## 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	284.59	0.30	2.532	0.12	260.63	0.26	1.737	0.12	8.79	0.12	0.012	0.12	2.75	0.12	0.007
<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>	-34.68	24.08	6.31	0.055	-34.30	24.48	7.39	0.066	-19.53	29.75	18.15	9.185	-14.39	29.65	18.26	5.279

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	202.95	0.25	2.064	0.09	187.38	0.22	1.702	0.09	1.17	0.09	0.002	0.09	12.99	0.09	0.005
<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>	-34.38	18.17	3.84	0.000	-34.03	19.28	4.52	0.000	-11.75	22.20	12.19	0.004	-22.42	22.99	11.84	0.061

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)

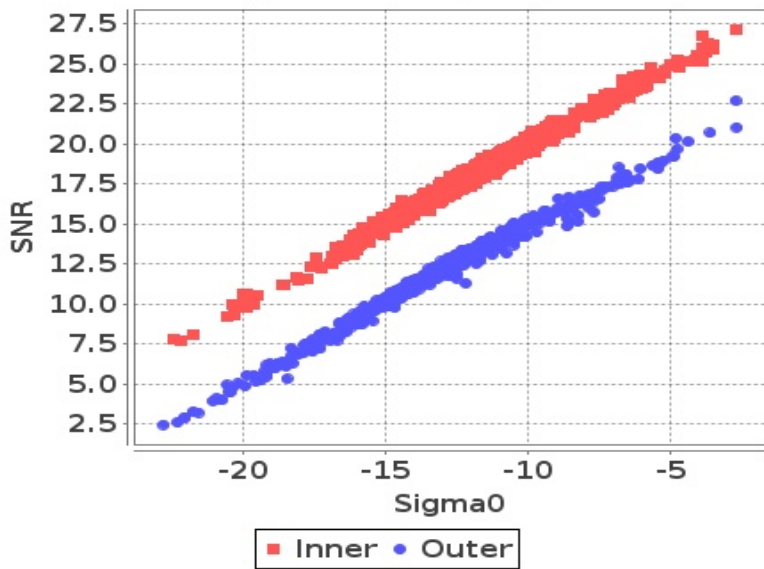
	Inner Beam (HH)				Outer Beam (VV)				Parameter Specifications		
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Parameter	Min	Max
<b>Incidence Angle (deg)</b>	48.82	49.53	49.11	0.000	57.57	58.42	58.05	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	6.68	1.27	2.426	0.0000	290.86	1.27	3.496	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1036.64	1098.79	1060.24	7.284	1214.79	1292.42	1245.02	17.841	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.79	-89.91	-90.46	0.000	-93.22	-91.96	-92.30	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.26	15.79	15.49	0.000	19.20	62.19	20.78	7.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.69	20.54	19.70	0.000	18.43	20.54	19.61	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
									<span style="display: inline-block; width: 15px; height: 15px; background-color: green; border: 1px solid black; margin-right: 5px;"></span> Normal	<span style="display: inline-block; width: 15px; height: 15px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Alarming	
									<span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Deviations	<span style="display: inline-block; width: 15px; height: 15px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> High Errors	



## Sigma0 Behaviour (Sigma0 Vs SNR)

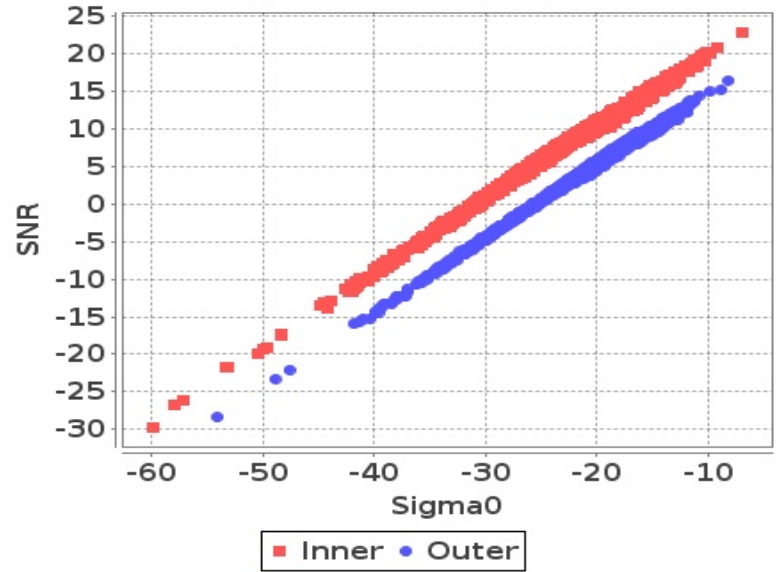
Footprint-Land

Sigma0 Vs SNR (Land)



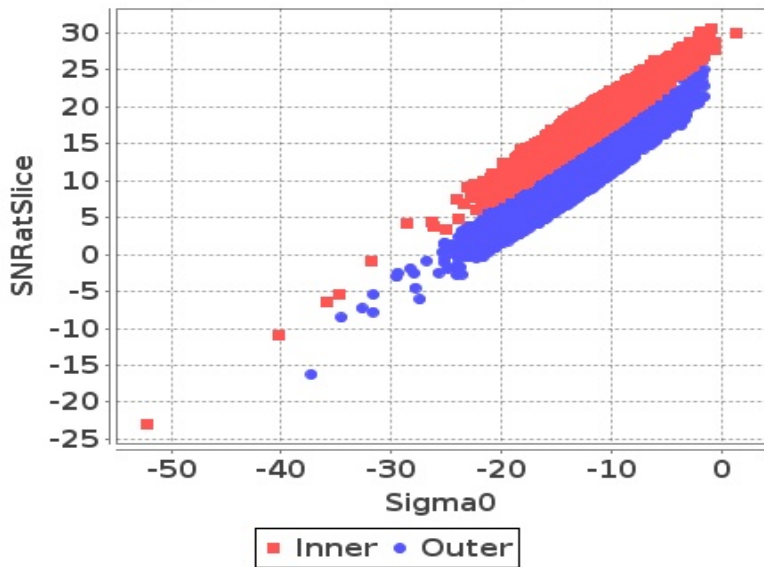
Footprint-Sea

Sigma0 Vs SNR (Sea)



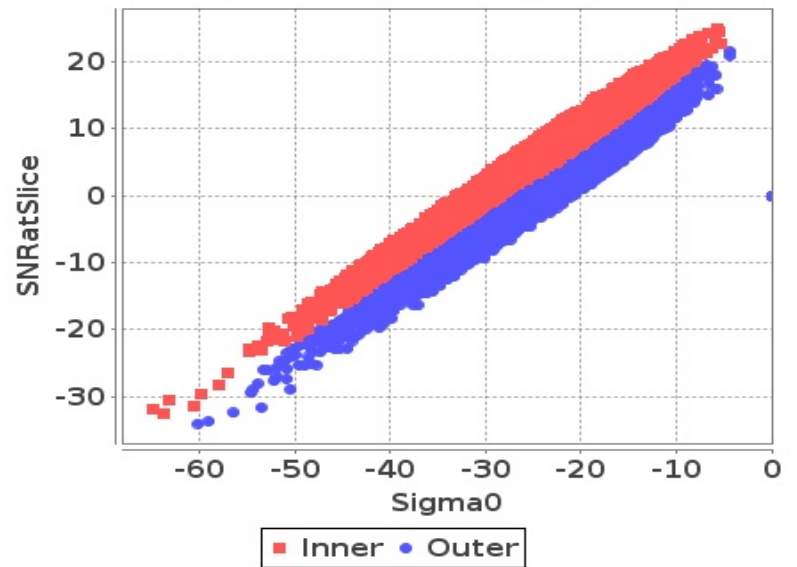
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

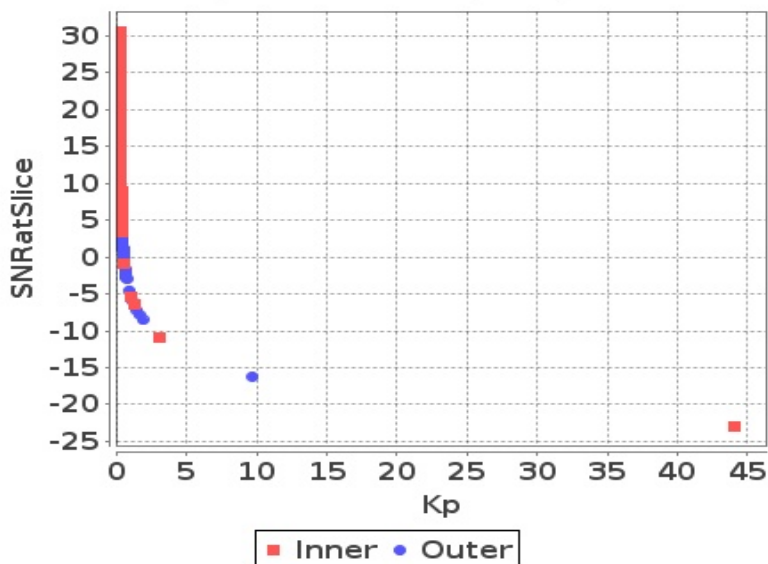
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

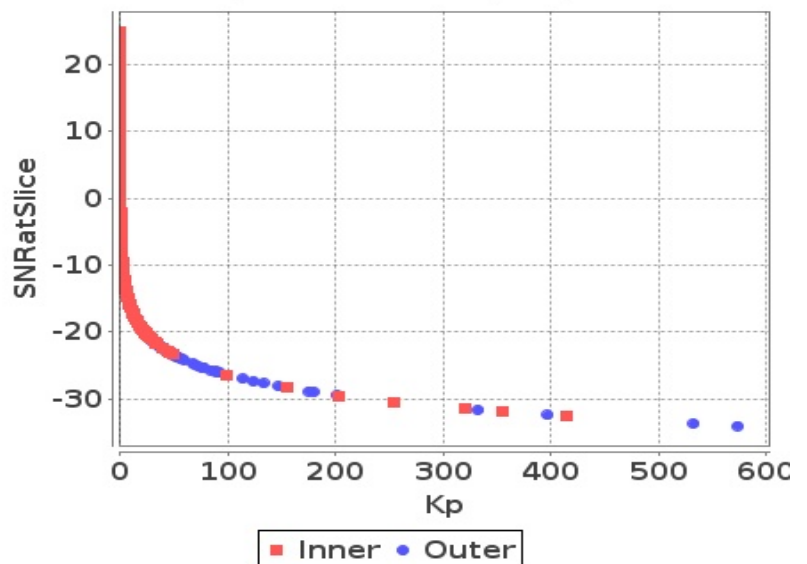
Slice

Kp Vs SNRatSlice (Land)



Slice

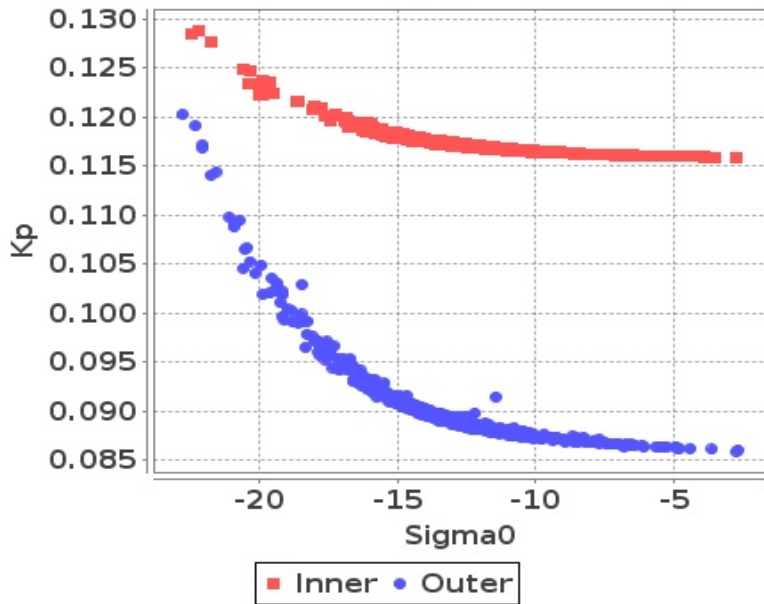
Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

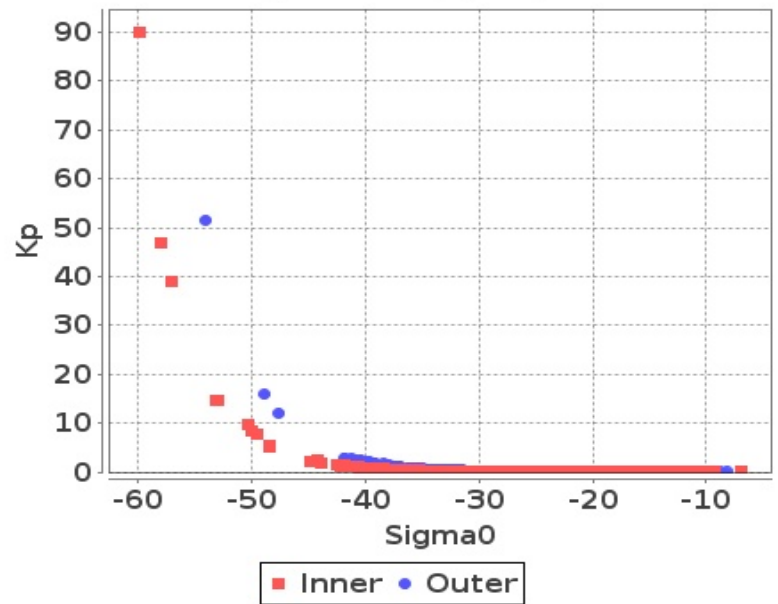
## Footprint-Land

### Sigma0 Vs Kp (Land)



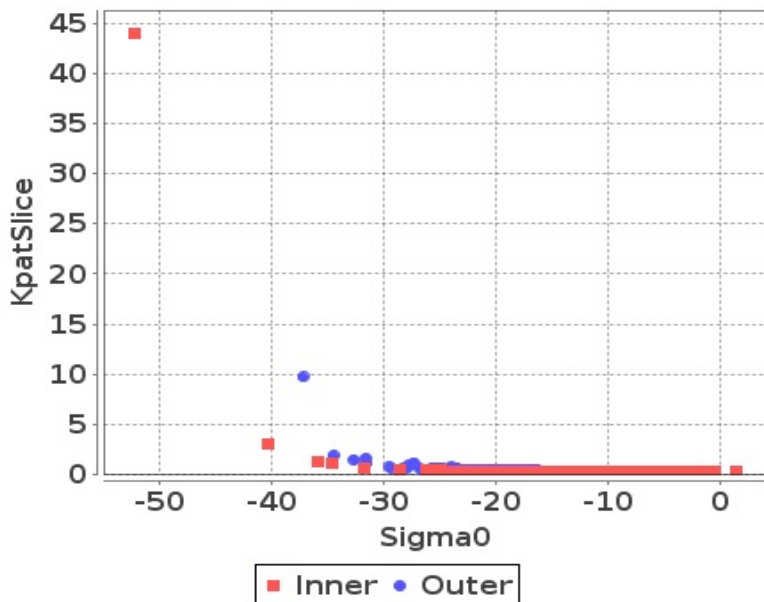
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



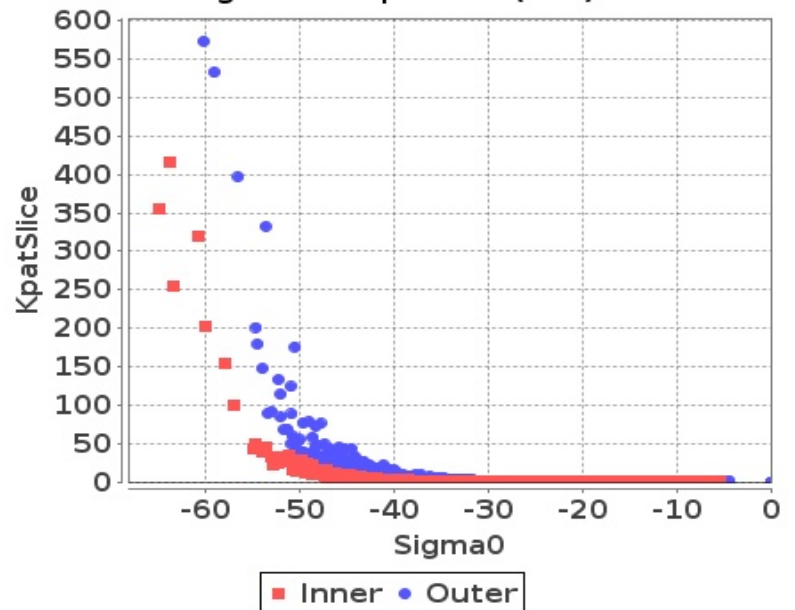
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)



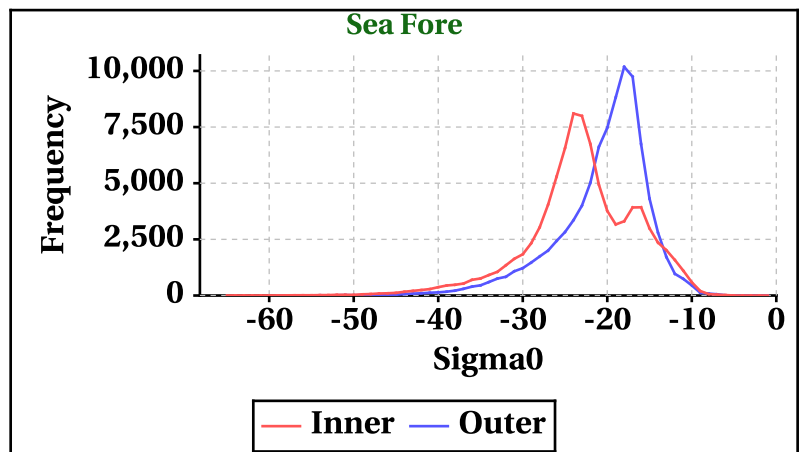
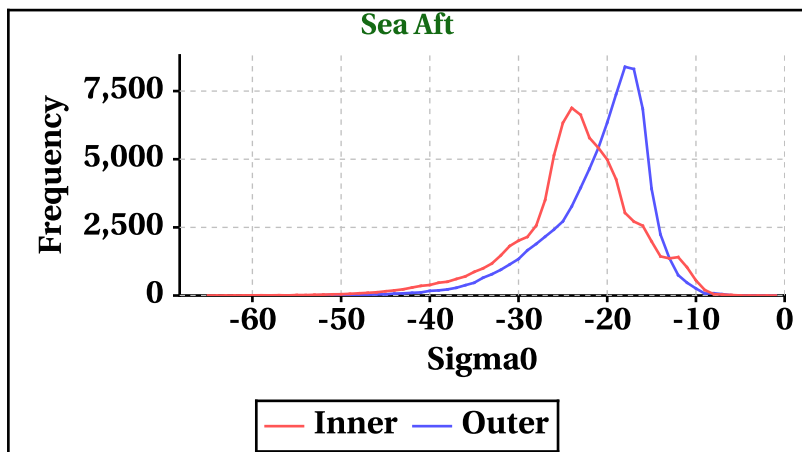
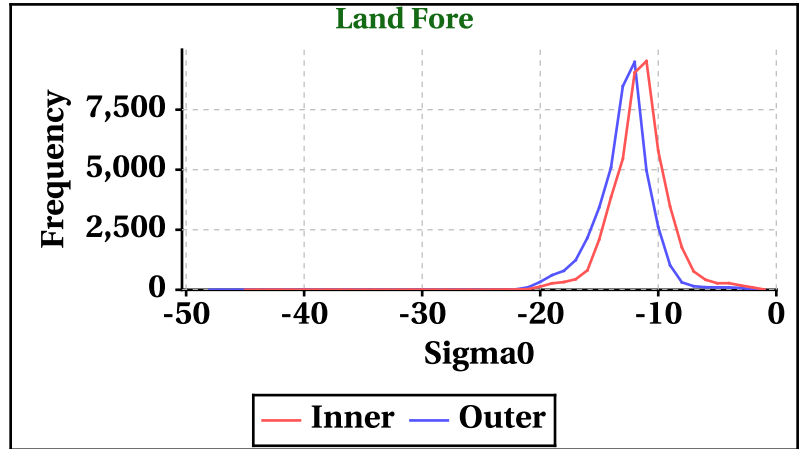
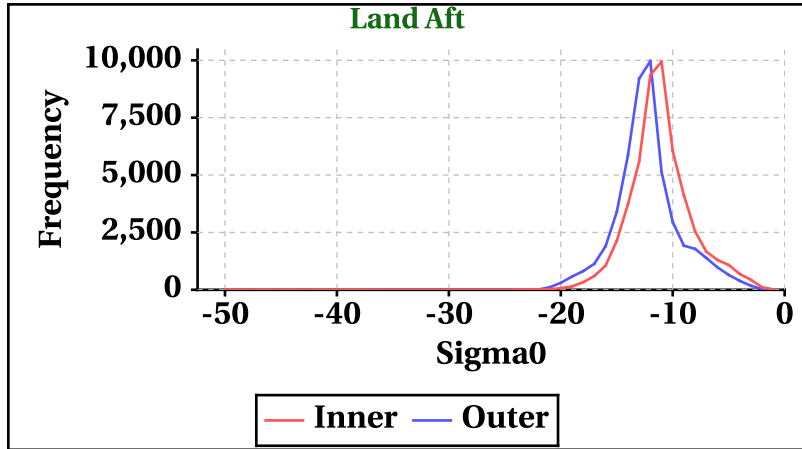


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-50	-45	-65	-65
Max	0	0	0	0

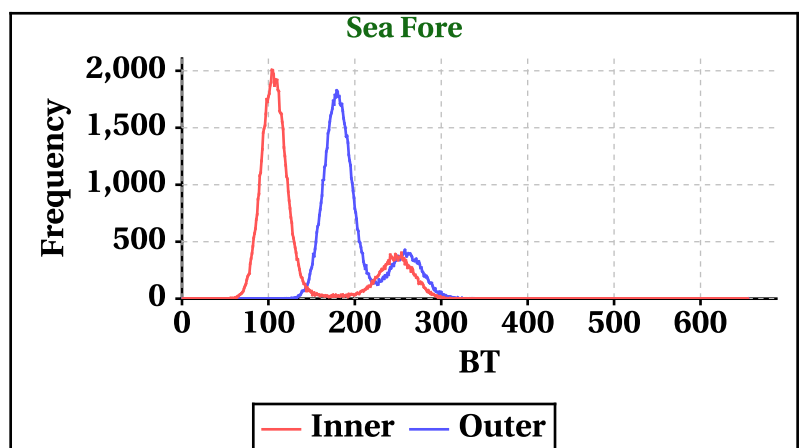
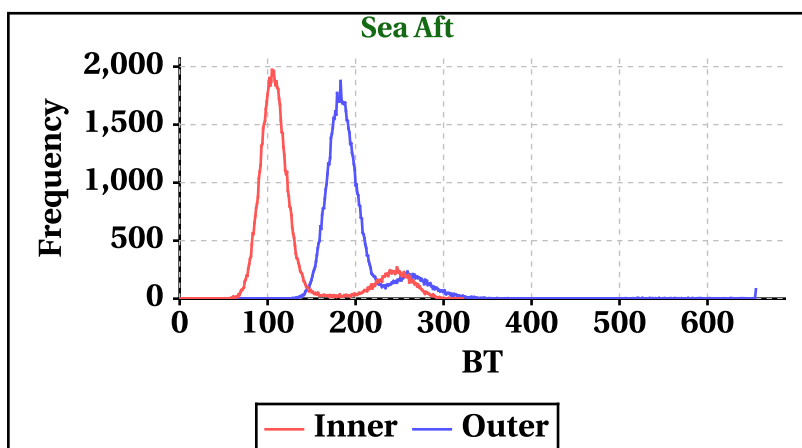
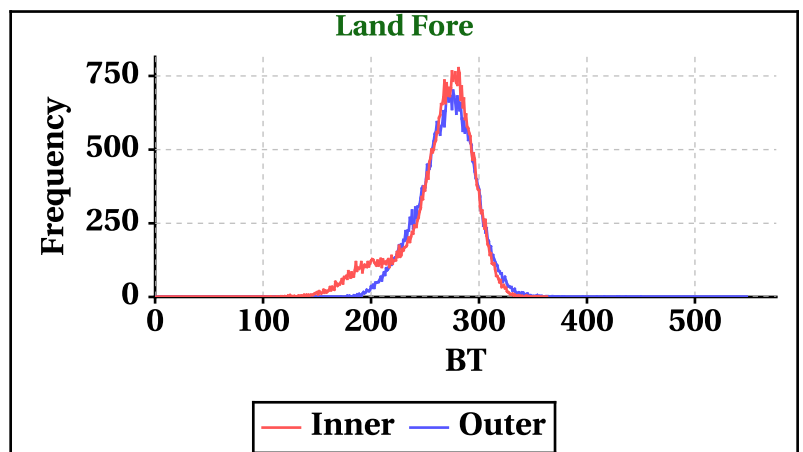
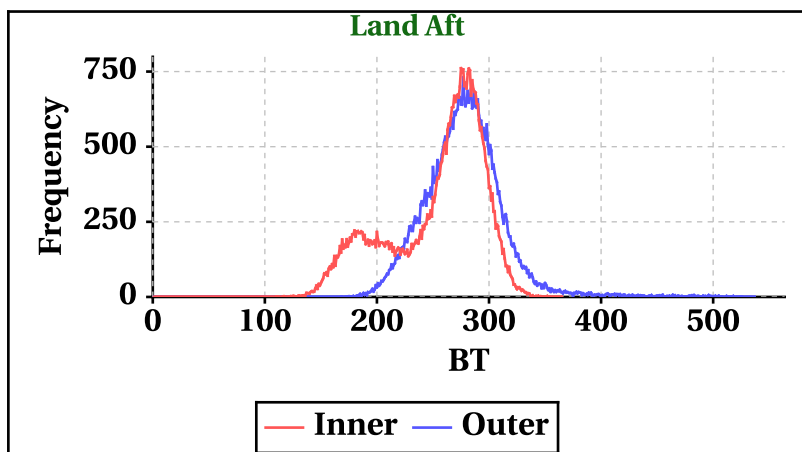
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-37	-48	-59	-59
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	365	363	322	655

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	537	548	655	655

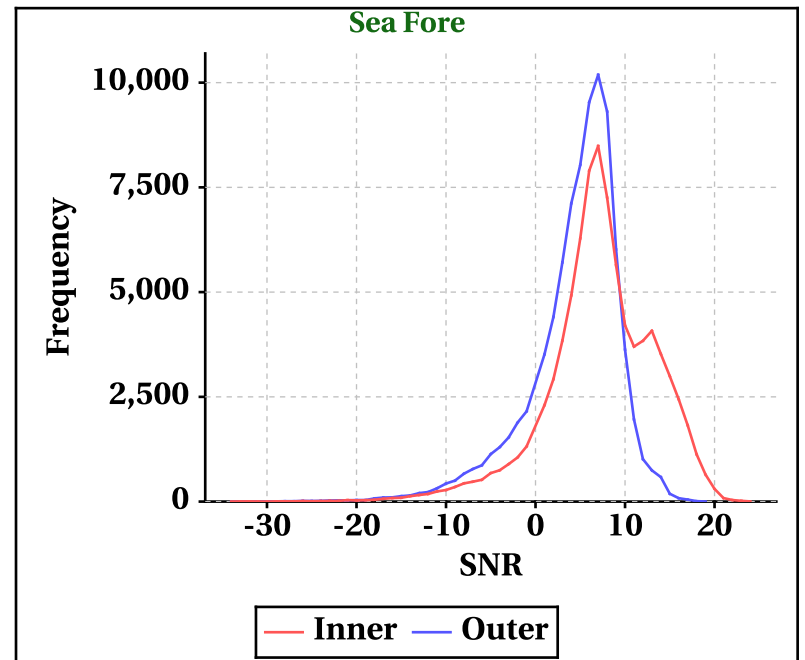
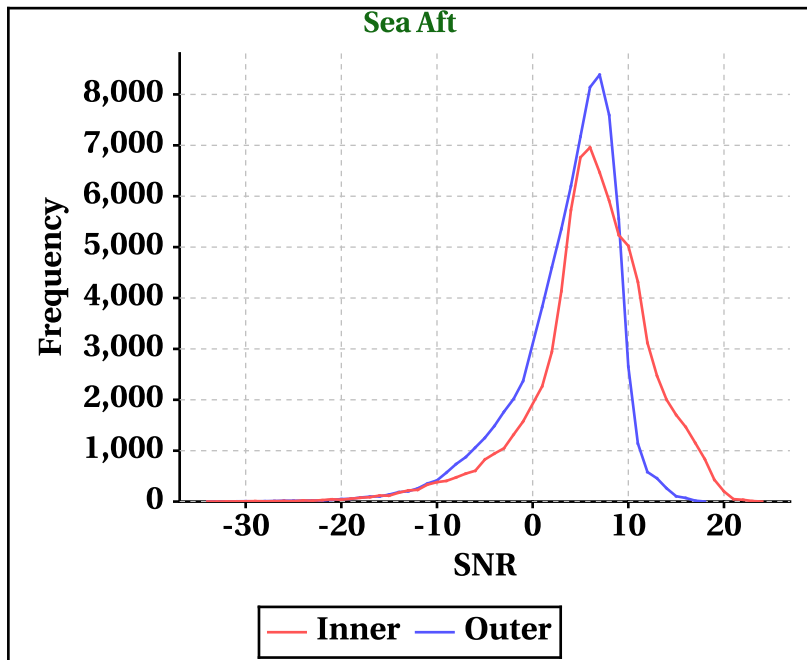
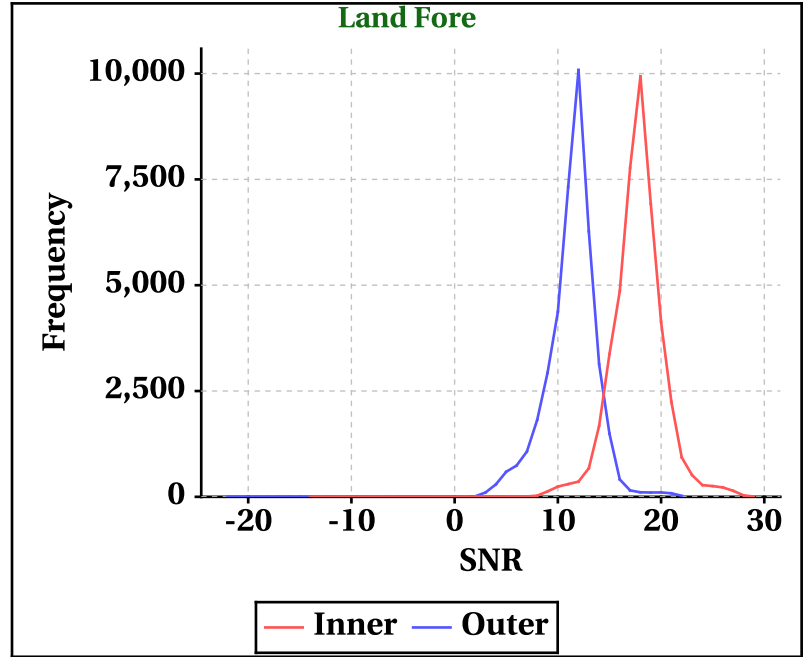
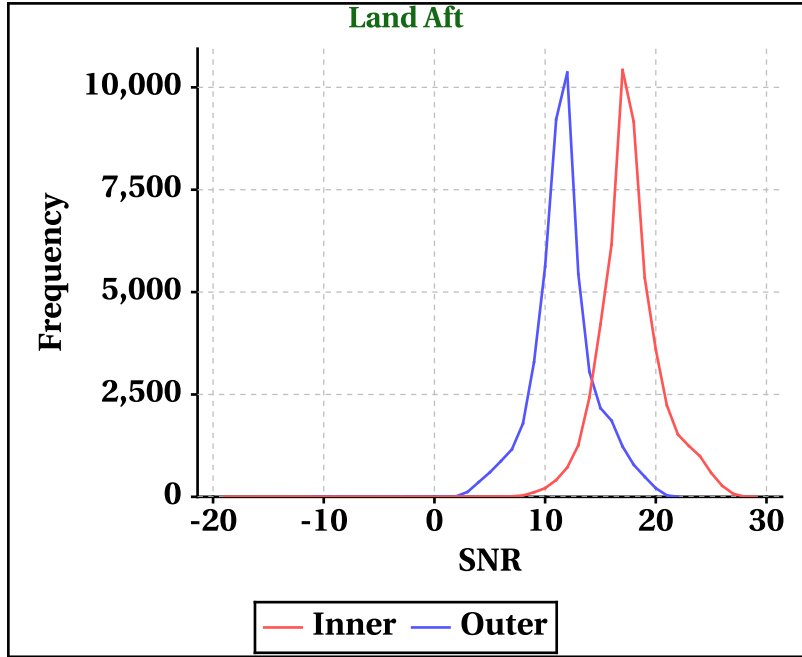


# Dynamic Range (Data Histograms)

## SNR(dBm)

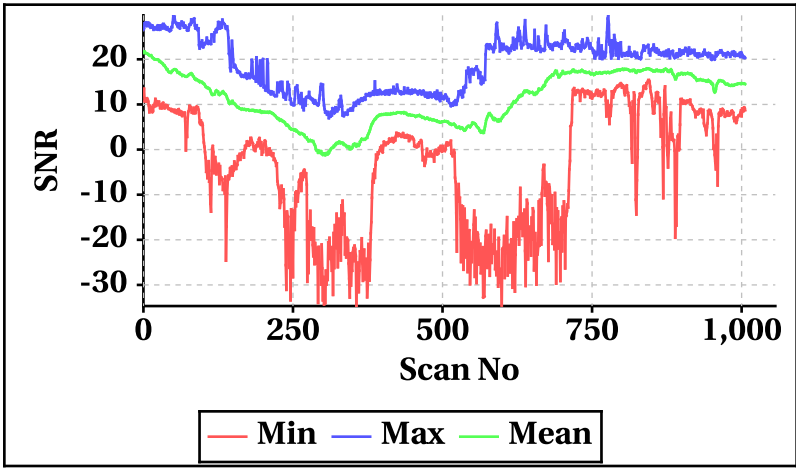
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-19	-14	-34	-34
Max	29	29	24	24

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-11	-22	-34	-34
Max	22	22	18	19

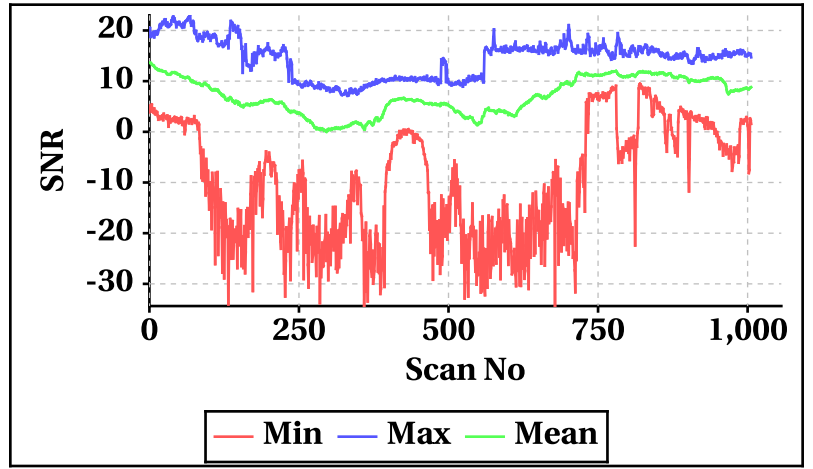


## Orbit-wise behaviour of SNR

**Inner Beam (HH)**

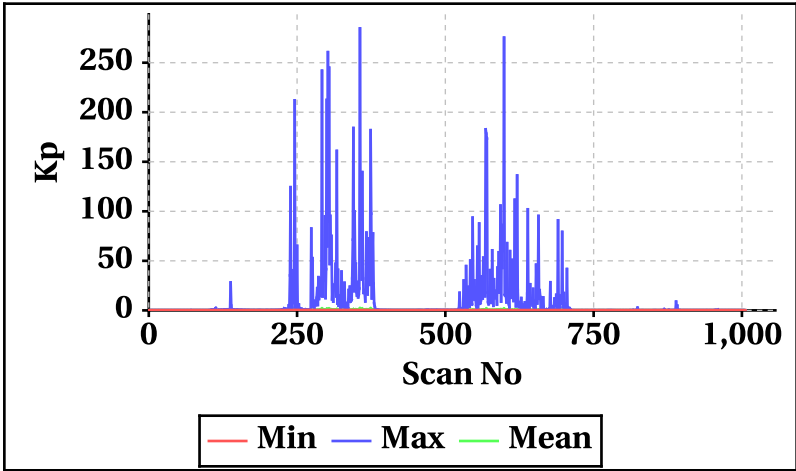


**Outer Beam(VV)**

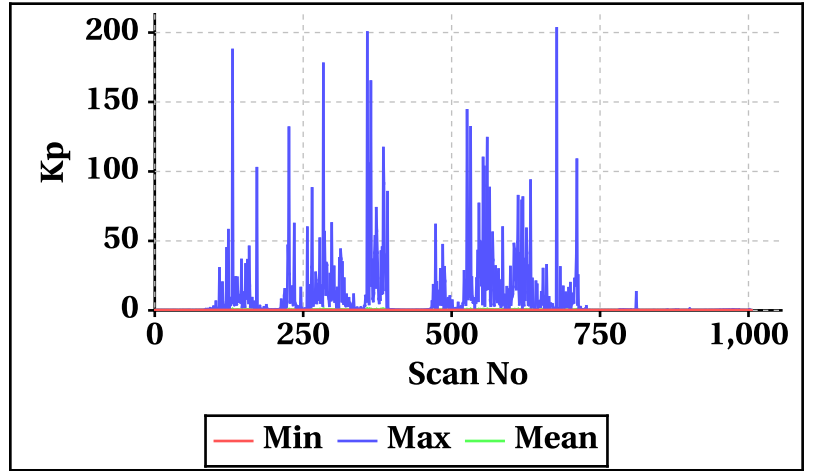


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

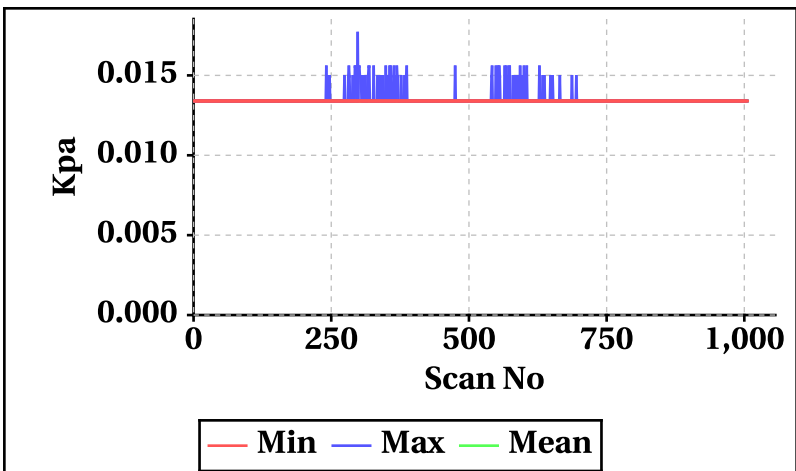
**Inner Beam(HH)**



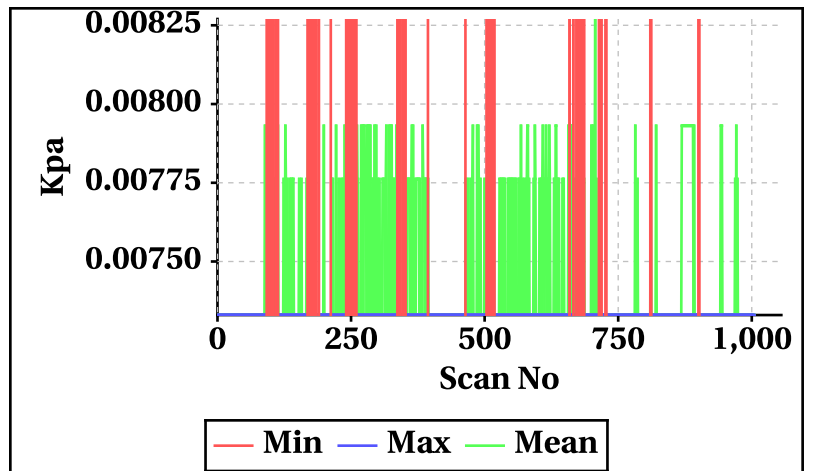
**Outer Beam(VV)**



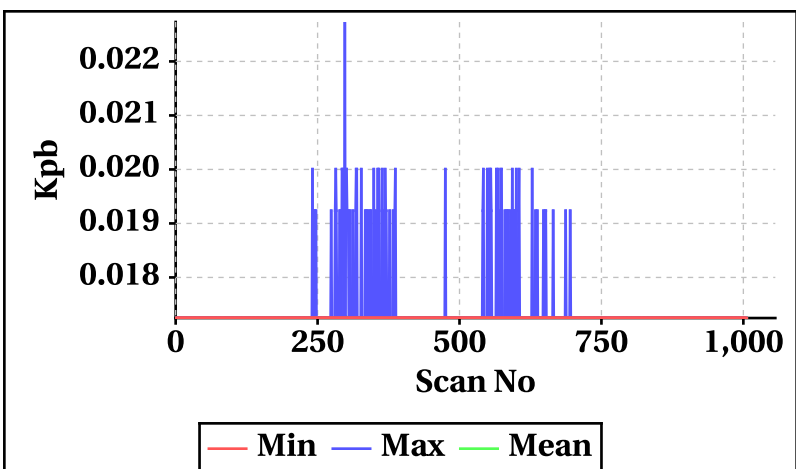
**Inner Beam(HH)**



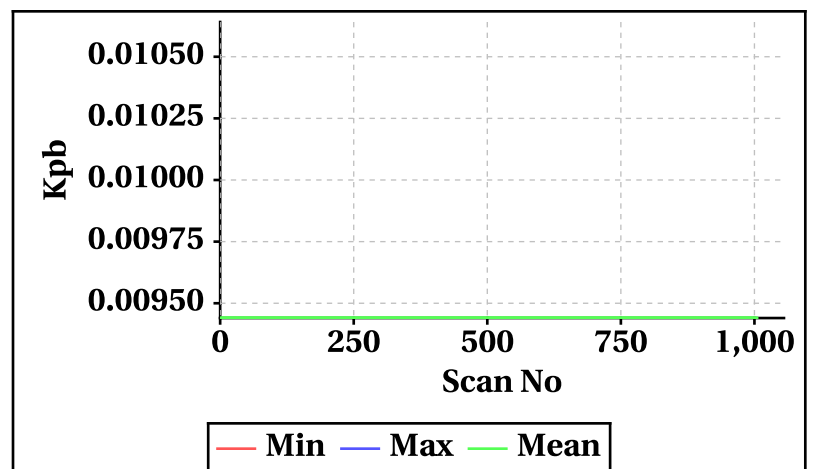
**Outer Beam(VV)**



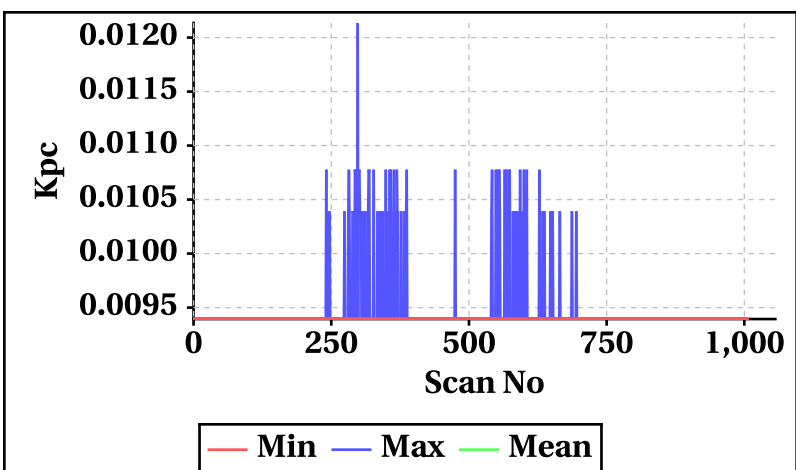
**Inner Beam(HH)**



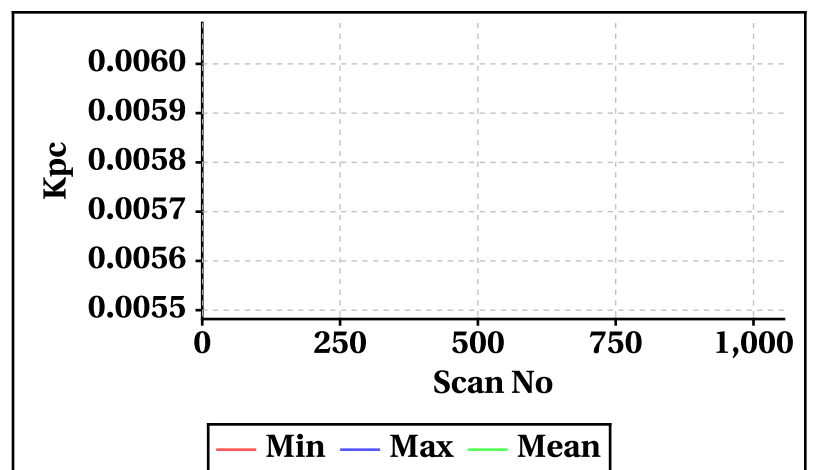
**Outer Beam(VV)**



**Inner Beam(HH)**

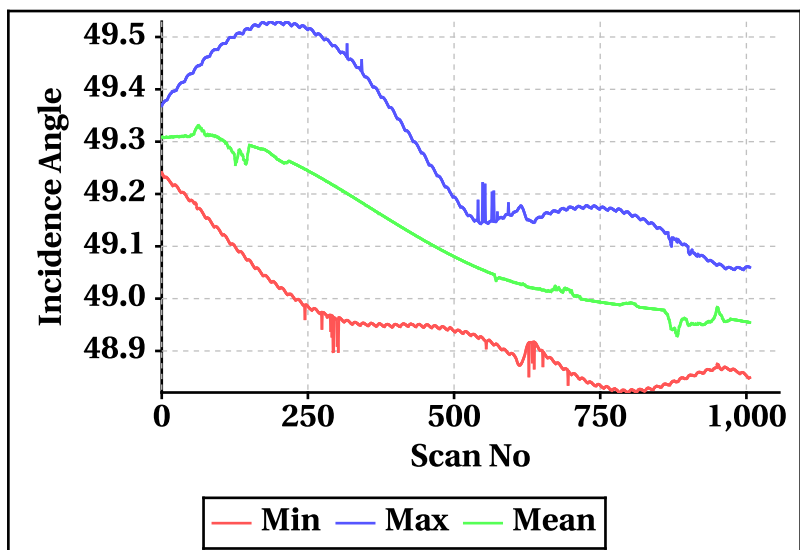


**Outer Beam(VV)**

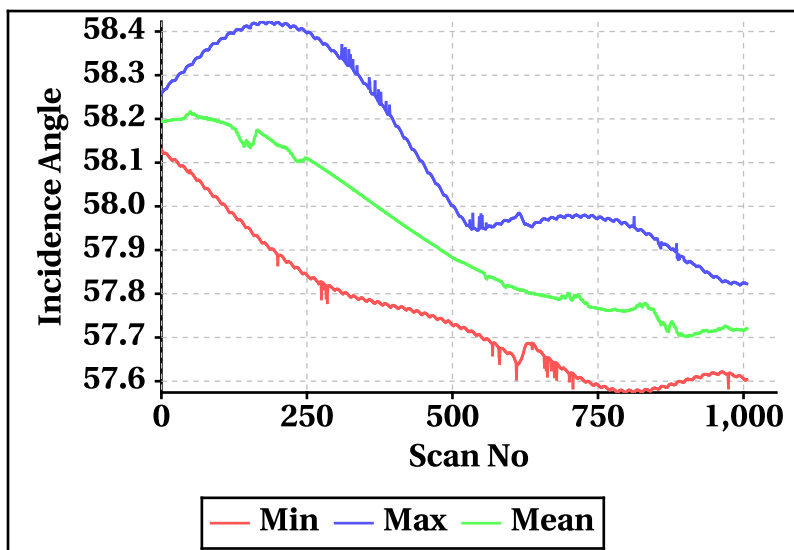


Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

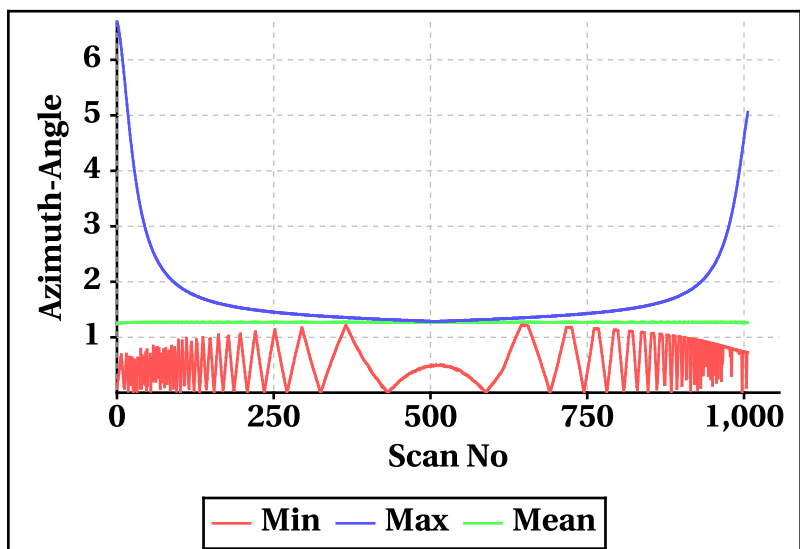
Inner Beam (HH)



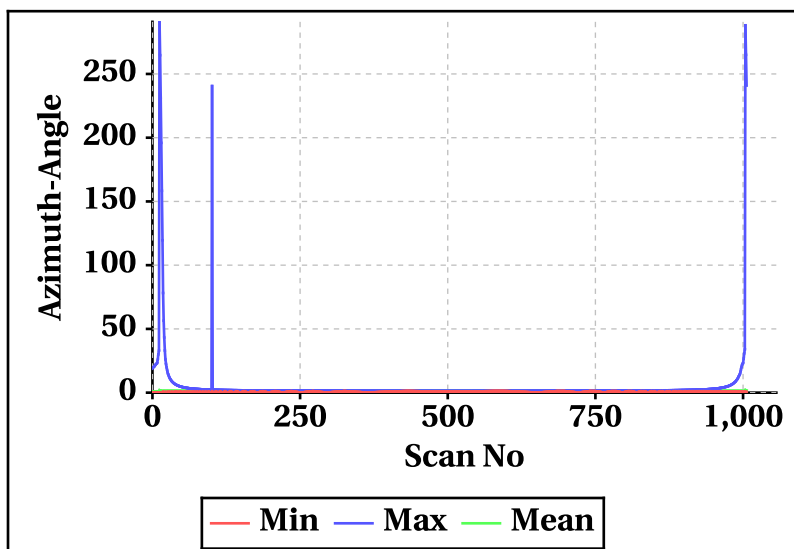
Outer Beam(VV)



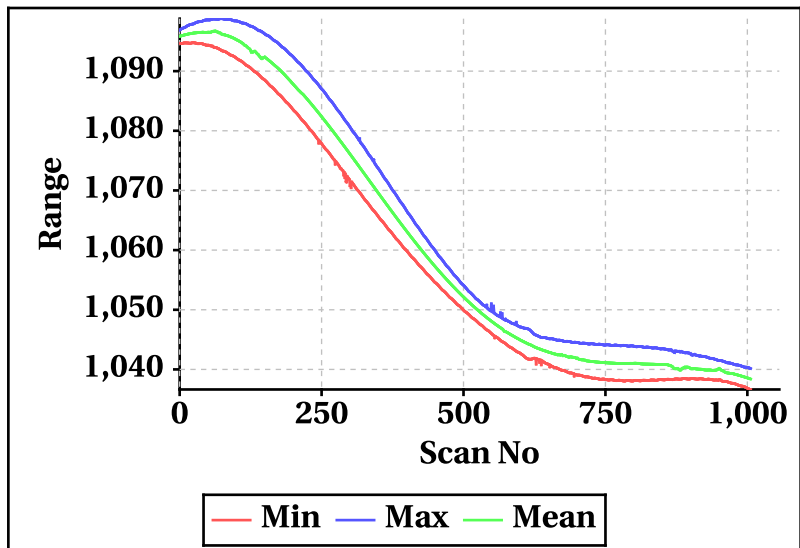
Inner Beam (HH)



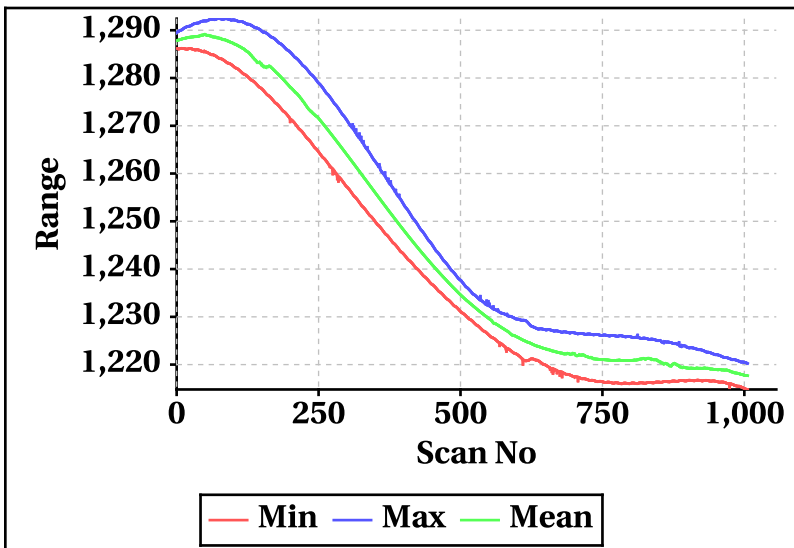
Outer Beam(VV)



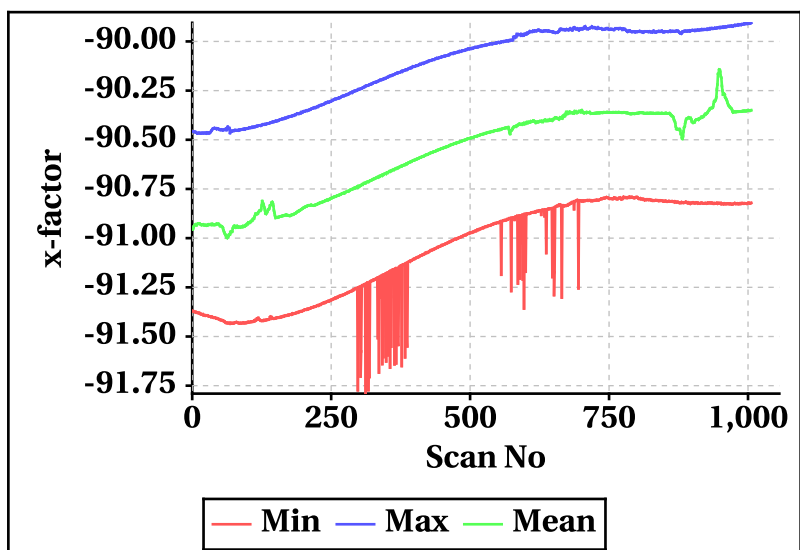
Inner Beam (HH)



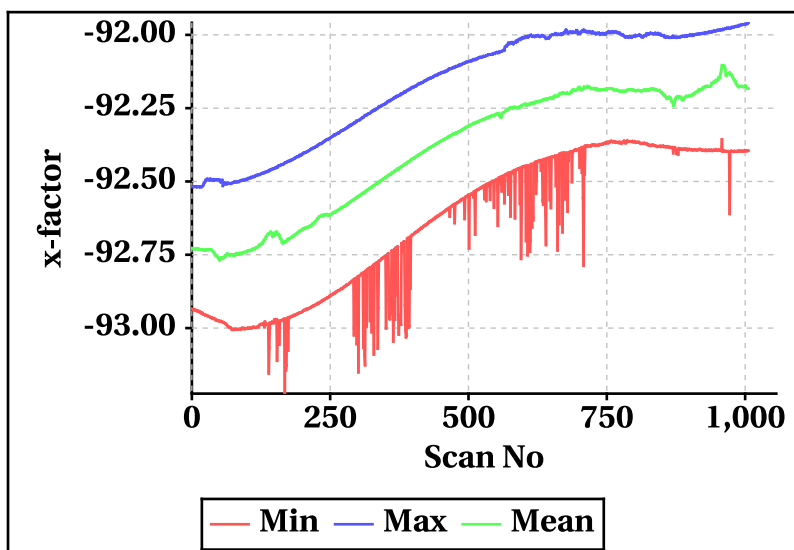
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)



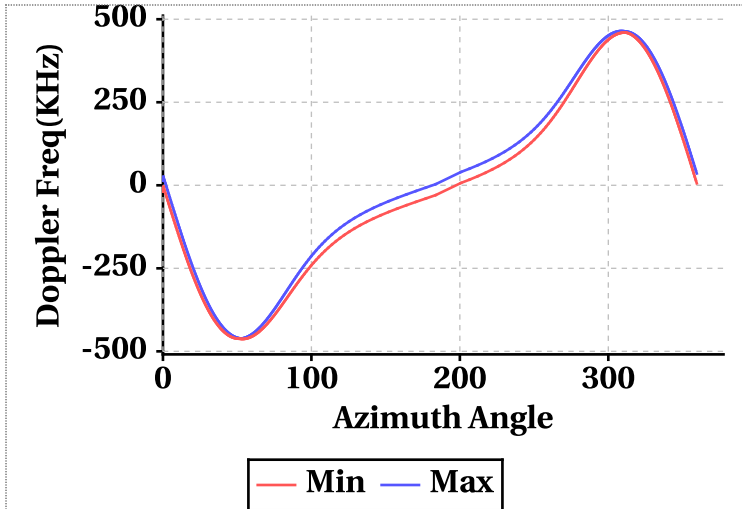


# Doppler Frequency Variation

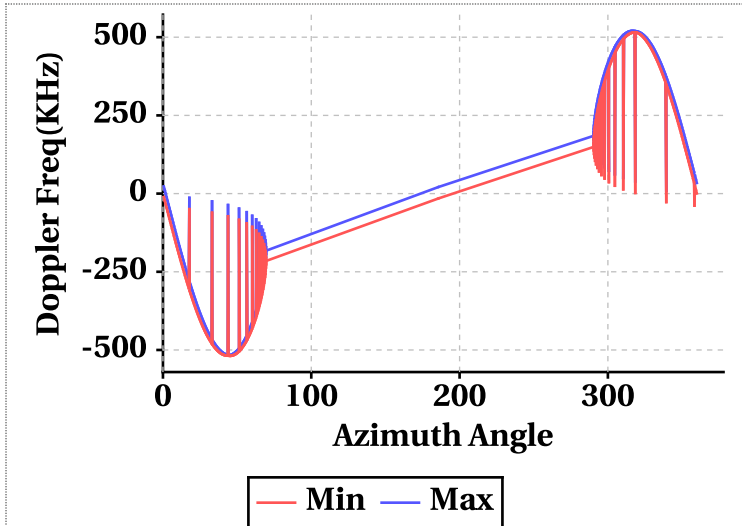
**Doppler Frequency(KHz) variation statistics Over the half Orbit**

	Inner Beam (HH)	Outer Beam (VV)
<b>Min</b>	-462.76	-518.66
<b>Max</b>	464.38	520.14

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



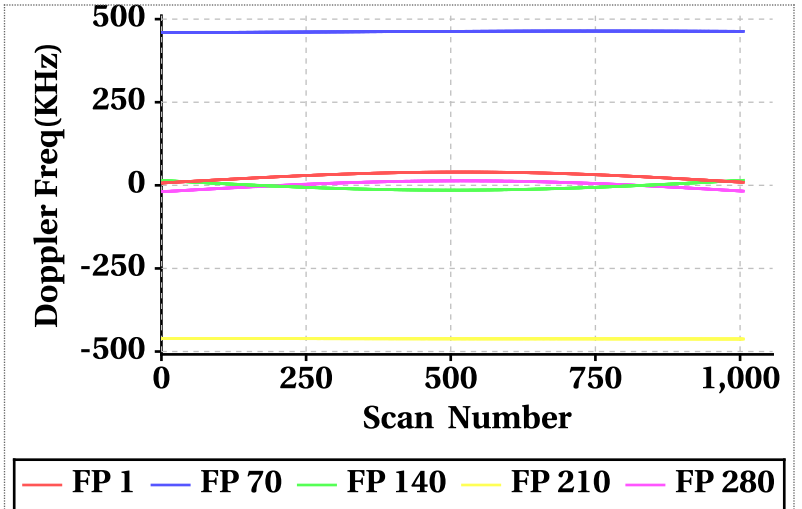
**Footprint wise Doppler frequency variation Outer Beam (VV)**



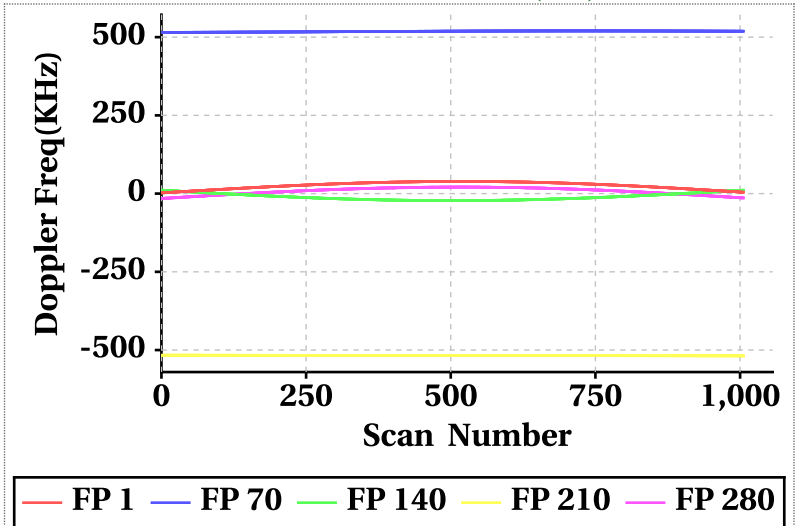
**Doppler Frequency(KHz) variation**

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	6.88	39.92	28.30	2.28	38.86	25.96
Doppler_70	459.70	464.08	462.50	515.24	519.96	518.32
Doppler_140	-14.62	15.08	-3.83	-22.48	10.96	-10.28
Doppler_210	-462.26	-460.86	-461.61	-518.36	-516.56	-517.46
Doppler_280	-19.26	13.66	1.90	-15.54	20.94	7.87

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

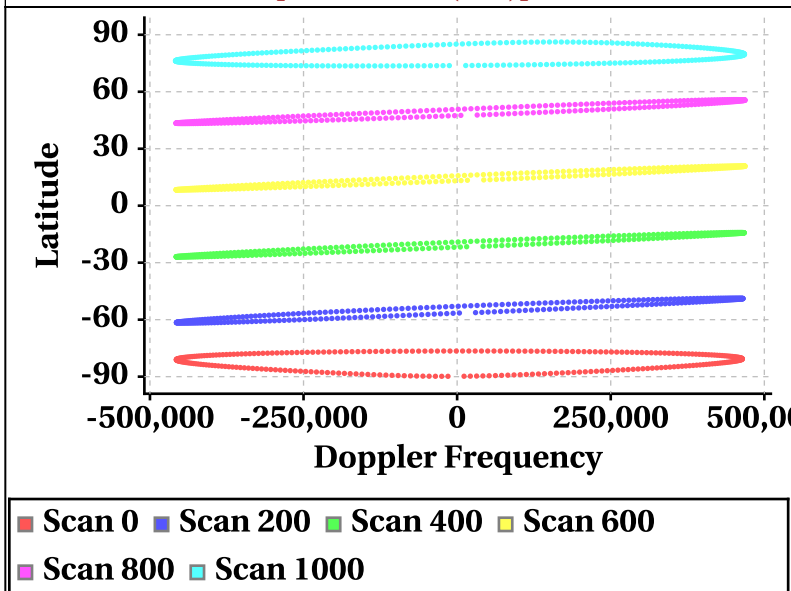


**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)**

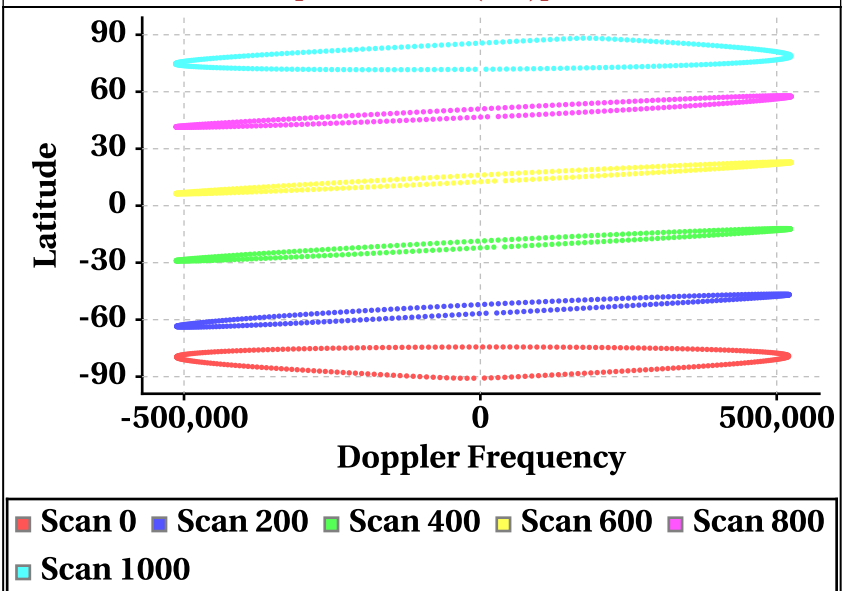


# Latitude Vs Doppler Frequency

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



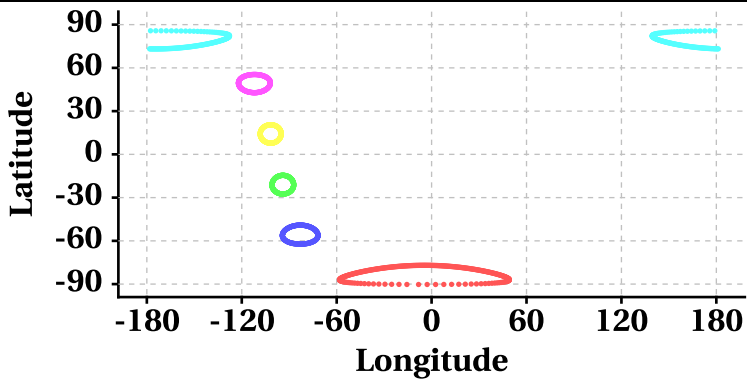
**Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]**



# Parameter as a function of Latitude

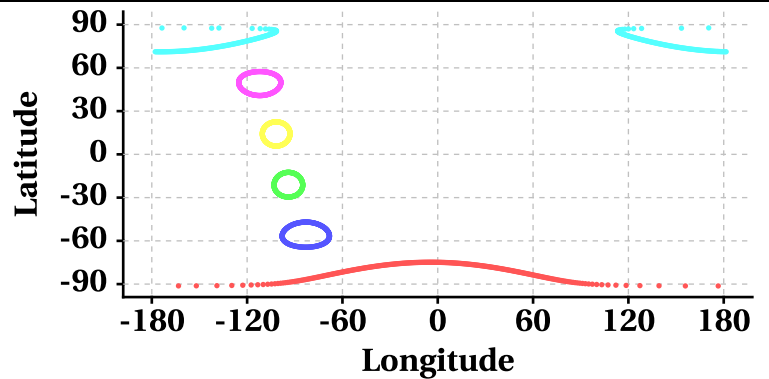
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000

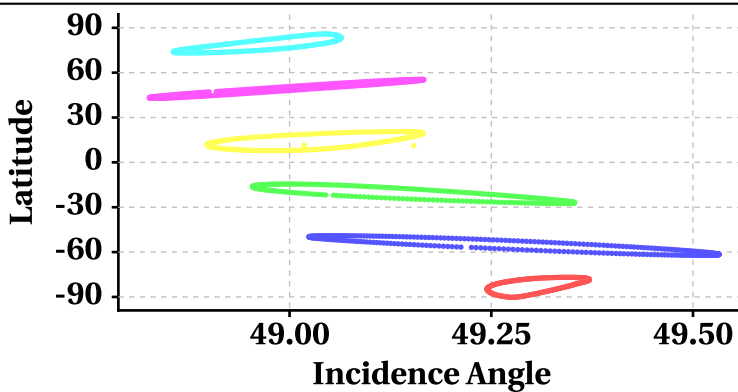
Scan Trace [Outer Beam (VV)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000

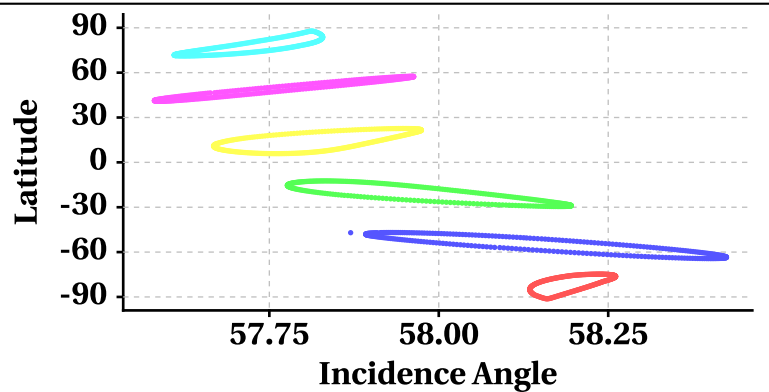
## Latitude Vs Incidence Angle

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000

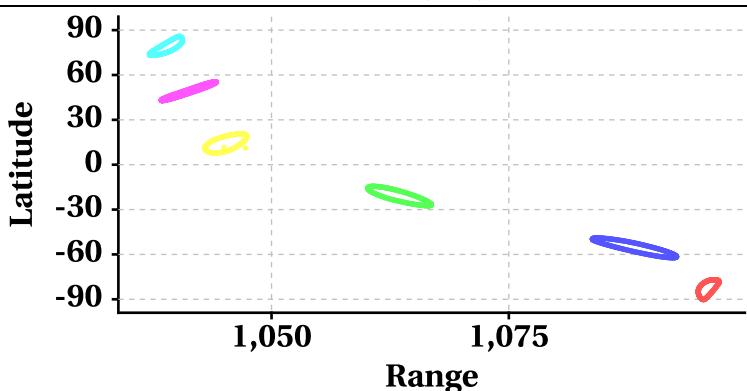
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000

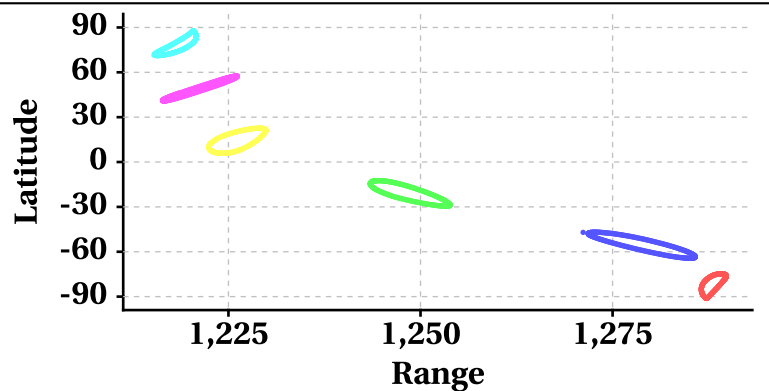
## Latitude Vs Range

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600  
■ Scan 800 ■ Scan 1000



# Variation in Orbit and Attitude Parameters

