

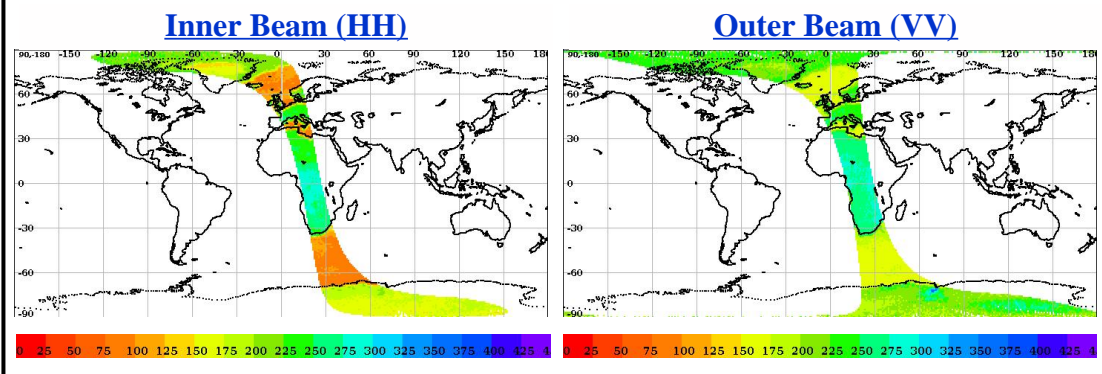
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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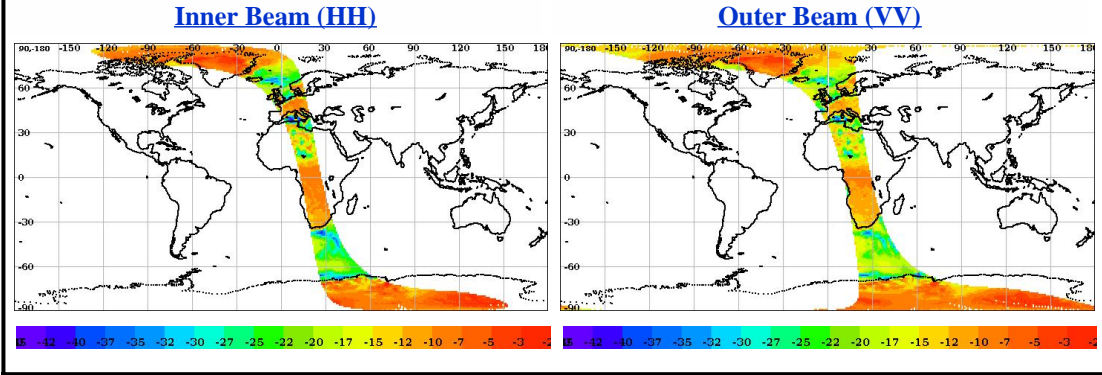
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Satellite Id	ScatSat-1	Start Orbit	2126	Total Scans	1006
Sensor Name	Scatterometer	End Orbit	2127	No of Inner FootPrints	281
Processor Version	1.1.1	Rev. Number	02126_02127	No Of Outer FootPrints	282
Half Orbit Direction	SN	Data Production Date	20-02-2017	No. Of Inner Slices	9
Equator Crossing Date	19-02-2017	Equator Crossing Time	19:45:25.000	No Of Outer Slices	15

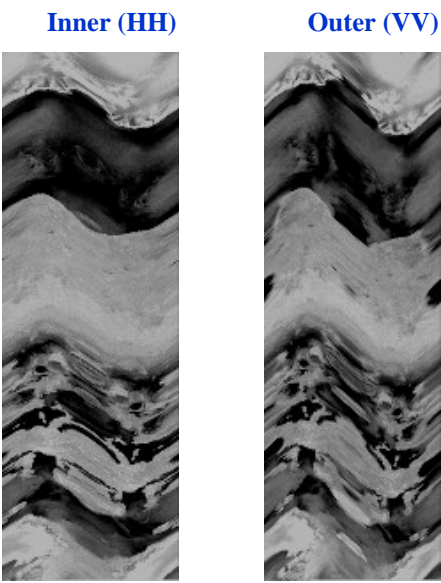
## Brightness Temperature(k) Footprint trace



## Sigma0(dB) Footprint trace



## Image Snapshot for Inner & Outer Beam

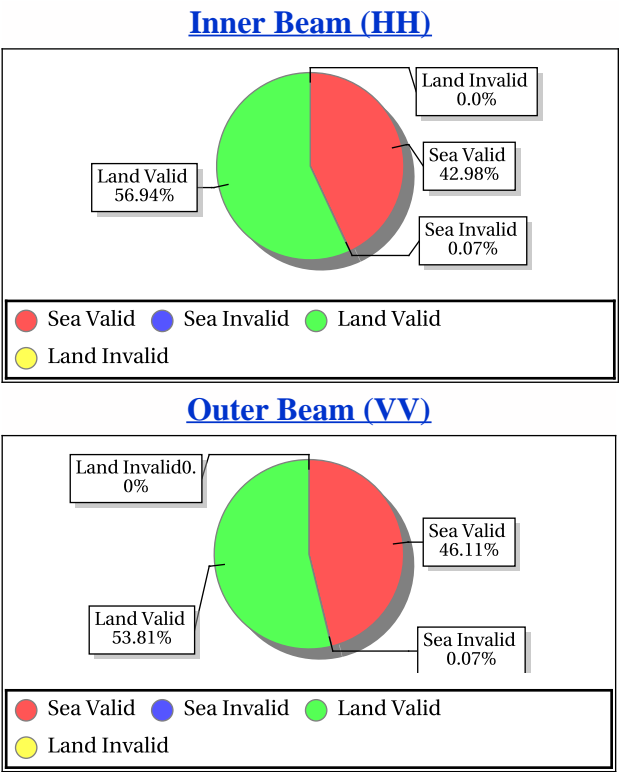


## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.07	0.07
Data Not Available From Payload (%)	100.0	100.0
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	0.01
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 (%)	100.0	100.0

\*DP Format Document

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



## 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	-5.39	-4.25	-4.75	0.45	152.75	178.95	161.58	10.22
GreenLand_2	77.50	-41.50	Inner	DSC	Fore	-5.41	-4.03	-4.63	0.50	161.75	174.60	168.59	4.71
GreenLand_1	74.69	-42.50	Inner	DSC	Aft	-10.37	-7.40	-8.51	0.72	133.36	194.00	168.52	17.47
GreenLand_1	74.69	-42.50	Inner	DSC	Fore	-8.91	-6.98	-8.10	0.55	144.92	183.82	164.95	12.10
Sahara	19.10	14.30	Inner	DSC	Aft	-30.94	-19.24	-26.17	3.06	212.28	279.67	239.23	14.52
Sahara	19.10	14.30	Inner	DSC	Fore	-27.77	-19.46	-24.32	1.95	212.05	279.86	242.85	17.52
ANT_1	-75.00	121.00	Outer	DSC	Aft	-9.87	-7.79	-8.50	0.57	181.78	234.16	206.82	15.88
GreenLand_2	77.50	-41.50	Outer	DSC	Fore	-5.01	-3.90	-4.37	0.42	194.14	244.64	223.09	18.73
GreenLand_3	71.55	-42.45	Outer	DSC	Aft	-12.23	-10.20	-10.98	0.42	199.15	274.50	228.39	19.15
GreenLand_3	71.55	-42.45	Outer	DSC	Fore	-11.69	-10.07	-10.95	0.44	201.67	245.16	223.87	12.14
GreenLand_1	74.69	-42.50	Outer	DSC	Aft	-9.67	-7.66	-8.58	0.70	195.22	241.10	219.91	15.14
GreenLand_1	74.69	-42.50	Outer	DSC	Fore	-9.77	-7.19	-7.80	0.74	185.47	243.35	219.64	14.18
Sahara	19.10	14.30	Outer	DSC	Aft	-33.95	-20.65	-27.02	3.78	241.28	326.18	277.17	20.81
Sahara	19.10	14.30	Outer	DSC	Fore	-30.83	-19.77	-25.48	2.99	242.17	302.57	274.16	13.36



## 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	207.03	0.22	1.341	0.10	209.90	0.20	1.003	0.10	2.31	0.11	0.004	0.10	0.53	0.11	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	0.02	0.01	0.000	0.01	0.02	0.01	0.000	0.01	0.02	0.01	0.000	0.01	0.02	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>	-33.89	26.70	6.08	0.295	-33.95	27.58	7.54	1.153	-14.22	28.92	18.07	10.852	-7.25	29.15	18.23	11.192

	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	207.19	0.23	1.736	0.08	206.82	0.18	1.305	0.08	126.43	0.09	0.039	0.08	20.54	0.09	0.030
<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>	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000
<b>SNR</b>	-34.91	20.18	4.12	0.000	-34.90	21.35	4.82	0.000	-32.77	22.94	12.40	0.030	-24.76	23.62	12.29	0.245

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

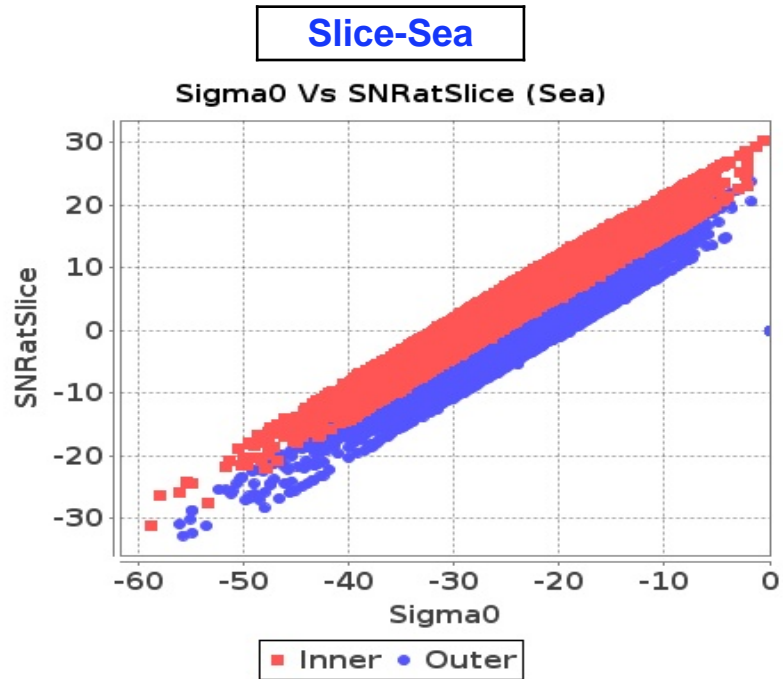
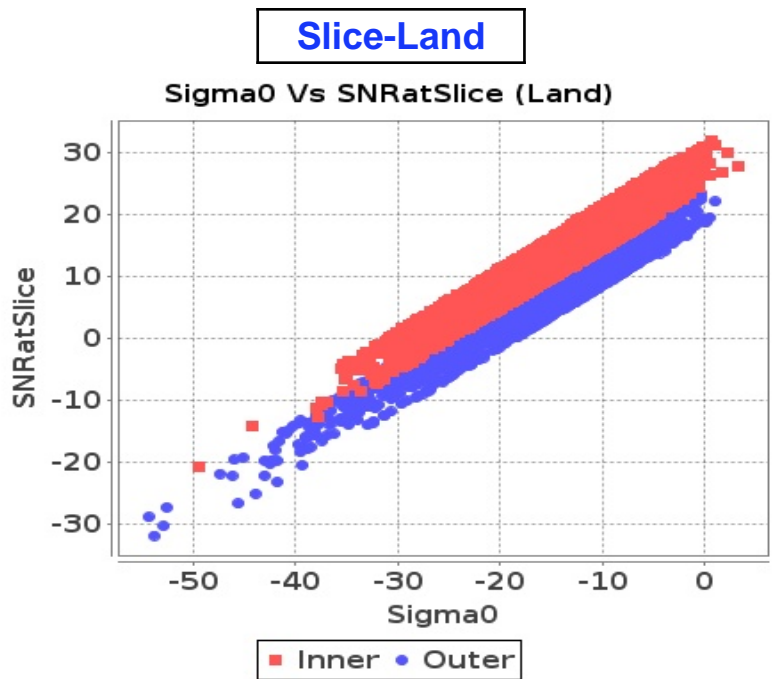
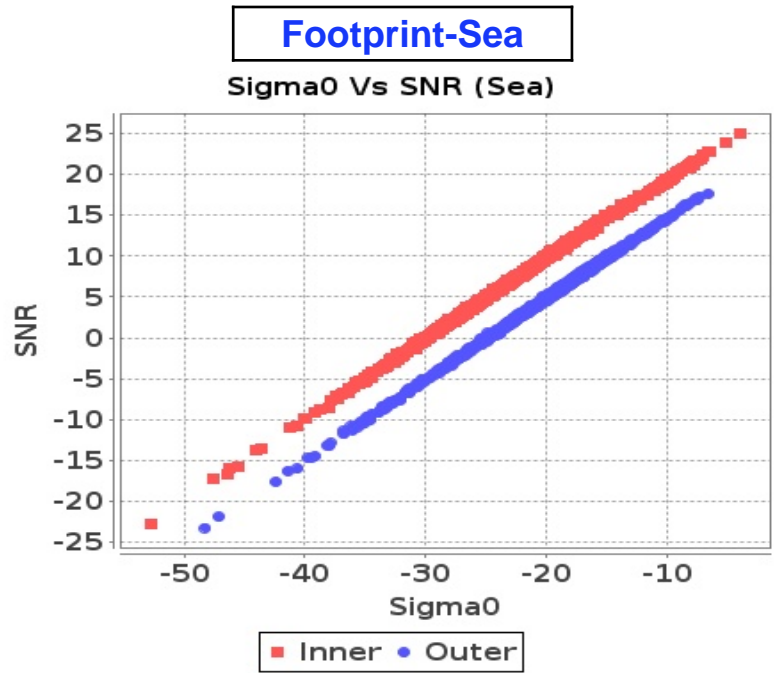
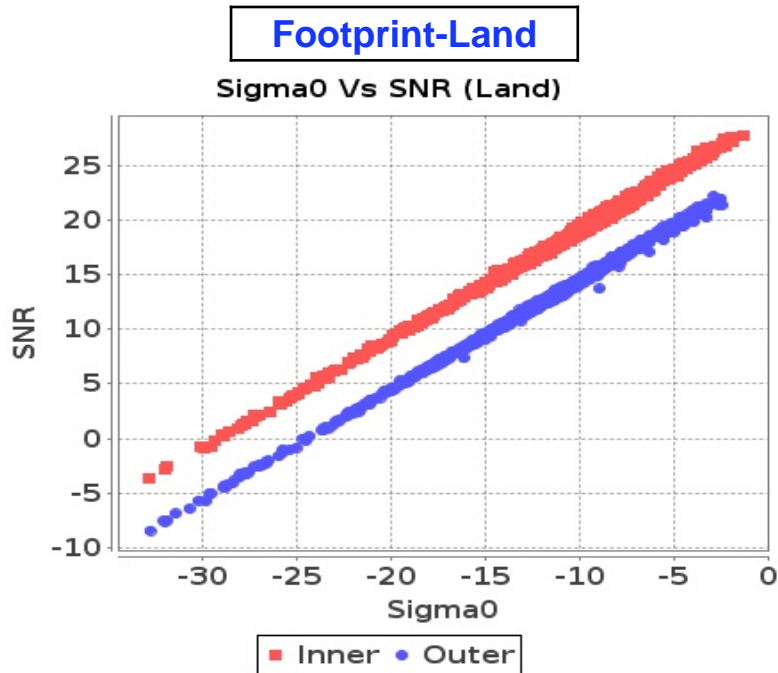
- Normal
- Deviations
- Alarming
- High Errors

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

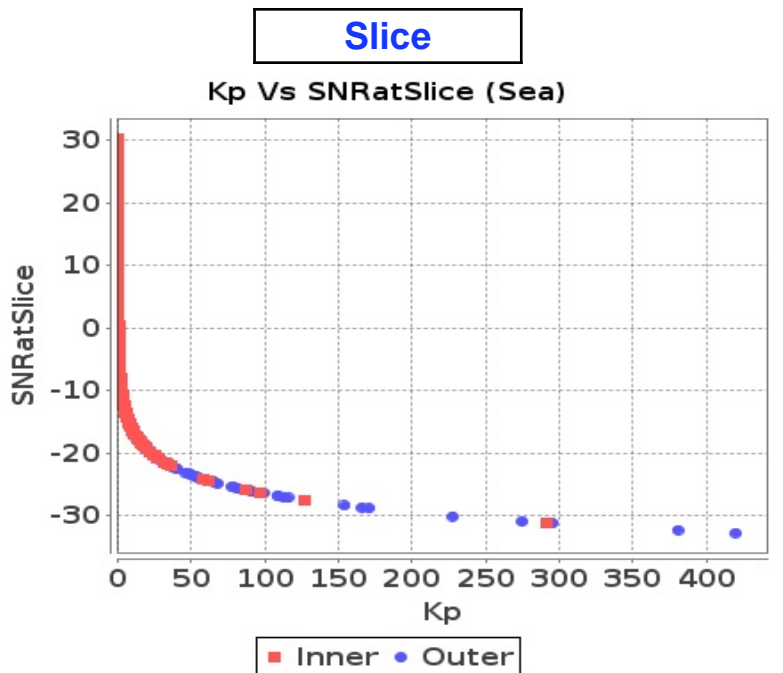
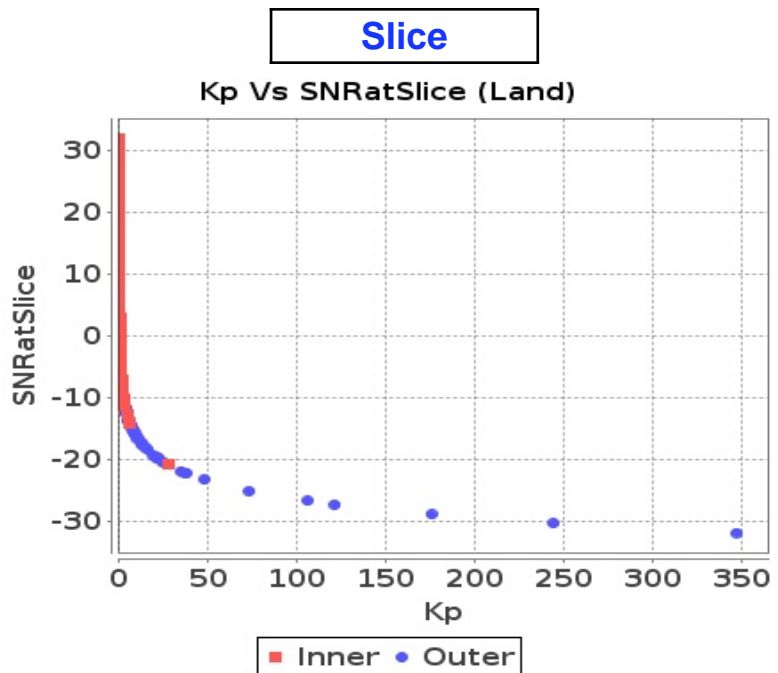
	Inner Beam (VV)				Outer Beam (VV)				Parameter Specifications		
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Parameter	Min	Max
<b>Incidence Angle (deg)</b>	48.78	49.42	49.08	0.000	57.67	58.40	58.06	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	1.81	1.10	0.142	0.0027	325.74	1.09	0.204	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1046.34	1091.64	1064.90	0.000	1227.71	1285.78	1252.00	12.208	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.30	-90.16	-90.33	0.000	-93.20	-92.18	-92.32	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.54	16.01	15.53	0.000	20.56	20.91	20.47	0.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.90	20.41	19.70	0.000	18.70	20.40	19.60	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
									<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: green; border: 1px solid black;"></span> Normal</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; border: 1px solid black;"></span> Deviations</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: orange; border: 1px solid black;"></span> Alarming</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: red; border: 1px solid black;"></span> High Errors</li> </ul>		



# Sigma0 Behaviour (Sigma0 Vs SNR)

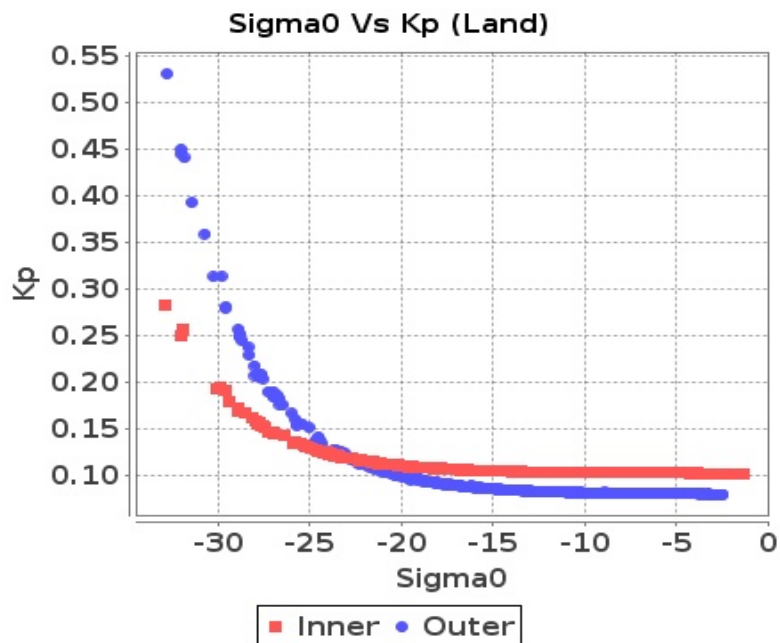


# Sigma0 Behaviour (Kp Vs SNR)

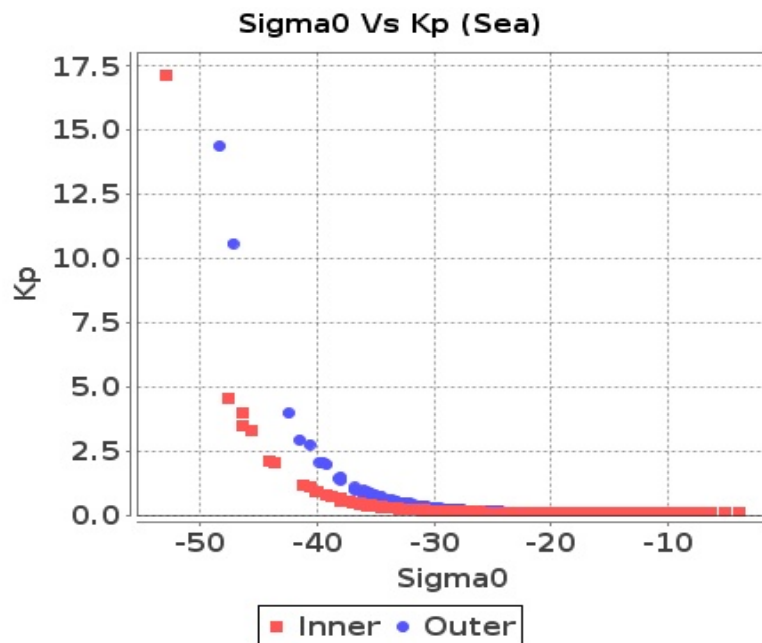


## Sigma0 Behaviour(Sigma0 Vs Kp)

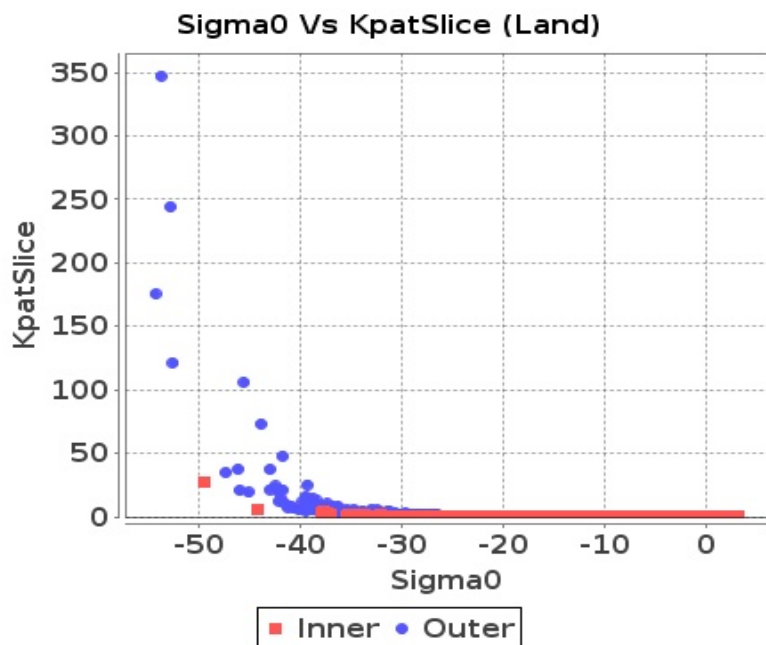
Footprint-Land



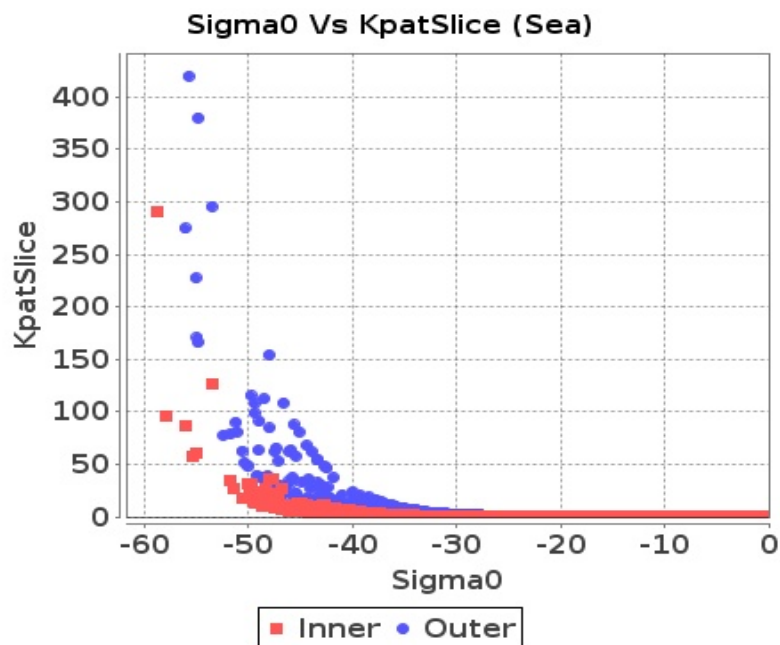
Footprint-Sea



Slice-Land



Slice-Sea



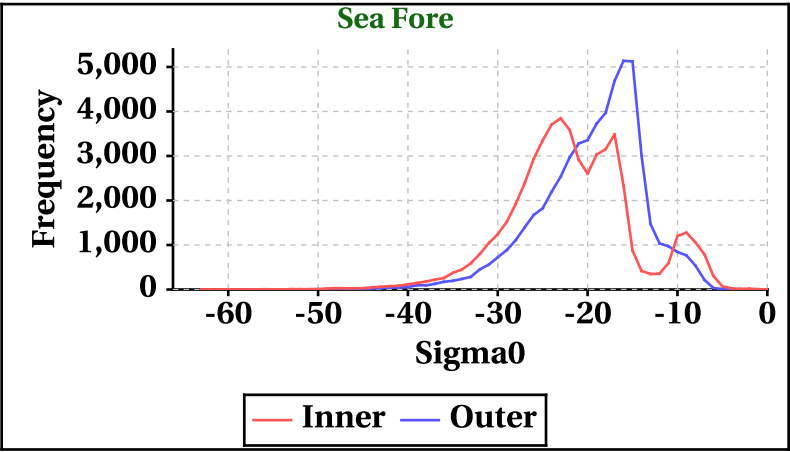
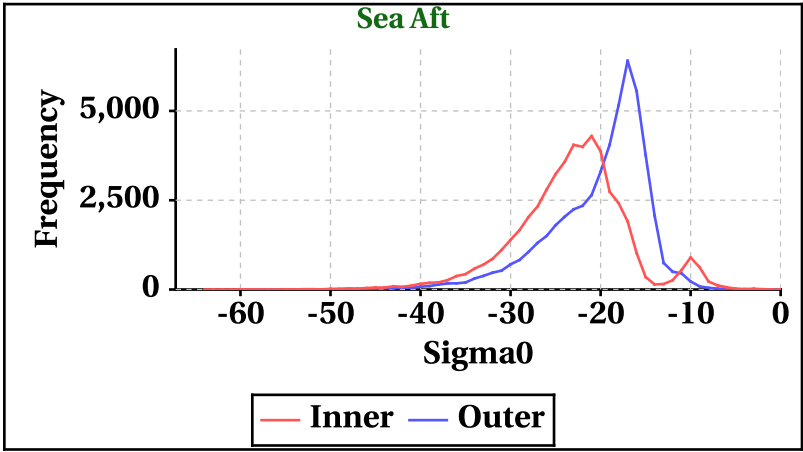
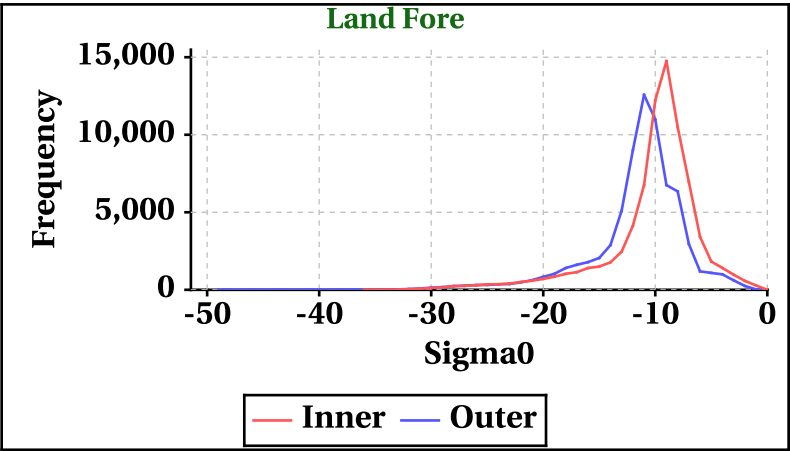
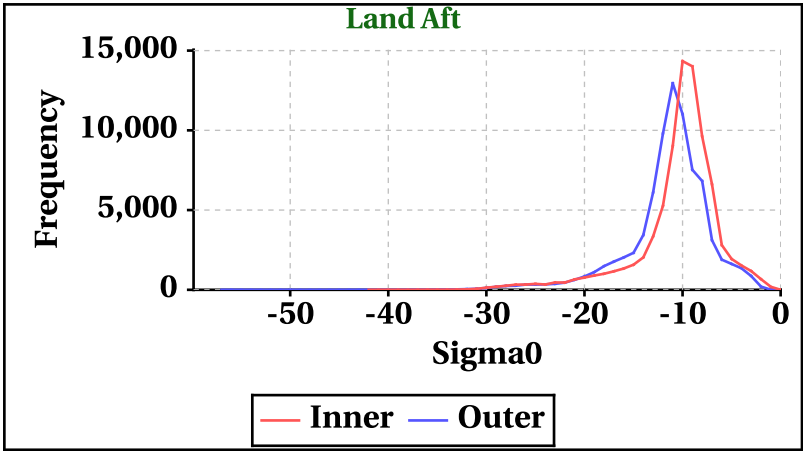


Dynamic Range (Data Histograms)

Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-42	-36	-64	-63
Max	0	0	0	0

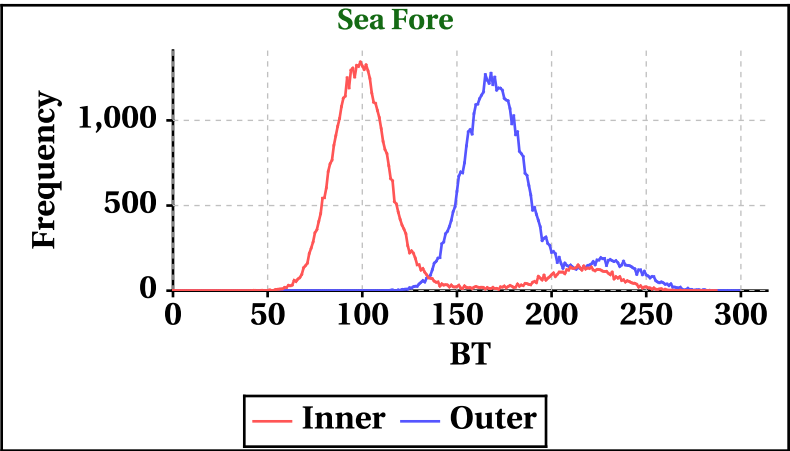
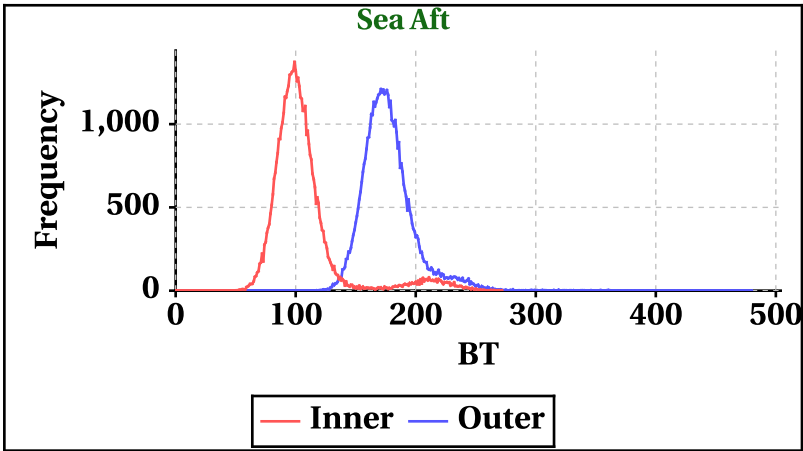
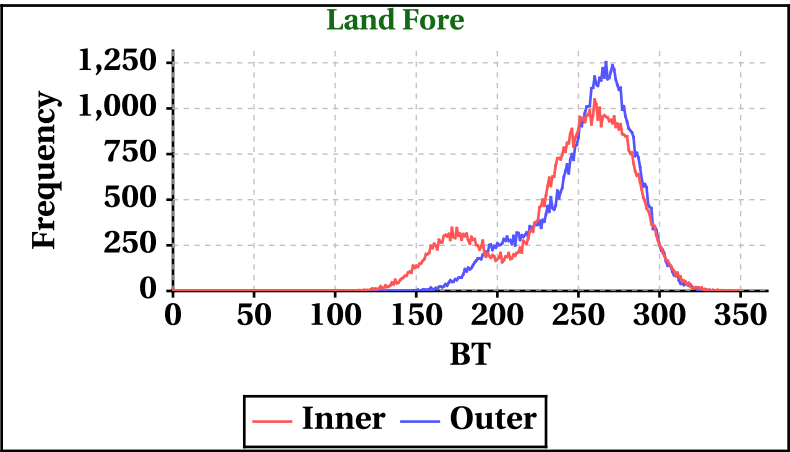
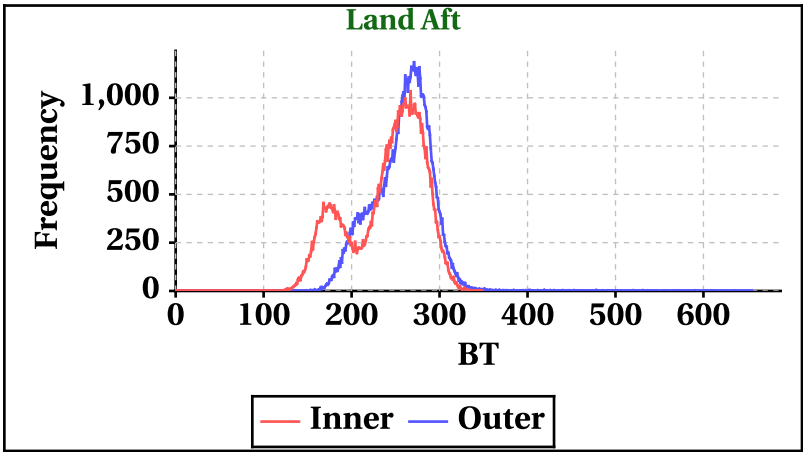
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-57	-49	-60	-59
Max	0	0	0	0



Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	349	349	272	287

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	655	344	480	299

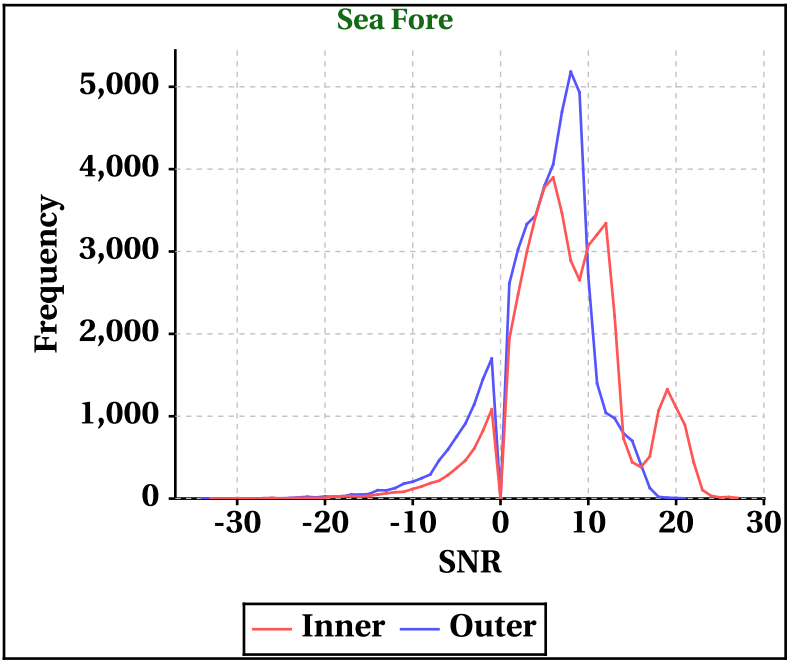
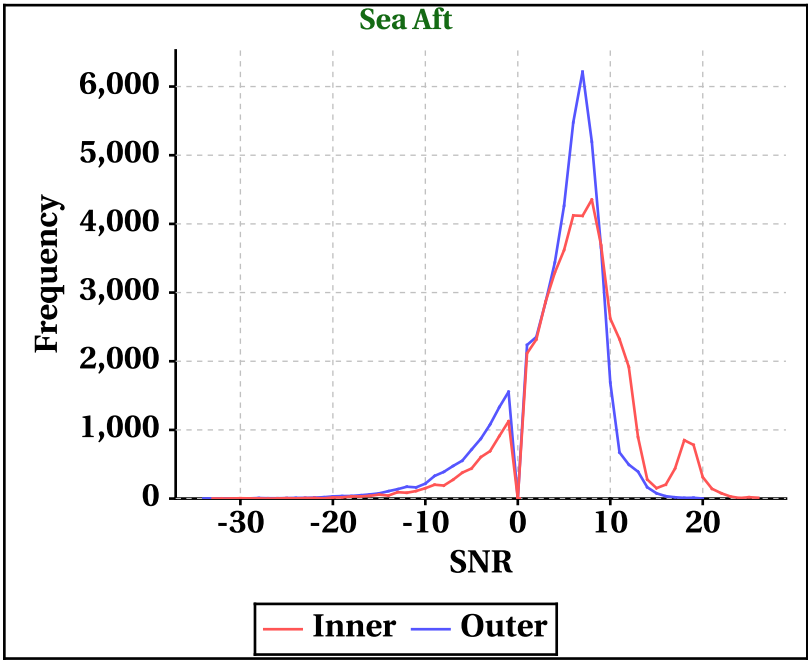
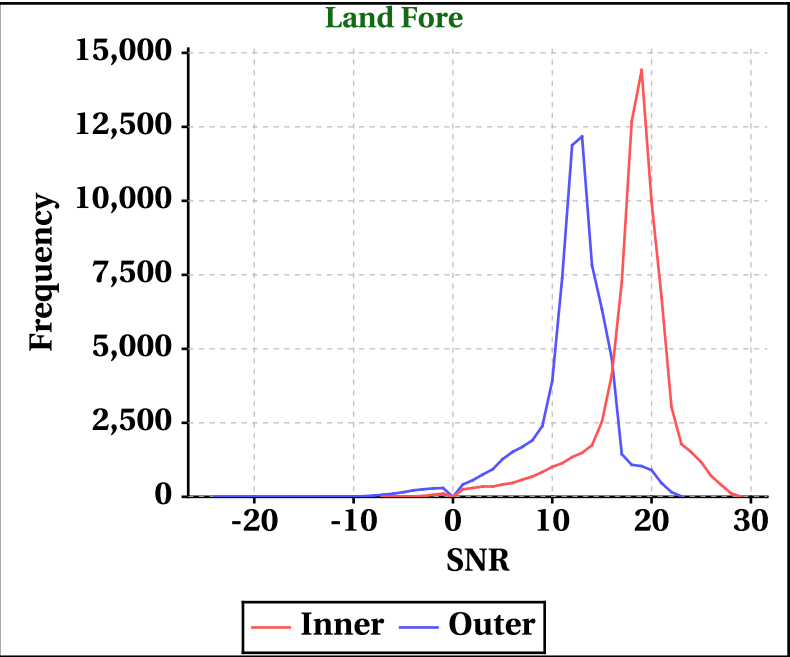
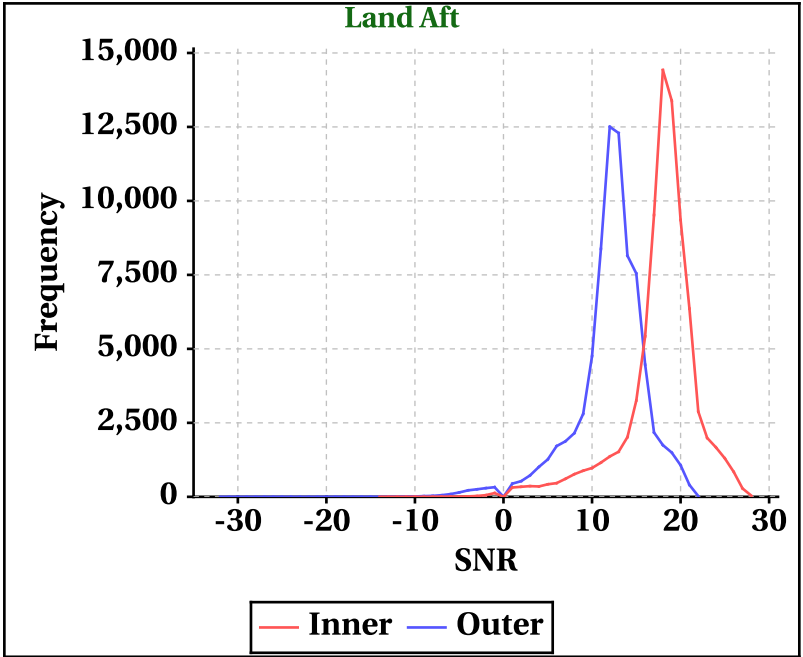


Dynamic Range (Data Histograms)

SNR(dBm)

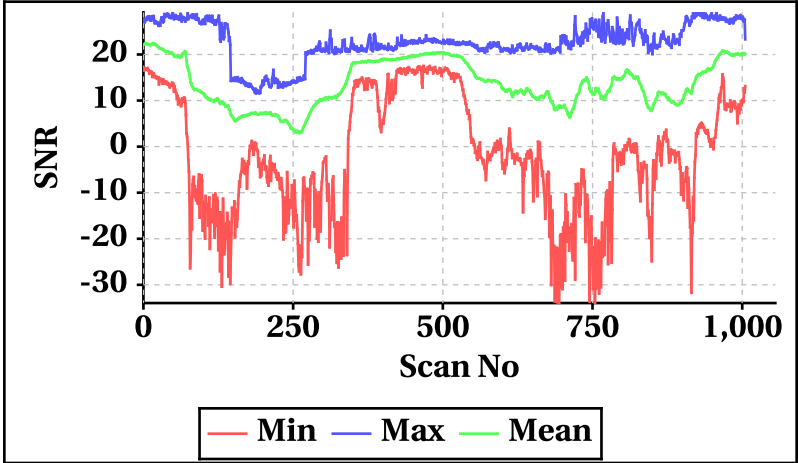
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-14	-7	-33	-33
Max	28	29	26	27

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-32	-24	-34	-34
Max	22	23	20	21

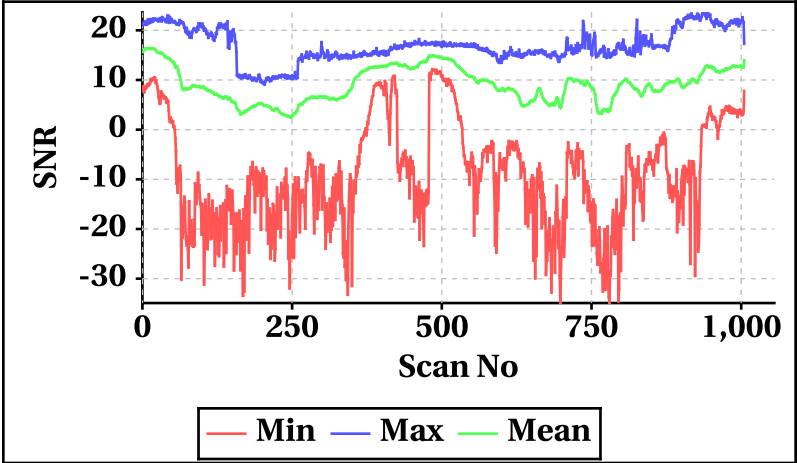


# Orbit-wise behaviour of SNR

Inner Beam (HH)

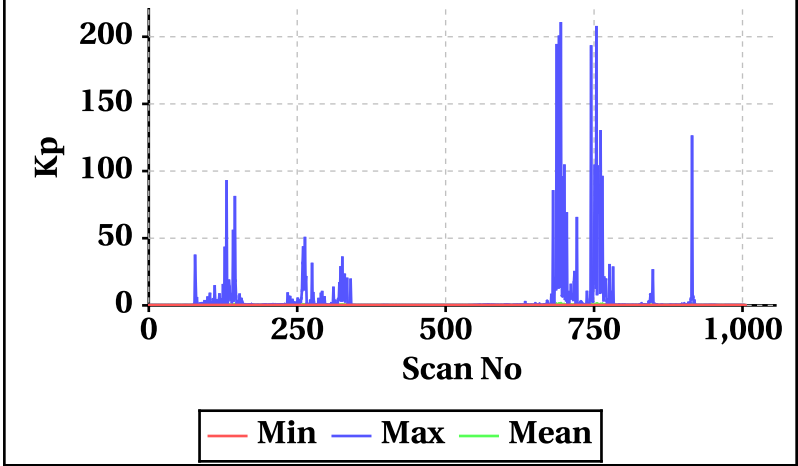


Outer Beam(VV)

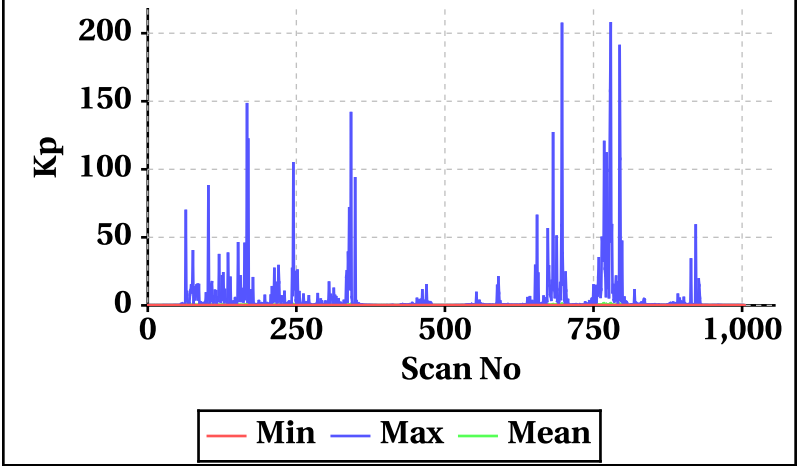


# Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

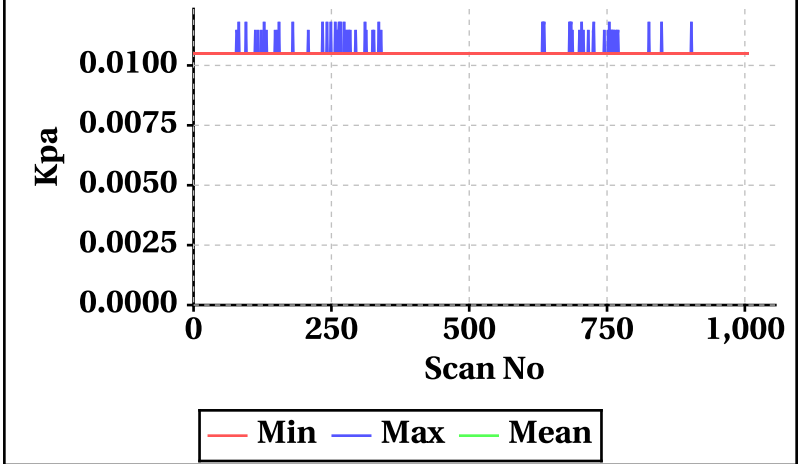
Inner Beam(HH)



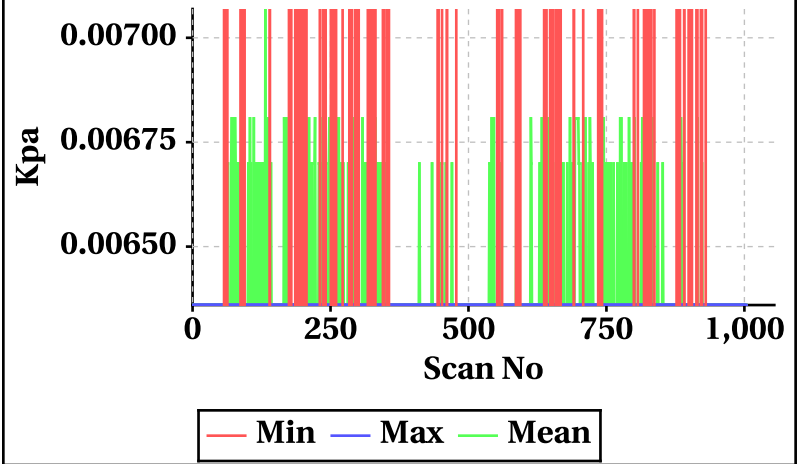
Outer Beam(VV)



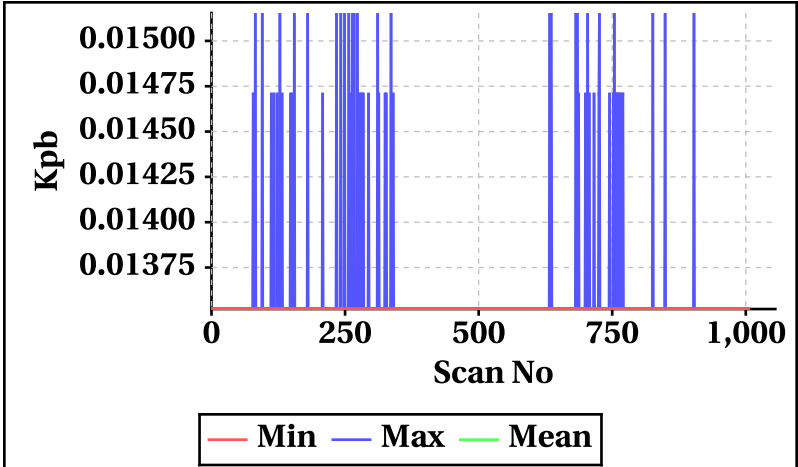
Inner Beam(HH)



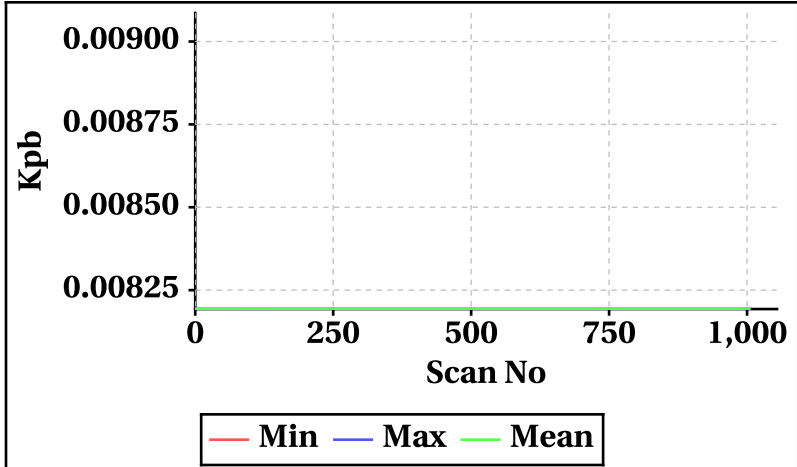
Outer Beam(VV)



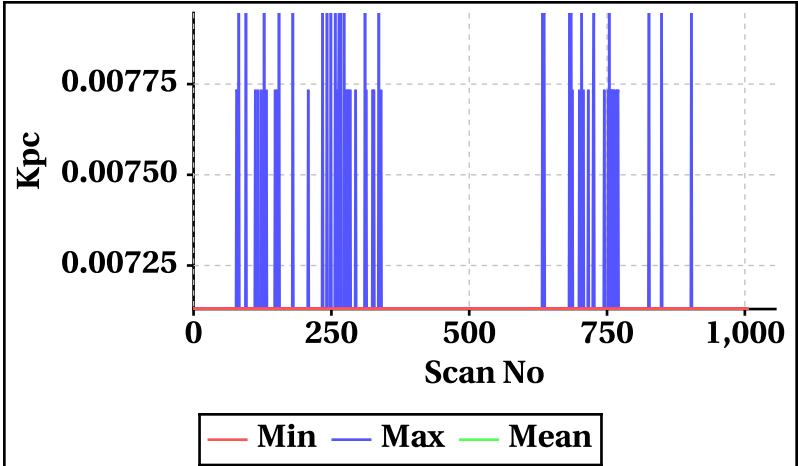
Inner Beam(HH)



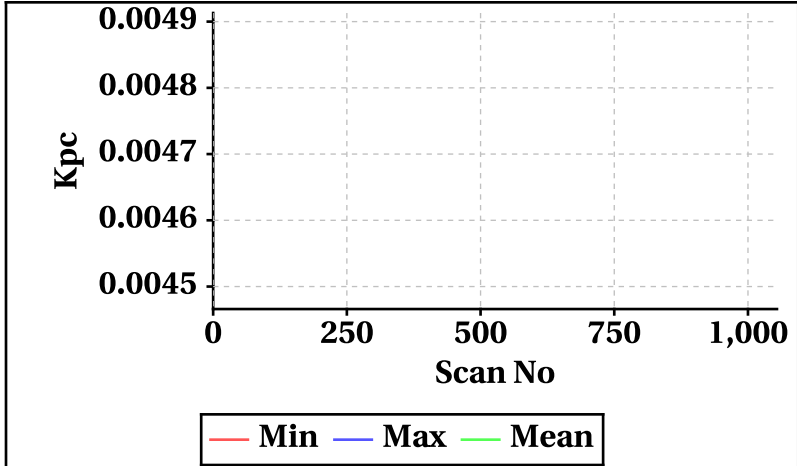
Outer Beam(VV)



Inner Beam(HH)



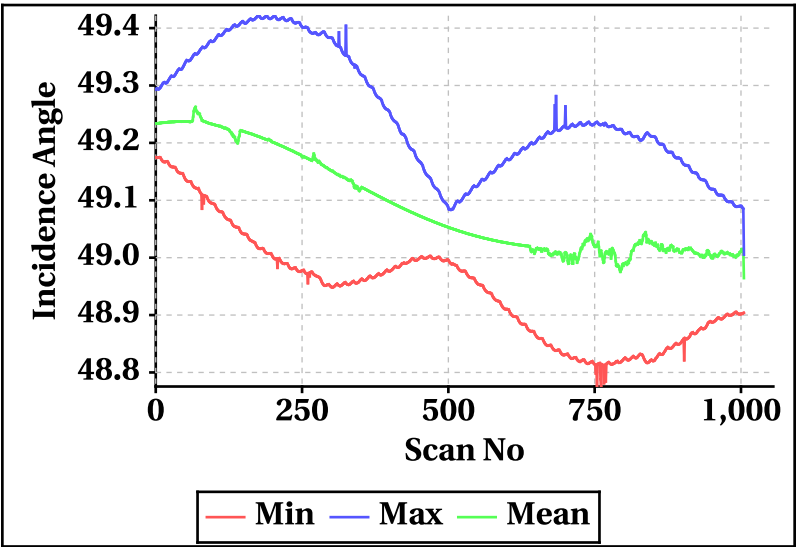
Outer Beam(VV)



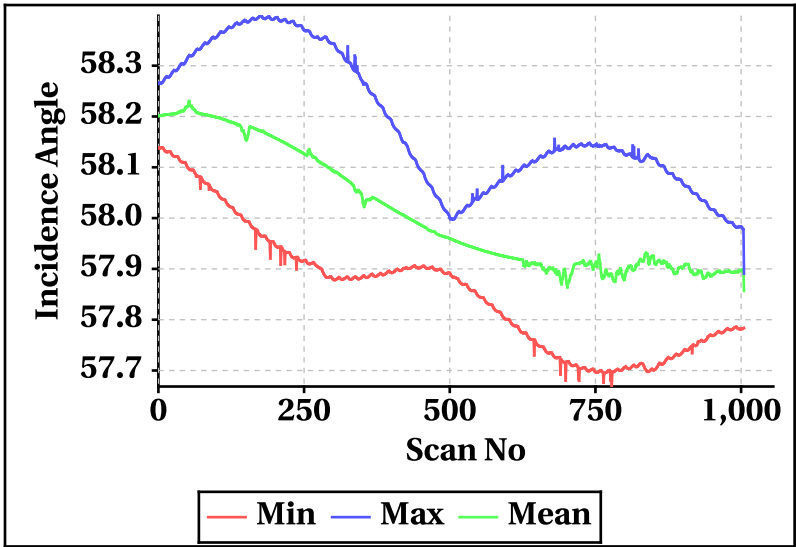


Orbt-wise behaviour of Incidence,Azimuth,Range,X-Factor

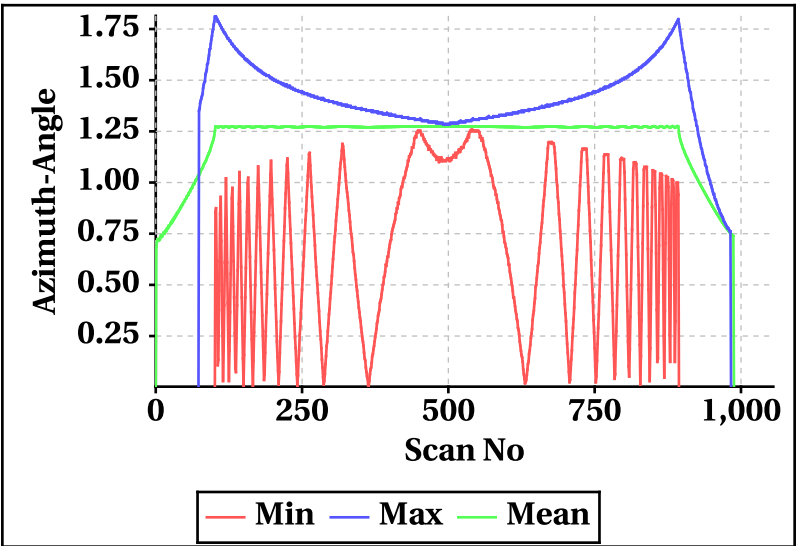
Inner Beam (HH)



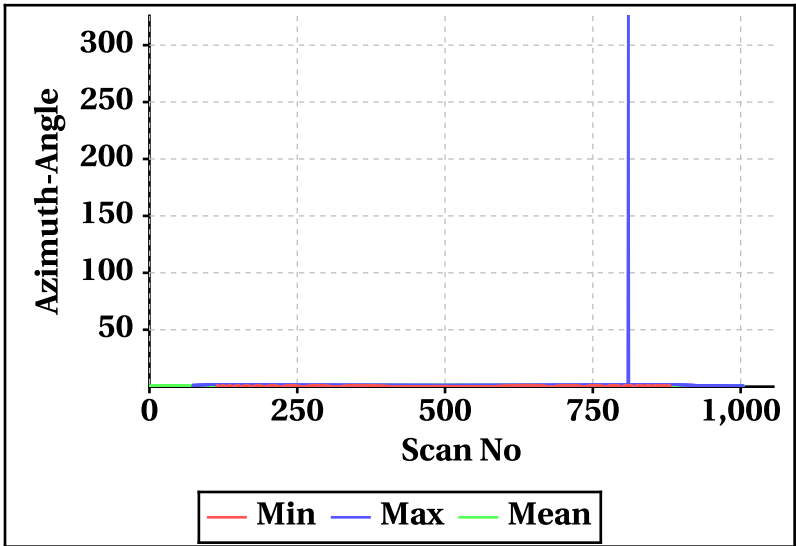
Outer Beam(VV)



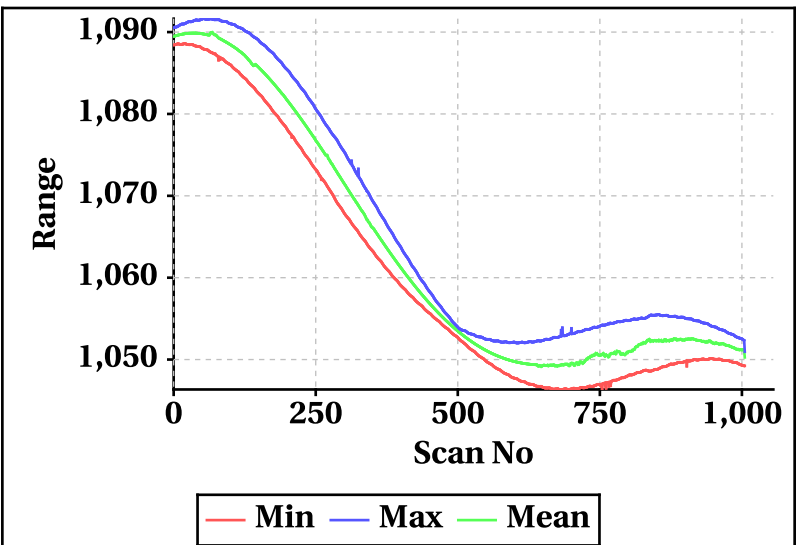
Inner Beam (HH)



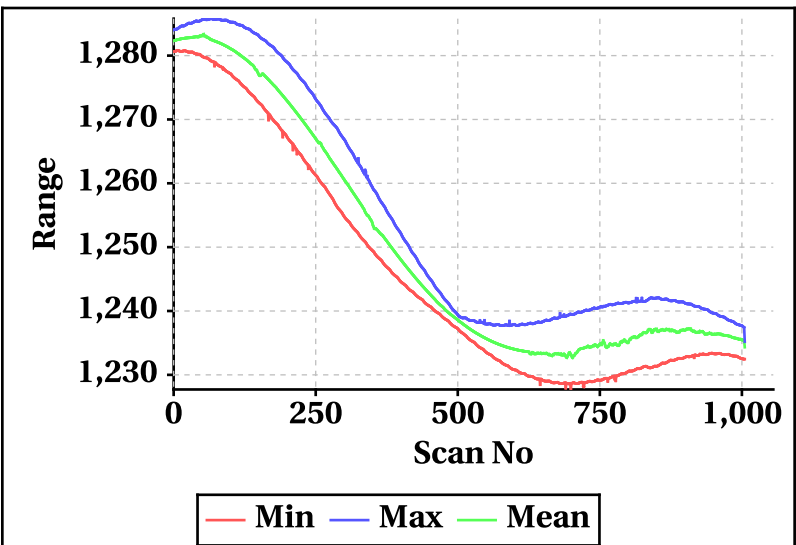
Outer Beam(VV)



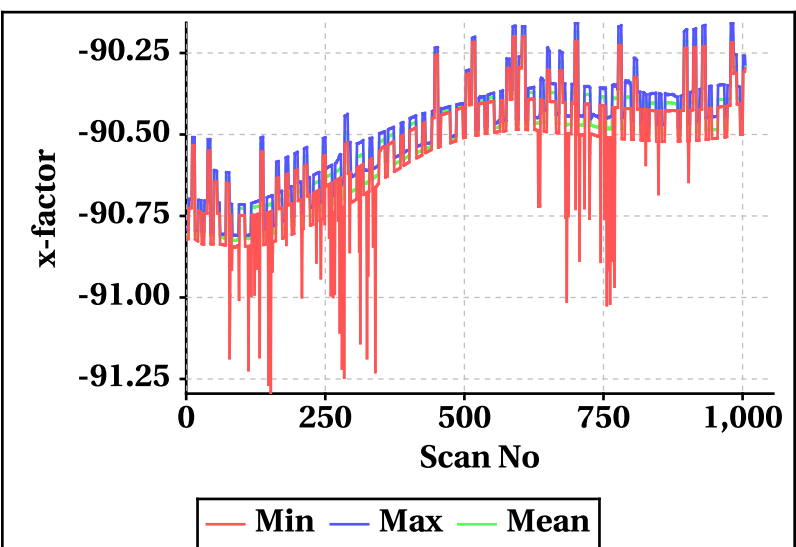
Inner Beam (HH)



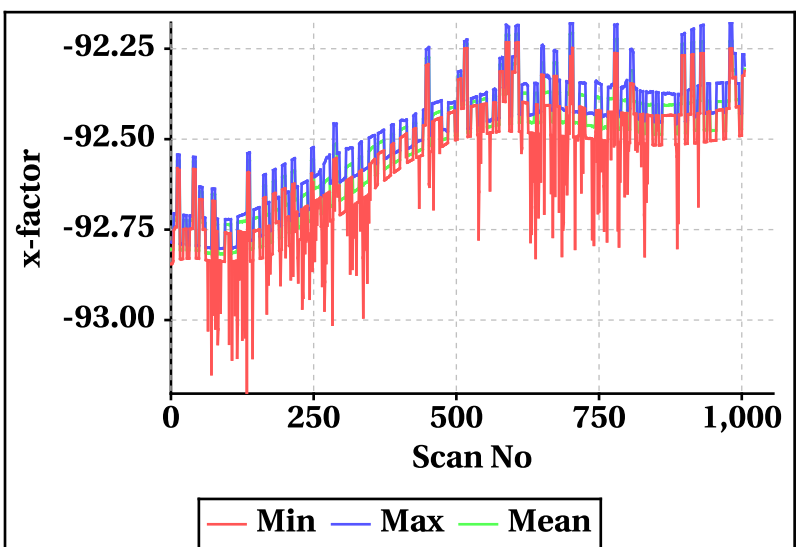
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)

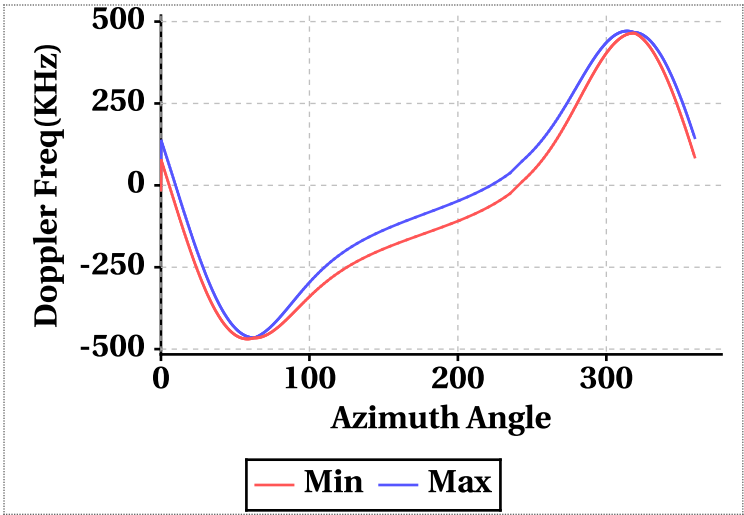


# Doppler Frequency Variation

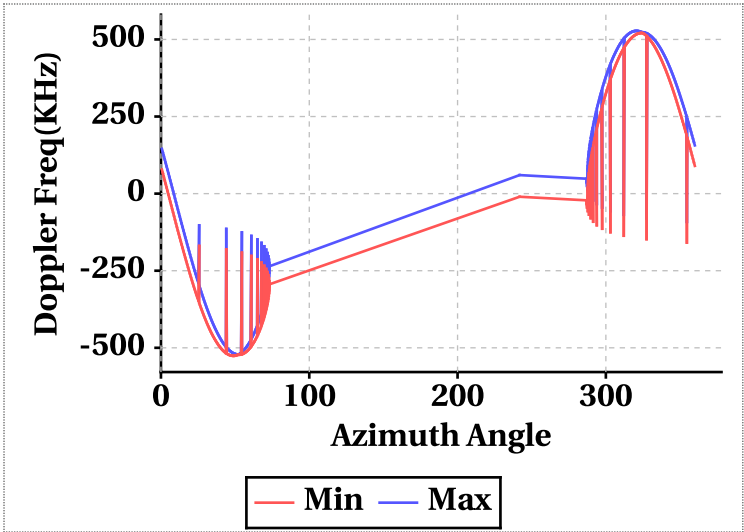
Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-469.10	-525.90
Max	471.04	527.66

Footprint wise Doopler frequency variation Inner Beam (HH)



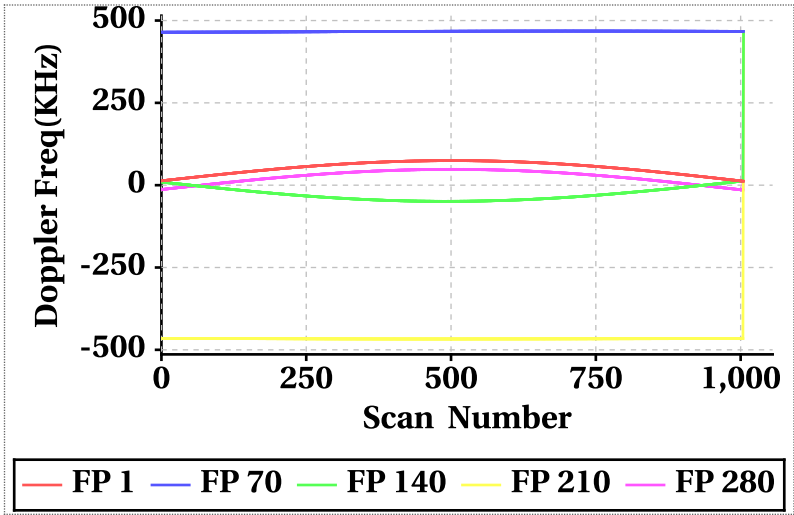
Footprint wise Doopler frequency variation Outer Beam (VV)



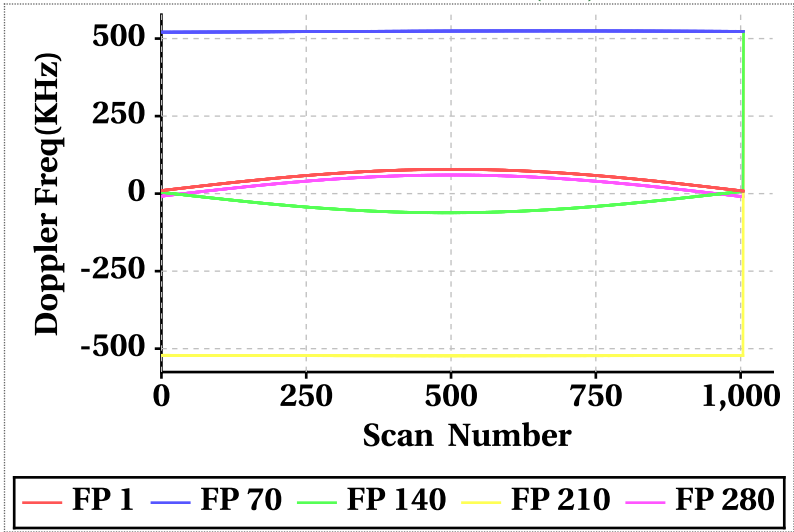
Doppler Frequency(KHz) variation

	Inner Beam (HH)			Outer Beam (VV)		
Doppler_FP	Min	Max	Mean	Min	Max	Mean
Doppler_1	11.96	74.60	52.11	8.18	78.28	53.15
Doppler_70	464.54	468.04	466.81	520.68	524.74	523.37
Doppler_140	-49.14	465.76	-26.78	-61.80	522.22	-36.63
Doppler_210	-467.12	465.76	-465.52	-523.04	522.22	-521.51
Doppler_280	-14.68	465.76	25.95	-10.08	522.22	35.43

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

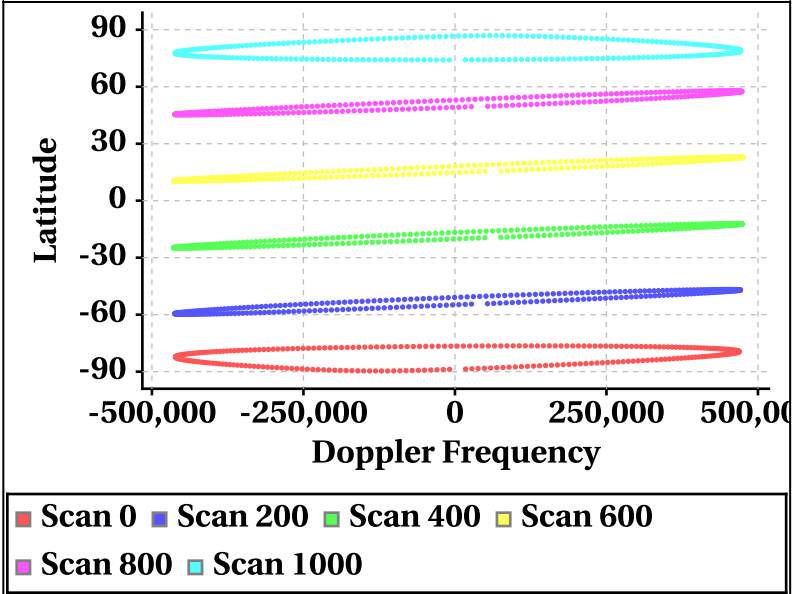


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

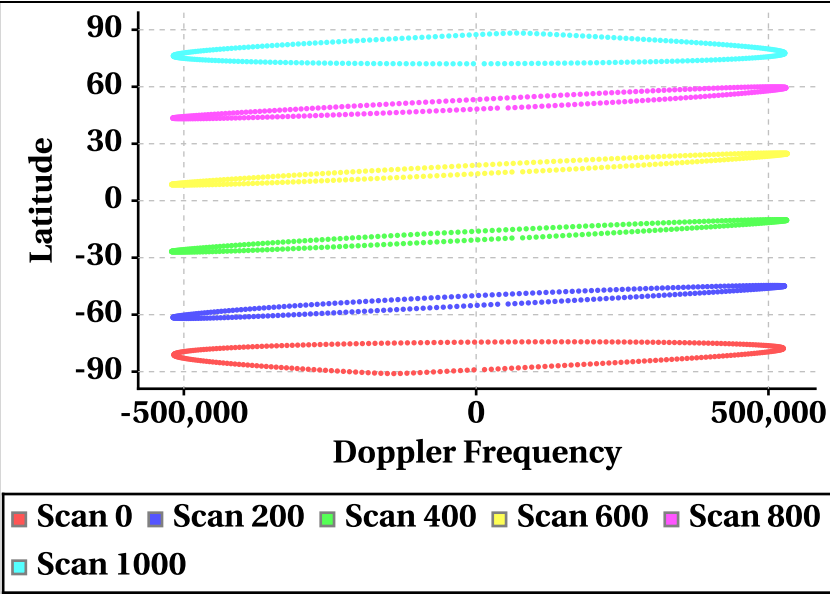


# Latitude Vs Doppler Frequency

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



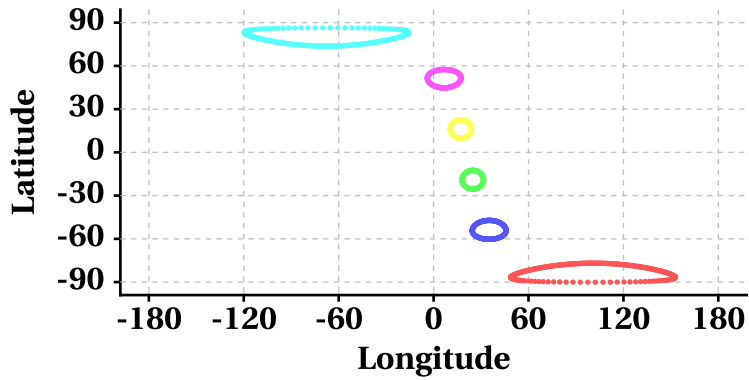
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

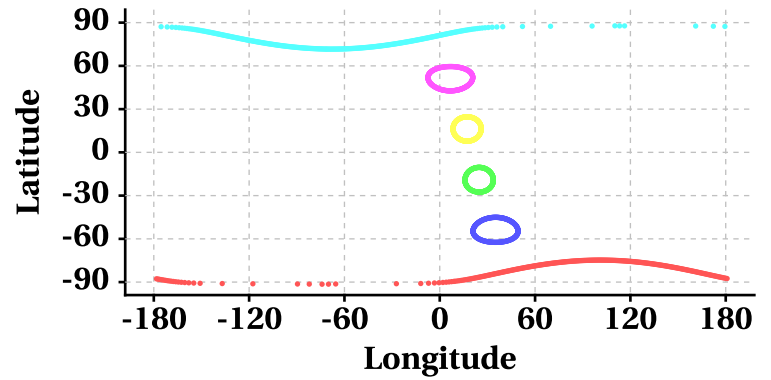
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

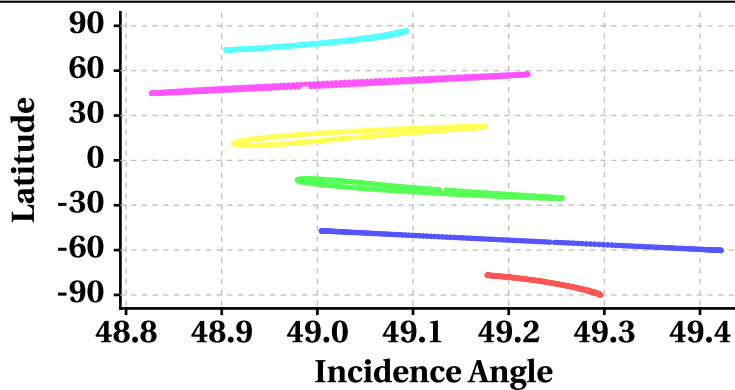
Scan Trace [Outer Beam (VV)]



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

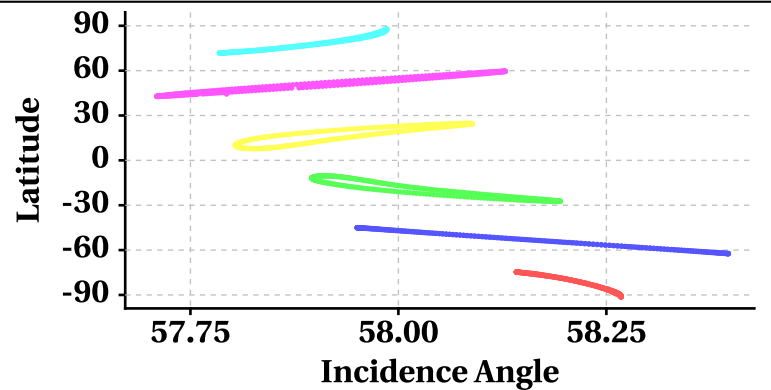
## Latitude Vs Incidence Angle

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



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

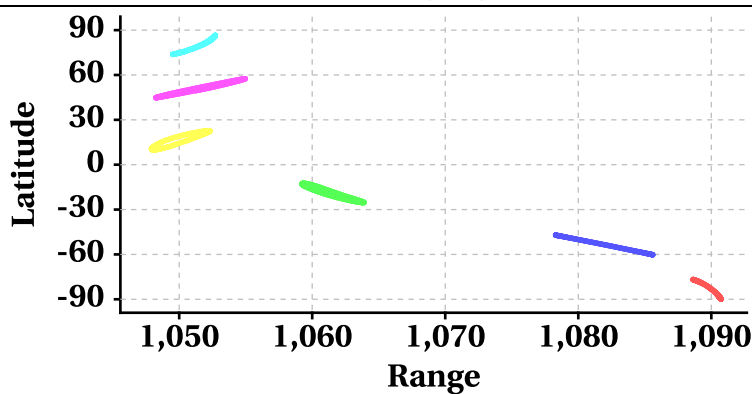
Incidence Angle at Scan Interval of 200  
[Outer Beam (VV)]



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

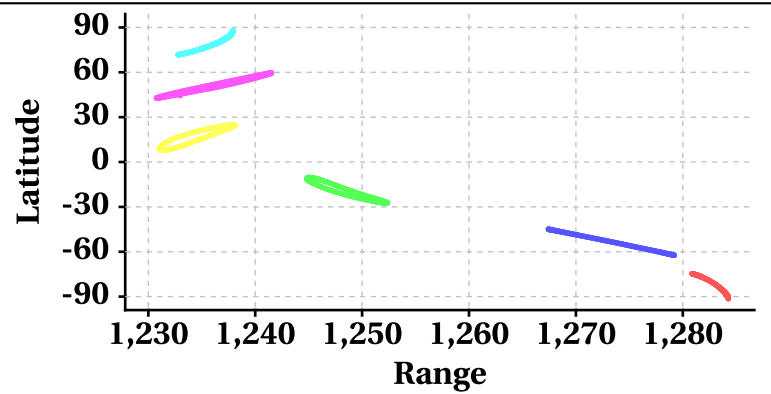
## Latitude Vs Range

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

