

PSPT Final Release Notes

All data for 2005-2015 was obtained from the instrument and processed at LASP by Mark Rast, except for the following: 2005-2006 N-filter, January 2007 N-filter and June-August 2010 N-filter data was processed by Jamie Mothersbaugh. Data includes morning, afternoon and evening images (UT timestamp).

Most raw data for 1998-2004 was deleted by NCAR from the HPSS server. Raw data was recovered from HPSS and DLT tape from HAO and processed at LASP by Jamie Mothersbaugh. Data includes afternoon images (UT timestamp).

Images that were previously processed were used to fill in gaps in the 1998-2004 data record. These filler images were obtained from the NCAR HPSS server, SFO and LASP. Images were analyzed for quality and, in some cases, went through re-processing. Updates for each image are indicated in the headers. Explanations of header updates are described below. Raw data for these images is lost. The images are unique in the data record. Data includes morning, afternoon and evening images (UT timestamp).

All existing flat field images for the 1998-2015 record are available by request from LASP.

Contacts

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Filler Image Header Keywords

DATAPROC: Standard processing

Images likely processed using final versions of flat field and CLV evaluation codes. Image processing is likely the same as that used for 1998-2015 images without DATAPROC keyword. These images were added to the archive during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered from filesystem of Mark Rast at LASP.

DATAPROC: Intermediate processing I1

Images likely processed with intermediate versions of flat field and CLV evaluation codes. Images did not have CLV function descriptions in the headers. These header lines were added during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered from NCAR HPSS.

DATAPROC: Intermediate processing I2

Images likely processed with intermediate versions of flat field and CLV evaluation codes. Images did not have CLV function descriptions in the headers. These header lines were added during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered from archive of Angela Cookson at SFO.

DATAPROC: Early processing E1

Images likely processed with early versions of flat field and CLV evaluation codes. Images did not have CLV coefficient values or function descriptions in the headers. CLV coefficients determined in post-processing during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered from archive of Angela Cookson at SFO.

DATAPROC: Early processing E2

Images likely processed with early versions of flat field and CLV evaluation codes. Images did not

have CLV coefficient values or function descriptions in the headers. All CLV information was determined in post-processing during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered from NCAR HPSS.

FILLTYPE: Reads 'Filler image from *location*.'

Origin of 1998-2004 filler image after NCAR mass storage data loss. Raw data was lost and processed images (raw .P images that were processed with flat fields) were recovered.

NAMEFIX: Reads '.P added to filename' or '.P and .fits added to filename'

Images recovered from MEISNERRDC and SFO did not have the standard .fits filename extension. Images recovered from SFO and MEISNERPROC did not have the standard .P and .fits filename extensions. These were added to the filename during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system in order to match the standard PSPT image nomenclature.

CLVNOTE: CLV coefficient values determined during data record recovery

CLV coefficients determined in post-processing of previously flat-fielded images during recovery of the 1998-2004 PSPT data record lost by the NCAR mass storage system. Raw data was lost, processed images were recovered.

Telescope Instrument Logs

The table below details all significant changes/adjustments to the filters, mirrors, optics, etc. inside the telescope itself for the entire duration of the instrument. Issues with observatory operations, such as bad pointing, dome control, etc. and operational issues due to computer and software problems are not noted. Full MLSO logs are available by request from LASP.

Date	Telescope Instrument/Hardware Changes
1998, May, 6	Blue filter removed and tilt changed "a little" to improve flat images
1998, May, 11	Blown fuse on PSPT temperature controller, fuse replaced
1998, June, 2	Swapped B3 and B4 blue filters
1998, July, 3	Camera changed and telescope run without heater
1998, July, 4	Bad vacuum seal around optics hardware, no parts available for pumping/fixing
1998, August, 17	Mirror oscillation in the telescope
1998, August, 2000	Bad camera causing image quadrants to degrade
1998, August, 27	Swap and installation of new camera
1998, September, 17	Temperature controller switched from on to off
1998, October, 2	Active mirror and beam splitter optics dusted off
1999, March, 24	Flat field sequence changed to 9 images from 16
1999, May, 25	Beam splitter mount adjusted, aligned and tightened
1999, October, 28	Cooler fluid and air filters changed, filter wheel gears lubricated

2000, June, 9	Repaired shutters received and replaced
2000, November, 15	Telescope run with camera chiller off
2001, September, 24	Filter surface on the front of the telescope cleaned
2001, December, 20	Telephoto lens adjustment to longest position
2002, January, 8	Extensive cleaning and dusting of red, blue and calcium filters
2002, February, 2	Dusted CCD
2002, February, 4	Active mirror and beam splitter lenses cleaned
2002, March, 4	Mirror oscillation fixed
2002, May, 23	Calcium filters compared and surface cleaned off
2002, June, 8	MLSO and NSO calcium filters swapped and compared
2002, June, 12	NSO calcium filters put back in
2002, June, 29	Diffuser dust cap swapped out
2002, August, 29	New dome mount and spar centering
2002, November, 8, 11	Calibration run via diffuser method
2003, March, 3-ish	Reset filter temperature controller; heater left on for several subsequent days/nights
2003, March, 17	Filter heater turned off and tested
2003, April, 16	Coolant drained out of camera and chiller; chiller and coolant tubes shipped to Boulder
2003, July, 30	Calcium filter swapped and filter temperature changed
2003, August, 6	Calcium filters swapped and tilted differently
2003, August, 18-22	Blue, red and calcium filters cleaned and reoriented
2003, August, 27	Foukal filters installed; tested and calibrated in subsequent days
2003, September, 5	Filter positions were found to be wrong, then corrected
2003, September, 13	Red and blue Foukal filters removed
2003, October, 8	Replace shattered calcium filter
2003, November, 3	Optics tube and lenses cleaned
2004, February, 20	Cleaned and reassembled calcium filter after partial detachment
2004, February, 26	Remove calcium filters after improper mounting and redo setup

2004, March, 4, 7	Replace calcium filter
2004, March, 19	Clean all optics and telescope insides; replaced calcium filter
2004, April, 8	Clean and repair seals on calcium filters
2004, April, 16	Test observations with prefilters
2004, May, 11	Remove some calcium filters and skip calcium imaging
2004, August, 6	Heat exchanger removed from camera
2004, October, 5	Remove, modify and reinstall filters to fix filter tilt in the telescope
2004, October, 6	Adjust red filter tilt and spacing in the telescope
2004, October, 21	Install and start chillier plumbing
2004, December, 1	Dust off CCD
2004, December, 21	Change calcium filter and adjust tilt and prefilter
2005, January, 21	Additional washers added to red and blue tilt spacers
2005, February, 16	Narrow calcium filter removed and replaced
2005, March, 4	Remove dust from narrow calcium filter
2005, March, 31	Install narrow calcium filter and adjust tilt
2005, May, 15	Restart coolant circulator, then turned off due to problems
2005, May, 18	Coolant apparatus repaired and restarted
2005, June, 23	Install new coolant motor and pump
2005, December, 23	Rest filter wheel pointing
2006, April, 20	Adjustment to filter wheel due to vignetting
2006, May, 1	Replace narrow calcium filter and re-align mirror in the telescope
2006, May, 5	Adjustment on filter and mirror orientation
2006, May, 19	Install new narrow calcium filter and adjust spacing/tilt
2006, June, 12	Adjust narrow calcium filter tilt
2006, June, 18	Lubricate dust cap gears
2006, June, 28	Change in tilt on N filter
2006, July, 12	Adjustment to filter wheel due to vignetting
2007, January, 16	Adjust filter wheel
2007, March, 18	Adjust filter wheel due to vignetting
2007, June, 6	Install new narrow calcium filter

2007, July, 6	Reattach coolant hose and refill cooler
2008, October, 21	Install a new filter and adjust the tilt
2008, October, 27	Change tilt of narrow filter
2008, October, 31	Replace N filter and adjust tilt
2008, November, 3	Adjust N filter tilt
2008, November, 5	Adjust N filter tilt
2009, June, 7	Replace coolant hoses on the telescope
2009, August, 19	Clean red filters and scintillation meter
2009, November, 13	Install new temperature controller in the chiller
2010, May, 23	Test images with old diffuser
2010, October, 3	Replace shutter drivers
2010, October, 23	Replace camera to converter fiberoptic cable after several days of problems
2012, June, 3	Refill telescope coolant water
2014, April, 4	Clean surface of red filter
2014, May, 16	Some sort of adjustment to the Xeadar box to fix the image readout
2014, June, 29-30	Replace water and hose for PSPT chiller
2014, July, 3	Replace camera cable and reset shutter driver box
2014, September, 27	Idle the chiller due to temperature control problems
2014, September, 30	Install backup temperature controller on the chiller
2014, October, 7	Install new temperature controller on the chiller
2015, June, many dates	PSPT failed around this time. There were many, many issues with camera cables and cable connections that couldn't be repaired. There are sporadic entries until the final mention of PSPT on October 5. The last day of data is June 8.

Revision History

1.0: March 22 2019. Mark Rast, Jamie Mothersbaugh