

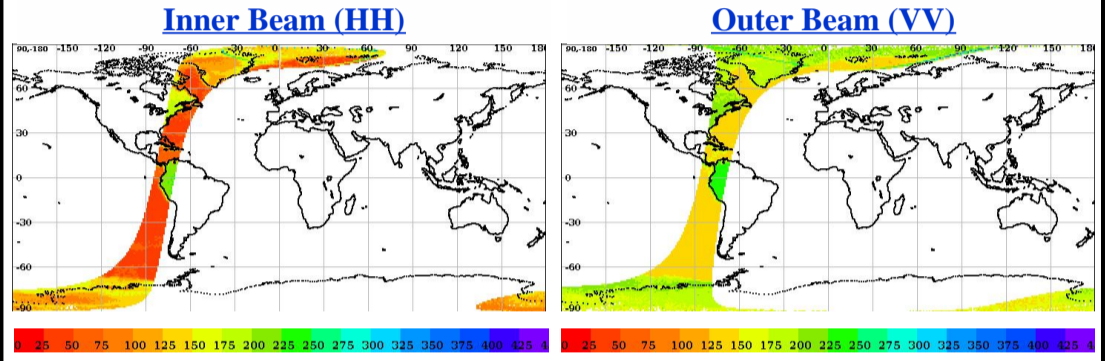
# SCATSAT-1 Scatterometer Level-1B Data Quality Evaluation Report

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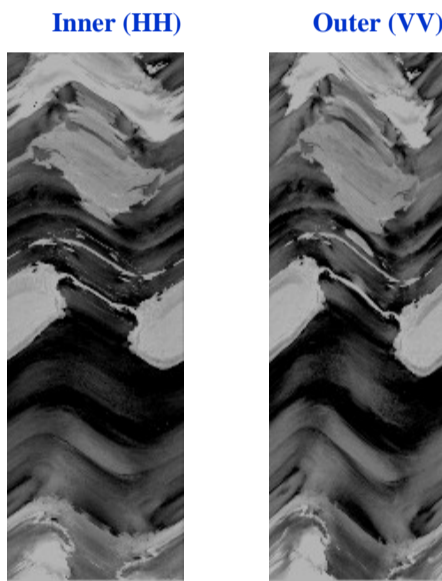
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<b>Satellite Id</b>	ScatSat-1	<b>Start Orbit</b>	703	<b>Total Scans</b>	1018
<b>Sensor Name</b>	Scatterometer	<b>End Orbit</b>	704	<b>No of Inner FootPrints</b>	281
<b>Processor Version</b>	1.0	<b>Rev. Number</b>	00703_00704	<b>No Of Outer FootPrints</b>	282
<b>Half Orbit Direction</b>	NS	<b>Data Production Date</b>	13-11-2016	<b>No. Of Inner Slices</b>	9
<b>Equator Crossing Date</b>	13-11-2016	<b>Equator Crossing Time</b>	14:23:00.000	<b>No Of Outer Slices</b>	15

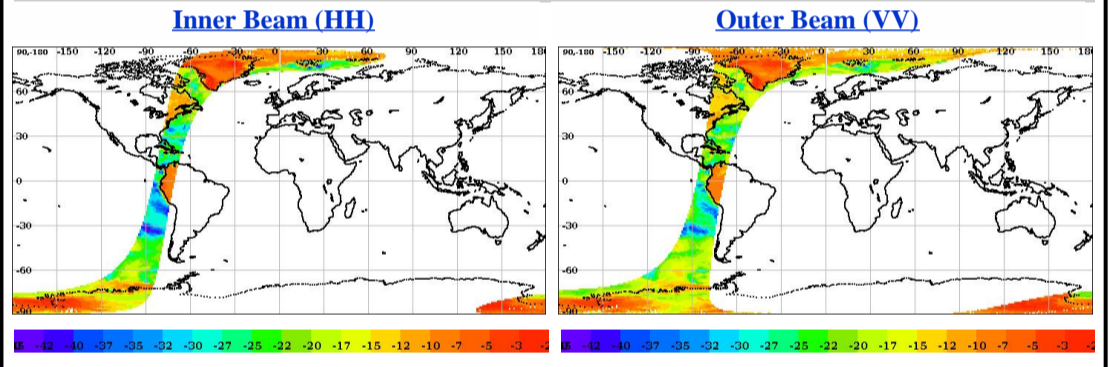
## Brightness Temperature(k) Footprint trace



## Image Snapshot for Inner & Outer Beam



## Sigma0(dB) Footprint trace



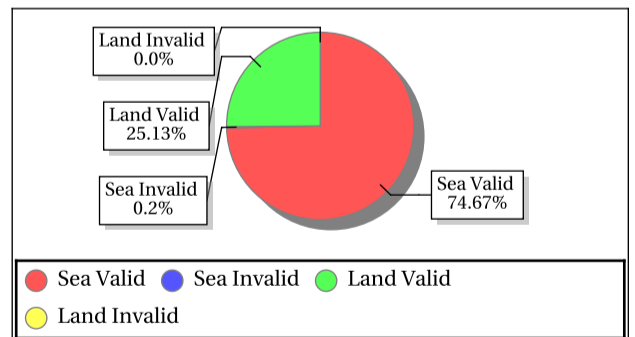
## Invalid and Poor Sigma-0 Quality Flag Statistics for Inner/Outer Slices\*

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(%)	0.00	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

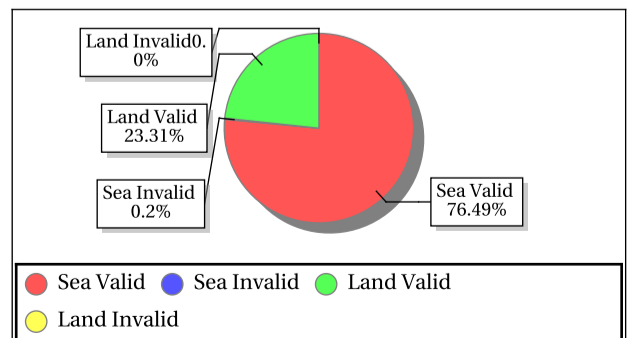
\*DP Format Document

## 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
GreenLand_2	77.50	-41.50	Inner	ASC	Aft	-5.16	-4.56	-4.93	0.27	88.31	141.75	110.24	22.85
GreenLand_2	77.50	-41.50	Inner	ASC	Fore	-5.30	-4.54	-5.00	0.28	103.23	123.28	109.88	7.16
GreenLand_3	71.55	-42.45	Inner	ASC	Aft	-10.55	-8.82	-9.78	0.60	101.73	150.96	131.21	12.47
GreenLand_3	71.55	-42.45	Inner	ASC	Fore	-10.05	-8.31	-9.23	0.48	95.82	139.75	122.00	14.53
GreenLand_1	74.69	-42.50	Inner	ASC	Aft	-10.61	-7.49	-8.80	0.85	85.62	126.94	110.89	12.40
GreenLand_1	74.69	-42.50	Inner	ASC	Fore	-8.93	-6.09	-7.89	0.77	90.89	122.58	109.83	9.33
GreenLand_2	77.50	-41.50	Outer	ASC	Aft	-5.94	-5.00	-5.47	0.38	141.05	188.63	166.39	19.55
GreenLand_2	77.50	-41.50	Outer	ASC	Fore	-4.91	-4.50	-4.77	0.19	161.27	191.11	179.06	12.84
GreenLand_3	71.55	-42.45	Outer	ASC	Aft	-11.03	-9.89	-10.48	0.37	172.11	206.40	186.60	10.17
GreenLand_3	71.55	-42.45	Outer	ASC	Fore	-10.55	-9.15	-10.00	0.49	171.28	227.92	202.08	17.24
GreenLand_1	74.69	-42.50	Outer	ASC	Aft	-9.24	-8.40	-8.77	0.29	168.38	191.71	181.73	8.51
GreenLand_1	74.69	-42.50	Outer	ASC	Fore	-9.20	-6.80	-7.79	0.71	180.82	222.74	207.92	15.17



## 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	266.21	0.26	1.801	0.10	263.95	0.22	1.480	0.10	0.13	0.10	0.000	0.10	0.13	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	0.01	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>	-34.99	26.16	6.65	2.284	-34.95	26.26	7.10	1.633	3.60	30.98	21.04	42.993	4.32	32.37	22.13	55.085

	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	203.02	0.20	1.501	0.08	117.29	0.18	1.368	0.08	0.11	0.08	0.000	0.08	0.11	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	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	0.00	0.000
<b>SNR</b>	-34.82	19.58	4.85	0.000	-32.44	20.17	4.88	0.000	2.55	24.97	15.34	3.373	2.92	26.08	16.18	7.409

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 (VV)				Outer Beam (VV)				Parameter Specifications		
	Min	Max	Mean	Bad Occ. (%)	Min	Max	Mean	Bad Occ. (%)	Parameter	Min	Max
<b>Incidence Angle (deg)</b>	48.95	49.39	49.01	0.000	57.69	58.27	57.92	0.000	Inci.(Inner)	47.10	49.90
<b>Azimuth Diff. (deg)</b>	0.0026	1.29	1.11	0.198	0.0029	1.29	1.13	0.132	Inci.(Outer)	57.30	58.90
<b>Range(Km)</b>	1035.40	1096.97	1057.99	3.163	1212.14	1289.19	1241.79	13.483	Azimuth Diff.	0.60	2.00
<b>X Factor(dBm)</b>	-91.31	-90.07	-90.22	0.000	-93.11	-92.01	-92.13	0.000	Range(Inner)	1025.00	1095.70
<b>Across Distance (Km)</b>	99999.99	-99999.99	0.00	0.000	99999.99	-99999.99	0.00	0.000	Range(Outer)	1210.00	1280.00
<b>Along Distance (Km)</b>	18.81	8477.67	36.35	2.000	18.66	8265.88	35.84	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

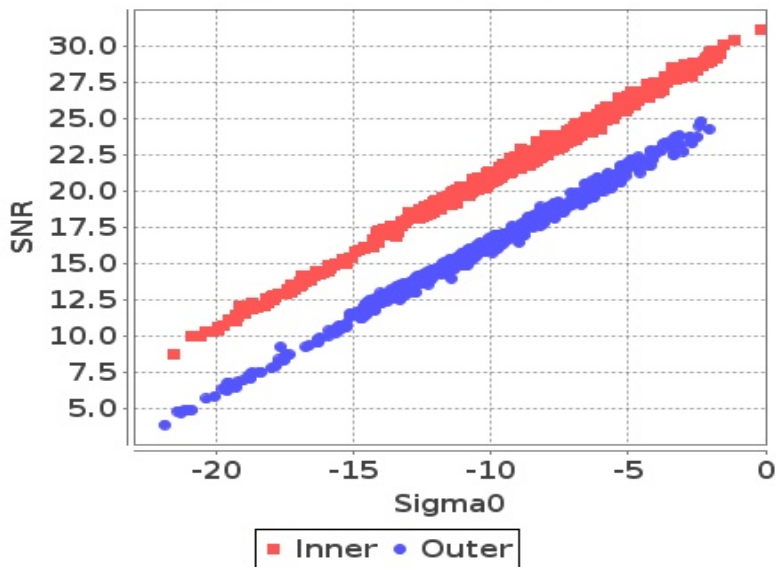
- Normal
- Deviations
- Alarming
- High Errors



## Sigma0 Behaviour (Sigma0 Vs SNR)

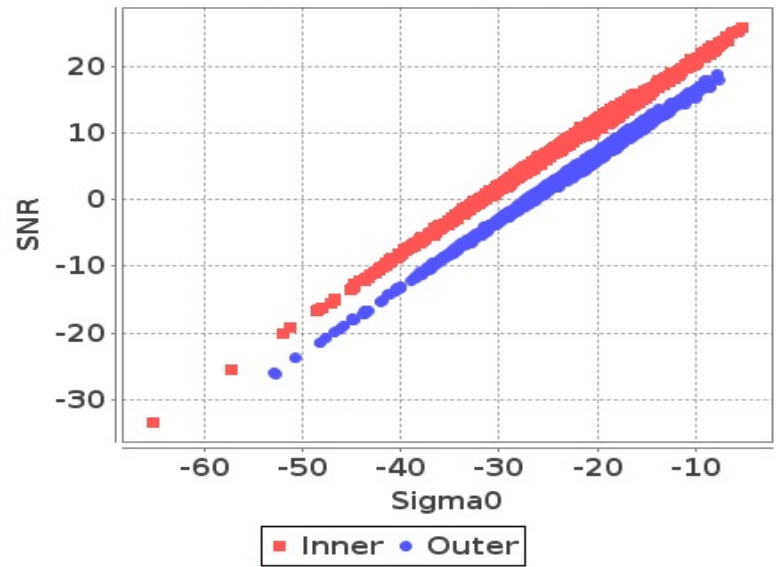
Footprint-Land

Sigma0 Vs SNR (Land)



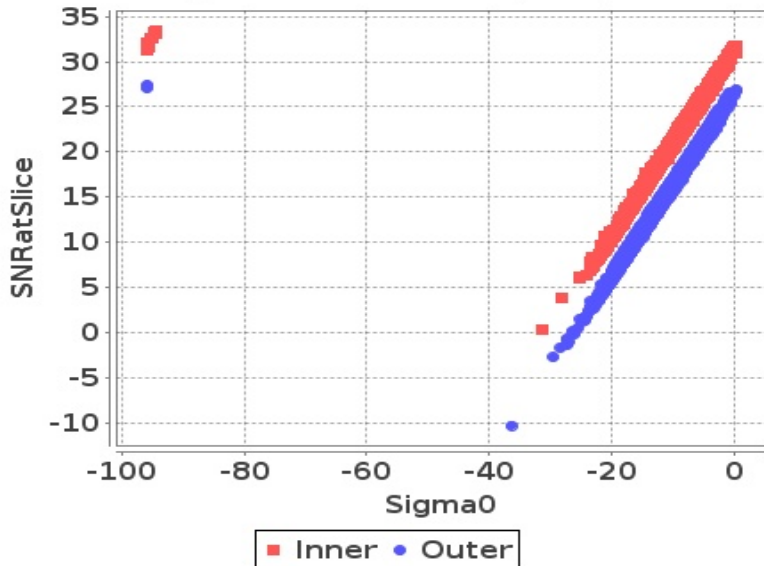
Footprint-Sea

Sigma0 Vs SNR (Sea)



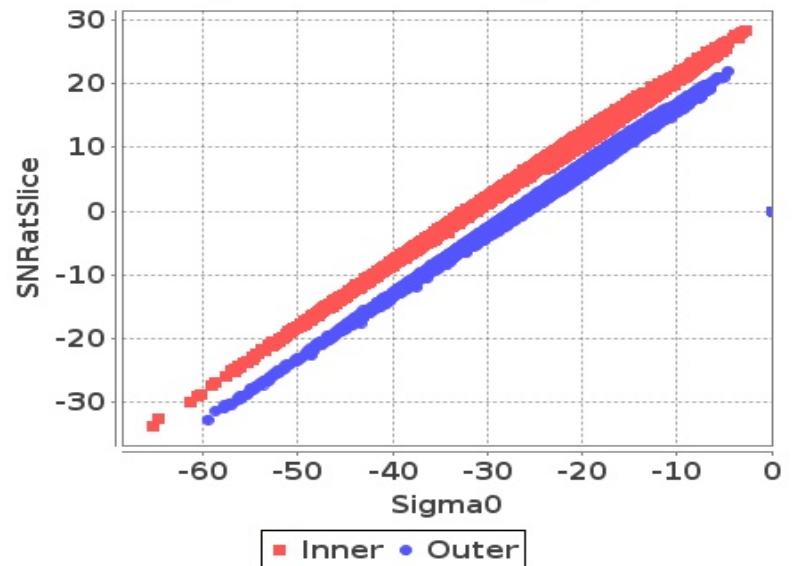
Slice-Land

Sigma0 Vs SNRatSlice (Land)



Slice-Sea

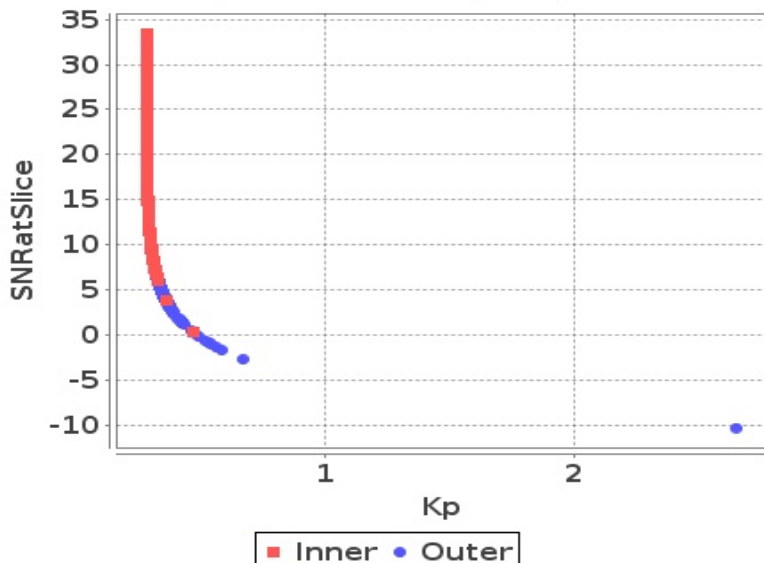
Sigma0 Vs SNRatSlice (Sea)



## Sigma0 Behaviour (Kp Vs SNR)

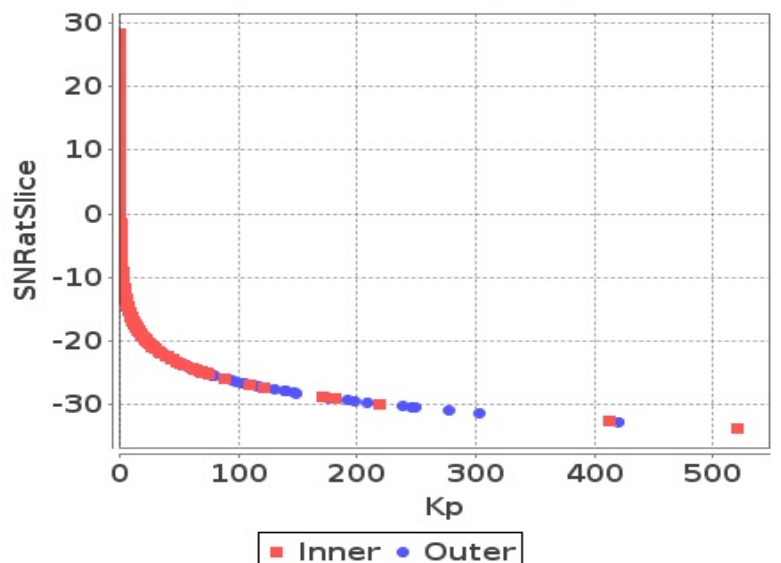
Slice

Kp Vs SNRatSlice (Land)



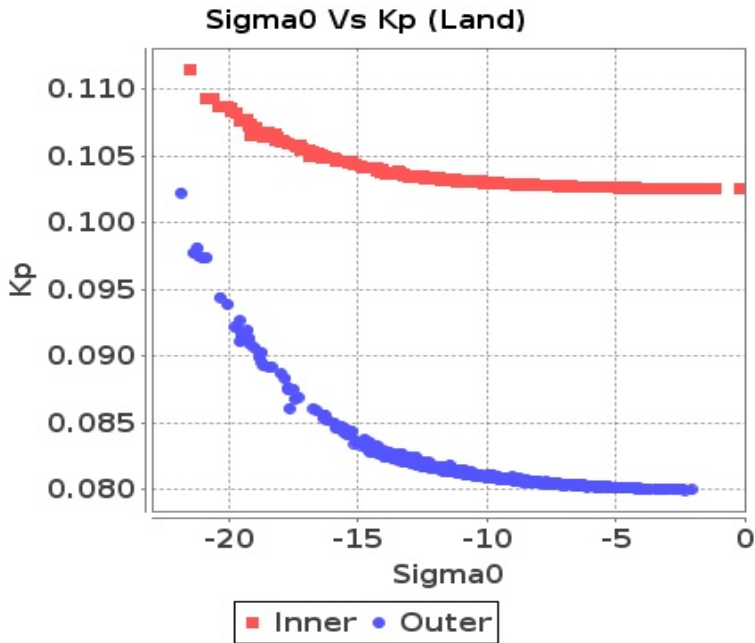
Slice

Kp Vs SNRatSlice (Sea)

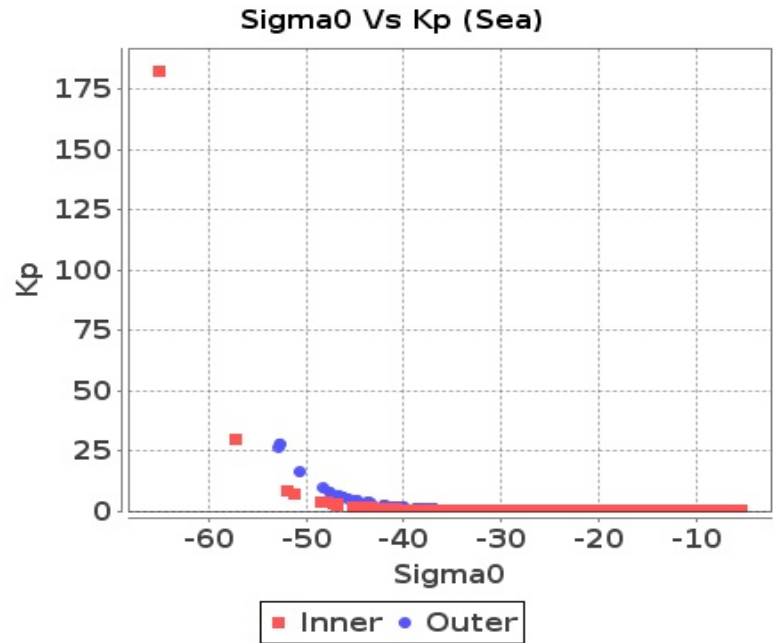


# Sigma0 Behaviour(Sigma0 Vs Kp)

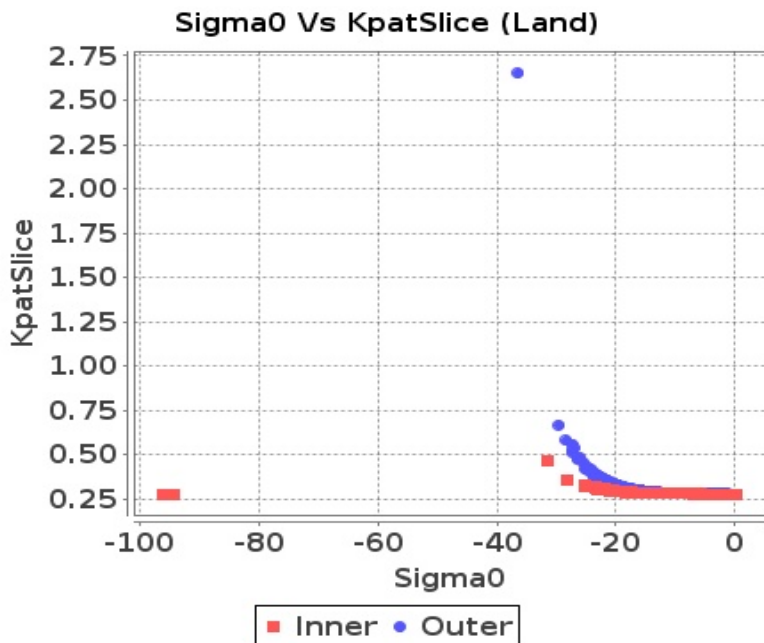
## Footprint-Land



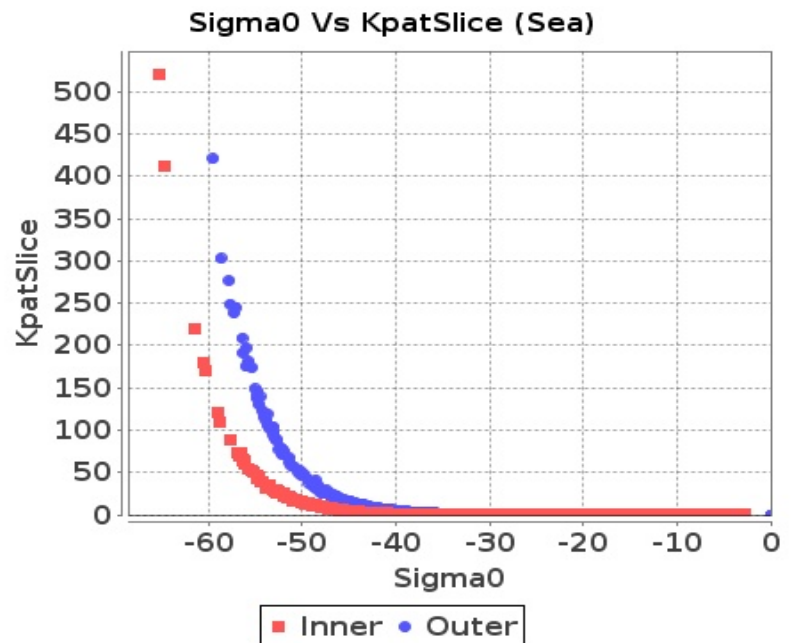
## Footprint-Sea



## Slice-Land



## Slice-Sea

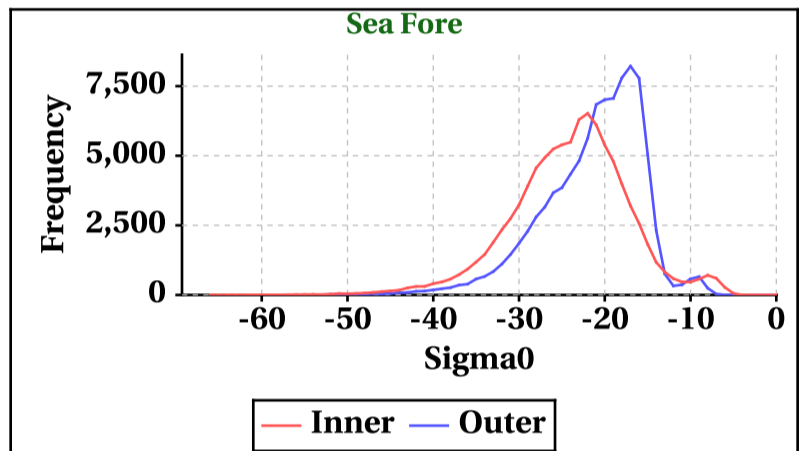
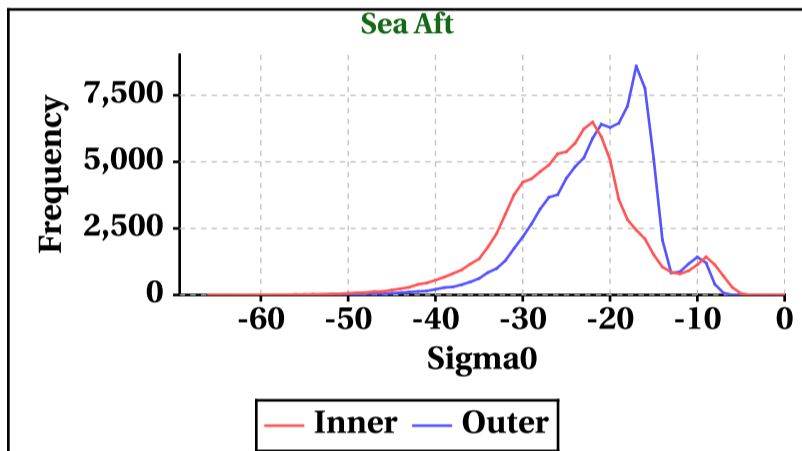
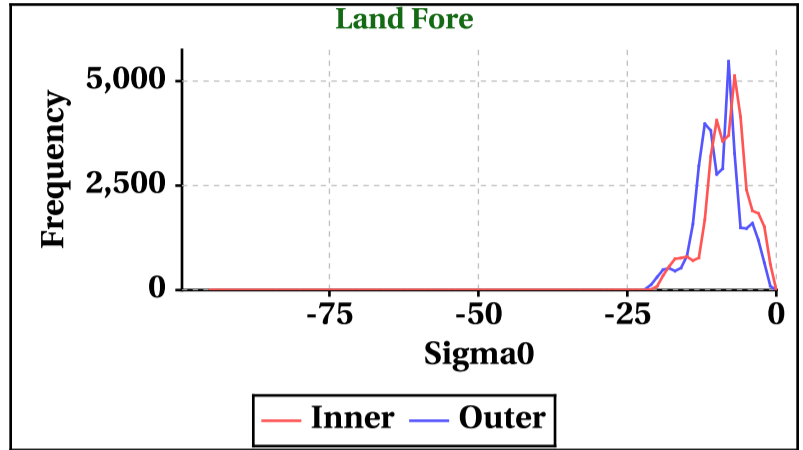
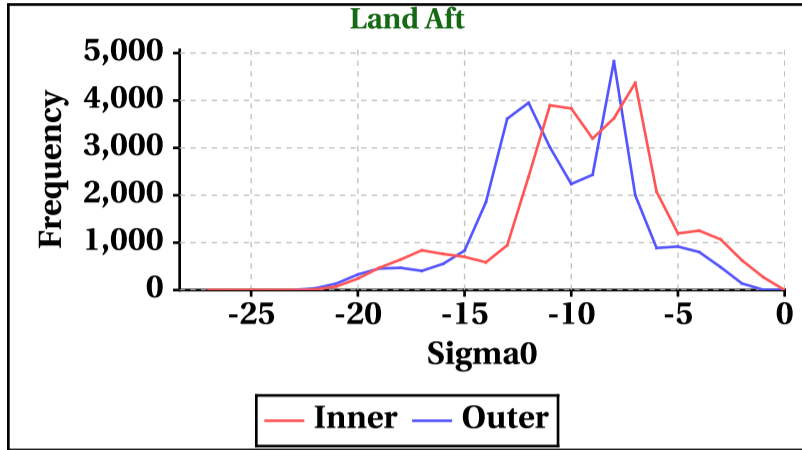


# Dynamic Range (Data Histograms)

## Sigma0(db)

Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-27	-95	-66	-66
Max	0	0	0	0

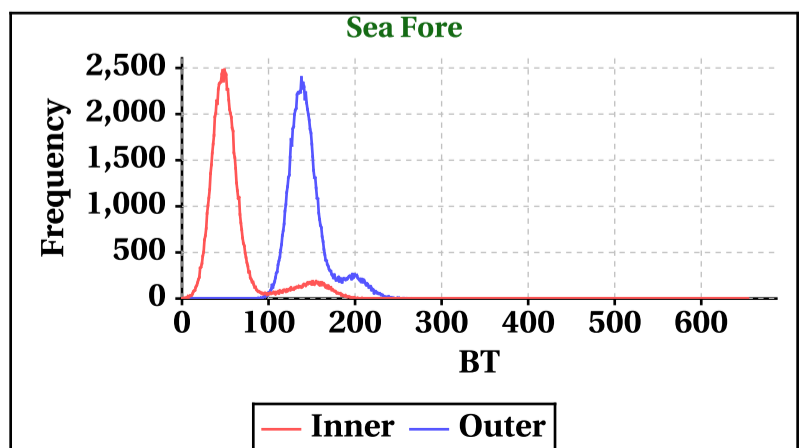
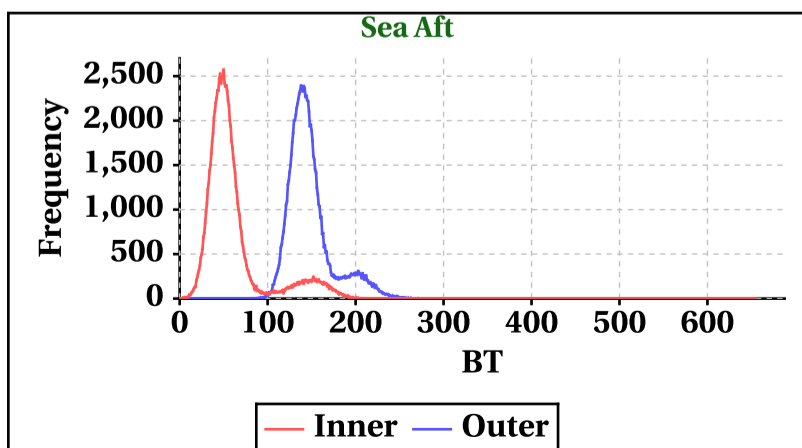
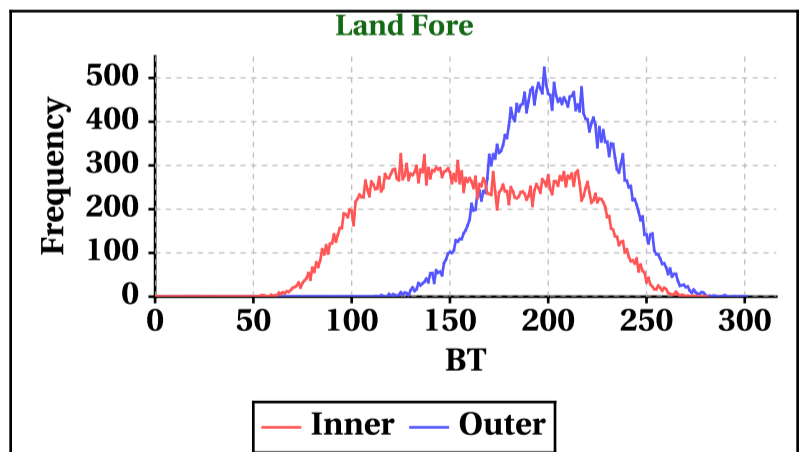
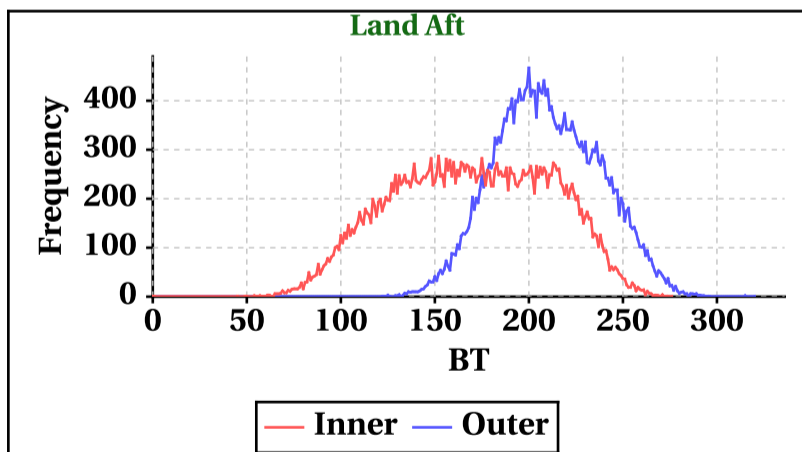
Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	-23	-22	-61	-59
Max	0	0	0	0



## Brightness Temperature(K)

Inner Beam(HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	276	281	655	654

Outer Beam(VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	0	0
Max	320	301	300	277

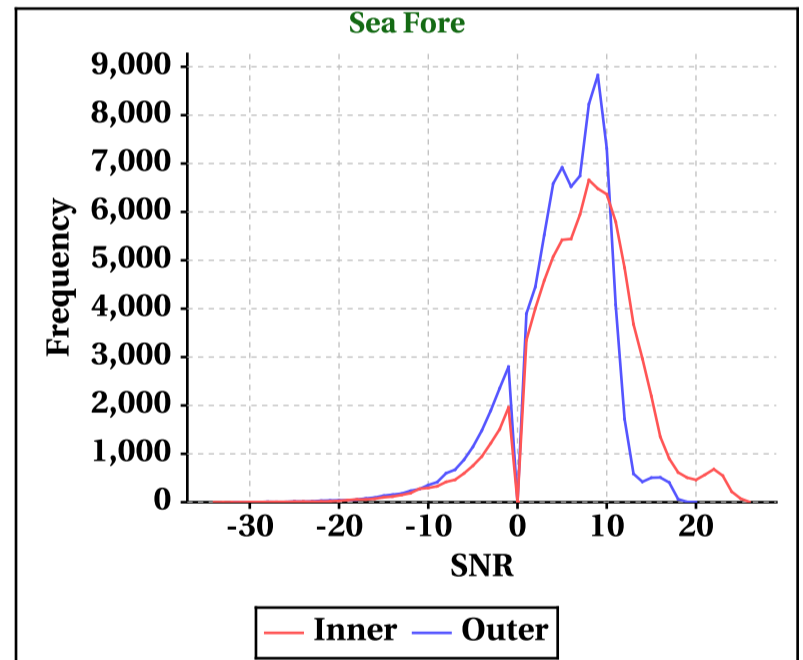
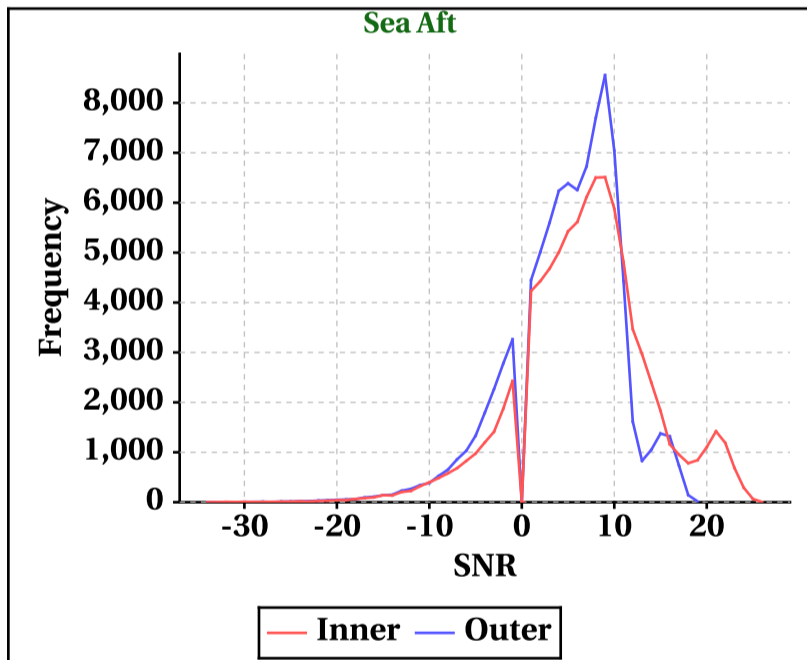
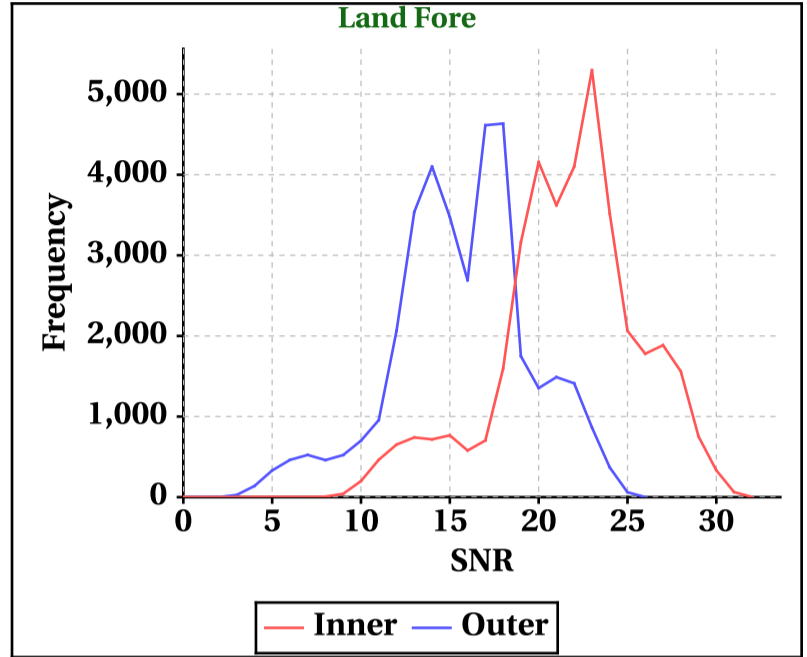
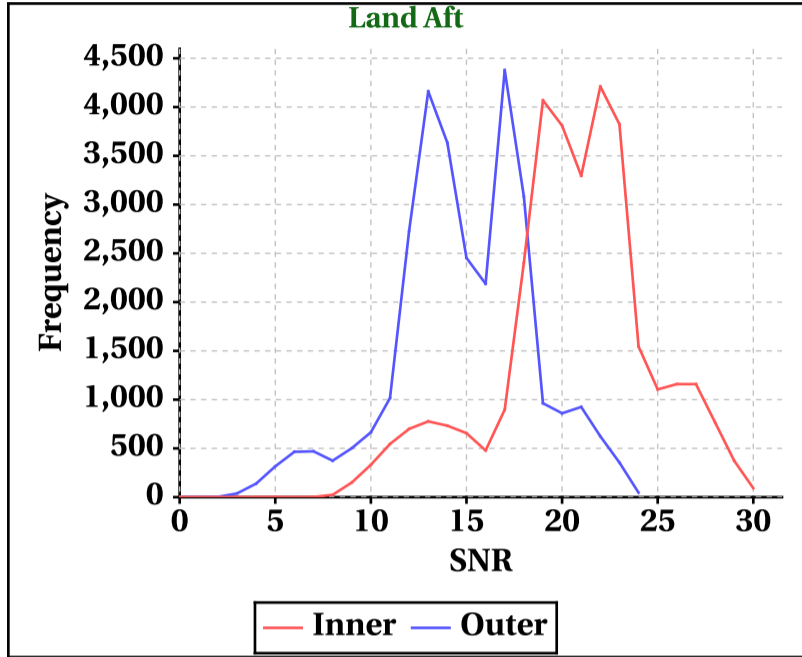


# Dynamic Range (Data Histograms)

## SNR(dBm)

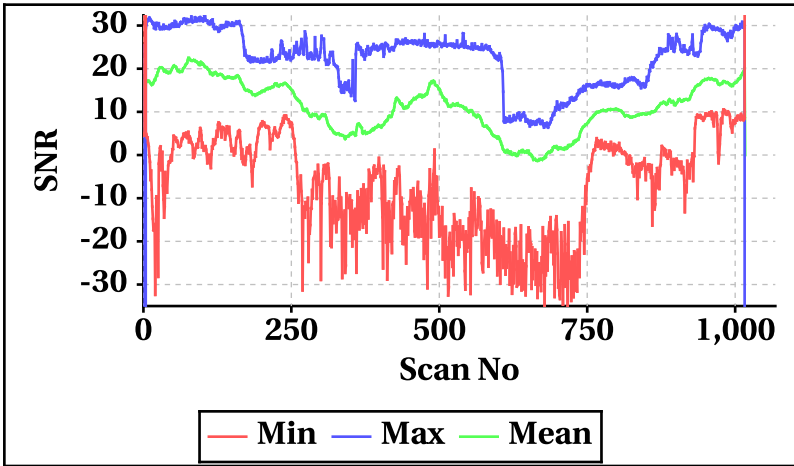
Inner Beam (HH)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-34
Max	30	32	26	26

Outer Beam (VV)				
	Land Aft	Land Fore	Sea Aft	Sea Fore
Min	0	0	-34	-32
Max	24	26	19	20

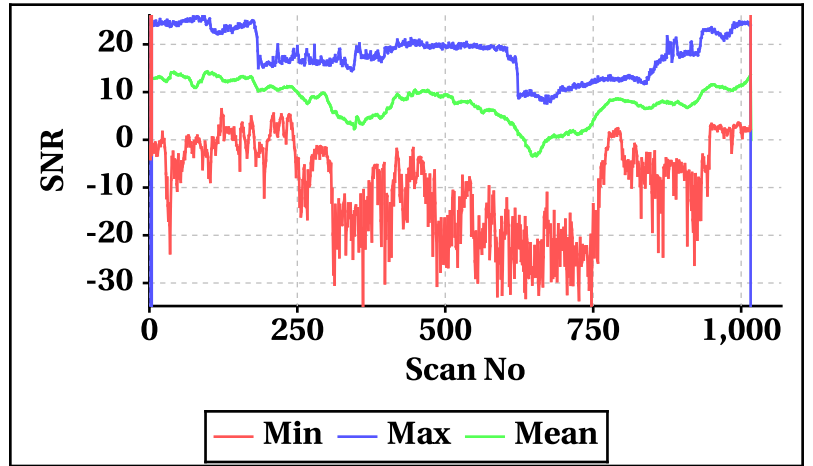


## Orbit-wise behaviour of SNR

Inner Beam (HH)

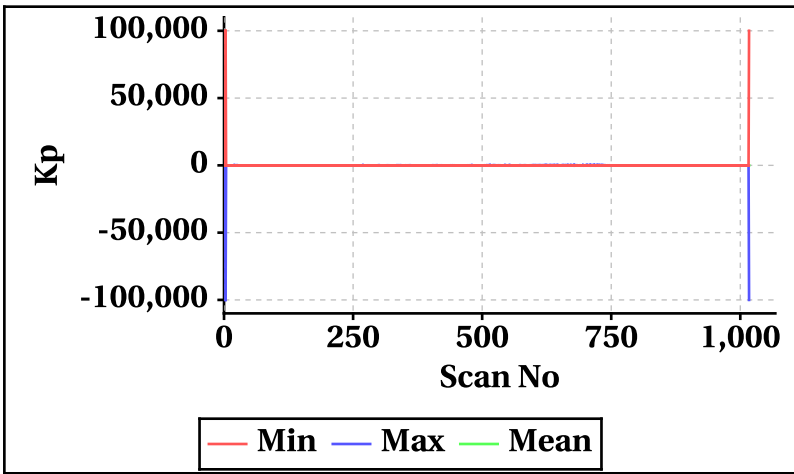


Outer Beam(VV)

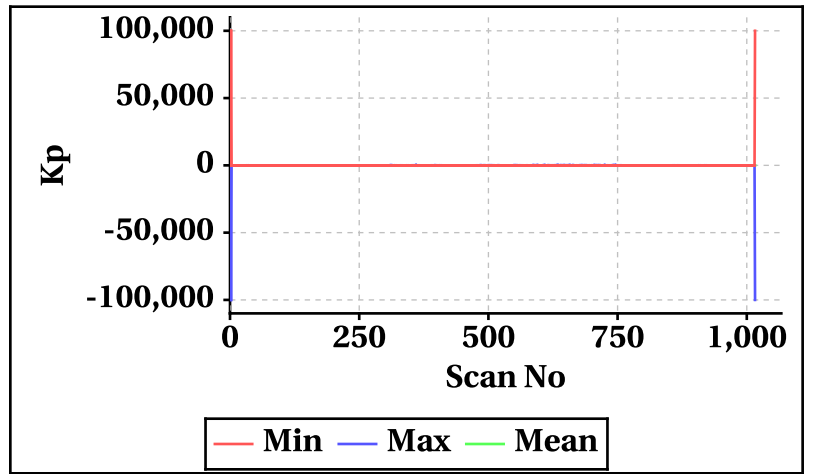


## Orbit-wise behaviour of Kp,Kpa,Kpb,Kpc

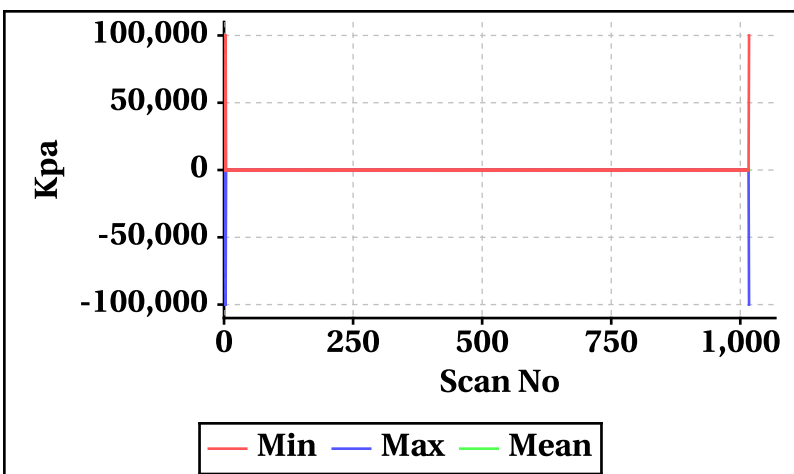
Inner Beam(HH)



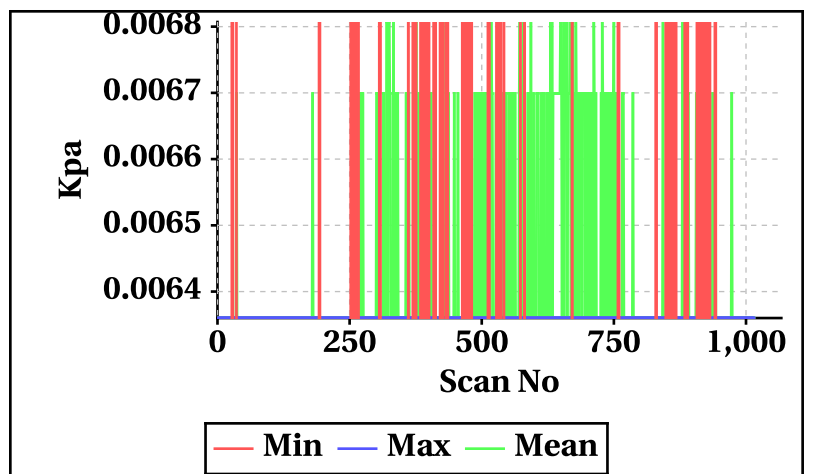
Outer Beam(VV)



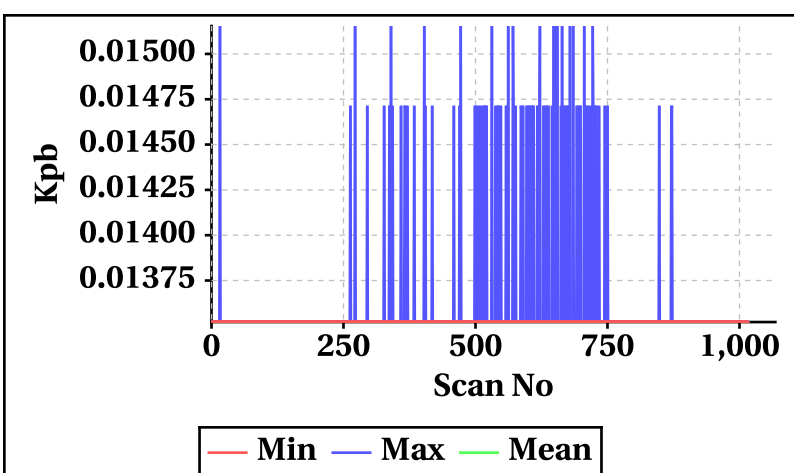
Inner Beam(HH)



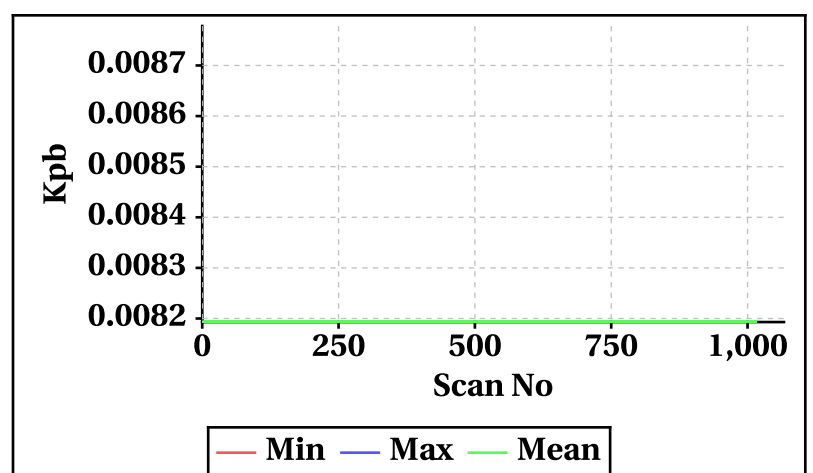
Outer Beam(VV)



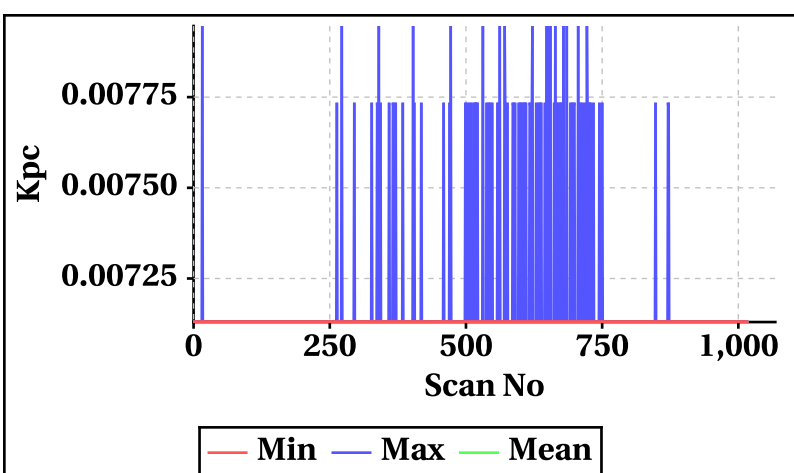
Inner Beam(HH)



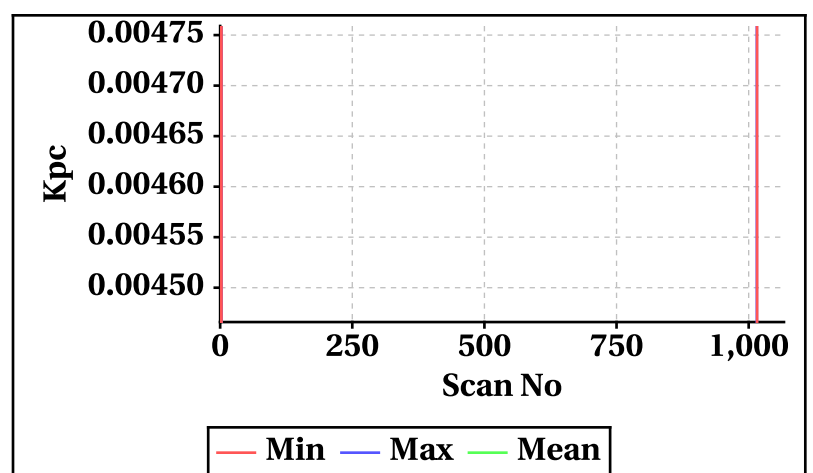
Outer Beam(VV)



Inner Beam(HH)



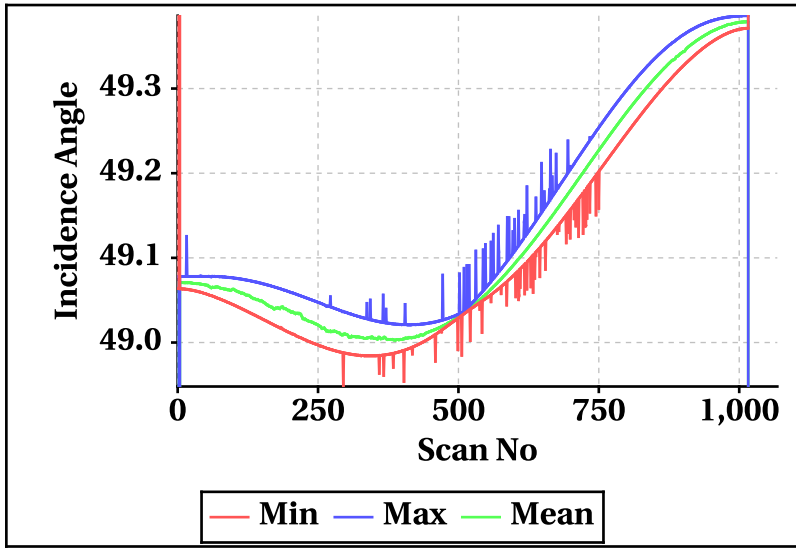
Outer Beam(VV)



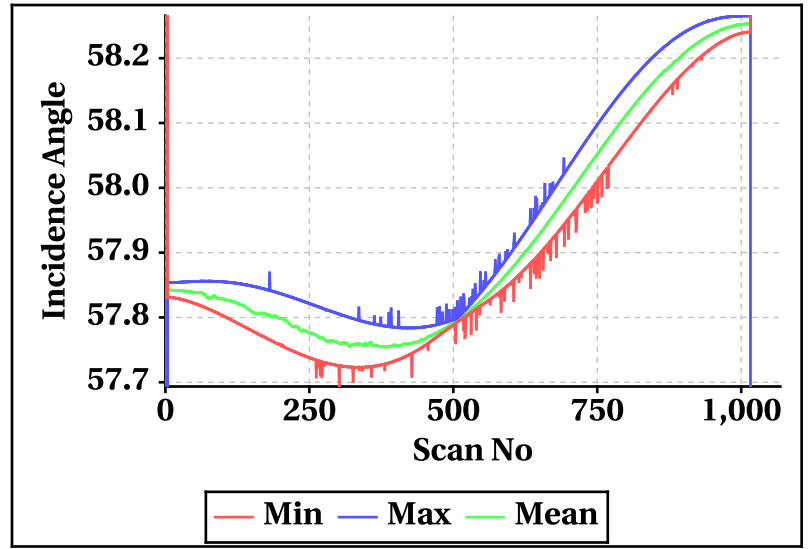


Orbt-wise behaviour of Incidence,Azimuth,Range,X-Factor

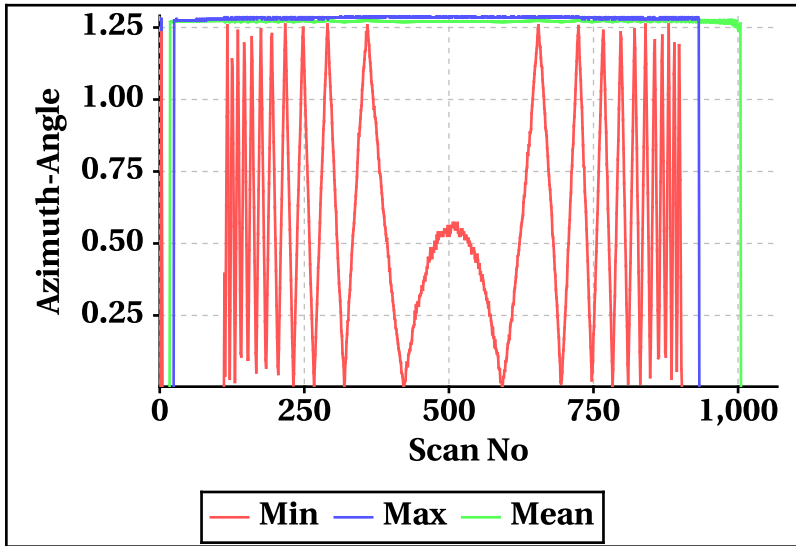
Inner Beam (HH)



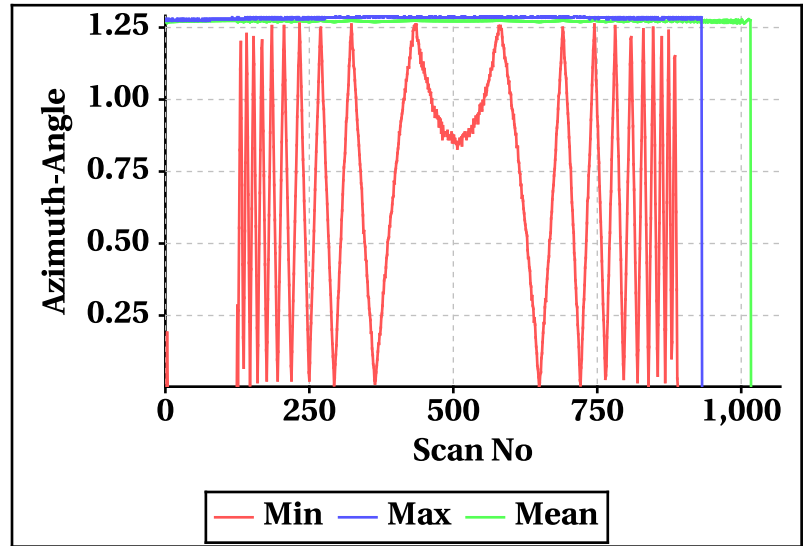
Outer Beam(VV)



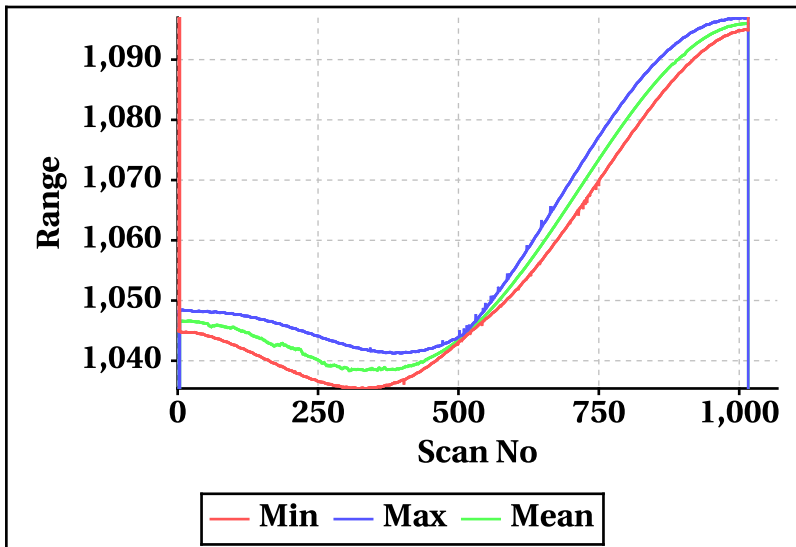
Inner Beam (HH)



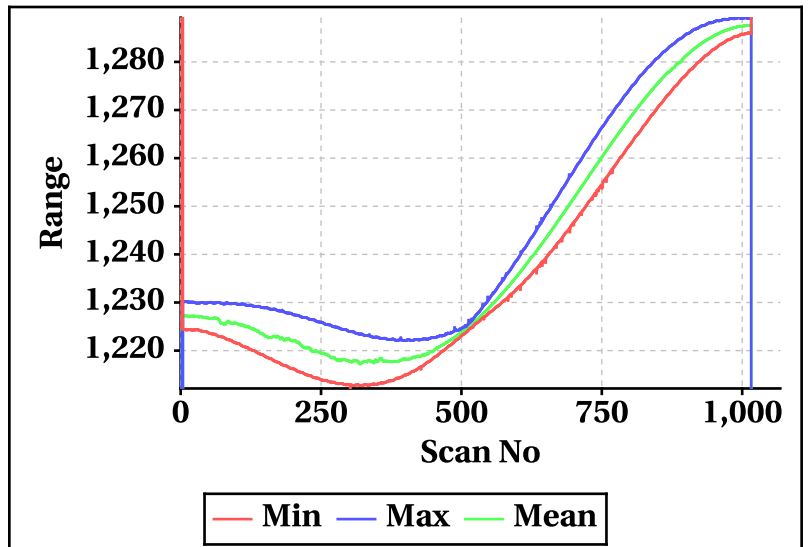
Outer Beam(VV)



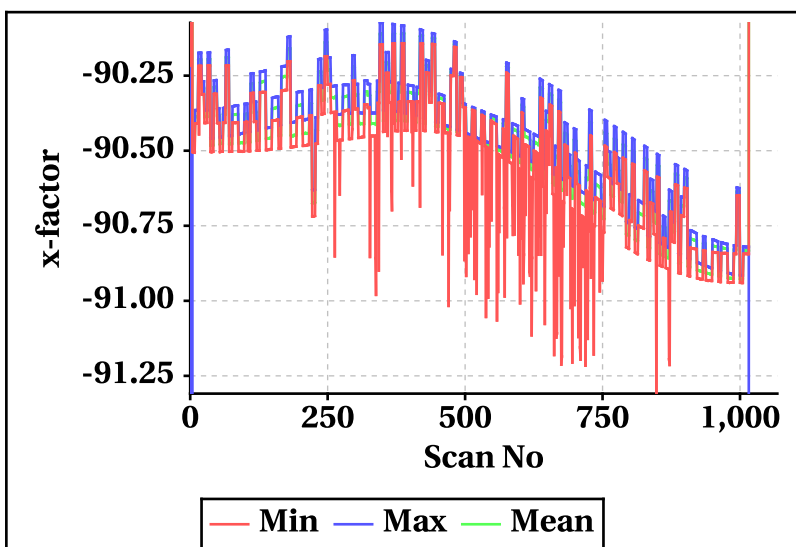
Inner Beam (HH)



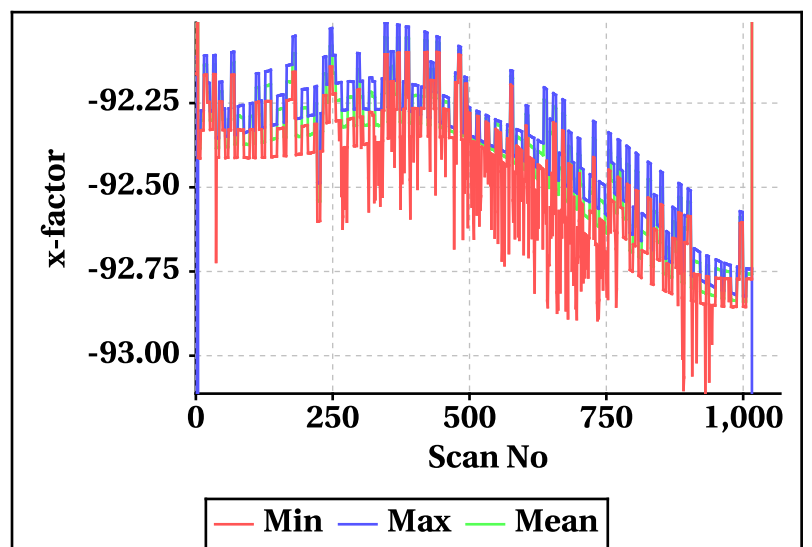
Outer Beam(VV)



Inner Beam (HH)



Outer Beam(VV)

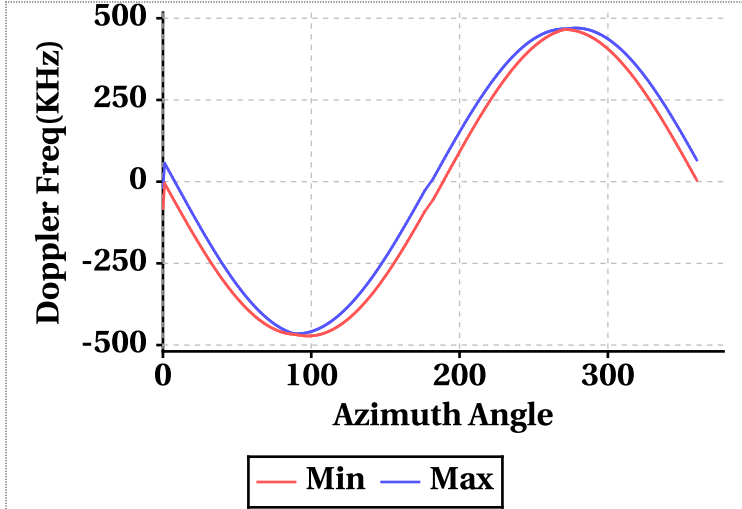


# Doppler Frequency Variation

Doppler Frequency(KHz) variation statistics Over the half Orbit

	Inner Beam (HH)	Outer Beam (VV)
Min	-472.24	-528.06
Max	469.92	526.02

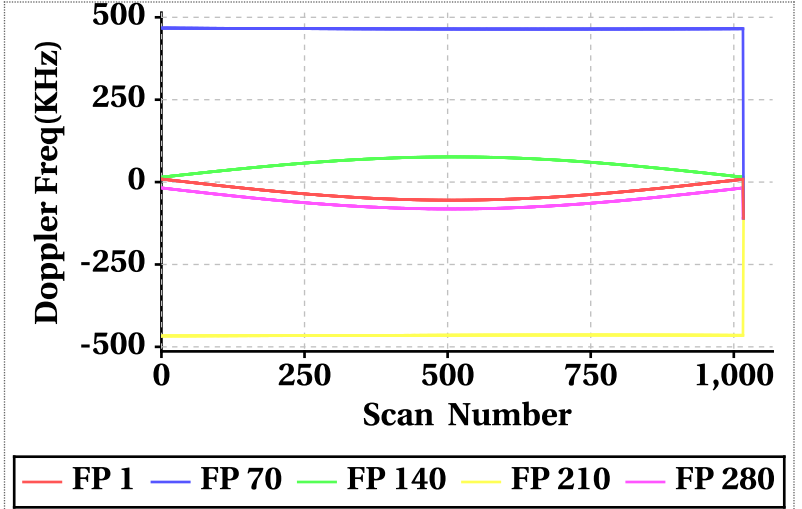
Footprint wise Doppler frequency variation Inner Beam (HH)



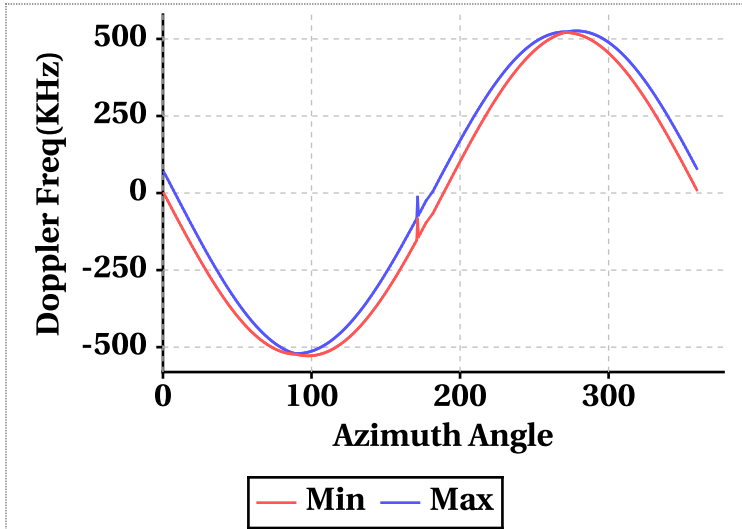
Doppler Frequency(KHz) variation

Doppler_FP	Inner Beam (HH)			Outer Beam (VV)		
	Min	Max	Mean	Min	Max	Mean
Doppler_1	-109.86	9.16	-31.73	-127.88	5.10	-40.46
Doppler_70	-109.86	467.36	464.57	-127.88	522.76	519.37
Doppler_140	-109.86	76.44	53.80	-127.88	79.32	53.90
Doppler_210	-467.02	-109.86	-464.67	-522.74	-127.88	-520.52
Doppler_280	-109.86	-17.76	-58.45	-127.88	-13.36	-58.79

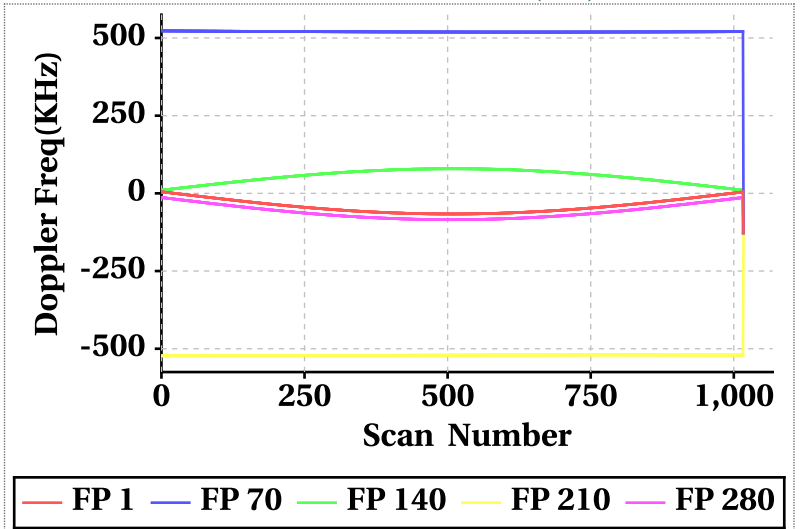
Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Inner Beam (HH)



Footprint wise Doppler frequency variation Outer Beam (VV)

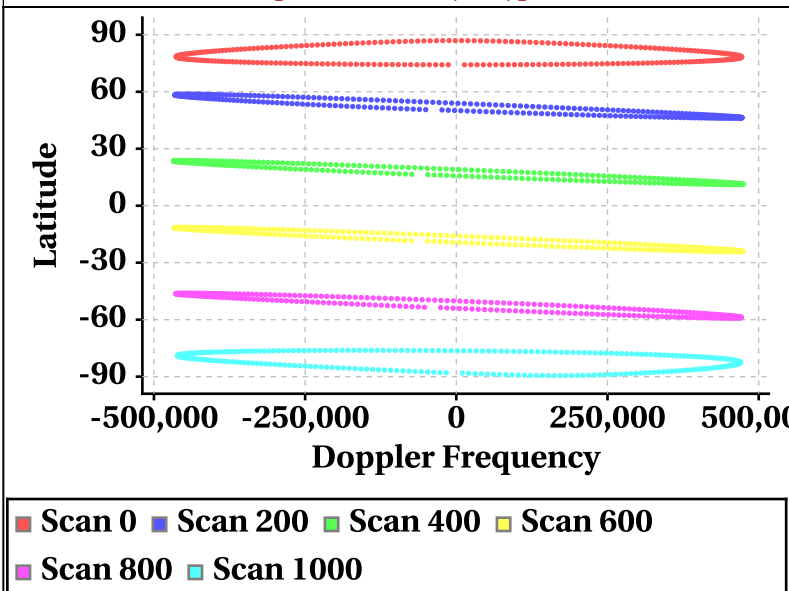


Doppler frequency variation at footprints: 1, 70, 140, 210 & 280 Outer Beam (VV)

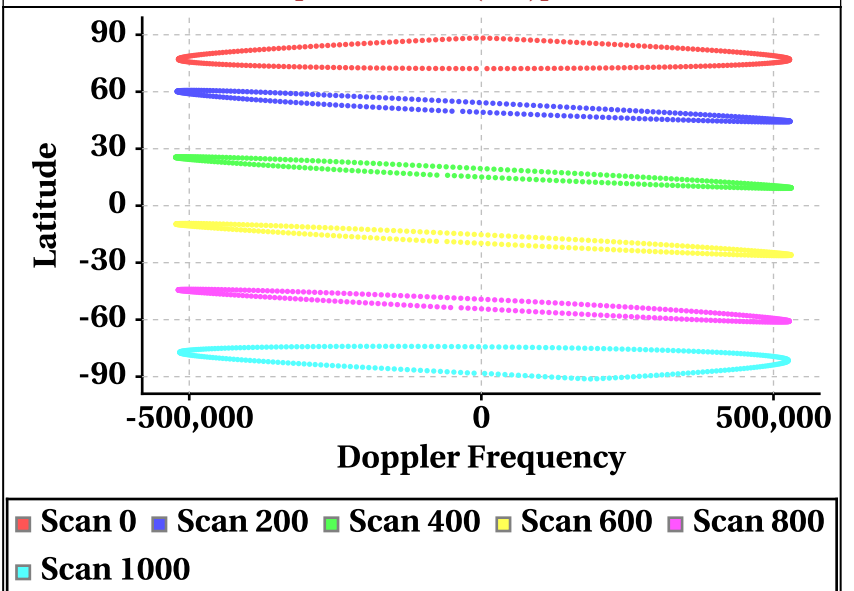


# Latitude Vs Doppler Frequency

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



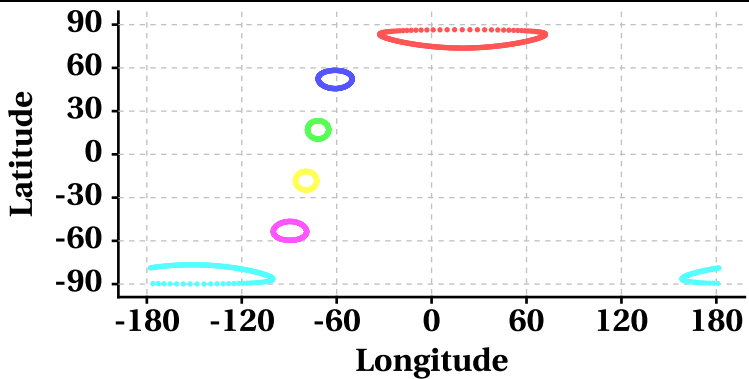
Doppler Frequency at Scan Interval of 200 [Outer Beam(VV)]



# Parameter as a function of Latitude

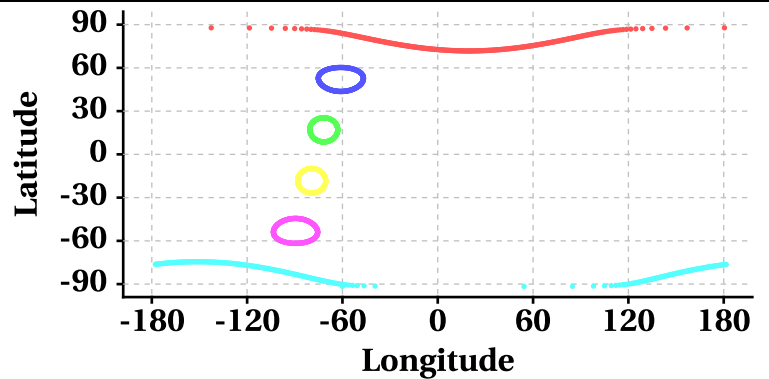
## Latitude Vs Longitude

Scan Trace [Inner Beam(HH)]



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

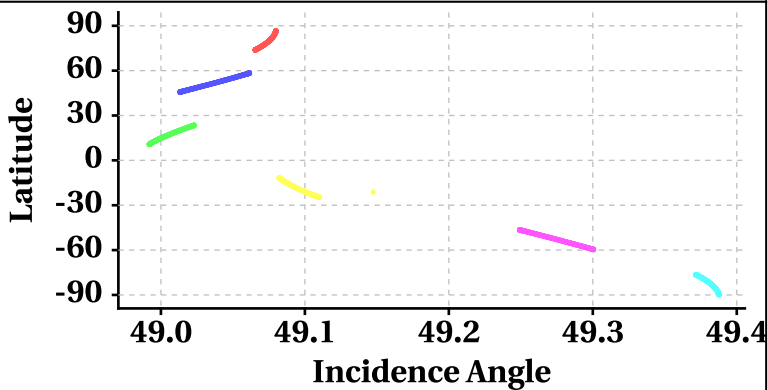
Scan Trace [Outer Beam (VV)]



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

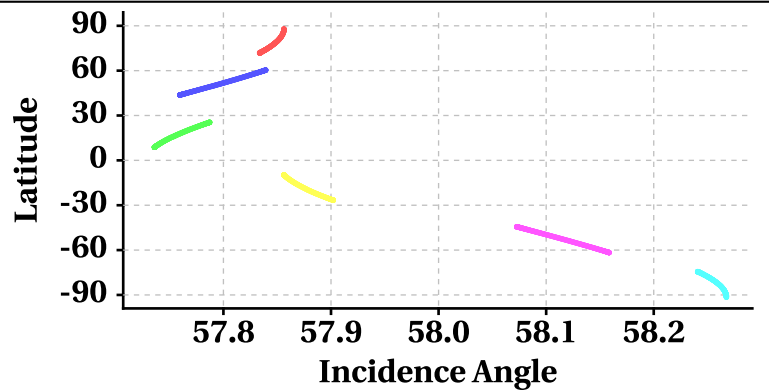
## Latitude Vs Incidence Angle

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



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

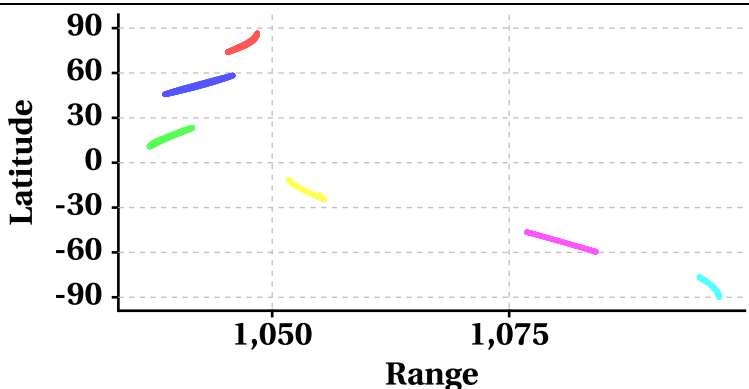
Incidence Angle at Scan Interval of 200 [Outer Beam (VV)]



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

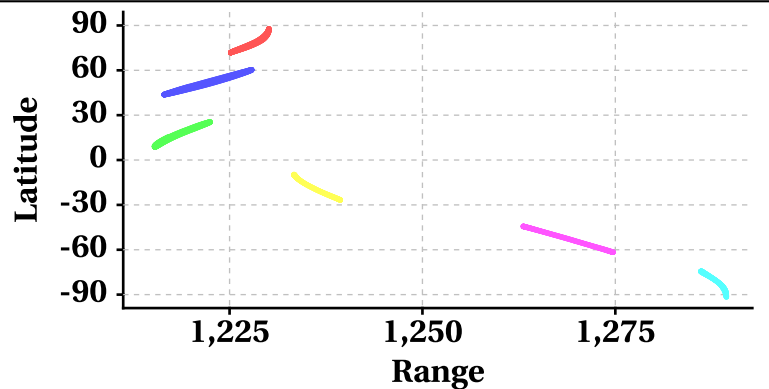
## Latitude Vs Range

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

