

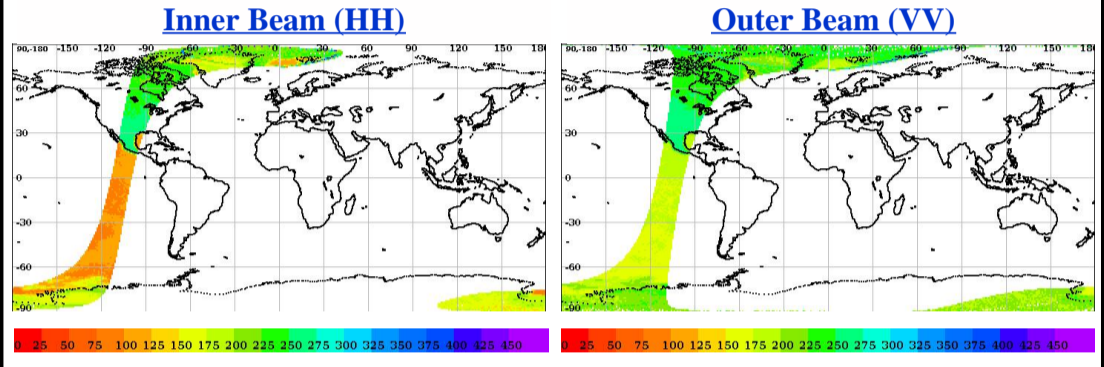
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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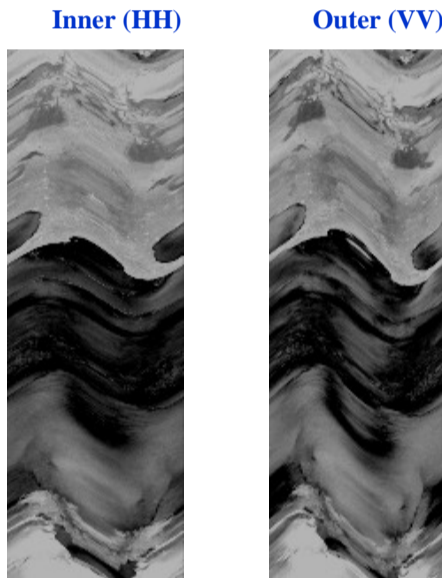
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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	6792	<b>Total Scans</b>	1016
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	6793	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.2	<b>Rev. Number</b>	06792_06793	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	NS	<b>Data Production Date</b>	07-01-2018	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	07-01-2018	<b>Equator Crossing Time</b>	15:48:50.000	<b>No Of Outer Slices</b>	14

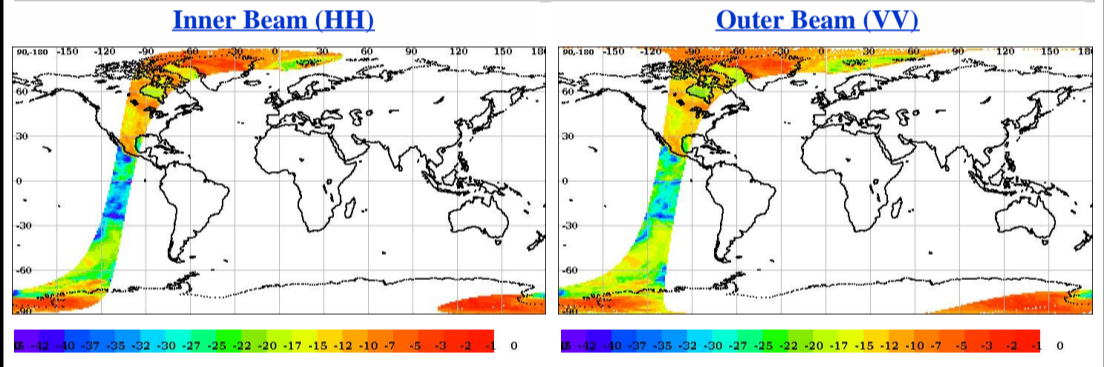
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



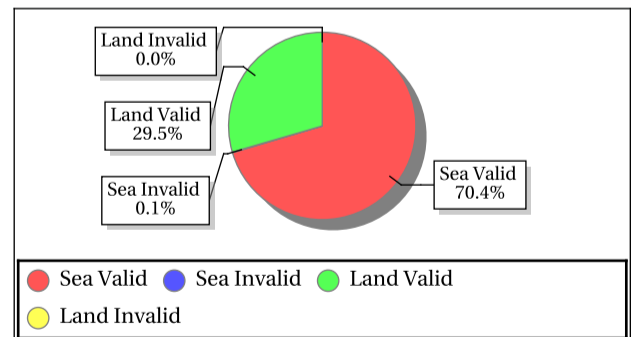
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.10	0.10
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(%)	0.01	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

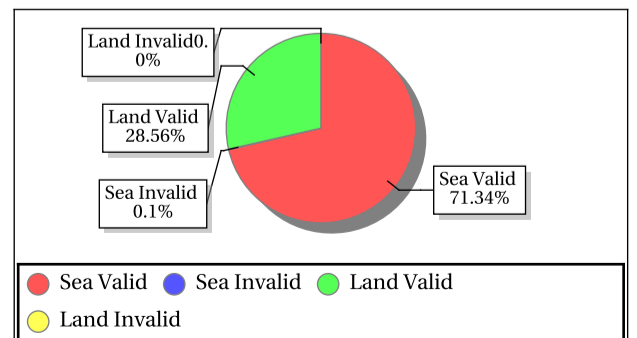
\*DP Format Document

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

### 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	-5.92	-4.86	-5.35	0.37	162.05	176.72	168.11	5.99
GreenLand_2	77.50	-41.50	Inner	DSC	Fore	-5.08	-4.31	-4.72	0.29	146.18	178.11	165.98	12.05
GreenLand_1	74.69	-42.50	Inner	DSC	Aft	-9.92	-7.25	-8.67	0.64	153.20	188.70	174.77	8.03
GreenLand_1	74.69	-42.50	Inner	DSC	Fore	-10.16	-7.08	-8.55	0.87	148.58	194.82	174.57	12.56
GreenLand_2	77.50	-41.50	Outer	DSC	Aft	-5.13	-4.60	-4.86	0.21	192.01	232.16	214.94	16.88
GreenLand_3	71.55	-42.45	Outer	DSC	Aft	-12.20	-11.00	-11.63	0.32	207.38	255.94	226.06	13.59
GreenLand_3	71.55	-42.45	Outer	DSC	Fore	-12.23	-10.20	-11.42	0.57	197.99	245.05	222.76	11.52
GreenLand_1	74.69	-42.50	Outer	DSC	Aft	-9.14	-8.27	-8.58	0.29	194.25	224.26	213.61	8.76
GreenLand_1	74.69	-42.50	Outer	DSC	Fore	-9.66	-7.87	-8.71	0.57	196.45	242.95	224.40	13.94



## 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	252.23	0.41	3.987	0.10	249.43	0.33	3.204	0.10	0.12	0.10	0.000	0.10	0.12	0.10	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	0.01	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>	-34.75	23.24	4.04	0.098	-34.70	23.93	5.27	0.265	5.53	32.54	17.55	11.636	6.20	32.81	19.54	22.857

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	207.70	0.35	3.430	0.08	207.49	0.34	3.349	0.08	0.14	0.09	0.000	0.08	0.12	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>	0.00	0.01	0.00	0.000	0.00	0.01	0.00	0.000	0.00	0.01	0.00	0.000	0.00	0.00	0.00	0.000
<b>SNR</b>	-34.79	18.51	2.59	0.000	-34.78	19.03	2.93	0.000	0.41	22.13	11.92	0.003	1.78	24.04	13.45	1.669

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>	48.75	49.27	49.01	0.000	57.56	58.13	57.87	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0027	6.03	1.27	2.641	0.0026	292.49	1.27	3.813	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1024.82	1069.96	1042.44	0.006	1202.22	1257.84	1224.29	28.295	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.84	-89.16	-90.41	0.000	-93.65	-91.56	-92.44	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.64	16.29	15.89	0.000	14.83	37.18	21.16	6.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.82	8416.78	36.27	2.000	18.46	8190.92	35.76	3.000	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

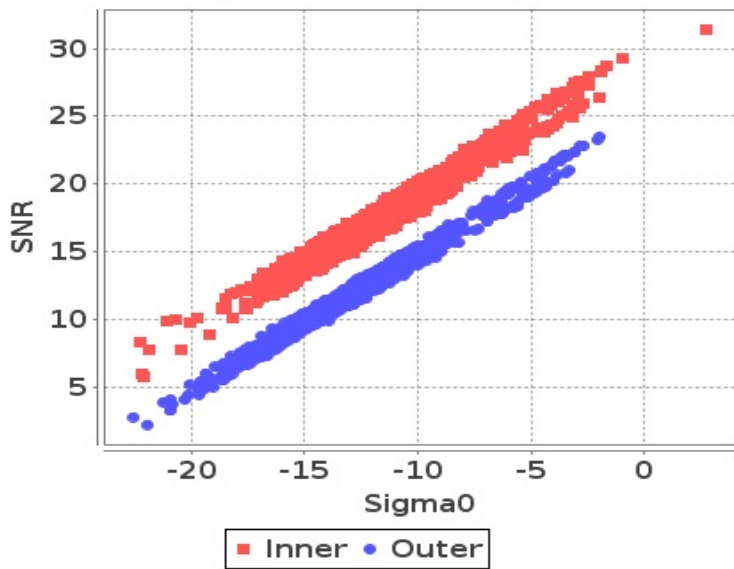
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

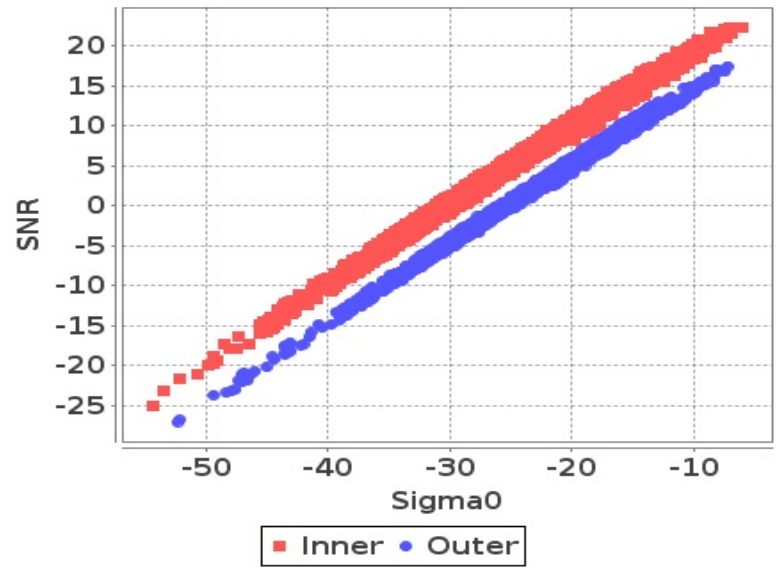
Footprint-Land

Sigma0 Vs SNR (Land)



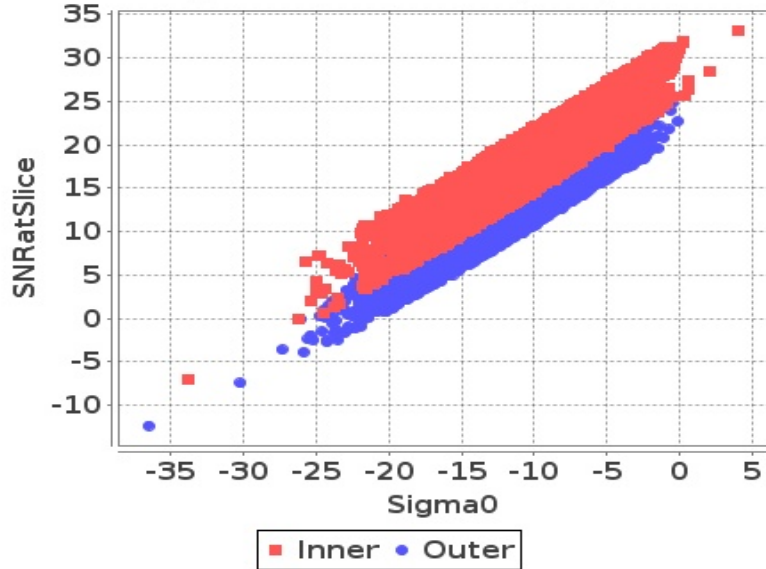
Footprint-Sea

Sigma0 Vs SNR (Sea)



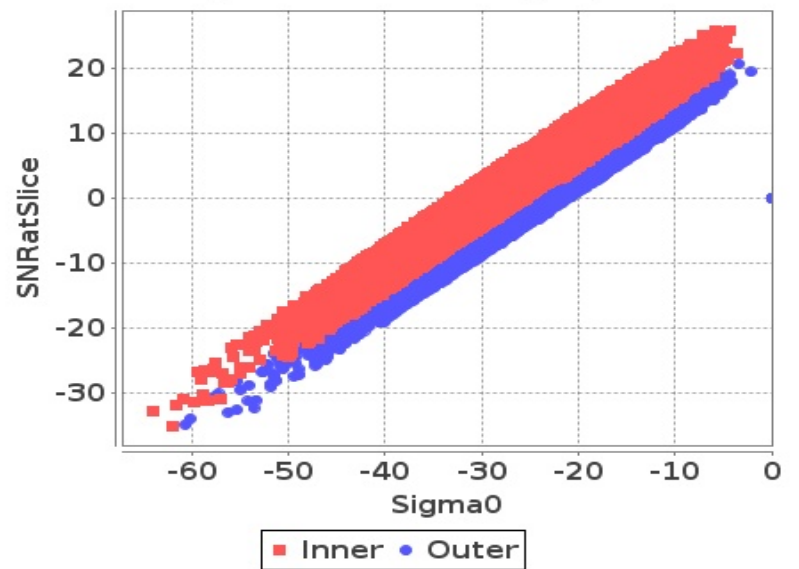
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

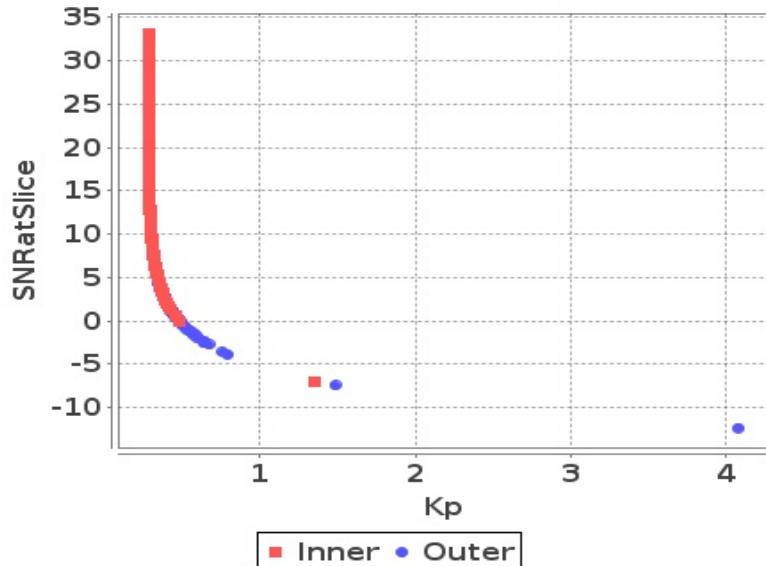
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

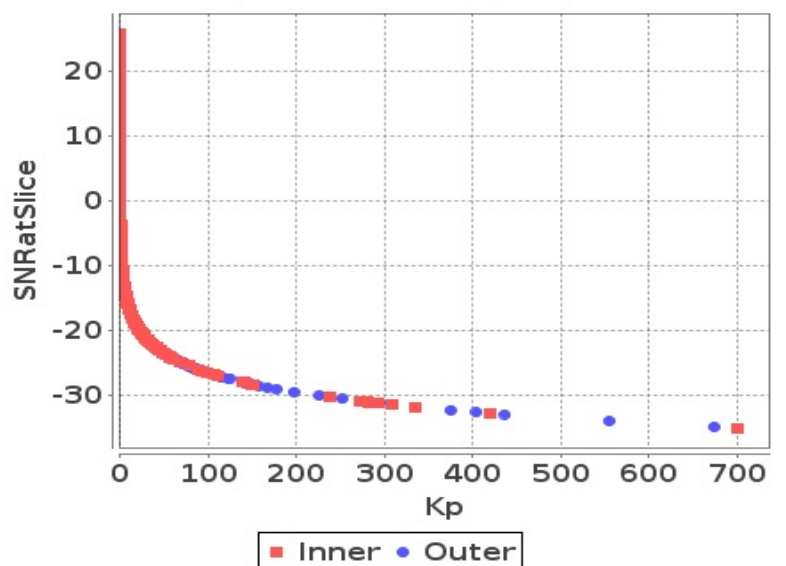
Slice

Kp Vs SNRatSlice (Land)



Slice

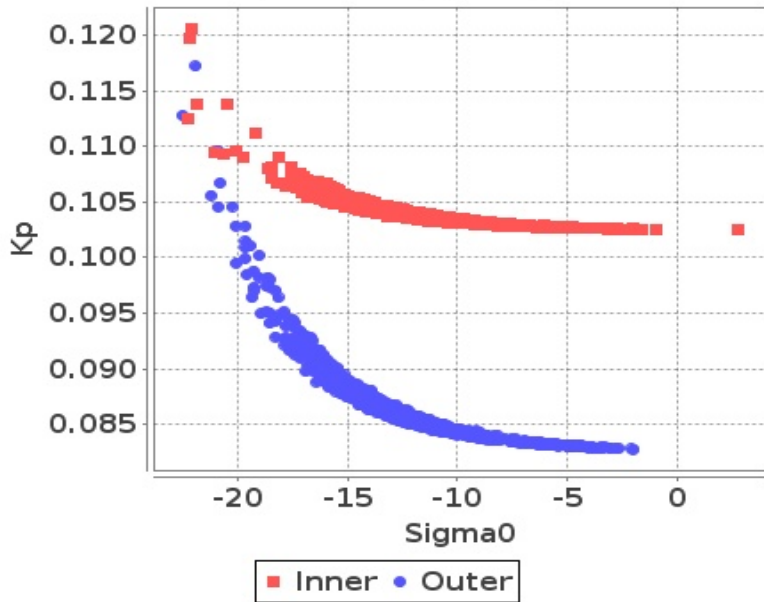
Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

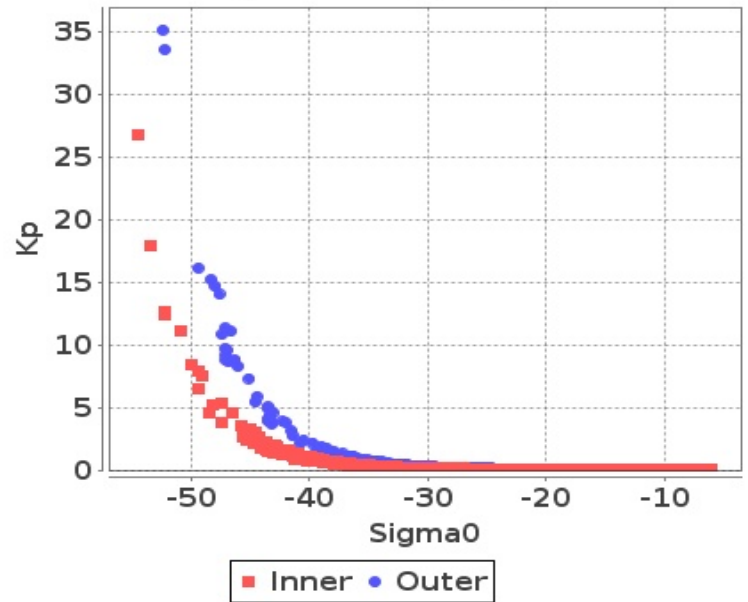
## Footprint-Land

### Sigma0 Vs Kp (Land)



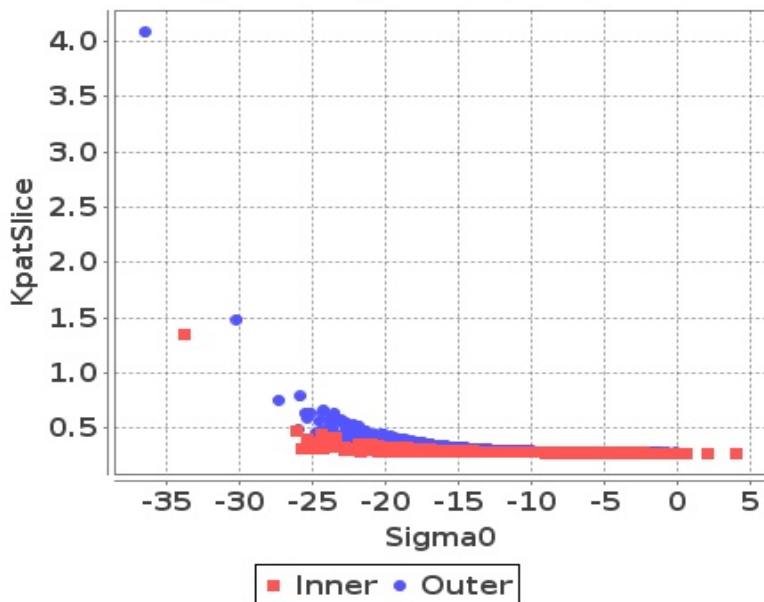
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



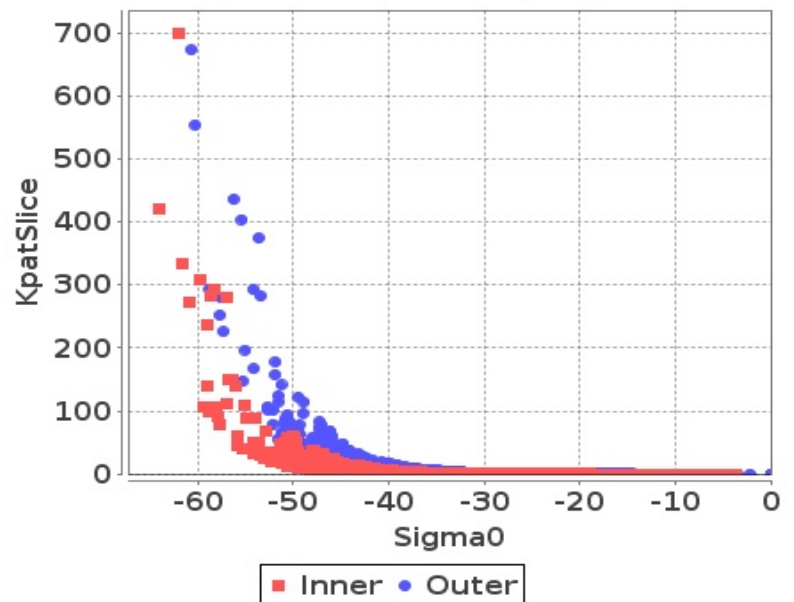
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)

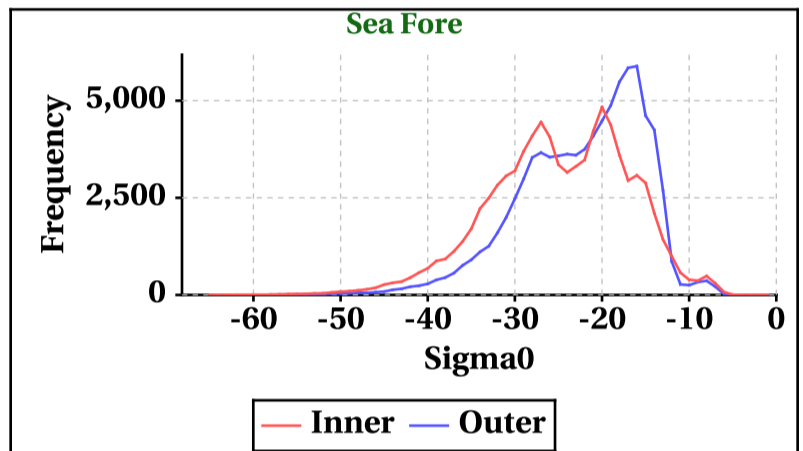
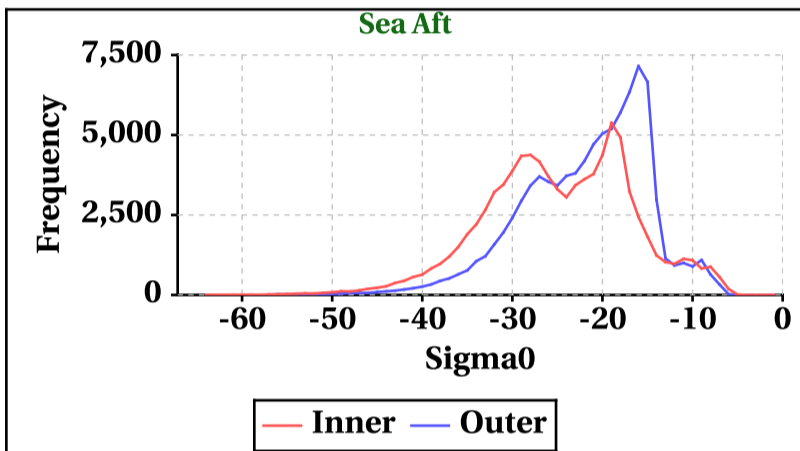
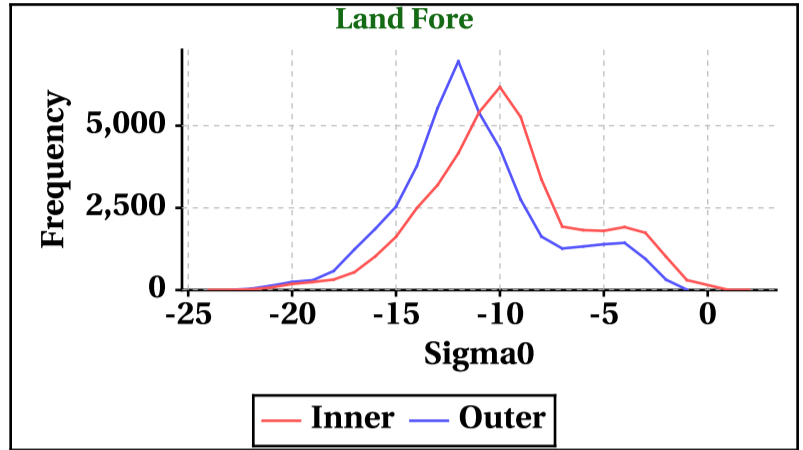
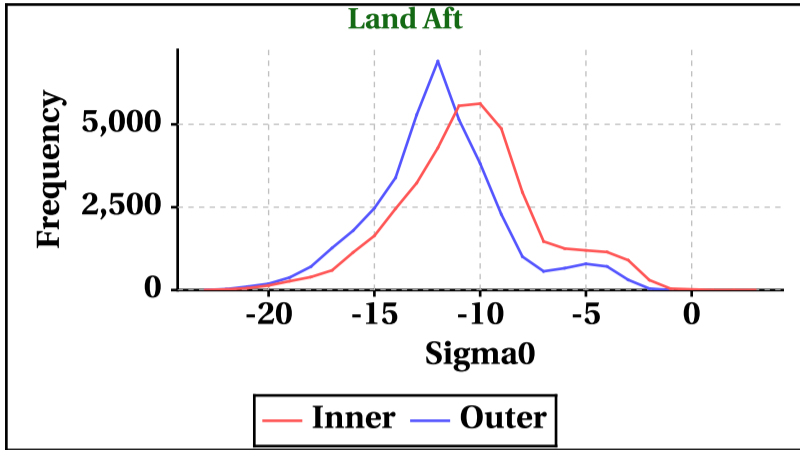


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-23	-24	-64	-65
Max	3	2	0	0

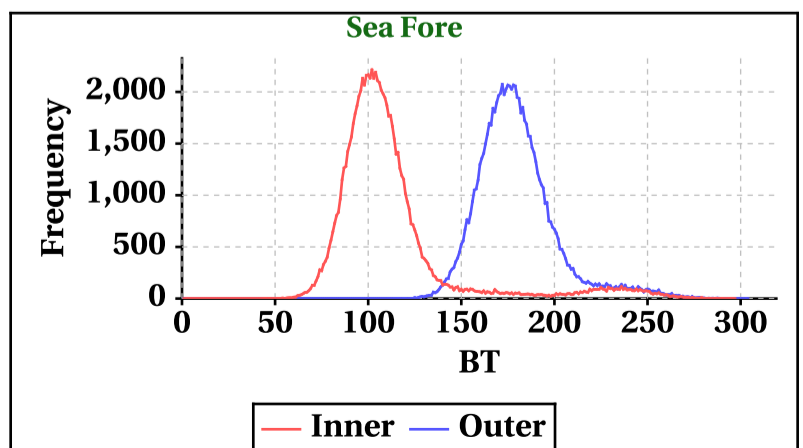
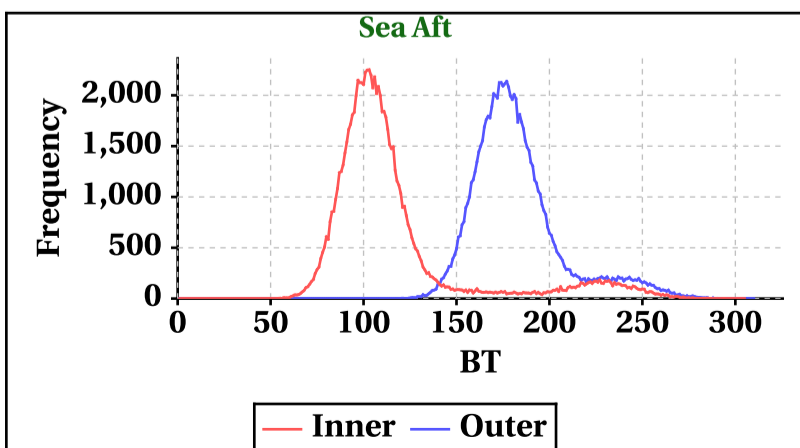
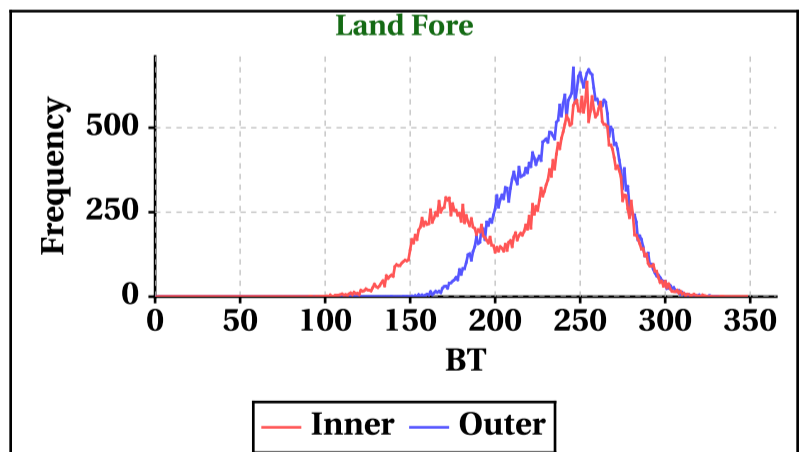
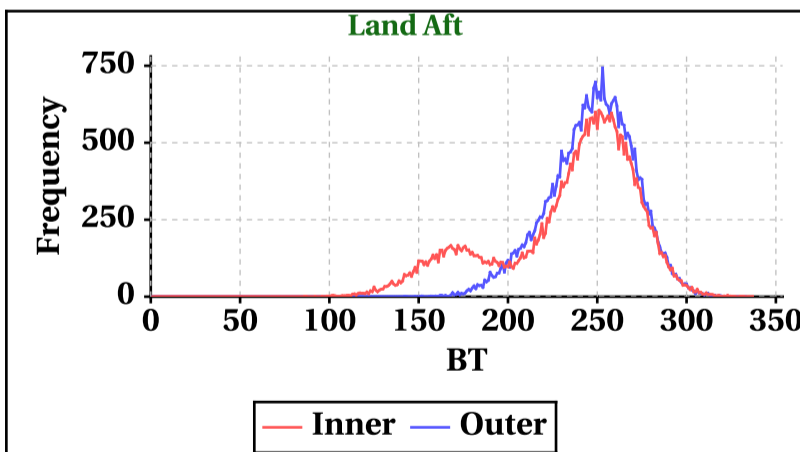
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-23	-23	-59	-60
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	337	348	305	297

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	333	331	310	304

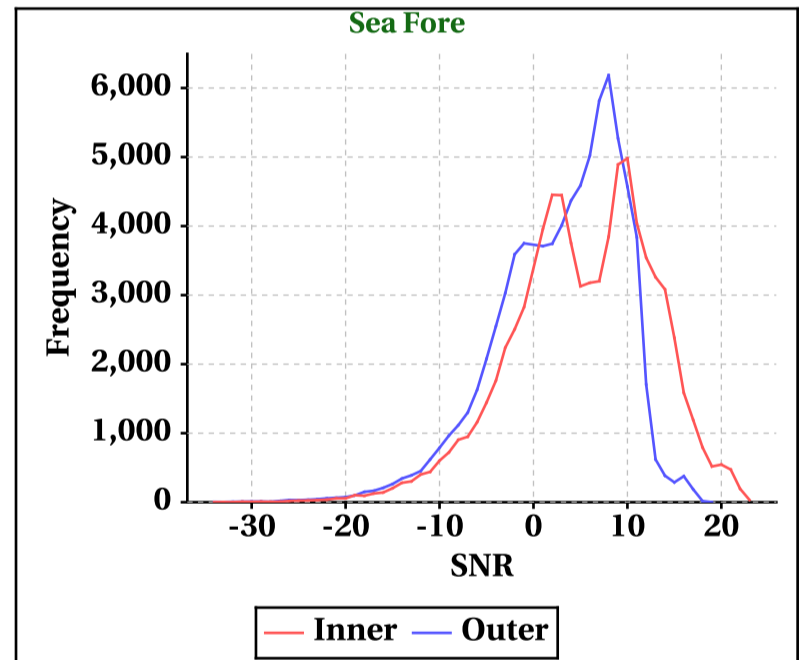
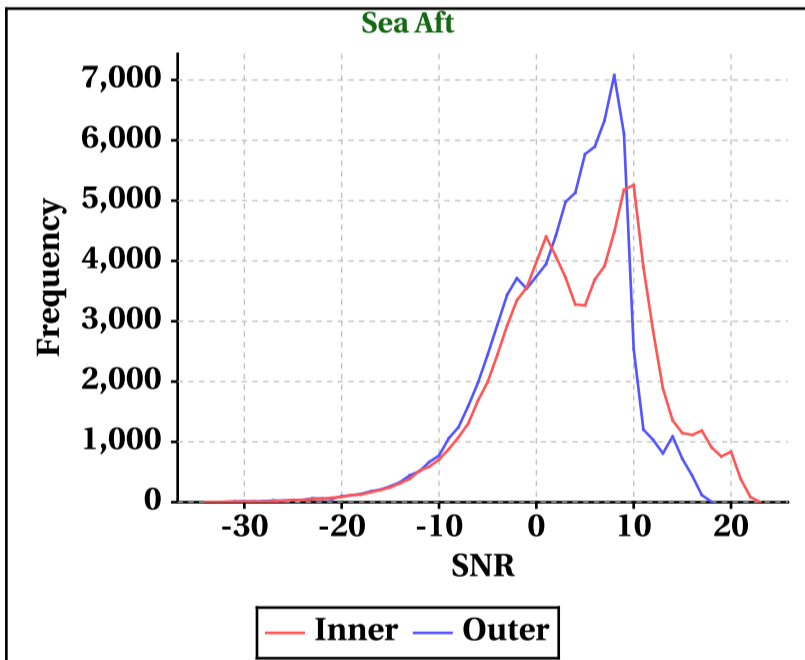
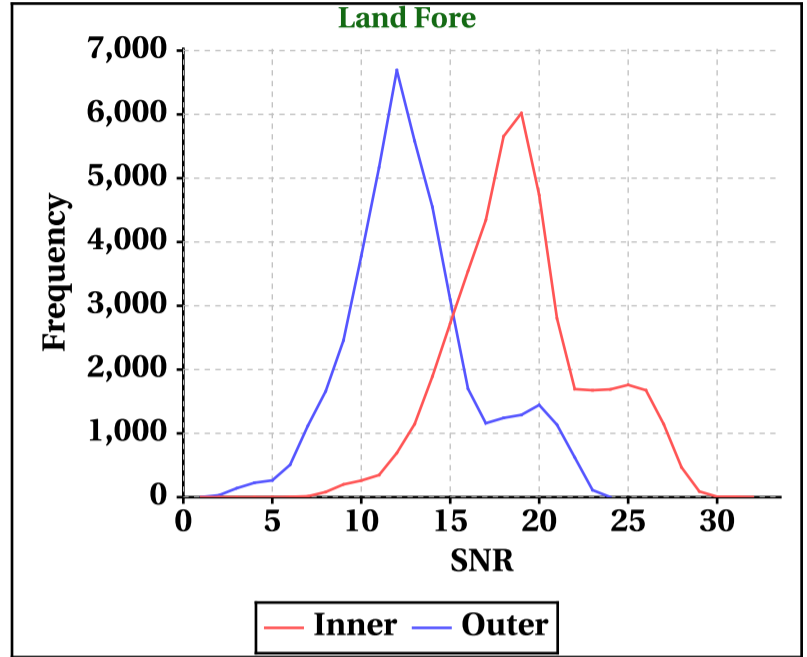
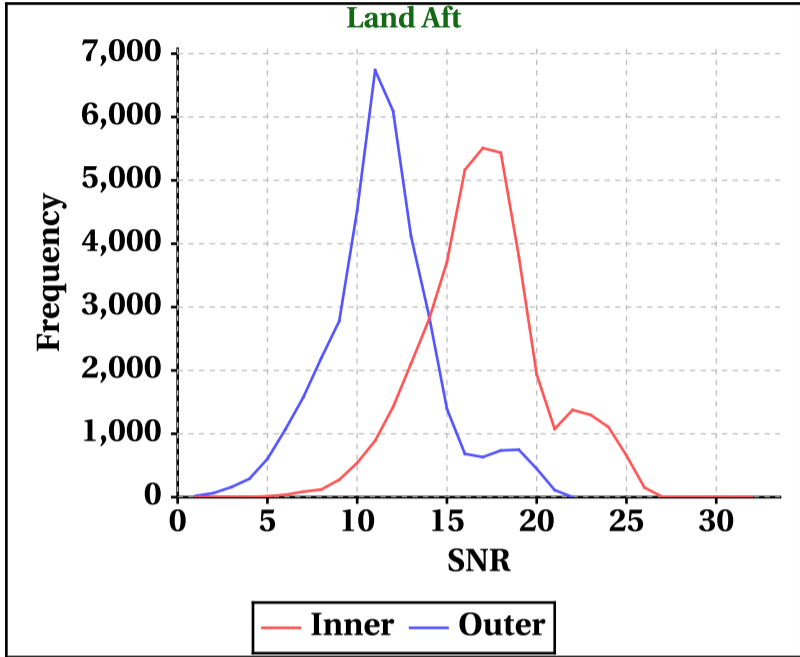


# Dynamic Range (Data Histograms)

## SNR(dBm)

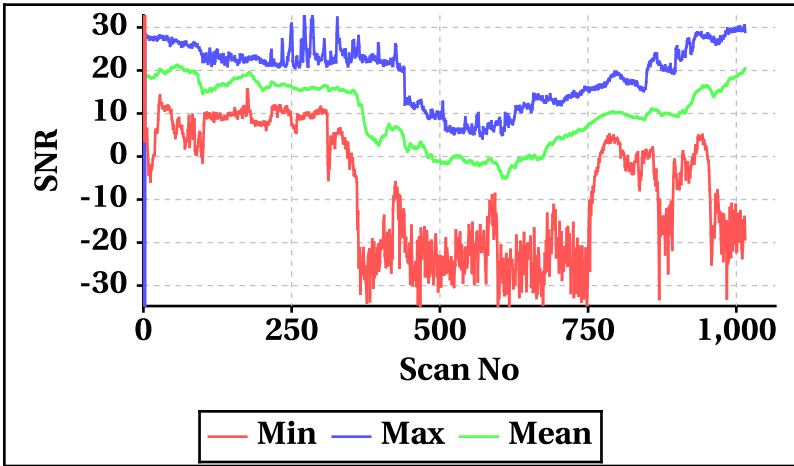
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	32	32	23	23

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	22	24	18	19

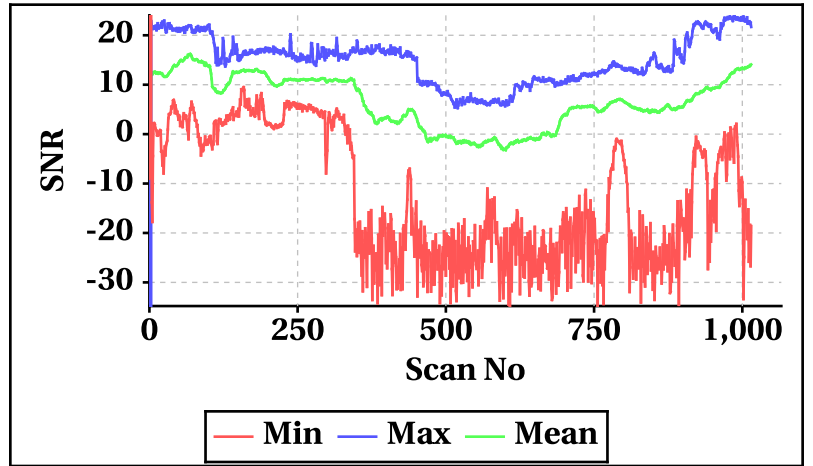


## Orbit-wise behaviour of SNR

Inner Beam (HH)

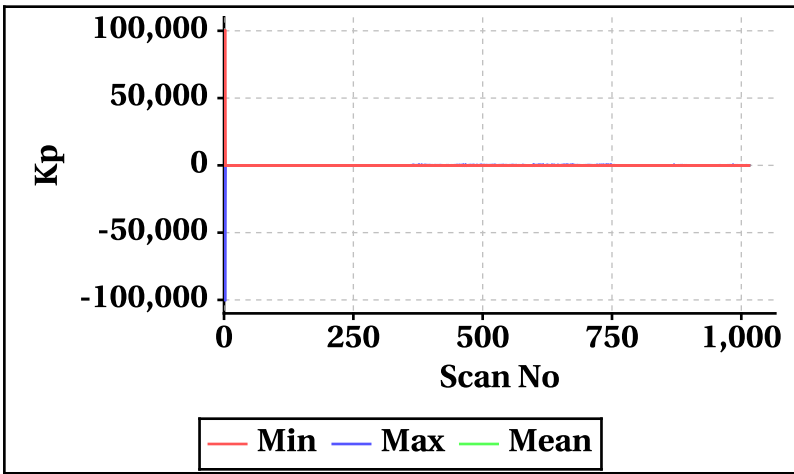


Outer Beam(VV)

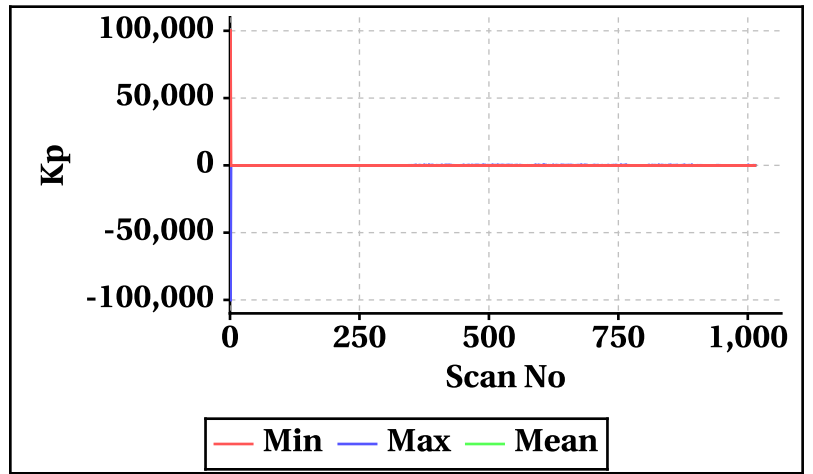


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

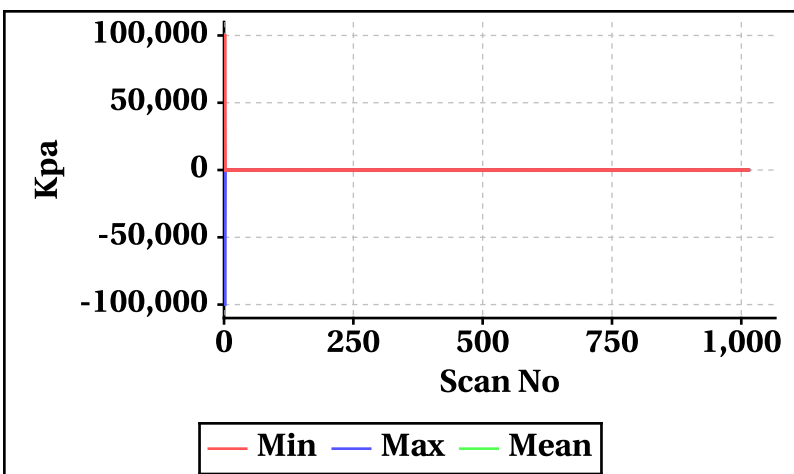
Inner Beam(HH)



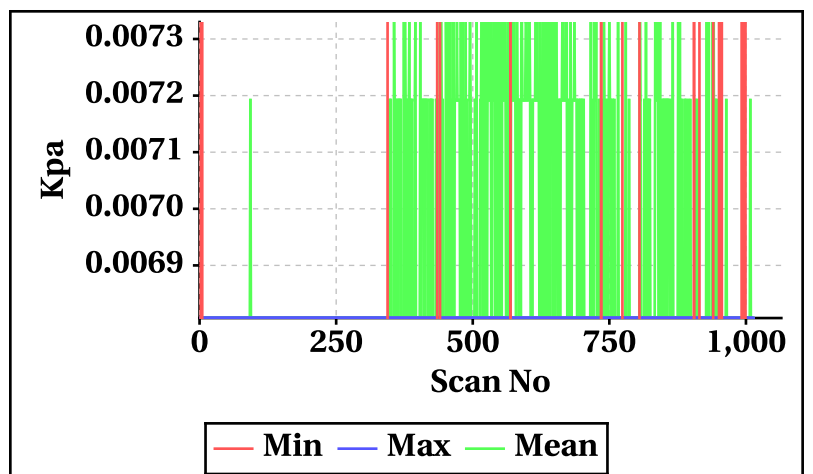
Outer Beam(VV)



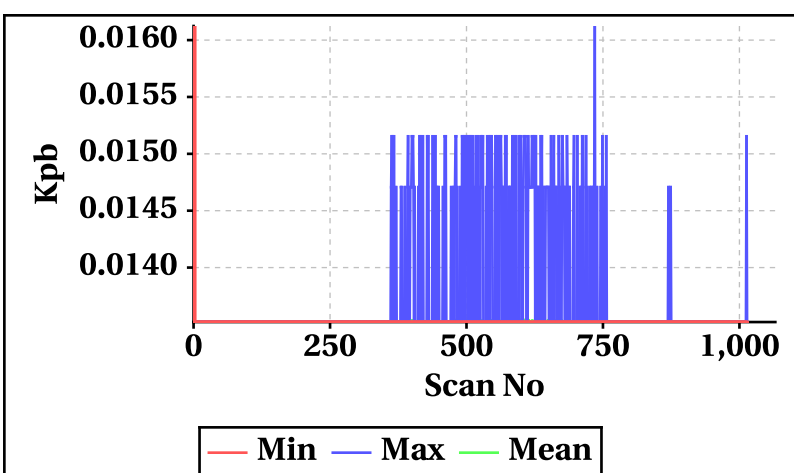
Inner Beam(HH)



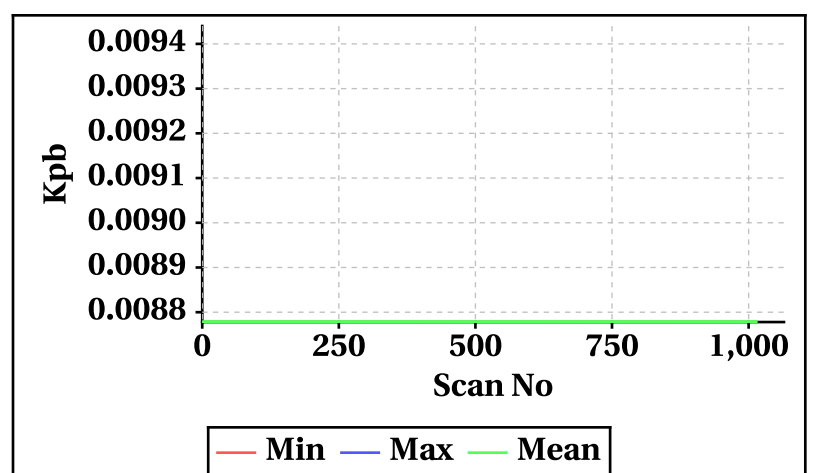
Outer Beam(VV)



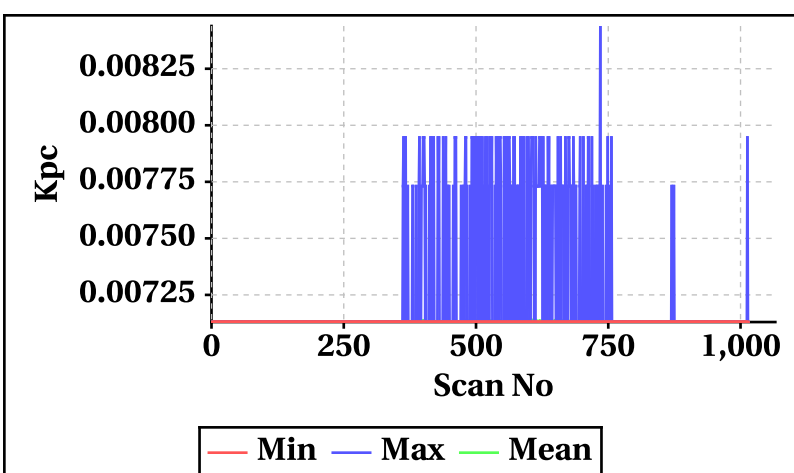
Inner Beam(HH)



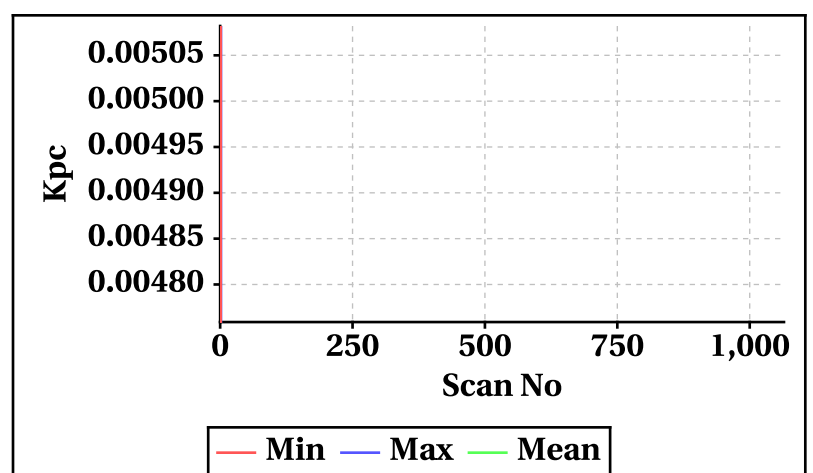
Outer Beam(VV)



Inner Beam(HH)



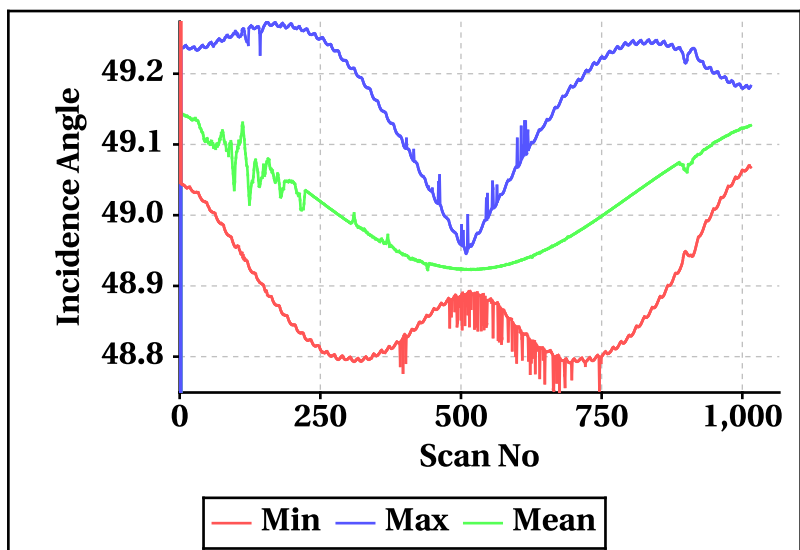
Outer Beam(VV)



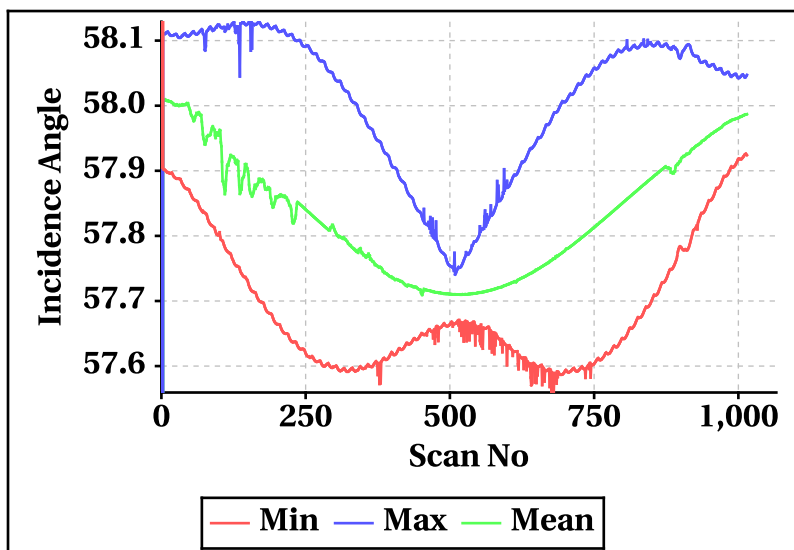


Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

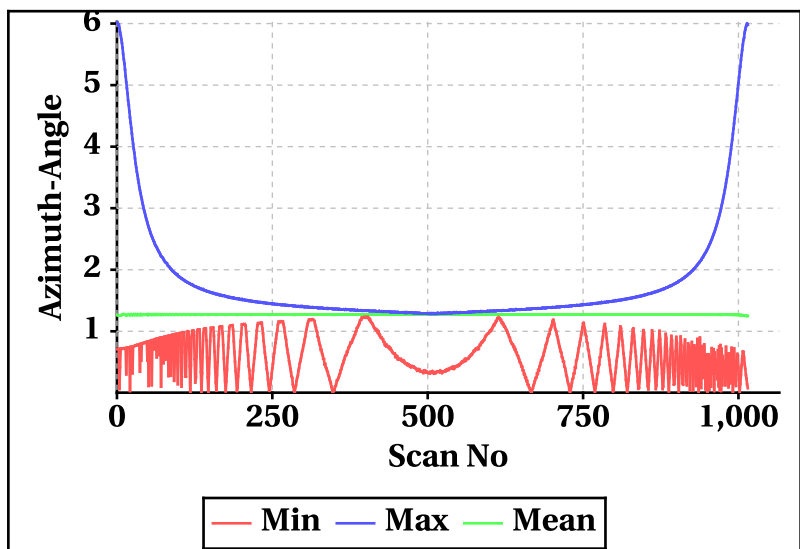
Inner Beam (HH)



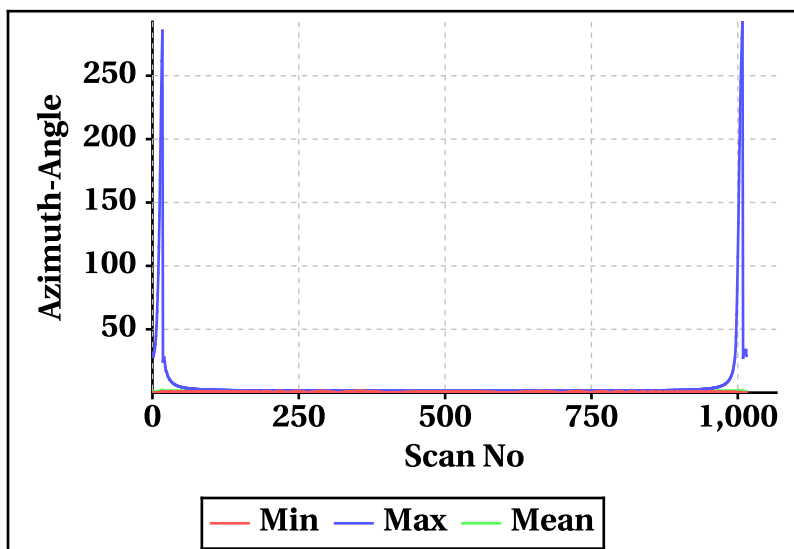
Outer Beam(VV)



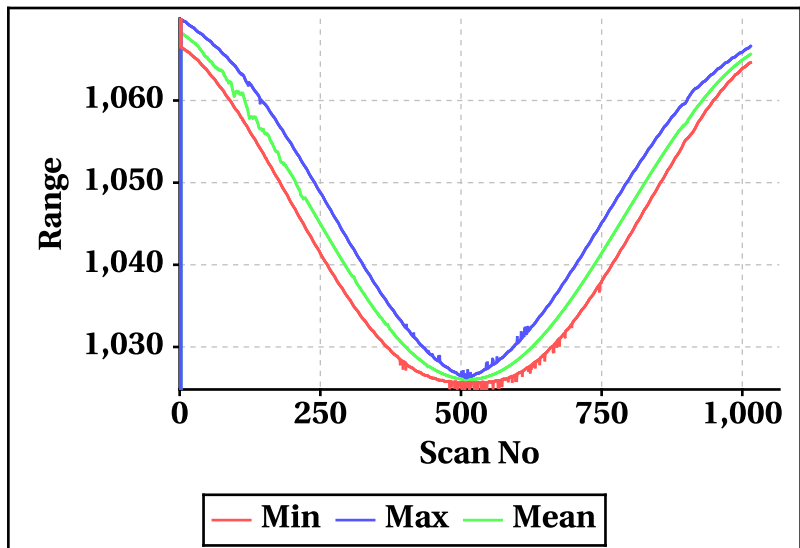
Inner Beam (HH)



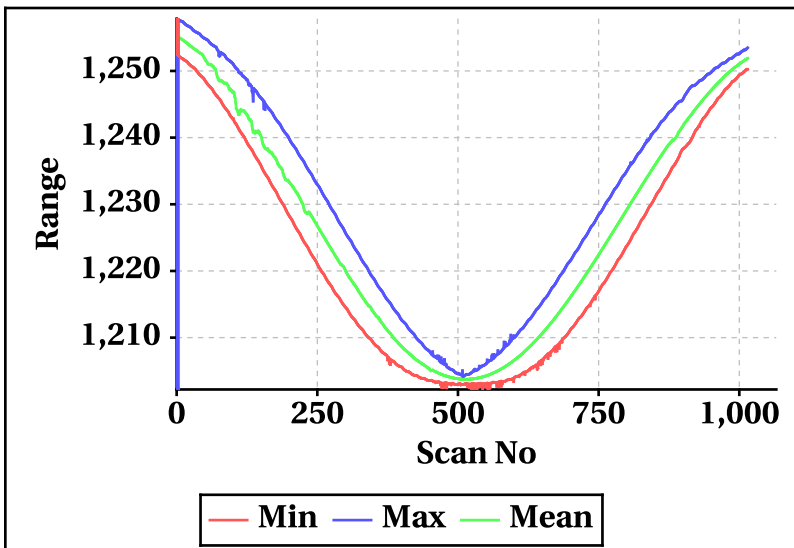
Outer Beam(VV)



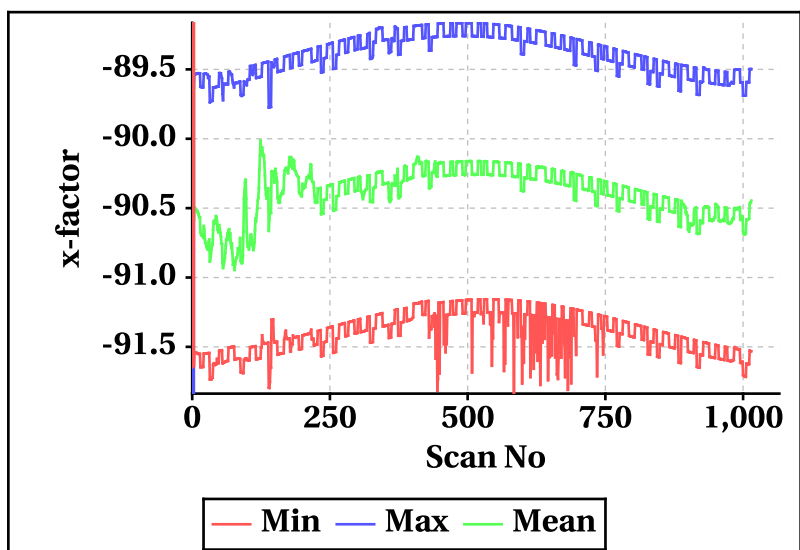
Inner Beam (HH)



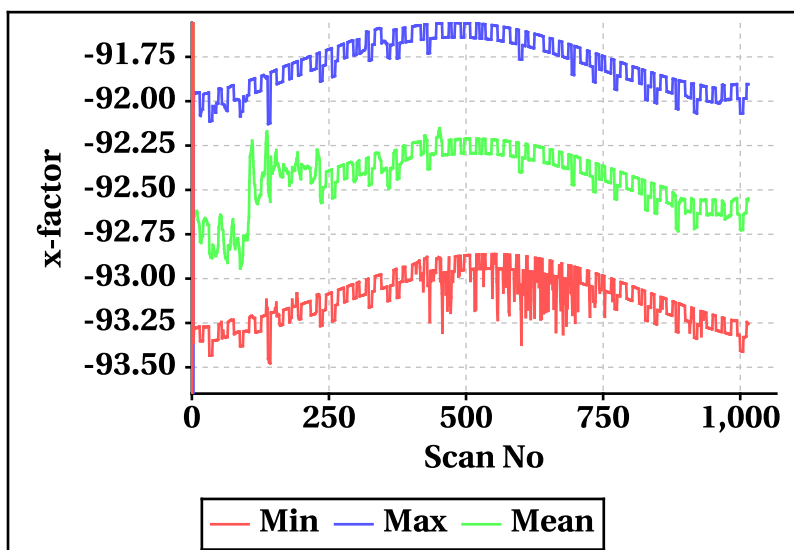
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)

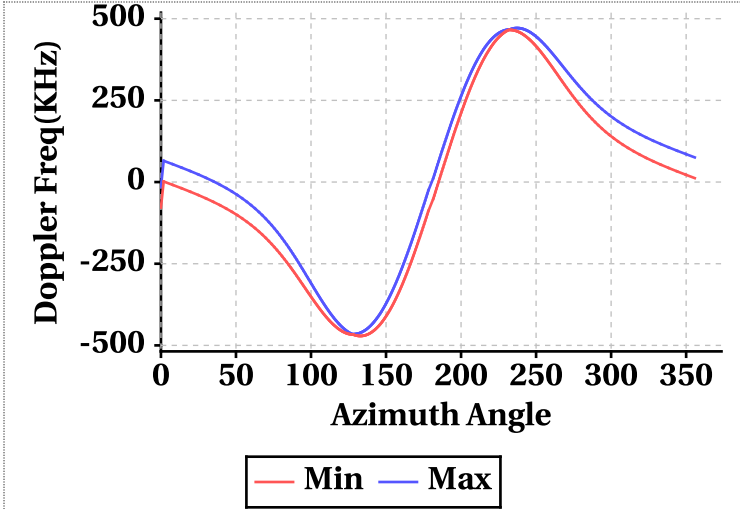


# Doppler Frequency Variation

Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-471.20	-528.08
Max	471.32	528.22

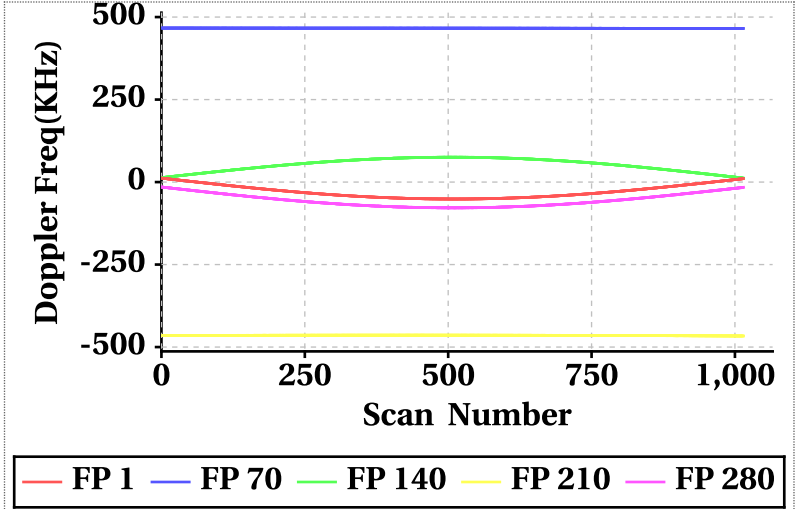
Footprint wise Doppler frequency variation Inner Beam (HH)



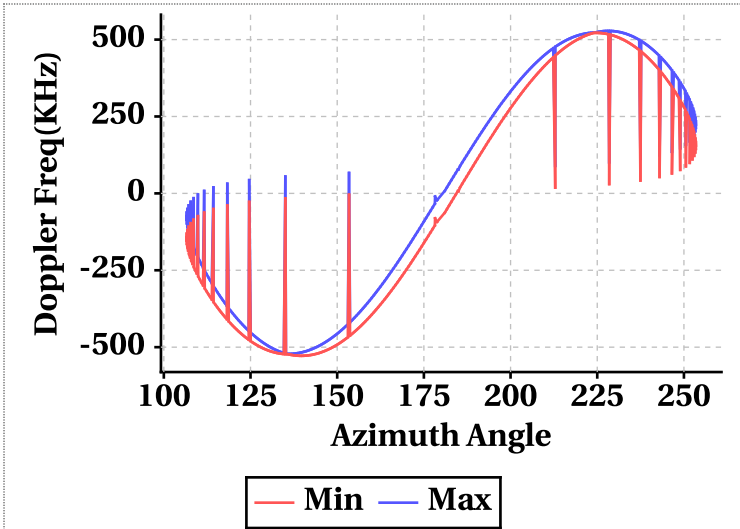
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	-51.38	11.86	-28.57	-62.76	8.02	-37.18
Doppler_70	465.46	466.68	466.18	521.56	522.76	521.91
Doppler_140	11.98	75.36	52.43	7.08	77.94	52.27
Doppler_210	-466.42	-463.96	-464.60	-522.80	-521.06	-521.47
Doppler_280	-78.08	-15.04	-55.25	-81.08	-10.50	-55.46

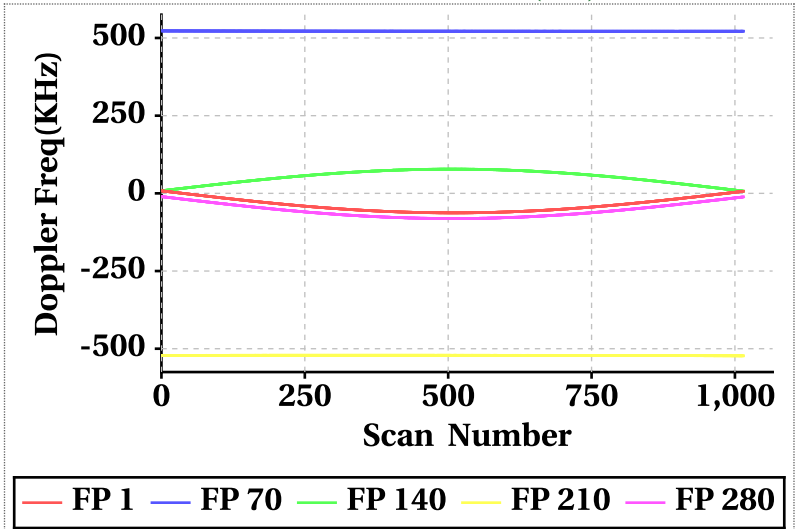
Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)



Footprint wise Doppler frequency variation Outer Beam (VV)

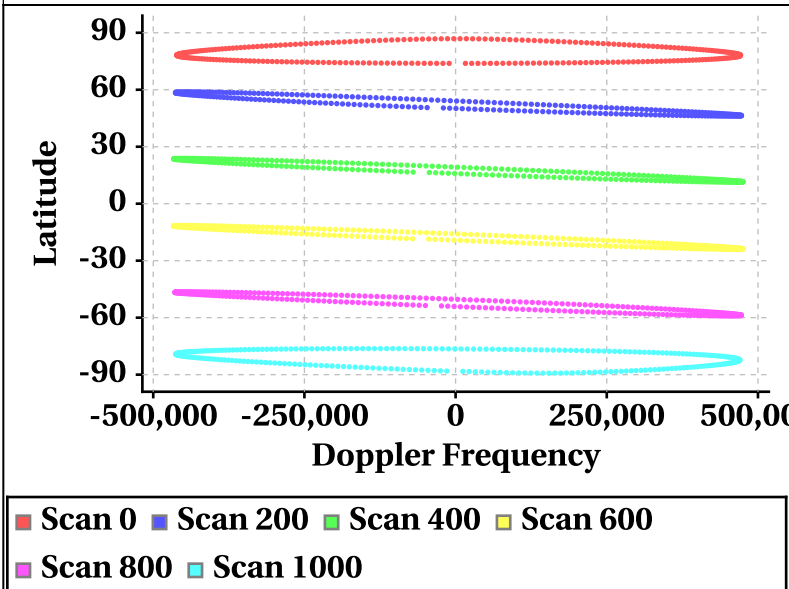


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

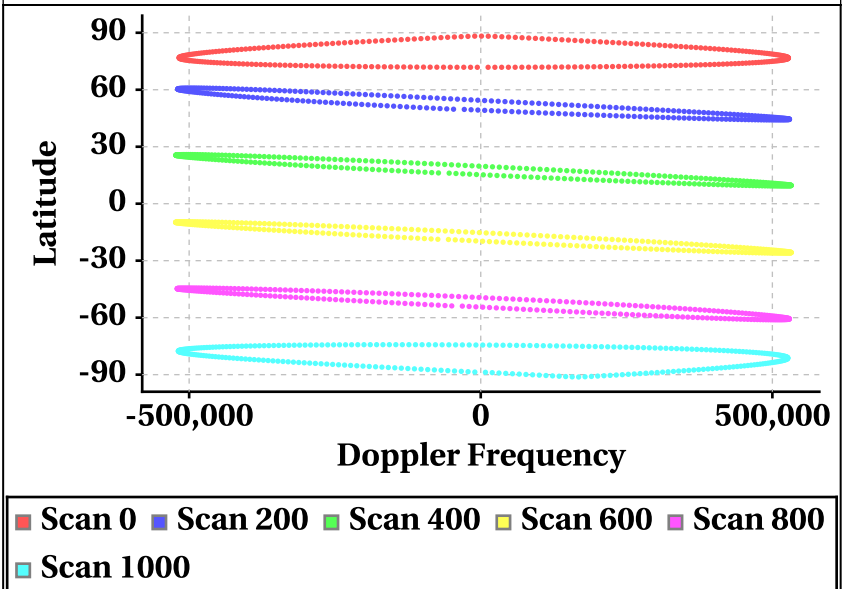


# Latitude Vs Doppler Frequency

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



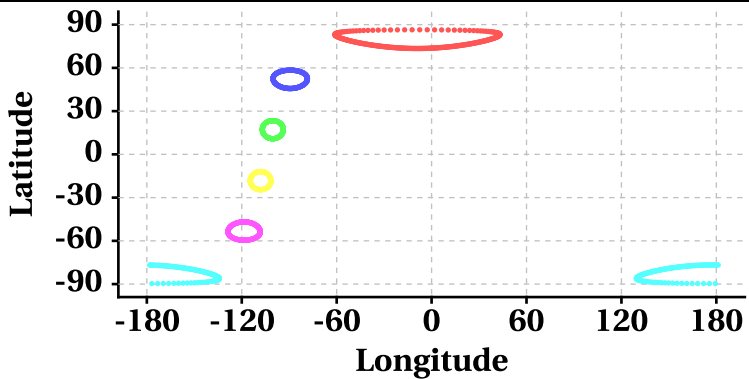
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

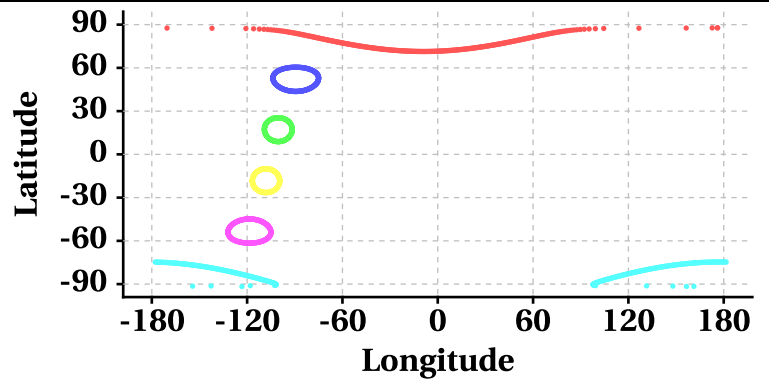
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

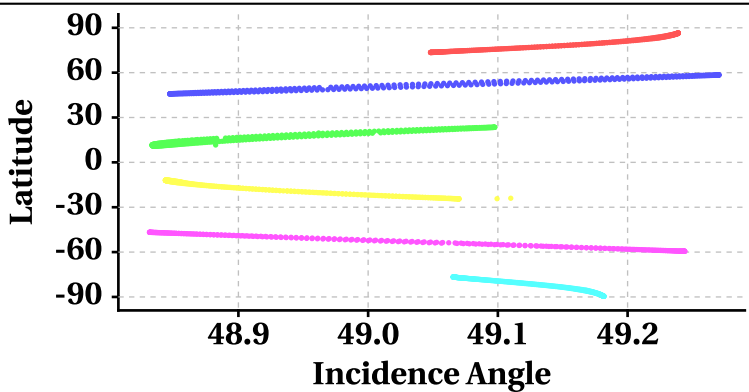
Scan Trace [Outer Beam (VV)]



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

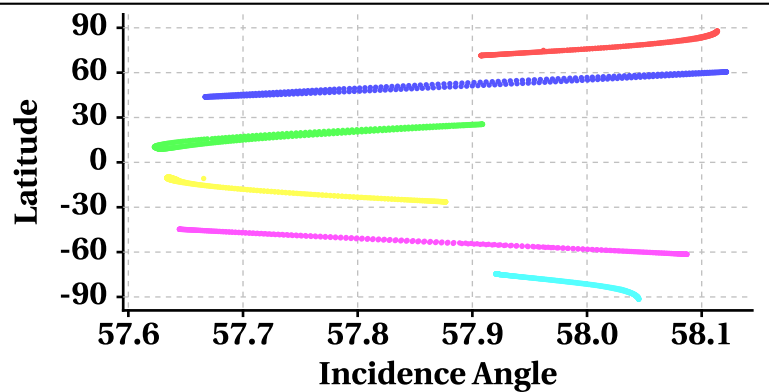
## Latitude Vs Incidence Angle

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



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

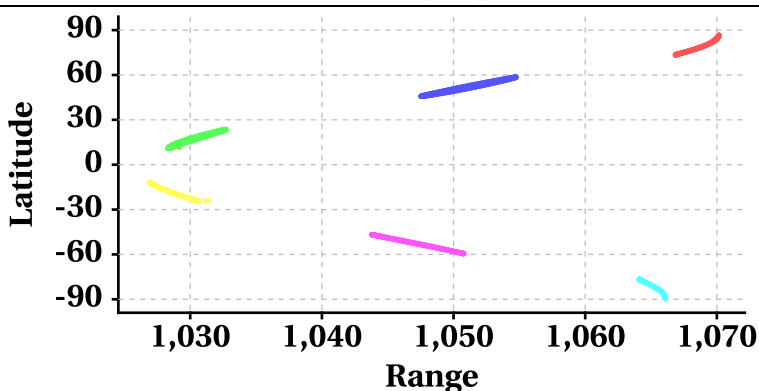
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

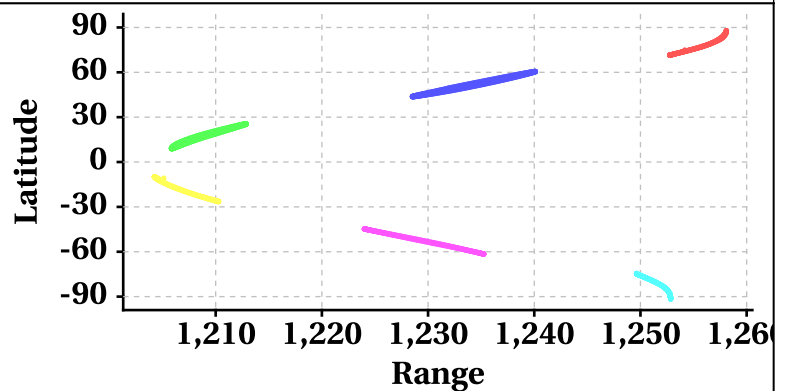
## Latitude Vs Range

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

