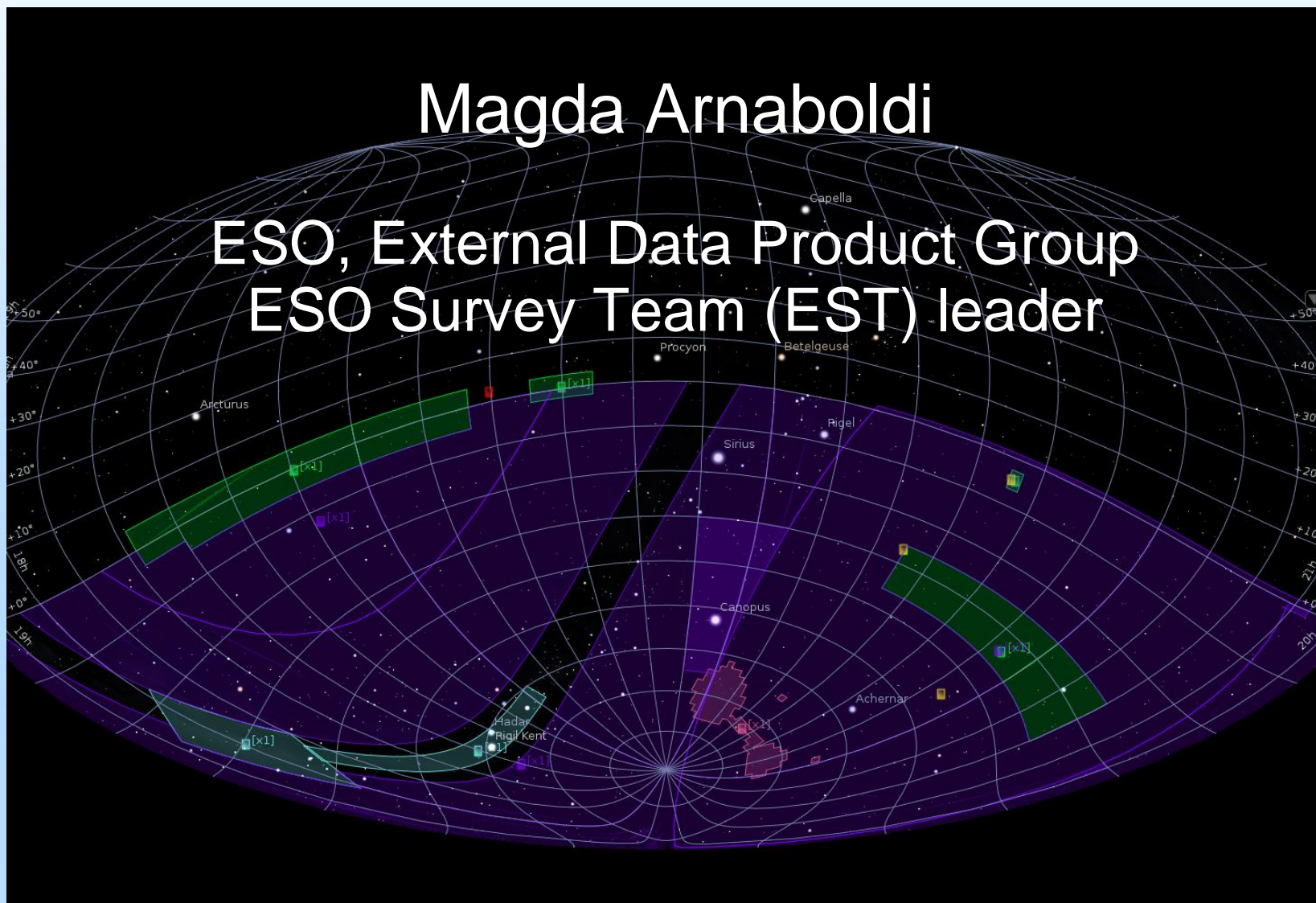# Phase 3 - an introduction

Magda Arnaboldi

ESO, External Data Product Group
ESO Survey Team (EST) leader

Outline

- The ESO Phase 3
  - Definitions
  - Policies & products
  - Timelines
  - Infrastructures and tools
  - The P3 workshop & who is who
  - Phase 3 - start of operations

Phase 3 - definitions

❖ Phase 3 represents the final step in the execution of ESO Large Programs and Public Surveys - both imaging and spectroscopy;

❖ Phase 3 closes the loop with the community, and is a joint effort of the PIs/Co-Is and ESO;

❖ During the Phase 3, a PI of an ESO large program or public survey

- prepares and validates the data products according to specified standards,

- organises and submits the data products via dedicated interfaces for their ingestion into - and publication through - the ESO archive.

Phase 3 - Policies

❖ *The ESO/ST-ECF Science Archive Facility (SAF) is the collection point for the survey products and the primary point of publication/availability of these products to the ESO community.* [ESO Council document on the VLT/VLTI science operation policies (Meeting #104, Dec. 17/18, 2004)]

❖ ESO assists the PIs to define and package their data products in a manner consistent with SAF and Virtual Observatory standards and integrates the products into the SAF.

❖ The allocation of observing time for the scientific follow up of the surveys will be subject to the timely delivery of the surveys' products and their compliance to the specifications. The Public Survey Panel will periodically review the progress of the surveys and will assess the compliance to the specification of the surveys' products.

Phase 3 - Policies

The delivery of the data products to the ESO archive from an ESO public survey is the PI's responsibility; the PI certifies the scientific quality and accuracy of the data products, and *can delegate the data submission*.

Phase 3 for ESO Public Surveys:

➢ **When?** The timeline for data products delivery is described in the contracts signed by ESO DG and PIs. Deadlines are associated with, and in preparation to, the survey progress reviews by the Public Survey Panel and the reports to the OPC.

➢ **What?** Survey data products and the QC reports described and agreed upon in the SMPs.

Phase 3 – Data product types

The PS data products :

1. Astrometrically and photometrically calibrated, co-added, re-gridded images, along with their respective weight maps, in all the project-relevant filters.

2. Aperture-matched source catalogues based on individual or co-added bands. Associated source catalogues linking the parameters of individual objects across all of the observed filter bands.

3. Light curves for multi-epoch observations of variable sources.

The structure and format of data products must comply with ESO standards

Phase 3 – Data products & timeline

The tables hereafter list short descriptions of deliverables and external data products, their initial deadline for submission and the frequency of the expected new releases.

In what follows, t_0 refers to the date of the official start of science operations for surveys with VISTA. According to the current schedule, it is April 1st, 2010.

Phase 3 – timeline #1

Table 1: Summary table of the deliverables at t_0 + 12 months, and the frequency of new releases

Survey	Deliverable#1 Tiles and confidence maps	Deliverable#2 Single band catalogues for each tile	Deliverable#3 Aperture Matched multi band catalogues	Deliverable#4 Source variability catalogues and light curves	When? 1st delivery: April 1st 2011	Frequency Every six months
ULTRAVISTA deep	Y, J, H, Ks , NB118	x	x		x	x
ULTRAVISTA ultra-deep	Y, J, H, Ks , NB118 (stripes)	x	x		x	x
VHS	Y, J, H , Ks	x	x		x	x
VIDEO	Z, Y, J, H, Ks	x	x		x	x
VVV	Z, Y, J, H, Ks	x	x[1]	X	x	x
VIKING	Z, Y, J, H, Ks	x	x		x	x
VMC	Y, J, Ks	x	x[1]	X	x	x

[1]: variable stars should be flagged in these catalogues
Calibrations: Deliverables #1, #2, and #3 have single-night based calibrations.
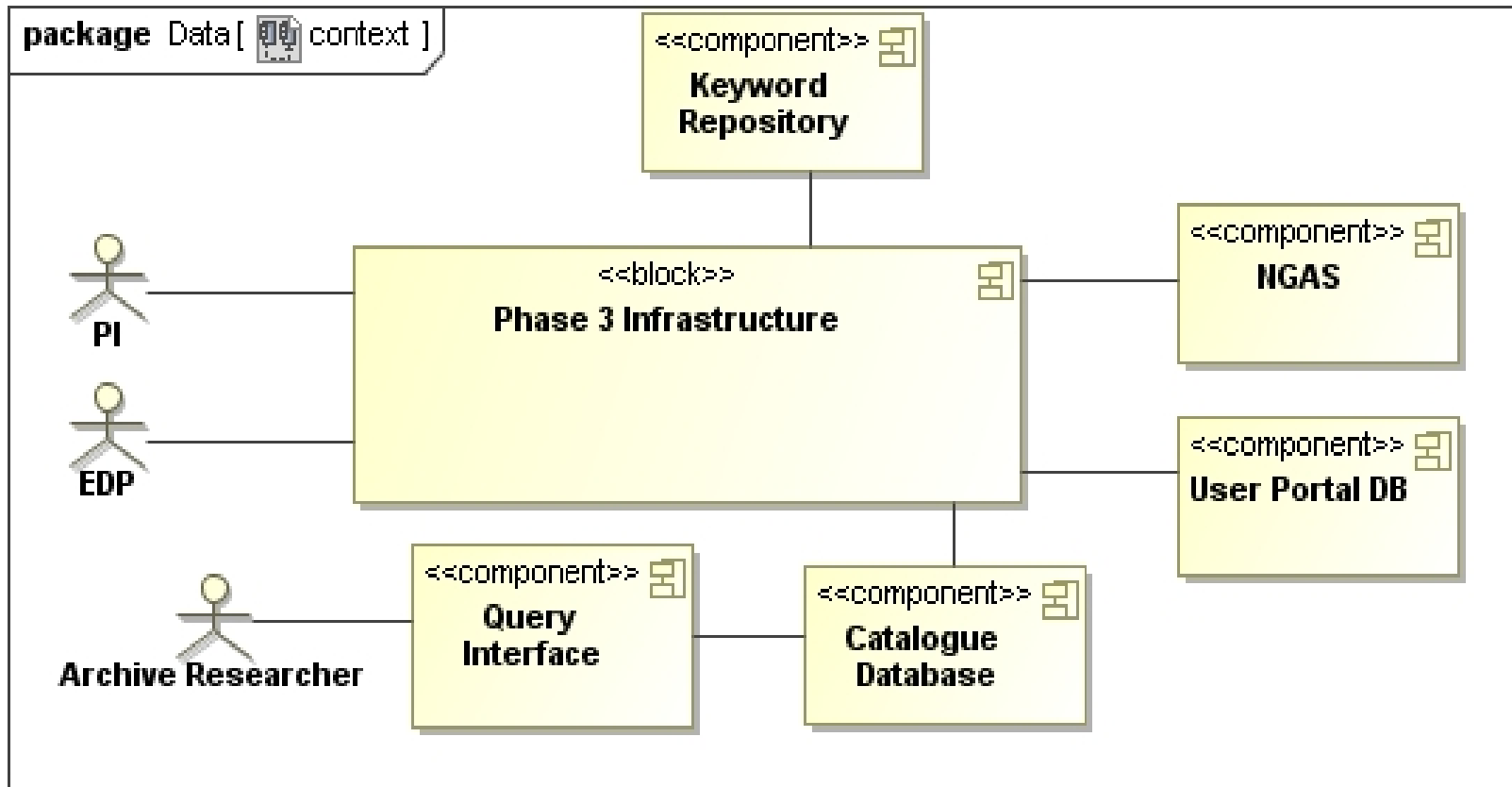
Phase 3 – timeline 2

Table 2: Summary table of the External Data-Products (EDPs) Survey releases at t_0+18 months, and the frequencies of new releases

Survey	EDP: Stacked tiles[2]	EDP: Catalogues	EDP: Multi-epoch catalogues and light curves	When? T_0+18 months	Frequency: yearly	Survey final release (after 5th year)
ULTRA-VISTA	Stacked image of all data up to that date (tile for deep part, and stripes for the ultra-deep one)	Aperture-matched multi-band catalogue from deep stack	No	x	x	yes
VHS[3]	no	Source catalogue on the whole survey area available at the delivery date	No	x	x	yes
VIDEO	Stacked images of the fields up to the delivery date	Aperture-matched multi-band catalogue from deep stack of the fields	Yes	x	x	yes
VVV	x	Source catalogue on the whole survey area available at the delivery date	yes - Multi epoch catalogue in Ks band for the survey area available at delivery date	x	x	yes
VIKING[3]	x	x	Yes	x	x	yes
VMC	x	x	Yes-Multi epoch catalogue for the survey area available at delivery date	x	x	yes

[2]: for the bands see Table 1

[3]: For VHS and VIKING, the Deliverable#1, the image tile, already has the depth and S/N targeted for that pointing position on the sky. The Survey release would then provide the revised astrometry and photometry globally calibrated. It may imply an update of the metadata associated with the deliverable#1, rather than a resubmission of the fits files for these tiles.

Phase 3 : Infrastructures

Requirements set by EDP / Developed by SDD & EDP

Phase 3 : Tools

Components

- Release Manager (http://www.eso.org/sci/observing/phase3/rm)
  - User and Operator interface
  - Create/browse/edit programs/collections/releases
  - Close/submit releases
  - Used by PIs to manage delegations
- Validation Tool
  - User and Operator
  - Meta-data validation
  - Fits validation
  - Dataset/provenance validation
- Upload
  - Upload data to ESO via LFTP
  - Manages authentication (including delegation) via user portal
- Ingestion Tool (backend)
  - NGAS, keyword repository, phase3 DB

Monitoring the survey progress and data submission

Phase 3 : Workshop

- ✓ One day workshop at the ESO HQ in Garching – 30 Nov, 2010;
- ✓ Participants – PIs plus (up to) 2 team members from each survey team;
- ✓ Short presentations by EDP-SDD;
- ✓ Demo of the P3I;
- ✓ Tutorials for the definition of data products releases, data validation and upload.

ESO Public Surveys Phase III Workshop   30.11.2010

Phase 3 Workshop: who is who

- ✓ Phase 3 workflow and tools – Stefano Zampieri (SDD)

- ✓ VISTA public survey products types and format; Phase 3 concept and documentation – Joerg Retzlaff (EDP)

- ✓ Phase 3 Demo – Remco Slijkhuis (EDP) and Paulo Nunes (SDD)

- ✓ Phase 3 Tutorials - Remco Slijkhuis + Vincenzo Forchi (operator), Diego Sforna (SDD)

- ✓ EDP + SDD will assist you during the tutorials.

Phase 3 - start of operations

i. Phase 3 operations begin on Dec 15, 2010

ii. Today's program and ESO presentations will become available from

http://www.eso.org/sci/observing/phase3/workshop2010.html

i. Phase 3 documentation and user manuals available from http://www.eso.org/sci/observing/phase3.html

Phase 3 - start of operations

Programme

08:50 – 09:00 Welcome (F. Comeron)

09:00 – 09:20 Phase 3 - an introduction (EDP - M. Arnaboldi)
Policies, timeline, users' responsibilities, monitoring data products
submission with SVMT at ESO, ESO Archive interfaces

09:20 – 09:50 Phase 3 workflow and tools (S. Zampieri)
Definition of users/delegations, security and data storage, workflow

09:50 – 10:30 VISTA PS: types of products and their format (EDP - J. Retzlaff)
Pawprints, Tiles and single band catalogs, merged catalogs, etc.

10:30 – 10:45 Coffee break

10:45 – 11:45 Presentation by VISTA PIs - updates to the SMP- data products
description and schedule for the delivery timeline

11:45 – 12:00 Phase 3 concepts and documentation (EDP - J. Retzlaff)

12:00 – 13:00 Phase 3 demo (P. Nunes, V. Forchi, D. Sforna, + EDP R.
Slijkhuis)

13:00 – 13:45   Lunch break

13:45 – 14:15   Introduction to tutorials (EDP – R. Slijkhuis)

14:15 – 16:15 Tutorials

16:15 – 16:30 Coffee break

16:30 – 17:30 Feedback on Phase 3 tools, Discussion