

ESO Public Survey

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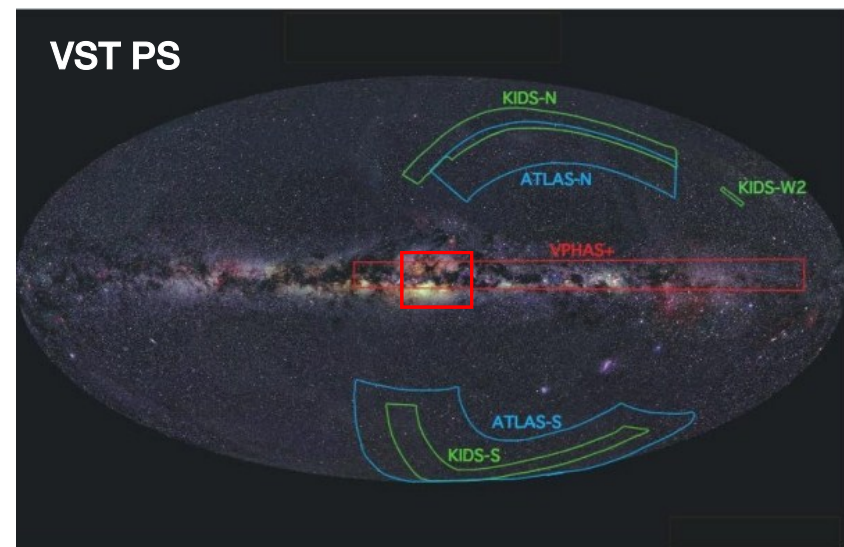
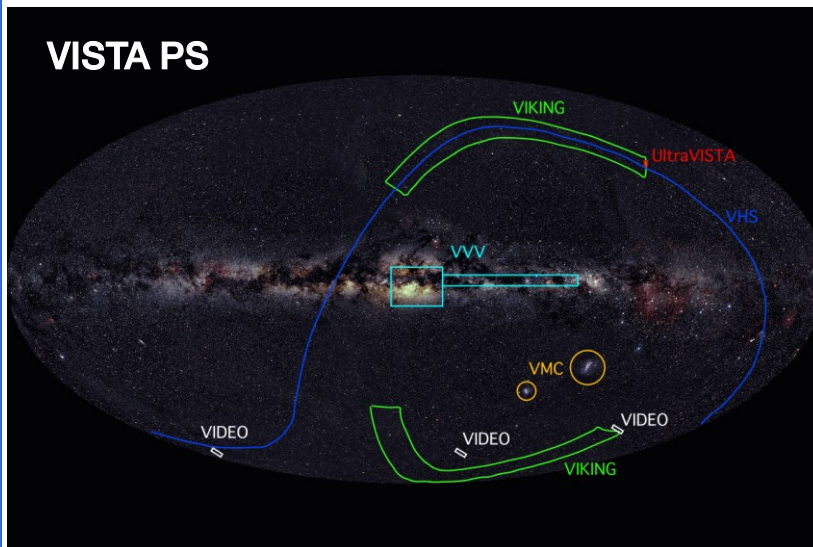
EST (M. Arnaboldi, M. Hilker, G. Hussain, M. Petr-Gotzens, M. Rejkuba)

ASG (M. Arnaboldi, N. Delmotte, L. Mascetti, A. Micol, J. Retzlaff)

- **Progress ESO PS – VISTA, VST, and Public Spectroscopic Surveys**
- **Second VISTA Call for ESO Public Survey**
- **Phase 3 releases from ESO Public Surveys**
- **Statistics on access to and download from ESO Science Archive Facility**

◆ Public Surveys

- ◆ Observing programs lasting more than 2 years – time allocation $O(1000)$ hrs
- ◆ Legacy value for astronomical community at large
- ◆ All raw observations are immediately public
- ◆ Survey teams commit to deliver reduced images/spectra and catalogues within ~yearly releases



ESO Public Surveys

- Six VISTA public surveys – They are in their 6th year of SM operation (t_0 = April 2010)
- Three VST public surveys – They are in their 5th year of SM operation (t_0 = Oct 2011)
- Two spectroscopic public surveys – They are in their 4th year of VM operation (t_0 = Jan 2012)
- Two VIMOS spectroscopic surveys - They started VM operation in P94

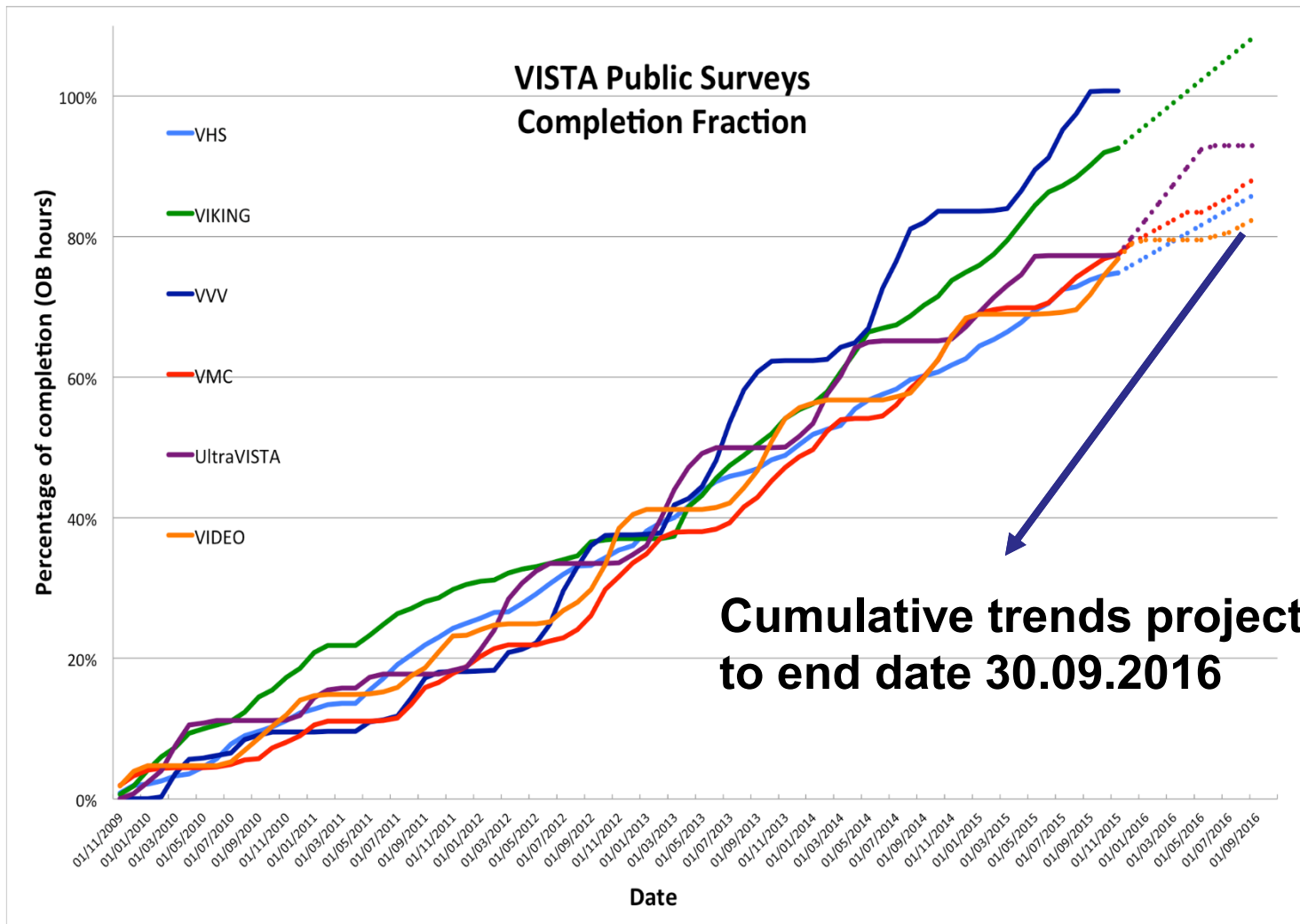
ESO is managing 13 Public Surveys on its telescopes (La Silla NTT, VLT, VISTA, VST)

More than 600 astronomers involved as PI-Col from the community



ESO Public Survey status – VISTA

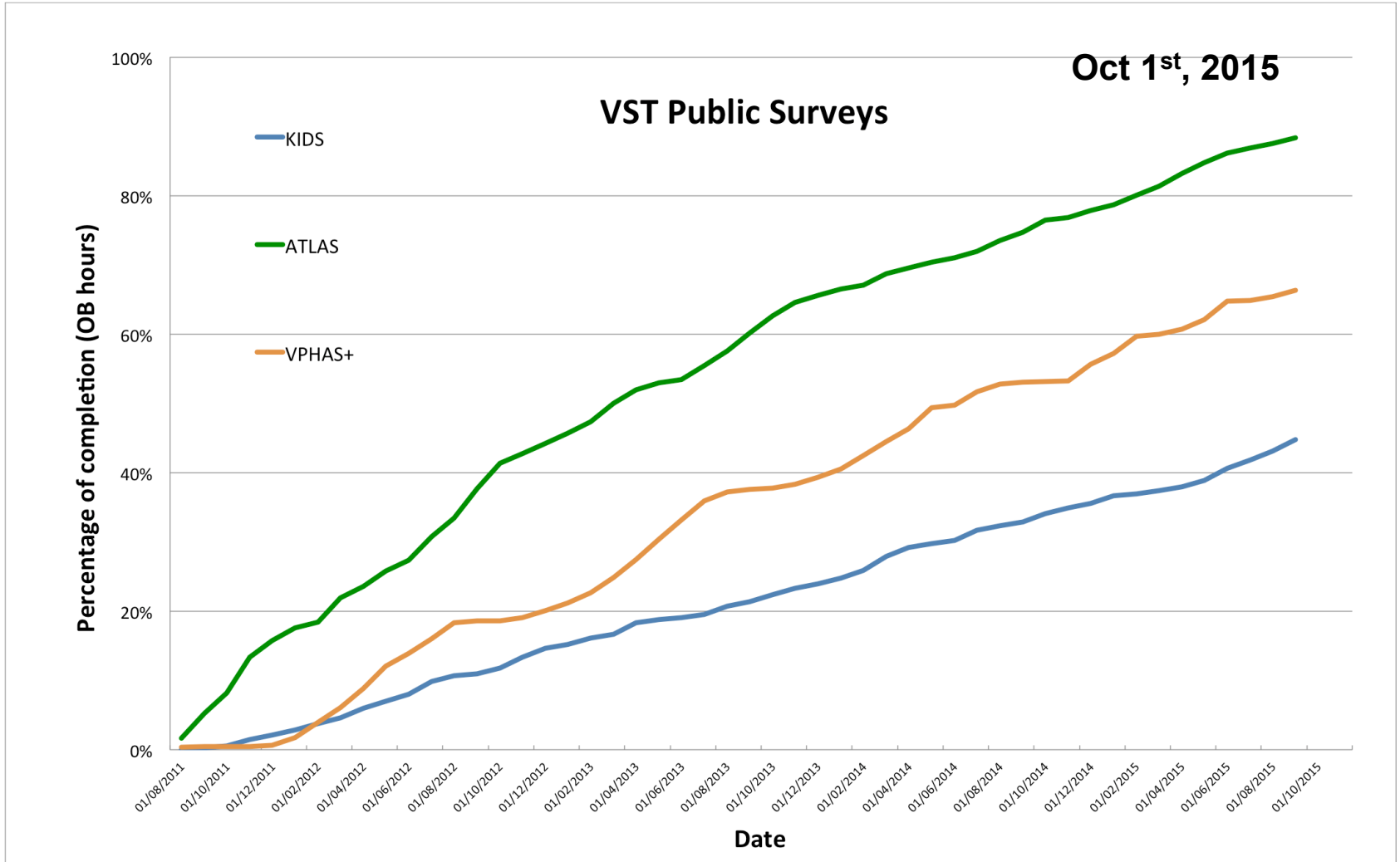
Dec 15th, 2015



VHS, VVV => percentage accounts for the additional allocation following Joint VISTA/VST review



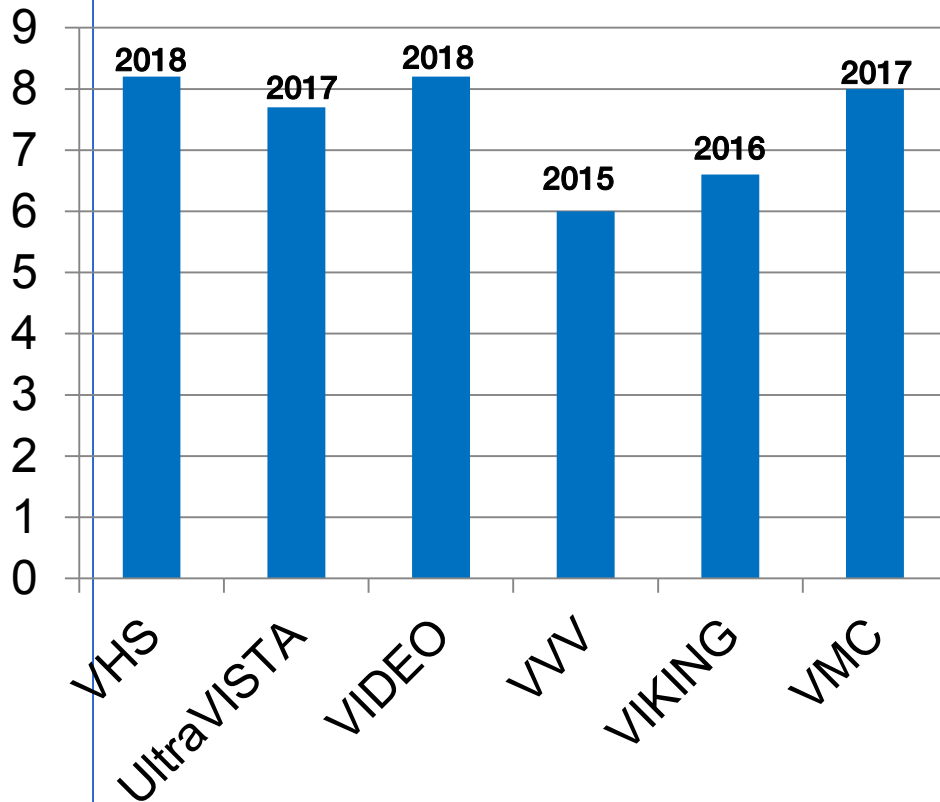
ESO Public Survey status - VST



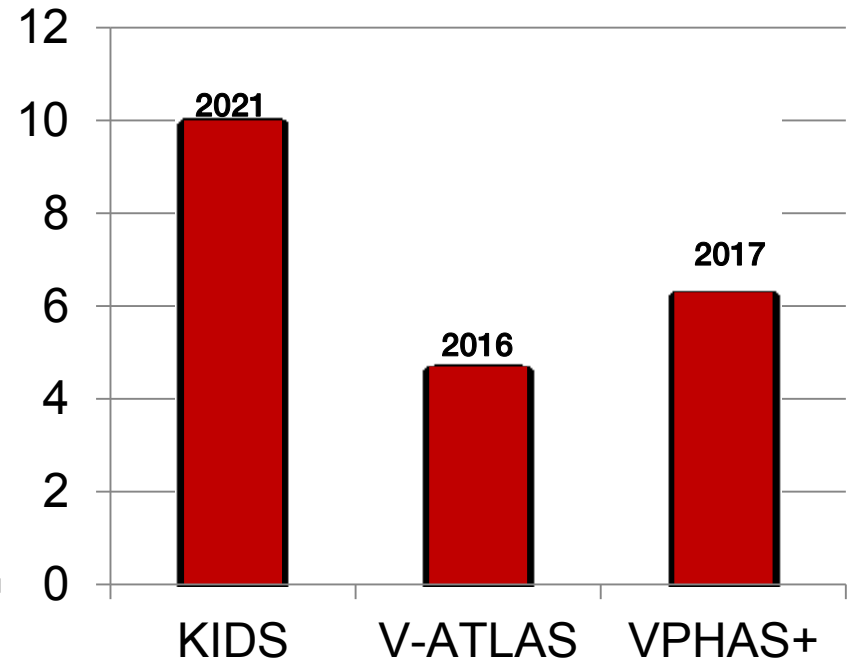
V ATLAS => percentage accounts for the updates allocation following Joint VISTA/VST review

ESO Public Survey status

Estimated total completion time (yrs)



Estimated total completion time (yrs)

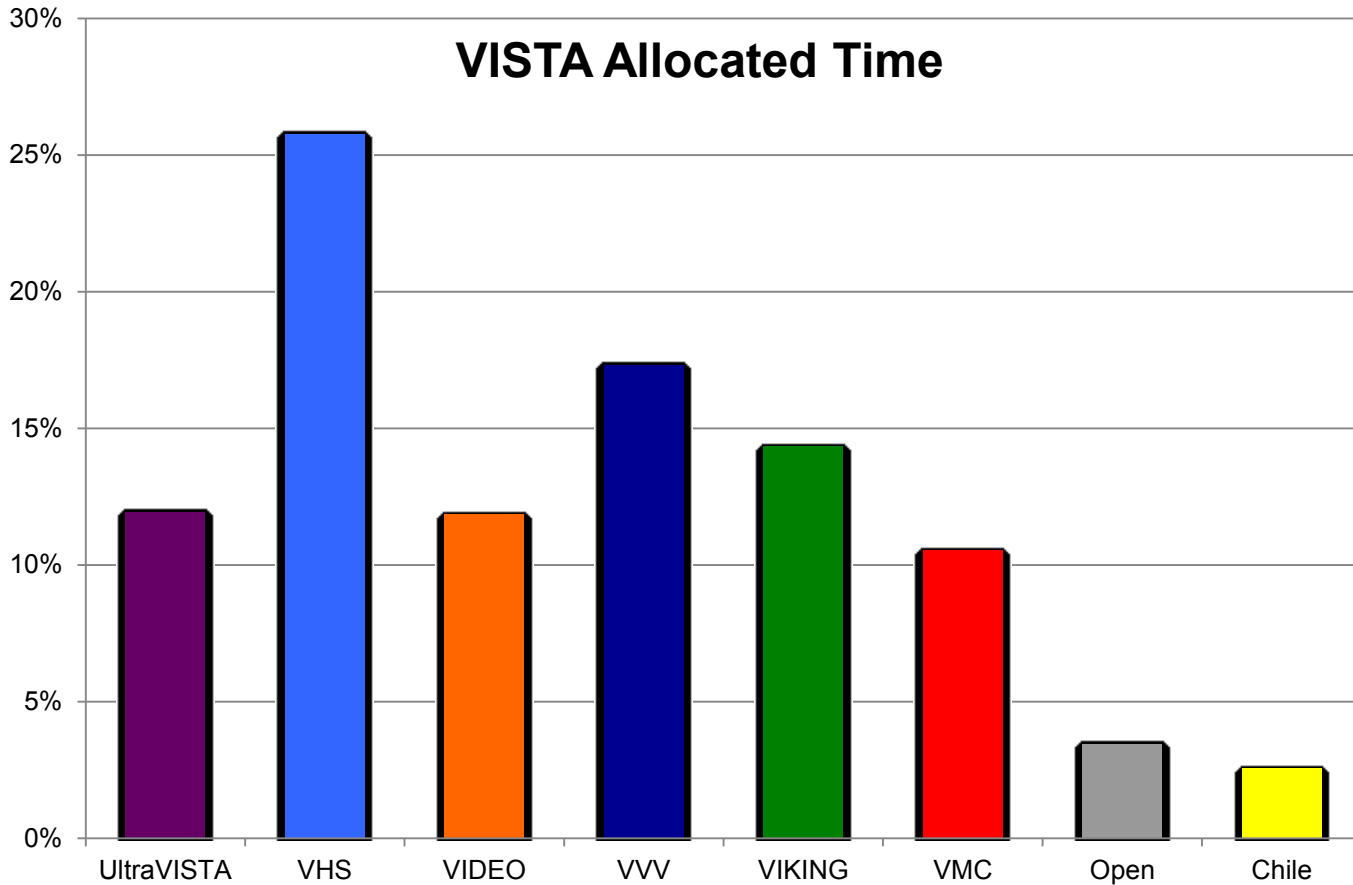


The VVV is completed in 2015, VIKING completed in 2016; most of VISTA surveys completed by end 2017/beginning 2018
The VST – ATLAS is completed in 2016

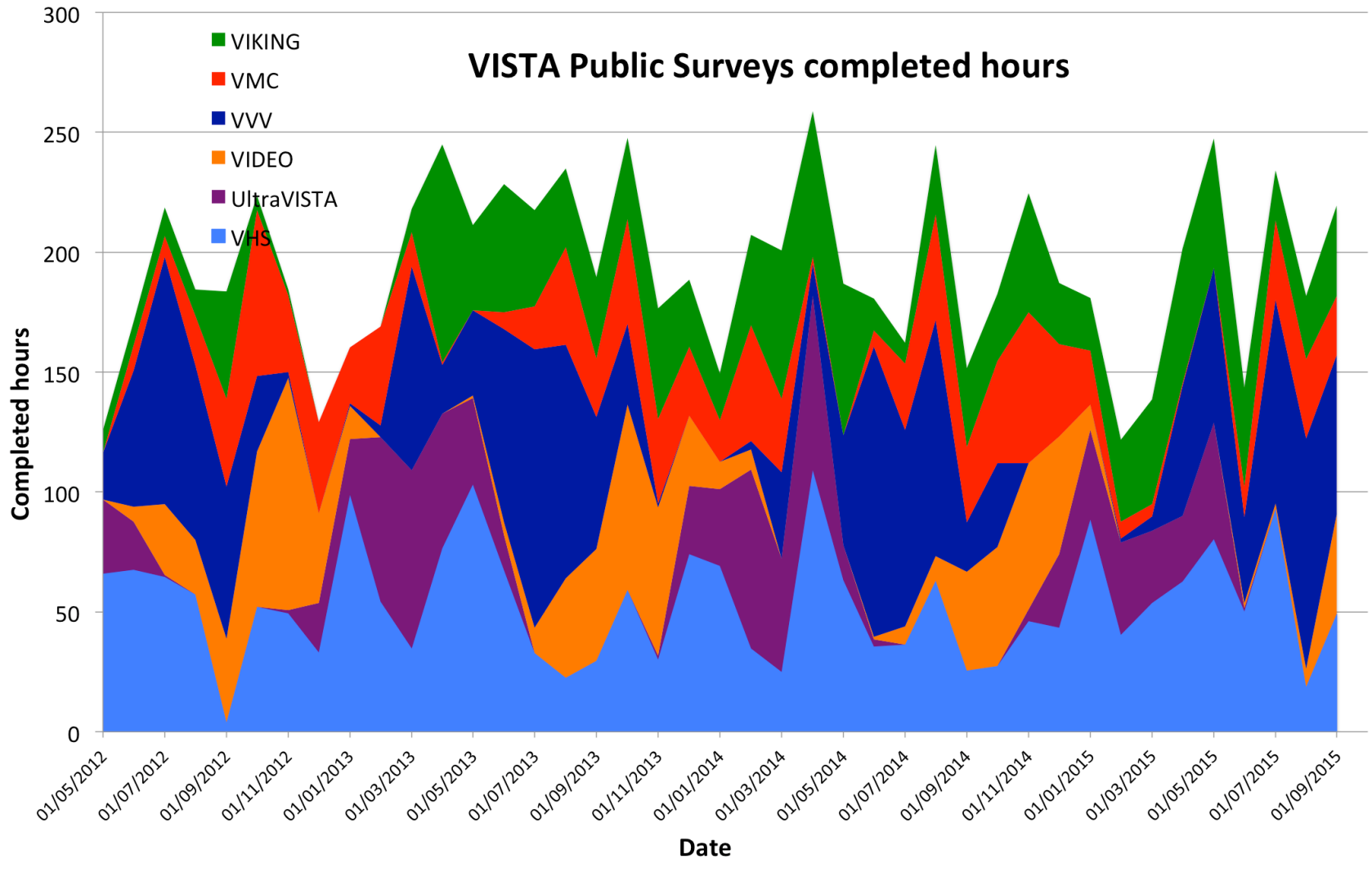
ESO Public Survey status

Survey	Obs hrs completed	Tot. time allocated (SMPs)	Compl. fraction
VVV	2157	2142	101
VMC	1423	1837	77
VIKING	2038	2200	93
UltraVISTA	1394	1801	77
VIDEO	1447	1869	77
VHS	3554	4710	75

VISTA ALLOCATED TIME



VISTA Public Survey: completed hours



ESO Public Spectroscopic Surveys – Gaia ESO & PESSTO

- The Gaia-ESO survey started operation on January 1st, 2012 on FLAMES at the VLT at Unit Telescope 2 (Kueyen) on Paranal - 4 + 1 yrs
- Time allocation of the survey entails 60 nights each year
- Thus far **254.5 nights** were allocated to this survey
- The PESSTO survey started operation on April 1st 2012, on EFOSC and SOFI at NTT on La Silla – 4 + 1 yrs
- The time allocation of the survey include 90 nights each year, with allocation 60/30 nights in odd and even periods
- Thus far **350 nights** were allocated to this survey
- PSSP review completed: 5th year approved for both surveys and technical/weather compensations for Gaia-ESO (47n)

ESO Public Spectroscopic Surveys –VIMOS

- Two VIMOS public surveys : VANDELS (PI: McLure, Petericci) LEGA-C (PI: van der Wel)
- Extragalactic surveys targeting the UDS/CDFS and UltraVISTA/Cosmos fields
- VIMOS PS to be carried out in Visitor Mode & SMPs published on ESO web pages 01.2015
- VANDELS => 1525 hrs scheduled in VM; 12 nights runs in SEP, OCT, NOV, DEC, JAN & 5 nights runs in Aug. To be completed in 4 years
- LEGA-C => 956 hrs scheduled in VM: 10 nights runs NOV, DEC, JAN, FEB, MAR, APR . To be completed in 4 years; LEGA-C successfully observed about 310 hrs
- VANDELS & LEGA-C will share half nights

Second VISTA call for ESO Public Survey

- Second VISTA Call opened on July 2015
- Time of allocations starting during P98 (October 2016)
- Limited to approximately three years due to the arrival of 4MOST at VISTA
- Observations will be carried out in service mode
- Letter of Intent (LoI) submitted **Over subscription > 2**
- 13 Lols received by OPO, 13 Pis & 517 co-Is,
- Total time requested 14021 hrs (+30); 7470 available (2490h x 3yrs)
- Pis of current VISTA surveys submitted extended reports, with requests for compensation/extension of their programs
- The Public Survey Panel (PSP) reviewed Lols & Pis' requests
- Letters to teams by end of January 2016. Successful Lols will be invited to submit proposals for P98

Phase 3 releases from ESO Public Surveys

- ◆ Phase 3 process completed for 10 Public
 - ◆ VISTA DR3, VST DR2
 - ◆ SPSs: GaiaESO, PESSTO DR2
- ◆ Sky coverage >11500 sq.deg
 - ◆ Opt./NIR: 4336 / 9445 sq.deg
- ◆ Tot. data volume: >35 TB
 - ◆ 270k+ files
 - ◆ >29k spectra
- ◆ High-level science catalogs for all surveys
 - ◆ Including light curves for variable sources!



Public survey data releases 2015

Date	Survey	Data
Sep 2015	VST ATLAS	Stacked ugriz images and source lists. 2000-3000 sq.deg. observations until Sep 2013. 5 TB.
Aug 2015	VVV	ZYJHKs photometric catalogues. 418 Mio. sources. 2.5 Billion Ks photom. points. 13 Mio. variables. Including observations until Sep 2011.
Aug 2015	PESSTO	1728 EFOSC2 and SOFI spectra and 392 reduced SOFI images. Associated catalogs.
Jul 2015	VMC	PSF photometry
Feb 2015	VHS	14 TB imaging data including observations until Sep 2013 + band-merged catalog of 590 Mio sources
Feb 2015	KiDS	Images and catalogues including data acquired until Sep 2013. 148 sq.deg. source catalog 17 Mio. sources.
Jan 2015	VMC	YJKs photometric catalogue from 7 completed tiles (10.5 sq.deg) + multi-epoch photometric data + catalogs of Cepheids and Eclipsing binaries.
Oct 2014	VIKING	Images and catalogues including data until Sep 2013. 690 sq.deg + 46 Mio. sources catalog with band-merged photometry.

Two releases published in 2016: final release ZCOSMOS bright (20k spectra and redshift catalog) and APEX ATLASGAL survey (emission maps and catalog)



Science Archive Facility

<http://archive.eso.org>

ESO - Science Archive Facility

European Southern Observatory

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Science Archive Facility

Data Portal

ESO Data

Hubble Space Telescope Data

Virtual Observatory Tools

Catalogues, Plates and DSS

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News and Updates

FAQ

ESO Data Access Policy

Welcome to the ESO Science Archive Facility

The ESO Science Archive Facility contains data from ESO telescopes at La Silla Paranal Observatory, including the APEX submillimeter telescope on Llano de Chajnantor. In addition, the raw UKIDSS/WFCAM data obtained at the UK Infrared Telescope facility in Hawaii are available.

The Principal Investigators of successful proposals for time on ESO telescopes have exclusive access to their scientific data for the duration of a proprietary period, normally of one year, after which the data becomes available to the community at large. Please read the [ESO Data Access Policy](#) statement for more information, along with the [relevant FAQs](#).

Browsing the archive does not require authentication, but to request and download data you have to log in to the [ESO User Portal](#). Please [acknowledge the use of archive data](#) in any publication.

Latest News and Updates

- New release of stacked reduced images and source lists for the VST Public Survey ATLAS (16 Sep 2015)
- New release of the archive data download shell script (16 Sep 2015)
- New Data Release of VVV Photometric Catalogues via the ESO Science Archive Facility (21 Aug 2015)

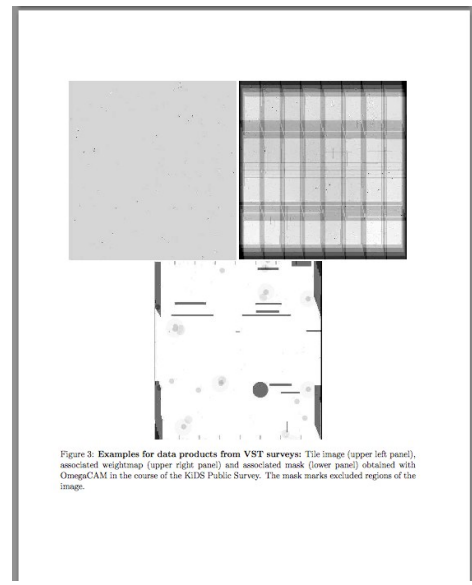
More news ...

To browse the archive

Currently, raw data and various types of data products can be reached via different interfaces:

Category	Access Point	Data collection	Data Type	Instruments
LPO Raw Data	Raw data query form (all instruments) Instrument specific query forms Direct retrieval of raw data by file name	All ESO raw data	Various	Many La Silla Paranal instruments
LPO Data Products	Phase 3 main query form Phase 3 imaging query form Phase 3 spectral query form Phase 3 VIRCAM-specific query form	Phase 3 Data Products (ESO public surveys; ESO pipeline-reduced products; Large programs: GOODS, zCOSMOS, etc.)	Currently, Imaging and Spectroscopy	Various Pipeline products for LIVES, XSHOOTER, HARPS, and more to come.
	Catalogue Facility query interface	Phase 3 Catalogues (ESO User Portal authentication required also when browsing)	Catalogues	Various
	FEROS and HARPS-Polarimetry pipeline processed data query form	FEROS and HARPS-Polarimetry pipeline processed data	Spectroscopy	FEROS, HARPS-Polarimetry, HARPS reduced calibrations (other HARPS see Phase3 above)
	Other Advanced Data Products (available only as downloadable packages, no query form)	Various (30 Doradus, Corot, GaBoDs, etc.)	Spectroscopy Imaging Flux maps	FEROS WFI APEX
	Science Verification, Commissioning, EIS, etc. (no query form)	Full list of available data packages	Various	Many
APEX Quick Look Products	APEX query form	APEX	Heterodyne, Bolometer	APEX-2A, LABOCA, SABOCA, SHeFI
LPO Schedule	Scheduling query form	ESO Observing Programme Information and Scheduling		All La Silla Paranal instruments, including APEX

New: Documentation of Reduced data products in the ESO Phase 3 archive



www.eso.org/q/

50 YEARS 1962-2012 ESO European Southern Observatory

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Science Users Information > ESO Science Archive Facility > ESO Data > ESO Catalogue Facility Joerg Retzlaff Logout

ESO Data

Raw Data Query Form

Reduced Data Query Form

Instrument Specific Query Forms

PI Packages

Observation Schedule

Ambient Conditions Database

User Publications

Data Direct Retrieval

Data Products

Data Packages

ESO Catalogue Facility

User Help

The catalogue facility provides access to the collection of catalogue data that were produced by PIs of ESO programmes and then integrated into the ESO science archive through the Phase 3 process.

Find catalogues by

Title Content Include obsolete versions

29 catalogues found (out of 29)

SELECT	TITLE	RELEASE	PUBLICATION DATE
<input type="radio"/>	Atmospheric Parameters and Chemical Abundances from Stellar Spectra	1	2013-07-15
<input type="radio"/>	Deep/Ultra-Deep Near-IR Catalogue of the COSMOS Field (Ultra-VISTA)	1	2012-09-24
<input type="radio"/>	GOODS/FORS2 Spectroscopic Survey	1	2014-07-11
<input type="radio"/>	GOODS/ISAAC Imaging	1	2014-12-12
<input type="radio"/>	GOODS/VIMOS Spectroscopic Survey	1	2014-12-12
<input type="radio"/>	Gaia-ESO spectroscopic survey	2	2015-07-21
<input type="radio"/>	K band Image of the GOODS-South field	1	2014-10-01
<input type="radio"/>	K band Image of the UDS field	1	2014-10-01
<input type="radio"/>	PESSTO Multi-epoch Photometry	1	2015-08-05
<input type="radio"/>	PESSTO Public ESO Spectroscopic Survey of Transient Objects	3	2015-08-05
<input type="radio"/>	The Kilo-Degree Survey	2	2015-02-05
<input type="radio"/>	VISTA Deep Extragalactic Observations Survey (VIDEO) - CDFS field	2	2015-02-26
<input type="radio"/>	VISTA Deep Extragalactic Observations Survey (VIDEO) - ES1 field	2	2015-03-20
<input type="radio"/>	VISTA Deep Extragalactic Observations Survey (VIDEO) - XMM field	3	2015-02-16
<input type="radio"/>	VISTA Hemisphere Survey band-merged multi-waveband catalogues (VHS)	1	2015-02-12
<input type="radio"/>	VISTA Kilo-degree Infrared Galaxy Survey (VIKING)	2	2014-10-29
<input type="radio"/>	VISTA Magellanic Survey Catalogue of Cepheids (VMC)	2	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey Catalogue of Eclipsing Binaries (VMC)	1	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey Multi-Epoch J-Band Photometry (VMC)	2	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey Multi-Epoch Ks-Band Photometry (VMC)	2	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey Multi-Epoch Y-Band Photometry (VMC)	2	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey YJKs Catalogue (VMC)	2	2015-01-07
<input type="radio"/>	VISTA Magellanic Survey YJKs PSF Photometry (VMC)	1	2015-02-13
<input type="radio"/>	VST Photometric H-a Survey of the Southern Galactic Plane (VPHAS+)	3	2015-07-30
<input checked="" type="radio"/>	VVV: Catalogue of Variables in the Via Lactea	2	2015-08-19
<input type="radio"/>	VVV: Multi-Epoch Ks-Band Photometry in the Via Lactea	2	2015-08-19
<input type="radio"/>	VVV: ZYJKs Catalogue in the Via Lactea	2	2015-08-19
<input type="radio"/>	Y band Image of the UDS field	1	2014-10-01
<input type="radio"/>	zCOSMOS Spectroscopic Redshift Survey	1	2014-03-21

ESO Catalogue Facility 2.0.11 © ESO

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Science Catalogue Data

11 public surveys delivered science catalogs.

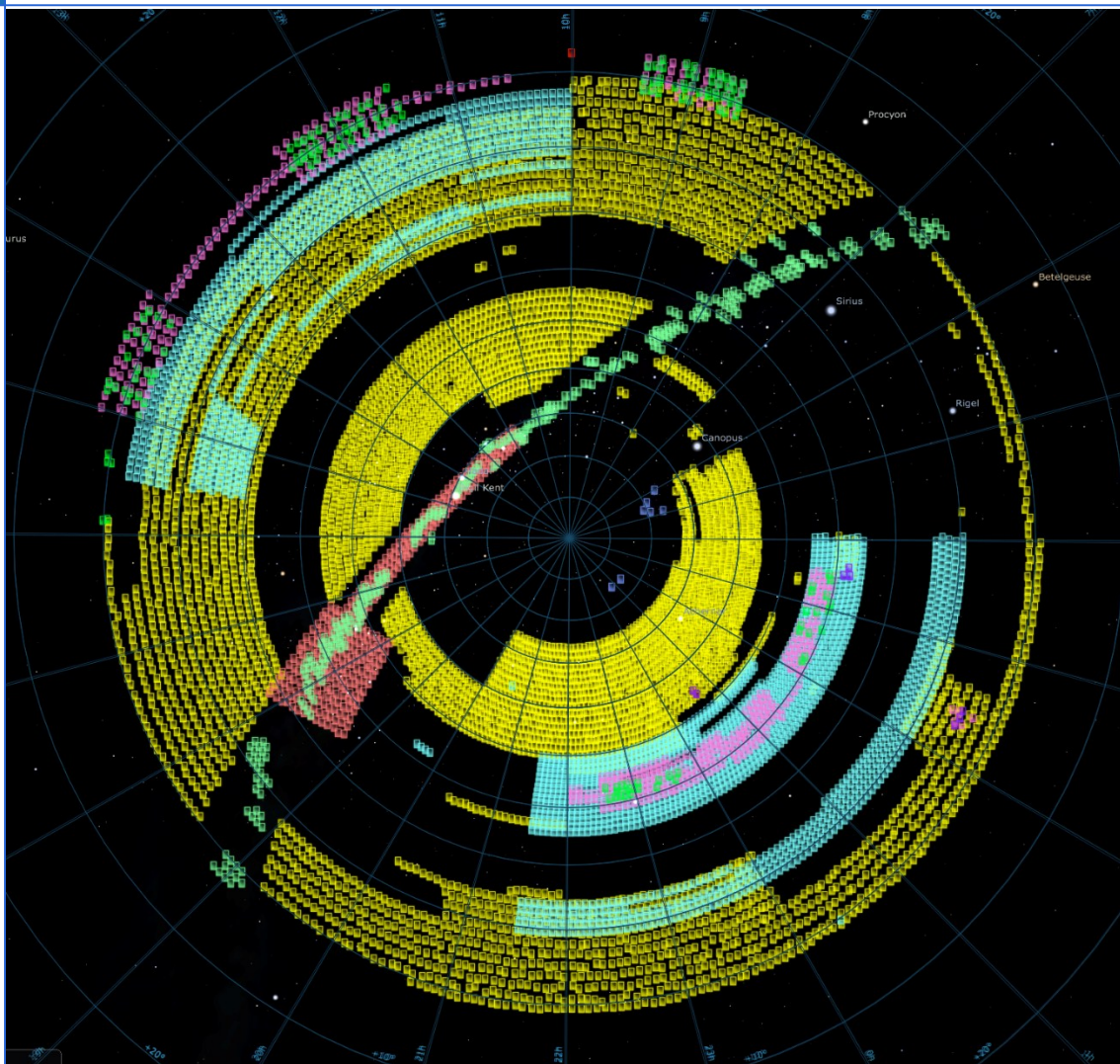
19 (out of 29) new catalogs published this year.

variety of catalog types, e.g. variables, redshift catalogues etc.

Largest catalog: >2.5 billion photom. data points (VVV)



Phase 3 releases from ESO Public Surveys

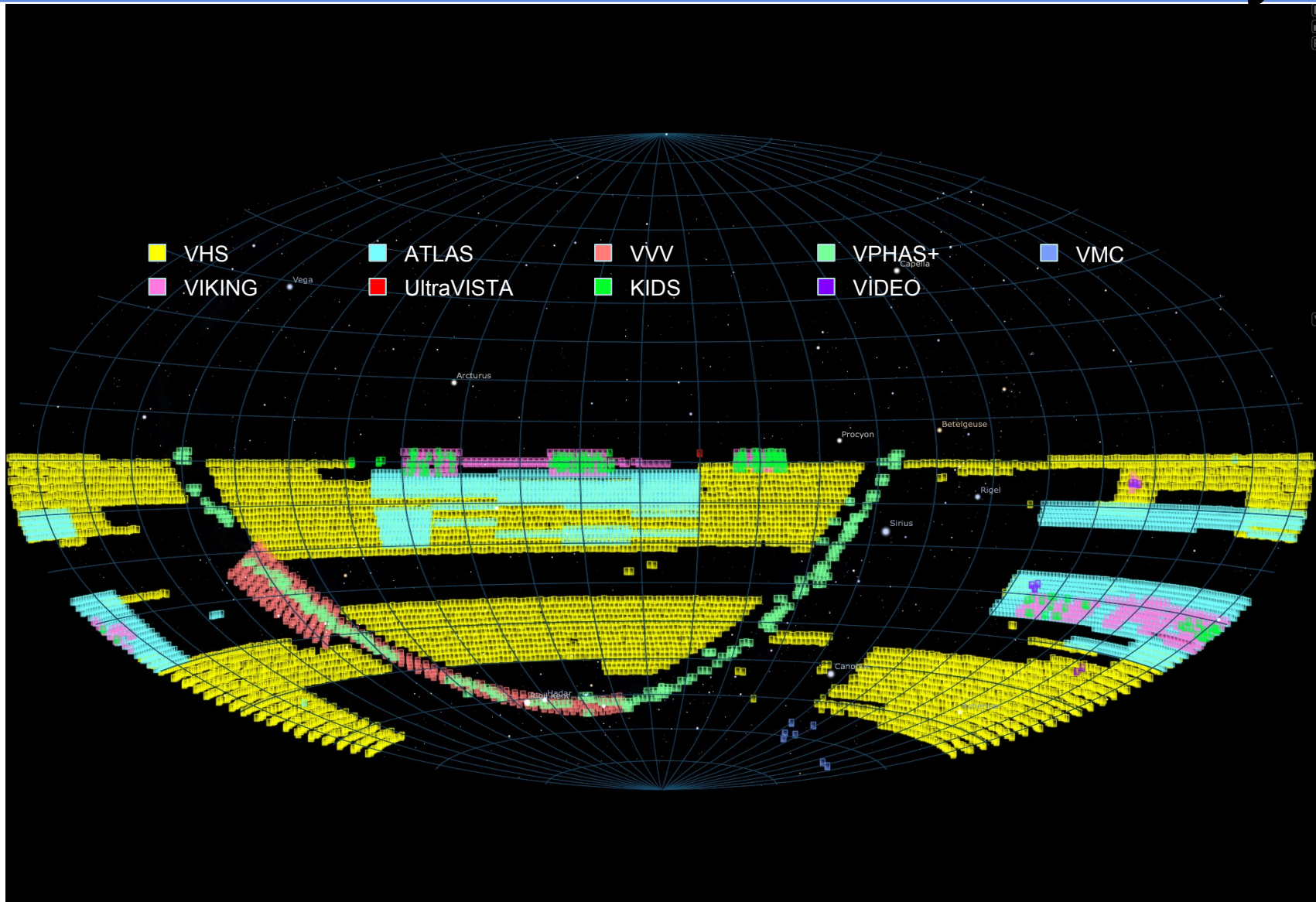


The VISTA & VST public survey DPs released through the Phase 3 process in 2014/2015 cover almost **11500 square degrees** of the Southern Hemisphere.

- VPHAS+
- VIDEO
- VVV
- VHS
- KiDS
- VIKING,
- VMC - blue
- UltraVISTA
- ATLAS

STATUS: more than 35 TB of SDPs have been ingested and published through the ESO SAF in 2014/2015

Phase 3 releases from ESO Public Surveys





ESO - Data Releases

www.eso.org/sci/observing/phase3/data_releases.html

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Public Science User Portal Intranet

Science Users Information > Observing with ESO Telescopes > Phase 3 > Data Releases

06 Oct 2015

Overview of the Phase 3 Data Releases

- Data delivered by ESO Public Survey projects:
 - VISTA Surveys
 - VST Surveys
 - Spectroscopic Surveys
- Data reduced by ESO
- Data delivered by other programmes

ESO Programme	Data Release	Date	Access		
PUBLIC VISTA SURVEYS					
Ultra-VISTA	Ultra Deep Survey with VISTA	Deep co-added, resampled images and associated source lists per band (2nd data release)	24.01.2014  		
		YJHKs and NB118 catalogue (based on the 1st data release)	24.09.2012  		
VIKING	VISTA Kilo-degree Infrared Galaxy Survey	ZYJHKs images and associated source lists of completed survey tiles covering ~690 sq.deg	29.10.2014  		
		ZYJHKs band-merged catalogue			
VMC	VISTA Magellanic Survey	YJKs images and associated source lists for 7 survey tiles (4th updating data release)	26.11.2014  		
		YJKs band-merged catalogue	07.01.2015  		
		Catalogue of known Cepheids	 		
		Y band photometric light curves	 		
		J band photometric light curves	 		
VVV	VISTA Variables in the Via Lactea Survey	Ks band photometric light curves	 		
		Catalogue of Eclipsing Binary stars	 		
		PSF photometry catalogue	13.02.2015  		
		ZYJHKs images and associated source lists in the disk and bulge region	09.03.2015  		
VHS	VISTA Hemisphere Survey	ZYJHKs band-merged catalogue	19.08.2015  		
		Catalogue of Variables	 		
		Multi-Epoch Ks-Band Photometry	 		
VIDEO	VISTA Deep Extragalactic Observations Survey	VHS	24.02.2015 		
			YJHKs images and associated source lists ^(**)		
			YJHKs band-merged catalogue ^(**)		
			VIDEO-XMM field: ZYJHKs images and associated source lists	16.02.2015  	
			VIDEO-XMM field: ZYJHKs band-merged catalogue		
KIDS	The Kilo Degree Survey	VIDEO-CDFS field: images and associated source lists	26.02.2015  		
		VIDEO-CDFS field: images and associated source lists			
		ZYJHKs band merged catalogue in the CDFS1 field			
		VIDEO-ELAIS S1 field: images and associated source lists	26.03.2015  		
PESSTO	Spectroscopic Survey of Transient Objects	ZYJHKs band merged catalogue in the ELAIS S1 field			
		PUBLIC VST SURVEYS			
		KIDS	The Kilo Degree Survey	ugri stacked images and associated source lists	05.02.2015  
VST-ATLAS	The VST ATLAS Survey	u.g.r.i band-merged catalogue			
		ugriz images and associated source lists	16.09.2015  		
VPHAS+	VST Photometric Ha Survey of the Southern Galactic Plane and Bulge	ugri and Ha images and associated source lists	12.05.2015  		
		u.g.r.i band-merged catalogue	30.07.2015  		
Gaia-ESO	Spectroscopic Survey of the Milky Way	PUBLIC SPECTROSCOPIC SURVEYS			
		Gaia-ESO	Spectroscopic Survey of the Milky Way	1-dimensional wavelength-calibrated spectra	21.07.2015  
PESSTO	Spectroscopic Survey of Transient Objects	Catalogue of photometry and stellar properties			
		PESSTO	Spectroscopic Survey of Transient Objects	1-dimensional wavelength and flux calibrated spectra, with accompanying NIR imaging of bright sources	03.08.2015
			Transient master catalogue		
		Light curves	05.08.2015		

Links to the associated data documentation

Links for Data Access

Release Overview
 Phase 3 data releases organized by

- Public survey,
- pipeline-processed data,
- large programmes etc.





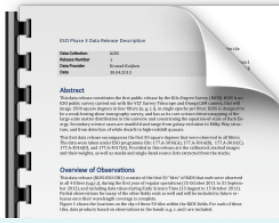
atlas_dr1.pdf



video_cdfs_dr1.pdf



viking_dr1.pdf



vmc_dr2.pdf



vphasplus_dr1.pdf

Data Release Description

- Provide short broad overview of the program, with an overview/layout of the observations

Essential input for data content validation.

Release content

- Extended listing for each sky position, filters, exposure times, seeing

Release notes

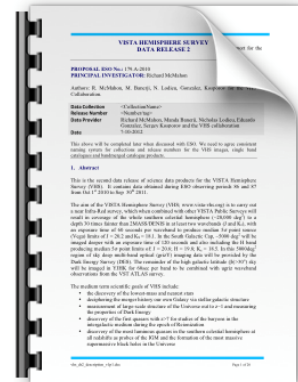
- Reduction method used, calibration procedures, data quality

Data format

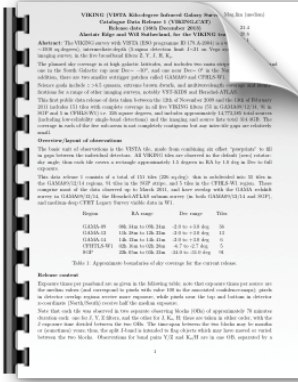
- Description of files in this data release, associated files, and naming conventions

Acknowledgements

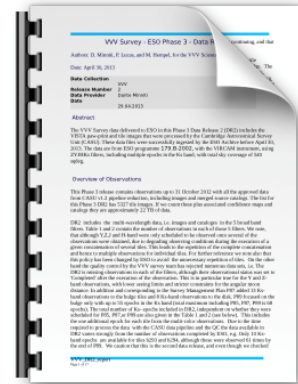
- Bibliographic reference to be included when using these data.



vhs_dr2.pdf



viking_cat_dr1.pdf

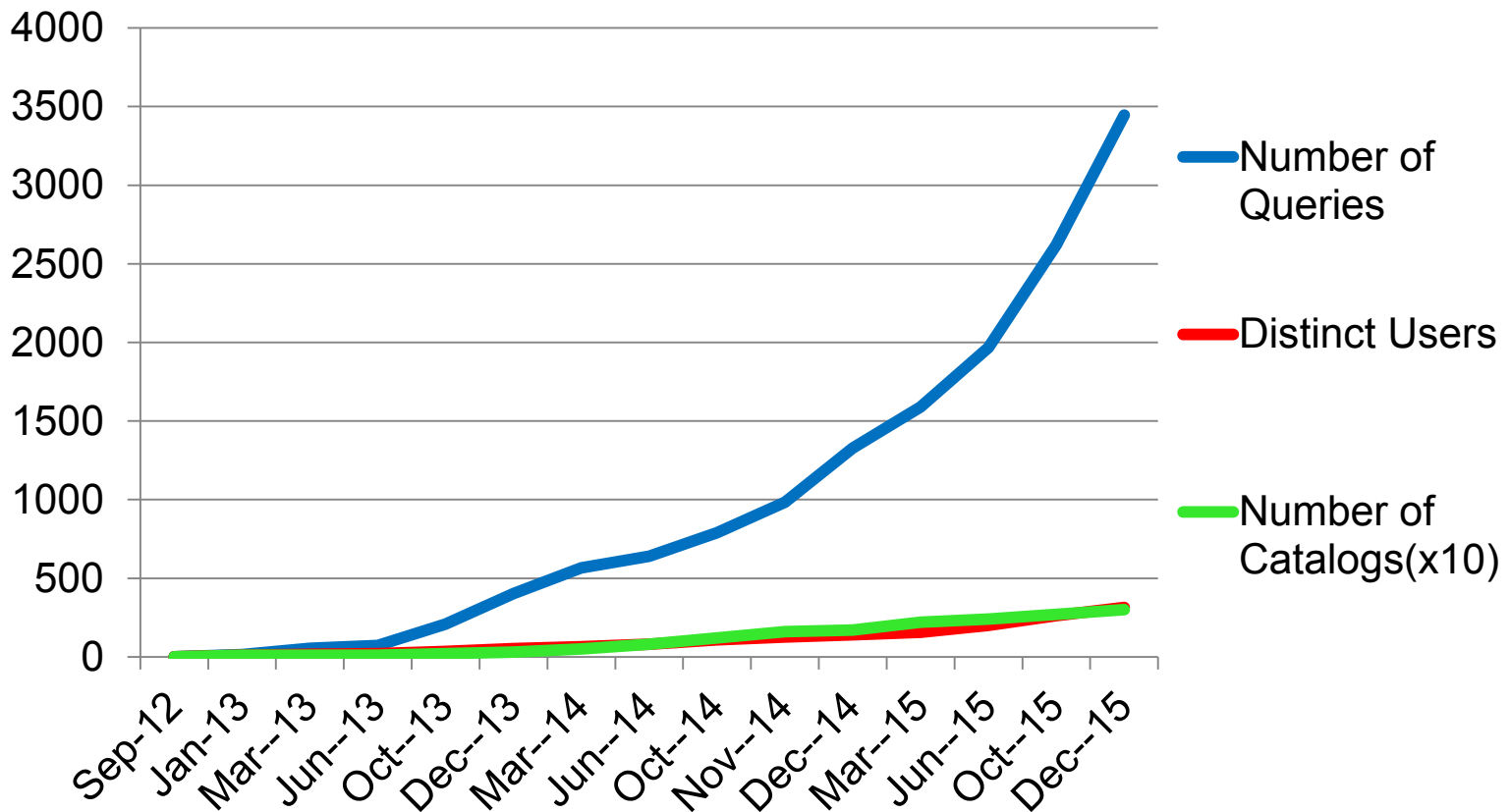


vv_dr2.pdf



Statistics: ESO Science Archive Facility - Access and Download

Access to the ESO archive catalogue query interface: all catalogues have been queried for!



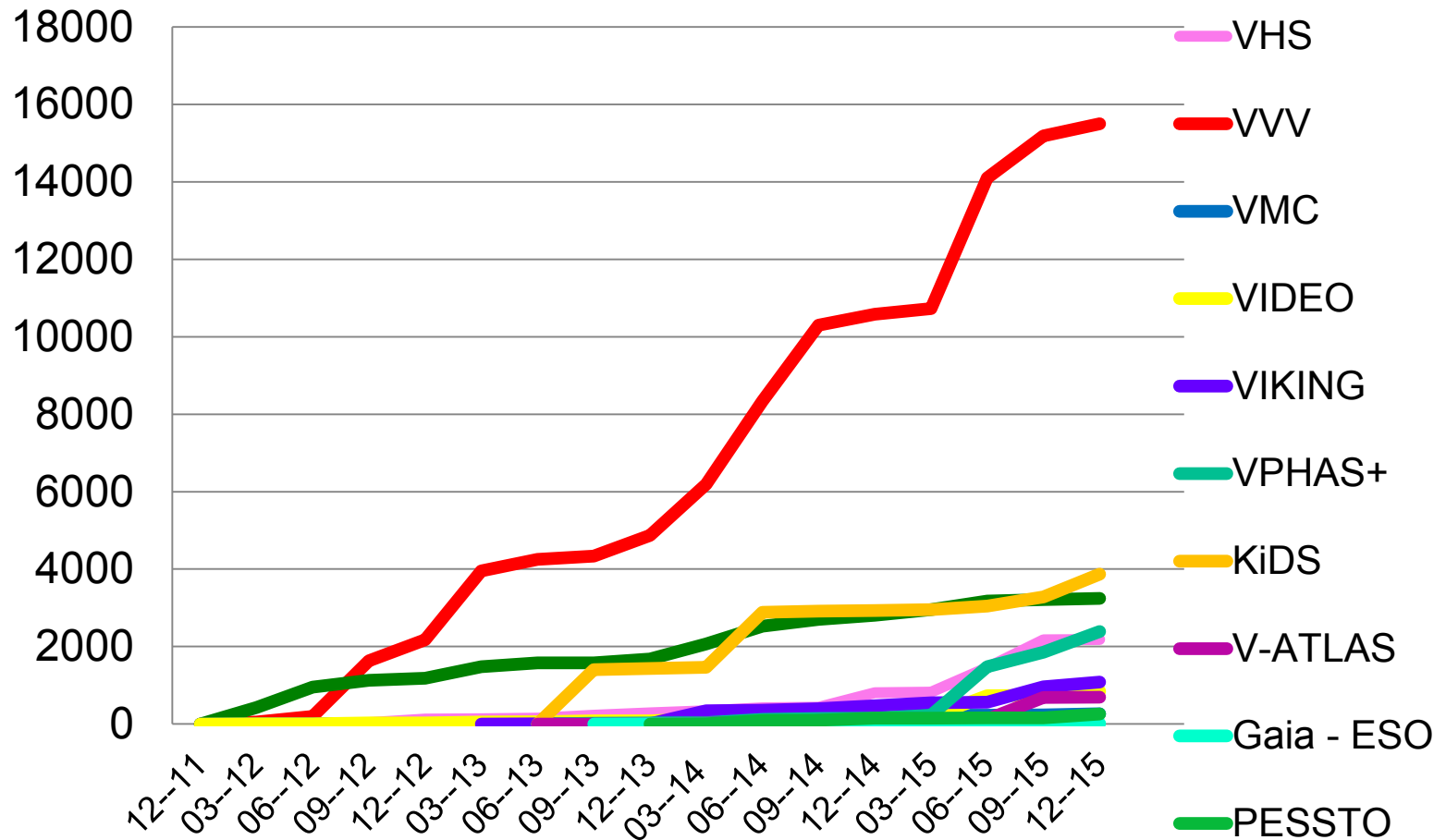
Collaboration with CDS

- Independent evaluation of catalogue data (format and metadata) and quality criteria => **full endorsement!**
- added science content to the catalogue data, i.e. cross matching with other wavelengths/data, and further dissemination in the VO
- Extension of the ESO policies for data access and publication when data are retrieved via VO tools



Statistics: ESO Science Archive Facility - Access and Download

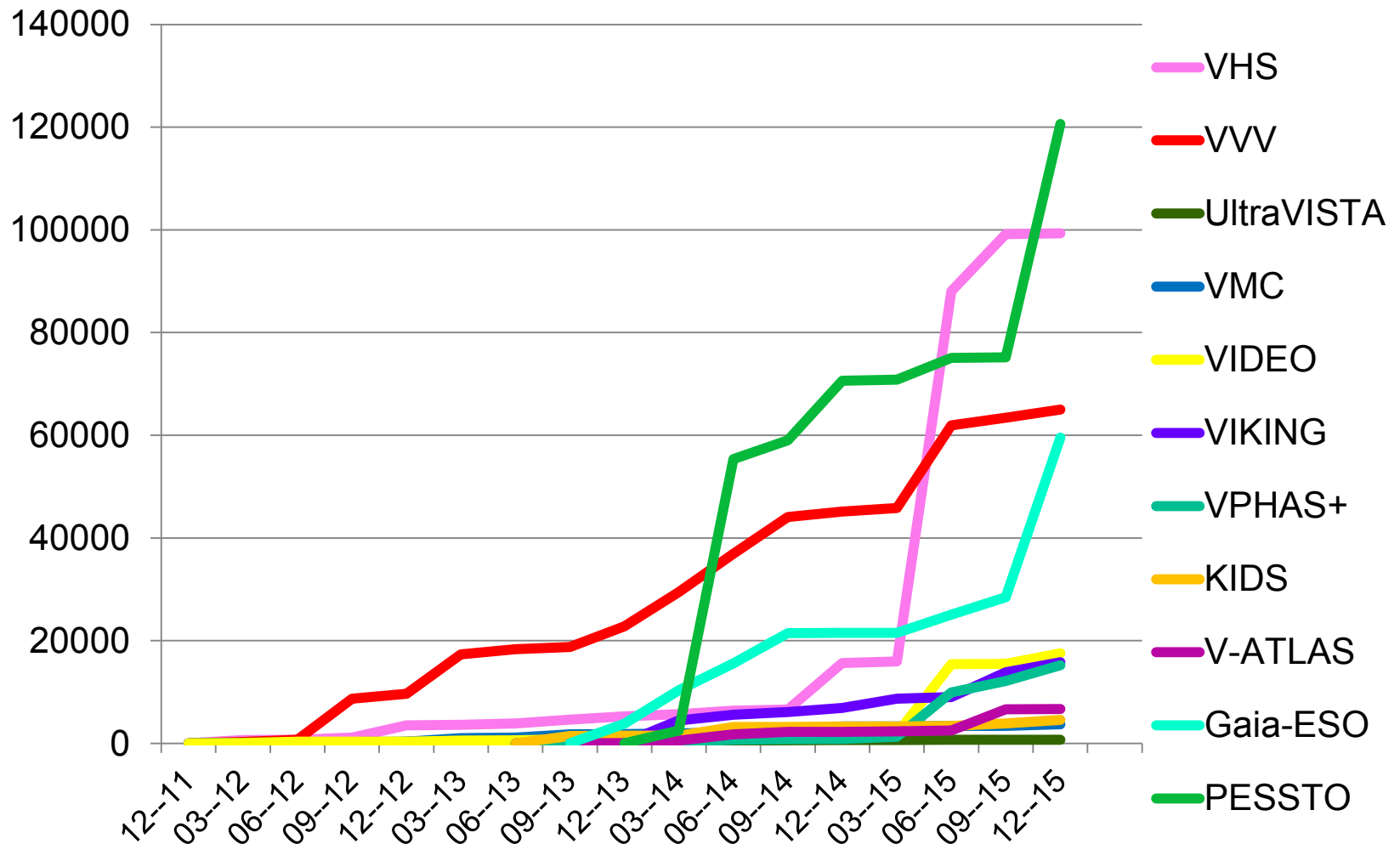
Data volume download from ESO SAF of public survey products: all surveys have been accessed by archive users





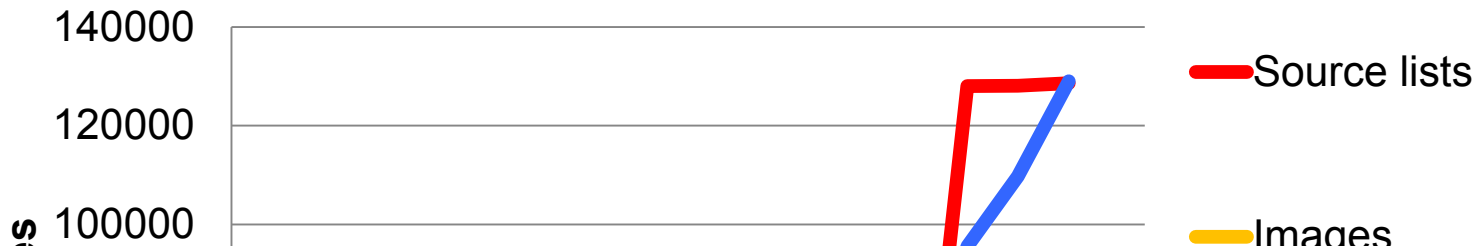
Statistics: ESO Science Archive Facility - Access and Download

Number of files download from ESO SAF of public survey products

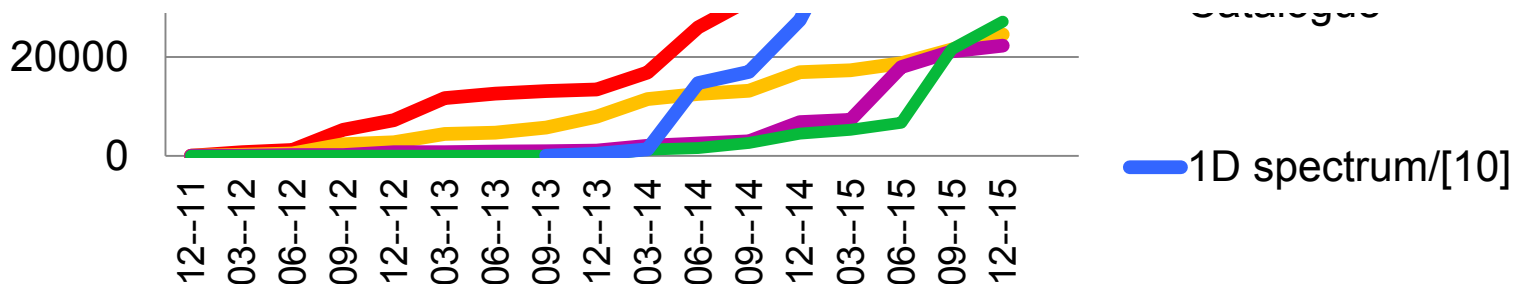


Statistics: ESO Science Archive Facility - Access and Download

Number of files and products download from ESO SAF for public surveys & IDPs: all types of SDPs have been accessed/downloaded



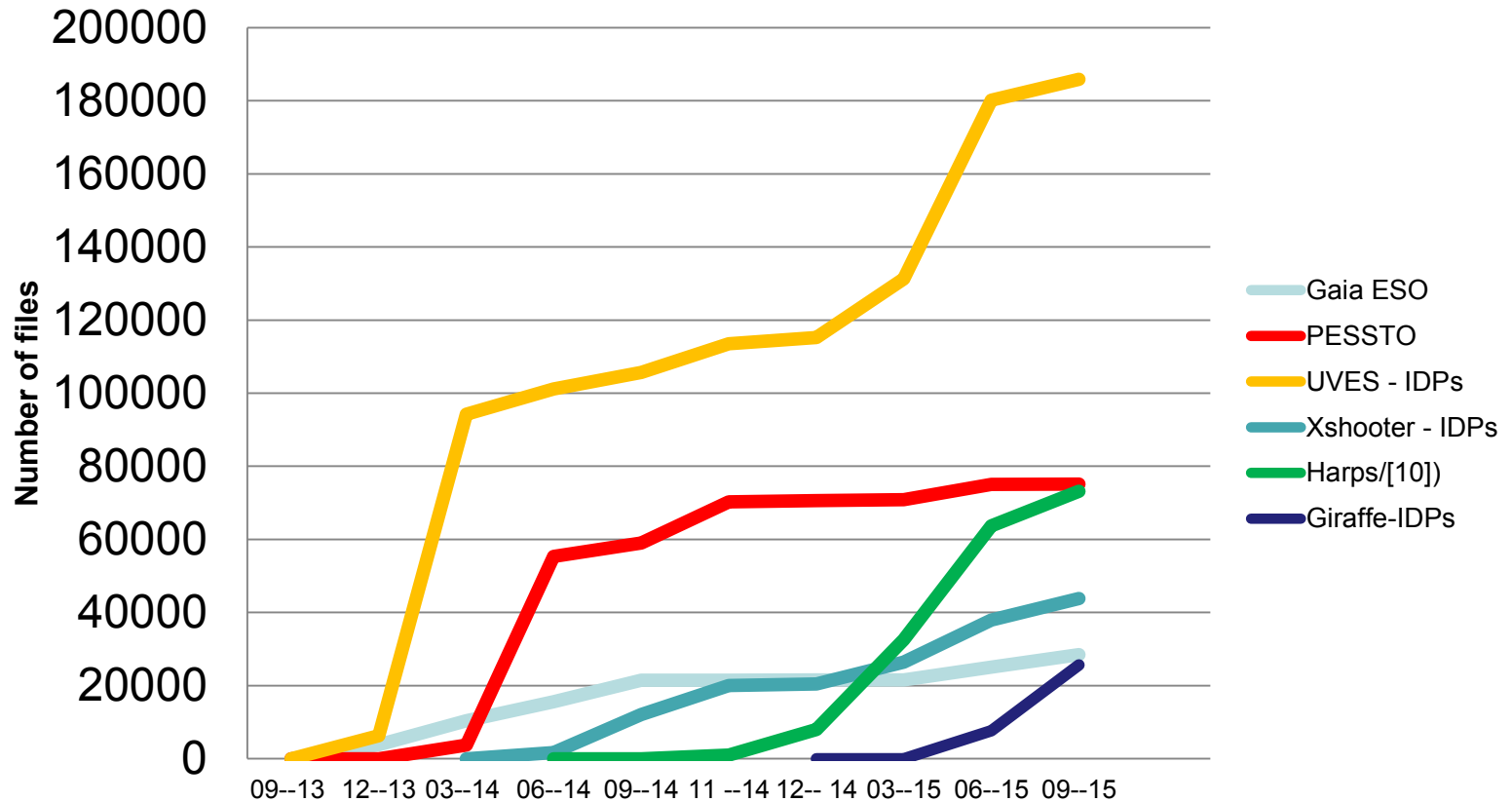
More than 25 TB and more than a million files (and counting!) were downloaded since December 2011!



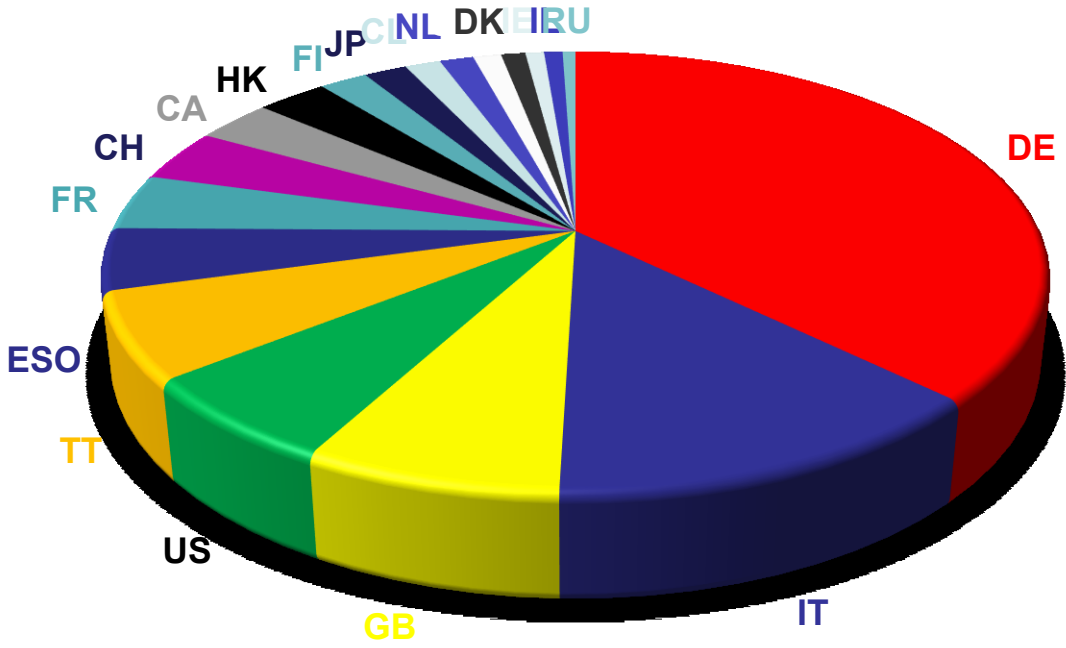


Statistics: ESO Science Archive Facility - Access and Download

Number of files and products download from ESO SAF for spectroscopic surveys & internal data products (UVES/Echelle, Xshooter/Echelle, GIRAFFE-Medusa and Harps 1D spectra)

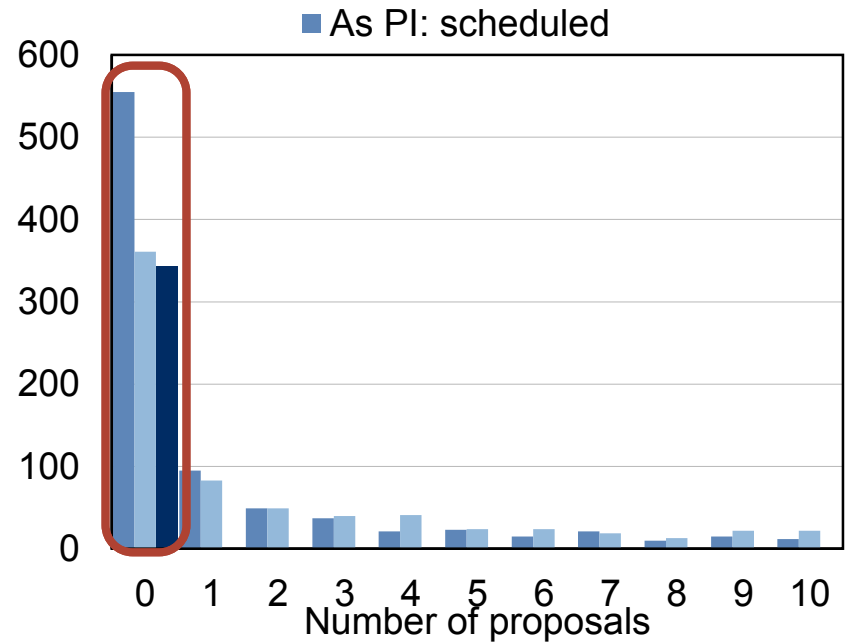
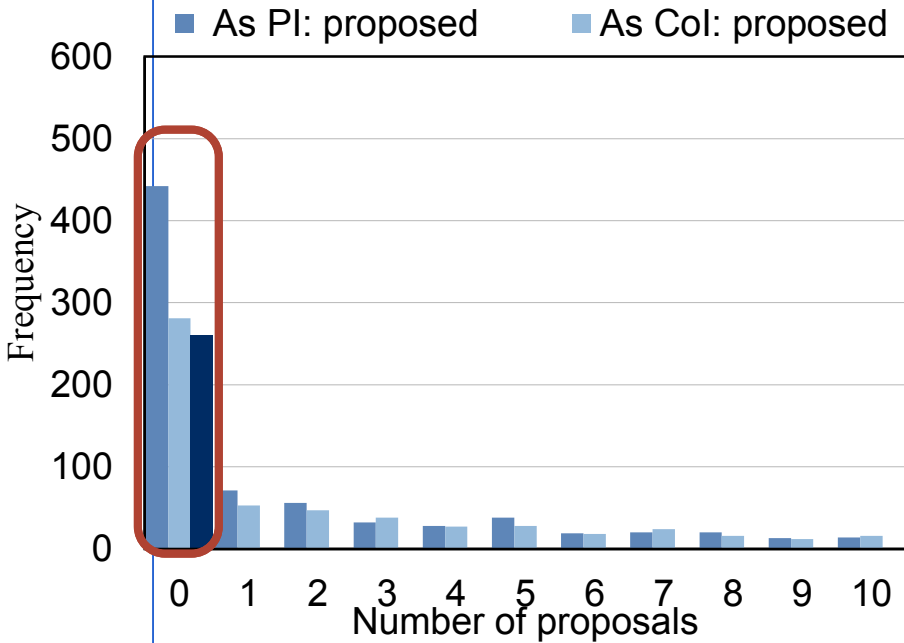


Statistics: ESO Science Archive Facility - Access and Download



Cumulative statistics of SURVEYS by COUNTRY starting Dec-2011 up to Dec-2015 included

Phase 1 habits of archive users: **Data products**



Source: ESO Back-end Operations

- SAF data products users: 28% (260) have never applied for time, neither as PIs nor co-Is; 37% (344) have never gotten time, neither as PIs nor co-Is
- For comparison, 1/3 of the Phase 1 PIs have never got time

Refereed publications from VISTA Public Surveys

- ESO/Telbib census
- VHS 21, UltraVISTA 44, VVV 79, VIDEO 22, VIKING 17, VMC 22, V-ATLAS 6, KIDS 9, VPHAS+ 7, Gaia ESO 33, PESSTO 25, Archival 47

Cumulative queries reduced products

- Number of distinct requests: 9000
- Number distinct account IDs: 1221

Implications of the above figures of merit

- Archive users query for reduced products more than **once** (on average)
- The number of archive users using reduced products for their science is more than **twice** the number of listed PIs/Cols of ESO public surveys' proposals

End!

Many thanks to the PIs of ESO PS
and their teams, the ESO colleagues
and the ASG members for their hard
work & support!