



# UKIDSS' counterpart in the South



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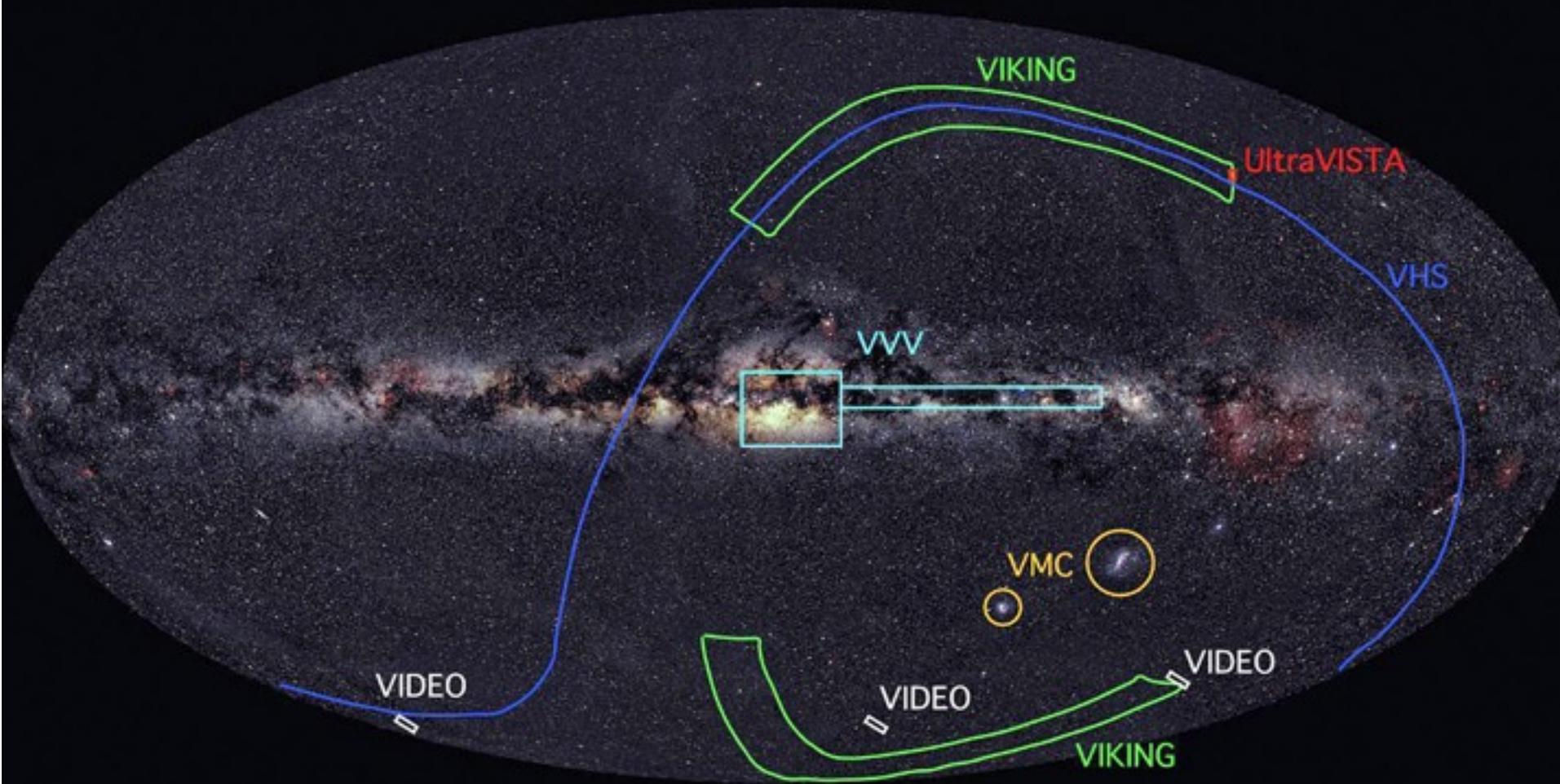
# VISTA & UKIDSS

- At end of 1990s UK wide field astronomy community decided that it needed deep and wide near-IR surveys in both hemispheres.
- UKIDSS came first on the existing UKIRT
- VISTA came later on a new telescope
- Similar filters except VISTA  $K_s$  instead of K
- VISTA has higher throughput as telescope purpose built for the camera



# Six Public Surveys:

1 Hemisphere, 2 Galactic, 3 Extragalactic



# Public data releases

ESO - Data Releases

http://www.eso.org/sci/observing/phase3/data\_releases.html

European Southern Observatory

ESO — Reaching New Heights in Astronomy

Science User Portal Contact Site Map Search

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

## Phase 3 Data Releases

### Overview

| Data Release  | Release Date |
|---|--------------|
| VISTA Variables in the Via Lactea Survey (VVV) - Data Release 1       | 25.07.2011   |
| VISTA Deep Extragalactic Observations Survey (VIDEO) - Data Release 1 | 25.07.2011   |
| VISTA Magellanic Survey (VMC) - Data Release 1                        | 25.09.2011   |
| VISTA Hemisphere Survey (VHS) - Data Release 1                        | 17.10.2011   |
| Ultra-VISTA: an Ultra Deep Survey with VISTA - Data Release 1         | 15.02.2012   |

# Public data Release 1



Other data products query forms

## ESO Data Products VISTA Query Form

[Archive Facility HOME!](#) [ESO HOME!](#) [INFO](#) [FAQ](#)

This form provides access to **reduced images** released by the [VISTA public survey projects](#) and integrated into the ESO [Science Archive Facility](#) since April 2011, through the [Phase 3 process](#).

To search for other ESO data products, please use the [General Data Products](#) and [Imaging Data Products](#) query forms.

VSA release history

Browser window showing the URL <http://horus.roe.ac.uk/vsa/releasehistory.html>. The page title is "VSA release history".



- [VSA Home](#)
- [Start Here](#)
- [Data Overview](#)
- [Known Issues](#)
- [the Surveys](#)
- [Schema browser](#)

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### Release history page

- **VIDEODR2 : 28th March 2012**  
First VIDEO world public data release including external mosaics produced by Dave Bonfield at Hertfordshire and all data up to the end of P86.
- **VIKINGDR2 : 28th March 2012**  
First VIKING world public data release, based on the VIKINGv20111019 release (see below) but limited to the following fields: 32,41,44,50,68,77-85,87-88,94-100,119,122-123,125-126,128,130-131,143-150,160-171,173-174,194,198-199
- **VMCDR1 : 28th March 2012**  
First VMC world public data release consisting of fields LMC 6\_6 and LMC 8\_8 from the VMCv2011090 release (see below)
- **VHSDR1 : 22nd February 2012**  
First VHS world public data release, see VHSv20110816 entry for further details.



# UltraVISTA

1.5 deg<sup>2</sup> on COSMOS field

| Filter | Av. Exposure per. pixel | Mean FWHM (" +/- 0.1") | 5-sigma 2" ap. (AB MAG; +/- 0.1 mag) | 95% completeness |
|--------|-------------------------|------------------------|--------------------------------------|------------------|
| Y      | 42360                   | 0.82                   | 24.6                                 | 24.2             |
| J      | 49720                   | 0.79                   | 24.7                                 | 24.2             |
| H      | 42520                   | 0.76                   | 23.9                                 | 24.1             |
| K      | 39400                   | 0.75                   | 23.7                                 | 23.8             |
| NB118  | 23773                   | 0.75                   | 22.9+/-0.2                           | TBD              |

| Lead author     | Reference       | Title  |
|-----------------|-----------------|--|
| Bowler et al    | arXiv:1205.4270 | Discovery of bright $z \sim 7$ galaxies in the UltraVISTA survey |
| McCracken et al | arXiv:1204.6586 | UltraVISTA: a new ultra-deep near-infrared survey in COSMOS      |

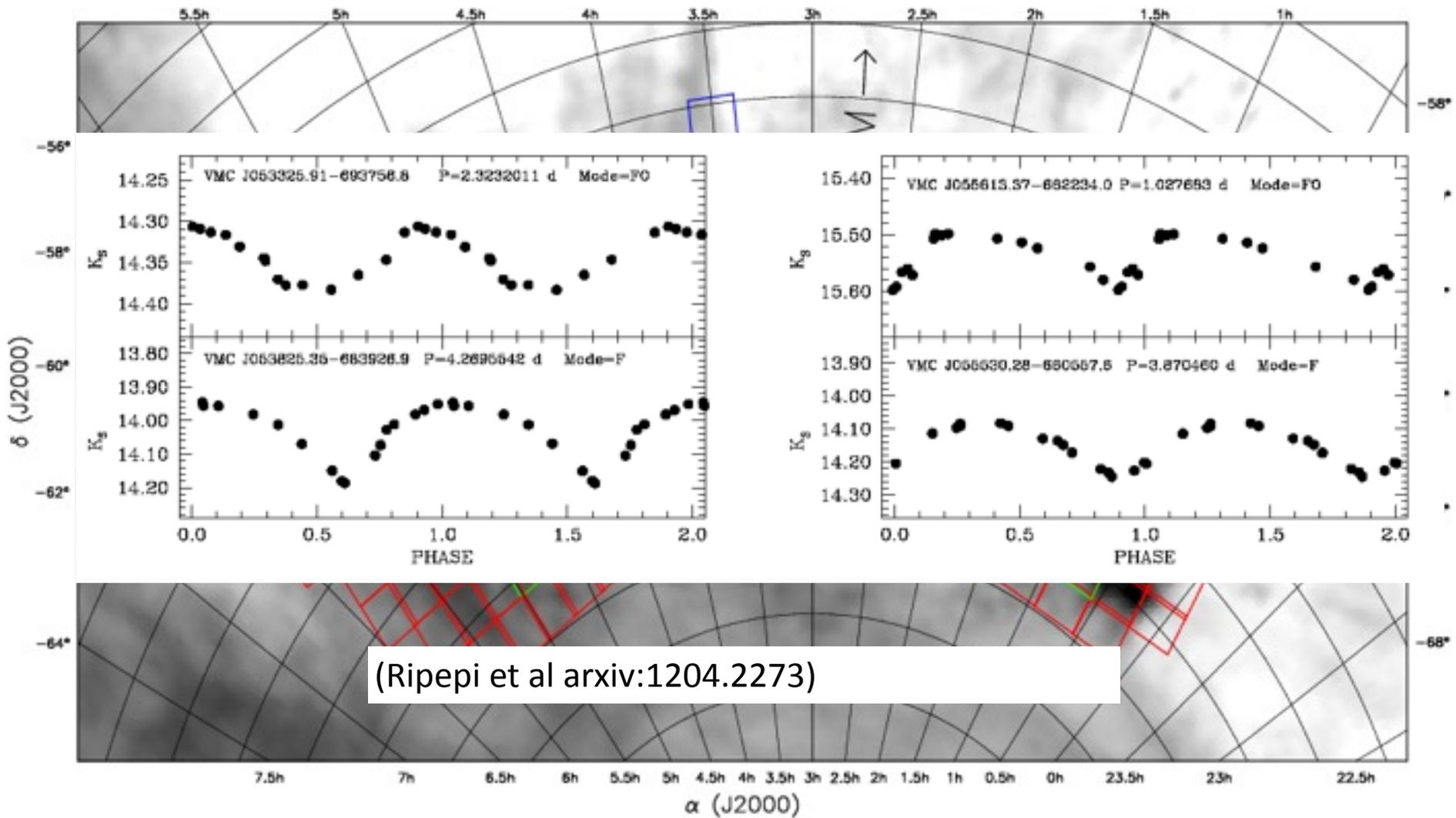


# VIKING

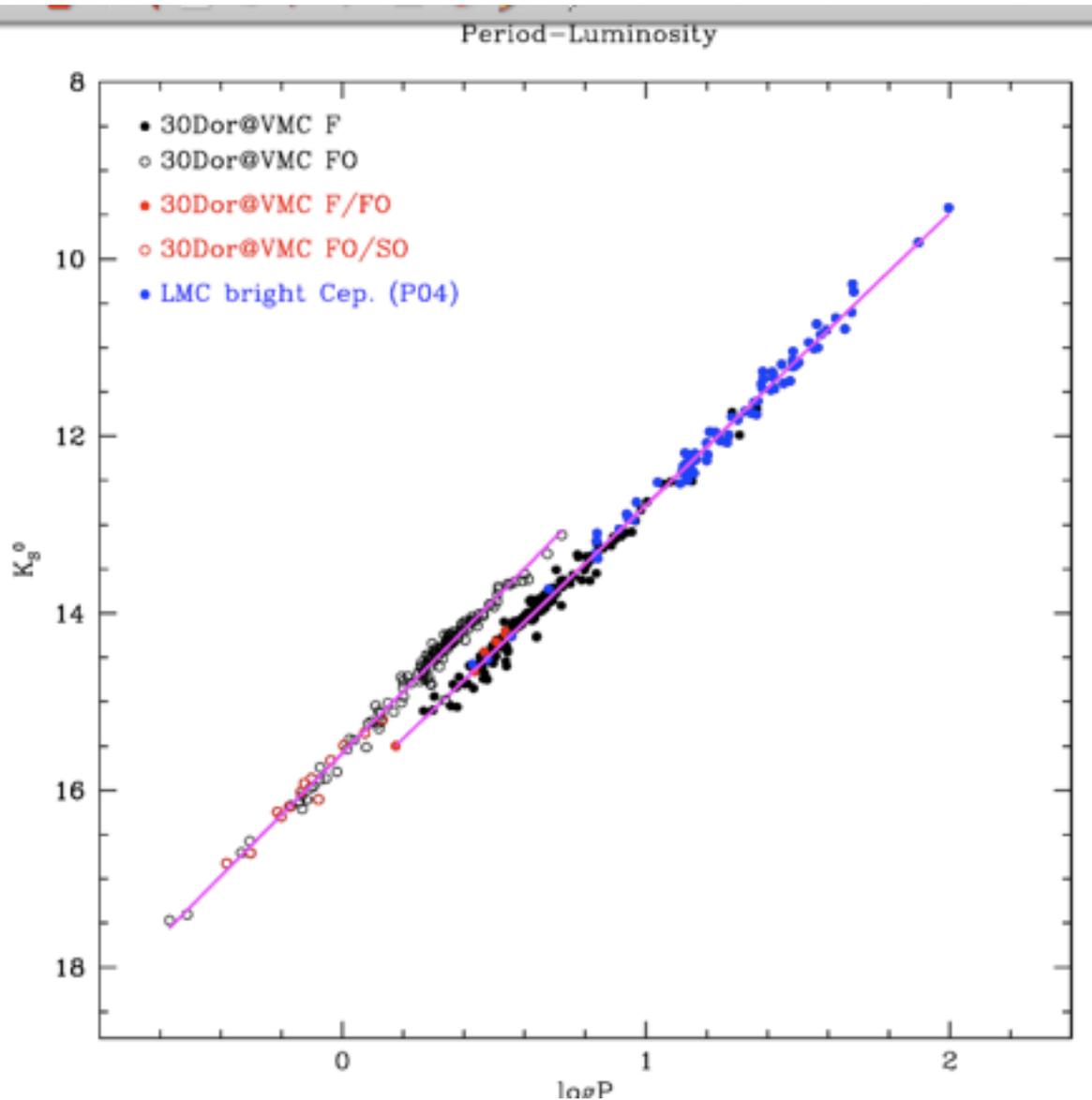
| Lead author |       | Reference           | Title  |
|-------------|-------|---------------------|--|
| Fleuren     | et al | arXiv:1202.3891     | Herschel-ATLAS: VISTA VIKING near-infrared counterparts in the Phase 1 CAMM O b data                   |
| Findlay     | et al | 2012MNRAS.419.3354F | Selection constraints on high-redshift quasar searches in the VISTA Kilo-degree Infrared Galaxy survey |

Findlay et al found the 2<sup>nd</sup> 3<sup>rd</sup> & 4<sup>th</sup> highest redshift quasars.

# VISTA Magellanic Clouds Survey



# Period – Luminosity relation in K



- Calibrate using objects of known distance
- $(m-M)_0 = 18.46 \pm 0.03$
- HST key project assumed 18.50
- => LMC calibrated extragalactic distance scales are shorter by 2% than assumed.
- 2012 review =>  $18.48 \pm 0.05$
- Will use individuals to map structure



# VMC

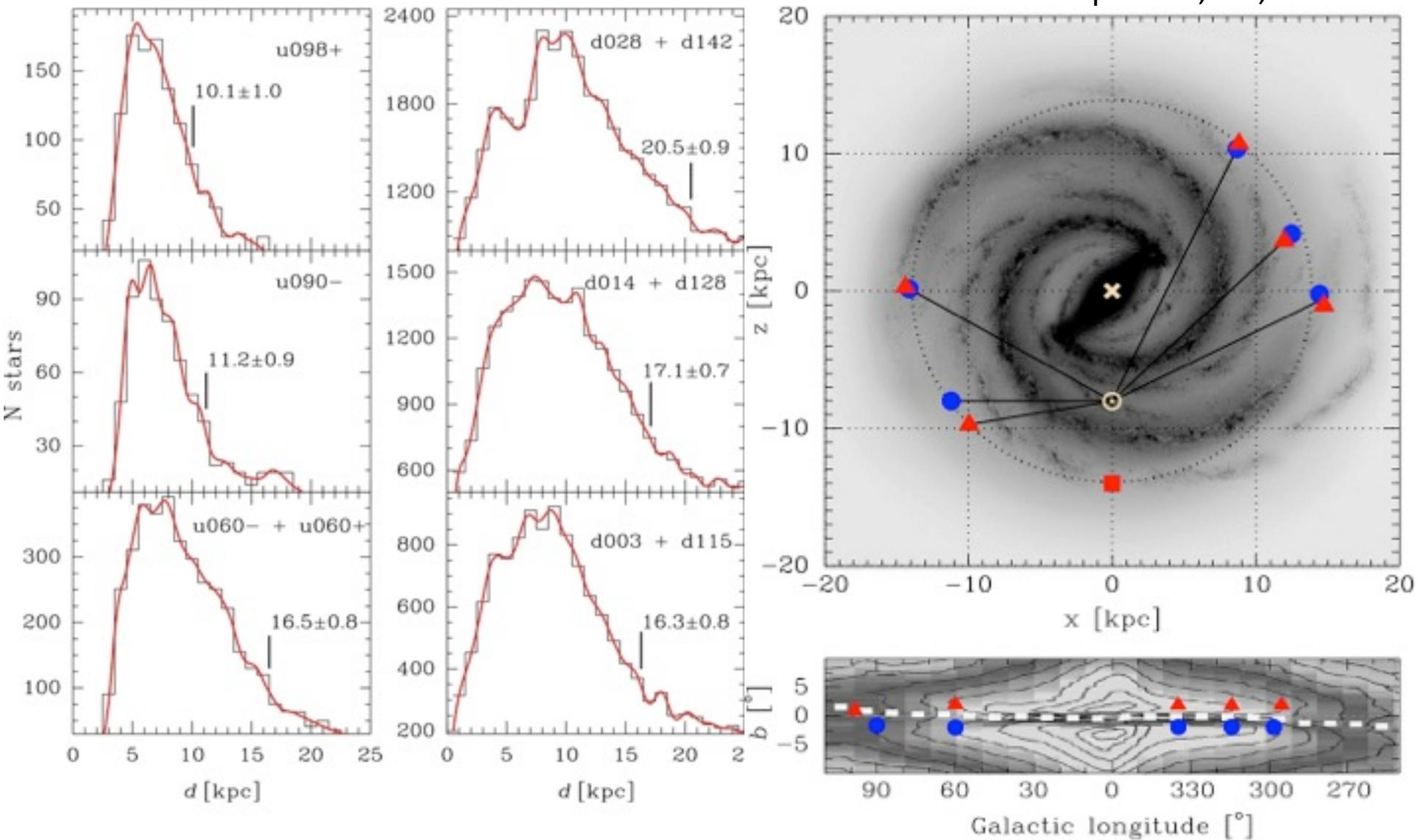
| Lead author |       | Reference            | The VMC Survey   |
|-------------|-------|----------------------|--|
| Ripepi      | et al | arXiv:1204.2273      | V. First results for Classical Cepheids                                  |
| Rubele      | et al | 2011A&A...537A..106M | IV. The LMC star formation history and disk geometry from four VMC tiles |
| Gullieuszik | et al | 2012A&A...537A..105M | III. Mass-loss rates and luminosities of LMC AGB stars                   |
| Miszalski   | et al | 2011A&A...531A.157M  | II. A multi-wavelength study of LMC planetary nebulae and their mimics   |
| Cioni       | et al | 2011A&A...527A.116C  | I. Strategy and first data   |

Tile 4\_3 example

Goodness of fit

# VVV VISTA Variables in the Via Lactea

Minitti et al ApJL 733,L43,2011





# VVV

| Lead author |       | Reference           | Title   |
|-------------|-------|---------------------|---|
| Gonzalez    | et al | Archiv1204.4004G    | Reddening and metallicity maps of the Milky Way bulge from VVV and 2MASS II. The complete high resolution extinction map and implications for Bulge studies |
| Saito       | et al | 2012A&A...537A.107S | VVV DR1: The first data release of the Milky Way bulge and southern plane from the near-infrared ESO public survey VISTA variables in the Vía Láctea        |
| Moni Bidin  | et al | 2011A&A...535A..33M | Three Galactic globular cluster candidates  |
| Gonzalez    | et al | 2011A&A...534L..14G | The inner Galactic bar traced by the VVV survey   |
| Gonzalez    | et al | 2011A&A...534A...3G | Reddening and metallicity maps of the Milky Way bulge from VVV and 2MASS. I. The method and minor axis maps   |
| Borissova   | et al | 2011A&A...532A.131B | New Galactic star clusters discovered in the VVV survey   |
| Minniti     | et al | 2011ApJ...733L..43M | The Edge of the Milky Way Stellar Disk Revealed Using Clump Giant Stars as Distance Indicators  |
| Minniti     | et al | 2011A&A...527A..81M | Discovery of VVV CL001. A low-mass globular cluster next to UKS 1 in the direction of the Galactic bulge  |
| Minniti     | et al | 2010NewA...15..433M | VISTA Variables in the Via Lactea (VVV): The public ESO near-IR variability survey of the Milky Way   |



# Conclusion

- VISTA works as expected – the novel systems all work well
- First public data released
- Science papers published
- VISTA is making it's complementary impact