

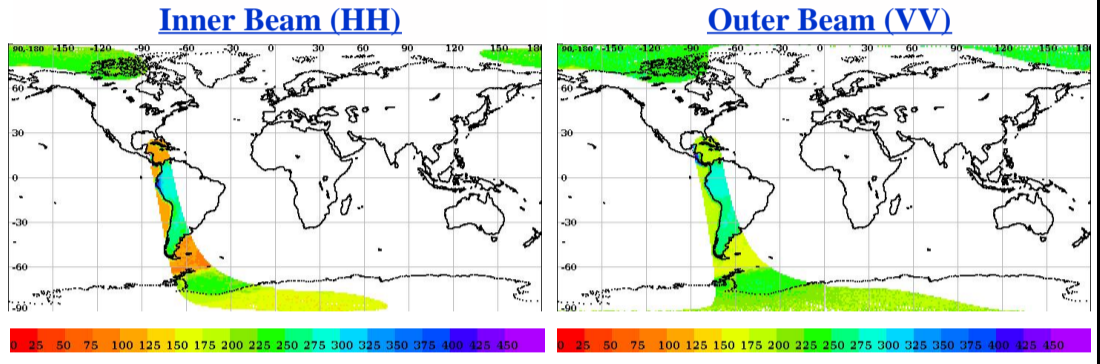
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	6087	<b>Total Scans</b>	712
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	6088	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	v1.1.2	<b>Rev. Number</b>	06087_06088	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	SN	<b>Data Production Date</b>	20-11-2017	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	20-11-2017	<b>Equator Crossing Time</b>	01:44:49.000	<b>No Of Outer Slices</b>	14

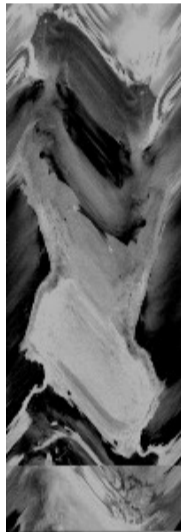
## Brightness Temperature(k) Footprint trace



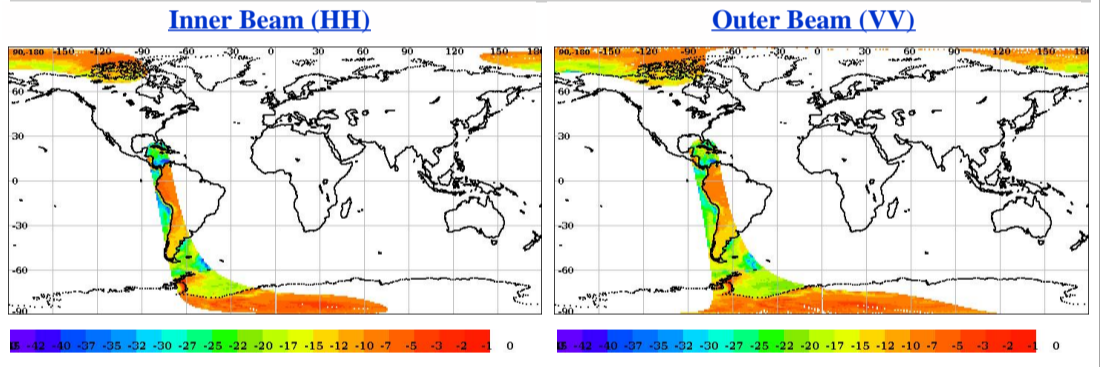
## Image Snapshot for Inner & Outer Beam

Inner (HH)

Outer (VV)



## Sigma0(dB) Footprint trace



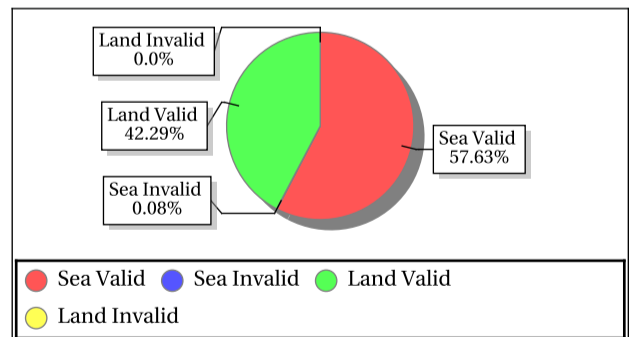
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

Sigma-0 Flags	Inner Beam	Outer Beam
Invalid Sigma0(%)	0.14	0.27
Data Not Available From Payload (%)	55.05964	29.71169
Slice not within sample array limits (%)	44.94	70.29
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

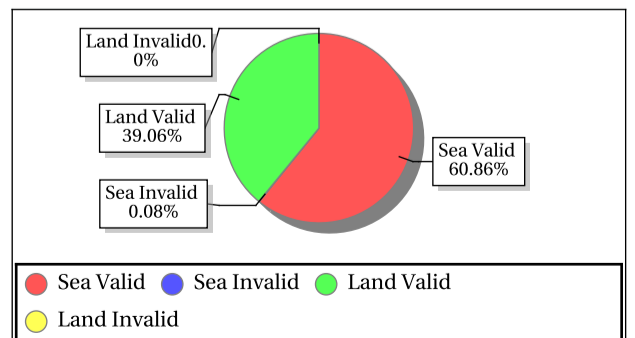
\*DP Format Document

## 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_1	0.00	-67.00	Outer	ASC	Aft	-9.42	-7.45	-8.47	0.42	245.55	318.48	280.77	14.65
Amazon_1	0.00	-67.00	Outer	ASC	Fore	-9.62	-7.33	-8.46	0.44	237.94	324.13	281.36	16.10



## 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	197.56	0.22	1.473	0.10	261.93	0.19	1.014	0.10	0.17	0.10	0.000	0.10	0.22	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>	-33.69	24.09	6.99	1.339	-34.92	25.52	8.83	2.901	0.39	28.42	19.03	10.509	-1.96	29.85	20.09	27.021

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	205.48	0.20	1.177	0.08	142.72	0.17	0.888	0.08	0.18	0.09	0.000	0.08	0.17	0.08	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>	-34.74	17.97	3.95	0.000	-33.16	18.89	5.17	0.000	-1.87	22.43	13.99	0.032	-1.69	23.37	14.63	0.107

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	49.33	49.06	0.000	57.51	58.22	57.87	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	6.39	1.27	3.707	0.0000	296.02	1.27	5.092	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1016.56	1085.00	1047.16	23.747	1191.91	1276.04	1229.15	32.858	Azimuth Diff.	0.60	2.00
<b>X Factor(dbm)</b>	-91.73	-89.18	-90.38	0.000	-93.46	-91.66	-92.46	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	15.46	15.95	15.59	0.000	20.41	20.92	20.52	0.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.76	6111.55	28.28	1.000	8.71	6094.96	28.16	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

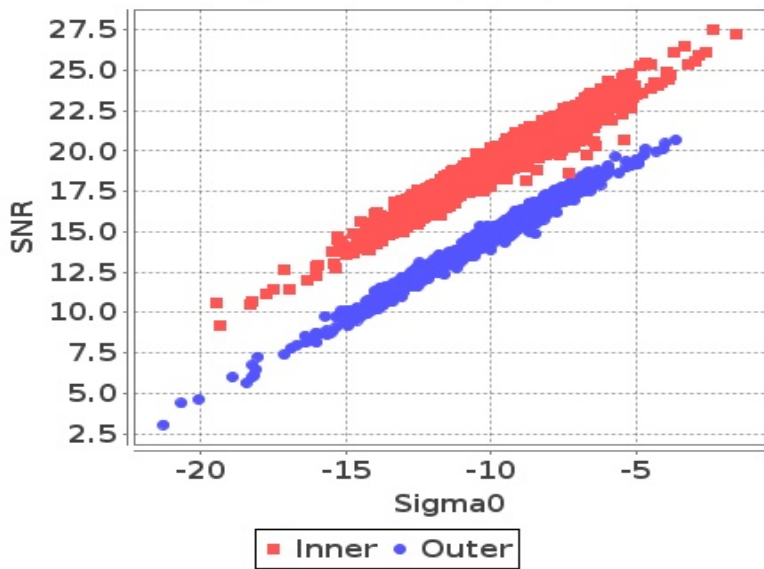
- Normal
- Deviations
- Alarming
- High Errors



# Sigma0 Behaviour (Sigma0 Vs SNR)

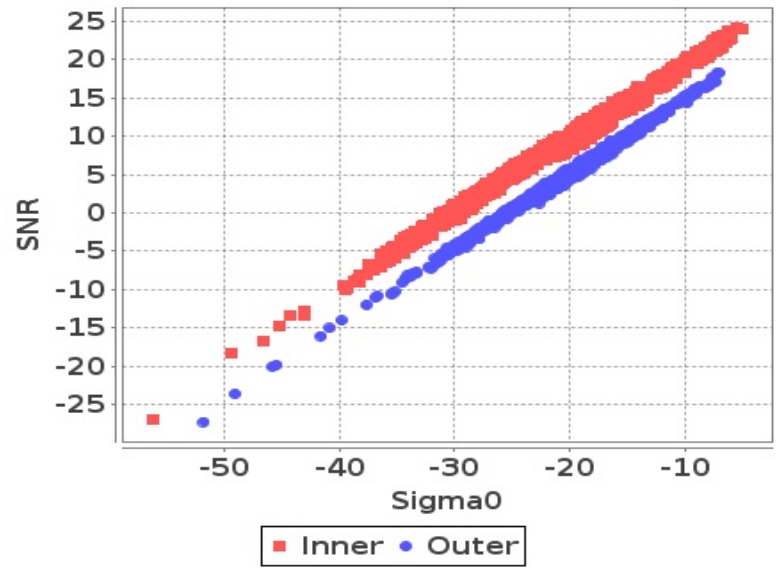
### Footprint-Land

#### Sigma0 Vs SNR (Land)



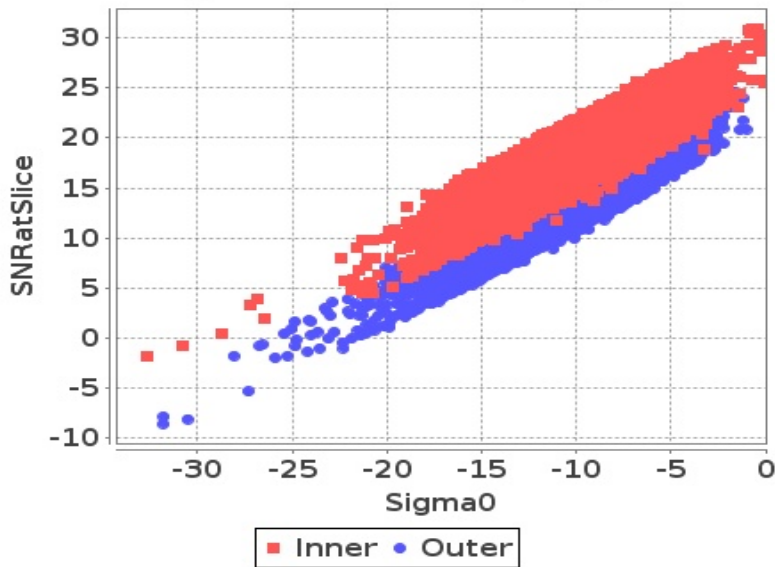
### Footprint-Sea

#### Sigma0 Vs SNR (Sea)



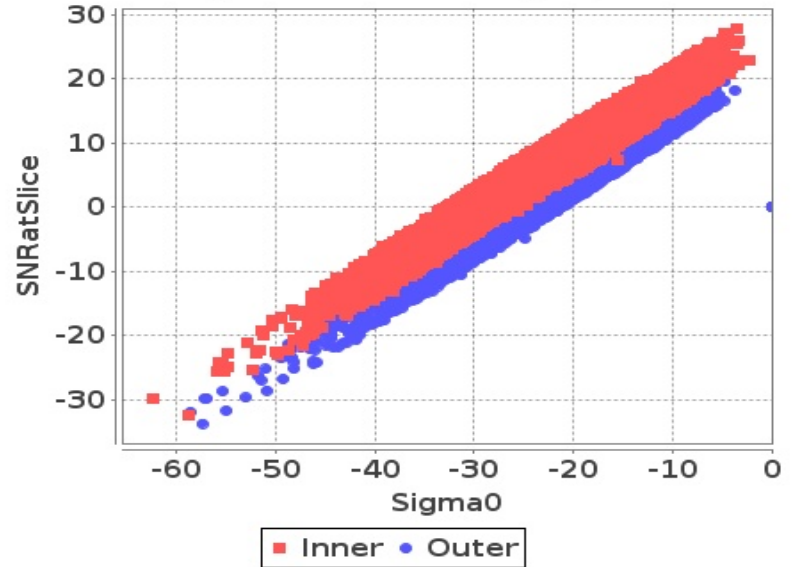
### Slice-Land

#### Sigma0 Vs SNRatSlice (Land)



### Slice-Sea

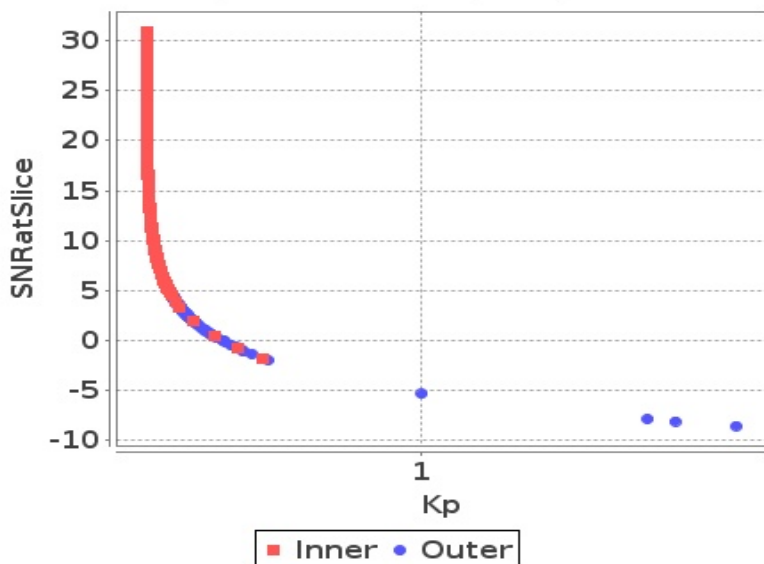
#### Sigma0 Vs SNRatSlice (Sea)



# Sigma0 Behaviour (Kp Vs SNR)

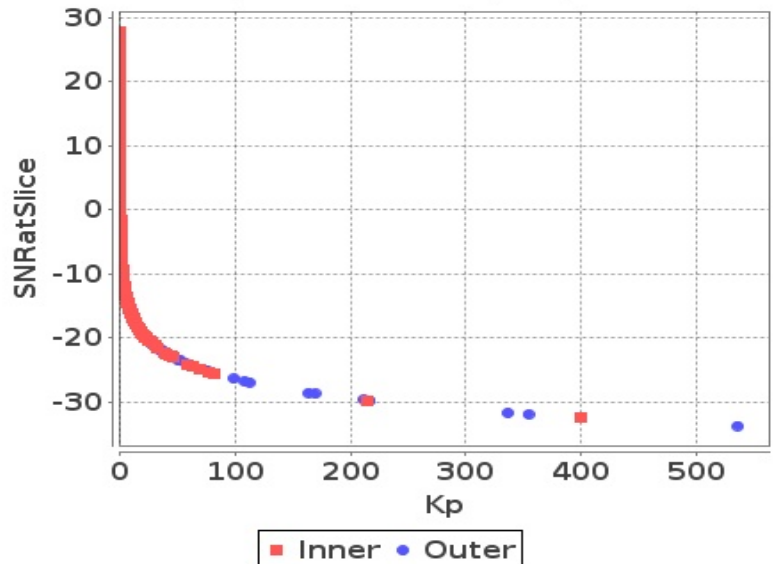
### Slice

#### Kp Vs SNRatSlice (Land)



### Slice

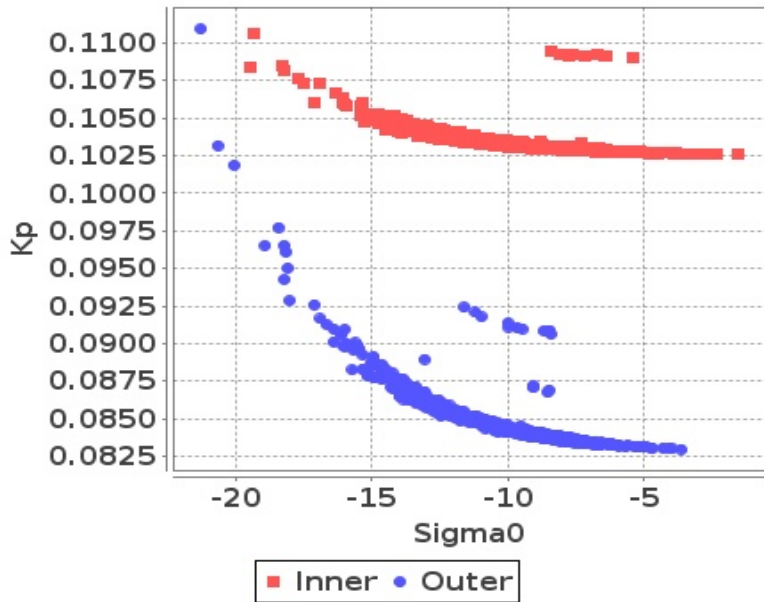
#### Kp Vs SNRatSlice (Sea)



# Sigma0 Behaviour(Sigma0 Vs Kp)

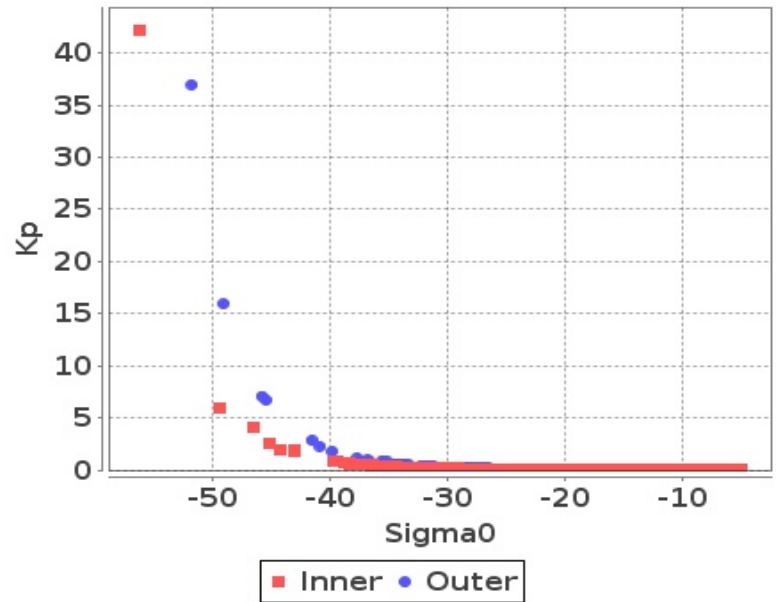
## Footprint-Land

### Sigma0 Vs Kp (Land)



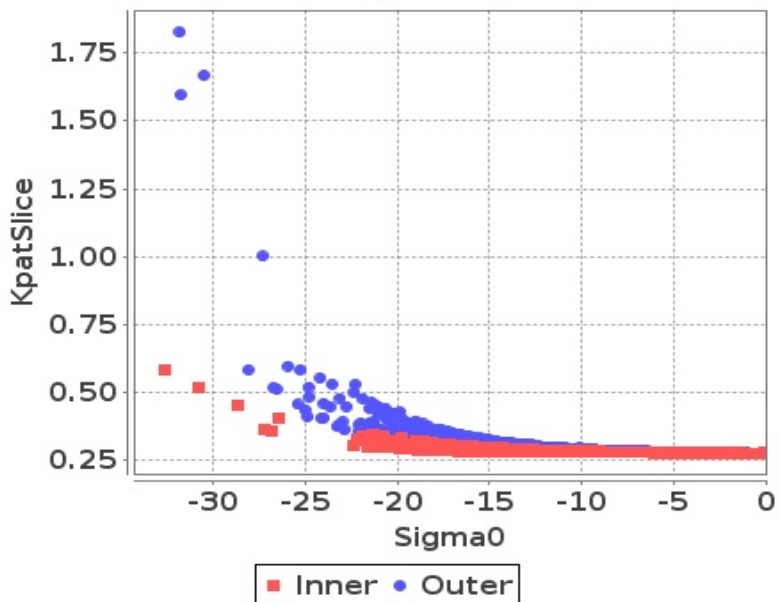
## Footprint-Sea

### Sigma0 Vs Kp (Sea)



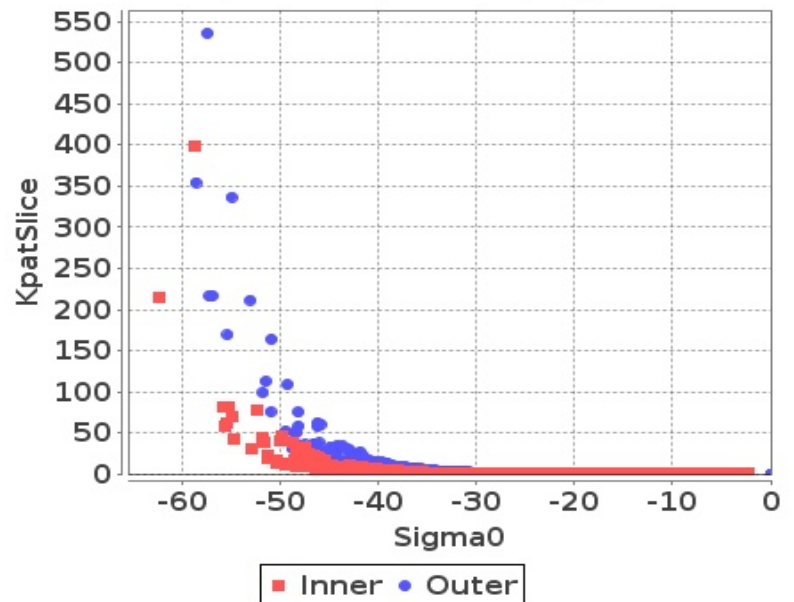
## Slice-Land

### Sigma0 Vs KpatSlice (Land)



## Slice-Sea

### Sigma0 Vs KpatSlice (Sea)

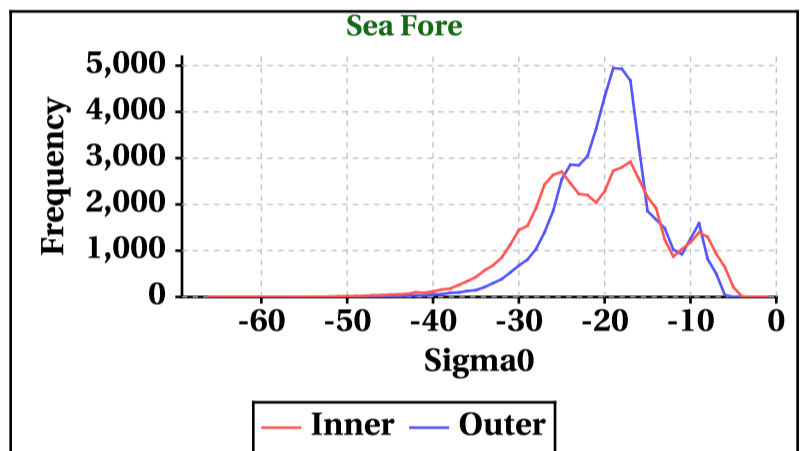
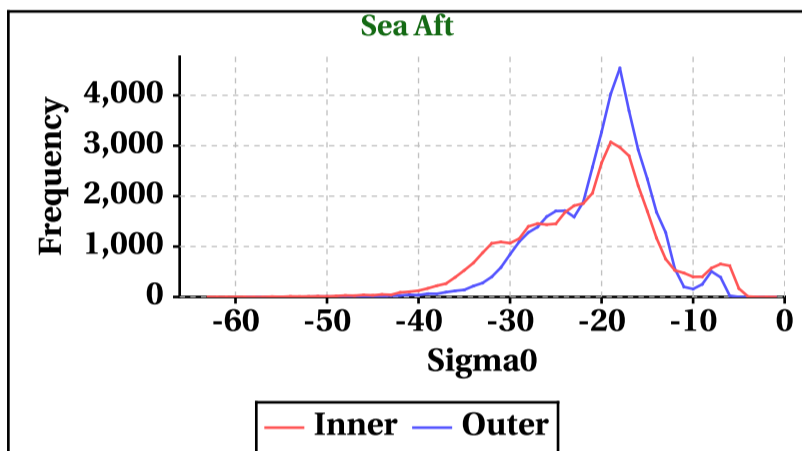
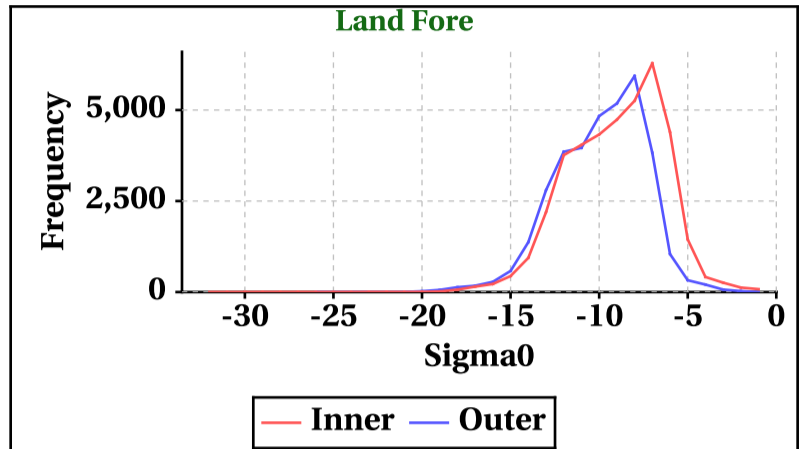
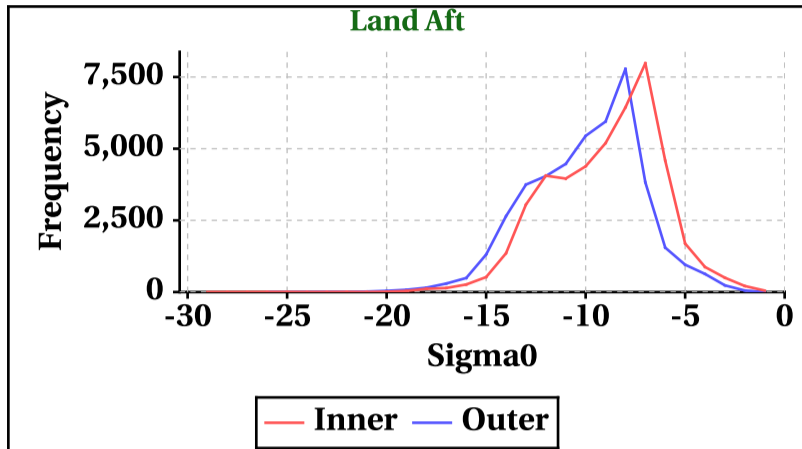


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-29	-32	-63	-66
Max	0	0	0	0

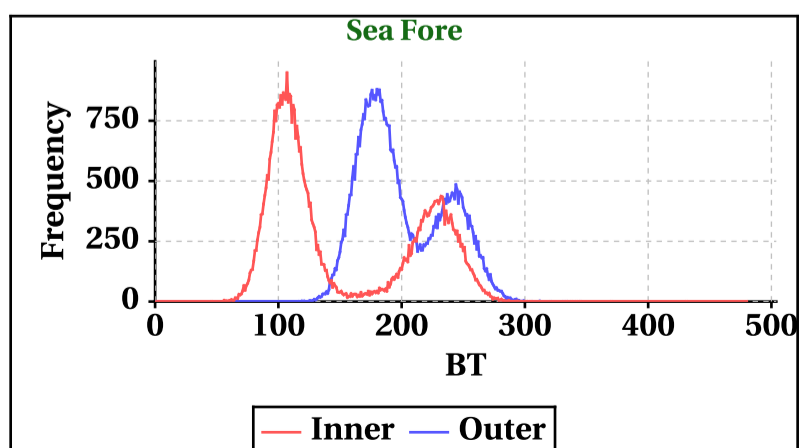
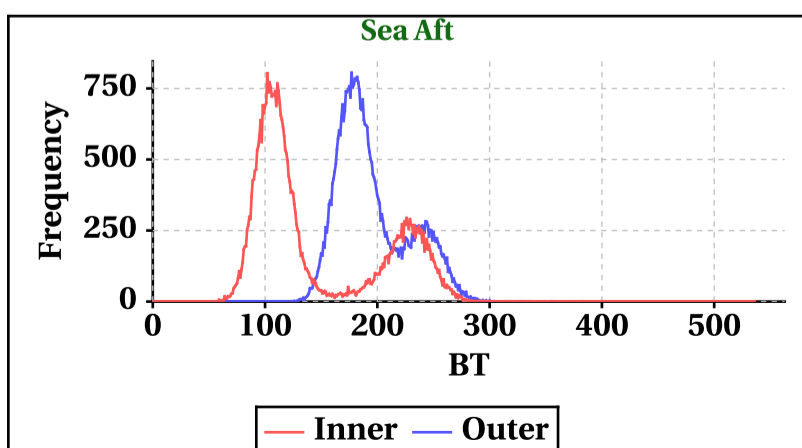
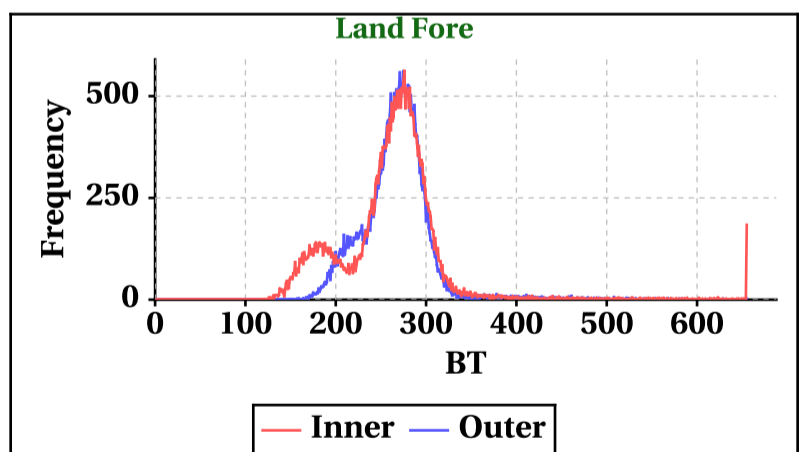
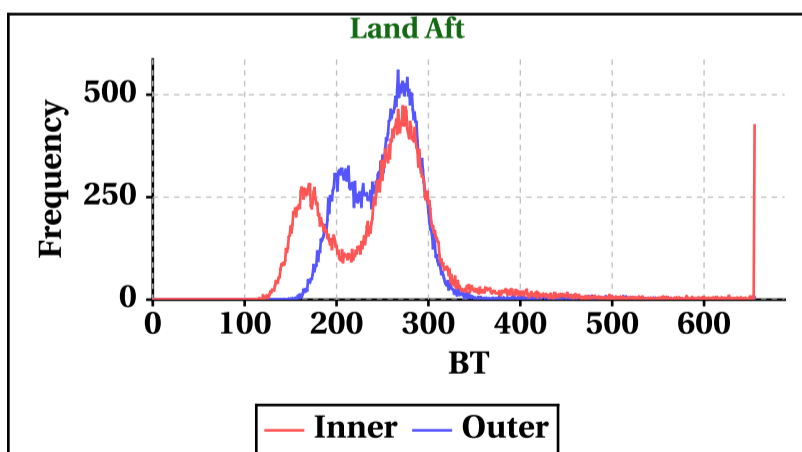
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-26	-26	-59	-58
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	655	655	536	480

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	655	655	375	344

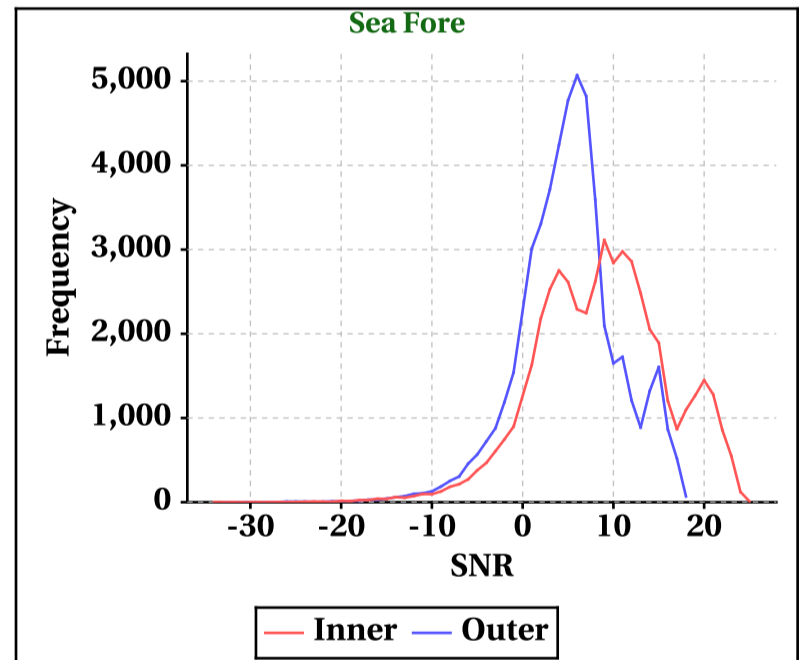
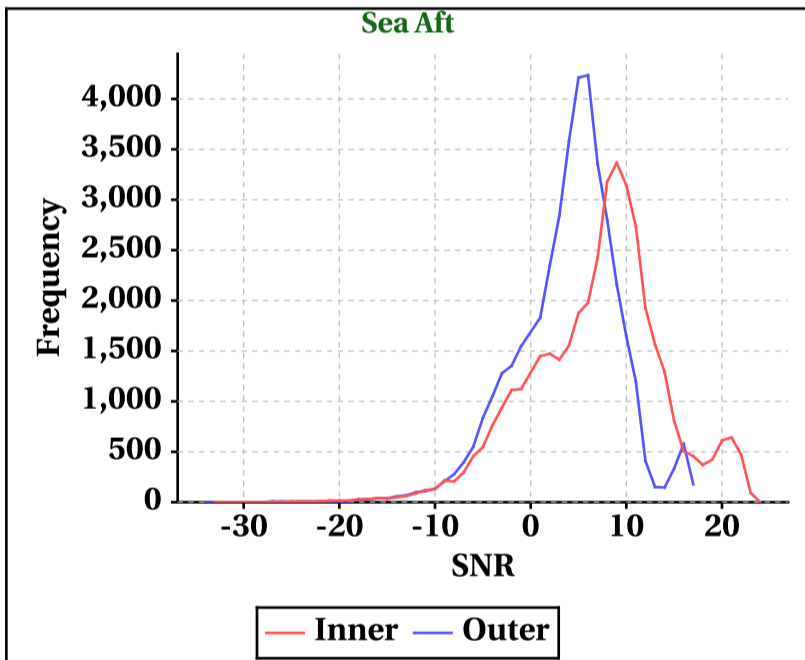
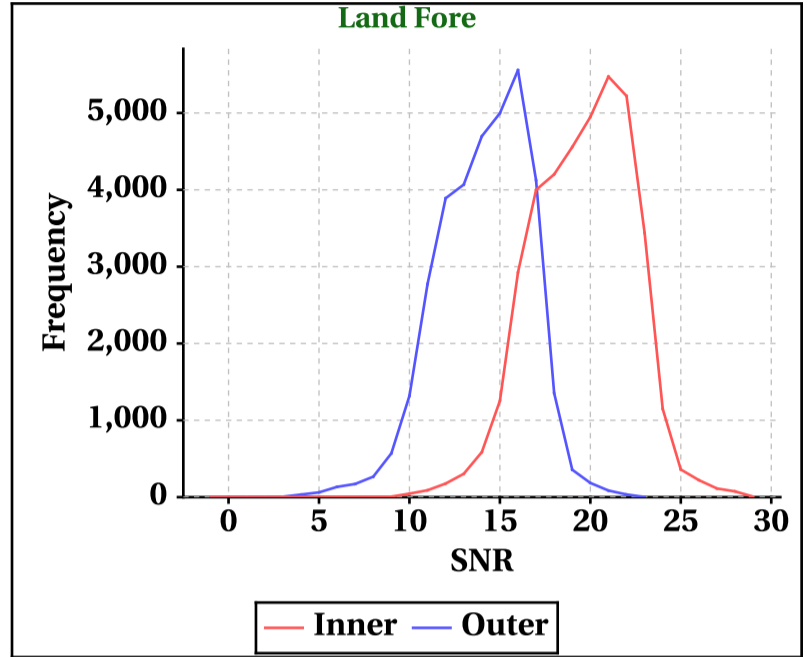
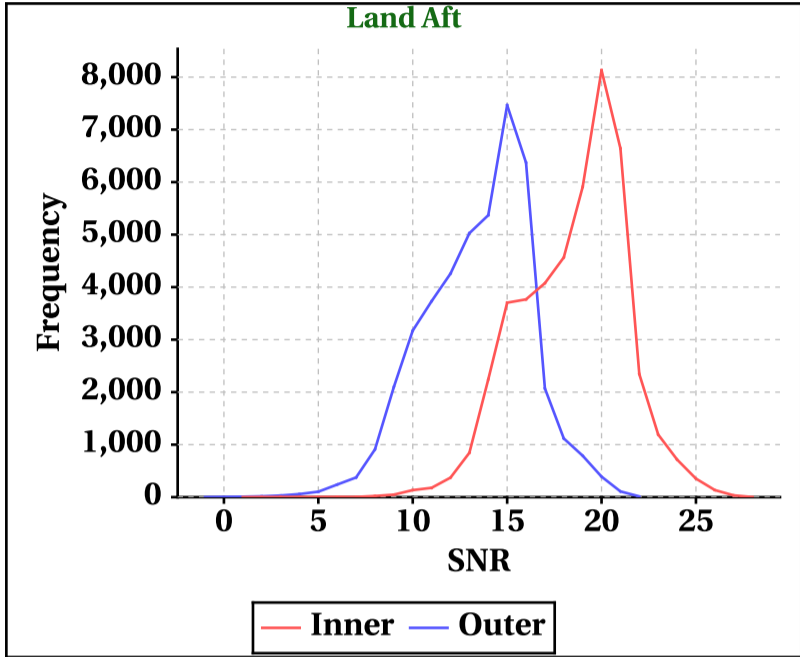


# Dynamic Range (Data Histograms)

## SNR(dBm)

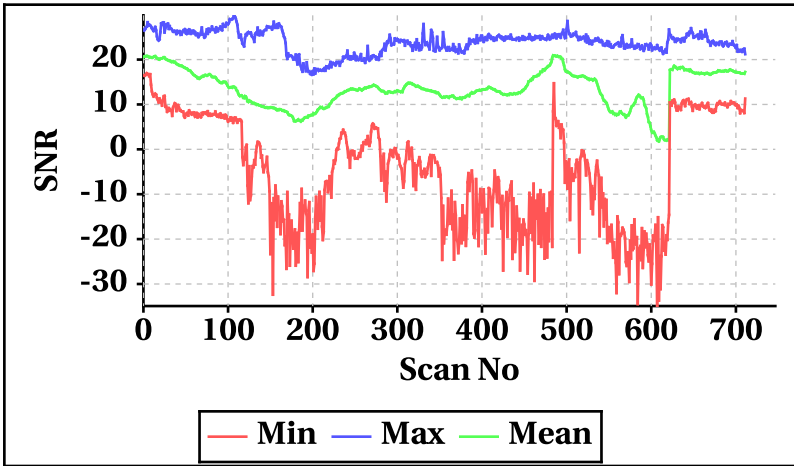
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	-1	-33	-34
Max	28	29	24	25

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-1	-1	-34	-33
Max	22	23	17	18

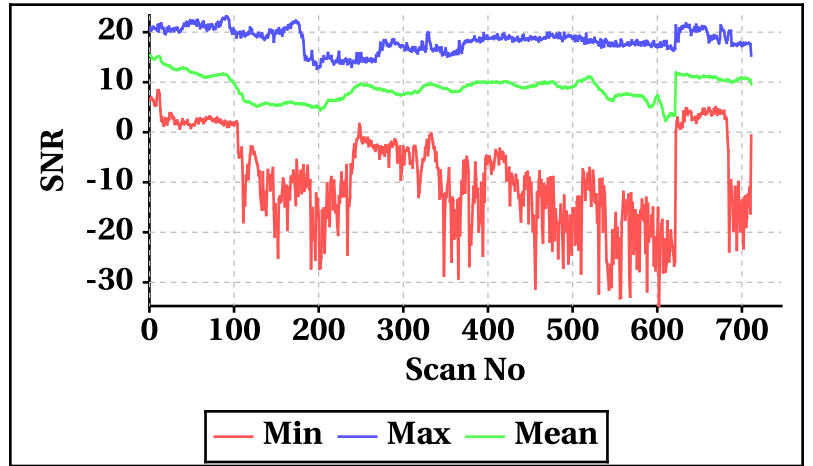


## Orbit-wise behaviour of SNR

**Inner Beam (HH)**

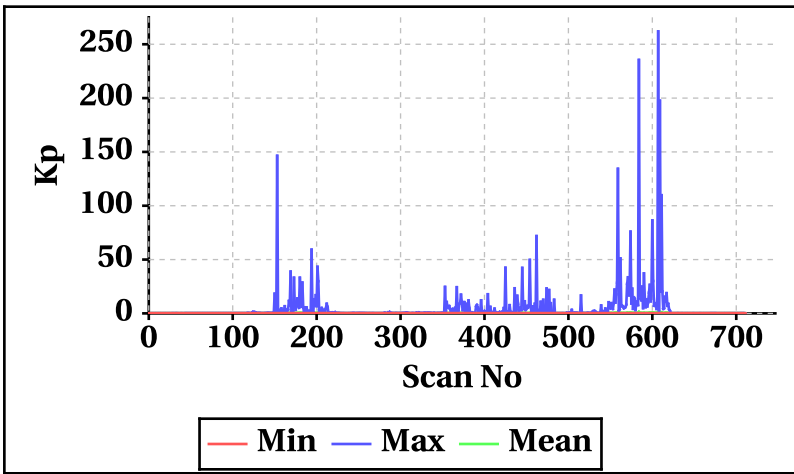


**Outer Beam(VV)**

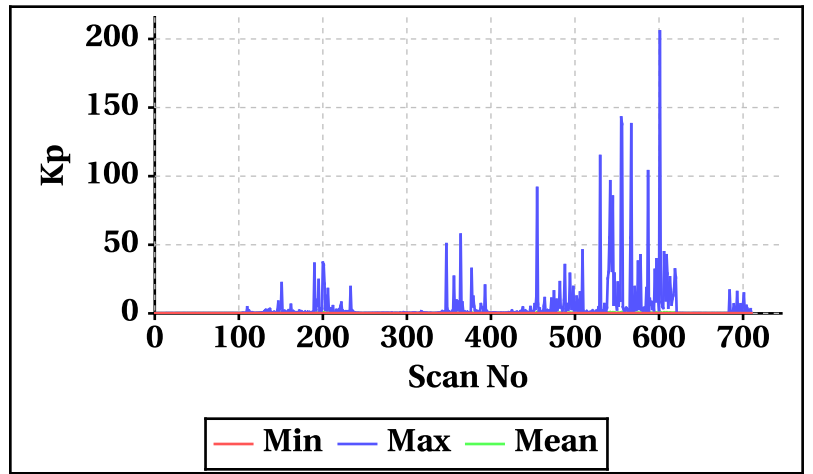


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

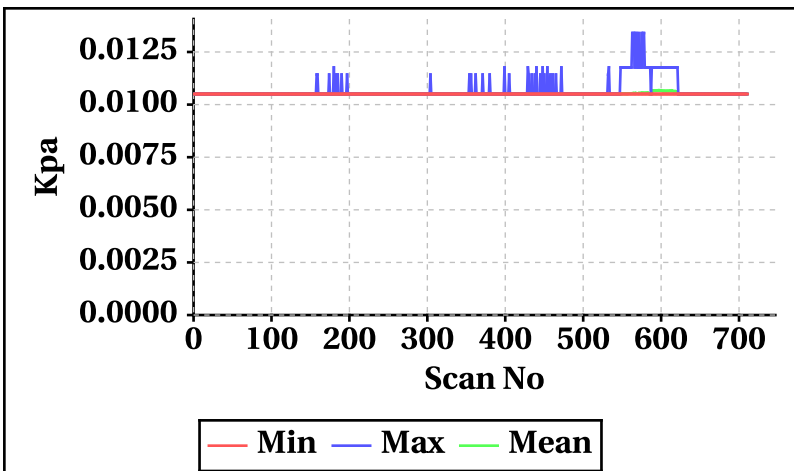
**Inner Beam(HH)**



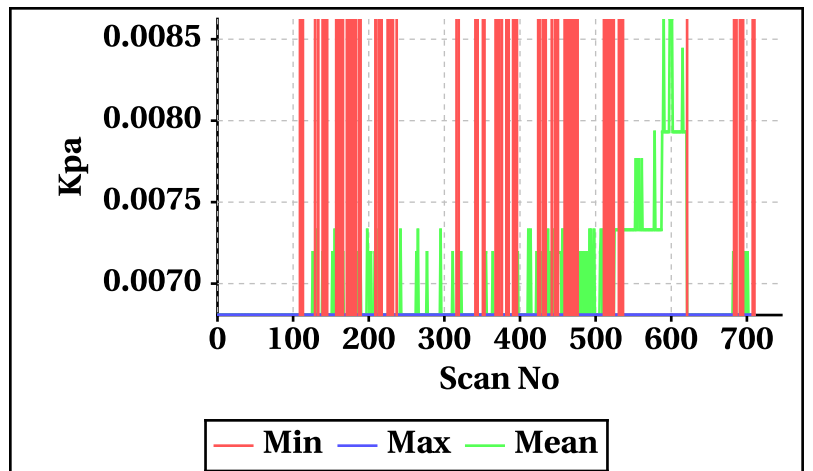
**Outer Beam(VV)**



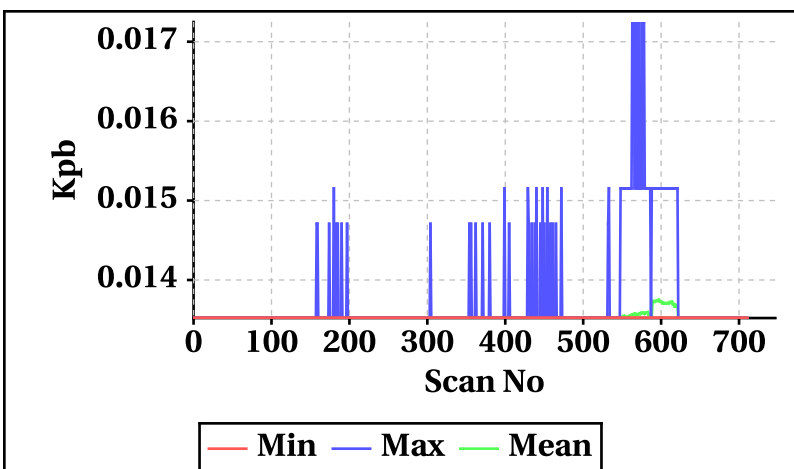
**Inner Beam(HH)**



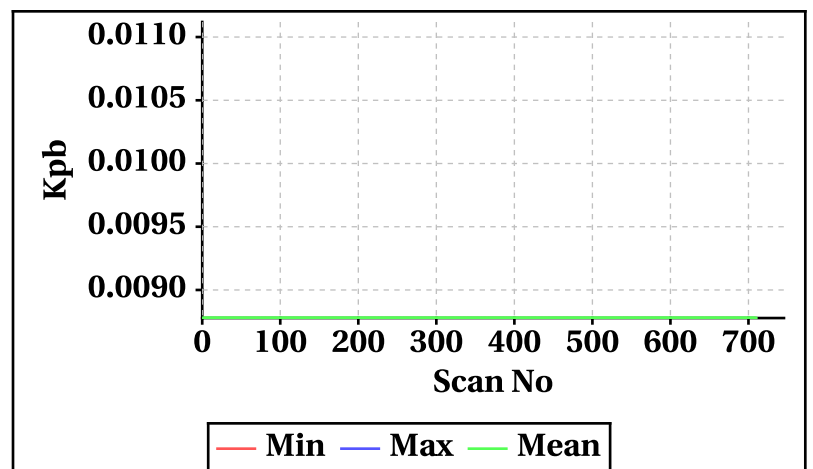
**Outer Beam(VV)**



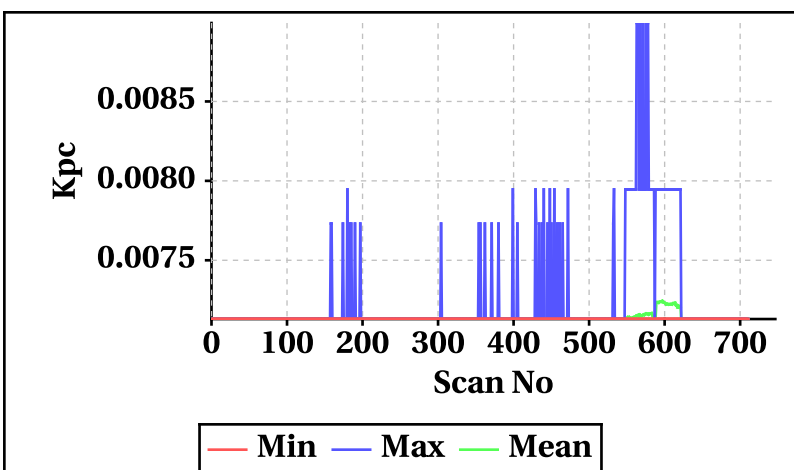
**Inner Beam(HH)**



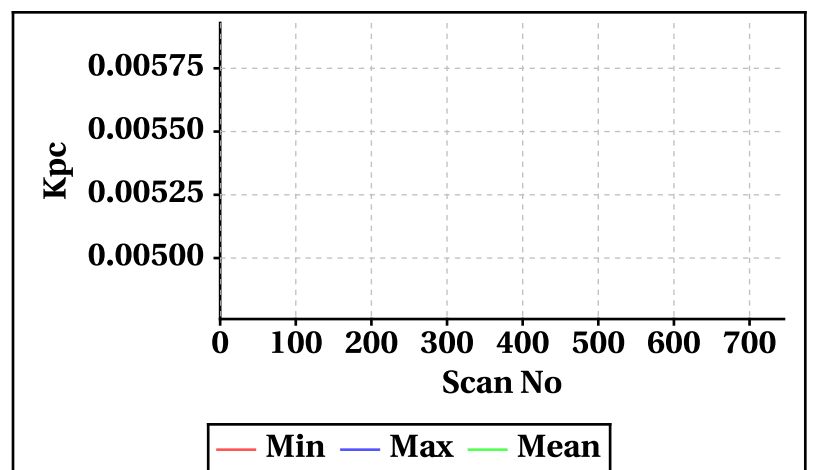
**Outer Beam(VV)**



**Inner Beam(HH)**



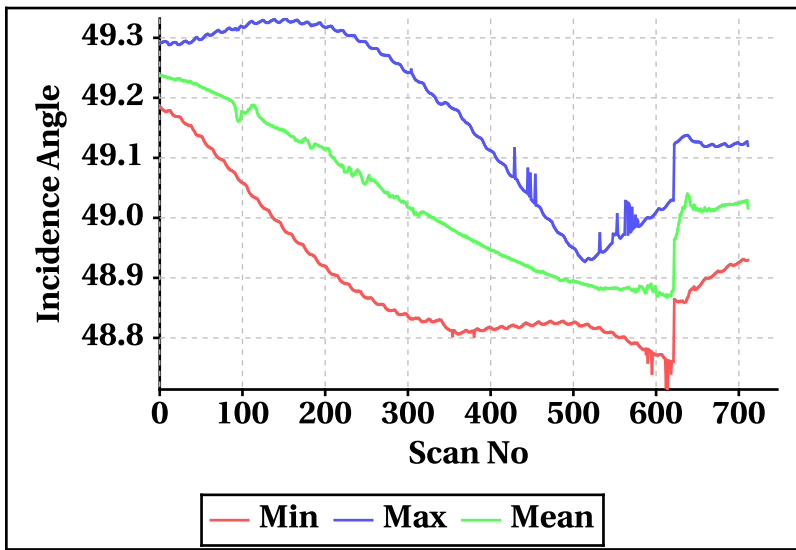
**Outer Beam(VV)**



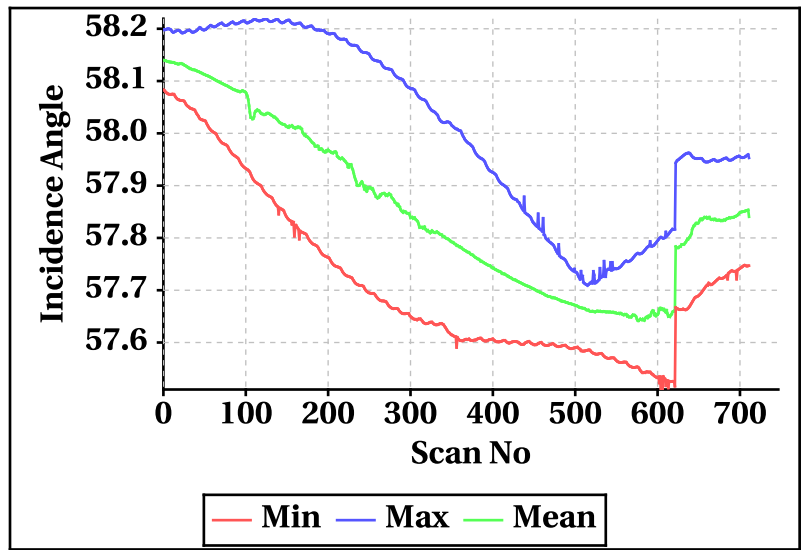


# Orbit-wise behaviour of Incidence, Azimuth, Range, X-Factor

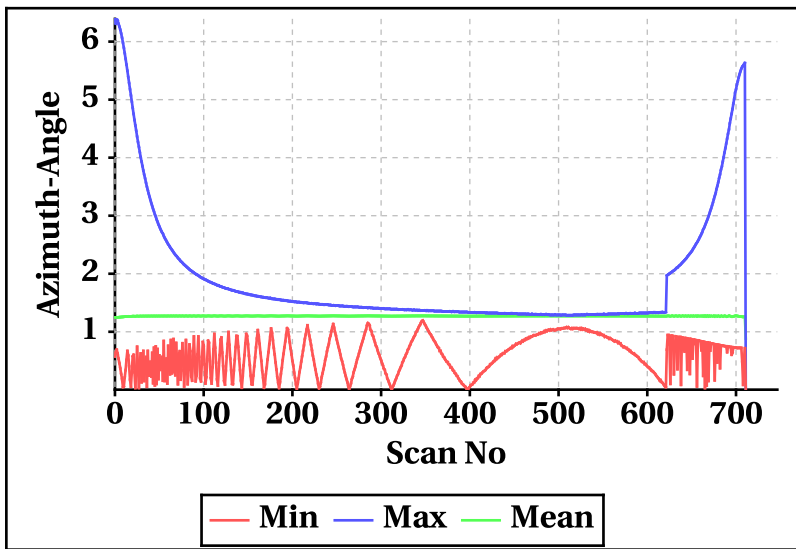
**Inner Beam (HH)**



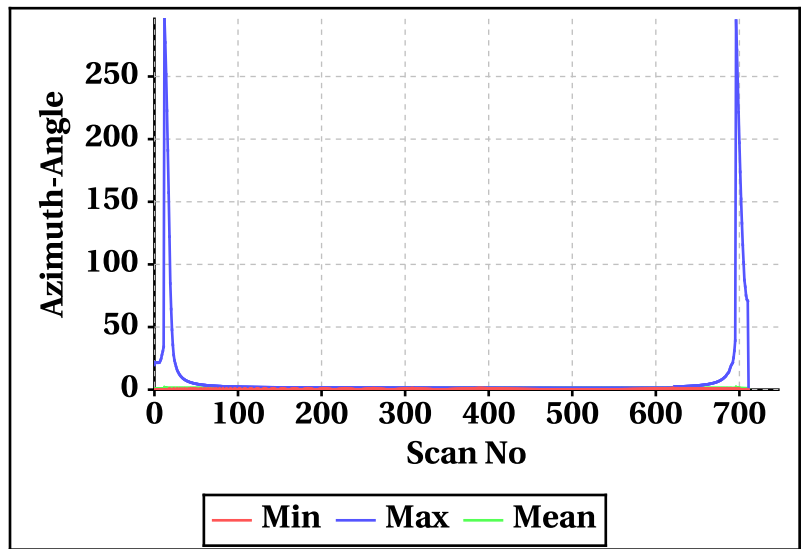
**Outer Beam(VV)**



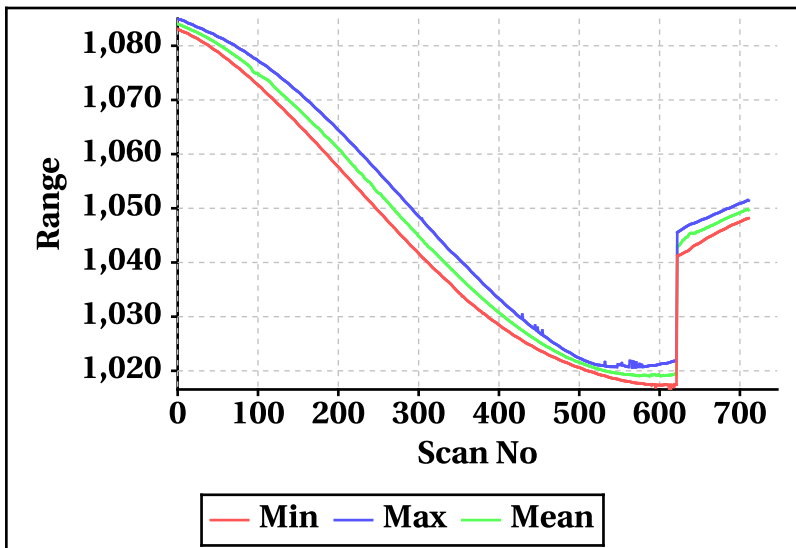
**Inner Beam (HH)**



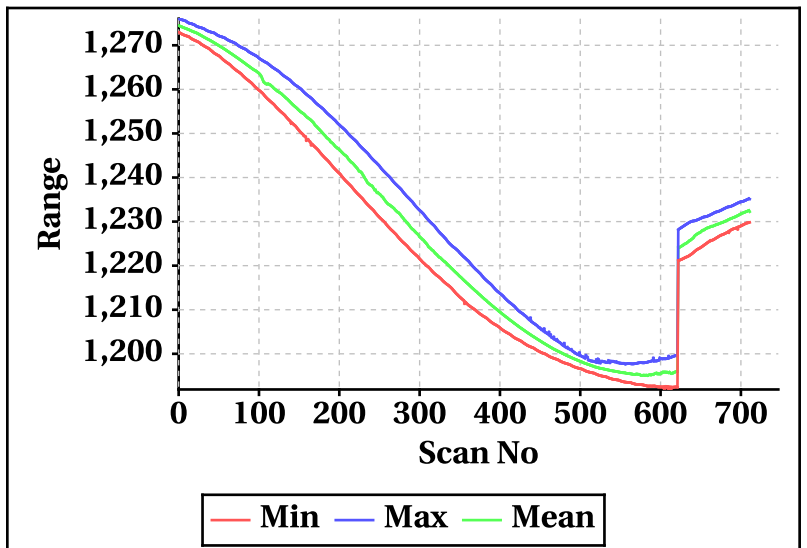
**Outer Beam(VV)**



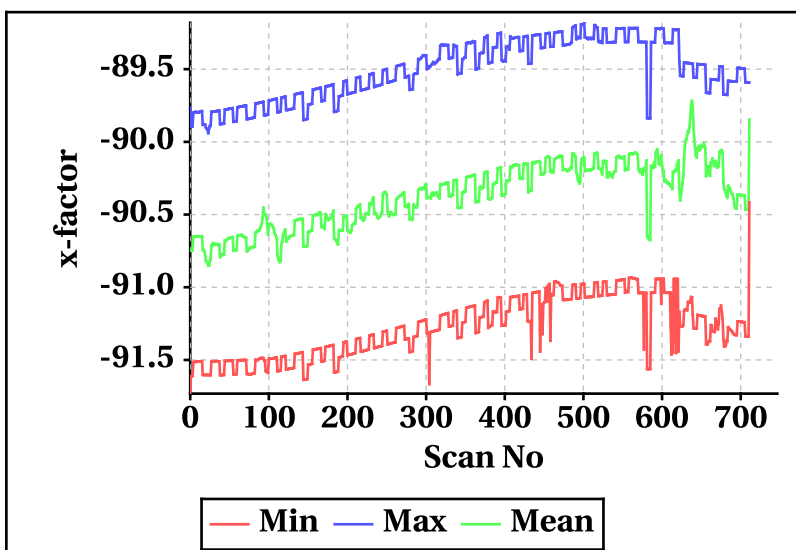
**Inner Beam (HH)**



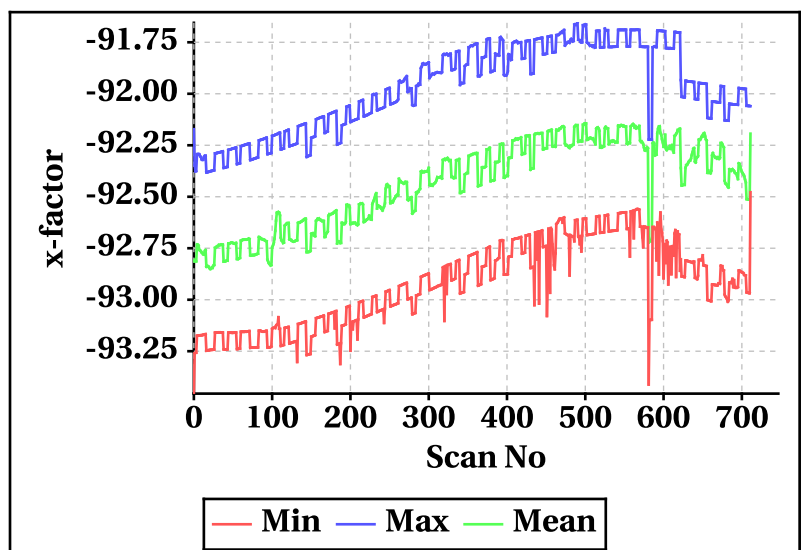
**Outer Beam(VV)**



**Inner Beam (HH)**



**Outer Beam(VV)**

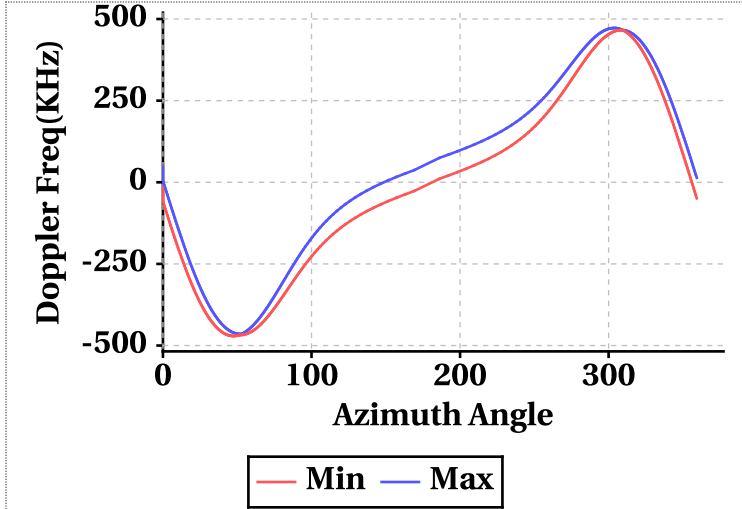


# Doppler Frequency Variation

Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-470.72	-527.70
Max	472.32	529.14

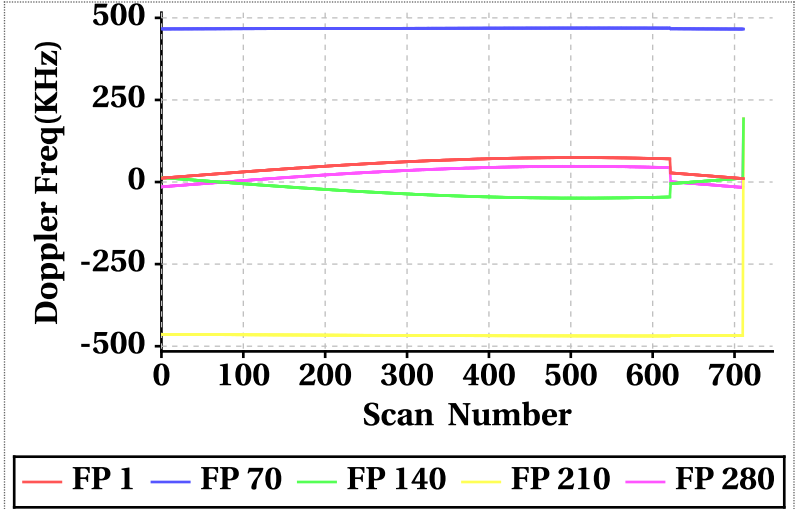
Footprint wise Doppler frequency variation Inner Beam (HH)



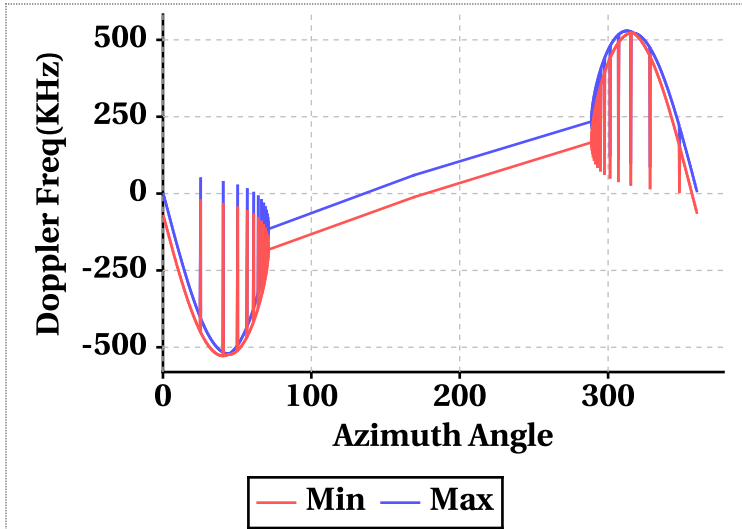
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	10.44	74.42	50.92	6.76	78.08	51.78
Doppler_70	465.92	468.94	467.77	522.24	525.94	524.40
Doppler_140	-49.06	192.58	-25.54	-61.68	210.08	-35.28
Doppler_210	-468.90	192.58	-466.21	-525.04	210.08	-522.33
Doppler_280	-16.28	192.58	24.58	-11.54	210.08	33.88

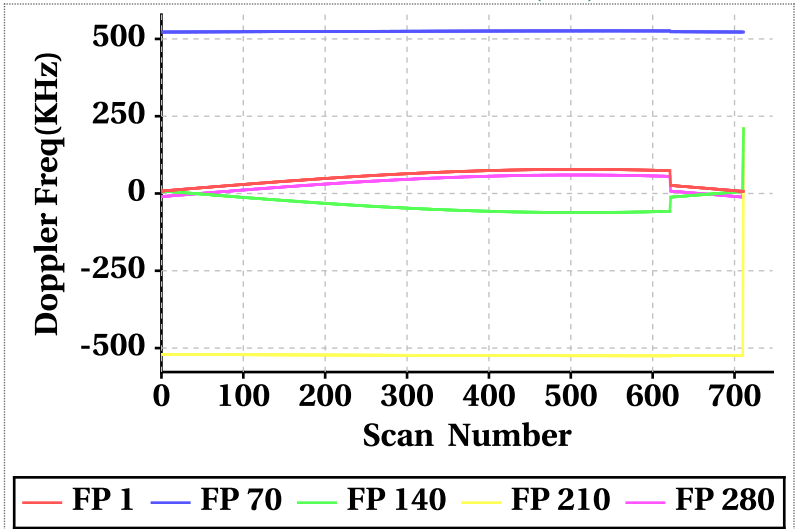
Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)



Footprint wise Doppler frequency variation Outer Beam (VV)

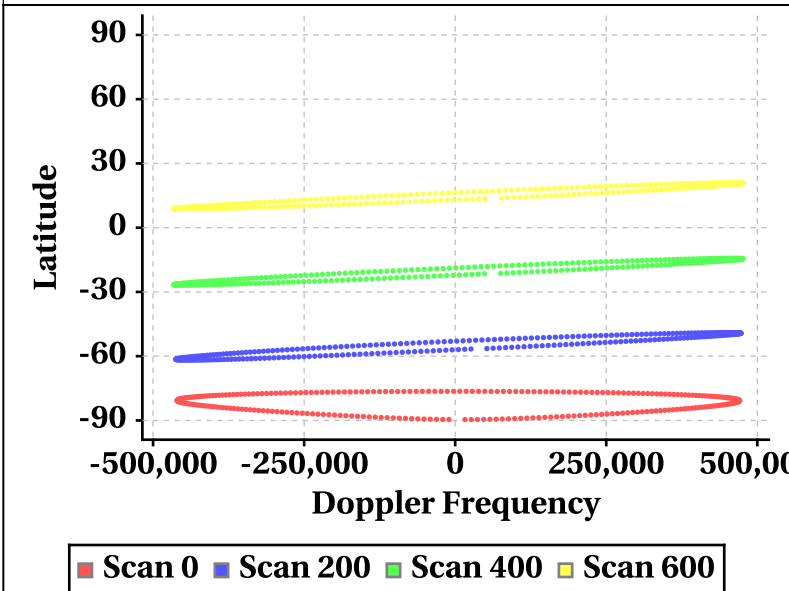


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

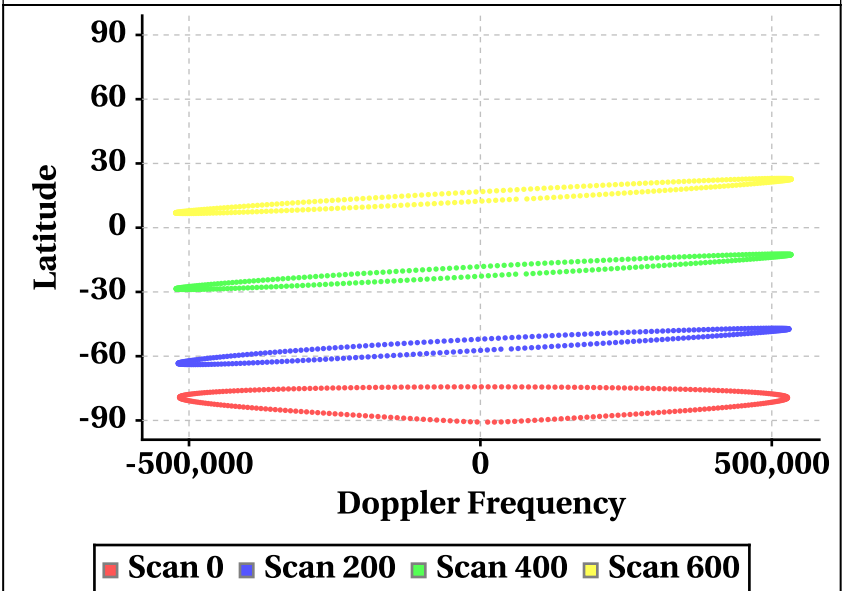


# Latitude Vs Doppler Frequency

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



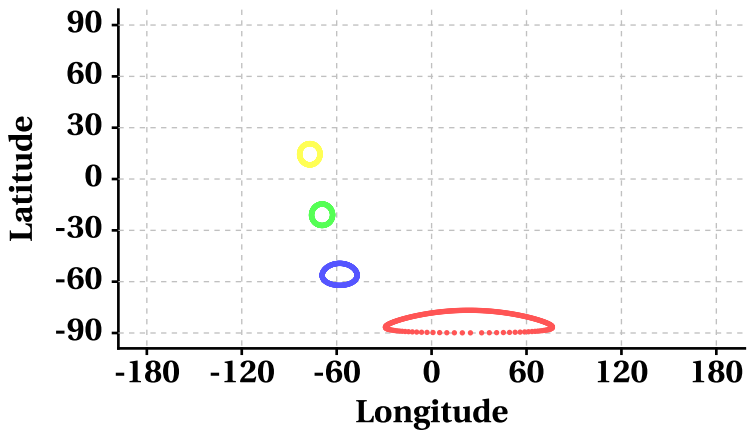
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

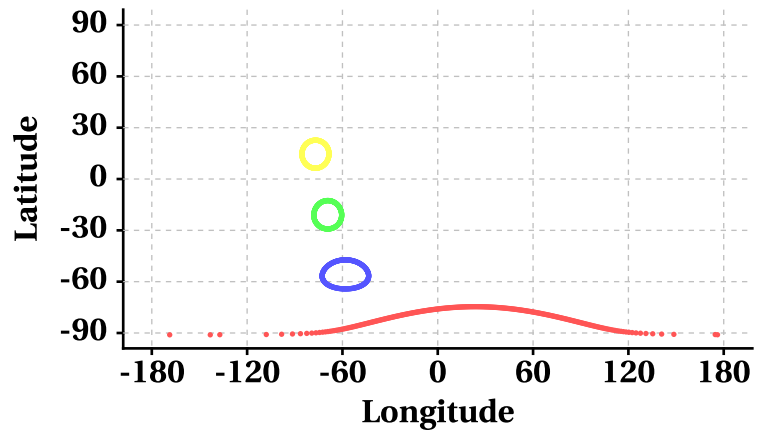
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600

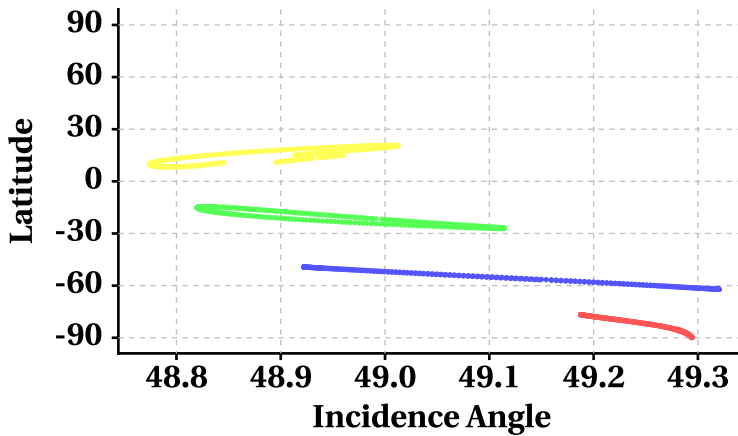
Scan Trace [Outer Beam (VV)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600

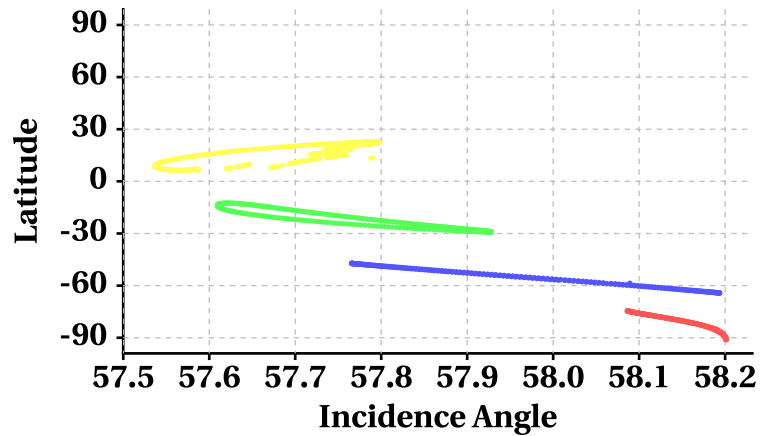
## Latitude Vs Incidence Angle

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600

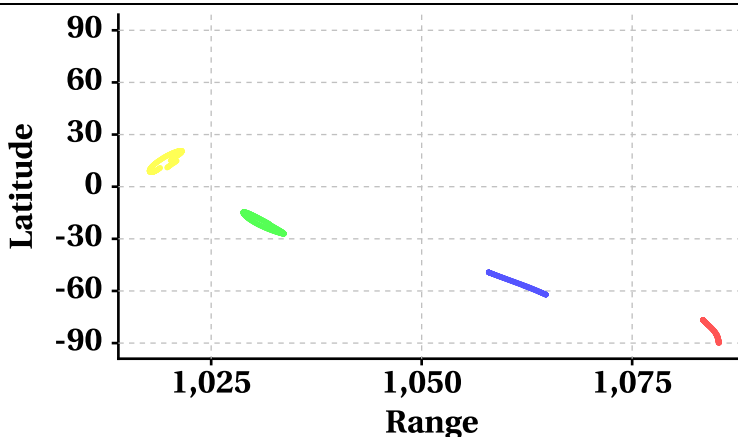
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600

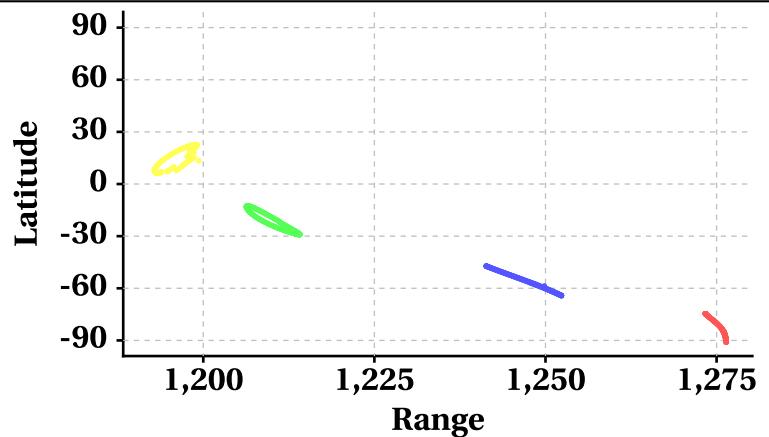
## Latitude Vs Range

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600

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



■ Scan 0 ■ Scan 200 ■ Scan 400 ■ Scan 600



# Variation in Orbit and Attitude Parameters

