



Science & Technology Facilities Council

UK ATC

Survey instrument development

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Example survey instrument: WF MOS

- 3,200 simultaneous Optical spectra
- 2 major science cases (Dark Energy and Galactic Archaeology)
- 4 spectrograph modes (resolution+range)
- “Expected” length of observation 30 mins.
- 64,000 spectra (& setups) every night.
- The instrument project must provide;
 - Observation preparation facilities
 - Quick look tools (& Quality Control)

1: Observation Prep

- Select potential observations from Astronomers own catalogue or remote source
- Merge with other catalogues to get (for example) accurate position info
- Select based on sampling requirements of science case
- Select based on positioner constraints
- Select based on survey constraints/efficiency

These would be better done concurrently at source? What about commonality?

2: Quick-look

- 3,200 spectra every 30 mins.
- Can't examine them all, so need to sample
- Need diagnostic tools – line catalogues, simple reduction utils
- We already have a “database” of observations
 - SEDS Server + existing tools ?
- We also need automated quality control

Getting the instrument built (== passing reviews)

- The standard/tool/API must exist, and must have a history and a future
- Instrument software has to conform with observatory standards;
 - Languages
 - Versions (APIs, tools, etc., etc.)
 - Support
- The cost benefits have to be obvious

- Standards
 - Documented, implemented, agreed
- Toolkits
 - Ease of development
- Tools
 - Mustn't be huge monoliths
- Distribution and install
 - Biggest headache of all (if you get it wrong)