# VLT Science Verification Policy and Procedures

December 20, 2001

## 1. Science Verification Observations

After the conclusion of Commissioning of a new VLT instrument, and prior to the start of regular operations, a series of **Science Verification** (SV) observations with such instrument are conducted. SV observations may also be conducted in the case of a major instrument upgrade.

The equivalent of at least 11 VLT UT nights should be dedicated to SV observations. SV Observations are conducted during the *dry runs* preceding the instrument regular operations. At the end of the scheduled dry runs the VLT Programme Scientists submits to the Director General a report on the status of completion of the planned SV observations. If the corresponding set of data is judged insufficient to reach the goals of SV, the Director General may decide for further SV observations to be executed during the first scheduled regular runs in Service Mode.

All SV Observations are conducted in Service Mode, but one or two members of the SV Team may be present at Paranal Observatory for a prompt reduction of the data, and the selection of the observations to be executed.

## 2. Goals of Science Verification

The goals of SV are manifold, and include:

- Offer to ESO users first science-grade data from a new instrument
- Demonstrate the scientific potential of the VLT+instrument
- Foster an early scientific return from the VLT+instrument
- Experiment any pipeline and reduction tools that may be available at the time of SV
- Provide feedback to Operation (Paranal and Garching), Instrument Division, and Data Flow System, as appropriate
- Involve scientists from the ESO community in the prompt scientific exploitation of the data.

## 3. Science Verification Programmes and Data Policy

The SV Plan of an instrument is developed by a dedicated SV Team.

The PI(s) of the instrument subject to SV and the Instrument Science Team are involved in the definition of the SV plan.

The SV Programme is presented to the ESO Faculty for discussion.

The SV Programme is finally submitted by the VLT Programme Scientist to the Director General for approval.

SV observations of targets already included in GTO or approved GO programmes with the same instrument could be executed only with the agreement of the PI.

Raw and calibration SV data passing quality control are made immediately public via the ESO archive, following the "Data Access Policy for ESO Data".

The SV Team will make efforts to release reduced SV data within two months from the conclusion of SV observations.

## 3. Selection Criteria for SV Programmes

SV Programmes are selected according to the following criteria:

- Should have outstanding scientific interest
- Push the VLT+Instrument close to their limit
- Address a scientific issue widely studied within the ESO Community
- Result in a sufficiently complete dataset for its prompt exploitation to be scientifically rewarding
- Use the core modes of the instrument
- Help PIs and Co-Is of approved GO and GTO programmes to get promptly acquainted with the data from the instrument
- Exploit complementarity with other public datasets (e.g. HDF-S/CDF-S/EIS etc.), if appropriate.

## 4. The SV Team

### *4.1 Composition of the SV Team*

A dedicated SV Team is assembled for each of the various SV phases, including Garching and Chile staff and fellows (typically up to 8-10 people).

In the selection of the SV Team members the VLT Programme Scientist will follow the following criteria:

- Strong scientific interest for the specific capabilities of the instrument
- Technical experience with the type of data being produced by the instrument
- Wide coverage of the main scientific areas that the instrument is designed to satisfy

To all activities of the SV Team will also be invited to participate:

- The Instrument PI and Co-PI, or one person designated by each of them
- The ESO Instrument Scientist
- The ESO and Consortium Instrument Pipeline experts

*4.2 Duties of the SV Team*

The duties of the SV Team include:

- Development and pre-selection of the SV projects
- Preparation of the OBs, and their delivery to Paranal Observatory prior to the instrument dry runs (in part, prior to *Paranalization-2*)
- Maintenance of SV WEB pages, describing the SV plan well in advance of the SV Observations, and including informative lists of SV data as they become public
- Real time assessment of the SV data at Paranal Observatory (maximum 2 SV Team members)
- Reduction of the SV data
- Delivery through the SV WEB and the ESO Archive of the raw, calibration, and calibrated data
- On users request provide information on the data
- The SV Team can have access to the Commissioning data prior of SV observations.

## 5. Scientific Exploitation of the SV Data

The scientific exploitation of the SV data can start as soon as the data are publicly released.

The formation of groups and teams for the scientific exploitation of SV data is left to the initiative of the individuals.

SV Team members are encouraged to promptly use the data and to stimulate the participation of scientists from the community.

Authors are kindly asked to send to ESO (Office of the VLT Programme Scientist) at submission time copy of any paper that may result from the use of SV data, along with a concise technical report on the use of the data, pipeline, etc.