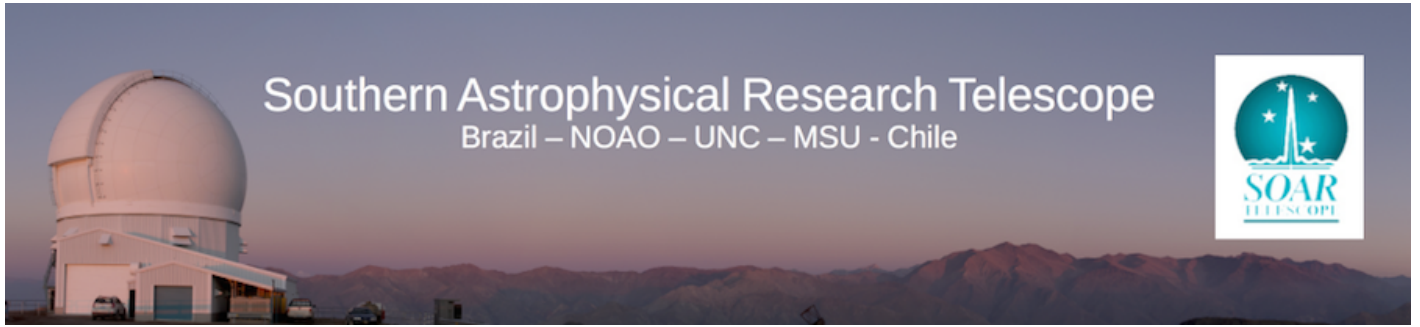




Published on SOAR (<http://www.ctio.noirlab.edu/soar>)

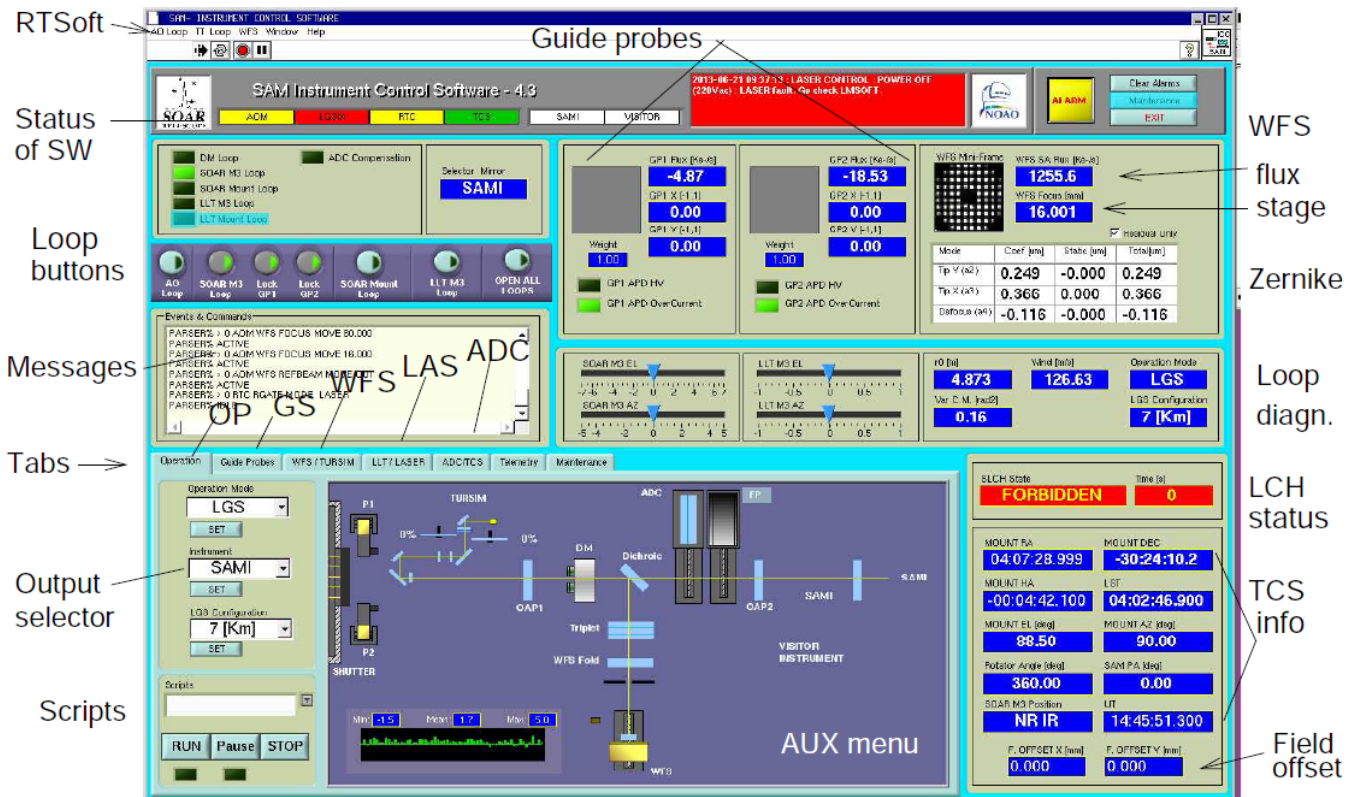
[Home](#) > [SOAR Adaptive Optics Module \(SAM\)](#) > SAM Documents for Support Staff

SAM Documents for Support Staff

These pages contain technical documentation aimed at the SOAR staff carrying out support or technical work related with SAM.

Documents and guides for the SAM user can be found at [this link](#) [1]. Technical work on SAM is logged in the [SAM Instrument Reports](#). [2] Please, report the work by e-mail to sam@ctio.noao.edu [3].

Documents and links for the SAM Support Scientist:



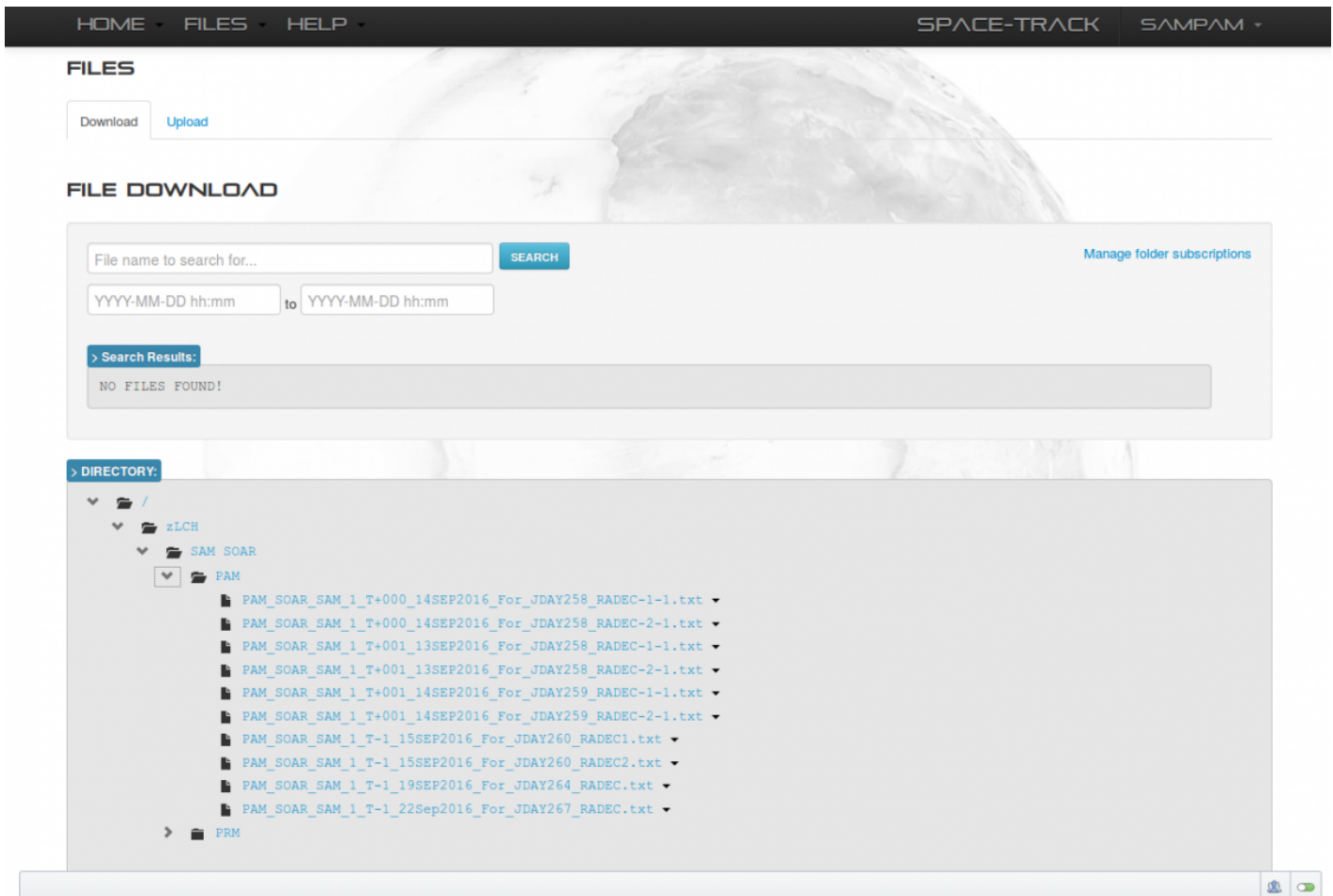
- [TECHNICAL MANUALS PAGE](#) [4]

- [SAM Operator's Manual](#) [5] (user guide)
- [SAM Imager \(SAMI\) Instrument Manual](#) [6]
- [SAMI Software manual](#) [7]
- [Link to SpaceTrack \(for PRM/PAM files. Only authorized users\)](#) [8]
- [SAM Computers](#) [9]
- [SAM LCH Protocol Guide](#) [10]
- [ICSoft Manual](#) [11]
- [SAM AOM Software Manual](#) [12]
- [SLCH Software User Manual](#) [13]
- [SAM Instrument documentation](#) [14](login required)
- SAM Maintenance Calendar and Manual [DocDB-989](#) [15]

Uploading PAM files to the SOAR Laser Clearing House Software

1) Download the PAM file from www.space-track.org. [16]

- Login with the appropriate credentials
- Click on "Files" in the upper dark grey bar. Then on the "Download" tab, then on the zLCH folder, then on SAM_SOAR, and then on PAM. You will end up with something like the screenshot shown below in Fig.1. Download the appropriate PAM file(s).



2) Copy the PAM file(s) to a file with the following syntax: PAM_YYYYMDD.txt. If you have more than one PAM file, add "-N" to the name, where N is an integer. For example, if your downloaded PAM file is PAM_SOAR_SAM_1_T-1_15SEP2016_For_JDAY260_RADEC1.txt you will copy it to PAM_20160916-1.txt, since JDay 260 = Sep 16, 2016. The "-1" means that for that night we had more than one PAM file, i.e., there was a PAM-20160916-2.txt file.

3) Upload the PAM_2016MMDD-N.txt file(s) to the /home/PAM/ directory in the soaraom computer, using the appropriate user and password:

```
scp PAM20160916-1.txt USER@soaraom.ctio.noao.edu:/home/PAM/
```

4) Load the PAM files into the LabView SLCH software in soaraom (Fig.2)

SOAR LASER Clearing House



Remaining
authorization
time[sec]

LASER
connection **ONLINE**
TCS
connection **ONLINE**

Application STATE

Communications State

TCS_PointingCoordinates UTC

type	RA	Dec	Az	EI
RaDec	203.75	-55	0.0313	36.9985

Number of authorized targets

Earliest authorized time

Latest authorized time

PAM files



Authorized Target Index

Angle[arcsec]
to authorized target or
to closest forbidden target

Authorized Window Index

warningTargetArray

NumberTargetsOK



Loaded PAM files

TargetArray

coordinates

number of
time-windows

type	RA	Dec	Az	EI
undefined	0	0	0	0

windowArray

start

end

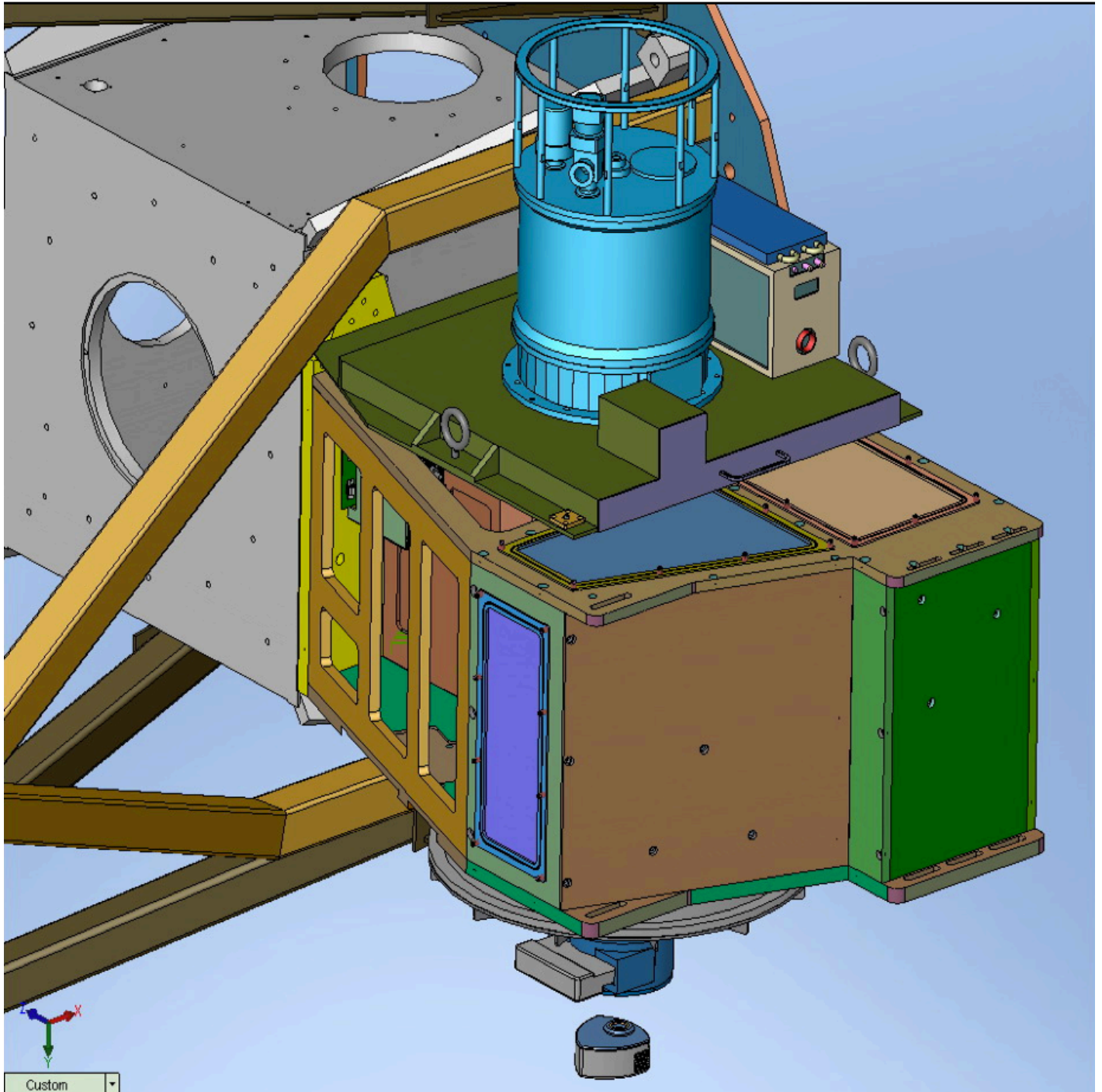
minutes seconds

YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X
YYYY-MM-DD 00:00:00	YYYY-MM-DD 00:00:00	0	0	X

Figure 2.SLCH software main window. Files are uploaded by click on the small folder icons.

Technical Manuals

General



[17]

- SAM user guide, V.1 (Aug. 12, 2013) [\[542K, PDF\]](#) [5]
- SAM commissioning report V.2 (Dec 3, 2013) [\[1.5M, PDF\]](#) [18]

- Report on SAM science verification program (Mar 25, 2014) [[1.5M, PDF](#)] [17]
- Short memo for SAM operator (May 2014) [[70K, PDF](#)] [19]

Software

- SAMI software description (Apr 7, 2014) [[357kB, PDF](#)] [7], source [sami-sw.odt](#) [20]
- Instrument Control Software User Manual (November 2013, rev. 3.7.0) [[0.476M, PDF](#)] [11], see also [DocDB #664](#) [21]
- Instrument Control Software Programmer Manual (June 2013) [[0.41M, PDF](#)] [22], see also in [DocDB #630](#) [23]
- GS3 User Manual (December 2013) [[161.4 KB PDF](#)] [24], see also in [DocDB #665](#) [25]
- Real-Time Software User Manual (January 2013) [[0.40M, PDF](#)] [26], see also [DocDB #581](#) [27]
- Real-Time Software Programmer Manual (May 2013) [[0.44M, PDF](#)] [28], see also [DocDB #582](#) [29]
- SAM AOM software description (July 2011) [[368K, PDF](#)] [12]
- SAM LGS software description (July 2011) [[289K, PDF](#)] [30]
- SOAR LASER Clear House Software User's Manual (Mar 18, 2014) [[238K, PDF](#)] [13]
- HR camera Manual (May 2008) [[373KB, PDF](#)] [31]
- Observing tool in IDL (Nov 4, 2014) [[143kB, PDF](#)] [32], and the code [code.tar.gz](#) [[167kB](#)] [33]

Technical

- SAMI Instrument Manual (March 13, 2013) [[361K, PDF](#)] [6]
- SAM LLT quick guide (February 2012) [[72K, PDF](#)] [34]
- SAM mechanical installation procedure (February 2011) [[3.2M, PDF](#)] [35], see also [DocDB #773](#) [36]
- SAM shutter installation and removal procedure (Sep 26, 2013) [[3.6M, PDF](#)] [37]
- PAM files for SAM LGS observing runs (June 2011) [[147K, PDF](#)] [38]
- HR camera software User Manual (August 2008) [[0.7MB, PDF](#)] [39]
- SAM Alignment Manual (January 2009) [[2.8M, PDF](#)] [40]
- SAM maintenance manual (August 2016) [[2.7M, PDF](#)] [41], also [DocDB-989](#) [15]
- SAM maintenance Calendar on [DocDB-989](#) [15]

Technical Publications and Documents

Publications

- GLAO in the visible, the SAM experience, by A. Tokovinin. In: Adaptive Optics for ELT3, Florence, May 2013 (sciencesconf.org:ao4elt3:12940) [[PDF, 240K](#)] [42]
- Performance of the SOAR adaptive module with UV Rayleigh guide star, by A.Tokovinin, R.Tighe, P.Schurter, R.Cantarutti, N.van der Blik, M.Martinez, E.Mondaca, S.Heathcote. 2012, Proc. SPIE, 8447, paper 166 [[PDF, 904K](#)] [43]
- SAM sees the light, by A.Tokovinin, R.Tighe, P.Schurter, R.Cantarutti, N.van der Blik, M.Martinez, E.Mondaca, A.Montane, W. Naudy Cortes. 2010, Proc. SPIE, 7736, paper 7736-132 [[PDF, 874K](#)] [44]
- SAM - a facility GLAO instrument, by A.Tokovinin, R.Tighe, P.Schurter, R.Cantarutti, N.van der Blik, M.Martinez, E.Mondaca, A.Montane. Proc. SPIE, 2008, V. 7015, paper #157 [[PDF, 2M](#)] [45]
- Performance and error budget of a GLAO system, by A.Tokovinin. Proc. SPIE, 2008, V. 7015, paper #77 [[PDF, 216KB](#)] [46]

- SPIE Paper: A. Tokovinin, S. Thomas, B. Gregory, N.van der Bliek, P. Schurter, R. Cantarutti, "Design of ground-layer turbulence compensation with a Raleigh beacon". Proc. SPIE, 2004, 5490, 870-878 [[540K, PDF](#) ^[47]]
- SPIE Paper: A. Tokovinin, S. Thomas, G. Vdovin, "Using 50-mm electrostatic membrane deformable mirror in astronomical adaptive optics" Proc. SPIE, 2004, 5490, 580-585 [[328K, PDF](#) ^[48]]
- SPIE Paper: S. Thomas, "A Simple Turbulence Simulator for Adaptive Optics" Proc. SPIE, 2004, 5490, 766-773 [[675.4KB, PDF](#) ^[49]]
- SPIE Paper: S. Thomas, "Optimized Centroid Computing in a Shack-Hartmann Sensor" Proc. SPIE, 2004, 5490, 1238-1246 [[325.8KB, PDF](#) ^[50]]
- S. Thomas, "SAM - the SOAR Adaptive Module". Paper at "DEUXIEMES JOURNEES D'IMAGERIE A TRES HAUTE DYNAMIQUE ET DETECTION D'EXOPLANETES" (Nice, 6-10th October, 2003 - to be published by EAS) [[340K, PDF](#) ^[51]]
- The [PAPER](#) ^[52] and the [presentation \(.ppt\)](#) ^[53] at the SPIE Waikoloa Conference in August 2002 (SPIE Proc., 2003, V. 439, pp. 673-680).

Documents

- SOAR Telescope Control System [[PDF](#) ^[54]]. November 9, 2005
- Update of LGS design (R.Tighe) [[PPT, 353Kb](#) ^[55]]. May 22, 2007
- Location of SAM laser at SOAR (R.Tighe) [[PPT, 488Kb](#) ^[56]]. December 20, 2006
- SOAR Computer System Diagrams [[PDF](#) ^[57]]. November 9, 2005
- Interface of the SOAR M3 with a Tip-Tilt Error Sensor [[PDF](#) ^[58]]. November 9, 2005
- SOAR TCS Commands [[PDF](#) ^[59]]. November 9, 2005
- Tertiary Mirror Assembly Electrical Interface [[PDF](#) ^[60]]. November 9, 2005
- The SOAR Communication Library New (SCLN) [[PDF](#) ^[61]]. November 9, 2005
- Report on the closed loop tests [[HTML](#) ^[62]]. March 2, 2005
- Presentation for the Observatories Council meeting given on June 3, 2004 [[1048K, PPT](#) ^[63]]
- Report on Delta-CoDR (May 19, 2004) ([PDF](#) ^[64])
- Adaptive Optics [Tutorial](#) ^[65] at CTIO [html].
- ACTR meeting, CTIO, May 26, 2003 [[html](#)] ^[66]
- Concepts of Adaptive Optics for SOAR. [[Document: 342K, PS](#)] ^[67]
- Presentation of SOAR AO (July 12, 2001) [[Slides: 360K, PS](#)] ^[68]
- [Simulation results](#) ^[69] (text files)
- Results of system simulation with F.Rigaut's code (Dec 10, 2001) [[95K, PS](#)] ^[70]
- SOAR SAC, Oct-10-2001: [html presentaion of AO project](#) ^[71]
- Project description (rev.1.7, Sept. 2001) [[84K, gzipped PS](#)] ^[72]
- The html document (Sept. 2001): [Concepts of Adaptive Optics for SOAR.](#) ^[73]
- Seeing at Cerro Pachon [[52K, PS](#)] ^[74]

Laser Safety

- Laser Safety for Normal SAM operation (2015) [PDF](#) ^[75]
- Laser Safety for SAM Maintenance (2015) [PDF](#) ^[76]
- Standard Operating Procedures in the Laboratory (23 Oct, 2008) [PDF](#) ^[77] and [.doc](#) ^[78]
- Scripts of phone calls to LCH [PDF](#) ^[79]
- Laser safety for SAM (SDN SAM-AD-02-0004, Aug 2007) [PDF](#) ^[80]



[81]

Source URL: <http://www.ctio.noirlab.edu/soar/content/sam-documents-support-staff>

Links

- [1] <http://www.ctio.noirlab.edu/soar/content/sam-user-guides-and-documentation>
- [2] <http://www.ctio.noao.edu/noao/sam-instrument-reports>
- [3] <mailto:sam@ctio.noao.edu>
- [4] <http://www.ctio.noirlab.edu/soar/content/technical-manuals>
- [5] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/guide.pdf>
- [6] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sami-manual.pdf>
- [7] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sami-sw.pdf>
- [8] <https://www.space-track.org/auth/login>
- [9] <http://www.ctio.noirlab.edu/soar/content/sam-computers>
- [10] http://www.ctio.noirlab.edu/soar/sites/default/files/documents/Instruments/SAM/LCH_Scripts.pdf
- [11] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/ICsoft-UserManual-3.7.0-291113.pdf>
- [12] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/aom-sw.pdf>
- [13] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SLCH-UserManual.pdf>
- [14] <http://www.ctio.noirlab.edu/soar/content/instrument-documentation-0>
- [15] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=989>
- [16] <http://www.space-track.org>.
- [17] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/svrep.pdf>
- [18] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/samrep.pdf>
- [19] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM-memo.pdf>

[20] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sami-sw.odt>

[21] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=664>

[22] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/ICsoft-ProgrammerManual-3.6.4.pdf>

[23] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=630>

[24] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/GS3-UserManual-2.5.2.pdf>

[25] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=665>

[26] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/RTsoft-UserManual-250113b.pdf>

[27] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=581>

[28] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/RTSOFT-ProgrammerManual-170513.pdf>

[29] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=582>

[30] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/lgs-sw.pdf>

[31] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/hrcaminst.pdf>

[32] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/otool-idl.pdf>

[33] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/code.tar.gz>

[34] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/LLTguide.pdf>

[35] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM-AD-02-3215.pdf>

[36] <https://www.ctio.noao.edu/cgi-bin/DocDB/ShowDocument?docid=773>

[37] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM_shutter_Installation_Procedure.pdf

[38] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAMLGS-UploadingPAMfiles-v1.docx.pdf>

[39] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/HRCsoft-UserManual-3.0.pdf>

[40] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/Sam_Alignment_171106_v2_Integration171108_3.pdf

[41] http://www.ctio.noirlab.edu/soar/sites/default/files/documents/Instruments/SAM/SAM_maintenance_v2.1.pdf

[42] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sam_ao4elt3.pdf

[43] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sam_2012.pdf

[44] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sam_2010.pdf

[45] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sam_2008.pdf

[46] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/perf.pdf>

[47] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/spie5490-78.pdf>

[48] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/spie5490-196.pdf>

[49] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/5490-162.pdf>

[50] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/5490-123.pdf>

[51] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM.pdf>

[52] <http://www.ctio.noao.edu/%7Eatokovin/papers/soarao.ps.gz>

[53] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/soarao.ppt>

[54] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/4009-05_SOAR_Controls_Paper.pdf

[55] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/LGS-v2_220507.ppt

[56] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/LGS_1.ppt

[57] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SOAR_Computer_System_Diagrams.pdf

[58] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SOARM3_ICD.pdf

[59] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/TCS_Commands.pdf

[60] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/TMA%20Electrical%20ICD4.pdf>

[61] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SCLN_UserManual.pdf

[62] <http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/loop1/loop1.html>

[63] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM_OC20040603.ppt

[64] http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/cdrII/SOAR_AO_delta_CDR_Report.pdf

[65] <http://www.ctio.noao.edu/%7Eatokovin/tutorial/index.html>

[66] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/actr_may26/actr_may26.html

[67] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/concept7.ps>

[68] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/seminar.ps>

[69] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/simul/simul.html>

[70] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/simul1.ps>

[71] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/sac/sac1.html>

[72] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/project7.ps.gz>

[73] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/concept6/concept6.html>

[74] <http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/concept4.ps>

[75] http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/Normal_Operations_SAM_Laser_2015.pdf

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http://www.ctio.noirlab.edu/soar/sites/default/files/SAM/archive/SAM-UV_Laser_Safety_Procedure_Maintenance_2015.pdf

[77] http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/archive/laser_standard_op.procedures_SOP_lab.pdf

[78] http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/archive/laser_standard_op.procedures_SOP_lab.doc

[79] http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/archive/LCH_Scripts.pdf

[80] <http://www.ctio.noirlab.edu/soar/sites/default/files/documents/Instruments/SAM/safety.pdf>

[81] http://www.ctio.noao.edu/new/Telescopes/SOAR/Instruments/SAM/archive/CTIO-SOAR_LASER_SAFETY_PROGRAM.doc