

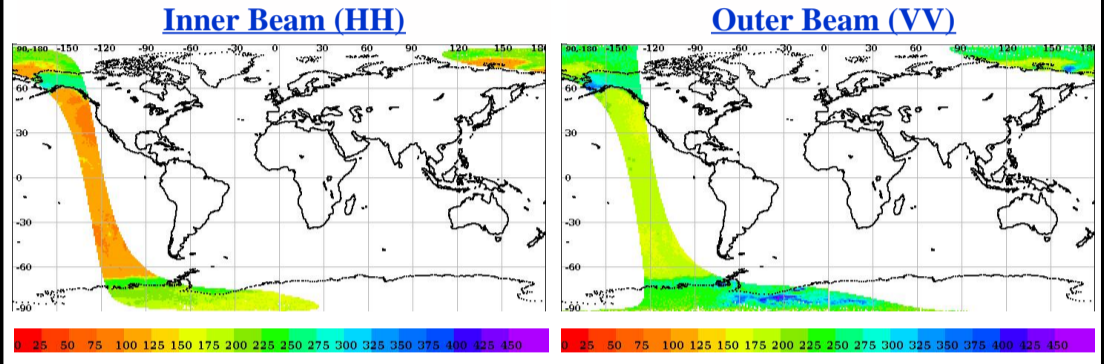
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	10903	<b>Total Scans</b>	1003
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	10904	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.3	<b>Rev. Number</b>	10903_10904	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	18-10-2018	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	18-10-2018	<b>Equator Crossing Time</b>	04:59:54.000	<b>No Of Outer Slices</b>	15

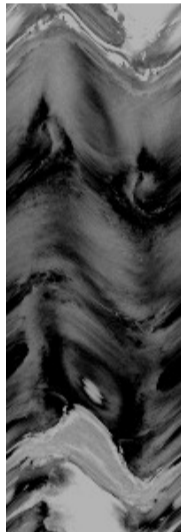
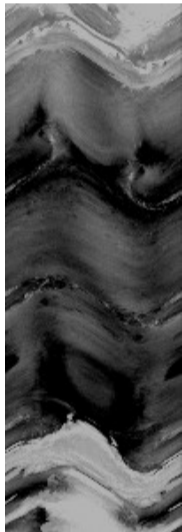
## Brightness Temperature(k) Footprint trace



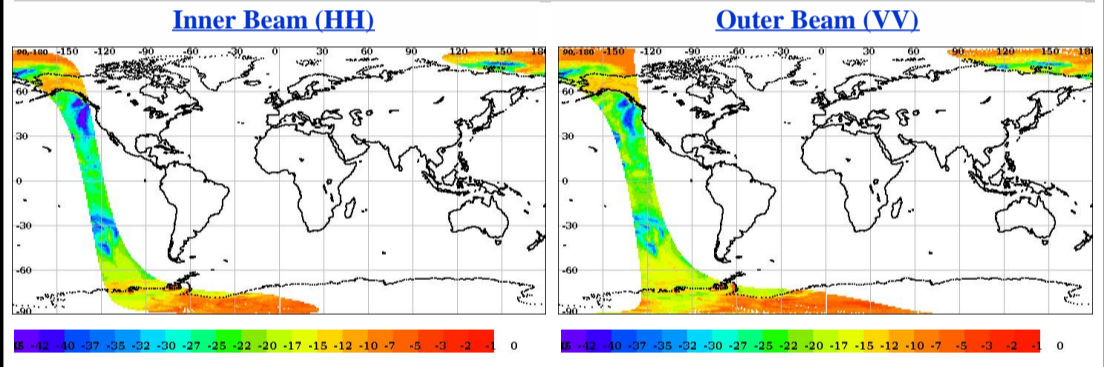
## Image Snapshot for Inner & Outer Beam

Inner (HH)

Outer (VV)



## Sigma0(dB) Footprint trace



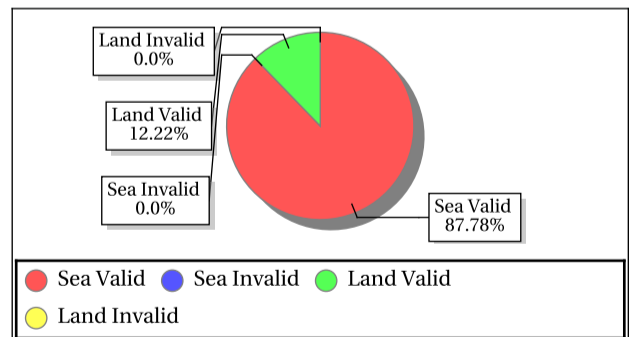
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.00	1.76
Data Not Available From Payload (%)	0.0	0.0
Slice not within sample array limits (%)	0.00	100.00
C(S+N) - C(N) < 0.1 (%)	0.00	0.00
Poor Sigma0(%)	22.23	13.38
Noise samples for blending Saturated	0.0	0.369099
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 (%)	0.046466	0.081357

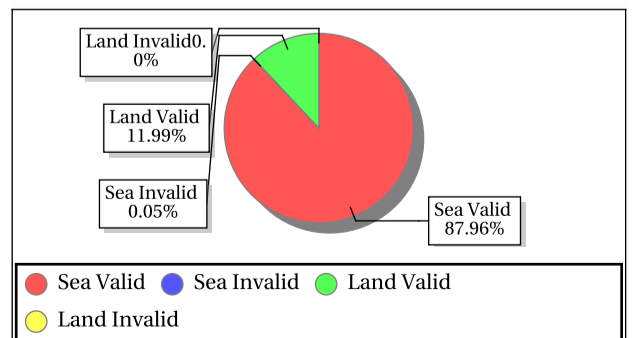
\*DP Format Document

## 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	280.24	0.38	3.582	0.12	302.83	0.32	2.612	0.12	0.13	0.12	0.000	0.12	0.13	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>	-34.61	25.10	5.10	0.951	-34.95	25.37	6.57	1.732	6.44	28.22	18.02	15.369	7.70	28.48	17.70	9.091

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	217.44	0.29	2.743	0.09	224.69	0.25	2.191	0.09	0.14	0.09	0.000	0.09	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>	0.01	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>	-34.68	18.73	3.05	0.000	-34.82	19.34	4.42	0.000	0.78	21.83	12.62	0.000	2.02	22.19	11.91	0.015

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>	48.65	49.49	49.09	0.000	57.39	58.37	57.95	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	6.82	1.27	2.362	0.0000	298.80	1.27	3.537	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1021.66	1099.48	1048.74	13.175	1196.26	1292.65	1233.29	46.607	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.70	-89.81	-90.40	0.000	-93.05	-91.87	-92.23	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.21	15.73	15.43	0.000	11.32	38.70	20.58	8.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.76	20.71	19.75	0.000	18.51	20.84	19.65	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

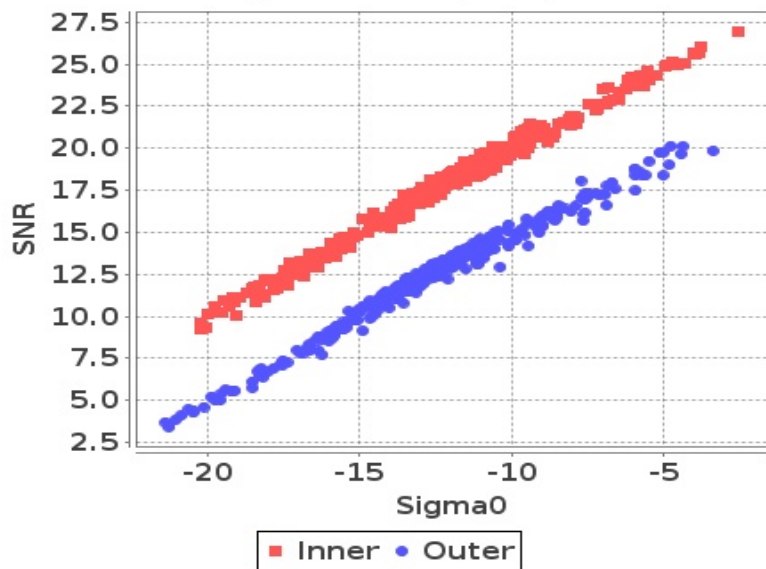
- Normal
- Deviations
- Alarming
- High Errors



# Sigma0 Behaviour (Sigma0 Vs SNR)

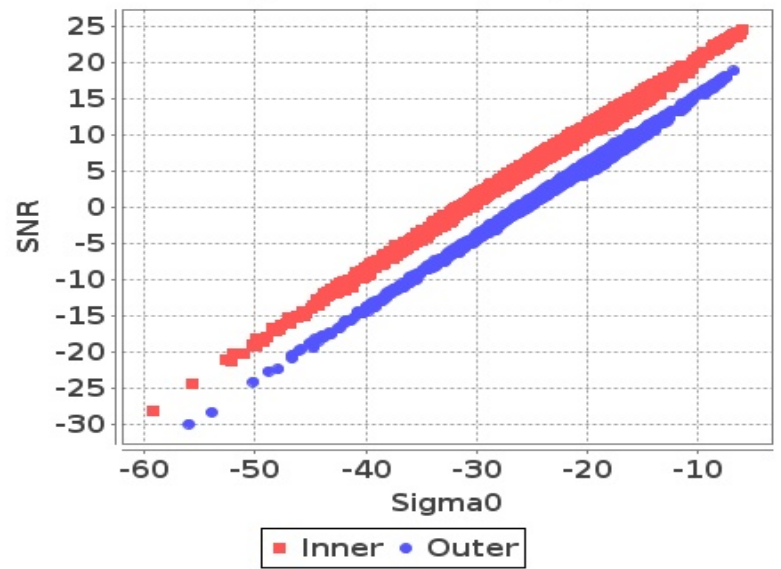
## Footprint-Land

### Sigma0 Vs SNR (Land)



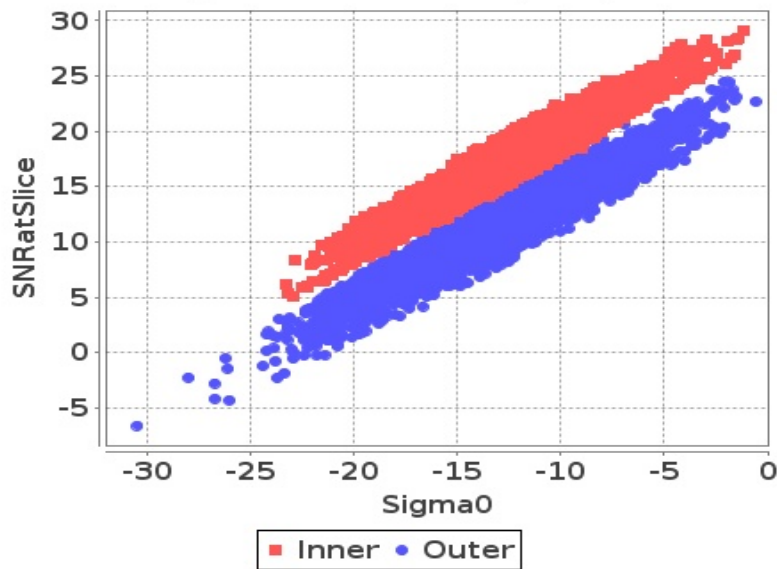
## Footprint-Sea

### Sigma0 Vs SNR (Sea)



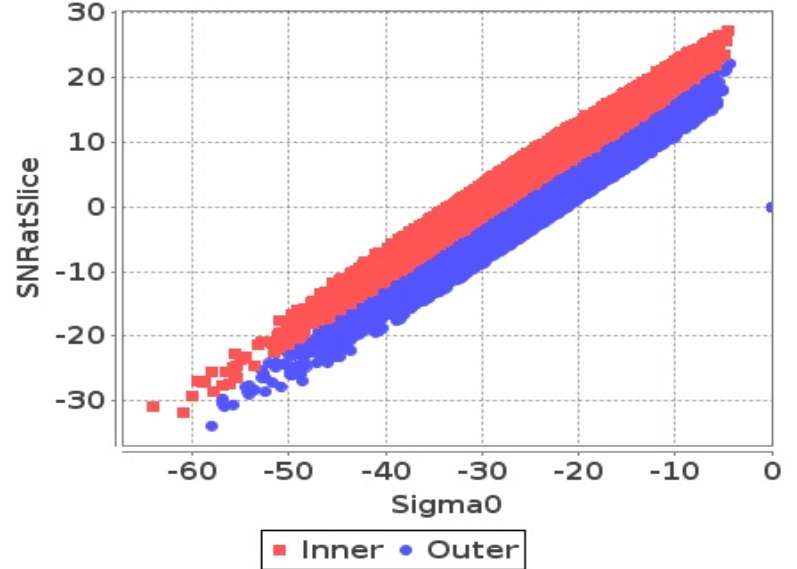
## Slice-Land

### Sigma0 Vs SNRatSlice (Land)



## Slice-Sea

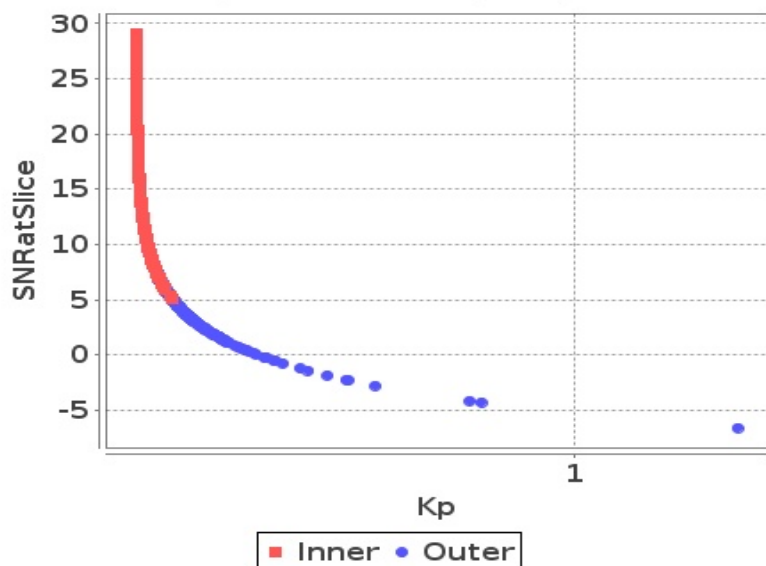
### Sigma0 Vs SNRatSlice (Sea)



# Sigma0 Behaviour (Kp Vs SNR)

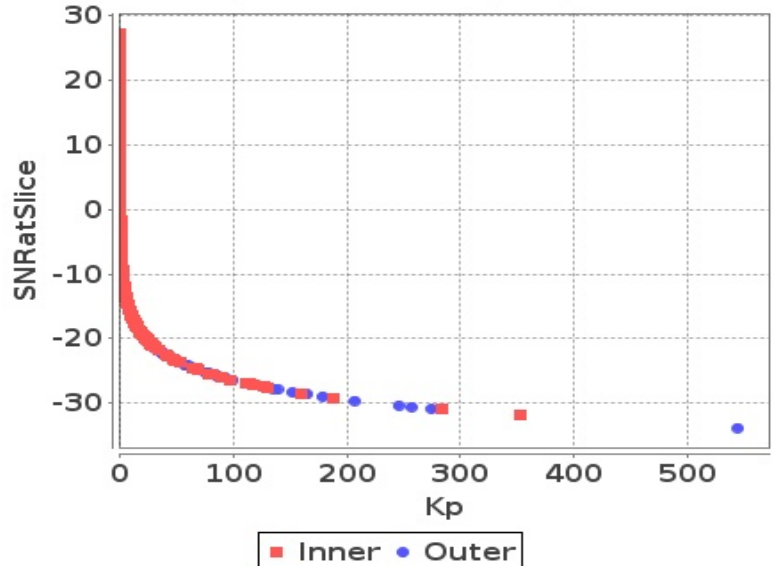
## Slice

### Kp Vs SNRatSlice (Land)



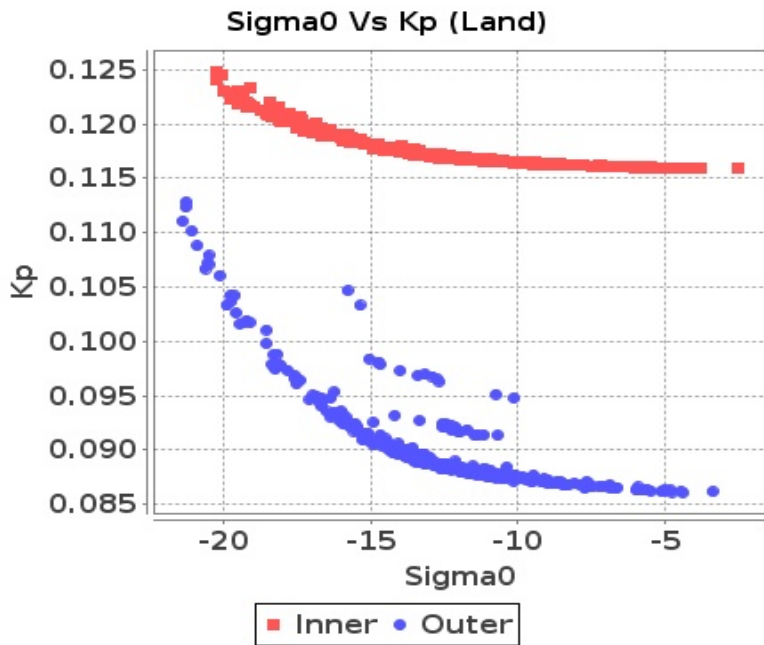
## Slice

### Kp Vs SNRatSlice (Sea)

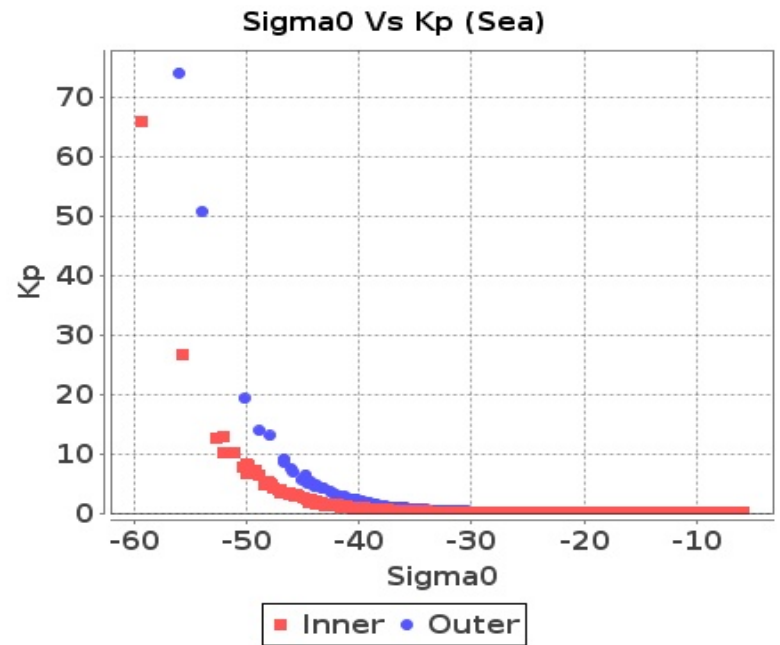


# Sigma0 Behaviour(Sigma0 Vs Kp)

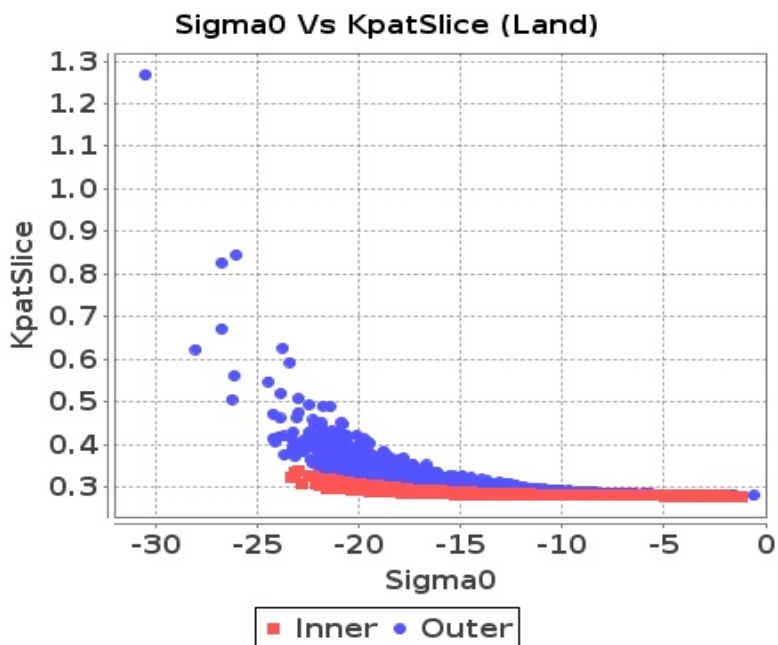
## Footprint-Land



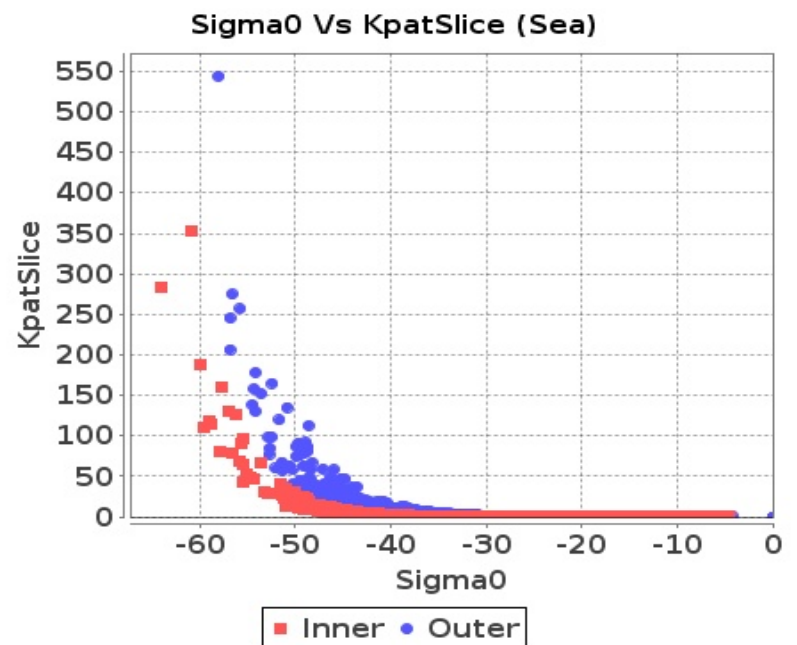
## Footprint-Sea



## Slice-Land



## Slice-Sea

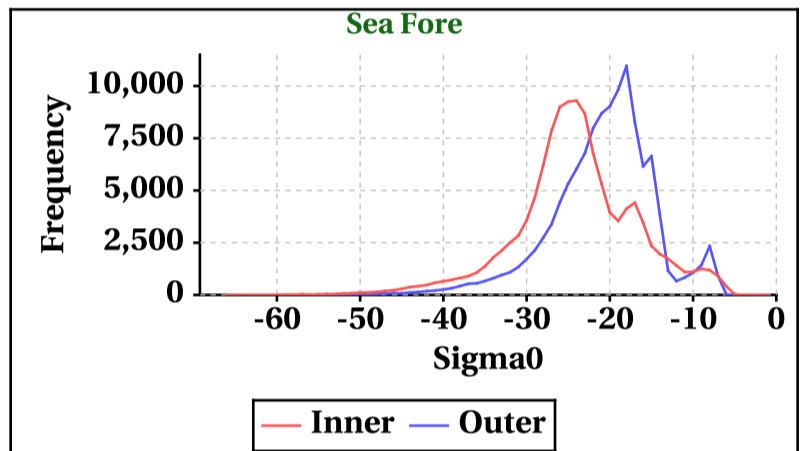
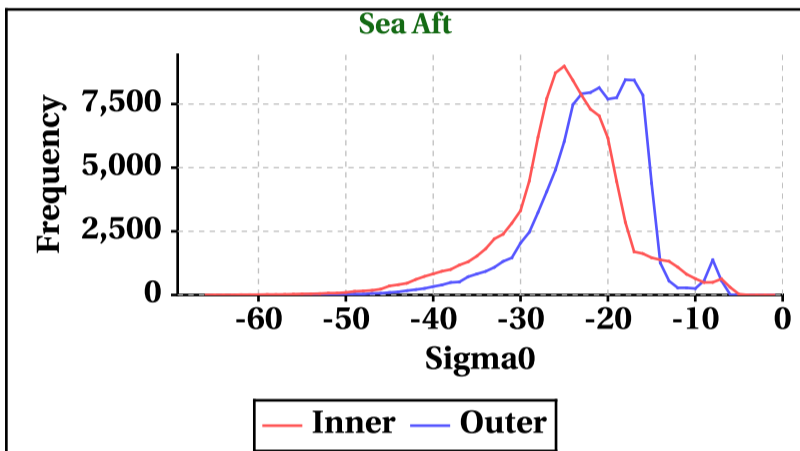
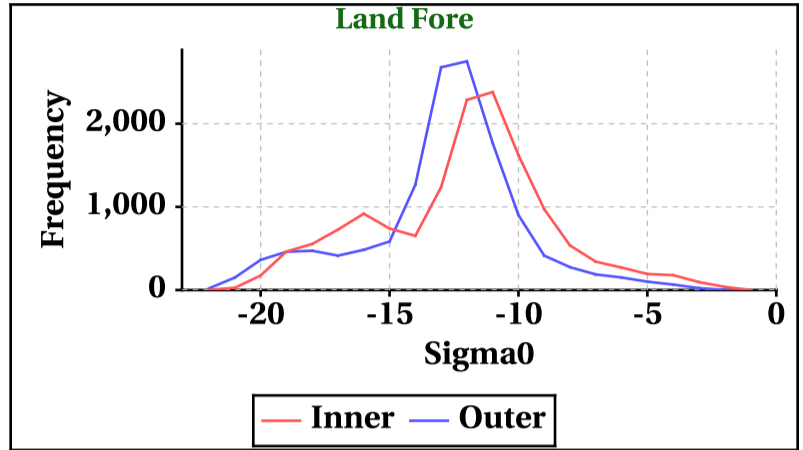
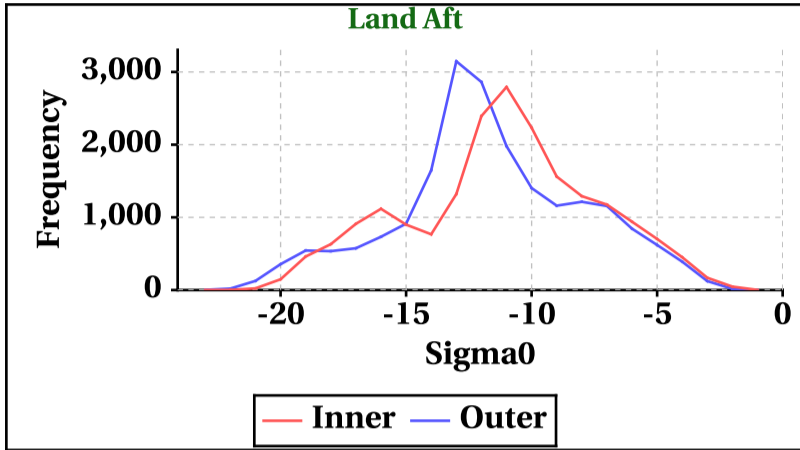


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-23	-22	-66	-66
Max	0	0	0	0

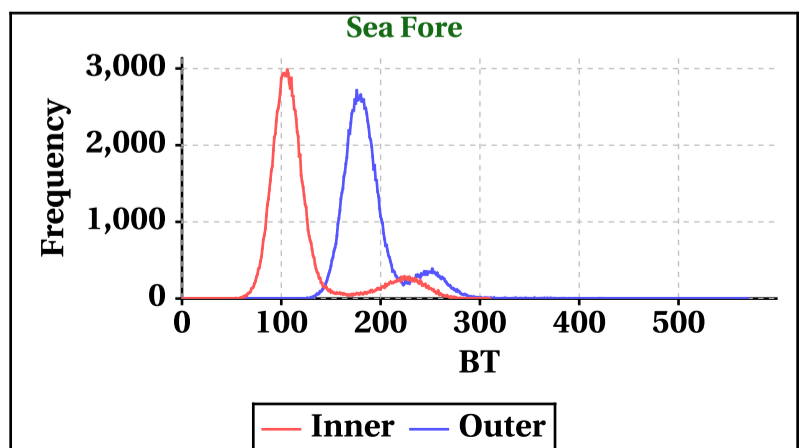
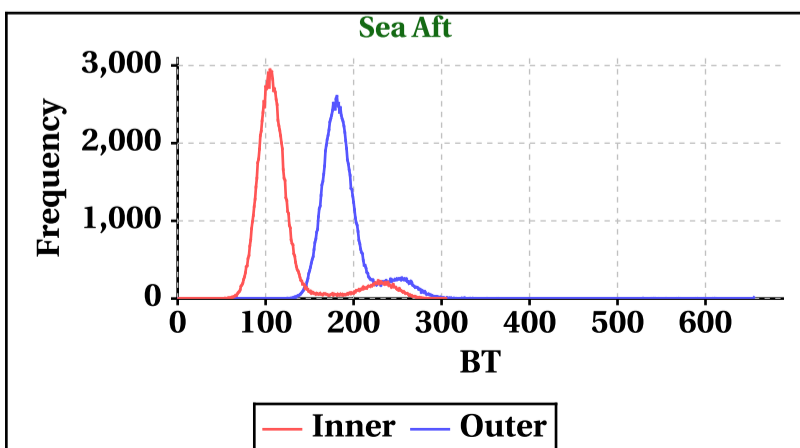
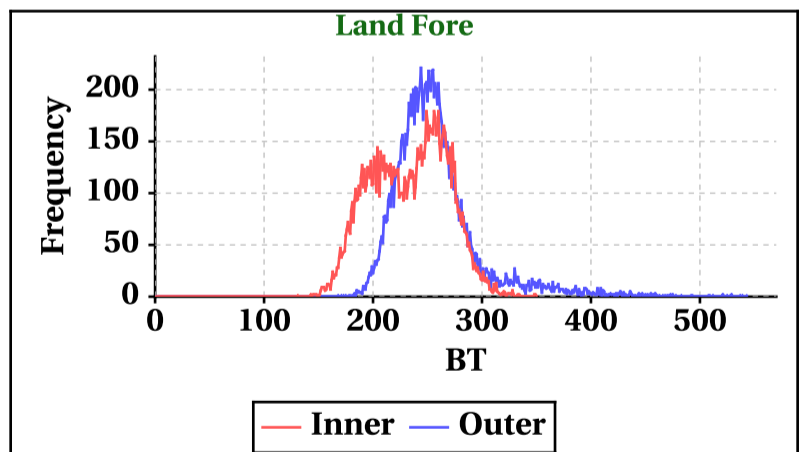
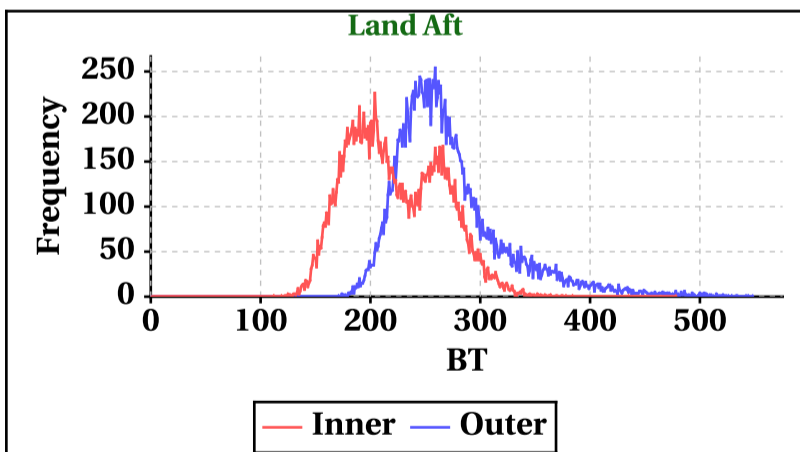
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-23	-22	-60	-60
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	478	350	305	310

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	548	543	655	570

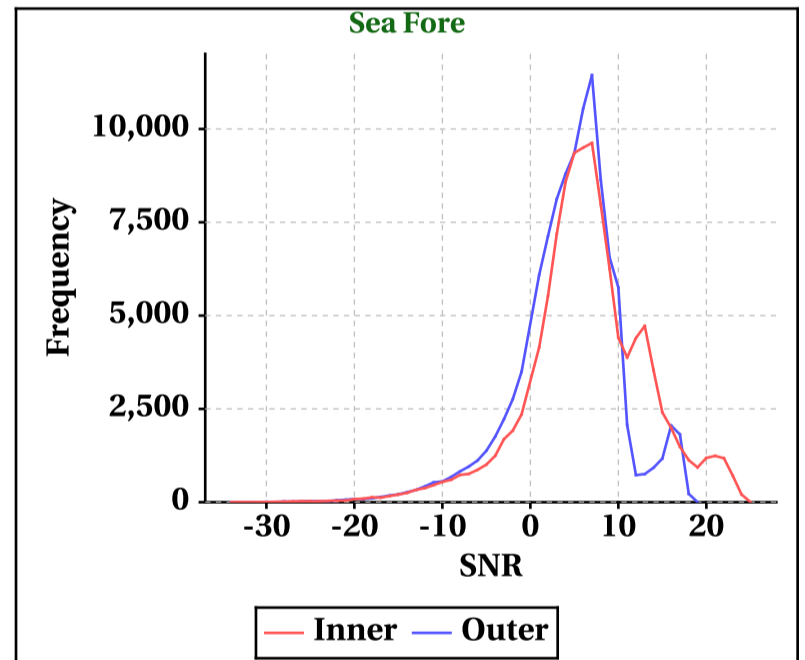
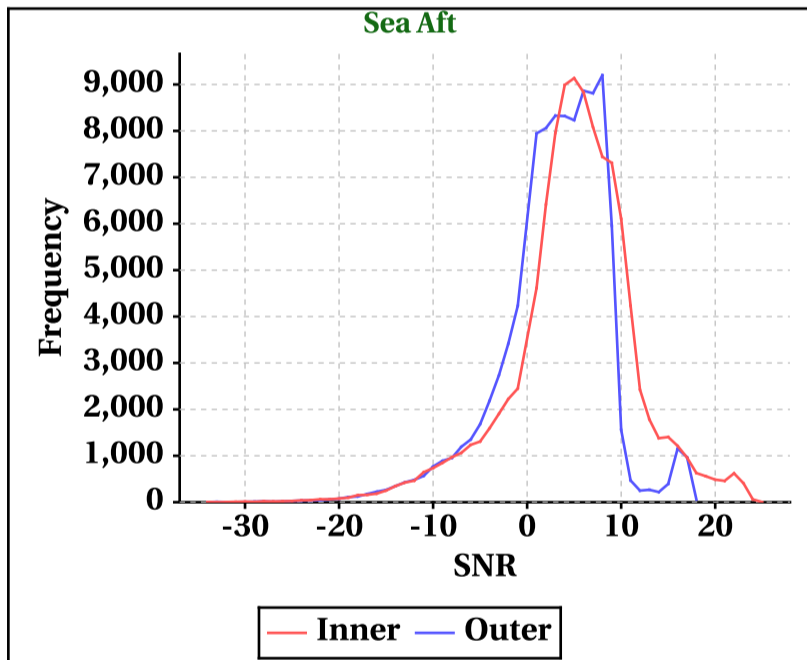
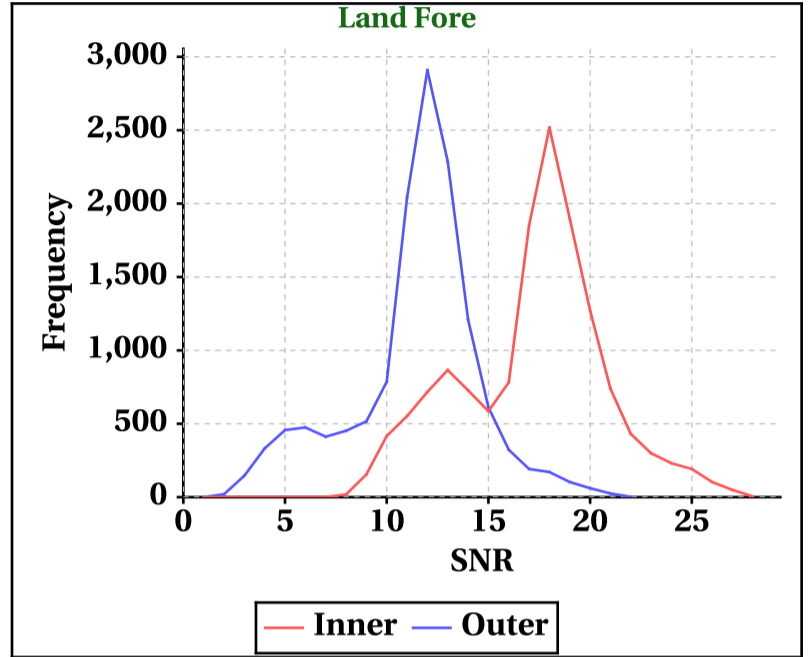
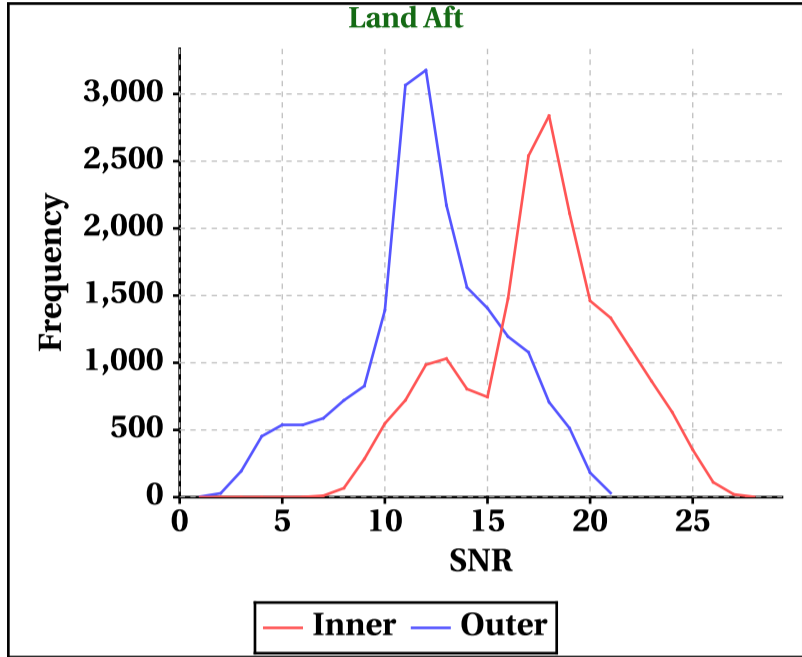


# Dynamic Range (Data Histograms)

## SNR(dBm)

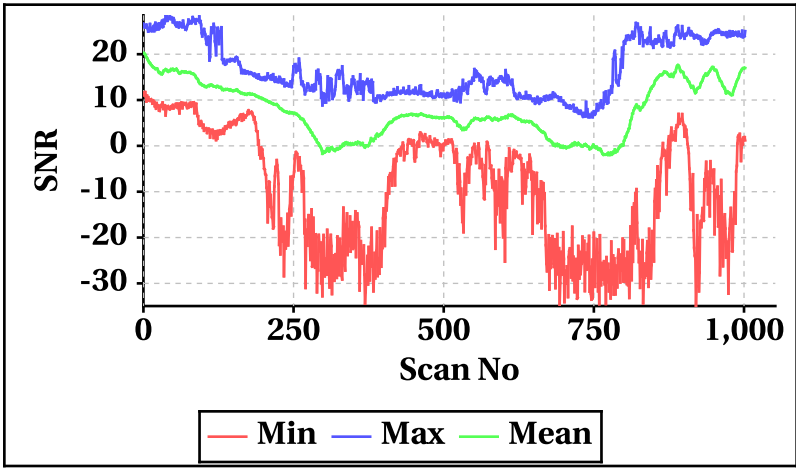
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	28	28	25	25

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	21	22	18	19

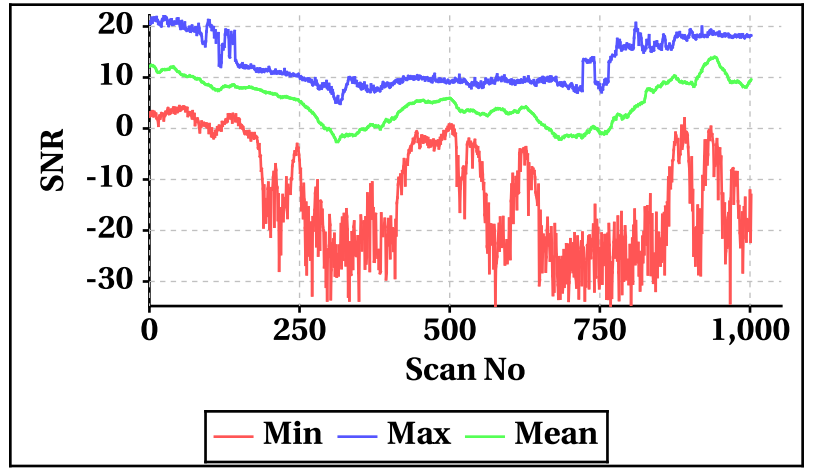


## Orbit-wise behaviour of SNR

Inner Beam (HH)

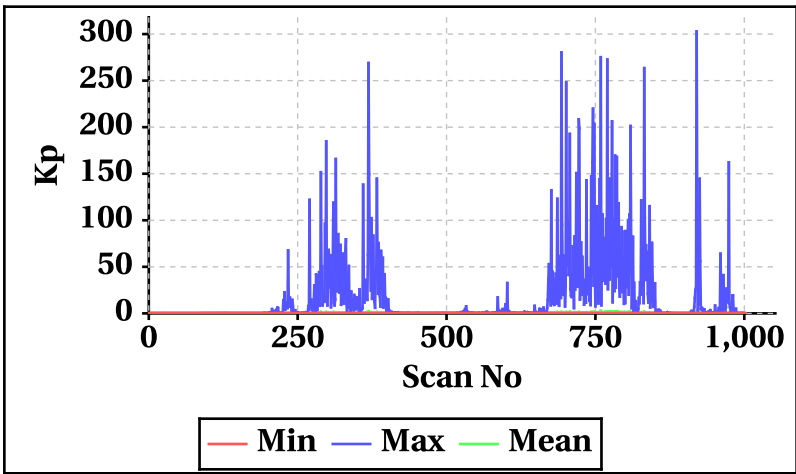


Outer Beam(VV)

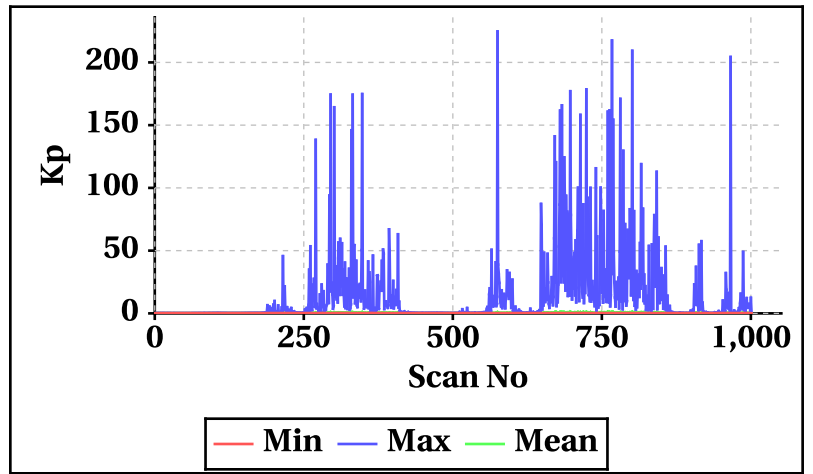


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

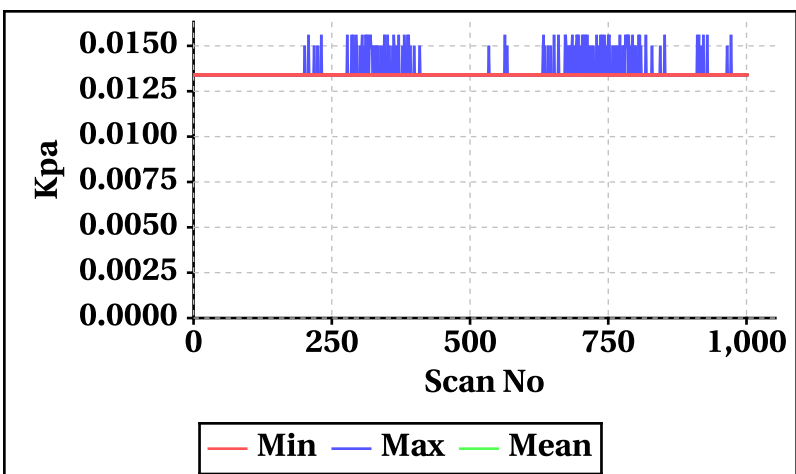
Inner Beam(HH)



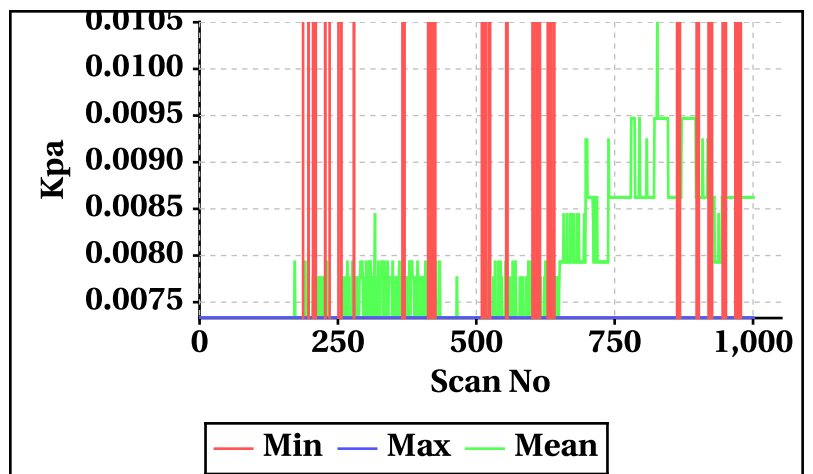
Outer Beam(VV)



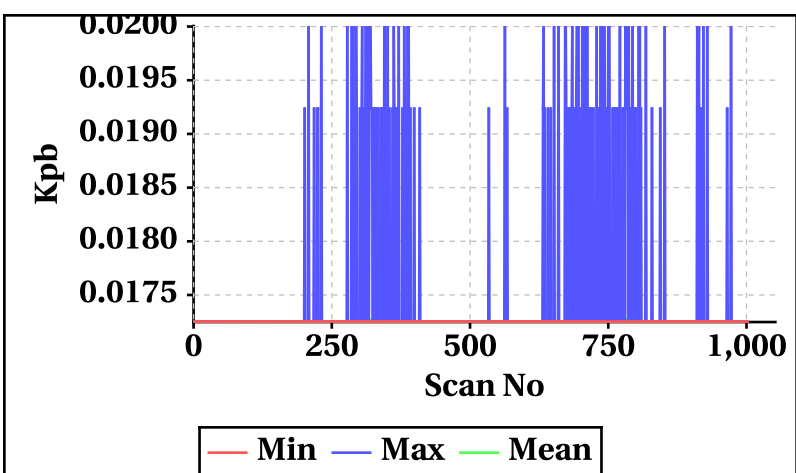
Inner Beam(HH)



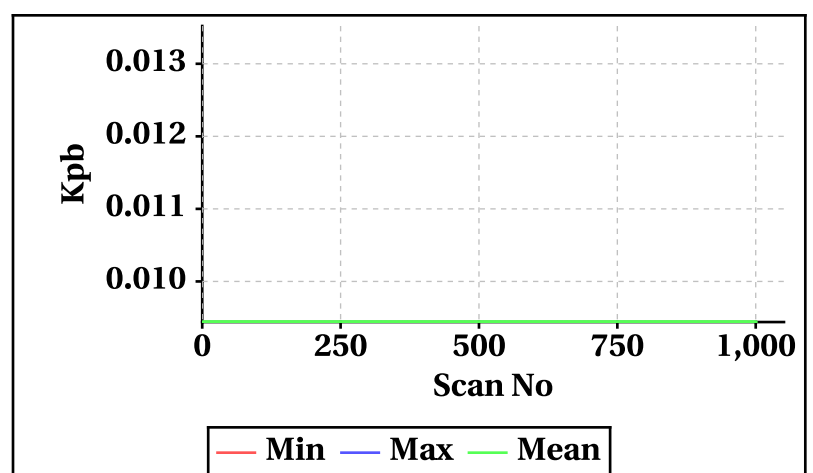
Outer Beam(VV)



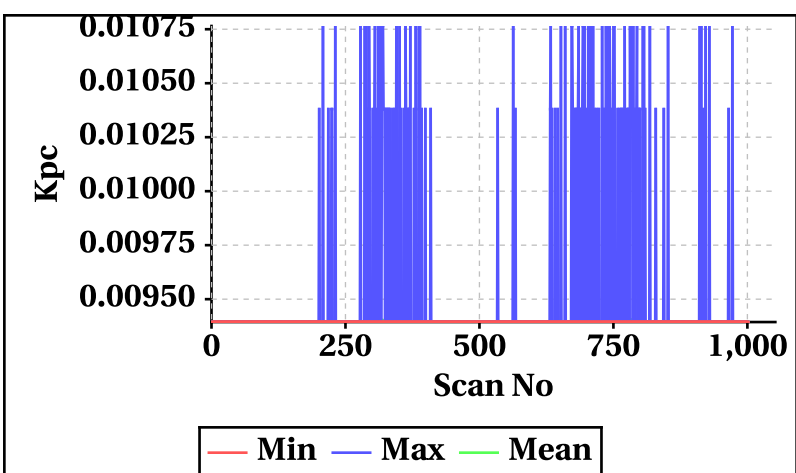
Inner Beam(HH)



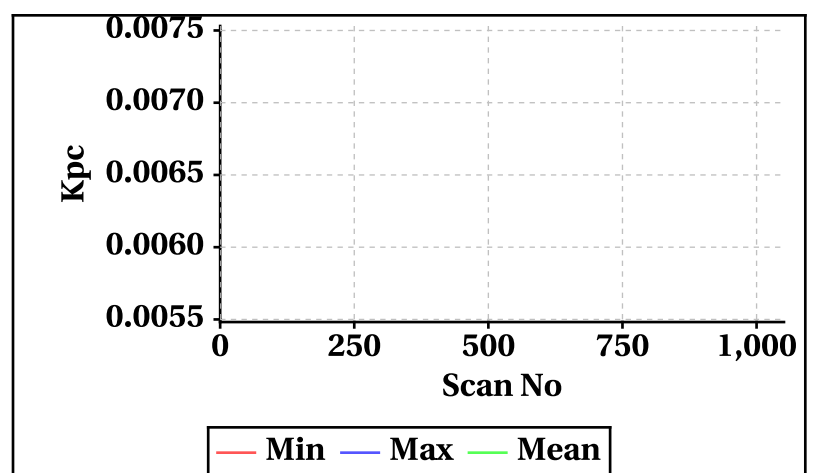
Outer Beam(VV)



Inner Beam(HH)

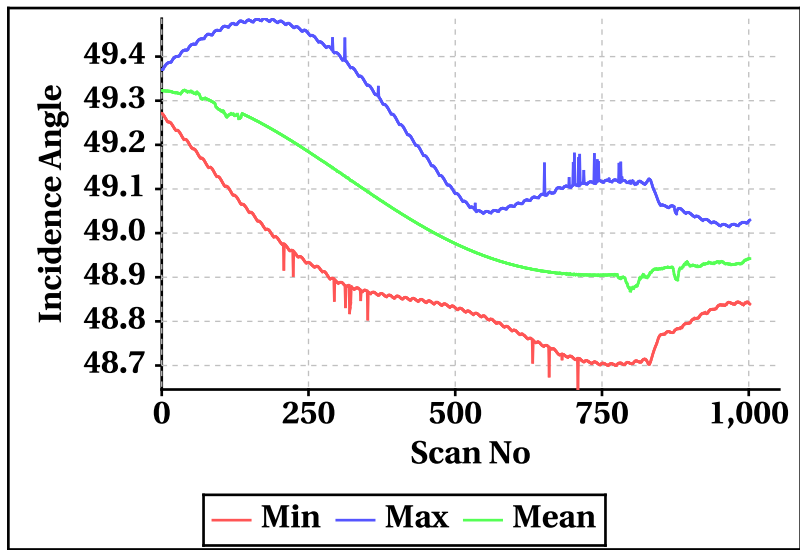


Outer Beam(VV)

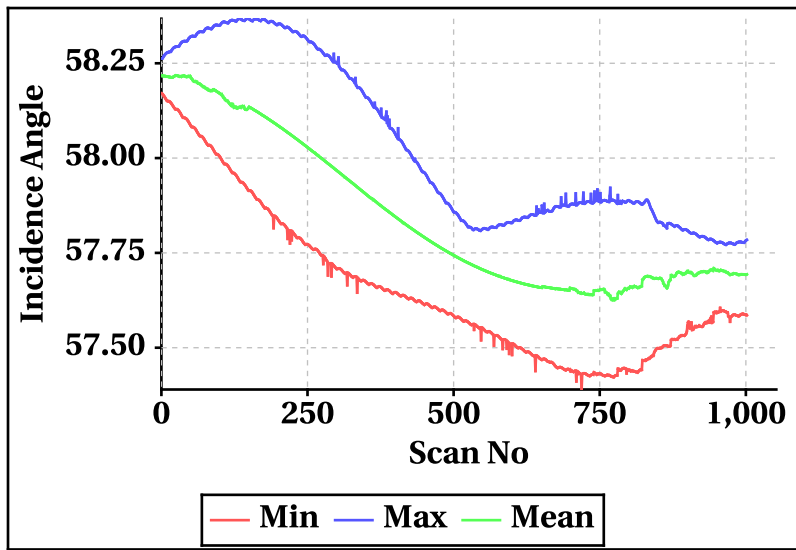


# Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

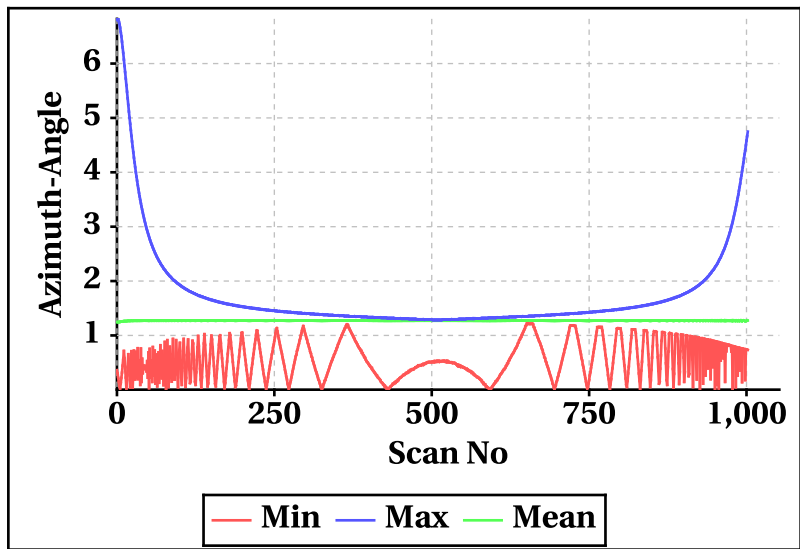
**Inner Beam (HH)**



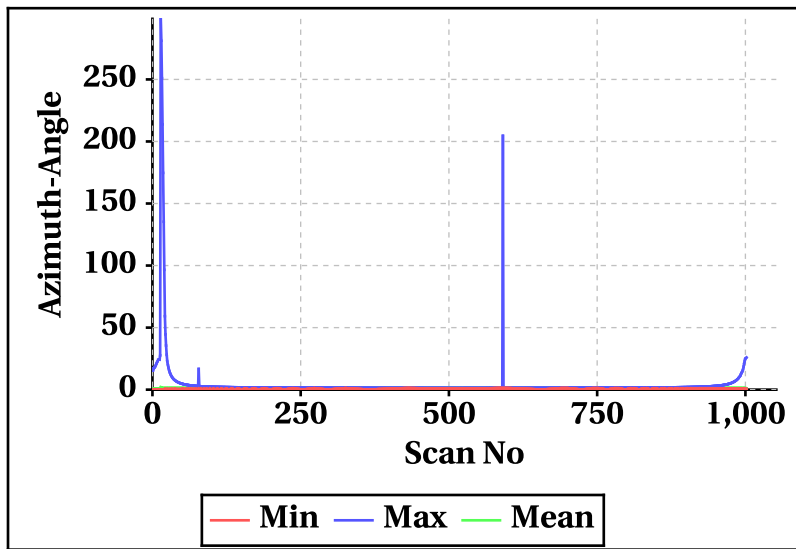
**Outer Beam(VV)**



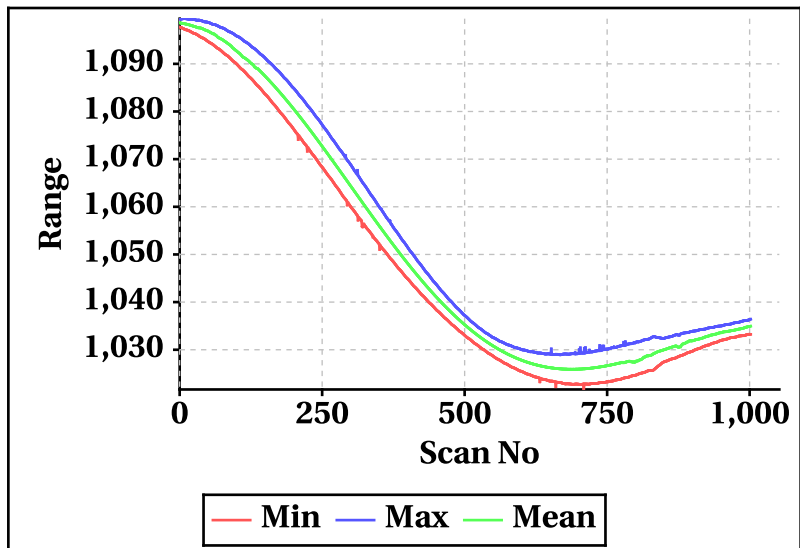
**Inner Beam (HH)**



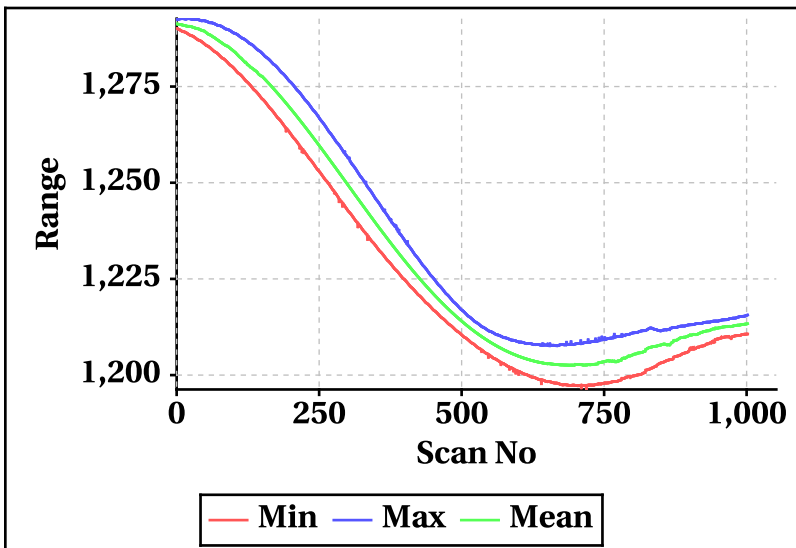
**Outer Beam(VV)**



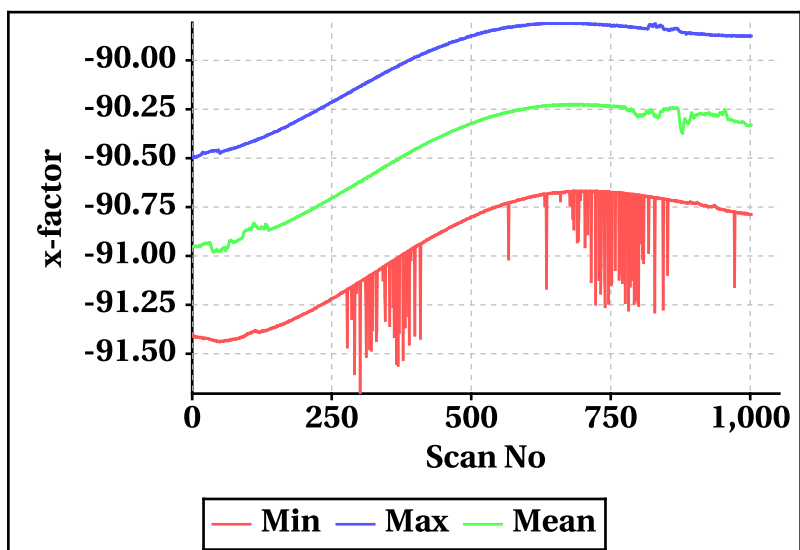
**Inner Beam (HH)**



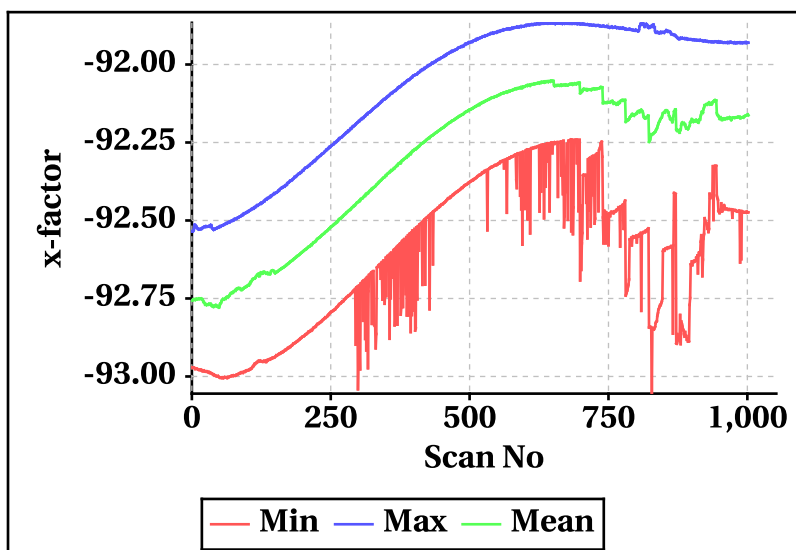
**Outer Beam(VV)**



**Inner Beam (HH)**



**Outer Beam(VV)**



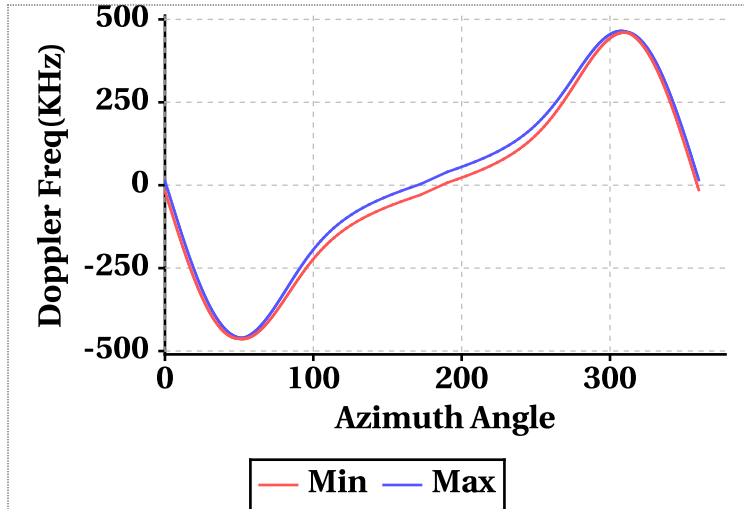


# Doppler Frequency Variation

Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-463.66	-519.48
Max	464.84	520.66

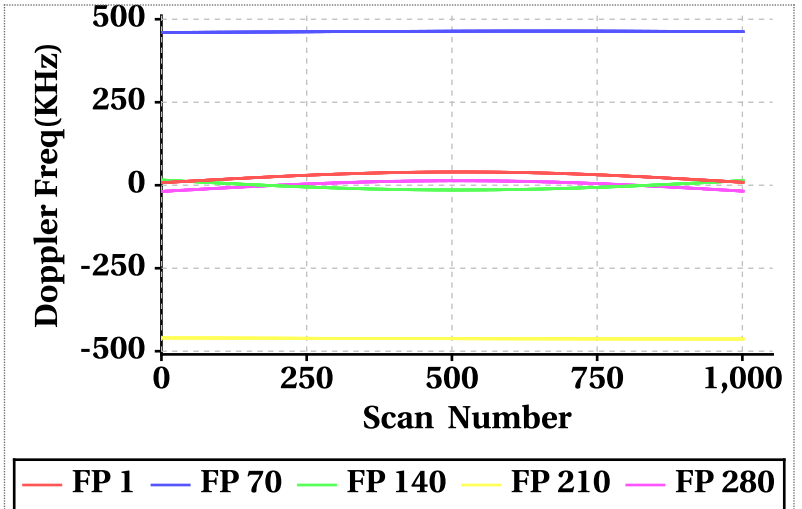
Footprint wise Doppler frequency variation Inner Beam (HH)



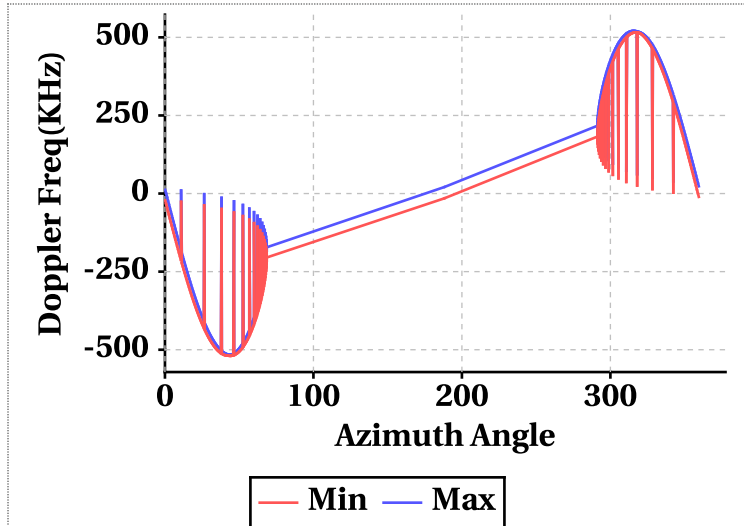
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	7.50	39.98	28.41	2.78	38.90	26.05
Doppler_70	460.32	464.42	463.04	515.76	520.44	518.90
Doppler_140	-14.34	15.74	-3.72	-22.20	11.82	-10.18
Doppler_210	-463.18	-459.98	-461.96	-519.22	-515.74	-517.87
Doppler_280	-18.80	13.64	1.99	-15.20	20.92	7.96

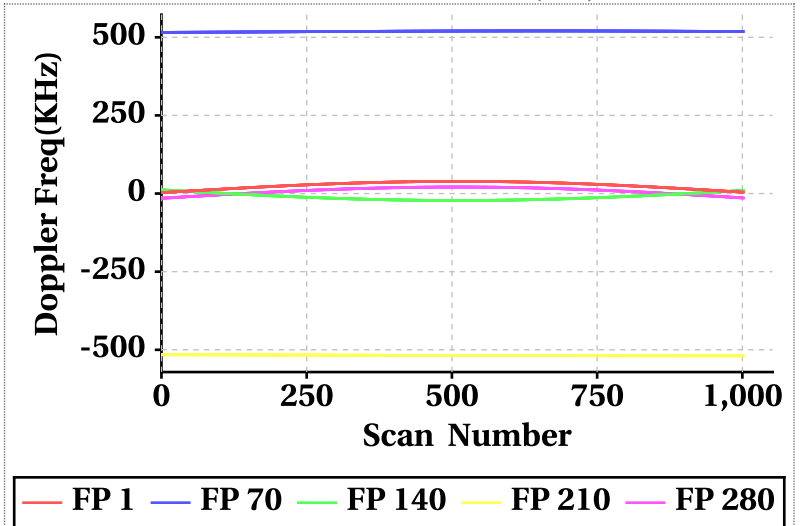
Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)



Footprint wise Doppler frequency variation Outer Beam (VV)

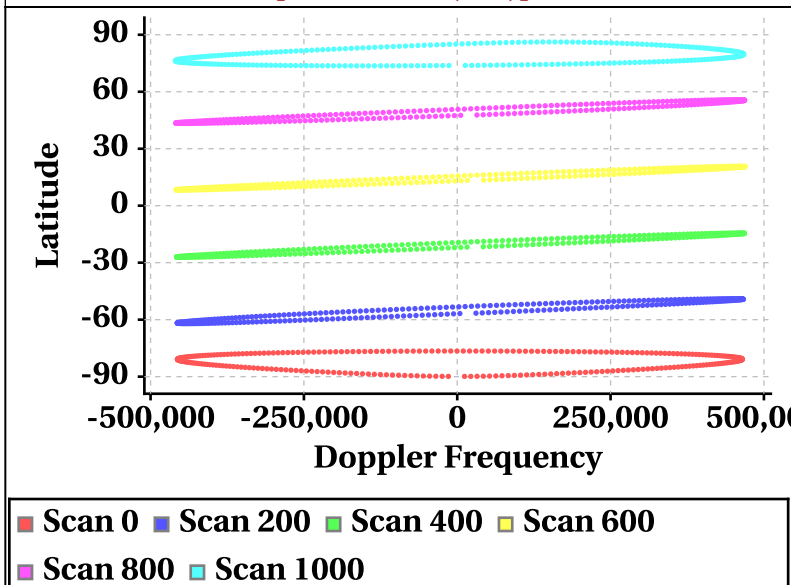


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

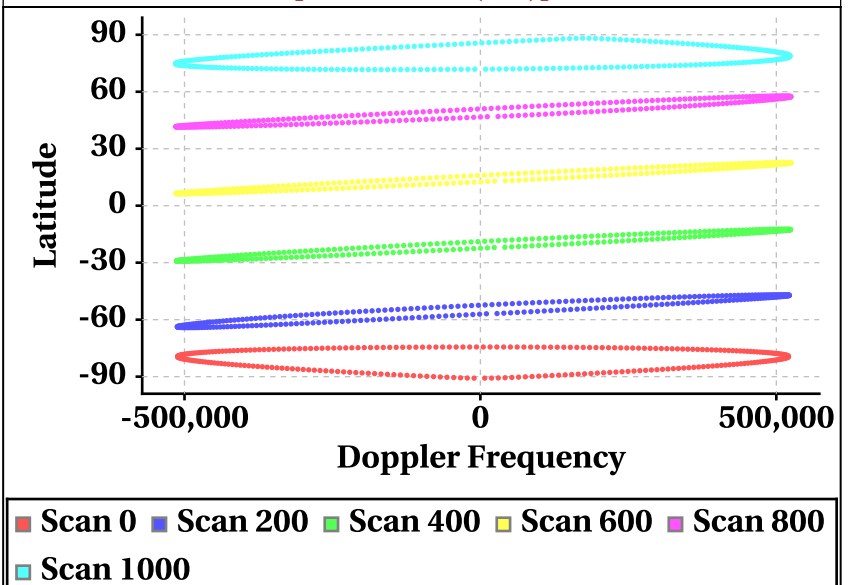


# Latitude Vs Doppler Frequency

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



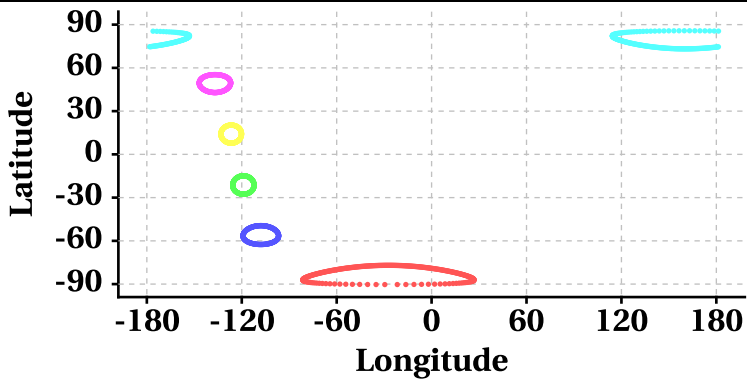
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

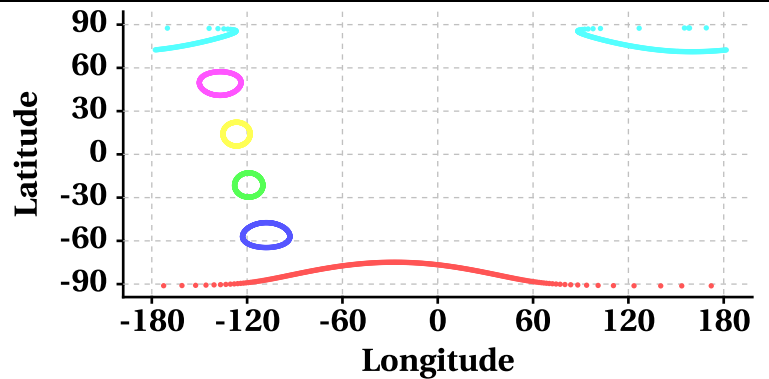
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

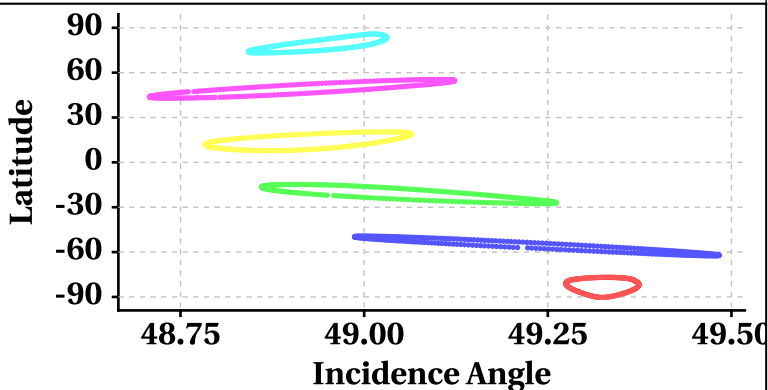
Scan Trace [Outer Beam (VV)]



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

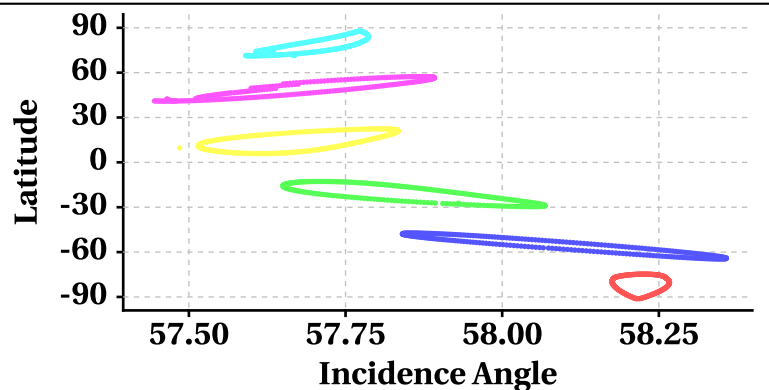
## Latitude Vs Incidence Angle

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



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

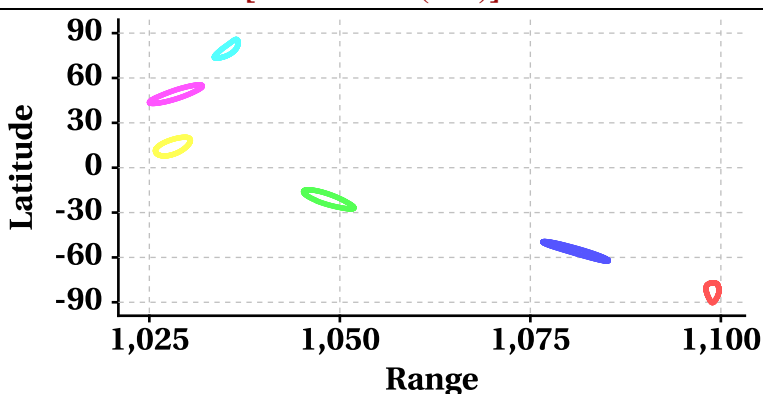
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

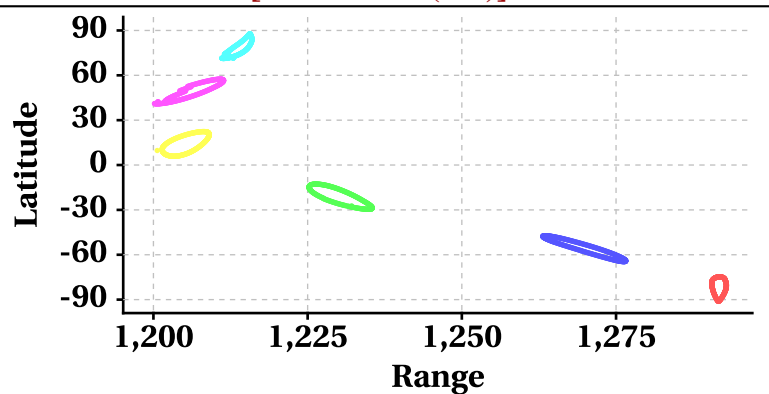
## Latitude Vs Range

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

