



# Different flavors of data

La Silla Paranal Users Workshop

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Public





# Where to find LPO data

[archive.eso.org](http://archive.eso.org)



# The ESO Science Archive

- The ESO Science Archive is the collection and distribution point of all the LPO data
  - Paranal, La Silla, APEX
  - All raw data (science and calibrations), selected science-ready processed data
  
- Raw data typically becomes available within 15 minutes from observation
  - Science data is subject to proprietary restrictions
    - Typically 1 year, with exceptions (e.g. Public Surveys)
  - Calibration data is public immediately
  - Processed data have the same rights as parent raw files

# Raw data

- Two flavors: science and calibrations
- Raw data have to be processed to:
  - Extract the science signal
  - Remove instrumental effects
  - Remove atmospheric effects
  - Calibrate in physical units
- Suitable calibrations need to be associated to the science data
  - The calibration cascade can be rather complex
  - The [ESO Science Archive](#) does it for you
- Data processing itself will be covered this afternoon

# Processed data

- Processed data are available for selected content
  - 2.6 million files and growing...
- Science-ready, they make it easier to use the data
  - But should be used with a grain of salt
- Two flavors
  - Project-oriented: processed with specific science goal(s) in mind
  - Instrument-oriented: processed in a standard way to cover all the output of selected instrument modes



# Processed data: project-oriented

- They typically originate from large, coherent programmes: Public Surveys, Large Programmes  
<http://eso.org/rm/publicAccess#/dataReleases>
- They typically are large, coherent datasets tailored to specific science goals
  - The whole Southern Hemisphere (VHS)
  - The inner part of the Milky Way (VVV)
  - The transient sky (PESSTO)
  - Multi-wave coordinated datasets (KiDS and VIKING)
  - ...
- Highly processed, including source catalogues



# Processed data: instrument-oriented

- Cover the whole data history of an instrument mode

[www.eso.org/sci/observing/phase3/data\\_streams.html](http://www.eso.org/sci/observing/phase3/data_streams.html)

- Hundreds of different science cases

- UVES point-source: from AGNs to local stars
- HARPS: from planets to stars and beyond
- PIONIER: high-spatial resolution imaging
- MUSE-DEEP: deep Integral Field Spectroscopy
- ...

- Processing level stops short of specializing the data for specific science cases

# Phase 3

- Phase 3 is the process of preparation, validation and archive ingestion of science data products

[www.eso.org/sci/observing/phase3.html](http://www.eso.org/sci/observing/phase3.html)

- Mandatory for Public Surveys and Large Programmes
  - Open to all contributions
- A crucial part of Phase 3 is data and metadata validation
  - Without it, the archive would just be a storage place
  - Validation turns it into a trusted source of data

# A cautionary tale

- With great power comes great responsibility: *always* triple-check the data!

Magellanic Clouds Newsletter (No 146, April 2017)

