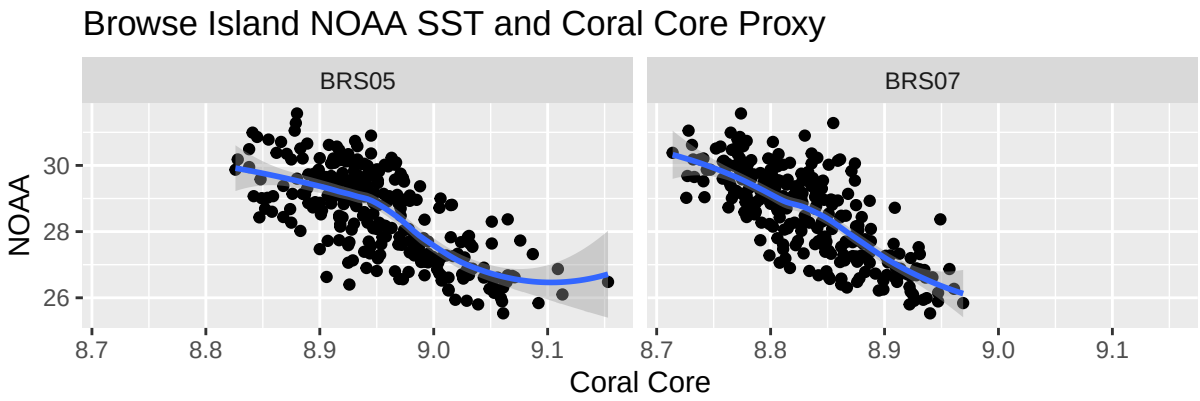
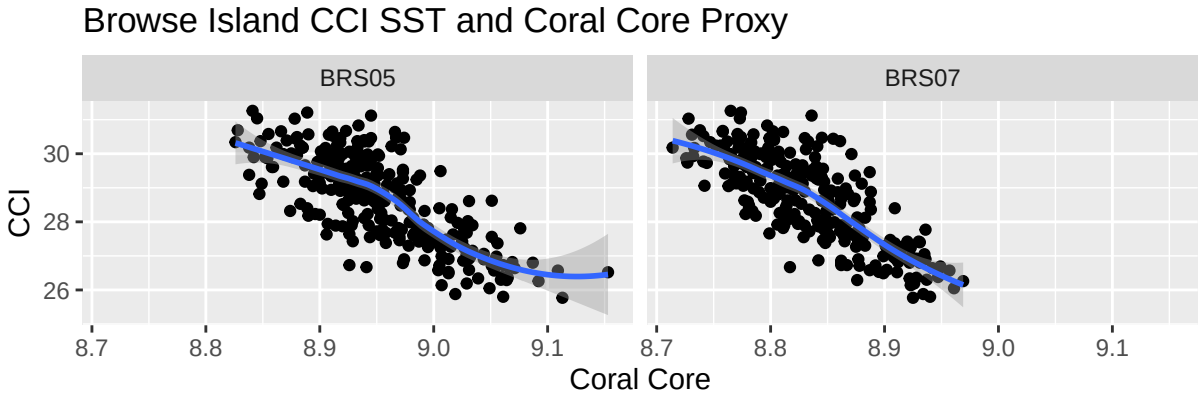
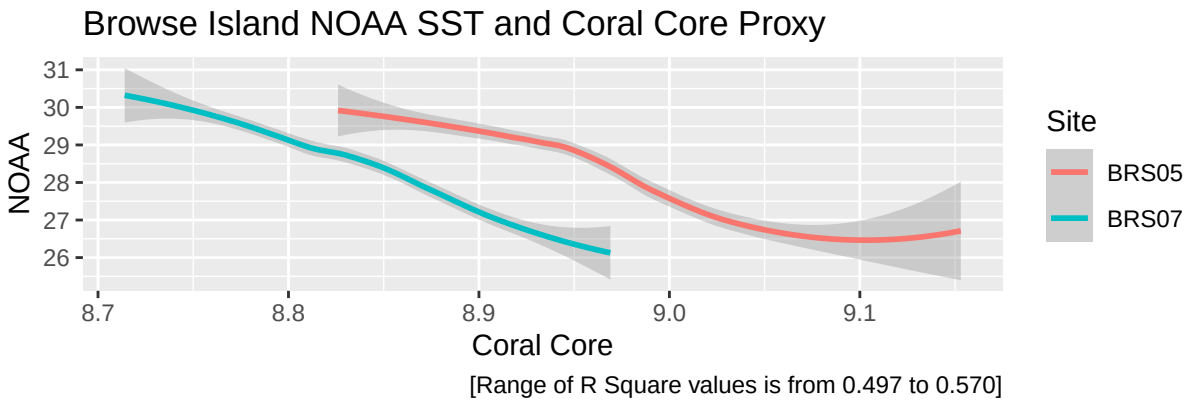
Coral Core Calibration and Frequency Analysis

Vanessa Hui Fen Neo

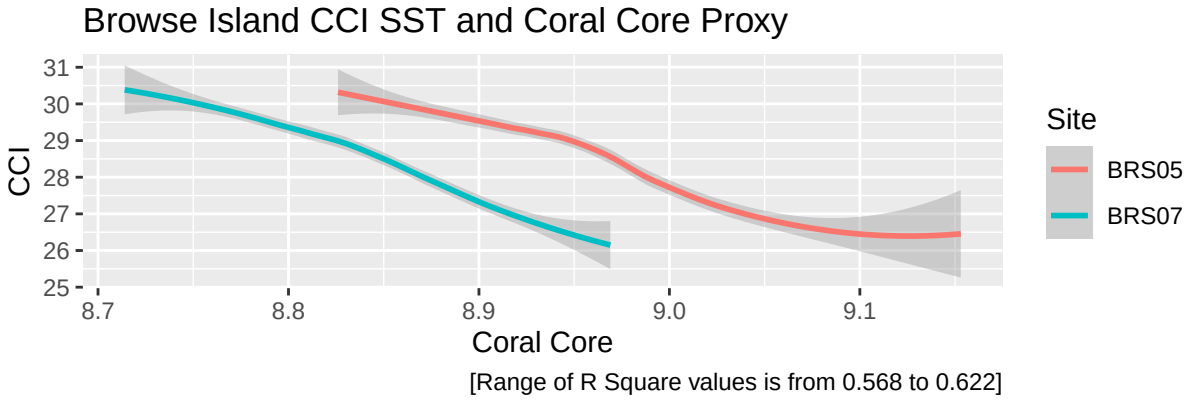
2021-10-26


Browse Island NOAA SST and Coral Core Proxy
BRS05
BRS07
NOAA
30
28
26
8.7
8.8
8.9
9.0
9.1
Coral Core

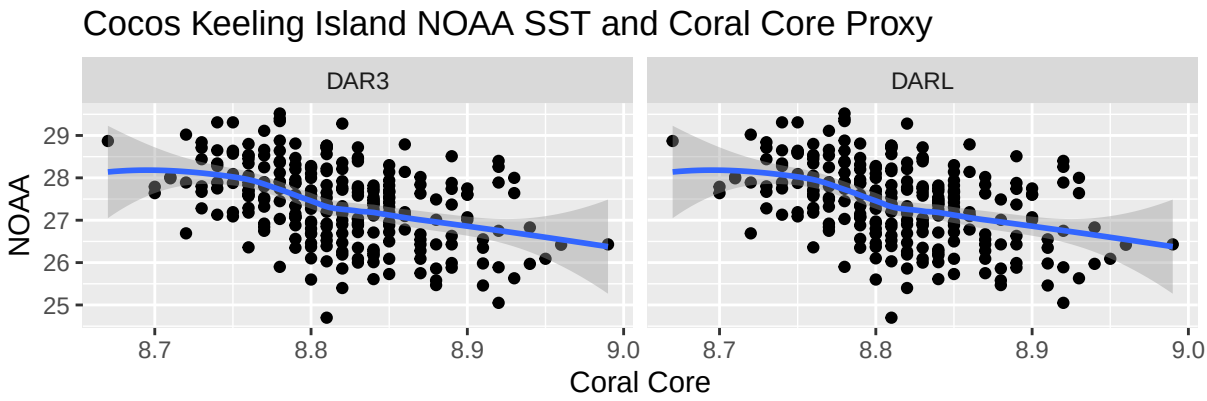

Browse Island CCI SST and Coral Core Proxy
BRS05
BRS07
CCI
30
28
26
8.7
8.8
8.9
9.0
9.1
Coral Core

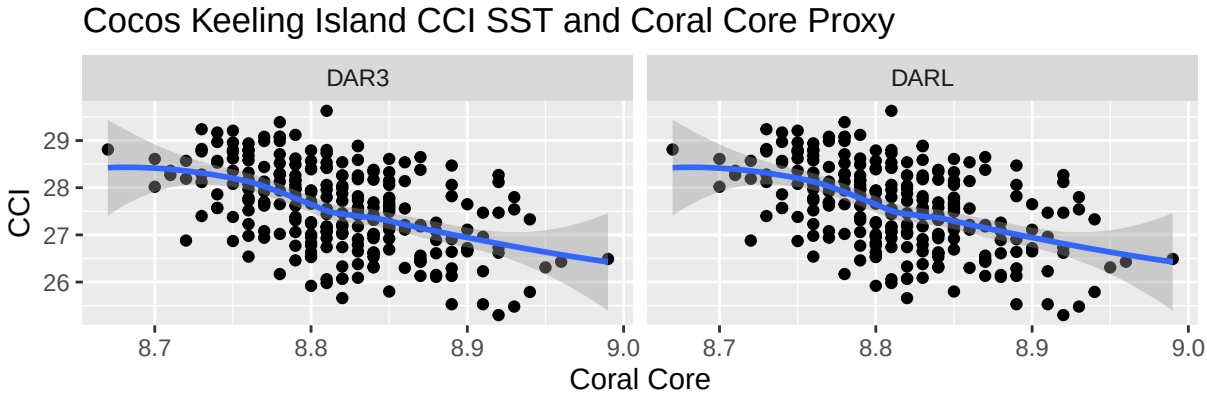


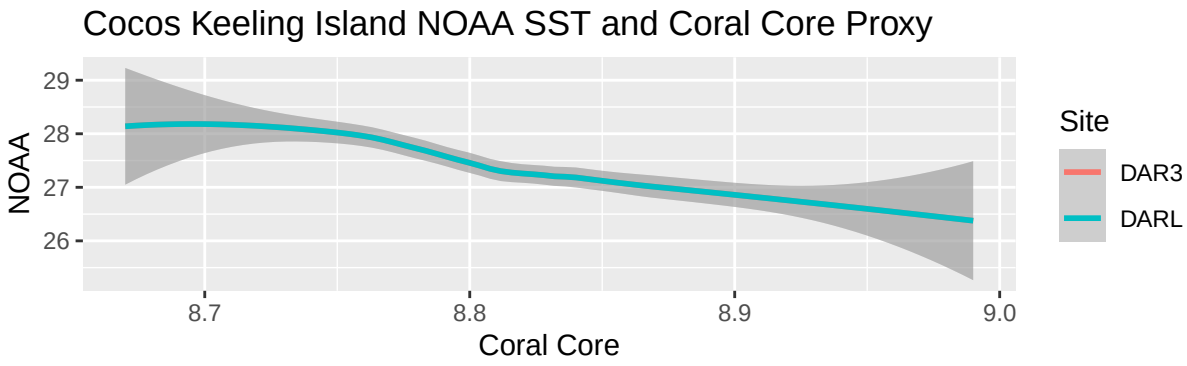
[Range of R Square values is from 0.497 to 0.570]



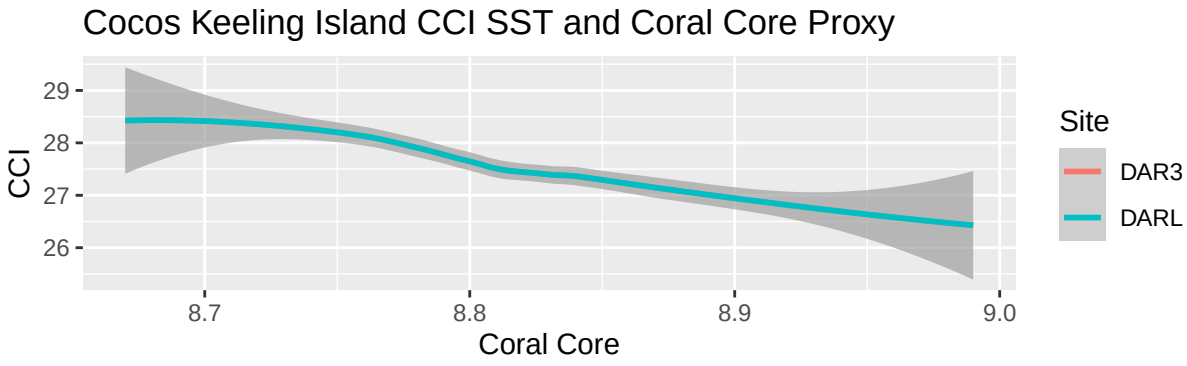
[Range of R Square values is from 0.568 to 0.622]


Cocos Keeling Island NOAA SST and Coral Core Proxy
DAR3
DARL
NOAA
29
28
27
26
25
8.7
8.8
8.9
9.0
Coral Core

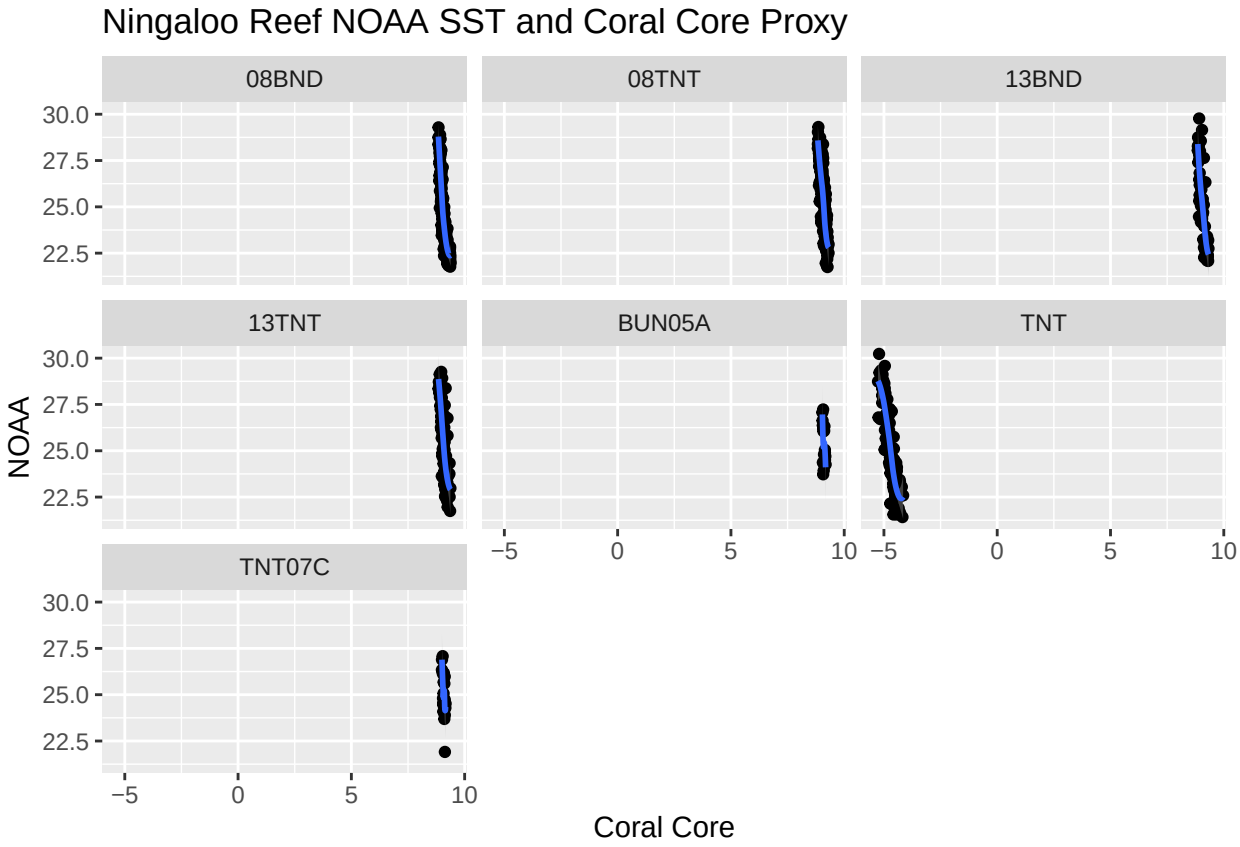

Cocos Keeling Island CCI SST and Coral Core Proxy
DAR3
DARL
CCI
29
28
27
26
8.7
8.8
8.9
9.0
Coral Core

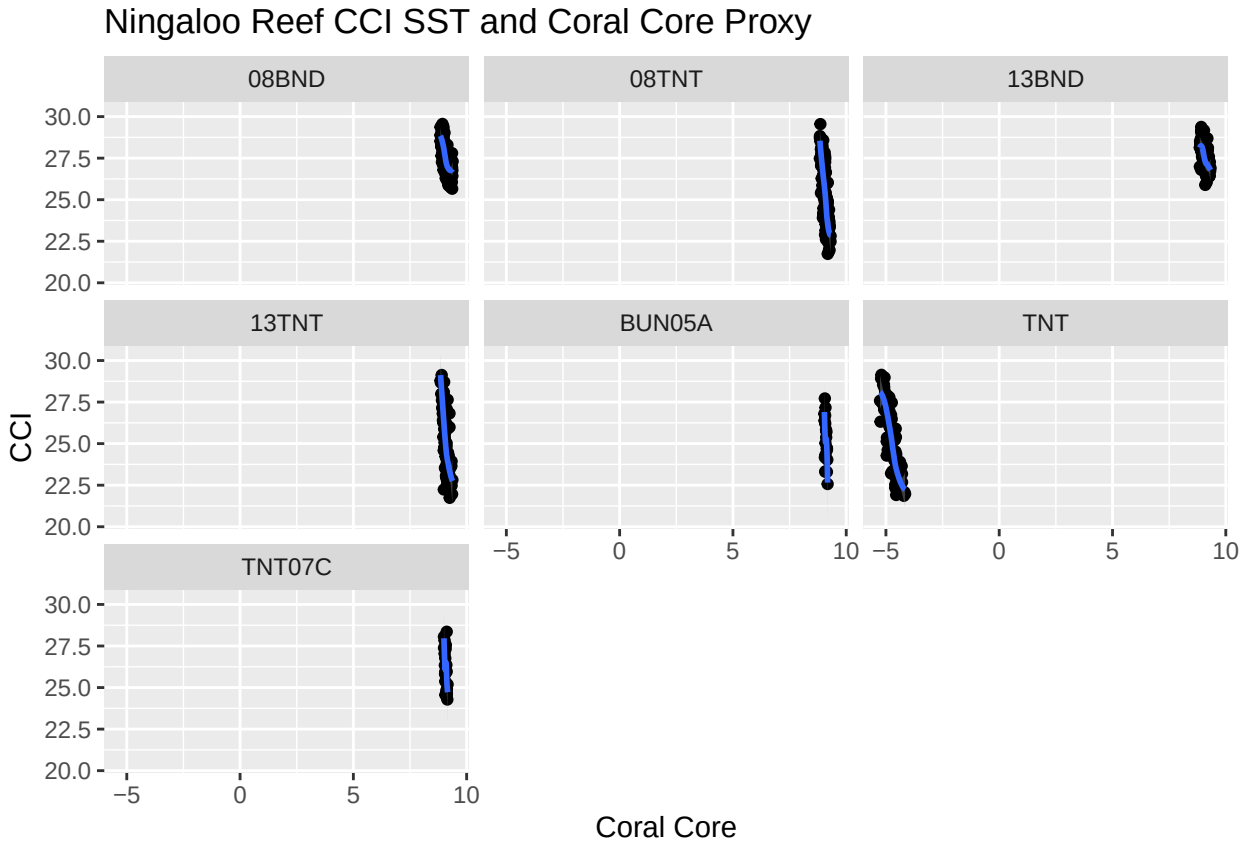


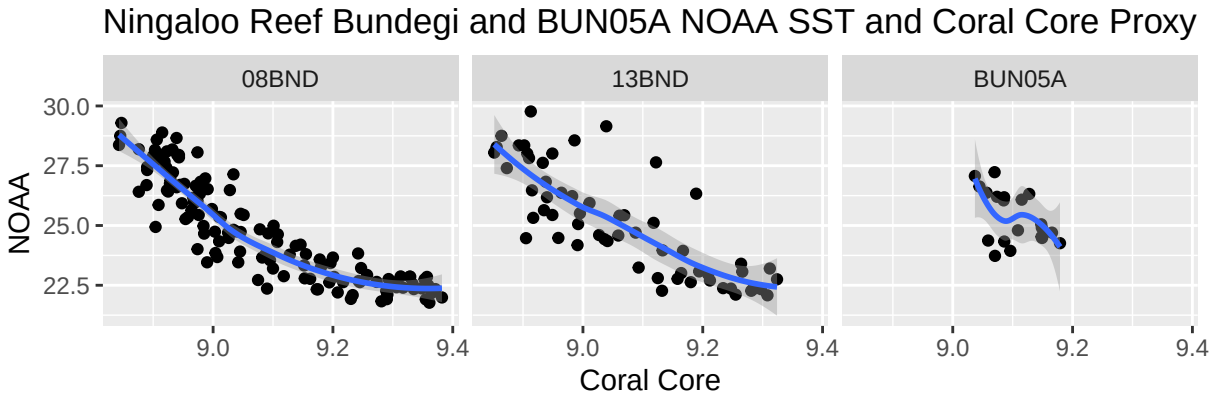
[R Square values for both sites are 0.188]

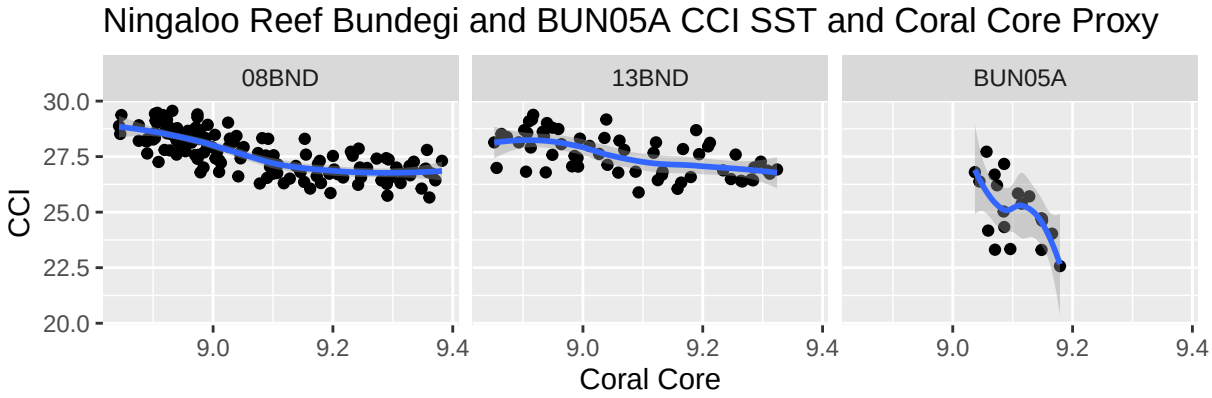


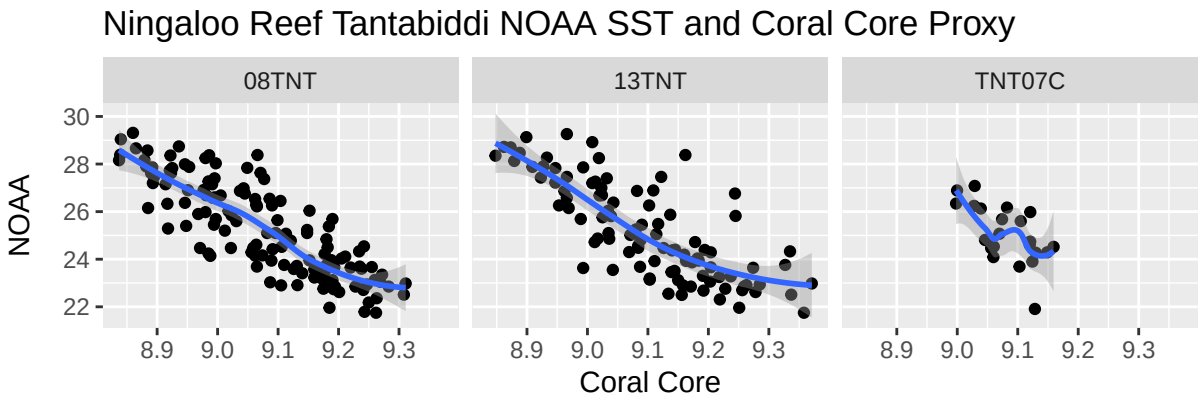
[R Square values for both sites are 0.244]

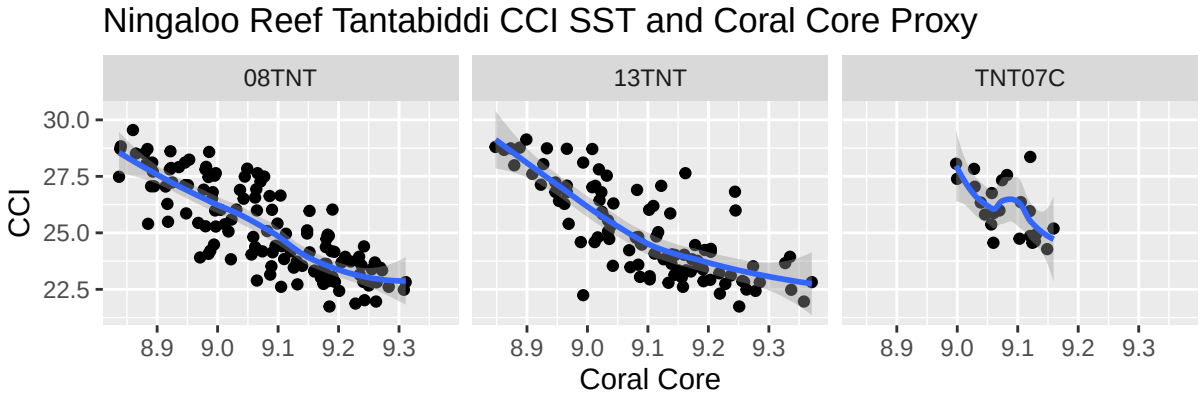

Ningaloo Reef NOAA SST and Coral Core Proxy
08BND
08TNT
13BND
13TNT
BUN05A
TNT
TNT07C
NOAA
30.0
27.5
25.0
22.5
−5
0
5
10
Coral Core

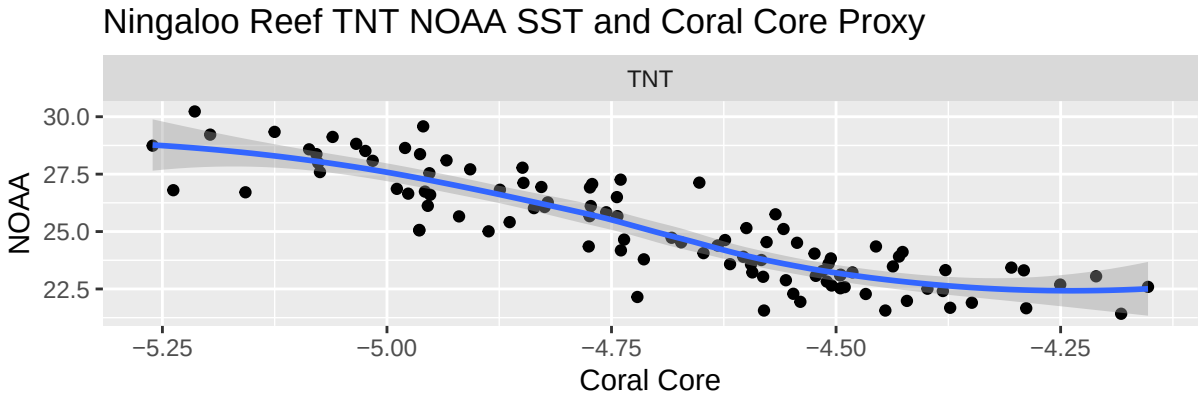

Ningaloo Reef CCI SST and Coral Core Proxy
08BND
08TNT
13BND
13TNT
BUN05A
TNT
TNT07C
CCI
Coral Core
30.0
27.5
25.0
22.5
20.0
−5
0
5
10

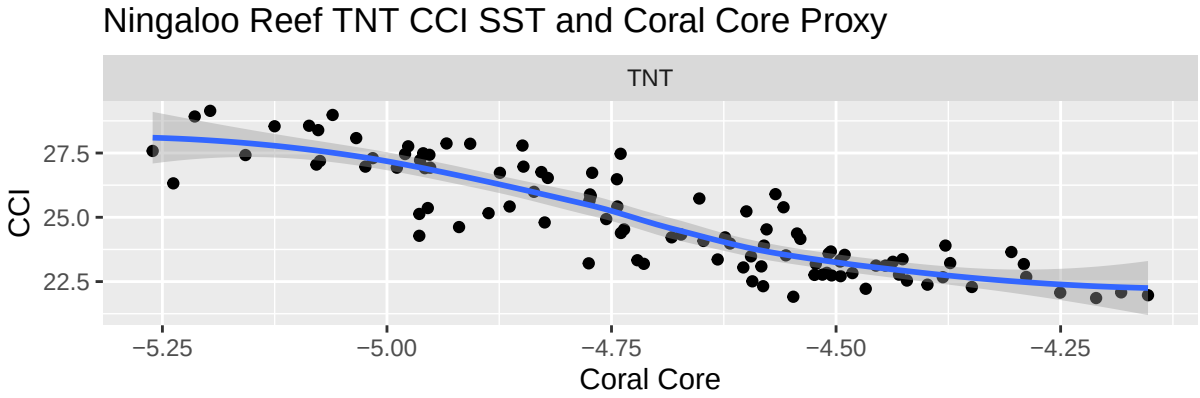

Ningaloo Reef Bundegi and BUN05A NOAA SST and Coral Core Proxy
08BND
13BND
BUN05A
NOAA
30.0
27.5
25.0
22.5
9.0
9.2
9.4
Coral Core

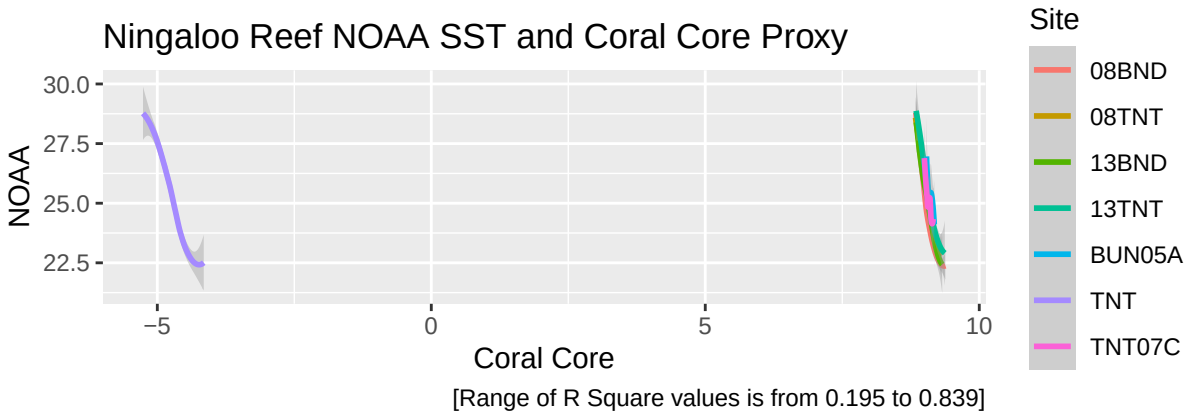

Ningaloo Reef Bundegi and BUN05A CCI SST and Coral Core Proxy
08BND
13BND
BUN05A
CCI
30.0
27.5
25.0
22.5
20.0
9.0
9.2
9.4
Coral Core


Ningaloo Reef Tantabiddi NOAA SST and Coral Core Proxy
08TNT
13TNT
TNT07C
NOAA
30
28
26
24
22
8.9
9.0
9.1
9.2
9.3
Coral Core

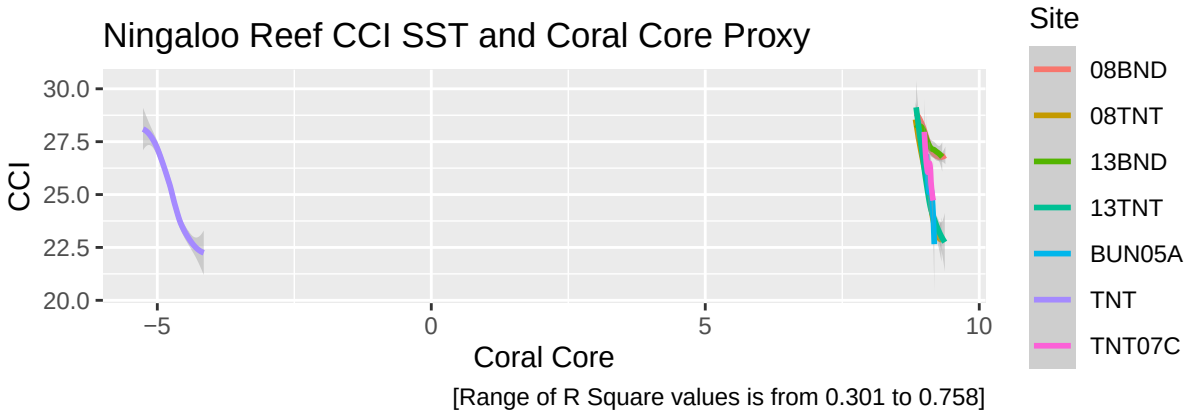

Ningaloo Reef Tantabiddi CCI SST and Coral Core Proxy
08TNT
13TNT
TNT07C
CCI
30.0
27.5
25.0
22.5
8.9
9.0
9.1
9.2
9.3
Coral Core


Ningaloo Reef TNT NOAA SST and Coral Core Proxy
TNT
NOAA
30.0
27.5
25.0
22.5
−5.25
−5.00
−4.75
−4.50
−4.25
Coral Core

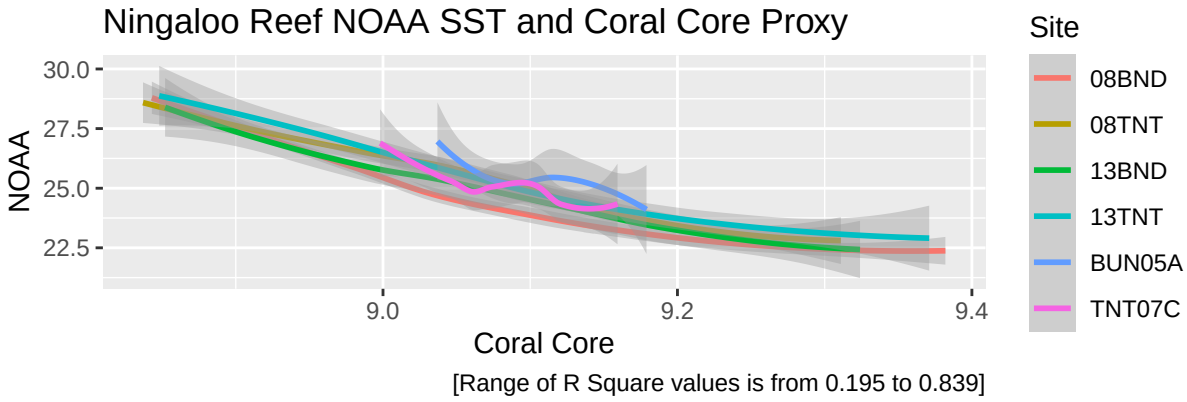

Ningaloo Reef TNT CCI SST and Coral Core Proxy
TNT
CCI
27.5
25.0
22.5
−5.25
−5.00
−4.75
−4.50
−4.25
Coral Core



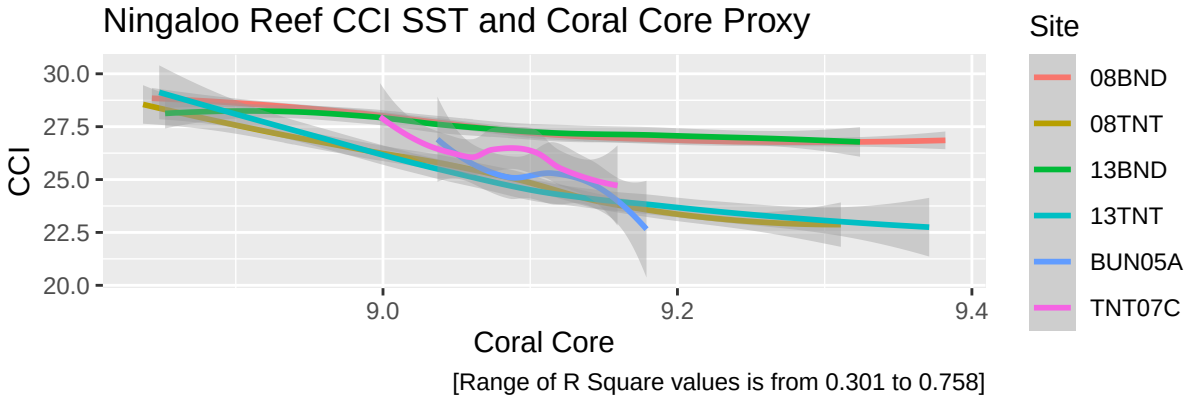
[Range of R Square values is from 0.195 to 0.839]



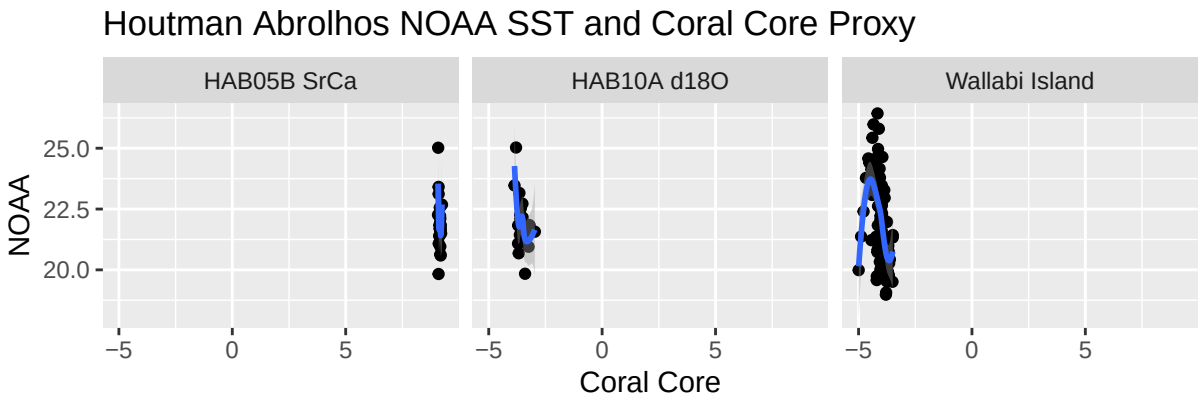
[Range of R Square values is from 0.301 to 0.758]

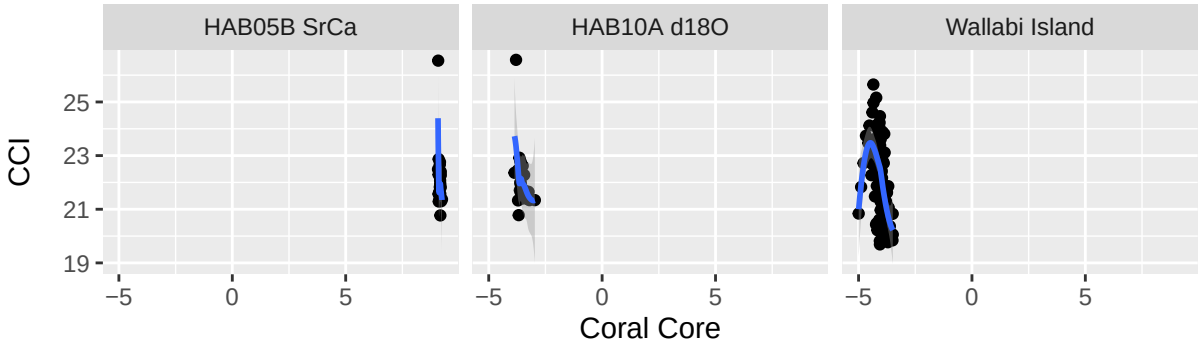


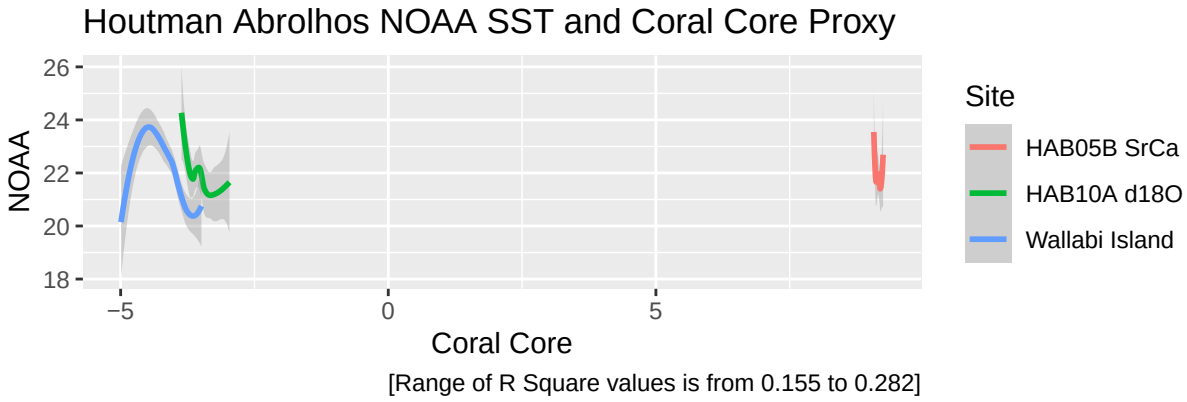
[Range of R Square values is from 0.195 to 0.839]



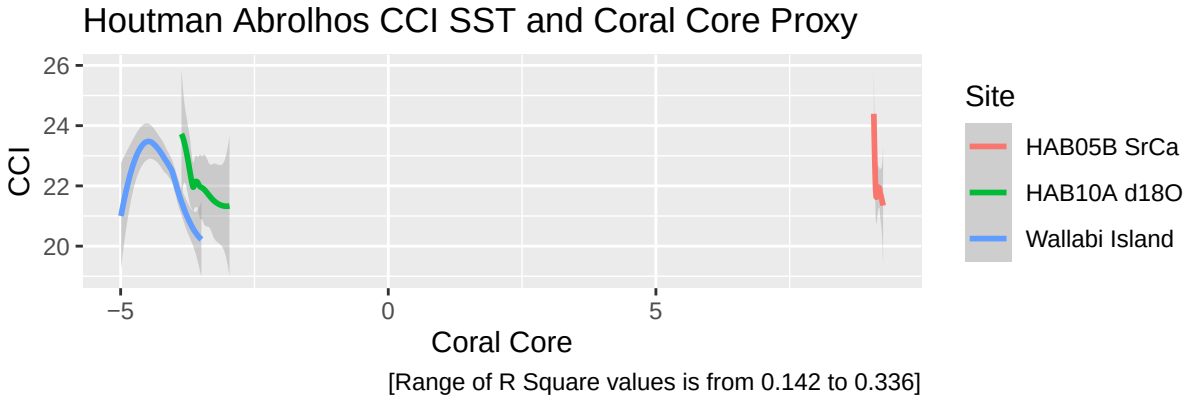
[Range of R Square values is from 0.301 to 0.758]


Houtman Abrolhos NOAA SST and Coral Core Proxy
HAB05B SrCa
HAB10A d18O
Wallabi Island
NOAA
25.0
22.5
20.0
−5
0
5
Coral Core

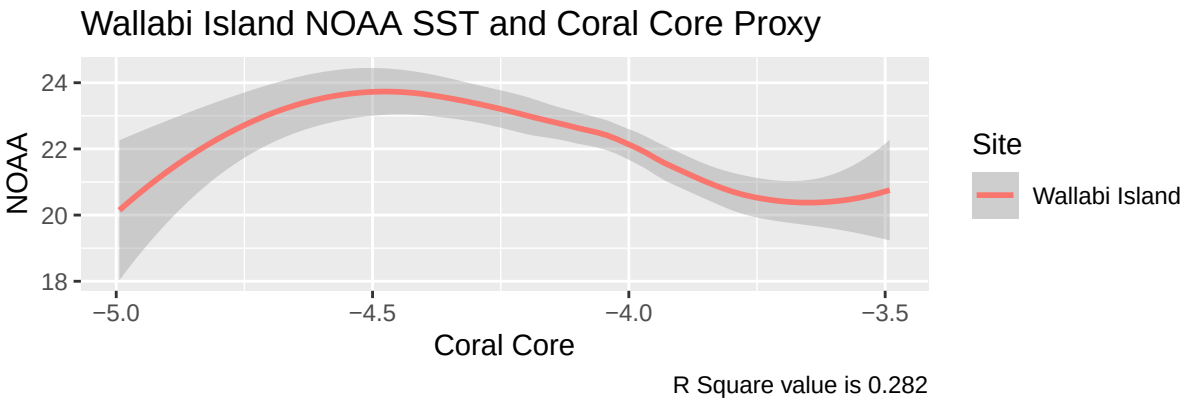

Houtman Abrolhos CCI SST and Coral Core Proxy
HAB05B SrCa
HAB10A d18O
Wallabi Island
CCI
25
23
21
19
−5
0
5
Coral Core



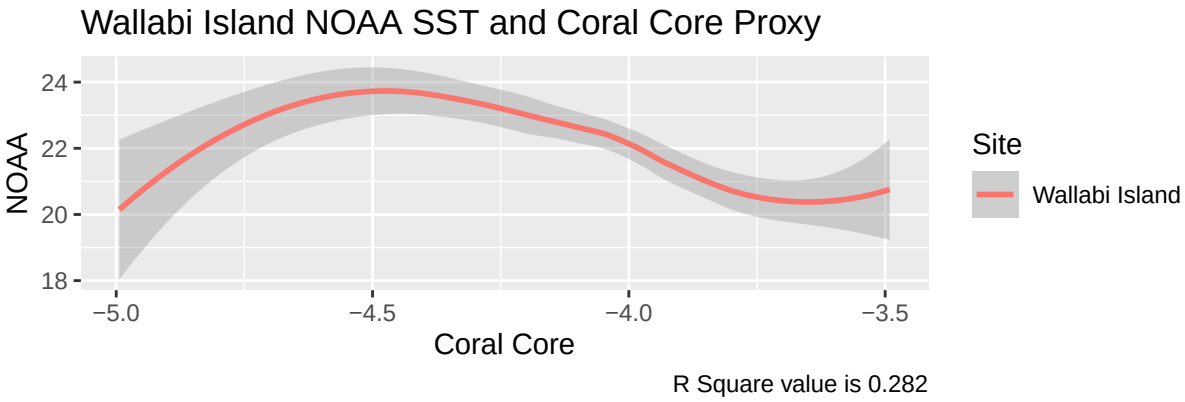
[Range of R Square values is from 0.155 to 0.282]



[Range of R Square values is from 0.142 to 0.336]



R Square value is 0.282



R Square value is 0.282

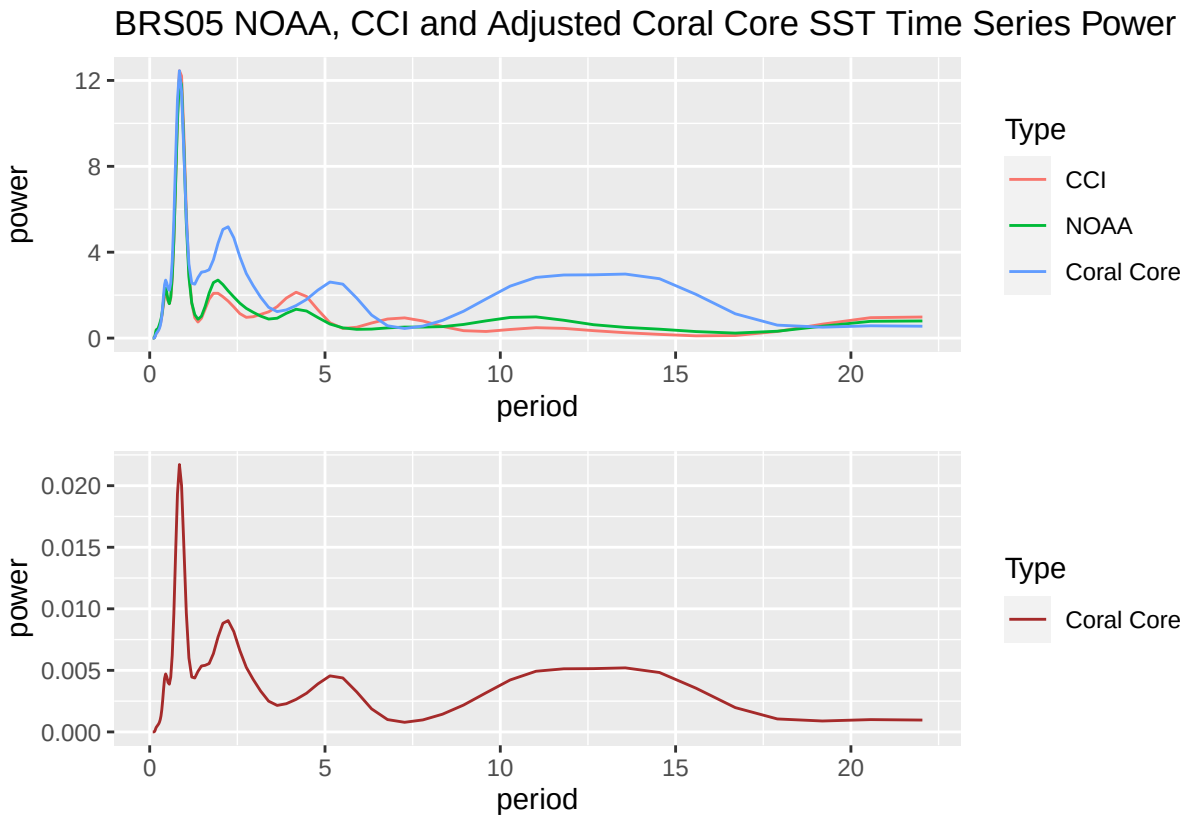
Table 1: NOAA

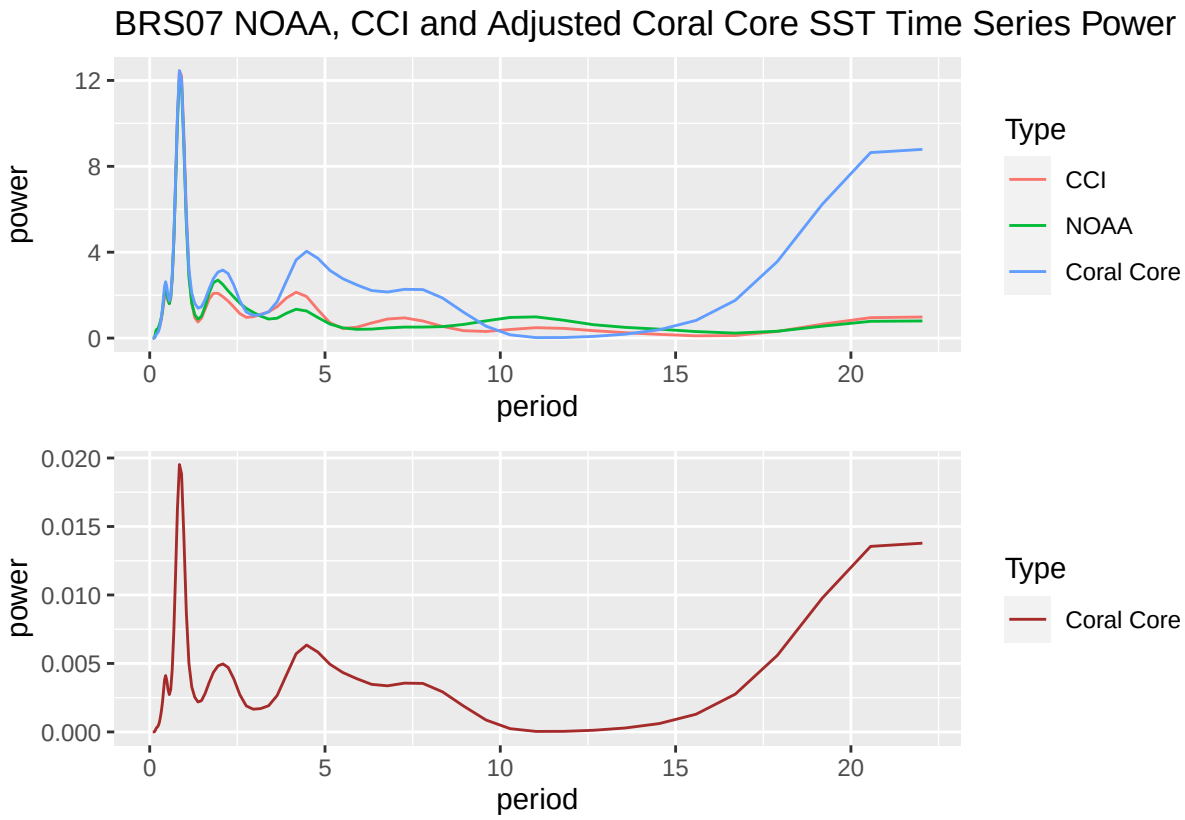
	Browse		Cocos Keeling		Ningaloo							Houtman Abrolhos	
	BRS05	BRS07	DARL	DAR3	13TNT	08TNT	TNT	TNT07C	13BND	08BND	BUN05A	Wallabi Island	HAB10A d18O
L_Browse	−15.892	−18.394											
	(0.968)	(0.967)											
L_Cocos			−7.413	−7.413									
			(0.957)	(0.957)									
L_Ningaloo					−344.021	−13.498	−7.569	−15.825	−12.655	−502.398	−12.498		
					(129.197)	(0.762)	(0.429)	(4.421)	(1.170)	(68.200)	(5.286)		
Q_Ningaloo					18.191					26.896			
					(7.096)					(3.741)			
L_HAbrol												−40.056	−2.236
												(9.792)	(1.014)
Q_HAbrol												−4.484	
												(1.176)	
Num.Obs.	273	273	255	255	98	135	102	23	60	133	20	100	22
R2	0.499	0.572	0.192	0.192	0.639	0.702	0.757	0.379	0.668	0.842	0.237	0.297	0.196
R2 Adj.	0.497	0.570	0.188	0.188	0.631	0.700	0.754	0.349	0.663	0.839	0.195	0.282	0.155
AIC	748.8	705.7	632.0	632.0	321.9	406.1	318.0	67.3	204.6	338.5	60.0	366.4	64.8

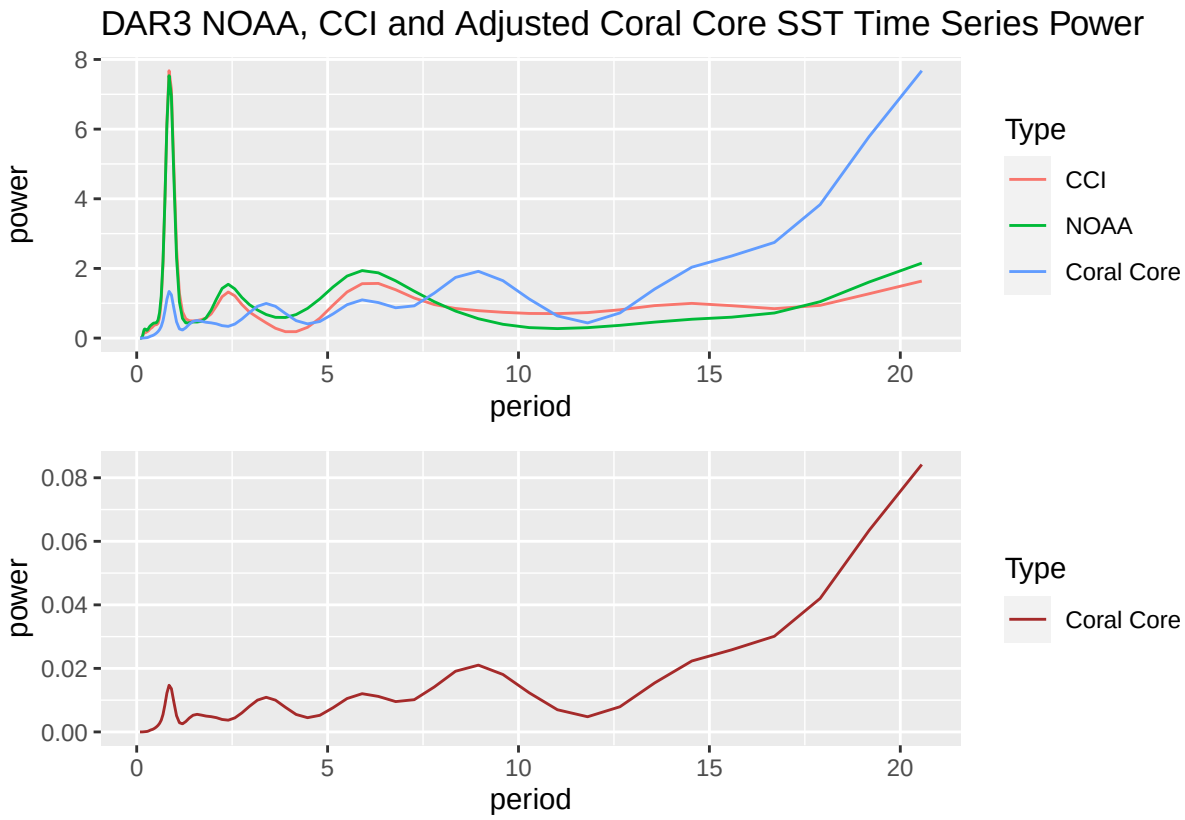
Table 2: CCI

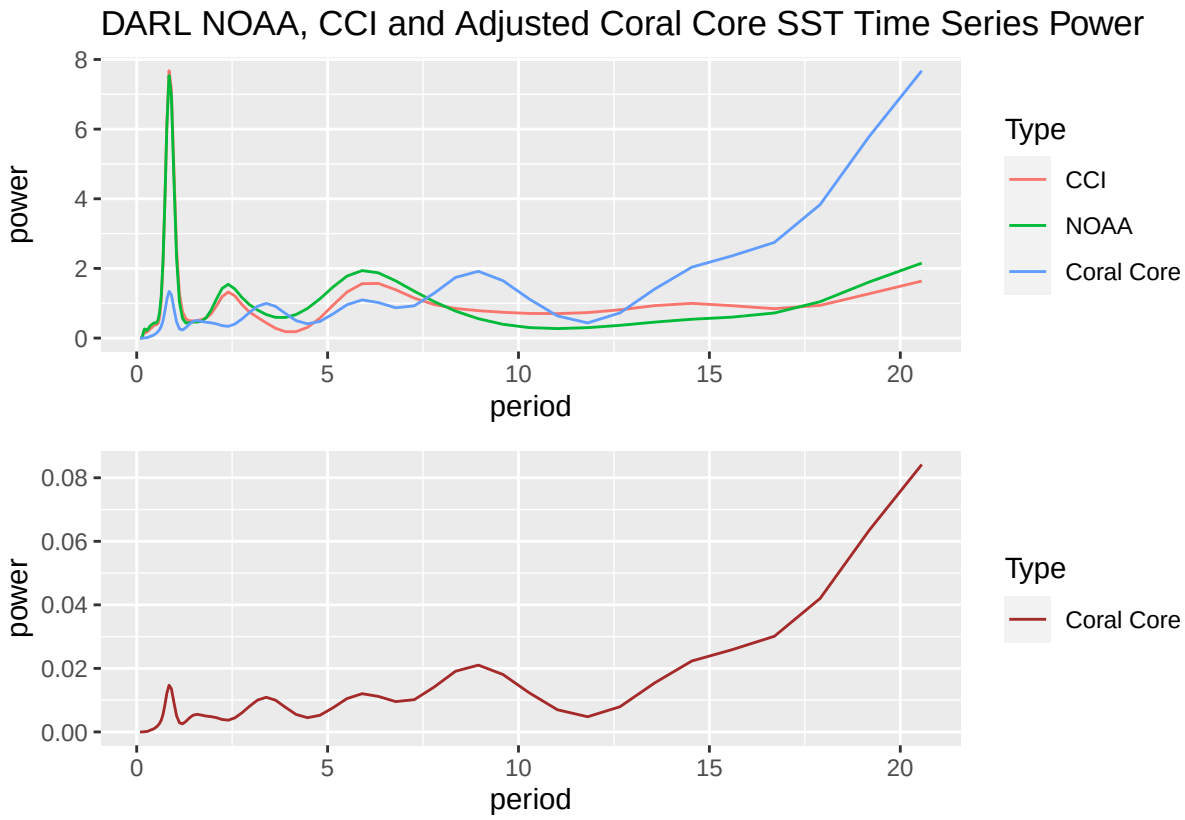
	Browse		Cocos Keeling		Ningaloo							Houtman Abrolhos		
	BRS05	BRS07	DARL	DAR3	13TNT	08TNT	TNT	TNT07C	13BND	08BND	BUN05A	Wallabi Island	HAB10A d18O	HAB05B SrCa
L_Browse	−16.577	531.158												
	(0.875)	(247.970)												
Q_Browse		−31.095												
		(14.024)												
L_Cocos			−8.096	−8.096										
			(0.890)	(0.890)										
L_Ningaloo					−435.076	−13.400	−6.812	−15.918	−3.654	−185.807	−19.640			
					(131.135)	(0.815)	(0.383)	(4.844)	(0.682)	(49.633)	(6.485)			
Q_Ningaloo					23.210					9.946				
					(7.203)					(2.723)				
L_HAbrol												−36.775	−2.363	−10.912
												(7.852)	(1.115)	(4.886)
Q_HAbrol												−4.124		
												(0.943)		
Num.Obs.	273	273	255	255	98	135	102	23	60	133	20	100	22	24
R2	0.570	0.624	0.247	0.247	0.626	0.671	0.760	0.340	0.331	0.580	0.338	0.349	0.183	0.185
R2 Adj.	0.568	0.622	0.244	0.244	0.618	0.668	0.758	0.308	0.320	0.574	0.301	0.336	0.142	0.148
AIC	693.4	658.5	594.6	594.6	324.8	424.0	294.6	71.5	139.8	253.9	68.1	322.3	69.0	72.7

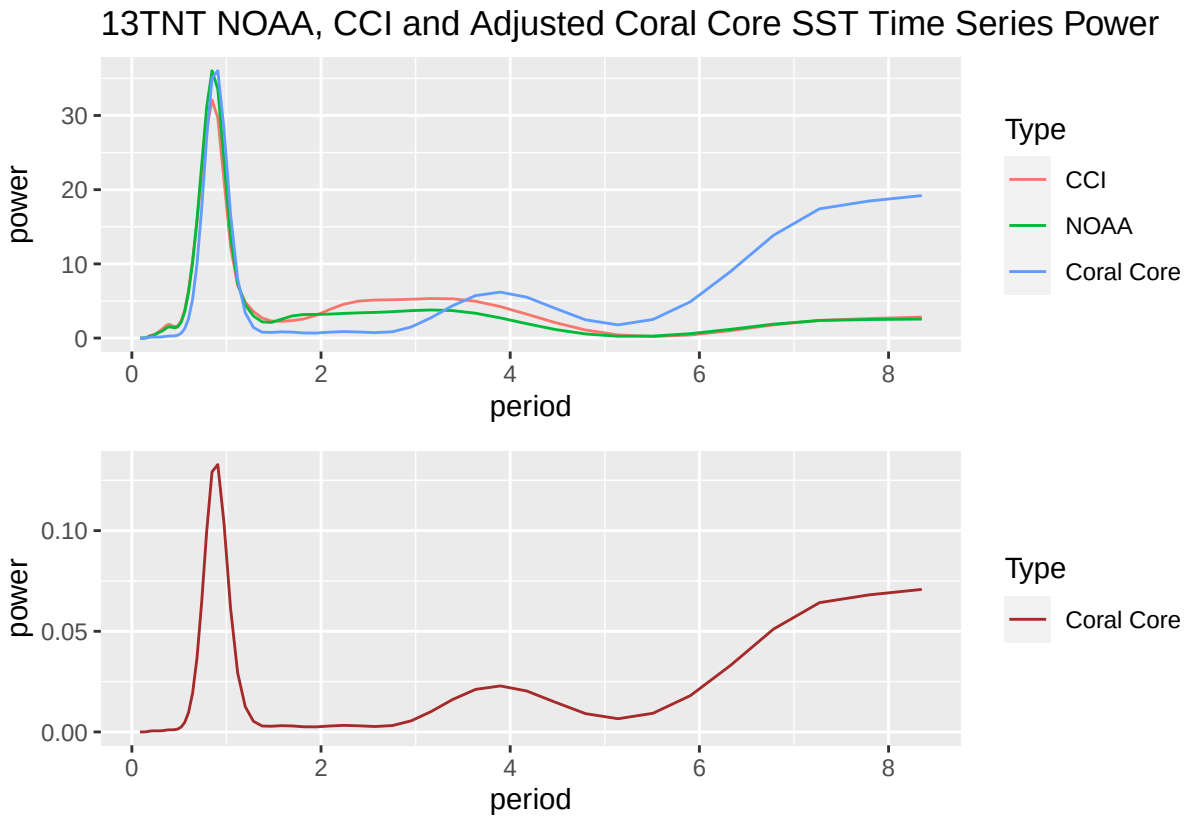
Frequency Analysis - Spectral Analysis of Time Series for Sr/Ca Coral Proxy sites

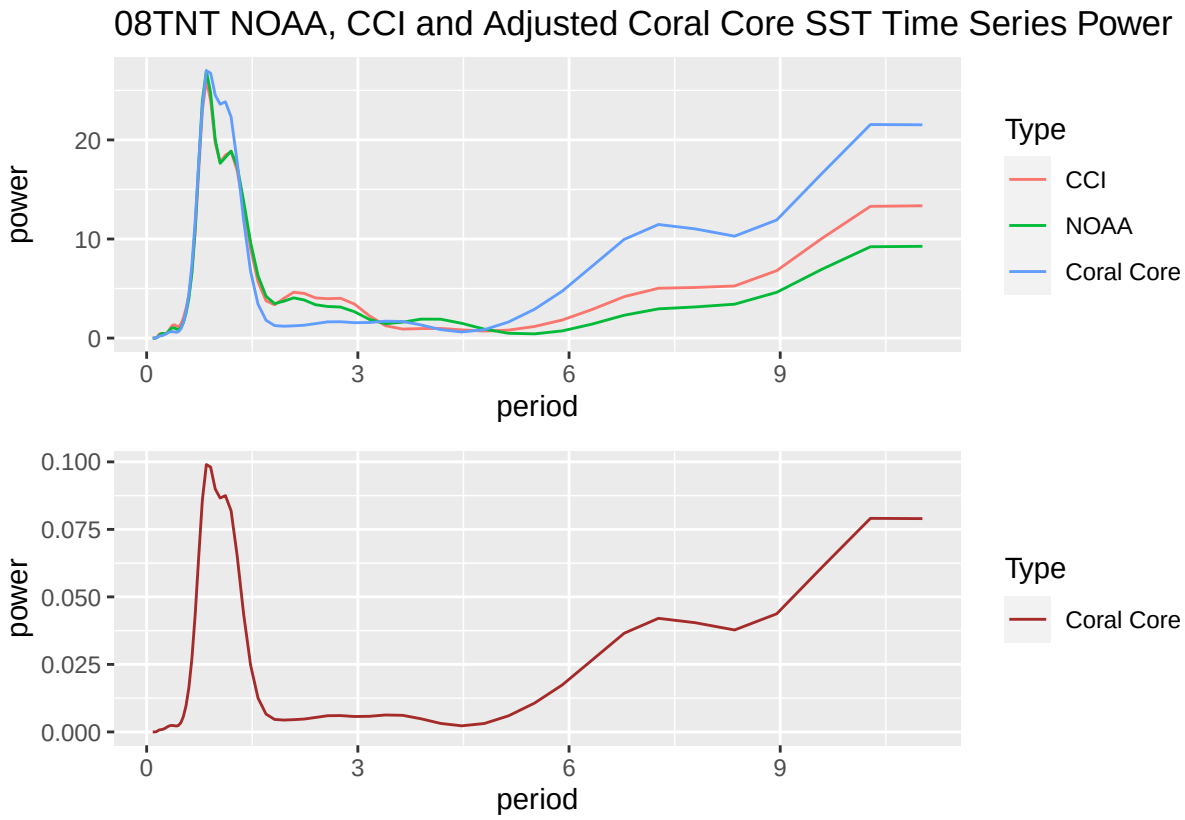

BRS05 NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
power
period
Type
Coral Core

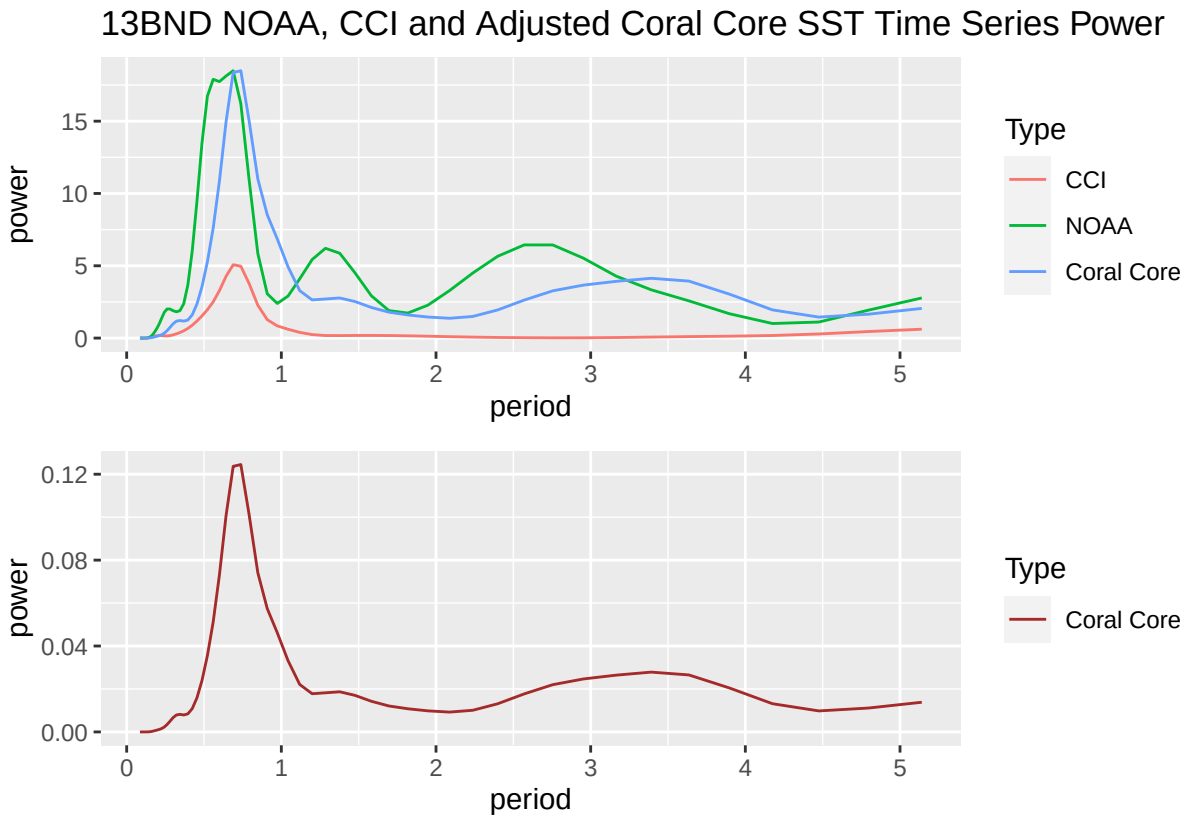

BRS07 NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
power
period
Type
Coral Core

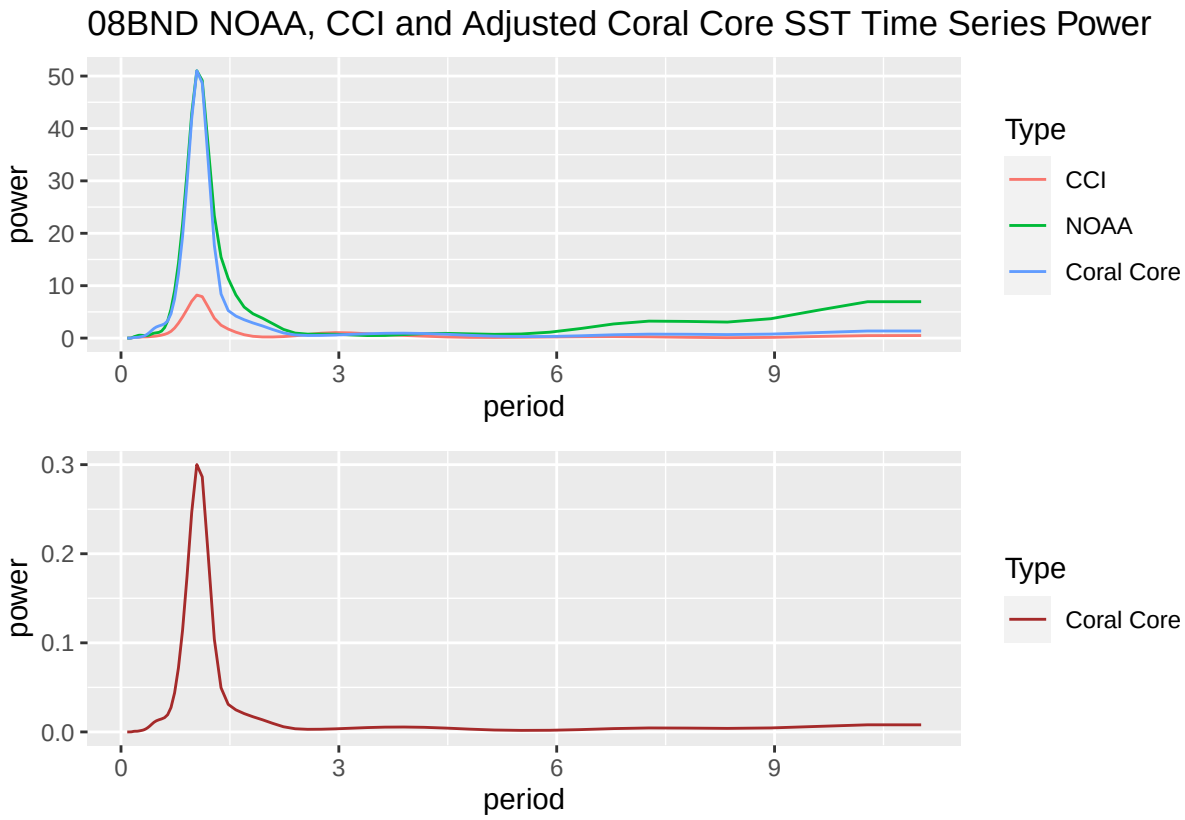

DAR3 NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
power
period
Type
Coral Core

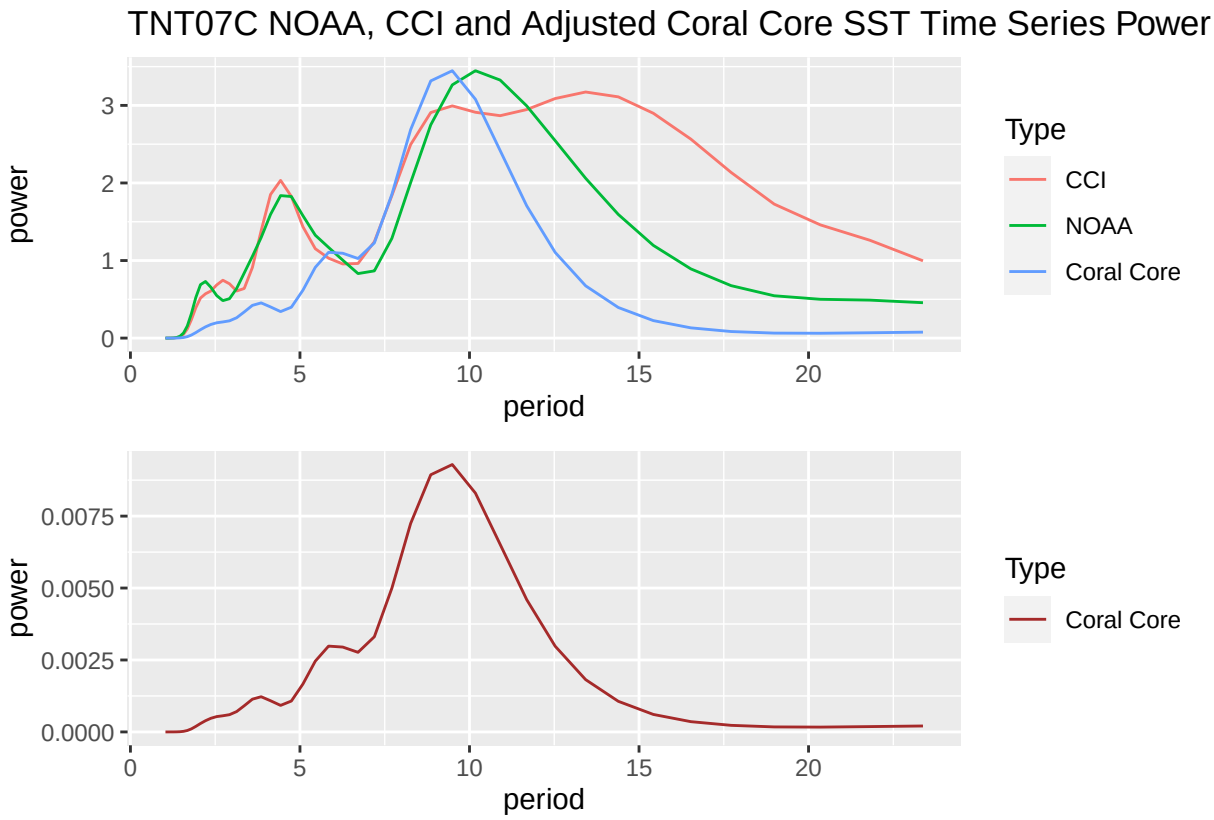

DARL NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
power
period
Type
Coral Core


13TNT NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
30
20
10
0
0
2
4
6
8
period
Type
CCI
NOAA
Coral Core
power
0.10
0.05
0.00
0
2
4
6
8
period
Type
Coral Core

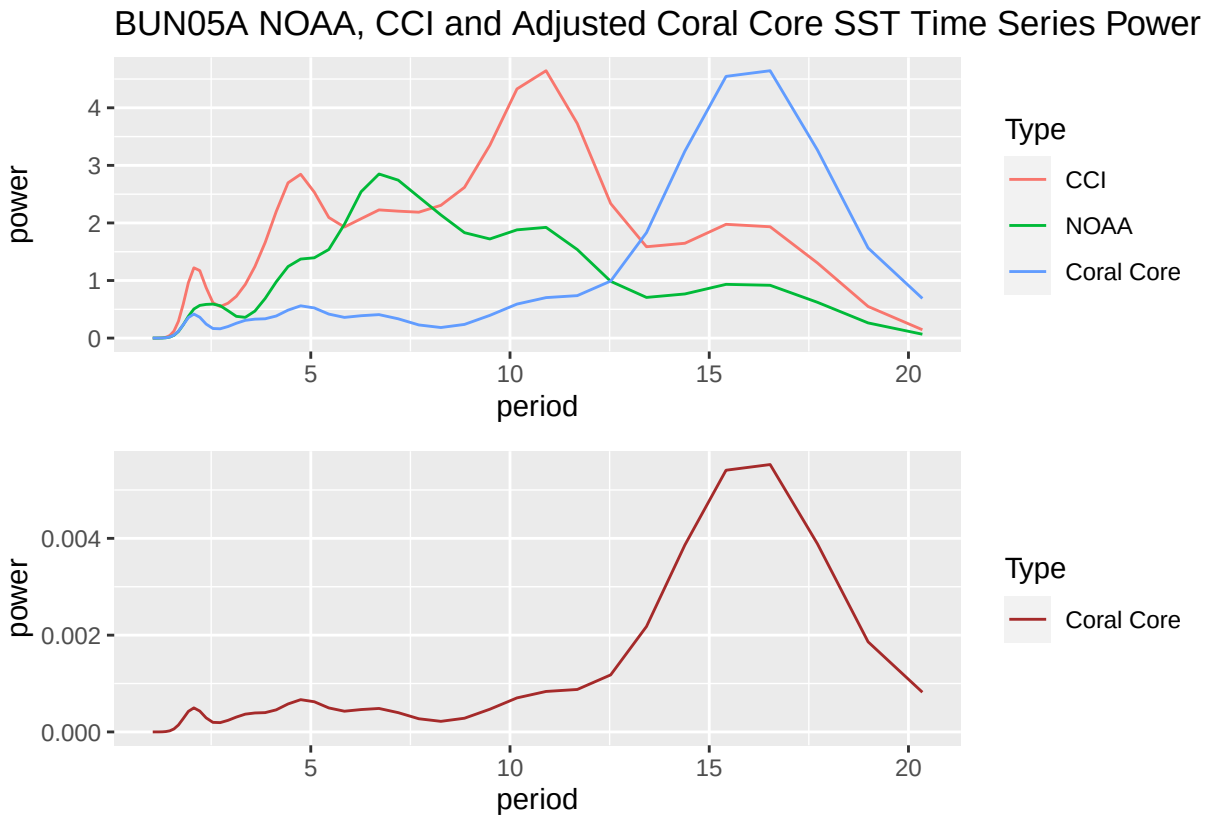

08TNT NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
20
10
0
0
3
6
9
period
Type
CCI
NOAA
Coral Core
power
0.100
0.075
0.050
0.025
0.000
0
3
6
9
period
Type
Coral Core


13BND NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
15
10
5
0
0
1
2
3
4
5
period
Type
CCI
NOAA
Coral Core
power
0.12
0.08
0.04
0.00
0
1
2
3
4
5
period
Type
Coral Core

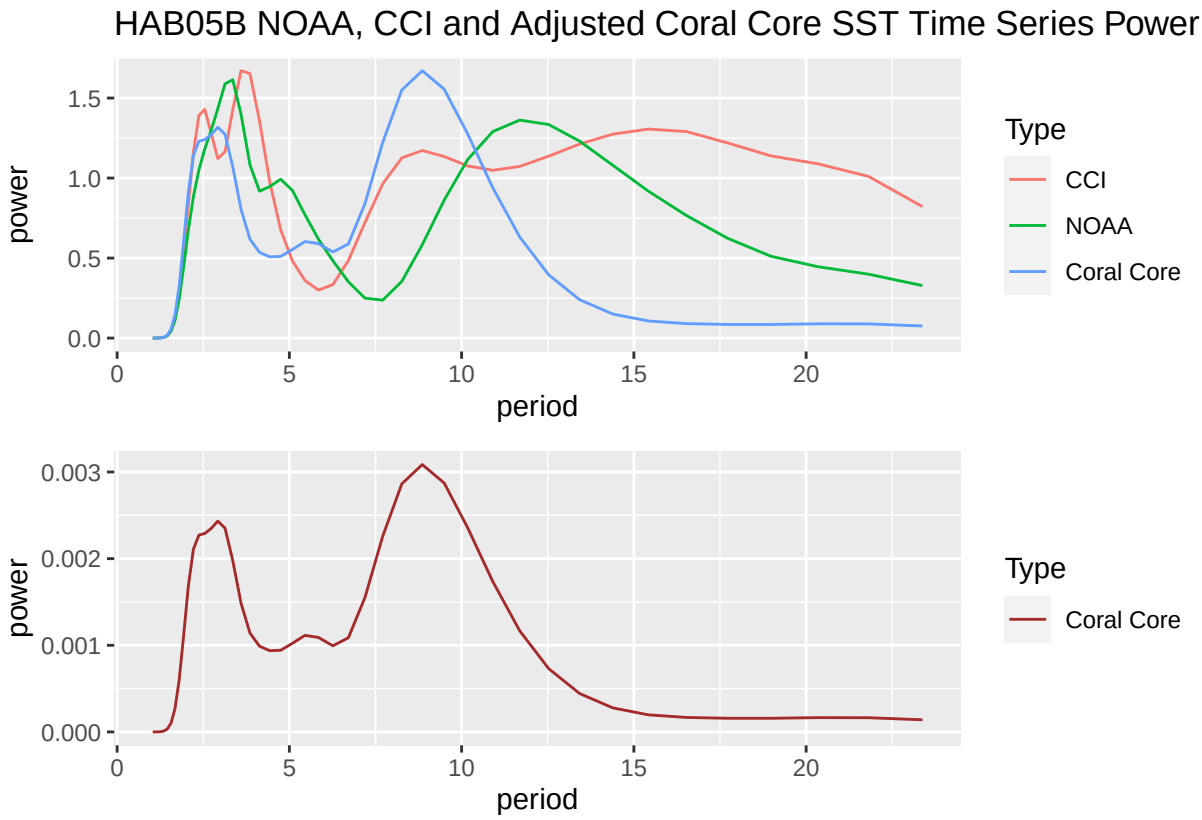

08BND NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
50
40
30
20
10
0
0
3
6
9
period
Type
CCI
NOAA
Coral Core
power
0.3
0.2
0.1
0.0
0
3
6
9
period
Type
Coral Core


TNT07C NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
0
1
2
3
0
5
10
15
20

power
period
Type
Coral Core
0.0000
0.0025
0.0050
0.0075
0
5
10
15
20


BUN05A NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
period
Type
CCI
NOAA
Coral Core
0
1
2
3
4
5
10
15
20

power
period
Type
Coral Core
0.000
0.002
0.004
5
10
15
20


HAB05B NOAA, CCI and Adjusted Coral Core SST Time Series Power
power
1.5
1.0
0.5
0.0
0
5
10
15
20
period
Type
CCI
NOAA
Coral Core
power
0.003
0.002
0.001
0.000
0
5
10
15
20
period
Type
Coral Core