Operations Simulator Tools for Analysis and Reporting
Standard Report for *hewelhog.1008*
Compared to Design Specifications
Version 4.0

Operations Simulation Team
Large Synoptic Survey Telescope

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Contents

1 Introduction

This report is intended to assist in the evaluation of the performance of this simulated survey, *hewelhog.1008*, which was generated by the Operations Simulator code base. Please be aware that this simulated survey is just one of many that the Operations Simulation (OpSim) team have prepared. The Operations Simulator is currently still under development; many aspects of its performance (with regards to LSST's operations) are still subject to optimization and certainly are subject to change. These modifications could potentially include changes to the number of visits per field, the number of fields on the sky, and almost certainly will include changes in the observational cadence.

This report is not the final word on "how LSST will perform" ten years from now; instead it should be considered as an aid to help users and the OpSim team decide what changes will optimize the scientific return from LSST. Thus this evaluation should be considered a "work in progress". We encourage science collaboration members to provide feedback to the Operations Simulation team, through their collaboration chair, if they have suggestions for additional figures of merit or other methods for evaluation of the Operations Simulator runs.

2 Cadence Design

2.1 Observing Modes

A simulated survey is driven by at least one but usually more "observing modes." An observing mode is a cadence strategy designed to visit and revisit specific fields on the sky in a way that meets a particular science objective. The observing mode is described by a set of parameters specified in one or more a configuration files (*.conf). Visits made by observing modes designed to acquire fields such that the deep cosmology or wide-fast-deep (WFD) science specifications (specs) of the Science Requirements Document (SRD) are met can be singled out for analysis.

There are currently two classes of observing mode: weakLensConf (WL) and WLpropConf (WLTSS). These classes denote two different cadence strategies, and while their names originated in the type of science they were historically intended to do, now they simply represent different ways to survey the sky. The weakLensConf class is used to accumulate visits in field-filter combinations up to the requested number of visits set in the configuration file. The WLpropConf class is used to set up sequences or nested sequences to collect a series of visits at particular time intervals in addition to a number field-filter combinations.

A typical simulation may use some or all of the following configuration files.

Universal-18-0824.conf The "universal" cadence for the WFD survey; covers $\sim$18,000 deg^2 where fields are visited twice per night separated by about 30 minutes on average every few nights in different filters.

NorthEclipticSpur-18.conf Covers the north ecliptic spur (NES) in order to detect solar system objects throughout the ecliptic plane, and uses a similar cadence as Universal-18-0824.conf with no u or y observations.

DDcosmology1.conf Consists of 5 target fields, also known as the "deep drilling" fields, which acquire about 2 hours of exposure time in all bands in rapid sequence, every three days.

GalacticPlaneProp.conf Covers the plane of the Milky Way with a defined number of visits per field.

SouthCelestialPole-18.conf Covers the south celestial pole with a defined number of visits per field.

Standby.conf Essentially the WFD cadence which requests observations only when no other mode requests observations. This mode was used in OpSim v2.x versions to fill observing time when no other proposal needed visits, however, in OpSim v3.x a different strategy will be implemented.

Observing Modes in this Survey

ID (propID)	Type (propName)	Name (propConf)	Relative Priority	User Regions (userRegion)	Look Ahead (lookahead)
41	WL	GalacticPlaneProp.conf	1.000	233	False
42	WL	SouthCelestialPole-18.conf	1.000	293	False
43	WL	Standby.conf	0.001	0	False
44	WLTSS	Universal-18-0824.conf	1.100	2293	False
45	WLTSS	NorthEclipticSpur-18.conf	0.800	523	False
46	WLTSS	SuperNovaSubSeqdeep.conf	5.000	6	False

Table 1: The identification number, type, and name for each observing mode configuration file used in this simulated survey. The identification number is unique to each simulation. Regions of special interest are defined by a list of fields or User Regions; the number of user regions is given along with the relative priority assigned to each mode. If the number of User Regions is zero, the number of fields are defined by the available sky. User Regions are not required to have a one-to-one mapping to the list of field centers used by the Simulator. A selected group of parameters from each configuration file are presented in §B

2.2 Configuration Files

Filter Specifications

Parameter	u	g	r	i	z	y
Filter_MinBrig	21.40	21.00	20.50	20.25	17.50	17.50
Filter_MaxBrig	30.00	30.00	30.00	30.00	21.00	21.00
Filter_Wavelen	0.35	0.52	0.67	0.79	0.91	1.04
Filter_ExpFactor	1.0	1.0	1.0	1.0	1.0	1.0

Table 2: A subset of parameters from Filters.conf

Survey Specifications

Characteristic	Parameter	Value
Run Identifier	sessionHost.sessionID	hewelhog.1008
Run Start Date	sessionDate	2013-09-13 18:06:28
Code Version	version	3.0beta3
LSST.conf		
Length of Run	nRun	1.0 year(s)
Start Day of Weather Data	simStartDay	0.0
Field of View	fov	3.5 deg
Telescope adds to PSF	telSeeing	0.241 arcsec
Optical Design adds to PSF	opticalDesSeeing	0.097 arcsec
Camera adds to PSF	cameraSeeing	0.280 arcsec
Site Information	siteConf	../conf/system/SiteCP.conf
Cloudiness Threshold	maxCloud	0.7
SchedulingData.conf		
Look-ahead Period	lookAheadNights	3
Look-ahead Increment	lookAheadInterval	300 sec
Scheduler.conf		
Slew Bonus	MaxSlewTimeBonus	5.0
Proposal Target Suggestions	NumSuggestedObsPerProposal	500
Sky Recalculation	recalcSkyCount	10
Target List Length	reuseRankingCount	10
Minimum Seeing	tooGoodSeeingLimit	0.25 arcsec
Randomization	randomizeSequencesSelection	False
Dark Time Illumination	NewMoonPhaseThreshold	20.0 %
Filter Swap Minimum	NminFiltersToSwap	1
Filter Swap Maximum	NmaxFiltersToSwap	1
AstronomicalSky.conf		
Night Boundary	SunAltitudeNightLimit	? deg
Twilight Boundary	SunAltitudeTwilightLimit	? deg
Twilight Sky Brightness	TwilightBrightness	? V mags
Instrument.conf		
Rotator Tracking	Rotator_FollowSky	False
Filter Change Time	Filter_MoveTime	120.0 sec
Settle Time	Settle_Time	3.0 sec
Dome Settle Time	DomSettle_Time	1.0 sec
Readout Time	Readout_Time	2.0 sec
Telescope Minimum	Telescope_AltMin	15.0 deg
Telescope Maximum	Telescope_AltMax	86.5 deg
Seeing Table	seeingTbl	Seeing
Cloud Table	cloudTbl	Cloud

Table 3: A list of the most frequently modified or monitored parameters from the configuration files which completely specify a simulated survey.

2.3 Benchmarks

Wide-Fast-Deep (WFD) Benchmarks

Row	Benchmark	u	g	r	i	z	y
1	Seeing	0.77	0.73	0.70	0.67	0.65	0.63
2	Sky Brightness	21.80	22.00	21.30	20.00	19.10	17.50
	10 Year Design Specs						
3	Number of Visits	56	80	184	184	160	160
4	Single Visit Depth	23.9	25.0	24.7	24.0	23.3	22.1
5	Coadded Depth	26.1	27.4	27.5	26.8	26.1	24.9
	10 Year Stretch Specs						
6	Number of Visits	70	100	230	230	200	200
7	Single Visit Depth	24.0	25.1	24.8	24.1	23.4	22.2
8	Coadded Depth	26.3	27.5	27.7	27.0	26.2	24.9
	Specs Scaled to Length of Run						
9	Design Number of Visits	5	8	18	18	16	16
10	Stretch Number of Visits	7	10	23	23	20	20

Table 4: A summary of the benchmarks to which many statistics in this document compare. Rows 1 and 2 are the expected median values of seeing (arcsec) and sky brightness (arcsec/mag^2) at zenith (Ivezic et al., astroph/0805.2366v1, Table 1). The Wide-Fast-Deep (WFD) design and stretch specs are listed for a 10-year survey. The design and stretch single visit depths (rows 4 and 7) are the 5σ limiting magnitude for each filter at zenith in new moon with median seeing in AB magnitudes (DocuShare Document-212, "The LSST Science Requirements Document", Table 6). Rows 3 and 5 list the design specification for the number of visits and coadded depth by filter (Document-212, Table 22); Rows 6 and 8 list the stretch specification for the number of visits and coadded depth by filter (Ivezic et al., astroph/0805.2366v1, Table 1). In rows 9 and 10, the design and stretch number of visits are scaled linearly by the length of this run (nRun) and will be identical to rows 3 and 6 for a 10-year simulation. For $nRun < 10$ the scaled value of number of visits is truncated, not rounded, when used in comparison graphs and tables. Currently evaluations of the areal sky coverage are not made directly in this report; however, the design and stretch specifications are 18,000 deg^2 and 20,000 deg^2, respectively.

3 Survey Visits

3.1 A Visit Defined

An observation of a target field is simulated by a "visit." Currently, a visit comprises two 15-second exposures, each exposure requires one second for the shutter action, $t_{shutter}$, and two seconds for the CCD readout, $t_{readout}$. The second readout is assumed to occur while moving to the next field, so the length of each visit for the WFD observing mode, T_{visit}, is 34 seconds where the total integration time on the sky, T_{obs}, is 30 seconds. For other combinations of number of exposures, N_{exp}, and length of exposure, t_{exp}, the total visit time is given by

$$T_{visit} = N_{exp}(t_{exp} + t_{shutter}) + t_{readout}(N_{exp} - 1) \quad (1)$$

3.2 Describing Visits per Field

Characteristics of the Distributions

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
Observing Mode 41	u	27	25.3 $\pm$ 4.4	0	2	217
GalacticPlaneProp.conf	g	29	27.2 $\pm$ 4.2	0	4	220
	r	30	29.5 $\pm$ 1.2	0	5	230
	i	30	29.9 $\pm$ 1.0	0	3	230
	z	30	30.0 $\pm$ 0.5	0	2	230
	y	30	30.0 $\pm$ 0.0	0	0	230
Observing Mode 42	u	30	29.9 $\pm$ 0.5	0	8	293
SouthCelestialPole-18.conf	g	30	29.2 $\pm$ 2.4	0	15	277
	r	30	30.0 $\pm$ 0.0	0	0	293
	i	30	30.0 $\pm$ 0.0	0	0	293
	z	30	30.0 $\pm$ 0.0	0	0	293
	y	30	30.0 $\pm$ 0.0	0	0	293
Observing Mode 43	u	1	1.0 $\pm$ 0.0	0	0	1057
Standby.conf	g	1	1.0 $\pm$ 0.1	12	0	2235
	r	1	1.5 $\pm$ 0.6	0	0	2310
	i	2	1.9 $\pm$ 0.7	54	0	2494
	z	5	4.9 $\pm$ 1.2	0	41	2562
	y	6	5.8 $\pm$ 0.8	0	25	2604
Observing Mode 44	u	1	1.2 $\pm$ 0.4	1	0	1301
Universal-18-0824.conf	g	3	3.1 $\pm$ 1.2	5	0	2250
	r	6	5.2 $\pm$ 1.8	5	0	2260
	i	7	7.6 $\pm$ 2.3	6	0	2293
	z	16	16.5 $\pm$ 2.5	3	0	2293
	y	17	16.3 $\pm$ 4.9	5	0	2293
Observing Mode 45	u	0	nan $\pm$ nan	0	0	0
NorthEclipticSpur-18.conf	g	7	7.7 $\pm$ 3.7	2	0	500
	r	13	14.7 $\pm$ 9.3	6	0	518
	i	16	18.2 $\pm$ 11.3	0	0	523
	z	40	40.3 $\pm$ 9.9	0	0	523
	y	0	nan $\pm$ nan	0	0	0
Observing Mode 46	u	0	nan $\pm$ nan	0	0	0
SuperNovaSubSeqdeep.conf	g	290	288.6 $\pm$ 82.0	0	0	7
	r	580	577.1 $\pm$ 164.0	0	0	7
	i	570	575.7 $\pm$ 164.0	0	0	7
	z	560	569.9 $\pm$ 159.1	0	0	7
	y	555	562.1 $\pm$ 152.5	0	0	7

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Characteristics of the Distributions *(con't)*

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	1	8.0 $\pm$ 11.8	0	0	2021
	g	4	7.9 $\pm$ 16.3	7	0	3421
	r	6	11.2 $\pm$ 28.2	7	0	3538
	i	8	13.2 $\pm$ 28.1	7	0	3613
	z	18	22.4 $\pm$ 28.0	7	0	3631
	y	17	18.0 $\pm$ 26.9	7	0	3512
All Observing Modes	All	54	75.0 $\pm$ 126.3	7	0	3665

Table 5: The median, mean and standard deviation for number of visits to a field separated by observing mode and by filter. The $+3\sigma$ column shows the number of fields which had a number of visits more than 3σ greater than the median number of visits; the -3σ column shows the number of fields with number of visits fewer than 3σ less than the mean value. The Total column shows the number of fields evaluated in each observing mode/filter combination.

3.3 Visits Acquired in the WFD Observing Mode

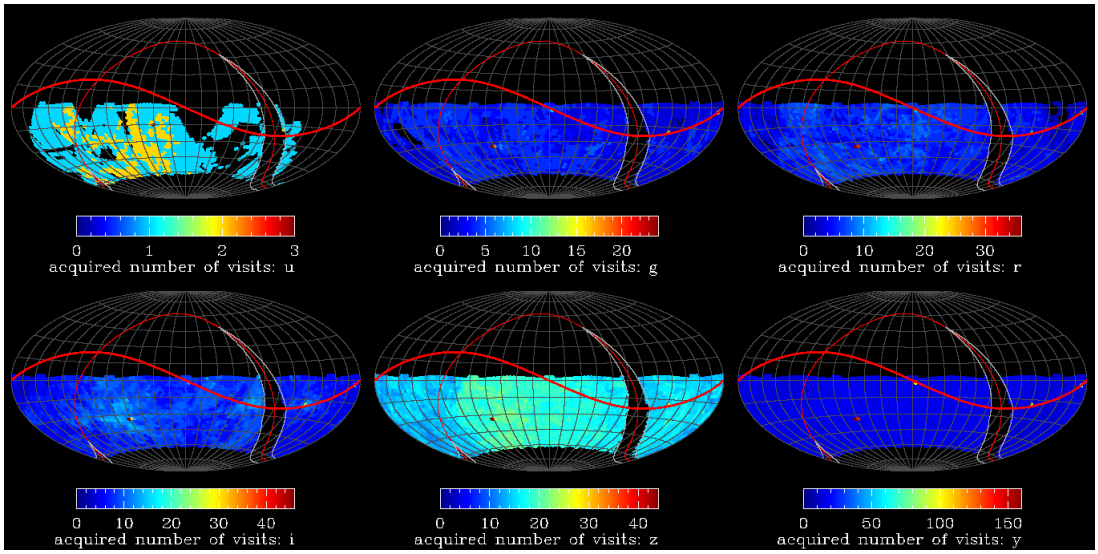

Figure 1: *(hewelhog_1008_SixVisits-Num.png)* The number of visits acquired for each field is plotted in Aitoff projection for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included.

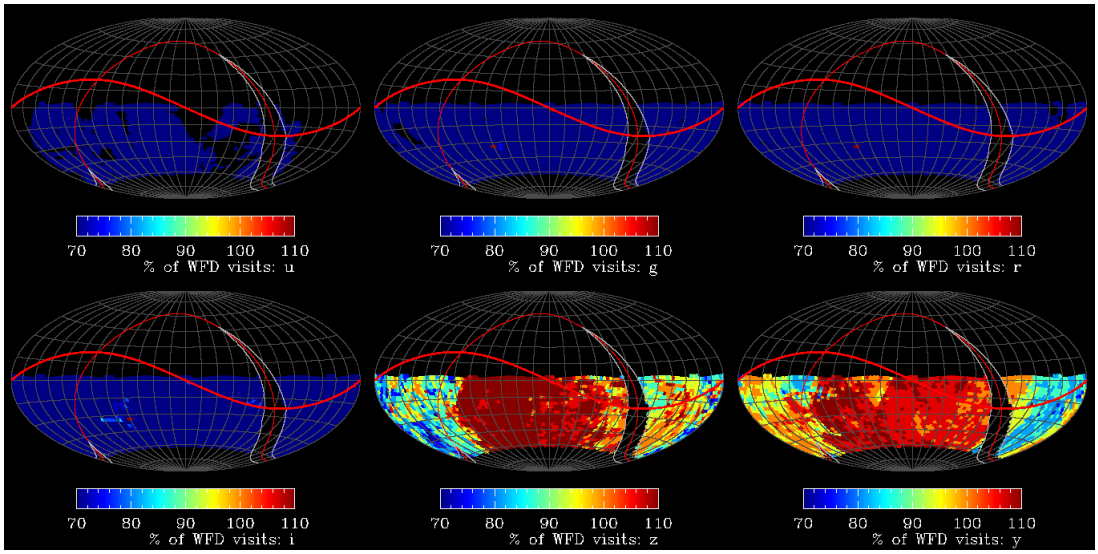

Figure 2: *(hewelhog_1008_SixVisits.png)* The ratio of the number of visits acquired for each field to the scaled WFD spec value for that filter (see Table 4) is plotted as a percentage in Aitoff projection for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included.

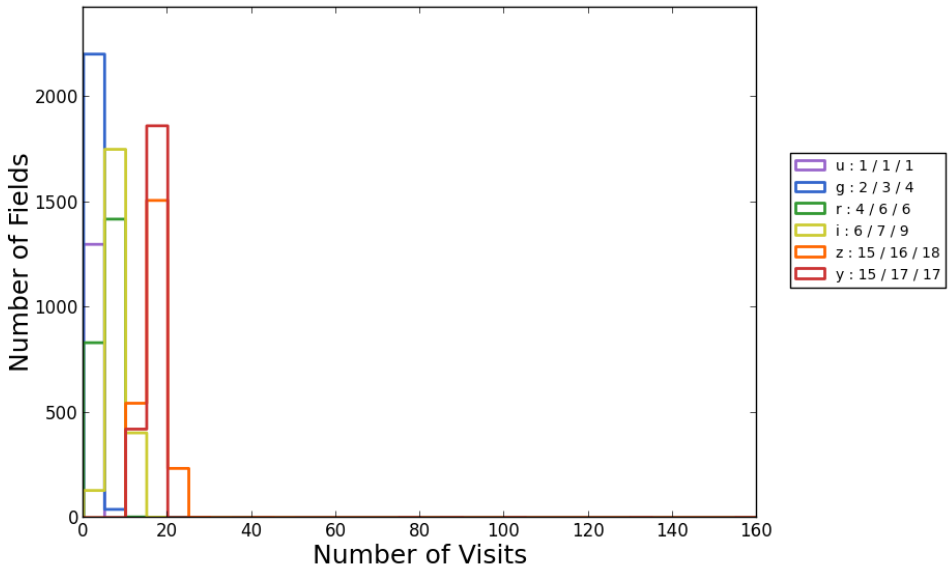

Figure 3: *(hewelhog_1008_visits_allfilters.png)* The distribution of the number of fields having a given number of visits for each filter. Only visits acquired by modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

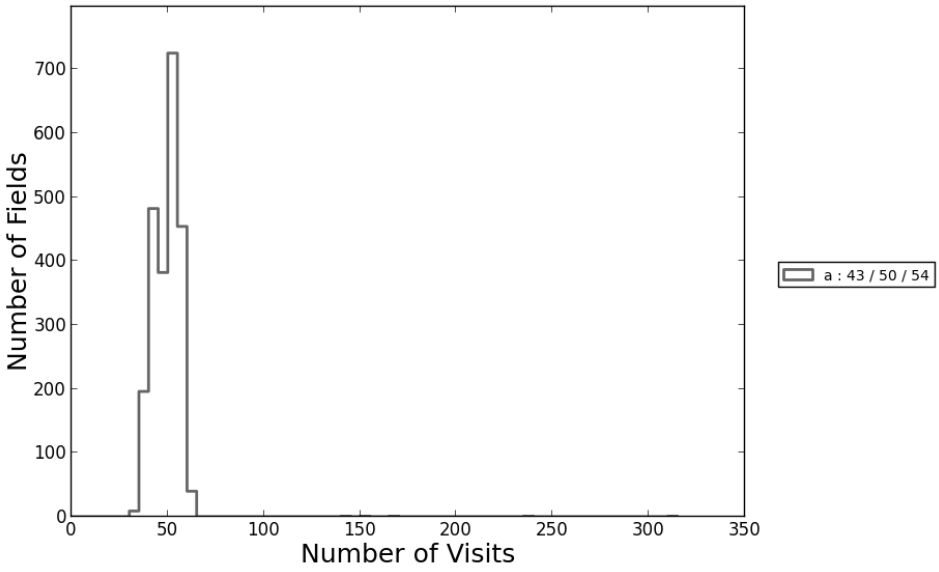

Figure 4: *(hewelhog_1008_visits_allfilters_all.png)* The distribution of the number of fields having a given number of visits irrespective of filter. Only visits acquired by modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles.

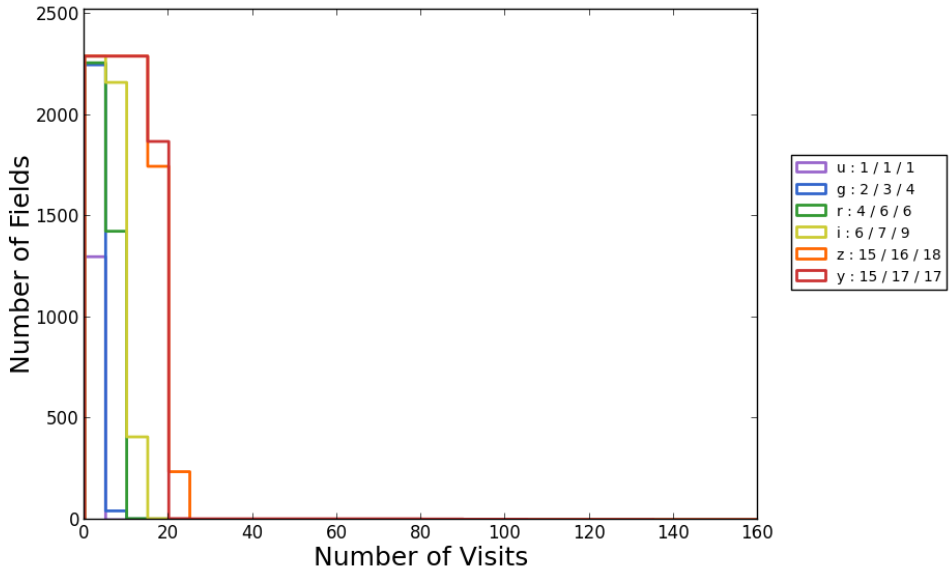

Figure 5: *(hewelhog_1008_cvisits_allfilters.png)* The cumulative distribution of Figure 3 showing the number of fields having visits $\geq x$ in each filter. Only visits acquired by modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

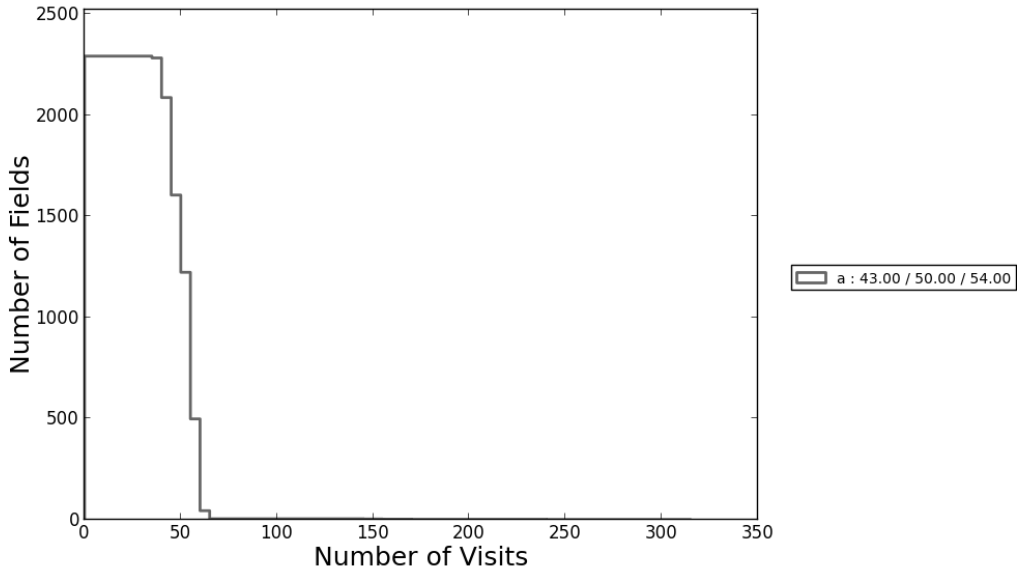

Figure 6: *(hewelhog_1008_cvisits_allfilters_all.png)* The cumulative distribution of Figure 4 showing the number of fields having visits $\geq x$. Only visits acquired by modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Distribution of Fields by Completeness - WFD Observing Mode Only

% Complete	u	g	r	i	z	y	Joint
$100 \leq P$	0	5	2	4	1423	1566	0
$90 \leq P < 100$	0	0	0	0	325	305	0
$80 \leq P < 90$	0	0	0	2	448	410	0
$70 \leq P < 80$	0	2	0	35	82	10	0
$60 \leq P < 70$	1	37	3	135	15	2	0
$50 \leq P < 60$	0	858	7	495	0	0	0
$40 \leq P < 50$	298	0	138	469	0	0	6
$30 \leq P < 40$	0	523	989	811	0	0	136
$20 \leq P < 30$	1002	761	829	303	0	0	1017
$10 \leq P < 20$	0	64	269	39	0	0	105
$0 < P < 10$	0	0	23	0	0	0	7

Table 6: The distribution of the number of fields with a given percent completeness for each filter. A field's completeness is given by the percentage of the number of visits to that field compared to the WFD spec number of visits scaled to the length of this run (see Table 4). Only visits acquired by observing modes designed to meet the WFD number of visits are included. Note that the number of fields that reached or exceeded the above condition is given by the $100 \leq P$ bin. Also note that creating the bins using the number of fields expected, N, is less precise than P and results in a slightly different distribution. The last column is the joint completeness, which is the number of fields having a percent completeness, P, in *all* filters of *at least* a certain value.

Cumulative Distribution of Fields by Completeness - WFD Observing Mode Only

% Complete	u	g	r	i	z	y	Joint
$100 \leq P$	0	5	2	4	1423	1566	0
$90 \leq P$	0	5	2	4	1748	1871	0
$80 \leq P$	0	5	2	6	2196	2281	0
$70 \leq P$	0	7	2	41	2278	2291	0
$60 \leq P$	1	44	5	176	2293	2293	0
$50 \leq P$	1	902	12	671	2293	2293	0
$40 \leq P$	299	902	150	1140	2293	2293	6
$30 \leq P$	299	1425	1139	1951	2293	2293	142
$20 \leq P$	1301	2186	1968	2254	2293	2293	1159
$10 \leq P$	1301	2250	2237	2293	2293	2293	1264
$0 < P$	1301	2250	2260	2293	2293	2293	1271

Table 7: The cumulative distribution of the number of fields with a given percent completeness for each filter. A field's completeness is given by the percentage of the number of visits to that field compared to the WFD spec number of visits scaled to the length of this run (see Table 4). Only visits acquired by observing modes designed to meet the WFD number of visits are included. Note that the number of fields that reached or exceeded the above condition is given by the $100 \leq P$ bin. Also note that creating the bins using the number of fields expected, N, is less precise than P and results in a slightly different distribution. The last column is the joint completeness, which is the number of fields having a percent completeness, P, in *all* filters of *at least* a certain value.

3.4 Visits Acquired for All Observing Modes

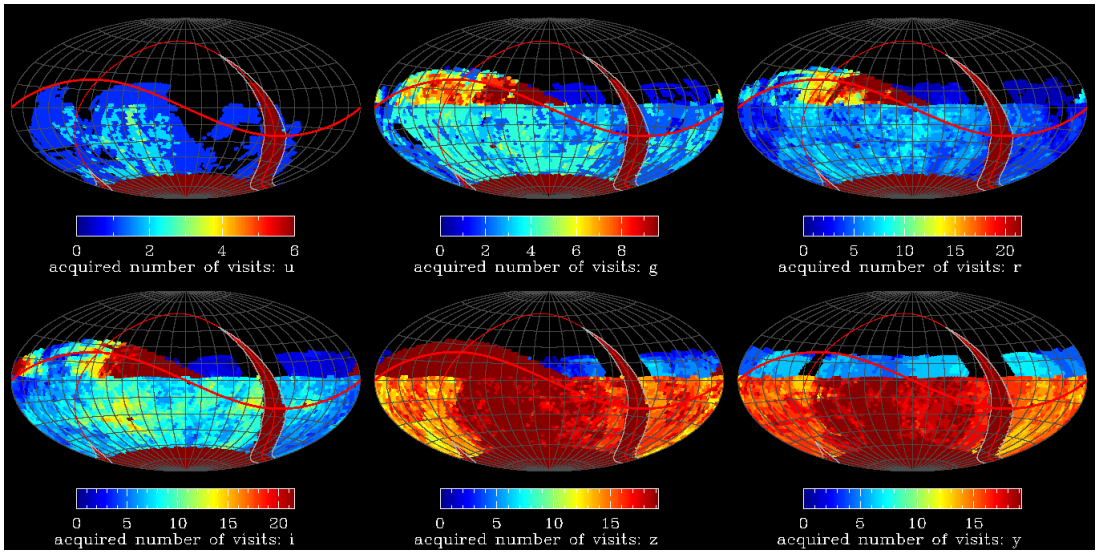

Figure 7: *(hewelhog_1008_SixVisitsAll-Num.png)* The number of visits acquired for each field is plotted in Aitoff projection for each filter. All visits acquired by all observing modes are included in this plot and are not limited only to observing modes that were designed to meet the WFD number of visits.

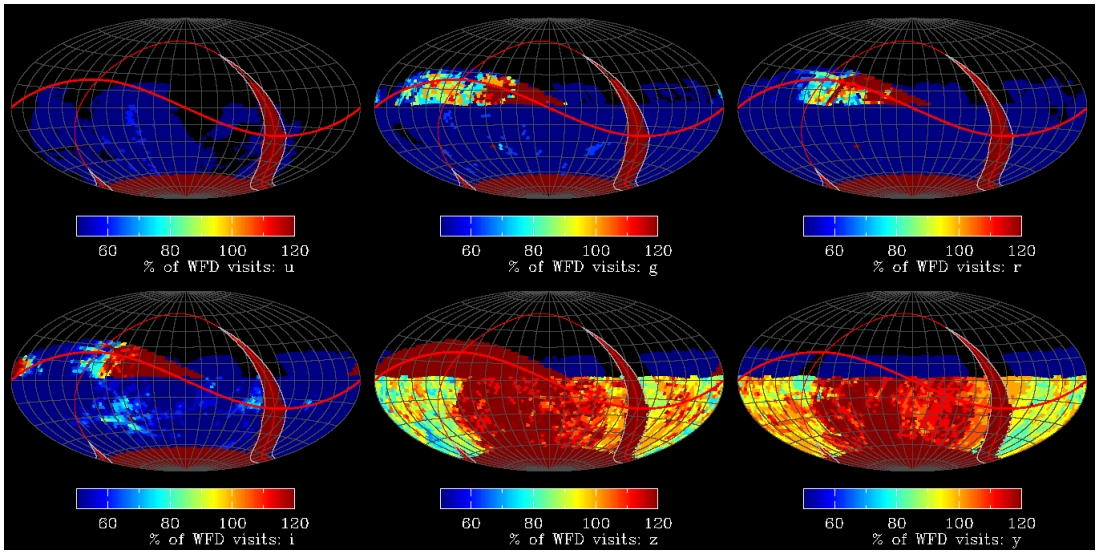

Figure 8: *(hewelhog_1008_SixVisits-All.png)* The ratio of the number of visits acquired for each field to the scaled WFD spec value for that filter is plotted as a percentage in Aitoff projection for each filter. All visits acquired by all observing modes are included in this plot and are not limited only to modes that were designed to meet the WFD number of visits (see Table 4).

Distribution of Fields by Completeness - All Observing Modes

% Complete	u	g	r	i	z	y	Joint
$100 \leq P$	510	718	703	775	2555	2187	494
$90 \leq P < 100$	0	0	11	10	304	347	0
$80 \leq P < 90$	0	74	45	20	401	278	0
$70 \leq P < 80$	0	88	54	86	66	3	0
$60 \leq P < 70$	44	86	35	206	13	1	0
$50 \leq P < 60$	0	903	54	558	0	0	0
$40 \leq P < 50$	352	0	177	466	3	91	15
$30 \leq P < 40$	0	583	1050	839	96	431	206
$20 \leq P < 30$	1115	733	849	330	74	154	1138
$10 \leq P < 20$	0	236	368	270	100	17	113
$0 < P < 10$	0	0	192	53	19	3	7

Table 8: The distribution of the number of fields with a given percent completeness for each filter. A field's completeness is given by the percentage of the number of visits to that field compared to the WFD spec number of visits scaled to the length of this run (see Table 4). All visits acquired by all observing modes are included and are not limited only to modes that were designed to meet the WFD number of visits. Note that the number of fields that reached or exceeded the above condition is given by the $100 \leq P$ bin. Also note that creating the bins using the number of fields expected, N, is less precise than P and results in a slightly different distribution. The last column is the joint completeness, which is the number of fields having a percent completeness, P, in *all* filters of *at least* a certain value.

Cumulative Distribution of Fields by Completeness - All Observing Modes

% Complete	u	g	r	i	z	y	Joint
$100 \leq P$	510	718	703	775	2555	2187	494
$90 \leq P$	510	718	714	785	2859	2534	494
$80 \leq P$	510	792	759	805	3260	2812	494
$70 \leq P$	510	880	813	891	3326	2815	494
$60 \leq P$	554	966	848	1097	3339	2816	494
$50 \leq P$	554	1869	902	1655	3339	2816	494
$40 \leq P$	906	1869	1079	2121	3342	2907	509
$30 \leq P$	906	2452	2129	2960	3438	3338	715
$20 \leq P$	2021	3185	2978	3290	3512	3492	1853
$10 \leq P$	2021	3421	3346	3560	3612	3509	1966
$0 < P$	2021	3421	3538	3613	3631	3512	1973

Table 9: The cumulative distribution of the number of fields with a given percent completeness for each filter. A field's completeness is given by the percentage of the number of visits to that field compared to the WFD spec number of visits scaled to the length of this run (see Table 4). Only visits acquired by observing modes designed to meet the WFD number of visits are included. Note that the number of fields that reached or exceeded the above condition is given by the $100 \leq P$ bin. Also note that creating the bins using the number of fields expected, N, is less precise than P and results in a slightly different distribution. The last column is the joint completeness, which is the number of fields having a percent completeness, P, in *all* filters of *at least* a certain value.

4 Survey Depth

4.1 Calculating Sky Brightness, Single Visit Depth and Coadded Depth

The Operations Simulator uses two methods of calculating the sky brightness at the time of a visit: OpSimSky and ETCSky.

Before each visit, the sky brightness in the V filter, VskyBright, is evaluated using the Johnson V band calculated from the Krisciunas and Schaeffer model, with a few modifications. This model uses the Moon phase, angular distance between the field and the Moon and the field's airmass to calculate added brightness to the zero-Moon, zenith sky brightness (e.g. Krisciunas 1997, PASP, 209, 1181; Krisciunas and Schaefer 1991, PASP, 103, 1033; Benn and Ellison 1998, La Palma Technical Note 115).

From VskyBright there are two different methods to evaluate the sky brightness in a particular band. One method is to take measurements of the color of the sky as a function of lunar phase, and use these to correct VskyBright to a particular filter. This is the approach used for the OpSim sky brightness, OpSimSky.

An alternate method, ETCSky, is to use sky brightness measurements taken at various phases of the moon in many filters and calculate empirical fits to the sky brightness in each band. This method is what has been used to create the LSST Exposure Time Calculator (ETC) and has the advantage of accounting for the fact that the night sky does not behave similarly in all bands by including the angular dependence as a function of filter bandpass.

Single Visit Depth is calculated using formulas from University of Washington Survey Science Group website (http://ssg.astro.washington.edu/elsst/magsfilters.shtml).

The Coadded Depth calculation can be found in Ivezic et al, arXiv:0805.2366[astro-ph]. The plots and tables in this document report the sky brightness from the ETCSky method. Further calculations of Single Visit Depth use the sky brightness from the ETCSky method.

4.2 Single Visit Depth

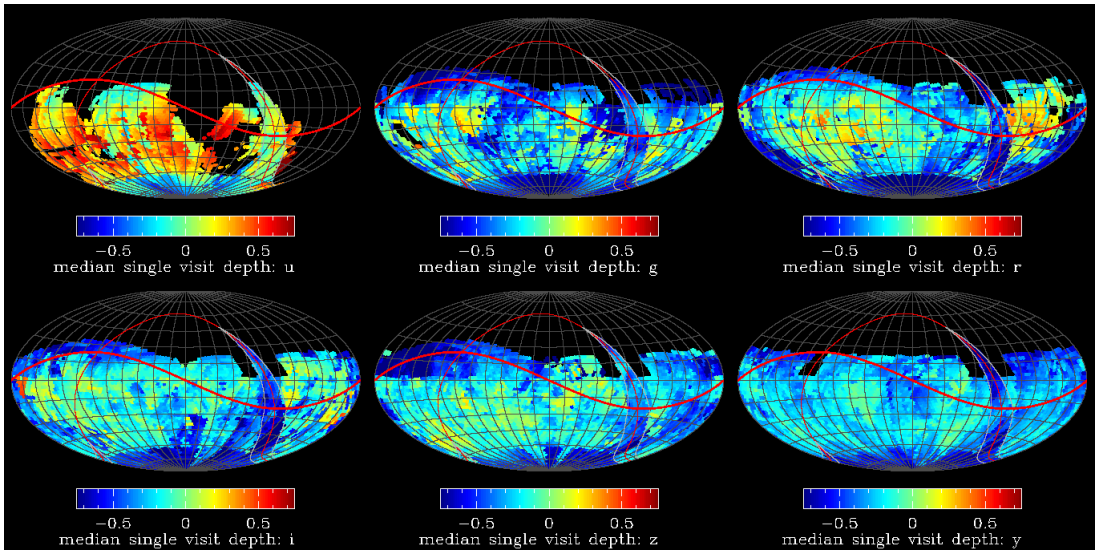

Figure 9: *(hewelhog_1008_median5sigma.png)* The median of the single visit depth (5σ limiting magnitude) for all visits to a given field is computed, from it the WFD spec value for the single visit depth (see Table 4) is subtracted and the difference is plotted in Aitoff projection for each filter. Fields with a positive value have a median single visit depth deeper than the expected zenith value. The 5σ limiting magnitude for each visit is computed using the sky brightness determined by the ETC algorithm. Visits acquired by all observing modes are included in this plot and are not limited to only observing modes that were designed to meet the WFD number of visits.

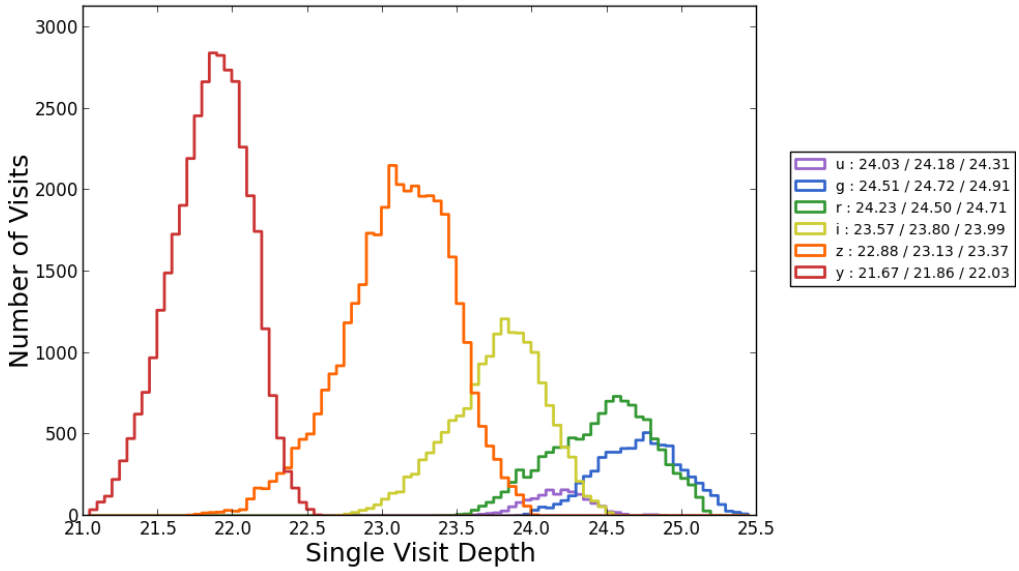

Figure 10: *(hewelhog_1008_m5_allfilters.png)* The distribution of visits with single visit depth for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Single Visit Depth

Observing Mode ID	Filter	Median	Mean ± rms	$+3\sigma$	-3σ	Total
Observing Mode 41	u	23.910	23.918 ± 0.287	2	0	5487
GalacticPlaneProp.conf	g	24.548	24.529 ± 0.271	0	0	5988
	r	24.054	24.077 ± 0.403	0	0	6791
	i	23.437	23.443 ± 0.363	0	0	6869
	z	22.914	22.900 ± 0.318	0	17	6889
	y	21.545	21.528 ± 0.318	0	6	6900
Observing Mode 42	u	23.637	23.643 ± 0.369	2	34	8749
SouthCelestialPole-18.conf	g	24.409	24.402 ± 0.322	0	6	8089
	r	23.906	23.922 ± 0.356	0	0	8790
	i	23.372	23.384 ± 0.328	0	0	8790
	z	22.751	22.788 ± 0.356	0	0	8790
	y	21.532	21.527 ± 0.323	0	33	8790
Observing Mode 43	u	24.013	24.018 ± 0.237	0	1	1057
Standby.conf	g	24.651	24.638 ± 0.321	0	2	2247
	r	24.482	24.456 ± 0.301	0	5	3499
	i	23.824	23.817 ± 0.267	0	3	4765
	z	22.981	22.950 ± 0.345	0	62	12679
	y	21.772	21.759 ± 0.261	0	29	15067
Observing Mode 44	u	24.175	24.168 ± 0.210	8	4	1601
Universal-18-0824.conf	g	24.724	24.712 ± 0.276	0	0	6867
	r	24.501	24.465 ± 0.336	0	5	11747
	i	23.799	23.767 ± 0.312	0	33	17327
	z	23.127	23.102 ± 0.362	0	124	37812
	y	21.863	21.845 ± 0.258	0	17	37340
Observing Mode 45	u	0.000	nan ± nan	0	0	0
NorthEclipticSpur-18.conf	g	24.491	24.484 ± 0.323	0	7	3845
	r	24.425	24.409 ± 0.288	0	56	7626
	i	23.710	23.679 ± 0.293	0	36	9509
	z	22.727	22.681 ± 0.452	0	50	21089
	y	0.000	nan ± nan	0	0	0
Observing Mode 46	u	0.000	nan ± nan	0	0	0
SuperNovaSubSeqdeep.conf	g	24.132	24.057 ± 0.648	0	0	2020
	r	24.034	24.029 ± 0.466	0	0	4040
	i	23.613	23.595 ± 0.389	0	0	4030
	z	23.122	23.108 ± 0.376	0	5	3989
	y	21.783	21.756 ± 0.376	0	6	3935

Continued on next page

Single Visit Depth *(con't)*

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	23.816	23.794 $\pm$ 0.371	0	73	16267
	g	24.528	24.496 $\pm$ 0.377	0	371	27039
	r	24.250	24.221 $\pm$ 0.425	0	15	39488
	i	23.647	23.616 $\pm$ 0.360	0	65	47515
	z	22.969	22.934 $\pm$ 0.426	0	480	81219
	y	21.772	21.745 $\pm$ 0.312	0	324	63310
All Observing Modes	All	23.275	23.167 $\pm$ 1.010	0	0	274838

Table 10: The median, mean and standard deviation of the single visit depth (5σ limiting magnitude) values for all visits separated by observing mode and by filter. The $+3\sigma$ column shows the number of visits which had a single visit depth more than 3σ fainter than the median single visit depth; the -3σ column shows the number of visits with a single visit depth more than 3σ brighter than the median single depth. The Total column shows the number of visits counted toward each observing mode/filter combination.

4.3 Coadded Depth

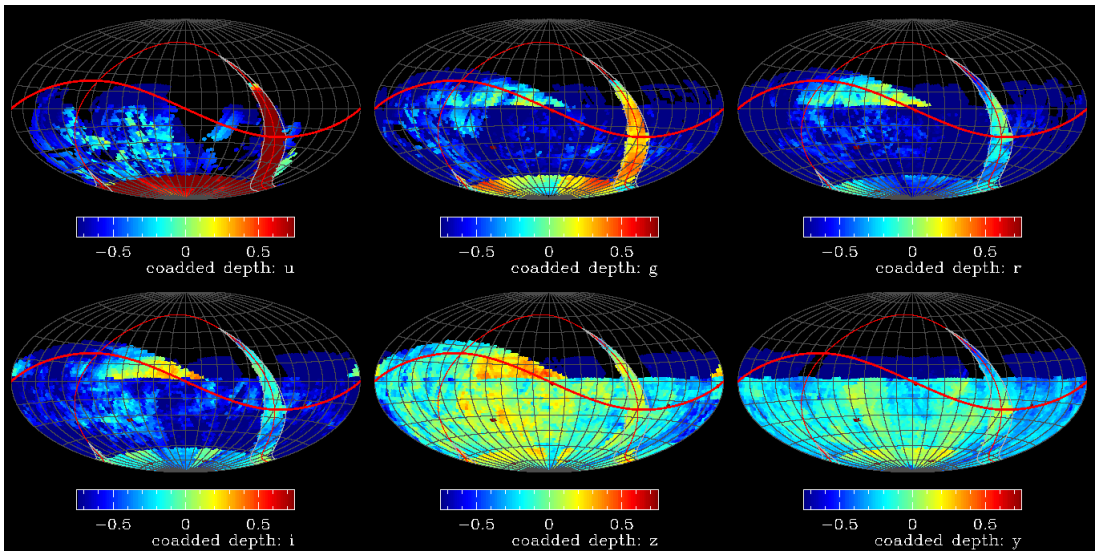

Figure 11: *(hewelhog_1008_coadded5sigma.png)* The difference between the coadded depth and the WFD spec coadded depth (see Table 4) for each field is plotted in Aitoff projection for each filter. Fields with positive values have a coadded depth deeper than the WFD zenith value. Visits acquired by all observing modes are included in this plot and are not limited only to observing modes that were designed to meet the WFD number of visits.

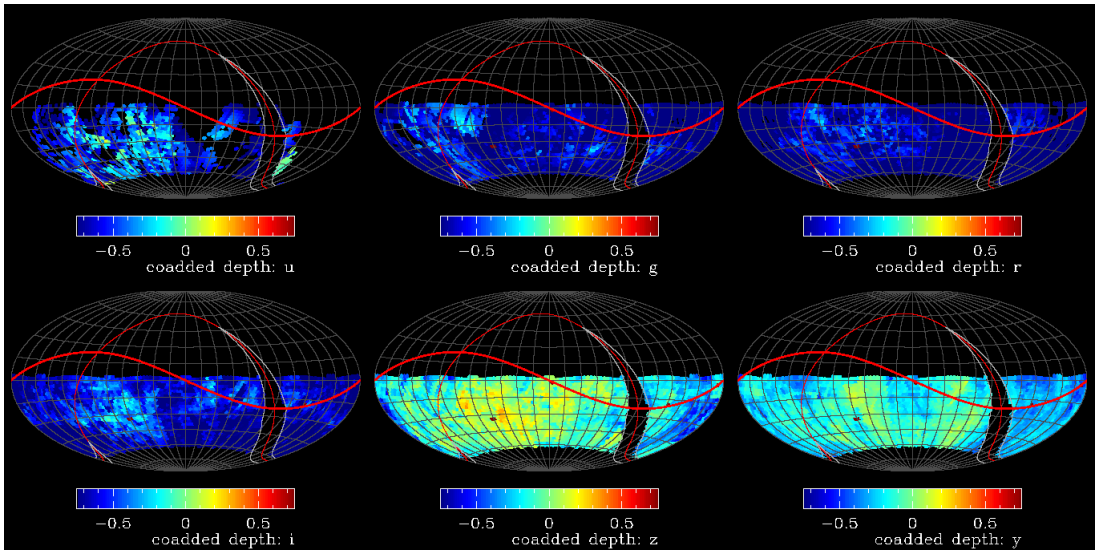

Figure 12: *(hewelhog_1008_coadded5sigmaWFD.png)* The difference between the coadded depth and the WFD spec coadded depth (see Table 4) for each field is plotted in Aitoff projection for each filter. Fields with positive values have a coadded depth deeper than the WFD zenith value. Only visits acquired by observing modes designed to meet the WFD number of visits are included in this plot.

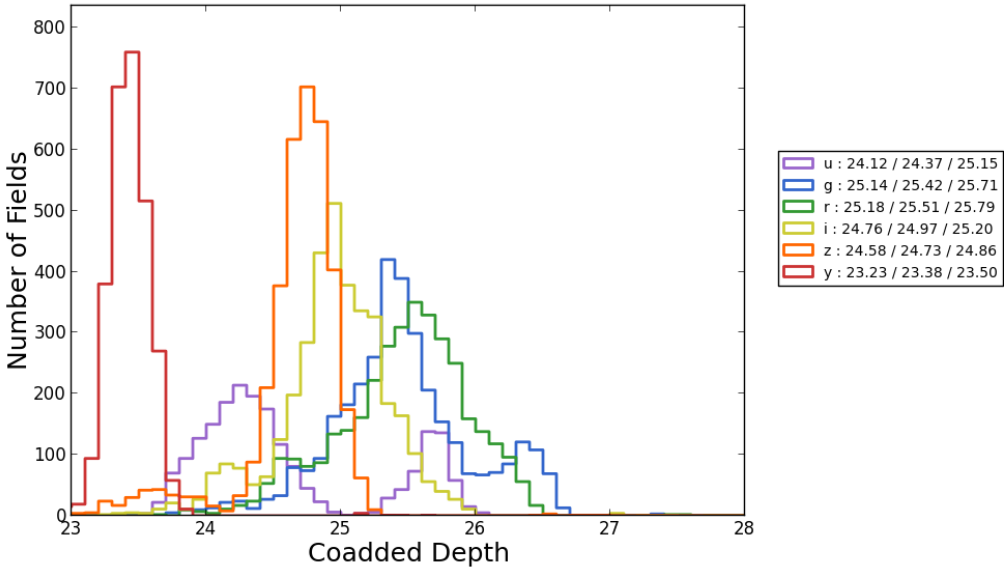

Figure 13: *(hewelhog_1008_coadded_allfilters.png)* The distribution of fields with coadded depth in each filter. Visits acquired by all observing modes are included in this plot and are not limited only to observing modes that were designed to meet the WFD number of visits. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

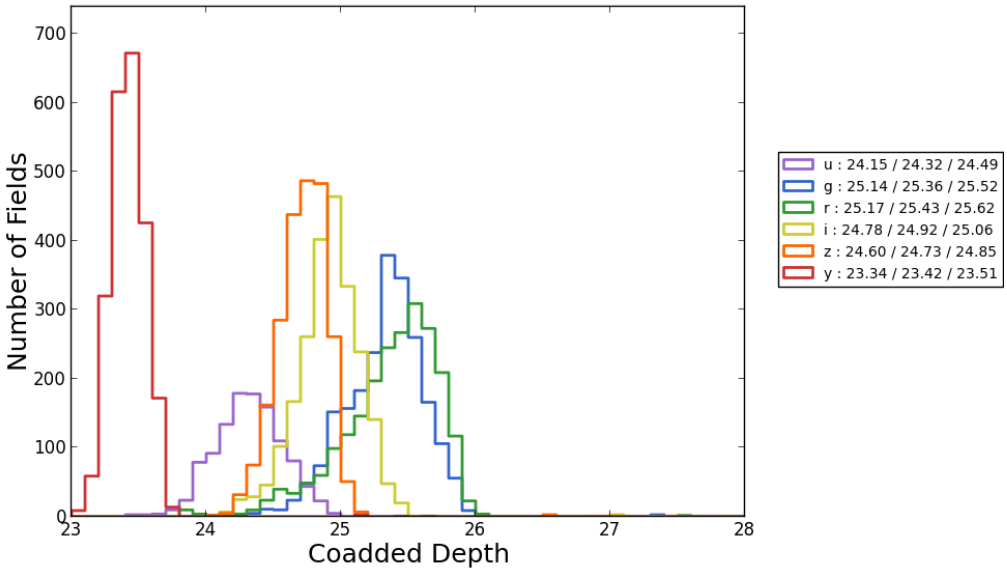

Figure 14: *(hewelhog_1008_coadded_allfilters_wfd.png)* The distribution of fields with coadded depth in each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included in this plot. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Coadded Depth

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	24.368	24.596 $\pm$ 0.664	0	0	2021
	g	25.416	25.454 $\pm$ 0.529	7	11	3421
	r	25.513	25.459 $\pm$ 0.492	7	19	3538
	i	24.967	24.946 $\pm$ 0.418	7	25	3613
	z	24.729	24.652 $\pm$ 0.386	7	93	3631
	y	23.384	23.273 $\pm$ 0.371	7	13	3512
All Observing Modes	All	24.864	24.738 $\pm$ 0.892	11	9	19736

Table 11: The median, mean and standard deviation of the coadded depth separated by filter for all fields regardless of observing mode. The $+3\sigma$ column shows the number of fields which have a coadded depth more than 3σ fainter than the median coadded depth; the -3σ column shows the number of fields with a coadded depth more than 3σ brighter than the mean coadded depth. The Total column is the number of fields counted toward each filter combination.

5 Observing Conditions

5.1 Filter Map

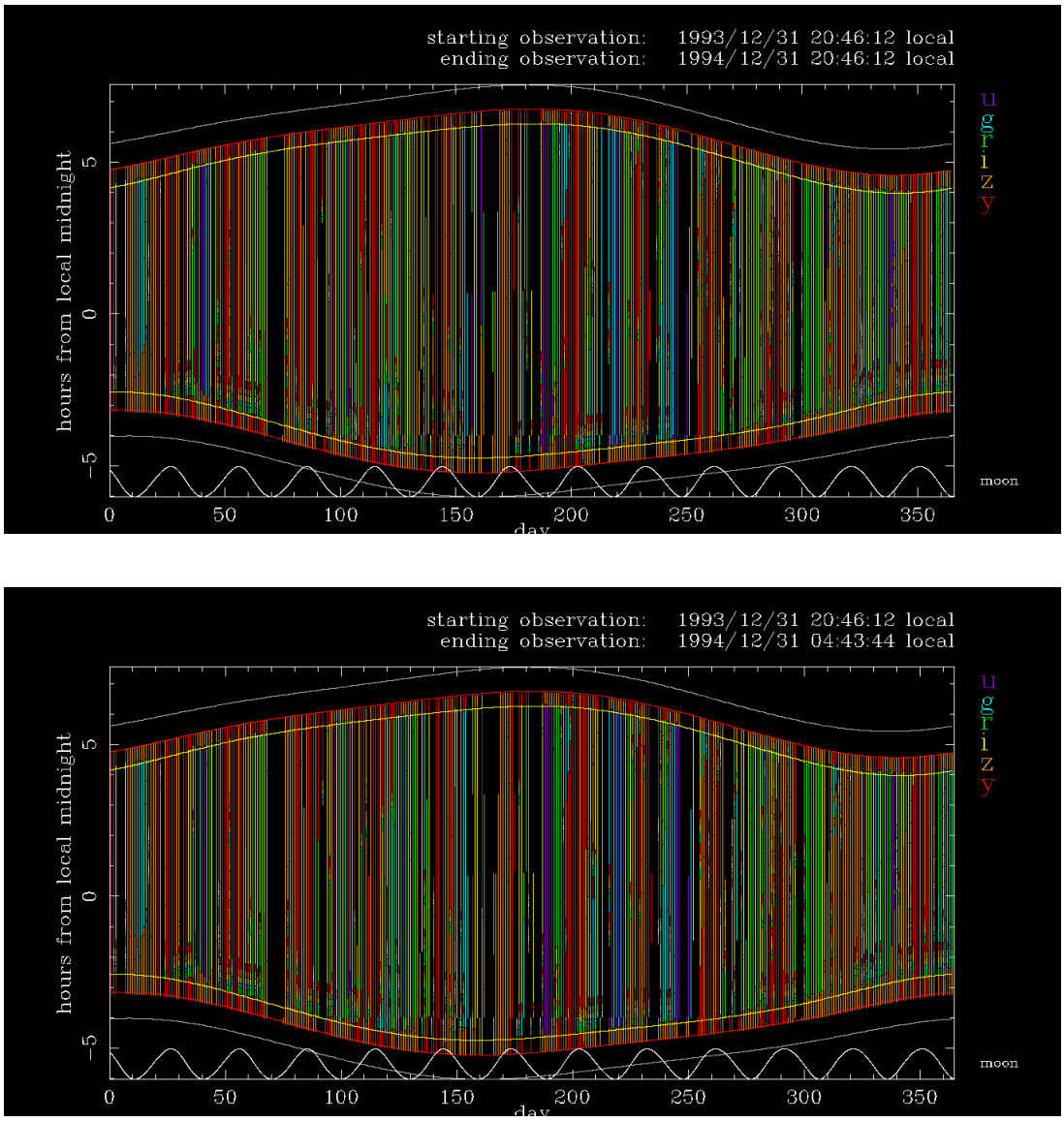

Figure 15: A map of the time spent in each filter in hours from local midnight versus the time of observation in days. The first year of the survey is mapped in the top panel *(hewelhog_1008_oneyearhourglass.png)* and the entire survey is mapped in the bottom panel *(hewelhog_1008_hourglass.png)*. The color of the filled area indicates the filter used. The enclosing curves indicate the time of civil, nautical, and astronomical twilight. The phase of the moon is indicated by the white curve along the bottom edge of the plot (arbitrarily scaled).

5.2 Sky Brightness

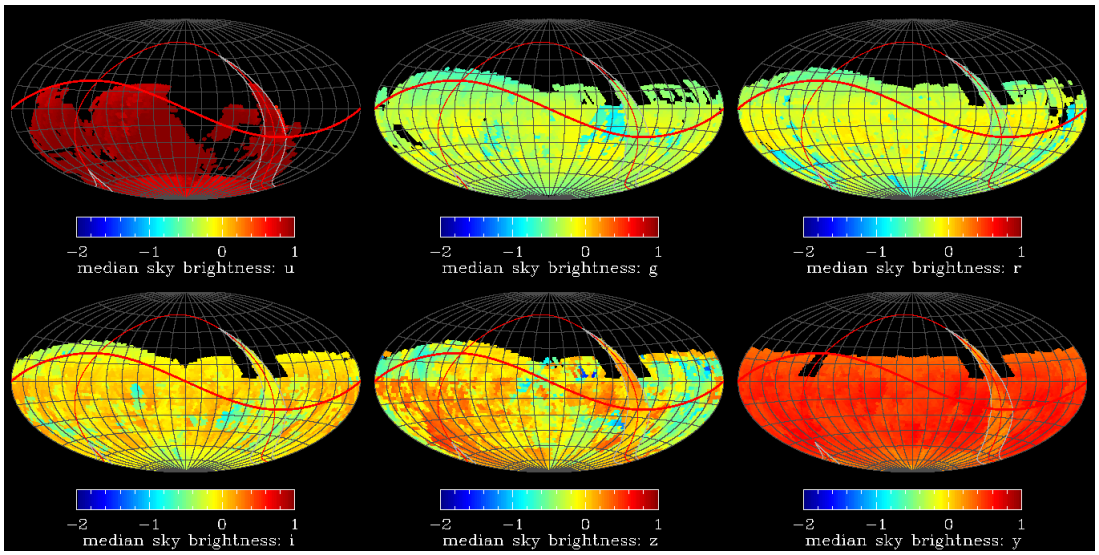

Figure 16: *(hewelhog_1008_medianskyb.png)*The difference between the median of the sky brightness for all visits to a given field and the expected median no-moon zenith sky brightness at Cerro Pachon for each field is plotted in Aitoff projection for each filter (see Table 4). All visits acquired by all observing modes are included in this plot and are not limited to only observing that were designed to meet the WFD number of visits.

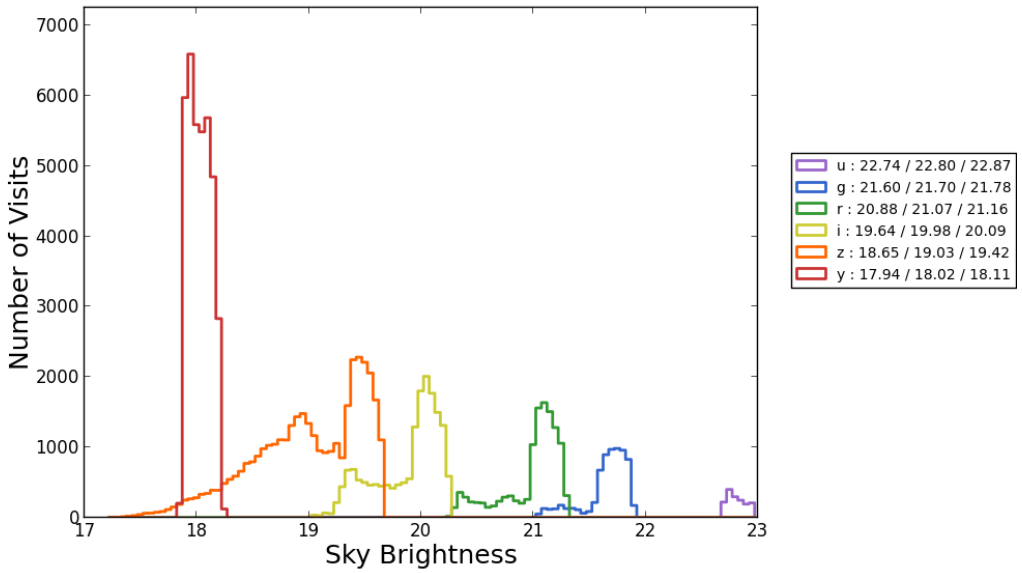

Figure 17: *(hewelhog_1008_skyb_allfilters.png)* The distribution of fields with sky brightness for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Sky Brightness

Observing Mode ID	Filter	Median	Mean ± rms	$+3\sigma$	-3σ	Total
Observing Mode 41	u	22.706	22.724 ± 0.125	0	92	5487
GalacticPlaneProp.conf	g	21.600	21.614 ± 0.130	0	6	5988
	r	20.809	20.783 ± 0.263	0	0	6791
	i	19.767	19.758 ± 0.232	0	40	6869
	z	19.157	19.089 ± 0.360	0	266	6889
	y	17.786	17.800 ± 0.148	0	0	6900
Observing Mode 42	u	22.543	22.557 ± 0.103	0	0	8749
SouthCelestialPole-18.conf	g	21.532	21.548 ± 0.074	0	17	8089
	r	20.802	20.742 ± 0.257	0	0	8790
	i	19.766	19.743 ± 0.189	0	17	8790
	z	19.132	19.078 ± 0.271	0	0	8790
	y	17.809	17.805 ± 0.125	0	0	8790
Observing Mode 43	u	22.720	22.730 ± 0.096	0	1	1057
Standby.conf	g	21.639	21.641 ± 0.152	0	45	2247
	r	21.006	20.992 ± 0.155	0	30	3499
	i	19.971	19.975 ± 0.135	0	3	4765
	z	18.839	18.769 ± 0.423	0	33	12679
	y	17.932	17.956 ± 0.093	0	0	15067
Observing Mode 44	u	22.796	22.807 ± 0.087	0	11	1601
Universal-18-0824.conf	g	21.695	21.646 ± 0.196	0	34	6867
	r	21.068	20.981 ± 0.262	0	0	11747
	i	19.980	19.867 ± 0.294	0	0	17327
	z	19.027	18.980 ± 0.492	0	106	37812
	y	18.023	18.027 ± 0.095	0	0	37340
Observing Mode 45	u	0.000	nan ± nan	0	0	0
NorthEclipticSpur-18.conf	g	21.525	21.515 ± 0.130	0	27	3845
	r	20.898	20.882 ± 0.169	0	179	7626
	i	19.866	19.834 ± 0.191	0	187	9509
	z	18.919	18.695 ± 0.568	0	6	21089
	y	0.000	nan ± nan	0	0	0
Observing Mode 46	u	0.000	nan ± nan	0	0	0
SuperNovaSubSeqdeep.conf	g	21.399	20.692 ± 1.145	0	0	2020
	r	20.796	20.460 ± 0.726	0	0	4040
	i	19.837	19.695 ± 0.405	0	0	4030
	z	19.280	19.220 ± 0.277	0	20	3989
	y	17.927	17.960 ± 0.155	0	30	3935

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Sky Brightness *(con't)*

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	22.637	22.641 $\pm$ 0.144	0	16	16267
	g	21.575	21.519 $\pm$ 0.416	0	640	27039
	r	20.890	20.821 $\pm$ 0.361	0	985	39488
	i	19.853	19.808 $\pm$ 0.267	0	218	47515
	z	19.049	18.931 $\pm$ 0.500	0	725	81219
	y	17.954	17.955 $\pm$ 0.144	0	42	63310
All Observing Modes	All	19.407	19.604 $\pm$ 1.419	0	0	274838

Table 12: The median, mean and standard deviation of the sky brightness values for all visits separated by observing mode and by filter. The $+3\sigma$ column shows the number of visits which had a sky brightness more than 3σ fainter than the median single visit depth; the -3σ column shows the number of visits with a sky brightness more than 3σ brighter than the median sky brightness. The Total column shows the number of visits counted toward each observing mode/filter combination.

5.3 Seeing

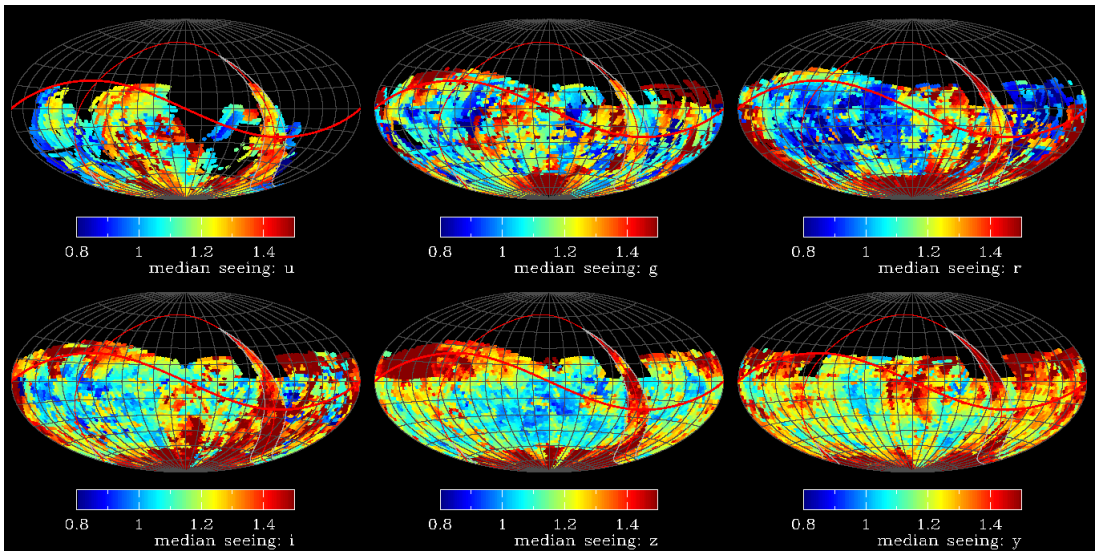

Figure 18: *(hewelhog_1008_medianseeing.png)* The ratio of the median seeing for all visits to a given field to the expected median zenith seeing (see Table 4, but of course many fields cannot reach zenith) is calculated and is plotted in Aitoff projection for each filter. All visits acquired by all observing modes are included in this plot and are not limited to only observing modes that were designed to meet the WFD number of visits.

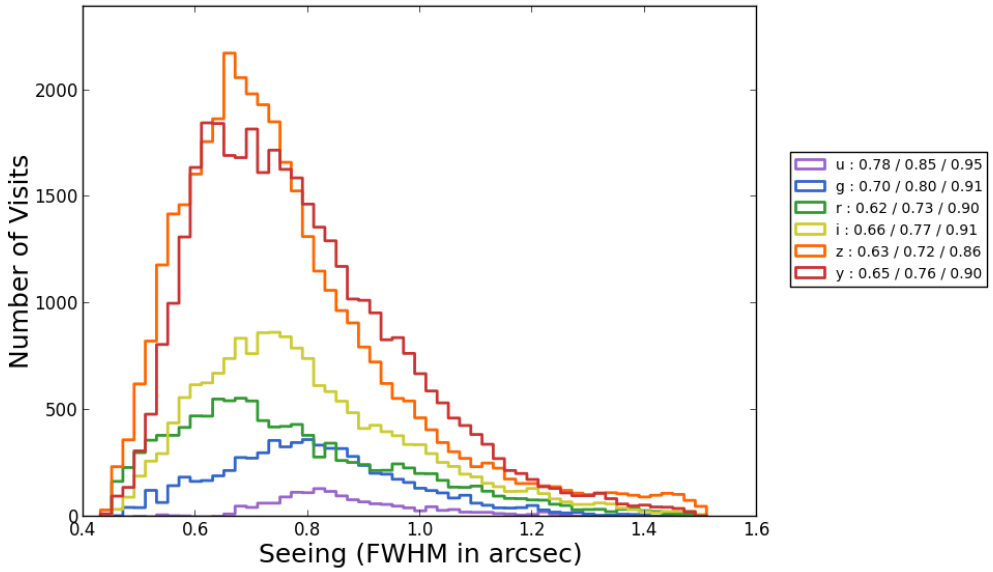

Figure 19: *(hewelhog_1008_seeing_allfilters.png)* The distribution of visits with seeing for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included. The inset box contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Seeing

Observing Mode ID	Filter	Median	Mean ± rms	$+3\sigma$	-3σ	Total
Observing Mode 41	u	0.999	1.016 ± 0.210	37	0	5487
GalacticPlaneProp.conf	g	0.898	0.921 ± 0.200	26	0	5988
	r	0.944	0.979 ± 0.282	21	0	6791
	i	0.972	1.008 ± 0.261	76	0	6869
	z	0.909	0.947 ± 0.259	56	0	6889
	y	0.887	0.934 ± 0.245	60	0	6900
Observing Mode 42	u	1.006	1.049 ± 0.303	115	0	8749
SouthCelestialPole-18.conf	g	0.939	0.993 ± 0.295	78	0	8089
	r	1.043	1.089 ± 0.293	21	0	8790
	i	1.030	1.053 ± 0.286	50	0	8790
	z	1.007	1.044 ± 0.284	50	0	8790
	y	0.899	0.941 ± 0.267	164	0	8790
Observing Mode 43	u	0.909	0.917 ± 0.146	5	0	1057
Standby.conf	g	0.818	0.863 ± 0.226	21	0	2247
	r	0.740	0.778 ± 0.211	51	0	3499
	i	0.768	0.802 ± 0.189	53	0	4765
	z	0.752	0.799 ± 0.223	181	0	12679
	y	0.790	0.822 ± 0.190	97	0	15067
Observing Mode 44	u	0.845	0.877 ± 0.146	12	0	1601
Universal-18-0824.conf	g	0.800	0.815 ± 0.171	48	0	6867
	r	0.732	0.777 ± 0.210	73	0	11747
	i	0.769	0.804 ± 0.193	146	0	17327
	z	0.724	0.766 ± 0.197	715	0	37812
	y	0.758	0.790 ± 0.184	357	0	37340
Observing Mode 45	u	0.000	nan ± nan	0	0	0
NorthEclipticSpur-18.conf	g	0.853	0.893 ± 0.239	30	0	3845
	r	0.721	0.744 ± 0.176	128	0	7626
	i	0.803	0.832 ± 0.179	129	0	9509
	z	0.908	0.963 ± 0.266	189	0	21089
	y	0.000	nan ± nan	0	0	0
Observing Mode 46	u	0.000	nan ± nan	0	0	0
SuperNovaSubSeqdeep.conf	g	0.895	0.933 ± 0.281	9	0	2020
	r	0.861	0.894 ± 0.247	21	0	4040
	i	0.821	0.870 ± 0.253	23	0	4030
	z	0.802	0.852 ± 0.256	43	0	3989
	y	0.776	0.839 ± 0.258	16	0	3935

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Seeing *(con't)*

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	0.980	1.019 $\pm$ 0.263	151	0	16267
	g	0.870	0.912 $\pm$ 0.247	320	0	27039
	r	0.832	0.887 $\pm$ 0.277	357	0	39488
	i	0.843	0.892 $\pm$ 0.248	515	0	47515
	z	0.809	0.870 $\pm$ 0.260	925	0	81219
	y	0.796	0.836 $\pm$ 0.220	765	0	63310
All Observing Modes	All	0.831	0.881 $\pm$ 0.254	3081	0	274838

Table 13: The median, mean and standard deviation of the seeing values for all visits separated by observing mode and by filter. The $+3\sigma$ column shows the number of visits which had a seeing more than 3σ greater than the median seeing; the -3σ column shows the number of visits with a seeing more than 3σ smaller than the median seeing. The Total column shows the number of visits counted toward each observing mode/filter combination.

5.4 Airmass

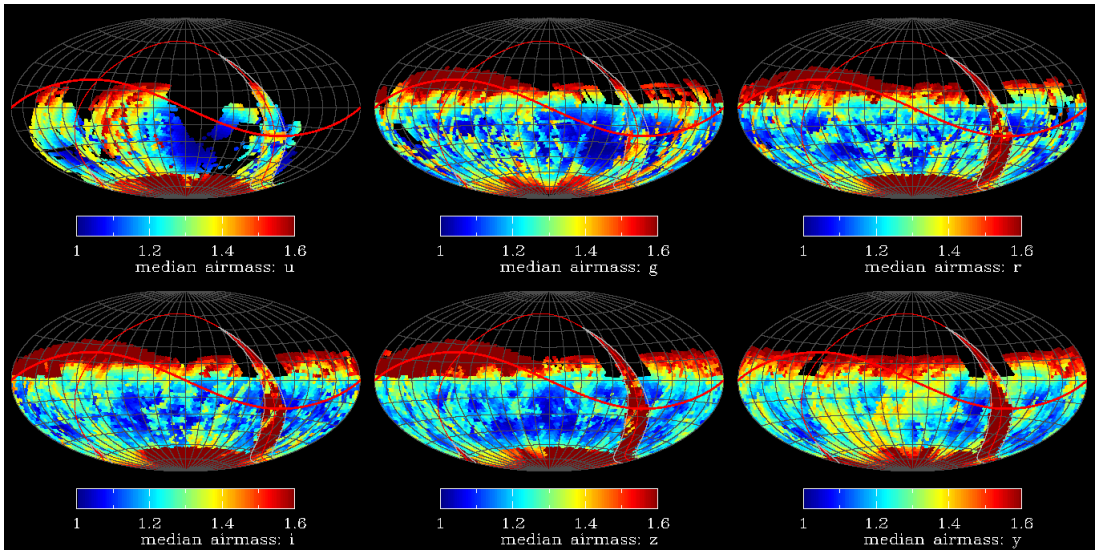

Figure 20: *(hewelhog_1008_medianairmass.png)* The median of the airmass for the visits to each field is plotted in Aitoff projection for each filter. All visits acquired by all observing modes are included in this plot and are not limited to only observing modes that were designed to meet the WFD number of visits.

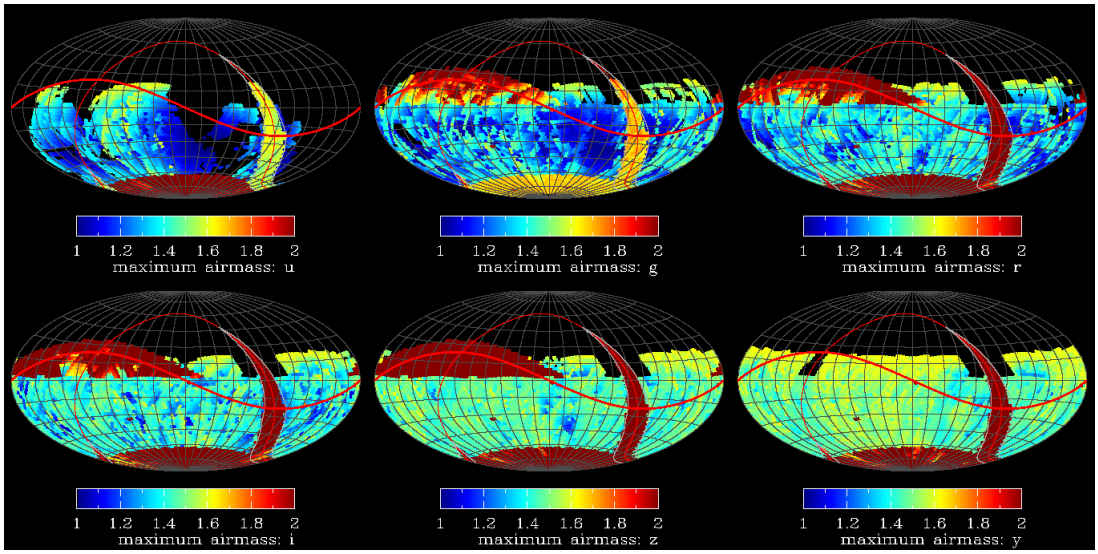

Figure 21: *(hewelhog_1008_maxairmass.png)* The maximum of the airmass for the visits to each field is plotted in Aitoff projection for each filter. All visits acquired by all observing modes are included in this plot and are not limited to only observing modes that were designed to meet the WFD number of visits.

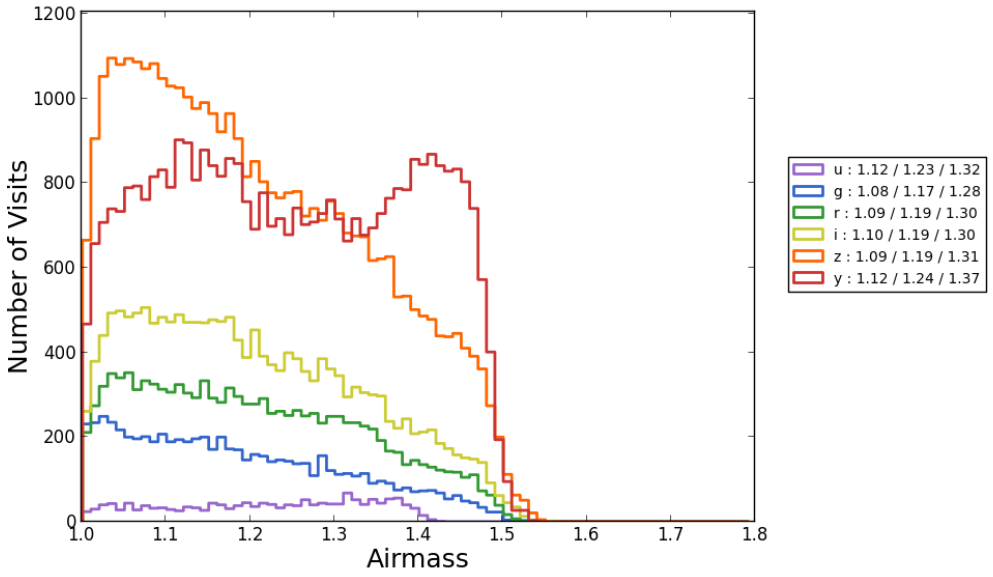

Figure 22: *(hewelhog_1008_airmass_allfilters.png)* The distribution of fields with airmass for each filter. Only visits acquired by observing modes designed to meet the WFD number of visits are included. The legend contains the values of the 25^{th}, 50^{th} (median), and 75^{th} percentiles for each curve.

Airmass

Observing Mode ID	Filter	Median	Mean ± rms	$+3\sigma$	-3σ	Total
Observing Mode 41	u	1.359	1.337 ± 0.172	0	0	5487
GalacticPlaneProp.conf	g	1.353	1.355 ± 0.201	0	0	5988
	r	1.655	1.660 ± 0.390	0	0	6791
	i	1.613	1.644 ± 0.365	0	0	6869
	z	1.759	1.738 ± 0.393	0	0	6889
	y	1.717	1.737 ± 0.354	0	0	6900
Observing Mode 42	u	1.712	1.704 ± 0.233	0	0	8749
SouthCelestialPole-18.conf	g	1.534	1.511 ± 0.141	0	0	8089
	r	1.739	1.778 ± 0.322	0	0	8790
	i	1.720	1.764 ± 0.309	0	0	8790
	z	1.724	1.774 ± 0.330	0	0	8790
	y	1.669	1.720 ± 0.308	0	0	8790
Observing Mode 43	u	1.354	1.349 ± 0.153	0	0	1057
Standby.conf	g	1.279	1.287 ± 0.182	0	0	2247
	r	1.327	1.317 ± 0.164	0	0	3499
	i	1.303	1.305 ± 0.166	0	0	4765
	z	1.292	1.293 ± 0.165	0	0	12679
	y	1.392	1.364 ± 0.153	0	0	15067
Observing Mode 44	u	1.229	1.219 ± 0.116	0	0	1601
Universal-18-0824.conf	g	1.168	1.188 ± 0.129	0	0	6867
	r	1.191	1.205 ± 0.129	0	0	11747
	i	1.189	1.206 ± 0.129	0	0	17327
	z	1.190	1.210 ± 0.135	0	0	37812
	y	1.242	1.247 ± 0.141	0	0	37340
Observing Mode 45	u	0.000	nan ± nan	0	0	0
NorthEclipticSpur-18.conf	g	1.515	1.549 ± 0.234	0	0	3845
	r	1.578	1.626 ± 0.294	7	0	7626
	i	1.569	1.627 ± 0.304	18	0	9509
	z	1.776	1.808 ± 0.365	0	0	21089
	y	0.000	nan ± nan	0	0	0
Observing Mode 46	u	0.000	nan ± nan	0	0	0
SuperNovaSubSeqdeep.conf	g	1.441	1.441 ± 0.290	0	0	2020
	r	1.447	1.460 ± 0.307	0	0	4040
	i	1.437	1.426 ± 0.282	25	0	4030
	z	1.436	1.415 ± 0.286	55	0	3989
	y	1.433	1.414 ± 0.310	71	0	3935

Continued on next page

Airmass *(con't)*

Observing Mode ID	Filter	Median	Mean $\pm$ rms	$+3\sigma$	-3σ	Total
All Observing Modes	u	1.501	1.526 $\pm$ 0.282	0	0	16267
	g	1.391	1.394 $\pm$ 0.228	98	0	27039
	r	1.445	1.521 $\pm$ 0.362	6	0	39488
	i	1.404	1.480 $\pm$ 0.345	30	0	47515
	z	1.377	1.488 $\pm$ 0.387	10	0	81219
	y	1.357	1.398 $\pm$ 0.294	1145	0	63310
All Observing Modes	All	1.393	1.463 $\pm$ 0.340	830	0	274838

Table 14: The median, mean and standard deviation of the airmass values for all visits separated by observing mode and by filter. The $+3\sigma$ column shows the number of visits which had an airmass more than 3σ greater than the median airmass; the -3σ column shows the number of visits with an airmass more than 3σ smaller than the median airmass. The Total column shows the number of visits counted toward each observing mode/filter combination.

6 Slew Statistics

6.1 Slew Activity

```
Session ID: 1008        Host: hewelhog  Session Start Date: 2013-09-13 18:06:28
config: ../conf/system/SiteCP.conf
number of nights: 365
number of visits: 274838
visits/night:  753.0
average exposure time: 34.00s
average visit time:  0.00s [TBD]
average slew time:  6.00s


statistics for angle     telAlt: min=  18.9d max=  86.5d avg=  47.6d std= 13.6d
statistics for angle      telAz: min=-270.0d max= 270.0d avg=  12.0d std=132.7d
statistics for angle rotTelPos: min= -90.0d max=  90.0d avg=  -0.2d std= 44.7d
slew activity for       DomAlt: active= 90.2% of slews, active avg=  3.08s, total avg=  2.78s, max= 37.83s, in critical path=  1.5% with avg=
8.08s cont=  0.12s
slew activity for        DomAz: active= 90.3% of slews, active avg=  4.87s, total avg=  4.40s, max=121.84s, in critical path= 24.1% with avg=
7.49s cont=  1.80s
slew activity for       TelAlt: active= 90.2% of slews, active avg=  1.54s, total avg=  1.39s, max= 18.92s, in critical path= 44.8% with avg=
1.74s cont=  0.78s
slew activity for        TelAz: active= 90.2% of slews, active avg=  1.51s, total avg=  1.36s, max= 51.94s, in critical path= 19.5% with avg=
1.42s cont=  0.28s
slew activity for      Rotator: active=  0.6% of slews, active avg=  9.34s, total avg=  0.06s, max= 29.19s, in critical path=  0.0% with avg=
0.00s cont=  0.00s
slew activity for       Filter: active=  0.6% of slews, active avg=120.00s, total avg=  0.72s, max=120.00s, in critical path=  0.6% with avg=120.00s cont=
0.71s
slew activity for  TelOpticsOL: active= 90.2% of slews, active avg=  0.68s, total avg=  0.61s, max= 17.92s, in critical path=  0.0% with avg=
4.91s cont=  0.00s
slew activity for      Readout: active= 99.9% of slews, active avg=  2.00s, total avg=  2.00s, max=  2.00s, in critical path=  8.5% with avg=
2.00s cont=  0.17s
slew activity for       Settle: active= 91.1% of slews, active avg=  3.00s, total avg=  2.73s, max=  3.00s, in critical path= 65.2% with avg=
3.00s cont=  1.95s
slew activity for  TelOpticsCL: active=  0.9% of slews, active avg= 20.00s, total avg=  0.18s, max= 20.00s, in critical path=  0.9% with avg= 20.00s cont=
0.18s
slew maximum speed for    DomAlt: avg=1.13d/s, max=1.75d/s in  10.3% of slews
slew maximum speed for     DomAz: avg=1.24d/s, max=1.50d/s in  60.6% of slews
slew maximum speed for    TelAlt: avg=2.25d/s, max=3.50d/s in  10.3% of slews
slew maximum speed for     TelAz: avg=4.22d/s, max=7.00d/s in   6.0% of slews
slew maximum speed for       Rot: avg=0.02d/s, max=3.50d/s in   0.3% of slews
```

6.2 Inter-Visit Time

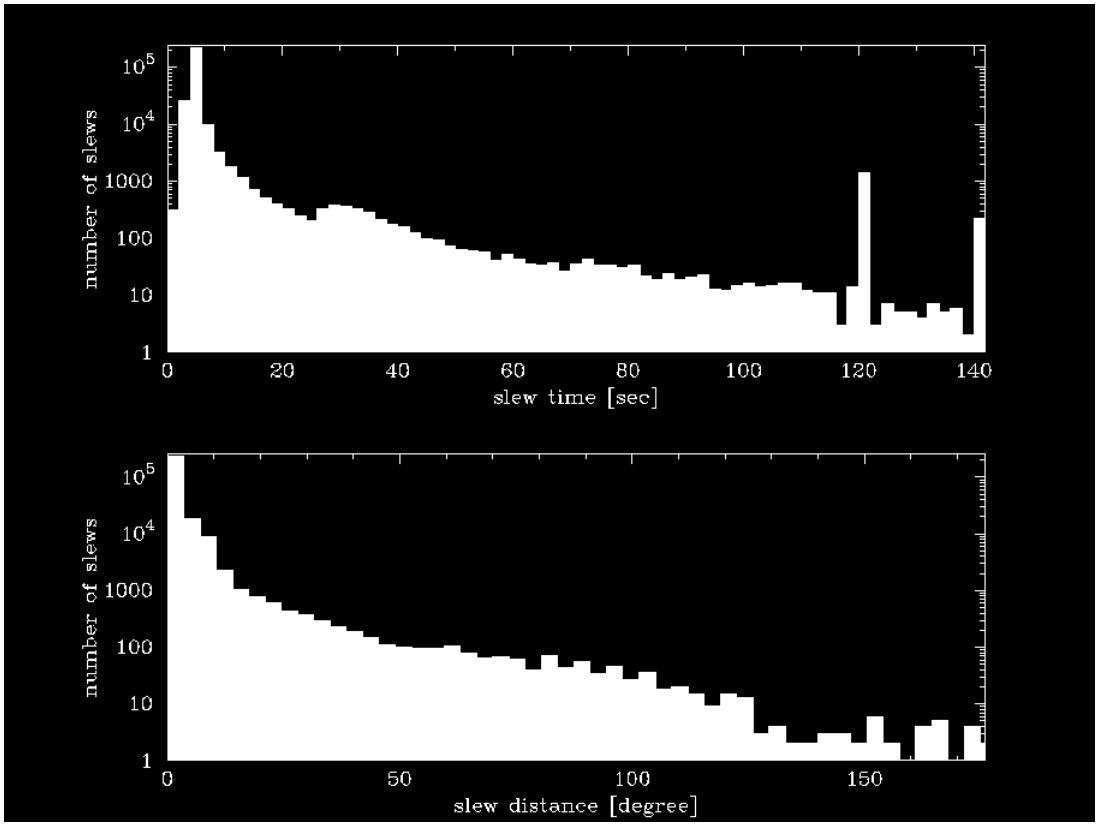

Figure 23: The logarithmic distribution of slew time and slew distance, where “slew” means the time between completing an integration at one field and beginning an integration at the next field.

A Visits Requested by Observing Mode

A.1 GalacticPlaneProp.conf

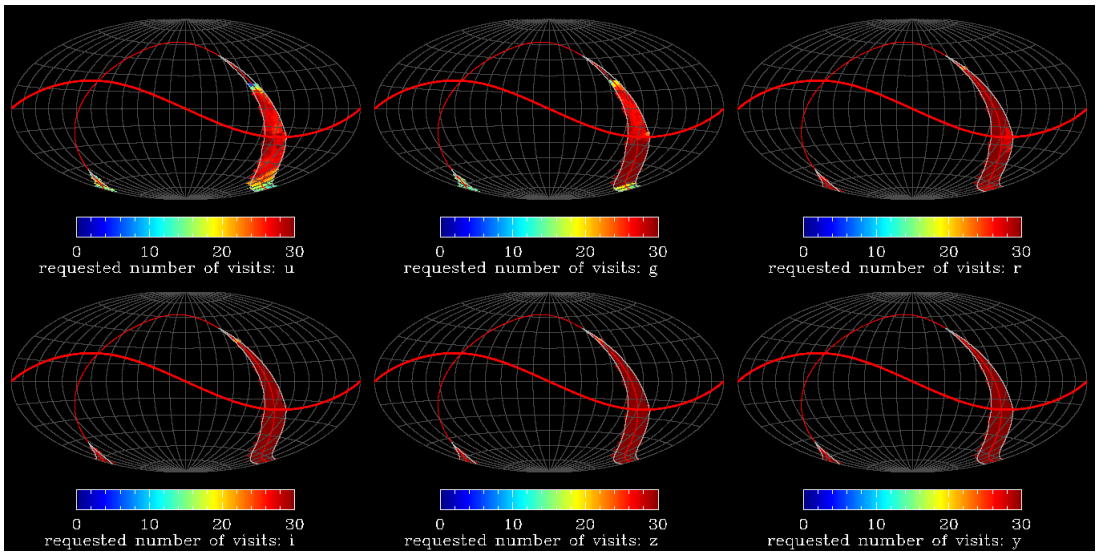

Figure 24: *(hewelhog_1008_SixVisits-Num-41.png)* The total number of visits acquired for each field requested by observing mode GalacticPlaneProp.conf is plotted in Aitoff projection for each filter.

A.2 SouthCelestialPole-18.conf

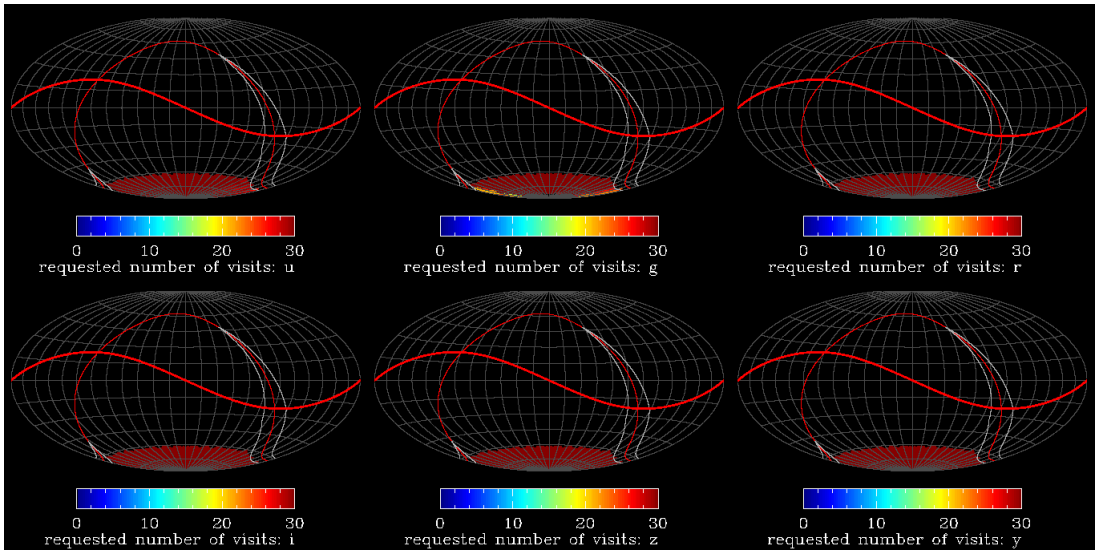

Figure 25: *(hewelhog_1008_SixVisits-Num-42.png)* The total number of visits acquired for each field requested by observing mode SouthCelestialPole-18.conf is plotted in Aitoff projection for each filter.

A.3 Standby.conf

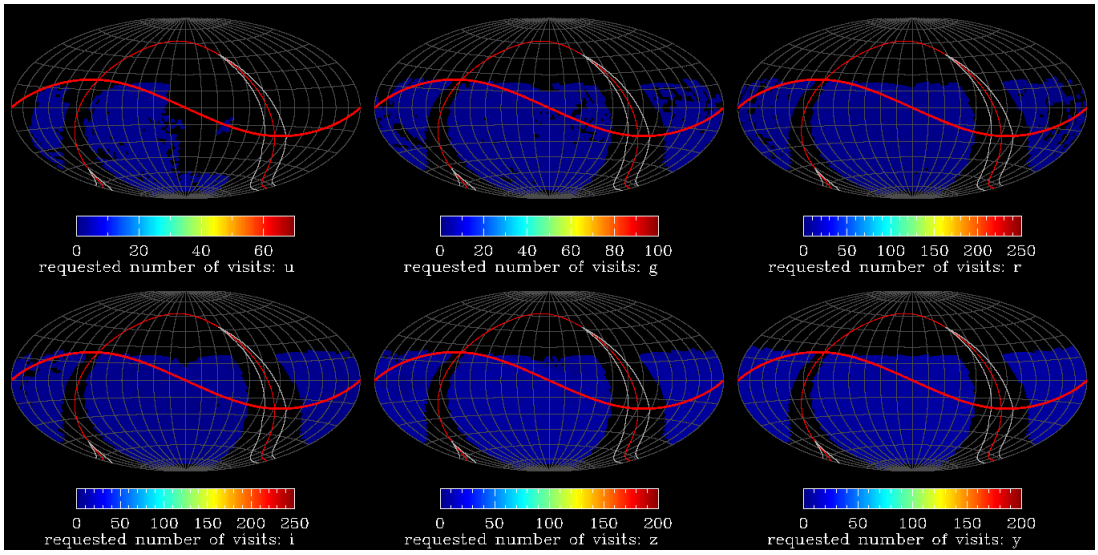

Figure 26: *(hewelhog_1008_SixVisits-Num-43.png)* The total number of visits acquired for each field requested by observing mode Standby.conf is plotted in Aitoff projection for each filter.

A.4 Universal-18-0824.conf

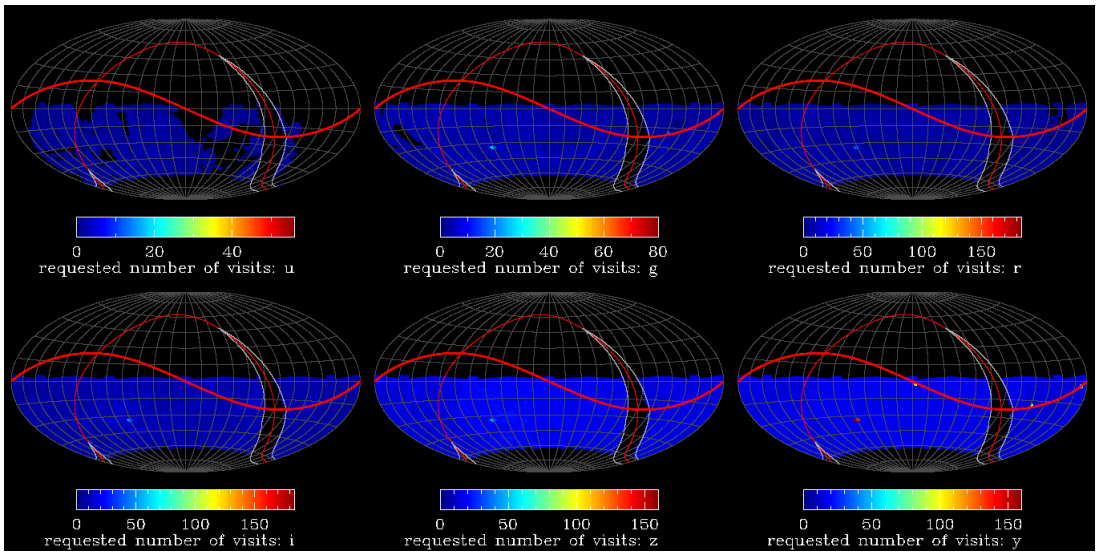

Figure 27: *(hewelhog_1008_SixVisits-Num-44.png)* The total number of visits acquired for each field requested by observing mode Universal-18-0824.conf is plotted in Aitoff projection for each filter.

A.5 NorthEclipticSpur-18.conf

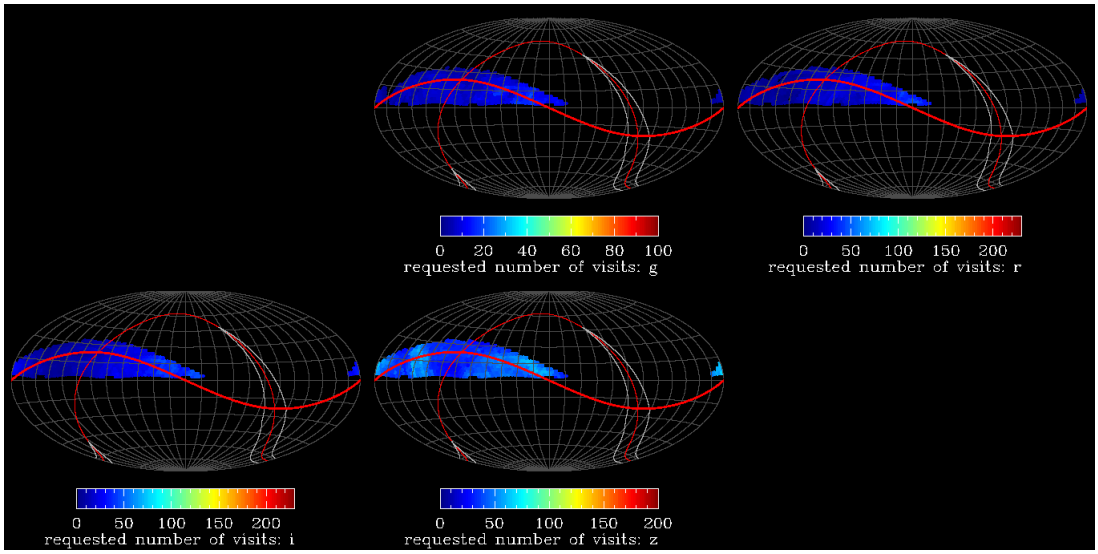

Figure 28: *(hewelhog_1008_SixVisits-Num-45.png)* The total number of visits acquired for each field requested by observing mode NorthEclipticSpur-18.conf is plotted in Aitoff projection for each filter.

A.6 SuperNovaSubSeqdeep.conf

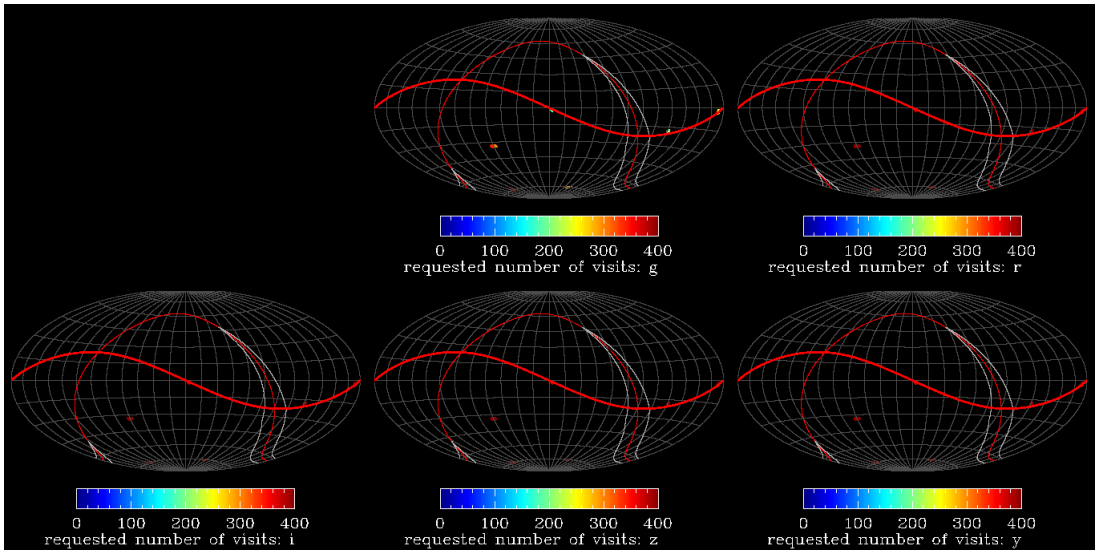

Figure 29: *(hewelhog_1008_SixVisits-Num-46.png)* The total number of visits acquired for each field requested by observing mode SuperNovaSubSeqdeep.conf is plotted in Aitoff projection for each filter.

B Configuration File Specifications

A particular observing mode may be implemented by one or more configuration files. In this section a selected group of parameters from each configuration file are displayed. While not scientifically interesting, this illustrates how the observing cadence may be directed.

B.1 GalacticPlaneProp.conf

Details

Parameter	Value					
Observing Time Details						
Visit Time	34.0					
NVisits	3.					
MaxNeedAfterOverflow	0.0					
Observing Condition Restrictions						
MaxAirmass	2.5					
MaxSeeing	2.					
minTransparency	0.7					
TwilightBoundary	-12.					
Target Ranking Parameters						
ProgressToStartBoost	1.00					
MaxBoostToComplete	0.00					
RelativeProposalPriority	1.0					
MaxProximityBonus	0.5					
RankScale	0.1					
AcceptSerendipity	True					
AcceptConsecutiveObs	True					
Observing Filter Details						
Filter	g	r	i	z	y	u
Filter_Visits	30	30	30	30	30	30
Filter_MaxSeeing	3.0	2.0	2.0	2.0	3.0	2.0
Filter_MinBrig	21.15	20.00	19.50	17.50	16.00	21.20
Filter_MaxBrig	30.00	30.00	30.00	21.40	21.40	30.00

Table 15: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.

B.2 SouthCelestialPole-18.conf

Details

Parameter	Value					
Observing Time Details						
Visit Time	34.0					
NVisits	3.					
MaxNeedAfterOverflow	0.0					
Observing Condition Restrictions						
MaxAirmass	2.5					
MaxSeeing	2.					
minTransparency	0.7					
TwilightBoundary	-12.					
Target Ranking Parameters						
ProgressToStartBoost	1.00					
MaxBoostToComplete	0.00					
RelativeProposalPriority	1.0					
MaxProximityBonus	0.5					
RankScale	0.1					
AcceptSerendipity	True					
AcceptConsecutiveObs	True					
Observing Filter Details						
Filter	g	r	i	z	y	u
Filter_Visits	30	30	30	30	30	30
Filter_MaxSeeing	3.0	2.0	2.0	2.0	3.0	3.0
Filter_MinBrig	21.15	20.00	19.50	17.50	16.00	21.00
Filter_MaxBrig	30.00	30.00	30.00	21.40	21.40	30.00

Table 16: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.

B.3 Standby.conf

Details

Parameter	Value					
Observing Time Details						
Visit Time	34.0					
NVisits	30.					
MaxNeedAfterOverflow	0.001					
Observing Condition Restrictions						
MaxAirmass	1.6					
MaxSeeing	1.5					
minTransparency	.7					
TwilightBoundary	-12.					
Observing Area Definitions						
taperL	?					
taperB	?					
peakL	?					
deltaLST	60.0					
maxReach	90.0					
Target Ranking Parameters						
ProgressToStartBoost	1.00					
MaxBoostToComplete	0.00					
RelativeProposalPriority	0.001					
MaxProximityBonus	0.5					
RankScale	0.01					
AcceptSerendipity	False					
AcceptConsecutiveObs	?					
Observing Filter Details						
Filter	u	g	r	i	z	y
Filter_Visits	70	100	250	250	200	200
Filter_MaxSeeing	2.5	2.5	2.5	2.5	2.5	2.5
Filter_MinBrig	21.00	21.00	20.50	20.25	17.50	17.50
Filter_MaxBrig	30.00	30.00	30.00	30.00	21.00	21.00

Table 17: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.

B.4 Universal-18-0824.conf

Details

Parameter	Value					
Observing Time Details						
Visit Time	34.0					
NVisits	?					
MaxNeedAfterOverflow	?					
Observing Condition Restrictions						
MaxAirmass	1.5					
MaxSeeing	1.5					
minTransparency	.7					
TwilightBoundary	-12.					
Target Ranking Parameters						
ProgressToStartBoost	0.90					
MaxBoostToComplete	10.00					
RelativeProposalPriority	1.1					
MaxProximityBonus	0.1					
RankScale	?					
AcceptSerendipity	True					
AcceptConsecutiveObs	False					
Observing Filter Details						
Filter	u	g	r	i	z	y
Filter_MaxSeeing	1.5	1.5	1.5	1.5	1.5	1.5
Filter_MinBrig	21.30	21.00	20.25	19.50	17.00	16.50
Filter_MaxBrig	30.00	30.00	30.00	30.00	21.00	21.00
Sequence Specifications						
MaxNumberActiveSequences	10000					
RestartLostSequences	False					
RestartCompleteSequences	False					
MasterSubSequence	?					
SubSeqName	u	g	r	i	z	y
SubSeqFilters	u	g	r	i	z	y
SubSeqExposures	1	1	1	1	1	1
SubSeqEvents	56	80	184	184	160	160
SubSeqMaxMissed	0	0	0	0	0	0
SubSeqInterval	0	30*60	30*60	30*60	30*60	0
SubSeqWindowStart	0	-0.5	-0.5	-0.5	-0.5	0
SubSeqWindowMax	0	0.5	0.5	0.5	0.5	0
SubSeqWindowEnd	0	1.0	1.0	1.0	1.0	0

Table 18: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.

B.5 NorthEclipticSpur-18.conf

Details

Parameter	Value					
Observing Time Details						
Visit Time	34.0					
NVisits	?					
MaxNeedAfterOverflow	?					
Observing Condition Restrictions						
MaxAirmass	2.5					
MaxSeeing	1.5					
minTransparency	.7					
TwilightBoundary	-12.					
Target Ranking Parameters						
ProgressToStartBoost	0.90					
MaxBoostToComplete	10.00					
RelativeProposalPriority	0.8					
MaxProximityBonus	0.1					
RankScale	?					
AcceptSerendipity	True					
AcceptConsecutiveObs	False					
Observing Filter Details						
Filter	u	g	r	i	z	y
Filter_MaxSeeing	2.0	2.0	2.0	2.0	2.0	1.5
Filter_MinBrig	21.30	21.00	20.25	19.50	17.00	16.50
Filter_MaxBrig	30.00	30.00	30.00	30.00	21.00	21.00
Sequence Specifications						
MaxNumberActiveSequences	10000					
RestartLostSequences	False					
RestartCompleteSequences	False					
MasterSubSequence	?					
SubSeqName	g	r	i	z		
SubSeqFilters	g	r	i	z		
SubSeqExposures	1	1	1	1		
SubSeqEvents	100	230	230	200		
SubSeqMaxMissed	0	0	0	0		
SubSeqInterval	30*60	30*60	30*60	30*60		
SubSeqWindowStart	-0.5	-0.5	-0.5	-0.5		
SubSeqWindowMax	0.5	0.5	0.5	0.5		
SubSeqWindowEnd	1.0	1.0	1.0	1.0		

Table 19: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.

B.6 SuperNovaSubSeqdeep.conf

Details

Parameter	Value				
Observing Time Details					
Visit Time	34.0				
NVisits	?				
MaxNeedAfterOverflow	?				
Observing Condition Restrictions					
MaxAirmass	2.0				
MaxSeeing	2.0				
minTransparency	.7				
TwilightBoundary	-12.				
Target Ranking Parameters					
ProgressToStartBoost	?				
MaxBoostToComplete	?				
RelativeProposalPriority	5.0				
MaxProximityBonus	0.5				
RankScale	?				
AcceptSerendipity	False				
AcceptConsecutiveObs	True				
Observing Filter Details					
Filter	g	r	i	z	y
Filter_MinBrig	19.00	19.00	19.00	17.50	17.50
Filter_MaxBrig	30.00	30.00	30.00	30.00	30.00
Sequence Specifications					
MaxNumberActiveSequences	100				
RestartLostSequences	True				
RestartCompleteSequences	True				
MasterSubSequence	main				
SubSeqName	main				
SubSeqFilters	r,g,i,z,y				
SubSeqExposures	20,10,20,20,20				
SubSeqEvents	20				
SubSeqMaxMissed	3				
SubSeqInterval	5*24*60*60				
SubSeqWindowStart	-0.30				
SubSeqWindowMax	0.30				
SubSeqWindowEnd	0.50				

Table 20: A value of '?' indicates that that parameter was not defined or was not applicable for this observing mode.