Analysis of UVCS Observations from SCORE Campaign

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ANALYSIS of UVCS OBSERVATIONS from SCORE Campaign

SCORE Project

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CHANGE LOG

Date	issue	Revision	released by	comments
01 Feb 2010	0.0		S. Giordano	Preliminary analysis of UVCS data, release to team members for SCORE first results presentation.
18 Jun 2010	1.0		S. Giordano	Intro and comments for OATo Internal Report

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UVCS/OVI Channel data

Observation Date/Time: From *Sep 15, 2009 12:14* to *Sep 16, 2009 16:12* UT

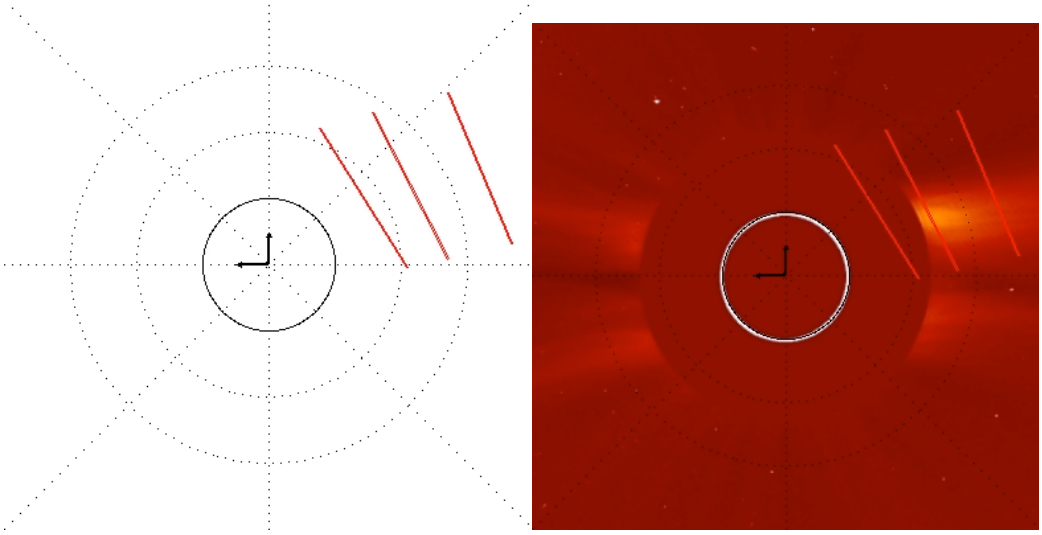

Figure 1: UVCS/OVI observation pointing (left) and pointing superimposed to LASCO/C2 white light image taken on Sep 15, 2009 at the time of UVCS observation (right).

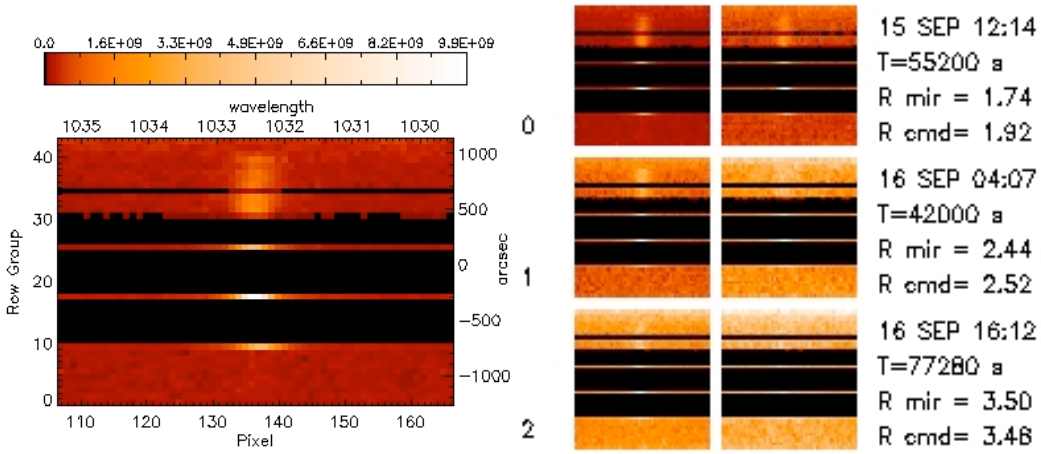

Figure 2: UVCS/OVI spectra sample of the panel which detect the OVI 1032 spectral line (left). Quick look of OVI doublet spectral line integrated over the total exposure time at each observed height (right).

As seen in Figure 2, the detector rows 9, 17 and 25 contain all the counts collected in the row range from 9 to 16 (row 9/8.), from 17 to 24 (row 17/8.) and from 25 to 29 (row 25/5.). The rows 30 and 34 have been deleted.

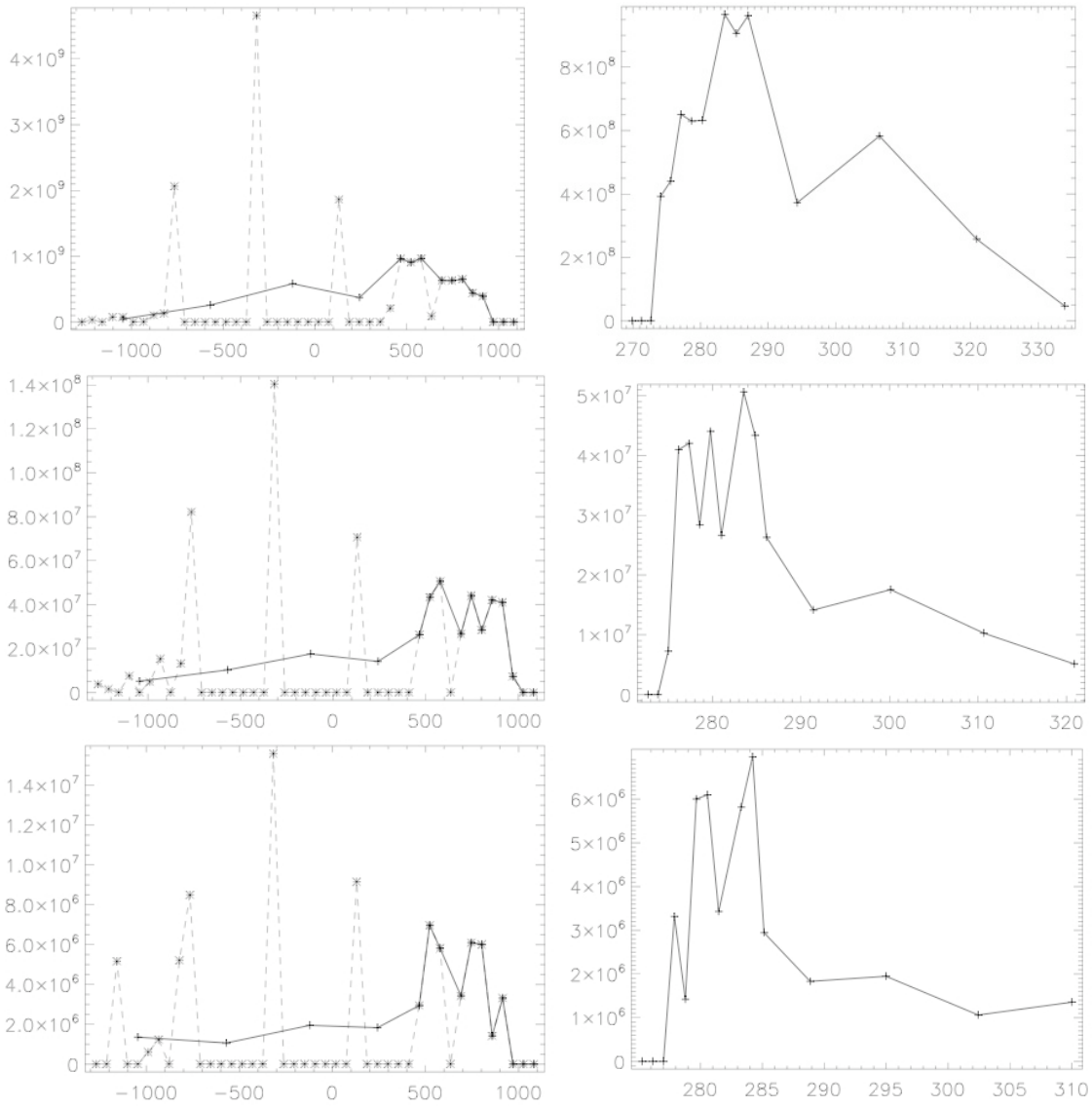

Figure 3: OVI 1032 intensity (photons/cm2 s sr) at 1.74, 2.44 and 3.50 Rsun as a function of position along the slit in arcsec (left panel) and polar angle (right panel). The intensity peaks due to detector trouble (visible in the left panels) have been placed at the center of the data gaps over the detector positions (right panels)

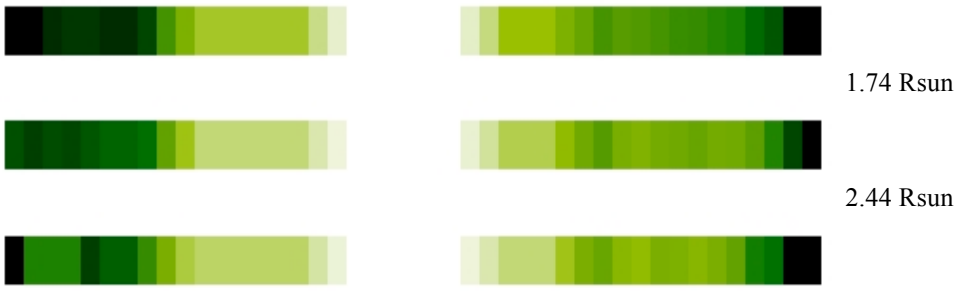

Figure 4: This three images represent the OVI 1032 intensity along the slit at 1.74, 2.44 and 3.50 Rsun. These can be overlapped to LASCO/C2 (or SCORE images) has shown in Figure 1.

These images are available in "*UVCS_SCORE*" directory as "*ovi_slit0.jpg*", "*ovi_slit1.jpg*" and "*ovi_slit2.jpg*" files.

UVCS/LYA Channel data

Observation Date/Time: From *Sept 14, 2009 13:16* to *Sept 15, 2009 03:24* UT

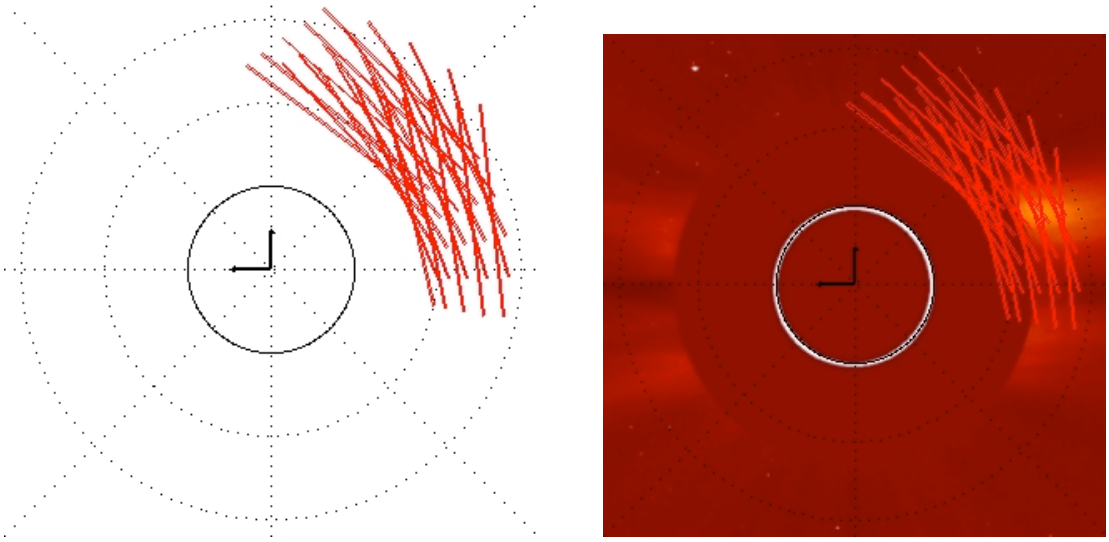

Figure 5: UVCS/LYA observation pointing (left) and pointing superimposed to LASCO/C2 white light image taken on Sep 15, 2009 at the time of UVCS observation (right).

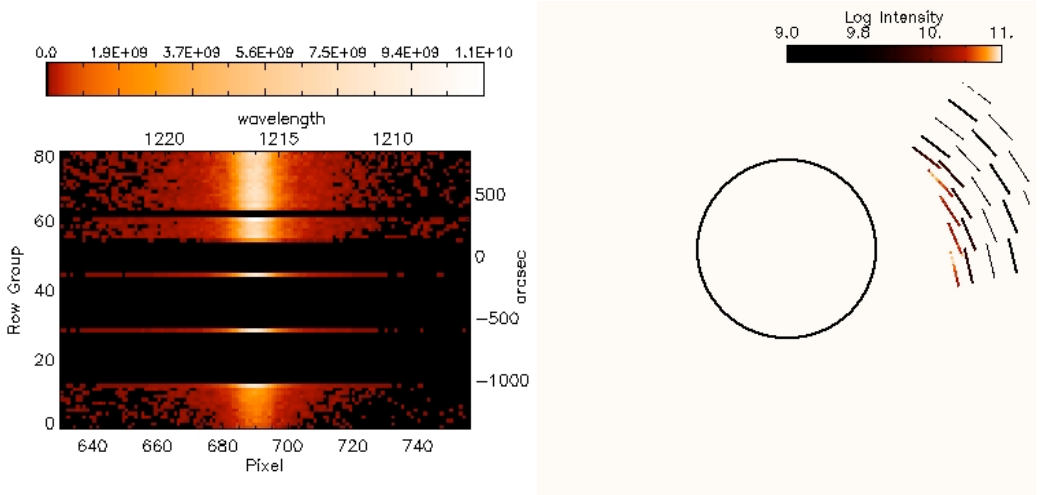

Figure 6: (left) UVCS/LYA spectrum sample of the panel which detect the HI Lya spectral line. (right) UVCS/LYA observation pointing of the "good" detector region, that is the upper portion of the image in the left panel.

As seen in Figure 6, the detector rows 12, 28, 44 and 60 contain all the counts collected in the row range from 12 to 27 (row 12/16.), from 28 to 43 (row 28/16.), from 44 to 53 (row 44/10.). And from 60 to 62 (row 60/3.). The rows 54 and 63 have been deleted.

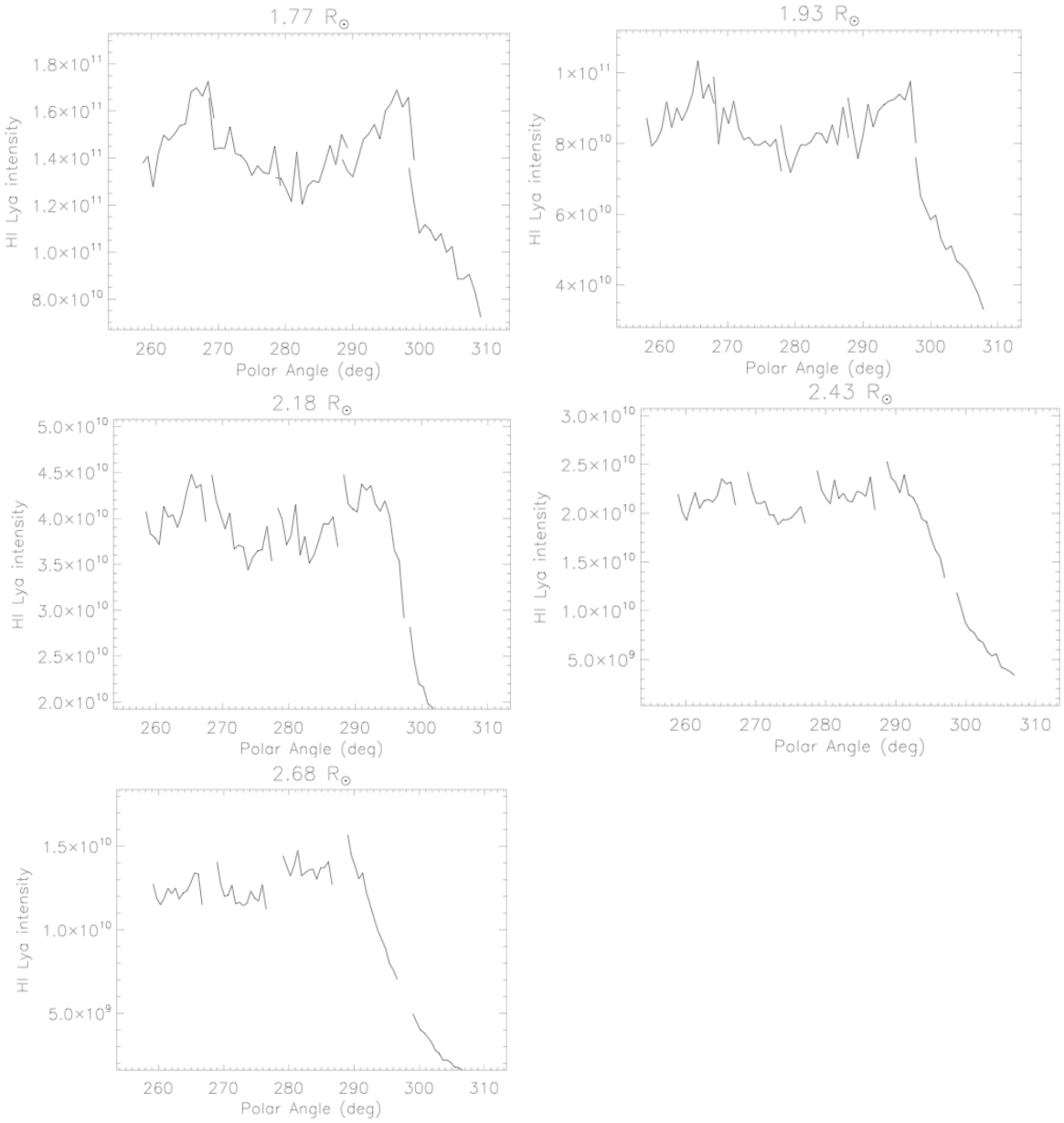

Figure 7: HI lya intensity (photons/cm2 s sr) at different heights, for each height we get the spatial region from 424 to 788 arcsec along the slit and spectral region from 650 to 730 pixel (from 1221.71 to 1210.20 A), then we reconstruct the latitudinal profile over about 50 degrees from the 5 different roll angles

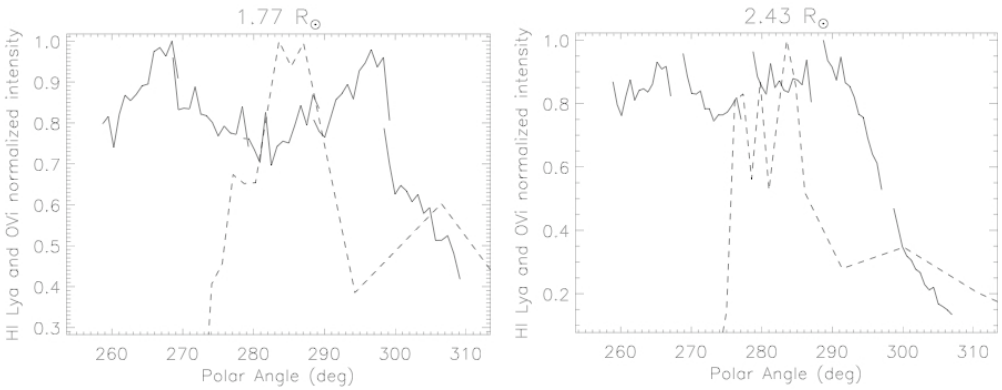

Figure 8: Comparison of HI Lya (solid line) and OVI 1032 (dashed line) normalized intensity profiles. HI lya observations have been performed on from Sept 14, 2009 13:16 to Sept 15, 2009 03:24 UT, while OVI observations From Sep 15, 2009 12:14 to Sep 16, 2009 16:12 UT

UVCS and SCORE comparison … In progress:

- Comparison with HI Lya from UVCS and SCORE observations.
- HI Lya and HeII Lya from SCORE observations (Figure 9).
- Coronal parameter diagnostics (density, outflow and abundances) from multiple intruments observations (Figure 10)

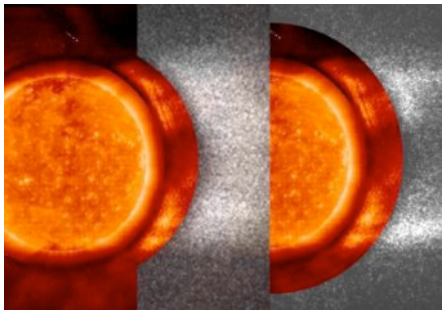

Figure 9: SCORE HI Lya and HeII Lya released images.

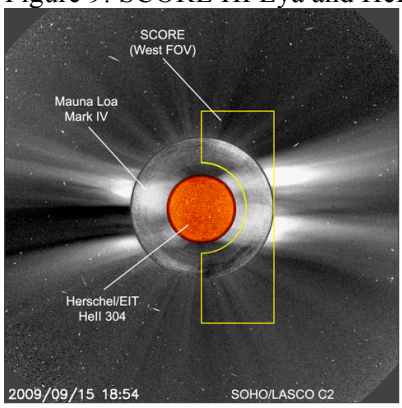

Figure 10: Composite coronal image from Mauna Loa/Mark IV, SOHO/LASCO/C2 and Herschel/EIT observation. The SCORE field of view which detect photons is also drawn.