

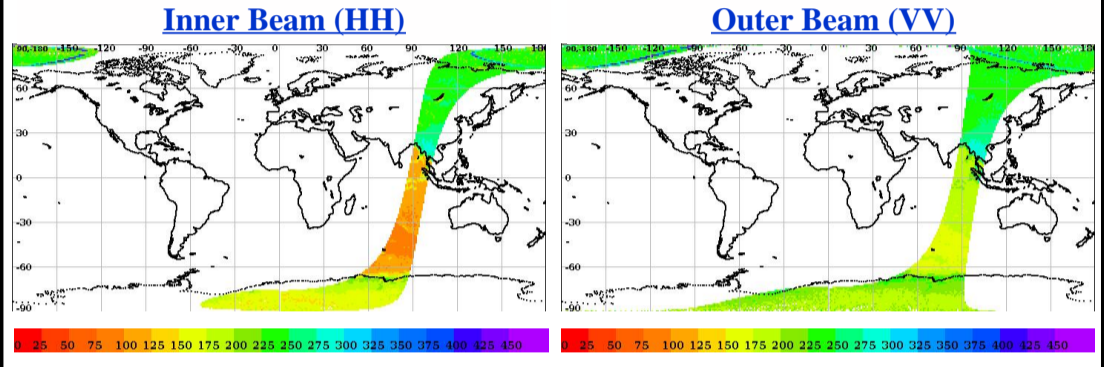
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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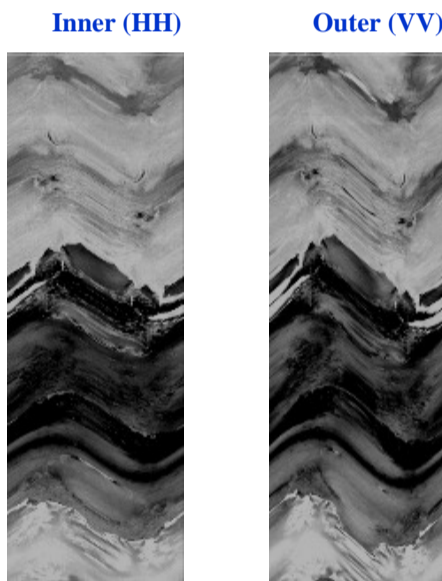
- Half-Orbit Coverage using BT & Sigma-0
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- Half Orbit wise - Dynamic Parameter (Sigma-0, Kp, SNR) Behaviour
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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	6117	<b>Total Scans</b>	1016
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	6118	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.2	<b>Rev. Number</b>	06117_06118	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	NS	<b>Data Production Date</b>	22-11-2017	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	22-11-2017	<b>Equator Crossing Time</b>	02:34:23.000	<b>No Of Outer Slices</b>	14

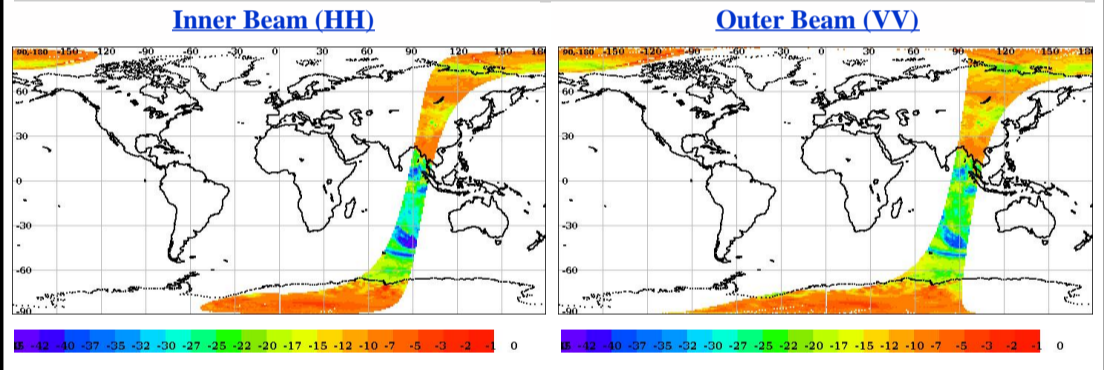
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



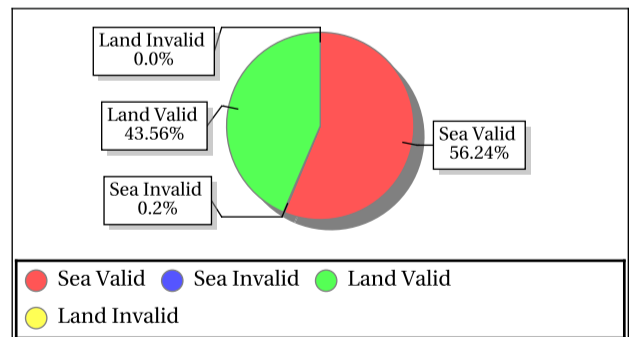
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.20	0.20
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

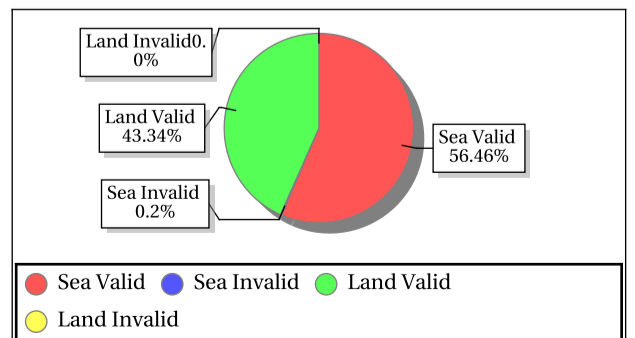
\*DP Format Document

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

### Inner Beam (HH)



### Outer Beam (VV)



## 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	221.28	0.42	4.743	0.10	253.31	0.38	4.042	0.10	0.39	0.10	0.000	0.10	0.24	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	0.02	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>	-34.18	26.20	4.54	0.035	-34.77	26.48	4.75	0.123	-5.53	31.88	18.00	4.510	-2.50	29.88	19.49	19.303

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	216.29	0.36	3.750	0.08	193.26	0.33	3.557	0.08	0.82	0.09	0.000	0.08	0.59	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	0.01	0.00	0.000
<b>SNR</b>	-34.96	19.25	2.54	0.000	-34.47	20.77	2.42	0.000	-10.40	22.32	12.54	0.002	-8.77	23.16	13.65	0.087

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>	48.88	49.46	49.04	0.000	57.72	58.39	57.98	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	6.29	1.27	2.469	0.0000	298.78	1.27	3.484	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1050.35	1087.42	1066.45	0.000	1232.51	1279.82	1254.46	0.000	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-92.27	-89.35	-90.63	0.000	-93.87	-91.75	-92.63	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.91	16.52	16.14	0.000	10.83	37.04	21.25	4.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.54	11652.19	42.52	2.000	18.36	11876.40	42.87	2.000	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

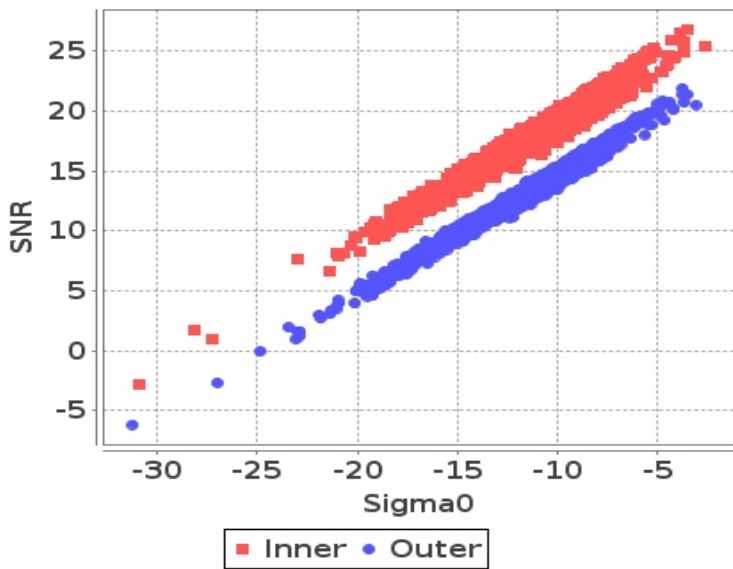
- Normal
- Deviations
- Alarming
- High Errors



# Sigma0 Behaviour (Sigma0 Vs SNR)

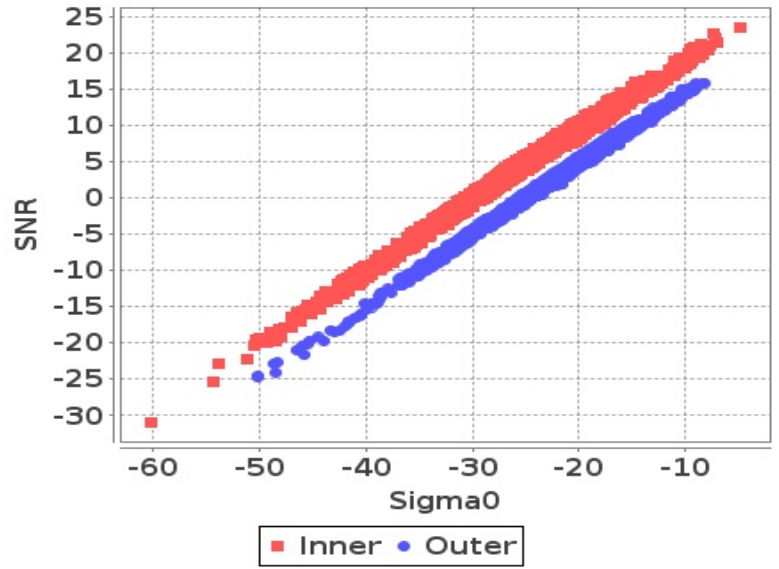
Footprint-Land

Sigma0 Vs SNR (Land)



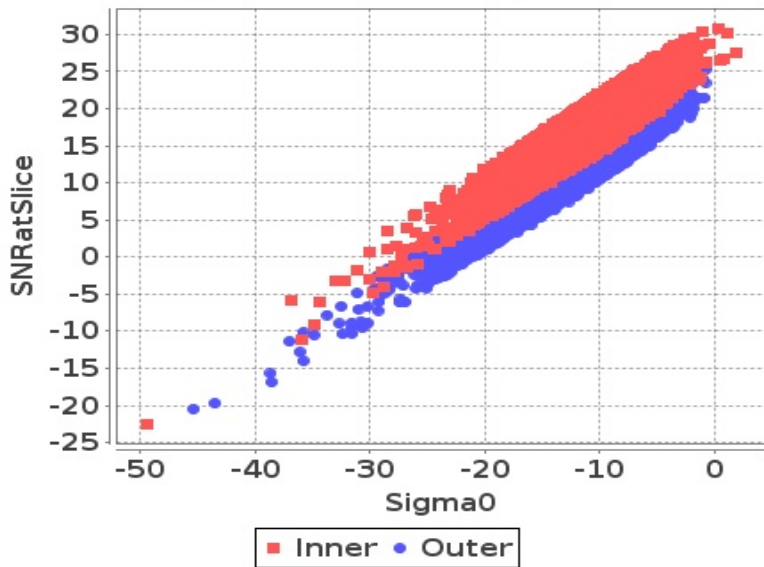
Footprint-Sea

Sigma0 Vs SNR (Sea)



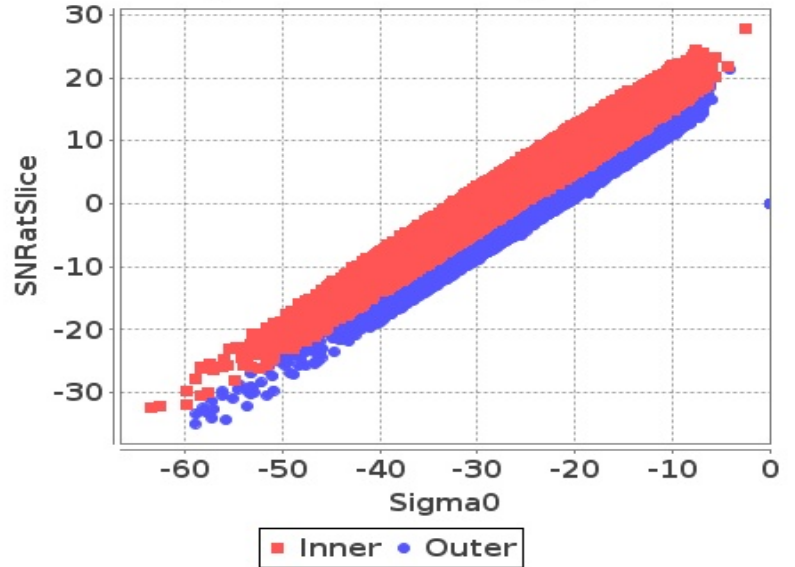
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

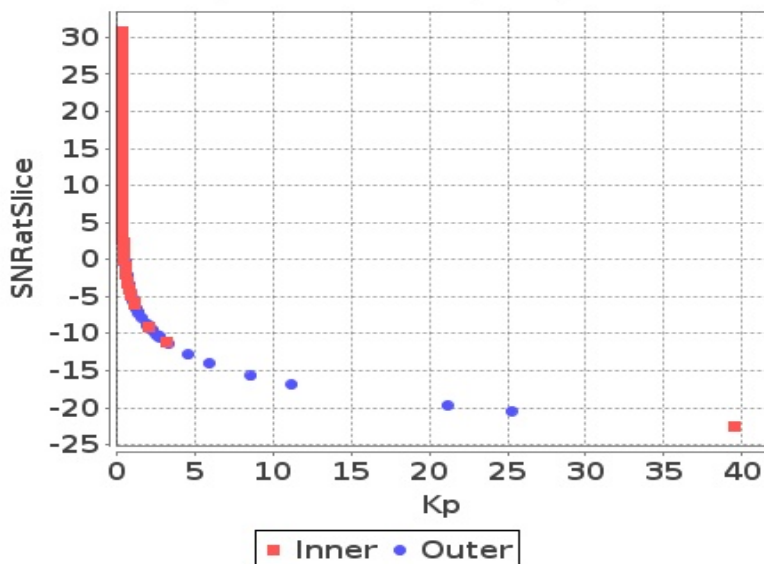
Sigma0 Vs SNRatSlice (Sea)



# Sigma0 Behaviour (Kp Vs SNR)

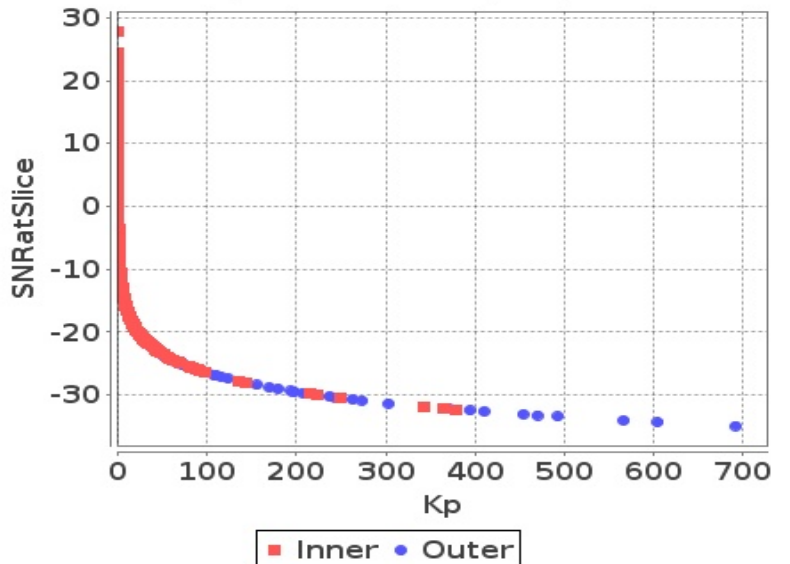
Slice

Kp Vs SNRatSlice (Land)



Slice

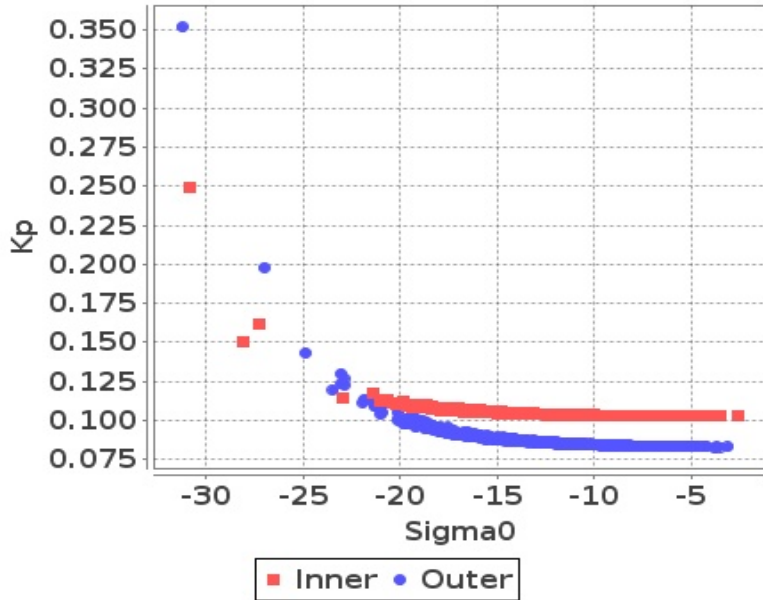
Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

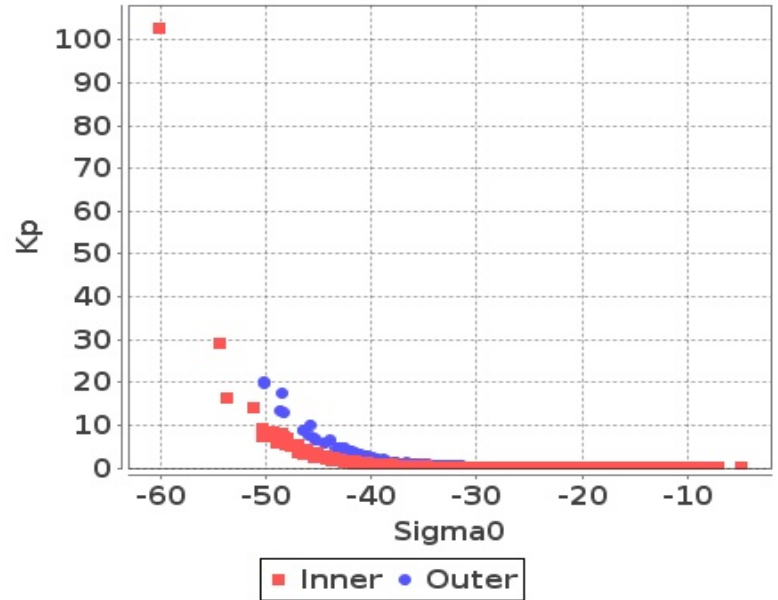
## Footprint-Land

### Sigma0 Vs Kp (Land)



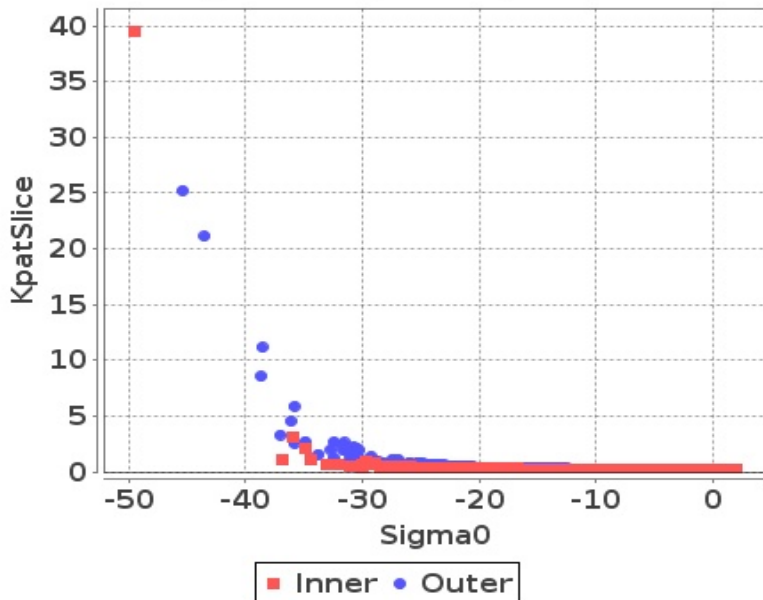
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



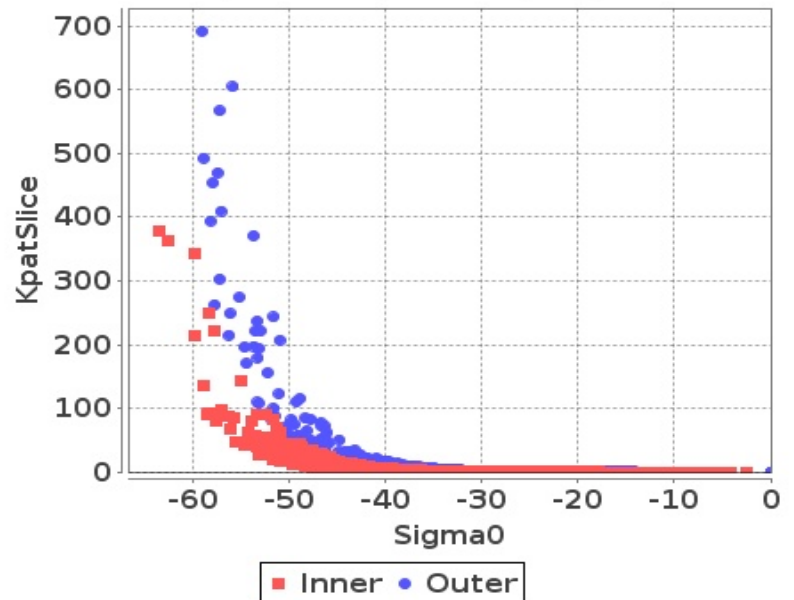
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)

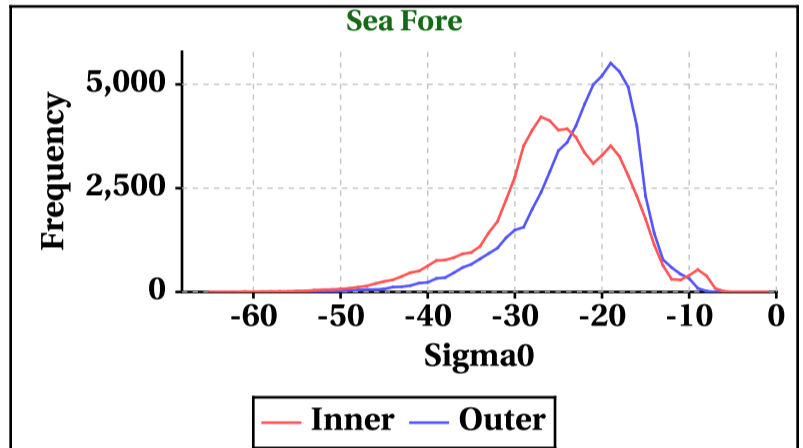
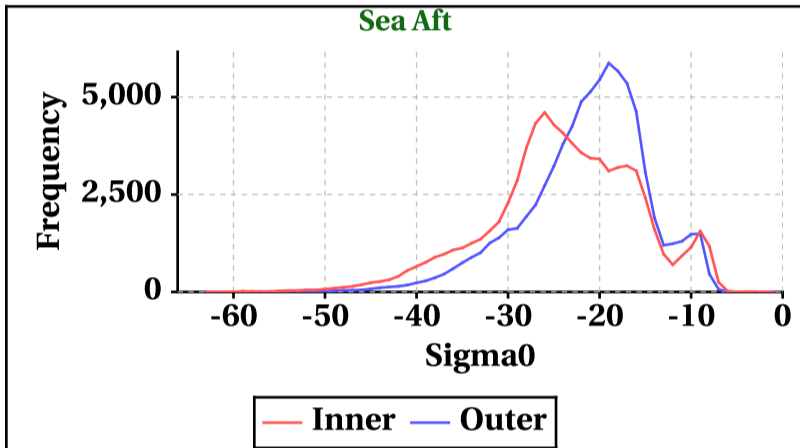
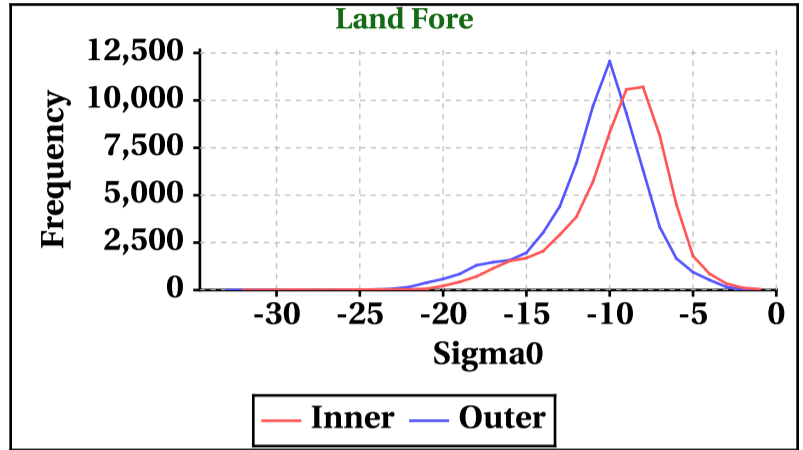
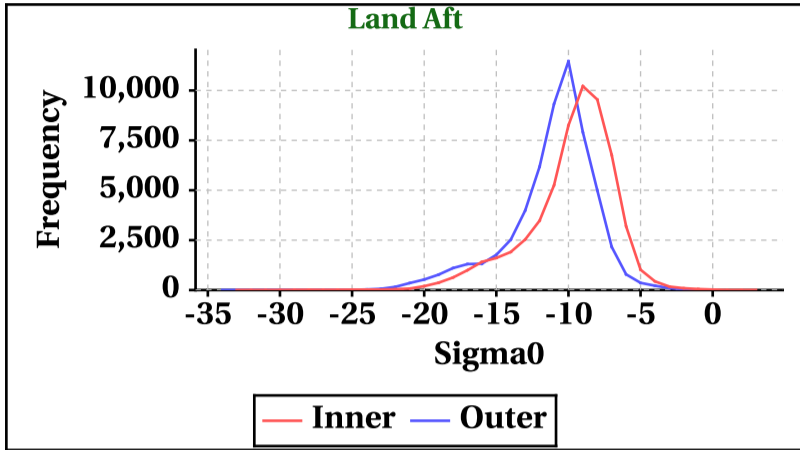


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-33	-32	-63	-65
Max	3	0	0	0

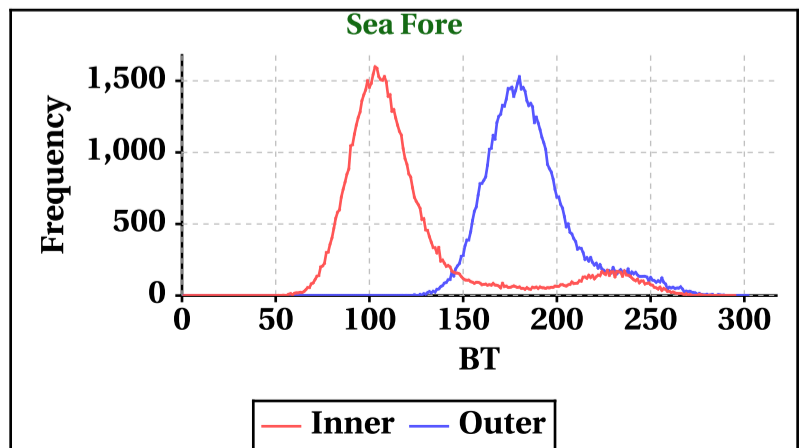
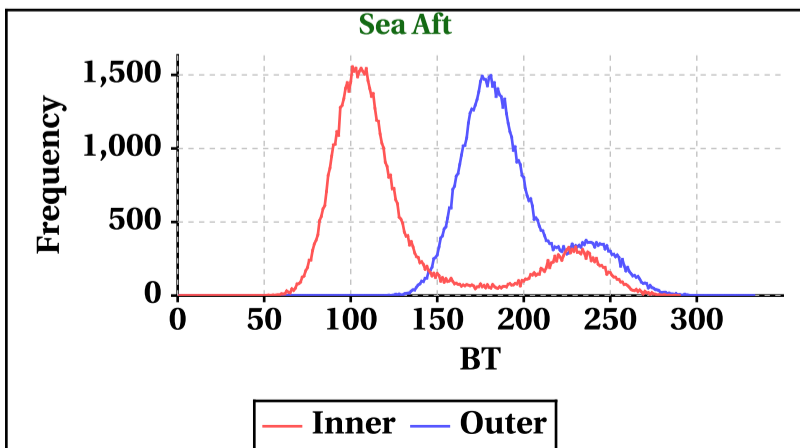
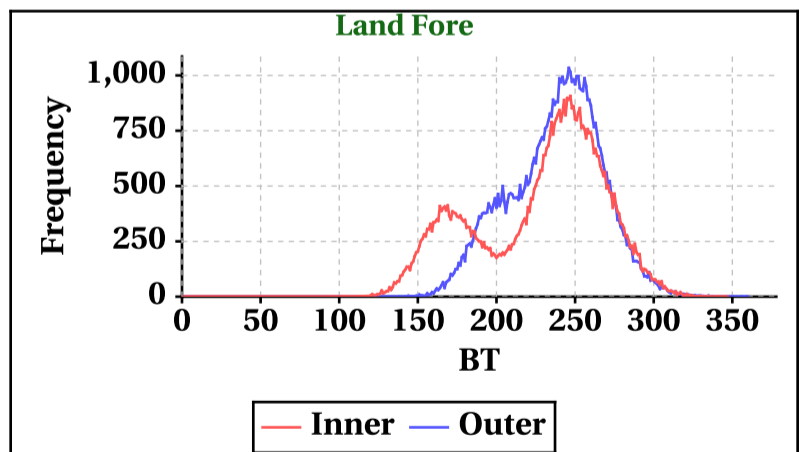
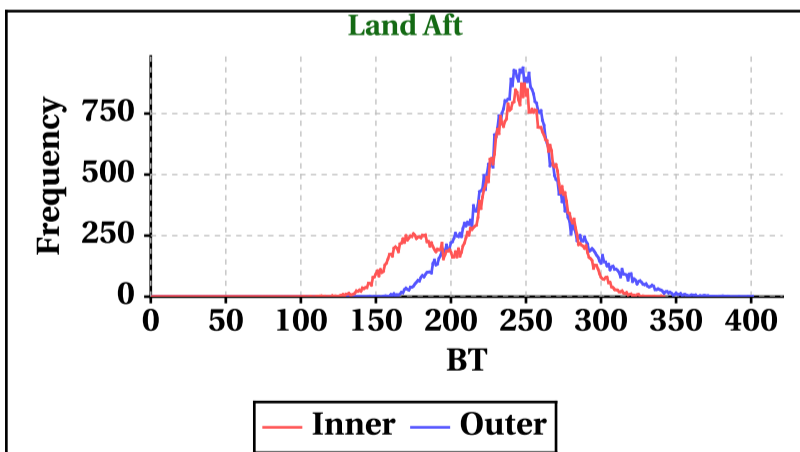
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-34	-33	-59	-60
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	342	347	290	295

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	401	360	333	302

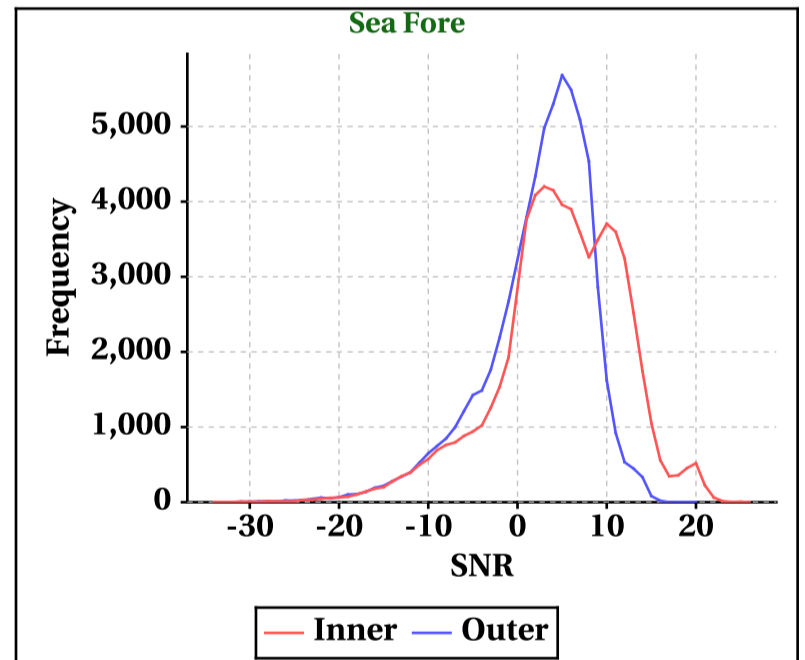
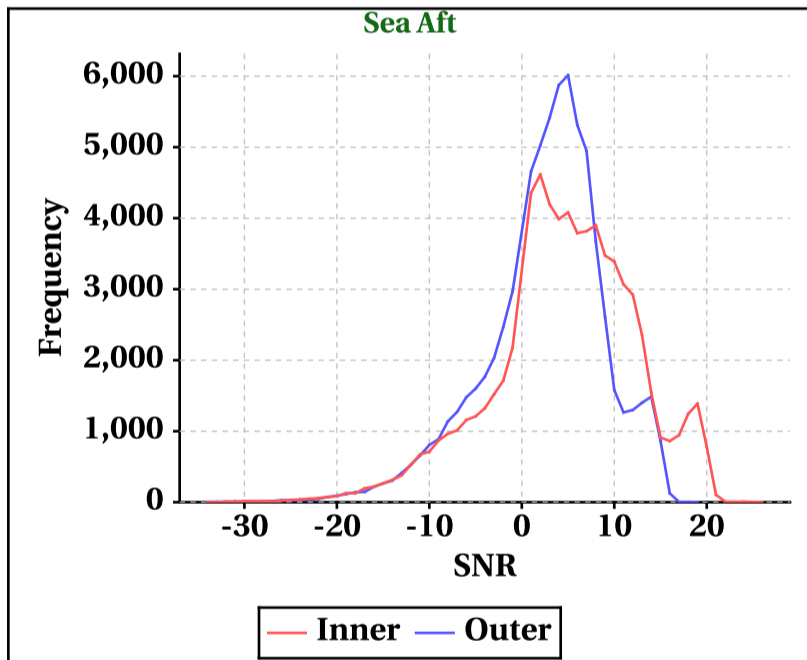
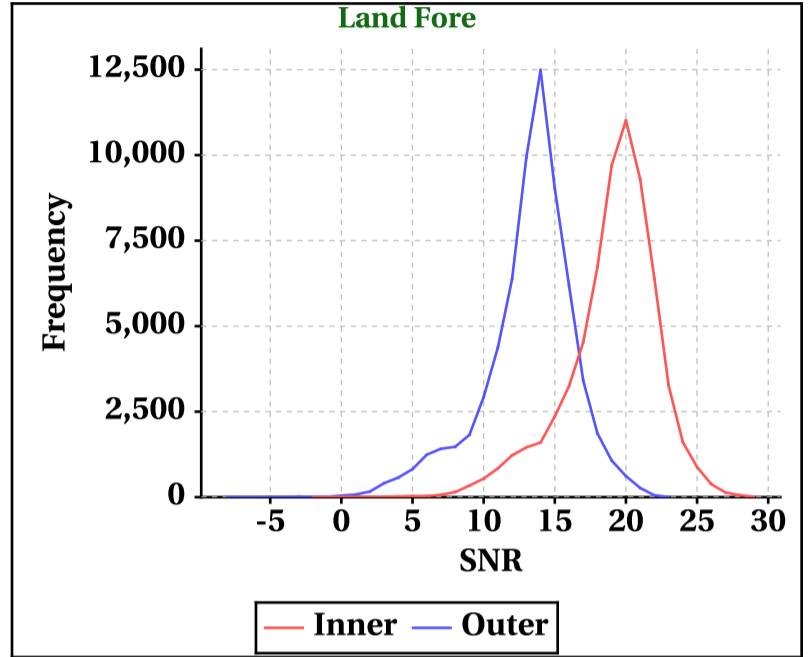
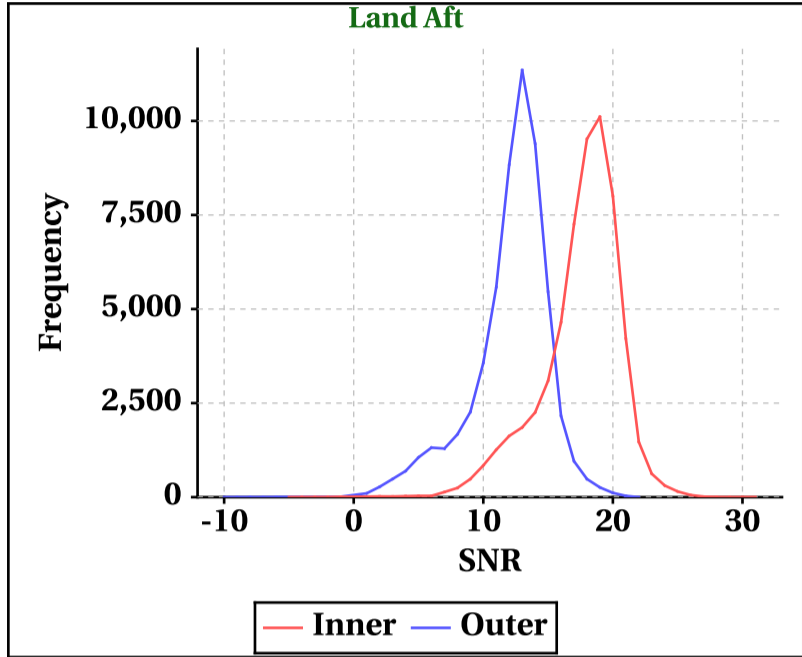


# Dynamic Range (Data Histograms)

## SNR(dBm)

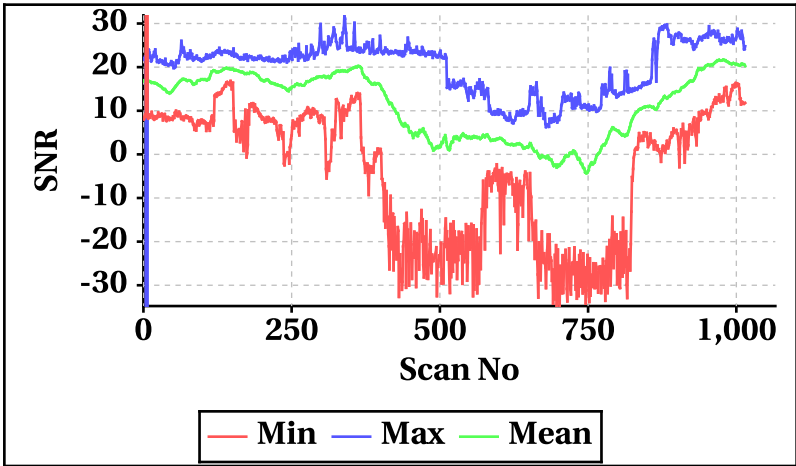
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-5	-2	-34	-34
Max	31	29	26	26

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-10	-8	-34	-34
Max	22	23	19	20

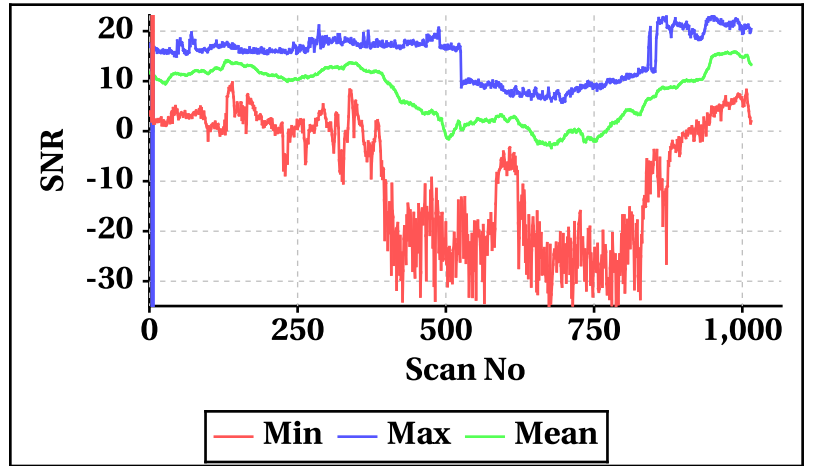


## Orbit-wise behaviour of SNR

Inner Beam (HH)

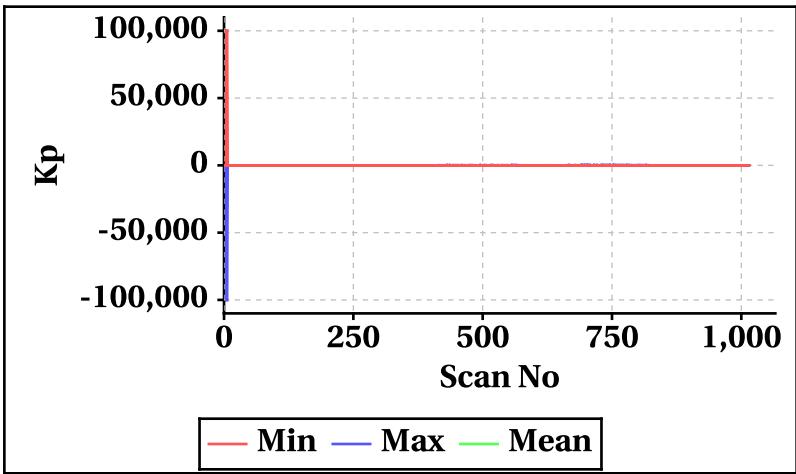


Outer Beam(VV)

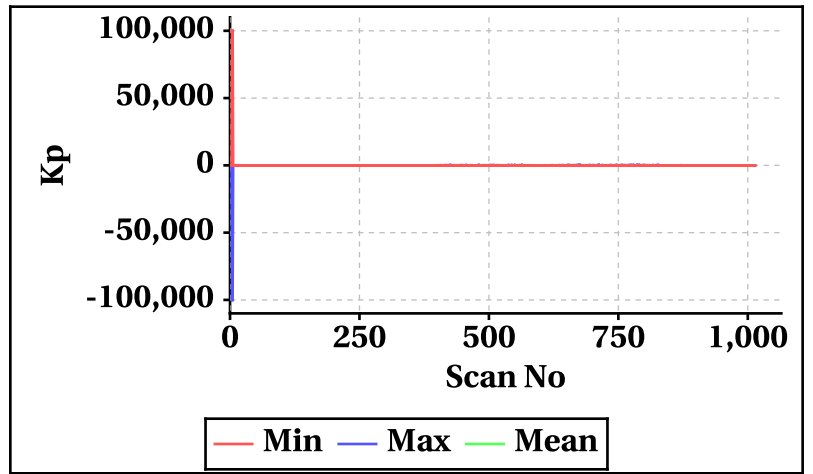


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

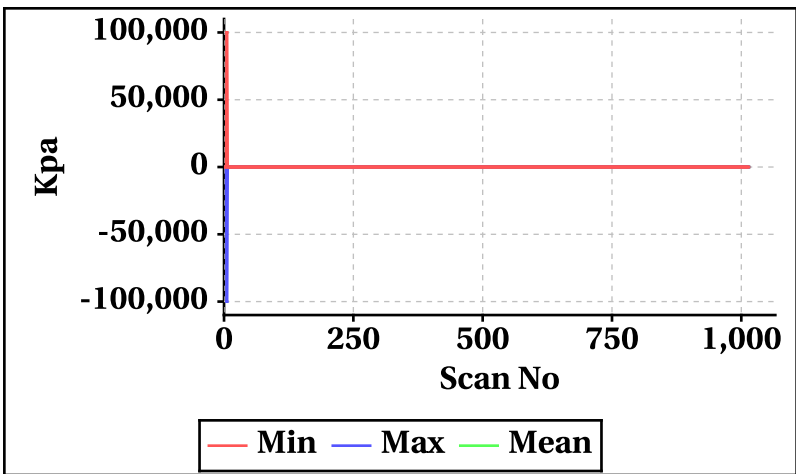
Inner Beam(HH)



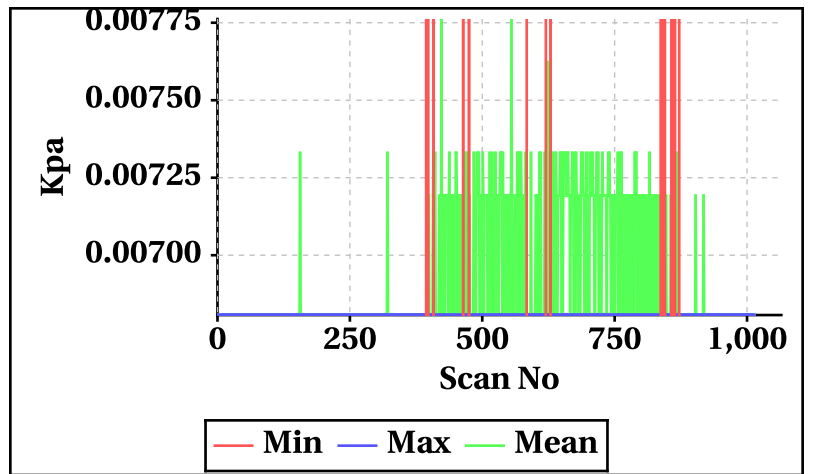
Outer Beam(VV)



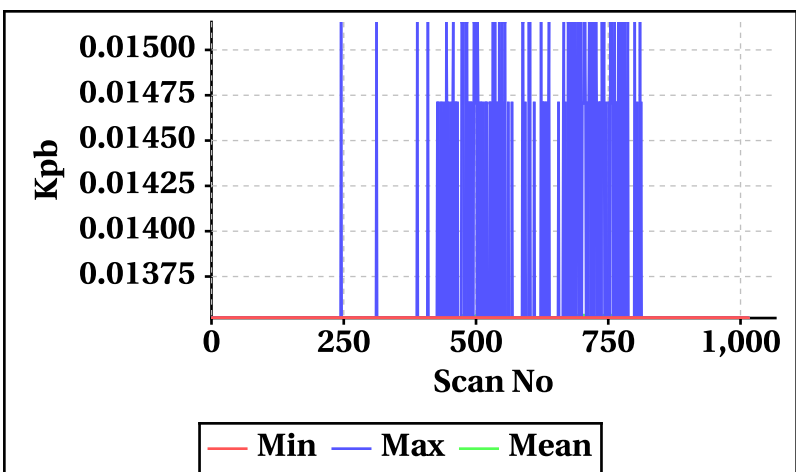
Inner Beam(HH)



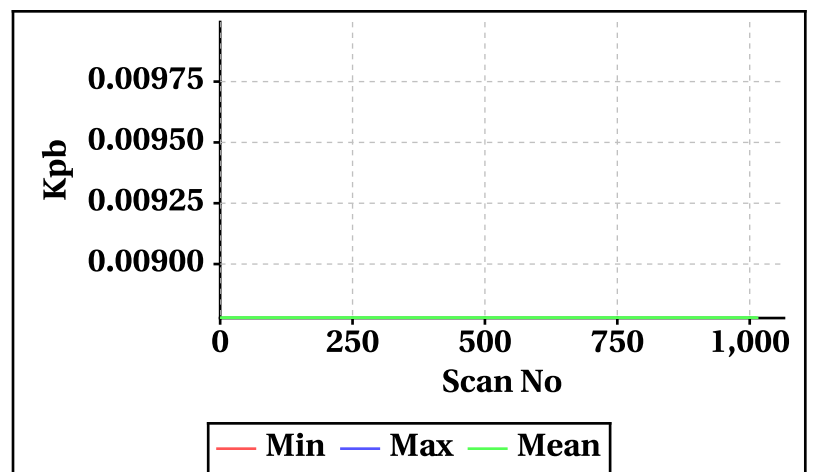
Outer Beam(VV)



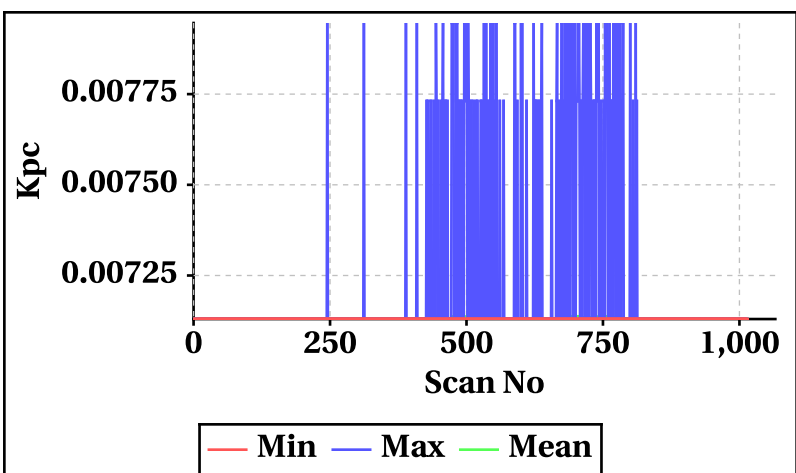
Inner Beam(HH)



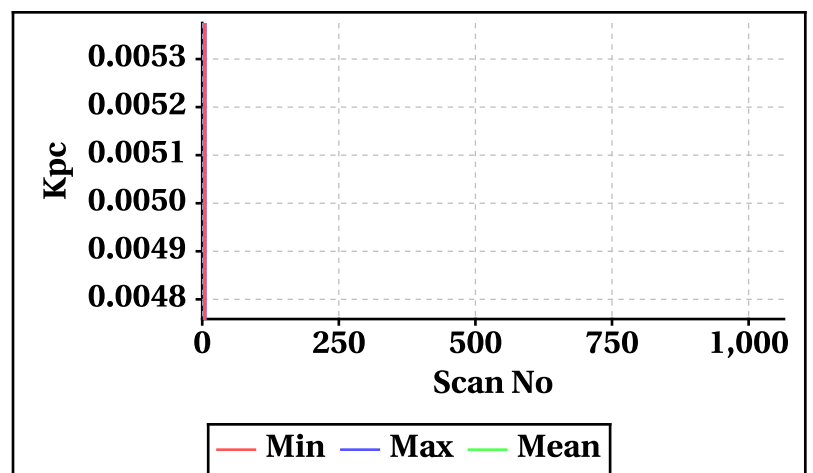
Outer Beam(VV)



Inner Beam(HH)

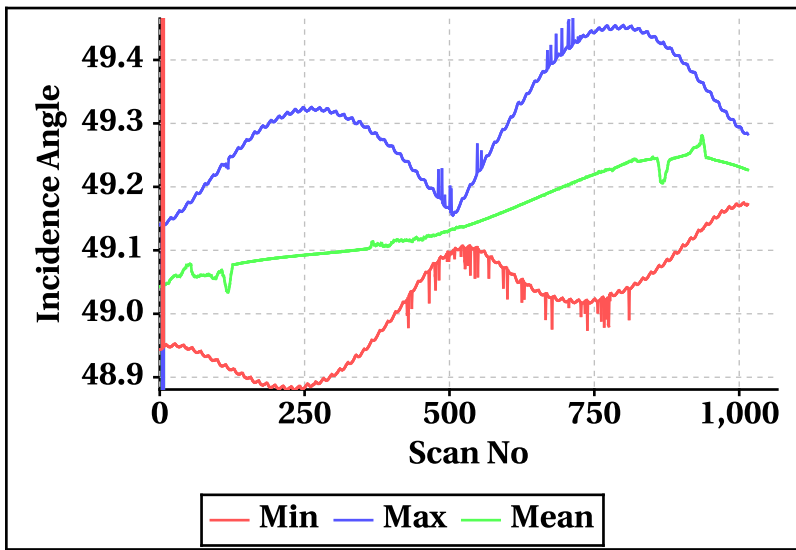


Outer Beam(VV)

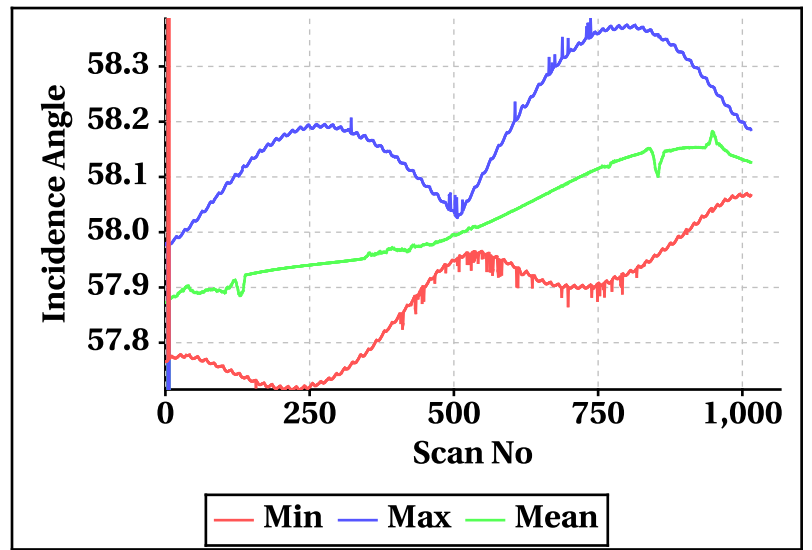


# Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

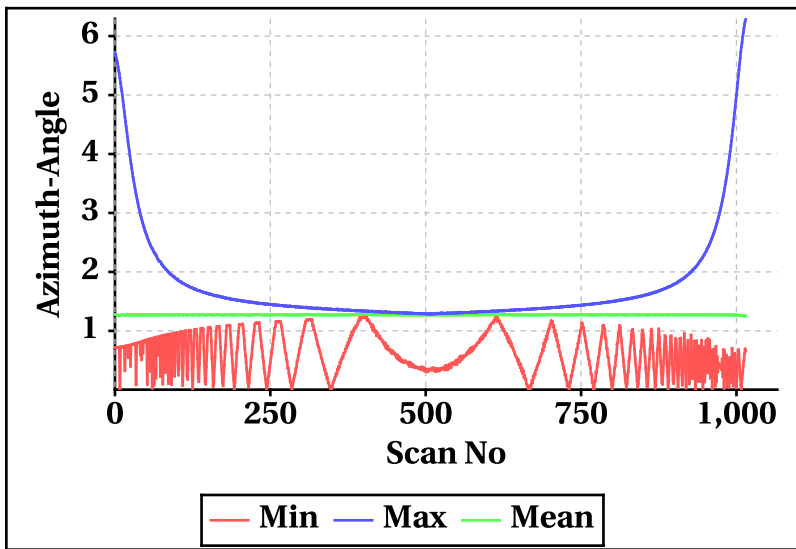
**Inner Beam (HH)**



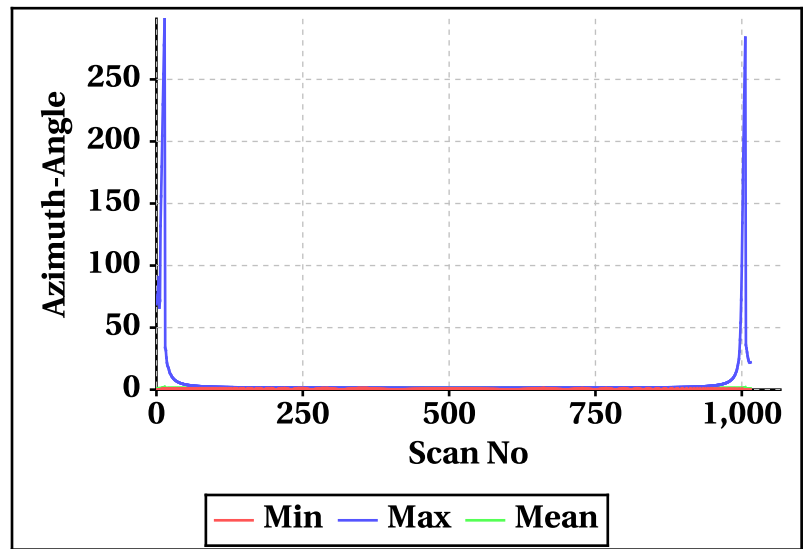
**Outer Beam(VV)**



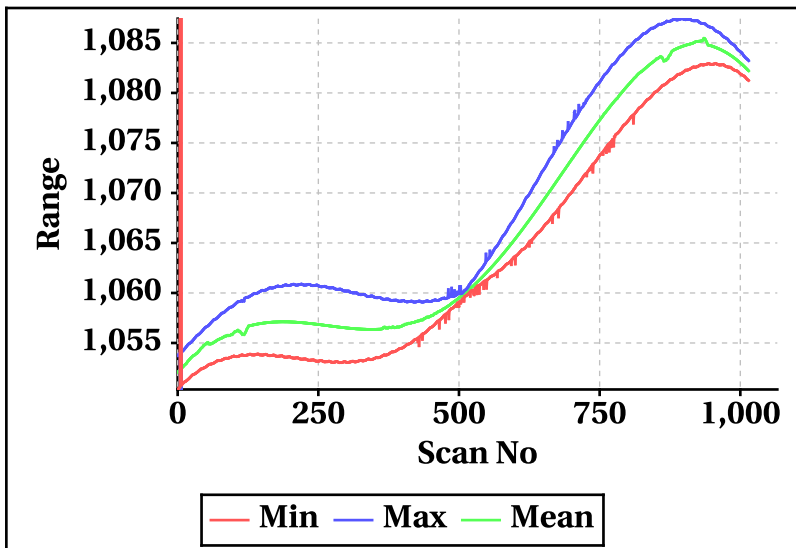
**Inner Beam (HH)**



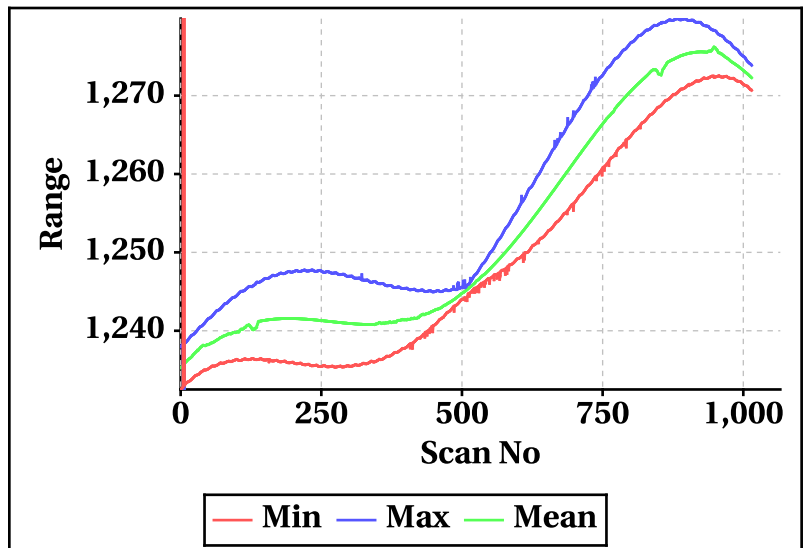
**Outer Beam(VV)**



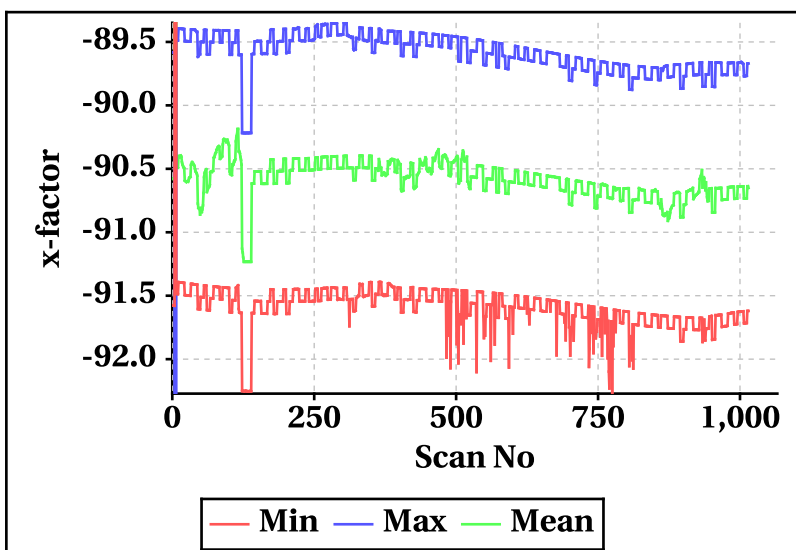
**Inner Beam (HH)**



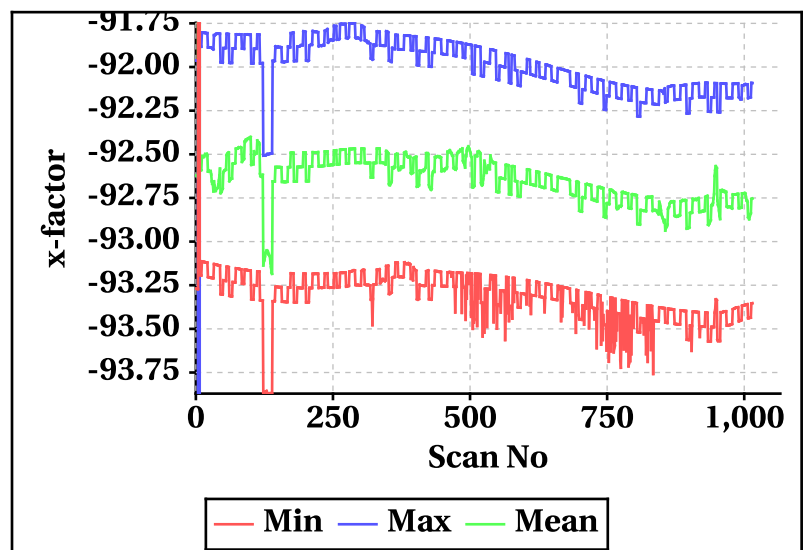
**Outer Beam(VV)**



**Inner Beam (HH)**



**Outer Beam(VV)**



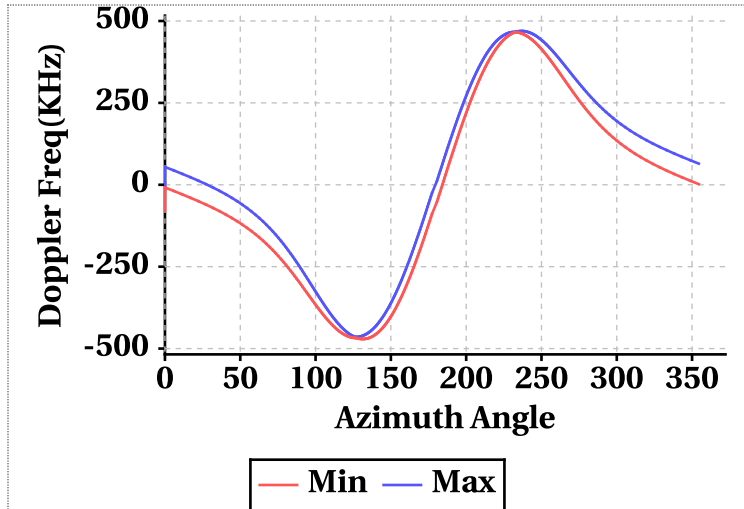


# Doppler Frequency Variation

Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-470.78	-527.38
Max	469.24	526.04

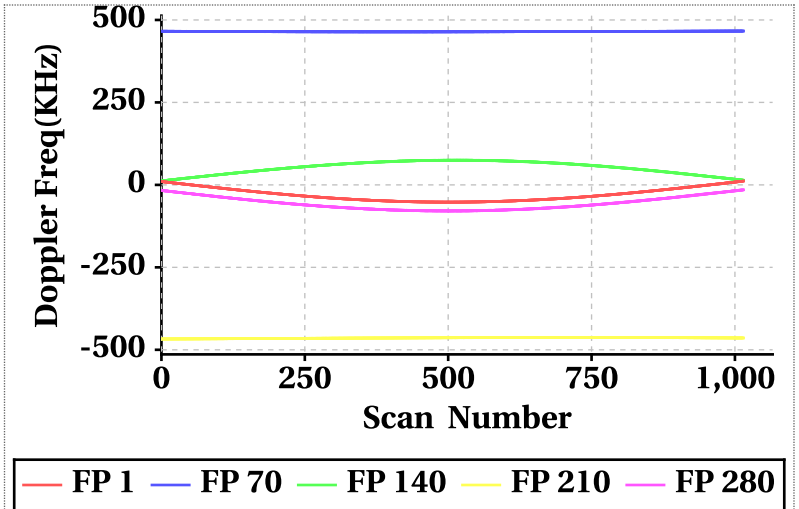
Footprint wise Doppler frequency variation Inner Beam (HH)



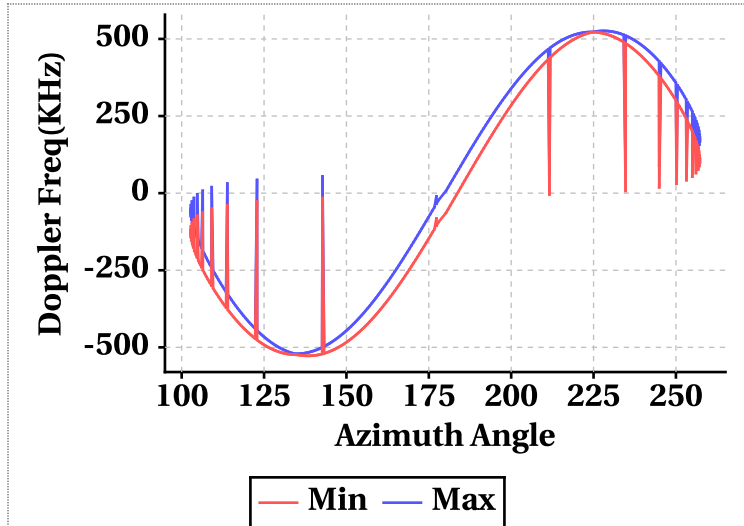
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	-52.36	11.42	-29.35	-63.66	7.46	-37.93
Doppler_70	464.02	466.36	464.82	519.50	522.34	520.49
Doppler_140	12.16	74.80	52.23	7.34	77.56	52.17
Doppler_210	-467.24	-462.62	-464.17	-523.66	-519.44	-520.87
Doppler_280	-79.10	-15.08	-55.98	-82.06	-10.64	-56.18

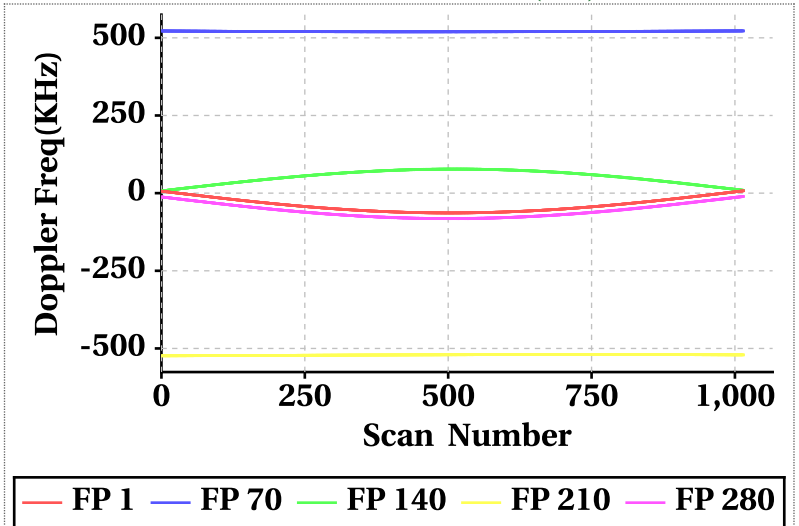
Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)



Footprint wise Doppler frequency variation Outer Beam (VV)

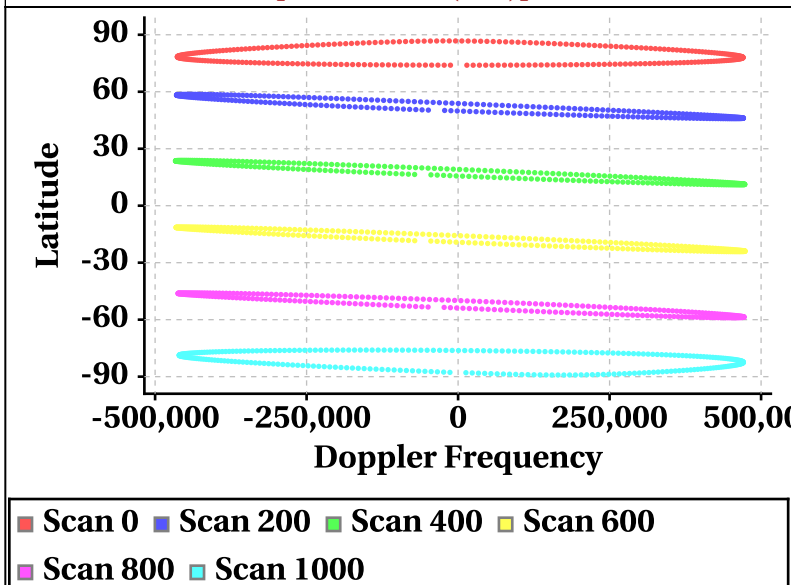


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

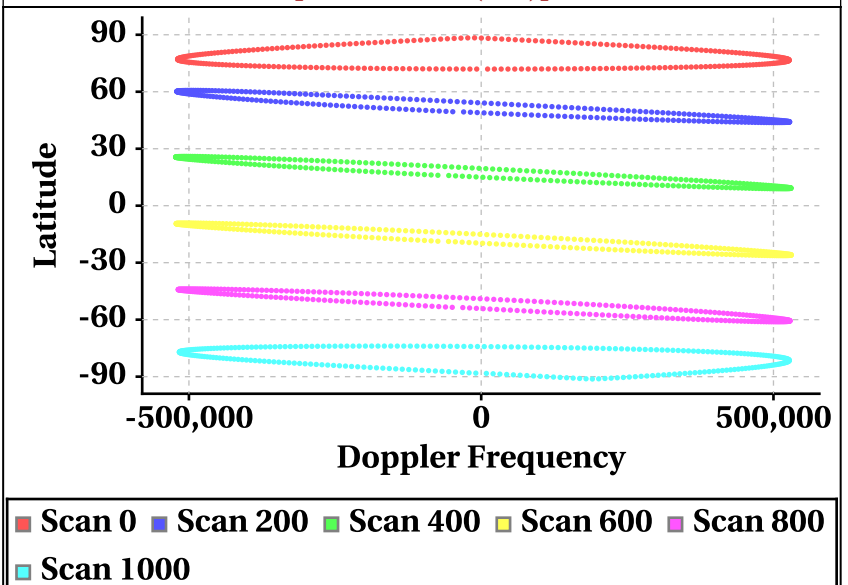


# Latitude Vs Doppler Frequency

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



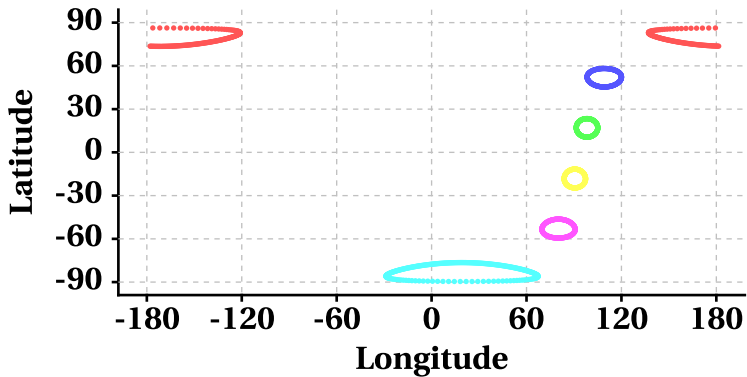
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

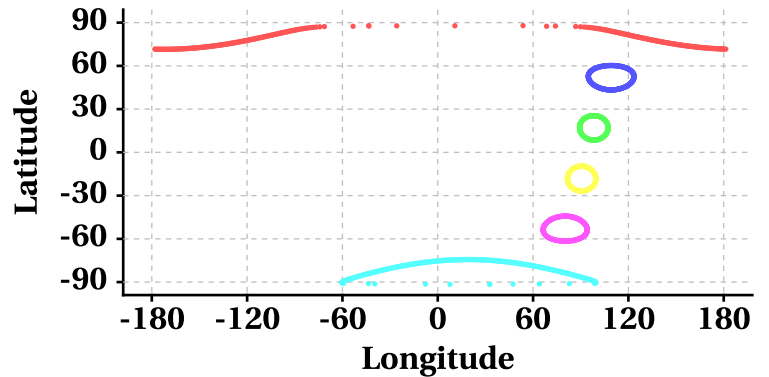
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

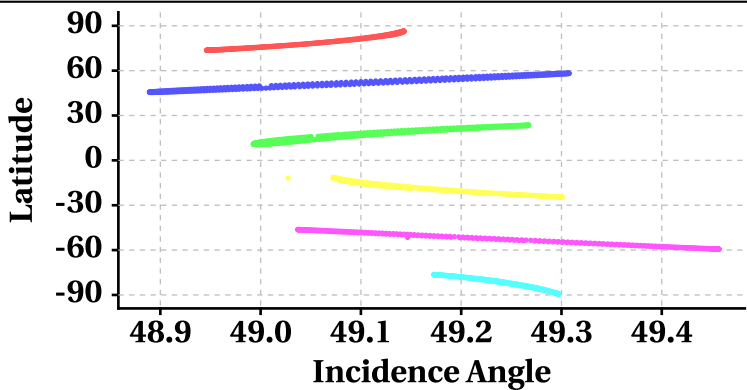
Scan Trace [Outer Beam (VV)]



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

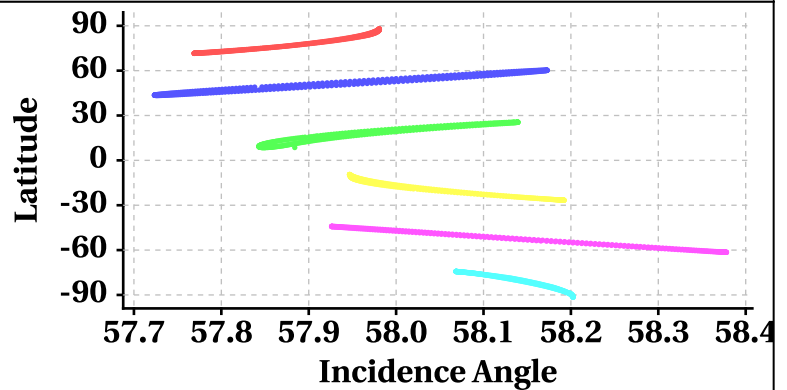
## Latitude Vs Incidence Angle

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



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

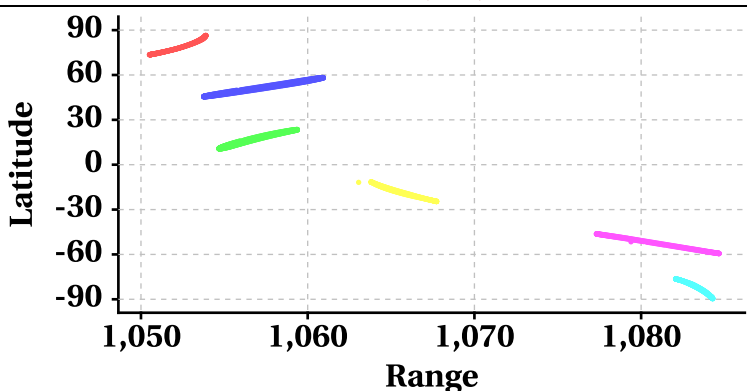
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

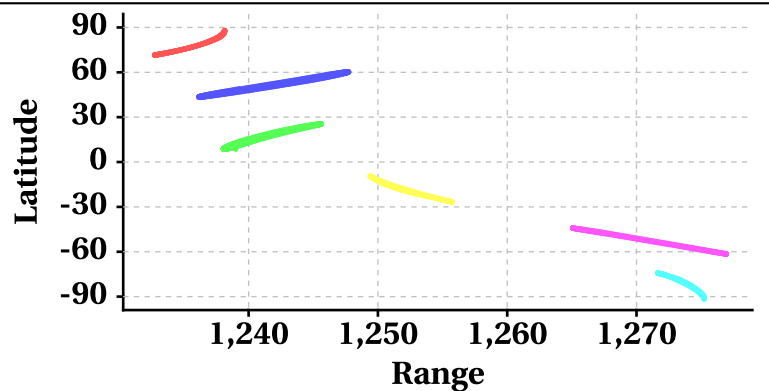
## Latitude Vs Range

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

