

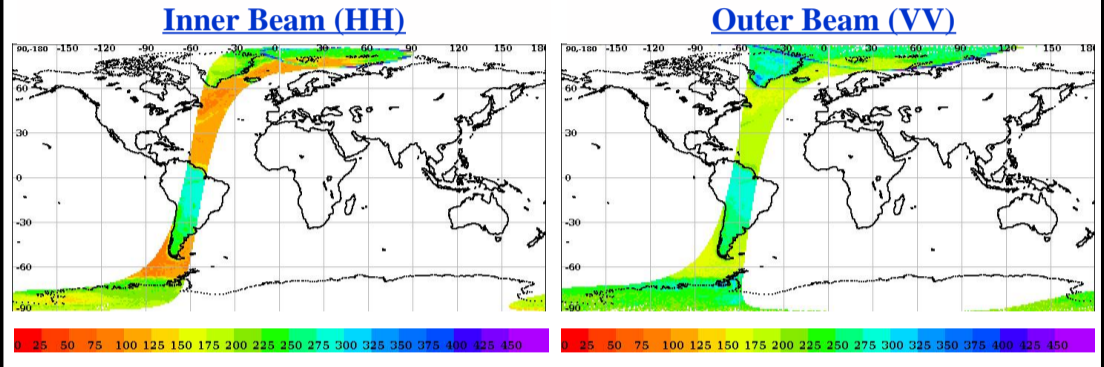
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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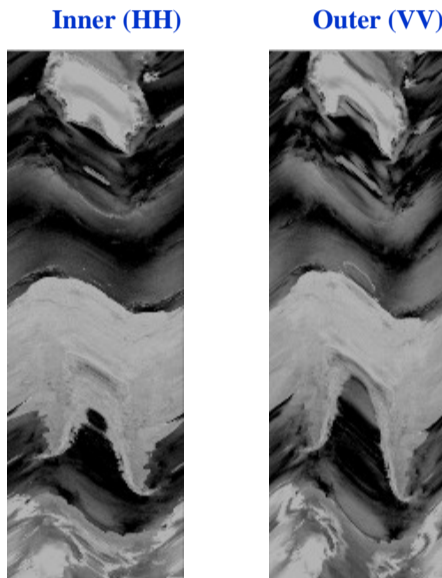
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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	9052	<b>Total Scans</b>	1016
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	9053	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.3	<b>Rev. Number</b>	09052_09053	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	NS	<b>Data Production Date</b>	12-06-2018	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	12-06-2018	<b>Equator Crossing Time</b>	12:28:21.000	<b>No Of Outer Slices</b>	15

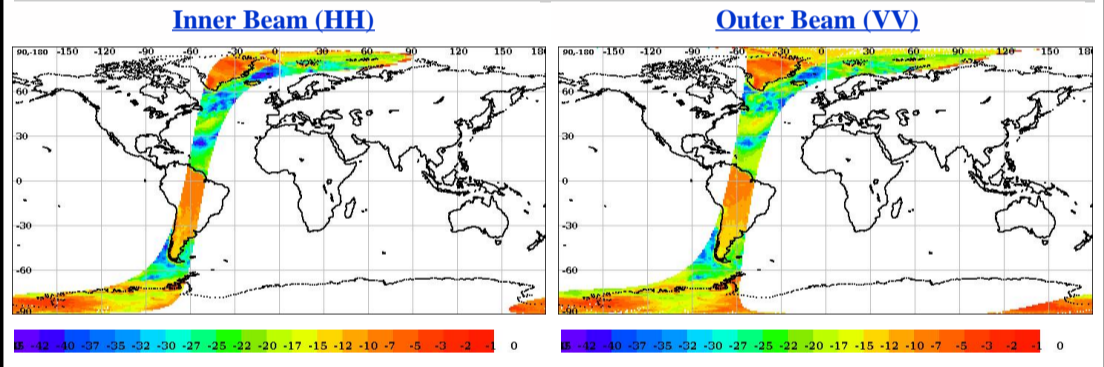
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



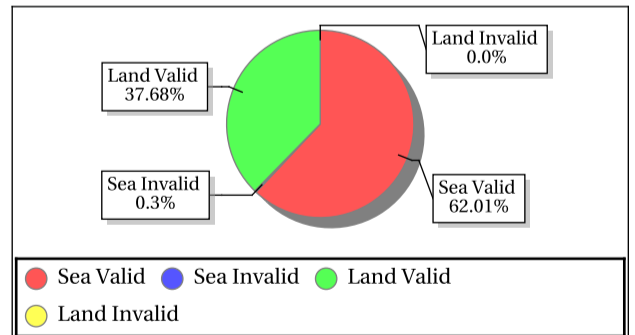
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
<b>Invalid Sigma0(%)</b>	0.04	0.28
Data Not Available From Payload (%)	97.45856	12.42262
Slice not within sample array limits (%)	2.54	87.58
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
<b>Poor Sigma0(%)</b>	22.45	13.61
Noise samples for blending Saturated	1.315035	2.299933
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 (%)	0.032239	0.098444

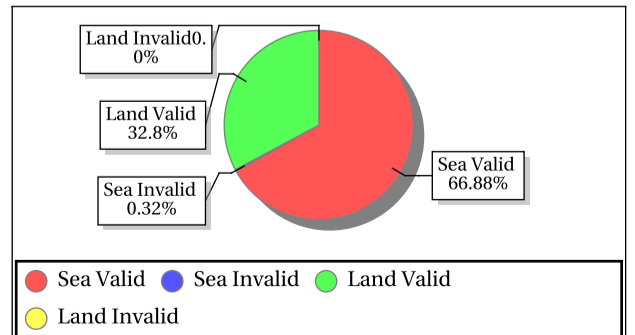
\*DP Format Document

## 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
GreenLand_2	77.50	-41.50	Inner	DSC	Aft	-6.81	-4.52	-5.83	0.56	139.92	197.93	176.51	17.78
GreenLand_2	77.50	-41.50	Inner	DSC	Fore	-7.01	-4.96	-5.95	0.60	148.24	190.99	173.45	13.97
GreenLand_3	71.55	-42.45	Inner	DSC	Aft	-12.06	-10.07	-11.16	0.54	181.02	246.10	210.62	15.86
GreenLand_3	71.55	-42.45	Inner	DSC	Fore	-13.02	-10.39	-11.33	0.66	179.75	232.36	201.80	14.07
Amazon_3	-6.00	-61.00	Inner	DSC	Aft	-9.19	-6.78	-7.96	0.54	233.80	326.71	288.17	15.14
Amazon_3	-6.00	-61.00	Inner	DSC	Fore	-9.77	-6.99	-8.04	0.59	254.41	327.15	289.12	18.46
GreenLand_1	74.69	-42.50	Inner	DSC	Aft	-10.15	-7.23	-8.84	0.72	168.52	210.96	187.88	11.58
GreenLand_1	74.69	-42.50	Inner	DSC	Fore	-10.78	-7.40	-9.37	0.78	165.81	205.37	185.66	11.33
Amazon_2	-3.00	-61.00	Inner	DSC	Aft	-13.23	-7.22	-9.04	1.37	194.17	302.90	253.98	25.11
Amazon_2	-3.00	-61.00	Inner	DSC	Fore	-10.85	-7.09	-8.70	1.01	169.85	315.54	266.36	29.43
GreenLand_2	77.50	-41.50	Outer	DSC	Aft	-5.73	-5.17	-5.42	0.22	209.79	289.10	249.14	34.32
GreenLand_2	77.50	-41.50	Outer	DSC	Fore	-5.69	-5.01	-5.33	0.27	264.94	318.34	290.71	19.84
GreenLand_3	71.55	-42.45	Outer	DSC	Aft	-13.05	-11.27	-11.93	0.47	231.37	283.68	254.52	16.65
GreenLand_3	71.55	-42.45	Outer	DSC	Fore	-13.03	-10.99	-12.32	0.55	221.75	301.30	259.11	19.34
Amazon_3	-6.00	-61.00	Outer	DSC	Aft	-10.26	-8.07	-9.28	0.45	247.71	320.02	287.28	15.63
Amazon_3	-6.00	-61.00	Outer	DSC	Fore	-10.00	-7.92	-9.19	0.53	252.28	319.04	284.12	16.67
GreenLand_1	74.69	-42.50	Outer	DSC	Aft	-9.52	-7.67	-8.69	0.63	226.80	272.27	252.50	15.35
GreenLand_1	74.69	-42.50	Outer	DSC	Fore	-10.52	-7.84	-9.12	0.83	262.69	331.92	299.63	21.05
Amazon_2	-3.00	-61.00	Outer	DSC	Aft	-12.92	-8.22	-10.23	1.07	223.57	305.85	267.85	17.70
Amazon_2	-3.00	-61.00	Outer	DSC	Fore	-12.00	-8.15	-9.94	0.87	224.75	310.13	274.51	19.20



## 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	295.58	0.40	3.882	0.12	287.92	0.34	2.910	0.12	0.16	0.12	0.000	0.12	0.14	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>	-34.84	24.20	4.46	0.090	-34.73	24.83	5.26	0.250	2.46	31.12	19.72	20.658	4.71	30.05	20.55	33.994

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	231.05	0.39	4.414	0.09	233.92	0.38	4.178	0.09	0.17	0.09	0.000	0.09	0.15	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>	-34.94	18.14	2.15	0.000	-34.99	18.97	2.21	0.000	-1.26	22.74	14.33	0.032	-0.18	23.48	14.72	0.346

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>	48.63	49.38	48.97	0.000	57.36	58.29	57.83	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	12.02	1.27	2.627	0.0000	282.32	1.27	3.682	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1021.57	1099.58	1049.17	13.729	1195.70	1292.77	1230.80	46.890	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.88	-89.76	-90.44	0.000	-94.29	-91.81	-92.05	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	16.21	16.74	16.37	0.000	21.44	22.77	21.58	4.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.58	8789.84	29.28	2.000	18.06	8661.25	29.37	2.000	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

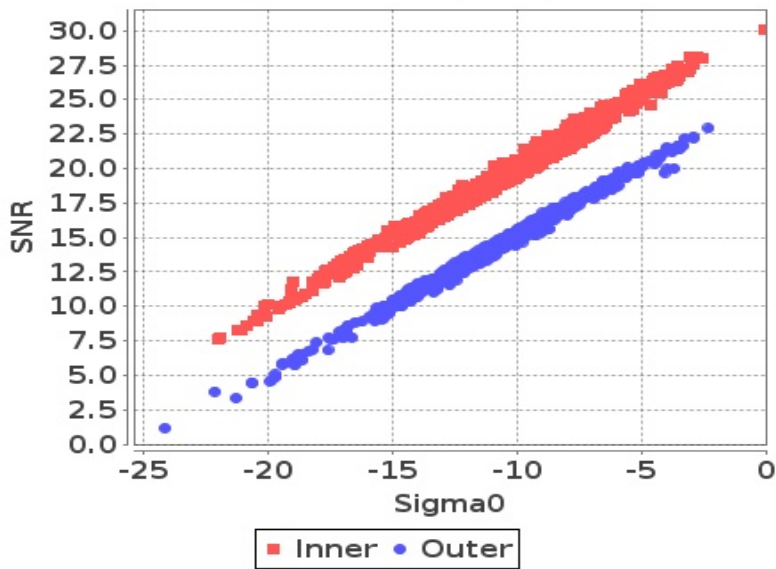
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

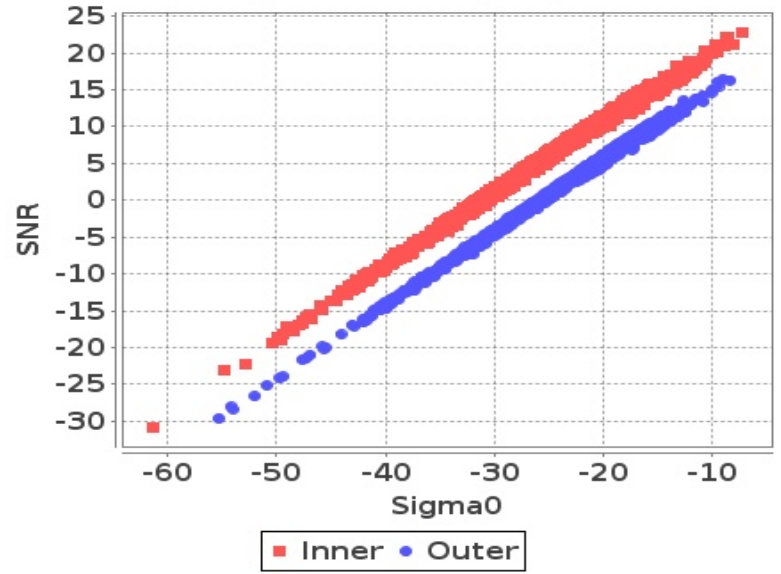
Footprint-Land

Sigma0 Vs SNR (Land)



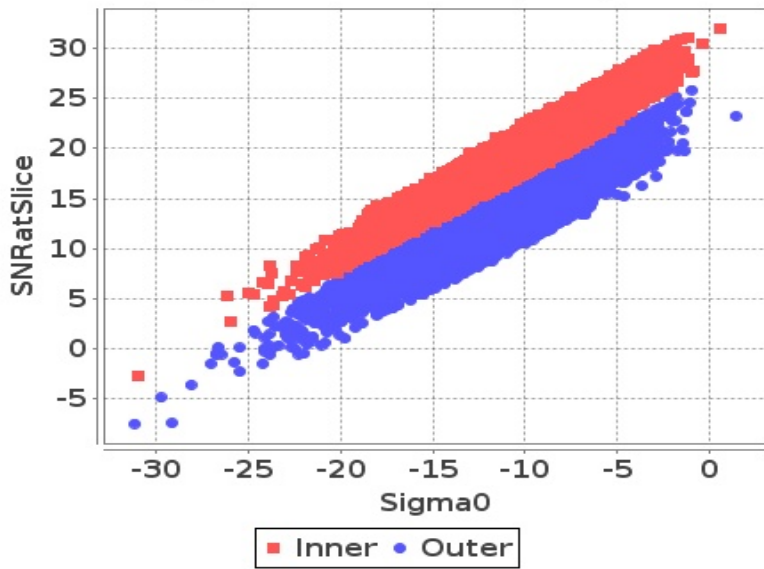
Footprint-Sea

Sigma0 Vs SNR (Sea)



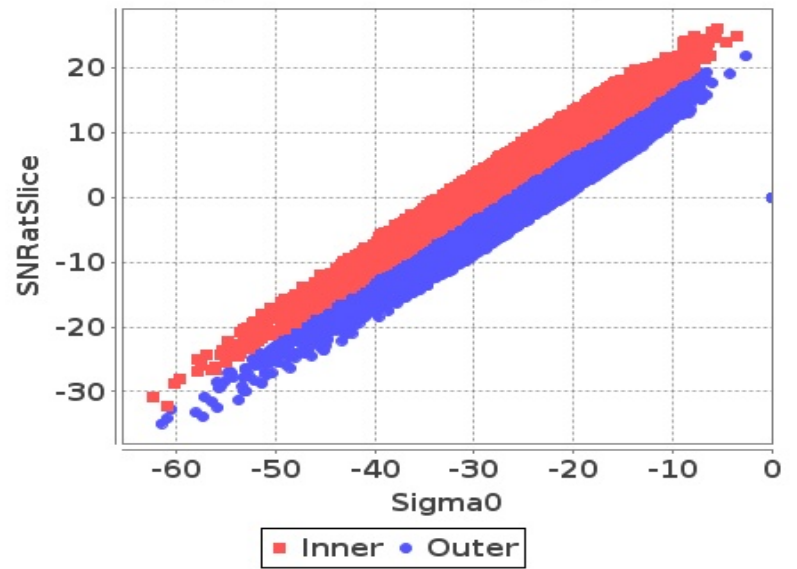
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

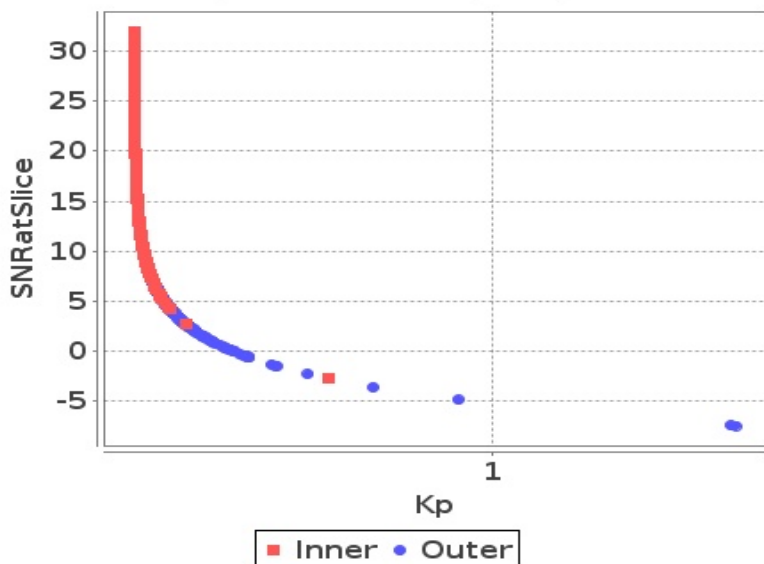
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

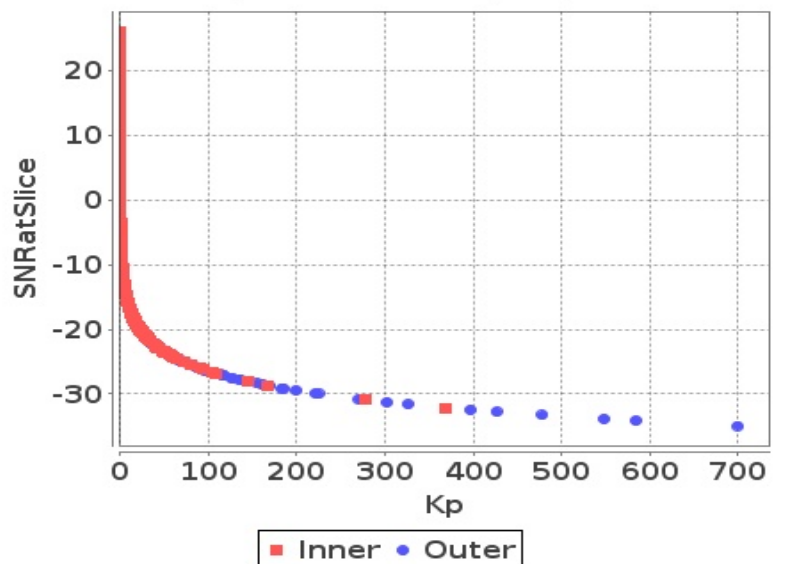
Slice

Kp Vs SNRatSlice (Land)



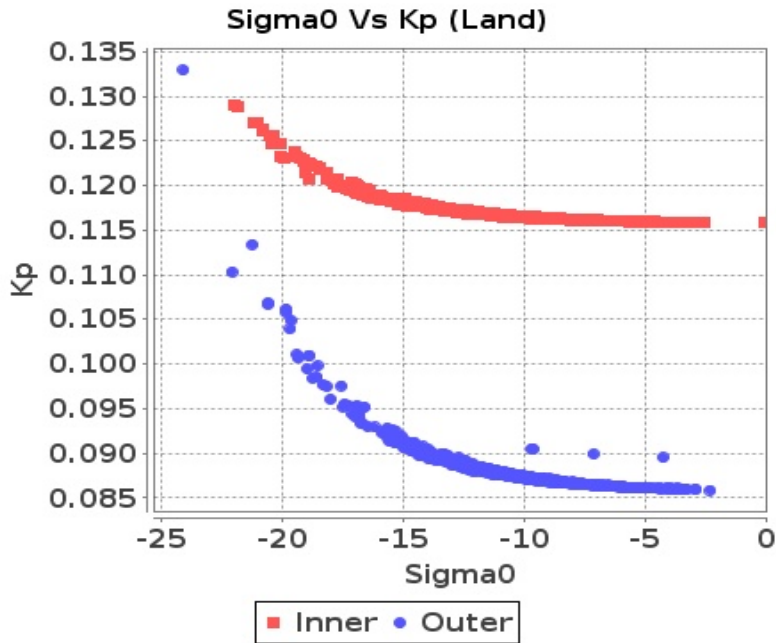
Slice

Kp Vs SNRatSlice (Sea)

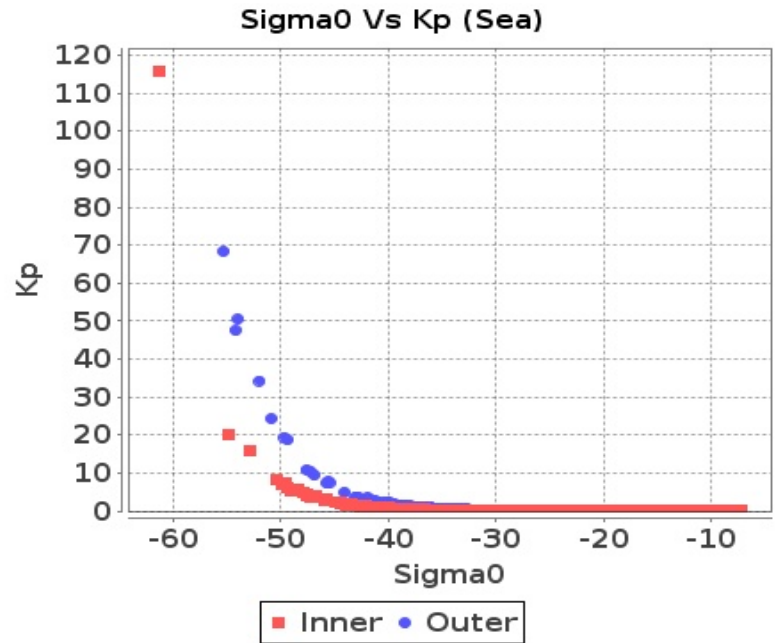


# Sigma0 Behaviour(Sigma0 Vs Kp)

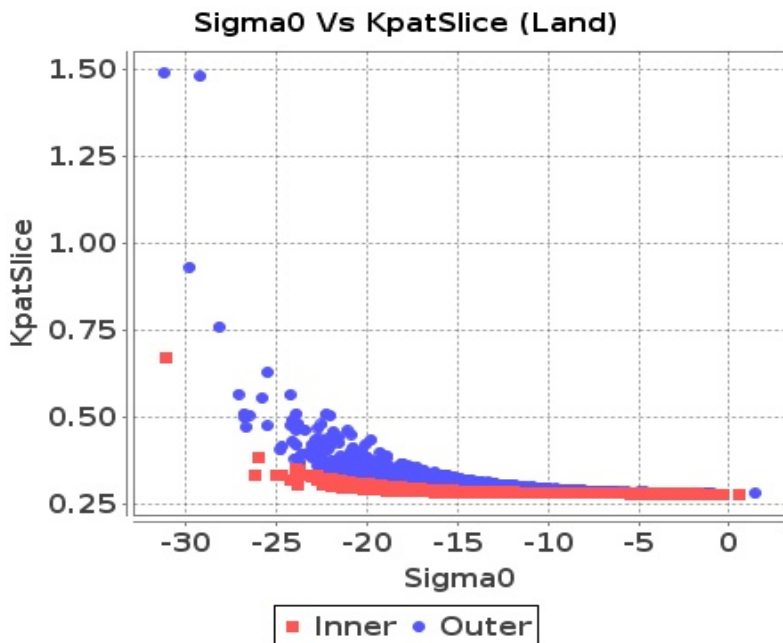
## Footprint-Land



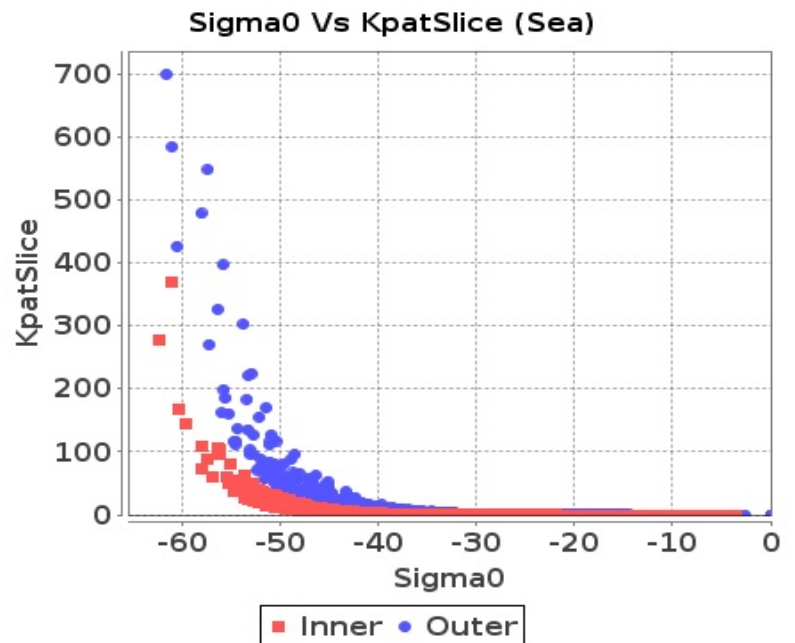
## Footprint-Sea



## Slice-Land



## Slice-Sea

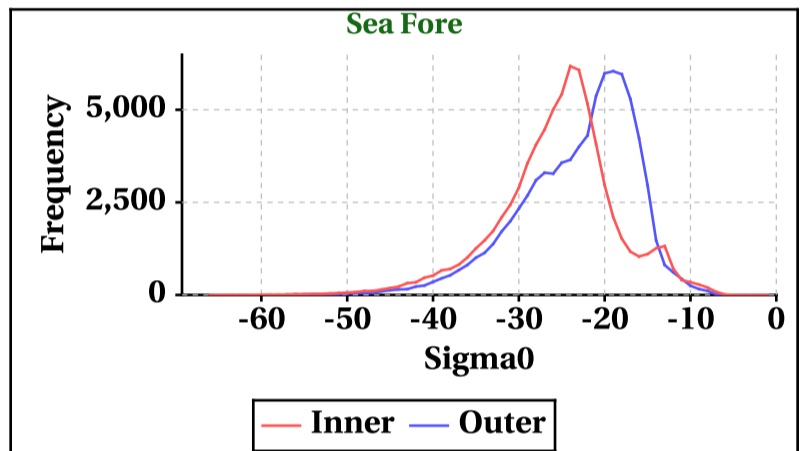
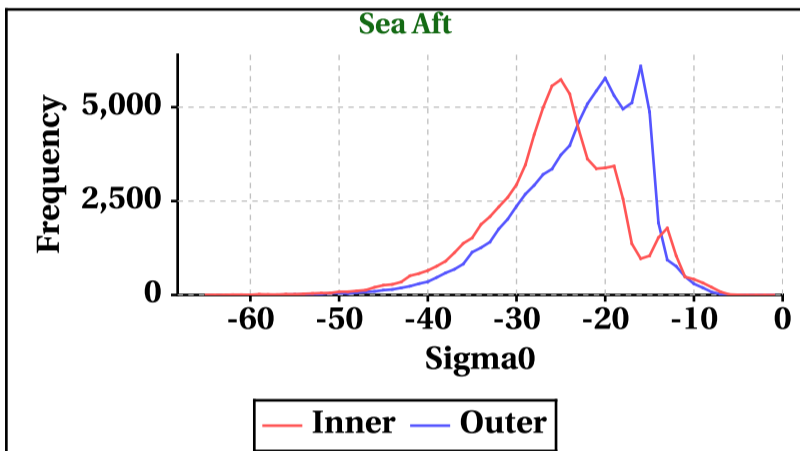
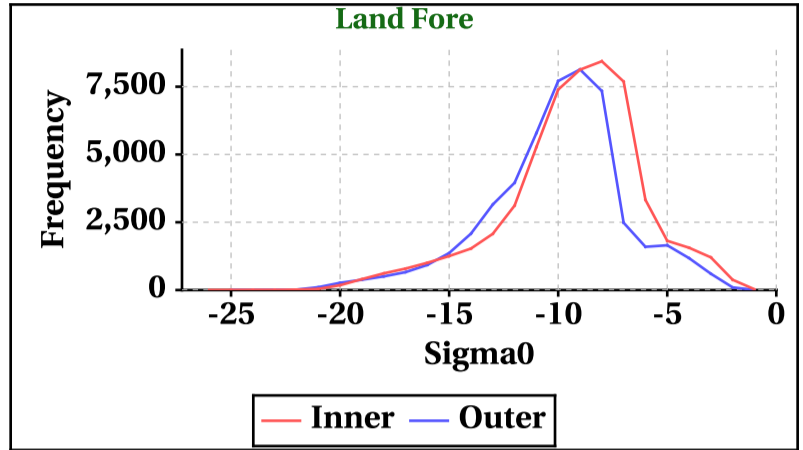
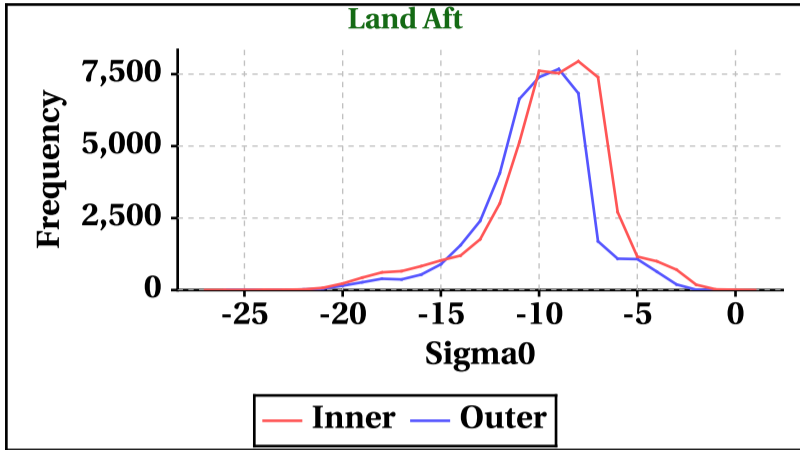


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-27	-26	-65	-66
Max	1	0	0	0

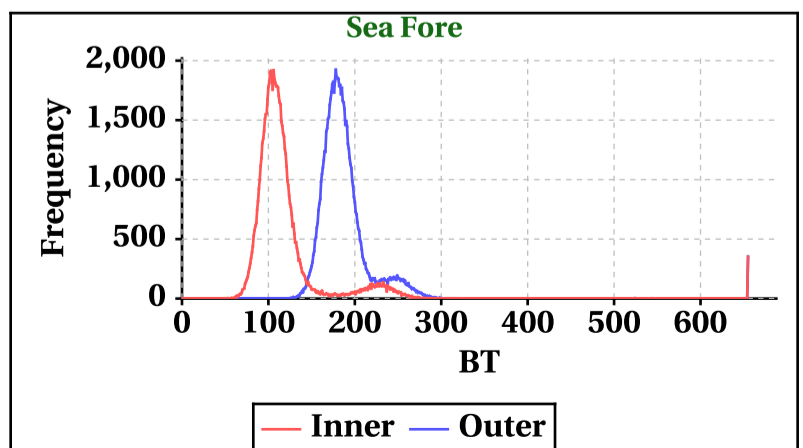
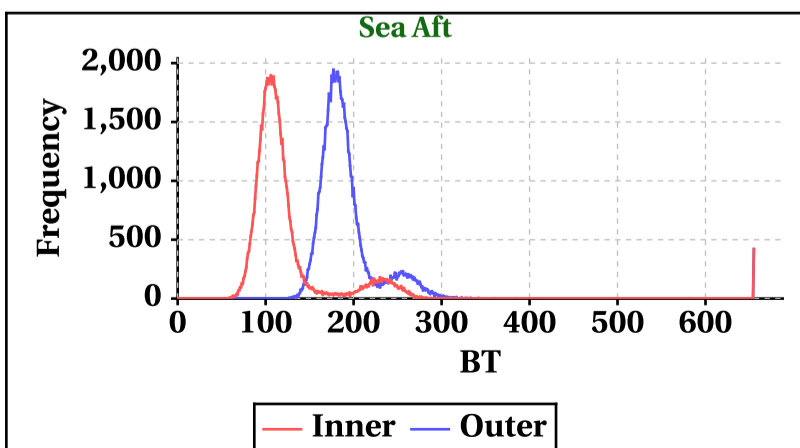
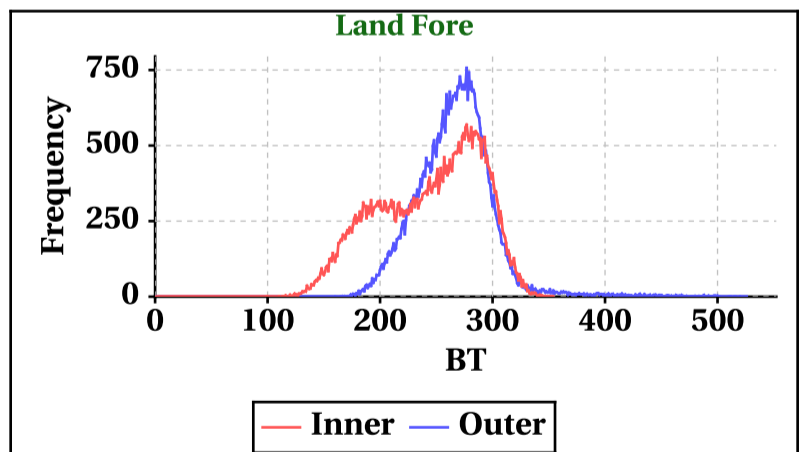
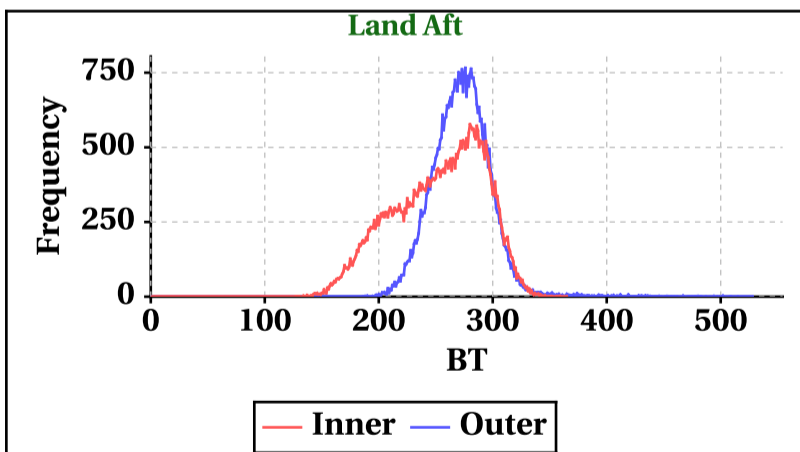
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-26	-25	-60	-60
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	365	354	655	655

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	528	526	655	655

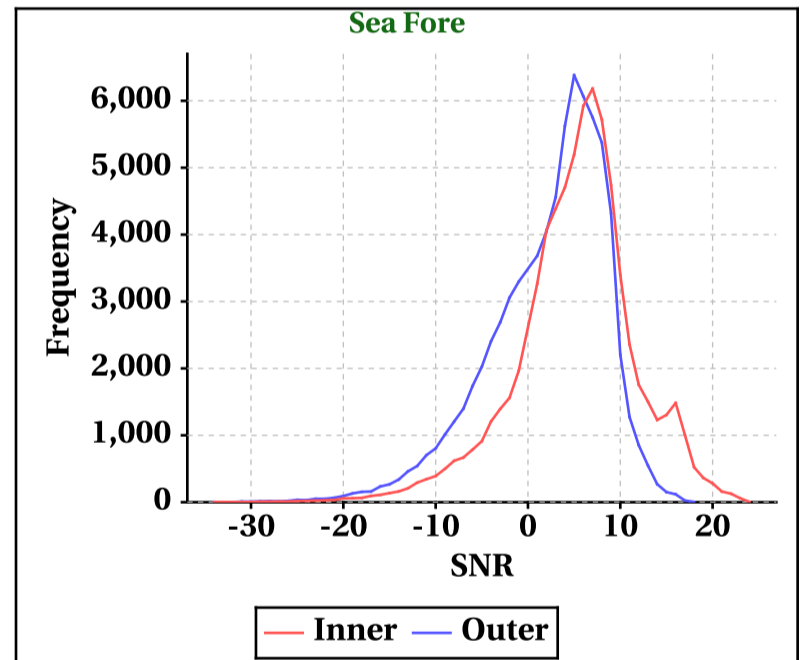
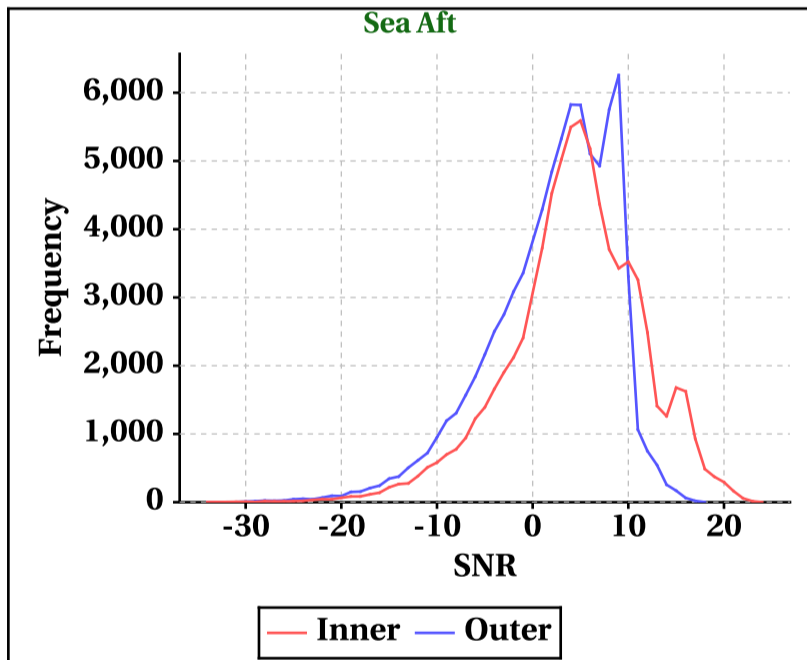
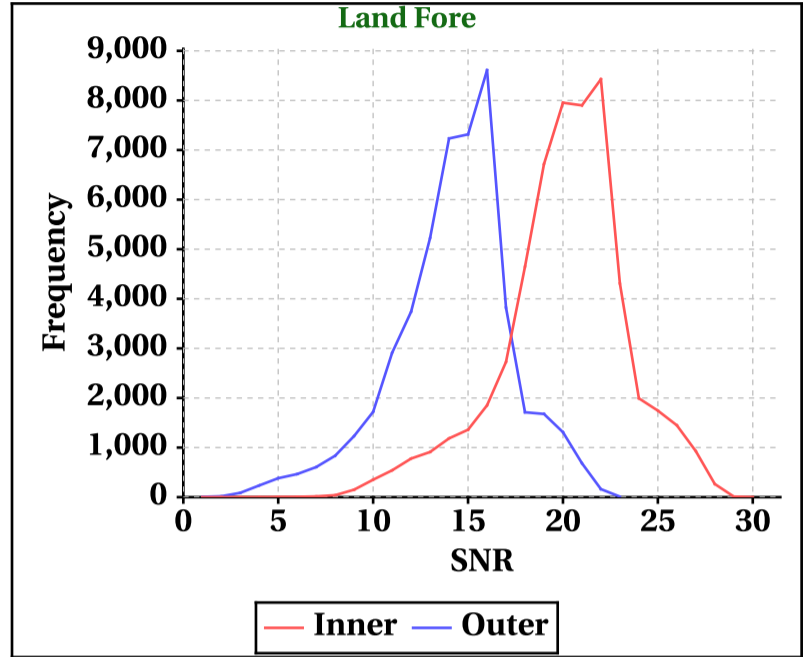
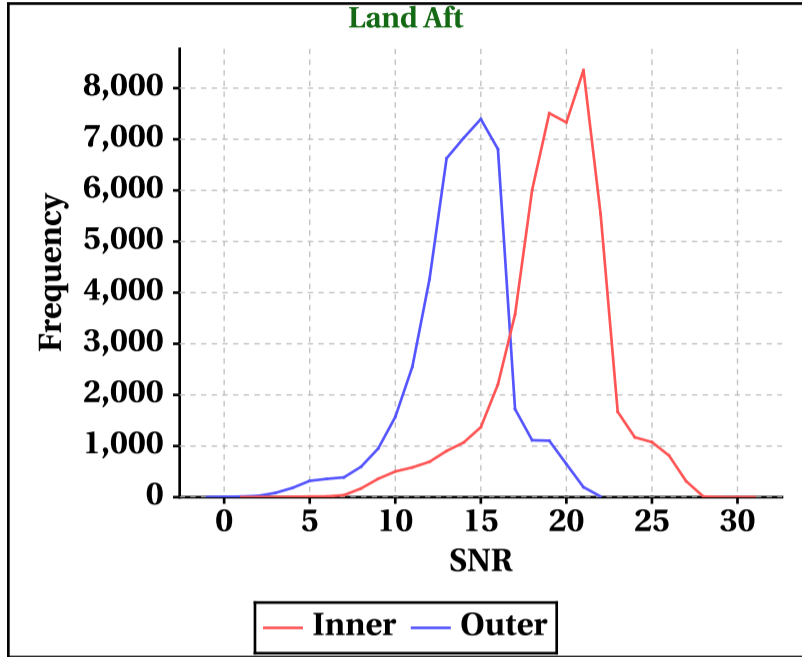


# Dynamic Range (Data Histograms)

## SNR(dBm)

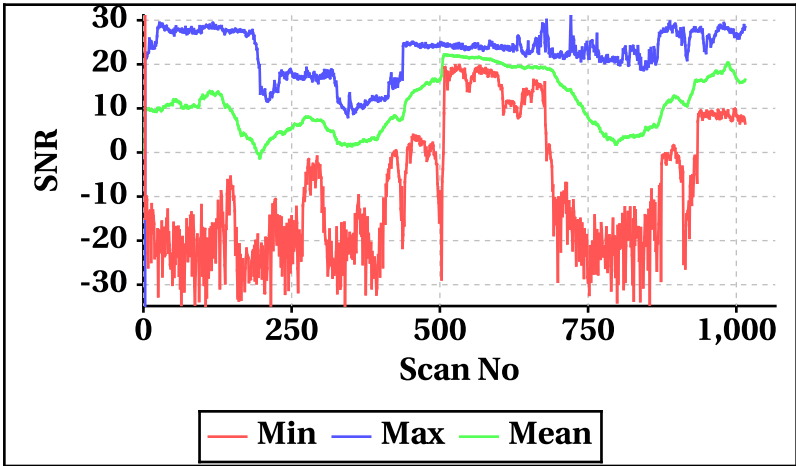
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	31	30	24	24

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-1	0	-34	-34
Max	22	23	18	18

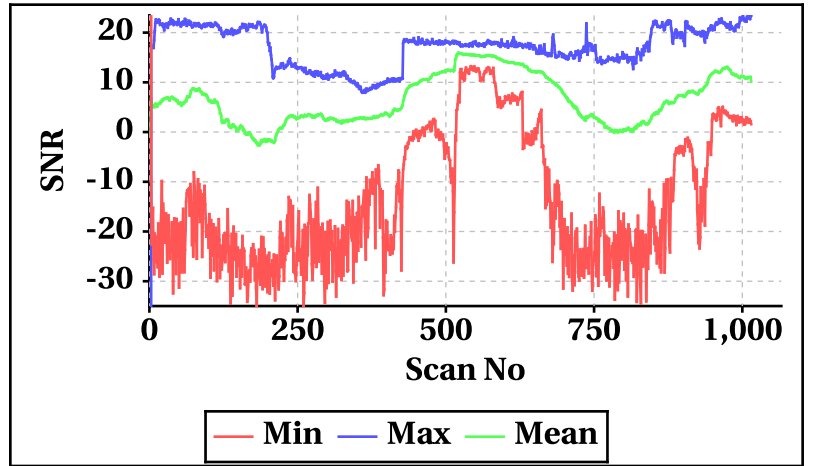


## Orbit-wise behaviour of SNR

Inner Beam (HH)

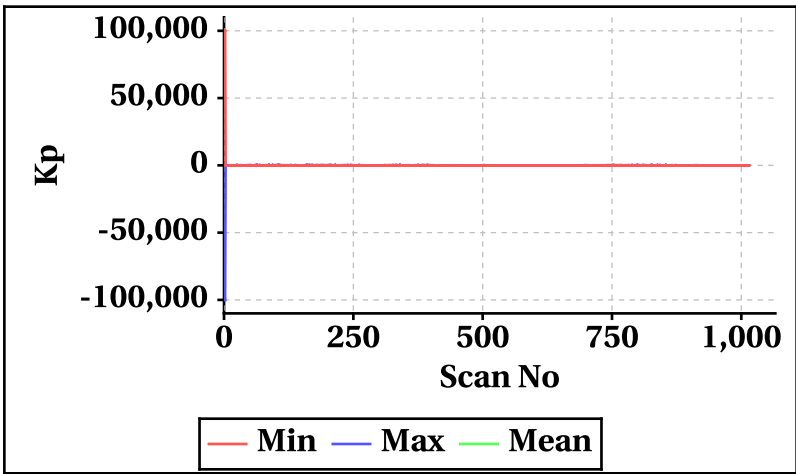


Outer Beam(VV)

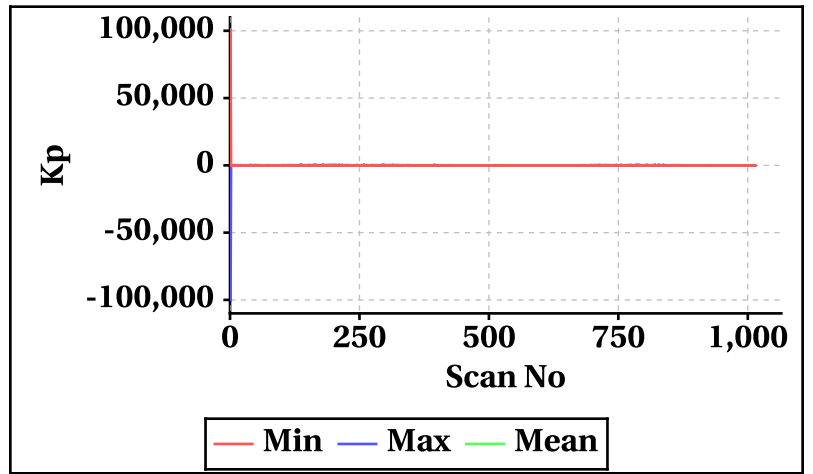


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

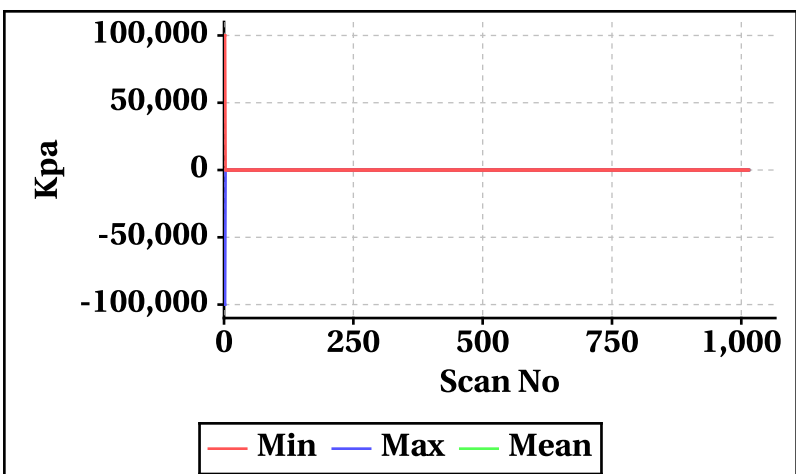
Inner Beam(HH)



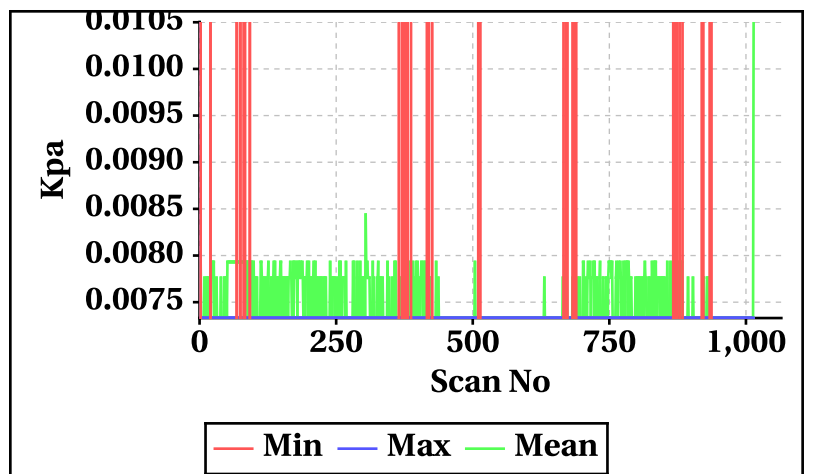
Outer Beam(VV)



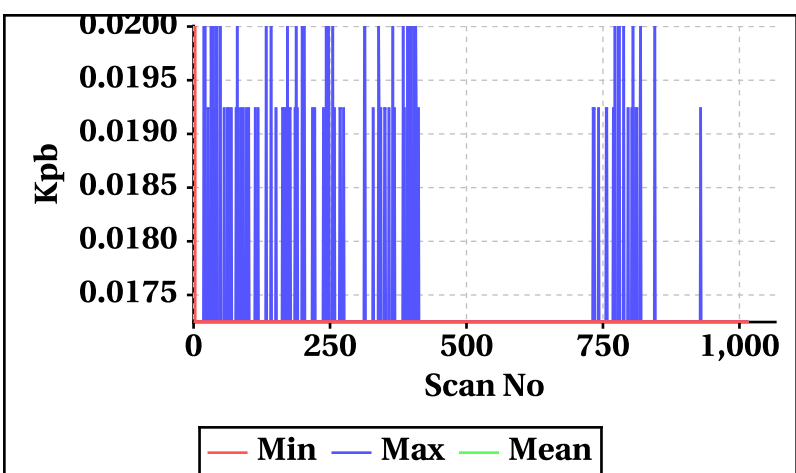
Inner Beam(HH)



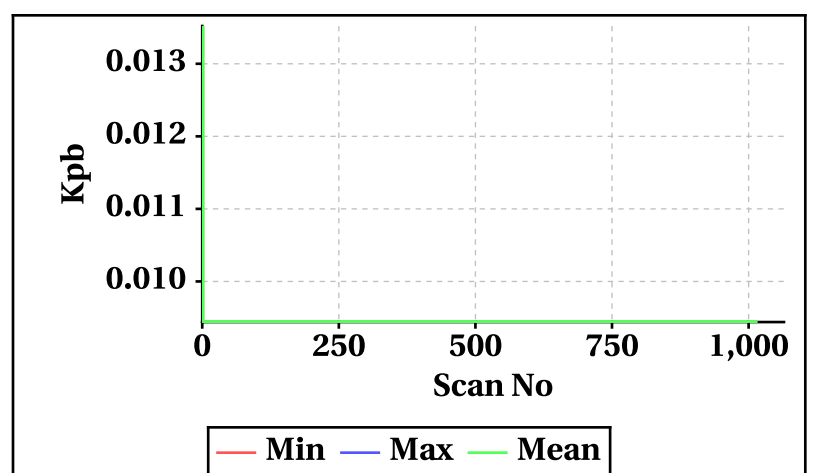
Outer Beam(VV)



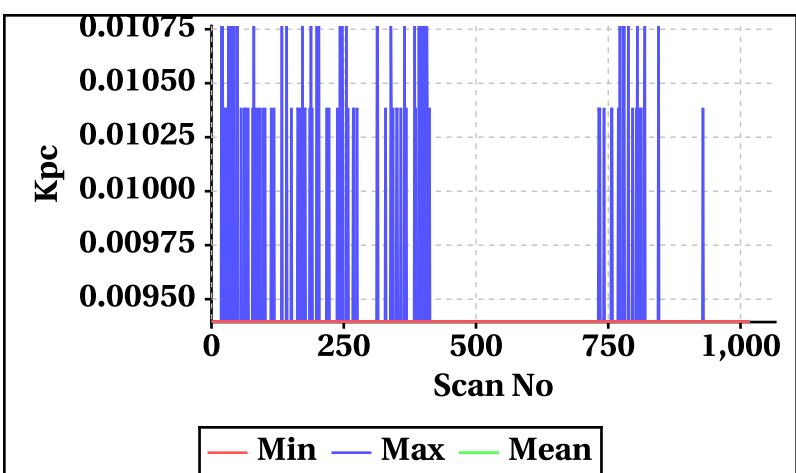
Inner Beam(HH)



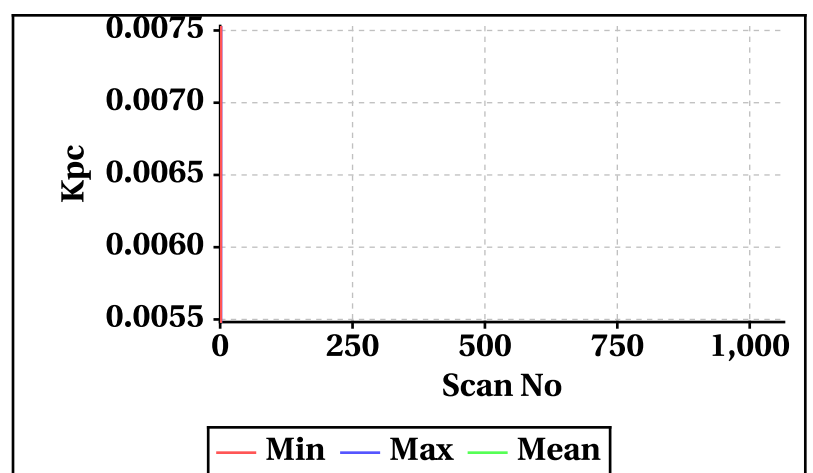
Outer Beam(VV)



Inner Beam(HH)



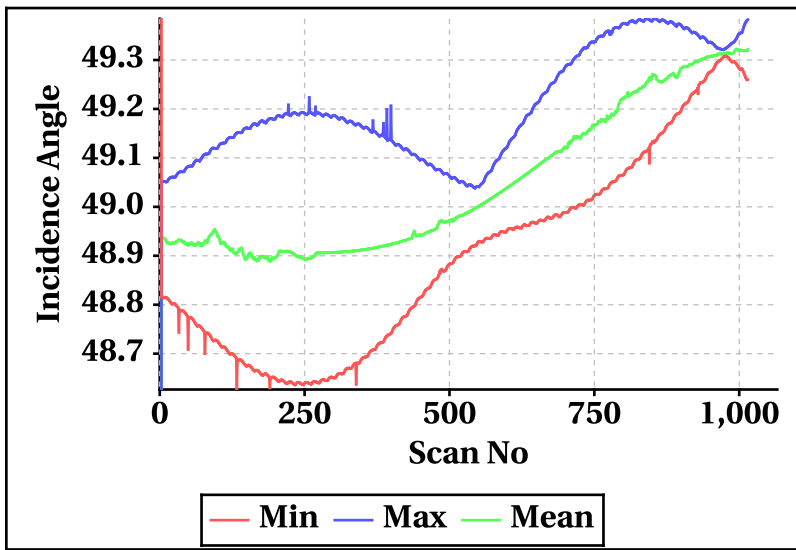
Outer Beam(VV)



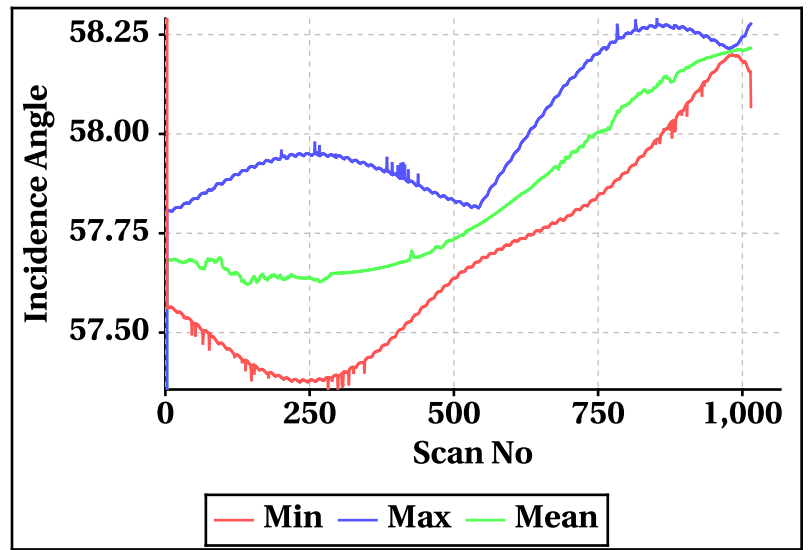


# Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

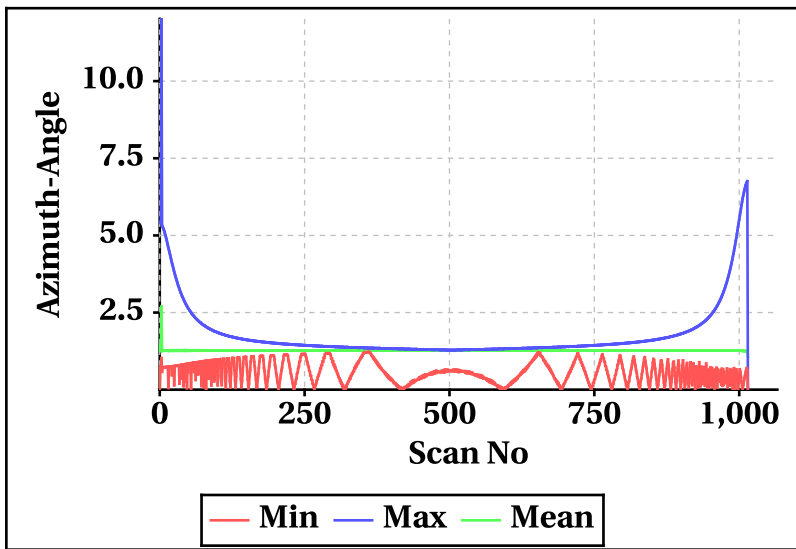
**Inner Beam (HH)**



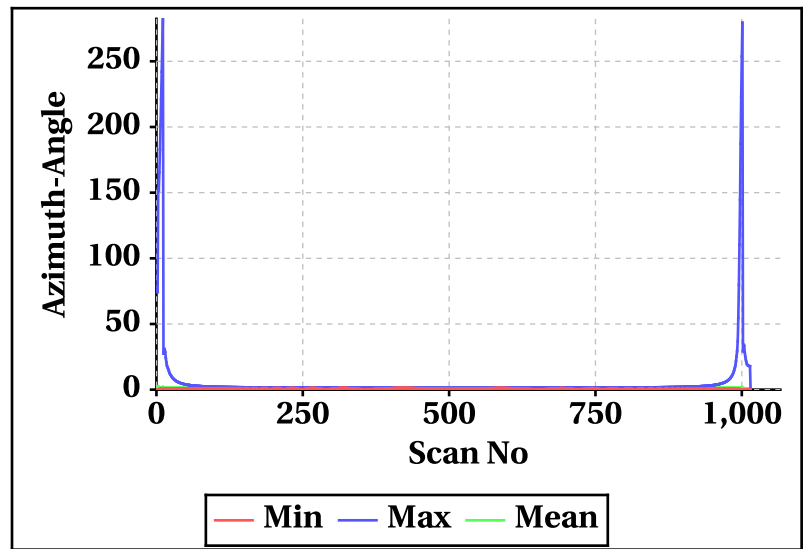
**Outer Beam(VV)**



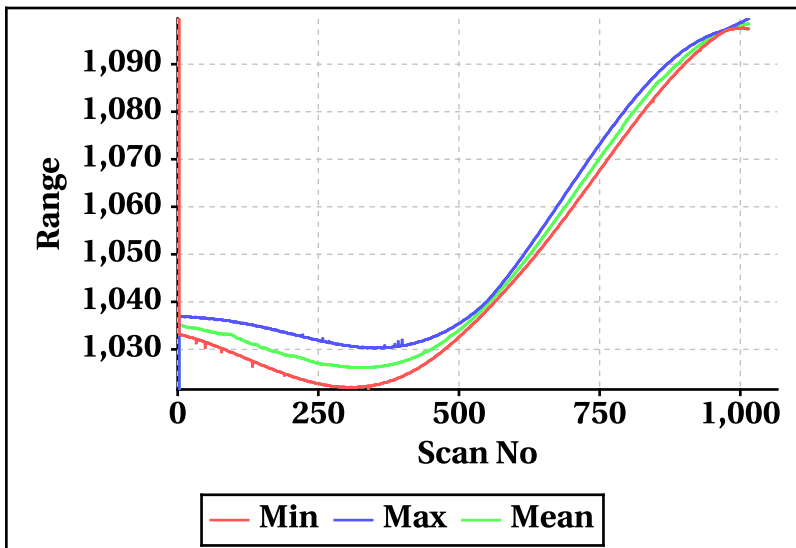
**Inner Beam (HH)**



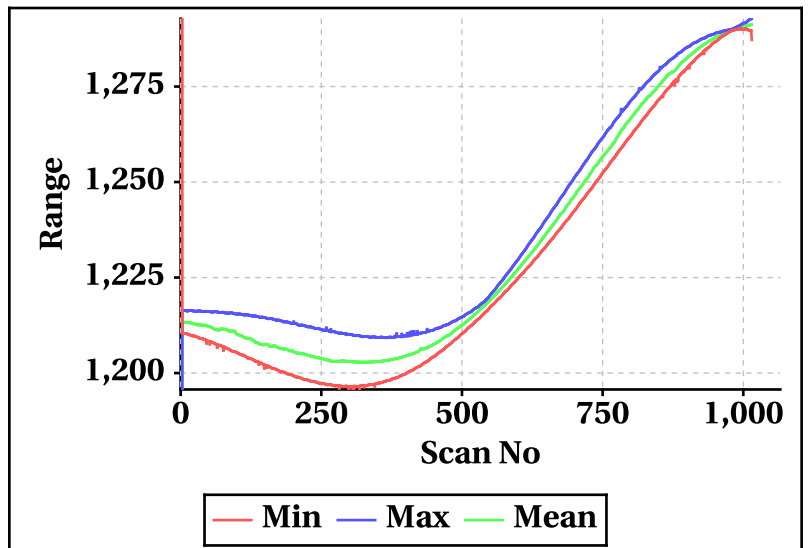
**Outer Beam(VV)**



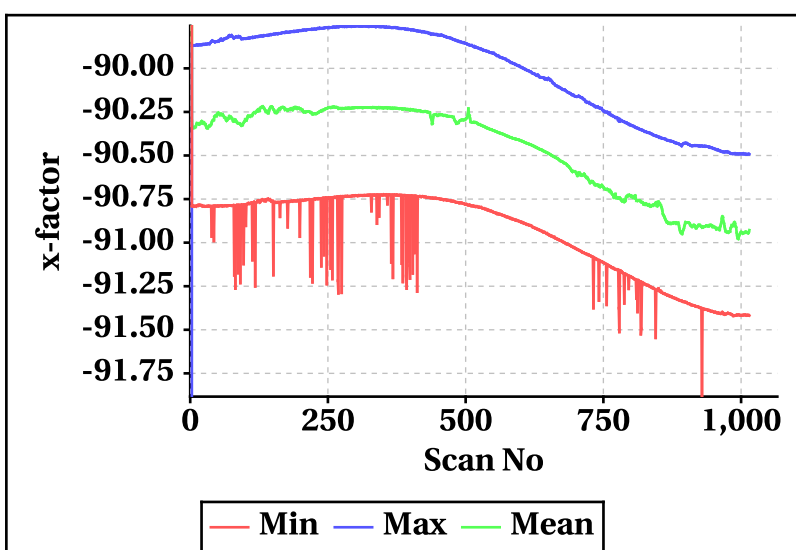
**Inner Beam (HH)**



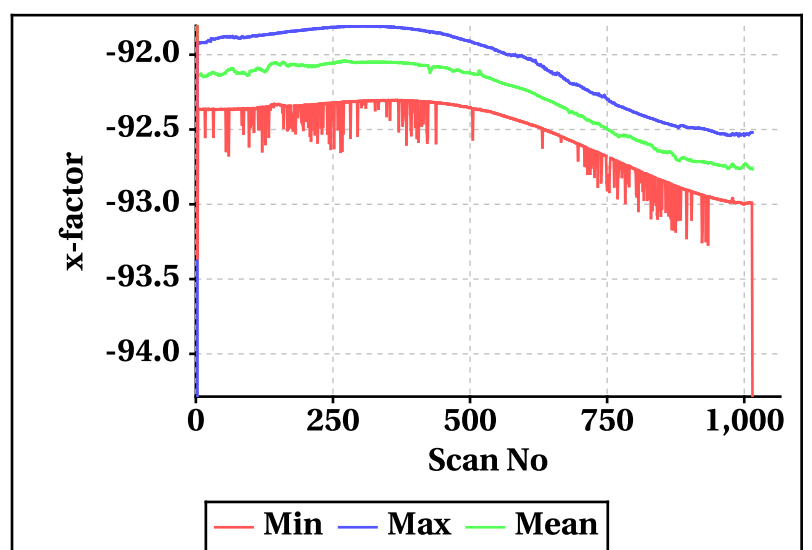
**Outer Beam(VV)**



**Inner Beam (HH)**



**Outer Beam(VV)**

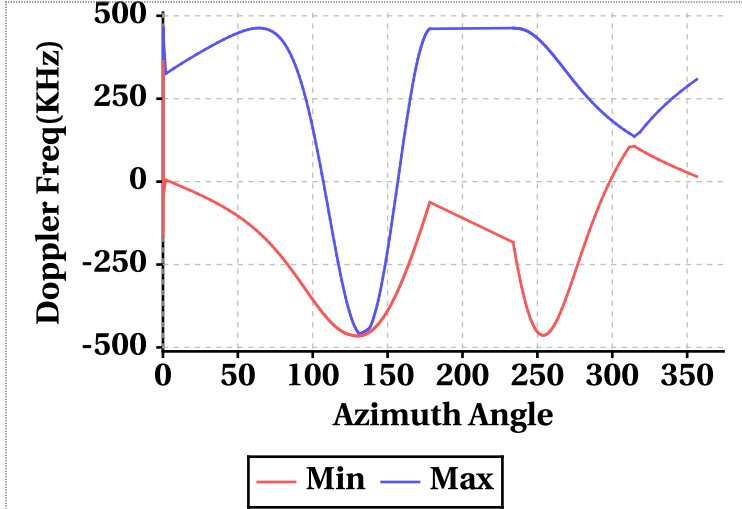


# Doppler Frequency Variation

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

	Inner Beam (HH)	Outer Beam (VV)
<b>Min</b>	-465.50	-521.26
<b>Max</b>	463.08	519.00

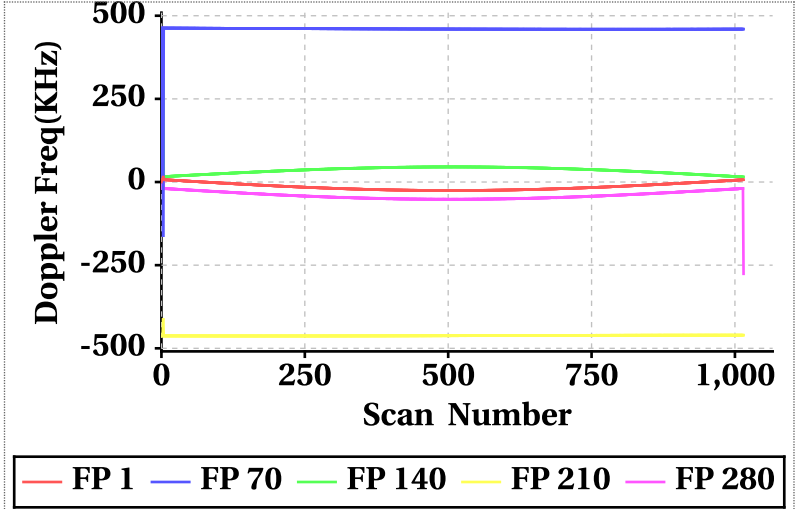
**Footprint wise Doppler frequency variation Inner Beam (HH)**



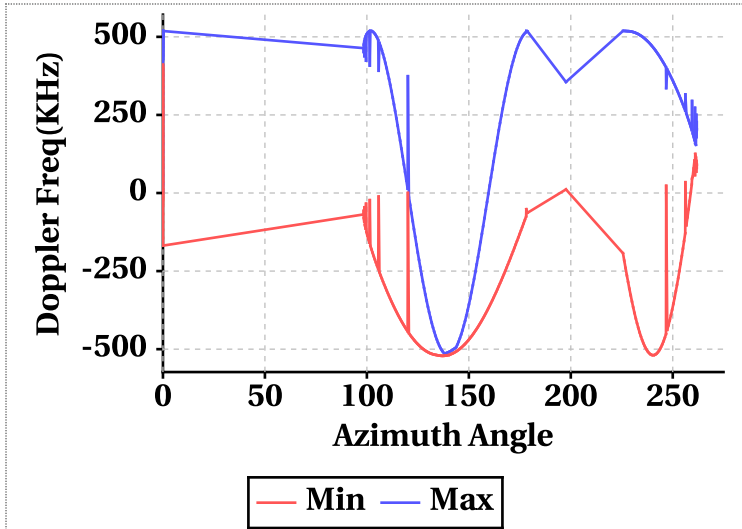
**Doppler Frequency(KHz) variation**

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	-25.48	14.50	-13.55	-276.00	3.36	-20.82
Doppler_70	-161.26	462.96	459.34	-276.00	518.72	514.44
Doppler_140	15.38	308.42	34.82	11.52	355.36	33.48
Doppler_210	-462.92	-413.44	-461.83	-519.02	-469.10	-517.80
Doppler_280	-276.00	462.56	-39.73	-313.68	518.84	-38.40

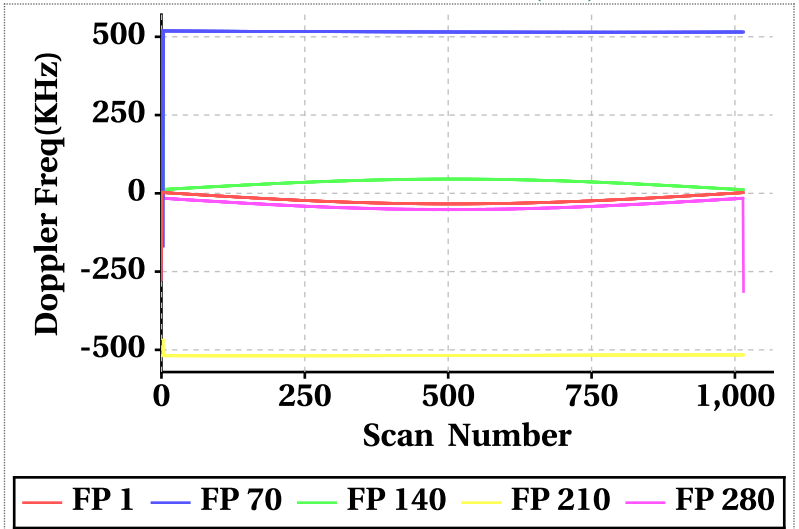
**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)**



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

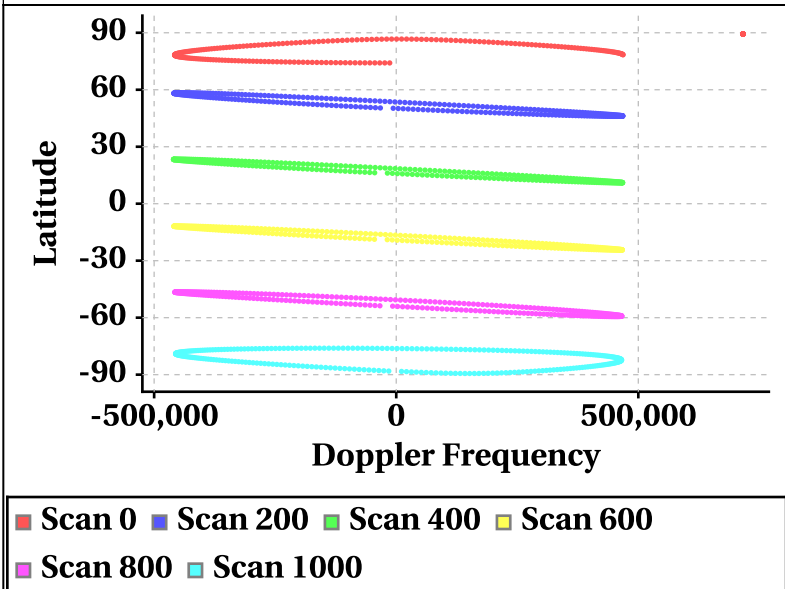


**Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)**

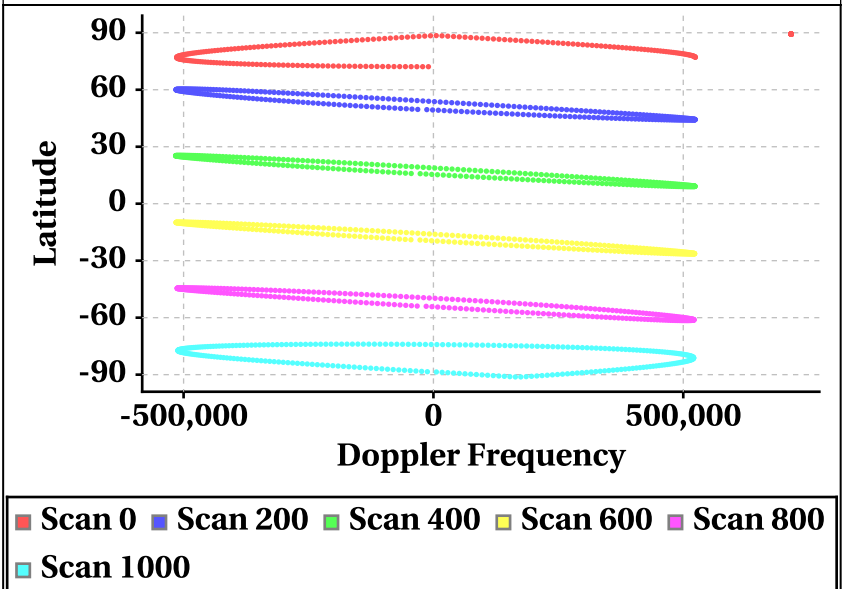


# Latitude Vs Doppler Frequency

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



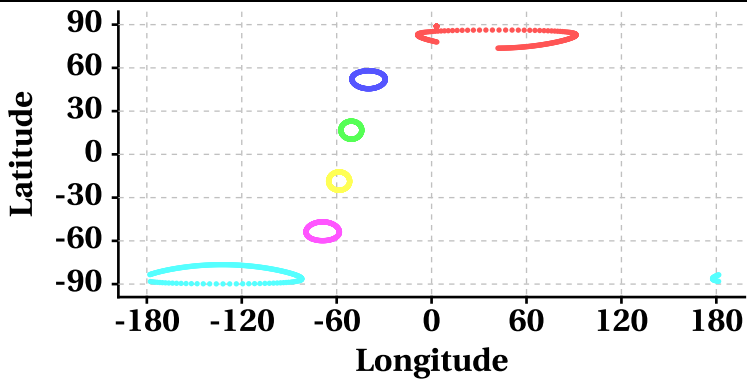
**Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]**



# Parameter as a function of Latitude

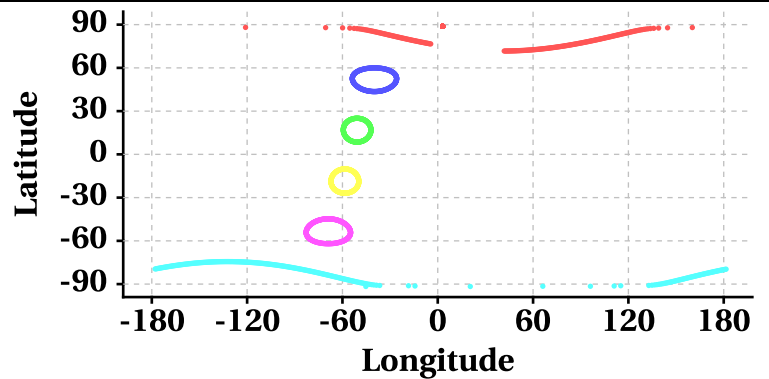
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

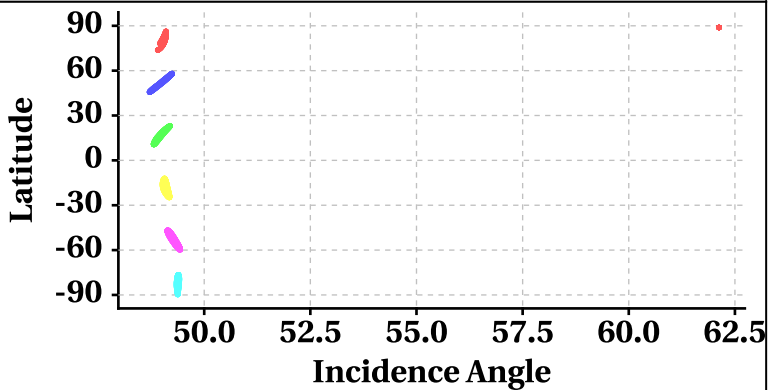
Scan Trace [Outer Beam (VV)]



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

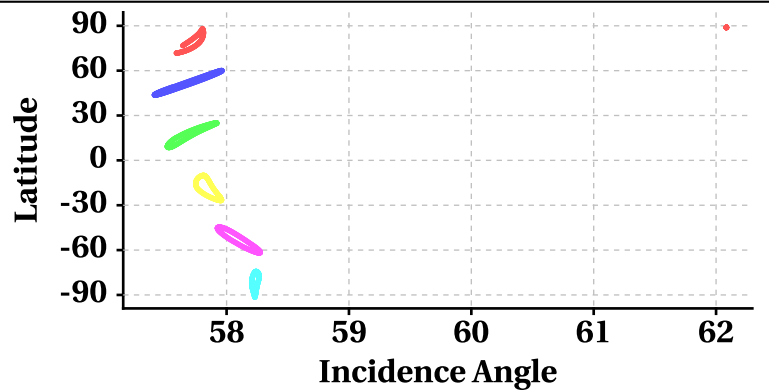
## Latitude Vs Incidence Angle

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



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

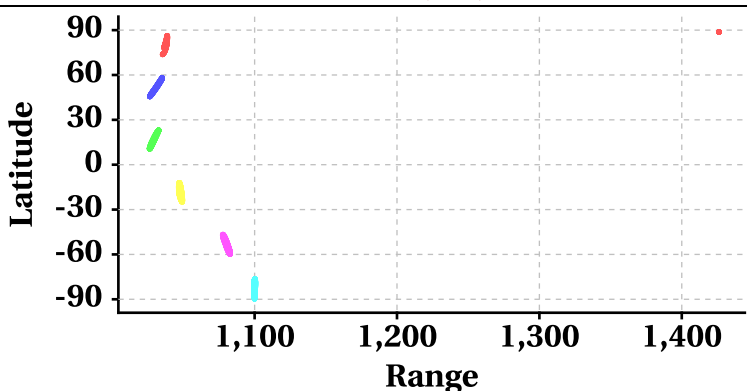
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

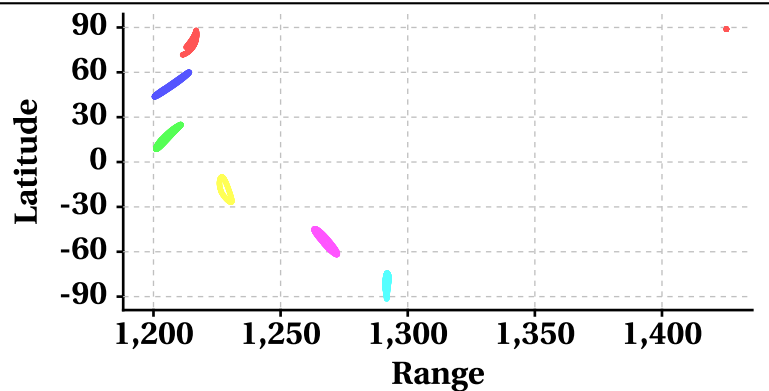
## Latitude Vs Range

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

