

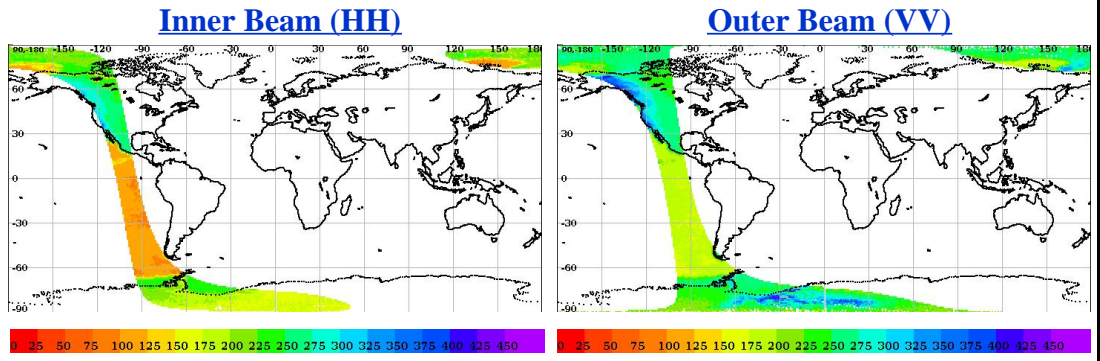
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	10873	<b>Total Scans</b>	1017
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	10874	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.3	<b>Rev. Number</b>	10873_10874	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	16-10-2018	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	16-10-2018	<b>Equator Crossing Time</b>	03:20:39.000	<b>No Of Outer Slices</b>	15

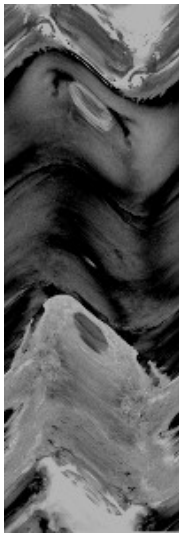
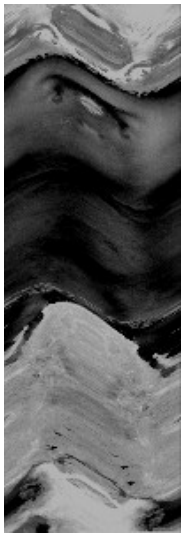
## Brightness Temperature(k) Footprint trace



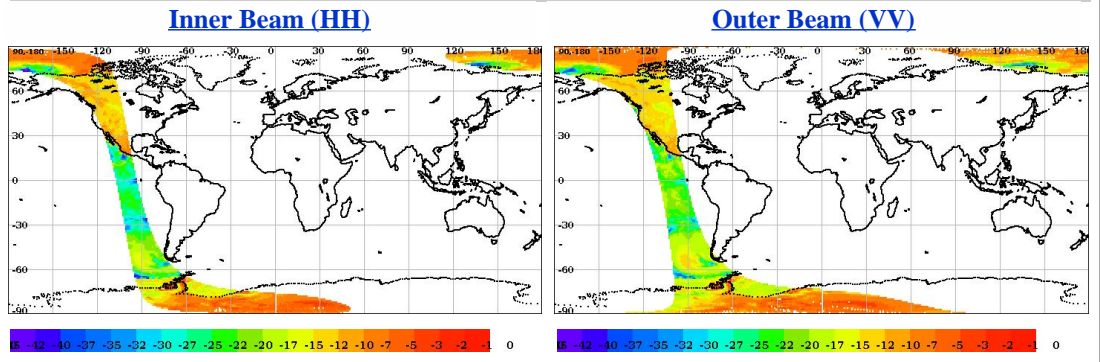
## Image Snapshot for Inner & Outer Beam

Inner (HH)

Outer (VV)



## Sigma0(dB) Footprint trace



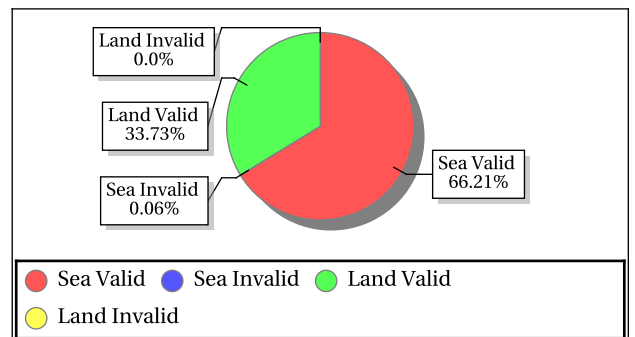
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
<b>Invalid Sigma0(%)</b>	0.06	1.90
Data Not Available From Payload (%)	99.72973	3.031379
Slice not within sample array limits (%)	0.27	96.97
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
<b>Poor Sigma0(%)</b>	22.21	13.47
Noise samples for blending Saturated	0.007877	1.183191
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 (%)	0.014703	0.037438

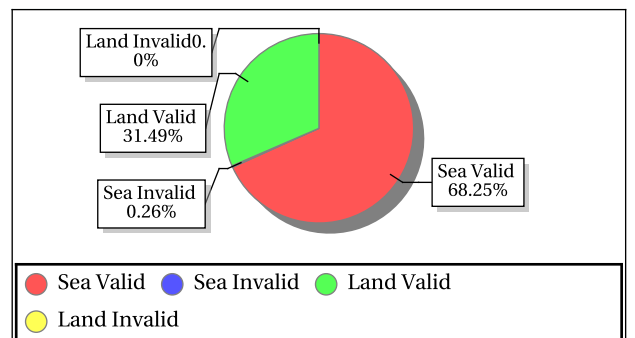
\*DP Format Document

## 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	295.71	0.21	0.935	0.12	211.97	0.20	1.063	0.12	0.52	0.12	0.000	0.12	0.24	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	26.14	7.57	3.378	-33.40	26.83	8.10	5.140	-6.43	30.19	18.09	9.515	-1.47	29.06	18.23	5.886

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	197.37	0.18	1.027	0.09	166.92	0.16	0.812	0.09	0.30	0.09	0.000	0.09	0.19	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	0.02	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>	-34.25	19.87	4.77	0.000	-33.53	20.56	5.32	0.000	-4.90	22.32	12.01	0.004	-1.87	22.14	11.64	0.007

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>	48.71	49.51	49.09	0.000	57.44	58.38	57.97	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	281.20	1.27	2.531	0.0000	292.97	1.27	3.704	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1024.37	1099.98	1049.90	9.358	1199.23	1293.34	1234.99	41.431	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.82	-89.79	-90.41	0.000	-93.77	-91.84	-92.24	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.16	15.70	15.35	0.000	20.06	21.97	20.31	0.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.79	39.60	19.74	1.000	18.66	12425.62	44.01	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

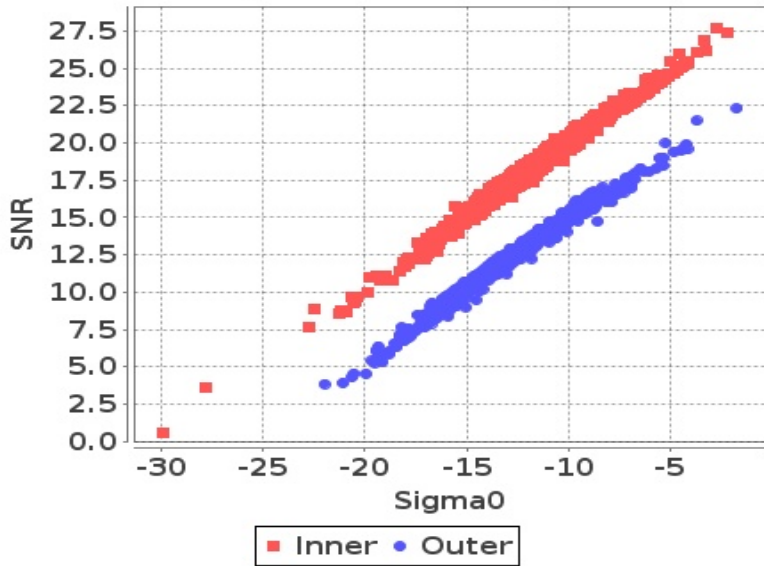
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

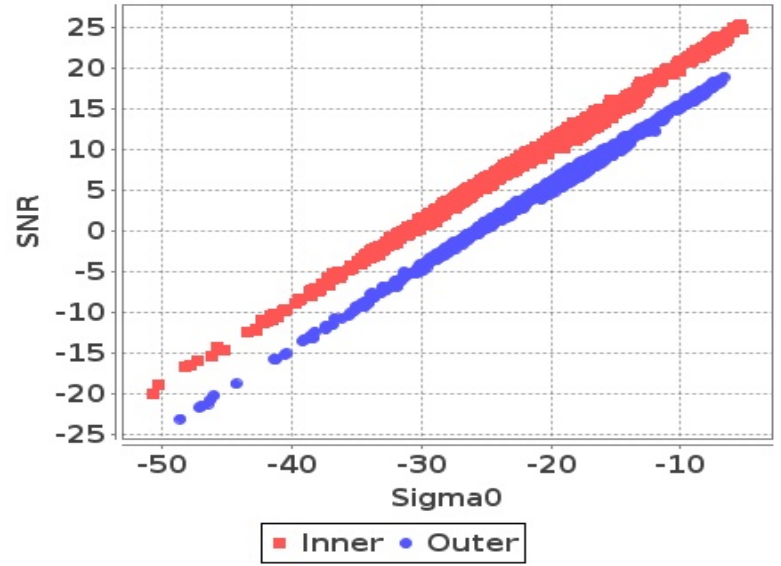
Footprint-Land

Sigma0 Vs SNR (Land)



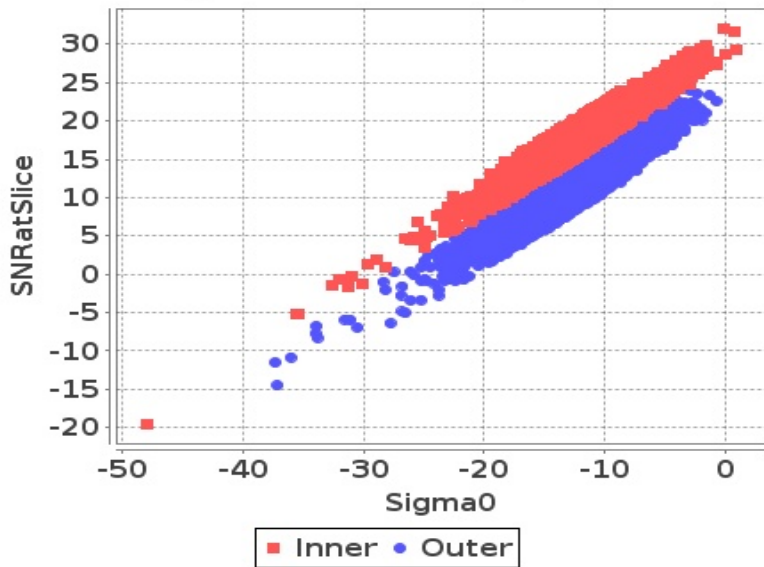
Footprint-Sea

Sigma0 Vs SNR (Sea)



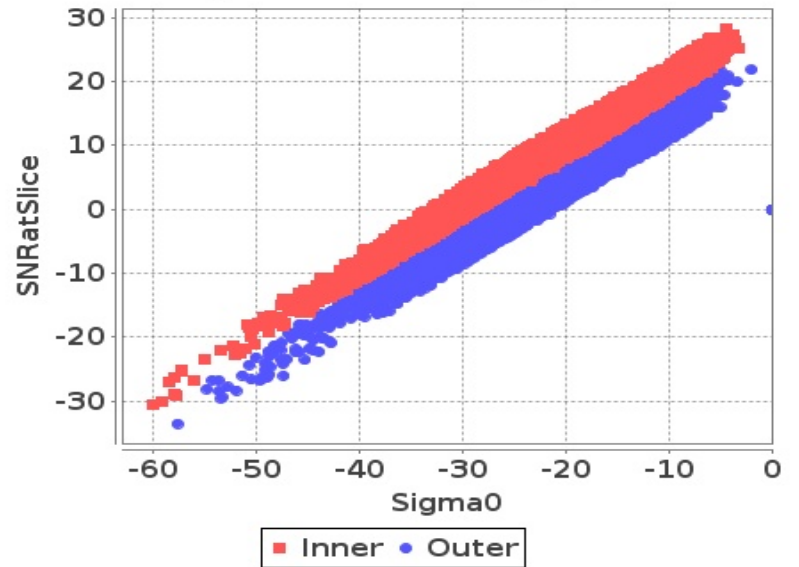
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

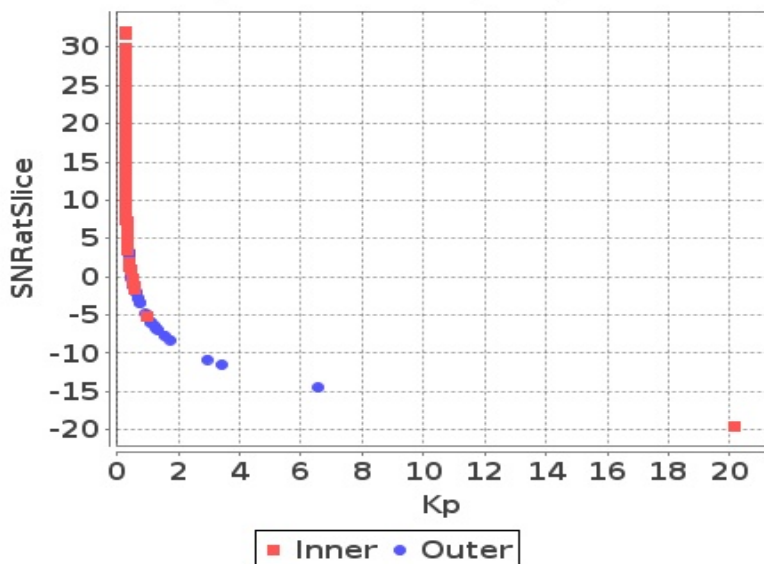
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

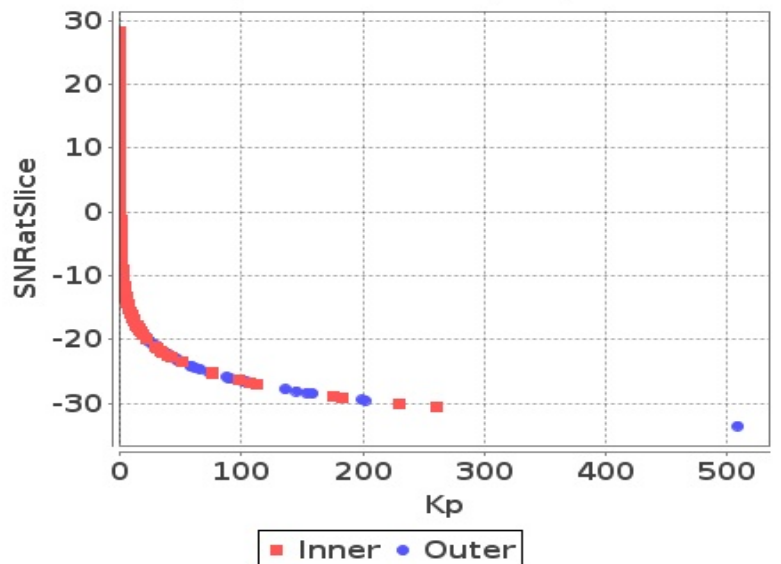
Slice

Kp Vs SNRatSlice (Land)



Slice

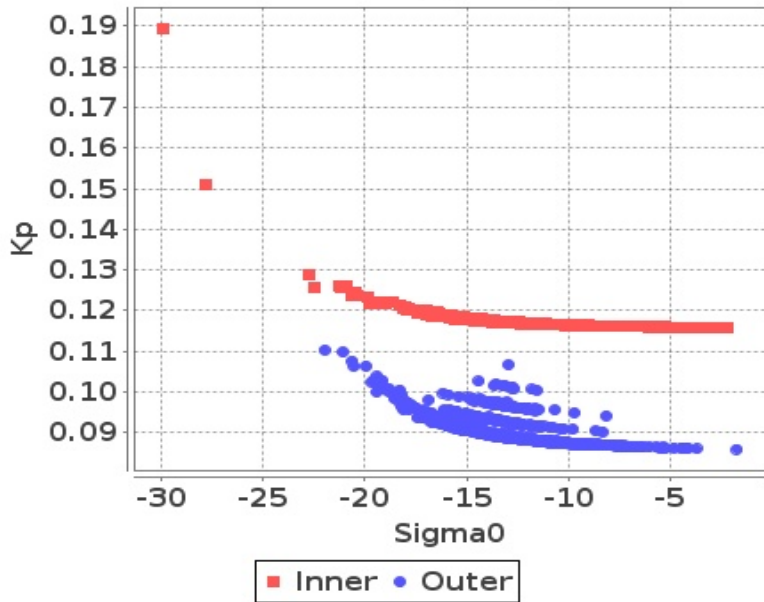
Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

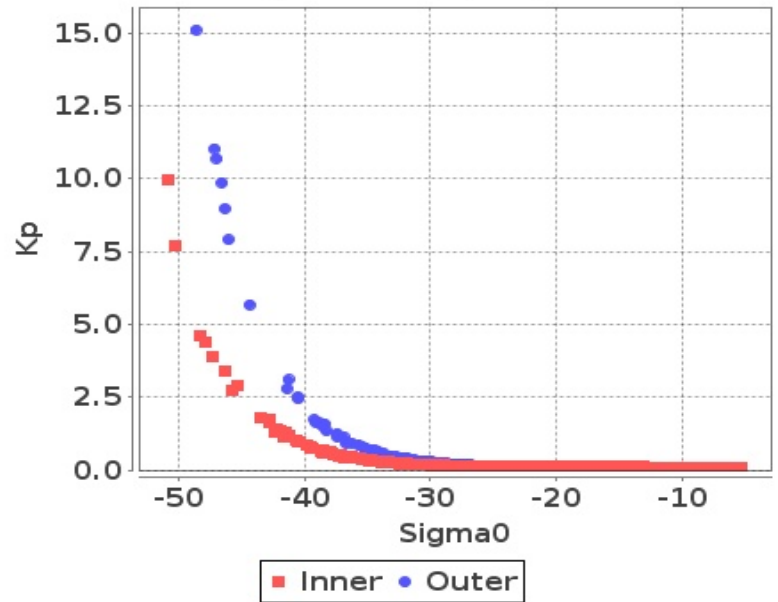
## Footprint-Land

### Sigma0 Vs Kp (Land)



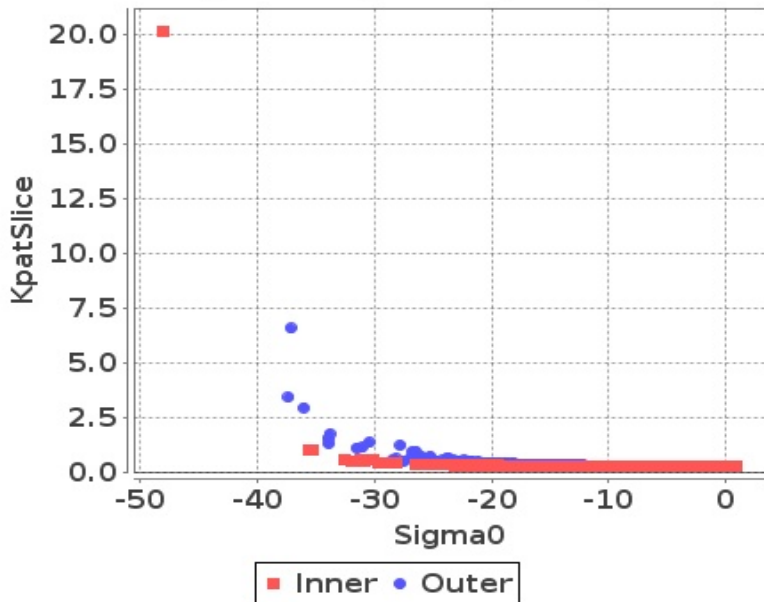
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



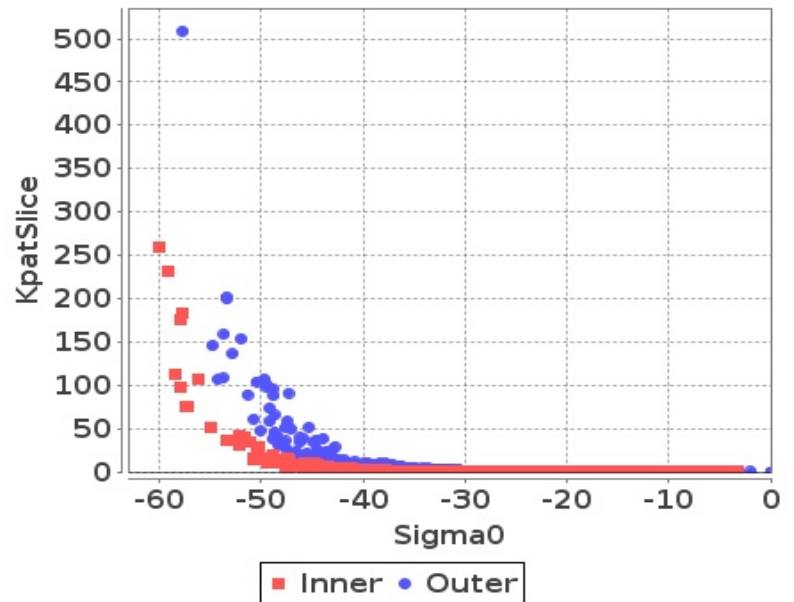
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)



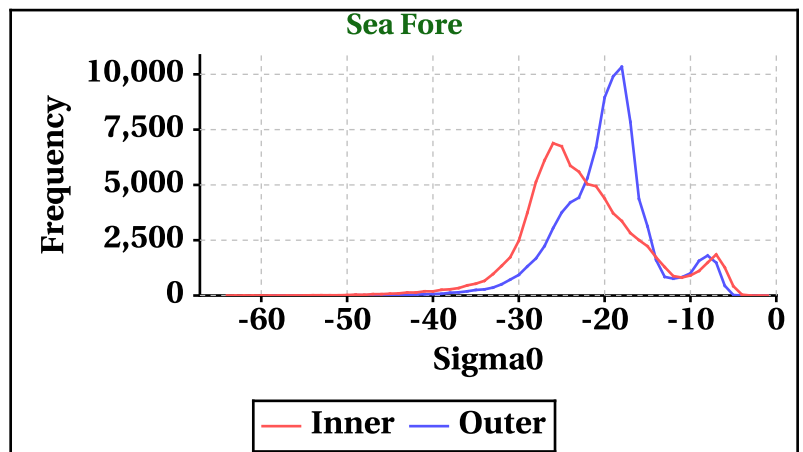
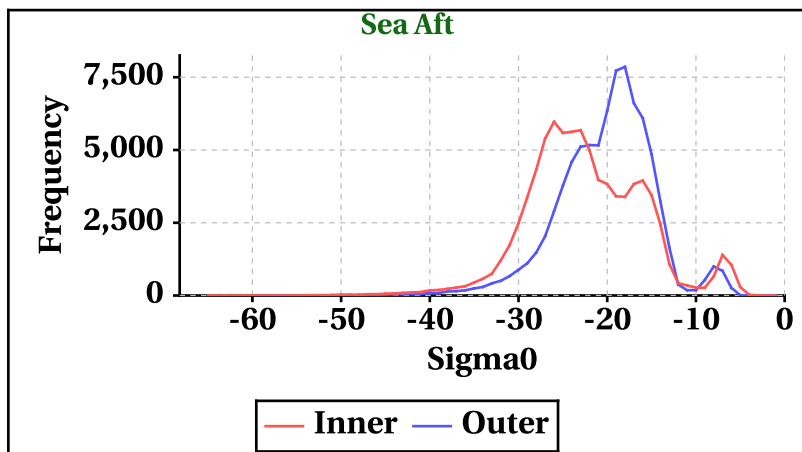
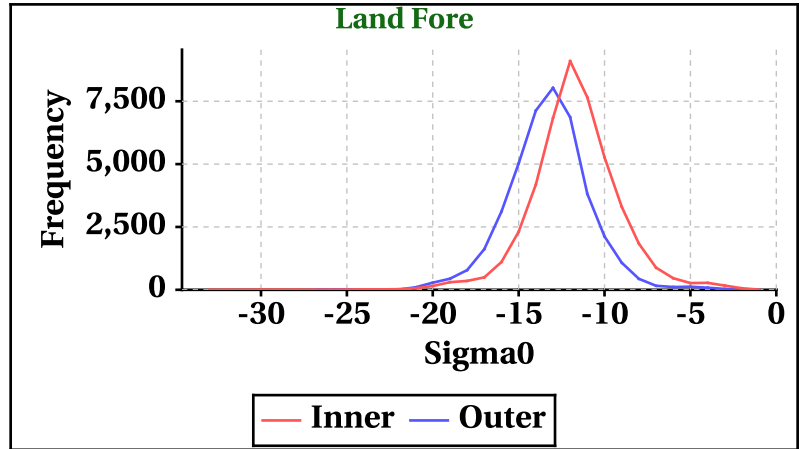
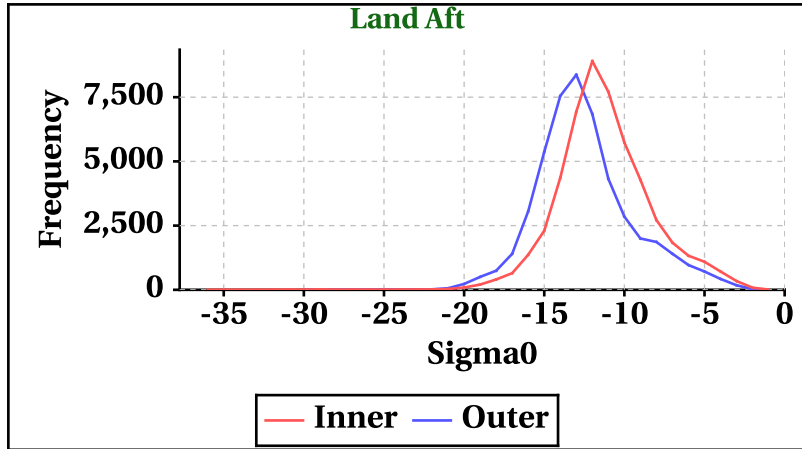


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-36	-33	-65	-64
Max	0	0	0	0

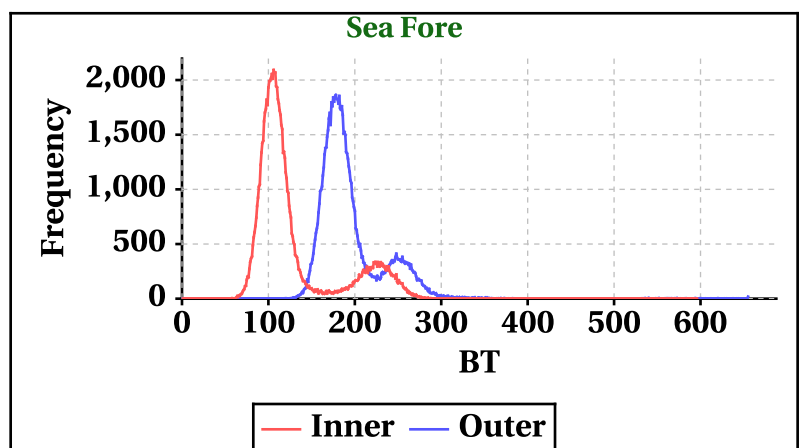
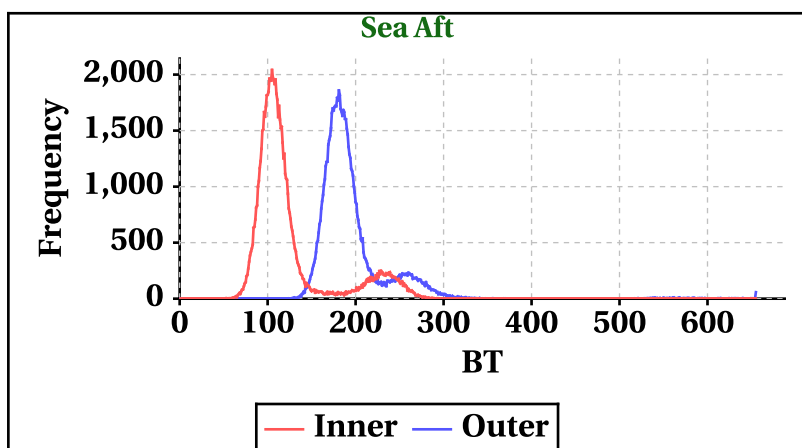
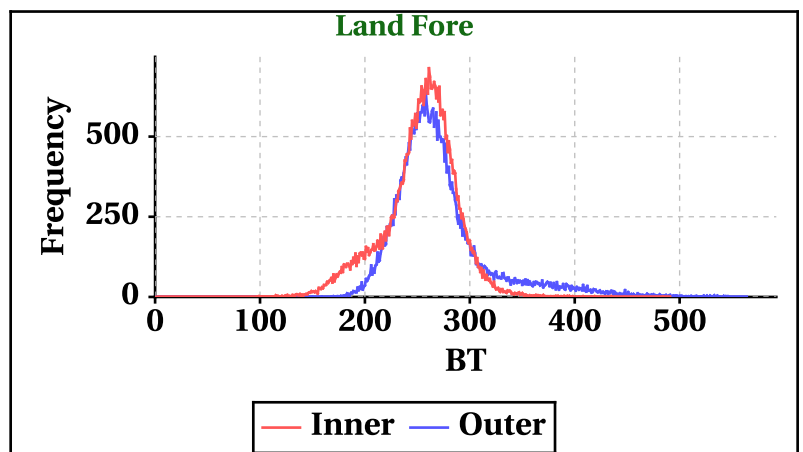
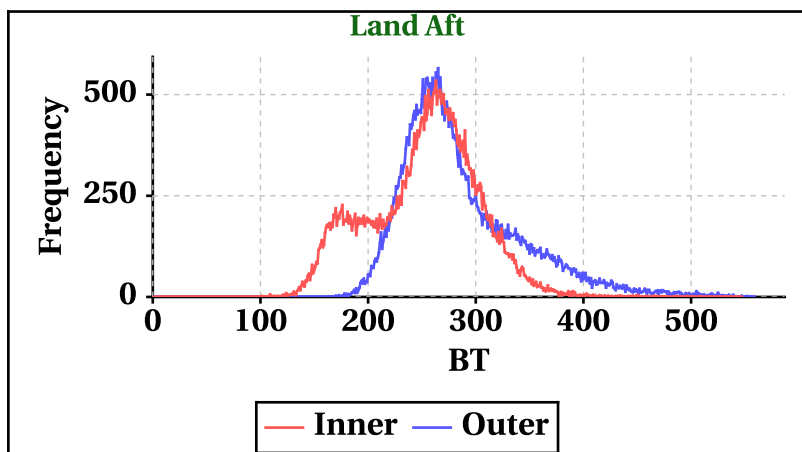
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-30	-27	-59	-59
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	547	491	655	596

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	559	564	655	655

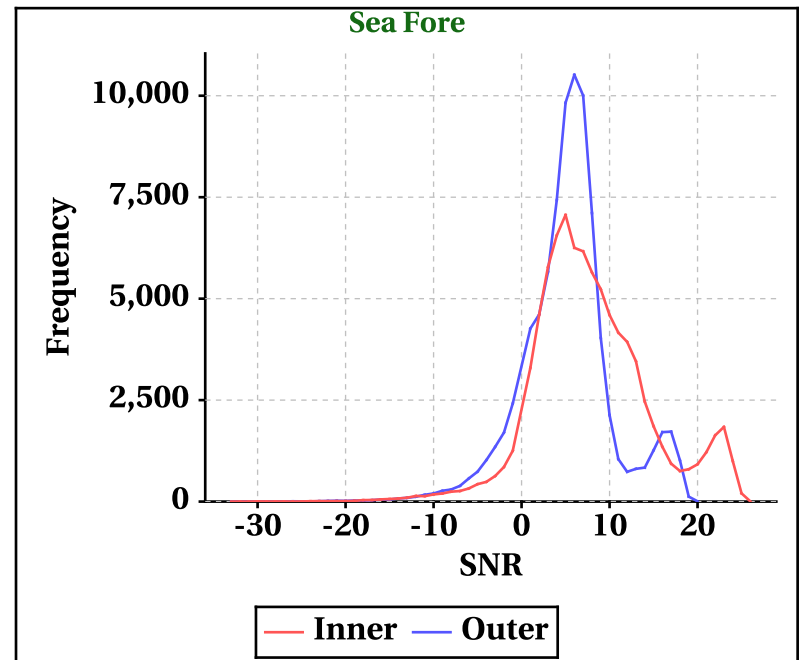
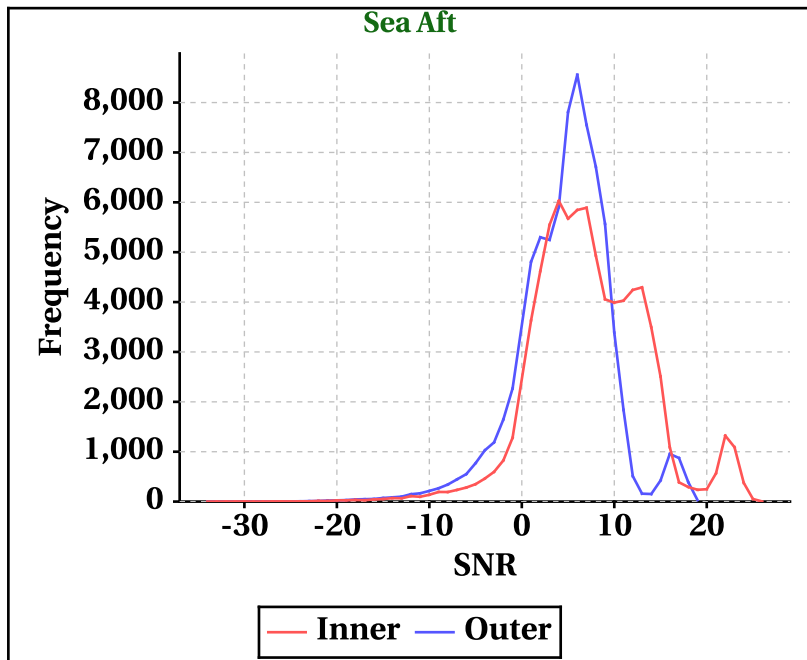
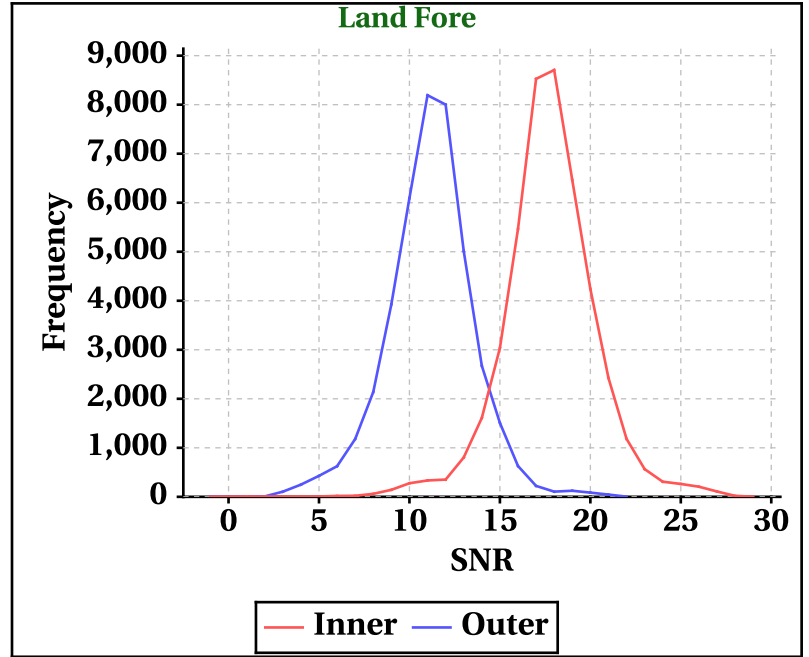
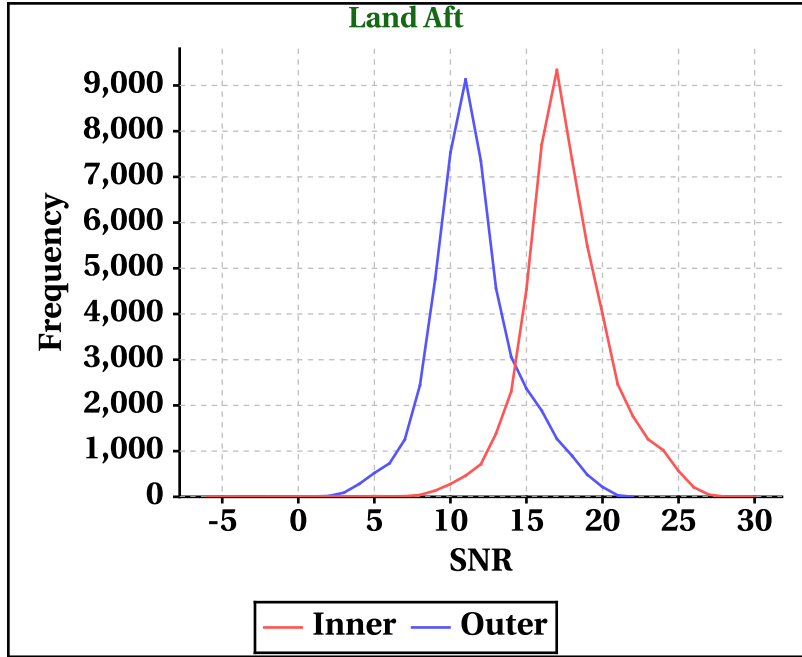


# Dynamic Range (Data Histograms)

## SNR(dBm)

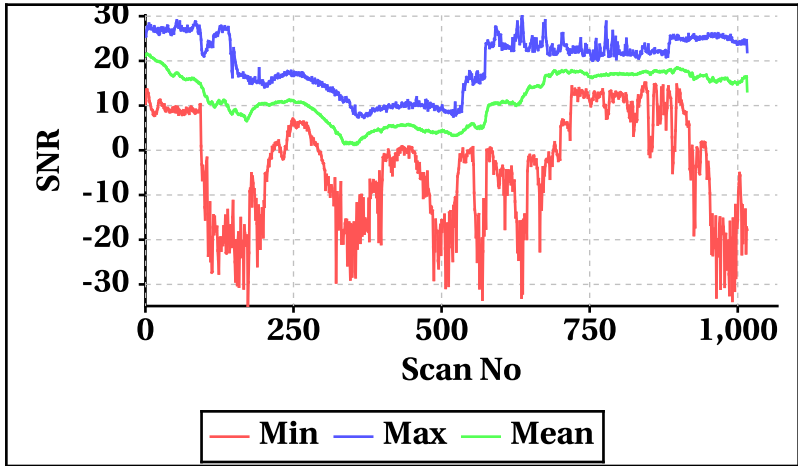
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-6	-1	-34	-33
Max	30	29	26	26

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-4	-1	-34	-33
Max	22	22	19	20

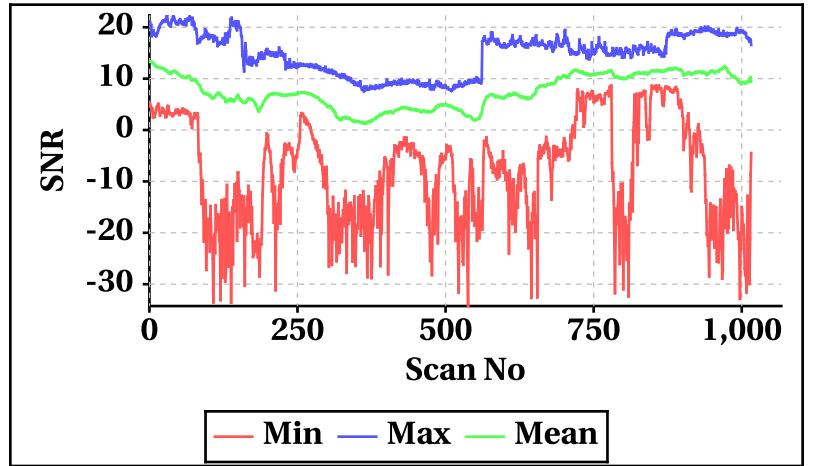


## Orbit-wise behaviour of SNR

Inner Beam (HH)

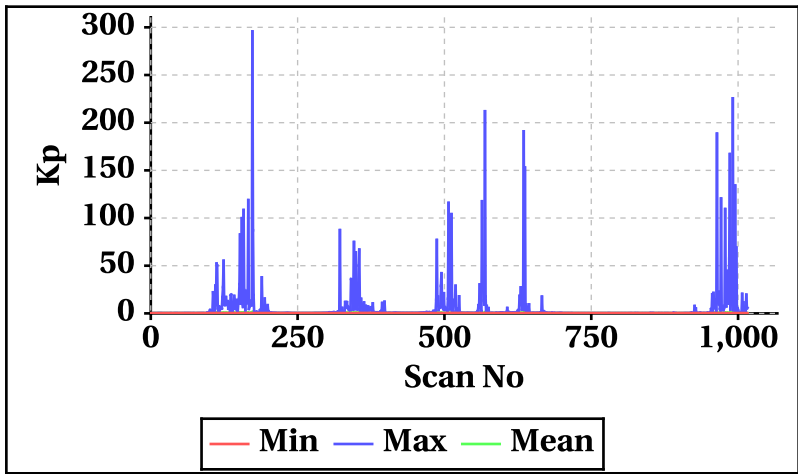


Outer Beam(VV)

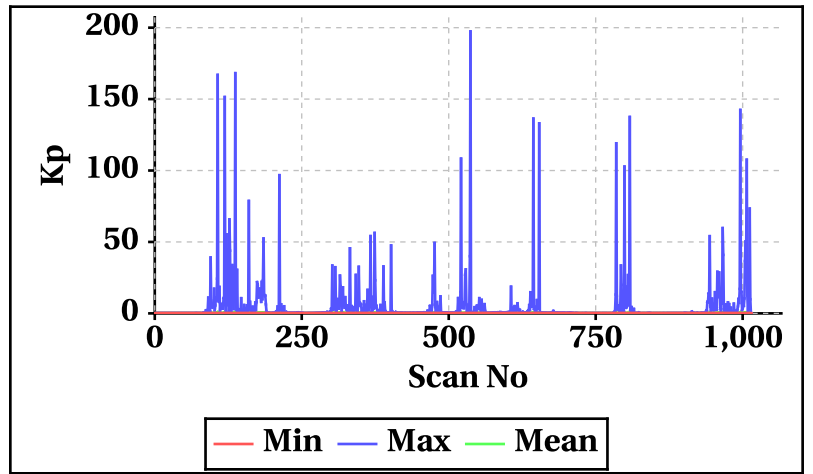


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

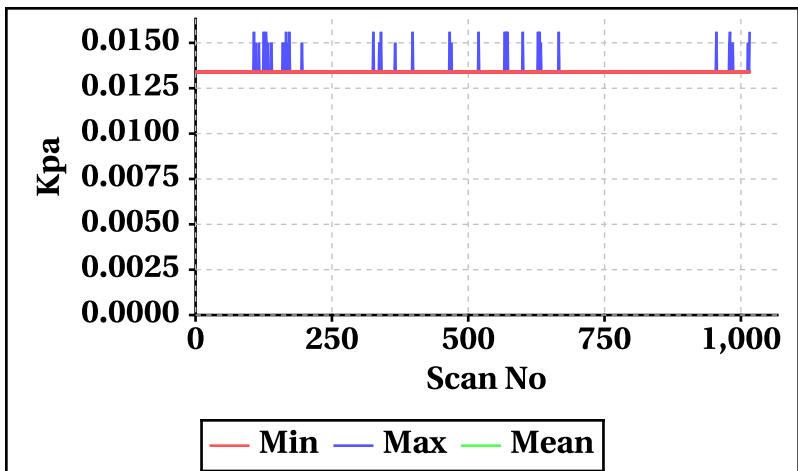
Inner Beam(HH)



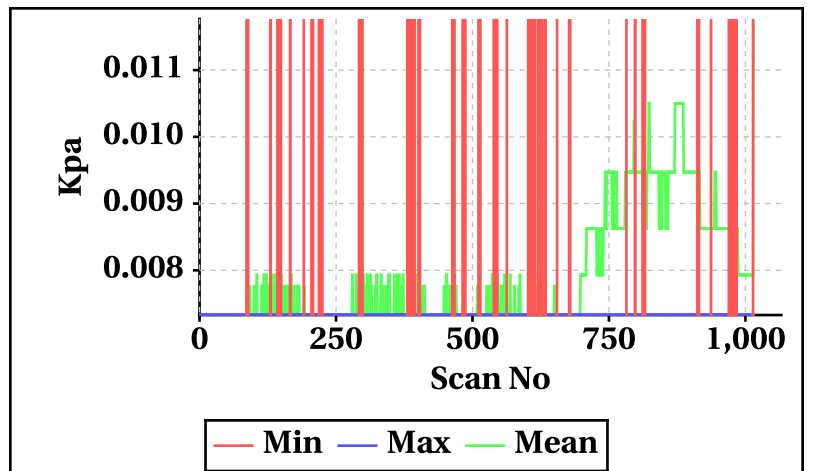
Outer Beam(VV)



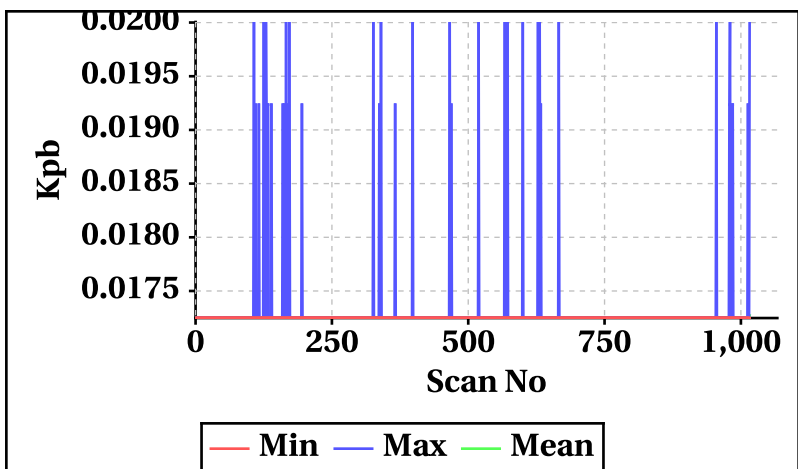
Inner Beam(HH)



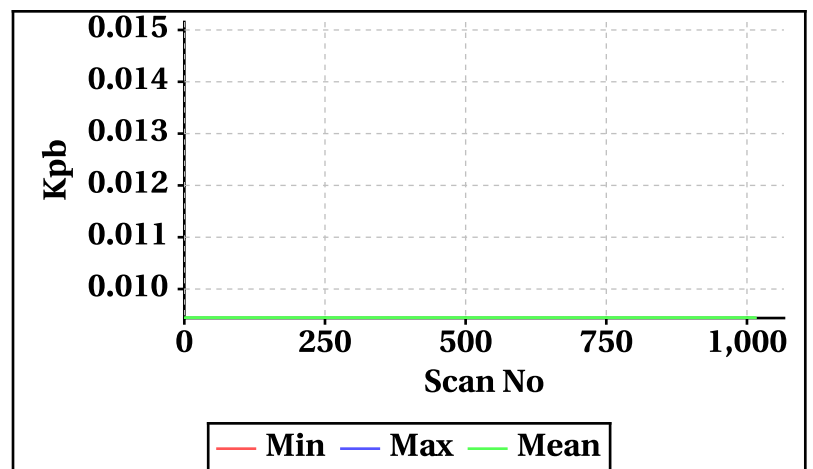
Outer Beam(VV)



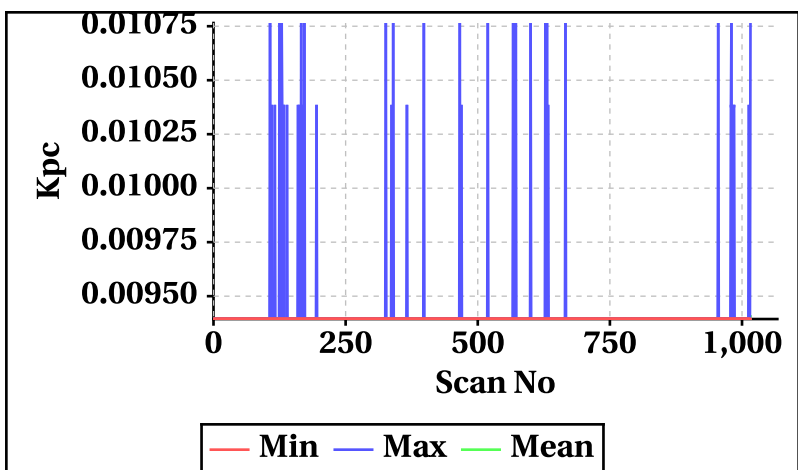
Inner Beam(HH)



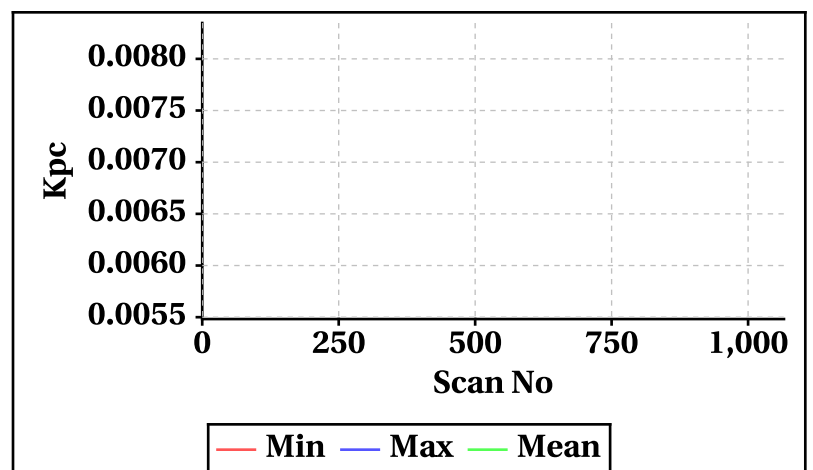
Outer Beam(VV)



Inner Beam(HH)

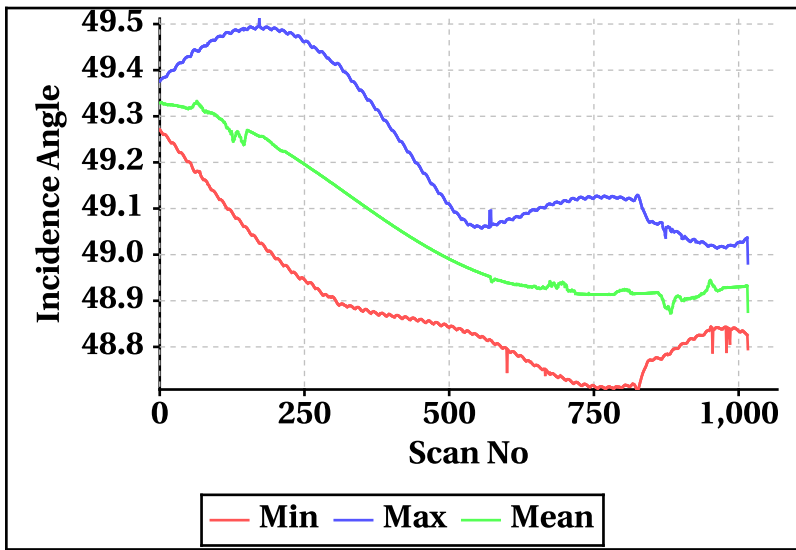


Outer Beam(VV)

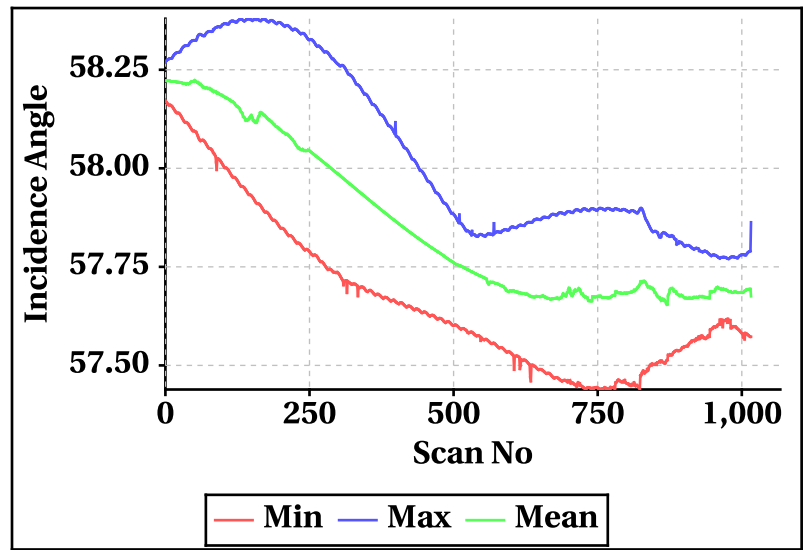


Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

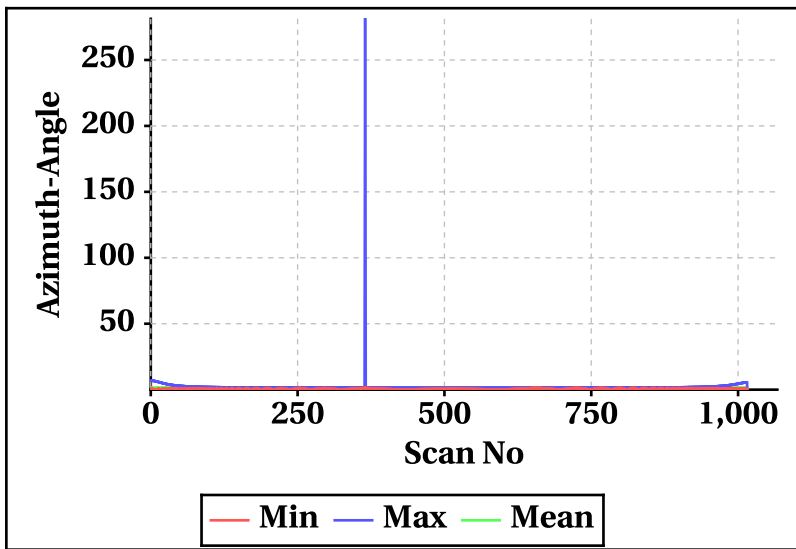
Inner Beam (HH)



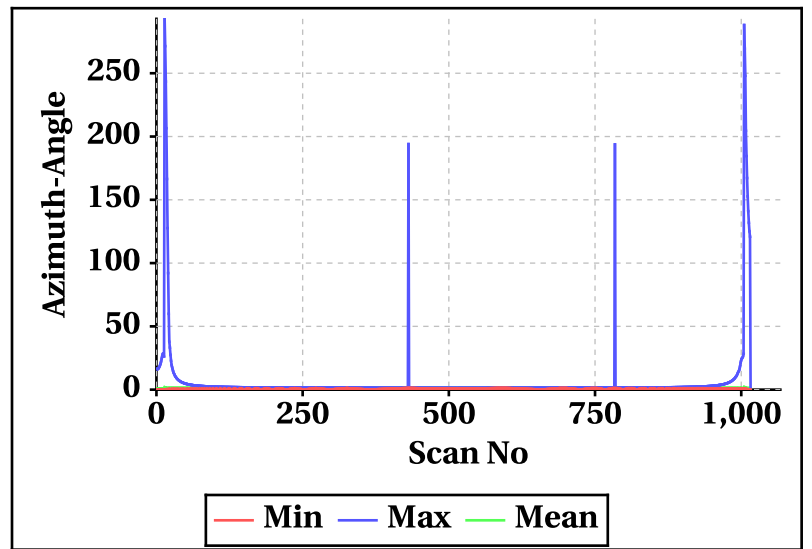
Outer Beam(VV)



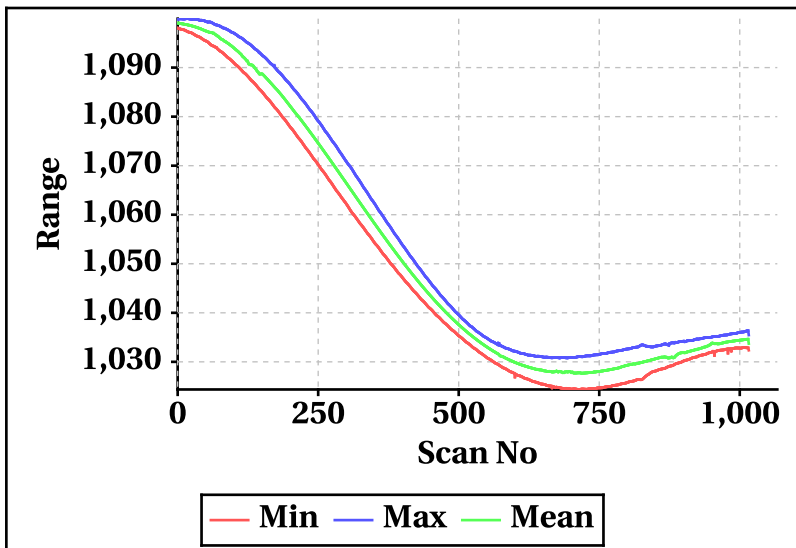
Inner Beam (HH)



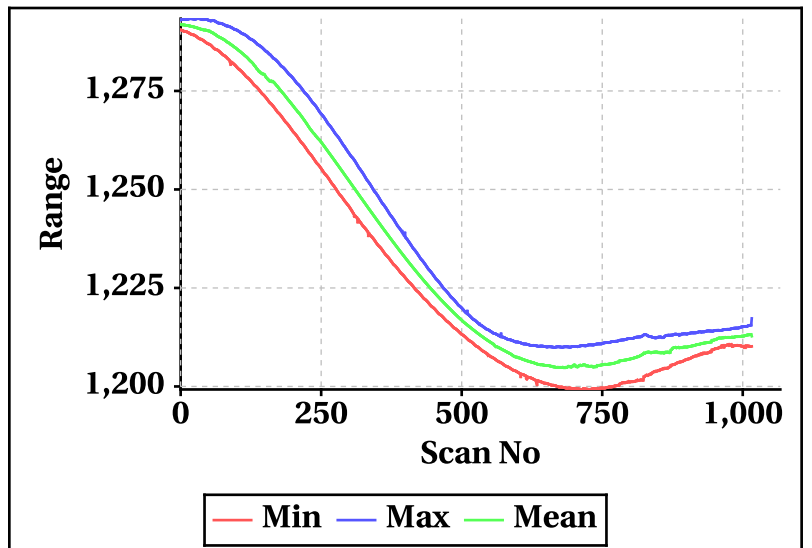
Outer Beam(VV)



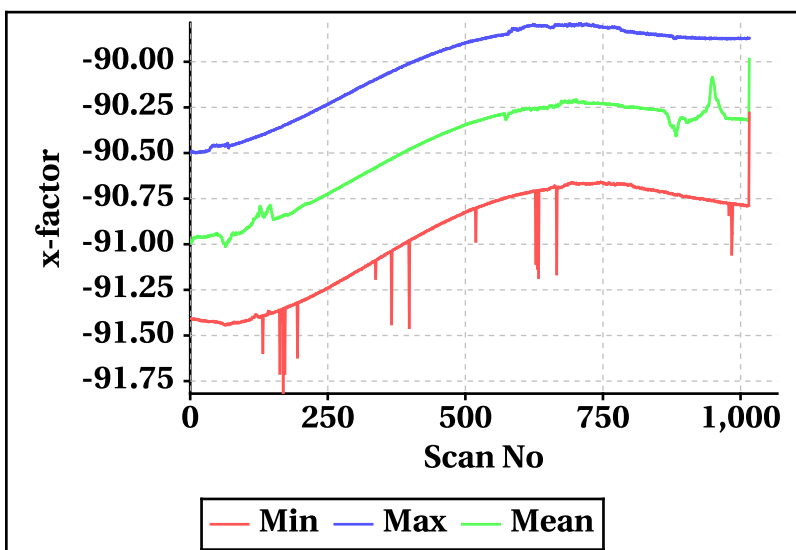
Inner Beam (HH)



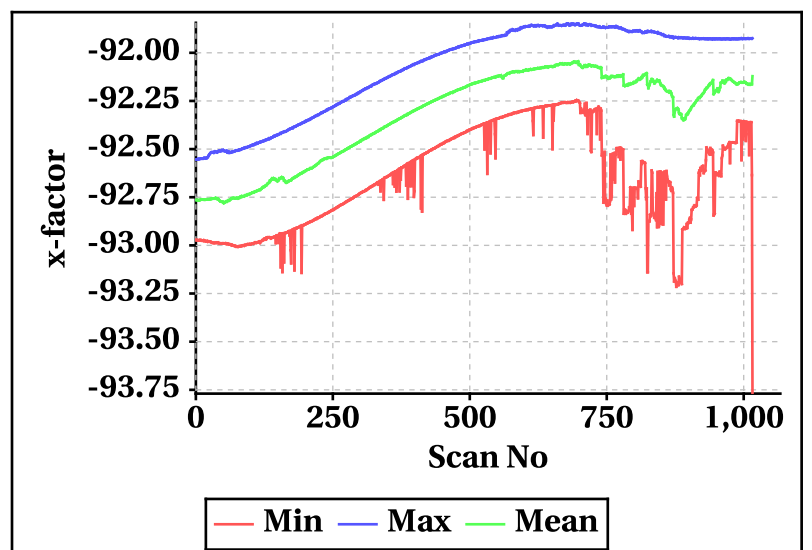
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)



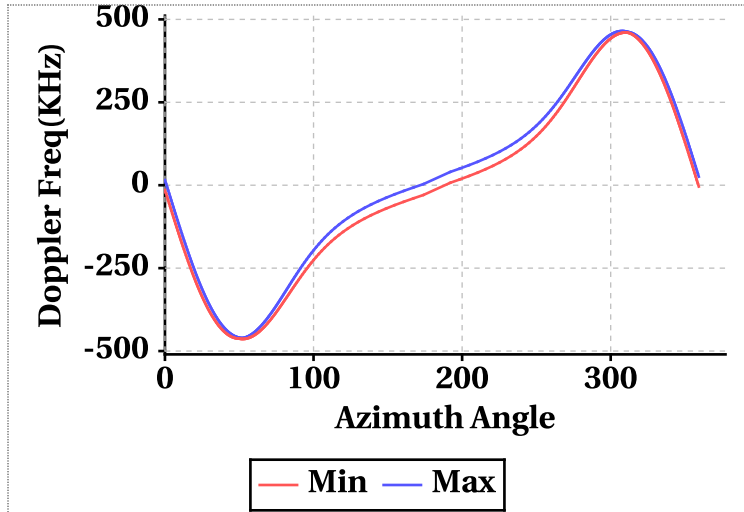


# Doppler Frequency Variation

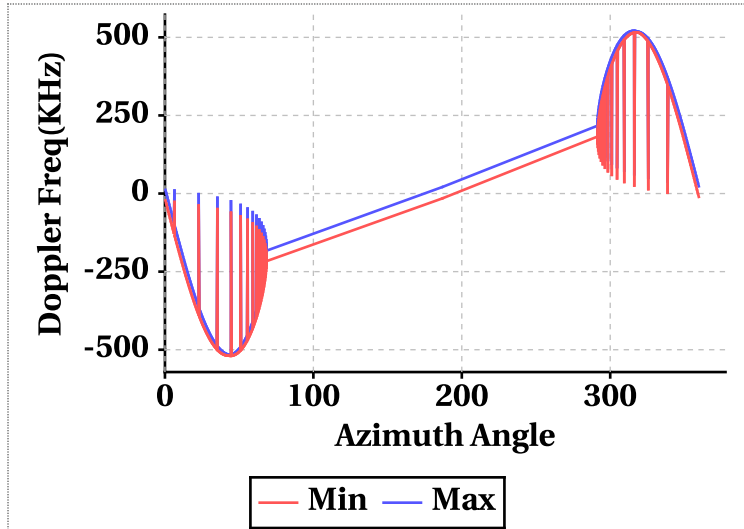
Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-463.62	-519.46
Max	464.80	520.62

Footprint wise Doppler frequency variation Inner Beam (HH)



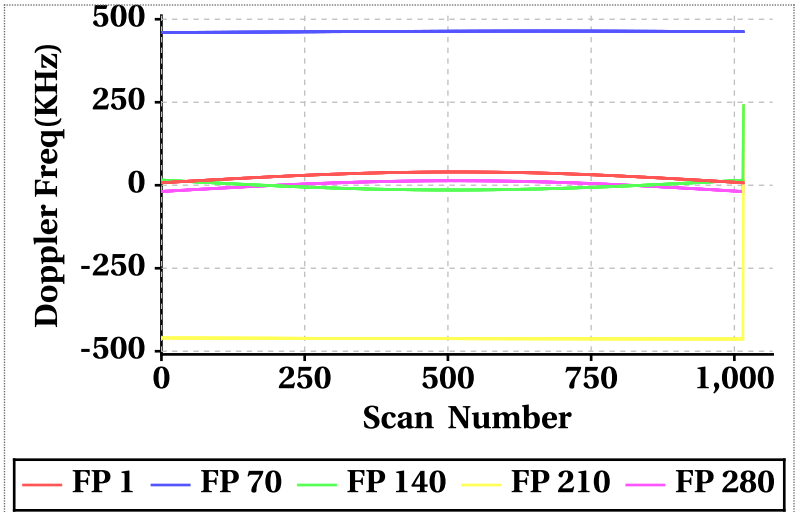
Footprint wise Doppler frequency variation Outer Beam (VV)



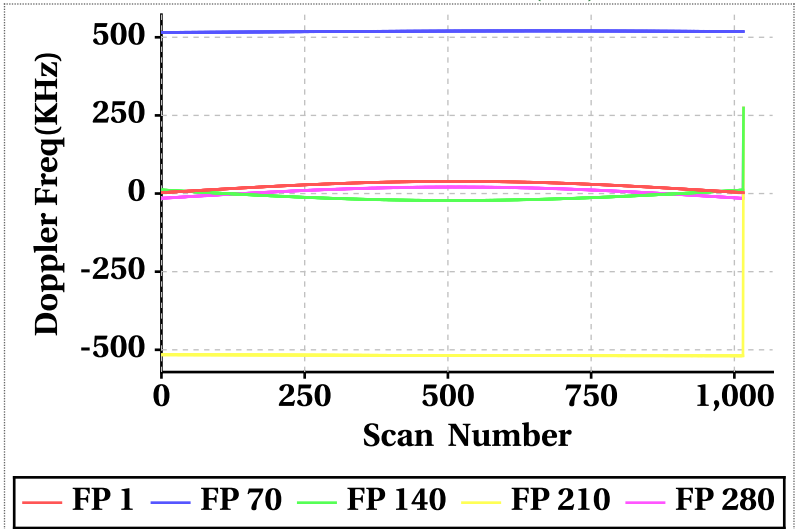
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	7.30	40.02	28.18	2.64	38.94	25.79
Doppler_70	460.20	464.40	462.99	515.64	520.40	518.84
Doppler_140	-14.38	239.90	-3.28	-22.24	273.78	-9.67
Doppler_210	-463.10	239.90	-461.21	-519.16	273.78	-517.03
Doppler_280	-19.12	239.90	2.01	-15.44	273.78	7.98

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

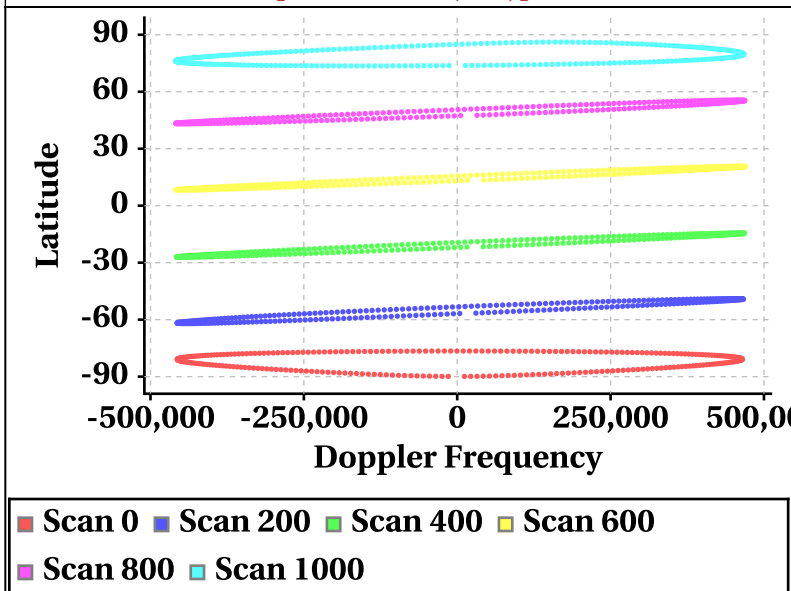


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

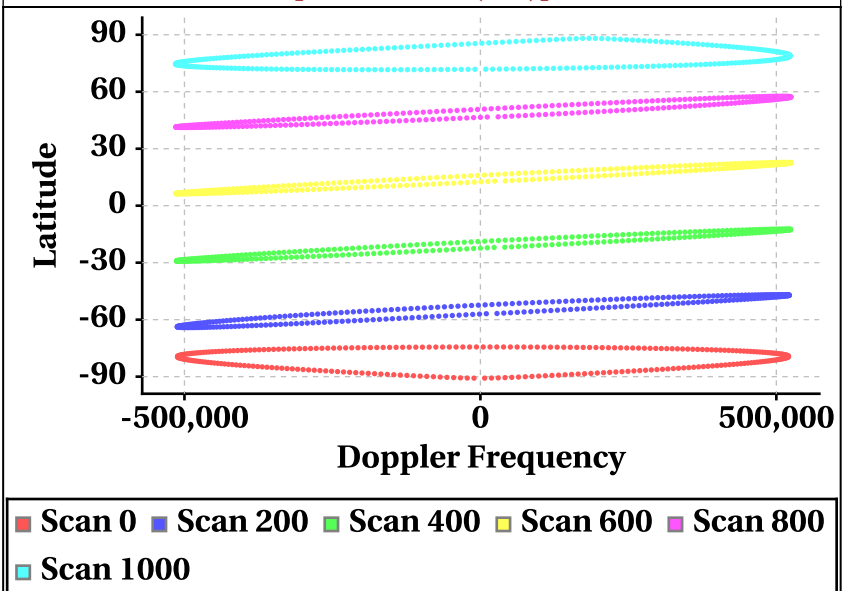


# Latitude Vs Doppler Frequency

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



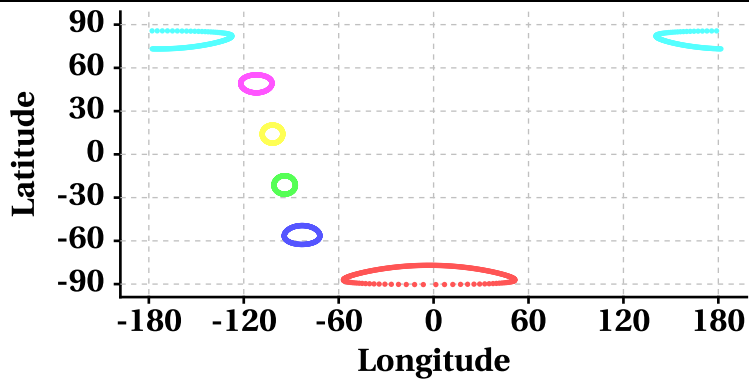
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

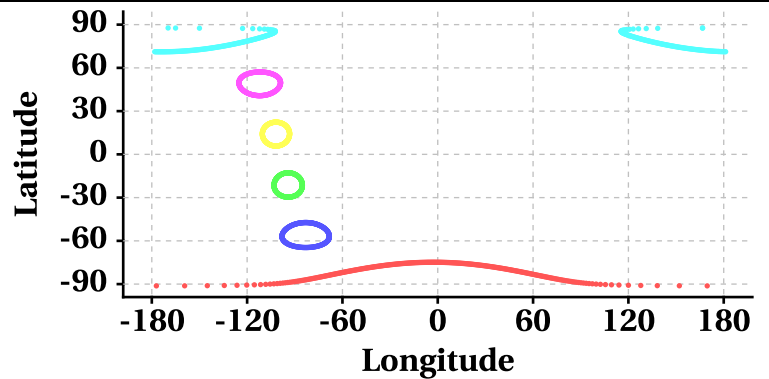
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

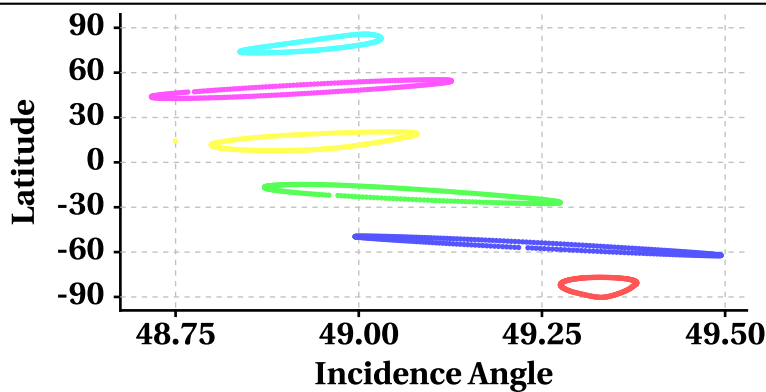
Scan Trace [Outer Beam (VV)]



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

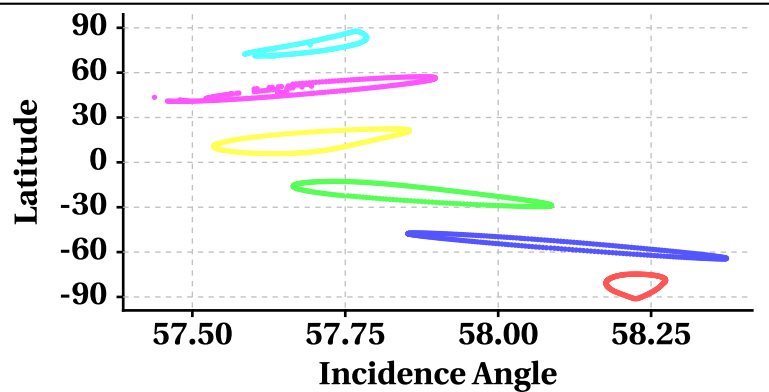
## Latitude Vs Incidence Angle

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



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

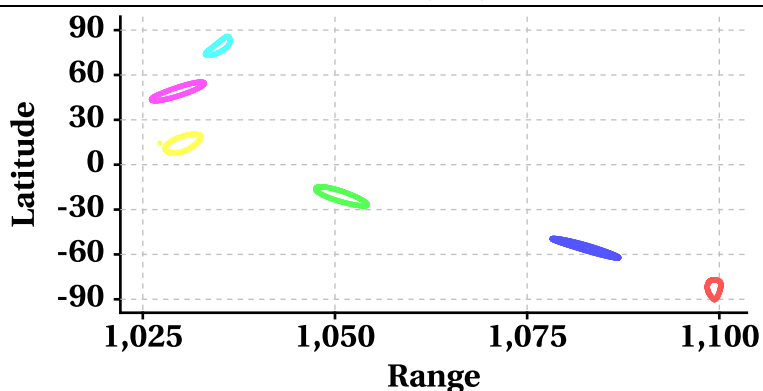
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

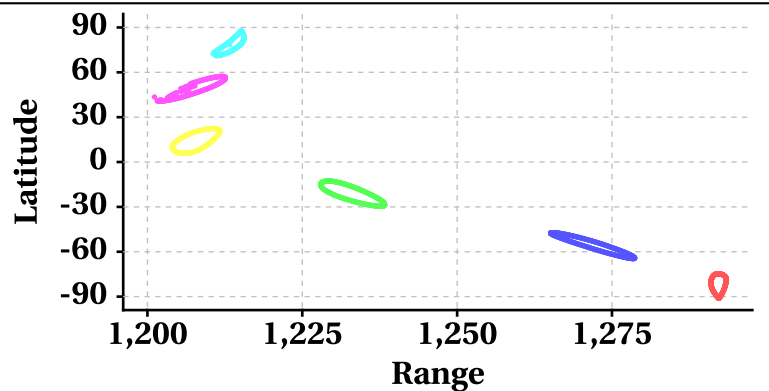
## Latitude Vs Range

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

