

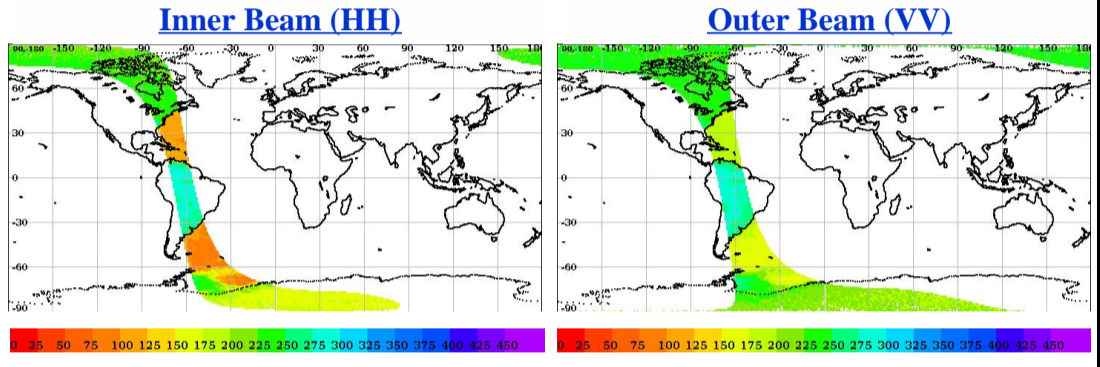
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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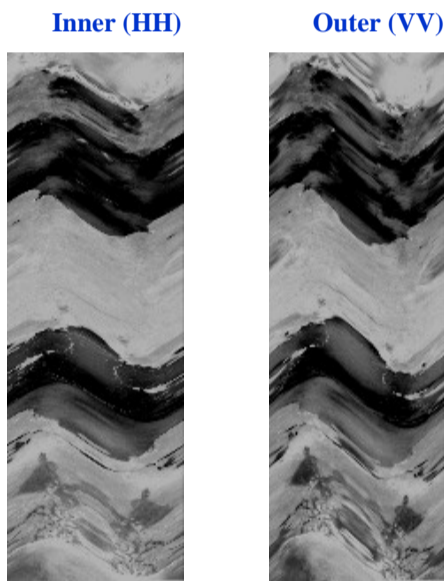
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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	6652	<b>Total Scans</b>	1017
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	6653	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.2	<b>Rev. Number</b>	06652_06653	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	29-12-2017	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	29-12-2017	<b>Equator Crossing Time</b>	00:55:03.000	<b>No Of Outer Slices</b>	14

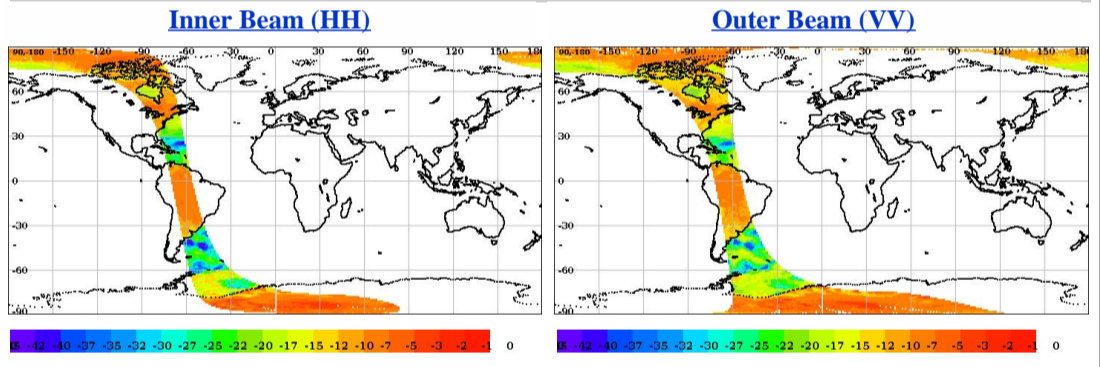
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



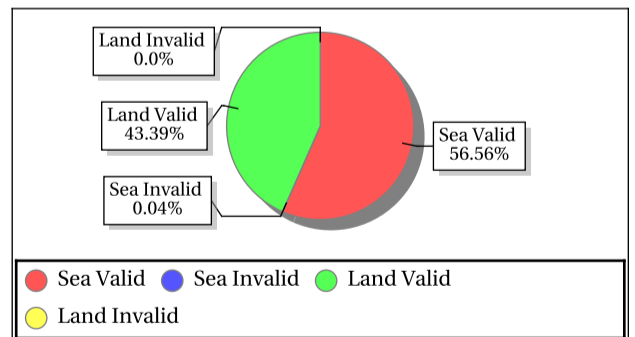
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.04	0.04
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

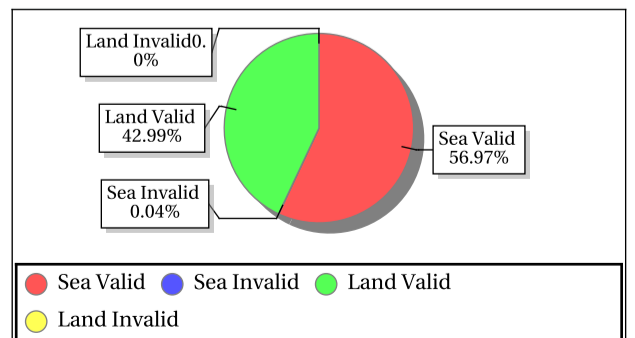
\*DP Format Document

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

### 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
Amazon_3	-6.00	-61.00	Inner	ASC	Aft	-9.59	-7.57	-8.46	0.50	253.71	336.57	287.72	19.28
Amazon_3	-6.00	-61.00	Inner	ASC	Fore	-9.31	-6.90	-8.05	0.60	253.00	335.34	284.25	17.35
Amazon_2	-3.00	-61.00	Inner	ASC	Aft	-11.29	-7.44	-8.86	0.90	205.74	319.00	265.35	26.23
Amazon_2	-3.00	-61.00	Inner	ASC	Fore	-10.91	-7.32	-8.68	0.88	212.05	298.76	263.88	22.30
Amazon_1	0.00	-67.00	Inner	ASC	Aft	-8.95	-6.24	-7.46	0.63	248.76	336.98	287.62	19.12
Amazon_1	0.00	-67.00	Inner	ASC	Fore	-8.96	-5.31	-7.34	0.74	240.02	323.73	287.12	18.78
Amazon_3	-6.00	-61.00	Outer	ASC	Aft	-10.75	-8.44	-9.60	0.48	251.42	320.38	280.68	18.50
Amazon_3	-6.00	-61.00	Outer	ASC	Fore	-10.53	-8.01	-9.33	0.52	237.09	321.04	279.15	20.10
Amazon_2	-3.00	-61.00	Outer	ASC	Aft	-11.83	-8.74	-10.03	0.70	228.92	305.29	273.79	16.35
Amazon_2	-3.00	-61.00	Outer	ASC	Fore	-11.53	-8.52	-9.75	0.76	228.55	294.17	262.56	14.78
Amazon_1	0.00	-67.00	Outer	ASC	Aft	-9.54	-7.76	-8.54	0.49	236.03	312.85	273.07	20.29
Amazon_1	0.00	-67.00	Outer	ASC	Fore	-9.95	-6.97	-8.29	0.58	253.14	318.03	281.24	14.78



## 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	217.64	0.34	3.325	0.10	262.79	0.27	2.052	0.10	3.64	0.10	0.012	0.10	5.07	0.10	0.015
<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	0.01	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>	-34.11	23.16	5.11	0.306	-34.93	25.37	7.75	1.706	-16.24	27.17	19.22	7.313	-17.71	29.25	20.27	18.907

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	198.72	0.27	2.602	0.08	198.92	0.24	2.087	0.08	5.64	0.09	0.005	0.08	1.00	0.08	0.002
<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	0.00	0.00	0.000	0.00	0.00	0.00	0.000
<b>SNR</b>	-34.60	17.32	3.37	0.000	-34.60	18.33	4.79	0.000	-19.08	22.14	13.99	0.003	-11.33	22.74	14.45	0.019

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	49.35	49.03	0.000	57.68	58.24	57.96	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0027	6.10	1.27	2.700	0.0000	296.05	1.27	3.946	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1043.82	1075.50	1055.71	0.000	1224.74	1264.84	1239.53	0.000	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-92.02	-89.45	-90.53	0.000	-93.42	-91.93	-92.47	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.75	16.30	15.97	0.000	7.15	38.12	21.20	7.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.82	20.63	19.72	0.000	18.43	11386.89	42.00	4.000	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

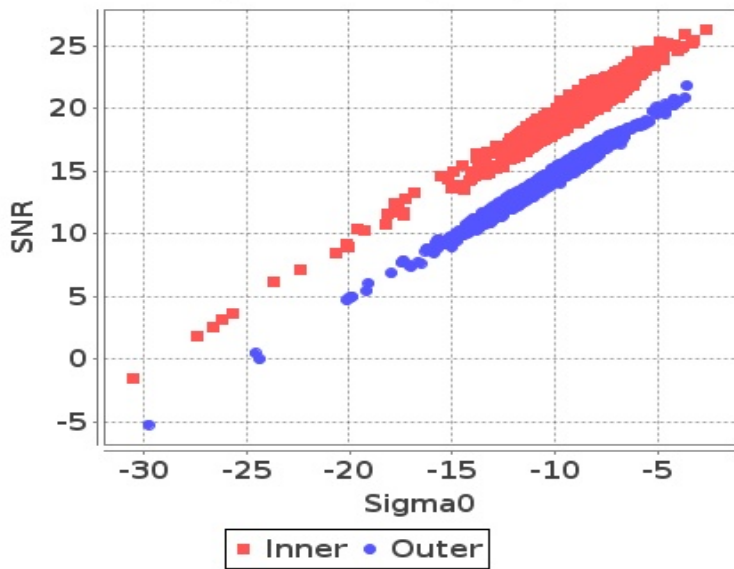
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

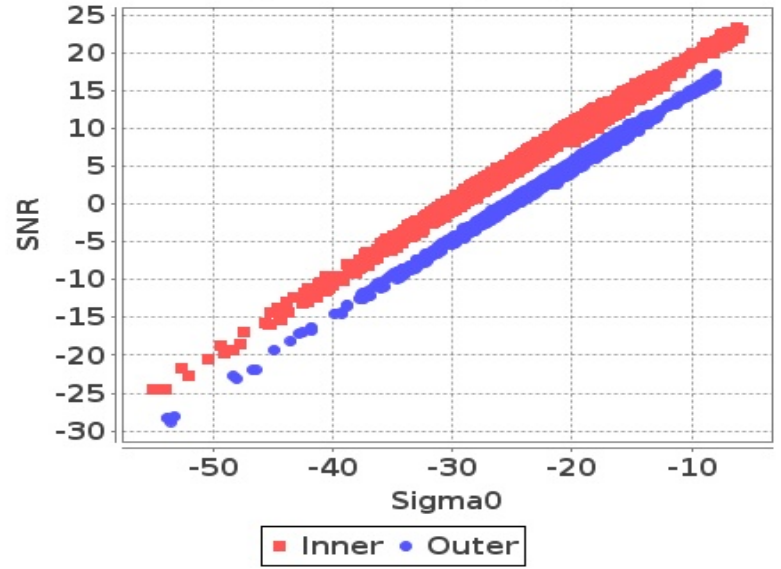
Footprint-Land

Sigma0 Vs SNR (Land)



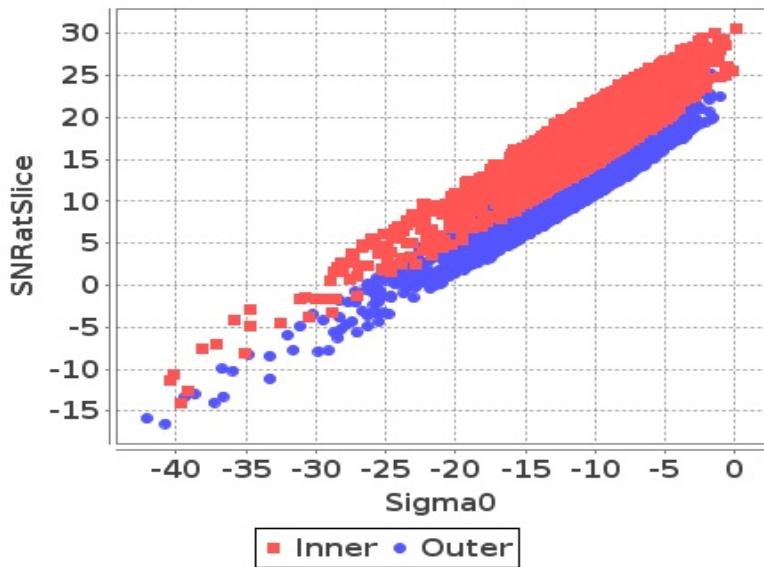
Footprint-Sea

Sigma0 Vs SNR (Sea)



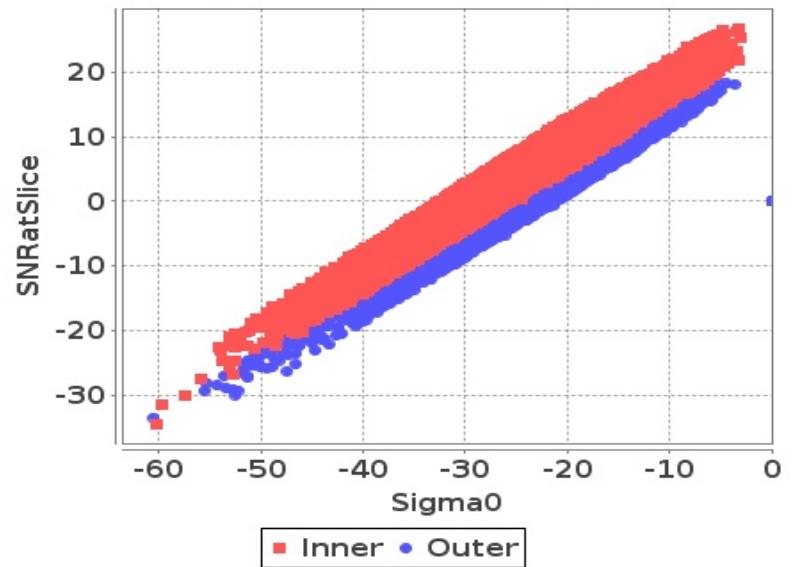
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

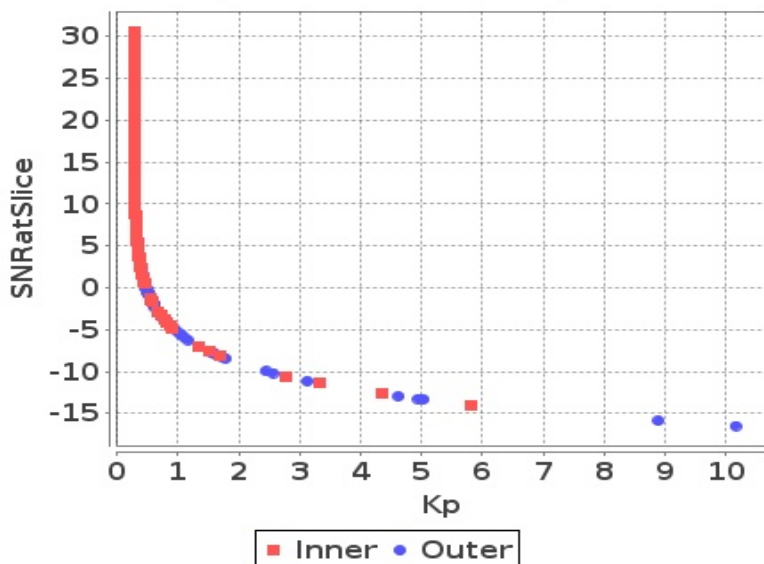
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

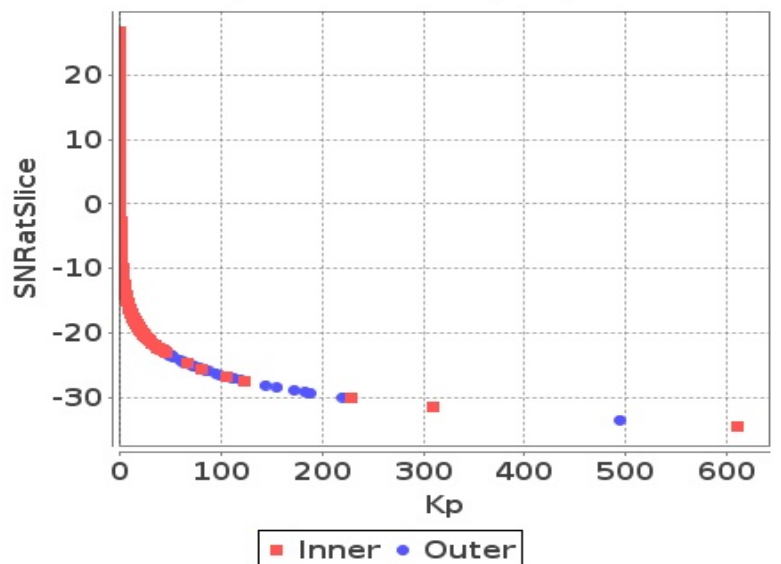
Slice

Kp Vs SNRatSlice (Land)



Slice

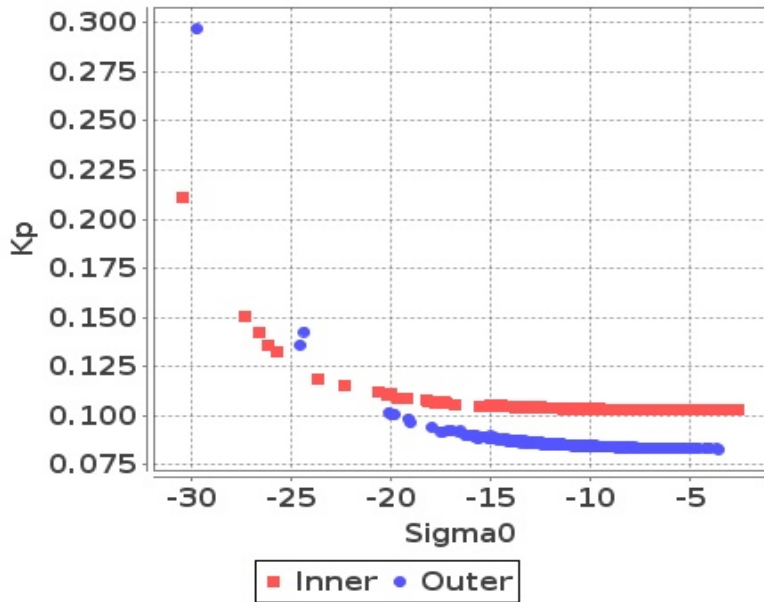
Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

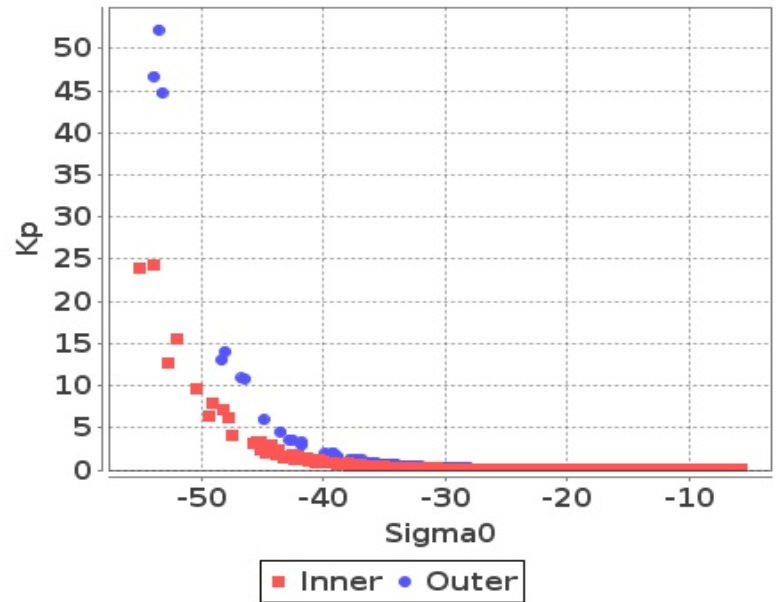
## Footprint-Land

### Sigma0 Vs Kp (Land)



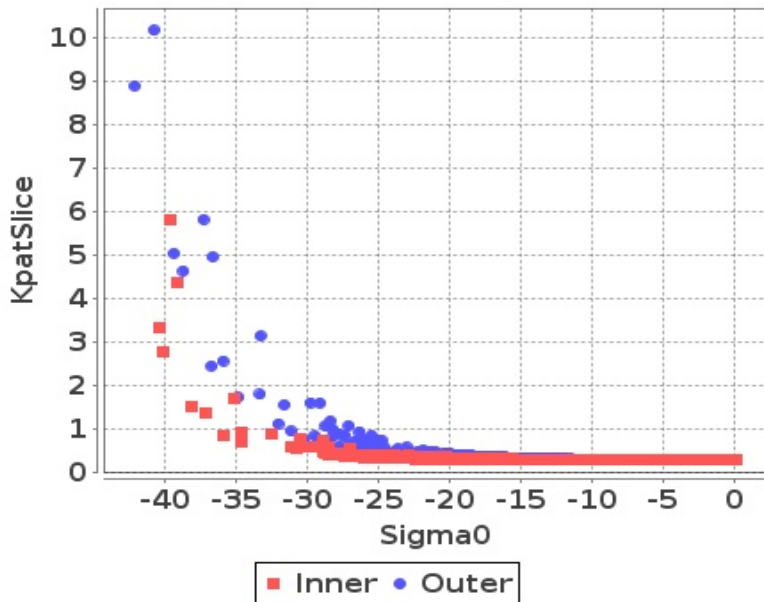
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



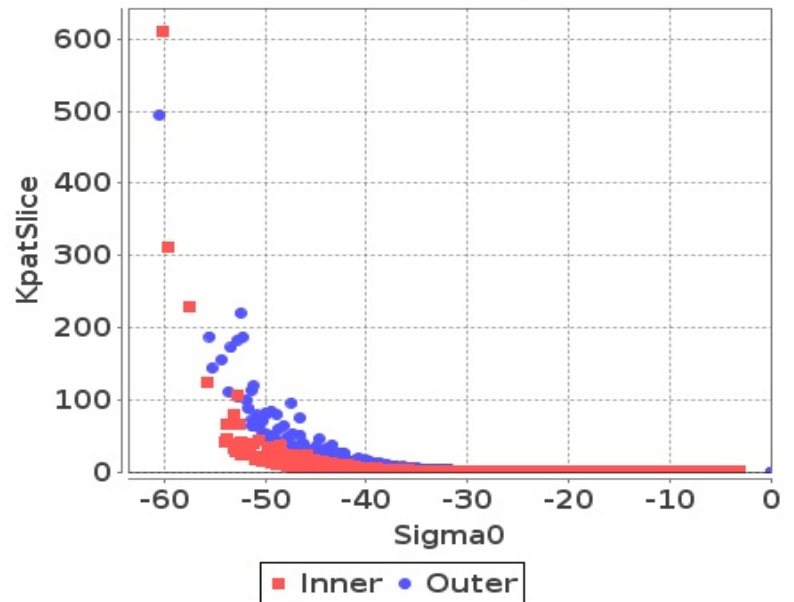
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)

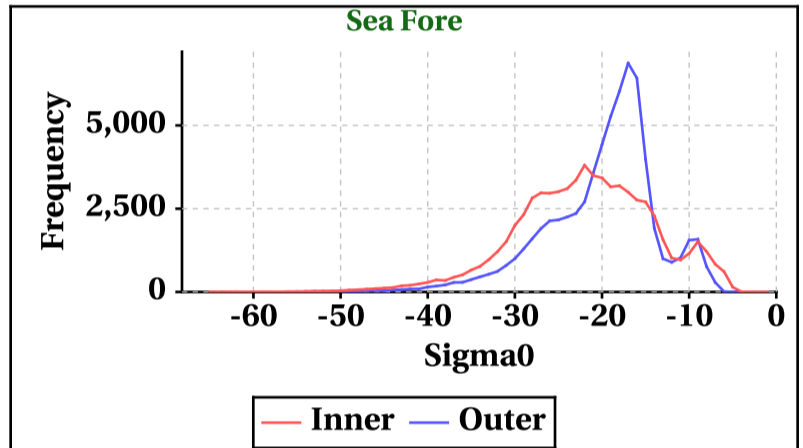
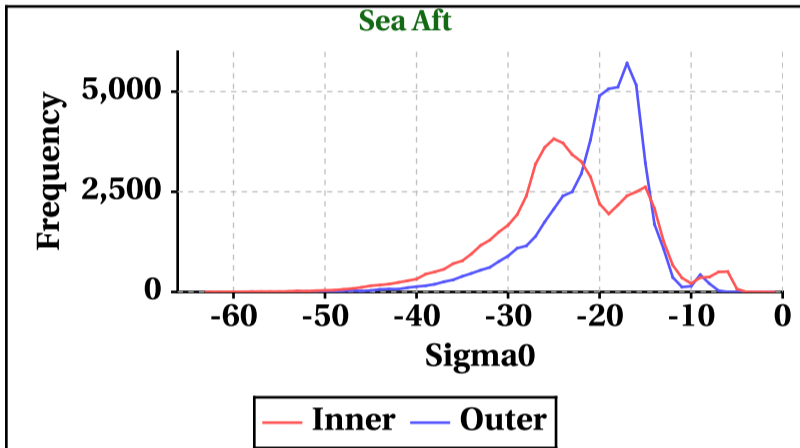
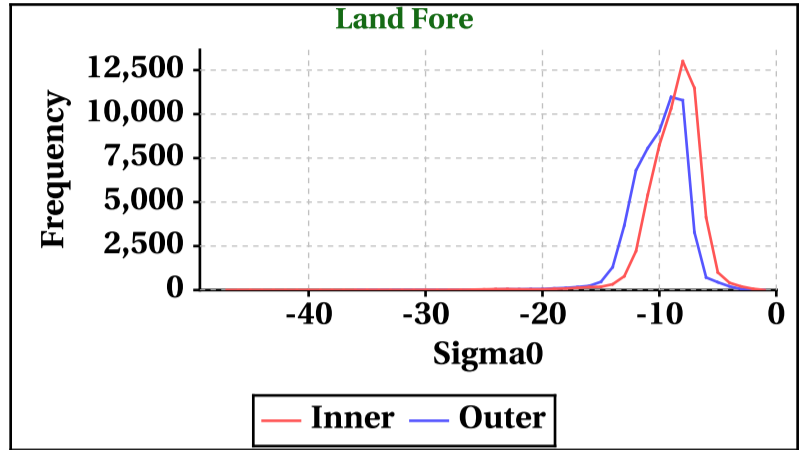
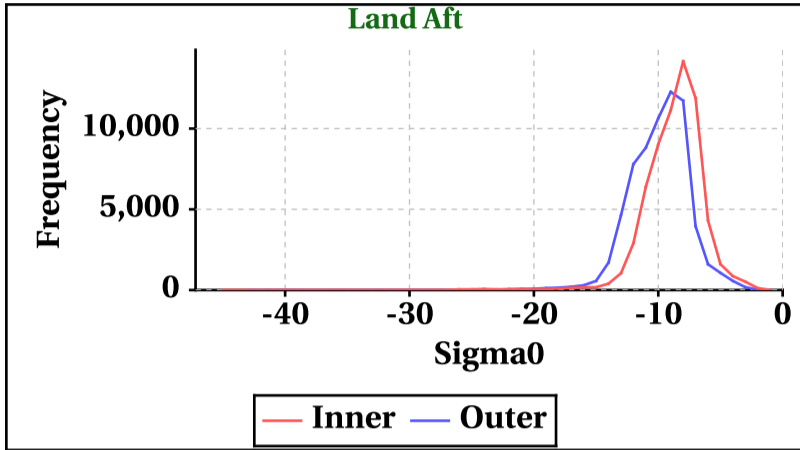


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-45	-47	-63	-65
Max	0	0	0	0

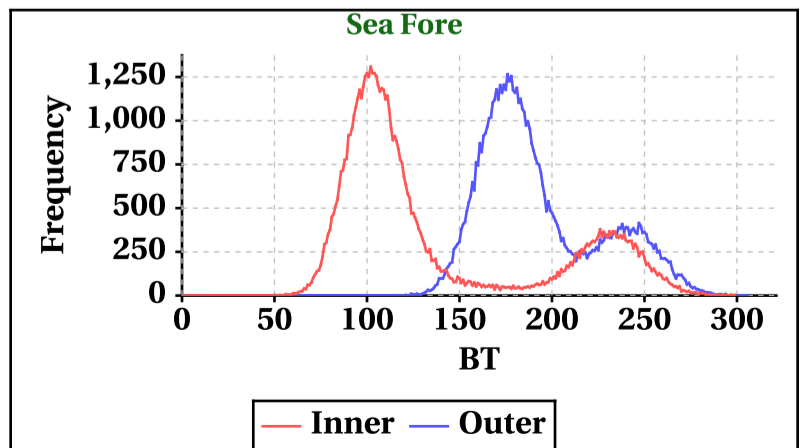
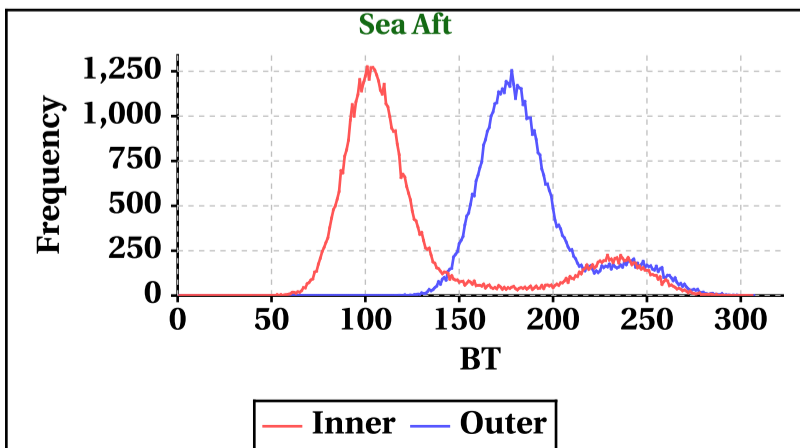
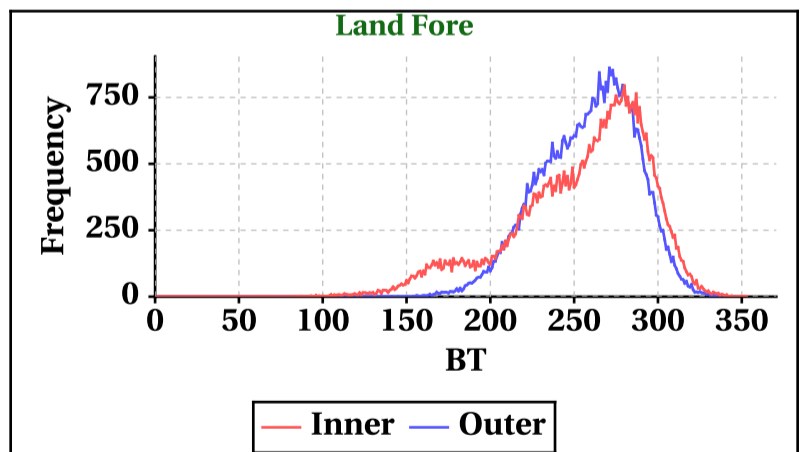
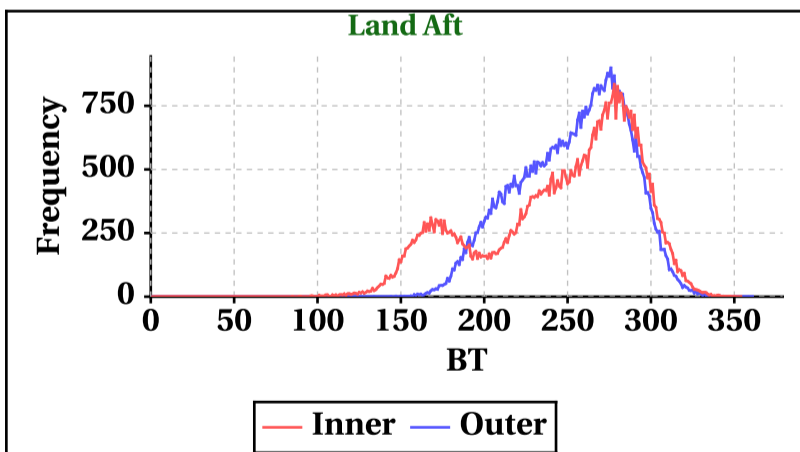
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-43	-36	-59	-60
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	354	353	306	299

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	361	346	307	306

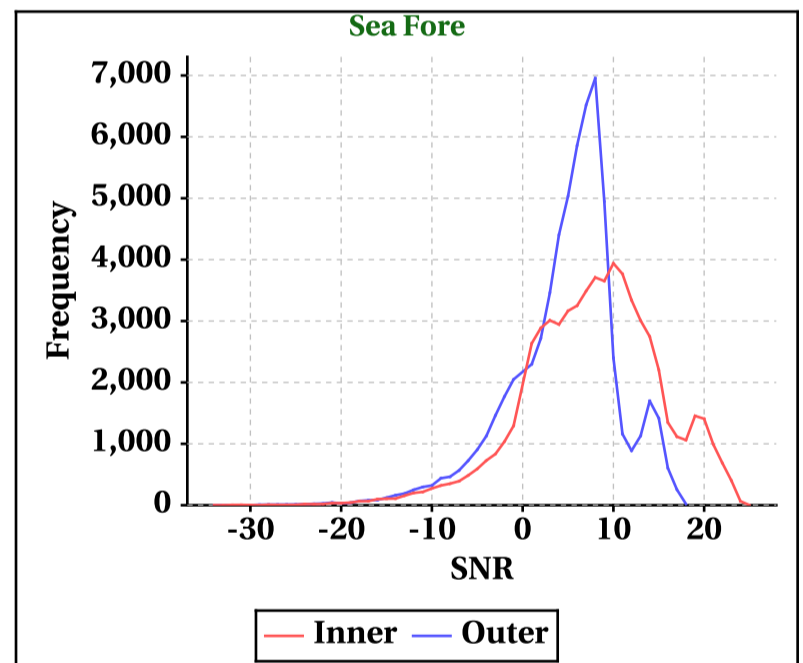
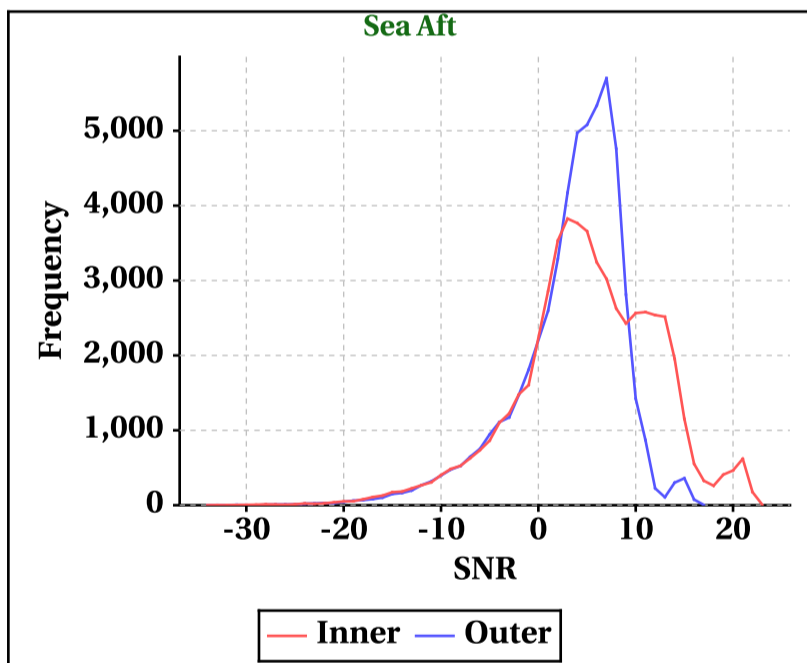
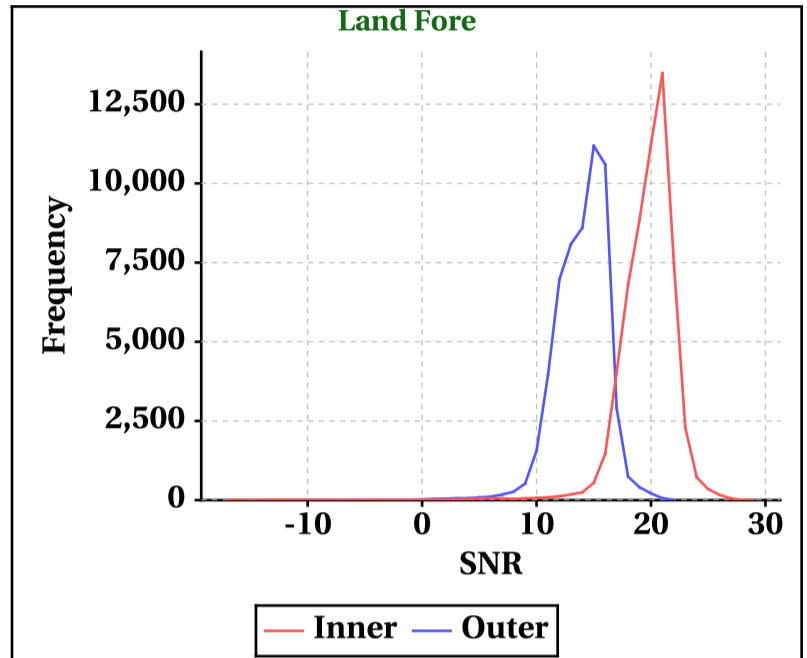
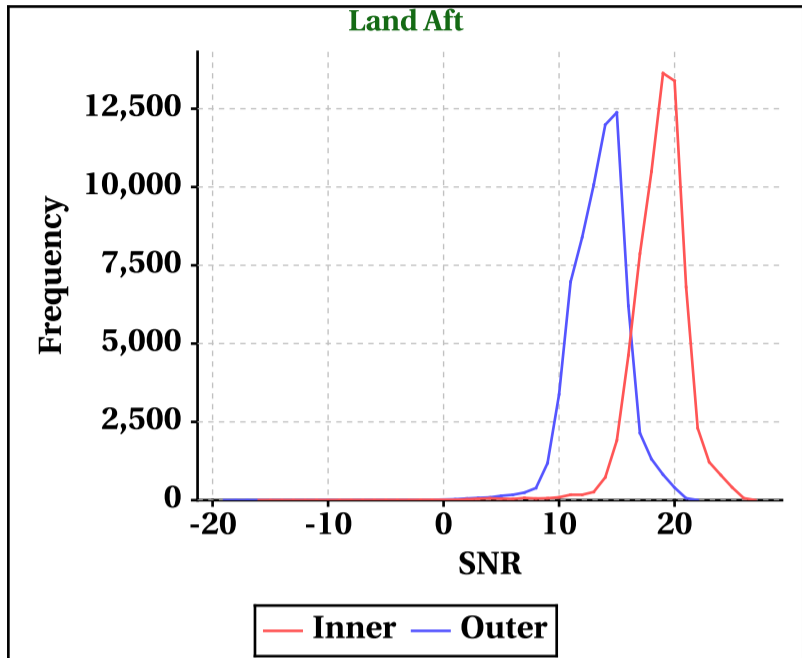


# Dynamic Range (Data Histograms)

## SNR(dBm)

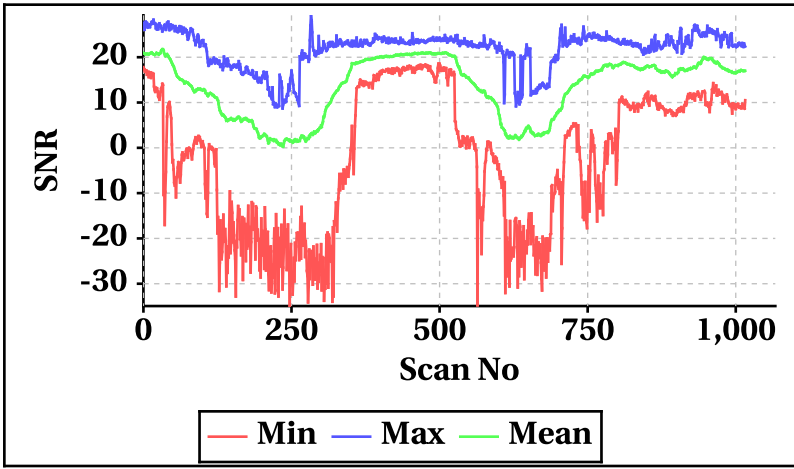
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-16	-17	-34	-34
Max	27	29	23	25

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-19	-11	-34	-34
Max	22	22	17	18

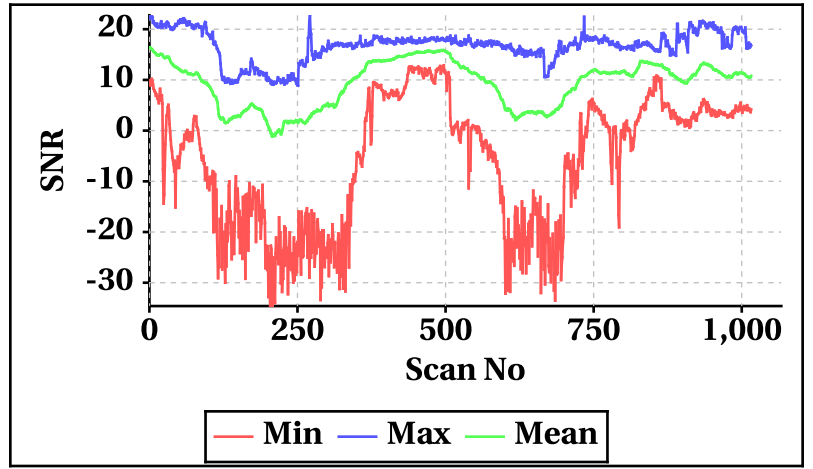


## Orbit-wise behaviour of SNR

Inner Beam (HH)

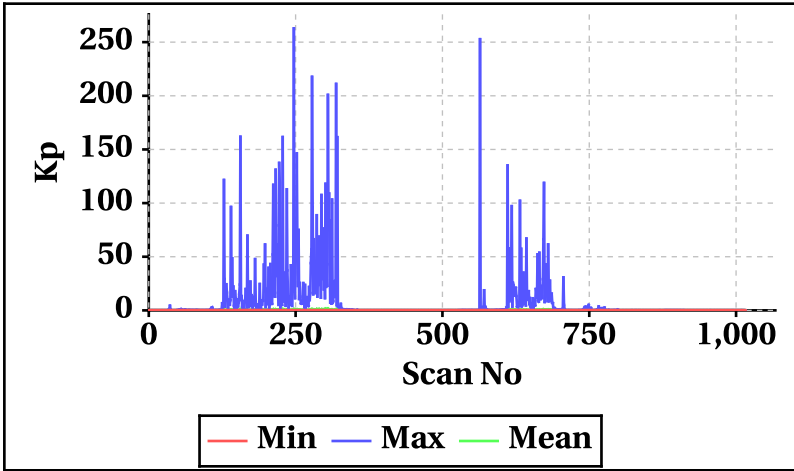


Outer Beam(VV)

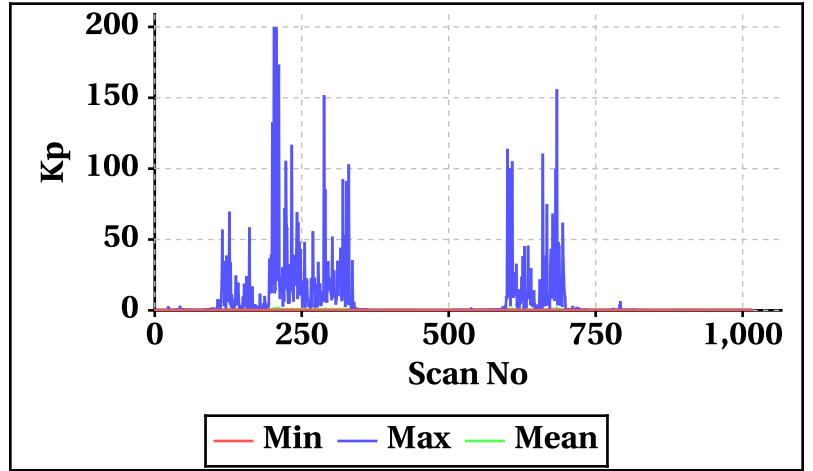


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

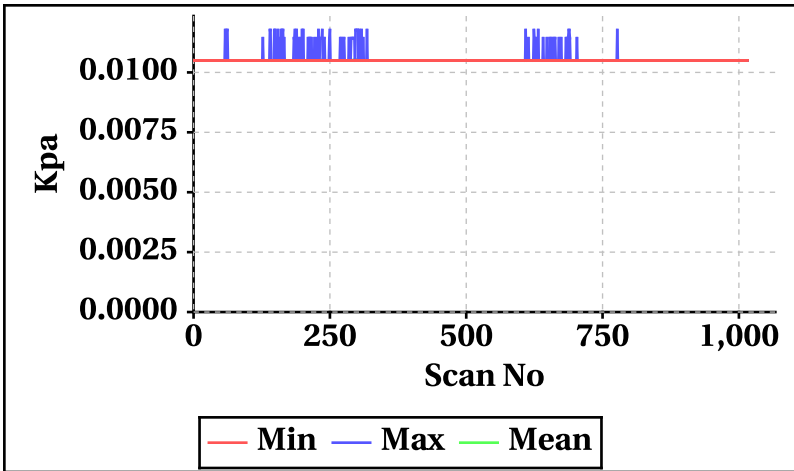
Inner Beam(HH)



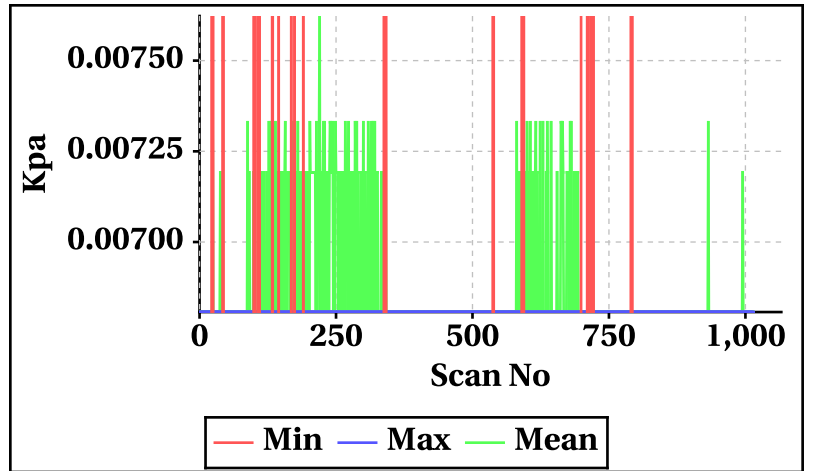
Outer Beam(VV)



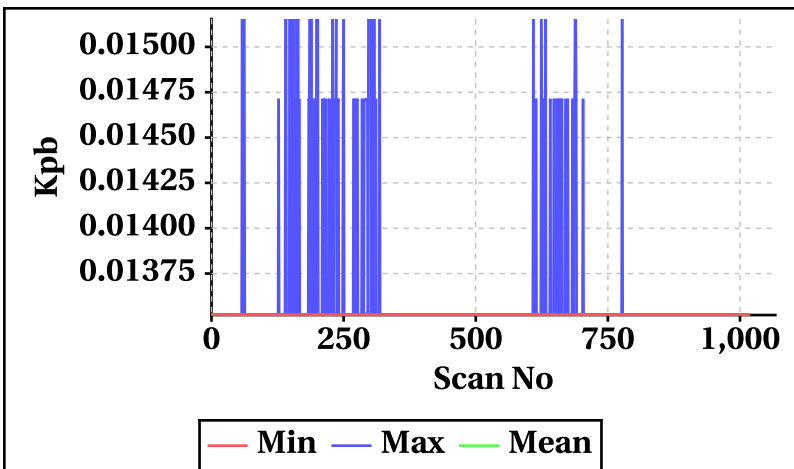
Inner Beam(HH)



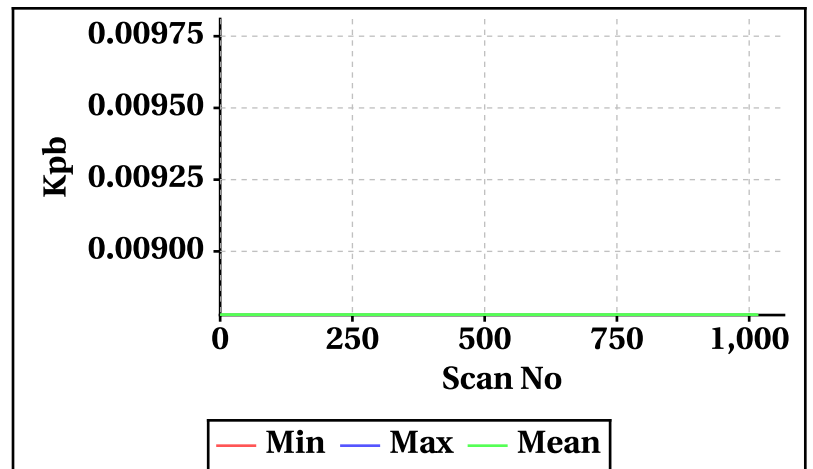
Outer Beam(VV)



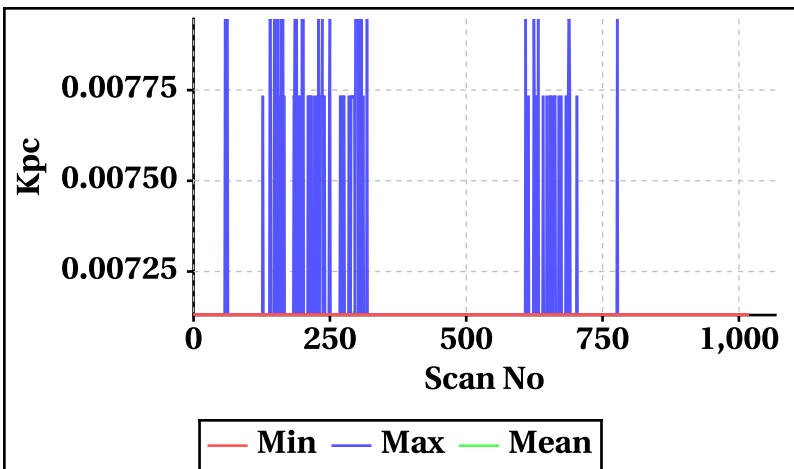
Inner Beam(HH)



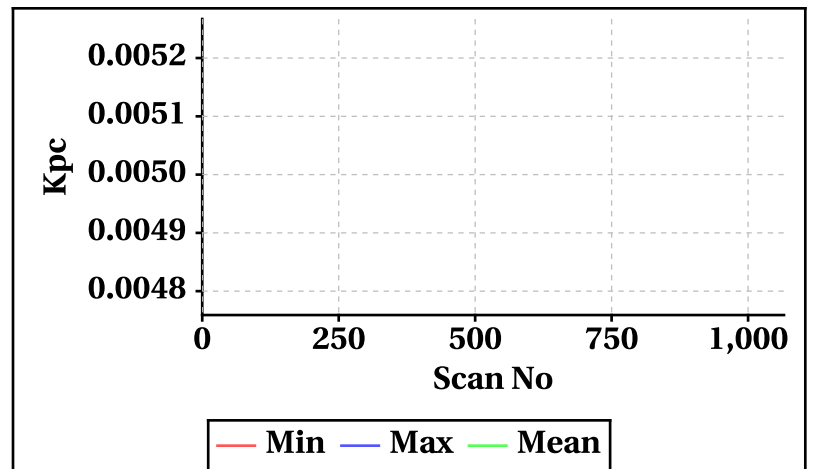
Outer Beam(VV)



Inner Beam(HH)



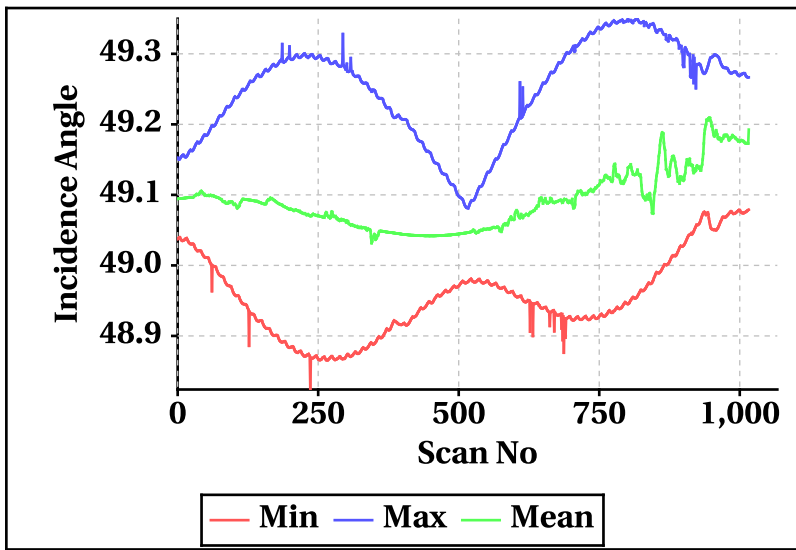
Outer Beam(VV)



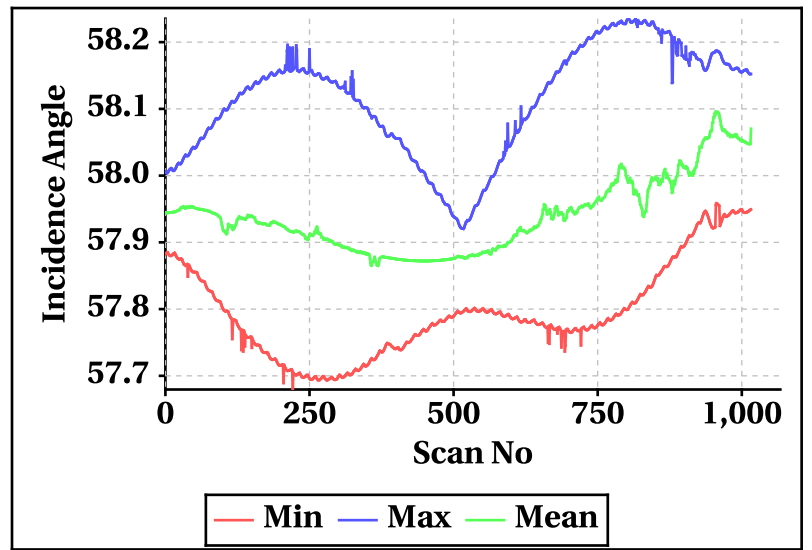


# Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

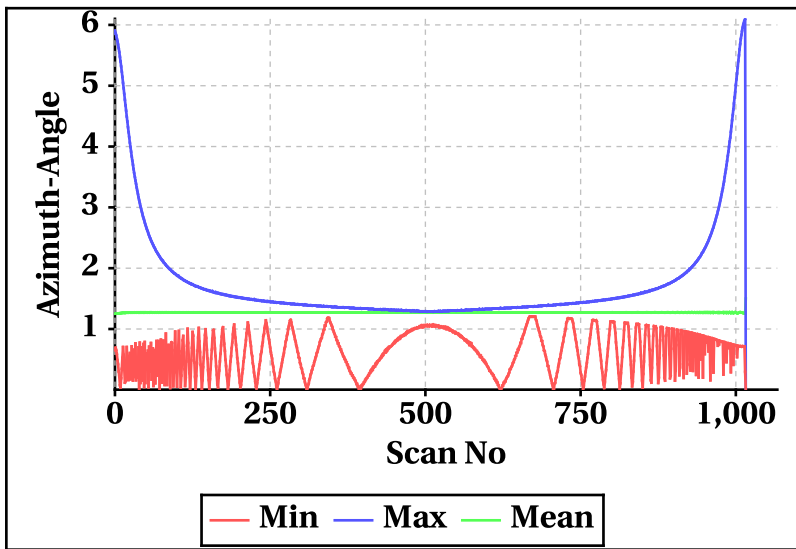
**Inner Beam (HH)**



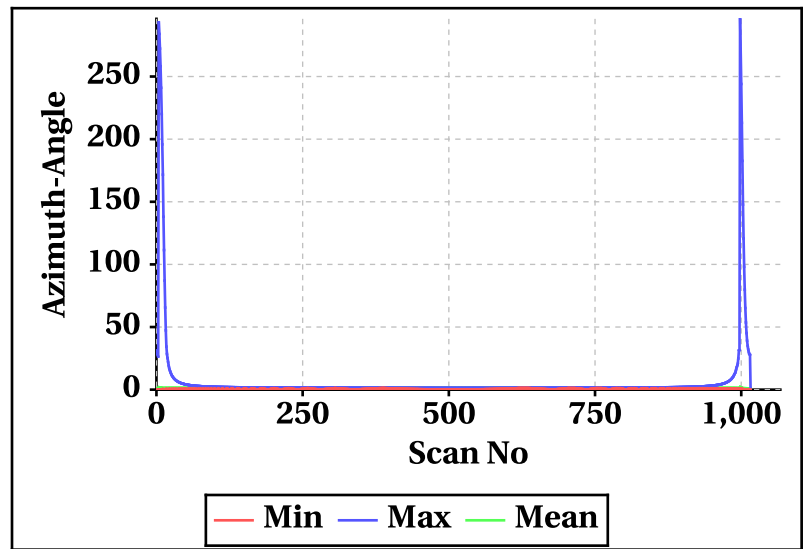
**Outer Beam(VV)**



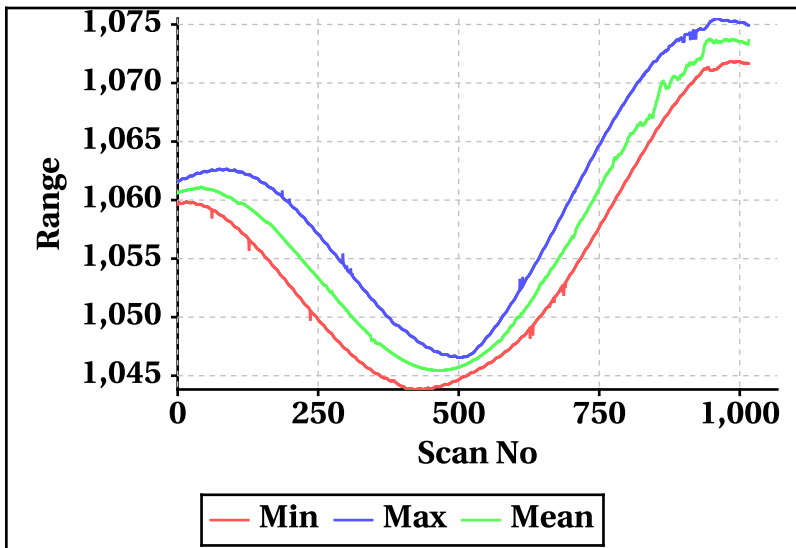
**Inner Beam (HH)**



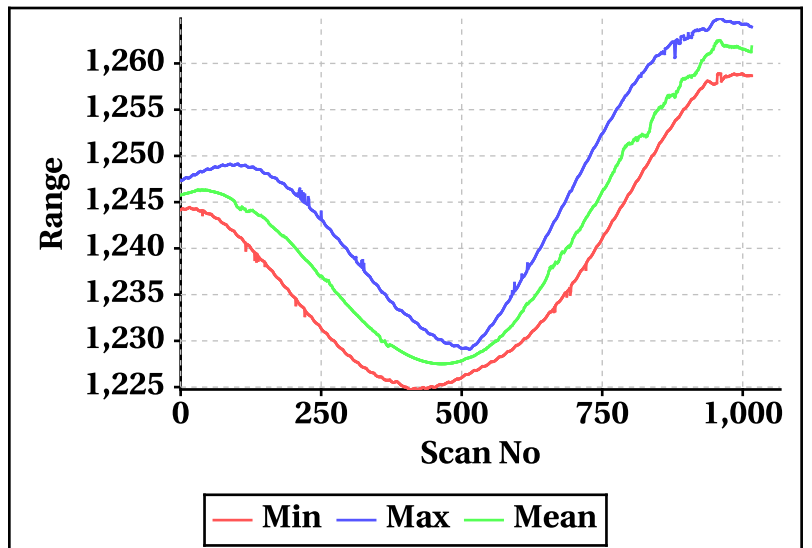
**Outer Beam(VV)**



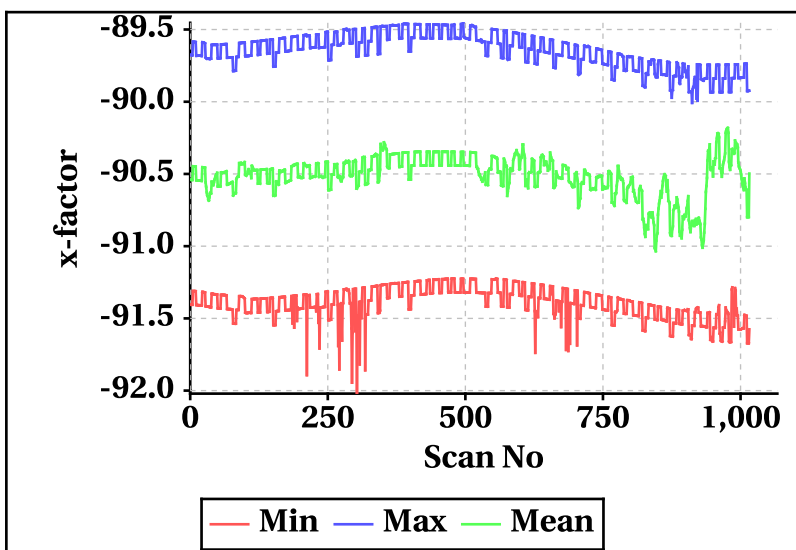
**Inner Beam (HH)**



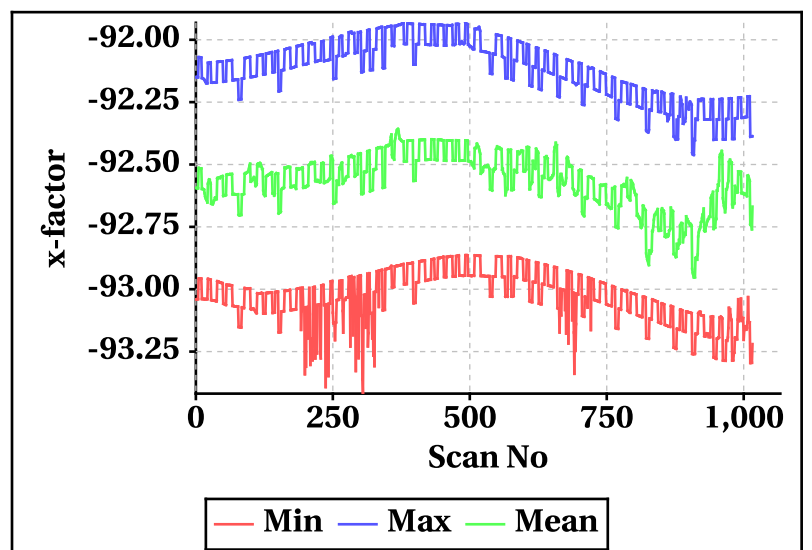
**Outer Beam(VV)**



**Inner Beam (HH)**



**Outer Beam(VV)**

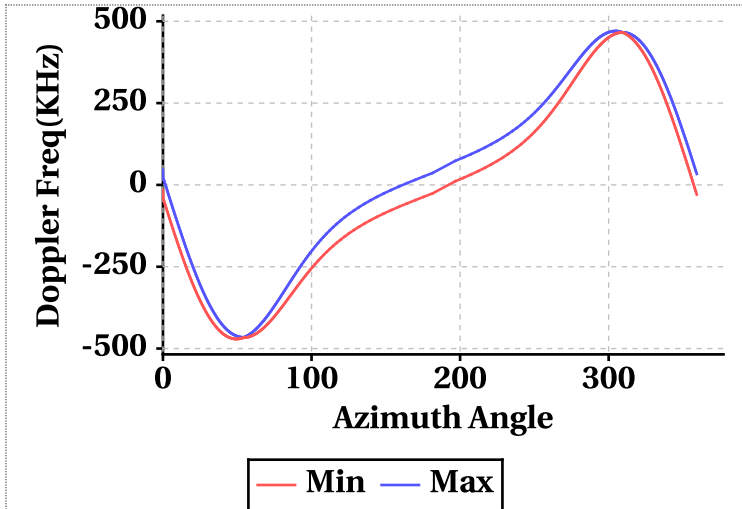


# Doppler Frequency Variation

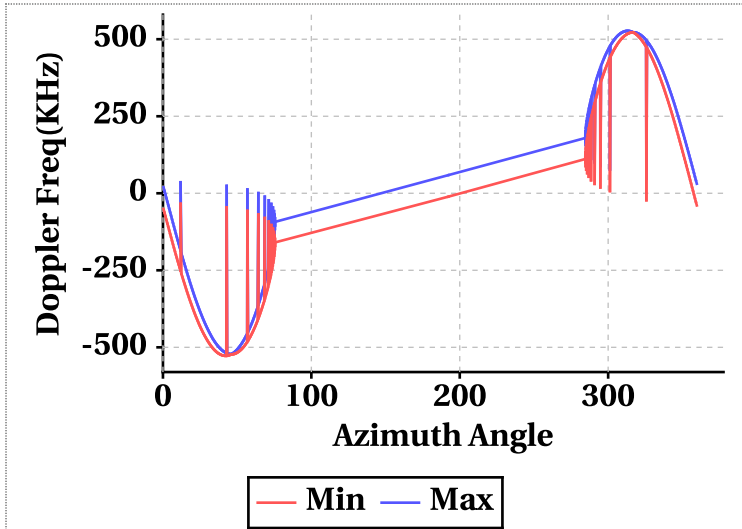
Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-470.82	-527.54
Max	470.18	527.02

Footprint wise Doppler frequency variation Inner Beam (HH)



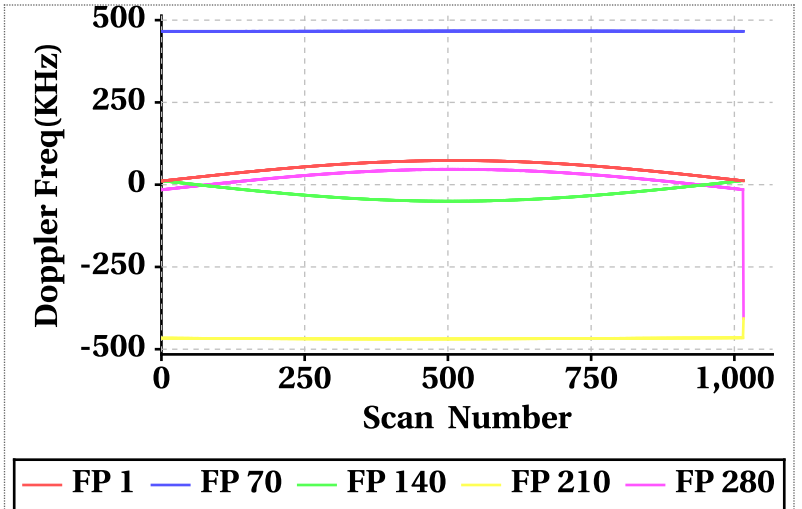
Footprint wise Doppler frequency variation Outer Beam (VV)



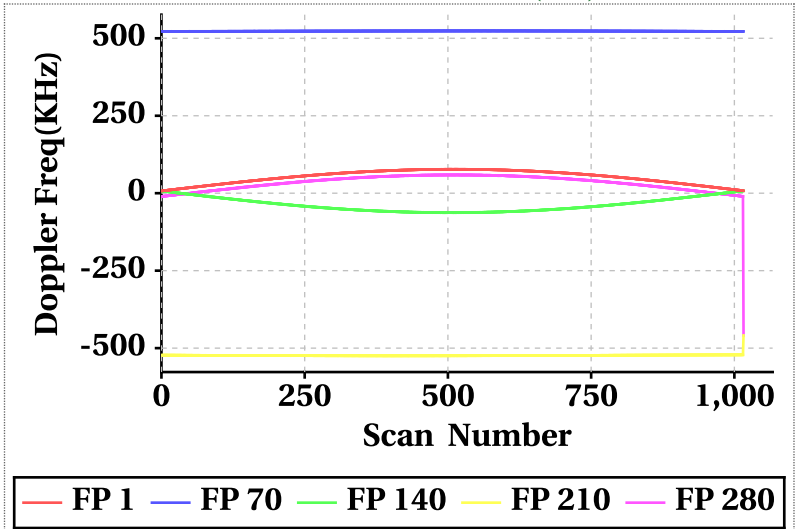
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	11.08	73.40	50.84	7.36	77.22	51.90
Doppler_70	466.04	466.86	466.44	522.18	523.82	523.13
Doppler_140	-50.36	12.78	-27.47	-62.82	7.78	-37.24
Doppler_210	-468.92	-406.78	-467.55	-524.80	-459.02	-523.61
Doppler_280	-406.78	46.80	23.79	-459.02	59.02	33.20

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

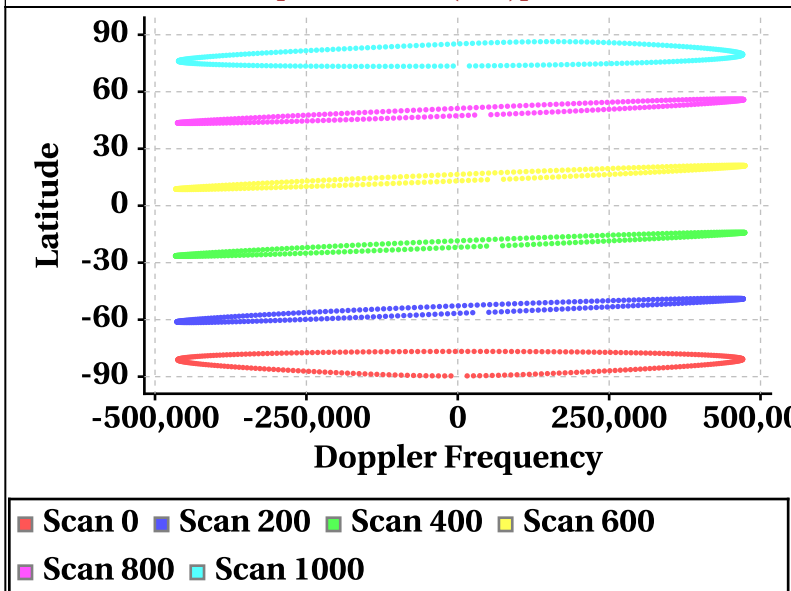


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

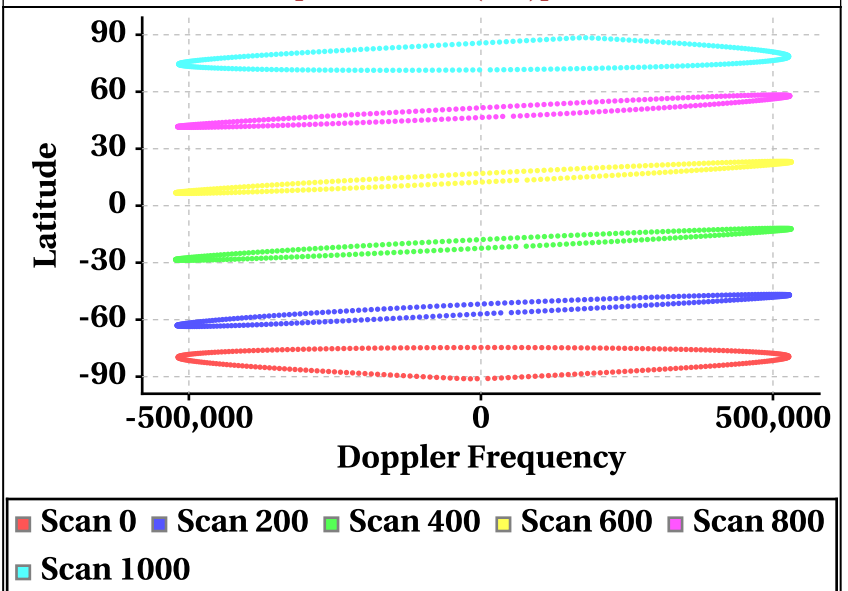


# Latitude Vs Doppler Frequency

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



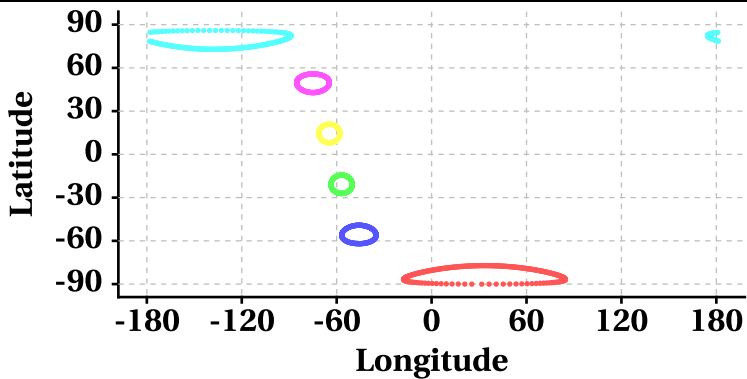
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

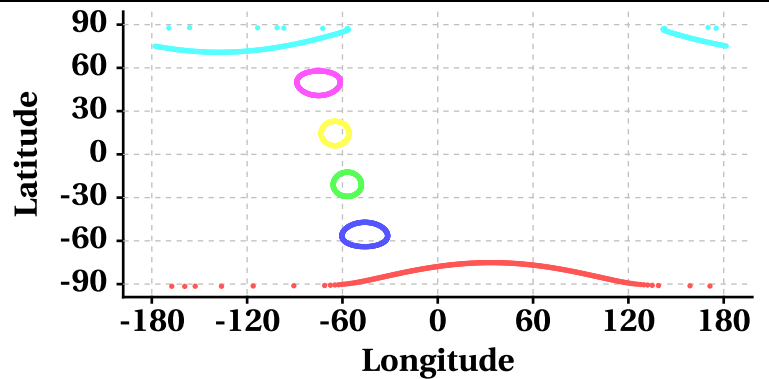
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

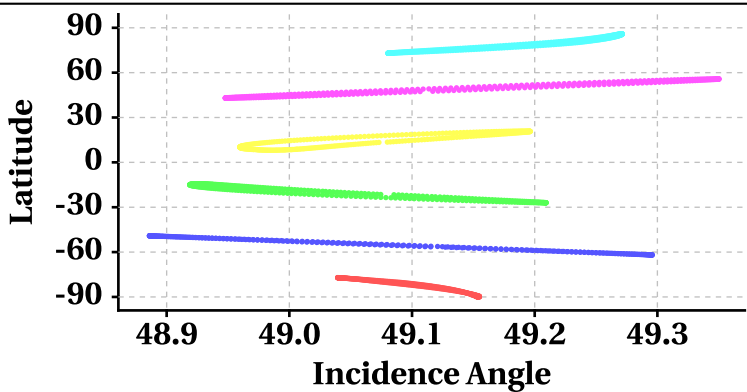
Scan Trace [Outer Beam (VV)]



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

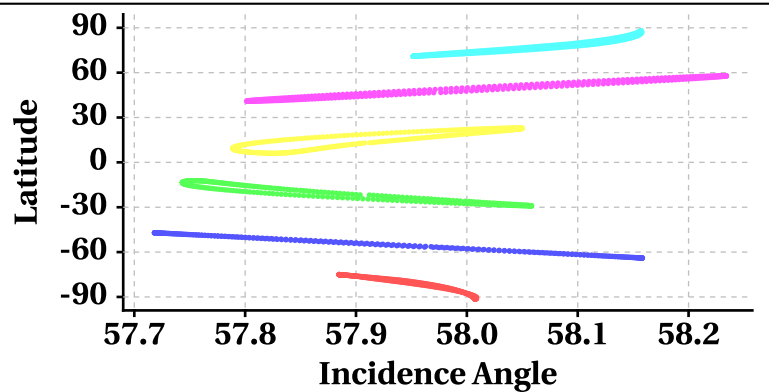
## Latitude Vs Incidence Angle

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



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

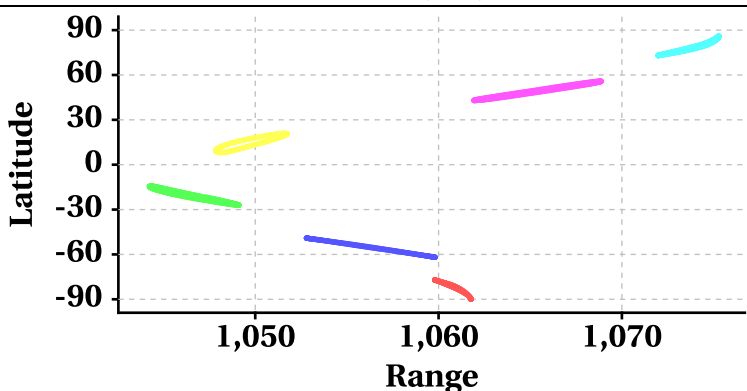
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

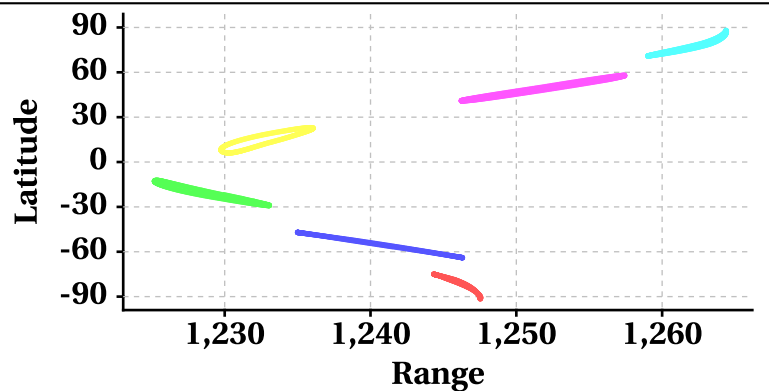
## Latitude Vs Range

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

