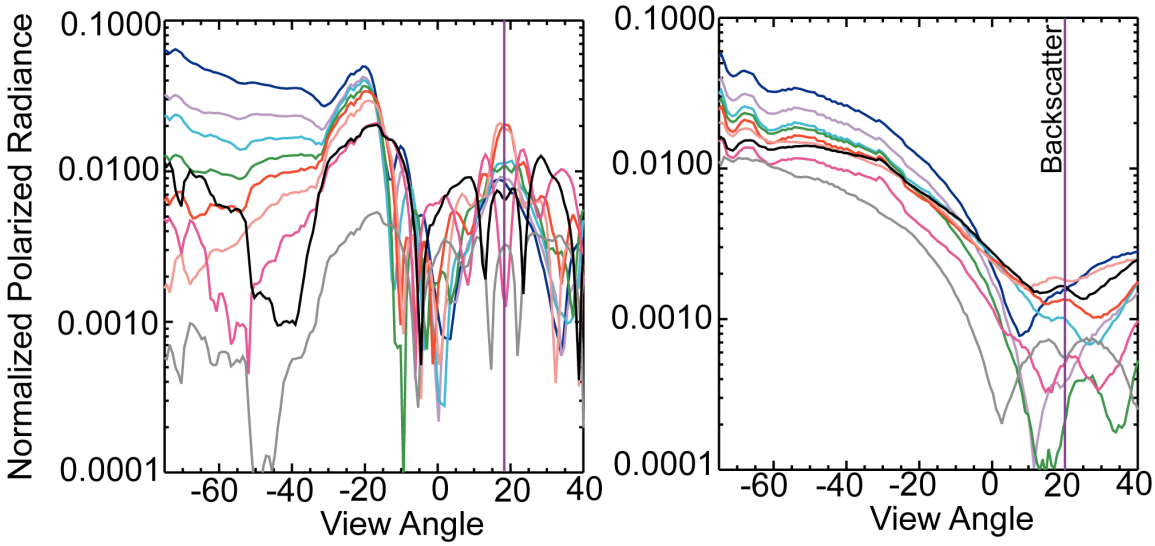
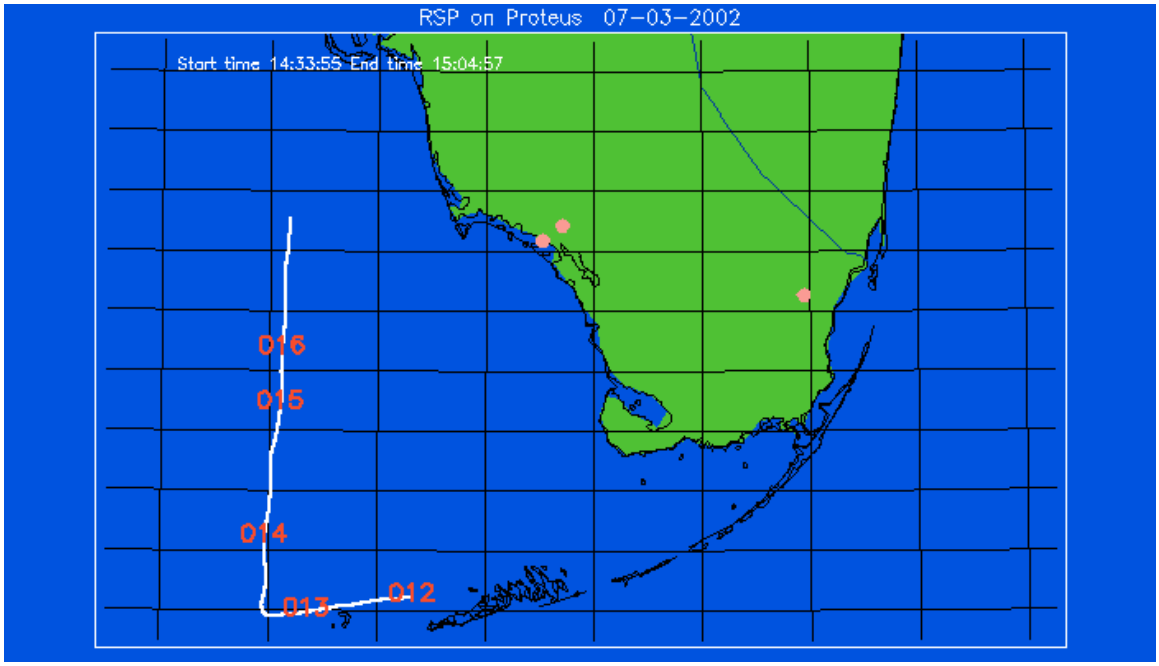
RSP Quick Look Data

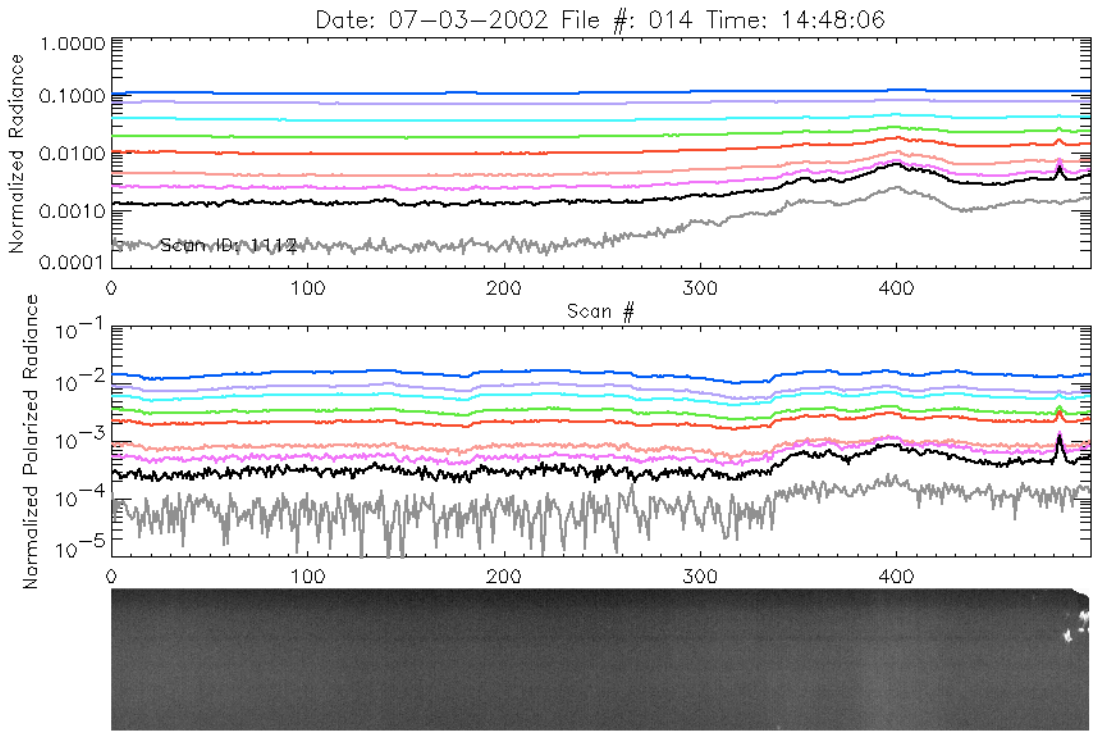
In the following figures the flight tracks of the Proteus aircraft are shown with the location at which an RSP file (###) started overlaid on the flight track. These figures of the flight tracks are followed by plots of the nadir radiance and polarized radiance observed by the RSP at 410, 470, 555, 670, 865, 960, 1590, 1880 and 2250 (blue, mauve, turquoise, green, red, orange, fuschia, grey and black respectively) from the given files. The normalized radiance is shown in the top panel and the normalized polarized radiance is shown in the middle panel. The image at the bottom of each RSP data file figure is constructed from overlapping strip images which are sequentially cross correlated with one another. This is used as a check on aircraft attitude and v/h among inhomogeneous clouds. The real and imaginary values of refractive index for water and ice for the SWIR bands are:

	NRIce	NIIce	NRWat	NIWat
1.58886	1.2895	0.000318	1.3182	0.000104
1.88447	1.2788	0.000317	1.3101	0.000880
2.26438	1.2562	0.000254	1.2875	0.000419

This means that typically for ice clouds the 1590 reflectance is lower than the 2250 nm reflectance. The RSP instrument scans along track and so for each nadir pixel shown in these figures there are also measurements over a view angle range of +50° to -70° (positive is in the direction of aircraft motion) every 0.8°. These measurements can be used to distinguish water (left panel) and ice (right panel) clouds and are sensitive to the size and shape of ice crystals, in this case because of the angular and spectral structure in the vicinity of backscatter.




RSP on Proteus 07-03-2002
Start time 14:33:55 End time 15:04:57
016
015
014
013
012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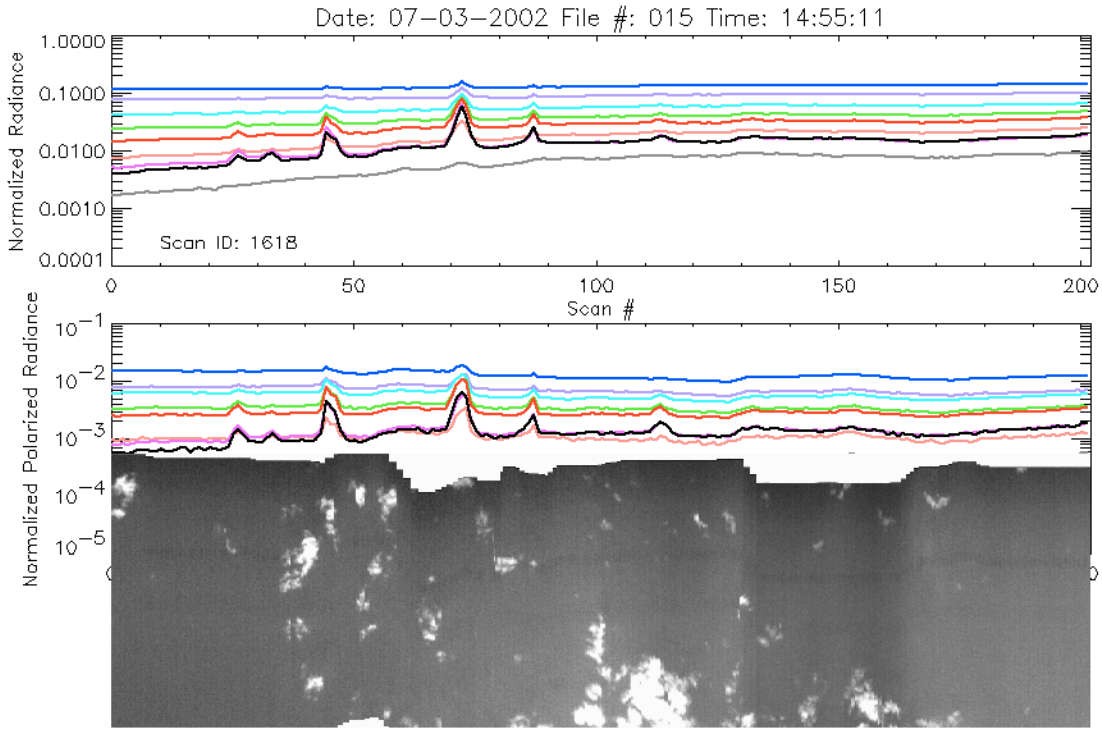
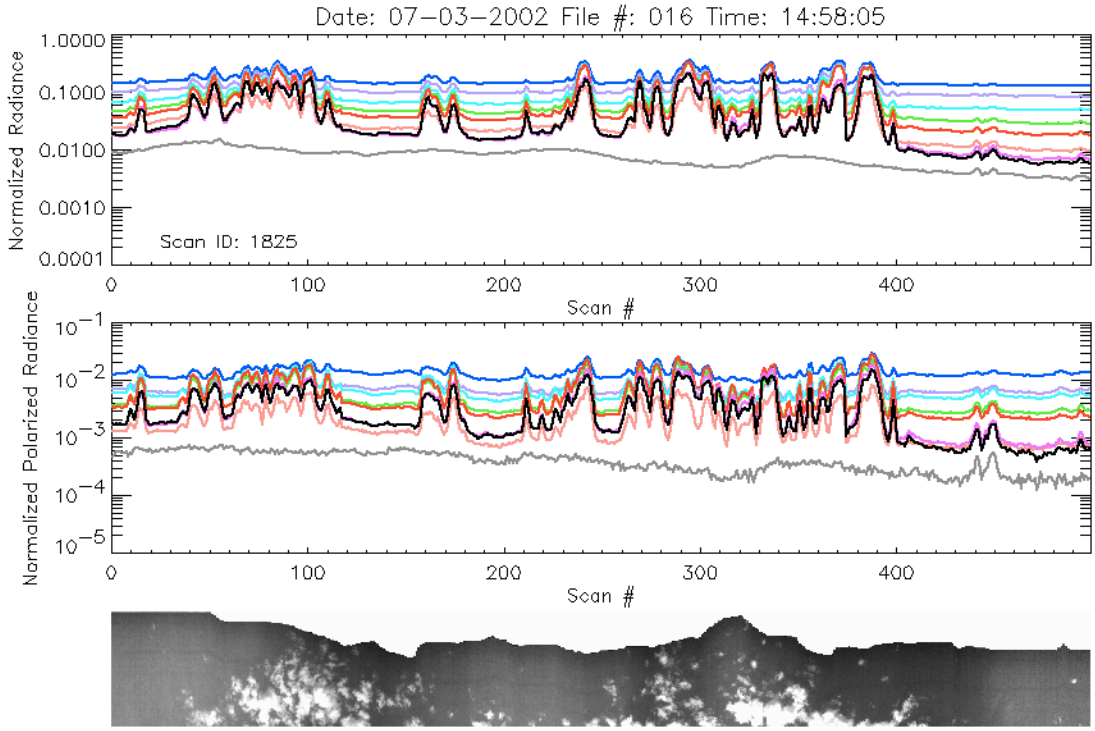
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1112
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}


Date: 07-03-2002 File #: 015 Time: 14:55:11
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1618
0
50
100
150
200
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}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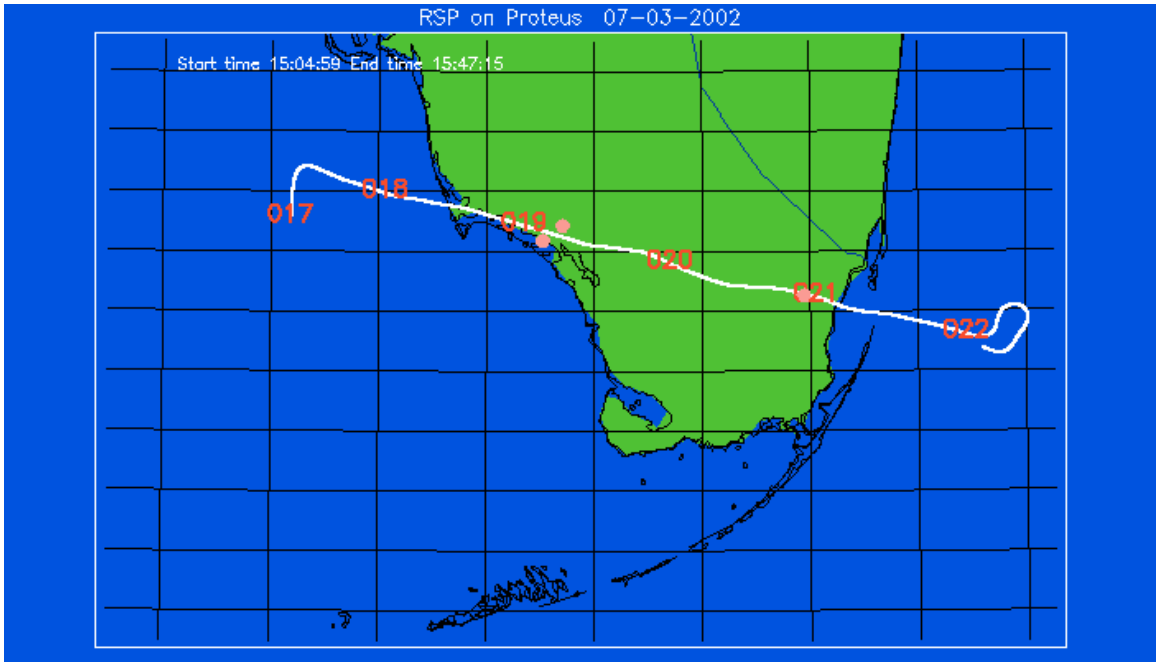
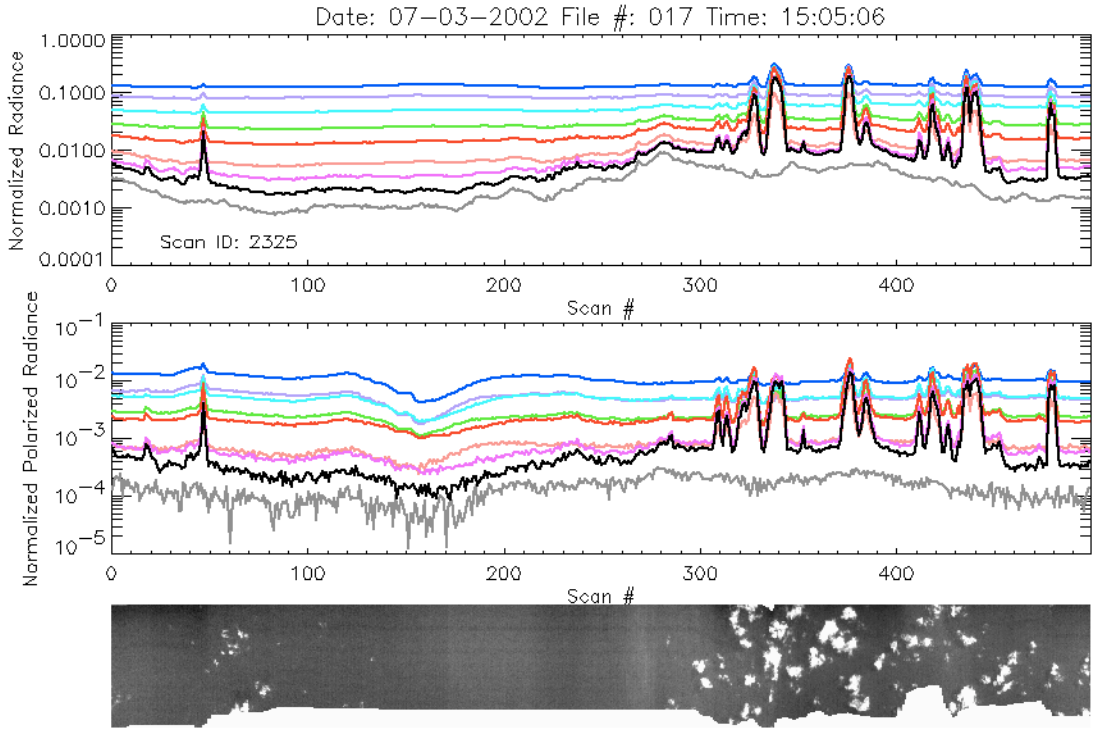
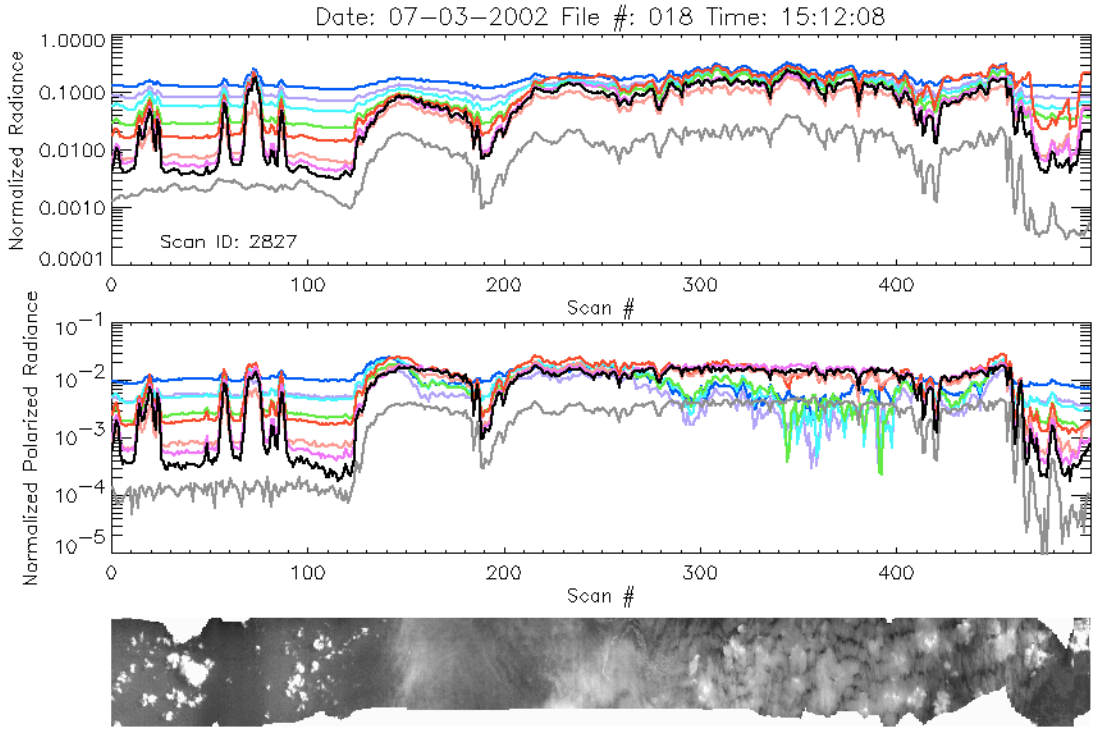
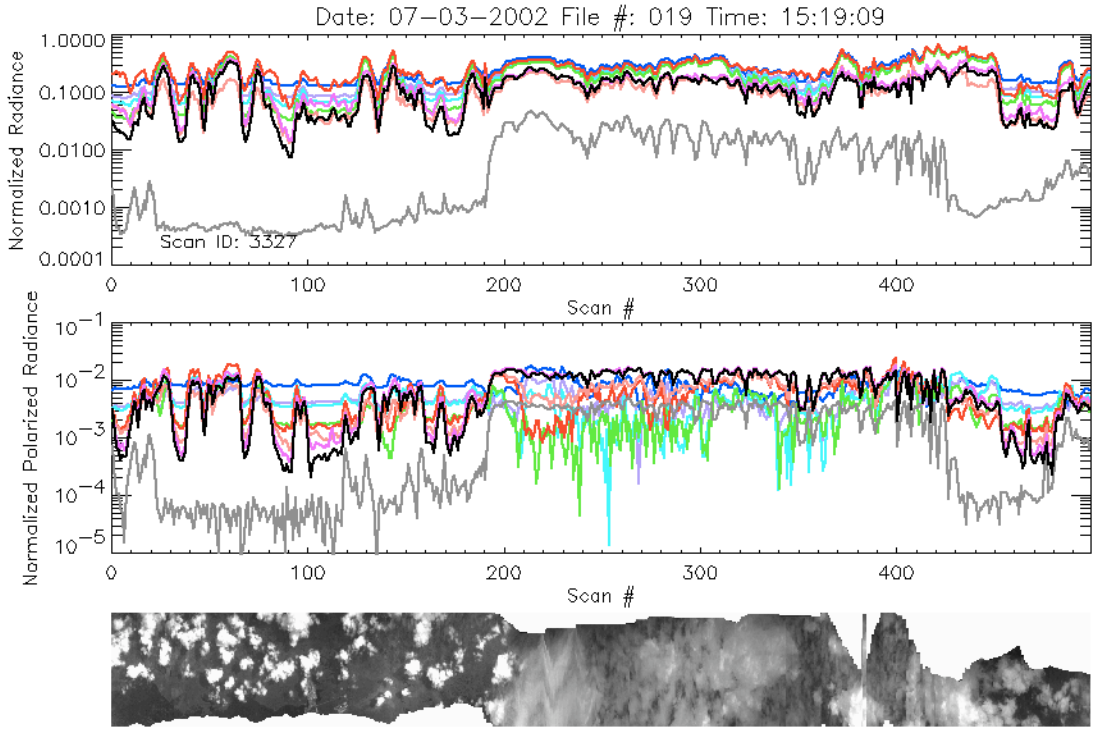
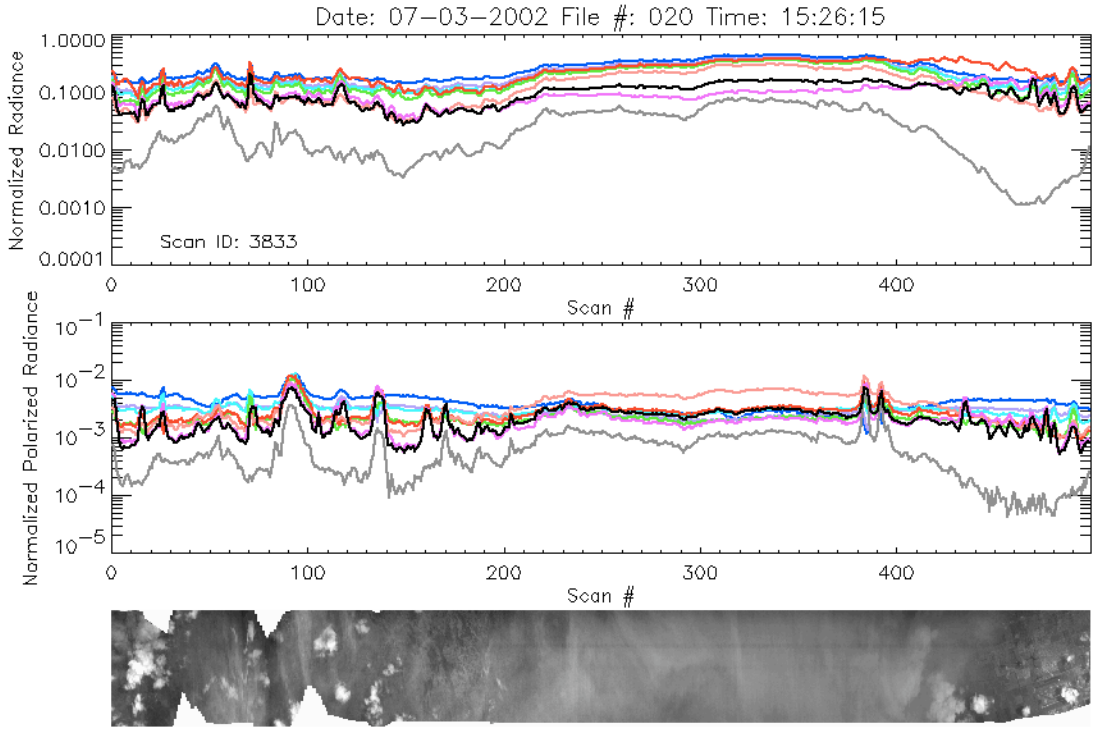
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1825
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

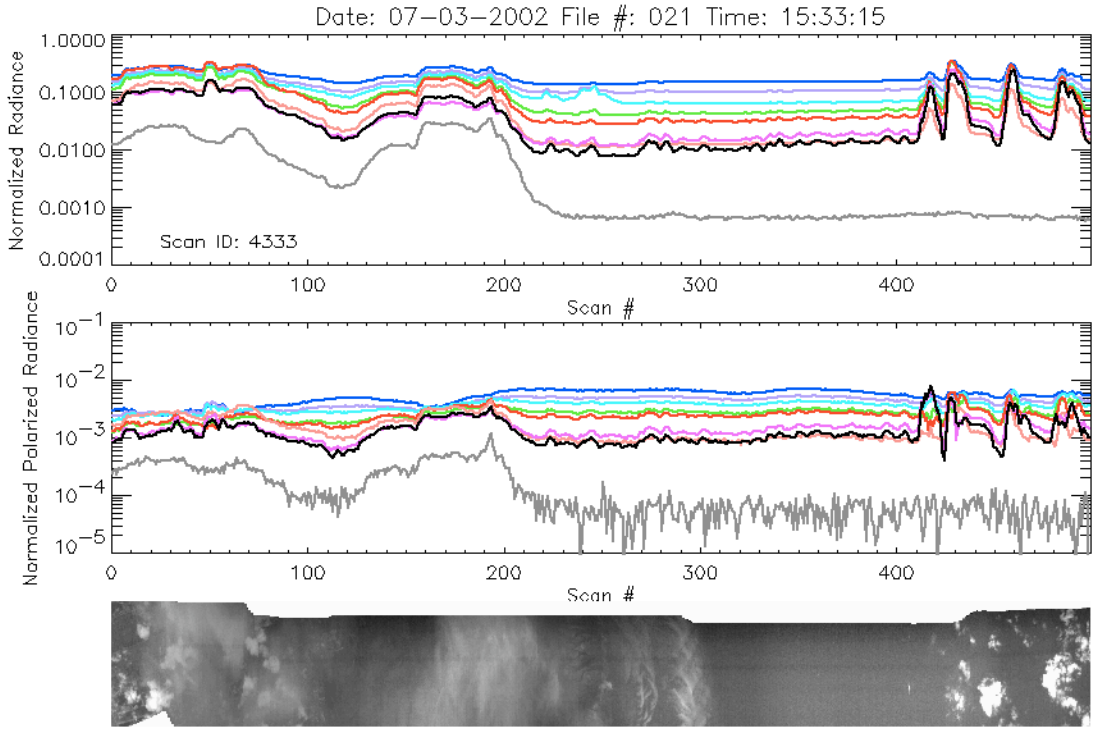

RSP on Proteus 07-03-2002
Start time 15:04:59 End time 15:47:15
017
018
019
020
021
022

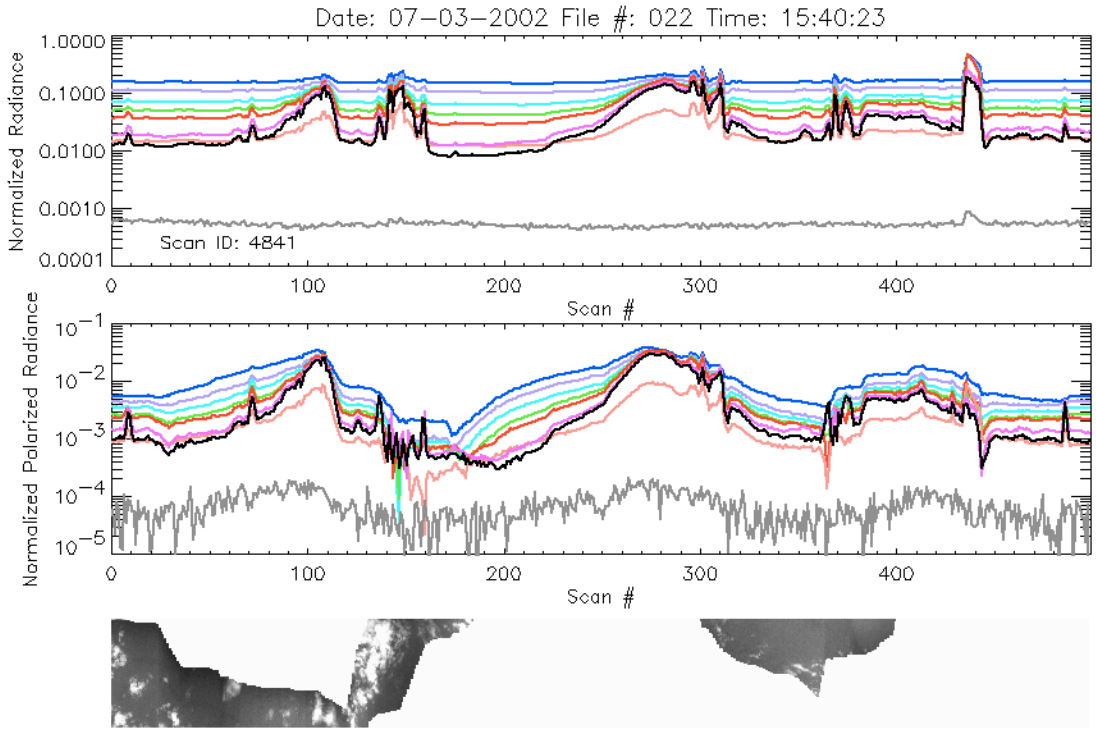

Date: 07-03-2002 File #: 017 Time: 15:05:06
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 2325
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

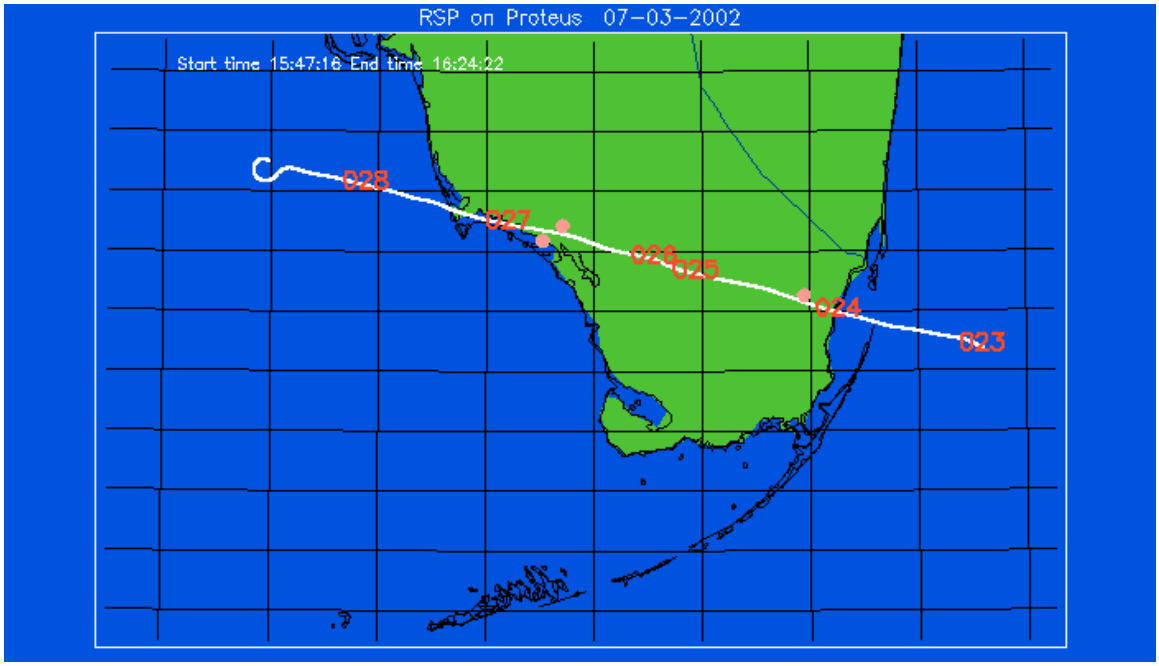

Date: 07-03-2002 File #: 018 Time: 15:12:08
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 2827
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

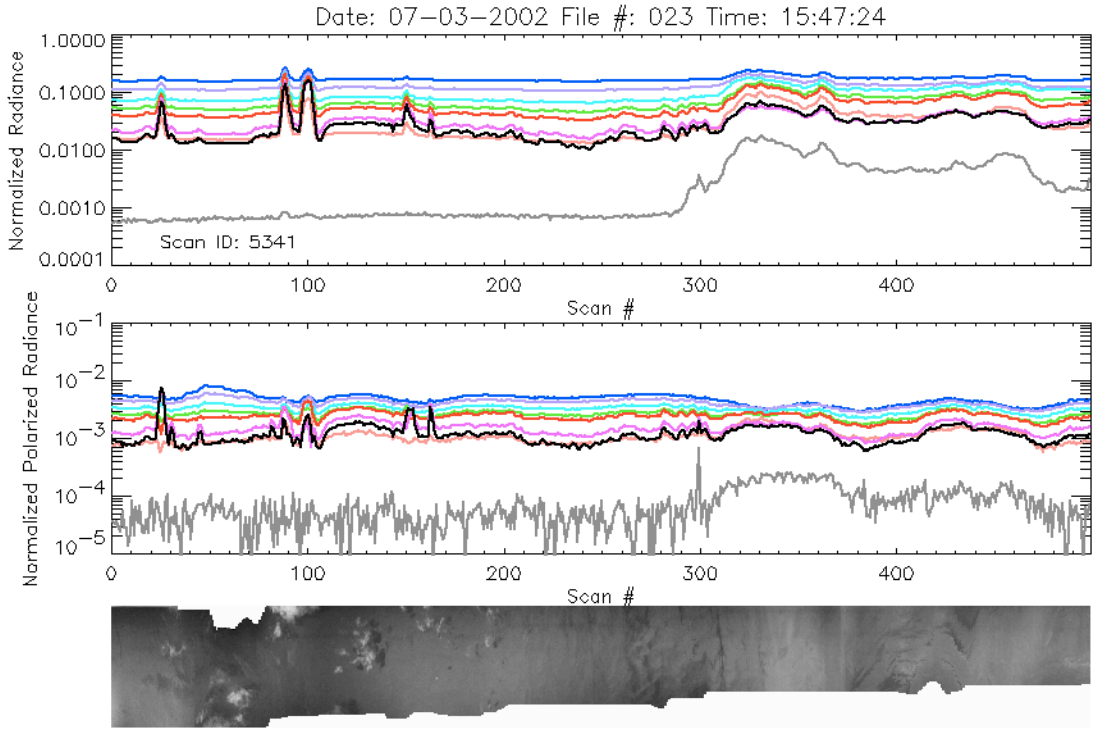

Date: 07-03-2002 File #: 019 Time: 15:19:09
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 3327
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

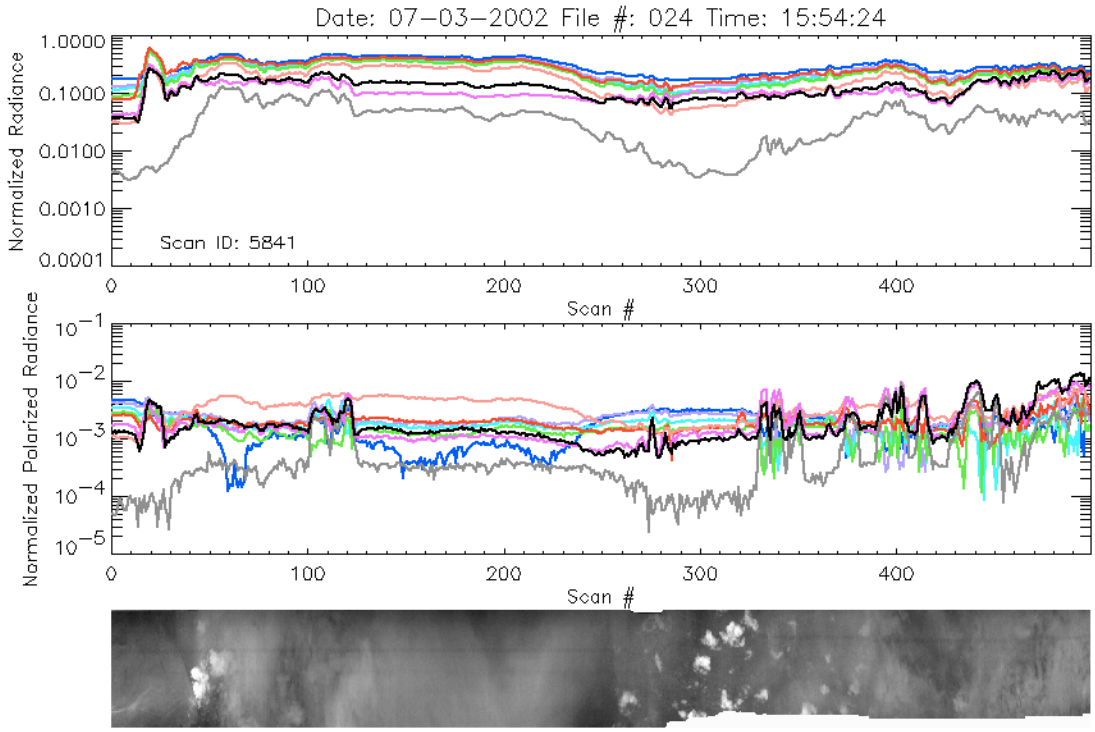

Date: 07-03-2002 File #: 020 Time: 15:26:15
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 3833
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

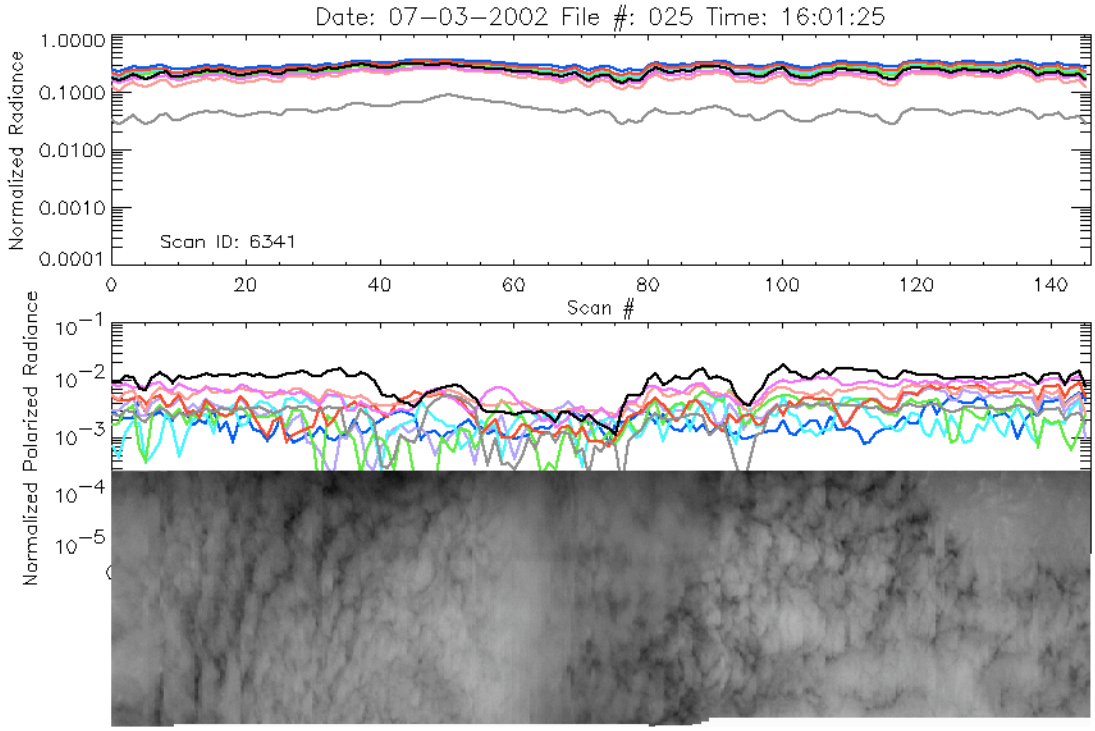

Date: 07-03-2002 File #: 021 Time: 15:33:15
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 4333
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

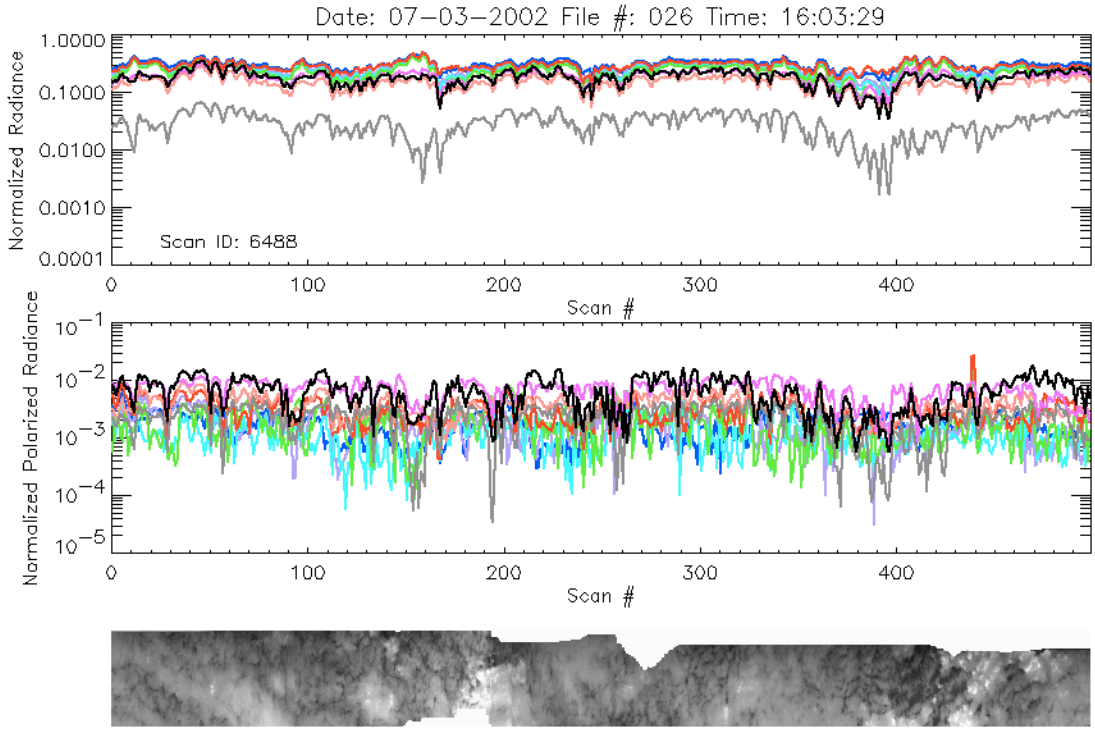

Date: 07-03-2002 File #: 022 Time: 15:40:23
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 4841
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

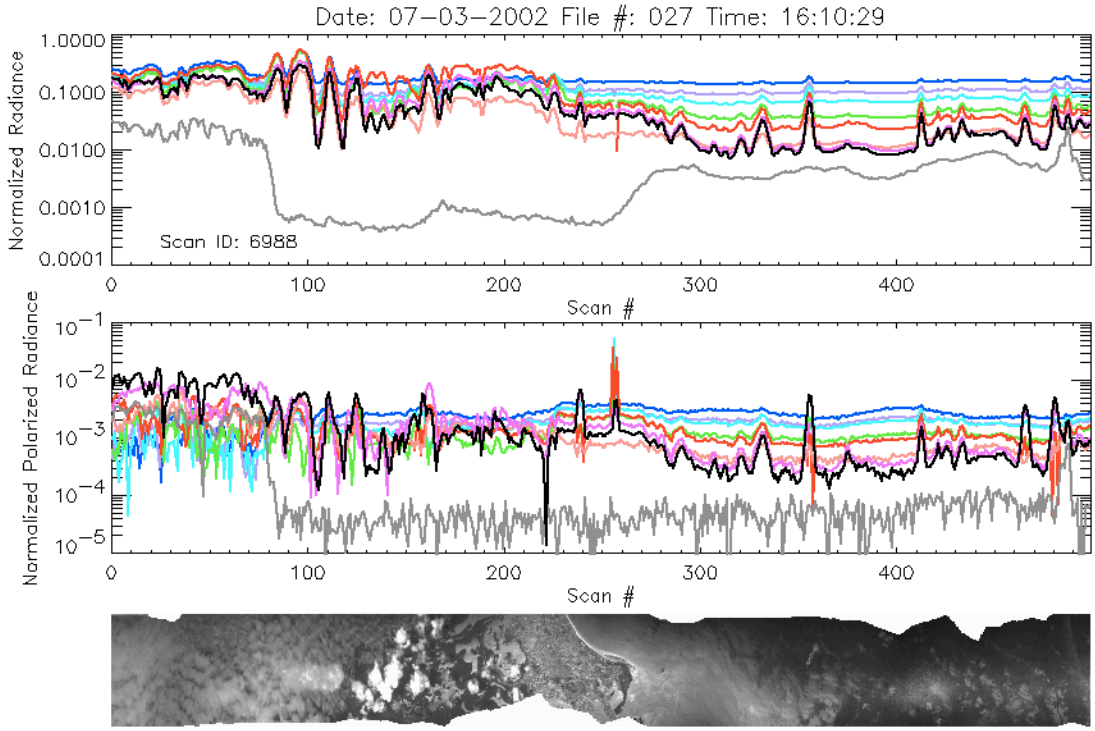

RSP on Proteus 07-03-2002
Start time 15:47:16 End time 16:24:22
028
027
026
025
024
023

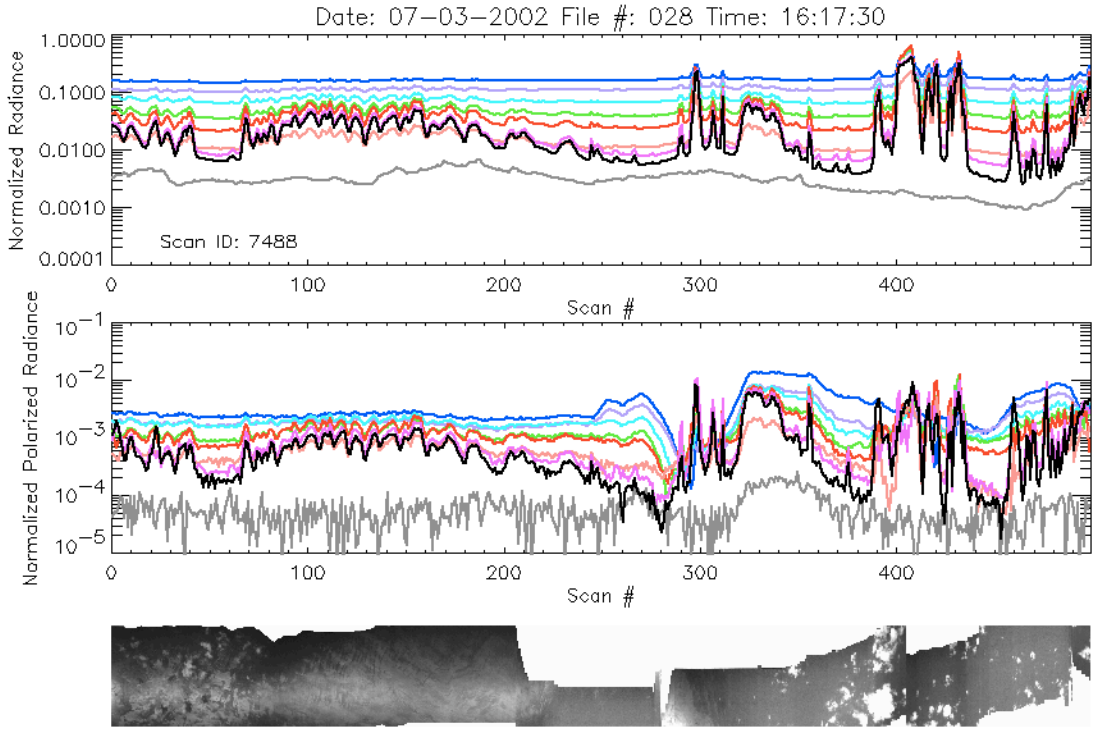

Date: 07-03-2002 File #: 023 Time: 15:47:24
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 5341
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

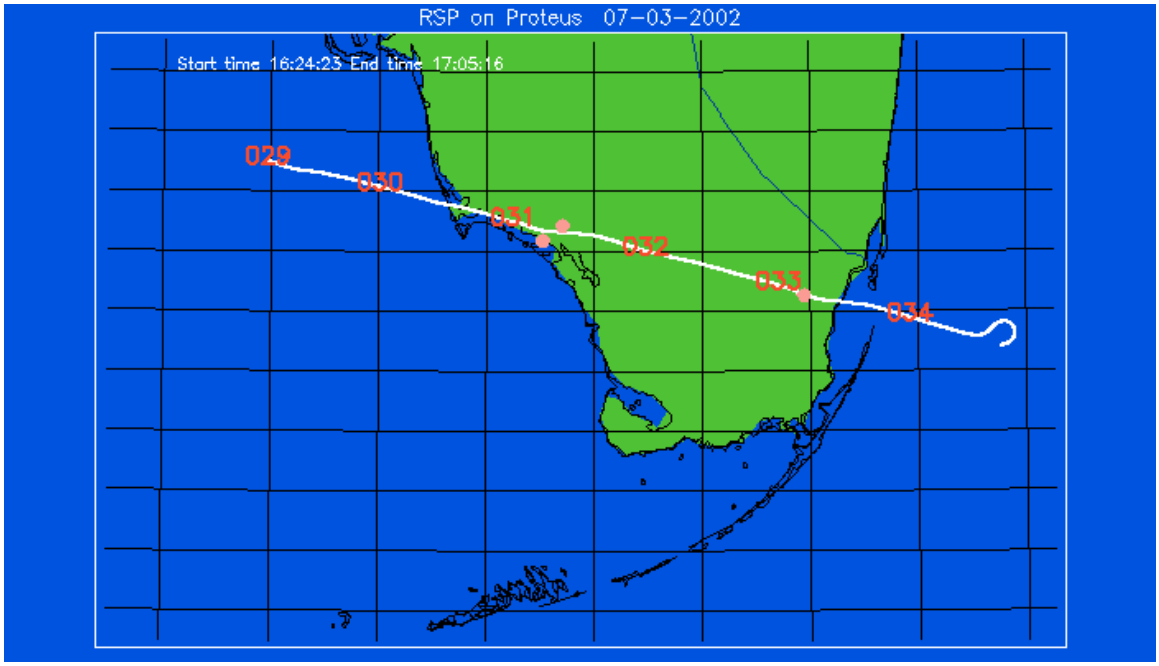

Date: 07-03-2002 File #: 024 Time: 15:54:24
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 5841
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

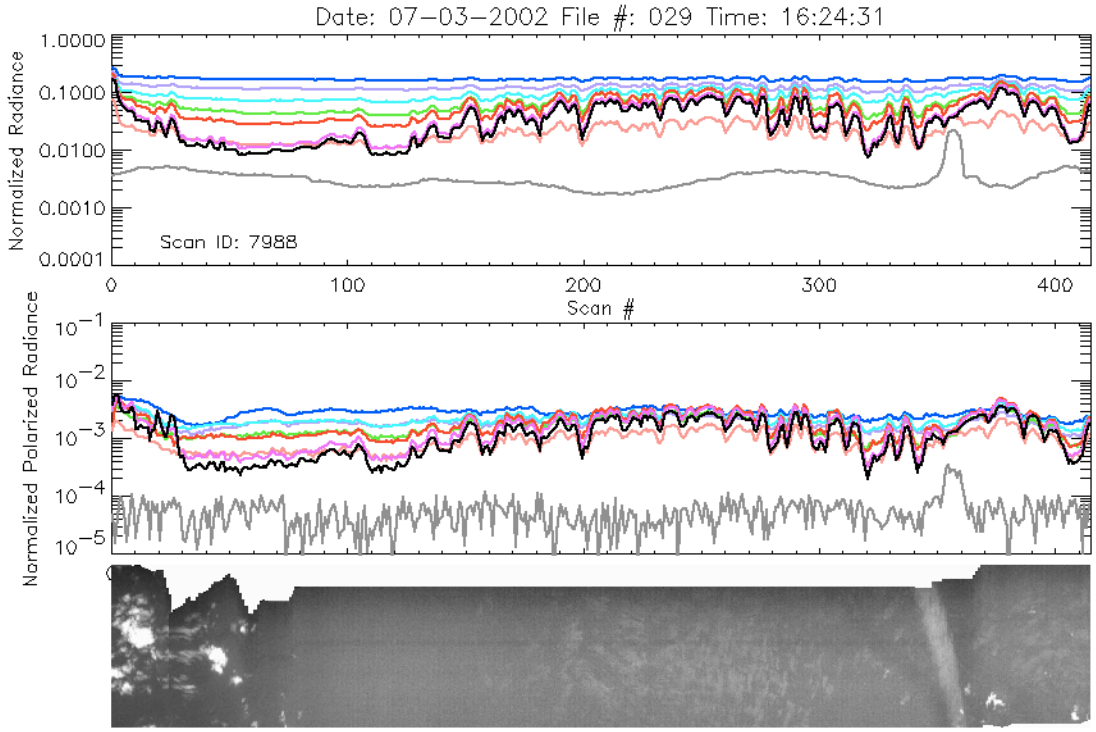

Date: 07-03-2002 File #: 025 Time: 16:01:25
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 6341
0
20
40
60
80
100
120
140
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

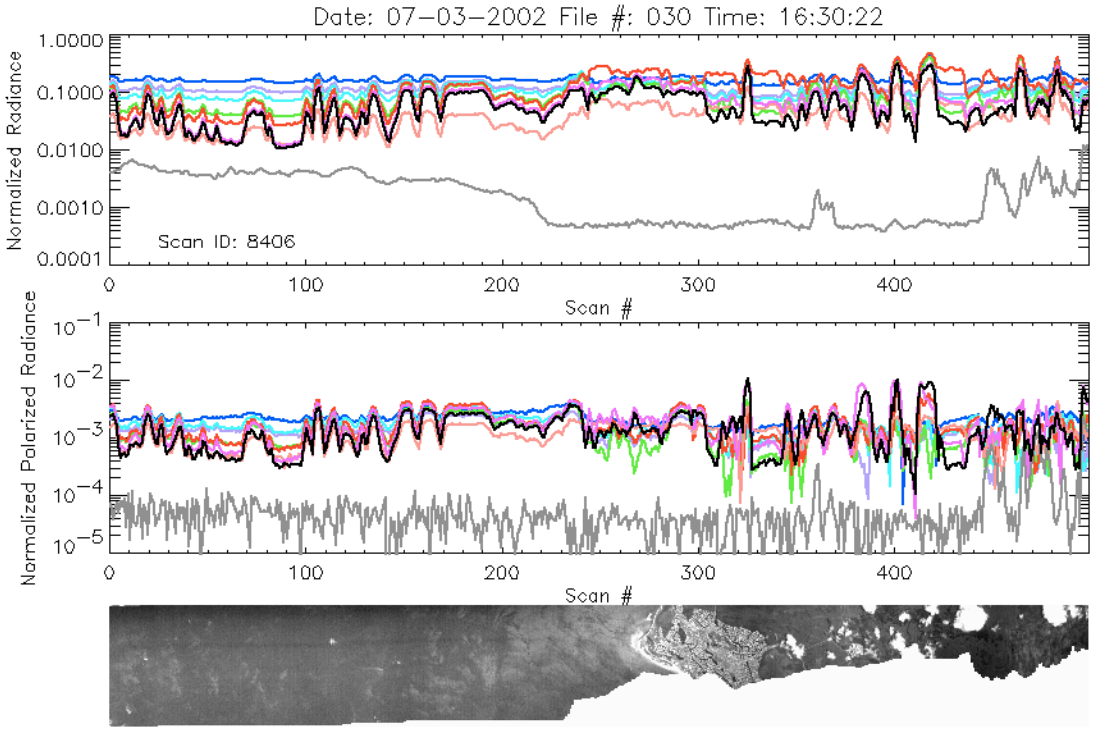

Date: 07-03-2002 File #: 026 Time: 16:03:29
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 6488
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

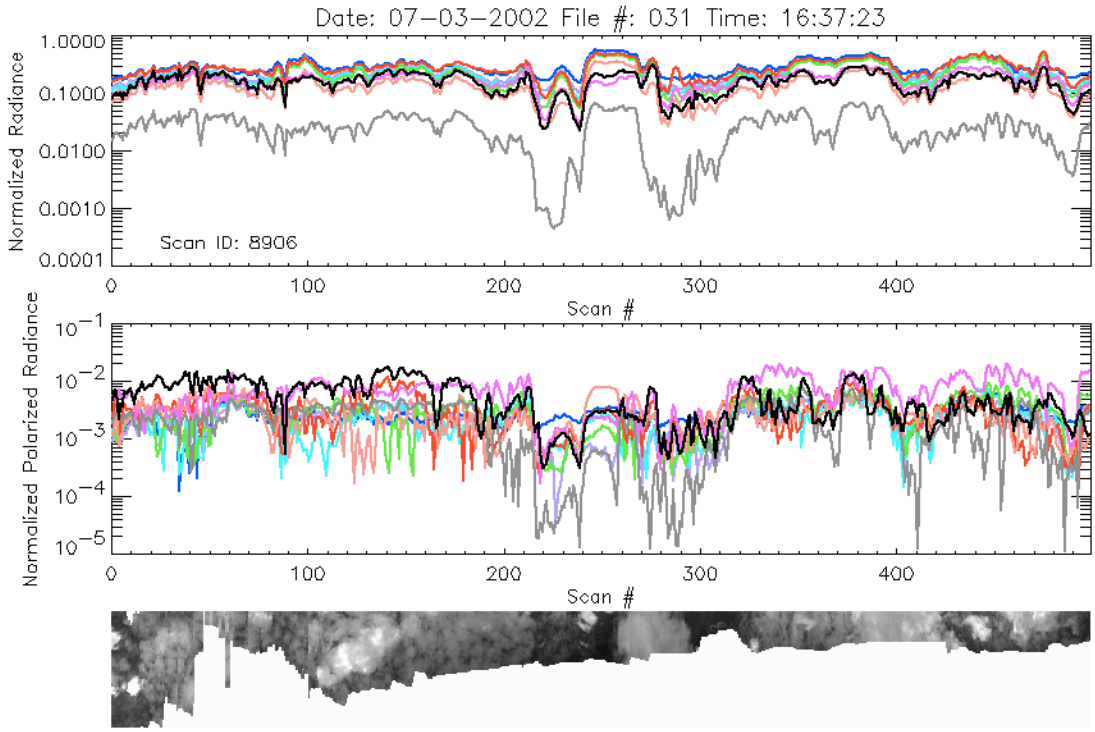

Date: 07-03-2002 File #: 027 Time: 16:10:29
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 6988
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

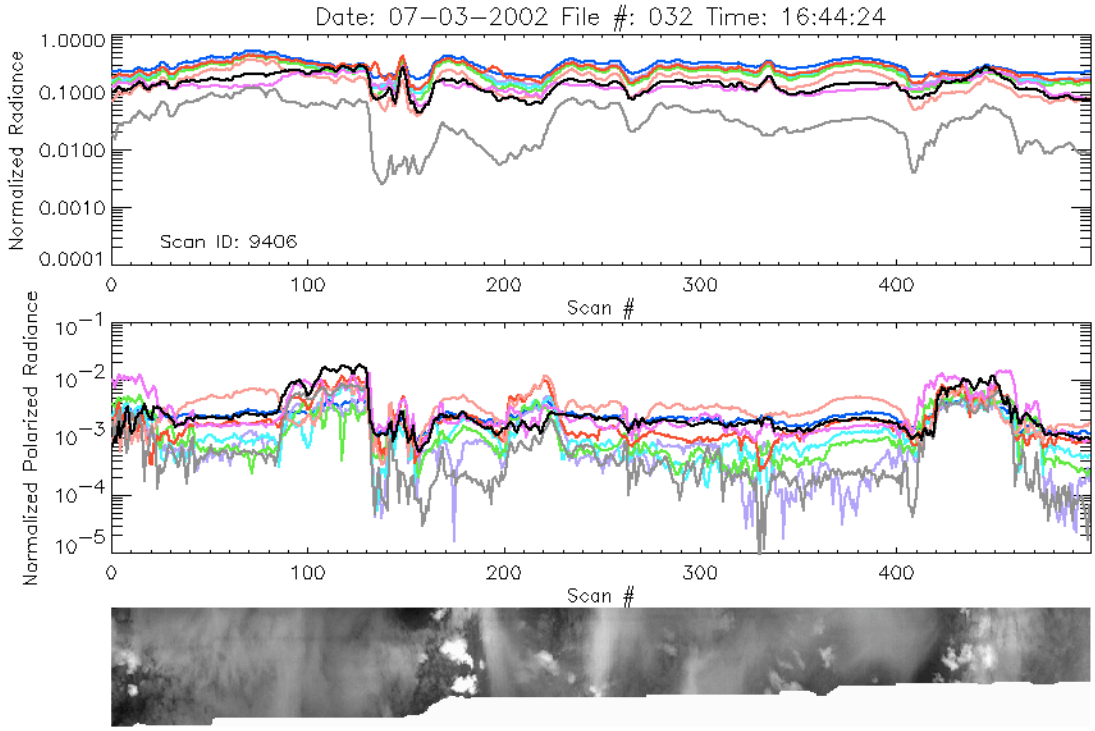

Date: 07-03-2002 File #: 028 Time: 16:17:30
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 7488
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

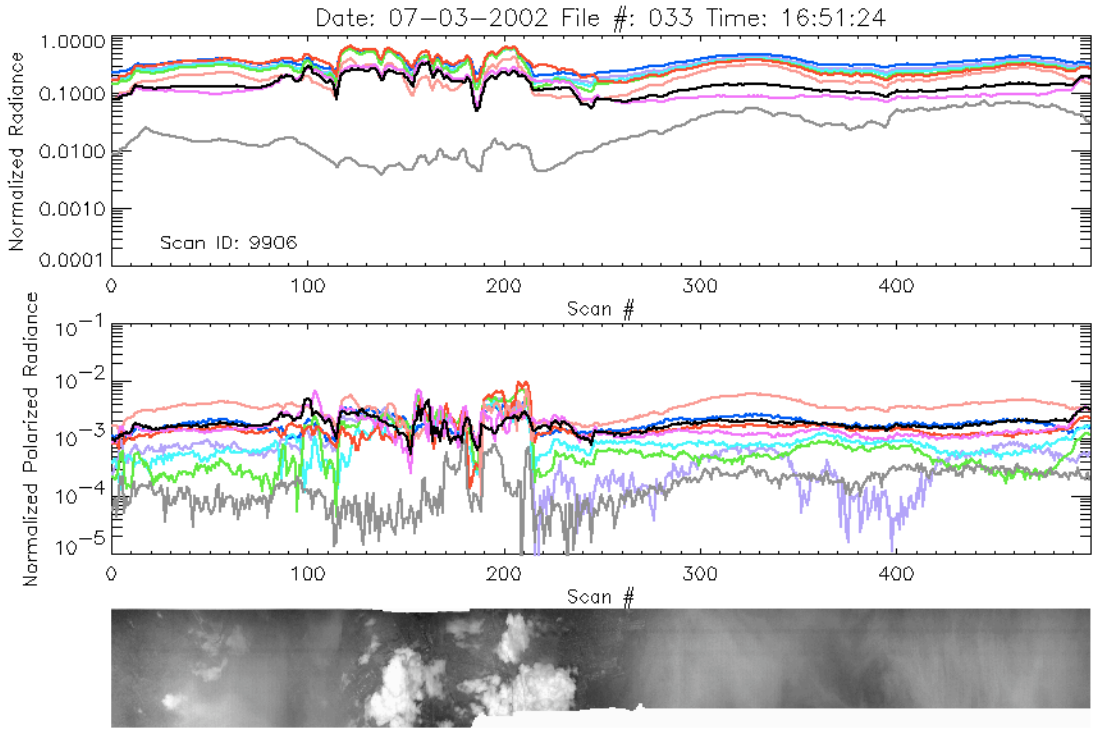

RSP on Proteus 07-03-2002
Start time 16:24:23 End time 17:05:16
029
030
031
032
033
034

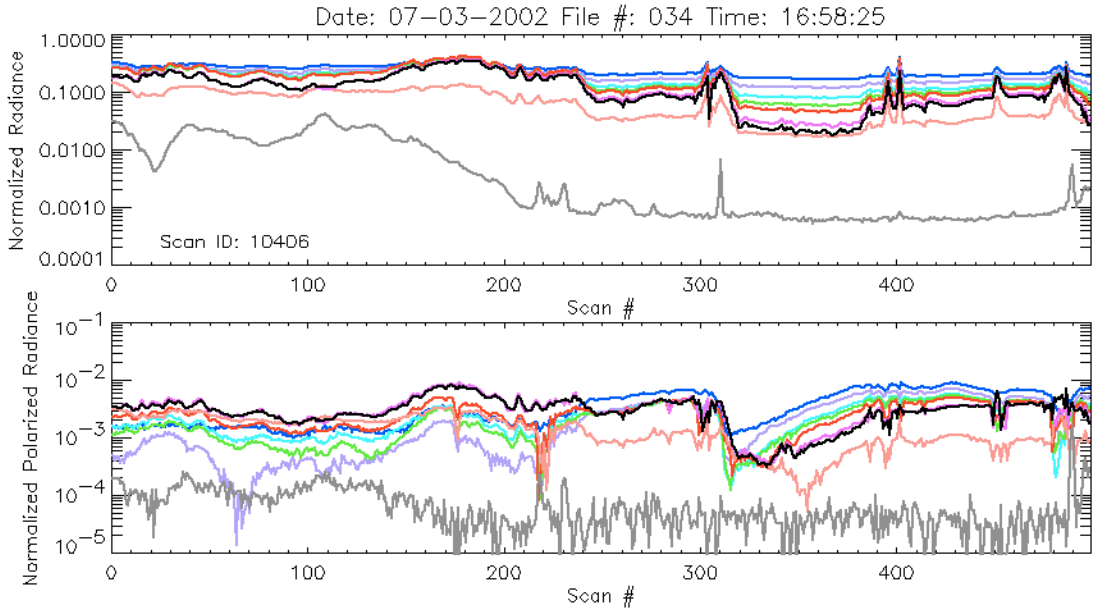

Date: 07-03-2002 File #: 029 Time: 16:24:31
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 7988
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

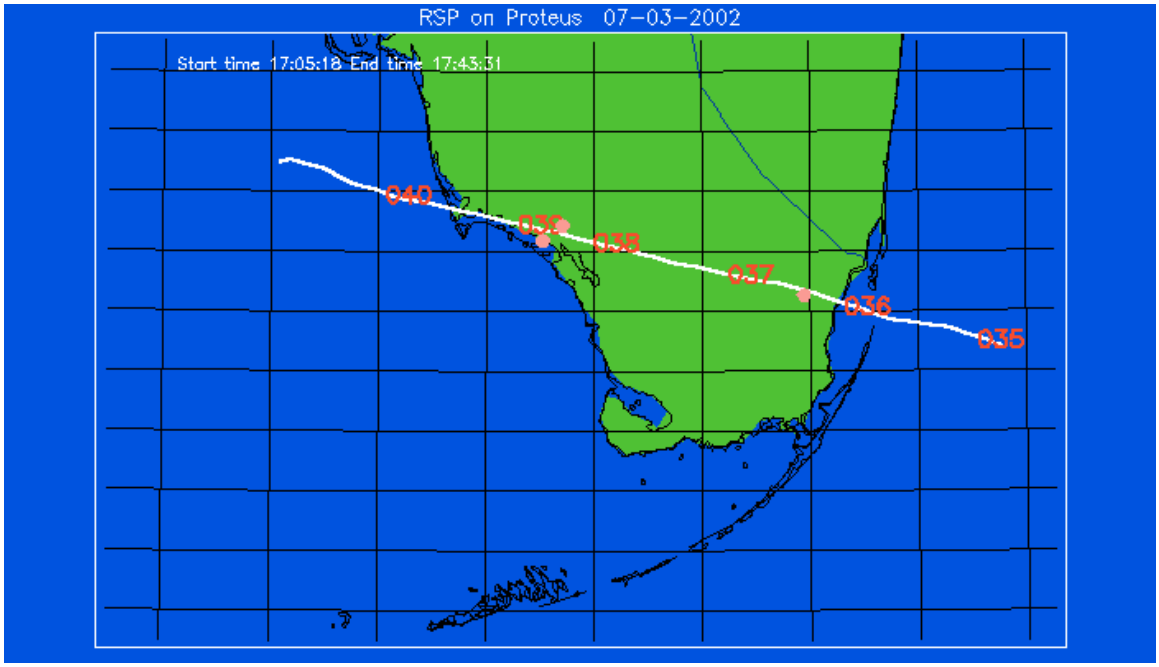

Date: 07-03-2002 File #: 030 Time: 16:30:22
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 8406
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

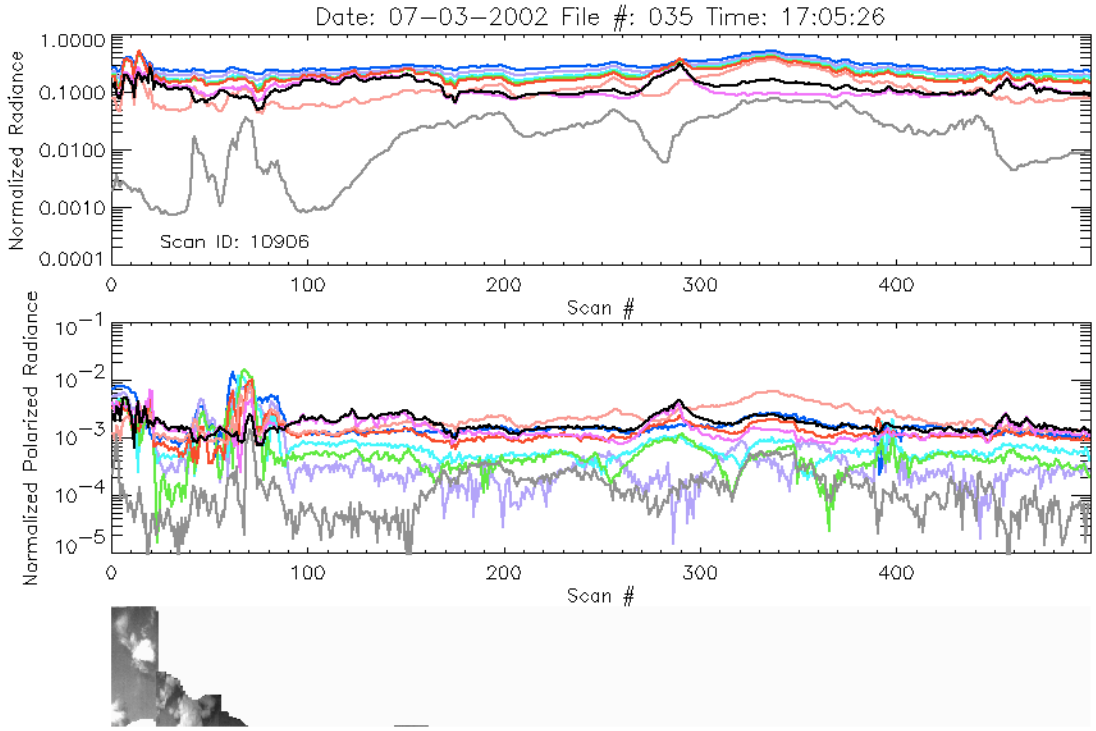

Date: 07-03-2002 File #: 031 Time: 16:37:23
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 8906
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

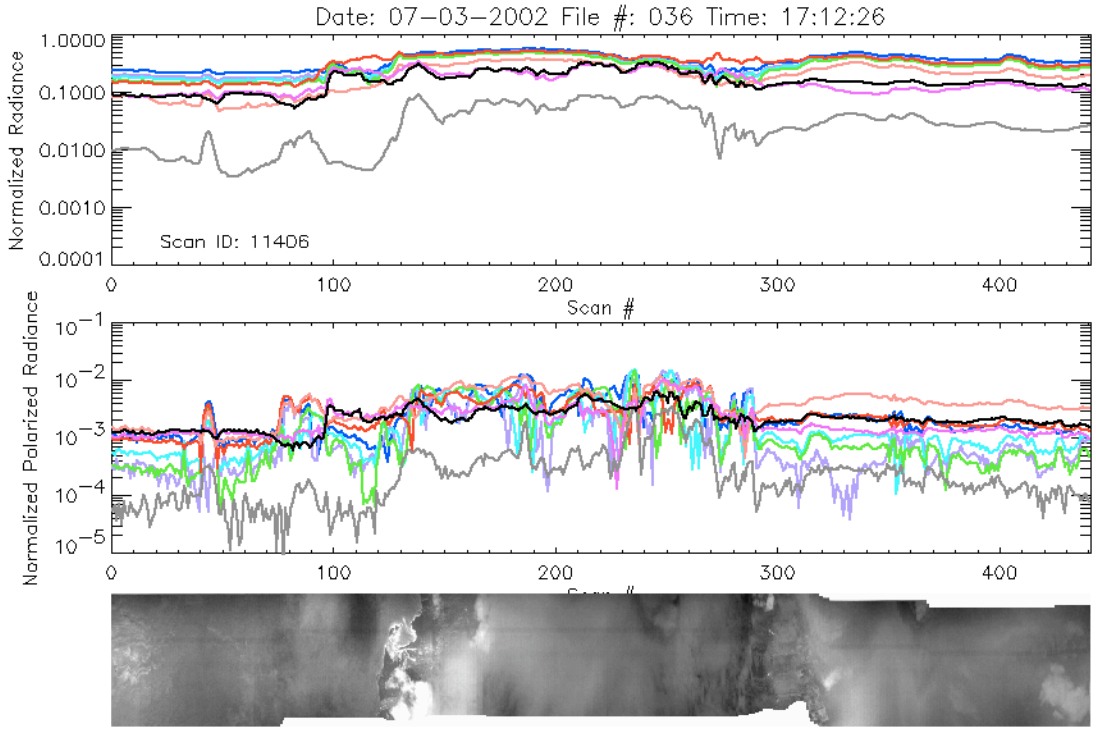

Date: 07-03-2002 File #: 032 Time: 16:44:24
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 9406
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

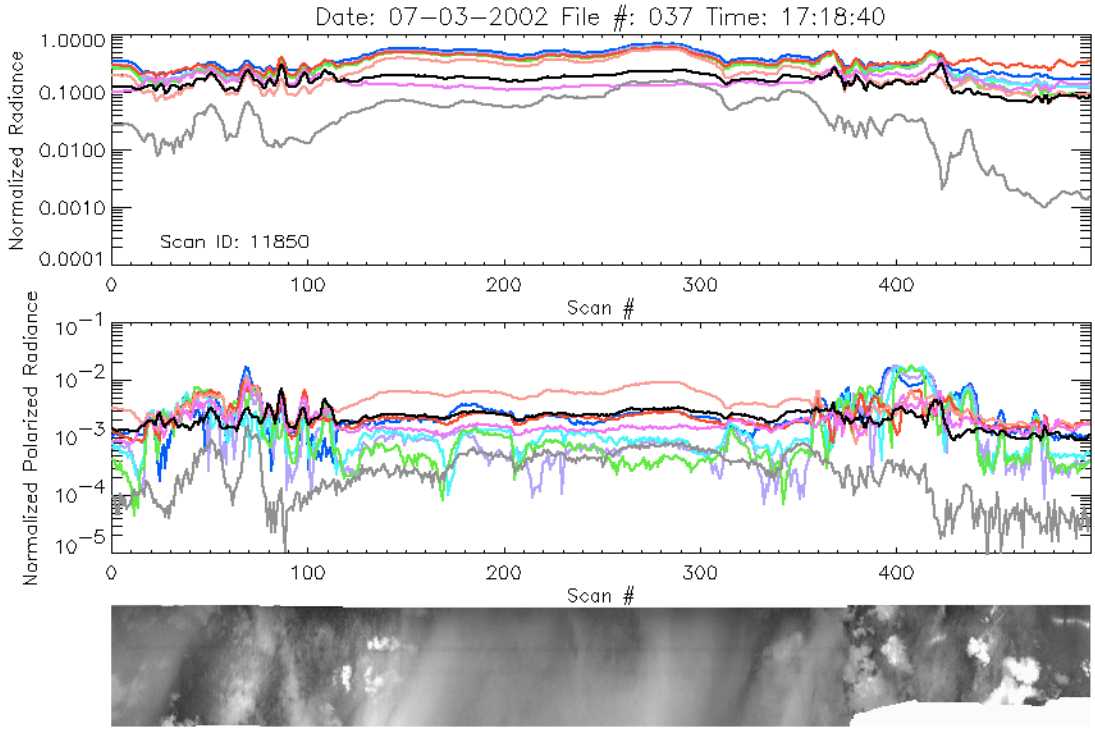

Date: 07-03-2002 File #: 033 Time: 16:51:24
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 9906
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

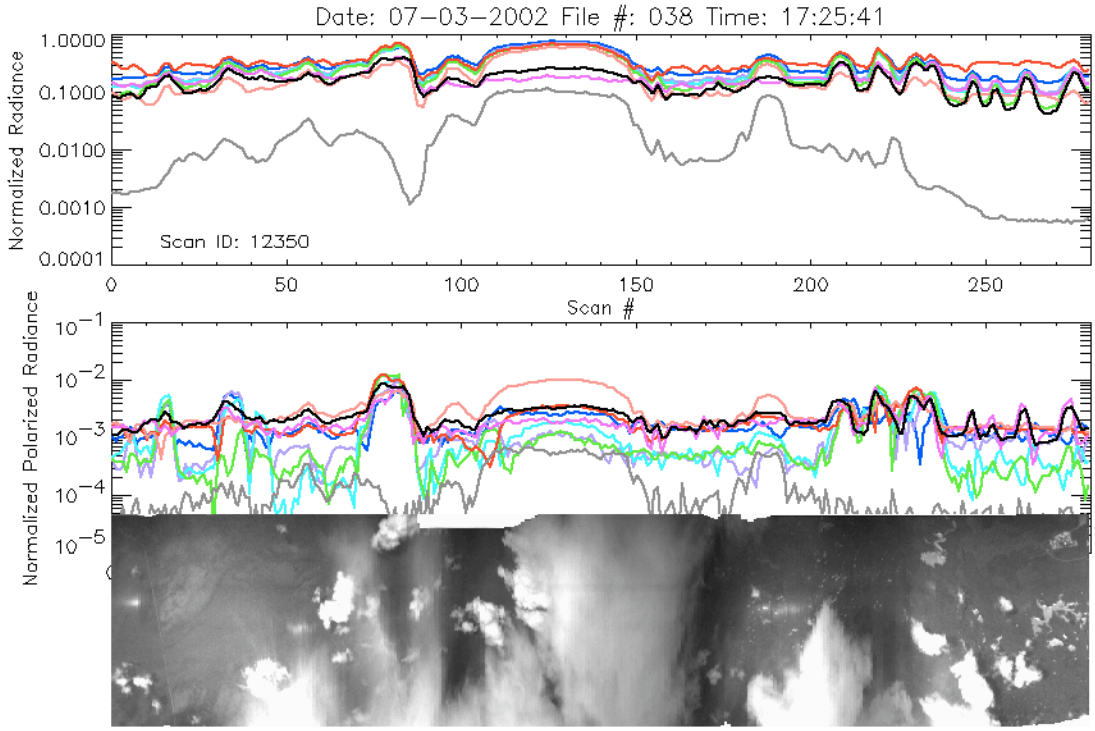

Date: 07-03-2002 File #: 034 Time: 16:58:25
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 10406
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

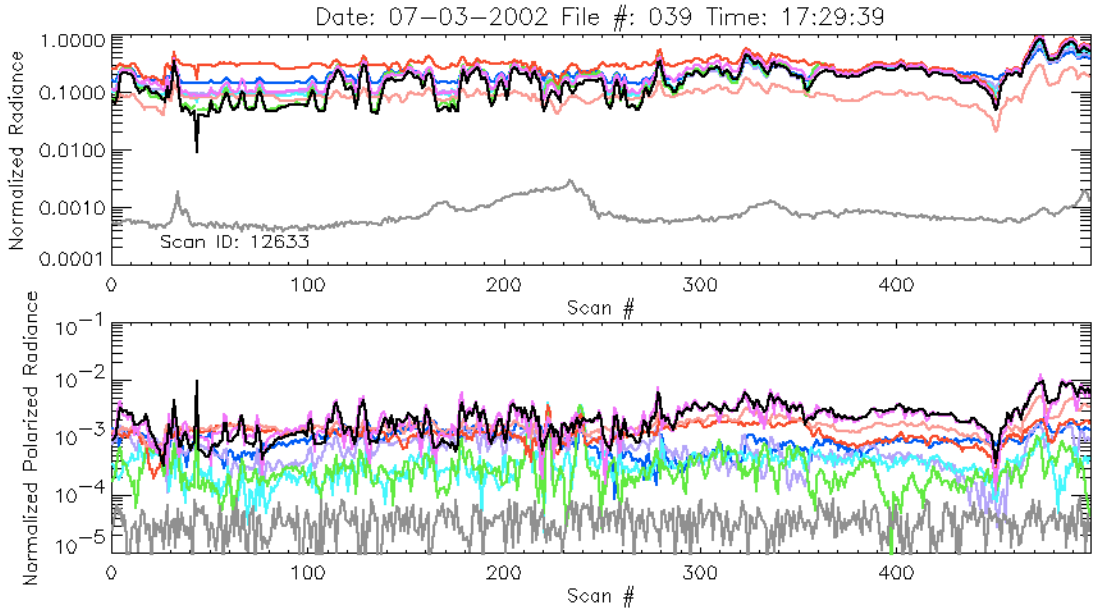

RSP on Proteus 07-03-2002
Start time 17:05:18 End time 17:43:31
040
039
038
037
036
035

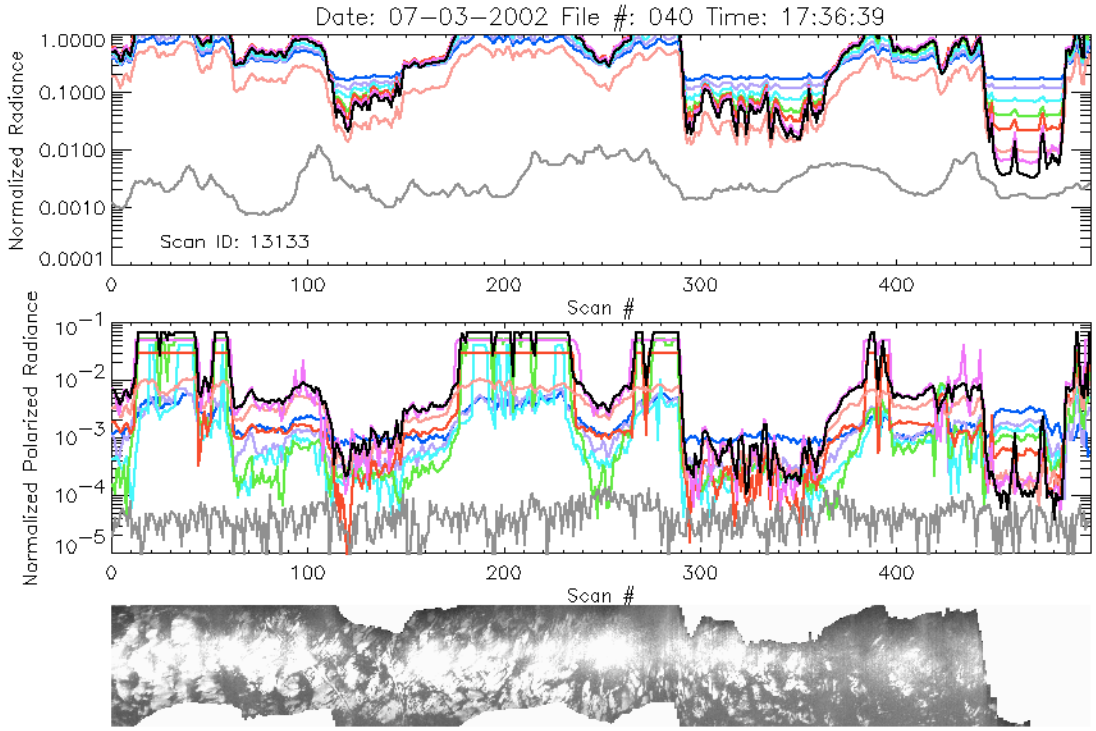

Date: 07-03-2002 File #: 035 Time: 17:05:26
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 10906
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

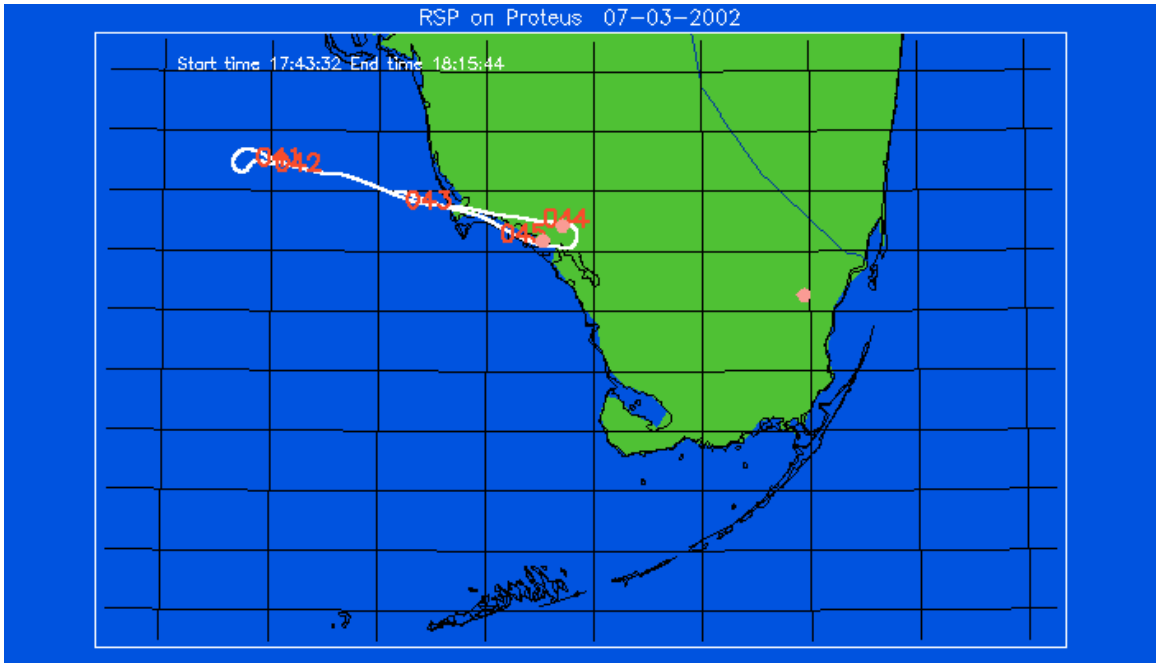

Date: 07-03-2002 File #: 036 Time: 17:12:26
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 11406
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400

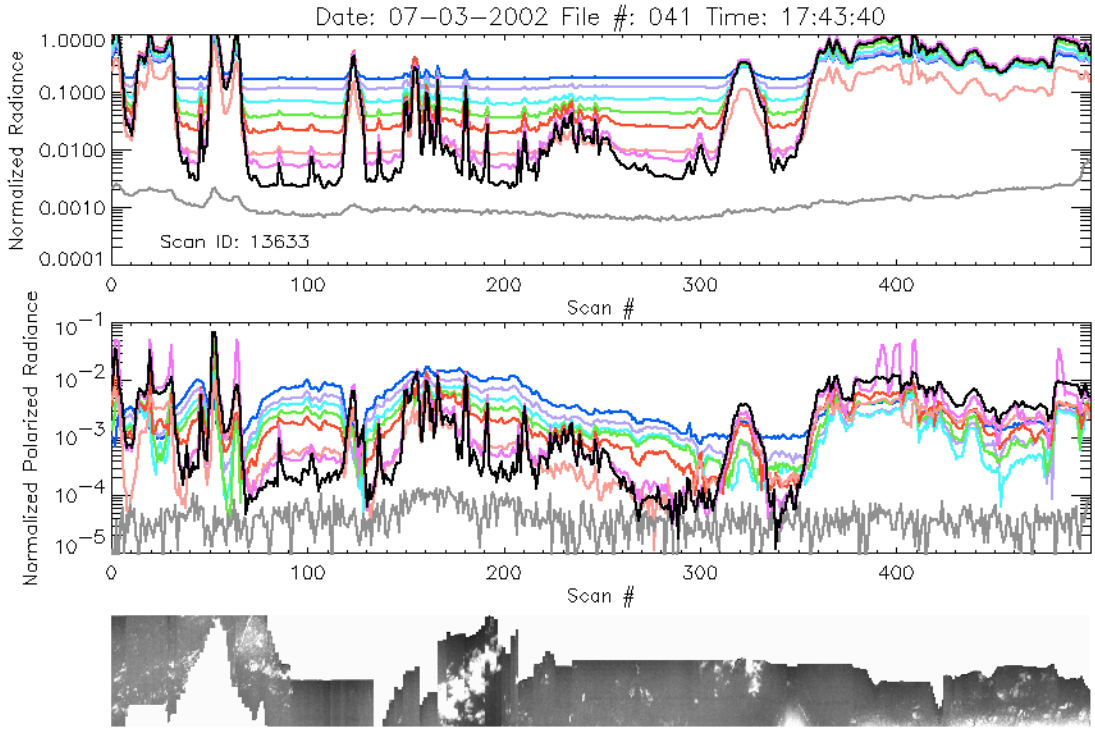

Date: 07-03-2002 File #: 037 Time: 17:18:40
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 11850
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

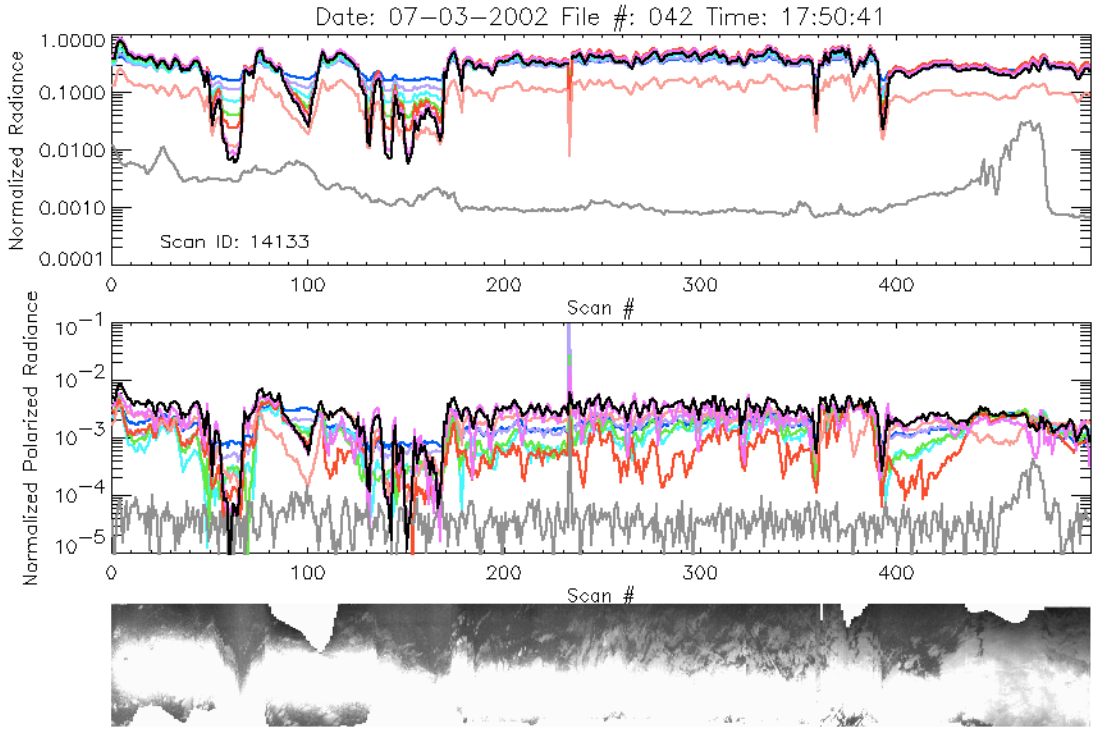

Date: 07-03-2002 File #: 038 Time: 17:25:41
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 12350
0
50
100
150
200
250
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

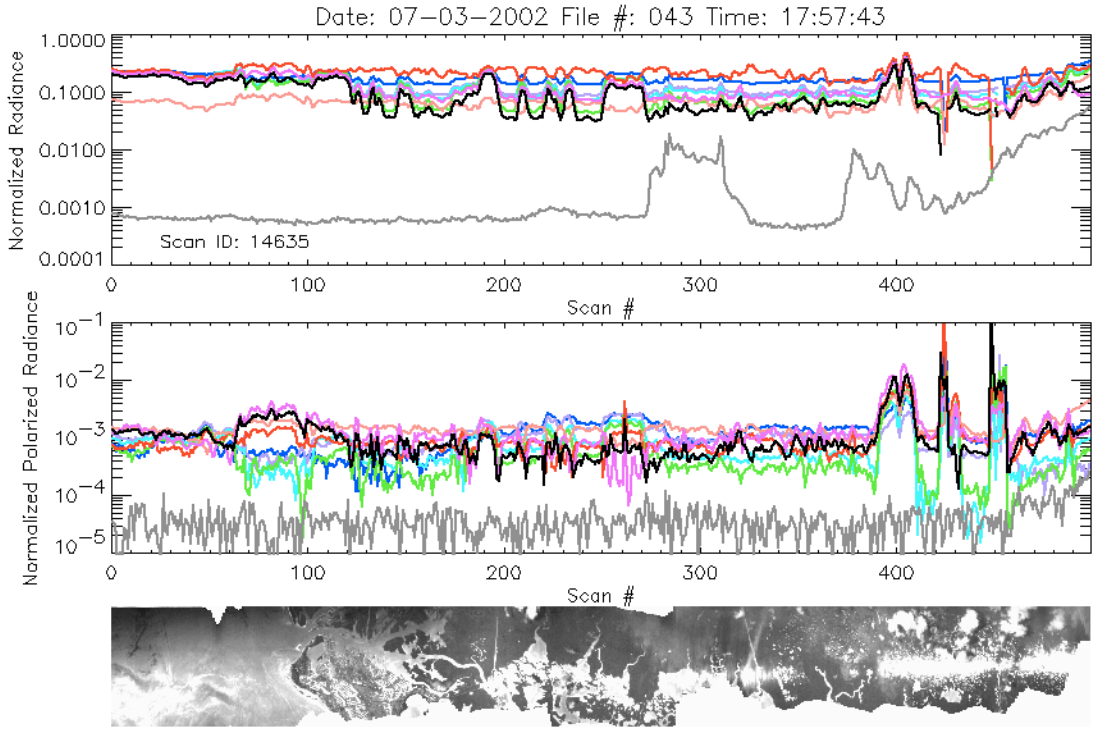

Date: 07-03-2002 File #: 039 Time: 17:29:39
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 12633
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

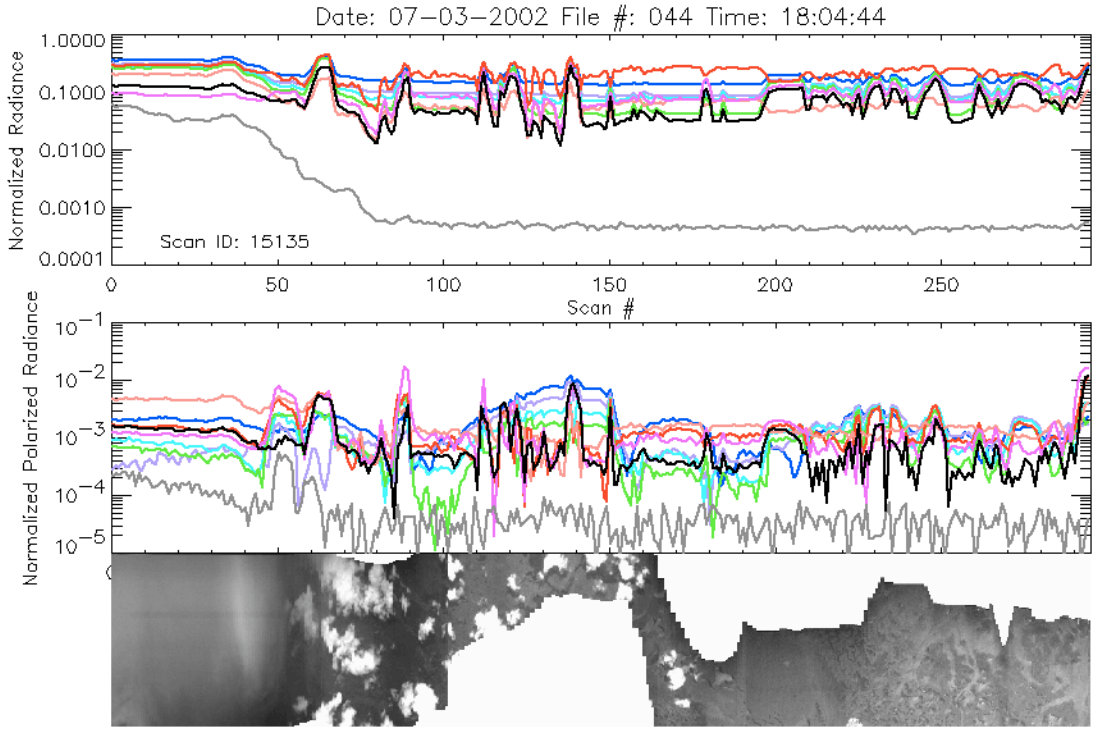

Date: 07-03-2002 File #: 040 Time: 17:36:39
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 13133
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

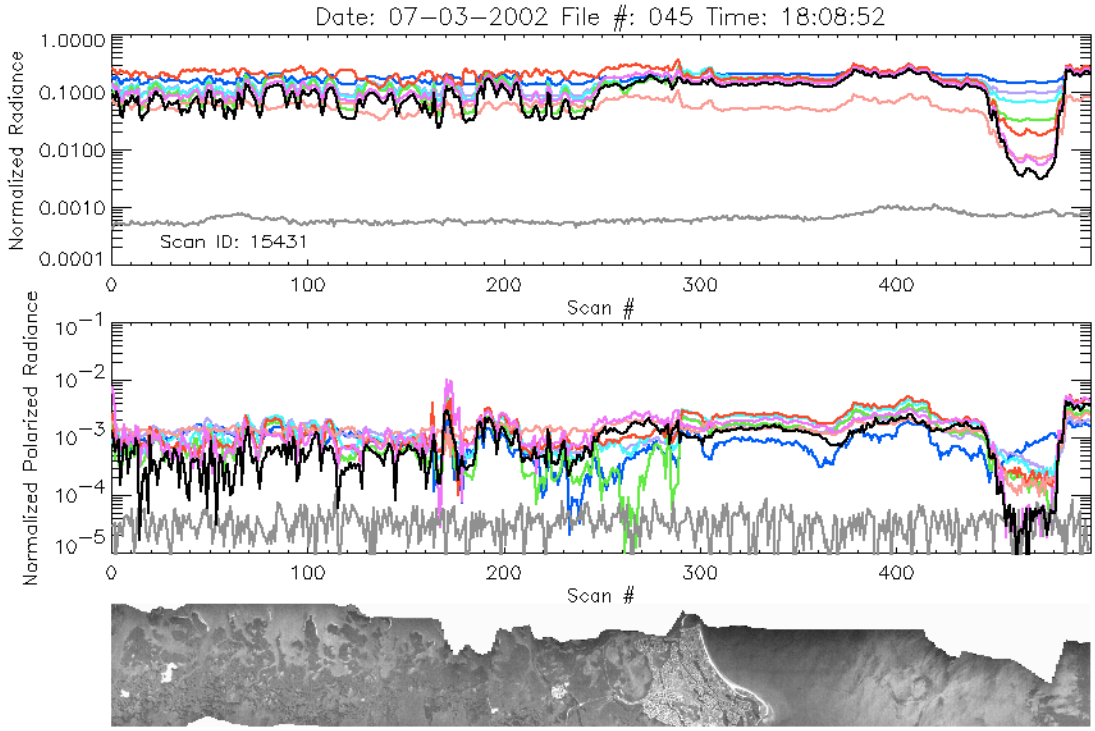

RSP on Proteus 07-03-2002
Start time 17:43:32 End time 18:15:44
044.2
044.1
044
045

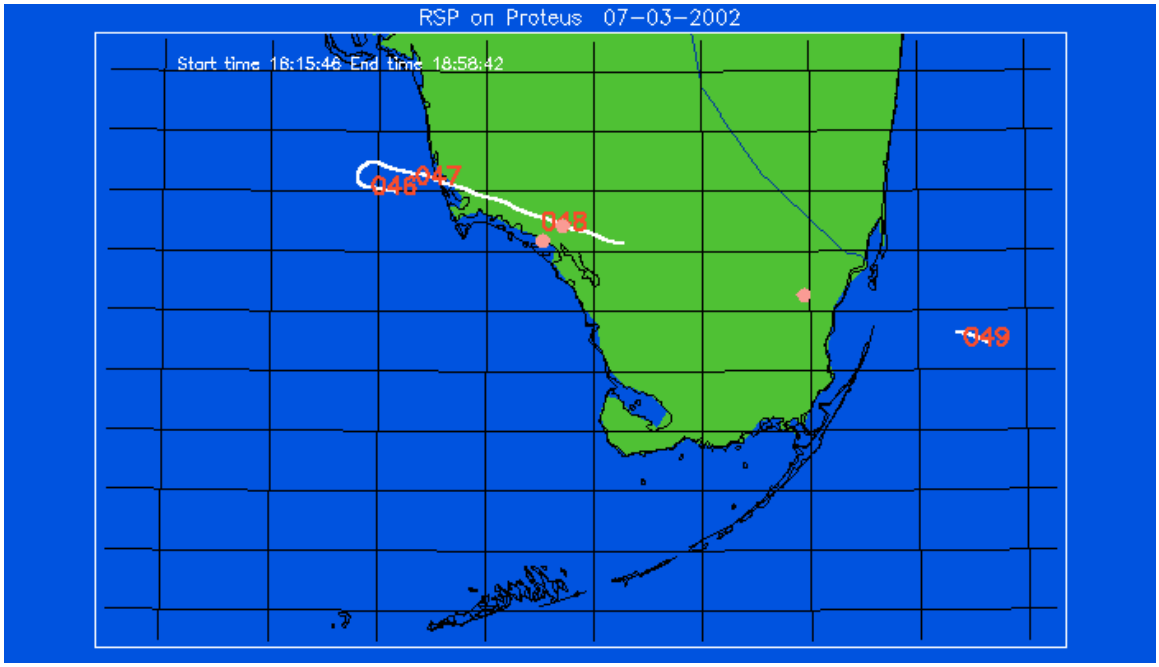

Date: 07-03-2002 File #: 041 Time: 17:43:40
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 13633
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

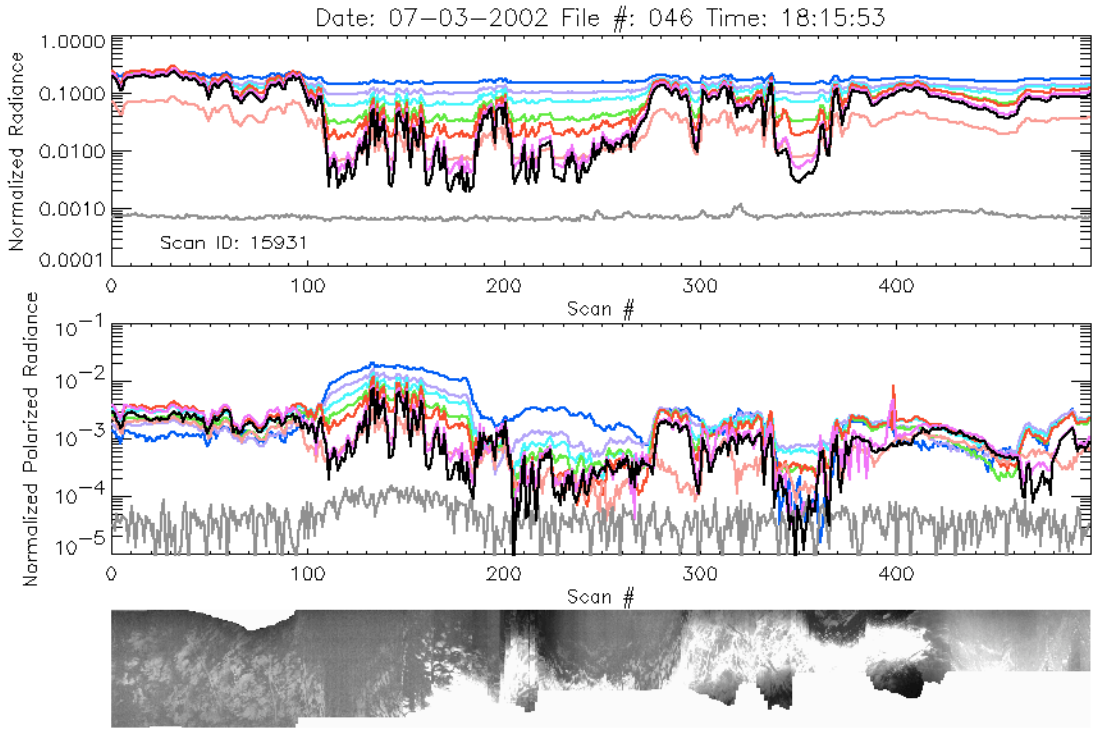

Date: 07-03-2002 File #: 042 Time: 17:50:41
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 14133
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

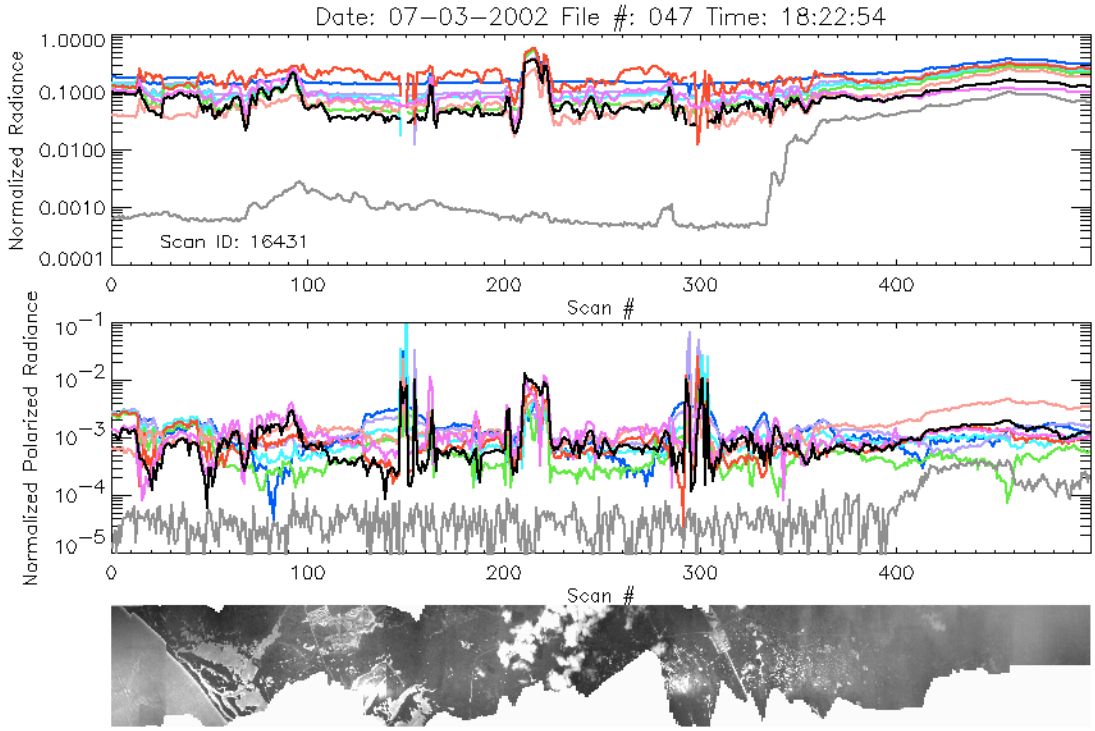

Date: 07-03-2002 File #: 043 Time: 17:57:43
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 14635
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

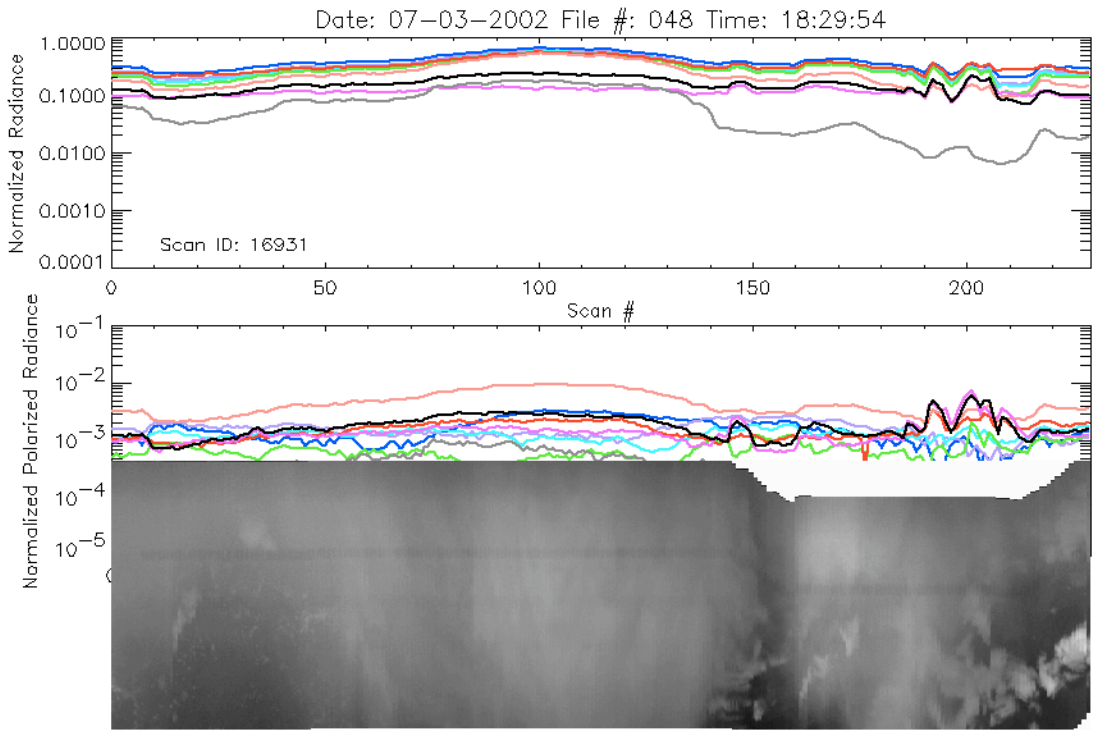

Date: 07-03-2002 File #: 044 Time: 18:04:44
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 15135
0
50
100
150
200
250
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

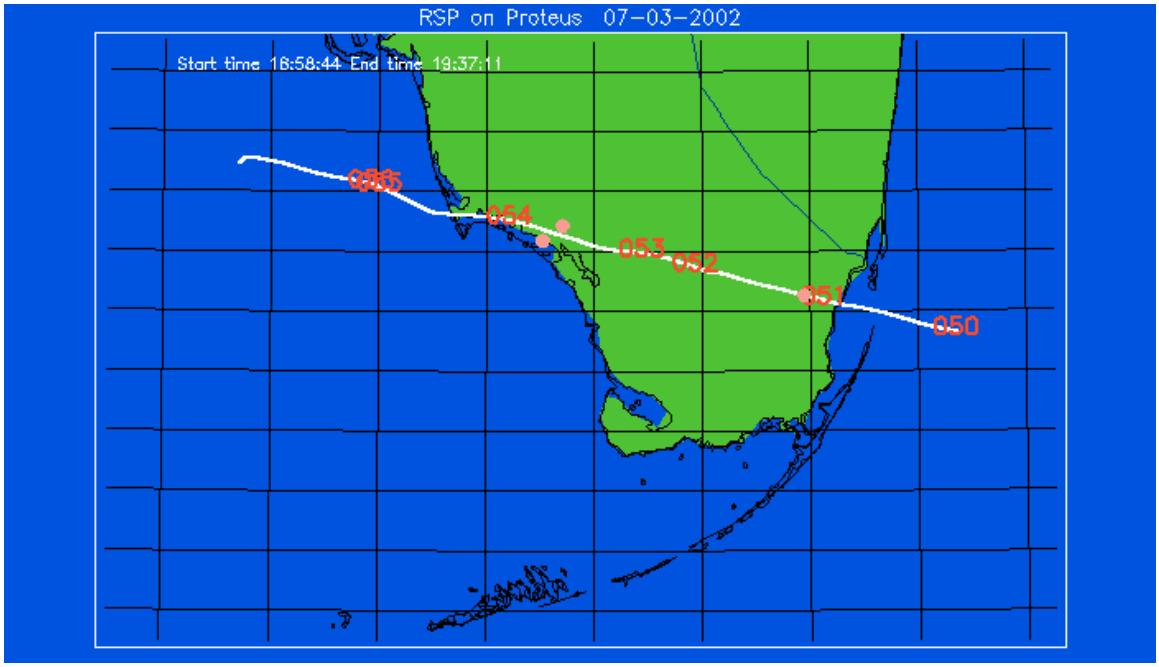

Date: 07-03-2002 File #: 045 Time: 18:08:52
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 15431
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

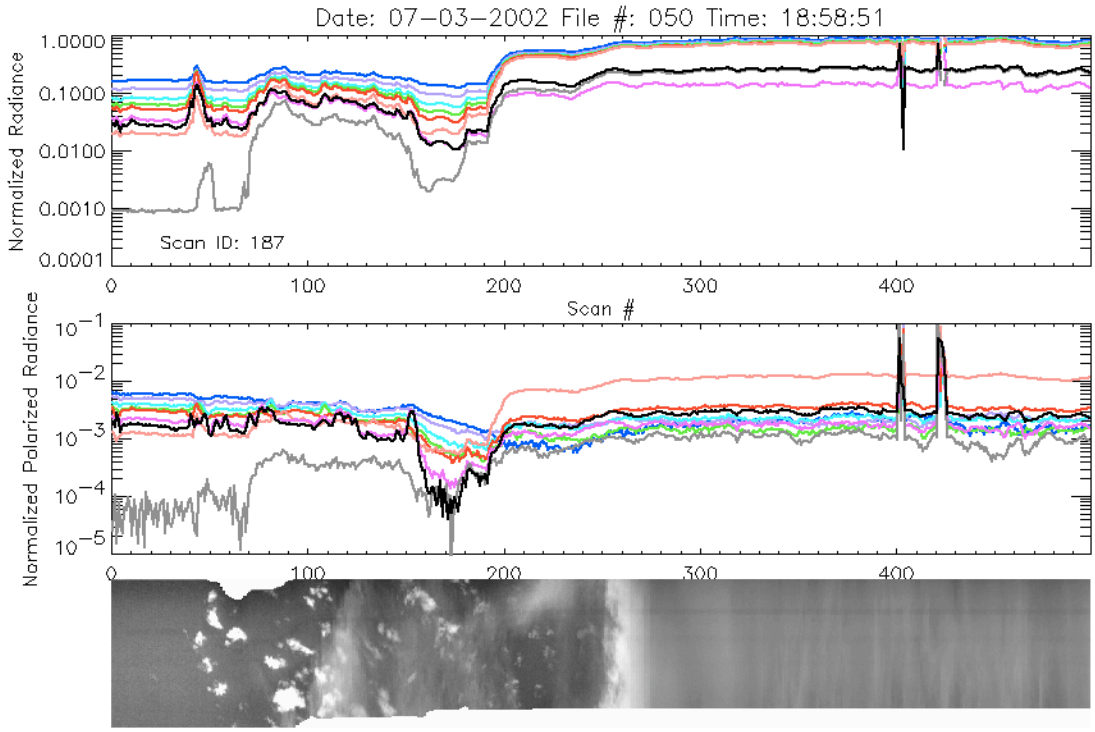

RSP on Proteus 07-03-2002
Start time 16:15:46 End time 18:58:42
046
047
048
049

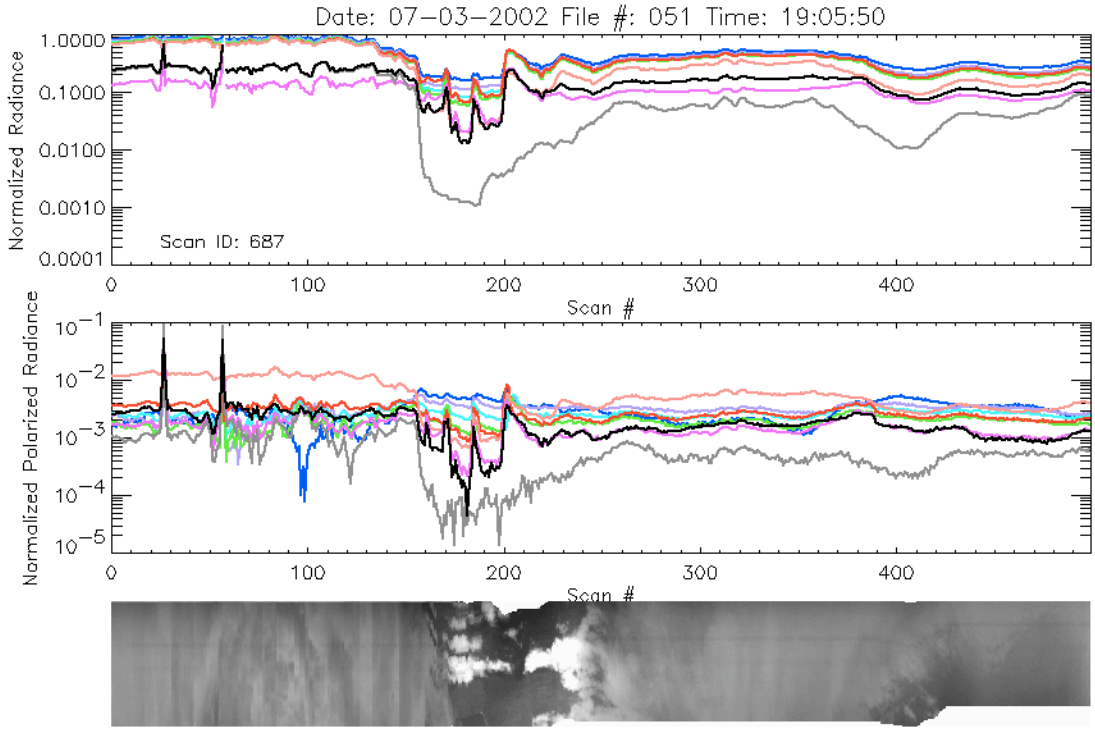

Date: 07-03-2002 File #: 046 Time: 18:15:53
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 15931
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

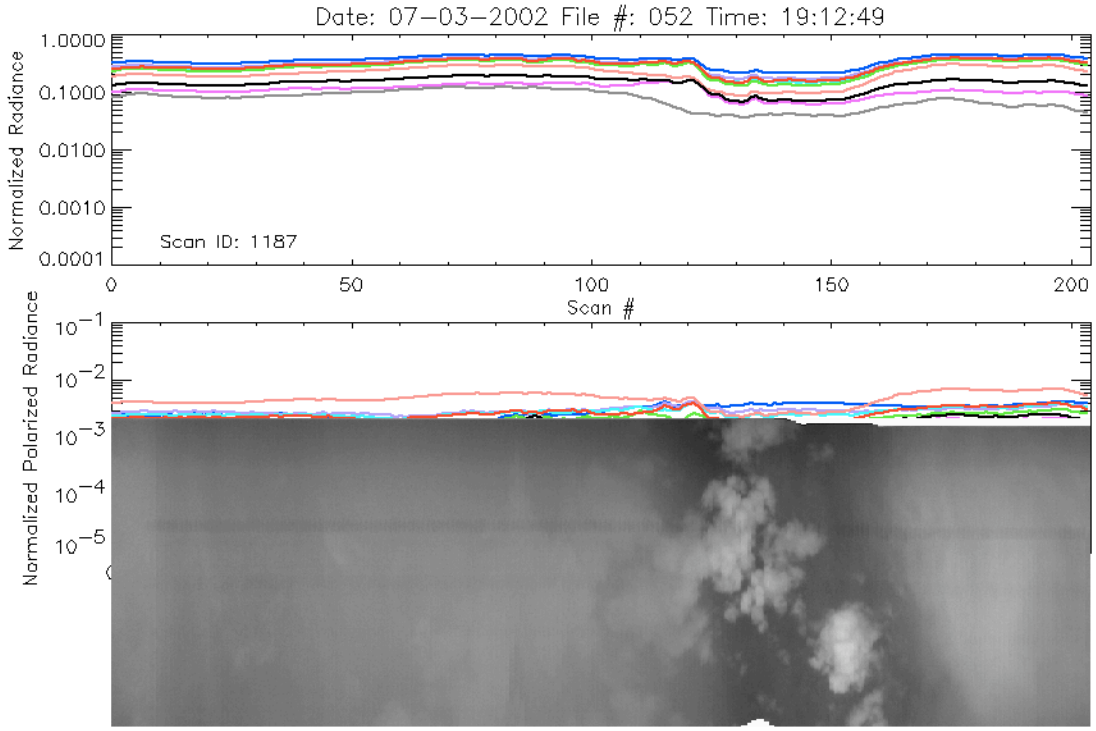

Date: 07-03-2002 File #: 047 Time: 18:22:54
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 16431
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

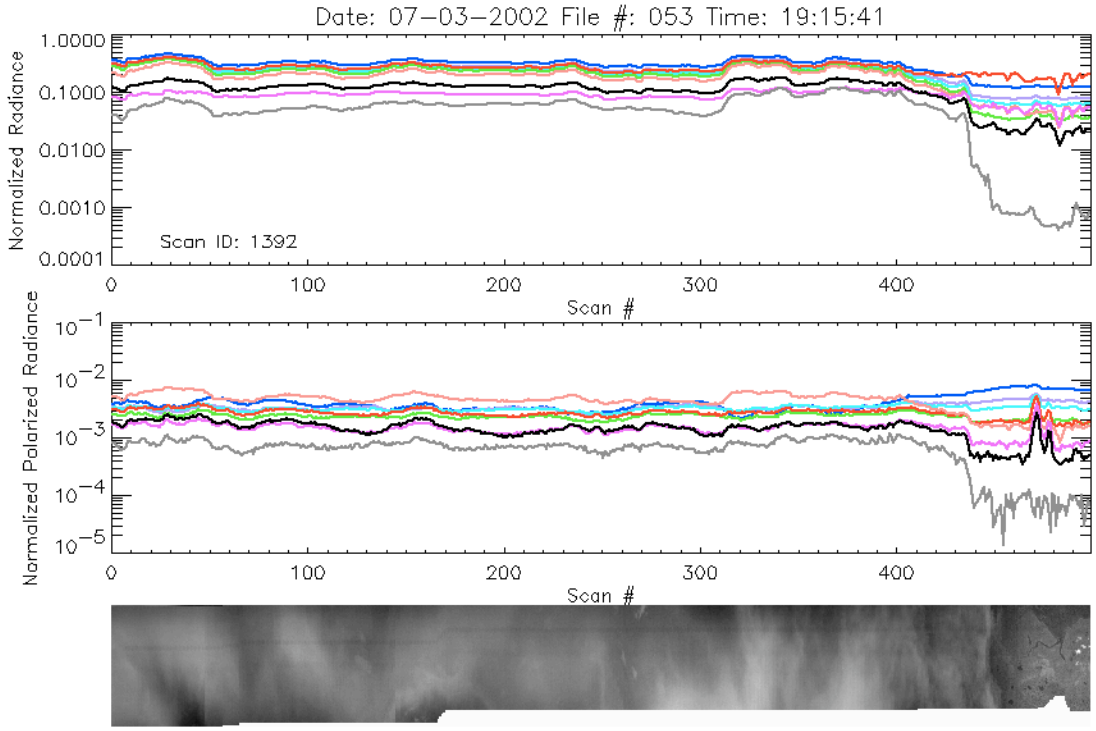

Date: 07-03-2002 File #: 048 Time: 18:29:54
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 16931
0
50
100
150
200
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

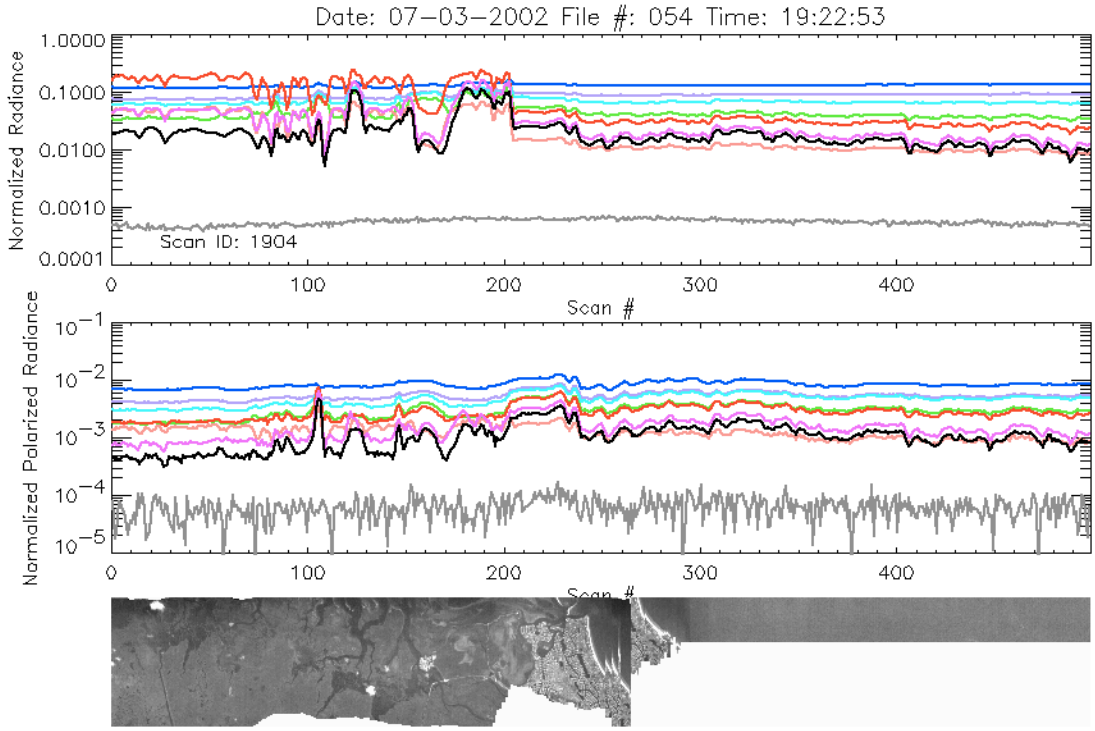

RSP on Proteus 07-03-2002
Start time 18:58:44 End time 19:37:11
055
054
053
052
051
050

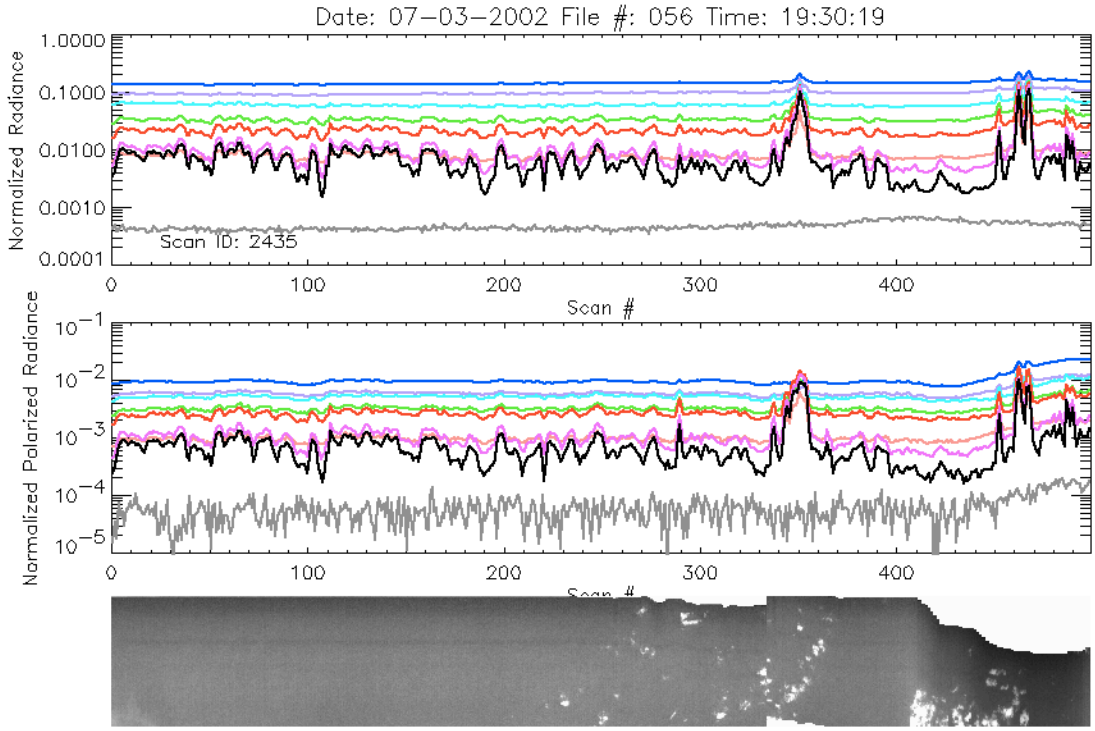

Date: 07-03-2002 File #: 050 Time: 18:58:51
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 187
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

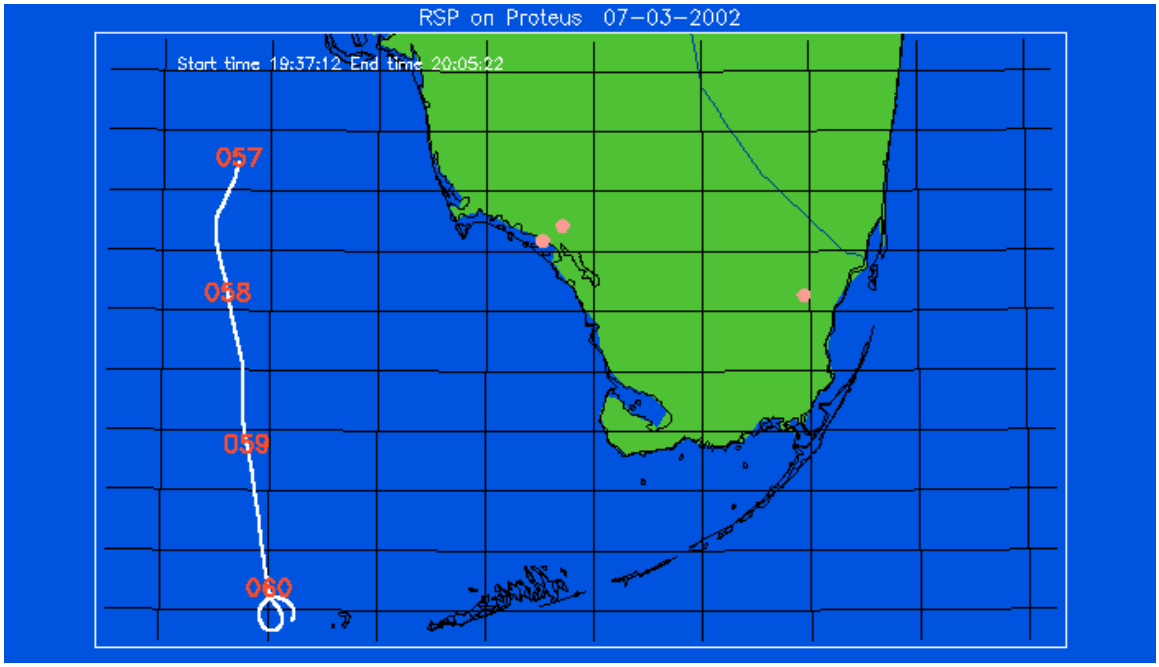

Date: 07-03-2002 File #: 051 Time: 19:05:50
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 687
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
Scan #

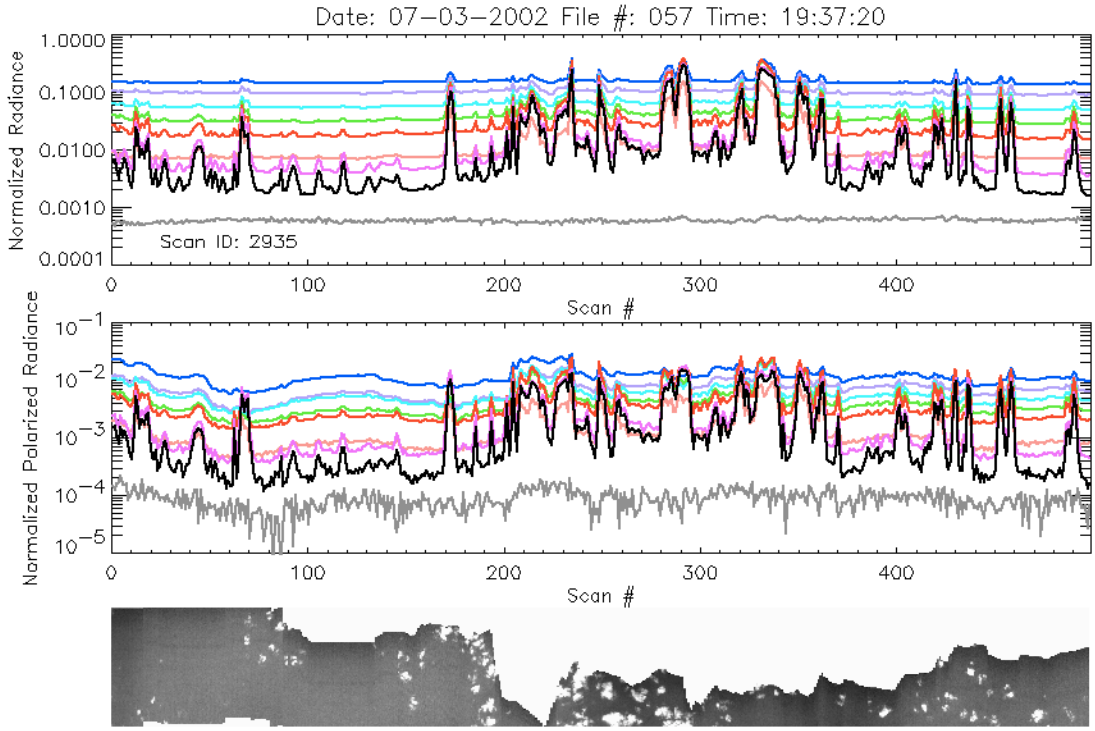

Date: 07-03-2002 File #: 052 Time: 19:12:49
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1187
0
50
100
150
200
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

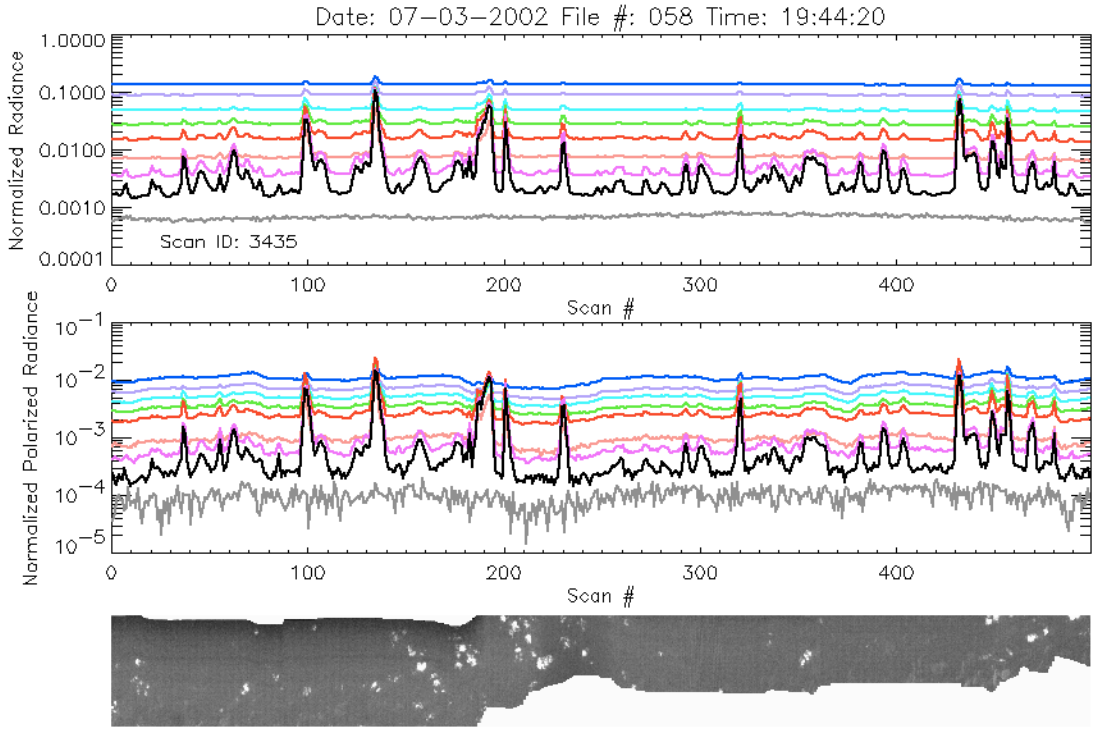

Date: 07-03-2002 File #: 053 Time: 19:15:41
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1392
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

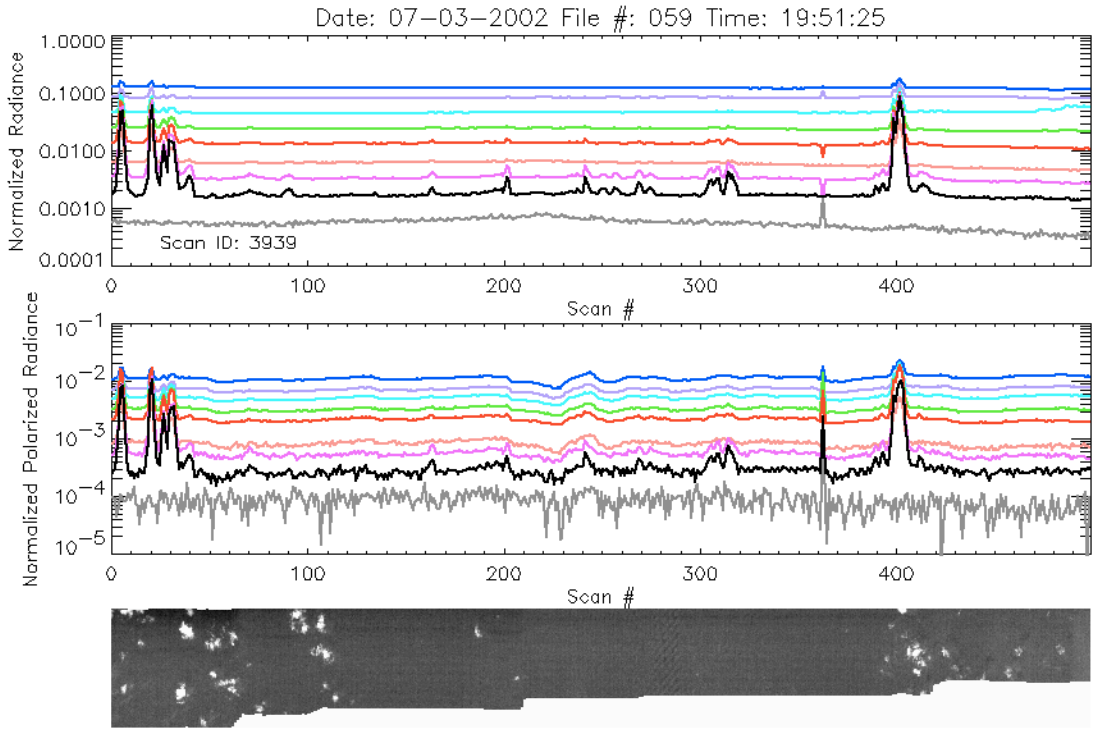

Date: 07-03-2002 File #: 054 Time: 19:22:53
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 1904
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

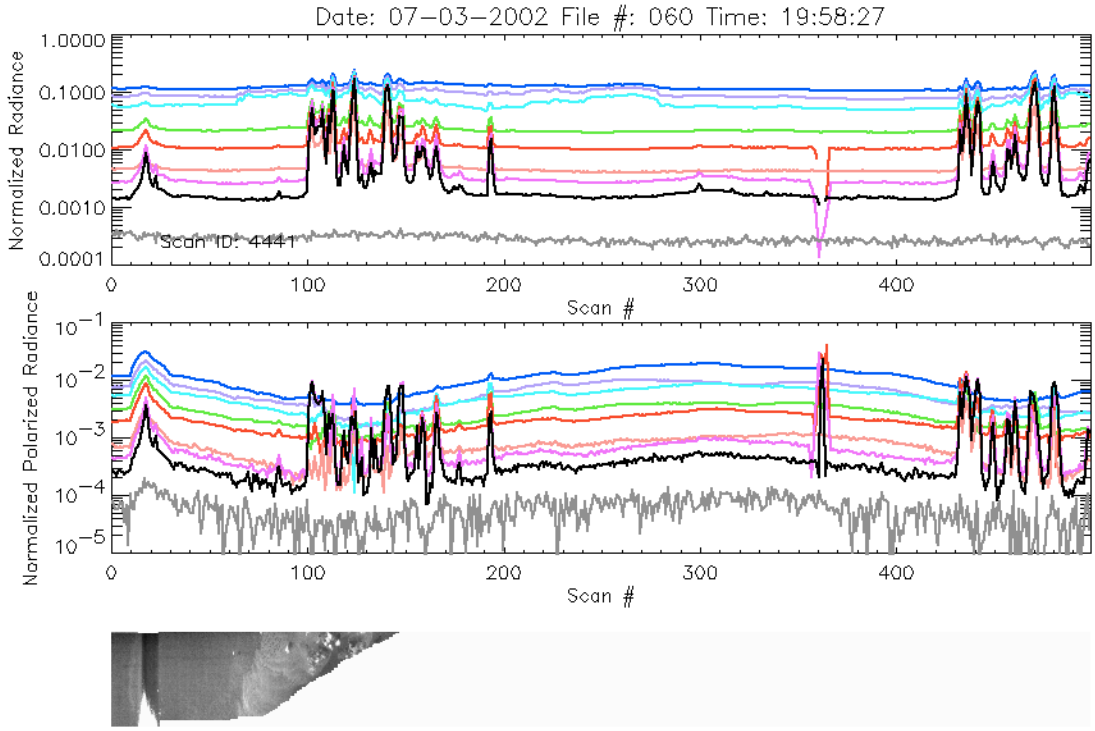

Date: 07-03-2002 File #: 056 Time: 19:30:19
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 2435
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}

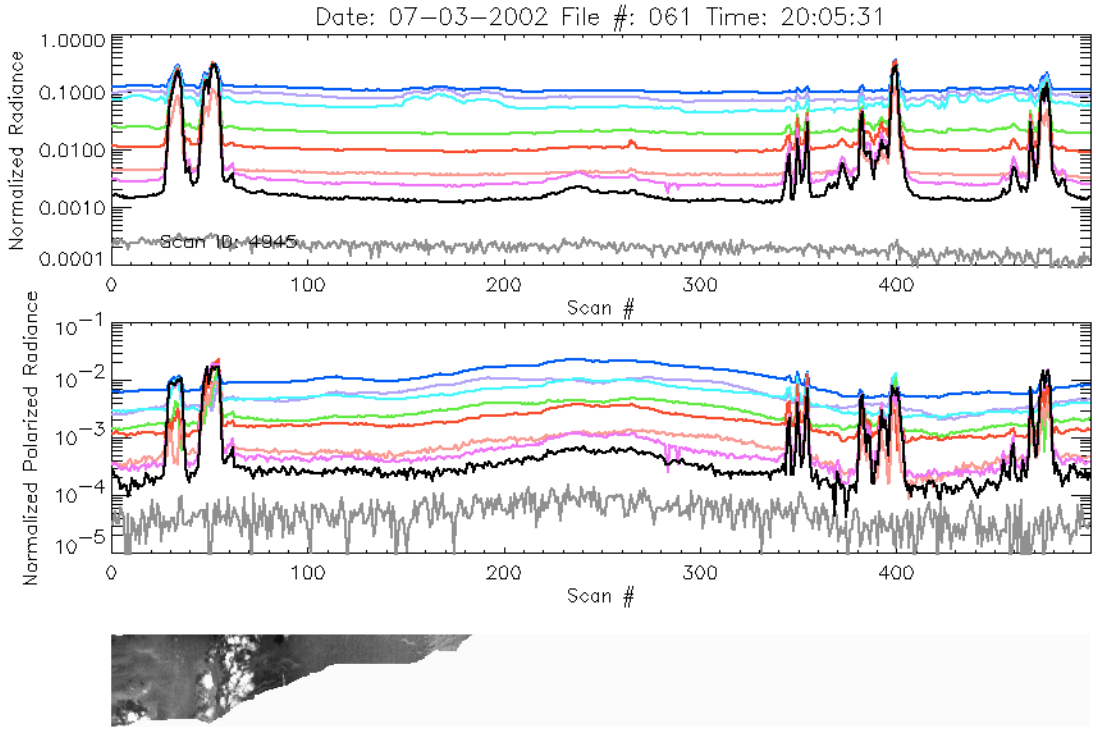

RSP on Proteus 07-03-2002
Start time 19:37:12 End time 20:05:22
057
058
059
060

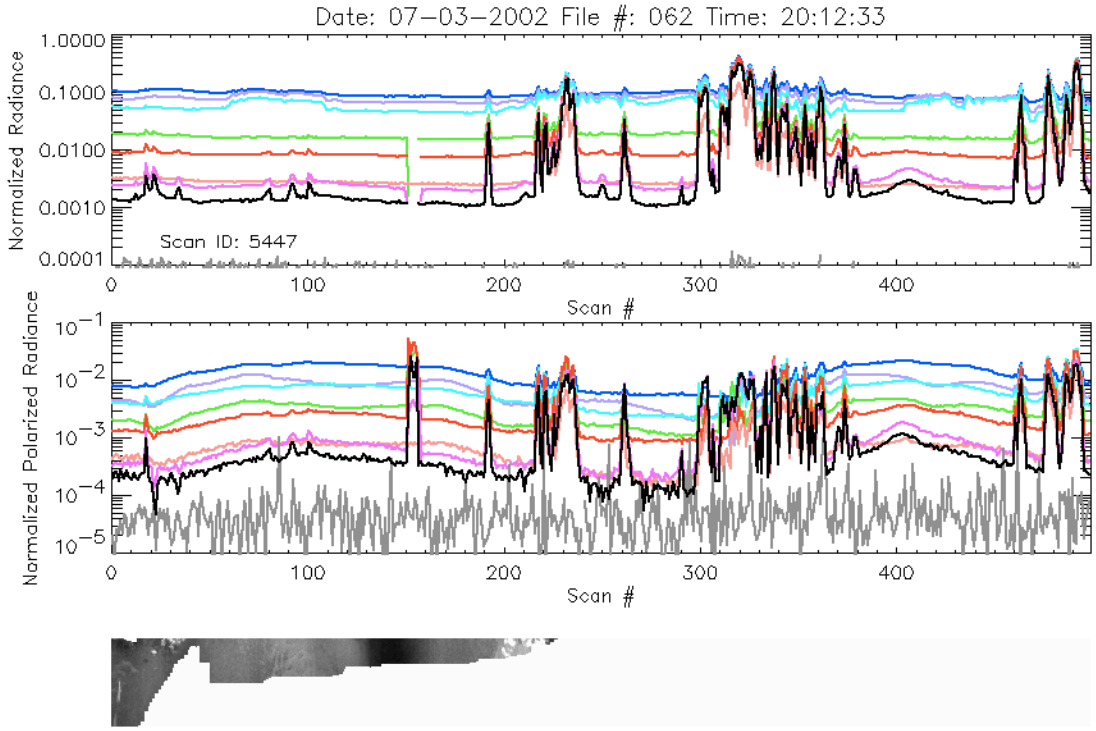

Date: 07-03-2002 File #: 057 Time: 19:37:20
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 2935
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #

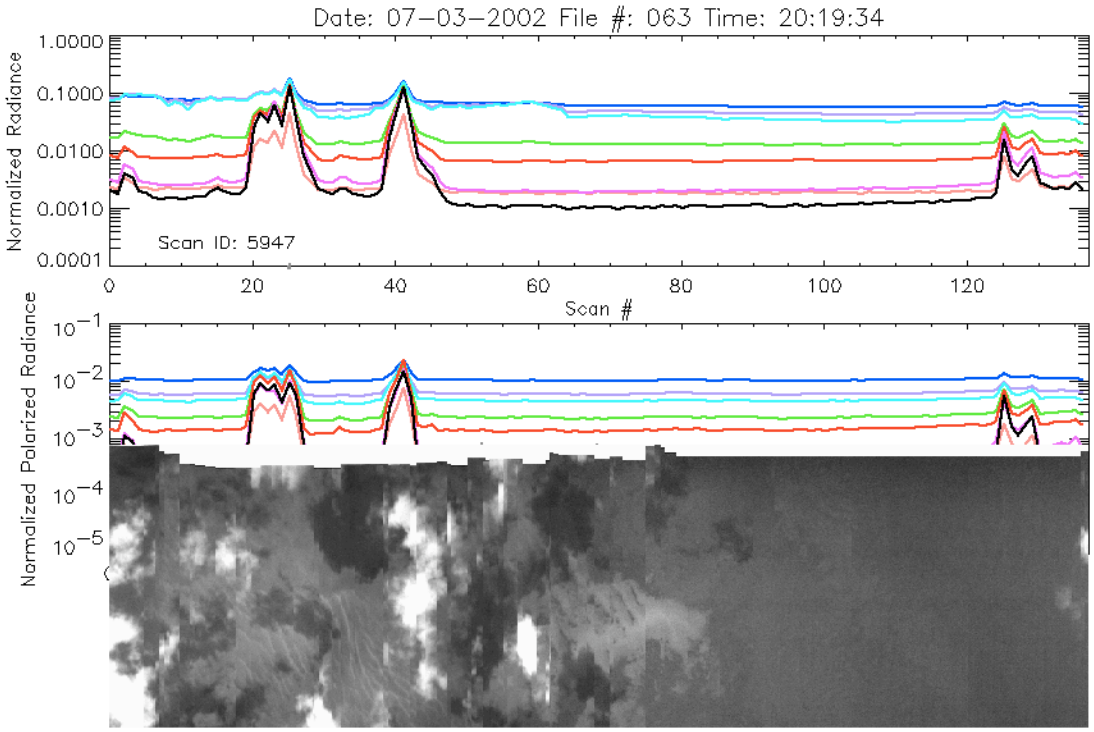

Date: 07-03-2002 File #: 058 Time: 19:44:20
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 3435
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #


Date: 07-03-2002 File #: 059 Time: 19:51:25
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 3939
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #


Date: 07-03-2002 File #: 060 Time: 19:58:27
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 4441
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #


Date: 07-03-2002 File #: 061 Time: 20:05:31
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 4945
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #


Date: 07-03-2002 File #: 062 Time: 20:12:33
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 5447
0
100
200
300
400
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
100
200
300
400
Scan #


Date: 07-03-2002 File #: 063 Time: 20:19:34
Normalized Radiance
1.0000
0.1000
0.0100
0.0010
0.0001
Scan ID: 5947
0
20
40
60
80
100
120
Scan #
Normalized Polarized Radiance
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}