Monthly Status Report
Robert Stobie Prime Focus Imaging Spectrograph
August 2010

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This monthly report summarizes the RSS status as of September 10, 2010.

Optics and Testing

- Polarizing beamsplitter. The repaired calcite wedges are being assembled into the mosaic by Pilot Group. They report:
  - The initial mounting and alignment of the prism wedges has been completed, and they have been successfully sealed into place.
  - The immersion fluid gap has been successfully leak tested with helium, and filled with fluid. Final alignment is underway.

- Fabry-Perot calibration.
  - The HR etalon repair at Queensgate has been completed successfully, and it is being shipped back to SALT for recalibration.

Mechanical.

- RSS was installed on the modified dolly interface, which permits tipping the instrument to all extreme angles. Testing at angle and at cold temperatures is underway.

- Small adjustments that need to be accomplished pre-lift:
  - The PDS electronics box has ben shifted to guarantee clearance with the payload cable wrap.
  - Detent magnets are being glued to more slitmask holders to provide an adequate supply of holders for science operation.

- Slitmask mechanism. After many repeat operations, the magazine elevator has begun squealing. A similar problem has been observed for the filter magazine, which has a similar design. Replacement lead screws have been obtained by UW and shipped to SALT. A spare stage has also been obtained for testing at UW.

- Grating rotator. A grating rotator modification designed to greatly reduce the cross-dispersion flexure has been finished at UW. A flexure test of the assembled unit indicates that the flexure in the tilt direction is improved by a factor of five, and in the tip direction by 30%. Image motion is 10 times more sensitive to tilt than tip, so this is a satisfactory outcome. A rough scaling of previous results indicates that the image motion perpendicular to the dispersion will now be about 3 unbinned pixels (0.37 arcsec, 1.5 binned pixels) for the worst-case track. It will likely be better than the FPRD spec (0.15 arcsec) for the vast majority of tracks. The grating rotator will be sent to SALT later this month.

- Baffling. A design has been completed for baffling modifications to be installed on RSS before lift. Parts are being obtained.

- A conceptual design has been devised by the RSS-NIR engineering team for a stand-alone passive governor for potentially unsafe articulation motions which will replace the existing awkward and not completely reliable "fall arrester". It is basically a back-driven motor which uses its own EMF to apply reverse torque when the articulation speed exceeds a preset value. A version for the Vis side is in the design process.

- New measurements of the "rho-ring" mounting surface for RSS have indicated that it is possibly ~1mm out of planarity. If this planarity changes with rotation, there is likely to be a distortion of the RSS structure which could cause image motion during an exposure. An estimate of the image motion, and its implications, are under investigation.

Control/ PIPT

- RSS proposal tool/ simulator.
  - An atlas of RSS arc lamp spectra is being assembled, starting with the spectra documented by Alexei Kniazev in SALT2115AA0100, plus additional spectra covering the full wavelength coverage of RSS for most of the six arc lamps. These will be used to establish a table of arc lamp settings to be used by the OCS to automatically implement standard on-sky arc spectra for each RSS configuration.

Management

- Schedule. A schedule of RSS tasks through Acceptance is attached to this report. The scheduled RSS lift date has been slipped to 13 Dec, 2010, the date currently indicated in the latest SALT commissioning schedule.

- Documentation.
  - Work proceeds on a Pneumatics Control System document.
  - A document and a PIPT proposal is being prepared describing the short-form "Functional Testing" procedure that is to be used pre- and post-lift to indicate readiness.

Activities for next month

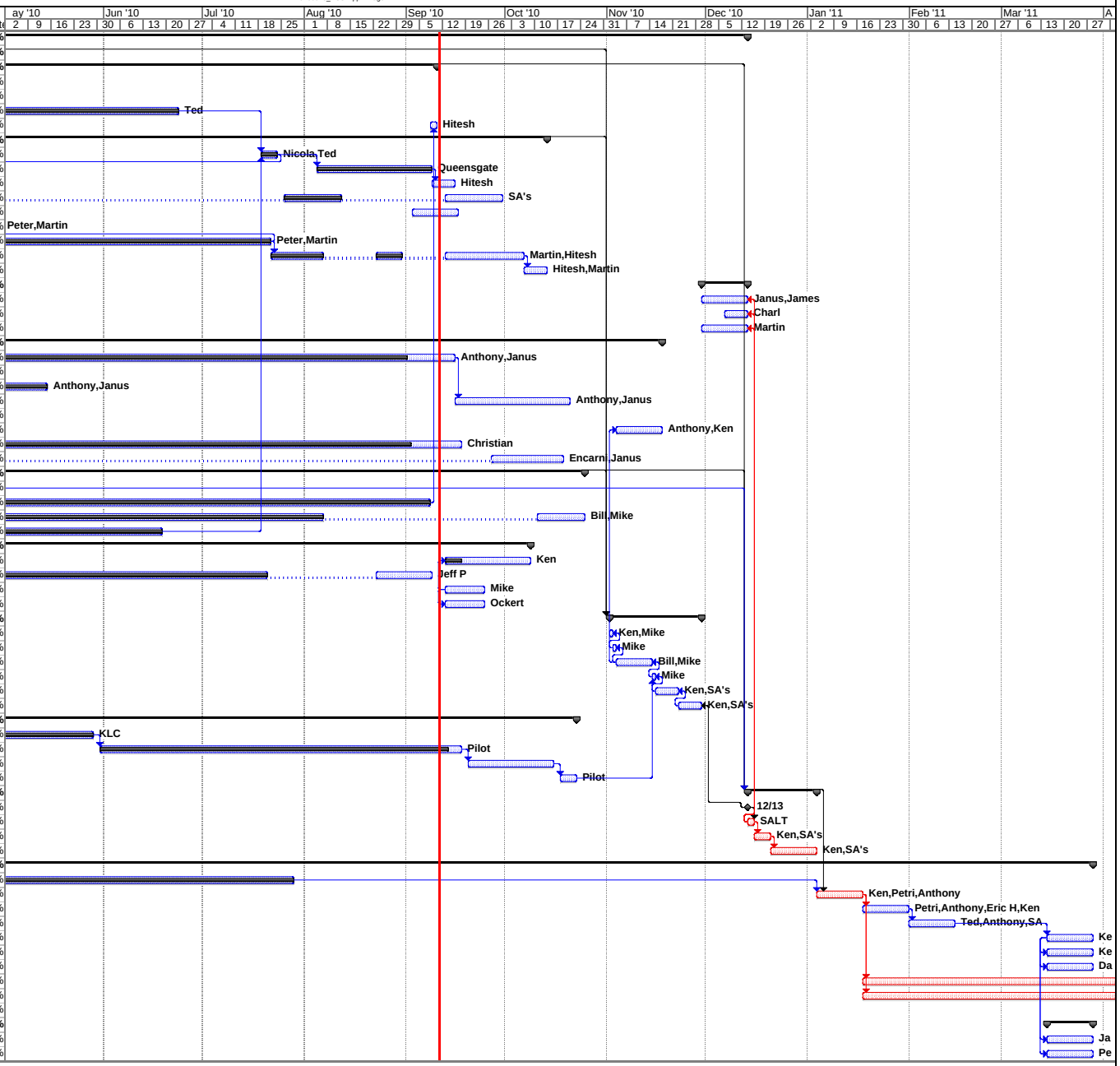
- Optics
  - Finish alignment of UV calcite beamsplitter. Monitor for lens fluid bubbles. (Pilot Group)

- Mechanical
  - Deliver grating stage modifications. (UW)
  - Obtain parts for baffling improvements. (UW)
  - Analyse implication of possible rho-ring non-planarity. (UW)

- Control
  - Test the new PCON/ TCS high-level control software. (SALT)
  - Continue testing new high-level software on the instrument. (SALT)
  - Implement fine control of the etalons. (SALT)
  - Work on control documentation improvements. (UW, SALT)

- Management
  - Finish review of commissioning proposals. (UW, SALT)
  - Continue work on Arc Lamp, Functional Testing and Pneumatics Control documents. (UW)

ID	Task Name	Start	Finish	% Complete
1	**SALT Pre-Lift Work**	**7/13/2009**	**12/14/2010**	**94%**
2	**Control System Fixes**	**7/13/2009**	**3/19/2010**	**99%**
9	**Optics Preps**	**7/13/2009**	**9/10/2010**	**99%**
10	Filter holders	7/13/2009	4/20/2010	100%
11	Filter barcodes	10/12/2009	4/20/2010	100%
12	FP Calibration system	4/1/2010	6/23/2010	100%
13	Install Grating Fork Mod	9/8/2010	9/10/2010	0%
14	**Testing**	**7/13/2009**	**10/13/2010**	**90%**
15	Fabry-Perot Calibration	7/19/2010	7/23/2010	100%
16	HR Repair	8/5/2010	9/8/2010	100%
17	HR Calibration	9/9/2010	9/15/2010	0%
18	Functional Testing	9/7/2009	9/30/2010	90%
19	Resolve Mechanical Shift	9/3/2010	9/16/2010	0%
20	Mechanism Reliability - I	7/13/2009	4/30/2010	100%
21	Dolly Modifications	4/1/2010	7/21/2010	100%
22	Mechanism Reliability - II	7/22/2010	10/6/2010	50%
23	Thermal Testing	10/7/2010	10/13/2010	0%
24	**Lift Preps**	**11/30/2010**	**12/14/2010**	**0%**
25	Fix guide probe interference with front	11/30/2010	12/14/2010	0%
26	Reroute payload & RSS cabling	12/7/2010	12/14/2010	0%
27	Improve lifting arrangement for RSS	11/30/2010	12/14/2010	0%
28	**SALT Software**	**7/13/2009**	**11/17/2010**	**88%**
29	PCON/ TCS Communications	7/13/2009	9/15/2010	95%
30	ATP Document	7/27/2009	8/7/2009	100%
31	PCON/PDET test on hardware	8/10/2009	5/14/2010	100%
32	PCON Commissioning procedures	9/16/2010	10/20/2010	0%
33	PCON/PDET test on hardware	8/10/2009	9/18/2009	15%
34	Acceptance Test	11/4/2010	11/17/2010	0%
35	Simulator Commissioning upgrades	11/9/2009	9/17/2010	95%
36	PIPT/ OCS Commissioning upgrades	11/9/2009	10/18/2010	80%
37	**UW Prelift Engineering**	**10/2/2009**	**10/25/2010**	**97%**
38	Grating Fork Flexure investigation	10/2/2009	1/27/2010	100%
39	Grating Fork Modification	1/27/2010	9/8/2010	100%
40	Baffling Engineering	10/2/2009	10/25/2010	90%
41	LR Etalon Holder Mod	3/29/2010	6/18/2010	100%
42	**Documentation**	**8/10/2009**	**10/8/2010**	**84%**
43	High Level maintenance	9/13/2010	10/8/2010	25%
44	Control System Software	8/10/2009	9/8/2010	95%
45	Control System hardware	9/13/2010	9/24/2010	0%
46	Magazine installation, Lift	9/13/2010	9/24/2010	0%
47	**UW Prelift at SALT**	**11/2/2010**	**11/30/2010**	**0%**
48	Fix HWP	11/2/2010	11/3/2010	0%
49	Remove Collimator Bubble	11/3/2010	11/4/2010	0%
50	Baffling installation	11/4/2010	11/15/2010	0%
51	Install beamsplitter	11/15/2010	11/16/2010	0%
52	Functional Testing	11/16/2010	11/23/2010	0%
53	Flexure Tests	11/23/2010	11/30/2010	0%
54	**Beamsplitter UV Thoughput Repair**	**9/14/2009**	**10/22/2010**	**90%**
55	Repair wedges	9/14/2009	5/28/2010	100%
56	Realign/ Reassemble	5/31/2010	9/17/2010	95%
57	Monitor for Bubbles	9/20/2010	10/15/2010	0%
58	Ship -> SA	10/18/2010	10/22/2010	0%
59	**On-Telescope Testing**	**12/13/2010**	**1/3/2011**	**0%**
60	Pre-Lift review	12/13/2010	12/13/2010	0%
61	Lift	12/14/2010	12/15/2010	0%
62	Functional Testing	12/16/2010	12/20/2010	0%
63	On-Telescope Acceptance Testing	12/21/2010	1/3/2011	0%
64	**RSS Team Commissioning**	**4/1/2010**	**3/28/2011**	**59%**
65	Review Commissioning Proposals	4/1/2010	7/28/2010	100%
66	Spectroscopy End-to-End	1/4/2011	1/17/2011	0%
67	MOS End-to-End	1/18/2011	1/31/2011	0%
68	Fabry-Perot Spectroscopy End-to-End	2/1/2011	2/14/2011	0%
69	Linear Polarimetry End-to-End	3/15/2011	3/28/2011	0%
70	MOS Linear Polarimetry End-to-End	3/15/2011	3/28/2011	0%
71	High-Speed Spectroscopy End-to-End	3/15/2011	3/28/2011	0%
72	Consortium Commissioning Project Continua	1/18/2011	4/11/2011	0%
73	Analyse; Write Up Tests	1/18/2011	4/11/2011	0%
74	Acceptance Review	4/11/2011	4/11/2011	0%
75	**SALT Advanced Commissioning**	**3/15/2011**	**3/28/2011**	**0%**
76	Circular; All-Stokes Pol End-to-End	3/15/2011	3/28/2011	0%
77	Nod-and-Shuffle Spect End-to-End	3/15/2011	3/28/2011	0%



Project: 20070103_RSS Rework Sche
Date: 9/10/2010

Critical Task Milestone Summary Task