

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

TELSTAR 14, 63.00W

Standard antenna beamwidth at 12 GHz

Site 1

Houston, 29.77N, 95.37W, EL=40.56, AZ=128.07, TZ=-6, D=9.30m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	16:04	16:05	16:06	High	0.23
8-Mar	16:03	16:05	16:06	High	0.17

Site 2

West GOM, 27.33N, 95.04W, EL=42.46, AZ=126.26, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	16:04	16:05	16:06	Low	1.35
6-Mar	16:01	16:05	16:08	Low	0.96
7-Mar	16:00	16:04	16:09	High	0.58
8-Mar	15:59	16:04	16:09	High	0.19
9-Mar	15:59	16:04	16:09	High	0.21
10-Mar	15:59	16:04	16:08	High	0.6
11-Mar	16:00	16:03	16:07	Low	0.99

Site 3

Middle GOM, 27.01N, 89.50W, EL=46.96, AZ=132.33, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	16:04	16:07	16:11	Low	0.97
7-Mar	16:02	16:07	16:12	High	0.59
8-Mar	16:02	16:07	16:12	High	0.2
9-Mar	16:01	16:07	16:12	High	0.2
10-Mar	16:02	16:06	16:11	High	0.59
11-Mar	16:03	16:06	16:10	Low	0.98

Site 4

East GOM, 26.11N, 84.33W, EL=51.35, AZ=138.42, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	16:07	16:10	16:13	Low	1.08
7-Mar	16:06	16:10	16:15	Medium	0.69
8-Mar	16:05	16:10	16:15	High	0.3
9-Mar	16:04	16:10	16:15	High	0.11
10-Mar	16:04	16:09	16:14	High	0.48
11-Mar	16:05	16:09	16:13	Low	0.88
12-Mar	16:07	16:09	16:11	Low	1.27

Site 5

Bay of Campeche, 20.08N, 94.20W, EL=47.61, AZ=119.55, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
8-Mar	16:02	16:03	16:05	Low	1.28
9-Mar	15:59	16:03	16:07	Low	0.89
10-Mar	15:58	16:03	16:08	High	0.5
11-Mar	15:57	16:03	16:08	High	0.11
12-Mar	15:57	16:02	16:07	High	0.29
13-Mar	15:58	16:02	16:07	Medium	0.68
14-Mar	15:59	16:02	16:05	Low	1.07

Site 6

Denver, 39.47N, 105.06W, EL=27.26, AZ=125.16, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
1-Mar	16:05	16:05	16:05	Low	1.36
2-Mar	16:01	16:05	16:08	Low	0.98
3-Mar	16:00	16:04	16:09	High	0.6
4-Mar	15:59	16:04	16:09	High	0.22
5-Mar	15:59	16:04	16:09	High	0.18
6-Mar	15:59	16:04	16:09	High	0.56
7-Mar	16:00	16:04	16:07	Low	0.95
8-Mar	16:02	16:03	16:04	Low	1.34

Site 7

Wyoming, 45.59N, 107.35W, EL=21.99, AZ=126.16, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
28-Feb	16:03	16:06	16:09	Low	1.09
1-Mar	16:02	16:06	16:11	Medium	0.71
2-Mar	16:01	16:06	16:11	High	0.33
3-Mar	16:00	16:06	16:11	High	0.06
4-Mar	16:01	16:06	16:11	High	0.45
5-Mar	16:01	16:05	16:09	Medium	0.83
6-Mar	16:03	16:05	16:07	Low	1.22

Site 8

Canada, 54.38N, 106.27W, EL=16.81, AZ=130.81, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
26-Feb	16:07	16:10	16:14	Low	1.02
27-Feb	16:05	16:10	16:15	Medium	0.64
28-Feb	16:05	16:10	16:15	High	0.27
1-Mar	16:04	16:10	16:15	High	0.12
2-Mar	16:05	16:10	16:14	High	0.5
3-Mar	16:05	16:09	16:13	Low	0.88
4-Mar	16:07	16:09	16:11	Low	1.26

Site 9

Carribean Sea, 15.30N, 70.50W, EL=70.04, AZ=153.48, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
10-Mar	16:15	16:17	16:20	Low	1.2
11-Mar	16:13	16:17	16:21	Medium	0.81
12-Mar	16:12	16:17	16:22	High	0.41
13-Mar	16:11	16:16	16:22	High	0.03
14-Mar	16:11	16:16	16:21	High	0.38
15-Mar	16:11	16:16	16:20	Medium	0.77
16-Mar	16:13	16:15	16:18	Low	1.17

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

SATMEX 5, 116.80W

Standard antenna beamwidth at 12 GHz

Site 1

Houston, 29.77N, 95.37W, EL=48.11, AZ=218.33, TZ=-6, D=6.10m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	20:09	20:11	20:12	High	0.09
8-Mar	20:09	20:10	20:12	High	0.3

Site 2

West GOM, 27.33N, 95.04W, EL=50.03, AZ=221.00, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	20:09	20:12	20:14	Low	1.22
6-Mar	20:07	20:11	20:16	Medium	0.84
7-Mar	20:06	20:11	20:16	High	0.45
8-Mar	20:06	20:11	20:16	High	0.07
9-Mar	20:06	20:11	20:16	High	0.34
10-Mar	20:06	20:10	20:15	Medium	0.73
11-Mar	20:07	20:10	20:13	Low	1.12

Site 3

Middle GOM, 27.01N, 89.50W, EL=46.36, AZ=228.66, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	20:13	20:15	20:16	Low	1.3
6-Mar	20:11	20:14	20:18	Low	0.91
7-Mar	20:09	20:14	20:19	High	0.52
8-Mar	20:09	20:14	20:19	High	0.14
9-Mar	20:09	20:14	20:19	High	0.26
10-Mar	20:09	20:13	20:18	Medium	0.65
11-Mar	20:10	20:13	20:16	Low	1.04

Site 4

East GOM, 26.11N, 84.33W, EL=42.90, AZ=235.33, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	20:14	20:17	20:21	Low	1.08
7-Mar	20:13	20:17	20:22	Medium	0.69
8-Mar	20:12	20:17	20:22	High	0.3
9-Mar	20:11	20:17	20:22	High	0.1
10-Mar	20:11	20:16	20:21	High	0.48
11-Mar	20:12	20:16	20:20	Low	0.88
12-Mar	20:14	20:16	20:18	Low	1.27

Site 5

Bay of Campeche, 20.08N, 94.20W, EL=55.17, AZ=230.48, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
8-Mar	20:10	20:12	20:15	Low	1.17
9-Mar	20:08	20:12	20:16	Medium	0.78
10-Mar	20:07	20:12	20:17	High	0.39
11-Mar	20:06	20:11	20:17	High	0.06
12-Mar	20:06	20:11	20:16	High	0.4
13-Mar	20:07	20:11	20:15	Medium	0.79
14-Mar	20:08	20:11	20:13	Low	1.18

Site 6

Denver, 39.47N, 105.06W, EL=42.72, AZ=198.10, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
1-Mar	20:02	20:05	20:09	Low	1.1
2-Mar	20:01	20:05	20:10	Medium	0.71
3-Mar	20:00	20:05	20:10	High	0.34
4-Mar	20:00	20:05	20:10	High	0.06
5-Mar	20:00	20:05	20:10	High	0.44
6-Mar	20:00	20:04	20:08	Medium	0.83
7-Mar	20:02	20:04	20:06	Low	1.22

Site 7

Wyoming, 45.59N, 107.35W, EL=36.70, AZ=193.12, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	20:01	20:04	20:07	Low	1.17
28-Feb	20:00	20:04	20:08	Medium	0.79
1-Mar	19:59	20:04	20:09	High	0.41
2-Mar	19:58	20:04	20:09	High	0.07
3-Mar	19:58	20:03	20:08	High	0.35
4-Mar	19:59	20:03	20:07	Medium	0.74
5-Mar	20:00	20:03	20:06	Low	1.13

Site 8

Canada, 54.38N, 106.27W, EL=27.22, AZ=192.88, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	20:01	20:04	20:07	Low	1.13
26-Feb	19:59	20:04	20:08	Medium	0.76
27-Feb	19:59	20:04	20:09	High	0.38
28-Feb	19:58	20:04	20:09	High	0.06
1-Mar	19:58	20:03	20:08	High	0.38
2-Mar	19:59	20:03	20:07	Medium	0.76
3-Mar	20:00	20:03	20:06	Low	1.14

Site 9

Carribean Sea, 15.30N, 70.50W, EL=34.65, AZ=255.85, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
10-Mar	20:23	20:24	20:26	Low	1.28
11-Mar	20:20	20:24	20:28	Low	0.88
12-Mar	20:19	20:24	20:29	High	0.49
13-Mar	20:18	20:24	20:29	High	0.11
14-Mar	20:18	20:23	20:28	High	0.3
15-Mar	20:18	20:23	20:27	Medium	0.69
16-Mar	20:20	20:23	20:26	Low	1.09

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Early Season Group

Greenwich Mean Time (GMT)

SATMEX 5, 116.80W

Standard antenna beamwidth at 12 GHz

Site 1

Houston, 29.77N, 95.37W, EL=48.11, AZ=218.33, TZ=-6, D=6.10m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	20:09	20:11	20:12	High	0.09
8-Mar	20:09	20:10	20:12	High	0.3

Site 2

West GOM, 27.33N, 95.04W, EL=50.03, AZ=221.00, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	20:08	20:11	20:13	Medium	0.45
8-Mar	20:08	20:11	20:14	High	0.06
9-Mar	20:08	20:10	20:13	High	0.34
10-Mar	20:09	20:10	20:11	Low	0.73

Site 3

Middle GOM, 27.01N, 89.50W, EL=46.36, AZ=228.66, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	20:12	20:14	20:17	Medium	0.53
8-Mar	20:11	20:14	20:17	High	0.13
9-Mar	20:11	20:14	20:17	High	0.26
10-Mar	20:12	20:14	20:15	Low	0.65

Site 4

East GOM, 26.11N, 84.33W, EL=42.90, AZ=235.33, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	20:15	20:17	20:18	Low	0.69
8-Mar	20:14	20:17	20:19	High	0.3
9-Mar	20:13	20:16	20:19	High	0.1
10-Mar	20:14	20:16	20:19	Medium	0.48

Site 5

Bay of Campeche, 20.08N, 94.20W, EL=55.17, AZ=230.48, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
9-Mar	20:12	20:12	20:13	Low	0.78
10-Mar	20:09	20:12	20:15	High	0.39
11-Mar	20:09	20:12	20:15	High	0
12-Mar	20:09	20:11	20:14	High	0.4
13-Mar	20:11	20:11	20:12	Low	0.79

Site 6

Denver, 39.47N, 105.06W, EL=42.72, AZ=198.10, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
2-Mar	20:04	20:05	20:07	Low	0.72
3-Mar	20:03	20:05	20:08	High	0.33
4-Mar	20:02	20:05	20:08	High	0.07
5-Mar	20:02	20:05	20:07	High	0.44

Site 7

Wyoming, 45.59N, 107.35W, EL=36.70, AZ=193.12, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
28-Feb	20:03	20:04	20:05	Low	0.79
1-Mar	20:01	20:04	20:06	High	0.41
2-Mar	20:01	20:04	20:07	High	0.06
3-Mar	20:01	20:03	20:06	High	0.35
4-Mar	20:02	20:03	20:04	Low	0.74

Site 8

Canada, 54.38N, 106.27W, EL=27.22, AZ=192.88, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
26-Feb	20:03	20:04	20:05	Low	0.76
27-Feb	20:01	20:04	20:06	High	0.38
28-Feb	20:00	20:04	20:07	High	0.05
1-Mar	20:01	20:03	20:06	High	0.38
2-Mar	20:02	20:03	20:04	Low	0.76

Site 9

Carribbean Sea, 15.30N, 70.50W, EL=34.65, AZ=255.85, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
12-Mar	20:21	20:24	20:26	Medium	0.49
13-Mar	20:20	20:23	20:26	High	0.11
14-Mar	20:20	20:23	20:26	High	0.3
15-Mar	20:21	20:23	20:24	Low	0.69

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	20:04	20:05	20:05	Low	1.92
26-Feb	20:00	20:05	20:09	Low	1.55
27-Feb	19:59	20:04	20:10	Medium	1.17
28-Feb	19:57	20:04	20:11	High	0.79
1-Mar	19:57	20:04	20:11	High	0.41
2-Mar	19:56	20:04	20:11	High	0.05
3-Mar	19:56	20:04	20:11	High	0.35
4-Mar	19:57	20:03	20:10	High	0.74
5-Mar	19:57	20:03	20:09	Medium	1.13
6-Mar	19:58	20:03	20:08	Low	1.51
7-Mar	20:02	20:03	20:04	Low	1.9

Site 8

Canada, 54.38N, 106.27W, EL=27.22, AZ=192.88, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
23-Feb	20:03	20:05	20:06	Low	1.87
24-Feb	20:00	20:05	20:09	Low	1.5
25-Feb	19:58	20:04	20:10	Medium	1.13
26-Feb	19:57	20:04	20:11	High	0.76
27-Feb	19:57	20:04	20:11	High	0.38
28-Feb	19:56	20:04	20:11	High	0.03
1-Mar	19:56	20:04	20:11	High	0.38
2-Mar	19:57	20:03	20:10	High	0.76
3-Mar	19:57	20:03	20:09	Medium	1.14
4-Mar	19:59	20:03	20:08	Low	1.53
5-Mar	20:02	20:03	20:04	Low	1.91

Site 9

Carribbean Sea, 15.30N, 70.50W, EL=34.65, AZ=255.85, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
9-Mar	20:21	20:24	20:28	Low	1.67
10-Mar	20:19	20:24	20:30	Low	1.28
11-Mar	20:17	20:24	20:30	Medium	0.88
12-Mar	20:16	20:24	20:31	High	0.49
13-Mar	20:16	20:23	20:31	High	0.1
14-Mar	20:16	20:23	20:30	High	0.3
15-Mar	20:16	20:23	20:30	High	0.69
16-Mar	20:16	20:22	20:29	Medium	1.09
17-Mar	20:17	20:22	20:27	Low	1.48
18-Mar	20:20	20:22	20:23	Low	1.88

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

SATMEX 6, 113.00W

Standard antenna beamwidth at 4 GHz

Site 1

Houston, 29.77N, 95.37W, EL=50.28, AZ=212.62, TZ=-6, D=4.50m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	19:51	19:54	19:57	Low	0.86
6-Mar	19:50	19:54	19:58	High	0.47
7-Mar	19:49	19:53	19:58	High	0.09
8-Mar	19:49	19:53	19:57	High	0.31
9-Mar	19:50	19:53	19:56	Medium	0.7
10-Mar	19:52	19:53	19:54	Low	1.09

Site 2

Houston, 29.77N, 95.37W, EL=50.28, AZ=212.62, TZ=-6, D=8.10m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	19:51	19:53	19:56	Medium	0.47
7-Mar	19:50	19:53	19:56	High	0.08
8-Mar	19:50	19:53	19:55	High	0.32
9-Mar	19:52	19:53	19:54	Low	0.7

Site 3

West GOM, 27.33N, 95.04W, EL=52.39, AZ=215.22, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	19:50	19:54	19:59	Low	1.6
5-Mar	19:48	19:54	20:00	Low	1.21
6-Mar	19:47	19:54	20:01	Medium	0.82
7-Mar	19:46	19:54	20:01	High	0.43
8-Mar	19:46	19:54	20:01	High	0.07
9-Mar	19:46	19:53	20:01	High	0.35
10-Mar	19:46	19:53	20:00	High	0.74
11-Mar	19:47	19:53	19:59	Medium	1.13
12-Mar	19:48	19:52	19:57	Low	1.53
13-Mar	19:52	19:52	19:53	Low	1.92

Site 4

Middle GOM, 27.01N, 89.50W, EL=49.11, AZ=223.75, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	19:54	19:58	20:02	Low	1.67
5-Mar	19:52	19:58	20:03	Low	1.28
6-Mar	19:51	19:57	20:04	Medium	0.9
7-Mar	19:50	19:57	20:04	High	0.51
8-Mar	19:49	19:57	20:04	High	0.13
9-Mar	19:49	19:57	20:04	High	0.27
10-Mar	19:49	19:56	20:03	High	0.67
11-Mar	19:50	19:56	20:02	Medium	1.06
12-Mar	19:51	19:56	20:01	Low	1.45
13-Mar	19:54	19:56	19:58	Low	1.85

Site 5

East GOM, 26.11N, 84.33W, EL=45.96, AZ=231.17, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	19:58	20:00	20:03	Low	1.83
5-Mar	19:55	20:00	20:05	Low	1.45
6-Mar	19:54	20:00	20:06	Medium	1.06
7-Mar	19:53	20:00	20:07	High	0.67
8-Mar	19:52	20:00	20:07	High	0.28
9-Mar	19:52	19:59	20:07	High	0.11
10-Mar	19:52	19:59	20:06	High	0.51
11-Mar	19:52	19:59	20:05	Medium	0.9
12-Mar	19:53	19:58	20:04	Low	1.29
13-Mar	19:55	19:58	20:02	Low	1.68

Site 6

Bay of Campeche, 20.08N, 94.20W, EL=58.19, AZ=224.76, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	19:51	19:55	19:59	Low	1.55
8-Mar	19:49	19:55	20:01	Medium	1.16
9-Mar	19:48	19:55	20:01	High	0.77
10-Mar	19:47	19:54	20:02	High	0.38
11-Mar	19:46	19:54	20:01	High	0.06
12-Mar	19:46	19:54	20:01	High	0.41
13-Mar	19:47	19:53	20:00	High	0.8
14-Mar	19:47	19:53	19:59	Low	1.19
15-Mar	19:49	19:53	19:57	Low	1.59

Site 7

Denver, 39.47N, 105.06W, EL=43.59, AZ=192.38, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	19:47	19:49	19:51	Low	1.85
28-Feb	19:44	19:48	19:53	Low	1.47
1-Mar	19:42	19:48	19:54	Medium	1.09
2-Mar	19:41	19:48	19:55	High	0.71
3-Mar	19:40	19:48	19:55	High	0.33
4-Mar	19:40	19:48	19:55	High	0.07
5-Mar	19:40	19:47	19:55	High	0.45
6-Mar	19:40	19:47	19:54	Medium	0.84
7-Mar	19:41	19:47	19:53	Low	1.22
8-Mar	19:43	19:47	19:51	Low	1.61

Site 8

Wyoming, 45.59N, 107.35W, EL=37.23, AZ=187.88, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	19:47	19:47	19:48	Low	1.92
26-Feb	19:43	19:47	19:52	Low	1.54
27-Feb	19:41	19:47	19:53	Medium	1.17
28-Feb	19:40	19:47	19:54	High	0.79
1-Mar	19:39	19:47	19:54	High	0.41
2-Mar	19:39	19:46	19:54	High	0.07
3-Mar	19:39	19:46	19:54	High	0.36
4-Mar	19:39	19:46	19:53	High	0.74
5-Mar	19:40	19:46	19:52	Medium	1.13
6-Mar	19:41	19:46	19:50	Low	1.52
7-Mar	19:44	19:45	19:46	Low	1.91

Site 9

Canada, 54.38N, 106.27W, EL=27.66, AZ=188.26, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
23-Feb	19:46	19:48	19:49	Low	1.87
24-Feb	19:43	19:48	19:52	Low	1.5
25-Feb	19:41	19:47	19:53	Medium	1.13
26-Feb	19:40	19:47	19:54	High	0.75
27-Feb	19:40	19:47	19:54	High	0.38
28-Feb	19:39	19:47	19:54	High	0.02
1-Mar	19:39	19:47	19:54	High	0.38
2-Mar	19:40	19:46	19:53	High	0.76
3-Mar	19:40	19:46	19:52	Medium	1.15
4-Mar	19:42	19:46	19:50	Low	1.53
5-Mar	19:45	19:46	19:46	Low	1.92

Site 10

Carribean Sea, 15.30N, 70.50W, EL=38.54, AZ=253.94, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
9-Mar	20:04	20:08	20:11	Low	1.65
10-Mar	20:02	20:07	20:13	Low	1.26
11-Mar	20:00	20:07	20:14	Medium	0.87
12-Mar	20:00	20:07	20:14	High	0.47
13-Mar	19:59	20:07	20:14	High	0.09
14-Mar	19:59	20:06	20:14	High	0.31
15-Mar	19:59	20:06	20:13	High	0.71
16-Mar	20:00	20:06	20:12	Medium	1.1
17-Mar	20:01	20:05	20:10	Low	1.5
18-Mar	20:04	20:05	20:06	Low	1.89

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

SATMEX 6, 113.00W

Standard antenna beamwidth at 12 GHz

Site 1

Houston, 29.77N, 95.37W, EL=50.28, AZ=212.62, TZ=-6, D=3.50m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	19:52	19:54	19:55	Medium	0.47
7-Mar	19:51	19:54	19:56	High	0.1
8-Mar	19:51	19:53	19:55	High	0.31

Site 2

Houston, 29.77N, 95.37W, EL=50.28, AZ=212.62, TZ=-6, D=6.10m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	19:53	19:54	19:54	Low	0.47
7-Mar	19:52	19:53	19:55	High	0.09
8-Mar	19:52	19:53	19:54	High	0.31

Site 3

Houston, 29.77N, 95.37W, EL=50.28, AZ=212.62, TZ=-6, D=4.57m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	19:53	19:54	19:55	Low	0.47
7-Mar	19:52	19:54	19:55	High	0.1
8-Mar	19:52	19:53	19:55	High	0.31

Site 4

West GOM, 27.33N, 95.04W, EL=52.39, AZ=215.22, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	19:52	19:54	19:57	Low	1.21
6-Mar	19:50	19:54	19:58	Medium	0.82
7-Mar	19:49	19:54	19:59	High	0.43
8-Mar	19:48	19:54	19:59	High	0.07
9-Mar	19:48	19:53	19:58	High	0.35
10-Mar	19:49	19:53	19:57	Medium	0.74
11-Mar	19:50	19:53	19:56	Low	1.13

Site 5

Middle GOM, 27.01N, 89.50W, EL=49.11, AZ=223.75, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	19:56	19:57	19:59	Low	1.28
6-Mar	19:53	19:57	20:01	Low	0.9
7-Mar	19:52	19:57	20:02	High	0.51
8-Mar	19:51	19:57	20:02	High	0.12
9-Mar	19:51	19:56	20:02	High	0.28
10-Mar	19:52	19:56	20:01	Medium	0.67
11-Mar	19:53	19:56	19:59	Low	1.06

Site 6

East GOM, 26.11N, 84.33W, EL=45.96, AZ=231.17, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	19:57	20:00	20:03	Low	1.06
7-Mar	19:55	20:00	20:05	Medium	0.67
8-Mar	19:55	20:00	20:05	High	0.28
9-Mar	19:54	19:59	20:05	High	0.12
10-Mar	19:54	19:59	20:04	High	0.5
11-Mar	19:55	19:59	20:03	Low	0.9
12-Mar	19:57	19:59	20:00	Low	1.29

Site 7

Bay of Campeche, 20.08N, 94.20W, EL=58.19, AZ=224.76, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
8-Mar	19:52	19:55	19:57	Low	1.16
9-Mar	19:50	19:54	19:59	Medium	0.77
10-Mar	19:49	19:54	19:59	High	0.38
11-Mar	19:49	19:54	19:59	High	0.05
12-Mar	19:49	19:54	19:59	High	0.41
13-Mar	19:49	19:53	19:58	Medium	0.8
14-Mar	19:51	19:53	19:56	Low	1.19

Site 8

Denver, 39.47N, 105.06W, EL=43.59, AZ=192.38, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
1-Mar	19:45	19:48	19:51	Low	1.09
2-Mar	19:44	19:48	19:52	Medium	0.71
3-Mar	19:43	19:48	19:53	High	0.32
4-Mar	19:42	19:48	19:53	High	0.07
5-Mar	19:42	19:47	19:52	High	0.45
6-Mar	19:43	19:47	19:51	Medium	0.84
7-Mar	19:45	19:47	19:49	Low	1.22

Site 9

Wyoming, 45.59N, 107.35W, EL=37.23, AZ=187.88, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	19:44	19:47	19:50	Low	1.17
28-Feb	19:43	19:47	19:51	Medium	0.79
1-Mar	19:42	19:47	19:52	High	0.41
2-Mar	19:41	19:46	19:52	High	0.07
3-Mar	19:41	19:46	19:51	High	0.36
4-Mar	19:42	19:46	19:50	Medium	0.74
5-Mar	19:43	19:46	19:49	Low	1.13

Site 10

Canada, 54.38N, 106.27W, EL=27.66, AZ=188.26, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	19:44	19:47	19:50	Low	1.13
26-Feb	19:43	19:47	19:52	Medium	0.75
27-Feb	19:42	19:47	19:52	High	0.38
28-Feb	19:42	19:47	19:52	High	0.02
1-Mar	19:42	19:47	19:52	High	0.38
2-Mar	19:42	19:46	19:51	Medium	0.76
3-Mar	19:43	19:46	19:49	Low	1.15

Site 11

Carribean Sea, 15.30N, 70.50W, EL=38.54, AZ=253.94, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
10-Mar	20:06	20:08	20:09	Low	1.26
11-Mar	20:03	20:07	20:11	Medium	0.87
12-Mar	20:02	20:07	20:12	High	0.48
13-Mar	20:01	20:07	20:12	High	0.08
14-Mar	20:01	20:06	20:12	High	0.32
15-Mar	20:02	20:06	20:11	Medium	0.71
16-Mar	20:03	20:06	20:09	Low	1.1

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

INTELSAT IA-6, 93.00W

Standard antenna beamwidth at 12 GHz

Site 1

Houston, 29.77N, 95.37W, EL=55.20, AZ=175.24, TZ=-6, D=13.10m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	18:20	18:22	18:23	High	0.09
8-Mar	18:21	18:21	18:22	Low	0.32

Site 2

West GOM, 27.33N, 95.04W, EL=58.01, AZ=175.56, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	18:20	18:22	18:25	Low	1.2
6-Mar	18:18	18:22	18:26	Medium	0.81
7-Mar	18:17	18:22	18:27	High	0.42
8-Mar	18:16	18:22	18:27	High	0.04
9-Mar	18:16	18:21	18:26	High	0.36
10-Mar	18:17	18:21	18:25	Medium	0.75
11-Mar	18:18	18:21	18:24	Low	1.15

Site 3

Middle GOM, 27.01N, 89.50W, EL=58.22, AZ=187.67, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	18:24	18:26	18:28	Low	1.24
6-Mar	18:22	18:26	18:30	Medium	0.86
7-Mar	18:20	18:25	18:30	High	0.47
8-Mar	18:20	18:25	18:30	High	0.09
9-Mar	18:20	18:25	18:30	High	0.31
10-Mar	18:20	18:25	18:29	Medium	0.71
11-Mar	18:21	18:24	18:27	Low	1.1

Site 4

East GOM, 26.11N, 84.33W, EL=57.99, AZ=199.11, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	18:25	18:28	18:32	Low	1
7-Mar	18:24	18:28	18:33	High	0.61
8-Mar	18:23	18:28	18:33	High	0.23
9-Mar	18:23	18:28	18:33	High	0.17
10-Mar	18:23	18:27	18:32	High	0.57
11-Mar	18:24	18:27	18:31	Low	0.96
12-Mar	18:26	18:27	18:28	Low	1.35

Site 5

Bay of Campeche, 20.08N, 94.20W, EL=66.42, AZ=176.51, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
8-Mar	18:19	18:22	18:25	Low	1.15
9-Mar	18:18	18:22	18:26	Medium	0.76
10-Mar	18:17	18:22	18:27	High	0.37
11-Mar	18:16	18:21	18:27	High	0.03
12-Mar	18:16	18:21	18:26	High	0.42
13-Mar	18:17	18:21	18:25	Medium	0.81
14-Mar	18:18	18:20	18:23	Low	1.2

Site 6

Denver, 39.47N, 105.06W, EL=42.64, AZ=161.42, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
1-Mar	18:15	18:18	18:21	Low	1.13
2-Mar	18:13	18:18	18:22	Medium	0.74
3-Mar	18:12	18:18	18:23	High	0.36
4-Mar	18:12	18:17	18:23	High	0.04
5-Mar	18:12	18:17	18:22	High	0.41
6-Mar	18:13	18:17	18:21	Medium	0.8
7-Mar	18:14	18:17	18:19	Low	1.19

Site 7

Wyoming, 45.59N, 107.35W, EL=35.63, AZ=160.30, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	18:16	18:18	18:20	Low	1.21
28-Feb	18:14	18:18	18:22	Medium	0.84
1-Mar	18:13	18:18	18:23	High	0.46
2-Mar	18:12	18:17	18:23	High	0.08
3-Mar	18:12	18:17	18:22	High	0.31
4-Mar	18:12	18:17	18:21	Medium	0.7
5-Mar	18:14	18:17	18:20	Low	1.08

Site 8

Canada, 54.38N, 106.27W, EL=26.79, AZ=163.82, TZ=-7, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	18:17	18:20	18:23	Low	1.17
26-Feb	18:16	18:20	18:24	Medium	0.79
27-Feb	18:15	18:20	18:25	High	0.42
28-Feb	18:14	18:19	18:25	High	0.06
1-Mar	18:14	18:19	18:24	High	0.34
2-Mar	18:15	18:19	18:23	Medium	0.72
3-Mar	18:16	18:19	18:22	Low	1.11

Site 9

Carribean Sea, 15.30N, 70.50W, EL=58.49, AZ=237.50, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
10-Mar	18:34	18:37	18:39	Low	1.19
11-Mar	18:32	18:37	18:41	Medium	0.8
12-Mar	18:31	18:36	18:41	High	0.41
13-Mar	18:31	18:36	18:41	High	0.05
14-Mar	18:31	18:36	18:41	High	0.38
15-Mar	18:31	18:35	18:40	Medium	0.78
16-Mar	18:33	18:35	18:38	Low	1.17

Site 10

E Canada, 47.50N, 45.50W, EL=18.97, AZ=235.96, TZ=-5, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	18:41	18:43	18:45	Low	1.26
28-Feb	18:39	18:43	18:47	Low	0.88
1-Mar	18:38	18:43	18:48	High	0.5
2-Mar	18:37	18:43	18:48	High	0.14
3-Mar	18:37	18:42	18:47	High	0.26
4-Mar	18:37	18:42	18:47	Medium	0.65
5-Mar	18:38	18:42	18:45	Low	1.03

Site 11

Oklahoma, 35.70N, 95.50W, EL=48.48, AZ=175.72, TZ=-6, D=1.20m

Date	Begin	Peak	End	Depth	Closest(deg)
2-Mar	18:20	18:23	18:25	Low	1.19
3-Mar	18:18	18:23	18:27	Medium	0.81
4-Mar	18:17	18:22	18:27	High	0.42
5-Mar	18:17	18:22	18:27	High	0.04
6-Mar	18:17	18:22	18:27	High	0.36
7-Mar	18:17	18:22	18:26	Medium	0.74
8-Mar	18:19	18:21	18:24	Low	1.13

SOLAR OUTAGE RISK 2009					
Early Season Group					
Greenwich Mean Time (GMT)					
INTELSAT 707, 53.00W					
Standard antenna beamwidth at 4 GHz					
Site 1					
Houston, 29.77N, 95.37W, EL=32.58, AZ=118.56, TZ=-6, D=7.60m					
Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	15:20	15:21	15:22	Low	0.71
7-Mar	15:18	15:20	15:23	High	0.33
8-Mar	15:17	15:20	15:23	High	0.07
9-Mar	15:18	15:20	15:22	Medium	0.46
Site 2					
West GOM, 27.33N, 95.04W, EL=34.10, AZ=116.98, TZ=-6, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	15:18	15:21	15:23	Low	1.83
5-Mar	15:15	15:20	15:25	Low	1.44
6-Mar	15:14	15:20	15:26	Medium	1.05
7-Mar	15:13	15:20	15:27	High	0.67
8-Mar	15:12	15:20	15:27	High	0.28
9-Mar	15:12	15:19	15:27	High	0.12
10-Mar	15:12	15:19	15:26	High	0.51
11-Mar	15:12	15:19	15:25	Medium	0.9
12-Mar	15:13	15:19	15:24	Low	1.29
13-Mar	15:15	15:18	15:22	Low	1.69
Site 3					
Middle GOM, 27.01N, 89.50W, EL=39.00, AZ=121.54, TZ=-6, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	15:21	15:23	15:25	Low	1.83
5-Mar	15:18	15:23	15:28	Low	1.44
6-Mar	15:16	15:23	15:29	Medium	1.05
7-Mar	15:15	15:22	15:29	High	0.67
8-Mar	15:15	15:22	15:30	High	0.28
9-Mar	15:15	15:22	15:29	High	0.13
10-Mar	15:15	15:22	15:29	High	0.51
11-Mar	15:15	15:21	15:28	Medium	0.9
12-Mar	15:16	15:21	15:27	Low	1.29
13-Mar	15:17	15:21	15:24	Low	1.69
Site 4					
East GOM, 26.11N, 84.33W, EL=43.83, AZ=125.87, TZ=-5, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	15:21	15:25	15:30	Low	1.54
6-Mar	15:19	15:25	15:31	Medium	1.15
7-Mar	15:18	15:25	15:32	High	0.76
8-Mar	15:17	15:24	15:32	High	0.37
9-Mar	15:17	15:24	15:32	High	0.03
10-Mar	15:17	15:24	15:31	High	0.41
11-Mar	15:17	15:24	15:30	Medium	0.81
12-Mar	15:18	15:23	15:29	Low	1.2
13-Mar	15:19	15:23	15:27	Low	1.59
Site 5					
Bay of Campeche, 20.08N, 94.20W, EL=38.14, AZ=111.41, TZ=-6, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	15:16	15:19	15:22	Low	1.75
8-Mar	15:14	15:19	15:24	Low	1.36
9-Mar	15:12	15:19	15:25	Medium	0.97
10-Mar	15:11	15:18	15:25	High	0.57
11-Mar	15:11	15:18	15:25	High	0.19
12-Mar	15:10	15:18	15:25	High	0.21
13-Mar	15:10	15:17	15:25	High	0.61
14-Mar	15:11	15:17	15:24	Medium	1
15-Mar	15:12	15:17	15:22	Low	1.4
16-Mar	15:14	15:17	15:19	Low	1.79
Site 6					
Denver, 39.47N, 105.06W, EL=20.21, AZ=116.36, TZ=-7, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
28-Feb	15:20	15:22	15:24	Low	1.86
1-Mar	15:17	15:22	15:27	Low	1.48
2-Mar	15:15	15:22	15:28	Medium	1.1
3-Mar	15:14	15:21	15:28	High	0.72
4-Mar	15:14	15:21	15:29	High	0.33
5-Mar	15:13	15:21	15:28	High	0.07
6-Mar	15:13	15:21	15:28	High	0.44
7-Mar	15:14	15:20	15:27	Medium	0.83
8-Mar	15:14	15:20	15:26	Low	1.22
9-Mar	15:16	15:20	15:24	Low	1.61
Site 7					
Wyoming, 45.59N, 107.35W, EL=15.75, AZ=117.13, TZ=-7, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	15:20	15:24	15:28	Low	1.58
28-Feb	15:18	15:24	15:30	Low	1.2
1-Mar	15:17	15:23	15:30	Medium	0.83
2-Mar	15:16	15:23	15:31	High	0.44
3-Mar	15:16	15:23	15:31	High	0.07
4-Mar	15:15	15:23	15:30	High	0.33
5-Mar	15:16	15:23	15:30	High	0.71
6-Mar	15:16	15:22	15:29	Medium	1.1
7-Mar	15:17	15:22	15:27	Low	1.49
8-Mar	15:20	15:22	15:24	Low	1.88
Site 8					
Canada, 54.38N, 106.27W, EL=11.94, AZ=121.24, TZ=-7, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
24-Feb	15:27	15:28	15:30	Low	1.87
25-Feb	15:24	15:28	15:33	Low	1.5
26-Feb	15:22	15:28	15:34	Medium	1.13
27-Feb	15:21	15:28	15:35	High	0.75
28-Feb	15:20	15:28	15:35	High	0.37
1-Mar	15:20	15:27	15:35	High	0.06
2-Mar	15:20	15:27	15:35	High	0.39
3-Mar	15:20	15:27	15:34	High	0.77
4-Mar	15:21	15:27	15:33	Medium	1.15
5-Mar	15:22	15:27	15:31	Low	1.54
6-Mar	15:26	15:26	15:27	Low	1.92
Site 9					
Carribean Sea, 15.30N, 70.50W, EL=62.98, AZ=129.93, TZ=-5, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
9-Mar	15:27	15:31	15:34	Low	1.62
10-Mar	15:25	15:30	15:36	Low	1.23
11-Mar	15:23	15:30	15:37	Medium	0.84
12-Mar	15:23	15:30	15:37	High	0.44
13-Mar	15:22	15:29	15:37	High	0.08
14-Mar	15:22	15:29	15:37	High	0.34
15-Mar	15:22	15:29	15:36	High	0.74
16-Mar	15:23	15:29	15:35	Medium	1.13
17-Mar	15:24	15:28	15:33	Low	1.53
18-Mar	15:28	15:28	15:28	Low	1.92
Site 10					
E Canada, 48.38N, 51.17W, EL=34.44, AZ=182.45, TZ=-5, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	15:43	15:46	15:49	Low	1.7
26-Feb	15:40	15:46	15:51	Low	1.33
27-Feb	15:39	15:46	15:52	Medium	0.95
28-Feb	15:38	15:45	15:53	High	0.58
1-Mar	15:38	15:45	15:53	High	0.19
2-Mar	15:38	15:45	15:53	High	0.19
3-Mar	15:38	15:45	15:52	High	0.57
4-Mar	15:38	15:45	15:51	Medium	0.96
5-Mar	15:39	15:44	15:50	Low	1.34
6-Mar	15:41	15:44	15:47	Low	1.73
Site 11					
Southern Africa, 30.50S, 10.40E, EL=14.32, AZ=284.26, TZ=2, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
31-Mar	15:57	16:00	16:00	Medium	1.18
1-Apr	15:57	16:00	16:00	Medium	1.09
2-Apr	15:57	16:00	16:00	Medium	1.13
3-Apr	15:57	16:00	16:00	Low	1.3
4-Apr	15:58	16:00	16:00	Low	1.55
5-Apr	15:59	16:00	16:00	Low	1.84
Site 12					
Offshore Brazil, 20.50S, 39.70W, EL=61.60, AZ=325.98, TZ=-3, D=2.40m					
Date	Begin	Peak	End	Depth	Closest(deg)
24-Mar	15:45	15:47	15:48	Low	1.87
25-Mar	15:42	15:47	15:51	Low	1.48
26-Mar	15:40	15:46	15:52	Medium	1.09
27-Mar	15:39	15:46	15:53	High	0.7
28-Mar	15:38	15:46	15:53	High	0.31
29-Mar	15:38	15:45	15:53	High	0.09
30-Mar	15:38	15:45	15:52	High	0.48
31-Mar	15:38	15:45	15:51	Medium	0.86
1-Apr	15:39	15:44	15:50	Low	1.25
2-Apr	15:40	15:44	15:48	Low	1.63

SOLAR OUTAGE RISK 2009						
Early Season Group						
Greenwich Mean Time (GMT)						
INTELSAT 903, 34.50W						
Standard antenna beamwidth at 4 GHz						
Site 1						
Houston, 29.77N, 95.37W, EL=16.71, AZ=105.47, TZ=-6, D=9.00m						
Date	Begin	Peak	End	Depth	Closest(deg)	
7-Mar	13:59	14:01	14:03	Low	0.53	
8-Mar	13:58	14:01	14:03	High	0.13	
9-Mar	13:58	14:00	14:03	High	0.26	
10-Mar	13:59	14:00	14:01	Low	0.65	
Site 2						
Houston, 29.77N, 95.37W, EL=16.71, AZ=105.47, TZ=-6, D=7.60m						
Date	Begin	Peak	End	Depth	Closest(deg)	
7-Mar	13:59	14:01	14:03	Medium	0.53	
8-Mar	13:58	14:01	14:04	High	0.13	
9-Mar	13:58	14:00	14:03	High	0.26	
10-Mar	13:59	14:00	14:02	Low	0.65	
Site 3						
Xikomba, 6.00S, 11.00E, EL=37.29, AZ=275.86, TZ=1, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
18-Mar	14:50	14:53	14:56	Low	1.75	
19-Mar	14:48	14:53	14:58	Low	1.35	
20-Mar	14:46	14:53	14:59	Medium	0.95	
21-Mar	14:45	14:52	15:00	High	0.56	
22-Mar	14:45	14:52	15:00	High	0.17	
23-Mar	14:44	14:52	14:59	High	0.23	
24-Mar	14:45	14:52	14:59	High	0.62	
25-Mar	14:45	14:51	14:58	Medium	1.02	
26-Mar	14:46	14:51	14:56	Low	1.41	
27-Mar	14:48	14:51	14:53	Low	1.8	
Site 4						
Kwanda Base, 6.10S, 13.10E, EL=35.00, AZ=275.54, TZ=1, D=3.80m						
Date	Begin	Peak	End	Depth	Closest(deg)	
20-Mar	14:50	14:54	14:57	Low	0.97	
21-Mar	14:49	14:53	14:58	High	0.57	
22-Mar	14:48	14:53	14:58	High	0.18	
23-Mar	14:48	14:53	14:58	High	0.22	
24-Mar	14:48	14:52	14:57	Medium	0.61	
25-Mar	14:49	14:52	14:55	Low	1.01	
Site 5						
Kizomba B, 6.00S, 11.00E, EL=37.29, AZ=275.86, TZ=1, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
18-Mar	14:50	14:53	14:56	Low	1.75	
19-Mar	14:48	14:53	14:58	Low	1.35	
20-Mar	14:46	14:53	14:59	Medium	0.95	
21-Mar	14:45	14:52	15:00	High	0.56	
22-Mar	14:45	14:52	15:00	High	0.17	
23-Mar	14:44	14:52	14:59	High	0.23	
24-Mar	14:45	14:52	14:59	High	0.62	
25-Mar	14:45	14:51	14:58	Medium	1.02	
26-Mar	14:46	14:51	14:56	Low	1.41	
27-Mar	14:48	14:51	14:53	Low	1.8	
Site 6						
Kizomba C Mondo, 6.00S, 11.00E, EL=37.29, AZ=275.86, TZ=1, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
18-Mar	14:50	14:53	14:56	Low	1.75	
19-Mar	14:48	14:53	14:58	Low	1.35	
20-Mar	14:46	14:53	14:59	Medium	0.95	
21-Mar	14:45	14:52	15:00	High	0.56	
22-Mar	14:45	14:52	15:00	High	0.17	
23-Mar	14:44	14:52	14:59	High	0.23	
24-Mar	14:45	14:52	14:59	High	0.62	
25-Mar	14:45	14:51	14:58	Medium	1.02	
26-Mar	14:46	14:51	14:56	Low	1.41	
27-Mar	14:48	14:51	14:53	Low	1.8	
Site 7						
Kizomba C Saxi, 6.00S, 11.00E, EL=37.29, AZ=275.86, TZ=1, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
18-Mar	14:50	14:53	14:56	Low	1.75	
19-Mar	14:48	14:53	14:58	Low	1.35	
20-Mar	14:46	14:53	14:59	Medium	0.95	
21-Mar	14:45	14:52	15:00	High	0.56	
22-Mar	14:45	14:52	15:00	High	0.17	
23-Mar	14:44	14:52	14:59	High	0.23	
24-Mar	14:45	14:52	14:59	High	0.62	
25-Mar	14:45	14:51	14:58	Medium	1.02	
26-Mar	14:46	14:51	14:56	Low	1.41	
27-Mar	14:48	14:51	14:53	Low	1.8	
Site 8						
IDC-903, 8.90S, 13.20E, EL=34.53, AZ=278.01, TZ=1, D=3.70m						
Date	Begin	Peak	End	Depth	Closest(deg)	
21-Mar	14:50	14:53	14:56	Low	1.03	
22-Mar	14:48	14:53	14:57	Medium	0.64	
23-Mar	14:47	14:52	14:58	High	0.25	
24-Mar	14:47	14:52	14:57	High	0.15	
25-Mar	14:47	14:52	14:57	High	0.54	
26-Mar	14:48	14:52	14:55	Low	0.93	
27-Mar	14:51	14:51	14:52	Low	1.33	
Site 9						
Lobito, 12.40S, 13.50E, EL=33.58, AZ=280.94, TZ=1, D=3.70m						
Date	Begin	Peak	End	Depth	Closest(deg)	
22-Mar	14:50	14:53	14:55	Low	1.21	
23-Mar	14:48	14:52	14:56	Medium	0.82	
24-Mar	14:47	14:52	14:57	High	0.43	
25-Mar	14:47	14:52	14:57	High	0.04	
26-Mar	14:46	14:51	14:56	High	0.36	
27-Mar	14:47	14:51	14:55	Medium	0.76	
28-Mar	14:48	14:51	14:53	Low	1.15	
Site 10						
Satellite below horizon						
Site 11						
South Africa, 34.00S, 18.50E, EL=21.89, AZ=292.85, TZ=2, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
29-Mar	14:43	14:47	14:51	Low	1.62	
30-Mar	14:41	14:47	14:53	Low	1.23	
31-Mar	14:40	14:47	14:53	Medium	0.84	
1-Apr	14:39	14:46	14:54	High	0.46	
2-Apr	14:39	14:46	14:54	High	0.08	
3-Apr	14:38	14:46	14:53	High	0.31	
4-Apr	14:39	14:45	14:52	High	0.69	
5-Apr	14:39	14:45	14:51	Medium	1.07	
6-Apr	14:40	14:45	14:50	Low	1.45	
7-Apr	14:42	14:45	14:47	Low	1.82	
Site 12						
West GOM, 27.33N, 95.04W, EL=17.66, AZ=104.54, TZ=-6, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
5-Mar	13:57	14:01	14:05	Low	1.63	
6-Mar	13:55	14:01	14:06	Low	1.24	
7-Mar	13:54	14:01	14:07	Medium	0.86	
8-Mar	13:53	14:00	14:08	High	0.47	
9-Mar	13:53	14:00	14:08	High	0.09	
10-Mar	13:52	14:00	14:07	High	0.32	
11-Mar	13:53	14:00	14:07	High	0.71	
12-Mar	13:53	13:59	14:05	Medium	1.1	
13-Mar	13:54	13:59	14:04	Low	1.49	
14-Mar	13:57	13:59	14:00	Low	1.89	
Site 13						
Middle GOM, 27.01N, 89.50W, EL=22.74, AZ=107.64, TZ=-6, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
5-Mar	13:58	14:02	14:06	Low	1.62	
6-Mar	13:56	14:02	14:08	Low	1.24	
7-Mar	13:55	14:02	14:09	Medium	0.85	
8-Mar	13:54	14:02	14:09	High	0.46	
9-Mar	13:54	14:01	14:09	High	0.07	
10-Mar	13:54	14:01	14:08	High	0.33	
11-Mar	13:54	14:01	14:08	High	0.72	
12-Mar	13:54	14:01	14:07	Medium	1.11	
13-Mar	13:56	14:00	14:05	Low	1.5	
14-Mar	13:59	14:00	14:01	Low	1.9	
Site 14						
East GOM, 26.11N, 84.33W, EL=27.72, AZ=110.38, TZ=-5, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
5-Mar	14:00	14:04	14:07	Low	1.71	
6-Mar	13:58	14:03	14:09	Low	1.32	
7-Mar	13:57	14:03	14:10	Medium	0.93	
8-Mar	13:56	14:03	14:10	High	0.54	
9-Mar	13:55	14:03	14:10	High	0.15	
10-Mar	13:55	14:02	14:10	High	0.24	
11-Mar	13:55	14:02	14:09	High	0.64	
12-Mar	13:56	14:02	14:08	Medium	1.03	
13-Mar	13:57	14:02	14:06	Low	1.42	
14-Mar	13:59	14:01	14:04	Low	1.82	
Site 15						
Bay of Campeche, 20.08N, 94.20W, EL=20.15, AZ=101.34, TZ=-6, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
7-Mar	13:58	13:59	14:00	Low	1.9	
8-Mar	13:54	13:59	14:03	Low	1.51	
9-Mar	13:52	13:59	14:05	Medium	1.12	
10-Mar	13:51	13:58	14:05	High	0.73	
11-Mar	13:51	13:58	14:05	High	0.34	
12-Mar	13:50	13:58	14:05	High	0.05	
13-Mar	13:50	13:57	14:05	High	0.45	
14-Mar	13:50	13:57	14:04	Medium	0.84	
15-Mar	13:51	13:57	14:03	Low	1.24	
16-Mar	13:53	13:57	14:00	Low	1.63	
Site 16						
Denver, 39.47N, 105.06W, EL=6.39, AZ=102.65, TZ=-7, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
1-Mar	14:01	14:04	14:08	Low	1.71	
2-Mar	13:59	14:04	14:09	Low	1.33	
3-Mar	13:57	14:04	14:10	Medium	0.95	
4-Mar	13:56	14:04	14:11	High	0.57	
5-Mar	13:56	14:03	14:11	High	0.19	
6-Mar	13:56	14:03	14:11	High	0.2	
7-Mar	13:56	14:03	14:10	High	0.58	
8-Mar	13:56	14:03	14:09	Medium	0.97	
9-Mar	13:57	14:03	14:08	Low	1.36	
10-Mar	13:59	14:02	14:05	Low	1.75	
Site 17						
Wyoming, 45.59N, 107.35W, EL=3.47, AZ=102.43, TZ=-7, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
27-Feb	14:03	14:06	14:09	Low	1.78	
28-Feb	14:01	14:06	14:11	Low	1.42	
1-Mar	14:00	14:06	14:13	Medium	1.05	
2-Mar	13:59	14:06	14:13	High	0.69	
3-Mar	13:58	14:06	14:13	High	0.32	
4-Mar	13:58	14:06	14:13	High	0.06	
5-Mar	13:58	14:06	14:13	High	0.44	
6-Mar	13:59	14:05	14:12	Medium	0.82	
7-Mar	13:59	14:05	14:11	Low	1.2	
8-Mar	14:01	14:05	14:09	Low	1.58	
Site 18						
Canada, 54.38N, 106.27W, EL=2.15, AZ=104.99, TZ=-7, D=2.40m						
Date	Begin	Peak	End	Depth	Closest(deg)	
24-Feb	14:09	14:10	14:11	Low	1.91	
25-Feb	14:06	14:10	14:15	Low	1.6	
26-Feb	14:04	14:11	14:16	Low	1.27	
27-Feb	14:04	14:11	14:17	Medium	0.93	
28-Feb	14:03	14:11	14:18	High	0.58	
1-Mar	14:03	14:11	14:18	High	0.	

SOLAR OUTAGE RISK 2009

Early Season Group

Greenwich Mean Time (GMT)

PANAMSAT 1R, 45.00W

Standard antenna beamwidth at 4 GHz

Site 1

Houston, 29.77N, 95.37W, EL=25.81, AZ=112.35, TZ=-6, D=4.50m

Date	Begin	Peak	End	Depth	Closest(deg)
6-Mar	14:43	14:46	14:49	Low	0.79
7-Mar	14:41	14:46	14:50	High	0.41
8-Mar	14:41	14:45	14:50	High	0.02
9-Mar	14:41	14:45	14:49	High	0.38
10-Mar	14:42	14:45	14:48	Low	0.77

Site 2

Houston, 29.77N, 95.37W, EL=25.81, AZ=112.35, TZ=-6, D=3.80m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	14:44	14:46	14:48	Low	1.18
6-Mar	14:42	14:46	14:50	Medium	0.79
7-Mar	14:41	14:46	14:50	High	0.41
8-Mar	14:40	14:45	14:50	High	0.03
9-Mar	14:40	14:45	14:50	High	0.38
10-Mar	14:41	14:45	14:49	Medium	0.77
11-Mar	14:42	14:45	14:47	Low	1.16

Site 3

Offshore Brazil, 20.40S, 40.10W, EL=65.44, AZ=346.18, TZ=-3, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
24-Mar	15:08	15:09	15:11	Low	1.88
25-Mar	15:04	15:09	15:14	Low	1.49
26-Mar	15:03	15:09	15:15	Medium	1.1
27-Mar	15:01	15:08	15:15	High	0.71
28-Mar	15:01	15:08	15:15	High	0.32
29-Mar	15:00	15:08	15:15	High	0.08
30-Mar	15:00	15:07	15:15	High	0.47
31-Mar	15:01	15:07	15:14	Medium	0.85
1-Apr	15:01	15:07	15:13	Low	1.24
2-Apr	15:03	15:07	15:11	Low	1.62

Site 4

West GOM, 27.33N, 95.04W, EL=27.07, AZ=111.04, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	14:41	14:46	14:50	Low	1.52
6-Mar	14:40	14:46	14:52	Medium	1.13
7-Mar	14:38	14:45	14:52	High	0.74
8-Mar	14:38	14:45	14:52	High	0.36
9-Mar	14:37	14:45	14:52	High	0.05
10-Mar	14:37	14:45	14:52	High	0.43
11-Mar	14:38	14:44	14:51	Medium	0.82
12-Mar	14:38	14:44	14:50	Low	1.21
13-Mar	14:40	14:44	14:48	Low	1.61

Site 5

Middle GOM, 27.01N, 89.50W, EL=32.11, AZ=114.80, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
4-Mar	14:47	14:48	14:49	Low	1.9
5-Mar	14:43	14:48	14:52	Low	1.52
6-Mar	14:41	14:47	14:53	Medium	1.13
7-Mar	14:40	14:47	14:54	High	0.74
8-Mar	14:39	14:47	14:54	High	0.35
9-Mar	14:39	14:47	14:54	High	0.07
10-Mar	14:39	14:46	14:54	High	0.43
11-Mar	14:39	14:46	14:53	Medium	0.83
12-Mar	14:40	14:46	14:51	Low	1.22
13-Mar	14:41	14:45	14:49	Low	1.61

Site 6

East GOM, 26.11N, 84.33W, EL=37.07, AZ=118.24, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
5-Mar	14:45	14:49	14:53	Low	1.6
6-Mar	14:43	14:49	14:55	Low	1.22
7-Mar	14:42	14:49	14:56	Medium	0.83
8-Mar	14:41	14:49	14:56	High	0.44
9-Mar	14:41	14:48	14:56	High	0.05
10-Mar	14:41	14:48	14:55	High	0.35
11-Mar	14:41	14:48	14:55	High	0.74
12-Mar	14:42	14:48	14:54	Medium	1.13
13-Mar	14:43	14:47	14:52	Low	1.52
14-Mar	14:46	14:47	14:48	Low	1.92

Site 7

Bay of Campeche, 20.08N, 94.20W, EL=30.38, AZ=106.51, TZ=-6, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
7-Mar	14:42	14:44	14:46	Low	1.81
8-Mar	14:39	14:44	14:49	Low	1.42
9-Mar	14:37	14:44	14:50	Medium	1.03
10-Mar	14:36	14:43	14:50	High	0.64
11-Mar	14:36	14:43	14:50	High	0.25
12-Mar	14:35	14:43	14:50	High	0.15
13-Mar	14:35	14:43	14:50	High	0.54
14-Mar	14:36	14:42	14:49	Medium	0.93
15-Mar	14:37	14:42	14:47	Low	1.33
16-Mar	14:38	14:42	14:45	Low	1.72

Site 8

Denver, 39.47N, 105.06W, EL=14.29, AZ=110.11, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
1-Mar	14:44	14:48	14:52	Low	1.58
2-Mar	14:42	14:48	14:53	Low	1.2
3-Mar	14:41	14:47	14:54	Medium	0.82
4-Mar	14:40	14:47	14:54	High	0.43
5-Mar	14:39	14:47	14:54	High	0.07
6-Mar	14:39	14:47	14:54	High	0.34
7-Mar	14:40	14:46	14:53	High	0.73
8-Mar	14:40	14:46	14:52	Medium	1.12
9-Mar	14:41	14:46	14:51	Low	1.51
10-Mar	14:45	14:46	14:47	Low	1.9

Site 9

Wyoming, 45.59N, 107.35W, EL=10.48, AZ=110.52, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
27-Feb	14:46	14:50	14:54	Low	1.68
28-Feb	14:44	14:50	14:55	Low	1.3
1-Mar	14:43	14:50	14:56	Medium	0.93
2-Mar	14:42	14:49	14:57	High	0.55
3-Mar	14:42	14:49	14:57	High	0.16
4-Mar	14:42	14:49	14:56	High	0.23
5-Mar	14:42	14:49	14:56	High	0.6
6-Mar	14:42	14:49	14:55	Medium	0.99
7-Mar	14:43	14:48	14:54	Low	1.38
8-Mar	14:45	14:48	14:51	Low	1.77

Site 10

Canada, 54.38N, 106.27W, EL=7.75, AZ=114.02, TZ=-7, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
25-Feb	14:50	14:55	14:59	Low	1.59
26-Feb	14:49	14:54	15:00	Low	1.22
27-Feb	14:48	14:54	15:01	Medium	0.84
28-Feb	14:47	14:54	15:01	High	0.47
1-Mar	14:46	14:54	15:02	High	0.11
2-Mar	14:46	14:54	15:01	High	0.28
3-Mar	14:47	14:54	15:01	High	0.67
4-Mar	14:47	14:53	15:00	Medium	1.05
5-Mar	14:48	14:53	14:58	Low	1.43
6-Mar	14:51	14:53	14:55	Low	1.82

Site 11

Carribean Sea, 15.30N, 70.50W, EL=55.64, AZ=118.95, TZ=-5, D=2.40m

Date	Begin	Peak	End	Depth	Closest(deg)
9-Mar	14:50	14:54	14:58	Low	1.66
10-Mar	14:48	14:54	14:59	Low	1.27
11-Mar	14:47	14:54	15:00	Medium	0.88
12-Mar	14:46	14:53	15:00	High	0.48
13-Mar	14:46	14:53	15:00	High	0.1
14-Mar	14:45	14:53	15:00	High	0.31
15-Mar	14:45	14:52	14:59	High	0.7
16-Mar	14:46	14:52	14:58	Medium	1.1
17-Mar	14:47	14:52	14:56	Low	1.49
18-Mar	14:50	14:52	14:53	Low	1.89