Sloan Digital Sky Survey II

2008 FIRST QUARTER REPORT

January 1, 2008 – March 31, 2008

Table of Contents

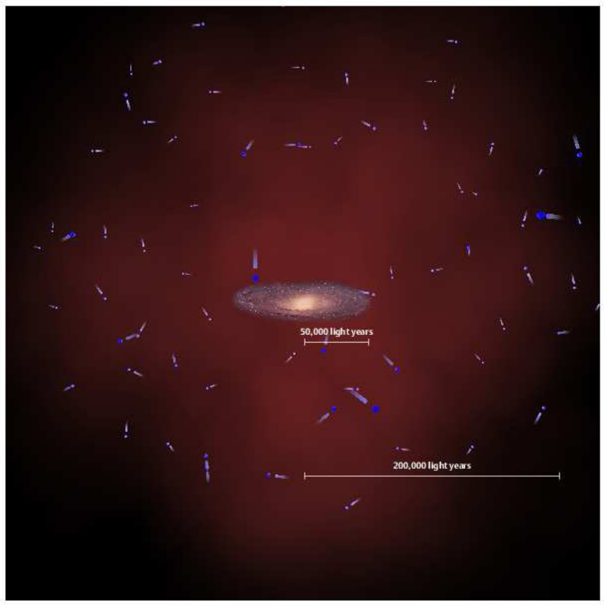
Q1 PERFORMANCE HIGHLIGHTS

- We completed SEGUE imaging on January 1st. We completed a total of 43 SEGUE plates (21 bright and 22 faint, corresponding to 65 plate-equivalents).
- We completed 84 Legacy spectroscopic plates against a baseline goal of 86 plates (98%). Consistent with our baseline plan, no new Legacy imaging data were obtained.
- We released DR7.1 to the collaboration on February 14th.
- We finalized the idlsped2d code for the spectroscopic pipeline.
- We recorded 28.9 million hits on our SkyServer interfaces and processed 4.4 million SQL queries. We also transferred 18.9 terabytes of data through the Data Archive Server interfaces.
- Q1 cash operating expenses were $1,041K against a baseline budget of $1,3304K before management reserve. In-kind contributions were $127K against anticipated contributions of $154K. No management reserve funds were expended.

1. SOME RECENT SCIENCE RESULTS

The following descriptions highlight some of the scientific work accomplished during the reporting interval (bearing in mind that efforts often spill over into other quarters). Unlike the list of publications given in Exhibit 3 the topic selected here is by no means comprehensive, nor even representative, of the science being undertaken by the SDSS collaboration. The short science description nevertheless augments our reporting of activities in SDSS-II.

A Slimmer Milky Way



The mass of the Milky Way is one of its most fundamental properties, but it is also one of the most difficult to measure because it is dominated by invisible dark matter. Graduate student Xiangxiang Xue (at the Max Plank Institute for Astronomy in Heidelberg) and collaborators have used a sample of 2,400 blue horizontal branch stars observed by SEGUE to obtain the most precise measurement to date of the Milky Way halo mass. The line-of-sight velocities of these stars measured by SEGUE are used to infer the gravitational potential in which they are orbiting.

The above illustration shows the stellar disk of the Milky Way embedded in the more massive and more extended dark matter halo, indicated in dim red. The SEGUE blue horizontal branch sample reaches to distances of 60 kpc (about 200,000 light years), roughly the edge of the region shown above. The team's analysis yields a tight constraint on the total mass within 60 kpc, and extrapolating to larger distances based on computer simulations of the Milky Way allows them to estimate the total mass out to the edge of the dark halo.

Their value of one trillion solar masses is significantly lower than some previous estimates, which were based on mixed samples of 50 to 500 objects and yielded up to two trillion solar masses. This lower total mass implies that the Milky Way was more efficient than previously thought at converting its available baryons into stars, and it has implications for the formation history of the Milky Way, the dynamics of its satellite galaxies, and the comparison between the Milky Way and distant galaxies.

References:
1. Xue, X.-X., et al., The Milky Way's Circular Velocity Curve to 60 kpc and an Estimate of the Dark Matter Halo Mass from Kinematics of ~ 2400 SDSS Blue Horizontal Branch Stars, arXiv preprint 0801.1232, ApJ, in press.

2. SURVEY PROGESS

The period of accounting for this report includes observing runs spanning the period from December 25, 2007 through March 21, 2008

2.1. Legacy Survey

Table 2.1 compares the imaging and spectroscopic data obtained against the Legacy baseline plan. No new Legacy imaging data were obtained in 2008-Q1.

Table 2.1 Legacy Survey Progress in 2008-Q1

	2008-Q1		Cumulative through Q1	
	Baseline	Actual	Baseline	Actual
Legacy Imaging (sq. deg)	0	0	7808	7577
Legacy Spectroscopy (tiles)	86	84	1627	1597

We have 40 legacy plates remaining to be observed and 4 dark runs to go, so we need to observe 10 or 11 plates per dark run. Through the end of Q1, we have completed 1,597 plates compared to the goal of 1,627 plates. (The 40 remaining plates differs from 1627 – 1597 = 30 because when the baseline projection was constructed, we had not yet done the final tiling solution.)

The following graphs show progress against the baseline plan. Figure 2.1 shows historical progress against the baseline plan for the Legacy Survey. Figure 2.2 shows progress on the spectroscopic survey. In order to provide a better view of progress against plan, the axis scales on Figure 2.2 have been adjusted to show progress made since July 2005, the start of SDSS-II operations.

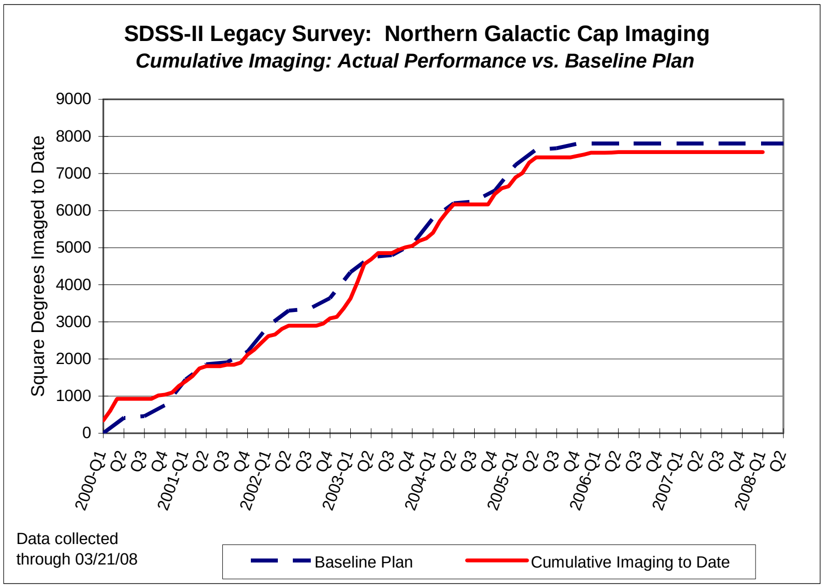


Figure 2.1 Imaging Progress against the Baseline Plan – Legacy Survey

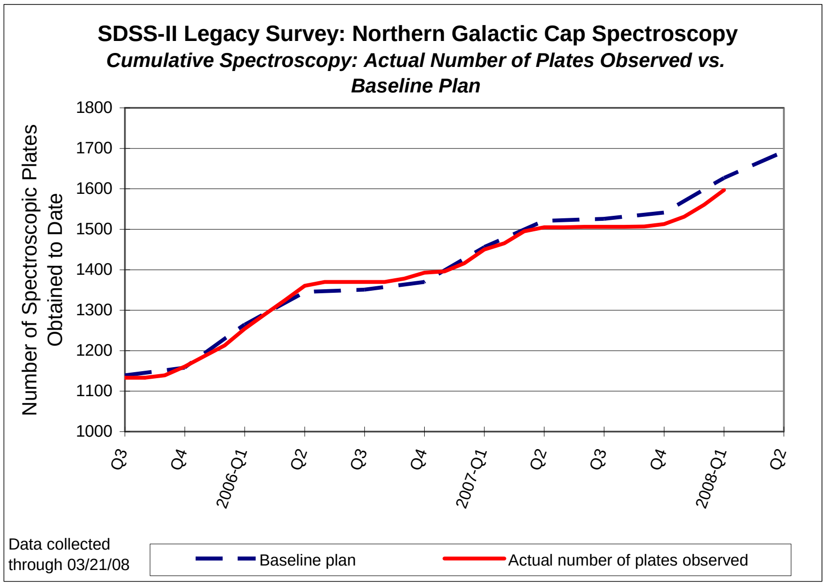


Figure 2.2 Spectroscopic Progress against the Baseline Plan – Legacy Survey

2.2. SEGUE Survey

Table 2.2 compares SEGUE progress against the baseline plan.

Table 2.2 SEGUE Survey Progress in 2008-Q1

	2008-Q1		Cumulative through Q1	
	Baseline	Actual	Baseline	Actual
SEGUE Imaging (sq. deg)	0	21	3320	3308
SEGUE Spectroscopy (bright plates)	30	21	184	165
SEGUE Spectroscopy (faint plates)	30	22	184	152

The SEGUE imaging was completed this quarter on Jan 1, 2008.

Significant SEGUE spectroscopic observing was obtained in Q1 2008. A total of 43 SEGUE plates (21bright and 22 faint, corresponding to 65 plate-equivalents) were completed. This was SEGUE's most productive spectroscopic quarter to date. This is roughly equivalent to completing 22 SEGUE tiles, against a baseline goal of 30 tiles. Recall that a SEGUE tile is considered complete when the faint and bright plate combination for a field is observed.

To date, SEGUE has obtained approximately 3300 square degrees of imaging (complete) and approximately 375/400 plate equivalents towards its baseline goal. There are approximately 60 accessible (i.e. in the right RA range through June) SEGUE plates remaining on the mountain to be observed. This total plate count includes some 30 star cluster plates and 5 low-latitude plates which fall outside the total of 200 pointings evenly distributed on the sky. The cluster and low-latitude plates are nevertheless critical for a successful calibration.

Figure 2.3 shows the current SEGUE layout and progress map, as of January 2008. The plot can be found online at: http://segue.uchicago.edu/skycoverage.html

May 2008

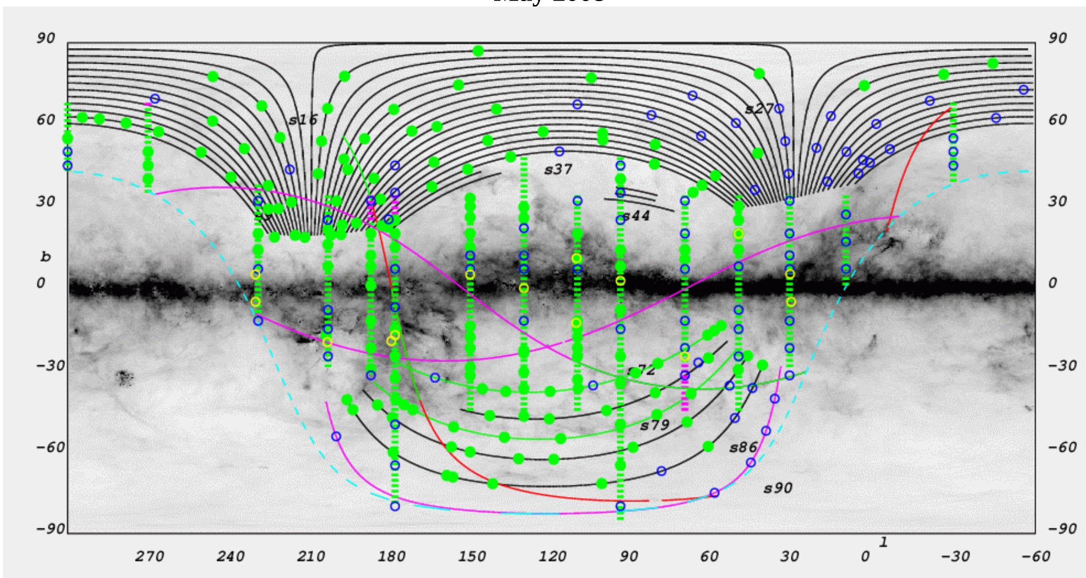


Figure 2.3 SEGUE Imaging Sky Coverage and Plate Layout (as of May 2008).

Figures 2.4 and 2.5 illustrate SEGUE progress against the baseline plan. The imaging graph presents a straightforward comparison of imaging progress against plan. The spectroscopy graph shows the rate at which we are completing bright and faint plates separately.

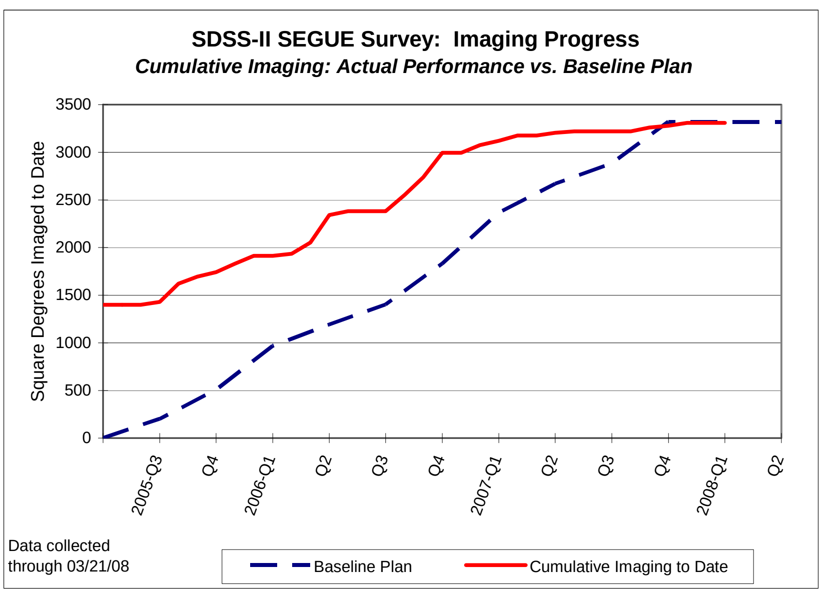


Figure 2.4 Imaging Progress against the Baseline Plan – SEGUE Survey

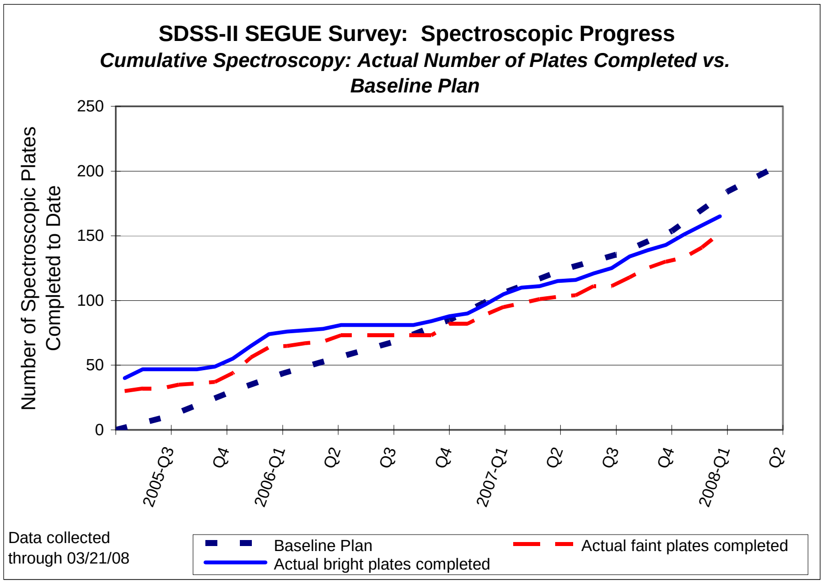


Figure 2.5 Spectroscopic Progress against the Baseline Plan – SEGUE Survey

The bright moon observing has been very successful, but in Q2 it will no longer be necessary to attempt SEGUE plates within +/- 2 days of full moon.

2.3. Supernova Survey

During the first quarter of 2008, progress on analyzing the supernova data both for use in science analysis and for public release continued. The fall 2007 data runs were reprocessed through PHOTO at Fermilab and made available to the public through DRSN. Final photometric processing on the 2006 Supernova data was completed and plans were laid for (a) final photometric processing of confirmed supernovae from the 2007 run, and (b) final photometric processing of all potential supernova candidates for all three seasons. To carry out this task, portable disks will be shipped between Fermilab and APO, to use the cycles on the APO compute cluster originally used for Supernova data processing. In addition, we made progress on gathering spectroscopic follow-up data into a central database at Fermilab.

As of this writing, seven papers using and/or describing SDSS Supernova data have been submitted for publication; five of these have been published or accepted for publication. Three papers presenting the first-season cosmology results and their implications are nearing completion. A number of proposals to NOAO, Gemini, HST, and ESO have been recently submitted for further follow-up observations of the host galaxies.

2.4. Photometric Telescope

The Photometric Telescope (PT) observed 34 secondary patch sequences during Q1. Of these, 23 were deemed survey quality after processing and 11 were declared bad.

The PT also observed 2,275 manual target sequences over this time period for projects outside of the SDSS-II. These manual target sequences included a planetary nebula program (which uses a non-SDSS filter and thus requires special processing); an extra-solar planet transit program; a ROTSE supernova follow-up program; and a cataclysmic variable program.

3. OBSERVING EFFICIENCY

Observing efficiency is summarized according to the categories used to prepare the baseline projection.

3.1. Weather

Table 3.1 summarizes the amount of time lost to weather and Figure 3.1 plots the fraction of suitable observing time against the baseline forecast. Averaged over the quarter, the fraction of available observing time was as expected in the baseline projections.

Table 3.1 Potential Observing Hours Lost to Weather in Q1

Observing Condition	Total hours potentially available for observing	Total hours lost to weather	Fraction of time suitable for observing	Baseline Forecast
Dark Time	465	185	60%	60%
Dark & Gray Time	858	348	59%	60%

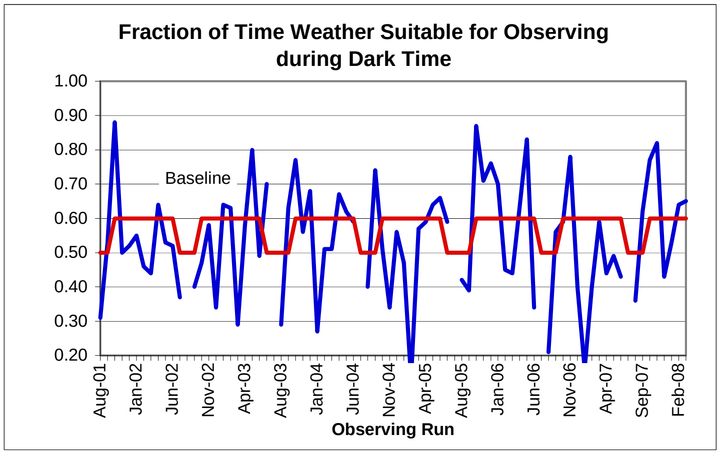


Figure 3.1 Percentage of Time Weather Suitable for Observing

3.2. System Uptime

System uptime measures the availability of equipment when conditions are suitable for observing. Table 3.2 summarizes the total amount of time lost to equipment or system problems and Figure 3.2 plots uptime against the baseline goal.

Table 3.2 Potential Observing Hours Lost to Problems in Q1

Observing Condition	Total hours potentially available for observing	Total hours lost to problems	System Uptime	Baseline Forecast
Dark Time	465	3	99%	90%
Dark & Gray Time	858	7	99%	90%

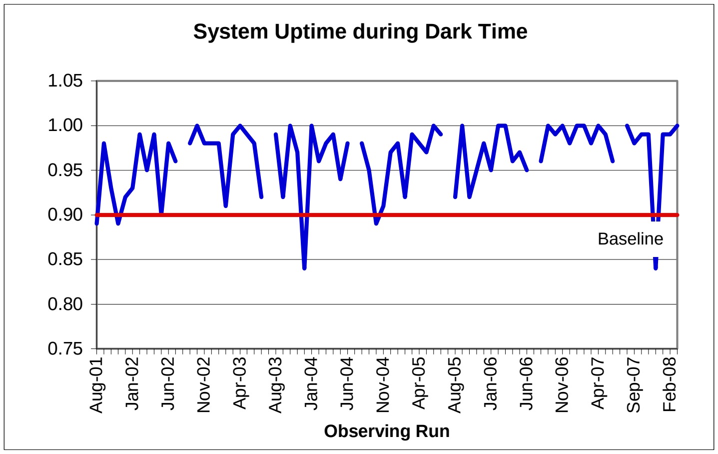


Figure 3.2 System Uptime

3.3. Spectroscopic Efficiency

Spectroscopic efficiency is derived by assessing the time spent performing various activities associated with spectroscopic operations. Table 3.3 provides the median time, by dark run, for various overhead activities associated with spectroscopic operations. Units for all categories are minutes except for efficiency, which is given as the ratio of baseline science exposure time (45 minutes) to total time required per plate. Using these measures, spectroscopic efficiency was above baseline goals; average efficiency in Q1 was 67% against the baseline goal of 64%.

Table 3.3 Median Time for Spectroscopic Observing Activities

Category	*Baseline*	*Run starting Dec 27*	*Run starting Jan 26*	*Run starting Feb 25*
Instrument change	10	5	5	5
Setup	10	8	7	8
Calibration	5	6	6	6
CCD readout	0	3	3	3
Total overhead	25	22	21	22
Science exposure (assumed)	45	45	45	45
Total time per plate	70	67	75	74
Efficiency	0.64	0.67	0.68	0.67

Figure 3.3 plots spectroscopic efficiency over time.

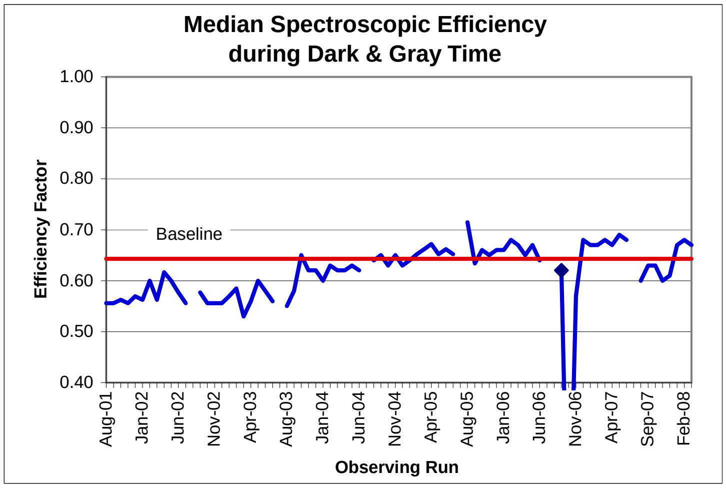


Figure 3.3 Spectroscopic Efficiency

4. OBSERVING SYSTEMS

Observing systems includes the instruments, telescopes, computers and various sub-systems that support observing operations at APO.

4.1. The Instruments

During this quarter, we managed to get the Imager Calibrator back on-line. Modifications and upgrades to the Imager Calibrator were finished and implemented. The calibrator has demonstrated sufficient stability to allow the observers to collect data on weather-lost nights.

A better understanding of the Astigmatism Actuator Controller problems was achieved this quarter. Tests were conducted to determine the amount of air blow-by that the actuators produce. Airflow and leaks were thereby identified and repaired.

4.2. The 2.5m Telescope

We experienced a power failure to the enclosure resulting from ice build-up on the enclosure power rails. During the repairs and replacement of the power rail shoes and arms, we discovered that the other shoes had considerable wear. We decided that these components needed to be replaced on a periodic schedule, namely once every 2 years.

Analysis of the power supply for the Neon/Argon lamps demonstrated that instability of this supply is the cause of intermittent functionality. We began a design upgrade of the power supply system which will be completed in the next quarter.

Problems with the Altitude fiducials cropped up again during this quarter. We spent two days readjusting the fiducial blocks, and we got them all within +/- .001" position tolerance. After so doing, all the fiducials began to work properly and seem to continue to perform well.

After completion of the new LN2 dewar storage shed, we discovered that during LN2 transfer operations the shed became an ODH area. Sensors were installed.

Rotator drive motor vibrations visited us again. The PID parameters had to be changed to new values to bring the vibrations back under control.

Vibration measurements were taken for the DIMM telescope enclosure. We discovered that the telescope camera does not see a difference in vibrations with the dome enclosure opened or closed. The vibrations seem to be wind generated and to affect the whole structure.

Next quarter we will begin work on our closeout activities for SDSS II which includes reviewing and updating the documentation on the telescope's operating and maintenance procedures and disposing of plug plates.

4.3. The Photometric Telescope

The Photometric Telescope (PT) drop out slit drive motor failed this quarter and, after polling the Observers to determine the usefulness of this motor, we decided to replace it. Early next quarter we will also upgrade the clutch on the manual hand crank.

4.4. Operations Software and the Data Acquisition System

The observing software and DA system were stable over the quarter. No changes were made to either system.

4.5. Observatory Operations

Throughout the first quarter of 2008, we emphasized SEGUE and Legacy spectroscopy. The only imaging consisted of two SEGUE scans completed on January 1.

We started to encounter end-game observing schedule problems. We ran out of plates available during the early hours of March nights, so re-observed some Legacy and SEGUE plates and observed some lower priority test plates for BOSS and MARVELS.

In addition to SDSS-II observing and periodic instrument and telescope calibrations and maintenance, the observers continued to provide near-real-time data quality assurance and made nightly decisions to acquire survey-quality data in the most efficient way possible. Observers also provided shakedown/shakeup and cloudy-night support of SDSS-II tests. On-site observing documentation and procedures were maintained and updated on a regular basis during the quarter.

Observers continued to use the Photometric Telescope (PT) to obtain observations of exoplanet transit timings, white dwarf standard stars, planetary nebula candidates, and made follow-up observations of ROTSE-detected supernovae. These were in addition to observing the few remaining secondary patches with the PT for SEGUE, and obtaining nightly photometric solutions on the few nights we imaged with the 2.5-m telescope.

The Observers continued to be involved in individual research and professional development projects, as time permitted. During the first quarter, these projects included:

- Galaxy morphology research to constrain dark matter models in galaxies.
- Participation in studies of dynamical and spectral properties of S0 galaxies (in collaboration).
- Solar physics research (Bayesian image recognition in magnetograms).

- Collaborating with Ukrainian astronomers on cataclysmic variables and oxygen abundances in SDSS galaxies.
- Stellar abundance modeling.
- Continuing the search for Galactic halo planetary nebulae using the SDSS CAS, DAS and the PT.
- Monitoring observer contributions to announced SDSS and SDSS-II "discovery papers."
- Using the SDSS equatorial stripe co-added data to find L and T dwarfs.

One Observer was awarded an American Astronomical Society small research grant allowing him to purchase a workstation to be used for astrophysical modeling essential to his dark matter in galactic halos research.

Work on the support building extension was completed this quarter. Ongoing measurements are being taken to evaluate the environmental conditions inside the new instrument rooms.

We also prepared the site for extreme fire danger due to extremely dry weather conditions in southeastern New Mexico. Fire protection equipment is in place and we have updated our fire evacuation procedures.

5. DATA PROCESSING AND DISTRIBUTION

5.1. Data Processing

5.1.1. Software Development and Testing

The principal effort in Q1 has been on the spectroscopic pipeline, and the processing of SEGUE imaging runs through both PHOTO and the Pan-STARRS image-processing code (psPhot).

On the spectroscopic side we focused our effort to finalize the idlspec2d code. The following updates were put in place and the code was formally delivered:

- Improved templates for specBS;
- Improved wavelength calibration, using global solutions;
- Improved handling of sharp emission lines;
- Improved flat fielding to properly handle changing features around the dichroic; and
- Improved robustness of the code to unusual observing conditions (especially the notorious cluster plates).

All extant plates have been reduced at Fermilab and will be released as part of DR7.

On the imaging side, we continued to assess the differences between the current version of PHOTO, and the improved version that does a better job of sky subtraction near bright galaxies. This will be captured in documentation of the known problems with PHOTO in the DR7 paper and website.

We also have been working on reducing the remaining SEGUE scans through both PHOTO and psPhot, to be incorporated into DR7. There are some subtle issues having to do with incorporating aperture corrections into the psPhot outputs.

We performed various diagnostic tests of the quality of the psPhot photometry and found that in a small fraction (<1%) of fields, there are systematic offsets of the photometry at the level of 0.1 mag or so. We are trying to find a diagnostic of what might be triggering this.

In the upcoming quarter, we will focus on delivering the final global ubercal results for everything, further testing of the image processing code, and documentation of all of the above.

Work continued by the JINA-MSU team on the development of the SEGUE Stellar Parameter Pipeline (SSPP). A mini-meeting was held at Fermilab in March, to finalize calibration and pipeline projects related to SEGUE.

Our plans for next quarter includes delivery of the final version of SSPP by the end of May 2008, and loading the latest SSPP results into DR7.2 CAS. We also plan to document SEGUE pipelines and science in journal papers.

5.1.2. Data Processing Operations at APO

No data were processed at APO as we were not collecting new supernova data.

5.1.3. Data Processing Operations at Fermilab

We reprocessed all spectroscopic data through a new version of the spectroscopic pipeline v5_3_12 spectro2d and 1d. This required some changes in the GRID processing software.

We continued processing new data as they arrived. We processed a total of 161 new spectroscopic plates. We completed processing of the final two SEGUE runs.

We reprocessed all existing imaging data with the new version of the astrometric pipeline and checked the quality of its output in collaboration with the developers at USNO.

We processed a limited subsample of the imaging data with the improved photometric pipeline (the one with better sky-subtraction around bright galaxies) in order to provide users with a comparison data set.

We transferred the reduced imaging data outputs for low-latitude scans from Princeton to Fermilab, so that they can be loaded into the CAS and included in the DAS.

We began an inventory and reorganization of the data on the processing cluster to make in easier to locate data on the cluster, simplify maintenance and reliability on older systems, and recover space used for duplicate or unnecessary data.

5.2. Data Distribution

Data distribution activities were focused on releasing DR7.1 to the Collaboration and supporting existing public releases. For the DR7.1 release to the Collaboration, we updated the sqlFits2Csv with psObj changes and applied the psObj schema changes to BestDR7.1.

5.2.1. Data Usage Statistics

Through March, the general public and astronomy community have had access to the EDR, DR1, DR2, DR3, DR4, DR5 and DR6 through the DAS and SkyServer interfaces. In addition, the Collaboration has access to the Runs DB and DR7.1 released on February 14, 2008.

Figure 5.1 plots the number of web hits we received per month through the various SkyServer interfaces. In Q1 we recorded an average 9.6 million hits per month, compared to an average 12 million hits per month in Q4.

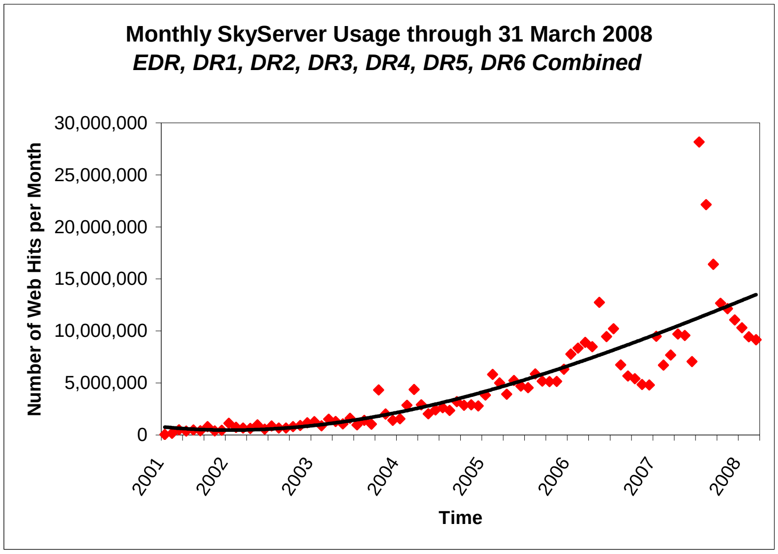


Figure 5.1 SkyServer usage per month, for all public releases combined.

Figure 5.2 shows the total number of SQL queries executed per month. We executed an average 1.5 million queries per month in Q1, compared to an average 2.3 million queries per month in Q4.

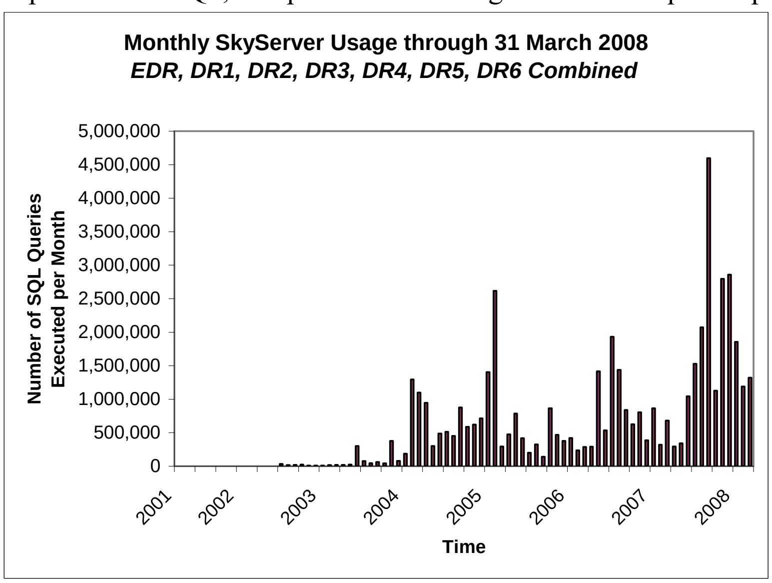


Figure 5.2 SkyServer usage, measured by the number of SQL queries submitted per month.

Through March 31, 2008, the SkyServer interfaces have received over of 393 million web hits and processed over 48 million SQL queries. Over the past quarter, the SkyServer sites received a total of 28.9 million hits and processed 4.4 million SQL queries.

Figure 5.3 shows the volume of data transferred monthly from the DAS through the rsync server. A total of 5.8 TB of data were transferred via rsync in Q1 compared to 8.2 TB in Q4. As we have seen in the past, the volume of data transferred varies significantly from month to month. By month the amount of data transferred was 0.5 TB in January, 0.6 TB in February, and 4.6 TB in March.

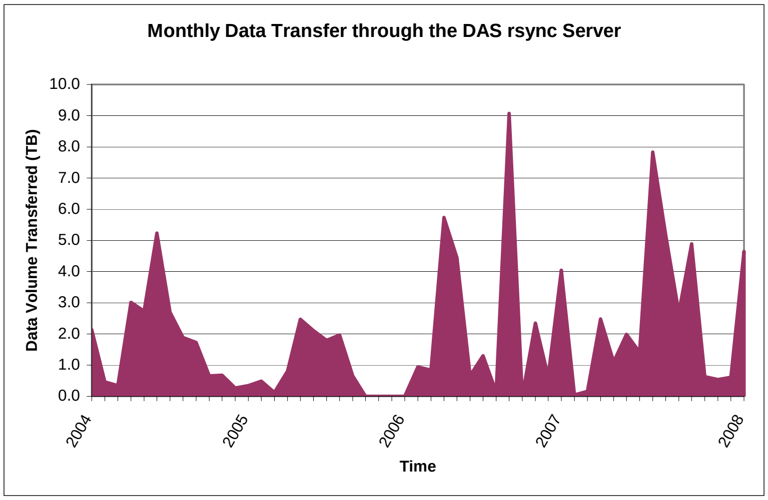


Figure 5.3 Monthly volumes of data transferred via the DAS rsync Server.

Figure 5.4 shows the volume of data transferred monthly through the DAS web interface. A total of 13.1 TB of data were transferred via the web interface in Q1, compared to 20.2 TB in Q4. By month the amount of data transferred were 7.6 TB in January, 2.3 TB in February, and 3.1 TB in March.

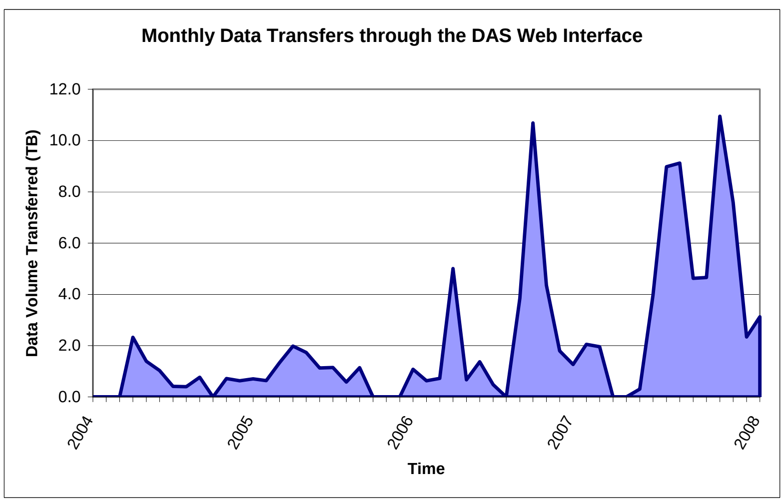


Figure 5.4 Monthly volume of data transferred via the DAS web interface.

5.2.2. Data Archive Server

We continued the process of preparing the DAS for long-term stewardship. We began a reimplementation of the DAS web interface to reduce the dependencies on the SDSS data processing infrastructure.

In Q2 we plan to make additional changes to the DAS before the final data release. New data will be added, including new types of files accommodating new processings of the data. The data set will be migrated from a cluster system to a network attached storage system.

5.2.3. Catalog Archive Server

Work on the Catalog Archive Server (CAS) included addressing problem reports, and providing general support for data distribution operations. A total of eight problem reports filed through the SDSS Problem-Reporting Database were fixed and closed, including two filed as critical/high against CAS and SkyServer.

We tested and deployed an enhanced version CasJobs, v3_4_1, on our production sites.

5.2.4. Data Release 7

The DR7.1 release to the collaboration on Feb 14, 2008 included a second year of SEGUE imaging and spectra.

5.2.5. Runs Database

We modified the neighbors table processing from the RunsDB to eliminate multiple observations from a second round of neighbors' computation.

6. SURVEY PLANNING

6.1. Observing Aids

Several programs are used to aid in planning and carrying out observations; no changes were made to these in Q1.

6.2. Target Selection

For this quarter, 83 plates were designed and drilled in two drilling runs. Of these, 17 plates were for the Legacy program (North survey area), 30 were bright SEGUE plates, 30 were faint SEGUE plates, and 6 plates were test plates for the BOSS program in SDSS-III.

6.3. Survey Planning

Many of the SEGUE plates replaced existing plates that had not yet been observed; the new plates use improved algorithms for selecting targets. The BOSS test plates are for observing during certain times of the night when all Legacy and SEGUE plates have been exhausted.

7. EDUCATION AND PUBLIC OUTREACH

We continued to work with high school teachers who are offering the University of Washington Astronomy 101 course for college credits in their schools. During this school year three teachers will incorporate elements from SkyServer into their courses. SkyServer is also used by some of the UW faculty in their courses and laboratories, both in Astronomy 101 and in more advanced courses.

We explored how Google Sky, which incorporates the SDSS imaging data, can link to SkyServer education materials. In two workshops with formal and informal educators and Google Sky representatives, discussions were held about how to enrich the usefulness of Google Sky and what links might be useful to educators.

We promoted SkyServer in several presentations to educators and other audiences. These included the Washington NASA Space Grant Consortium members meeting and the NASA Out-of-School Time Working Group. We also worked with a high school student interested in astronomy who did a SkyServer project (spectra) as part of his senior project.

We participated in the group that is exploring the education and public outreach potential for LSST and how that relates to the experiences with SkyServer. We also participated in a group that is exploring the educational applications of Google Sky.

8. COST REPORT

The operating budget that the Advisory Council accepted and the Board of Governors approved for the period January 1 through December 31, 2008 consists of $403K of anticipated in-kind contributions from Fermilab, the University of Chicago (UC), the Johns Hopkins University (JHU), the University of Washington (UW), and the Joint Institute for Nuclear Astrophysics (JINA); and $4,018K for ARC-funded cash expenses.

Table 8.1 shows forecast cost performance for ARC-funded cash expenses in Q1. More complete tables comparing forecast to baseline performance are included in the appendices of this report. Exhibit 1 compares cash expenses to the budget by quarter and annually. Exhibit 2 compares forecast in-kind contributions to the budget by quarter and annually.

Table 8.1 Q1 Cash Expenses and Forecast for 2008 ($K)

	2008 – 1st Quarter		2008 Operations Budget Total *(for the period Jan-Dec 2008)*	
Category	Baseline Budget	Forecast Expenses	Baseline Budget	Forecast Expenses
1. Survey Management	152	132	488	479
2. Survey Operations				
2.1. Observing Systems	196	130	412	355
2.2. Observatory Operations	453	402	1,255	1,201
2.3. Data Processing	337	230	782	766
2.4. Data Distribution	165	119	411	411
2.5. ARC Support for Survey Ops	18	18	26	26
3. New Development				
3.1. SEGUE Development	0	0	0	0
3.2. Supernova Development	0	0	0	0
3.3. DA Upgrade	0	0	0	0
3.4. Photometric Calibration	0	0	0	0
4. ARC Corporate Support	9	9	31	31
Sub-total	1,330	1,041	3,405	3,268
5. Management Reserve	175	0	613	613
Total	1,505	1,041	4,018	3,881

8.1. Q1 Performance - In-kind Contributions

The sum of in-kind contributions in Q1 was $127K against the baseline budget of $154K. In-kind contributions were provided by Fermilab, JHU, and UW, as follows:

- Fermilab provided support for survey management, data processing and data distribution activities. Effort was also provided to support oversight, planning, and development work for the SEGUE and Supernova projects. The level of in-kind effort required from Fermilab was less than budgeted.
- JHU provided support for the development, loading and hosting of databases associated with the CAS, CasJobs, and SkyServer.
- UW contributed the overhead associated with the plate drilling operation as anticipated.

8.2. Q1 Performance – ARC Funded Cash Expenses

ARC-funded expenses in Q1 were $1,041K, or $288K (22%) below the budget of $1,330K, before management reserve.

Survey Management costs were $132K against a budget of $152K. Expenses to support the ARC EPO Coordinator and project management were less than budgeted, driven by reduced travel by the EPO coordinator and work constraints at Fermilab which limited the amount of time employees were available to work. All other survey management costs were as anticipated. For the year, the revised forecast for Survey Management expenses is $479K, or $9K (2%) below the baseline budget of $488K.

Observing Systems costs were $130K against a budget of $196K. Fermilab personnel costs were lower than budgeted due work constraints at Fermilab. Princeton, and ARC observing systems support costs were as anticipated. For the year, the revised forecast for Observing Systems expenses is $355K, or $57K (14%) below the baseline budget of $412K.

Observatory Support costs were $402K against a budget of $453K. NMSU personnel and utility expenses were less than anticipated. For the year, the revised forecast for Observatory Support expenses is $1,201K, or $54K (4%) below the baseline budget of $1,255K.

Data Processing costs were $230K against a budget of $337K. Fermilab expenses were less than budgeted because delivery of new hardware has been delayed until the second quarter. For the year, the revised forecast for Data Processing costs is $766K, or $16K (2%) below the baseline budget of $782K.

Data Distribution costs were $119K against a budget of $165K. FNAL personnel expenses were less than budgeted due to work constraints which reduced employees working hours. JHU expenses were less than budgeted due to accounting timing and will be resolved in the second quarter. For the year, the revised forecast for Data Distribution costs is $411K as budgeted.

ARC Support for Survey Operations costs and Miscellaneous ARC corporate expenses (i.e., audit fees, bank fees, petty cash, and APO trailer rentals) were as anticipated.

8.3. Q1 Performance - Management Reserve

No management reserve funds were expended in Q1.

9. PUBLICATIONS

In Q1, there were 129 papers published using publicly available data. Exhibit 3 lists the papers published. The Q2 Report will include papers by the Collaboration using non-public data.

Exhibit 1 CY2008 Cash Expenses ($000s)

SDSS-II CY2008 Cost Performance as of March 31, 2008

			Qtr 1 Jan-Mar			Qtrs 2-4 Apr-Dec			CY2008 Total		
		Inst	Approved Baseline Budget	Actual Expenses	Variance (%) H/(L)	Approved Baseline Budget	Apr-2008 Forecast	Variance (%) H/(L)	Approved Baseline Budget	Apr-2008 Forecast	Variance (%) H/(L)
OPERATIONS BUDGET - CASH EXPENSES											
1.0 Survey Management											
SSP-221	ARC Secretary/Treasurer	ARC	4	4	0%	12	12	0%	16	16	0%
SSP-234	ARC Business Manager	ARC	13	13	0%	50	50	0%	63	63	0%
SSP-246	PU Office of the Project Scientist	PU	4.1	4.1	0%	68	68	0%	72	72	0%
SSP-248	FNAL Support for Survey Management	FNAL	30	20	-33%	62	68	9%	92	87	-5%
SSP-267	UC Support for Survey Management	UC	14	13	-8%	49	49	0%	63	62	-2%
SSP-270	UW Support for EPO Coordinator	UW	23	19	-17%	24	24	0%	47	43	-8%
SSP-291A	ARC Support for Public Affairs	ARC	8	8	0%	8	8	0%	15	15	0%
SSP-291B	ARC Support for Spokesperson	ARC	3	3	0%	6	6	0%	9	9	0%
SSP-291C	ARC Support for Collaboration Affairs	ARC	42	42	0%	45	45	0%	87	87	0%
SSP-291i	ARC Support for Public Information Officer	ARC	8	8	0%	8	8	0%	16	16	0%
SSP-291K	ARC Support for Young Astronomers Travel Fund	ARC	5	0	---	0	0	---	10	10	---
	Survey Management Sub-total		**152**	**132**	-13%	**331**	**336**	2%	**488**	**479**	-2%
2.0 Survey Operations											
2.1 Observing Systems											
SSP-231	UW Observing Systems Support	UW	59	25	-58%	60	60	0%	119	85	-29%
SSP-232	PU Observing Systems Support	PU	12	12	0%	12	12	0%	23	23	0%
SSP-242	FNAL Observing Systems Support	FNAL	100	69	-30%	133	142	6%	233	211	-9%
SSP-261	FNAL Data Acquisition System Support	FNAL	3	2	-36%	3	3	0%	6	5	-18%
SSP-291D	ARC Observing Systems Support	ARC	23	23	0%	8	8	0%	30	30	0%
	Observing Systems Sub-total		196	130	-34%	216	224	4%	412	355	-14%
2.2 Observatory Support											
SSP-235	NMSU Site Support	NMSU	438	387	-12%	750	747	0%	1,188	1,134	-5%
SSP-302	UW SDSS Systems Engineering Support	UW	3	3	0%	32	32	0%	35	35	0%
SSP-272	JHU Support for APO Site Management	JHU	12	12	---	20	20	---	32	32	---
	Obseratory Support Sub-total		453	402	-11%	803	799	0%	1,255	1,201	-4%
2.3 Data Processing											
SSP-240	FNAL Software and Data Processing Support	FNAL	219	112	-49%	241	331	37%	459	443	-4%
SSP-238	PU Software and Data Processing Support	PU	93	93	0%	174	174	0%	267	267	0%
SSP-239	UC Software and Data Processing Support	UC	25	25	0%	30	30	0%	56	56	0%
	Data Processing Sub-total		337	230	-32%	445	535	20%	782	766	-2%
2.4 Data Distribution											
SSP-268	FNAL Data Distribution Support	FNAL	118	103	-13%	198	213	8%	316	316	0%
SSP-237	JHU Data Archive Development and Support	JHU	47	17	-65%	48	78	63%	95	95	0%
	Data Distribution Sub-total		165	119	-28%	246	291	18%	411	411	0%
2.5 ARC Support for Survey Operations											
SSP91f	ARC Additional Scientific Support	ARC	15	15	0%	5	5	---	20	20	0%
SSP91h	ARC Observers' Research Support	ARC	4	4	0%	4	4	0%	7	7	0%
	Data Distribution Sub-total		18	18	0%	9	9	0%	27	27	0%
	Survey Operations Sub-total		**1,168**	**900**	**-23%**	**1,718**	**1,859**	**8%**	**2,886**	**2,759**	**-4%**

Exhibit 1 CY2008 Cash Expenses (continued)

SDSS-II CY2008 Cost Performance as of March 31, 2008

		Inst	Qtr 1 Jan-Mar Approved Baseline Budget	Qtr 1 Jan-Mar Actual Expenses	Qtr 1 Jan-Mar Variance (%) H/(L)	Qtrs 2-4 Apr-Dec Approved Baseline Budget	Qtrs 2-4 Apr-Dec Apr-2008 Forecast	Qtrs 2-4 Apr-Dec Variance (%) H/(L)	CY2008 Total Approved Baseline Budget	CY2008 Total Apr-2008 Forecast	CY2008 Total Variance (%) H/(L)
3.0 New Development											
3.1 SEGUE Survey Development											
SSP-138	PU SEGUE Software Development	PU	0	0	---	0	0	---	0	0	---
SSP271	OSU Scientific Support	ARC	0	0	---	0	0	---	0	0	---
SSP273	UCSC Scientific Support	ARC	0	0	---	0	0	---	0	0	---
SSP-268	FNAL Data Distribution Support	FNAL	0	0	---	0	0	---	0	0	---
	SEGUE Development Sub-total		0	0	---	0	0	---	0	0	---
3.2 Supernova Survey Development									0	0	---
	No allocation		0	0	---	0	0	---	0	0	---
	Supernova Development Sub-total		0	0	---	0	0	---	0	0	---
3.3 Data Acquisition System Upgrade											
	No allocation		0	0	---	0	0	---	0	0	---
	DA Upgrade Sub-total		0	0	---	0	0	---	0	0	---
3.4. Photometric Calibration Development											
SSP-138	PU Photometric Calibration Development	PU	0	0	---	0	0	---	0	0	---
	Photometric Calibration Sub-total		0	0	---	0	0	---	0	0	---
	New Development Sub-total		**0**	**0**	---	**0**	**0**	---	**0**	**0**	---
4.0 ARC Corporate Support											
SSP291e	ARC Corporate Support	ARC	9	9	0%	22	22	0%	31	31	0%
SSP291g	ARC Capital Improvements	ARC	0	0	---	0	0	---	0	0	---
	ARC Corporate Support Sub-total		**9**	**9**	0%	**22**	**22**	0%	**31**	**31**	0%
Cash Budget Sub-total			**1,330**	**1,041**	-22%	**2,071**	**2,217**	7%	**3,406**	**3,268**	-4%
5.0 Management Reserve		ARC	175	0	-100%	438	613	40%	613	613	0%
TOTAL CASH BUDGET			**1,505**	**1,041**	-31%	**2,508**	**2,830**	13%	**4,018**	**3,881**	-3%

Exhibit 2 CY2008 In-Kind Contributions ($000s)

SDSS-II CY2008 Cost Performance as of March 31, 2008

			Qtr 1 Jan-Mar			Qtrs 2-4 Apr-Dec			CY2008 Total		
		Inst	Approved Baseline Budget	Actual Expenses	Variance (%) H/(L)	Approved Baseline Budget	Apr-2008 Forecast	Variance (%) H/(L)	Approved Baseline Budget	Apr-2008 Forecast	Variance (%) H/(L)
OPERATIONS BUDGET: IN-KIND											
1.0 Survey Management											
SSP-248	FNAL Support for Survey Management	FNAL	22	24	6%	52	51	-2%	75	75	0%
	Survey Management Sub-total		**22**	**24**	6%	**52**	**51**	-2%	**75**	**75**	0%
2.0 Survey Operations											
2.1 Observing Systems											
SSP-231	UW Observing Systems Support	UW	15	15	0%	15	15	0%	30	30	0%
	Observing Systems Sub-total		15	15	0%	15	15	0%	30	30	0%
2.3 Data Processing											
SSP-239	UC Software and Data Processing Support	UC	5	5	0%	5	5	0%	10	10	0%
SSP-240	FNAL Software and Data Processing Support	FNAL	85	75	-11%	127	127	0%	211	202	-5%
SSP-269	MSU SEGUE Software Development and Support	MSU	0	0	---	0	0	---	0	0	---
	Data Processing Sub-total		90	80	-11%	132	132	0%	222	212	-4%
2.4 Data Distribution											
SSP-237	JHU Data Archive Development and Support	JHU	11	(9)	-178%	11	29	163%	22	21	-8%
SSP-268	FNAL Data Distribution Support	FNAL	16	17	4%	38	38	0%	54	55	1%
	Data Distribution Sub-total		27	8	-71%	11	67	501%	76	75	-2%
	Survey Operations Sub-total		**132,074**	**103**	-22%	**158**	**214**	35%	**328**	**317**	-3%
3.0 New Development											
3.1 SEGUE Survey Development											
SSP-237	JHU Data Archive Development and Support	JHU	0	0	---	0	0	---	0	0	---
SSP-269	MSU SEGUE Software Development and Support	MSU	0	0	---	0	0	---	0	0	---
	SEGUE Development Sub-total		0	0	---	0	0	---	0	0	---
	New Development Sub-total		**0**	**0**	---	**0**	**0**	---	**0**	**0**	---
TOTAL IN-KIND CONTRIBUTIONS			**154**	**127**	-18%	**210**	**265**	26%	**403**	**392**	-3%
TOTAL OPERATING BUDGET (Cash and In-kind)			**1,659**	**1,168**	-30%	**2,719**	**3,095**	14%	**4,421**	**4,273**	-3%

Exhibit 3 Publications Based on Public Data

1. The Spectral Investigation of Seven HII Regions in Kazarian Galaxies. Astrophysics 2008, 51, 58-68 – V. Zh. Adibekyan

2. Carbon-Enhanced Metal-Poor Stars. III. Main-Sequence Turn-Off Stars from the SDSS/SEGUE Sample. ApJ 2008 In press – Wako Aoki

3. Two More Candidate AM Canum Venaticorum (AM CVn) Binaries from the Sloan Digital Sky Survey. AJ 2008 Accepted – Scott Anderson

4. The Velocity Distribution of Sloan Digital Sky Survey Satellites in Modified Newtonian Dynamics. MNRAS 2008, 383, L1-L4 – G. W. Angus

5. Morphology of Galaxies in Galactic Satellite Systems. ApJ Letters 2008 Submitted – H. B. Ann

6. The Environments of SLACS Gravitational Lenses. MNRAS 2008, 383, L40-L44 – M. W. Auger

7. Galaxy Colour, Morphology and Environment in the Sloan Digital Sky Survey. MNRAS 2008, 383, 907-922 – N. M. Ball

8. FERENGI: Redshifting Galaxies from SDSS to GEMS, STAGES, and COSMOS. ApJ Supplement 2008, 175, 105-115 – M. Barden

9. In Pursuit of LSST Science Requirements: A Comparison of Photometry Algorithms. PASP 2007, 119, 1462-1482 – Andrew C. Becker

10. The Role of Spin in the Formation and Evolution of Galaxies. MNRAS 2008 Submitted – Zachory Berta

11. The Radio Luminosity, Black Hole Mass and Eddington Ratio for Quasars from the Sloan Digital Sky Survey. Chinese J A&A 2008 Accepted – Wei-Hao Bian

12. The Lifetime of FR II Sources in Groups and Clusters: Implications for Radio-Mode Feedback. ApJ 2008, 676, 147-162 – Jonathan Bird

13. Light and Motion in SDSS Stripe 82: The Catalogues. MNRAS 2008 Submitted – D.M. Bramich

14. Large Misalignment between Stellar Bar and Dust Pattern in NGC 3488 Revealed by Spitzer and SDSS. New Astronomy 2008, 13, 16-23 – C. Cao

15. The Dust Content of Galaxy Clusters. ApJ Letters 2007, 671, L97-L100 – Doron Chelouche

16. Strong Lensing Probability in TeVeS Theory. J Cosmology Astroparticle Physics 2008, 1, 6 – Da-Ming Chen

17. Gaseous versus Stellar Velocity Dispersion in Emission-Line Galaxies. Chinese J A&A 2008, 8, 25-38 – Xiao-Yan Chen

18. Setting UBVRI Photometric Zero-Points Using Sloan Digital Sky Survey ugriz Magnitudes. AJ 2008, 135, 264-267 – Taylor S. Chonis

19. Spectral models for solar-scaled and α-enhanced stellar populations. MNRAS 2007, 382, 498-514 – P. Coelho

20. Luminosity Function Constraints on the Evolution of Massive Galaxies Since z=0.9. ApJ 2008 Submitted – Richard Cool

21. The Luminosity and Mass Functions of Low-Mass Stars in the Galactic Disk: I. The Calibration Region. Astronomical Journal 2008 Submitted – Kevin R. Covey

22. The Environment of Galaxies at Low Redshift. ApJ 2008, 674, L13-L16 – Nicolas B. Cowan

23. The 2dF-SDSS LRG and QSO Survey: QSO Clustering and the L-z Degeneracy. MNRAS 2008, 383, 565-580 – J. da Angela

24. 2MASS Reveals a Large Intrinsic Fraction of BALQSOs. ApJ 2008, 672, 108-114 – Xinyu Dai

25. Support Vector Machines and Kd-tree for Separating Quasars from Large Survey Databases. MNRAS 2008 Accepted – Gao Dan

26. White Dwarf Luminosity and Mass Functions from Sloan Digital Sky Survey Spectra. AJ 2008, 135, 1-9 – Steven DeGennaro

27. Monte Carlo Markov Chains Analysis of WMAP3 and SDSS Data Points to Broken Symmetry Inflaton Potentials and Provides a Lower Bound on the Tensor to Scalar Ratio. PhysRevD 2008, 77.043509 – C. Destri

28. X-Ray Emission from Active Galactic Nuclei with Intermediate Mass Black Holes. ApJ 2008 Submitted – G. C. Dewangan

29. Lensing Probabilities for Spectroscopically Selected Galaxy-Galaxy Strong Lenses. ApJ 2008 Submitted – Gregory Dobler

30. Broad-line Balmer Decrements in Blue Active Galactic Nuclei. MNRAS 2008, 383, 581-592 – Xiaobo Dong

31. The Initial Cluster Mass Function of Super Star Clusters in Irregular and Spiral Galaxies. AJ 2008, 135, 823-835 – Jayce D. Dowell

32. Clues to the Origin of the Mass-Metallicity Relation: Dependence on Star Formation Rate and Galaxy Size. ApJ Letters 2008, 672, L107-L110 – Sara L. Ellison

33. Physical Interpretation of the Near-Infrared Colours of Low-Redshift Galaxies. MNRAS 2008, 384, 930-942 – C. Eminian

34. The Outer Disks of Early-Type Galaxies. I. Surface-Brightness Profiles of Barred Galaxies. AJ 2008, 135, 20-54 – Peter Erwin

35. The Correlation Function of Optically Selected Galaxy Clusters in the Sloan Digital Sky Survey. eprint arXiv:0801.3485 – Juan Estrada

36. Virial Scaling of Massive Dark Matter Halos: Why Clusters Prefer a High Normalization Cosmology. ApJ 2008, 672, 122-137 – A. E. Evrard

37. Unveiling Dark Haloes in Lensing Galaxies. MNRAS 2008, 383, 857-863 – Ignacio Ferreras

38. Mass and Redshift of Star Formation in Relaxed Galaxy Clusters. ApJ 2008 Accepted – Rose A. Finn

39. Deep Extragalactic VLBI-Optical Survey (DEVOS). II. Efficient VLBI Detection of SDSS Quasars. A&A 2008, 477, 781-787 – S. Frey

40. Image Decomposition of Barred Galaxies and AGN Hosts. MNRAS 2008, 384, 692-700 – Dimitri Alexei Gadotti

41. Toward an Unbiased Sample of X-ray Selected Normal Galaxies Outside the Local Universe. Astronomische Nachrichten 2008, 329, 174 – A. Georgakakis

42. Surface Composition of Hilda Asteroids from the Analysis of the Sloan Digital Sky Survey. Icarus 2008, 193, 567-571 – R. Gil-Hutton

43. Genus Topology of Structure in the Sloan Digital Sky Survey: Model Testing. ApJ 2008, 675, 16-28 – J. Richard Gott, III

44. Stellar Mass Estimates in Early-Type Galaxies from Lensing+ Dynamical and Photometric Measurements. A&A 2008, 477, L25-L28 – C. Grillo

45. Cosmological Constraints on Dissipative Models of Inflation. Journal Cosmology Astroparticle Physics 2008, 1, 027 – Lisa M. H. Hall

46. Redshift Periodicity in Quasar Number Counts from Sloan Digital Sky Survey. eprint arXiv:0712.3833 – John C. Hartnett

47. Properties of Dusty Tori in Active Galactic Nuclei. I. The Case of SWIRE/SDSS Quasars. MNRAS 2008 In press – E. Hatziminaoglou

48. Effects of the Interaction between Dark Energy and Dark Matter on Cosmological Parameters. eprint arXiv:0801.4233 – Jian-Hua He

49. Current Star Formation in Early-Type Galaxies and the K+A Phenomenon. MNRAS 2008 Accepted – J. F. Helmboldt

50. A New Survey for Giant Arcs. AJ 2008, 135, 664-681 – Joseph F. Hennawi

51. A Robust Morphological Classification of High-Redshift Galaxies Using Support Vector Machines on Seeing Limited Images. I. Method Description. A&A 2008, 478, 971-980 – M. Huertas-Company

52. QSOs in the Combined SDSS/GALEX Database. PASP 2008, 120, 275-280 – J. B. Hutchings

53. When Did Cosmic Acceleration Start? How Fast Was the Transition? Astroparticle Physics 2008, 28, 547-552 – Émille E. O. Ishida

54. Broad-Line Emission in Low-Metallicity Blue Compact Dwarf Galaxies: Evidence for Stellar Wind, Supernova, and Possible AGN Activity. ApJ 2007, 671, 1297-1320 – Yuri L. Izotov

55. A Sample of Quasars with Strong Nitrogen Emission Lines from the Sloan Digital Sky Survey. ApJ 2008 In press – Linhua Jiang

56. Ultraviolet, Optical, and Infrared Constraints on Models of Stellar Populations and Dust Attenuation. ApJ Supplement 2007, 173, 377-391 – Benjamin D. Johnson

57. Radio Galaxies in the 2SLAQ Luminous Red Galaxy Survey. II. The Stellar Populations of Radio-Loud and Radio-Quiet LRGs. MNRAS 2008, 384, 692-700 – Helen M. Johnson

58. The Milky Way Tomography with SDSS. I. Stellar Number Density Distribution. ApJ 2008, 673, 864-914 – Mario Juric

59. Radio Jets in Galaxies with Actively Accreting Black Holes: New Insights from the SDSS. MNRAS 2008, 384, 953-971 – Guinevere Kauffmann

60. Observational Constraints on the Dependence of Radio-Quiet Quasar X-ray Emission on Black Hole Mass and Accretion Rate. ApJ 2008 Accepted – Brandon C. Kelly

61. Metallicity Calibrations and the Mass-Luminosity Relation for Star-Forming Galaxies. ApJ 2008 Accepted – Lisa J. Kewley

62. A Subhalo-Galaxy Correspondence Model of Galaxy Formation. ApJ 2008 Submitted – Juhan Kim

63. Reddening Behaviors of Galaxies in the SDSS Photometric System. PASP 2007, 119, 1449-1461 – Sungsoo S. Kim

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65. The Near-Infrared to Ultraviolet Continuum of Radio-Loud Versus Radio-Quiet Quasars. MNRAS 2008, 383, 1513-1518 – M. Labita

66. Difference Imaging of Lensed Quasar Candidates in the SDSS Supernova Survey Region. ApJ 2008 Submitted – Brian C. Lacki

67. Galaxy Zoo: The Large-Scale Spin Statistics of Spiral Galaxies in the Sloan Digital Sky Survey. eprint arXiv:0803.3247 – Kate Land

68. Connecting the Physical Properties of Galaxies with the Overdensity and Tidal Shear of the Large-Scale Environment. MNRAS 2008, Submitted – Jounghun Lee

69. Twenty-three new ultra-cool subdwarfs from the Sloan Digital Sky Survey. ApJ Letters Submitted – Sebastien Lepine

70. What Do WMAP and SDSS Really Tell Us about Inflation? J Cosmology Astroparticle Physics 2008, 1, 10 – Julien Lesgourgues

71. Estimating the Redshift Distribution of Faint Galaxy Samples. MNRAS 2008 Submitted – Marcos Lima

72. Virgo Cluster Early-Type Dwarf Galaxies with the Sloan Digital Sky Survey. IV. The Color-Magnitude Relation. AJ 2008, 135, 380-399 – Thorsten Lisker

73. Candidate Milky Way Satellites in the Galactic Halo. A&A 2008, 477, 139-145 – C. Liu

74. Metallicities and Physical Conditions in Star-Forming Galaxies at $z \sim 1.0$-1.5. ApJ 2008, 678, 758-779 – Xin Liu

75. Galaxy Clusters in the Line of Sight to Background Quasars. I. Survey Design and Incidence of MgII Absorbers at Cluster Redshifts. ApJ 2008 Accepted – S. Lopez

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78. The Environmental Dependence of Mass Assembly in Galaxies. ApJ Letters 2008 Submitted – Abilio Mateus

79. On the HI Content, Dust-to-Gas Ratio and Nature of MgII Absorbers. MNRAS 2008 Submitted – Brice Ménard

80. The VIMOS-VLT Deep Survey (VVDS). The dependence of clustering on galaxy stellar mass at $z \sim 1$. A&A 2008, 478, 299-310 – B. Meneux

81. The Mass-Metallicity Relation of Interacting Galaxies. MNRAS 2008 In press – Leo Michel-Dansac

82. The DEEP2 Galaxy Redshift Survey: The Red Sequence AGN Fraction and Its Environment and Redshift Dependence. MNRAS 2008 Submitted – Antonio D. Montero-Dorta

83. The Environmental Dependence of the Chemical Properties of Star-Forming Galaxies. MNRAS 2007, 382, 801-808 – M. Mouhcine

84. The Sloan Digital Sky Survey Data Archive Server. Computing in Science and Engineering 2008, 9, 13-17 – Eric H. Neilsen, Jr.

85. Cosmology with Galaxy Correlations. Gen Rel & Grav 2008, 40, 249-267 – Robert C. Nichol

86. A Galaxy Photometric Redshift Catalog for the Sloan Digital Sky Survey Data Release 6. ApJ 2008, 674, 768-783 – Hiroaki Oyaizu

87. The Shapes of Galaxies in the Sloan Digital Sky Survey. MNRAS 2008 Submitted – Nelson D. Padilla

88. An Improved Photometric Calibration of the Sloan Digital Sky Survey Imaging Data. ApJ 2008, 674, 1217-1233 – Nikhil Padmanabhan

89. The Real-Space Clustering of Luminous Red Galaxies around $z<0.06$ Quasars in the Sloan Digital Sky Survey. MNRAS 2008, Submitted – N. Padmanabhan

90. Is There a Quad Problem among Optical Gravitational Lenses? New Journal Physics 2007, 9, 442 – Masamune Oguri

91. A Large Sample of BL Lacs from SDSS and FIRST. AJ 2008 Accepted – Richard M. Plotkin

92. Characterizing Supernova Progenitors via the Metallicities of Their Host Galaxies, from Poor Dwarfs to Rich Spirals. ApJ 2008, 673, 999-1008 – Jose L. Prieto

93. The SDSS-DR5 Survey for Proximate Damped Ly□ Systems. ApJ 2008, 675, 1002-1013 – Jason X. Prochaska

94. Improved optical mass tracer for galaxy clusters calibrated using weak lensing measurements. MNRAS 2008 Submitted – Reinabelle Reyes

95. Space Density of Optically-Selected Type 2 Quasars. AJ 2008 Submitted – Reinabelle Reyes

96. The Population of AM CVn Stars from the Sloan Digital Sky Survey. MNRAS 2007, 382, 685-692 – G. H. A. Roelofs

97. The L_X–M Relation of Clusters of Galaxies. MNRAS 2008 Accepted – E. S. Rykoff

98. The Effect of Environment on the Ultraviolet Color-Magnitude Relation of Early-Type Galaxies. ApJ Supplement 2007, 173, 512-523 – K. Schawinski

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101. Constraints on the Abundance of Highly Ionized Protocluster Regions from the Absence of Large Voids in the Ly□ Forest. ApJ 2007, 671, 136-145 – Cien Shang

102. Dependence of the BALQSO Fraction on Radio Luminosity. ApJ 2008 Submitted – Francesco Shankar

103. Photometric Properties of the Local Volume Dwarf Galaxies. MNRAS 2008, 384, 1544-1562 – M. E. Sharina

104. The Black Hole-Bulge Relationship in Luminous Broad-Line Active Galactic Nuclei and Host Galaxies. AJ 2008, 135, 928-946 – Jiajian Shen

105. High-Redshift QSOs in the SWIRE Survey and the z~3 QSO Luminosity Function. ApJ 2008, 675, 49-70 – Brian Siana

106. Triplets of Quasars as Lighthouses of Rich Galaxy Clusters. MNRAS 2008 Accepted – Ilona K. Söchting

107. An Explanation for the Observed Weak Size Evolution of Disk Galaxies. ApJ 2008, 672, 776-786 – Rachel S. Somerville

108. The Three-Dimensional Skeleton of the SDSS. ApJ Letters 2008, 672, L1-L4 – T. Sousbie

109. Constrains on the Angular Distribution of Satellite Galaxies about Spiral Hosts. MNRAS 2007 In press – Jason H. Steffen

110. AGN Environments in the Sloan Digital Sky Survey. I. Dependence on Luminosity, Type, and M_{BH}. eprint arXiv:0712.2474 – Natalie E. Strand

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114. The Sloan Digital Sky Survey: Drinking from the Fire Hose. Computing in Science and Engineering 2008, 10, 9-12 – Ani R. Thakar

115. Scaling Regimes as Obtained from the DR5 Sloan Digital Sky Survey. A&A 2008 Submitted – Reuben Thieberger

116. Measuring the Fraction of Obscured Quasars by the Infrared Luminosity of Unobscured Quasars. ApJ 2008 In press – Ezequiel Treister

117. Extinction-corrected Star Formation Rates Empirically Derived from Ultraviolet-Optical Colors. ApJ Supplement 2007, 173, 256 – Marie Treyer

118. Inclination-Dependent Extinction Effects in Disk Galaxies in the Sloan Digital Sky

Survey. ApJ 2008 Submitted – Cayman T. Unterborn

119. The Dependence of Galaxy Morphology and Structure on Environment and Stellar Mass. ApJ Letters 2008, 675, L13-L16 – Arjen van der Wel

120. The 2dF-SDSS LRG and QSO Survey: Evolution of the Clustering of Luminous Red Galaxies since z = 0.6. MNRAS 2008 Submitted – David A. Wake

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