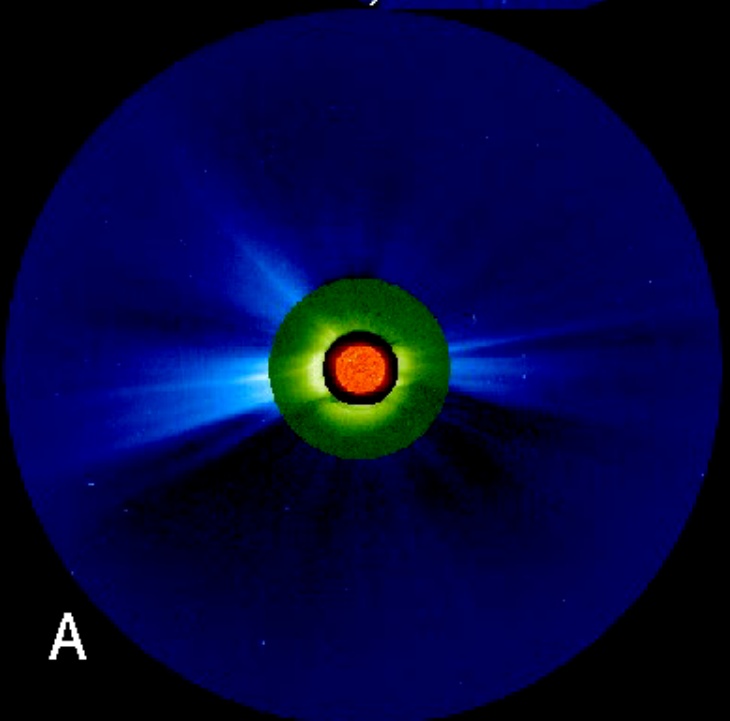


B



A



NRL IDL Movie Tools

**SECCHI Meeting
March 22-23 2010
Dublin, Ireland**

**Lynn Simpson (202-404-1412)
Nathan Rich (202-404-1408)**
NRL/Interferometrics Inc.

NRL IDL Movie Tools

• Introduction

- These are IDL tools in Solarsoft written specifically for LASCO/EIT/SECCHI images
- Instructions for accessing and using SECCHI data may be found via <http://secchi.nrl.navy.mil/wiki> under Data Processing And Analysis
- Details about each of the tools in this presentation are also available through the [wiki](#) or in `$SSW/stereo/secchi/doc/secchimvi.htm`



SECCHI Wiki Home
1. Planning
2. Ground

Data Processing And Analysis

Analysis Software

- [HOW TO Guide](#)
- [SECCHI/NRL Movie Tools](#)

1. [Flight Software](#)

2. [Data Processing and Analysis](#)

SECCHI PmWiki

SECCHI PmWiki

SECCHI PmWiki

SECCHI PmWiki

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SECCHI PmWiki

SECCHI PmWiki

SECCHI PmWiki

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SECCHI PmWiki

- [Jmap HOWTO](#)
- [SECCHI PREP](#) - Tool for ingesting and calibrating SECCHI data
- [SECCHI/IDL](#) - SolarSoft IDL programs for displaying and analyzing SECCHI data
- [FESTIVAL](#) (for SECCHI and Hinode) FITS data display & manipulation
- [IDL Analysis Software \(images and character recognition\)](#)

- [SOLAR SPICE \(pdf\)](#) and the [WCS spec \(pdf\)](#)
- [CME News Tutorial](#)
- [SSC Software Portal](#) - Overview of SECCHI Software Instrumentation

- [SECCHI FITS Keywords Definition \(PDF\)](#)
- [Coordinate systems for solar image data by W. L. Uchida](#)
- [FITS World Coordinate System Page](#)
- [Science Header Actuals Definitions *](#)
- [SECCHI Reallocation Cheat Sheet \(PDF\)](#)
- [Suggested Simulated Data Headers for simulation FITS](#)
- [Suggested Density Cube Headers for density cubes](#)
- [FITS Headers and Pipeline Processing](#)

- [Guidelines for SECCHI IDL Software Developers *](#)
- [Solar Soft, etc.](#)

- SECCHI Data Management
- [Data Management Plan r2d2.pdf](#)
- [Diagram \(png\)](#)

data

and calibrating SECCHI data

(application)

images

software

images

images

images

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File Edit View History Bookmarks Tools Help

http://sohowwww.nascom.nasa.gov/solarsoft/stereo/secchi/doc/scouserguide.html

Most Visited Community Supp... Fedora STEREO Index of /PT/flight/o...

SECCHI HOW-TO Quick-guid... SECCHI Flight (S/C A and B) I... http://sohoww...so_ingest.pro

Information about SECCHI movie tools may be found [here](#).

If you want CALIBRATED images, see the [SECCHI PREP User Guide](#).

RETRIEVING SECCHI DATA

If you do not have the SECCHI FITS archive available to you locally, there are two ways to retrieve the data:

1. **Web query** is available at <http://secchi.nrl.navy.mil>. This method offers the most options for query search.
2. **Using Solarsoft/IDL**, you may use [xsecchi vso ingest.pro](#) to retrieve data from the STEREO Science Center over a socket. Note that this tends to...

retrieve lists of FITS files:

[scc_read_summ.pro](#) which returns an array of structures with the summary file information. After retrieving this information, you may use [scc_read_data.pro](#) to retrieve path information for each file.

[sccclister.pro](#). This returns a structure of filenames (including path) for Ahead and/or Behind. (Note: For date ranges more than a few days, as implemented, this takes a long time.)

At NRL.)

If you do have the SECCHI FITS archive available to you locally in \$secchi or \$SECCHI_LZ, there are two ways to retrieve the data:

1. The fastest way to query for large intervals of SECCHI data is using the summary files and [scc_read_summ.pro](#) to retrieve path information for each file.
2. If you are doing a more targeted search and/or want to refine your search using more parameters, there is [sccclister.pro](#) which returns a structure of filenames (including path) for Ahead and/or Behind. (Note: For date ranges more than a few days, as implemented, this takes a long time.)
3. Finally, it is possible to do an image database query from IDL using [sqdb.pro](#). (Note: This method only works for the most recent data.)

SECCHI PRETTY PICTURES ONLINE

Go to: <http://secchi.nrl.navy.mil/images> and browse the categories that appear in the left-hand sidebar.

SECCHI PRETTY PICTURE MAKING

[Scc.mk.image.pro](#) will turn (almost) any SECCHI FITS file into a pretty picture using default settings. To use it, you need to provide the SECCHI FITS file name, and it will return to you a beautiful, byte-scaled, "pretty" data array. Example (incl. comments):

Using SECCHI PREP for pretty pictures

```
IDL> SECCHI_PREP, filenames, headers, images, OUTSIZE=512, /NOCALFAC, /CALING_OFF, /UPDATE_HDR_OFF, /EXPTIME_OFF
```

SECCHI BACKGROUND IMAGES

Retrieve background images for a SECCHI image with [scc_getbkgimg.pro](#):

```
IDL> bkg = scc_getbkgimg(secchi_fits_hdr)
```

Options: /CLIENT = Don't print out informational messages
Done

Observation Range: 2000-10-27 00:23:00 - 2010-03-03 23:59:57

Please enter qualifiers in the fields below (**Date Obs** is required) and press the **Search** button.

For simple queries use our [short query form](#).

Start Date Obs: 10 27 2006 00 00 00 MM/DD/YYYY hh:mm:ss

End Date Obs: 10 27 2006 23 59 59 MM/DD/YYYY hh:mm:ss

Image Cadence: All (Cadences are anchored to the Start Date Obs)

Detector Wavelength/Polarizer Filter

EUVI All

COR1 All

COR2 All

HI-1

HI-2

All

Filename.....

Observatory... A&B

A&B Synched... All

SEB Program... All

Set ID.....

BiasMean..... UnderScan Method

Exptime..... sec

LED Color..... All

CCD-X Binning:

CCD-Y Binning:

Naxis1..... Note: hdr_only images, naxis=0, and HI high-byte image files, naxis>0, can not be downloaded

Naxis2..... and are marked with diskpath="None". To query for them choose diskpath="for hdr-only".

Door Stat.... All

Data Level.... Level-0.5

Downlink..... SSR1

IP Steps..... All (ipsteps 0-119) non-default selections result in slower queries

Diskpath..... for downloadable images

Date Mod..... Not indexed (searching by Date Mod makes for slow queries)

Date Obs
Synced Filename
FileOrig

[Extra columns on tabular output](#) : Use "Ctrl + left-mouse-button" to select non-consecutive columns

Done

SECCHI Flight (S/C A and B) Images Query Form

As of **2010-03-16 02:18:08 EST**, database contains **9656234** shutter flips and **4543135** downloadable images (excluding SWx).

Observation Range: 2006-10-27 08:25:06 - 2010-03-12 23:58:00

Please enter qualifiers in the fields below (**Date Obs** is required) and press the **Search** button.

For more detailed queries use our [long query form](#).

Start Date Obs:

End Date Obs:

Image Cadence: (Cadences are anchored to the Start Date Obs)

Detector Wavelength/Polarizer Filter

EUVI

COR1

COR2

HI-1

HI-2

All

Observatory:

Data Level.:

Downlink...:

Use full-page output even if more than one row is returned (not downloadable).

Return a maximum of records from this query.

Send comments to dbmaster@louis14.nrl.navy.mil

wdbi 1.5.1_03

SECCHI Images Query Result

Download ->

More	JPG	Filename	Date Obs	Observatory	Detector
MORE	jpg	<input type="checkbox"/> 20091027_000800_d4c2A.fts	2009-10-27 00:08:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000815_n4c2A.fts	2009-10-27 00:08:15	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000845_n4c2A.fts	2009-10-27 00:08:45	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000800_d4c2B.fts	2009-10-27 00:08:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000815_n4c2B.fts	2009-10-27 00:09:04	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000915_n4c2A.fts	2009-10-27 00:09:15	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000845_n4c2B.fts	2009-10-27 00:09:34	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_000915_n4c2B.fts	2009-10-27 00:10:04	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_002400_d4c2A.fts	2009-10-27 00:24:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_002400_d4c2B.fts	2009-10-27 00:24:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_003900_d4c2A.fts	2009-10-27 00:39:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_003900_d4c2B.fts	2009-10-27 00:39:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_005400_d4c2A.fts	2009-10-27 00:54:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_005400_d4c2B.fts	2009-10-27 00:54:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010800_d4c2A.fts	2009-10-27 01:08:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010815_n4c2A.fts	2009-10-27 01:08:15	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010845_n4c2A.fts	2009-10-27 01:08:45	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010800_d4c2B.fts	2009-10-27 01:08:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010815_n4c2B.fts	2009-10-27 01:09:04	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010915_n4c2A.fts	2009-10-27 01:09:15	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010845_n4c2B.fts	2009-10-27 01:09:34	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_010915_n4c2B.fts	2009-10-27 01:10:04	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_012400_d4c2A.fts	2009-10-27 01:24:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_012400_d4c2B.fts	2009-10-27 01:24:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_013900_d4c2A.fts	2009-10-27 01:39:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_013900_d4c2B.fts	2009-10-27 01:39:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_015400_d4c2A.fts	2009-10-27 01:54:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_015400_d4c2B.fts	2009-10-27 01:54:49	SC-B	COR2
MORE	jpg	<input type="checkbox"/> 20091027_020800_d4c2A.fts	2009-10-27 02:08:00	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_020815_n4c2A.fts	2009-10-27 02:08:15	SC-A	COR2
MORE	jpg	<input type="checkbox"/> 20091027_020845_n4c2A.fts	2009-10-27 02:08:45	SC-A	COR2

STEREO/SECCHI NRL Movie Tools

\$Revision: 1.15 \$, \$Date: 2010/02/02 22:19:47 \$

Contact [mvi](mailto:mvi@cronus.nrl.navy.mil) at [cronus.nrl.navy.mil](mailto:mvi@cronus.nrl.navy.mil)

Contents

[Web Movie Tools/Products](#): View SECCHI movies via the SECCHI website

[JPL Web Movie Tools](#): JPL's Solar Muse website

[SCC_PLAYMOVIE](#): Run MVI files with numerous options

[ANNOTATE_IMAGE](#): Add text or arrows to image or MVI frames

[WSCC_MKMOVIE](#): Generate MVI or standard format frames using SECCHI_PREP

[MK_EUVI_MOVIE](#): Shortcut for making EUVI movies

[SCC_PLAYMOVIEM](#): SCC_PLAYMOVIE plus cursor coordinate display and height-time plotting

[SXPLOTTHT](#): Display height-time data from SCC_PLAYMOVIEM

[WSCC_COMBINE_MVI](#): Combine MVIS for any combination of SECCHI telescopes

[GENERIC_MOVIE](#): Generate MVI from data cube or standard format image files

[MVI2CARRMAP](#): Generate Carrington maps from MVI frames

[SREM_MOVIE](#): Create HI movies using cross-correlation to remove stellar background

[SCC_PNGPLAY](#) (NRL only): Quickest way to view desired movie

Web Movie Tools/Products

The following use already-created browse images for NRL Level-0 data (48-84 hours delay)

- EUVI-171,195,284,304A images are log-scaled
- COR2 TBr and HI images are ratios with monthly_min background

Javascript movie tool: http://secchi.nrl.navy.mil/index.php?p=js_secchi

SCCLISTER

IDL> files=SCCLISTER()

SECCHI Image Selection Tool v.3.0

Help PointAndClickFiles

Loading Methods:
 Load from Catalog(s)

Select STEREO SpaceCraft: STEREO A

Select Data Level: Level-05

Instrument(s): EUVI COR1 COR2 HI_1 HI_2

Select Data Source: lz (Images from level-0 packets)

Select Data Type: Intensity

Select Observation Date:
 From : 03 06 2010 Same end date
 To : 03 06 2010 Same begin date

Restrict File Selection (? = all possible values for 1 char)
 Edit as needed and Enter:
 ????????_??[03]5??_????fts

Submit

Found total of 48 SC/A files.

FileName	DateObs	Tel	Exptme	Xsize	Ysize	Filter	Polar	Prog	OSnum	Dest	FPS	LED	Cmpr
20100306_000530_n4euA.fts	2010/03/06 00:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_003530_n4euA.fts	2010/03/06 00:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_010530_n4euA.fts	2010/03/06 01:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_013530_n4euA.fts	2010/03/06 01:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_020530_n4euA.fts	2010/03/06 02:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_023530_n4euA.fts	2010/03/06 02:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_030530_n4euA.fts	2010/03/06 03:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_033530_n4euA.fts	2010/03/06 03:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_040530_n4euA.fts	2010/03/06 04:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_043530_n4euA.fts	2010/03/06 04:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_050530_n4euA.fts	2010/03/06 05:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_053530_n4euA.fts	2010/03/06 05:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_060530_n4euA.fts	2010/03/06 06:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_063530_n4euA.fts	2010/03/06 06:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_070530_n4euA.fts	2010/03/06 07:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_073530_n4euA.fts	2010/03/06 07:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_080530_n4euA.fts	2010/03/06 08:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_083530_n4euA.fts	2010/03/06 08:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_090530_n4euA.fts	2010/03/06 09:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_093530_n4euA.fts	2010/03/06 09:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_100530_n4euA.fts	2010/03/06 10:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_103530_n4euA.fts	2010/03/06 10:35:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS
20100306_110530_n4euA.fts	2010/03/06 11:05:30	EUVI	8,01	2048	2048	S1	195	Norm	1644	SSR1	ON	None	ICERS

Sub-Select Options

Tel ExpBeg ExpEnd Xsize Ysize Filter Polar SebProg OSnum Dest Compression

All [] [] [] [] All 195 All [] SSR1 All []

Query ReloadOrig

Sort Display by Ascending [] DateObs [] Sort

Save Displayed Image File Names and Info as scc_images.sav consisting of images.fnames and images.info Save

Done - Return Filenames



WSCC_MKMOVIE

IDL> wssc_mkmovie, files.sc_a or IDL> wssc_mkimage ,one_file

The screenshot shows the WSCC_MKMOVIE software interface with the following sections and settings:

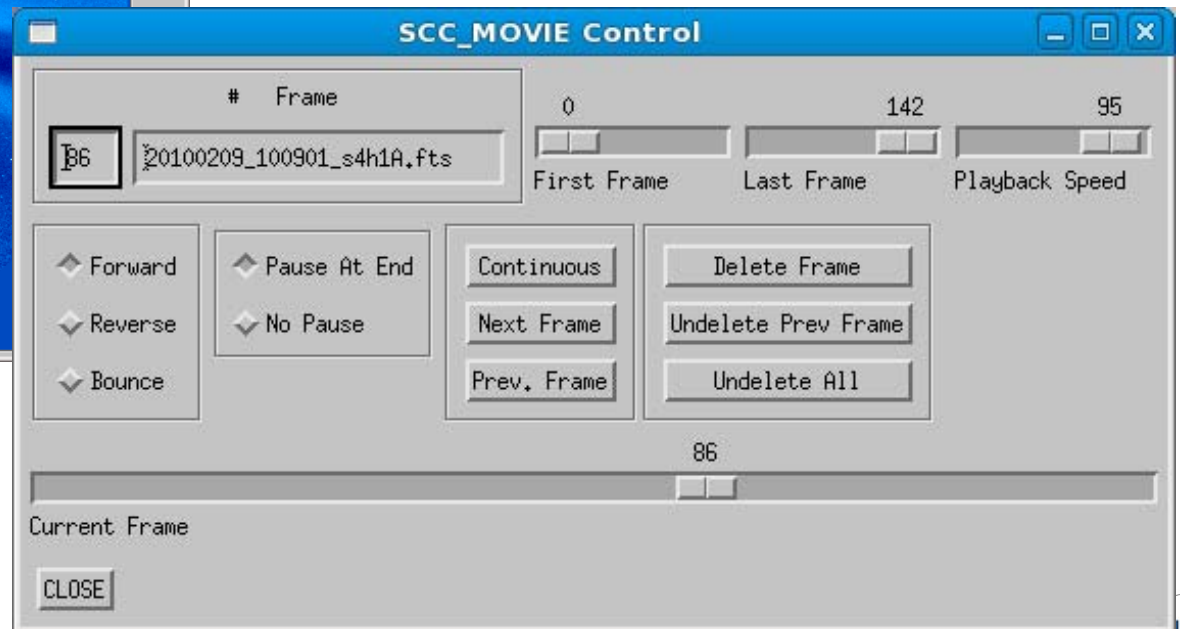
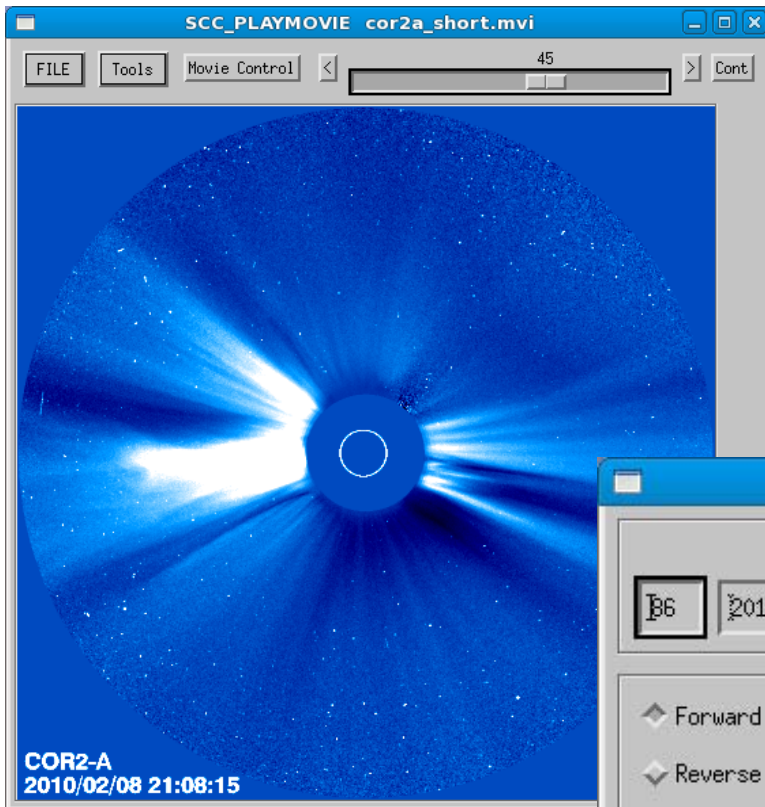
- pB Series Options:** None
- Image Scaling:** BYTSCL Min: -2.00, Max: 2.00; Automatic scaling: ; Unsharp/Smooth Box: 0; Use SECCHI_PREP color table: ; Fill Color (1-256): -1 (-1 for median); Sharpen Ratio Factor: 0.0150; Do Median: ; Use LOG Scaling:
- Type of Movie:** Straight, Difference, Running Diff, Unsharp, Ratio, Sharpen Ratio; Running diff of: 1; For Base Frame Use: Monthly Min; New bkg each frame: ; Use every 1 file from input; Average skipped frames: ; FFV size: 512x512
- Options:** Display Date, Normalize to exptime, Sort by Date, Flat field/vignet, Physical units, Rotate North Up, Use SECCHI Logo, Show Limb, Mask Outer Field, Add Objects (HI2); S/C Options: Both, B on Left, All (fill w/prev); Date size: 1; Do Not Mask Occulter, Do Not Fill Data Gaps
- Subfield Coordinates:** Use interactive subfield, Clear Subfield; Relative to 2048x2048 image; X1: 0, X2: 2047; Y1: 0, Y2: 2047; Use Integer Factors (Ex: Y1=512 Y2=1535); Use Box Normalization; Relative to 2048x2048 image; X1: 973, X2: 1072; Y1: 1948, Y2: 2047

Buttons at the bottom: CREATE MOVIE, TEST MOVIE, XLOADCT, CLEAR TEXT, CANCEL

- None
- Total Brightness
- Polarized Brightness
- Polarization Angle
- Percent Polarized

SCC_PLAYMOVIE

IDL> scc_playmovie ,['cor2a_short.mvi']



SCC_PLAYMOVIE: HI2

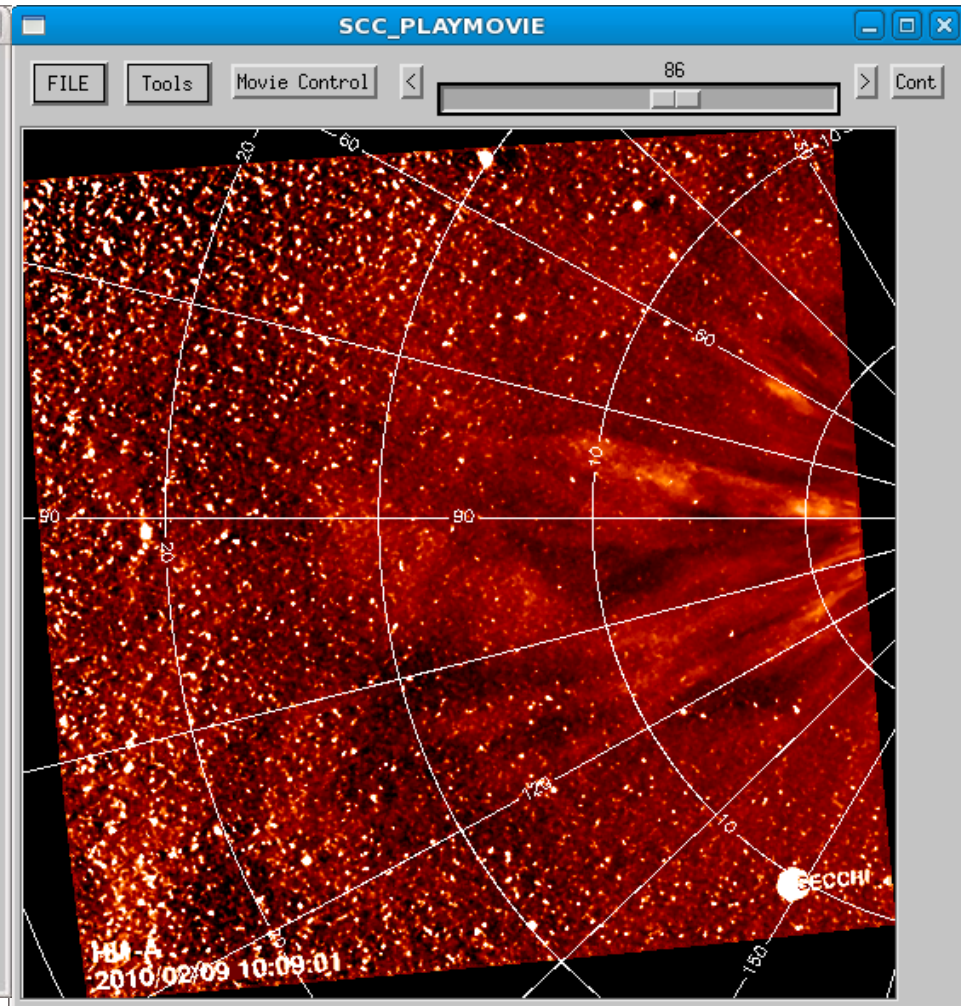
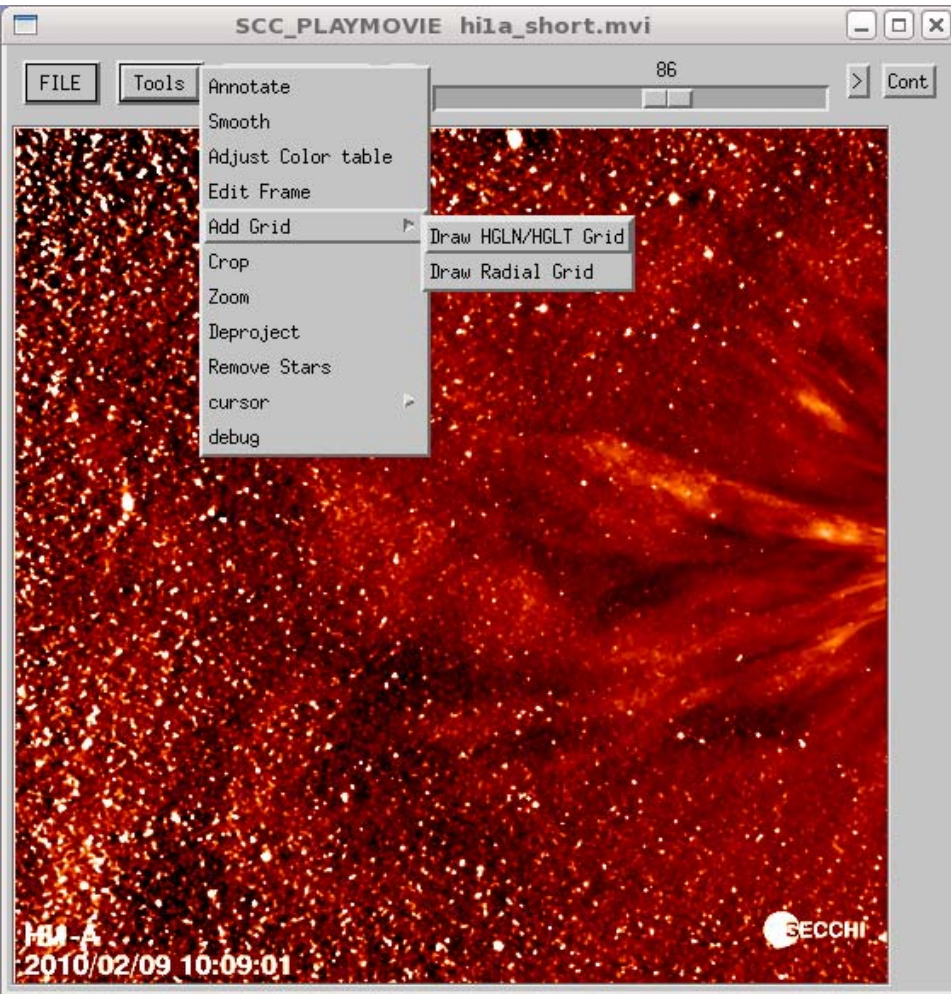
The image displays two instances of the SCC_PLAYMOVIE software interface. The left window, titled "hi2a_test.mvi", shows a blue-tinted solar image with a "Tools" menu open, highlighting the "Annotate" option. A "SELECT MASK" dialog box is overlaid on this window, containing the following fields and values:

- Use Mask File (full images only): NO
- All values are in pixels
- X Center: 256
- Y Center: 256
- Outer Mask size: 260
- Color (0-255): 0

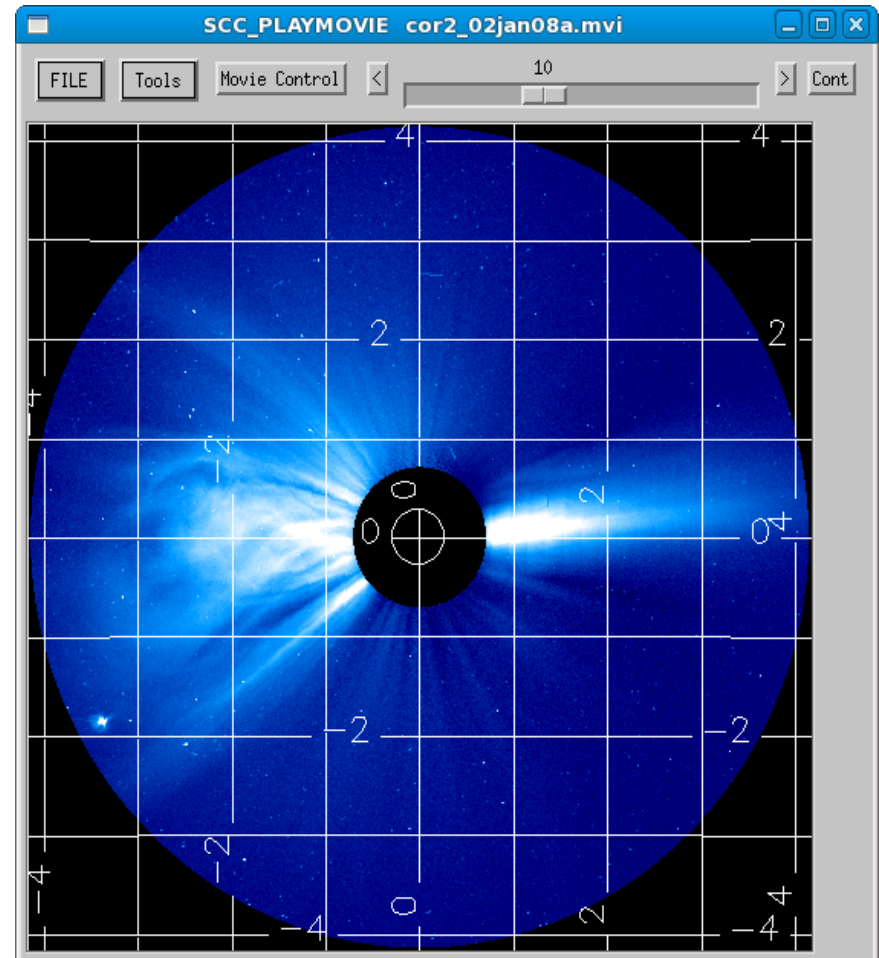
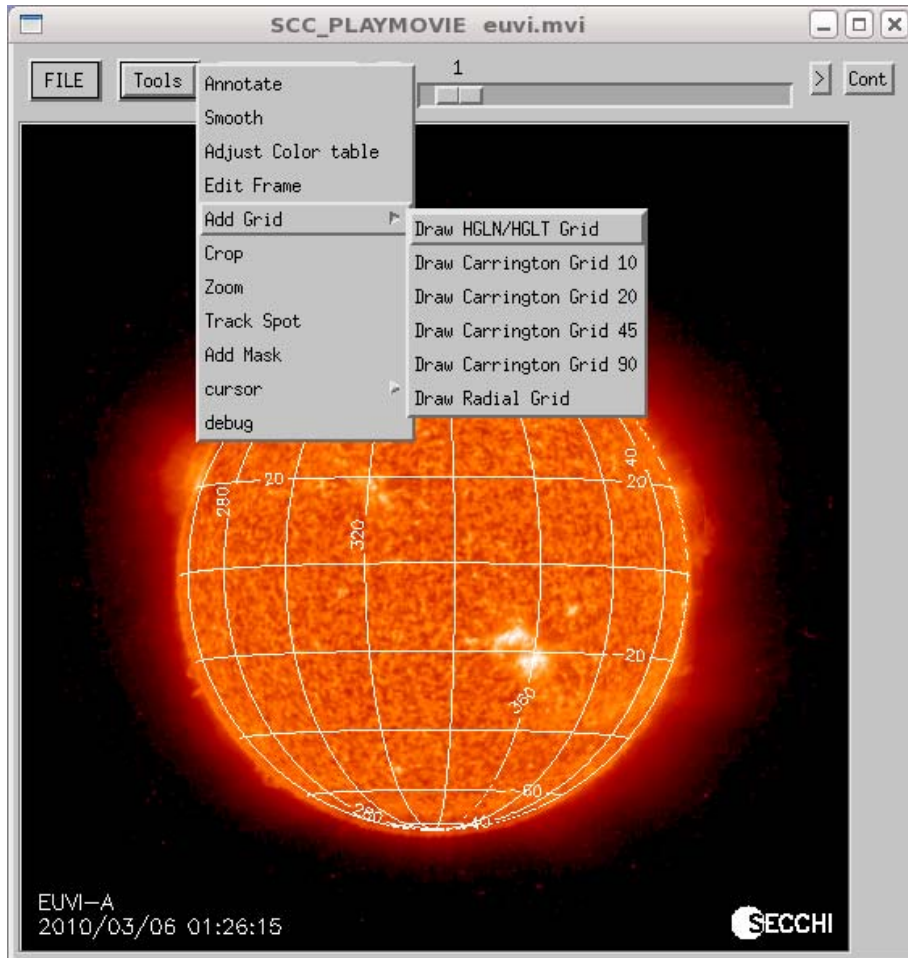
The right window, titled "hi2a_2.mvi", displays a similar solar image with a vertical white line and labels "Earth SOHO" and "*B". A "SELECT OBJECTS" dialog box is overlaid on this window, with the following settings:

- Objects set to blank strings will not be labeled
- SECCHI-B: *1nB
- EARTH: *1aEarth
- SOHO: *1bSOHO
- Size: 2.0
- Color: 255

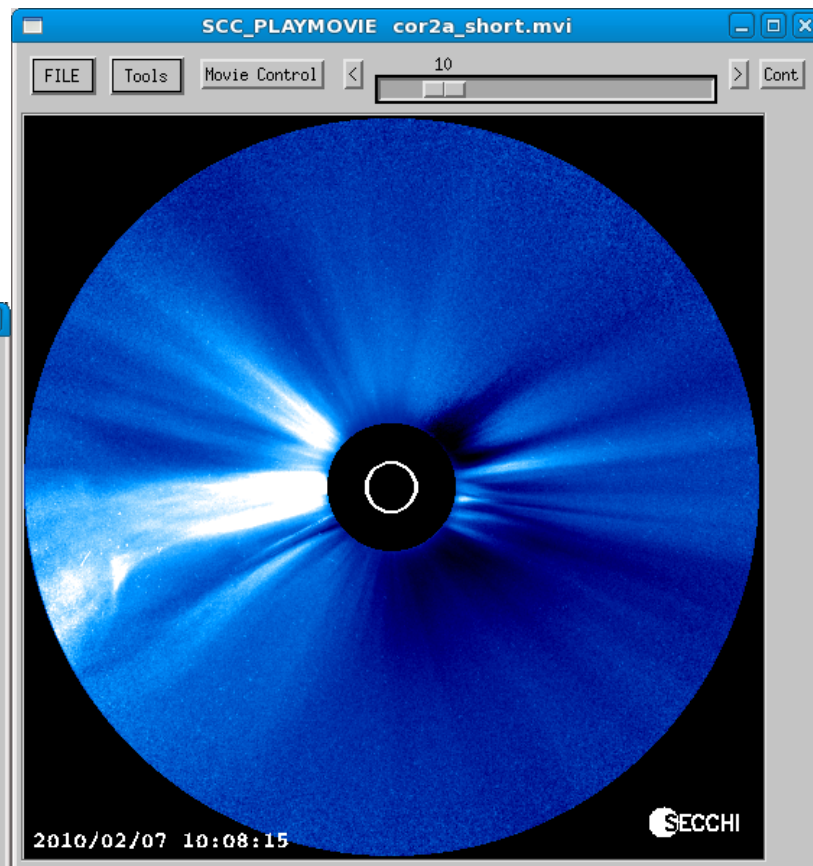
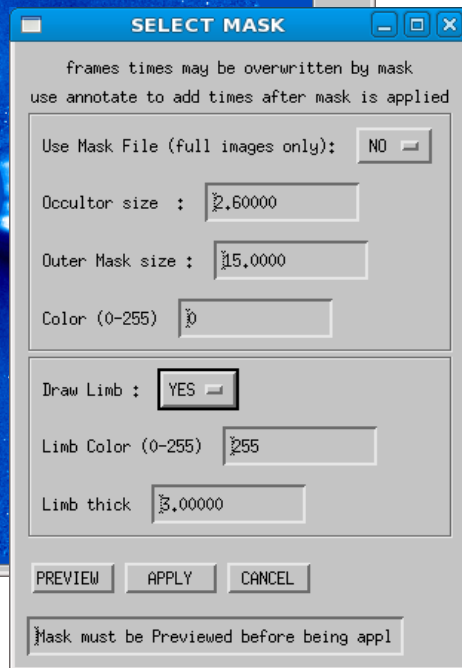
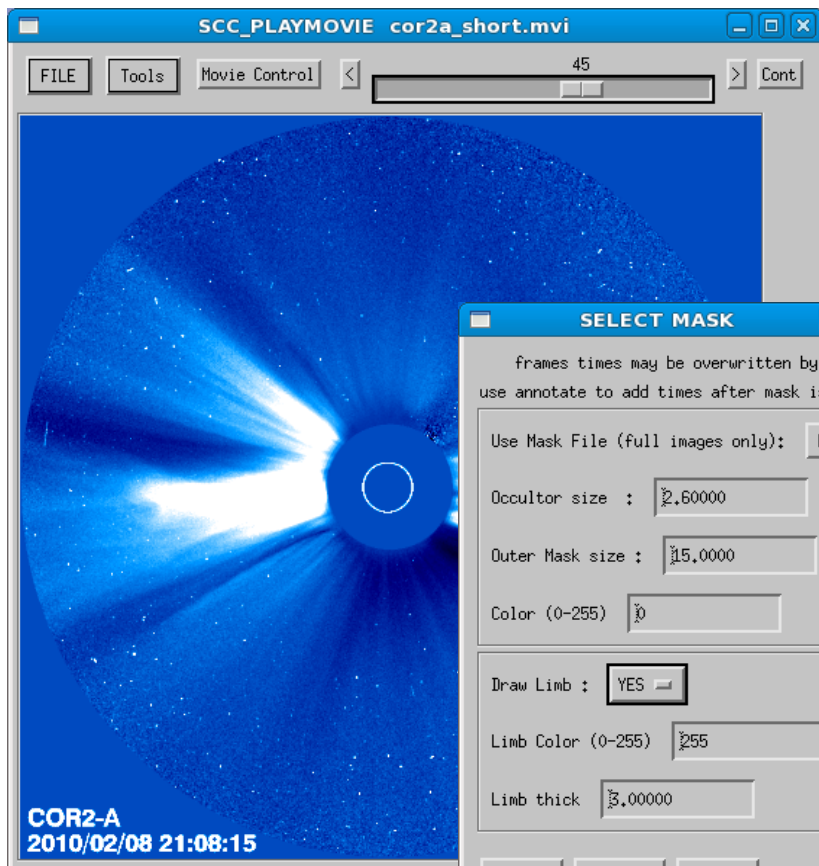
SCC_PLAYMOVIE: HI1



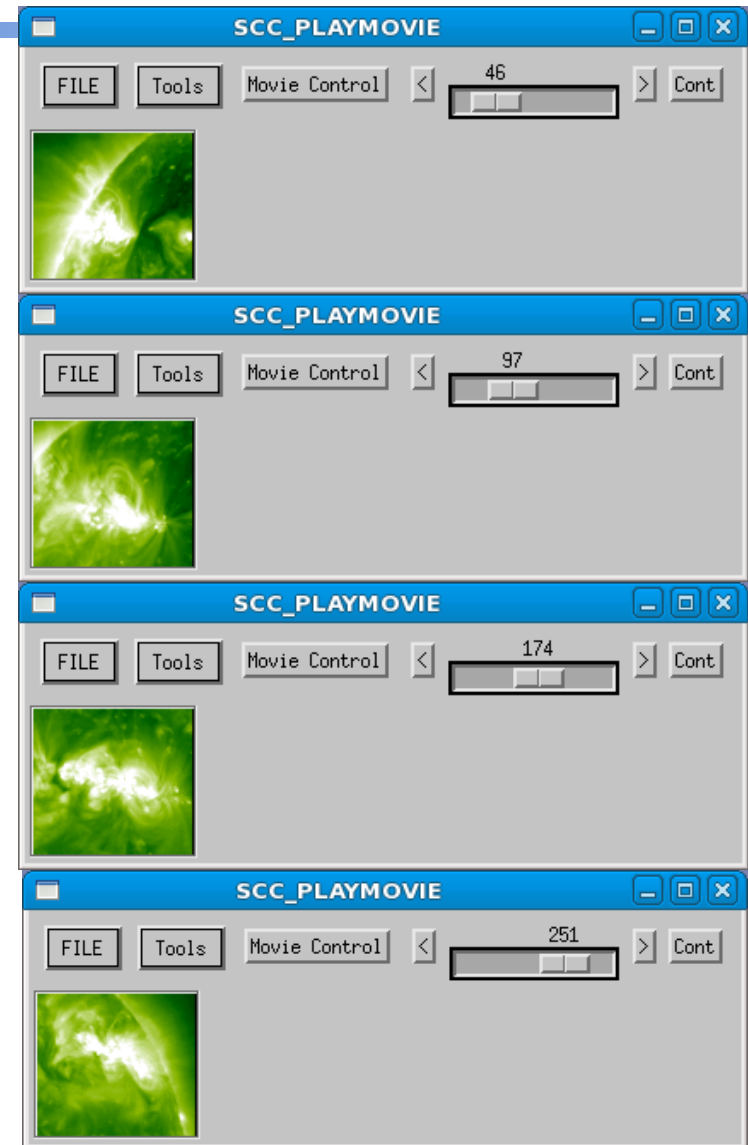
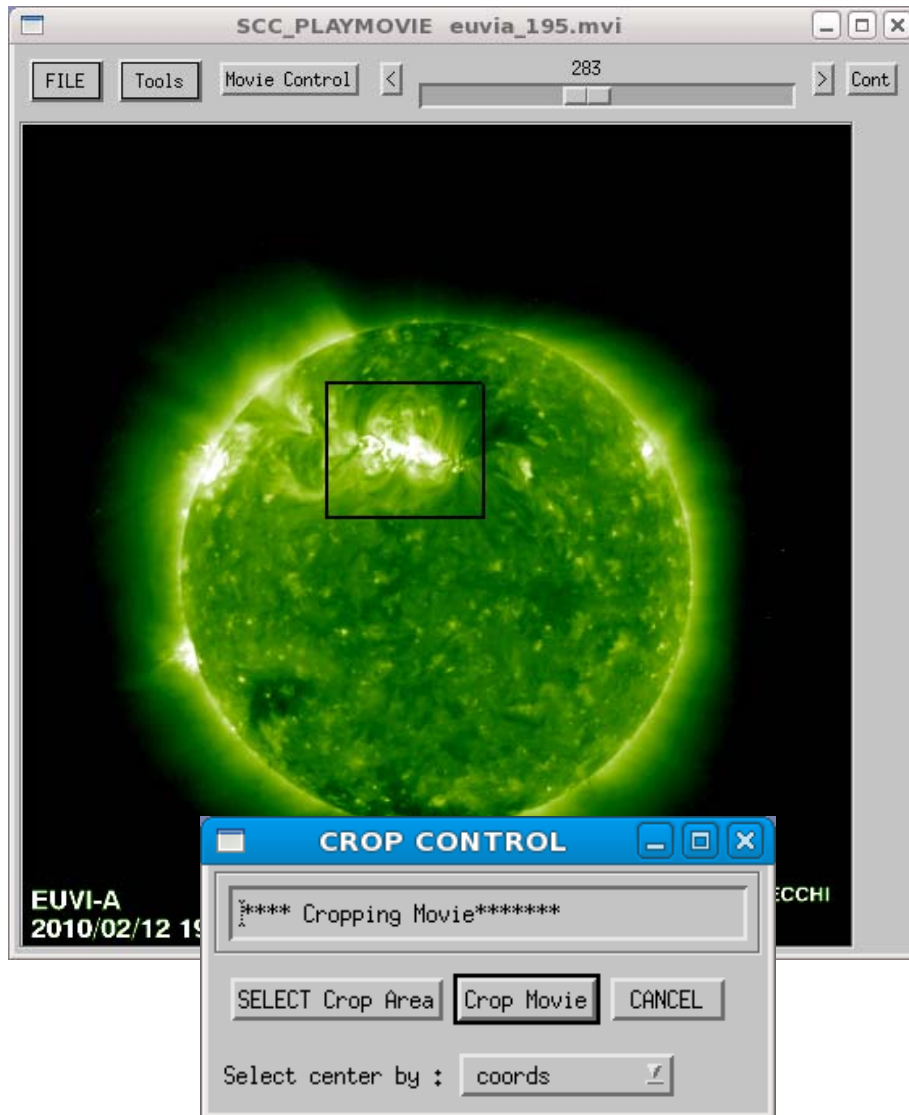
SCC_PLAYMOVIE Grids



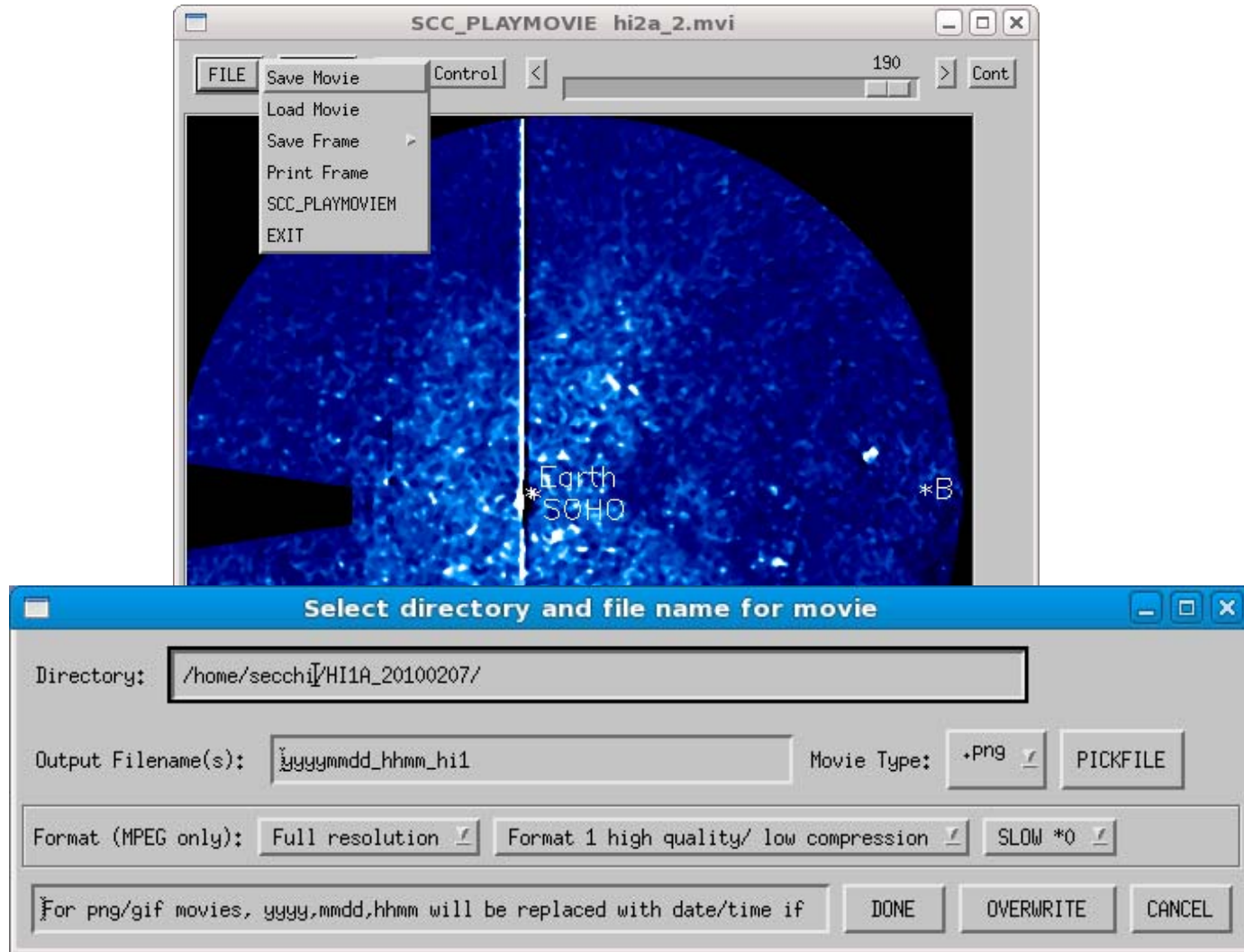
SCC_PLAYMOVIE: COR2 Mask



SCC_PLAYMOVIE: EUVI CROP



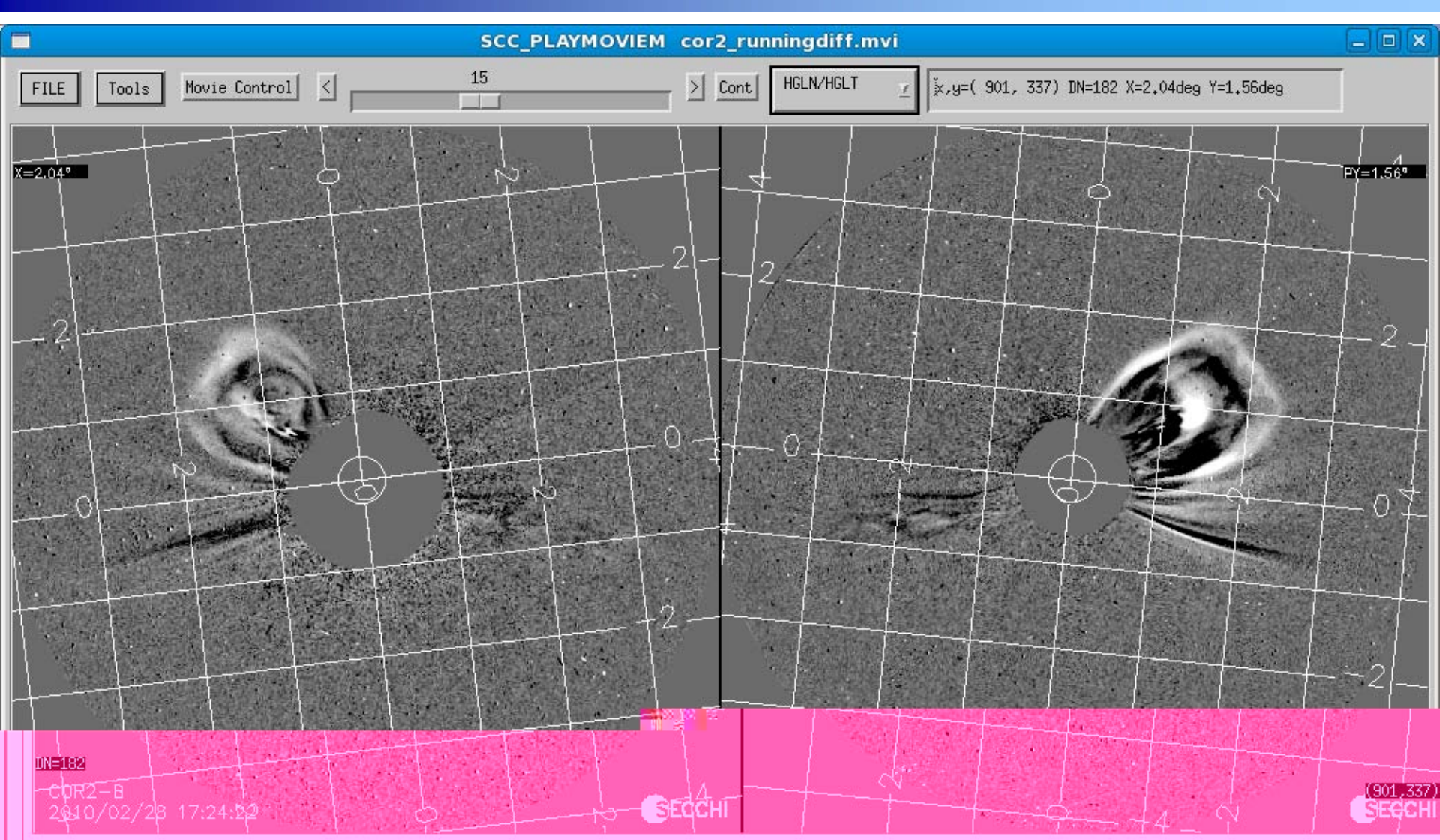
SCC_PLAYMOVIE: Save



SCC_PLAYMOVIEM

- **Display cursor position in Heliocentric Radial, Heliocentric Cartesian, or Carrington coordinates**
 - Coordinates are corrected for distortion and spherical projection (a factor for HI and COR2)
- **Track subfield by Carrington coordinate**
- **Generate “Height-Time” plots using manual pixel/feature selection**
- **Synchronize time and position with Jmaps via TOOL2A.PRO (and vice versa)**

SCC_PLAYMOVIEM: AB movies



SCC_PLAYMOVIEM: EUVI Track Spot

SCC_PLAYMOVIEM euvi_171a.mvi

FILE Tools Movie Control 81

Carrington $x,y=(511, 194)$ DN= 0 E=0.4566deg PA=266.87deg

E=0.4566° PA=266

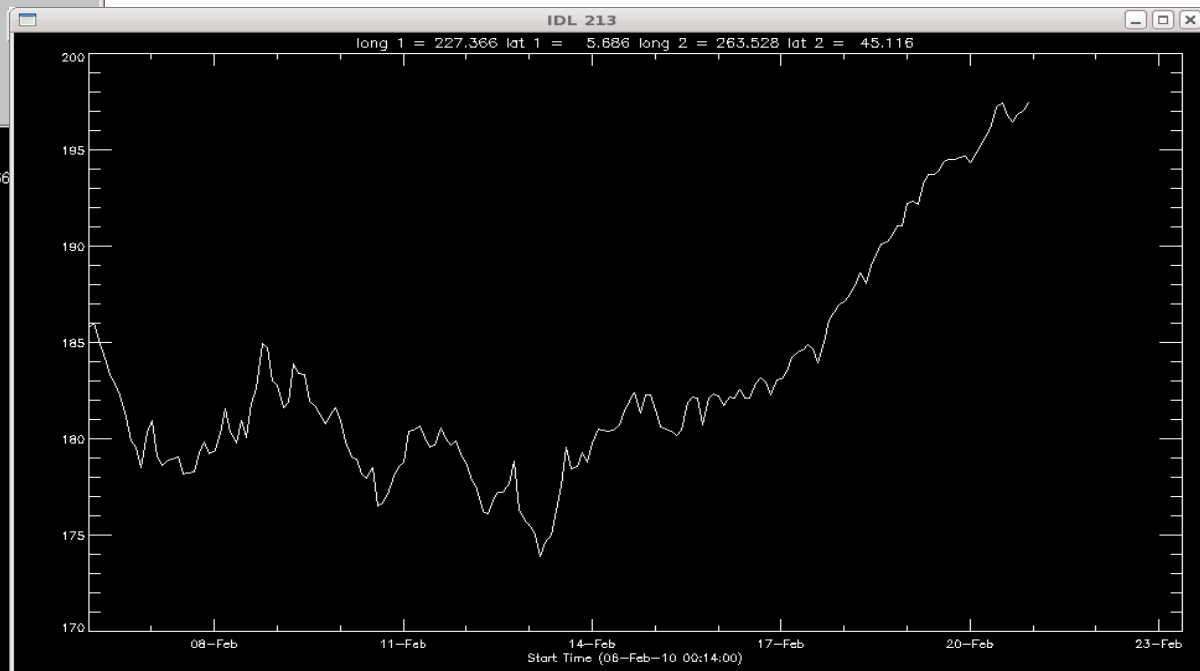
DN=0
EUVI-A
2010/02/12 18:14:00

SPOT TRACKING CONTROL

Press select to redo or cancel to exit

Track Spot by : coords SELECT Spot Area Track Spot CANCEL

Output Filename: euvi_171a PICKFILE



long 1 = 227.366 lat 1 = 5.686 long 2 = 263.528 lat 2 = 45.116

OBSRVTRY STEREO_A

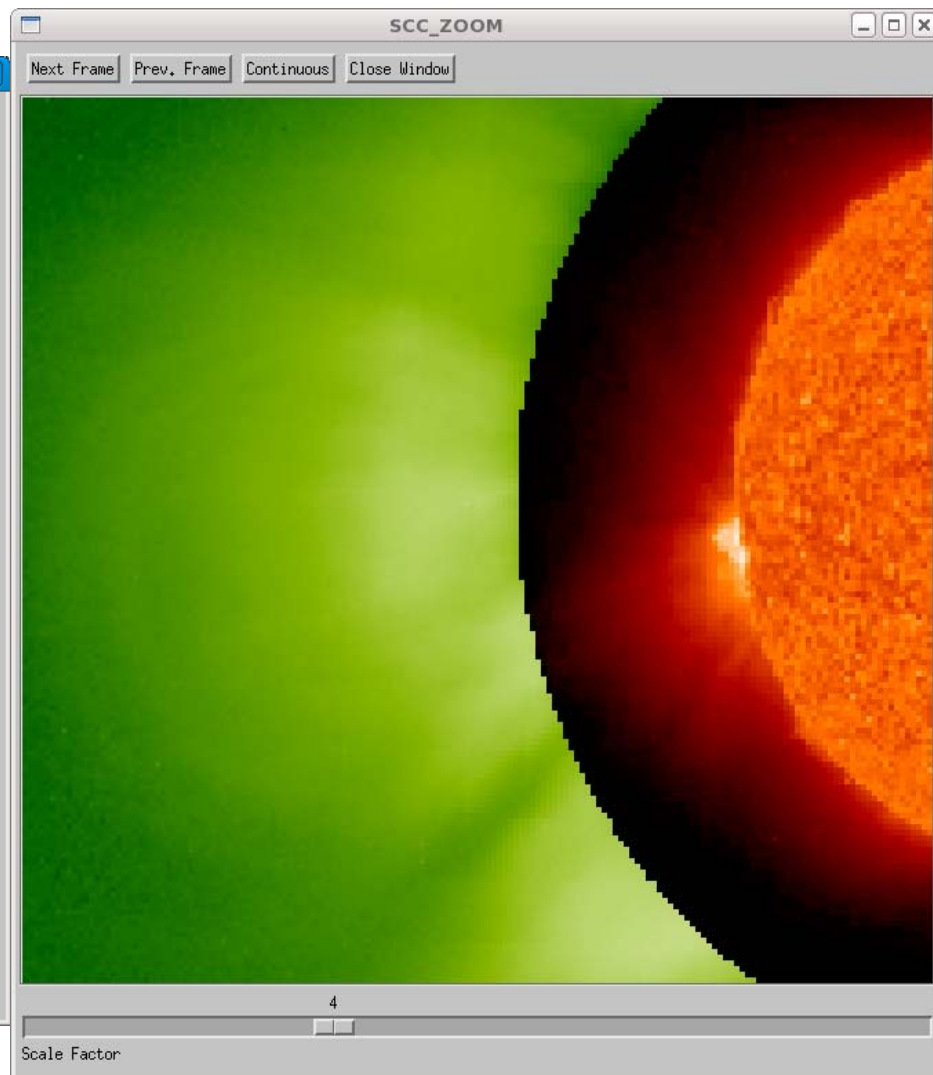
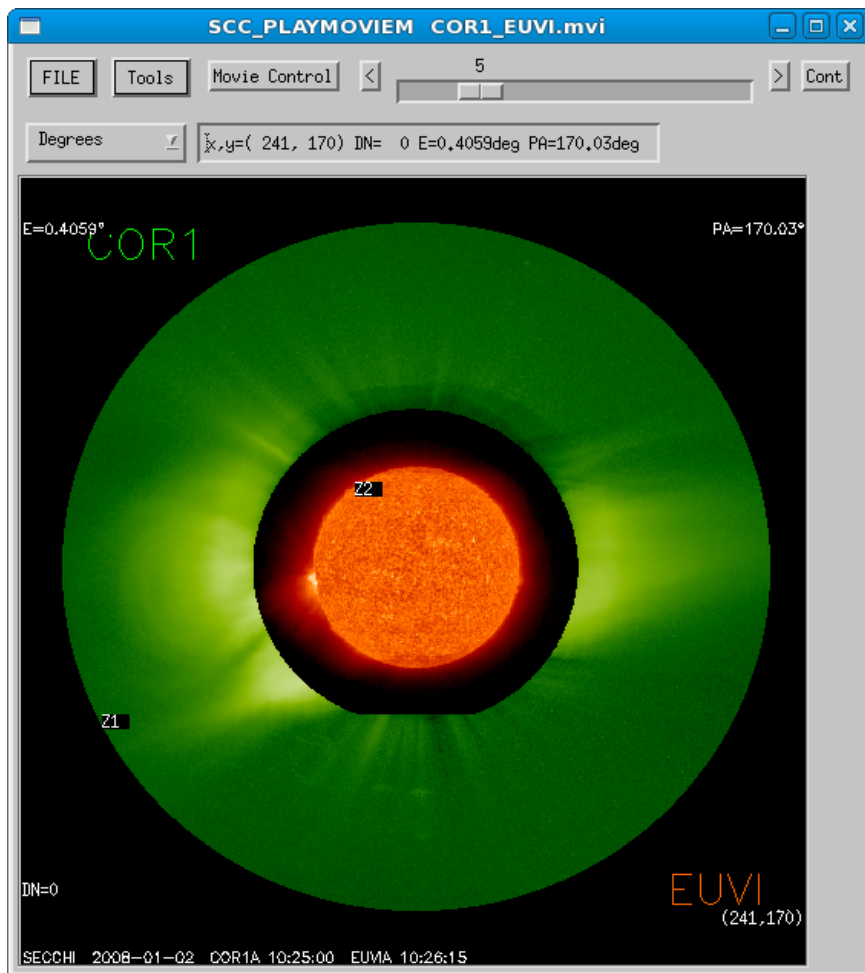
DETECTOR EUVI

FILTER S1

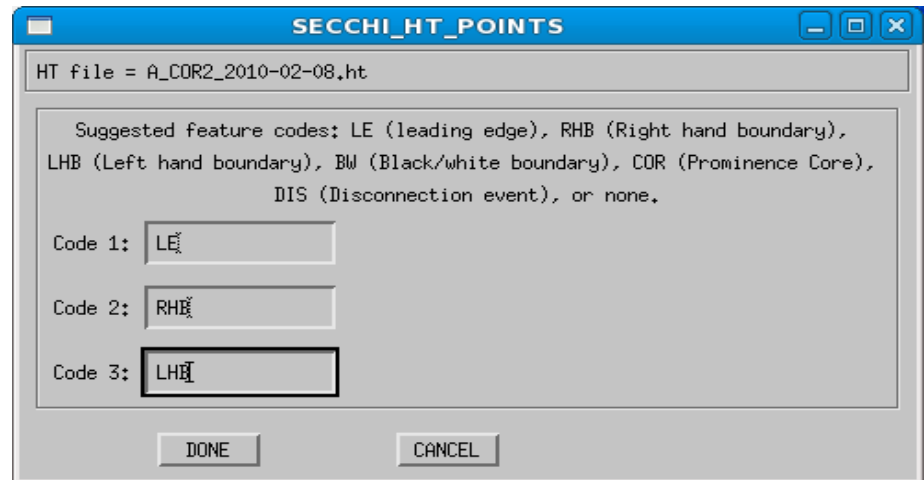
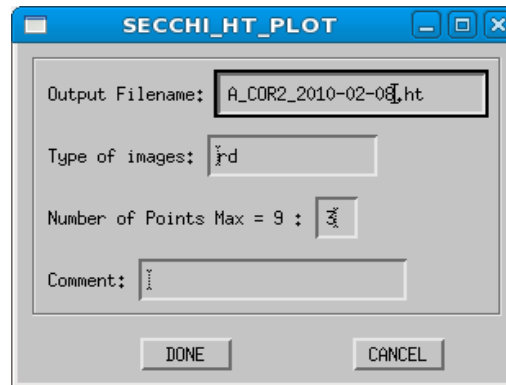
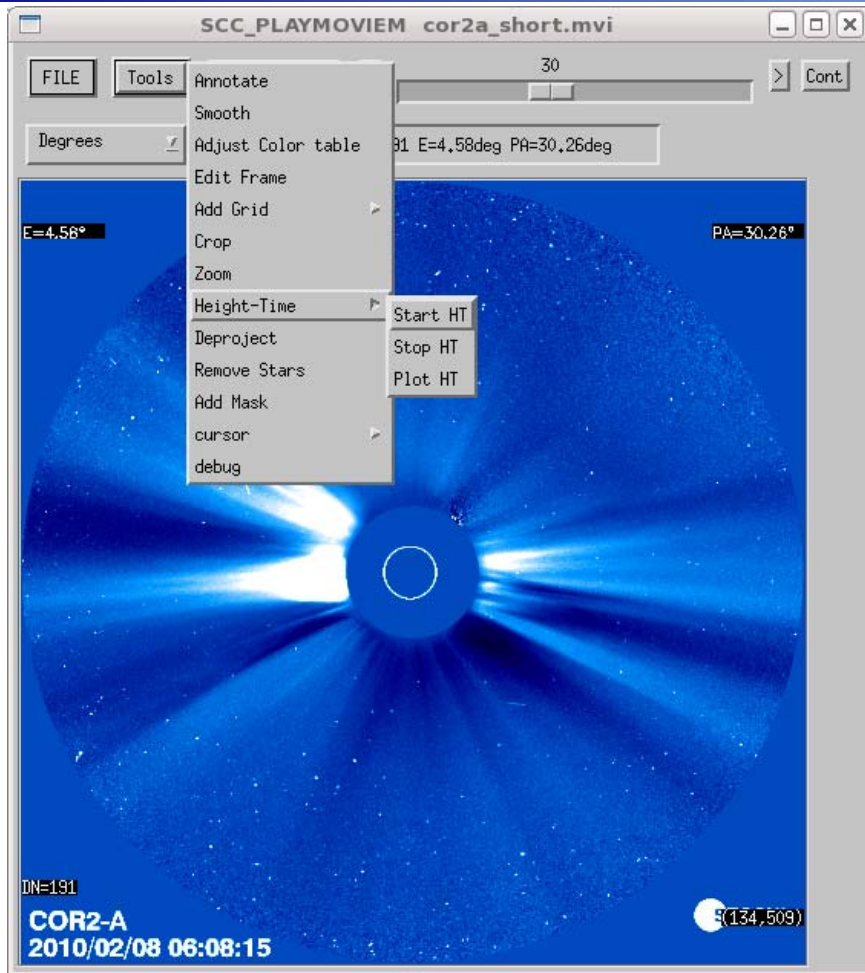
WAVELNTH 171

DATE/TIME	Total	N_pixels	Average
2010-02-06T00:14:00.007	16534.0	89	185.775
2010-02-06T02:14:00.008	22692.0	122	186.000

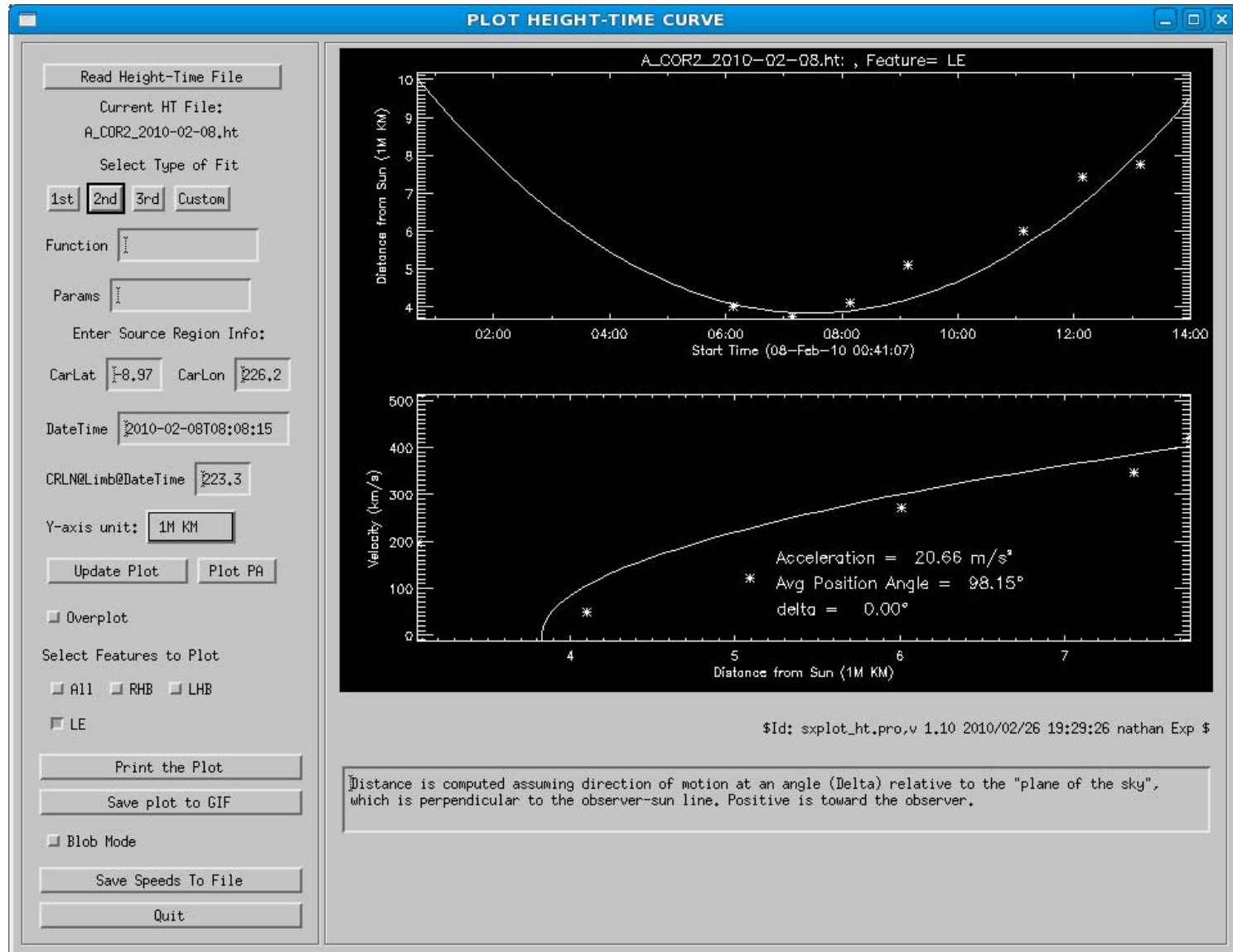
SCC_PLAYMOVIEM: ZOOM



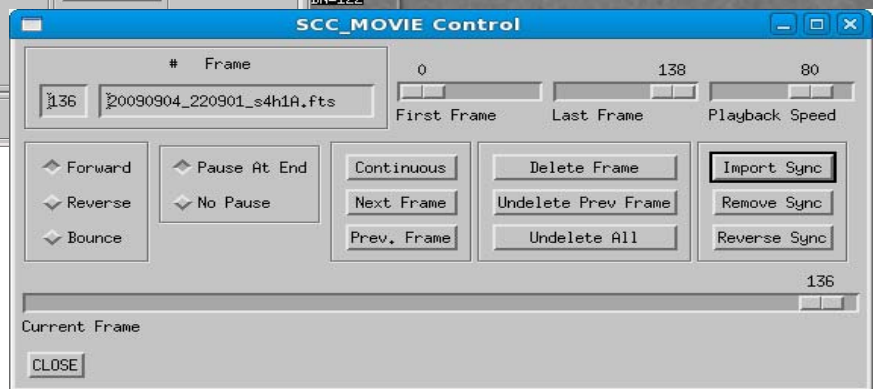
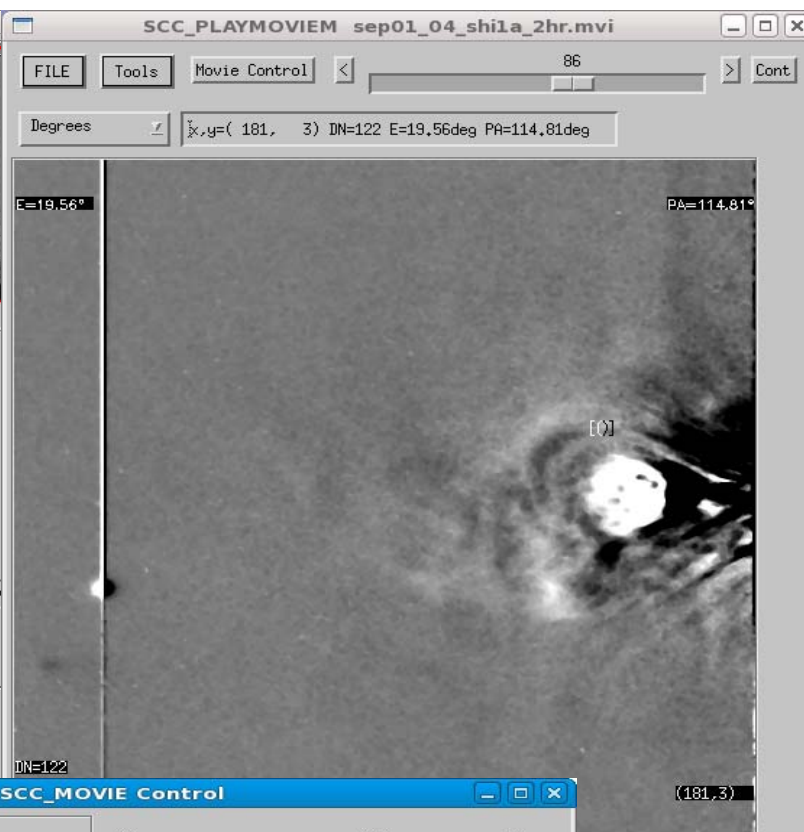
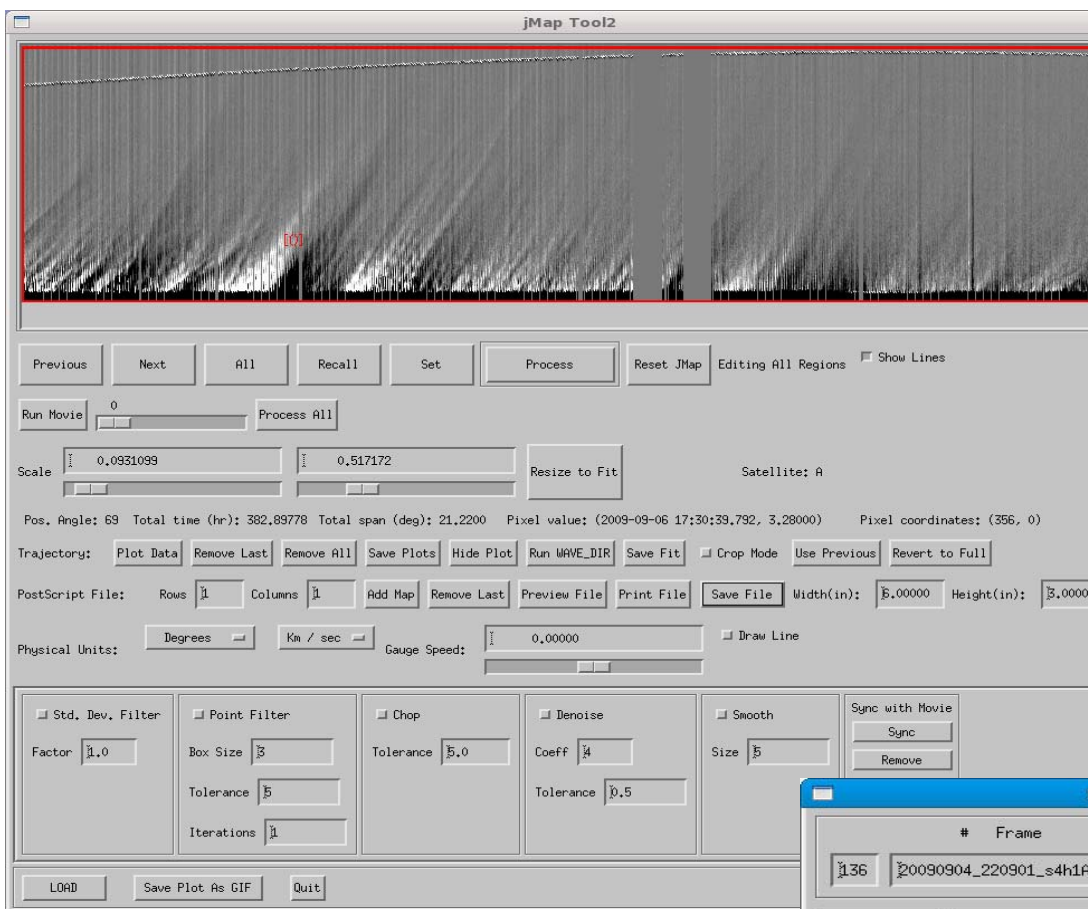
SCC_PLAYMOVIEM: HT Plot



SXPLOT_HT



Jmaps and Tool2a

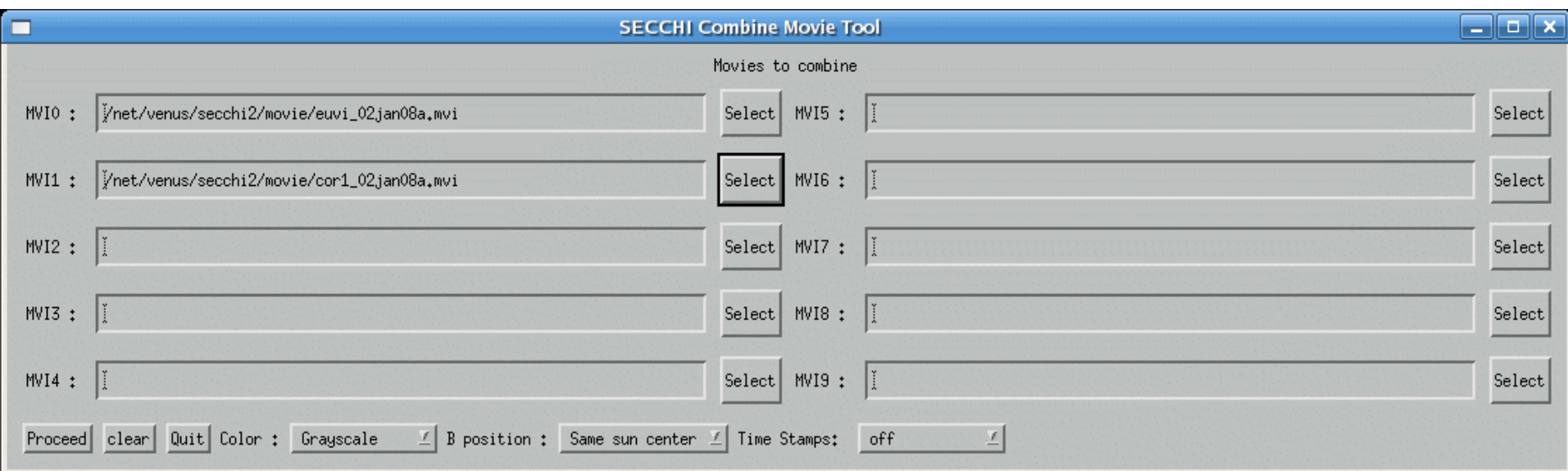


- Movies serve as inputs to tool2a.pro**
- Jmaps created using tool2a.pro**
- Jmaps are HT plots along specified PA**
- Jmaps allow user to perform feature tracking**
- To Sync use the center mouse button**

WSCC_COMBINE_MVI

Combines frames from existing .mvi/.hdr files from a combination of SECCHI telescopes into single frames at the correct relative platescale and orientation.

IDL> wssc_combine_mvi



WSCC_COMBINE_MVI: Control

The image shows two windows from the SCC_CMBMOVIE software. The main window, titled "SCC_CMBMOVIE", displays a solar image with a green background and a central orange sun. The status bar at the bottom of this window reads "SECCHI 2008-01-02 COR1A 14:45:00 EUVA 14:46:15". The "SCC_COMBINE_MVI Control" dialog box is overlaid on the right side of the main window. It contains the following controls:

- Combine_MVI Controls**: A text field containing "Not selected", a "Crop" button, and a "Clear Crop" button.
- Zoom**: A text field containing "228.91", a slider, and the label "Zoom: Select platescale value (arcsec/pixel)".
- Buttons**: "Restore Original Size", "Preview", "Return to Setup", "Clear Text", "Make Movie w/o img array", "Make/Save Movie", and "Make img array".
- Timestamp**: "Timestamp Charsize (0=none)" with a text field containing "0.0".
- Estimated MVI size**: "Estimated MVI size = 315MB PNG or GIF movie size = 105MB".
- Close**: A "CLOSE" button.
- Masks**: A section with the text "Masks" and "0 = No Mask", "-1 = Use Mask File". It contains several pairs of text fields: "HI2_A" and "HI2_B" (both -1.00), "COR2A" and "COR2B" (15.00 and -1.00), "COR1A" and "COR1B" (3.500 and 3.500), "EUVA" and "EUVB" (1.600 and 1.600).
- Movie Color**: A dropdown menu set to "Truecolor".
- Background**: A dropdown menu set to "Select".
- Color Sliders**: Three sliders for "R:", "G:", and "B:", each with a value of "0".

ANNOTATE_IMAGE

IDL> annotate_image ,['some.mvi' or 'some_image.gif']

Annotations:
COR2-A
EUVI 304 Å
COR1
01/02/2008 13:56:00
SECCHI

Text: MM/DD/YYYY hh:mm:ss [Clear]

Vector Fonts: 13 - Simplex Roman (default) **TrueType Fonts:** !13 - Courier Bold [Show Font]

Insert Embedded Command: !N - Shift back to the normal level and original character size.

Select a Hardware Font (Embedded !-commands do not work with hardware fonts.)

TEXT position: Click on image or X: 22 Y: 11 Align: Left Char Size: 2,00

Orientation: 0

ARROW: Select X1: 0 Y1: 0 X2: 0 Y2: 0 Thick: 2 Size: 8 [Clear]

Text Color: White R: 255 G: 255 B: 255

Background: none R: 255 G: 0 B: 0

Arrow Color: Green R: 0 G: 255 B: 0

MVI OPTIONS:
◆ Not Selected
◆ Add Time stamps
◆ Add SECCHI Logo

ADD ANNOTATION From Frame 0 To 132 [Help] [EXIT]

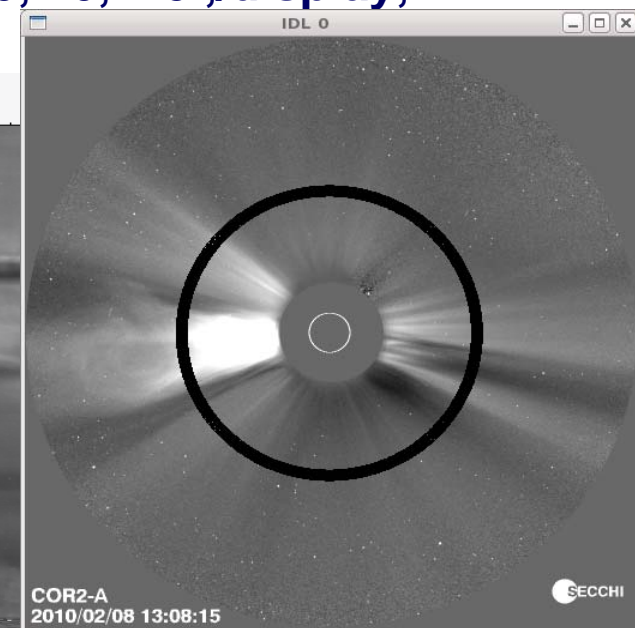
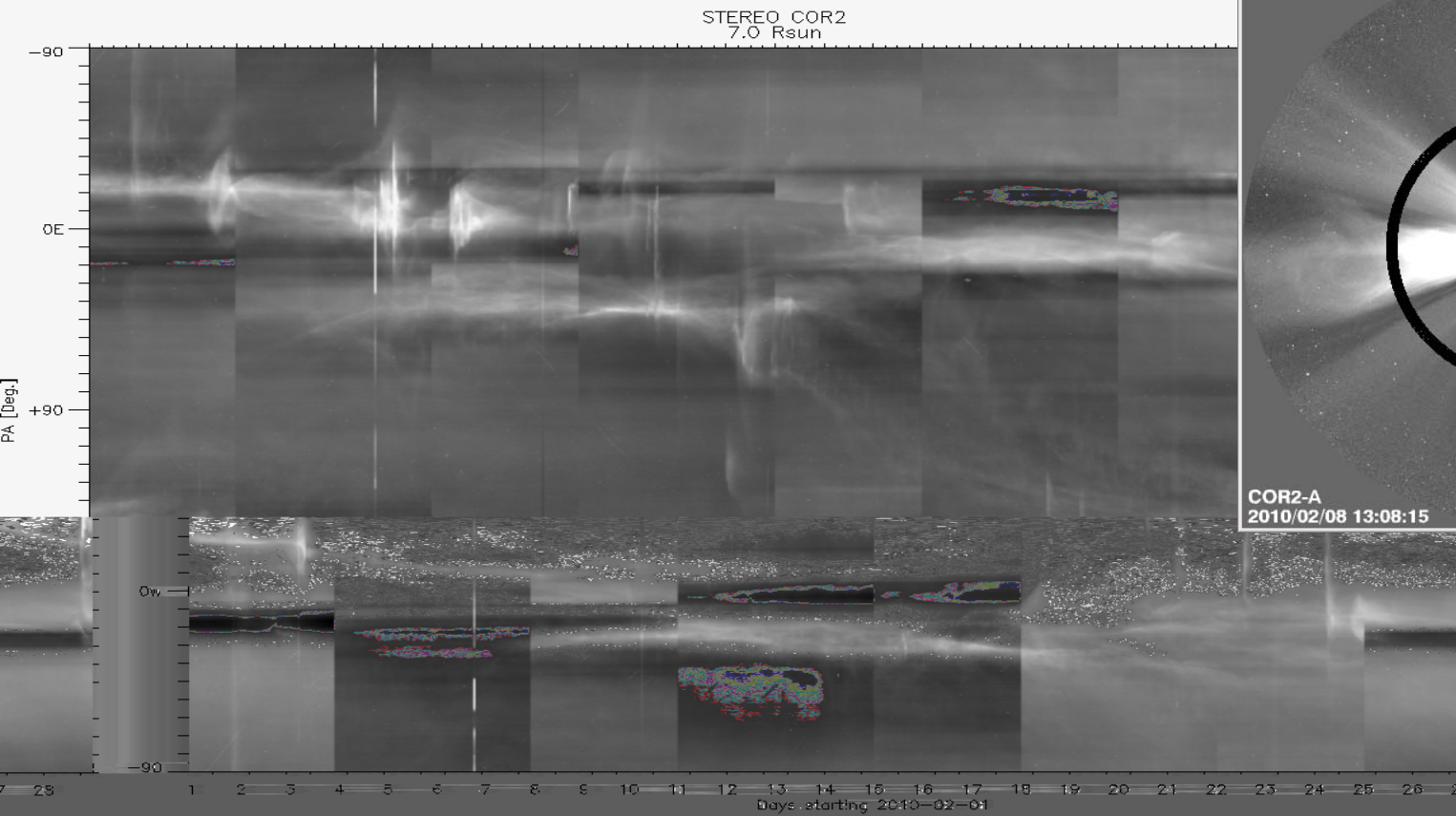
Save MVI **Save Image** **Output type:** .png

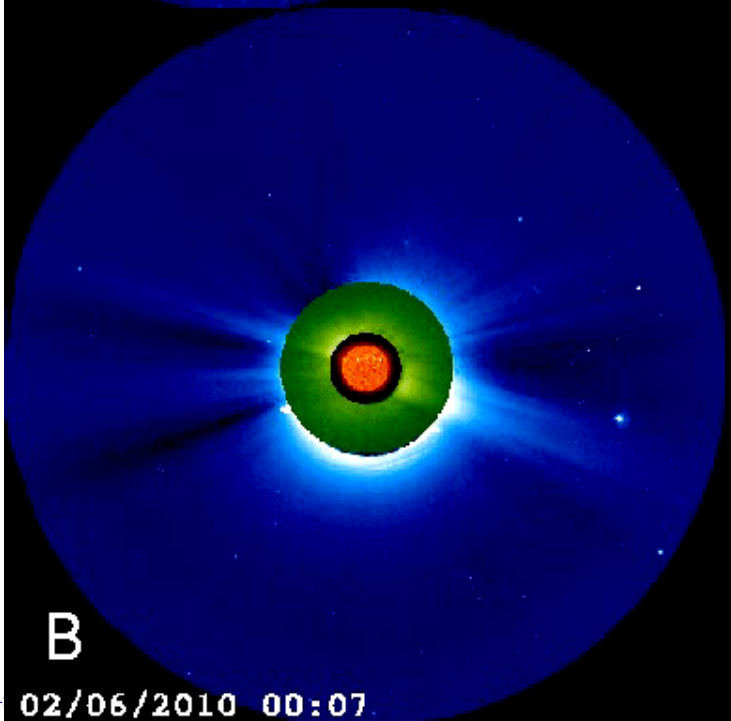
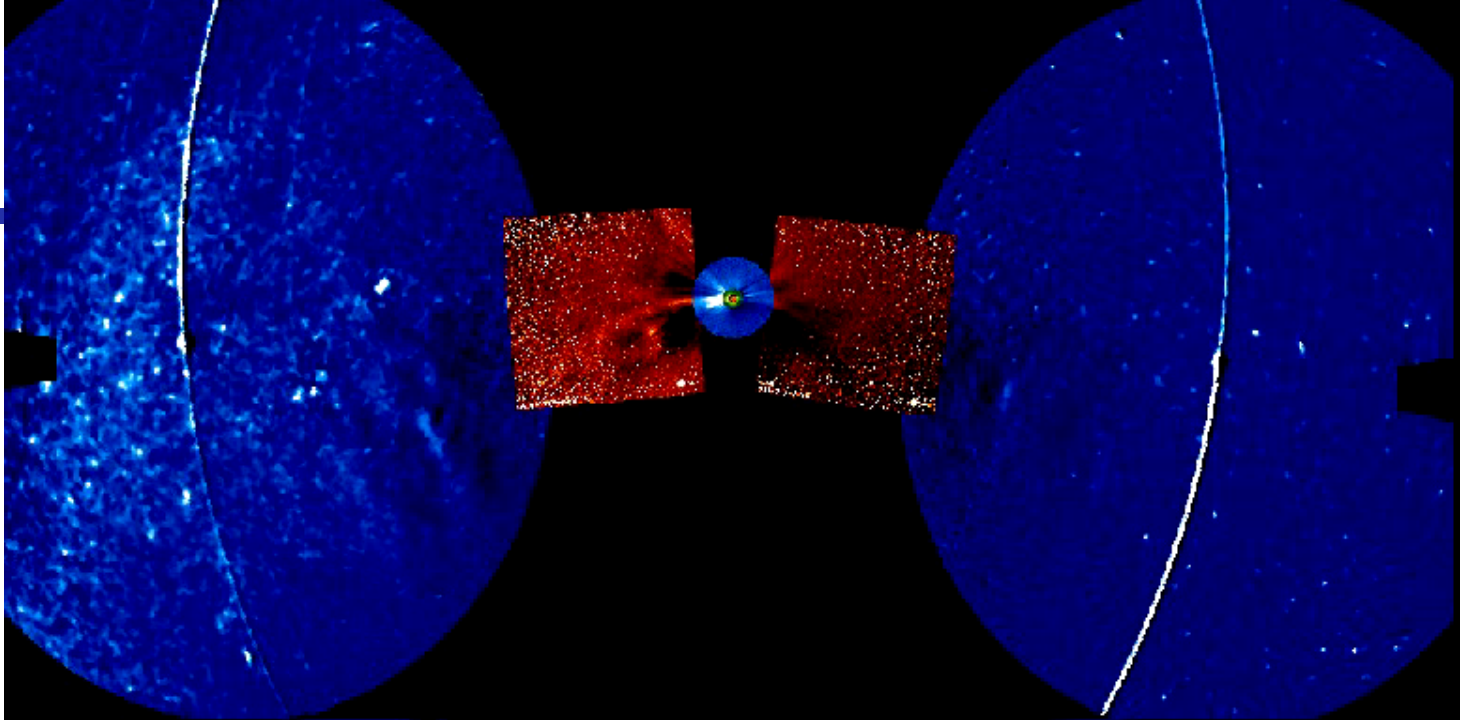
MVI2CARRMAP

Creates Carrington/Synoptic maps from MVI movies

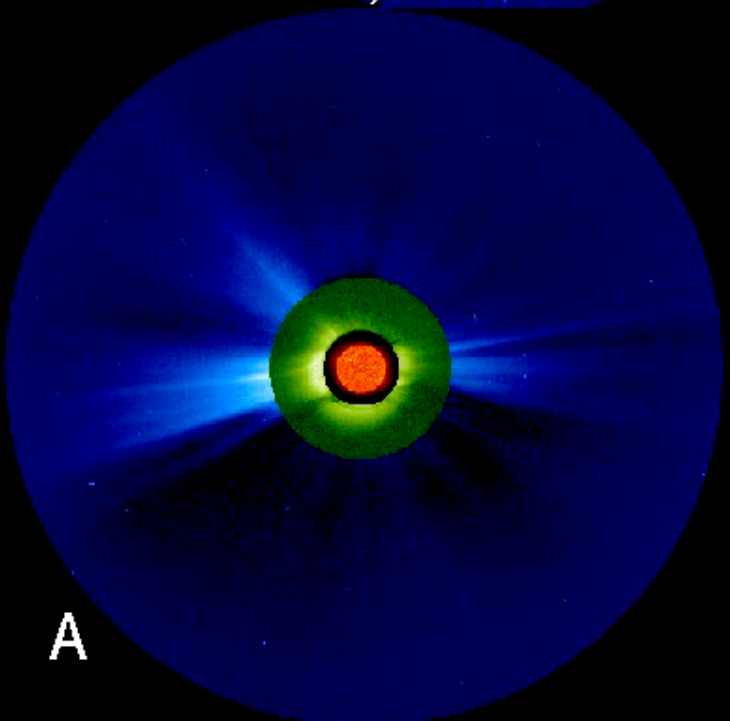
- Works for EIT/LASCO movies

```
IDL> mvi2carrmap,'201002/cor2a_0201_0228.mvi', 7.0, 10, .25 ,/display,  
/synoptic, png='synoptic'
```





B



A