Multi-object Spectroscopy: a FORS2/VIMOS/EFOSC2 view
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ESO experience based on:


Life and death of an ESO multispectro project
Build the project and choose the telescope/instrument

- ESO doc are very detailed
- Sometimes too detailed to extract the main points, but overviews available on the ESO www
- Easy access to information (doc or human advice)
Stability of the templates with time

- Regular programs: enough space

- LP: very difficult to justify the science aspects within the allowed space, even with concision efforts. Unofficial solution: sometimes use of external web pages to add what is lacking (figures, technical diagnostics, etc...)

Suggestion: enlarge LP templates or give rules for external web pages
Submit the proposal

Easy to upload proposal

Two steps process (text first, check, then, figures) quite easy to handle

Rapid human reaction in case of problems
Phase 2: Pre-imaging

- Very simple with EFOSC2
- A bit more complex with FORS2/VIMOS
Phase 2: Spectroscopy

Quite simple with EFOSC2 even if sometimes difficult to have the requested slit punch.

Much more complex with FORS2/VIMOS in SM. Requires a huge investement from observers to understand the procedure and make the OBs when starting from scratch (was less time consuming and less difficult in Visitor Mode, but more risky for sure...).
Suggestions for phase 2: add flexibility

(1) choose a p2pp version and stick to it over time or allow cross-use of different versions

(2) less strict rules regarding OBs: 1 hour is really short for deep surveys

(3) as a science project is never frozen: allow pre-imaging / science time exchange, be less strict regarding target change (had the curious experience to have to ask permission to observe galaxies inside the allocated clusters because coordinates were different by a few arcmin...)
Observation process

VM : OK, great experience !

SM:
- easy to follow progress of the program
- easy download, calibration files most of the time
perceived perfectly adapted (perhaps extend the automatic photometric calibrations to the z' band?)
- easy to talk to a real human being if more details are needed
Data reduction process

Codes always available, human support very efficient

Codes are sometimes complex and need real investment, but MOS data requires this

ESO in-situ data reduction is useful but people very often prefer to have their own feeling...
Science results

Huge return !!

Many thanks to ESO !

A few (personnal) examples :
**VVDS**, >43 refereed papers, >4000 citations

Highlight: Cucciati et al. (2012), Guzzo et al. (2008)
VIPERS, >23 refereed papers (ongoing), >800 citations

Highlight: de la Torre (2013)

GR in a WMAP9 LCDM model
XXL, XMM-LSS, >40 refereed papers (ongoing: 15 more scheduled for 2017), >800 citations

Highlight: Adami et al. (2017)

Luminosity-temperature relation and its evolution up to z~1
DAFT/FADAS, 9 refereed papers, ~100 citations

Highlight: Guennou et al. (2015)

Detailed mass and dynamical study of LCDCS0504 (z~0.8): galaxy, X-rays, strong lensing,
Coma survey, 10 refereed papers, ~250 citations

Highlight: Adami et al. (2009)

(Coma from ESO at +28deg !!)

Spectroscopic CMR/RS and LF down to $R \sim -11.9$

Background

Coma early

Coma late
Collected opinions in the MOS community

Ensure a MOS allocated program can complete 100% of its scientific goals?

- Science projects being evolving entities, make easier to get (reasonable amount of) additionnal time if needed after completion of the initial data observing process to complete the scientific goals: getting the last 10% is very difficult

- Apply XMM allocation politic?

Recommendation 2016-06-08/05: The UG recognizes the need to complete important samples, to observe key targets of other wavelengths and targets otherwise important within an archival context and from legacy considerations. The UG recommends to establish a “fulfil” program to serve such demands better.

https://www.cosmos.esa.int/web/xmm-newton/users-group
Given the very high VIMOS efficiency, the data legacy aspect (e.g. Le Fèvre et al. 2005, Lilly et al., 2007, Guzzo et al. 2014, Le Fèvre et al. 2015, .... : >1000 citations), and the actual spectroscopic needs: keep VIMOS alive until the arrival of the next massive ESO MOS?

- May we mount/dismount the instrument at e.g. a 2 semester frequency?
Future ELT/VLT ESO MOS have a crucial role to play in the future ATHENA follow up surveys (see EAST prospective)

Galaxy cluster surveys in the ATHENA framework

Magnitude limit versus redshift for the Athena clusters