SOXS Science Meeting
November 24-26 2020

OPERATIONS

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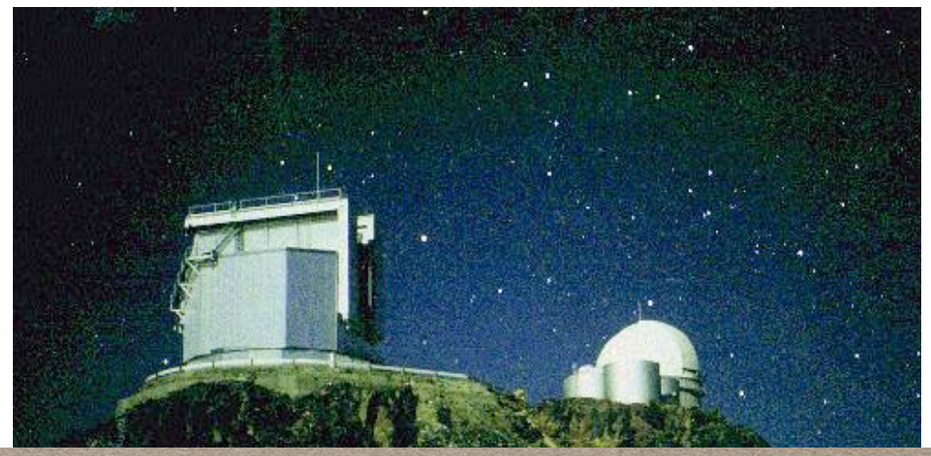
Where do we start from?

- As a reward for the construction of SOXS, ESO will compensate the SOXS Consortium for 180 n/yr for 5 yr (MoU SOXS-ESO, already signed)
  at the NTT in La Silla (+5 yr TBD)

- **DDT**, as well as Chilean time, technical nights and ESO time will cover the other 185 night (split bad weather)



Integrated approach

SOXS Consortium will manage the entire schedule including ‘SOXS’ time and ‘ESO’ time.

Schedule day-by-day, optimising for into account the Moon, airmass, seeing, water vapour, sky brightness, wind direction constraints.

Overall balance among ESO and SOXS time in terms of dark-grey-bright time, water vapour, seeing, etc.

Phase 1

ESO will open a call for SOXS time every semester (as for any other telescope).
OPC will assign the open time to the community according to their merit.

The SOXS consortium will provide an ETC along the lines of the XS-ETC (preliminary version ready).
The Consortium could be consulted by ESO to verify the technical feasibility of problematic proposals.

A SOXS helpdesk will be available to the community.

Phase 2 (1)

The Consortium will provide the community with an OB builder (containing verification tests, etc.).

All ESO accepted proposal for the NTT (SOXS and eventually other instruments, highly discouraged, e.g. EFOSC2?) send to the Consortium the relative OBs.

The SOXS Consortium will generate on a day-by-day basis the observing schedule (at least one day in advance).

Phase 2 (2)

Performed observation will populate a database to keep track of observing time and observing conditions (and internally science category, nationality, etc.)

The schedule can be changed on the fly if sufficiently interesting sources will show up after the schedule delivery.

Operations

After an initial period of training (of people) and instrument (set up and debug), no SOXS scientists will be in La Silla (unless for limited periods).

SOXS people
- will prepare the night schedule in advance
- one scientist will remain on-call for problems and for changing the schedule in case of unforeseen fast-track events

Observations are carried out by the night operator at the NTT telescope.

Night operations (1)

- Start up instrument: The night operator will follow a set of procedures to start up the telescope and the instrument, including opening the dome, changing the state of the instrument from STANDBY to ON, etc.
- **Afternoon/twilight** calibration: execute OBs according to calibration plan. If calibrations are not ok, repeat them at dawn.
- Execute science OBs: following the night schedule.
- Process within OB: The OB contains a set of observing templates with set parameters that are executed in order. The OBs are interpreted by the INstrument Software (INS) through the BOB interface, and low-level commands are sent to the instrument, the telescope and the detector.

Night operations (2)

- SOXS pipeline will be **public** and installed at La Silla. **Installation** can be done by SOXS people together with ESO people, but then maintenance and newer versions should be performed by ESO people.

- Write raw data to archive: As the Detector Control Software reads out the detectors, the output **FITS** files are written to an archive at La Silla conforming to ESO standards. The raw FITS files will contain all information necessary for data reduction, including environmental conditions.

Night operations (3)

- The Night operator closes the **night log** reporting all observations performed and decision taken and it is sent to SOXS Consortium

- The Night operator can **contact** SOXS people on duty for transient alerts in case of problems and in case of help needed for some scientific decisions related to QC0, **if** this occurs rarely (i.e. SOXS people is not on duty for a remote-like observing service)

Quality control

Data are processed with the SOXS pipeline on the mountain.

- Quality Control 0 (QC0) checking: A short-term feedback loop is required to verify whether an OB has been successfully executed both in technical terms as well as in basic scientific terms (i.e. non-zero counts) and to verify that the instrument is still in a healthy state.

- Quality Control 1 (QC1): after agreement with ESO/ DMO the QC1 processing of calibration data (with the associated scoring, **Health Check monitor**, trending) can be done by the ESO's QC group.

Data policy

Using standard ESO data file name classification, **all data** (L1 included, calibrations, image acquisition, etc.) will be public (after 12 mounts SOXS proprietary period).

The pipeline will be **public** (also for ESO) so that users can also re-run (if wanted) the reduction pipeline.

The **estimated** rate of all raw data is <5GB/d

HOW WILL IT WORK ON OUR SIDE?

SOXS DUTIES

- prepare the overall night schedule in advance
- one scientist will remain on-call for problems and for **changing** the schedule in case of unforeseen fast-track events
- remain on call in case of (rare) instrument problems
- help ESO users in case on need (helpdesk during working hours)
- investigating the possibility of 'designated visitor mode' also in La Silla

SUMMARY

SOXS @ NTT from 2021
Medium resolution (~4,500)
Broad-band (350-2000 nm)
ugrizy-V imaging (3'x3')

180 n/yr for 5 years
Possibility to trigger every night
Fast reaction (probably the only instrument mounted at NTT)

GTO is fully dedicated to transient and variable sources