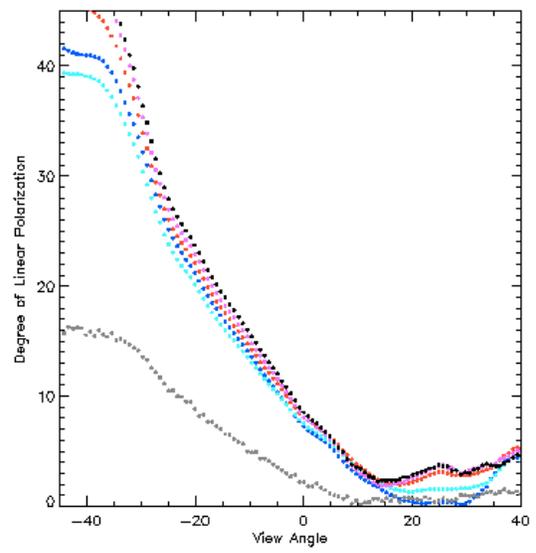
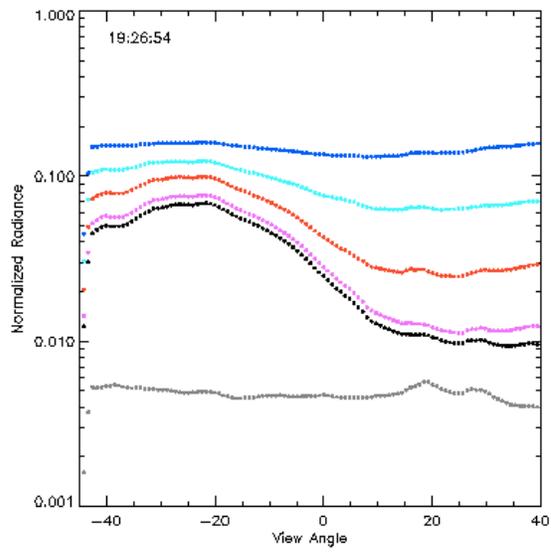


## RSP Quick Look Data

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:

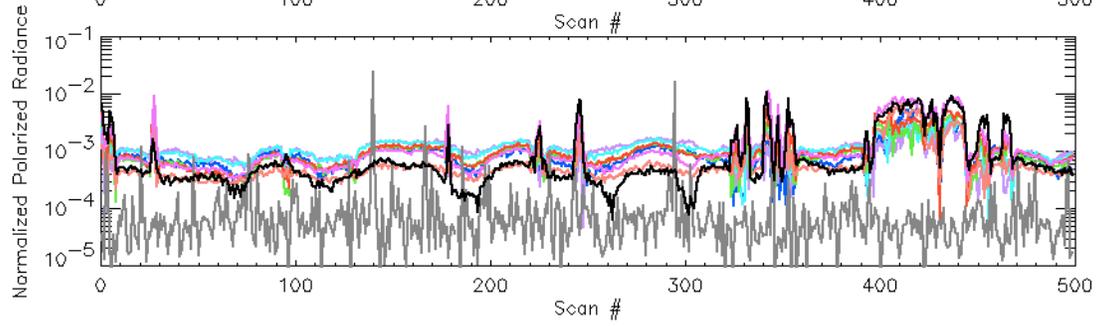
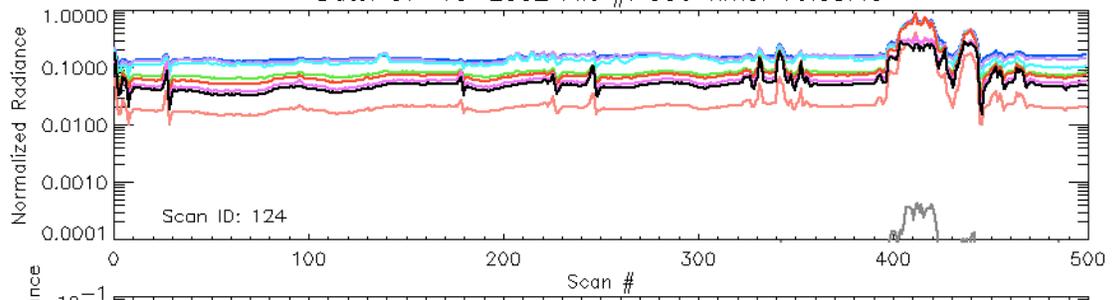
	NRIce	NIIce	NRWat	NIWat
1.58886	1.2895	0.000318	1.3182	0.000104
1.88447	1.2788	0.000317	1.3101	0.000880
2.26438	1.2562	0.000254	1.2875	0.000419

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°. The multi-angle view shown below is indicative of a very thin cirrus cloud and was observed at 19:27 shortly after the WB57 (19:25) and the ER2 (19:26) flew over the Proteus. All the bands except the 1880 nm band show a spectral and angular signature typical of aerosols and sunglint. The 1880 nm band shows no indication of sunglint, but is sufficiently bright that there must be either aerosols, or ice crystals in the upper troposphere. The magnitude of the polarization suggests that the particles are relatively large and are probably ice crystals, although modeling comparisons with ice crystal and dust phase functions will be required before we can make a definitive statement about this.

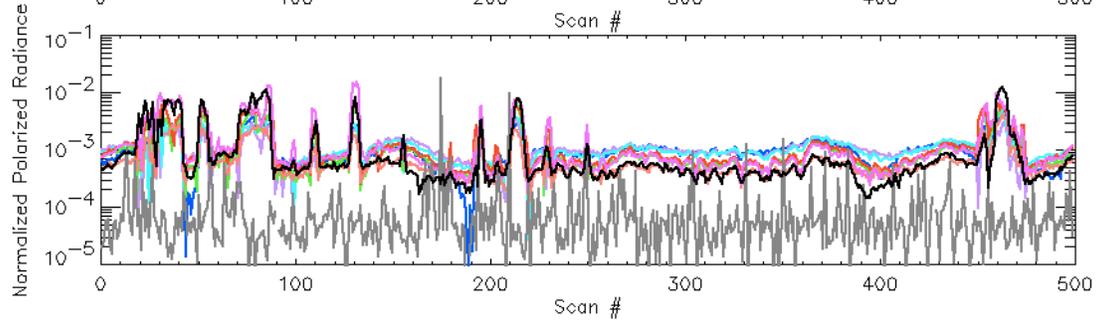
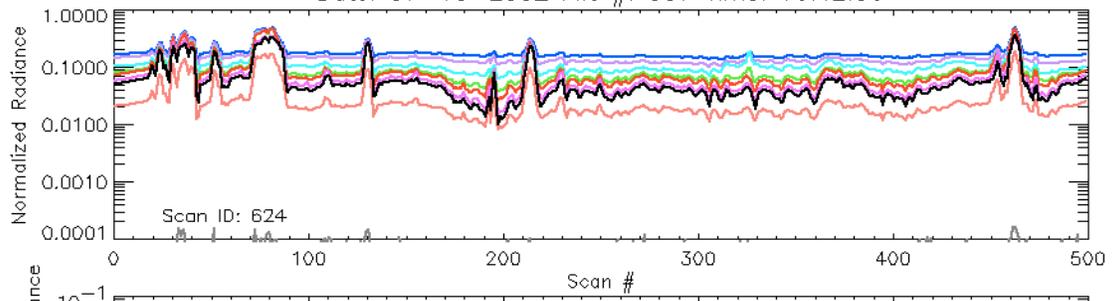




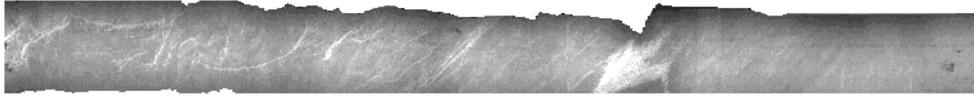
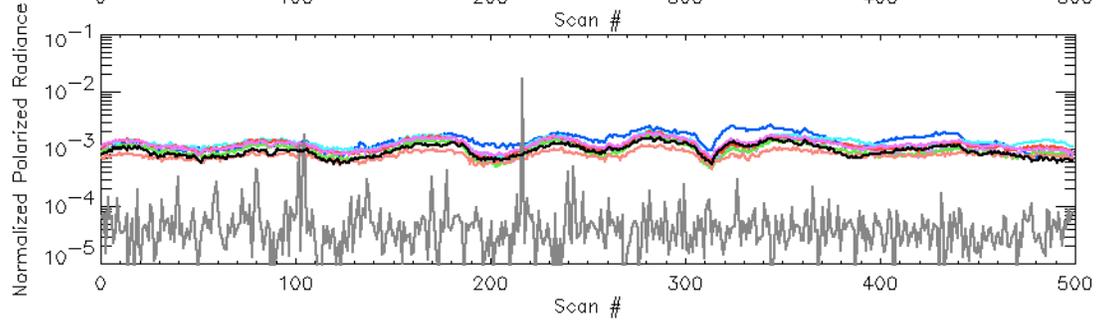
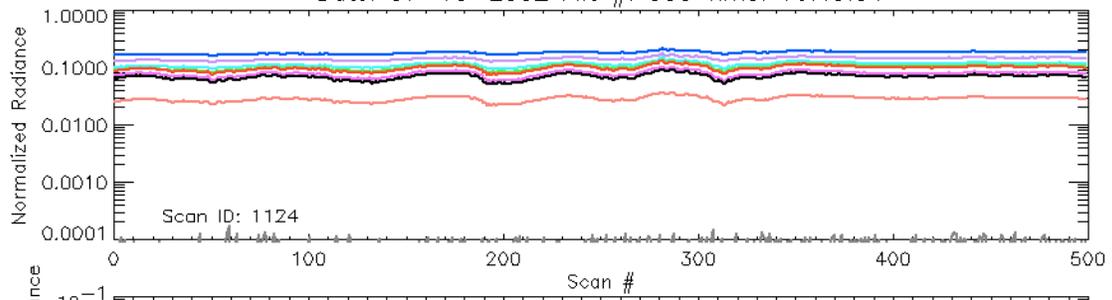
Date: 07-13-2002 File #: 006 Time: 16:35:49



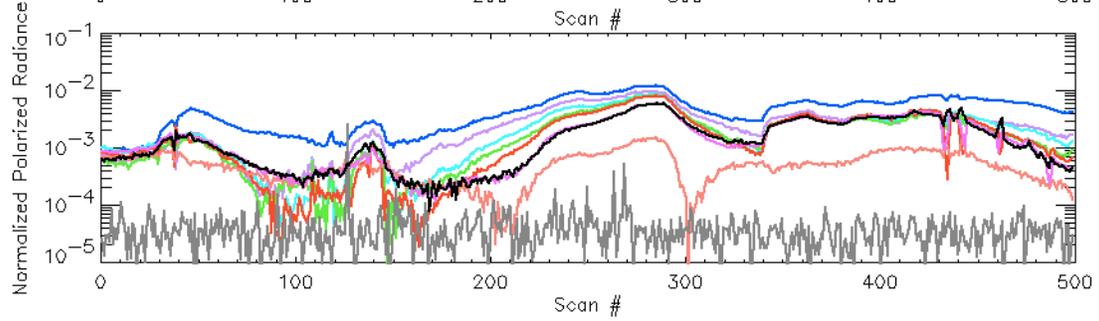
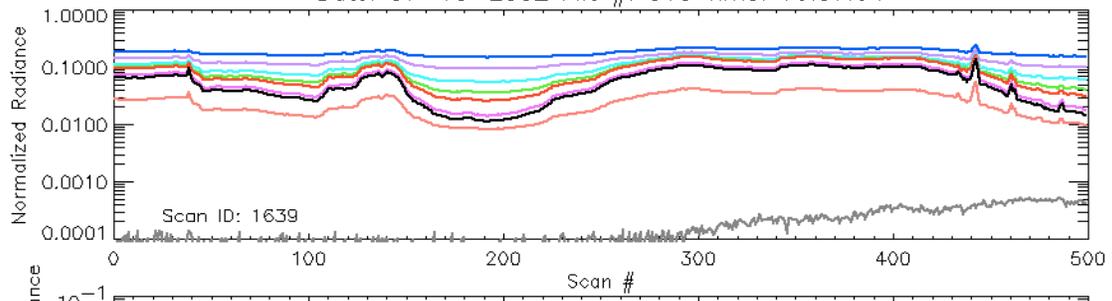
Date: 07-13-2002 File #: 007 Time: 16:42:50



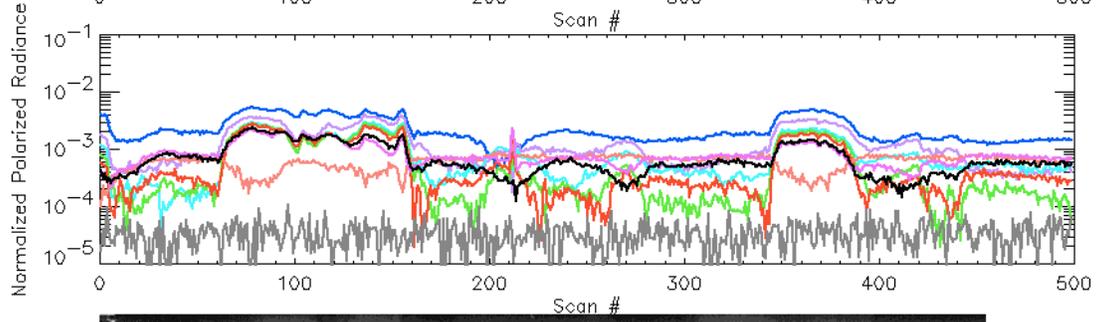
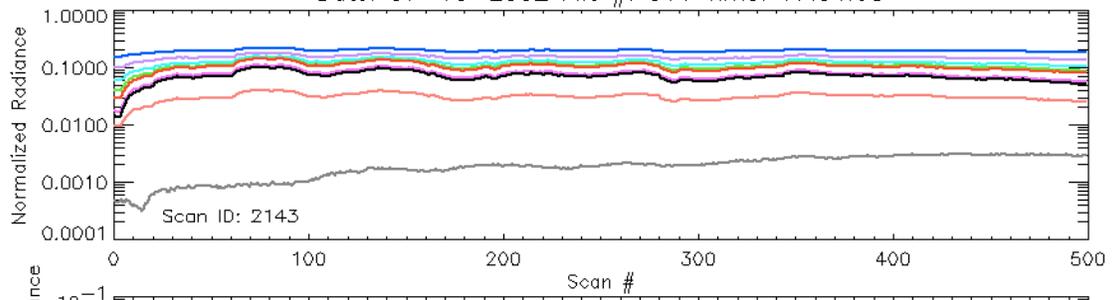
Date: 07-13-2002 File #: 008 Time: 16:49:51



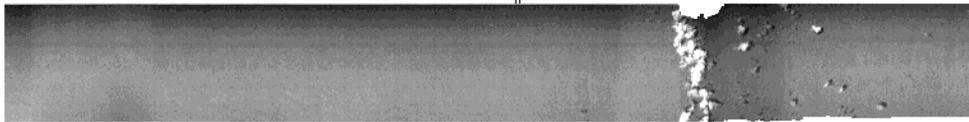
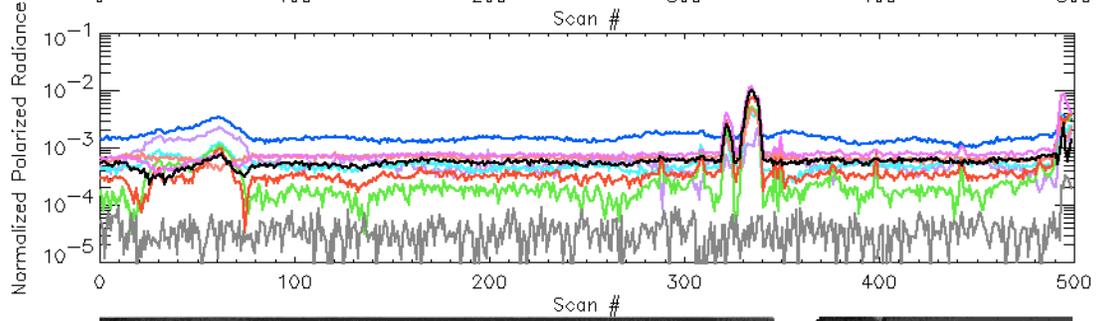
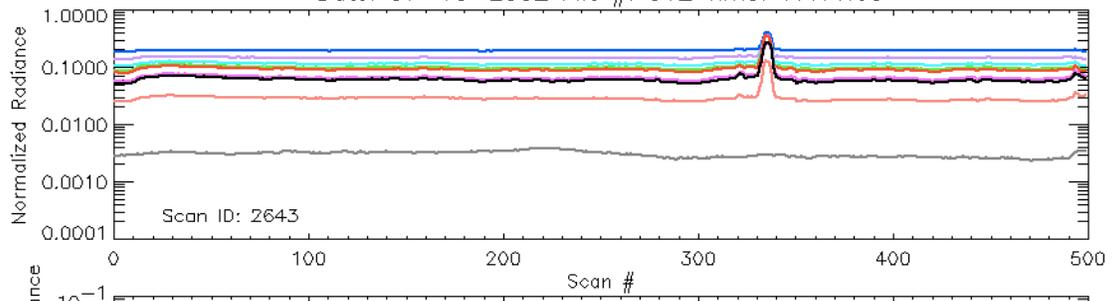
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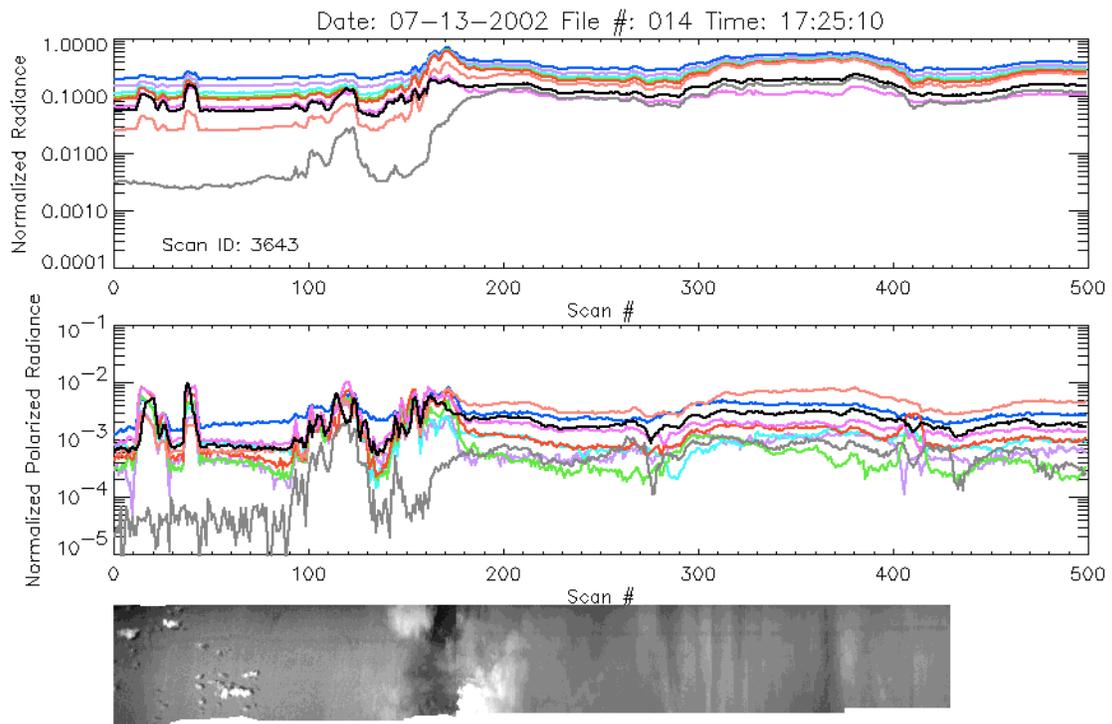
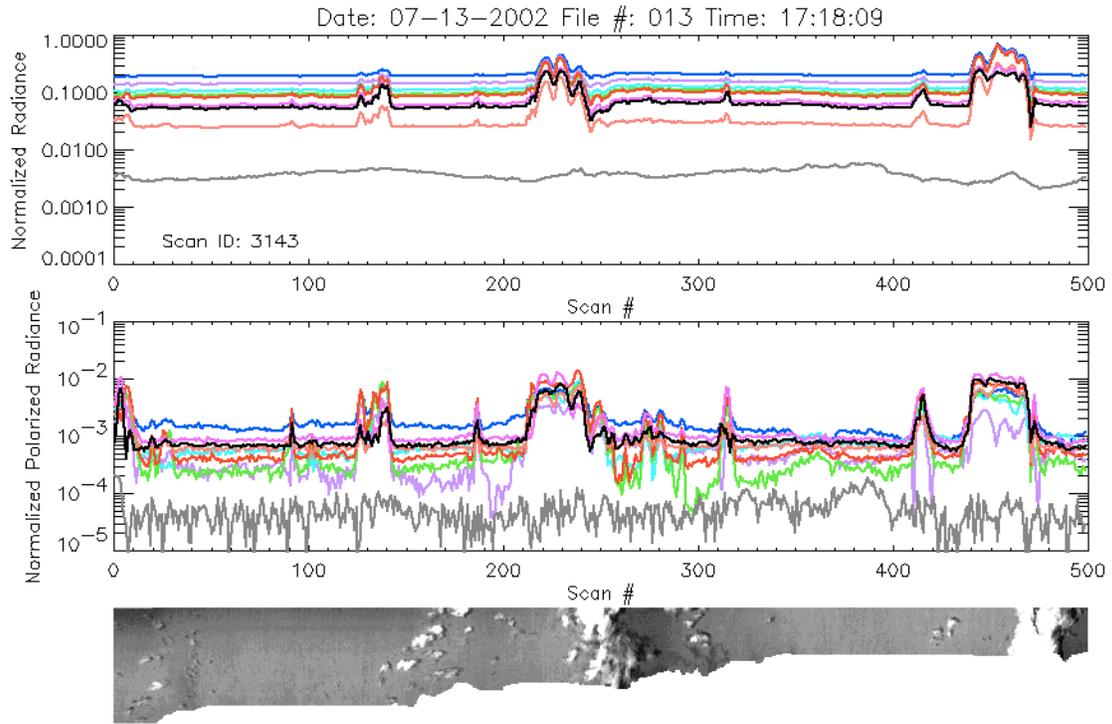


Date: 07-13-2002 File #: 011 Time: 17:04:08

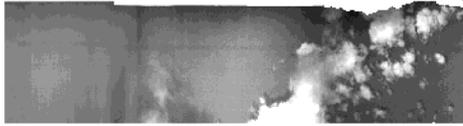
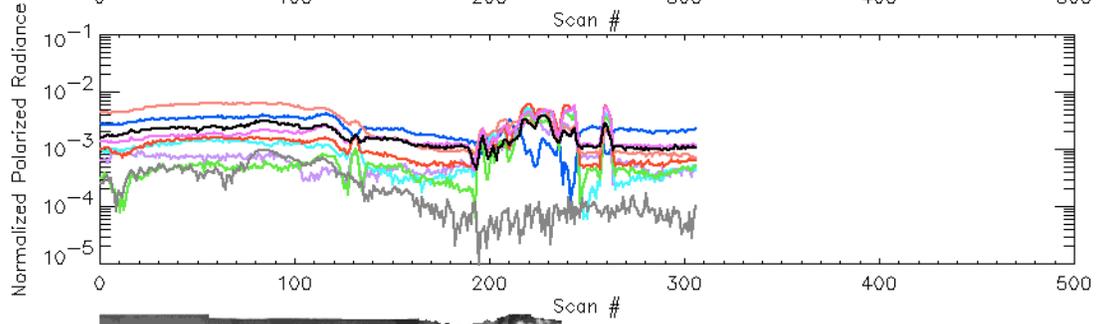
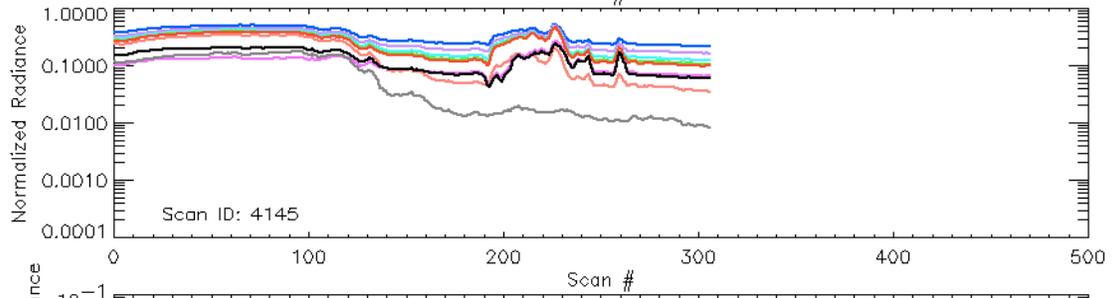


Date: 07-13-2002 File #: 012 Time: 17:11:09

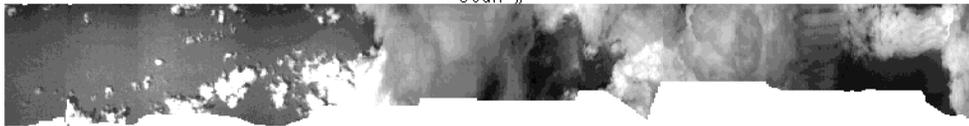
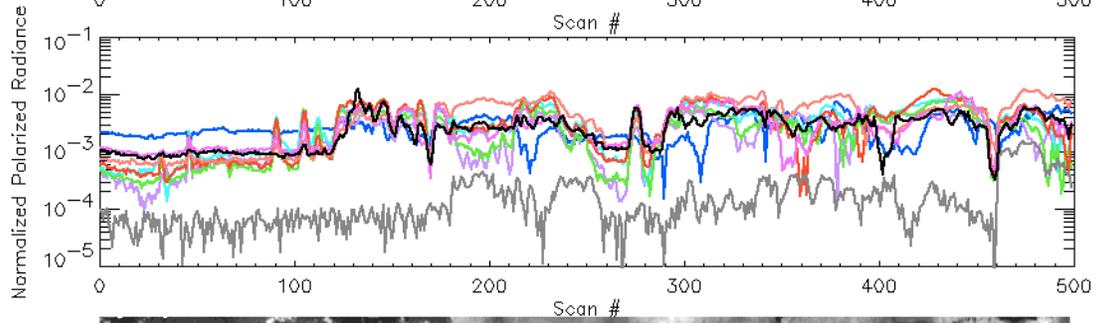
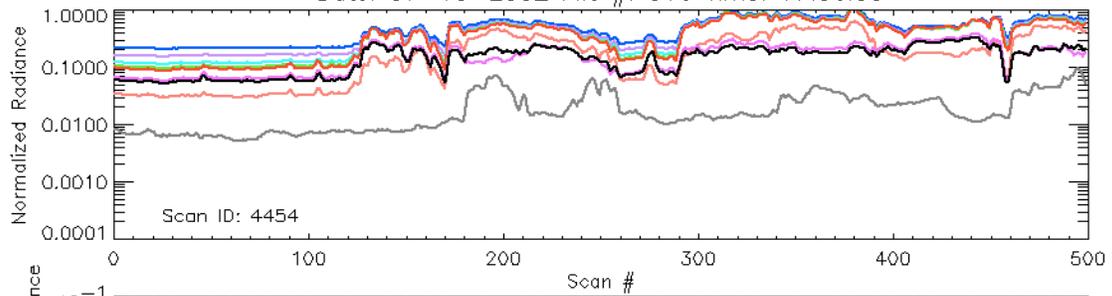


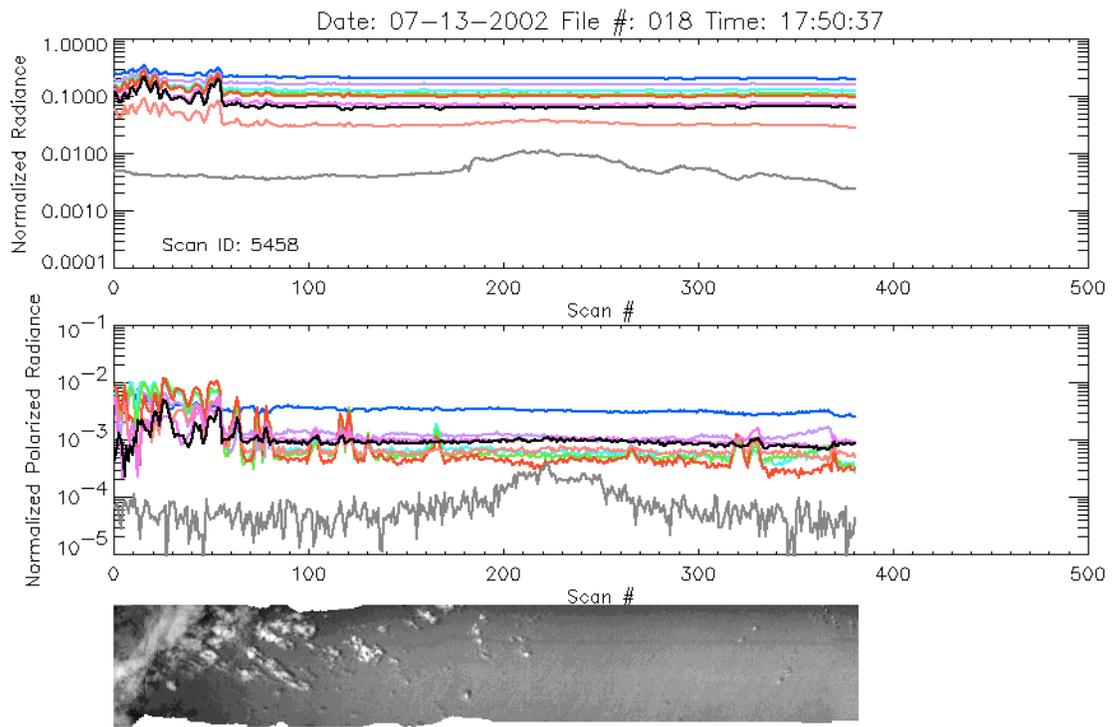
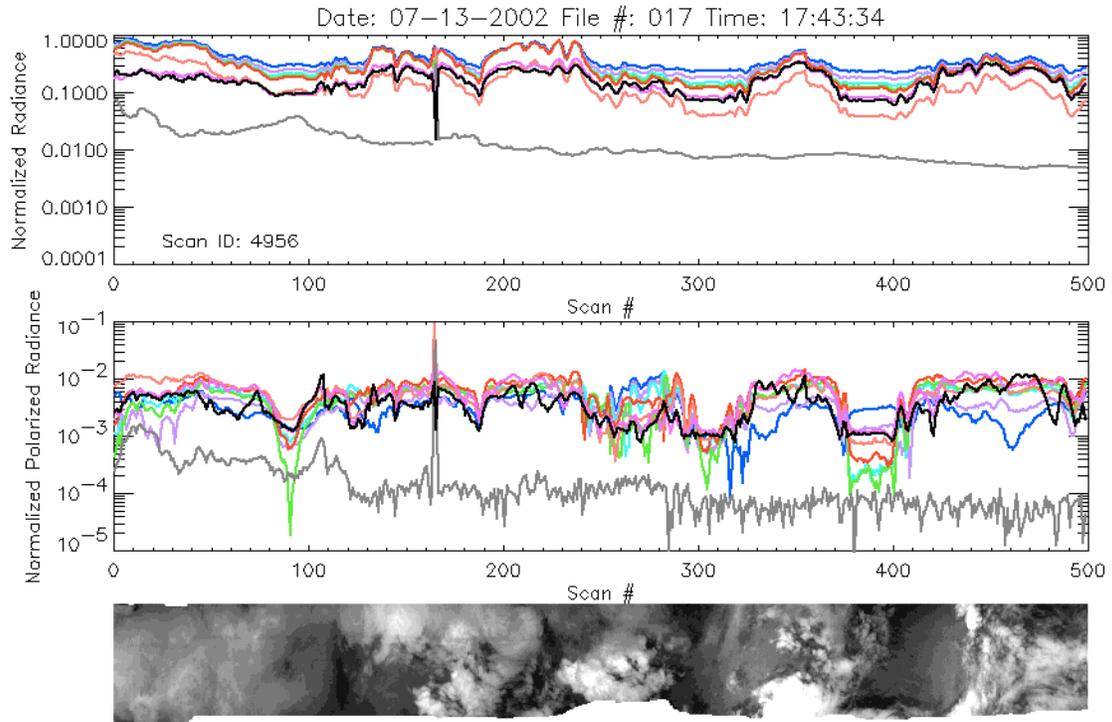


Date: 07-13-2002 File #: 015 Time: 17:32:12

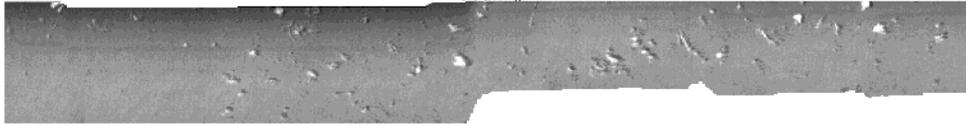
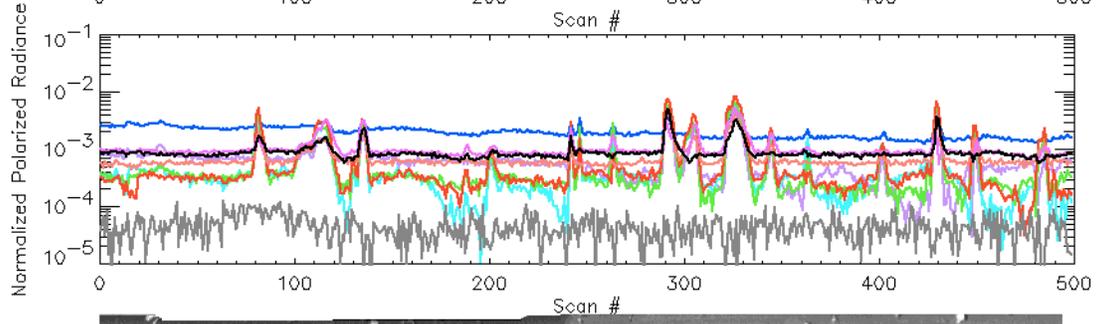
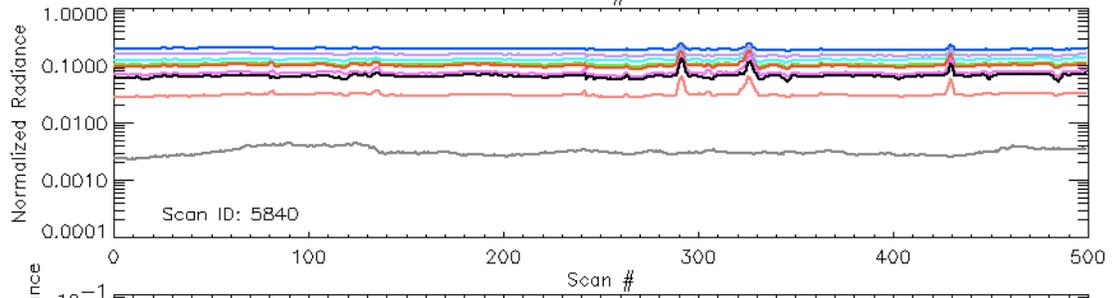


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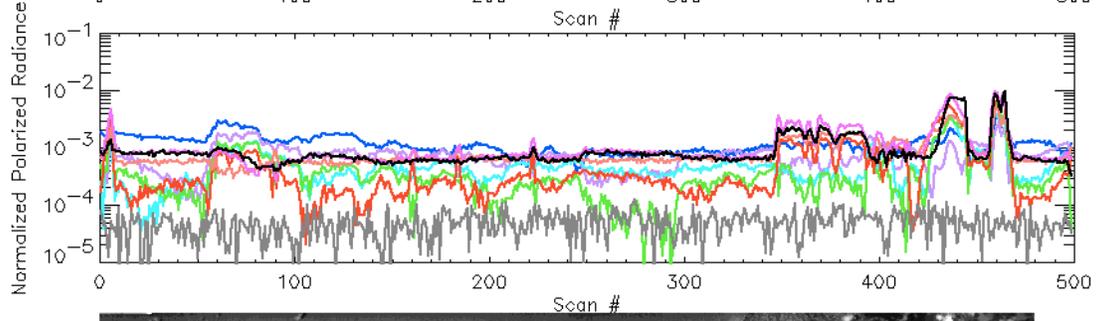
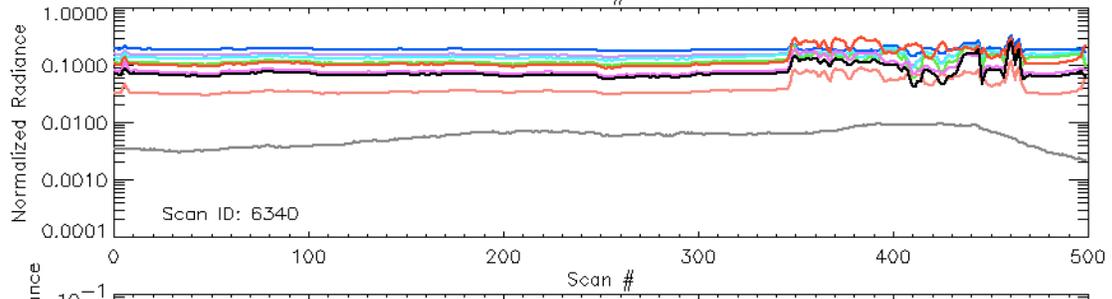




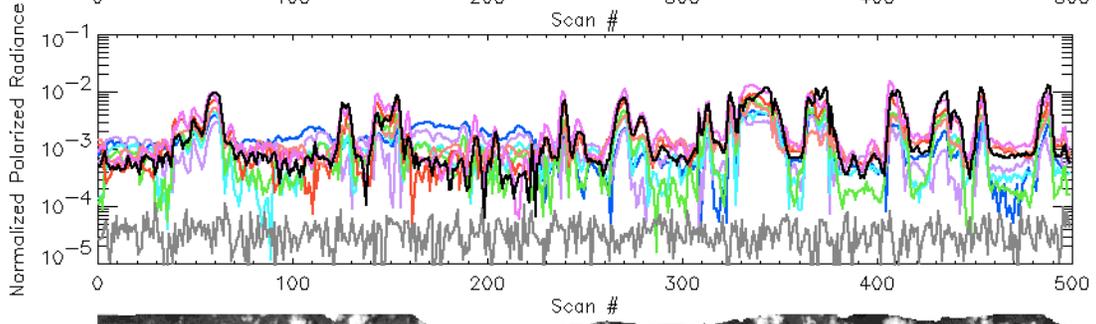
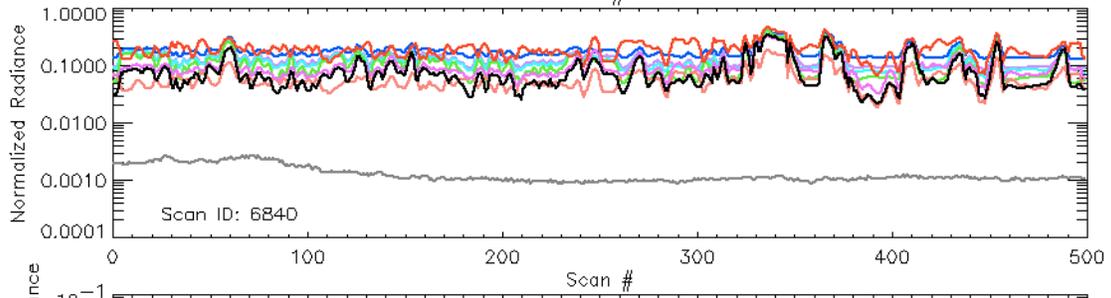
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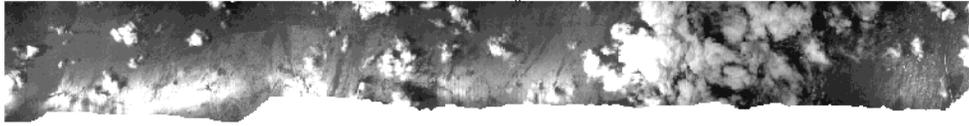
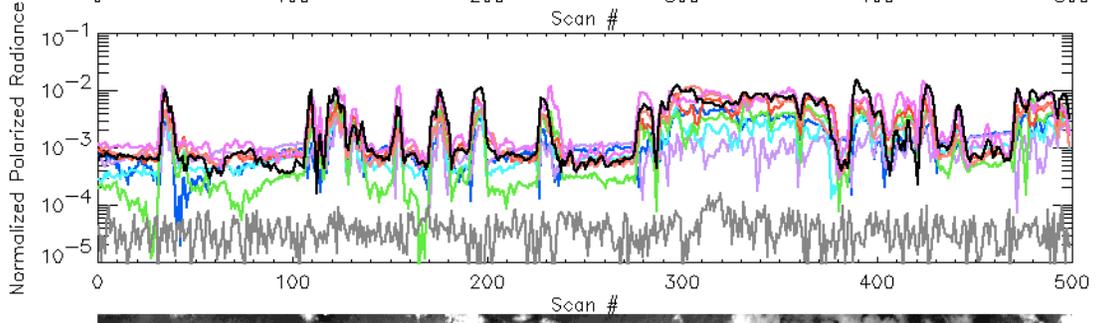
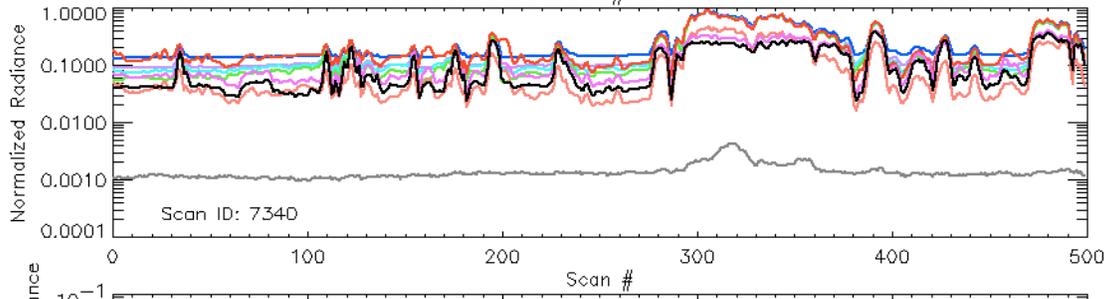
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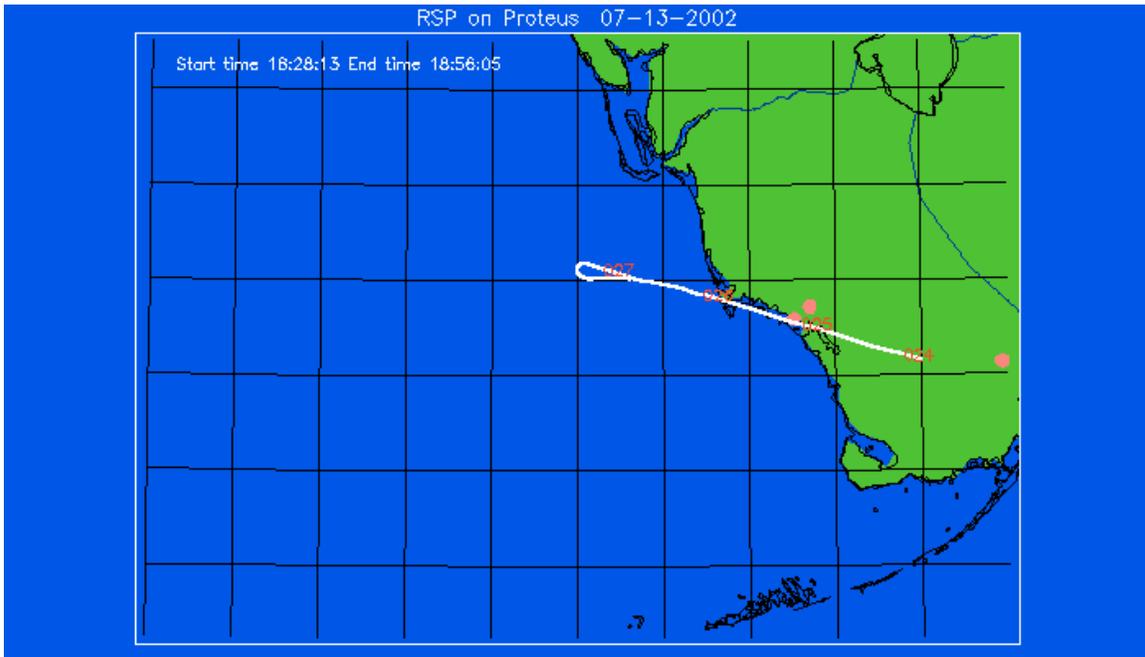
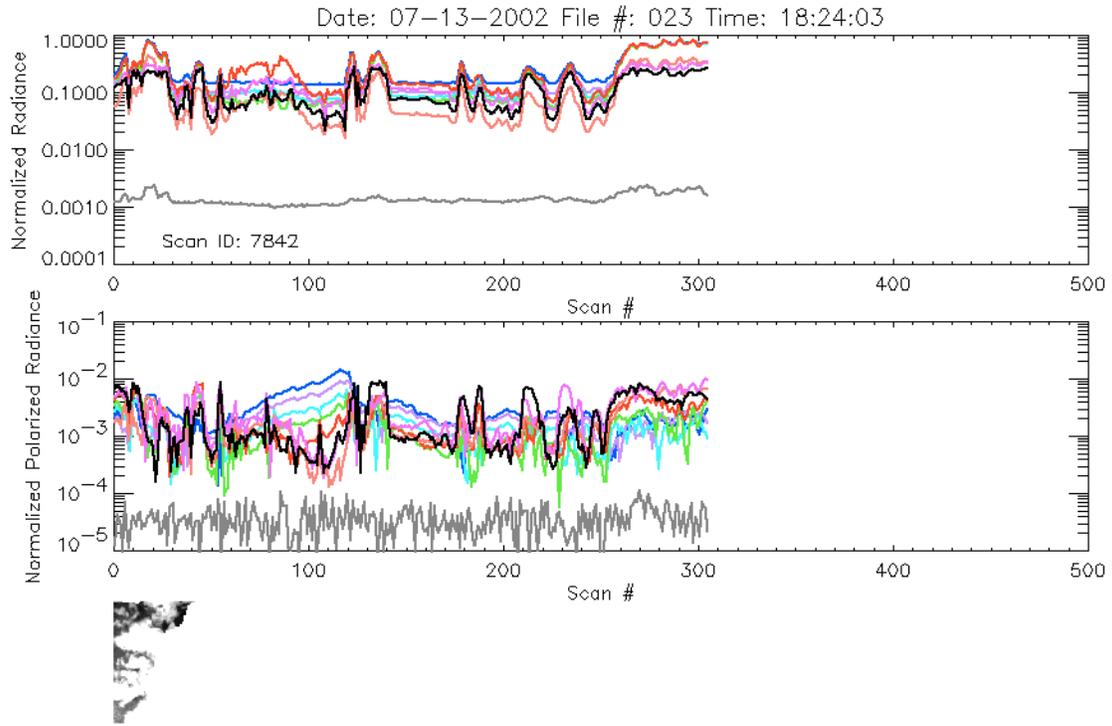


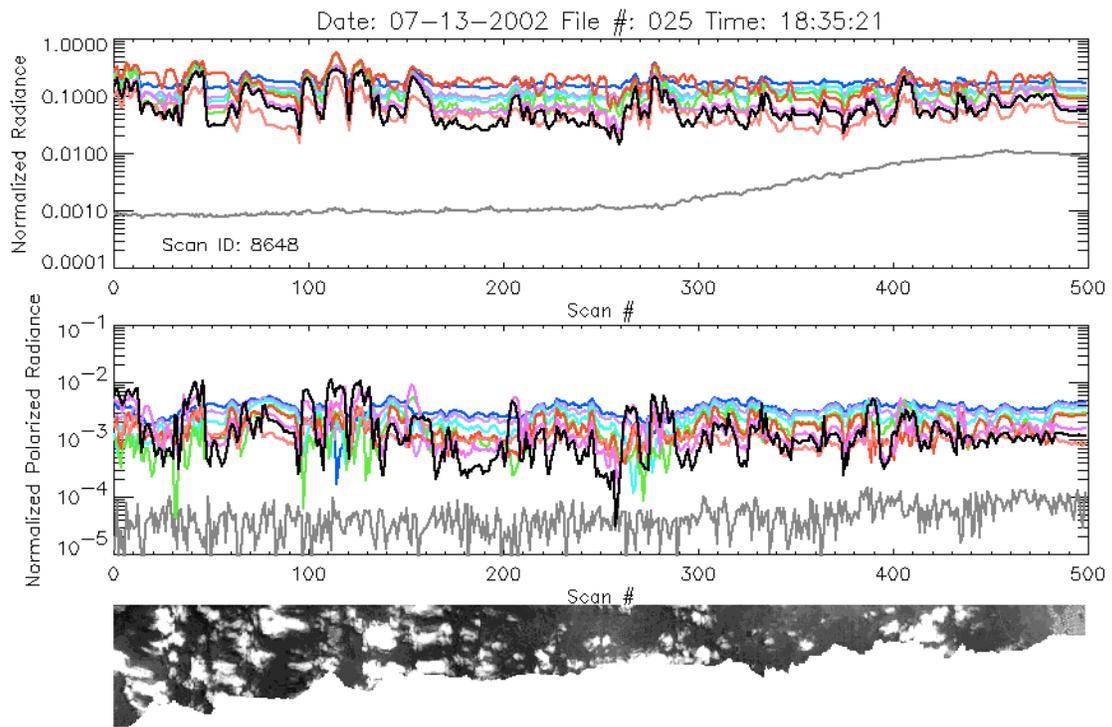
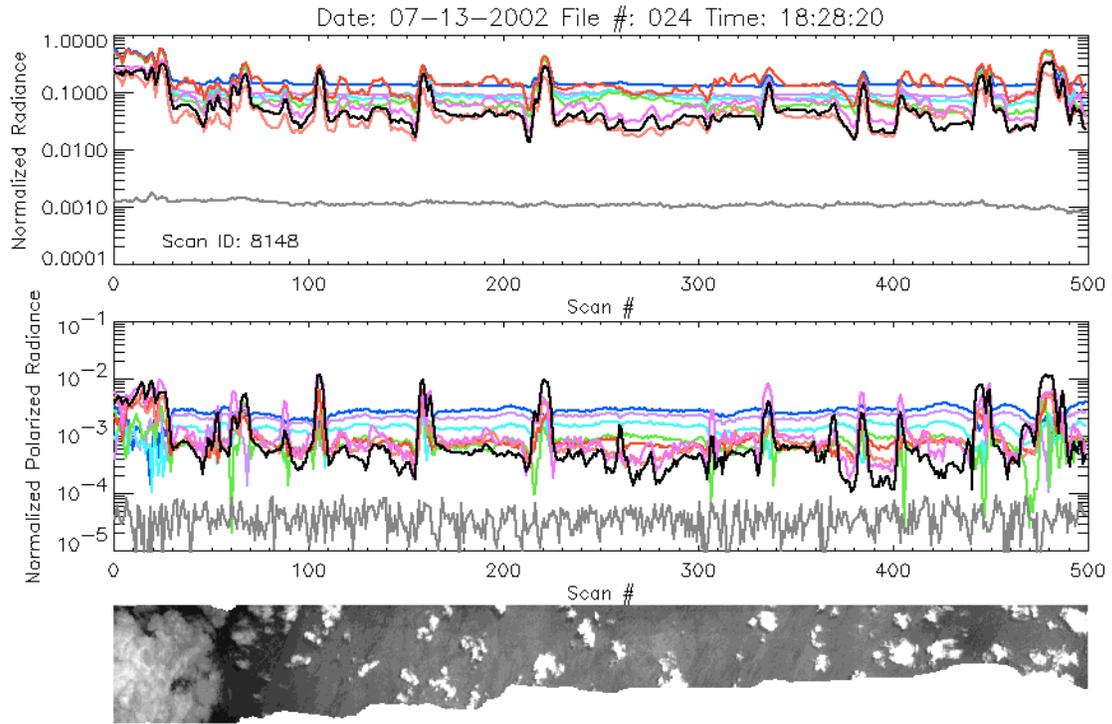
Date: 07-13-2002 File #: 021 Time: 18:10:00



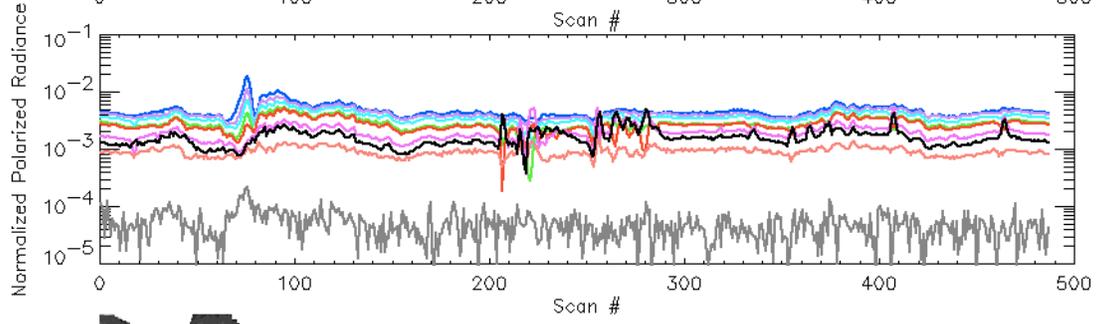
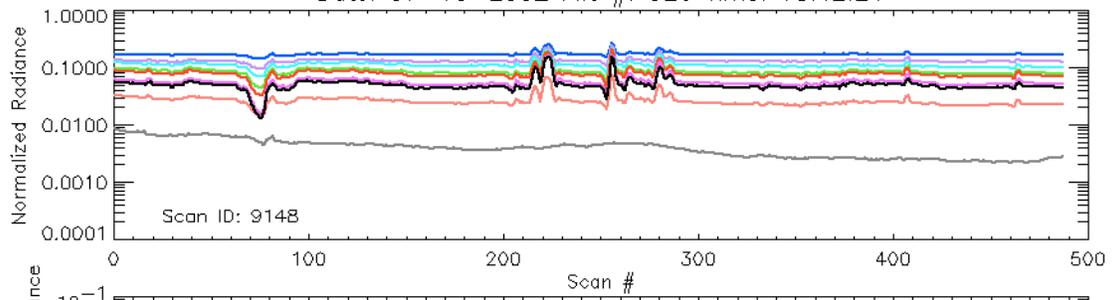
Date: 07-13-2002 File #: 022 Time: 18:17:01



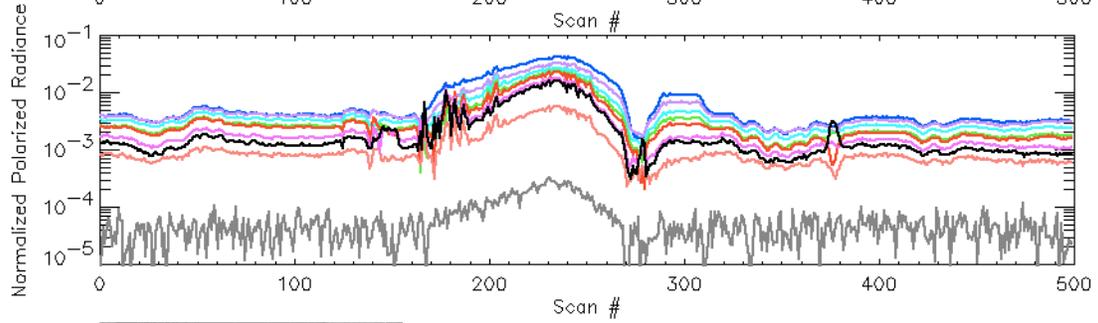
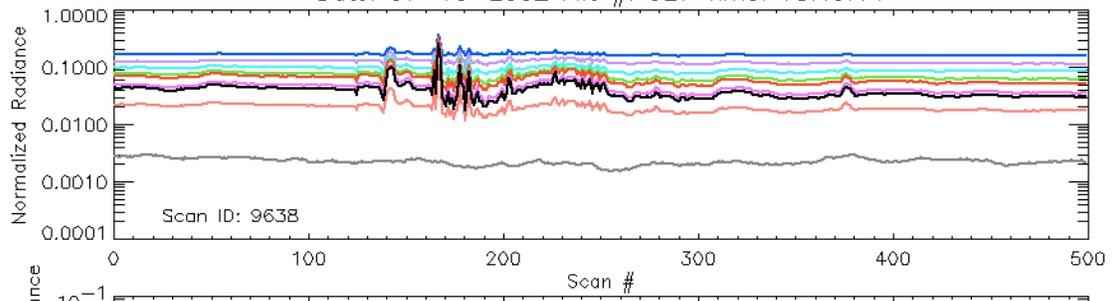




Date: 07-13-2002 File #: 026 Time: 18:42:21

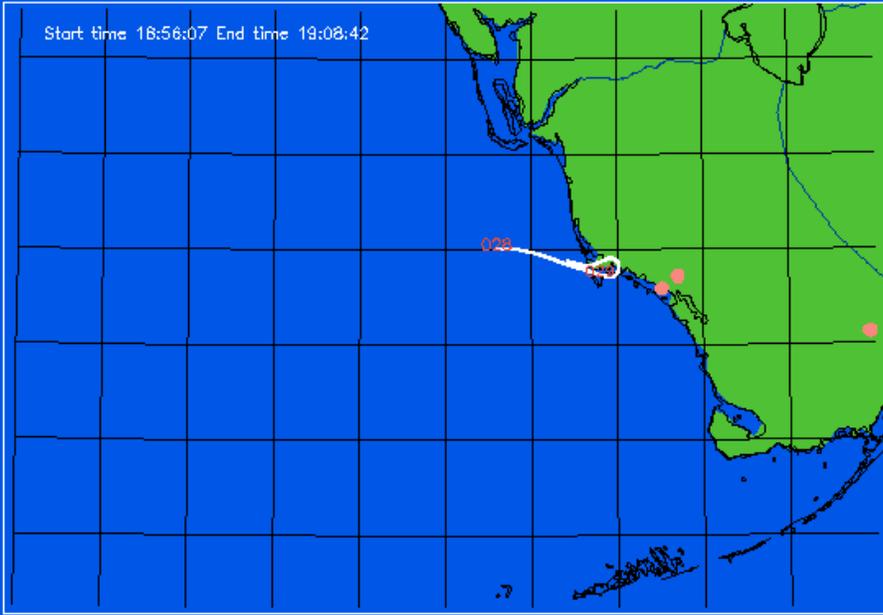


Date: 07-13-2002 File #: 027 Time: 18:49:14

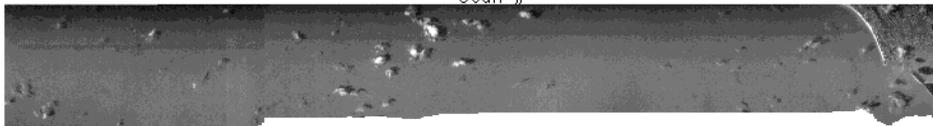
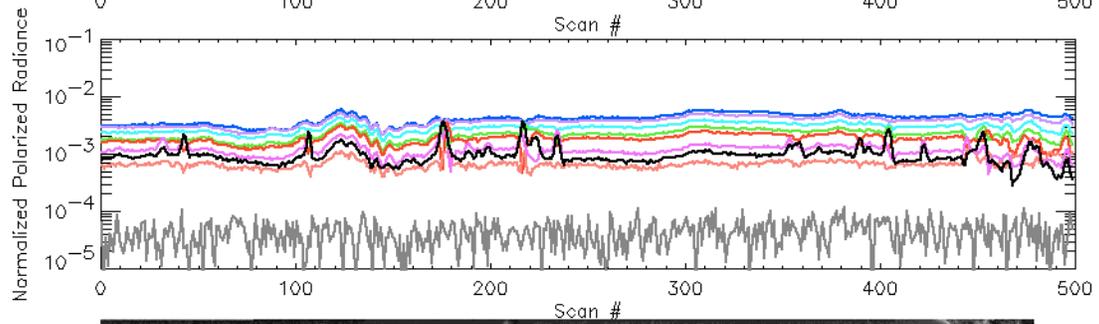
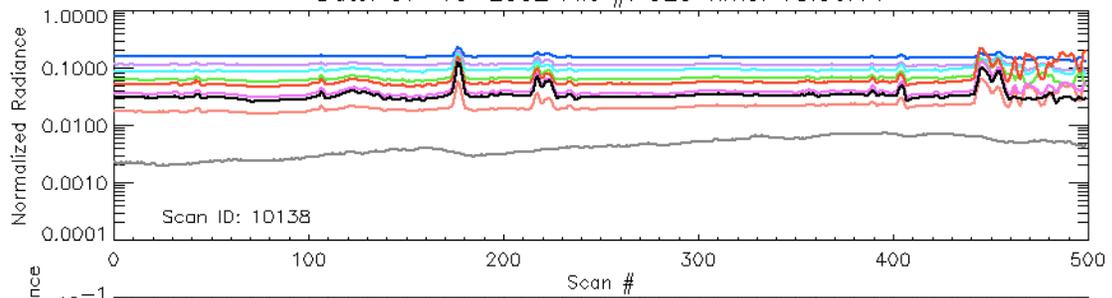


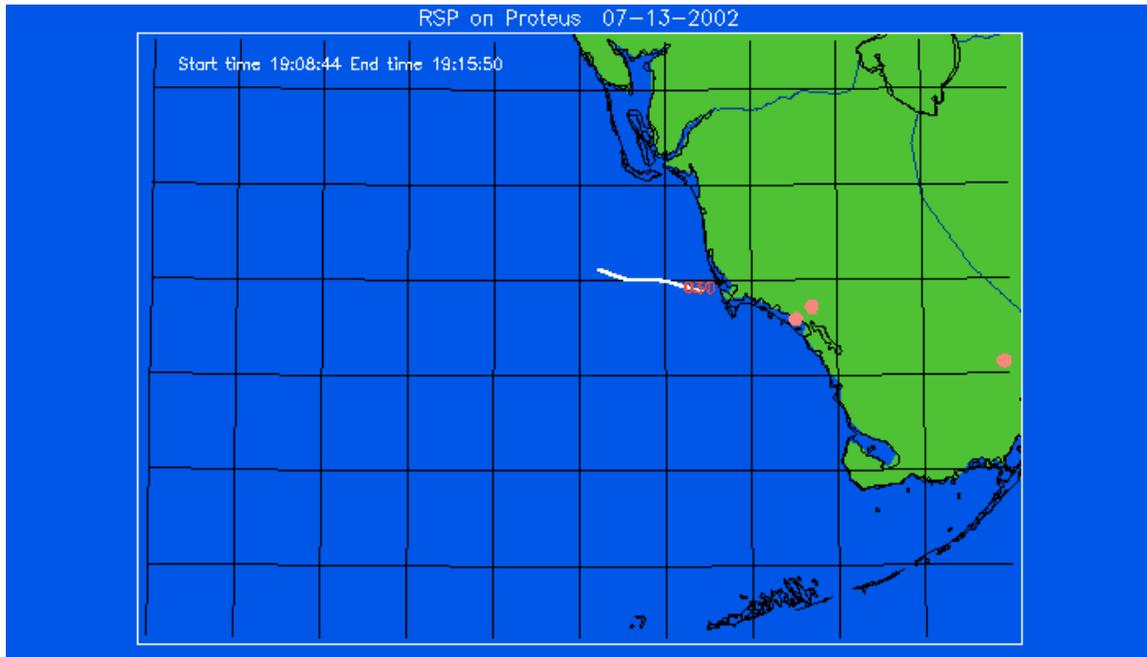
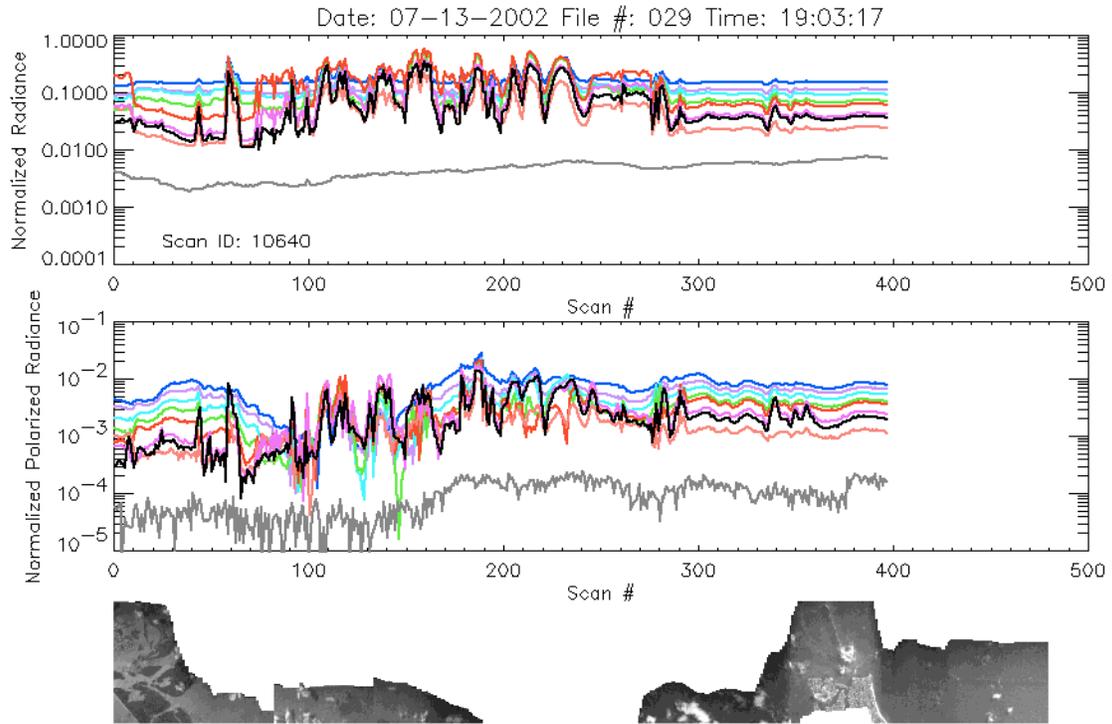
RSP on Proteus 07-13-2002

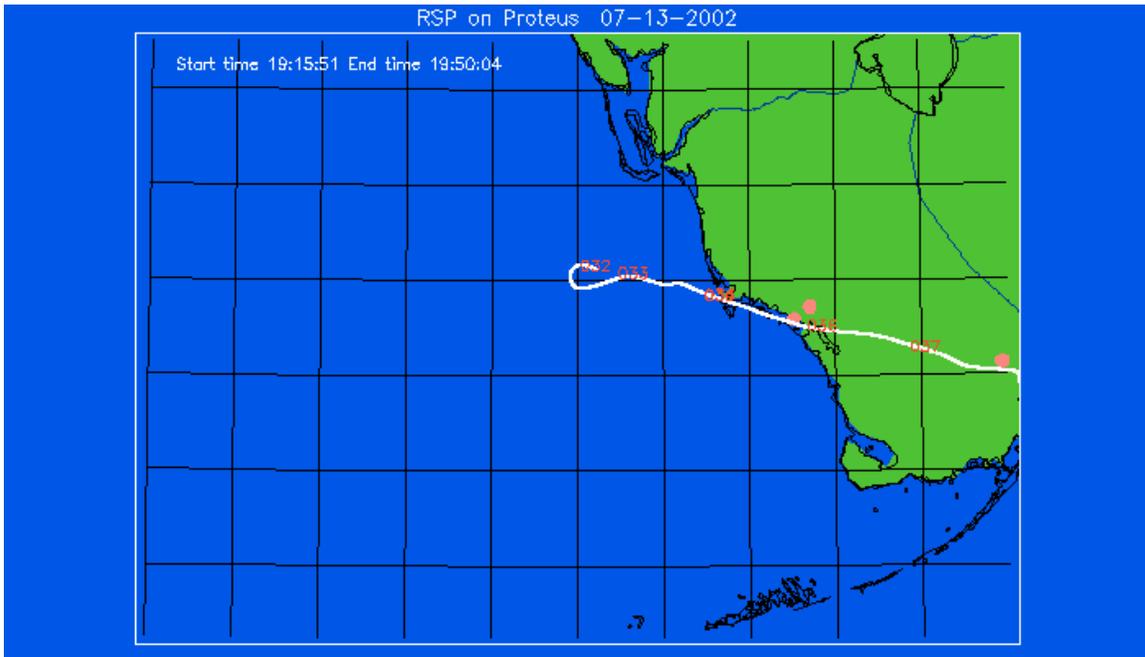
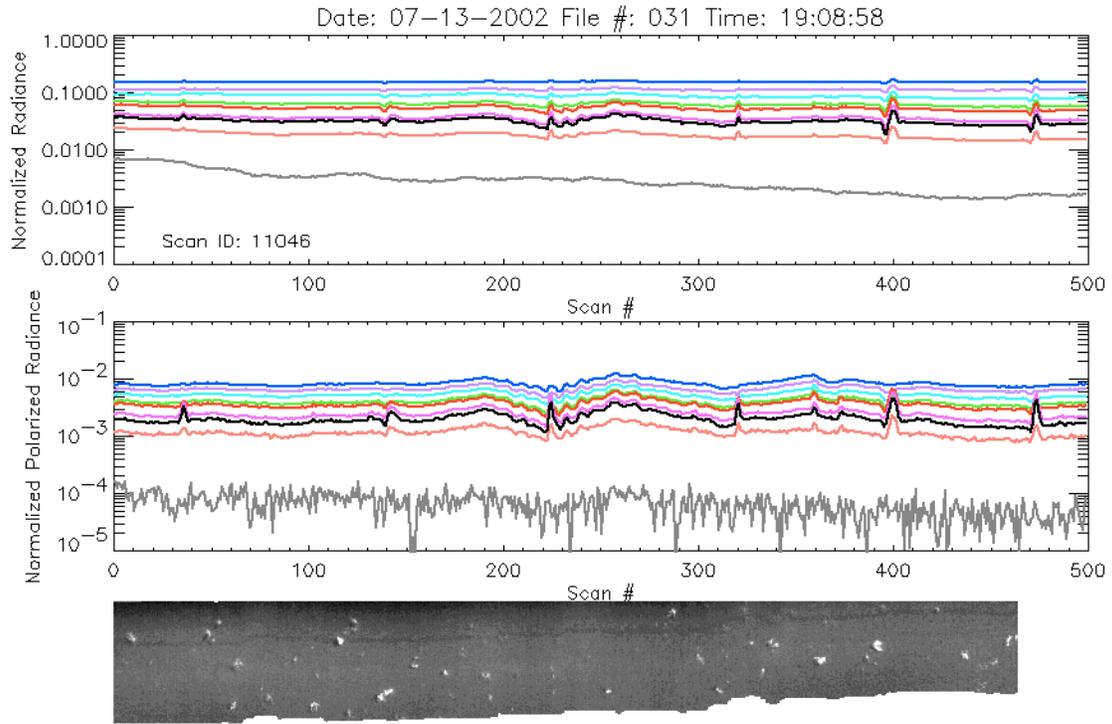
Start time 18:56:07 End time 19:08:42

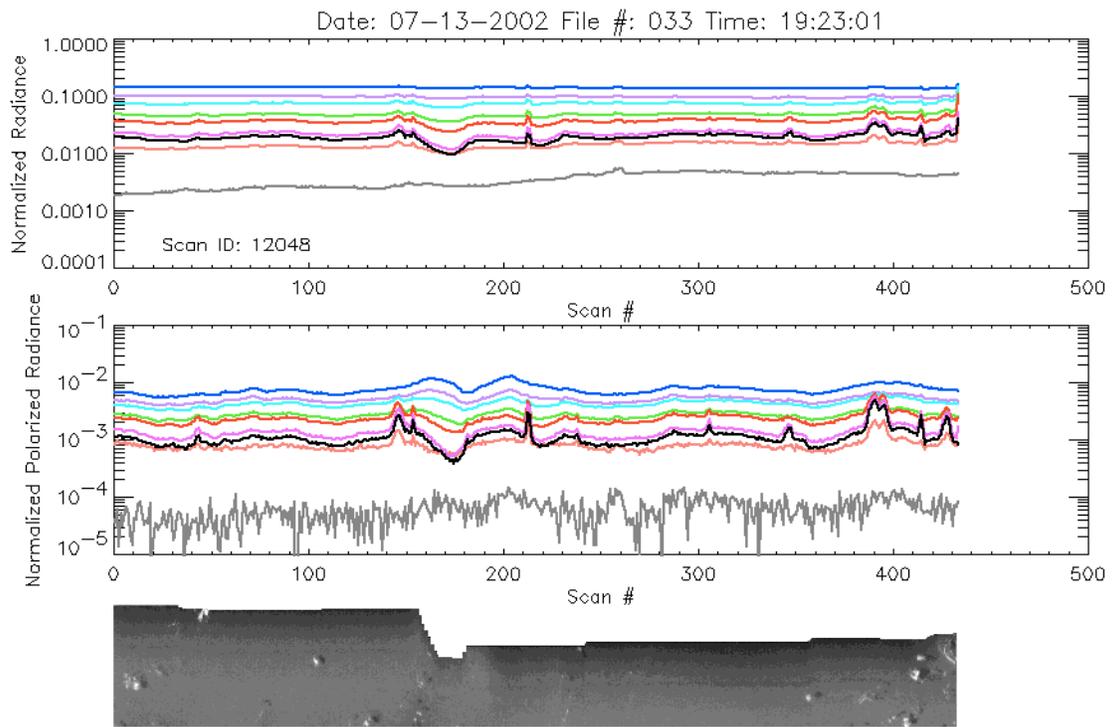
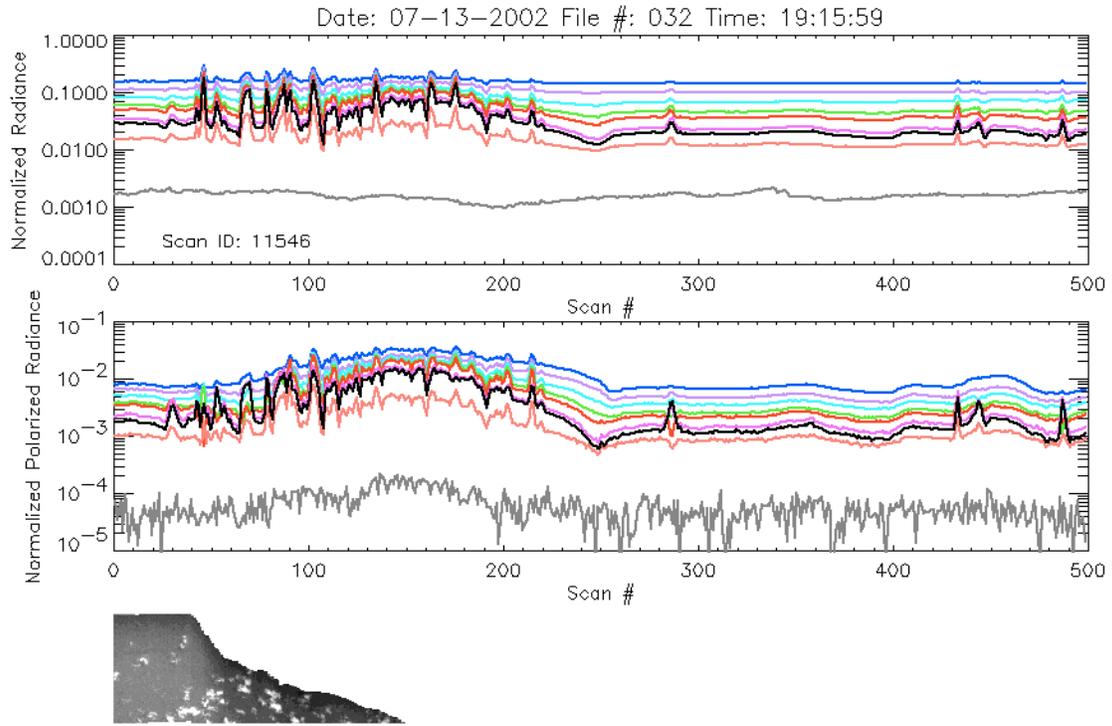


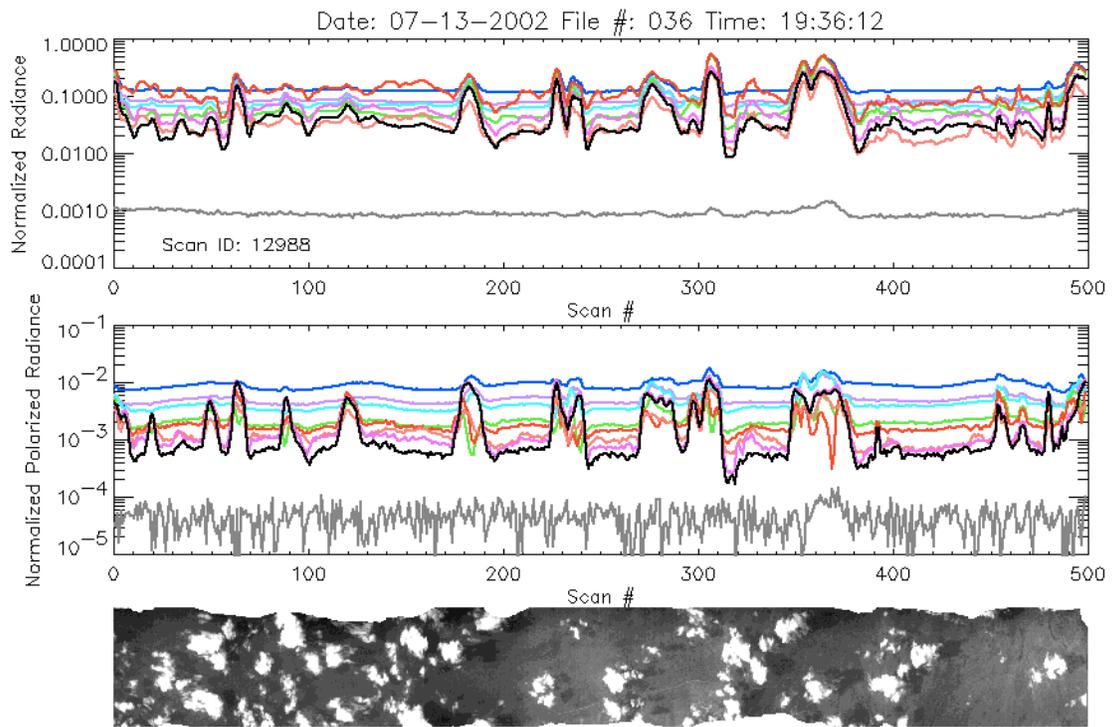
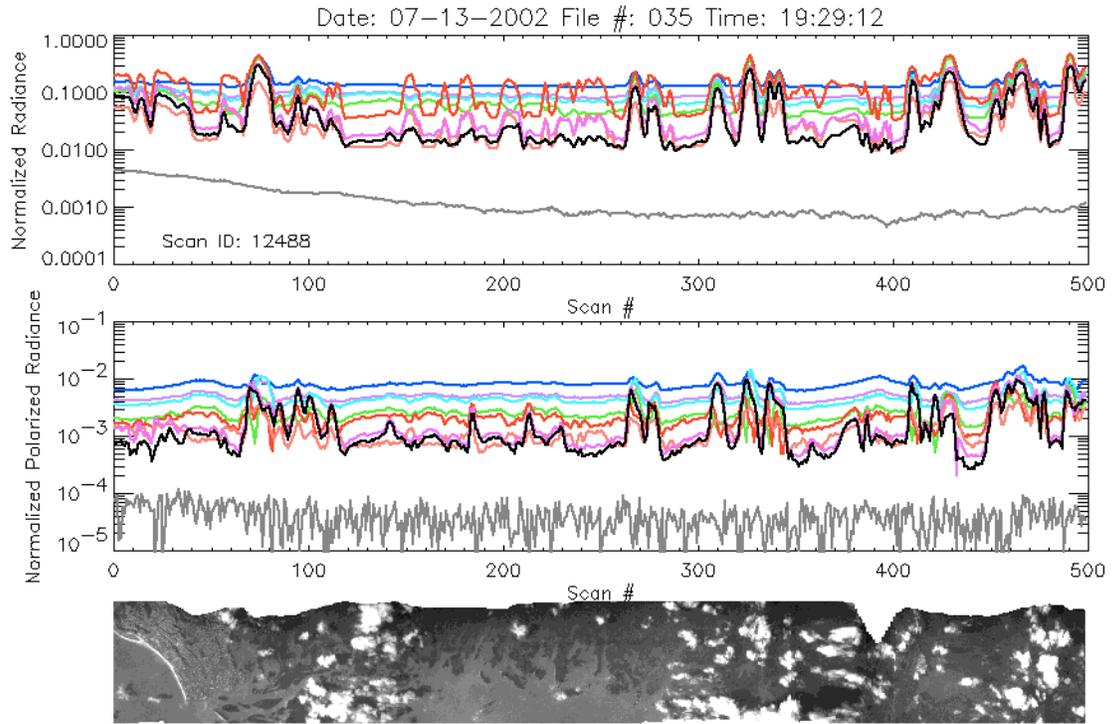
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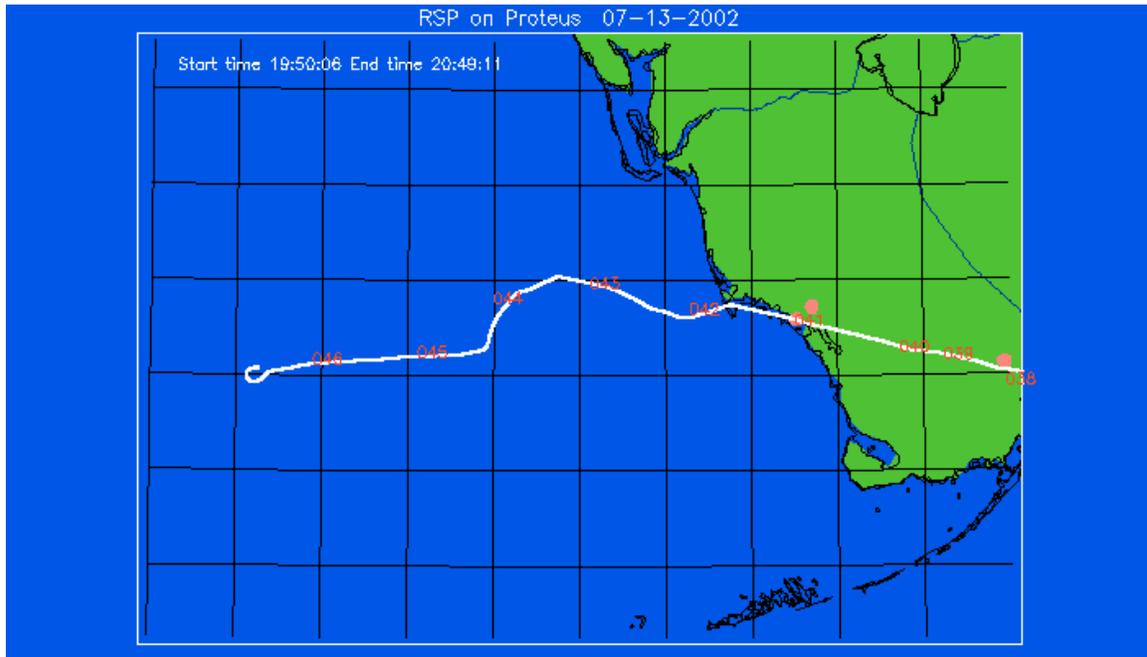
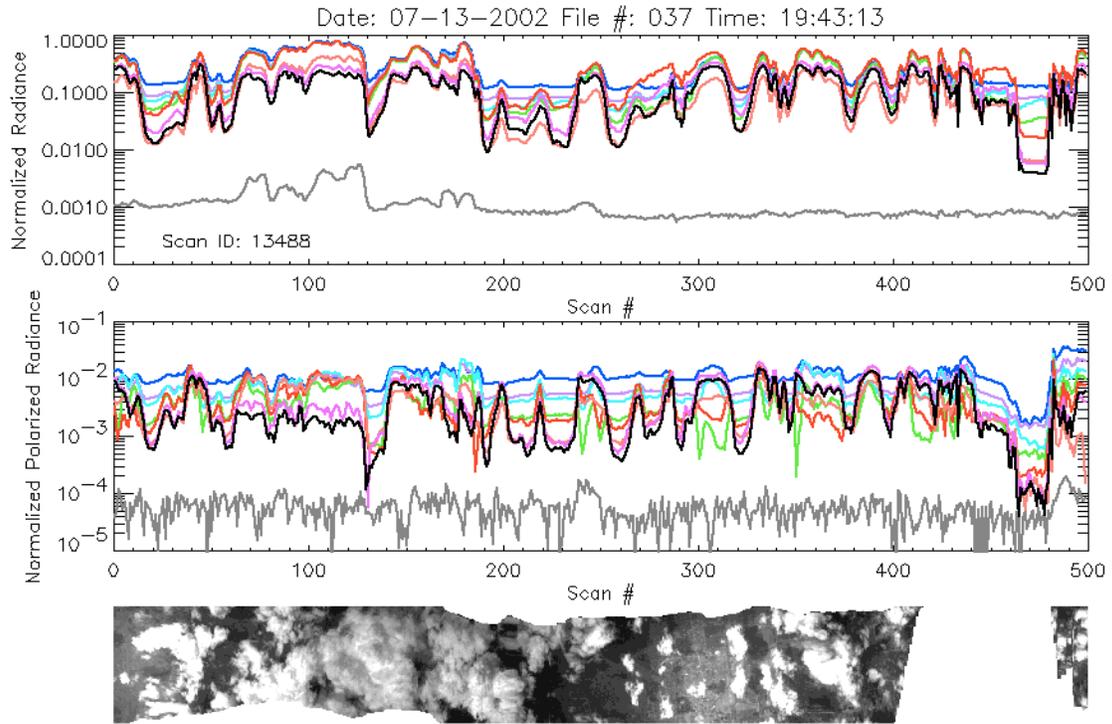


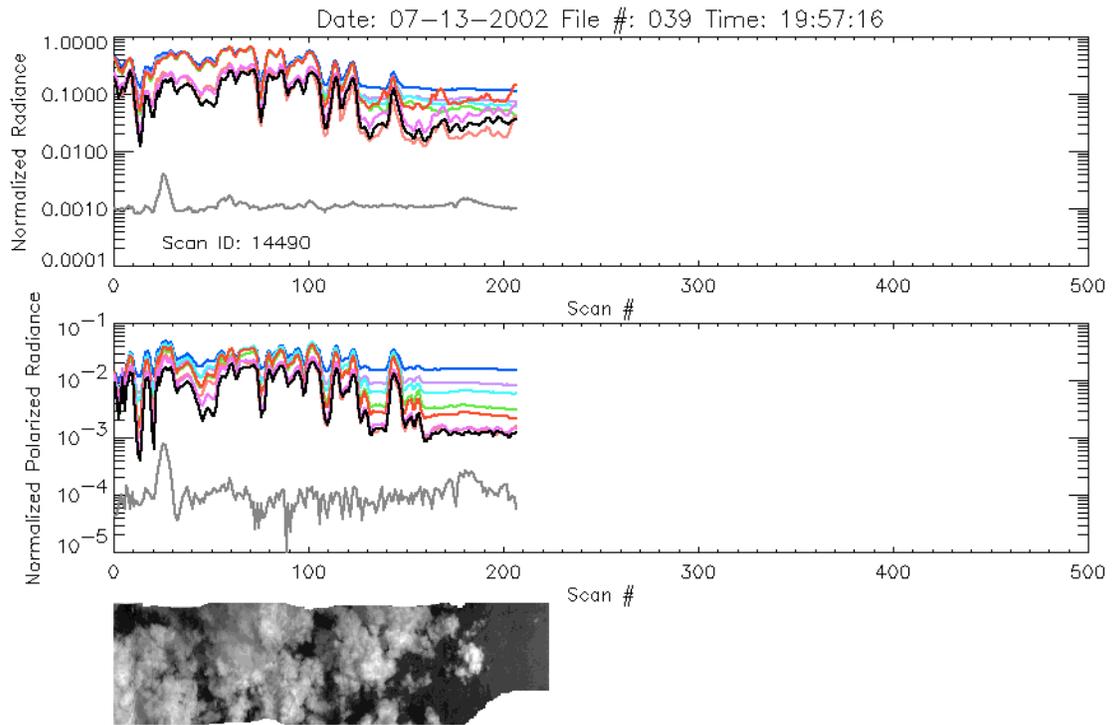
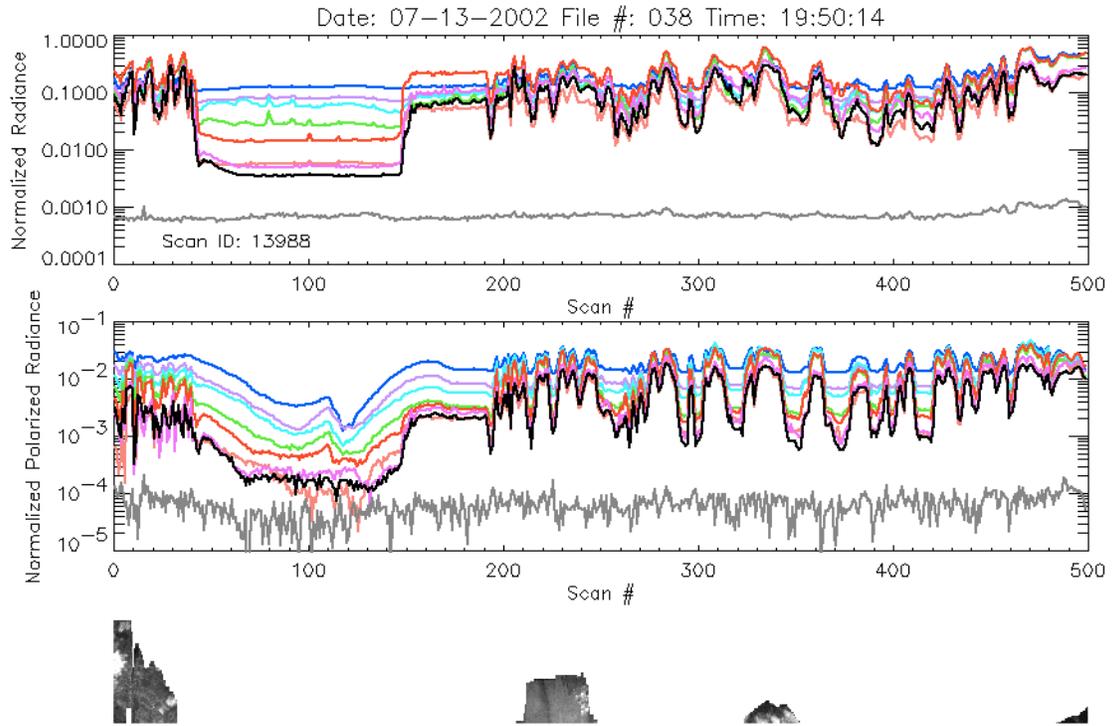




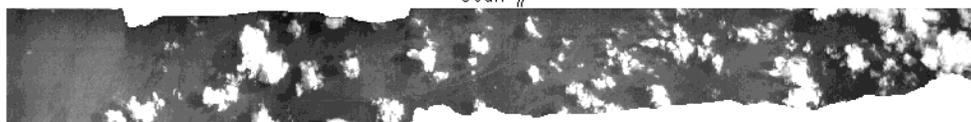
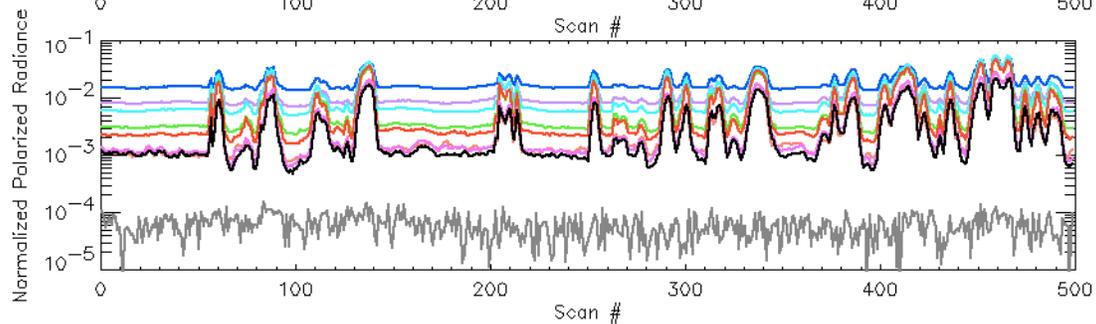
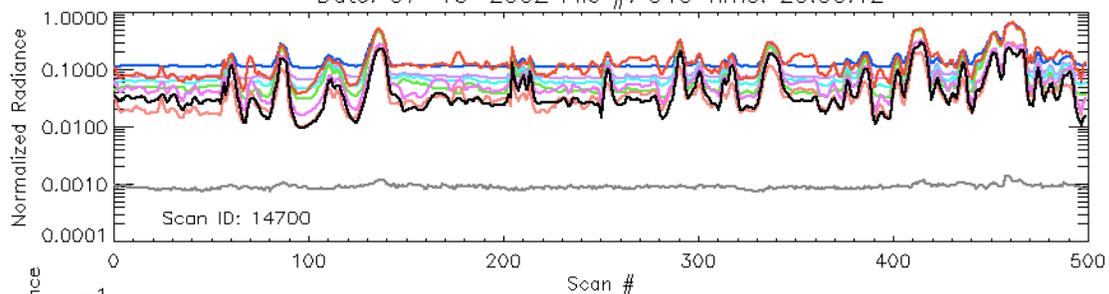




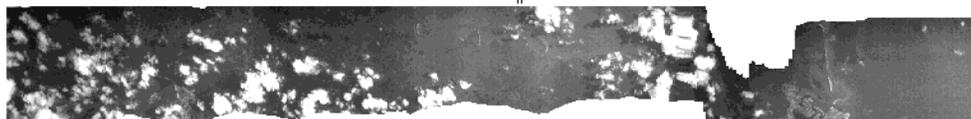
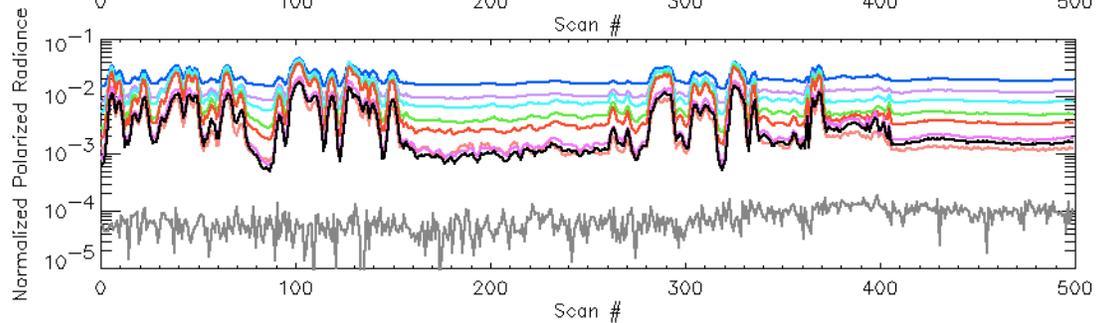
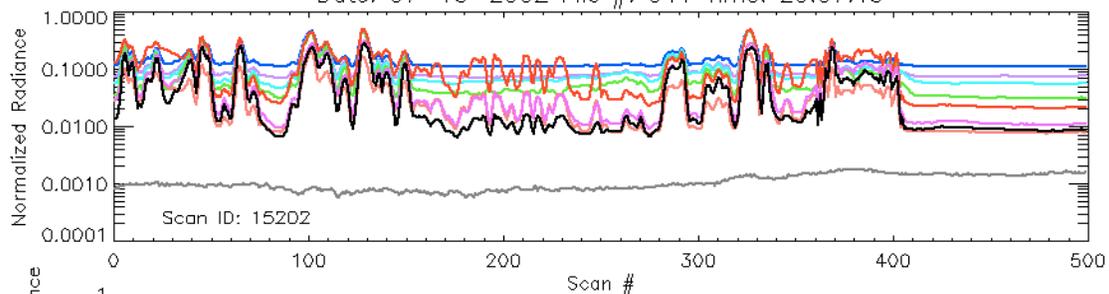




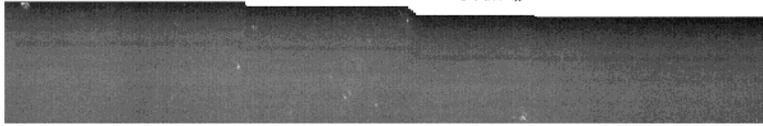
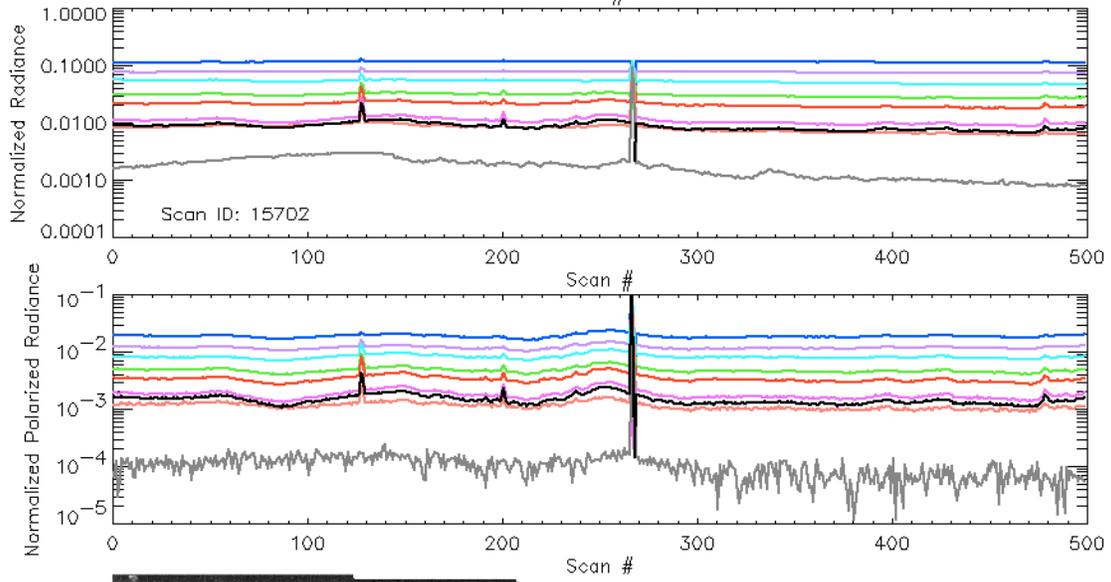
Date: 07-13-2002 File #: 040 Time: 20:00:12



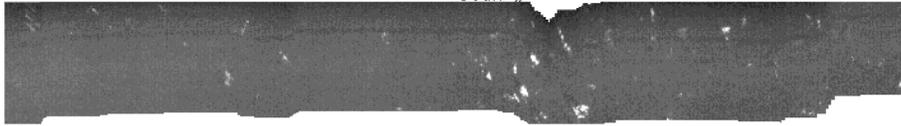
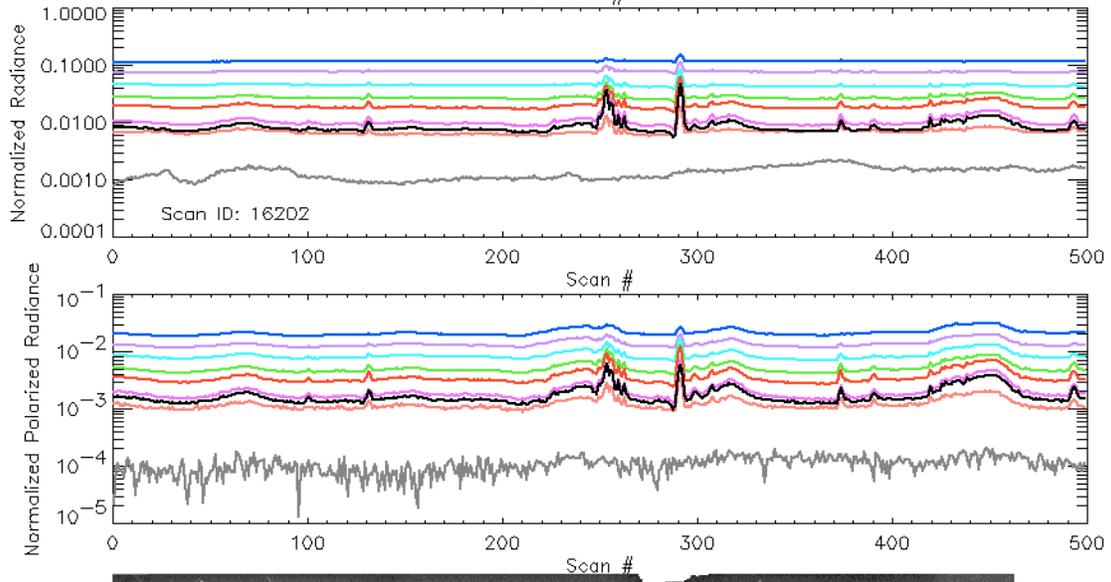
Date: 07-13-2002 File #: 041 Time: 20:07:15



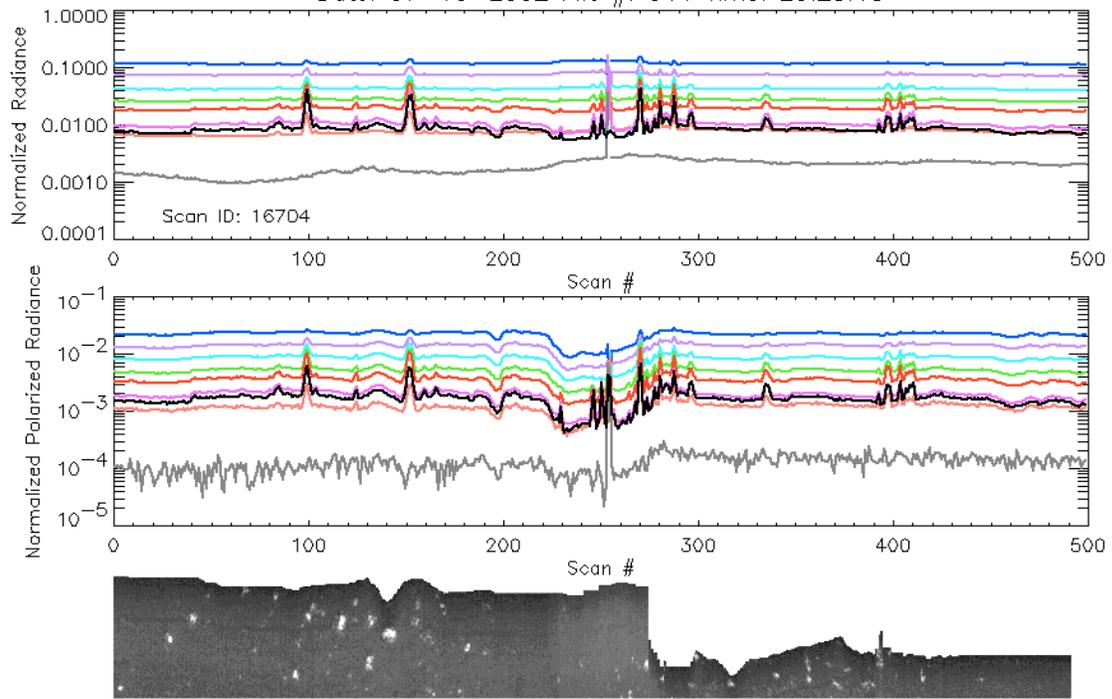
Date: 07-13-2002 File #: 042 Time: 20:14:15



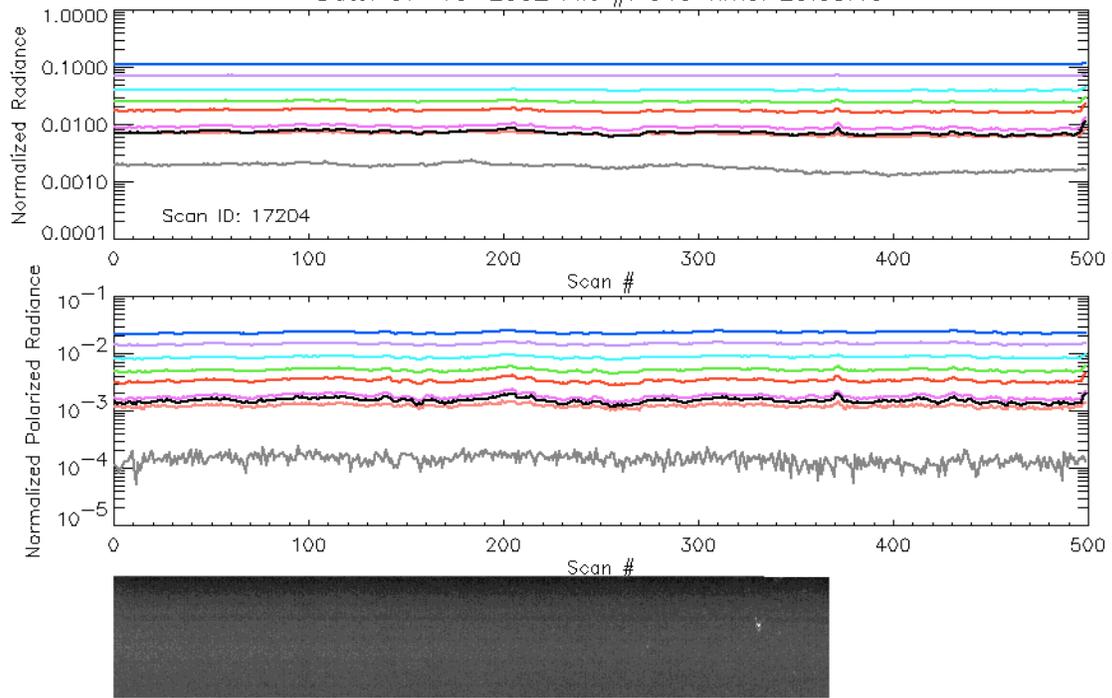
Date: 07-13-2002 File #: 043 Time: 20:21:17

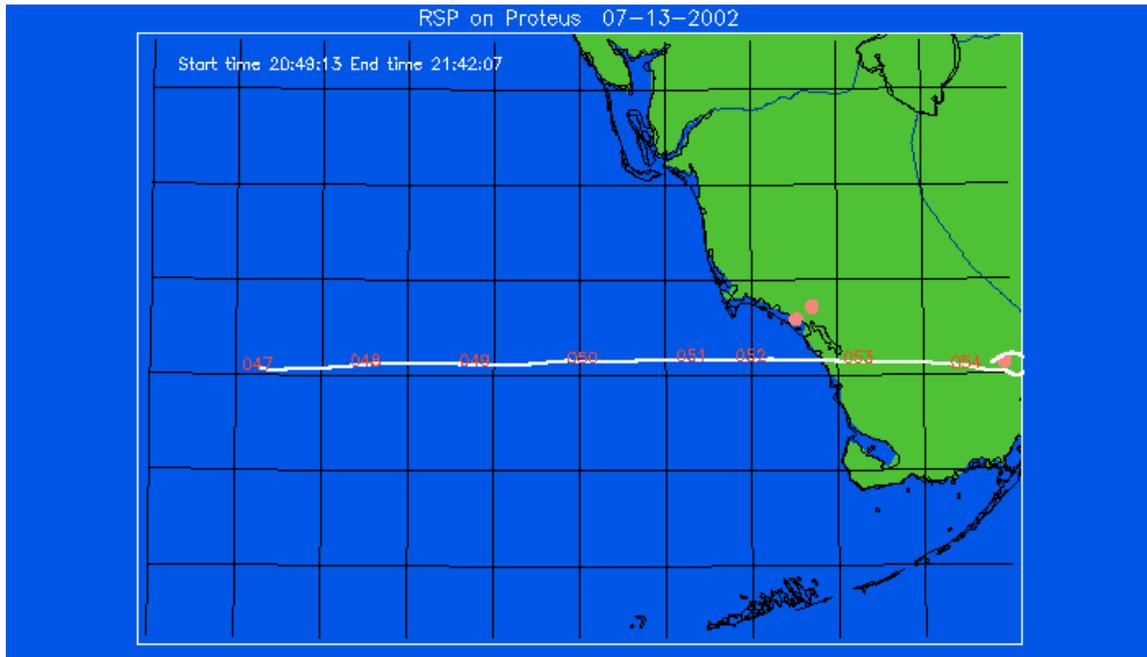
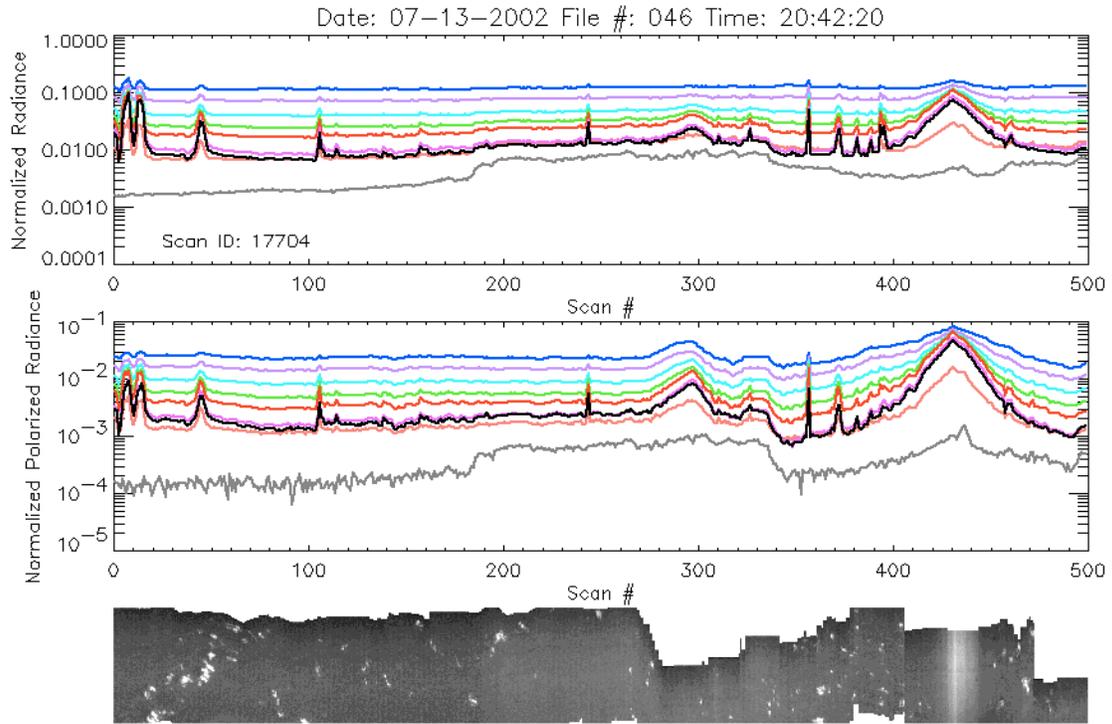


Date: 07-13-2002 File #: 044 Time: 20:28:18

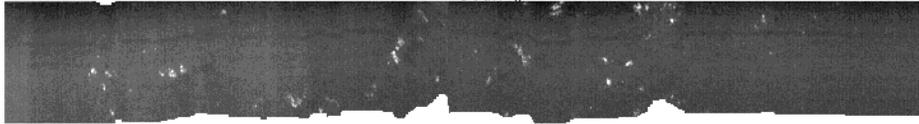
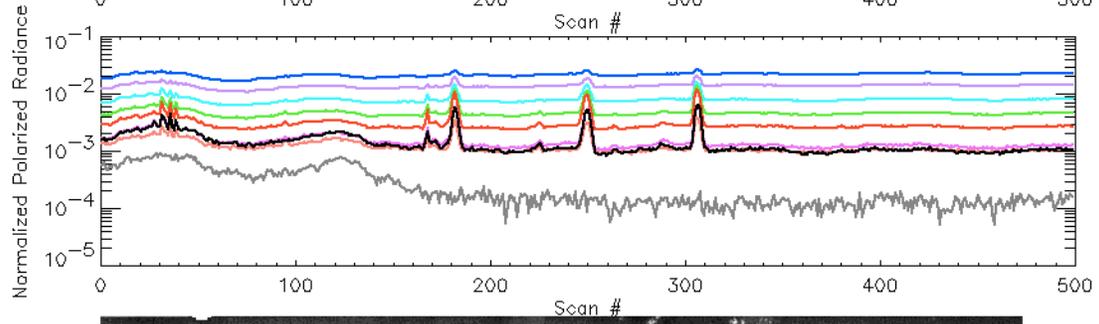
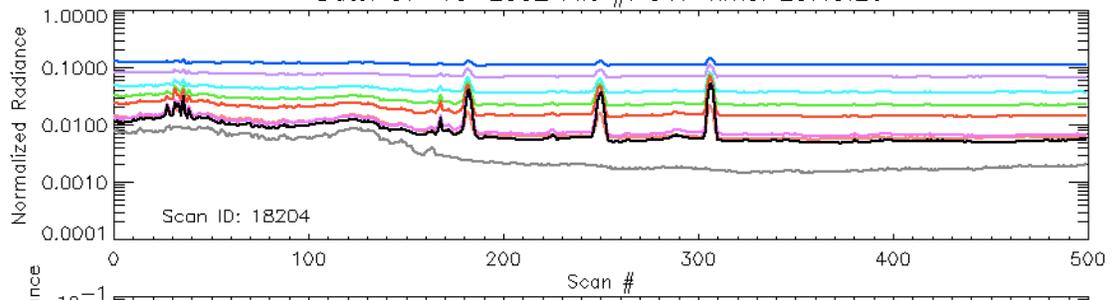


Date: 07-13-2002 File #: 045 Time: 20:35:19

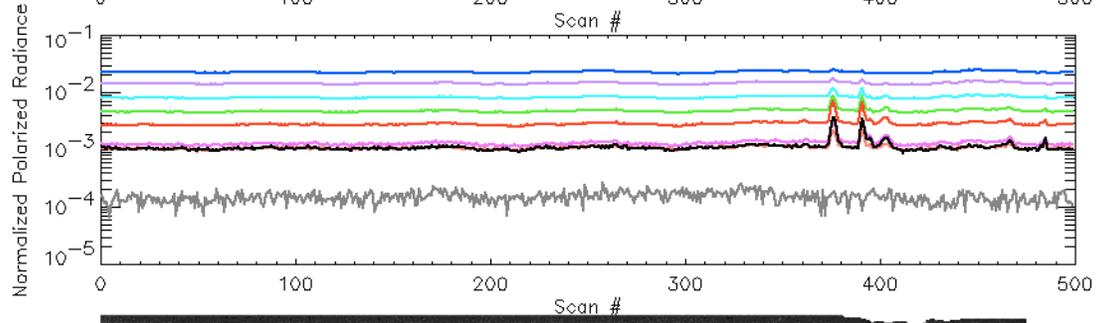
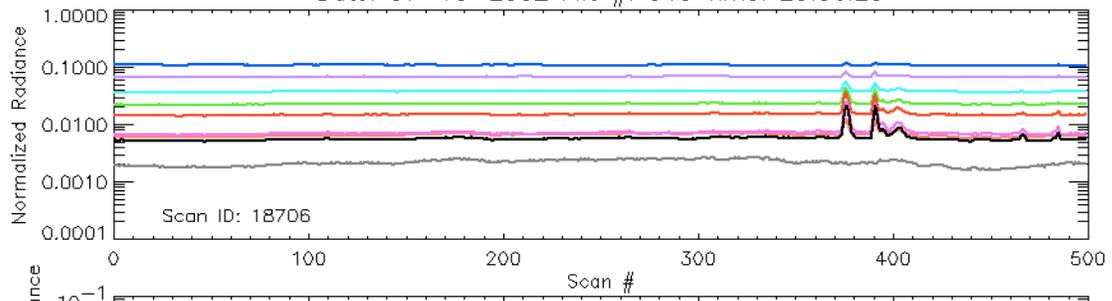




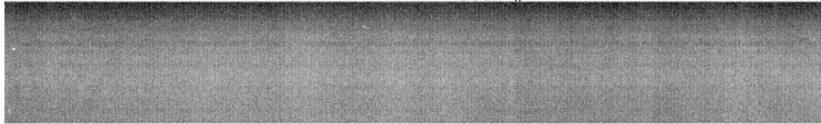
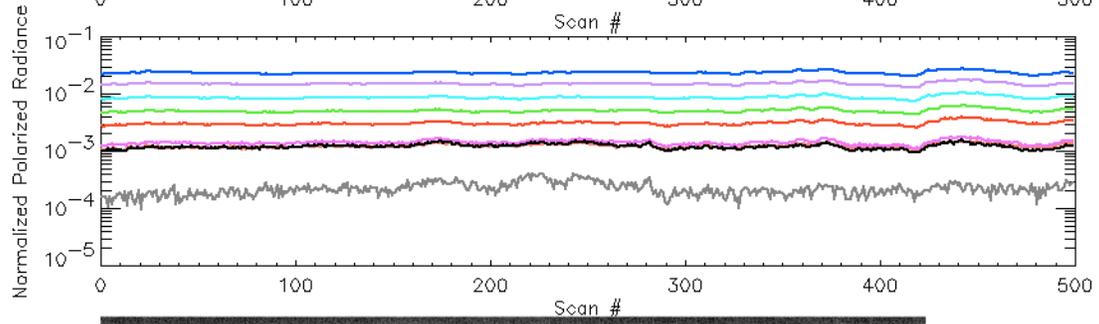
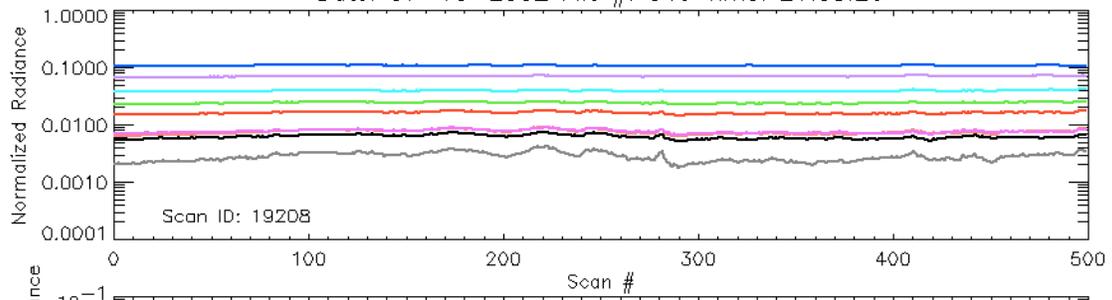
Date: 07-13-2002 File #: 047 Time: 20:49:20



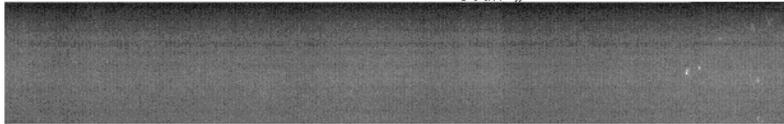
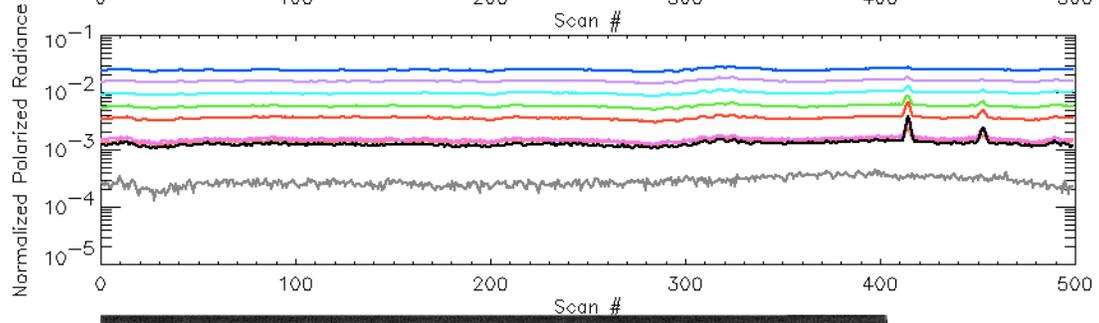
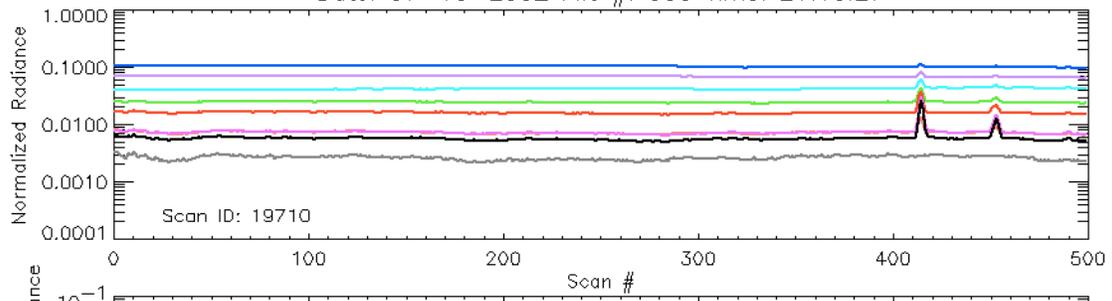
Date: 07-13-2002 File #: 048 Time: 20:56:23



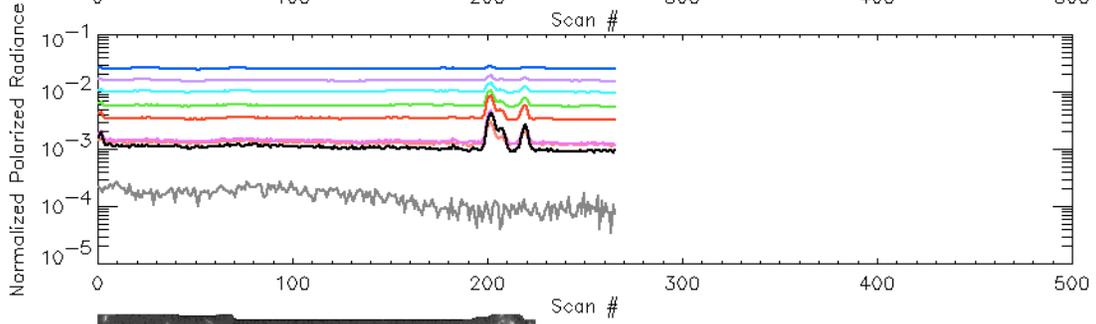
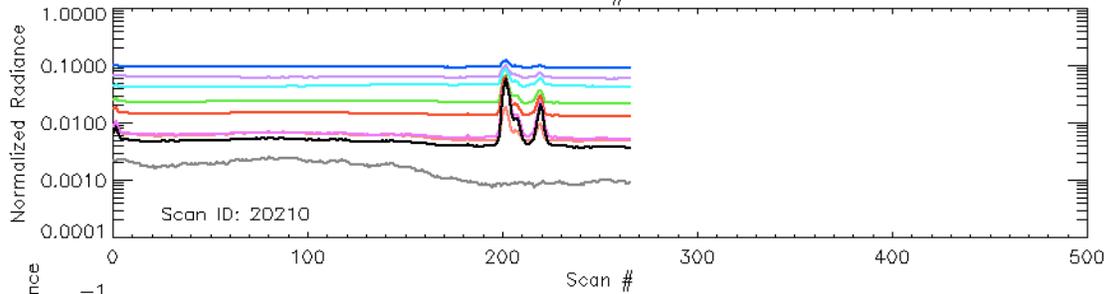
Date: 07-13-2002 File #: 049 Time: 21:03:26



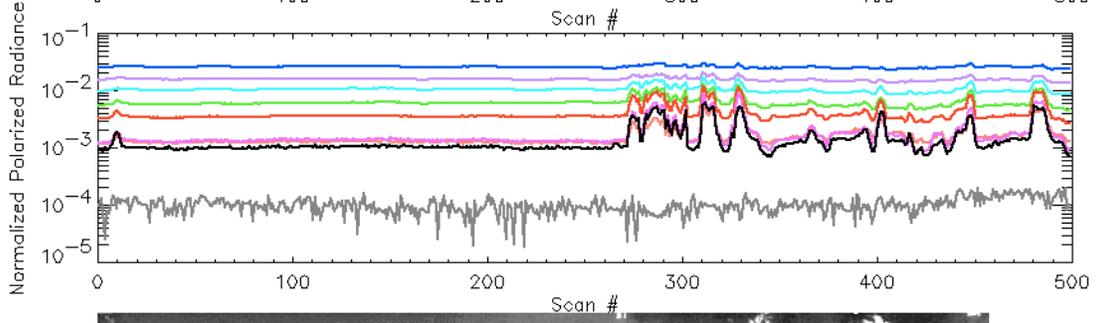
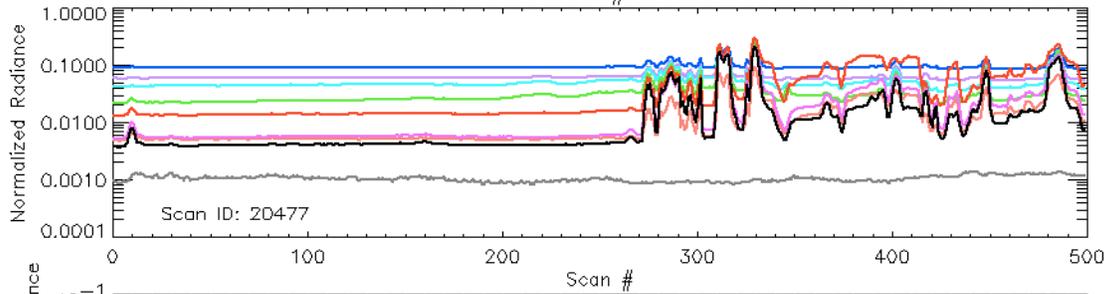
Date: 07-13-2002 File #: 050 Time: 21:10:27



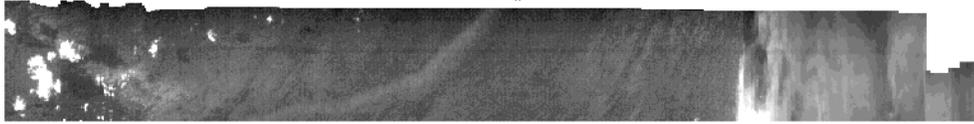
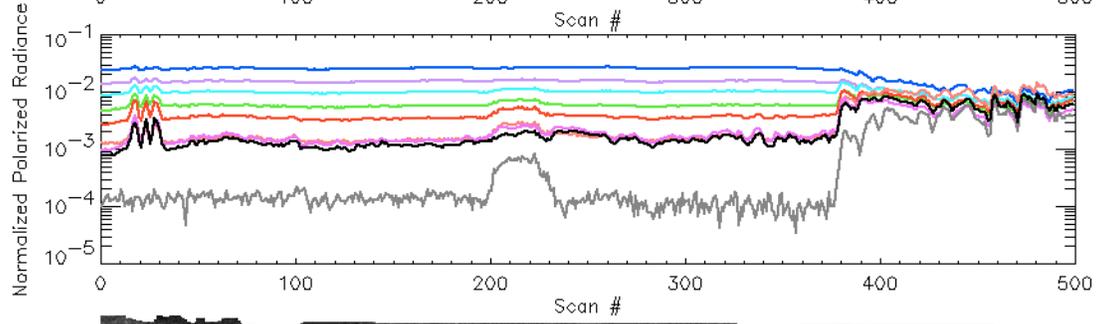
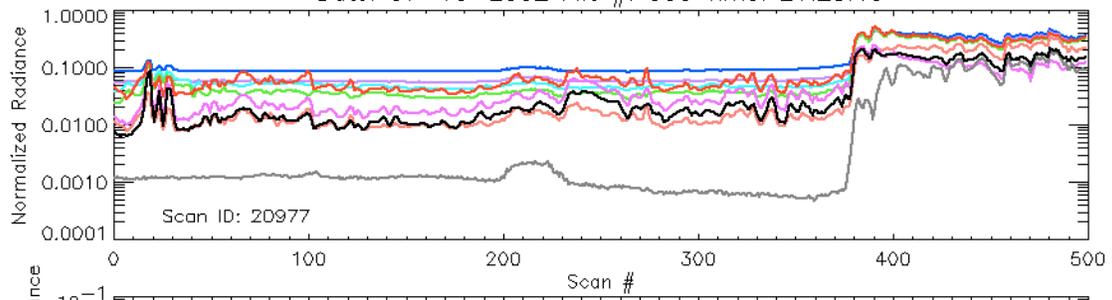
Date: 07-13-2002 File #: 051 Time: 21:17:29



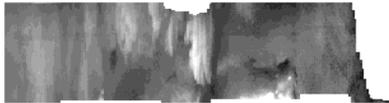
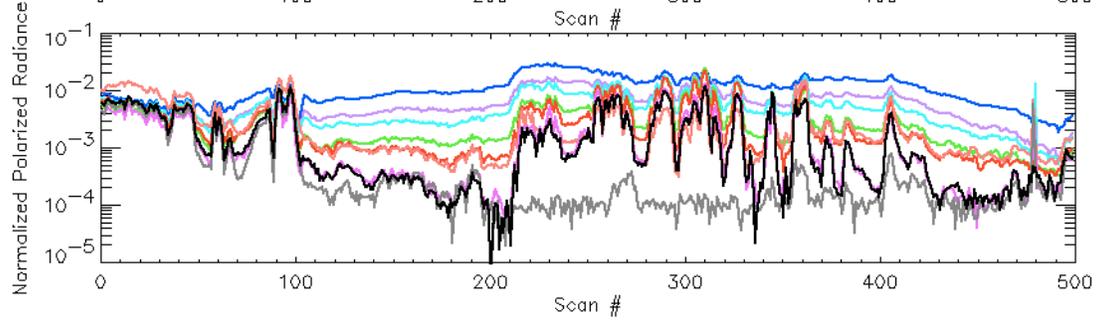
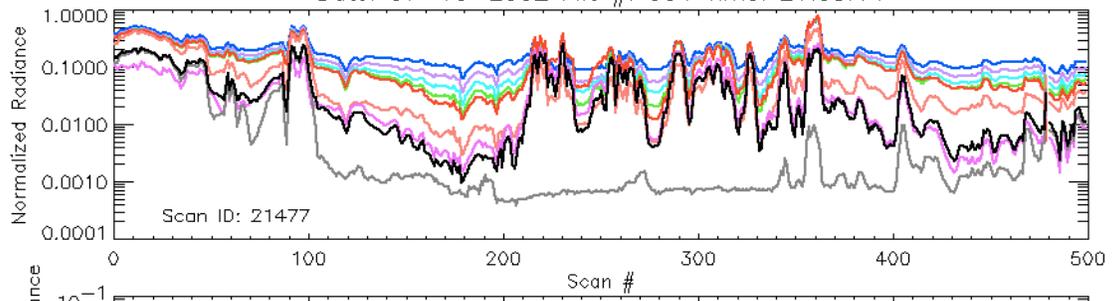
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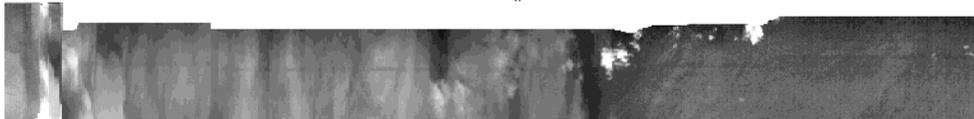
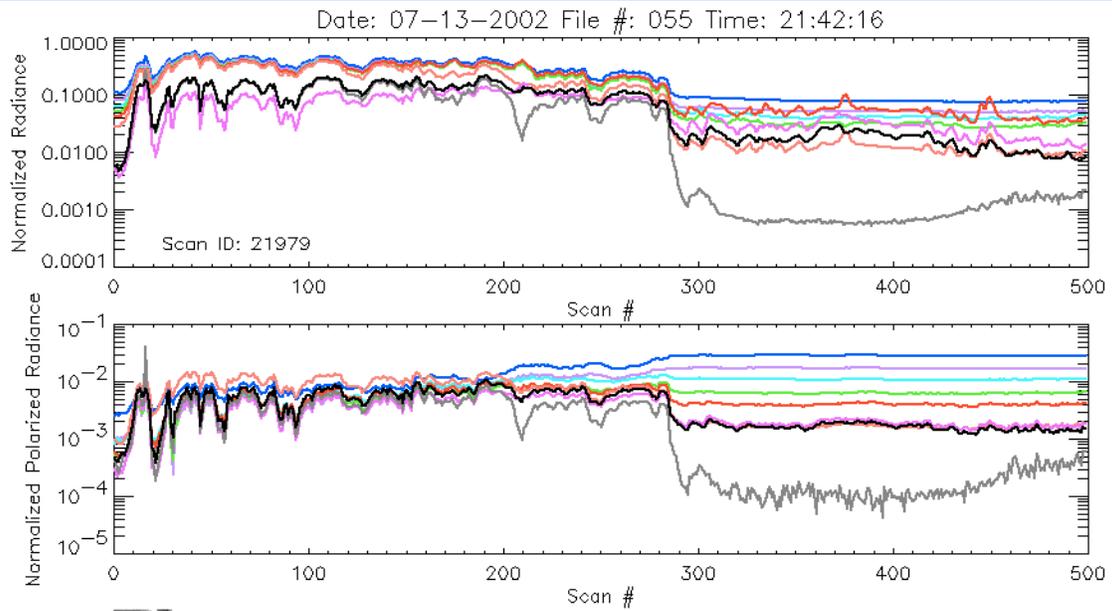
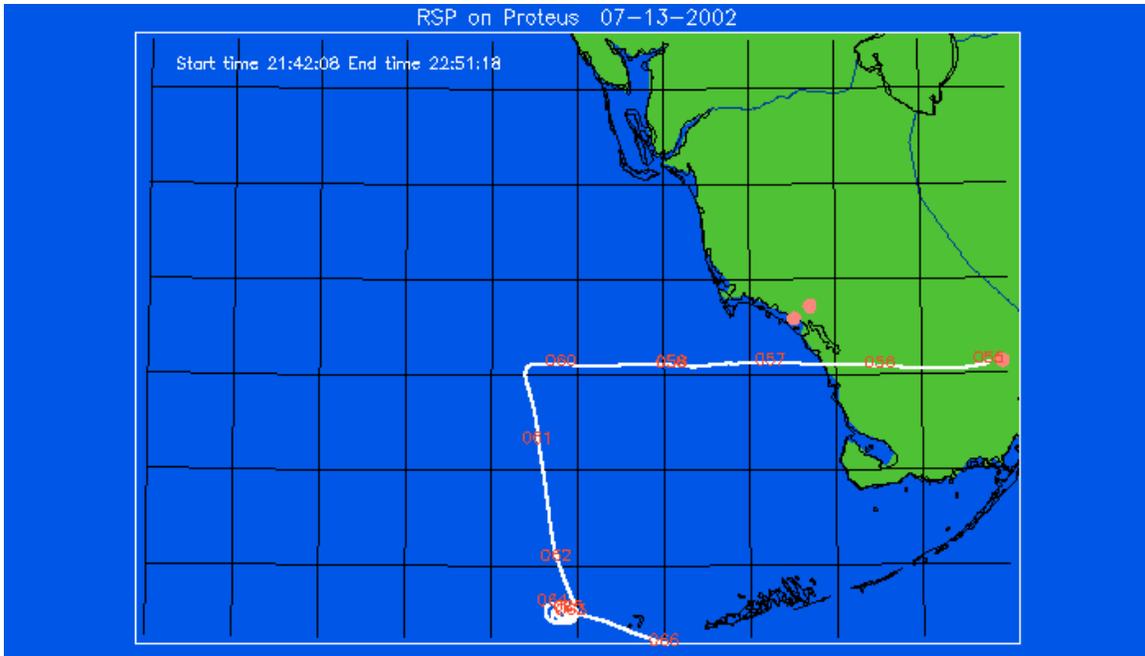


Date: 07-13-2002 File #: 053 Time: 21:28:13

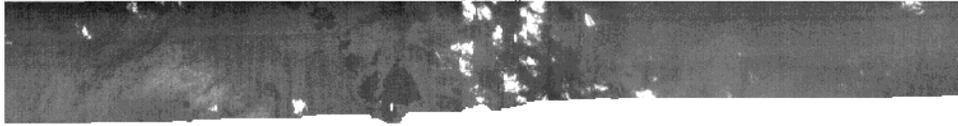
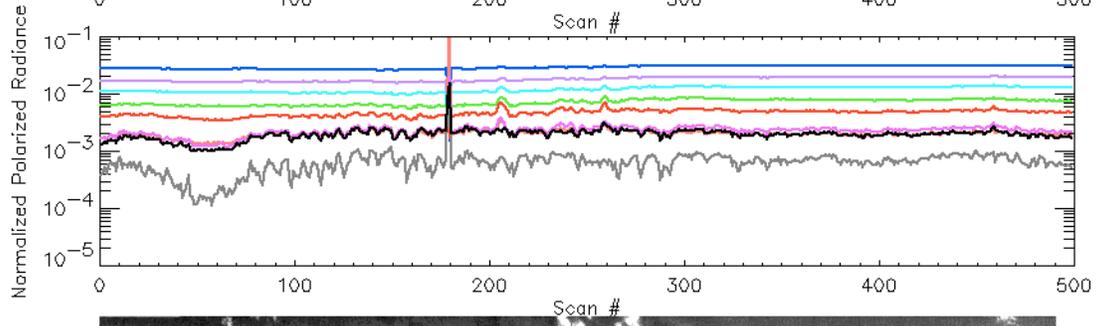
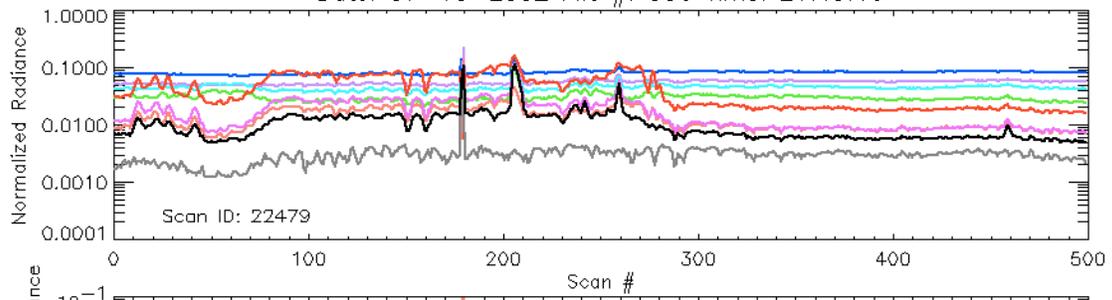


Date: 07-13-2002 File #: 054 Time: 21:35:14

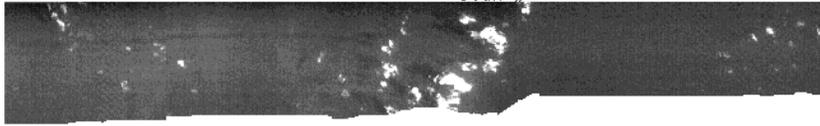
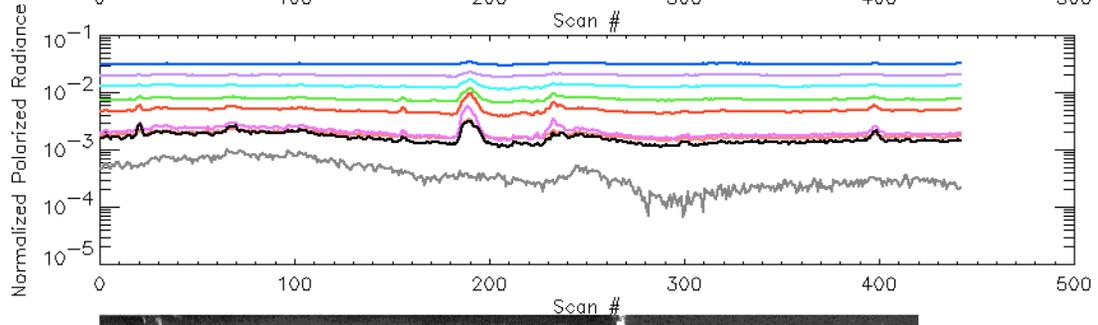
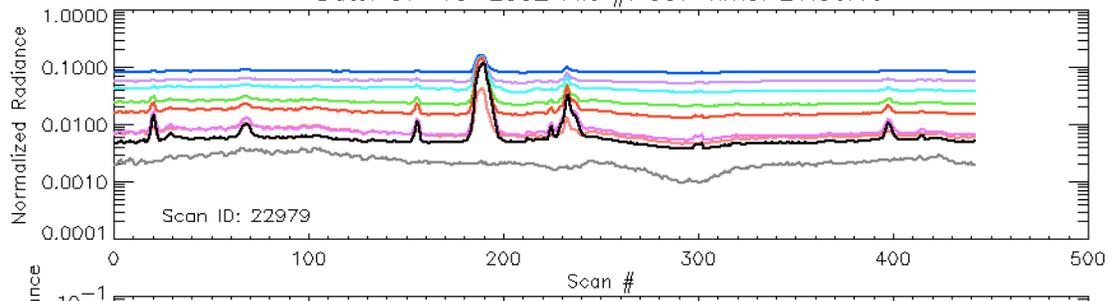




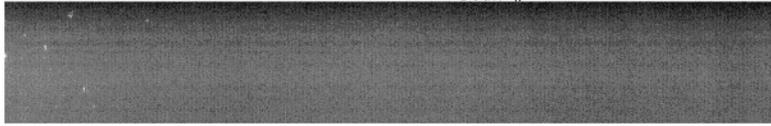
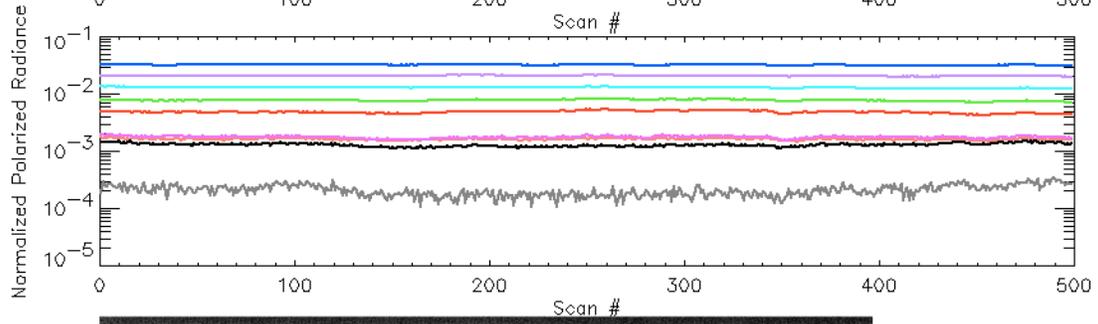
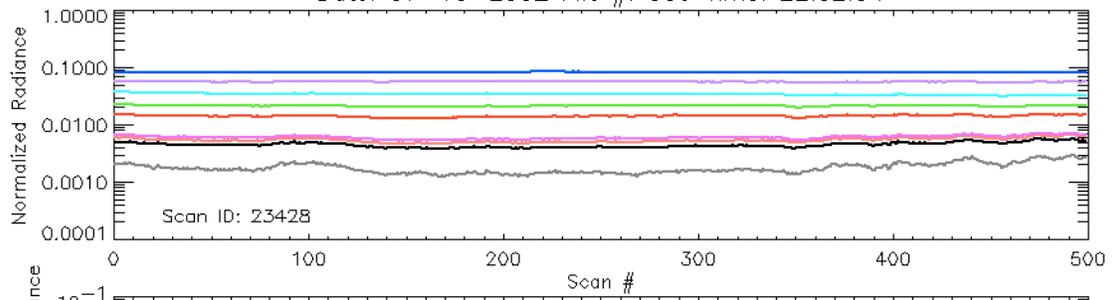
Date: 07-13-2002 File #: 056 Time: 21:49:16



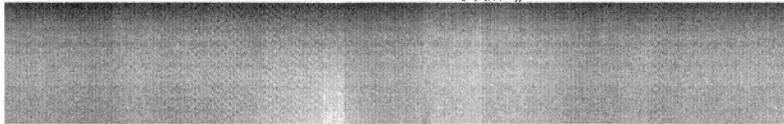
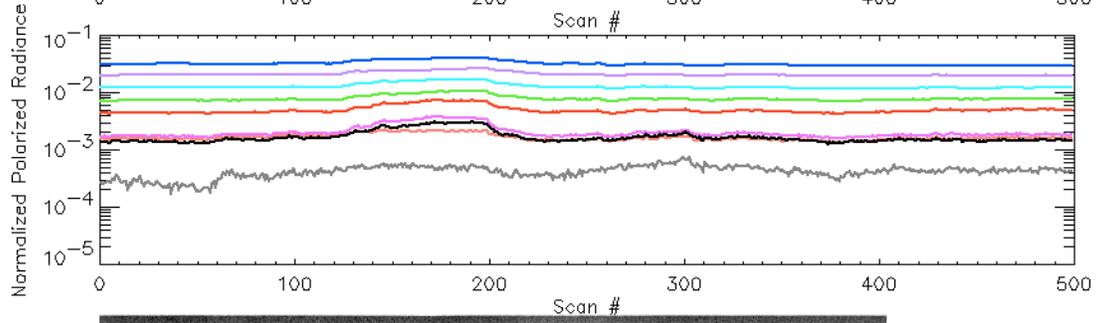
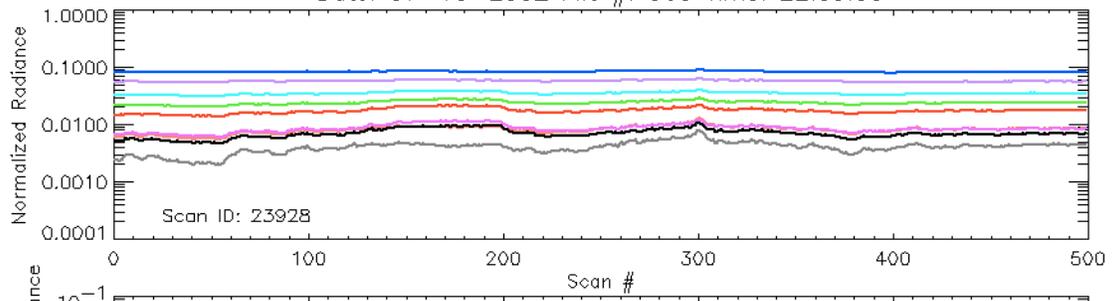
Date: 07-13-2002 File #: 057 Time: 21:56:16



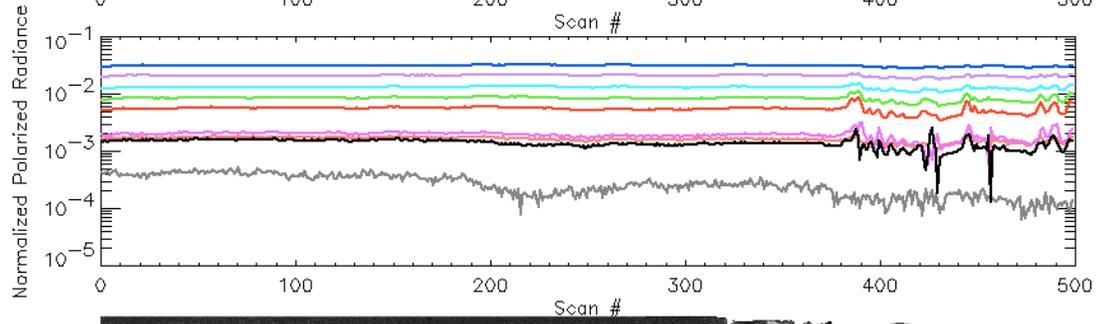
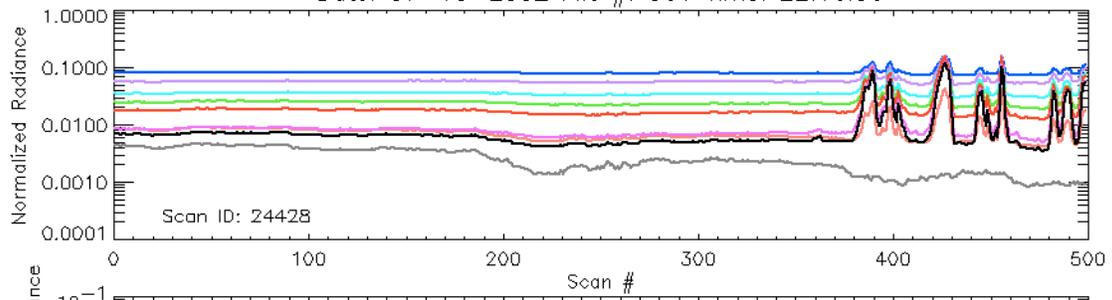
Date: 07-13-2002 File #: 059 Time: 22:02:34



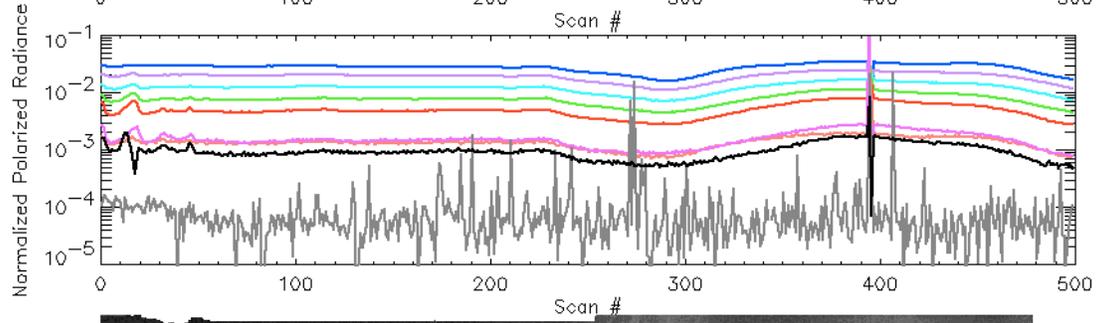
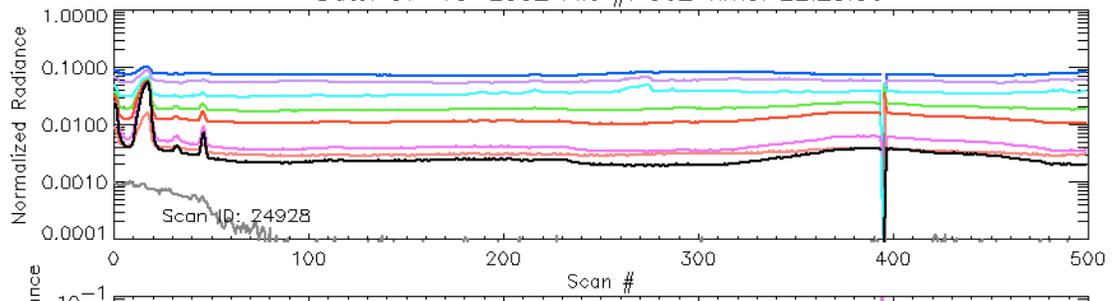
Date: 07-13-2002 File #: 060 Time: 22:09:35



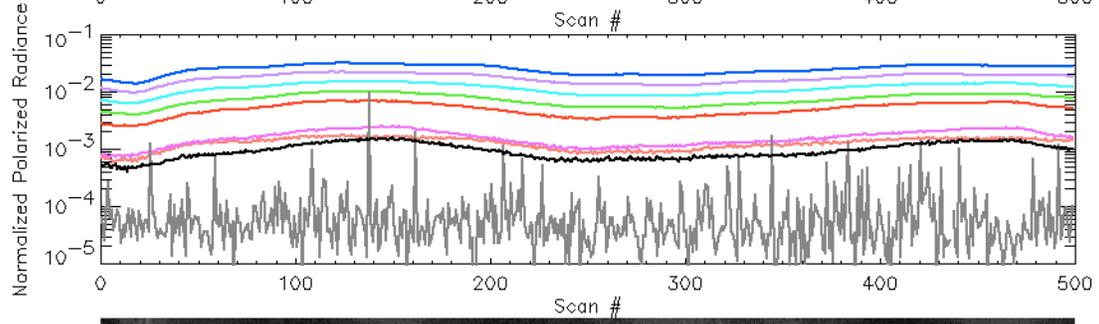
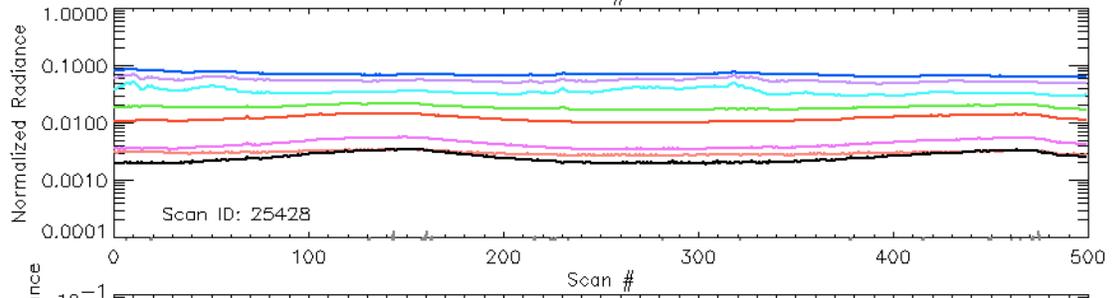
Date: 07-13-2002 File #: 061 Time: 22:16:36



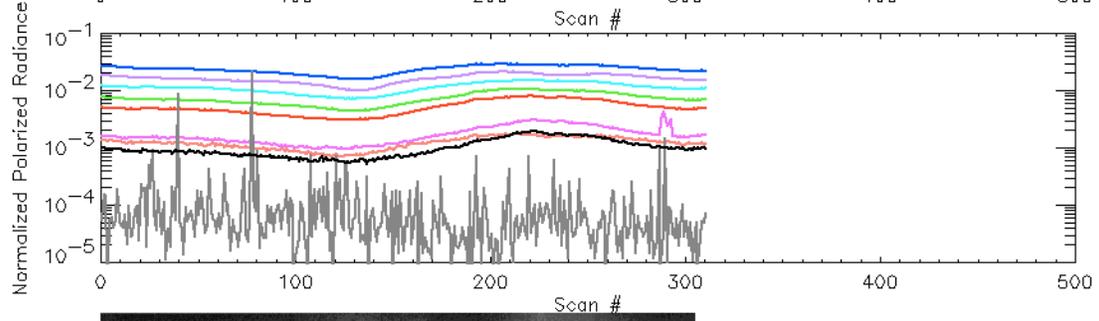
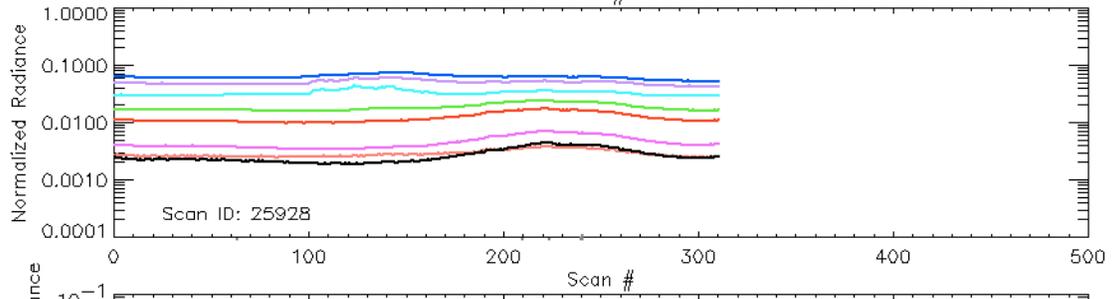
Date: 07-13-2002 File #: 062 Time: 22:23:36



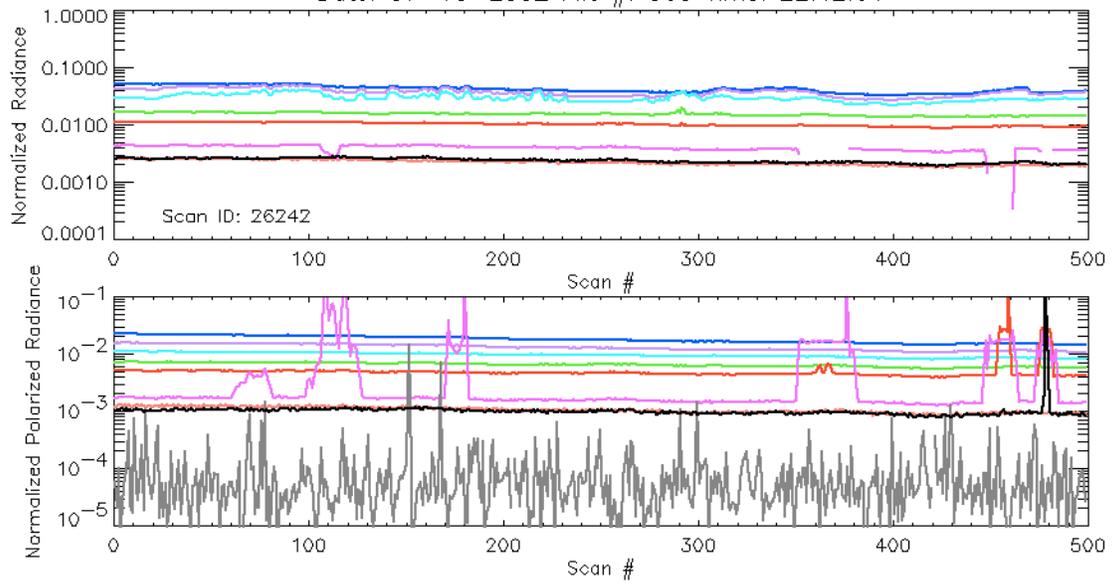
Date: 07-13-2002 File #: 063 Time: 22:30:36



Date: 07-13-2002 File #: 064 Time: 22:37:38



Date: 07-13-2002 File #: 065 Time: 22:42:01



Date: 07-13-2002 File #: 066 Time: 22:49:02

