SALT Data Pipeline

Steve Crawford

Outline

- How data gets to you
- Daily pipeline
- Status of data reductions
- Adding to the code

What happens after your observation happens



SALTFIRST

Filename:	H201701300017.ftt	
TIME-OBS:	02:23:53.492	
OBJECT:	Cn1-1_HD330036	
PROPID:	2016-2-SCI-034	
EXPTIME:	500.0	
CCDSUM:	11	
GAINSET:	SLOW	
ROSPEED:	400000.000000	
OBSMODE:	MEDIUM RESOLUTION	
DETMODE:	Normal	
CCDTYPE:	Science	
FILTER:		
GRATING:		
GR-ANGLE:		
AR-ANGLE:		
MASKID:		
LAMPID:	NONE	
FOCUS:		
TELAZ:	128.951968415	
TELALT:	48.9522226833	
SEEING:		
NSOURCES:		
BMEAN:		
BMIDPT:		
BSTD:		

You can get your data immediately by selecting get e fast option in PIPT



Pipeline Process



The pipeline is designed to handle the daily reduction, archiving, and distribution of the data. Each day at 10:30 am, the pipeline automatically begins processing the data from the previous night. An SA will verify the data quality before beginning a separate task that finish the pipeline processing.

Data Product: All data are delivered in multi-extension FITS format along with observing logs, data quality, and observing conditions.

Performance: At SALT data rates we have no problem with reducing the data in real time and a typical night will be done in about 30 minutes with the current architecture.

Data Products

doc product raw
2013-1-RSA_POL-001/doc:
2013-1-RSA_POL-001_20130510_elsdata.fit
AstronomersLog20130510.html
CapeTownNotes20130510.html
EnvironmentLog20130510.html
InstrumentDiagnostics20130510.html

ObservationSequence20130510.html PipelineLog20130510.html header_salt.jpg style.css style_home.css

2013-1-RSA_POL-001/product: mbxgpP201305100018.fits mbxgpP201305100039.fits mbxgpP201305100061.fits mbxgpP201305100019.fits mbxgpP201305100040.fits mbxgpS201305100006.fits mbxgpP201305100020.fits mbxgpP201305100041.fits mbxgpS201305100009.fits mbxgpP201305100021.fits mbxgpP201305100042.fits mbxgpP201305100038.fits mbxgpP201305100043.fits

2013-1-RSA_POL-001/raw:

P201305100018.fits	P201305100038.fits	P201305100042.fits	S201305100009.fits
P201305100019.fits	P201305100039.fits	P201305100043.fits	
P201305100020.fits	P201305100040.fits	P201305100061.fits	
P201305100021.fits	P201305100041.fits	S201305100006.fits	



Communication

SALT Data Pipeline Science with SALT

800 Welcome to PySALT's documentation! - PySALT v1.0.0 documentation PySALT v1.0.0 documentation next | modules | in Welcome to PySALT's documentation! Table Of Contents Welcome to PySALT's Contents: ndices and tables Introduction lext topic 100 SALT WILL - SALT WIL ☆*)*(Ch Coogle This Page Next Vicited = Google Gmail - Inbox - cra... Astrophysics SMO/NASA ADS Cust... Home: Steve Crawford Home: SALY Dive Into Pytho Show Source Log in / create account articla damasion Quick search 1.00 SALT Wiki Ge nter search terms or a modu 14-01 Operations Home SALT Engi SALTWRI Www.salt.ac.za * 0 Ċ Community port Current events Deca 👌 Categle M Cmail Cither Bookma Recent change Mine Random pr IERN AFRICAN Help include Donation Go (Search \$ 0 A ← → C ○ saltastro.blogspot.com obox 👌 Docs 付 Geogle M Graal 📜 astro-ph 🔤 ADS 🗋 Home 🗋 SALT 🗋 DIP 🗋 Wiki 🗋 Spectroscopy Z Zmbry, inbox Other Bookma What links have Related change matrea Uplead No. Texas, **Epsecial page** will be a Prinable version faint to SALT Astronomy Permanent link distano This page was less The conv internal India, I Find Q.Sche phase. Vacanci Wednesday, January 12, 2011 SALT's file) Nightlog 2011-01-11 CALL R SA: Peul 2010 50: Siphelo Others: Zolisa, Amanda, Eben, Ockert, Chris, Hartin, Johnatha SALT A SALT 10 Summary 2011 (12) We had a successful evening getting VCAH and BCAM parfocal. The VI stage was · SALT AID noved back on dummy RSS. There was no 2 adjustment needed for the VI stage. T. E. Pickerin found that with VCAIA in focus we could get BCAIA focused using the FU focus on BCAM. Some further tests, which probably needs verification, showed that the VCAM focus is fairly close to the theoretical track and not much telescope focus offset is needed to get VCAN into focus.

1.Blogs2.Website3.Wiki4.ProgrammingDocumentation

Main Website: <u>www.salt.ac.za</u> Questions: <u>salthelp@salt.ac.za</u>

SALTICAM

- prepare
- overscan



- gain
- cross-talk



1000 2000 3000

• mosaic

High Speed Mode



RSS

- prepare
- overscan
- gain
- cross-talk
- mosaic



Example of MOS

Long slit reductions



Tools for other modes

- Polarimetry
- Fabry Perot
- Full reductions of LS and MOS with scripts in zsalt package



HRS

- prepare
- overscan
- gain
- cross-talk
- mosaic



Advance HRS Pipeline



Now being distributed with 2016-2. Can be run with work (at this workshop!) for data back to Nov 2014



PySALT is the Python/PyRaf software package for SALT data reduction and analysis. The next version of PySALT package includes:

PIPETOOLS Tasks to automate the data reduction And data handling

SALTRED

Basic CCD data Reductions (Up to flat data with astrometric solutions)

SLOTTOOLS Slotmode photometry And analysis tools

SPECTOOLS Tools to provide wavelength and flux calibrated data

FPTOOLS Fabry-Perot related software (still in development)

http://www.pysalt.salt.ac.za/

Code

- PySALT reduction and tools for analysis
- pipetools codes that handle
- salt sandbox useful scripts / examples
- pyhrs HRS reductions
- polsalt polarimetric reductions
- zsalt scripts to provide pipeline reductions from raw data
- User available codes (when available linked on SALTSandbox)
 - Longslit (Various)
 - MOS (M. Hilton)
 - FP (Rutgers code)

Contribute your own code!

🖫 saltastro / pysalt				⊙ Unwatch -	8 ★ Star	3 ¥ Fork 9	
Code 🕕 Issues 33	🗅 Pull requests 0 🛛 🖳 P	Projects 0 🔲 Wiki	≁~ Pulse	III Graphs	Setting:	S	
Python/Pyraf software for the reduction and analysis of SALT data New Add topics							
7 339 commits	🗇 339 commits 🖗 5 branches 🛇 0 releases 🎎 2 contributors		್ನೊ BSD-3-Clause				
Branch: master - New pull reque	est		Create new f	ile Upload files	Find file	Clone or download +	
arawfordsm committed on GitHub Merge pull request #125 from crawfordsm/fix_agg Latest commit cb2d3d2 3 days ago							
🛅 data	add 14.375 PG900 conf	ig				a year ago	
in doc	rm bvit tasks from helpfiles 2 years ago				2 years ago		
🖿 lib	Now records all errors thrown in log a year ago				a year ago		
plugins	update to pyds9					4 days ago	
proptools	update to pyds9					4 days ago	
saltfirst	changed to use RSSwav	.db				a year ago	
🖿 saltfp	added error call					a year ago	

https://github.com/saltastro

This workshop

- Later today reduce an example of SALT data using the pysalt tools
- Tomorrow, work on reducing your own data with the help of the SALT team
- Unconference on Friday what issues do you want to discuss