



ESO Call for Proposals – P93

Proposal Deadline: 01 October 2013, 12:00 noon CEST

Call for Proposals

ESO Period 93

Proposal Deadline: 1 October 2013,
12:00 noon Central European Summer Time

Issued 2 September 2013

Preparation of the *ESO Call for Proposals* is the responsibility of the ESO Observing Programmes Office (OPO). For questions regarding preparation and submission of proposals to ESO telescopes, please contact the ESO Observing Programmes Office, opo@eso.org.

The ESO Call for Proposals document is a fully linked pdf file with bookmarks that can be viewed with [Adobe Acrobat Reader](#) 4.0 or higher. Internal document links appear in red and external links appear in blue. Links are clickable and will navigate the reader through the document (internal links) or will open a web browser (external links).

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Part I

Phase 1 Instructions

1 ESO Proposals Invited

The **European Southern Observatory (ESO)** invites proposals for observations at ESO telescopes during Period 93 (**1 April 2014 – 30 September 2014**). The following instruments are offered in this period:

La Silla

[EFOSC2](#) (ESO Faint Object Spectrograph 2)
[HARPS](#) (High Accuracy Radial velocity Planetary Searcher)
[Sofi](#) (Son of ISAAC)

Paranal

[AMBER](#) (Near-infrared interferometric instrument)
[CRIFES](#) (Cryogenic high-resolution IR Échelle Spectrograph)
[FLAMES](#) (Fibre Large Array Multi Element Spectrograph)
[FORS2](#) (FOcal Reducer/low dispersion Spectrograph 2)
[KMOS](#) (K-band Multi-Object Spectrograph)
[MIDI](#) (MID-infrared Interferometric instrument)
[NAOS-CONICA](#) (High Resolution NIR Camera and Spectrograph)
[OmegaCAM](#) (Wide Field Imager for the VST at Paranal)
[SINFONI](#) (Spectrograph for INtegral Field Obs. in the NIR)
[UVES](#) (UV-Visual Échelle Spectrograph)
[VIMOS](#) (Visual Multi-Object Spectrograph)
[VIRCAM](#) (VISTA InfraRed CAMera)
[XSHOOTER](#) (UV-Visual-NIR medium resolution échelle spectrograph)

Chajnantor

[LABOCA](#) (Large Apex BOLometer CAMera)
[SABOCA](#) (Submillimetre APEX Bolometer CAMera)
[SHFI](#) (Swedish Heterodyne Facility Instrument)
[CHAMP+](#) (Carbon Heterodyne Array of the MPIfR)
[FLASH](#) (First Light APEX Submillimeter Heterodyne receiver)

There are more details on the offered instruments and the ESO facilities on the Period 93 [Instrumentation and Facilities](#) page. The main characteristics of all instruments offered at La Silla, Paranal and Chajnantor in this call are described in the [Instrument summary table](#).

The ESO proposal submission deadline is:

**1 October 2013,
12:00 noon Central European Summer Time.**

Please note it is the PI's responsibility to resolve any verification or upload problems related to the instrument configuration, LaTeX file or associated figures well before the deadline. ESO cannot provide support beyond 11:00 CEST on the day of the deadline. The online receiver will switch off at 12:00 CEST. No submissions or amendments to submitted proposals can be accepted after this time.

In each submitted proposal, one single person, the Principal Investigator (PI), must be identified as being principally responsible for that proposal. By submitting a proposal the PI agrees that he/she and his/her collaborators will act according to ESO's policies and regulations (including the conditions specified in the present Call for Proposals) if observing time is granted.

Any questions about policies or the practical aspects of proposal preparation should be addressed to the ESO Observing Programmes Office, opo@eso.org. Enquiries related to the technical requirements of the planned observations should be sent to the User Support Department (usd-help@eso.org) for Paranal and Chajnantor and to lasilla@eso.org for La Silla. Enquiries can also be made through the [Ask for help](#) link in the User Portal, which is listed under "Other Services".

Part I of this Call for Proposals provides information on how to complete and submit a Phase 1 proposal to ESO and Part II describes the policies and procedures regarding proposing for, carrying out, and publishing ESO observations.

1.1 Important recent changes (since Periods 91 and 92)

- **General changes**

- **Call for Proposals:** The ESO Call for Proposals document has been modified and significantly shortened. All technical details related to the available facilities, telescopes and instruments are now available solely through the ESO webpages. This Call for Proposals document outlines the main news concerning the call, provides guidelines on how to prepare and submit an ESO observing proposal, and outlines the policies that apply to accepted ESO programmes.

Information on the available instruments can be found via the La Silla Paranal Observatory [Call for Proposals](#) webpage. News items related to the technical capabilities of the ESO instruments have been moved to the [Recent Changes](#) webpage. Further useful information can be accessed from the Phase 1 [Important Links for Period 93](#) webpage; e.g., statistics on telescope pressure and definitions of observing constraints .

- **Public Spectroscopic Surveys with VIMOS:** Letters of intent are solicited by a deadline of 15 October 2013 for [Public Spectroscopic Surveys](#) with VIMOS.
- **Monitoring Programmes:** The OPC Working Group and the ESO Users Committee have recommended the introduction of Monitoring Programme proposals. These proposals enable users to request a limited amount of time to monitor targets over more than one period. Proposers should use the normal proposal template with the appropriate macro in order to apply for a Monitoring Programme. See Section 4.2 for the detailed definition of a Monitoring Programme and the instruments offered for this programme type.

No Monitoring Programmes will be allowed on La Silla, VISTA or VST telescopes. On APEX and Paranal telescopes, Monitoring Programmes are subject to the same instrument restrictions as Large Programmes (see below).

- **Large Programmes:** See Section 4.3 for the detailed definition of a Large Programme and the instruments offered for this programme type. On APEX, Large Programmes will not be accepted for the PI instruments, CHAMP+ and FLASH. As in previous periods, Large Programmes will not be accepted for either VIRCAM or OmegaCAM. The following VLT/VLTI instruments are also unavailable for Large Programmes: CRIRES, XSHOOTER, VIMOS, NACO, SINFONI, AMBER, MIDI and the VLTI Visitor Instrument. The reasons for these restrictions are given below. Note that these instruments are also not available for Monitoring Programmes for the same reasons.
 - * CRIRES will be transformed into a cross-dispersed echelle spectrograph; as a consequence, the instrument will be taken out of operations for approximately one year likely starting in P95;
 - * XSHOOTER will likely be taken out of operations for several months to install re-designed ADC systems during Period 94 or 95;

- * VIMOS has a significant number of existing and foreseen commitments, including a commitment to start a new ESO Public Survey;
 - * NACO is only offered until the Nasmyth A focus of UT4 is required for AOF-related activities;
 - * SINFONI will be affected by the installation of the AOF in 2014; in addition, it will be taken out of operations likely late in Period 95 or in Period 96, so that its Integral Field Unit, SPIFFI, can be integrated into ERIS;
 - * During Period 94 preparatory work required for the installation of the second generation VLTI instruments will take place in the VLTI Laboratory. As a consequence, MIDI will be decommissioned and the VLTI Visitor Instrument will not be available;
 - * AMBER may be affected by possible future changes.
- **Observing conditions:** The definitions of the observing conditions for Phase 1 and Phase 2 can be found on the [Observing Conditions](#) webpage. Please note in particular the change of the minimum moon distance for grey conditions since Period 92.
 - **Guaranteed Time Observations (GTO)** will be carried out in Period 93 with **AMBER, HARPS, KMOS, MIDI, OmegaCAM, SINFONI and the VLTI Visitor Instrument**. For details about the planned observations, please see <http://www.eso.org/sci/observing/teles-alloc/gto/93.html>.

• Paranal

- Information regarding changes affecting Paranal instruments and facilities can be found at <http://www.eso.org/sci/facilities/lpo/cfp.html>.
- **VLT-XMM proposals:** Proposals are invited for scientific programmes requiring both VLT(I) and XMM-*Newton* observations (Section 4.10). These proposals may be submitted for the next XMM-*Newton* cycle, which extends over ESO Periods 93 and 94. However, proposers should take the limited availability of some of the VLT(I) instruments in Periods 93 and 94 into account; see the **Large Programme** item above and Section 1.3 for details on instrument availability.
- **Distribution of VLT instruments:** Note that in Period 93 the distribution of instruments on the UTs will be: UT1 (CRIRES + FORS2 + KMOS), UT2 (FLAMES + UVES), UT3 (XSHOOTER+VIMOS), UT4 (NACO + SINFONI).
- **KMOS** will start operations in Period 92.
- As of Period 92, **XSHOOTER** has been offered on the Cassegrain focus of UT3. In Period 93, XSHOOTER will offer a new imaging mode with the Acquisition and Guiding camera. This mode allows the users to take images of the fields of their object in various bands for photometric purposes in combination with slit or IFU spectroscopic observations.
- **SPHERE** installation is expected to take place during Period 92 on the Nasmyth A platform of UT3. Commissioning of the instrument will take place during Period 93. As a consequence **ISAAC** is being decommissioned in Period 92 and is no longer offered.
- **VISIR** is not offered in Period 93.
- **MUSE** will undergo commissioning during Period 93.
- **HAWK-I** will be temporarily removed from the UT4 Nasmyth A focus during Period 93, and until it is necessary for AOF-related activities.
- **NACO** will be temporarily offered on the UT4 Nasmyth A focus during Period 93, until the focus is necessary for AOF-related activities. Only a reduced list of modes are offered during this period. For additional details, see the [recent changes](#) webpage or the [NACO User Manual](#).
- **VLT Laser Guide Star:** Since February 2013, PARLA, a prototype of the laser used by the coming Adaptive Optics Facility, has replaced PARSEC, within the Laser Guide Star Facility (LGSF). Thanks to the increase in delivered power and large improvement in reliability, the number of nights during which the LGSF can be used every month is significantly increased.

- No focus is available for a **visitor instrument** on the VLT in Period 93.
- **OMEGACAM:** only Chilean and GTO programme proposals are accepted on the VST in Period 93 in order to ensure the timely progress of the ongoing Public Surveys.
- **VLTI:**
 - * **VLTI-ATs:** No new baseline is offered in Period 93. Note that station J3 may not be accessible during part of the period, in which case it will be replaced by station I1. For a list of all the offered baselines in Period 93, see the [VLTI Configurations Overview page](#)
 - * **MIDI:** Given the arrival of the second generation VLTI instruments, ESO cannot guarantee the availability of MIDI after Period 93.
 - * **VLTI Visitor Instrument:** Given the arrival of the second generation VLTI instruments, ESO cannot guarantee the availability of a VLTI visitor focus beyond Period 93.

PIONIER is a Visitor Instrument which has combined four AT or UT beams since October 2010. In Period 93, VLTI users have the possibility to submit proposals for PIONIER provided they have the agreement of the instrument PI, Dr. Jean-Baptiste Le Bouquin (Jean-Baptiste.Lebouquin[AT]obs.ujf-grenoble.fr) at least two weeks prior to submitting their proposal. Large or Monitoring Programmes with PIONIER will not be accepted. Additional information relevant to the submission of PIONIER proposals can be found on the [Recent Changes](#) web page. After obtaining the instrument PI's approval, proposers should enter SpecialVLTI in the `\ObservingRun` macro and the relevant information in the Visitor Instrument page in the ESIFORM template.

- **La Silla**

- Additional information regarding changes affecting La Silla instruments and facilities can be found at <http://www.eso.org/sci/facilities/lpo/cfp.html>.
- **3.6-m:** A large fraction (45%) of the available science time is committed to ongoing Large Programmes in Period 93 (see the [Telescope Pressure](#) webpage). Large programmes on the 3.6-m telescope can span up to Period 97.
Proposers are encouraged to submit high quality Normal Programmes on the 3.6-m telescope. The success rates of Normal Programmes suggest that these programmes can be very competitive despite the substantial ongoing Large Programme commitment. Please see the article by Aerts, Hussain & Patat in the next release of The ESO Messenger (Volume 153) for more information and a comparison of the success rates of 3.6-m Large Programmes and Normal Programmes between Periods 82-92.
- **NTT:** A fraction (20%) of the available science time on the NTT telescope is committed to ongoing programmes (see the [Telescope Pressure](#) webpage), with a significant number of dark and grey nights already committed. Bright time programmes are particularly solicited for the NTT. Large programmes on the NTT can span up to Period 97.
- **2.2-m:** Time on the 2.2-m telescope is no longer offered through the ESO call for proposals.

- **Chajnantor**

- **Observing with APEX:** Information on the available APEX instruments and capabilities can be found on the [Observing with APEX](#) page. Additional information regarding changes affecting APEX instruments and facilities can be found at <http://www.eso.org/sci/facilities/lpo/cfp.html>.
- **APEX:** For a detailed description of the APEX instrument capabilities and links to observing time calculators see the [APEX instrumentation page](#). During Period 93, the ESO time slots are expected to be scheduled in late March, mid June and late July. The exact distribution of the observing time between the APEX partners can be found on the [APEX web pages](#). Time-critical observations should only be requested during the ESO runs.

- **Large Programmes with APEX using Poor PWV conditions:** In order to make the best use of the time where the PWV is high ($PWV > 2$ mm) ESO invites Large Programmes for those conditions. Poor PWV large programmes must be clearly identified as such in Boxes 5 and 8 of the large programme proposal form. Ideally a “Poor PWV LP Programme” therefore consists of a large sample of targets covering a wide RA range. The proposal must demonstrate that the scientific goals can be reached with only a significant subset of the observations completed. Poor PWV-LPs may cover up to 4 consecutive semesters.
- **SABOCA:** In Period 93, SABOCA may only be available in June and July 2014. ESO may decide to execute accepted SABOCA programmes with ARTEMIS instead if the first commissioning of the ARTEMIS instrument shows a better performance at $350 \mu\text{m}$.
- **SHFI:**
 - * **APEX-1:** Large proposals for $PWV > 2\text{mm}$ conditions are encouraged.
 - * **APEX-T2:** APEX-T2 is offered conditional to a successful repair mission planned in January 2014. THz observations require excellent weather conditions ($PWV < 0.2$ mm).
- **FLASH and CHAMP+:** These PI instruments are offered to the ESO community on a collaborative basis with MPIfR. Large programmes or time critical observations with PI instruments will not be accepted. Users who would like to use FLASH or CHAMP+ must contact the instrument PI, Dr. Rolf Guesten (rguesten[AT]mpifr-bonn.mpg.de), at least two weeks prior to submitting their proposal. Members of the PI team should be included as CoIs on the proposal.

The operation of these PI instruments requires the presence of the instrument team so all ESO FLASH and CHAMP+ observations will be scheduled on fixed dates; the exact dates have not been determined yet.
- **FLASH:** FLASH observations will be done by the PI team during a maximum of 3 days. Preference will be given to proposals using the dual-beam, wide-bandwidth capabilities of FLASH due to limited ESO observing time.
- **Z-Spec:** This PI instrument is not offered in Period 93.

1.2 Important reminders

- **General information**

- **ESO User Portal:** Proposals are submitted via a web upload procedure using the on-line tool, Web Application for Submitting Proposals (WASP). This requires users to first log in to the ESO User Portal at: <http://www.eso.org/UserPortal>. See Section 2.2 for more details.
- **Duration of one night:** Proposers are reminded that one night in visitor mode is defined to be 8 hours in even periods and 10 hours in odd periods on all ESO telescopes.
- **The information provided in the proposal is binding:** All observing runs must be executed as described in the proposal. Deviations from the proposal (either by observing different targets or by using different instrument modes or different constraints) may be allowed only under exceptional circumstances and after approval by ESO (see Section 6.5).
- **OPC evaluation of proposals:** Proposers should keep in mind the need for each OPC panel to cover a broad range of scientific areas; proposals may not fall within the main area of specialisation of any of the panel members. Proposers should make sure that the context of their project and its relevance for general astrophysics, as well as the recent related results, are emphasised in a way that can be understood by their peers regardless of their expertise.
- **The ESO Science Archive Facility:** This facility is the repository of all raw data collected at the La Silla Paranal Observatory. It also contains selected processed data products. Please refer to the homepage of the Science Archive Facility at <http://archive.eso.org> for a complete list of the data holdings and associated links.

- **Duplications:** Proposers are strongly advised to use the [Science Archive Facility](#) to check if observations equivalent to the proposed ones have been performed already. Proposers must check that their planned observations are not duplicating Guaranteed Time proposals for Period 93: [GTO for Period 93](#) or ongoing [Public Survey](#) observations.
- **Access to Service and Visitor Mode data:** The ESO Science Archive Facility is the sole access point to data obtained with ESO telescopes. Principal Investigators of Service and Visitor Mode programmes and their data delegates have access to their proprietary raw data as soon as the data have been ingested in the ESO Archive, which typically happens a few hours after the observation. The data access is provided through the ESO User Portal. The [CalSelector](#) archive service combines the science files with any ancillary files that are needed to process the data, (*e.g.* acquisition images, calibrations, etc.).
Please note that the 1-year proprietary period starts as soon as the data are made electronically available to the PI through the ESO Science Archive Facility.
- **Public Surveys:** Nine public imaging surveys are being carried out on the VISTA and VST telescopes. Public spectroscopic surveys are being carried out on the NTT telescope (EFOSC2 & SOFI), and on the UT2 telescope (FLAMES/GIRAFFE & UVES). Further details are available on the ESO [Public Surveys Projects](#) webpage. There is a new [Call for Public Spectroscopic Surveys](#) with VIMOS; see Section 1.1 for more details.
- **Overheads:** Proposals must include all overheads when computing the total observing time request for both Service Mode and Visitor Mode runs (see the [Overheads](#) webpage).
- **Non-standard observing configurations:** The use of non-standard instrumental modes, configurations or filters requires the prior approval by the ESO User Support Department. A detailed justification should be sent to usd-help@eso.org at least two weeks before the proposal submission deadline. If proposers wish to use non-standard filters on cryogenic instruments, further restrictions apply. See Section 6.2 for more details.
- **Backup programme:** Although Phase 1 proposals requesting Visitor Mode do not need to include backup targets and/or a backup programme, the observer should prepare one in case of unfavourable weather conditions. The original science goals must be adhered to in this backup scenario. Approval of a backup programme must be sought at least one month in advance of the observing run through the change request form as described in Section 5.1.
- **The ESO Science Data Products Forum:** This is a platform that enables users of ESO instruments to share ideas, methods, software and data to assist with the preparation of science data products from ESO telescopes. Users are encouraged to contribute on any topic related to the reduction, calibration and analysis of science data from ESO instruments.

- **Paranal**

- **Observing mode on the VLT:** Departures from the observing mode requested by the proposers may be implemented by ESO so as to achieve a balanced distribution between Service Mode and Visitor Mode.
Proposers should request Service Mode for observations that benefit from the short-term scheduling flexibility allowed by this mode. Proposers may identify runs that lend themselves for observations in either Service or Visitor Mode by specifying one of the modes using the alternative run feature in Box 3 of the ESOFORM Phase 1 proposal form. Please note that if a certain instrument mode is offered exclusively in either Service Mode or Visitor Mode then this overrides these scheduling considerations.
- **Service Mode OBs:** Service Mode Observation Blocks (OBs) including all [overheads](#) can last up to a maximum of 1 hour. This rule also applies to concatenated OBs in most cases. Users are encouraged to read the [Service Mode rules](#) for more details. Longer OBs have to be specifically requested and justified at Phase 2 via a waiver request, which is evaluated by the Observatory.

- **Pre-imaging for VLT instruments and modes:** A separate pre-imaging run must be specified in the proposal (to be executed in Service Mode). Failure to do so will result in the deduction of the time necessary for the pre-imaging from the allocation to the main part of the project (see Section 6.6).
- **Monitoring in Service Mode:** Monitoring a target in Service Mode in a particular period is carried out on a best effort basis only, *i.e.* a monitoring sequence in any particular period may be interrupted by long periods of unsuitable weather conditions or Visitor Mode scheduling. All the time needed to observe one target in one period should be included in one single run; these can be split into the single epoch observations using a time-linked series in version 3 of the [Phase 2 Preparation Tool](#) (P2PP) (see Section 5.2.1 for more information).
- **Rapid Response Mode (RRM):** FORS2, UVES, XSHOOTER and SINFONI continue to be offered in this mode in Period 93. RRM observations that correspond to events with exceptional characteristics may be activated during either Service Mode or Visitor Mode runs, over which they have observational priority, unless the Service or Visitor mode runs involve strictly time-critical observations. For details on the RRM policies, see Section 4.4.1.
- **VISTA:** Due to ongoing Public Surveys only a limited amount of open time is available on VISTA; these observations are carried out in Service Mode only and for restricted Right Ascension ranges. Open time proposals should clearly justify the scientific goals and why they are not achievable through the scheduled public survey observations. Only those proposals that have complementary constraints and coordinate ranges with respect to public survey observations may be scheduled, as the highest priority is given to advance public surveys on VISTA.
- **Calibration Plans:** ESO has implemented calibration plans for all Paranal instruments. The primary purposes of these plans are to assure data quality, monitor instrument performance and calibrate science observations. Based on these plans, calibration data are obtained for certain standard instrument modes on a regular basis. Paranal calibration data are reviewed on a daily basis by Paranal Science Operations and the Garching Data Processing and Quality Control group. A brief summary of the calibration plan for each instrument is available online from the [VLT/VLTI Pipelines & Calibration Plans](#) webpage.

Please read the appropriate user manual and online documentation carefully, as not all instrument modes and/or configurations are covered to the same level of detail by the current calibration plans.

 - * **Service Mode runs:** The calibrations specified in the respective Calibration Plans are obtained systematically by the Observatory and do not need to be requested by the proposers. Proposals for Service Mode runs should only request the time needed for their science observations and, if applicable, night-time calibrations beyond those listed in the published Calibration Plans (including all operational overheads).
 - * **Visitor Mode runs:** Night-time calibrations are the responsibility of the visiting observer with the following exception: up to approximately 30 minutes per night will be used by the observatory staff to obtain standard ESO calibrations. The ESO-obtained data will be used to monitor instrument performance and to assure a baseline calibration accuracy within the ESO Science Archive Facility. ESO does not guarantee that these standard calibration data will be sufficient to calibrate the Visitor Mode science observations to the accuracy desired by the observer. Proposers should plan accordingly for Visitor Mode runs.
- **Data Reduction software:** In collaboration with the various instrument consortia, ESO has undertaken to implement data reduction pipelines for the most commonly used VLT/VLTI instrument modes. A brief summary of VLT/VLTI pipeline availability and functionality for each instrument is available from the [VLT/VLTI Pipelines page](#).
- **Quality Control and Instrument Trending:** The ESO pipelines are used to monitor the performance of the various instruments and their temporal trends. Extensive information about Paranal data handling and processing (e.g. zero points, colour terms, wavelength solutions) is maintained on the [ESO Quality Control web pages](#).

- **La Silla**

- **Support during observing runs and transportation schedule:** A streamlined operation is in effect in La Silla. Technical and logistical support will be delivered as usual by ESO staff, but no specific support astronomer is assigned. Please note that the transportation schedule to and from La Silla may have an impact on the arrival and departure days of the observers at the site. Please check the online instructions for [visiting astronomers](#).
- Large Programmes on NTT and the 3.6-m telescopes may span up to Period 97.
- There is a **minimum length of 3 nights for runs** to be executed with La Silla telescopes. Proposals including La Silla runs with a duration of less than 3 nights will be rejected at submission time by the automatic proposal reception system, with three exceptions:
 1. There is no minimum duration for runs to be carried out with Visitor Instruments (see Section 3). However, in order to minimise the overheads associated with their installation and removal, such instruments are normally scheduled in blocks including several contiguous runs; the length of these combined blocks is typically greater than 3 nights.
 2. On the NTT, users can apply for combined runs using both EFOSC2 and SOFI. The total duration of each of these runs must be at least three nights. The combined runs must be requested using the instrument name “SOFOSC”. Details are also available in the ESOFORM User Manual.
 3. There is no minimum duration for runs of Calibration Programmes.

Note that the minimum duration requirement for La Silla is applicable to each individual run of a proposal involving a La Silla instrument (see Section 4 for more information about the definition of “programme” and “run”). More generally, proposals for **long** runs are strongly encouraged on the La Silla telescopes. Splitting of runs in half nights (*e.g.* a 3-night run spread over 6 half nights) should be avoided as much as possible as it may be impossible to schedule.

- **Pre-imaging:** Pre-imaging frames for EFOSC2 will have to be obtained at the beginning of the spectroscopic run. The resulting lower efficiency should be taken into account in the computation of the required execution time for the run.

- **Chajnantor**

- **APEX:** This telescope is offered in Service Mode only. In exceptional cases (*e.g.* moving targets), remote observing from Bonn (in collaboration with MPIfR) can be considered. Proposals requesting time from different APEX partners are required to mention the amount of time requested from MPIfR, Sweden or Chile in Box 5. Observations will be done for up to 24 hours per day, but users should be aware that afternoon conditions are often significantly worse than night or morning. Observations using high frequency instruments (SHFI/APEX-T2, SHFI/APEX-3, SABOCA) should avoid the afternoon. APEX users should ensure that their proposal meets the following requirements:
 - * specify if time is requested from other APEX partners in the macro, `\SpecialRemarks` (Box 5);
 - * specify the requested PWV using the macro, `\Target` (Box 11), for their project to allow a better distinction between observations requesting a range of atmospheric transparencies;
 - * either indicate an appropriate off-source position or request time to find such a position if they wish to observe extended line-emitting regions;
 - * merge all observations for any APEX instrument into a single run (note that this also applies for the different receivers of SHFI). For Large Programmes this restriction should be understood as a single run per instrument and per period. Separate runs should be specified for observations in different periods.

1.3 Foreseen changes in the upcoming periods

- **CRIRES** will be transformed into a cross-dispersed echelle spectrograph; as a consequence, the instrument will be taken out of operations for approximately one year likely starting in Period 95.
- **X-SHOOTER** will likely be taken out of operations for several months to install re-designed ADC systems during Period 94 or 95;
- **SINFONI** will be taken out of operations possibly in late Period 95, as its Integral Field Unit SPIFFI will be integrated in ERIS which is expected to be installed during Period 99.
- **Activities related to the installation of the Adaptive Optics Facility on UT4 – Yepun**
 - The installation of GRAAL, the adaptive optics module for **HAWK-I**, is expected to take place on Nasmyth A during Period 94.
 - The installation of the 4LGSF is expected to take place late in Period 94.
 - GALACSI, the adaptive optics module for MUSE, is expected to be installed on Nasmyth B during Period 95.
 - The installation of the Deformable Secondary Mirror and re-commissioning of the telescope is expected to take place during Period 95; as a consequence, UT4 will not be available for approximately 2 months.
 - The commissioning of the AOF and AOF-related systems is expected to require monthly slots of up to 7 days during possibly 2 years.
- It is expected that **MIDI** and the **VLT Visitor Instrument** will not be available during Period 94.
- **ZEUS-2**: Pending successful commissioning, the redshift (z) and Early Universe Spectrometer (ZEUS-2) may be offered as a PI instrument during future periods. ZEUS-2 is a broadband spectrograph covering 7 telluric windows covering 200 to 850 μm . For details, see [Ferkinhoff et al. 2010](#).

2 Getting Started

Observing proposals must contain a scientific case, a summary of the proposed observing programme, a list of desired instrument modes and configurations, a target list, and a precise definition of required observing conditions (seeing, atmospheric transparency, lunar illumination, etc.).

In addition, a calculation of the number of hours/nights of observing time needed to accomplish the scientific goals must be carried out and summarized in the proposal. It is therefore important that proposers consult technical documentation or instrument experts regarding the instrument capabilities and sensitivities. The [overheads](#) webpage provides more details on how calculate overheads with different instrument setups using the [Phase 2 Preparation Tool](#) (P2PP).

The definitions of the observing conditions for Phase 1 and Phase 2 can be found on the [Observing Conditions](#) webpage.

The following sections give some additional information and references that should be useful to proposers.

2.1 Exposure Time Calculators

Exposure Time Calculators (ETCs) for ESO instruments are accessible directly on the ESO Web. For La Silla and Paranal instrumentation:

<http://www.eso.org/observing/etc>

For APEX instrumentation please go to:

<http://www.apex-telescope.org/instruments>.

Links to useful proposal preparation software tools (*e.g.* the Object Observability Calculator, Airmass Calculator, Digitized Sky Survey) can be found at:

<http://www.eso.org/sci/observing/tools.html>.

Information on standard stars and sky characteristics, as well as additional tools, are available at

<http://www.eso.org/sci/facilities/paranal/sciops/tools.html>.

The parameters used by the ETCs are based on data collected during instrument commissioning and operations. The ETC parameters are frequently updated and changes will be reflected by the running “version number”. To help the observatory staff assess the technical feasibility of observations, proposers are requested to specify the version number of the ETC they used in the section “9. Justification of requested observing time and observing conditions” of their proposals.

Please check the ESO web pages for the ETC version to be used in Period 93. Please note that while the sky background values used in the ETCs generally reflect actual conditions on Paranal, they do not account for local effects such as the zodiacal light.

Proposers of VLTI observations should check the feasibility of their proposed observations with the visibility calculator “viscalc”, available from the ETC page. At Phase 2, users are also encouraged to select a suitable calibrator star for their planned observations using the CalVin tool, available also from <http://www.eso.org/observing/etc>.

Service Mode proposers are reminded (see Section 6.5) that the requested observing conditions are binding in Phase 2, hence proposers should check the exact definition of seeing in the ETC used to estimate the observing time necessary to complete the programme. They should also ensure that the observing conditions specified in the proposal are consistent with these requirements. The same is true for the requested sky transparency and lunar phase. Non-photometric sky transparency can be simulated by adding 0.1/0.2 mag to the object magnitude for CLEAR/THIN-CIRRUS conditions respectively.

2.2 The ESOFORM Proposal package

All Phase 1 proposals must be prepared using the ESOFORM Proposal Package configured for Period 93 as the package is updated every period. The ESOFORM package may be obtained by logging into the ESO User Portal following the instructions at:

<http://www.eso.org/sci/observing/phase1/esoform.html>

The “ESOFORM User Manual” in the proposal package describes in detail how to fill the L^AT_EX template, and the information required to prepare a valid proposal.

2.2.1 ESOFORM: Important notes

- **Definition of Service Mode and Visitor Mode runs:** An observing programme, as described in a single proposal, may consist of one or more runs. Multiple runs should only be requested for observations with different instruments, for different observing modes (*e.g.*, service mode, visitor mode or pre-imaging runs). Proposers should split Visitor Mode observations at different epochs (*e.g.*, due to different target RAs) into separate runs. Conversely, Service Mode runs should not be split according to time-critical windows, or used to group targets according to their Right Ascensions.
- **Scheduling constraints** must be specified correctly as the telescope schedules are prepared using software that relies on accurate constraints (Alves 2005, [The ESO Messenger, 119, 20](#)). Observing/scheduling constraints that are not indicated or that are inaccurately specified in BOX 12 of ESOFORM are unlikely to be taken into account by the scheduler. **Retrofitting scheduling constraints after the release of the schedule is not possible.**

- **Monitoring programme proposals:** Proposers can now apply for Monitoring Programmes to monitor targets over several periods. Monitoring Programme proposals should be prepared using the normal template form, `template.tex`. The Monitoring Programme type should be specified in this form as follows: `\ProgrammeType{MONITORING}`. More guidelines on the definition and preparation of Monitoring Programme proposals are given in Section 4.2 and the ESOFORM User Manual.
- **Precipitable water vapour (PWV) constraints:** PWV constraints must be specified for CRIFES and all APEX instruments in the “Additional Notes” column of the Target macro. Please see the ESOFORM User Manual for more details.
- **Proposal resubmissions:** If the proposal is a re-submission of an old proposal then the **OPC comments must be addressed** in this new submission.
- **VLT-XMM Proposals:** Proposers must indicate in the ESOFORM if they are applying for VLT-XMM time under the ESA-ESO agreement (see Section 4.10). VLT-XMM proposals may include observing runs to be executed in Period 93 and/or in P94.

2.3 Proposal Submission

Proposals must be submitted in their final version by the submission deadline:

**1 October 2013,
12:00 noon Central European Summer Time.**

This is done via a web upload procedure that can only be accessed by logging into the ESO User Portal at:

<http://www.eso.org/UserPortal>.

Please note that the ESO deadline **will be strictly enforced**: users should plan accordingly. It is the PI’s responsibility to resolve any verification or upload problems related to the instrument configuration, LaTeX file or associated figures. The online receiver will switch off at 12:00 CEST on the day of the deadline; ESO cannot provide support with problem proposal submissions after 11:00 CEST . Requests for submissions or amendments after the deadline will not be considered.

In order to efficiently verify and submit your proposal, please note that:

- **Postscript figures are not accepted.** The proposals are compiled using the pdfL^AT_EX package which accepts only PDF (up to version 1.4) and JPEG file formats. Please note that there is a size limit of 1MB for each figure to be uploaded.
- Always compile your proposal locally with pdfL^AT_EX. Some of the checks are made at the L^AT_EX level and checking your proposal in this way will save you time. If there are errors please read the output carefully in order to identify the problem.
- Further checks are made by the web software (“the receiver”), which uploads your proposal and checks that it complies with ESO’s requirements. The receiver allows you to verify your proposal without actually submitting it. **You should take advantage of this feature to check that your proposal is technically correct well before the Phase 1 deadline.** This can be done by verifying a “skeleton” version of the proposal early; this version should contain all the technical details but not necessarily the full scientific description. This will ease the final submission process considerably.
- Plan ahead! Over past periods, congestion of the proposal submission system has repeatedly occurred in the last few hours before the proposal deadline, leading to delays in response time that occasionally exceeded 1 hour. Try to submit proposals at least one day before the deadline and avoid “last-minute stress”.

At the end of the submission procedure an acknowledgment page is displayed with the Proposal ID. Please print it as a receipt. The PI of the proposal and the submitter will also receive later a confirmation ticket via email, but **the acknowledgment page is the official receipt**. If you are not sure if your proposal has successfully entered the system, **do not** re-submit it but rather contact ESO at esoform@eso.org.

Neither proposals nor corrections to proposals that are submitted after the deadline will be considered.

3 Visitor Instruments

Visitor instruments can be mounted at the VLTI, the NTT, the 3.6-m telescope and at APEX in order to permit innovative observations by teams with their stand-alone instruments or to test new instrumental concepts for the development of new facility instruments.

No focus for visitor instruments is available on the VLT in Period 93.

The requirements for visitor instruments are substantially reduced compared to the requirements for fully integrated facility instruments. A set of guidelines on how to propose a visitor instrument and technical information is available through the links below:

For visitor instruments on the VLTI:

<http://www.eso.org/sci/facilities/paranal/instruments/vlti-visitor/>.

Technical information on the interface for VLTI Visitor Instruments can be found at:

<http://www.eso.org/sci/facilities/paranal/instruments/vlti-visitor/requirements.html>.

Technical information on the interface to the NTT and 3.6-m telescope is at:

<http://www.eso.org/sci/facilities/lasilla/instruments/visitor/VisitorInstruments.pdf>.

For visitor instruments on APEX:

<http://www.eso.org/sci/facilities/apex/instruments/apex-visitor/index.html>.

Part II

Proposal Types, Policies, and Procedures

4 Proposal Types

For Period 93 the list of proposal types is:

- Normal Programmes
- Monitoring Programmes
- Large Programmes
- Target of Opportunity
- Guaranteed Time Observations
- Calibration Programmes
- Director's Discretionary Time

All proposals except Director's Discretionary Time (DDT) proposals must be submitted by the current deadline. DDT proposals may be submitted at any time.

Only the Normal and Large Programme template forms should be used for the preparation of proposals. An observing programme, as described in a single proposal, may consist of several runs, *e.g.* for observations with different instruments, or to be executed in different observing modes or at different epochs for Visitor Mode observations. Proposals for **Visitor Mode** observations (Section 5.1) must request time in nights, proposals for **Service Mode** observations (Section 5.2) must request time in hours. Note that any given proposal may request a mix of Visitor/Service Mode observations provided that they are split into separate runs. The definition of a single run differs for Service Mode and Visitor Mode observations; further guidelines are available in Section 2.2.1.

- **Please note:** All proposers (Service and Visitor Mode) must include time for all overheads (telescope + instrument) in their proposals (see the [Overheads](#) webpage).

4.1 Normal Programmes

Most of the observing time on ESO telescopes will be allocated to **Normal Programmes** in Period 93. Proposers must use the standard L^AT_EX template (Section 2.2). The scientific case of the programme may take up to two pages including attachments (figures or tables). The scientific description contains two sections:

- A) Scientific Rationale
- B) Immediate Objective

Attachments such as figures are optional and are restricted to the second page of the scientific description, though the respective fraction of the occupied by the scientific description and by the figures is left to the discretion of the proposer.

If the proposal contains runs requesting La Silla telescopes and instruments, the duration of each such run must be at least 3 nights, except for runs using Visitor Instruments or for combinations of contiguous EFOSC2 and SOFI runs (totalling at least 3 nights).

Table 1: Available Instruments for Normal Programmes

| Telescope | Instrument keywords |
|-----------|--|
| UT1 | CRIRES, FORS2, KMOS |
| UT2 | FLAMES, UVES |
| UT3 | VIMOS, XSHOOTER |
| UT4 | NACO, SINFONI |
| VLT1 | AMBER, MIDI, SpecialVLT1 ¹ |
| VISTA | VIRCAM |
| VST | OMEGACAM ² |
| APEX | CHAMPP ³ , FLASH ³ , LABOCA, SABOCA, SHFI, SpecialAPEX |
| NTT | SOFI, EFOSC2, SpecialNTT |
| 3.6 | HARPS, Special3.6 |

¹ In order to propose for the VLT1 Visitor Instrument, PIONIER, proposers should first contact the instrument PI (see Section 1.1).

² OMEGACAM is only available for Chilean Normal programmes (and GTO) in the Period 93.

³ CHAMP+ and FLASH are APEX PI instruments, in order to propose the use of these instruments the instrument PI must be contacted at least two weeks prior to submitting the proposal (see Section 1.1).

4.2 Monitoring Programmes

Monitoring Programmes (MPs) are only accepted on some instruments (see Table 2). Section 1.1 explains the reasons why the other instruments are not offered for Monitoring Programmes. Please see the ESOFORM User Manual for more information on how to specify instruments in the proposal template.

An ESO Monitoring Programme is defined by the criteria listed below.

- A programme requiring less than 100 hours of ESO telescope time. For ESO telescopes, one night in visitor mode is defined to be 8 hours in even periods and 10 hours in odd periods.
- Both Service Mode and Visitor Mode observations are allowed.
- MP proposals must request a minimum of 2 periods and can span up to 4 periods.
- MPs will be judged in the same way as normal programmes but must be amongst the highest ranked programmes in order to be scheduled.
- For APEX instruments, observations for approved MPs can only be carried out in ESO time. Hence, targets can only be monitored with a bi-monthly cadence at best.
- ToO programmes cannot be submitted as Monitoring Programmes (Section 4.4).

Table 2: Available Instruments for Monitoring Programmes

| Telescope | Instrument keywords |
|-------------------|----------------------|
| UT1 | FORS2, KMOS |
| UT2 | FLAMES, UVES |
| APEX ¹ | LABOCA, SABOCA, SHFI |

¹ APEX observations for approved MPs can only be carried out in the ESO time-slots.

Monitoring programme proposals should be prepared using the appropriate macro in the L^AT_EX template for normal proposals, `template.tex`. See the ESOFORM User Manual for more details.

4.3 Large Programmes

Table 3: Available Instruments (Large Programmes)

| Telescope | Instrument keywords |
|-----------|--------------------------|
| UT1 | FORS2, KMOS |
| UT2 | FLAMES, UVES |
| APEX | LABOCA, SABOCA, SHFI |
| NTT | SOFI, EFOSC2, SpecialNTT |
| 3.6 | HARPS, Special3.6 |

Large Programmes are only accepted on some instruments in Period 93 (see Table 3). Section 1.1 explains the reasons why the other instruments are not available for Large Programmes. Please see the ESOFORM User Manual for more information on how to specify instruments in the proposal template.

Up to a maximum of 30% of the observing time distributed by the OPC on the VLT/VLTI can be allocated to Large Programmes. An ESO Large Programme is defined by the criteria listed below.

- A programme requiring a minimum of 100 hours of ESO telescope time. For ESO telescopes, one night in visitor mode is defined to be 8 hours in even periods and 10 hours in odd periods.
- A programme that has the potential to lead to a major advance or breakthrough in the field of study, has a strong scientific justification, and a plan for a quick and comprehensive effort of data reduction and analysis by a dedicated team.
- Large Programmes can span from 1 to 4 periods (*i.e.* up to a maximum of two consecutive years) for Paranal instruments. For La Silla instruments LPs can span up to Period 97.
- A good organisational structure of the proposing team, availability of resources and relevant expertise must be demonstrated.
- ToO programmes cannot be submitted as Large Programmes (Section 4.4).

A special L^AT_EX template must be used for Large Programmes (Section 2.2). The proposers may use a total of three pages (not including figures) for the four sections of the scientific description:

- A) Scientific Rationale
- B) Immediate Objective
- C) Telescope Justification
- D) Observing Mode Justification (Visitor or Service)

An additional 2 pages of attachments are permitted. Proposers of Large Programmes should keep in mind that **the entire OPC** (hence also non-experts in a specific field) as well as the specialised OPC panels will be evaluating their proposal, and that **they should clearly explain the relevance of the proposed programme to general astrophysics**.

If a Large Programme proposal contains runs requesting La Silla telescopes and instruments, the duration of each such run must be at least 3 nights.

Proposers should be aware that the PIs of successful proposals for Large Programmes are required to provide all data products (processed images and spectra, catalogues) to the ESO archive by the time their scientific results are published in a refereed journal. Guidelines for the submission of these data products, including a description of the required metadata and formats, can be found at <http://www.eso.org/sci/observing/phase3.html>. Proposers are invited to write an email to usd-help@eso.org for further information.

During the period of execution of a Large Programme, and upon its completion, the PI will be invited by ESO to report to the OPC on the programme's preliminary results. He/she may also be asked to give a more comprehensive presentation of the outcome of the programme at an ESO Large Programme workshop, similar to those of [May 19-21, 2003](#) and of [October 13-15, 2008](#).

4.4 Target of Opportunity

Normally, up to 5% of the available ESO general observing time may be used for **Target of Opportunity** (ToO) proposals. For events with exceptional characteristics ESO will also consider overriding Visitor Mode observations.

ESO recognises two categories of Targets of Opportunity:

1. **Unpredictable ToOs** are those concerning unpredictable astronomical events that require immediate observations. The occurrence of such events cannot be anticipated on a sufficient timeframe to allow them to be the subject of a proposal prepared by the regular proposal submission deadline. They **qualify for allocation of Director Discretionary Time**. Corresponding applications for observing time should be submitted as DDT proposals (Section 4.7) and not as ToO proposals.
2. **Predictable ToOs** are those concerning predictable events in a generic sense only. These are typically (but not limited to) known transient phenomena and follow-up or coordinated observations of targets of special interest. Proposals aimed at studying such events are, in the ESO proposal terminology, ToO proposals.

ToO proposals must be submitted using the Normal Programme ESOFORM template. Proposals should be for generic targets and/or times. However, if accepted by the OPC the programme will not be executed until the PI (or his/her delegate) contacts ESO to request its activation after the predicted event has occurred. The observing strategy must be the one approved by the OPC, and the triggers may not exceed the allocated time and number of triggers granted. The observations will be conducted in Service Mode and, in exceptional cases, ongoing programmes may be interrupted. Read more on [ToO policy](#).

As ToO programmes may require a mixture of ToO runs and normal runs proposers are requested to specify the type of runs (TOO or normal) in the tenth (final) field of the `\ObservingRun` macro of the ESOFORM L^AT_EX template. A more detailed description and examples can be found in the [ESOFORM package](#) User Manual.

ToO runs are defined as runs for which the target cannot be known more than one week before the observation needs to be executed. Such runs will be scheduled for execution upon receipt of an activation trigger by ESO; the target (and observing time) information will be inserted by the observatory support staff into generic Observation Blocks (OBs) submitted by the PI at Phase 2. Targets that are unknown at Phase 1 proposal submission time but can be observed more than one week after they have been identified should be observed as part of normal (non-ToO) runs. The related OBs should be defined or updated by the PI once the target is known. The OBs should be stored in the ESO database with the complete information needed to allow them to be executed as part of the regular Service Mode queues.

Note that users submitting a ToO programme will need to indicate the number of targets per run and the requested number of triggers per target using the appropriate macros in the L^AT_EX template. A trigger is defined as the request for execution of one Observation Block with a given instrument at a given epoch. Similar observations to be executed with the same instrument at different epochs count as different triggers, as do observations with different instruments at the same epoch.

Any observing request by other groups at the time an event occurs (*e.g.* a DDT proposal), with exactly the same scientific goal and aiming at observing the same object, will be rejected by ESO. ToO programmes are **not** carried over to the following periods.

ToO proposers should bear in mind that ToO proposals are ranked across OPC categories by the whole OPC (hence including non-experts in their specific field). They should therefore clearly explain the relevance of the proposed programme to general astrophysics.

4.4.1 Rapid Response Mode (RRM)

ESO continues to offer VLT Rapid Response Mode (RRM). During Period 93, FORS2 on UT1, UVES on UT2, XSHOOTER on UT3, and SINFONI on UT4 are available in RRM.

RRM proposers should note that:

- A RRM trigger is a special ToO trigger that **can only be activated up to 4 hours after an event**. If a longer time span has passed since the event, observations should be requested through normal ToO triggers.
- As with ToO programmes, proposers will need to indicate in the L^AT_EX template the number of targets per run and the requested number of triggers per target.
- **RRM runs have to be specified as separate runs** in the ESOFORM template.

Upon receiving an encoded alert indicating the coordinates of the target and the associated Observing Block (OB) to be executed, any ongoing integration will automatically be terminated and the RRM OB will be executed. Depending on the instrument and the target position, the telescope/instrument will be at the location of the target within about 6 minutes following the arrival of the alert at Paranal. Depending on the target brightness and instrument mode target acquisition may take some more time.

RRM observations in Period 93 are subject to the following restrictions:

- The requested instrument must already be in operation. No change of instrument (and telescope focus) is accepted by the automatic RRM system.
- RRM activations will be accepted during Service Mode and Visitor Mode runs. They have overriding priority over other observations, unless the latter are strictly time-critical.

Additionally, the following instrument specific restrictions apply:

- UVES can only be used with standard wavelength settings;
- FORS2 can only be used in the broad-band imaging, long slit spectroscopic, imaging polarimetric and spectro-polarimetric modes;
- SINFONI is available in NGS and noAO mode but not in LGS mode;

The delivery of the encoded alerts to the Paranal Observatory is entirely the responsibility of the PI. Successful PIs will be asked to provide a set of OBs by the Phase 2 deadline, to be certified for execution as is done for other Service Mode runs. Details on the activation mechanisms and the preparation of RRM observations can be found at the Phase 2 [RRM Observation page](#).

4.5 Guaranteed Time Observations

Guaranteed Time Observations (GTO) arise from contractual obligations of ESO vis-à-vis the external consortia who build ESO instruments (see the [GTO Policy page](#)). Guaranteed Time Observers must submit proposals for their GTO time using the Normal Programme templates, and by the standard proposal deadline. All GTO proposals will be evaluated and ranked together with Normal Programme proposals to provide feedback to the GTO teams on the scientific standing of their GTO programmes. In exceptional cases, badly ranked GTO proposals may not be scheduled. The policies describing the obligations of Guaranteed Time Observers are defined in Appendix 2 of the [ESO Council document ESO/Cou-996](#).

In general, GTO runs must be conducted in Visitor Mode (Section 5.1). The only exceptions are those explicitly stated in the contractual agreement between ESO and the corresponding external consortium. However ESO may exceptionally transfer some GTO runs from Visitor Mode to Service Mode for operational reasons (such as the availability of VLTI baselines or the availability of the LGSF).

Some GTO programmes require ToO runs¹ (see Section 4.4). If this is the case then this should be specified in the ESOFORM package using the `\ObservingRun` macro of the L^AT_EX template.

¹The possibility for GTO teams to request ToO observations as part of their guaranteed time is restricted to those cases in which this option is explicitly mentioned in the GTO contract.

4.6 Proposals for Calibration Programmes

ESO operates a large number of complex instruments with many possible configurations and observing modes. Although the Observatory executes a rigorous calibration plan for each instrument, ESO does not have the resources to fully calibrate all potential capabilities of all instruments. On the other hand, the astronomical community has expressed interest to perform calibrations for certain uncalibrated or poorly calibrated modes, or to develop specialized software for certain calibration and data reduction tasks. ESO introduced the **Calibration Programmes** in order to allow users to complement the existing calibration of ESO instruments and to fill gaps in the calibration coverage that might exist.

Up to 3% of all the available observing time may be made available for calibration proposals. Calibration Programmes will be evaluated by the OPC with a view to balancing the added calibration value for future science with the more immediate return of the regular science proposals of the current period. Calibration Programmes are reviewed by ESO with regards to their technical and operational feasibility.

Successful proposers will be required to deliver documentation, and data products and software to ESO to support future observing programmes. The raw calibration data, as well as the advanced calibration products that are obtained as part of Calibration Programmes are non-proprietary and made available to the entire community through the ESO archive, and the respective instrument Web pages. Scientific publications that make use of the data or results of Calibration Programmes will have to reference the corresponding proposals.

Calibration Programme proposals must be submitted using the ESIFORM template for Normal Programmes. In Box 7A (entitled “Scientific rationale”) the proposers should clearly state the limits of the existing calibration plan and the expected improvement that can result from the proposed observations. Moreover the proposal should emphasise the relevance and the overall scientific gain of the calibration techniques and products resulting from these observations. Calibration Programmes do not pertain to any of the standard OPC categories (A, B, C or D), since in general they are not directly related to a unique scientific area: the special subcategory code L0 should be used to distinguish them. The PIs of Calibration Programmes are required to deliver to ESO the resulting Advanced Data Products within one year of the completion of the corresponding observations. The procedure to be followed is described at <http://www.eso.org/sci/observing/phase3.html>.

4.7 Director’s Discretionary Time

Up to 5% of the available ESO general observing time may be used for **Director’s Discretionary Time** (DDT) proposals in the current period. Only DDT proposals belonging to one of the following categories will be considered:

- proposals of ToO nature requiring the immediate observation of a sudden and *unexpected* astronomical event,
- proposals requesting observations on a highly competitive scientific topic,
- proposals asking for follow-up observations of a programme recently conducted from ground-based and/or space facilities, where a quick implementation should provide break-through results,
- proposals of a somewhat risky nature requesting a small amount of observing time to test the feasibility of a programme.

DDT programmes that have target of opportunity runs should mark their corresponding Run Types as “TOO” in the `\ObservingRun` macro. See the ESIFORM User Manual for more details. DDT programmes involving TOO runs should also fill in the `\TOORun` macros in the ESIFORM proposal template as instructed.

Approved DDT proposals are carried out in Service Mode on Paranal and Chajnantor, or in Visitor Mode override on La Silla. Very few non-time-critical DDT proposals are foreseen to be approved

so proposers should provide a clear justification (in Box 8b of the application form) why the programme should be considered for DDT allocation and why it was not submitted through the regular OPC channel. In the absence of such a justification, the proposal will not be considered for DDT allocation, and the proposers will be encouraged to resubmit their proposals for the next appropriate OPC submission deadline. *As a general rule, proposals originally submitted to the OPC that were not allocated time must not be submitted as DDT proposals.*

DDT proposals may be submitted at any time. They must be prepared using the special ESOFORM DDT template. Proposers must upload the DDT ESOFORM template and submit their DDT proposals by registering and logging into the ESO User Portal. You can find more details at:

<http://www.eso.org/sci/observing/phase1/esoform.html>

DDT proposals are reviewed at ESO and approved by the Director General. Urgent requests must be clearly identified in Box 5 (Special Remarks) of the application form.

4.8 Host State Proposals

Qualifying proposals whose PI is affiliated with an institute of the Host State (Chile) are counted as *Host State Proposals*. The designation as *Host State Proposal* is independent of the fraction of non-member state CoI's.

4.9 Non-Member State Proposals

A **Non-Member State Proposal** is a proposal where 2/3 or more of the proposers are not affiliated to ESO member state institutes, independently of the nationality of the proposers and of the affiliation of the PI. Non-member state proposals are submitted in the usual way, but a separate set of criteria are used for the review of such proposals (Section 6.1). This non-member state policy does not apply to the host state, Chile, whose participation is regulated by the “Interpretative, Supplementary and Amending Agreement” to the 1963 Convention (Sects. 4.8 and 6.1).

4.10 VLT-XMM proposals

With the aim of taking full advantage of the complementarity of ground-based and space-borne observing facilities, ESA and ESO have agreed to establish an environment for those scientific programmes that require observations with both the XMM-Newton X-ray Observatory and the ESO VLT(I) telescopes to achieve outstanding and competitive results.

By agreement with the XMM-Newton Observatory, ESO may award up to 290 ksec (~80 hours) of XMM-Newton observing time. Similarly, the XMM-Newton project may award up to 80 hours of ESO VLT observing time. This applies to the duration of an XMM-Newton cycle, which normally extends over two ESO observing periods. However, proposers should take the limited availability of some of the VLT(I) instruments in Periods 93 and 94 into account as detailed in this section. See Section 1.1 for more details regarding instrument availability during these periods.

Proposers wishing to make use of this opportunity will have to submit a single proposal in response to either the [XMM-Newton](#) or the ESO call for proposals: proposals for the same programme submitted to both observatories will be rejected. To submit a proposal to ESO, the Normal Programme template must be used. Such a proposal will be reviewed exclusively by the OPC. A proposal submitted to the XMM-Newton Observatory will be reviewed exclusively by the XMM-Newton OTAC. Proposals that request different amounts of observing time on each facility should be submitted to the Observatory for which the greatest amount of time is required. The primary criterion for the award of observing time is that both VLT and XMM-Newton data are required to meet the scientific objectives of the proposal. The project does not need to require simultaneous XMM-Newton and ESO telescope observations. Targets of Opportunity and “Triggered Observations” are excluded from this cooperative programme.

It is the proposers’ responsibility to provide a full and comprehensive scientific and technical justification for the requested observing time on both facilities. Both the ESO and XMM-Newton ob-

servatories will perform feasibility checks of the approved proposals. They each reserve the right to reject any observation determined to be unfeasible for any reason. The rejection by one Observatory could jeopardize the entire proposed science programme.

Apart from the above the general policies and procedures currently in force for the final selection of the proposals, the allocation of observing time, the execution of the observations, and the data rights remain unchanged for both ESO and the XMM-Newton Observatory.

5 Observing Modes

In Period 93, most VLT and VLTI instruments will be offered in two modes: *Visitor Mode* (VM) and *Service Mode* (SM). These modes have been extensively described in the Data Flow Operations section of the [December 1997](#) and [June 1998](#) issues of The ESO Messenger (see also an article on Service Mode scheduling in the [September 2001](#) issue). As part of the Phase 1 proposal, investigators will have to specify and justify which mode they desire. While every effort will be made to follow the proposed observing mode, ESO does reserve the right to allocate time in a mode that is different from the one requested. Note especially the restrictions of available modes detailed in Sects. [5.1](#) and [5.2](#), and the policy in Section [6.3](#).

The telescope, as well as the instruments, will be operated by observatory staff only. The astronomer interfaces with the telescope/instruments via Observation Blocks (OBs), produced using the Phase 2 Proposal Preparation (P2PP) tool. Observers use [P2PP 2.13.1](#) for La Silla observations and [P2PP 3](#) for Paranal observations.

5.1 Visitor Mode

In **Visitor Mode** (VM) the astronomer is physically present at the observatory during the observations. Each approved VM run will be allocated specific calendar nights. One of the programme investigators will travel to the Observatory and execute the observations. Visitor Mode is not offered on VST, VISTA or APEX.

For all ESO instruments data acquisition will be done by executing Observation Blocks (OBs), *i.e.* observing sequences specified by the astronomer that are based on templates provided by ESO. VM investigators will be encouraged to construct their OBs before arriving on the site using P2PP. At the telescope OBs can be created or further modified in real-time (with the exception of VIMOS MOS and FORS2 MXU mode). VM investigators will be required to arrive on Paranal before the start of their observing run as follows: 24 hours for UVES, and 48 hours for all other instruments. On La Silla, Visiting Astronomers shall arrive 1 to 2 days before the start of the observations, and may leave the site up to 1 to 2 days after the end of their observing run according to the transportation schedule (see the [La Silla Science Operations page](#)). Note that programmes must be executed as specified and approved at Phase 1. The proposer should prepare a backup/alternative programme to be executed in place of the primary programme if the observing conditions are not ideal. The original science case and goals should be followed. Such backup programmes must be approved by ESO prior to the observing run. The corresponding requests must be submitted via the web-based form available at <http://www.eso.org/sci/observing/phase2/ProgChange/>. If the conditions prevent the Visiting Astronomer's primary programme to be executed the telescope will be used for the execution of Service Mode observations; assuming no backup programme is in place and that Service Mode observations are allowed on that telescope. Raw data are available for download shortly after acquisition.

Please note that **VM proposers must include overheads** for all science exposures. Guidelines are provided in the [Overheads page](#).

In general, the observatory does not compensate for weather or technical losses of observing time. However, under exceptional circumstances, the Director of the Observatory may decide to compensate losses of observing time. Under exceptional circumstances, the Director of the Observatory may decide to interrupt Visitor Mode observation to allow Service Mode observations.

5.1.1 ToO programme execution during VM observations

VM observations may be interrupted by time-critical DDT or ToO programmes. As far as possible, the execution of observations for such programmes will be confined to scheduled Service Mode periods. Under exceptional circumstances, the Director of the Observatory may decide to interrupt VM runs to allow ToO observations. ToO runs in the Rapid Response Mode (RRM) may also interrupt VM observations (see Section 4.4.1).

5.1.2 Delegated Visitor Mode

ESO reserves the right to allocate telescope time in Delegated Visitor Mode (DVM) instead of regular Visitor Mode (VM) for any runs with a justified need for VM observations and whose duration is smaller than one night. The final decision will be based on the technical feasibility reports and the Principal Investigators will be informed of their DVM time allocation via the web letters.

Delegated VM observations are scheduled on specific dates/slots as if they were regular Visitor Mode runs, but they are executed by an ESO staff member, in close contact (e.g. via phone, Skype or video link) with the Principal Investigator, or someone the PI designates to serve as the liaison with the Observatory. More details, including all requirements concerning the preparation of DVM runs are provided on the [Paranal Sciences Operations webpage](#).

5.2 Service Mode

About 60% of the total time available for observations on Paranal will be carried out in Service Mode (SM). SM is also the only mode supported for APEX, VST and VISTA. It is not offered on any La Silla telescope.

Investigators with runs allocated in SM time will be required to specify their programme by submitting a Phase 2 package in advance to ESO. This package consists of OBs, finding charts, a Readme form and, if applicable, ephemerides. Observers intending to submit proposals to be executed in SM may find it useful to familiarize themselves with the Phase 2 Service Mode [guidelines](#). Once the OBs are completed, they will be submitted to ESO for verification and acceptance.

Accepted OBs will be executed by ESO staff based on their OPC recommended priority and a proper match between the requested and the actual observing conditions. An article about SM scheduling appeared in [The ESO Messenger \(2001, v. 105, p. 18\)](#). The article helps proposers understand how they may optimize their use of this observing mode, and it should be considered compulsory reading for SM proposers. SM PIs and their data delegates have direct access (via their personal ESO User Portal account) to their own raw proprietary data as soon as the data is ingested in the ESO Archive. Note that in Service Mode the proprietary period for a given science file starts as soon as the data are made electronically available to PIs or to those to whom they have delegated their data access rights.

Please note that **SM proposers must include overheads** for all science exposures. Guidelines are provided in the [Overheads page](#).

ESO will absorb all the time required to complete the calibration sequences to the level of accuracy foreseen in the calibration plan as well as overheads associated with such calibrations. More information on the Paranal Calibration plans can be found from the VLT/VLTI [Pipelines & Calibration Plans](#) webpage and the respective instrument User Manual. If those calibrations are not adequate, the SM proposer must include time for any additional calibrations including overheads.

Proposers are especially encouraged to request Service Mode (on Paranal) if their programme involves Target of Opportunity events or synoptic observing, or if they require the best observing conditions (which occur at unpredictable intervals). Further information on SM observing may be found in the [Service Mode Guidelines](#).

5.2.1 Service Mode policies

To ensure the efficiency of Service Mode (SM) observing, ESO has implemented a number of rules, procedures and limitations on SM runs. They need to be carefully taken into account at the time of preparing an application for SM observations and are summarized here. Please note that these items have important consequences on the way that execution overheads must be taken into account. Please consult the Phase 2 webpages for the latest information on [SM policies](#) and [SM OB rules](#). Proposers should note that Phase 1 constraints are [binding](#) (see Section 6.5).

- **Some observing strategies cannot be supported in Service Mode;** in particular, real-time decisions about complex OB sequencing, or decisions based on the outcome of previously executed OBs (like adjustment of integration times or execution of some OBs instead of others).
- **Observation Blocks (OBs) execution.** OBs are executed non-contiguously (with the exception of OBs within the concatenation scheduling containers; see [Programmes with linked time-requirements](#) below). Since efficient SM operations require continuous flexibility to best match the OB constraints with actual observing conditions, OBs for a given run are normally scheduled non-contiguously. It is thus not possible to reduce acquisition overheads by requiring the sequential execution of OBs with the same target field.
- **Multi-mode, multi-configuration OBs are normally not permitted in SM.** Although multiple configurations within one OB may sometimes reduce overheads, scheduling and calibrating such OBs is extremely inefficient and can increase the calibration load to an unsustainable level. Examples of such multi-configuration OBs are those combining imaging and spectroscopy in a single OB, spectroscopy with multiple grisms or central wavelength settings, or imaging with a large number of filters (although most imagers allow multiple broadband filters in one OB). Multi-configuration OBs are accepted only if duly justified and authorized by means of a [Phase 2 Waiver Request](#).
- **OB Total Execution Time.** Proposers should make sure that all overheads, including telescope presetting and acquisition [overheads](#) have been properly included.
- **OB execution times must be below 1 hour.** This rule also applies to concatenated OBs in most cases. Long OBs and concatenated OBs are more difficult to schedule and execute within the specified constraints because of the unpredictable evolution of the observing conditions. OBs taking more than one hour to execute are not normally accepted. Proposers are especially encouraged to plan for OBs substantially shorter than one hour if the execution conditions are particularly demanding, as the fulfillment of all the constraints during the entire execution time becomes more unlikely as the OB becomes longer. Please see the “Service Mode OBs” item in Section 1.2 for more information.
- **Fulfillment of Phase 2 constraints:** ESO will consider an OB as successfully executed if all the conditions in the constraint set are fulfilled. OBs executed under conditions marginally outside constraints by no more than 10% of the specified value will not be scheduled for re-execution. Adaptive Optics-assisted observations within 50% of the requested Strehl ratio will not be repeated (assuming that other constraints are suitably met). VLTI OBs executed marginally outside the specified LST intervals by no more than 30 min will not be scheduled for re-execution.
- **Programmes with linked time requirements:** SM is also intended to support programmes with special timing requirements. However, proposers planning such programmes should keep in mind that at most 60% of both bright and dark time is allocated to SM (on Paranal), and that observing conditions cannot be predicted when a time-series is started. This means that timing sequences that are extremely long and/or complex, timing links that are very restrictive, and time-series for observations requiring excellent observing conditions, are unlikely to be successfully completed. Therefore, all such proposals are reviewed for technical feasibility and may be rejected if judged to be too complex. Proposers for programmes requiring timing links are strongly encouraged to consider how they may simplify their timing sequences as much as possible, as this will minimize the risk that the observations are deemed unfeasible. They should also read the [Time critical OB execution policy page](#).

If a given OB cannot be executed within its intended observability window, it will be removed from the observing queue and will not be attempted again. If it was part of a time-linked series, then the time-series observation will continue with the next OB if appropriate. ESO will not restart a sequence of linked observations if the pre-specified timing constraints cannot be fulfilled. More details on how version 3 of the Phase 2 Proposal Preparation (P2PP) tool can be used to time-link, group or concatenate various OBs, are described in <http://www.eso.org/sci/observing/phase2/P2PP3.html>.

- **ToO programme execution** Successful proposers of ToO runs will have to prepare OBs for their observations well ahead of the beginning of an observing period (see Section 5.2). Mostly ToO OBs will have to be “dummy” OBs with default values for target coordinates, integration times etc. At the time of occurrence of the predicted event, the PI of the programme (or one of his/her delegates) must activate it and at the same time provide the missing information for completion of the OBs. The service observer will update and execute the specified OBs. Further details are available on the Phase 2 [ToO Procedures page](#).

6 Policy Summary

Several policies regarding all aspects of the use of ESO telescopes have been refined over the years by the ESO Observing Programmes Committee (OPC), and by the Science and Technology Committee (STC). Here we summarize those policies relevant for ESO proposers for Period 93. For details on individual policies we refer to the [VLT/VLTI Science Operations Policy](#) document.

6.1 Who may submit, time allocation policies

ESO proposals may be submitted by any group or individual. One single person, the **Principal Investigator** or PI, must be assigned to be responsible for the programme. The PI will also act as the official contact between ESO and the proposers for all later correspondence (Phase 2 information, data distribution, etc.). By submitting a proposal, the PI takes full responsibility for its contents, in particular with regard to the names of CoIs and the agreement to follow the ESO policies and regulations, including the conditions specified in the present Call for Proposals. Following the introduction of the ESO User Portal, PIs identify themselves uniquely in Phase 1 proposals by their User Portal username. Note that each individual is allowed to have only one account in the User Portal database; multiple accounts must not be created. Failure to comply with this restriction may lead to the rejection by ESO of the corresponding proposals.

All valid proposals received by ESO prior to the submission deadline will be reviewed by the OPC, who will rank them according to the scientific merit of the proposal and the importance of its contribution to the advancement of scientific knowledge. Furthermore, proposals should provide evidence that the proposing individual or team have the expertise and sufficient resources to carry out the analysis.

Proposals should be self-contained. The evaluation will be based solely on their contents, to the exclusion of external references.

For non-member state proposals (Section 4.9) the following additional criteria will be taken into account:

- The required telescope/instrumentation is not available at any other observatory accessible to the applicants.
- If an ESO member state proposal and a non-member state proposal are rated equally, preference will be given to the ESO member state proposal.

The following policy, extracted from the agreement between ESO and its host state Chile, governs the allocation of time to **Host State Proposals** (Section 4.8): “Chilean scientists who present

meritorious projects shall have the right to obtain up to 10% of the observing time of ESO telescopes". For VLT projects at least one half of this 10% shall be dedicated to projects of Chilean astronomers in cooperation with astronomers of ESO member countries.

Following the recommendations of the OPC and a technical feasibility check, the ESO Director General grants observing time based on the OPC ranking and the availability of telescope time. However, in the case of sudden astronomical events a ToO or DDT programme may be activated, and may lead to an interruption of the currently active run.

6.2 Requesting use of non-standard observing configurations

Proposers should pay particular attention to the fact that, as indicated in the instrument manuals, use of certain non-standard instrumental modes or configurations requires prior approval by ESO. This approval must be obtained before submitting the Phase 1 proposal. Corresponding requests, including a brief justification, must be submitted by email to usd-help@eso.org at least two weeks before the proposal submission deadline. Failure to follow this rule may lead to the rejection of the proposal by ESO for technical reasons.

Users who wish to request a new (own) filter to be installed, particularly in the cryogenic instruments (e.g., HAWK-I, VIRCAM, VISIR) must approach ESO via usd-help@eso.org at least 3 months before submitting a proposal requesting that filter. Failure to follow these guidelines may lead to the rejection of the proposal by ESO for technical reasons.

6.3 Policy regarding offered/available observing configurations

Users will be promptly informed if it becomes impossible to support some currently offered instrument mode, and may be asked to switch from Service Mode to Visitor Mode or vice versa. In general, runs requiring non-standard configurations will only be accepted in Visitor Mode.

6.4 Observing programme execution

Observations in both Visitor and Service Mode must be executed as described in the Phase 1 proposal, including the instrument modes and specified targets. Departures from Phase 1 specifications and targets will not generally be allowed, unless a sound scientific justification exists, and provided that the change does not involve a significant increase in the pressure factor on oversubscribed regions of the sky. The request for changes of targets and instrument set-up(s), along with the corresponding scientific justification, must be submitted via the web-based form available at <http://www.eso.org/sci/observing/phase2/ProgChange/>.

For any other departure from Phase 1 specifications a justification must be provided in writing to paranal@eso.org at least one month before the beginning of the observations for runs scheduled in Visitor Mode. For Service Mode runs, these requests and associated justifications must be submitted to usd-help@eso.org or to p2pp-waiver@eso.org (clear instructions are available at <http://www.eso.org/sci/observing/phase2/SMGuidelines/WaiverChanges.html>) at least one week before the Phase 2 deadline (also see Section 6.5).

ESO reserves the right to reject the changes if they are insufficiently justified, conflicting with any other approved programmes, or imply significant changes in the overall distribution of scheduled targets in the sky. Observations of targets for which no authorization has been obtained are not allowed at the telescope.

6.4.1 Service Mode run execution

The runs to be conducted in Service Mode will be subdivided into the following classes for operational reasons:

- **Class A:** All possible efforts will be made to execute all OBs corresponding to the runs in the requested observing period. Approximately the first half (according to the OPC ranking) of the total amount of Service Mode time scheduled on each telescope falls in this class.
- **Class B:** These runs will be executed in the requested observing period on a best-effort basis. Approximately the second half (according to the OPC ranking) of the total amount of Service Mode time scheduled on each telescope falls in this class.
- **Class C:** Filler runs. OBs will only be executed if the observing conditions do not permit observations for runs within classes A and B.

For Class A runs that are not completed by the end of Period 93, ESO will decide whether they can be declared “substantially complete”, or have to be carried over to the next period provided that this is technically feasible. In general, a class A run will not be carried over for more than one additional natural visibility period. Class B and C runs will not be carried over. ToO runs are by definition Class A regarding priority in execution but they will not be carried over to the following periods regardless of their completion status.

Proposers are particularly encouraged to consider their observing strategy and how they can simplify any time constraints are much as possible to increase chances of being scheduled. Guidelines on the handling of time-critical OBs are available at the [Time critical OB execution policy page](#).

6.5 Phase 2 Service Mode policy: constraints and targets are binding

To optimize the use of ESO telescopes in Service Mode a proper mix of runs requiring various observing conditions, and with targets spread over the entire range of RAs for a given period, is necessary. For this reason proposers are requested in their Phase 1 proposal to specify not only the targets with accurate coordinates, but also the needed observing conditions (lunar phase, seeing, sky transparency). **Due to their essential role in determining the long-term scheduling of Service Mode time, the constraints specified at Phase 1 are binding.** Successful proposers will not be allowed to change the instrument set-ups, target lists and/or times per target that were requested at Phase 1 in their Phase 2 submissions, unless explicitly authorized by ESO (see Section 6.4). The relaxation of observing constraints is allowed at Phase 2 only. See Section 6.4 for more details on how to request waivers for Service Mode runs.

6.6 Pre-imaging runs

A separate run must be specified for a VLT programme requiring pre-imaging. If this is not specified in the proposal, the time needed for the execution of the pre-imaging will be deducted from the total allocation of the project. Pre-imaging runs are always scheduled in priority class A, but must be specified as pre-imaging runs as this will not occur automatically. Please be sure to indicate the pre-imaging character of the run by using the corresponding `\INSconfig` macro in the \LaTeX ESOFORM template.

6.7 Data rights, archiving, data distribution

All data obtained with ESO facilities are ESO property. ESO grants a 12-month proprietary period for science and acquisition data to the PI of the programme as part of which these data were obtained. This period applies to each data file individually. The proprietary period starts as soon as the data is made available to the PI or respective delegates via the [ESO Science Archive Facility](#). Should you wish to specify a shorter period than the nominal 12 months in Period 93, please do so using the `\ProprietaryTime` macro in the \LaTeX ESOFORM template. Raw data of Public Surveys, calibration and technical data are not subject to a proprietary period and become publicly available as soon as they are ingested in the ESO Archive.

For Visiting Astronomers, raw data will in general be made available before astronomers leave the observatory site. For both Visitor Mode and Service Mode observations, raw science data and

associated calibration data are distributed to the PIs and their data delegates from their ESO User Portal accounts.

6.8 Publication of ESO telescope results

Publications based on observations collected at ESO telescopes should state this in a footnote to the article's title. The corresponding observing proposal should be clearly identified by its ESO reference number. For example: *“Based on observations collected at the European Southern Observatory, Chile (ESO Programme 093.C-1234)”*.

6.9 Press Releases

Should you consider that your results are worthy of a press release to the general public, please contact the ESO Outreach Department (information@eso.org) as soon as possible, preferably no later than when the paper is submitted for publication. ESO reserves the right to use any data obtained with ESO telescopes as part of programmes allocated ESO time for press releases.

Part III

Appendix

A Acronyms

| | |
|----------|---|
| AMBER | Astronomical Multi-BEam combineR |
| APEX | Atacama Pathfinder EXperiment |
| ARTEMIS | Architectures de bolomètres pour des Télescopes à grand champ de vue dans le domaine sub-Millimétrique au Sol |
| AT | Auxiliary Telescope for the VLT Interferometer |
| CHAMP+ | Carbon Heterodyne Array of the MPIfR |
| CoI | Co-Investigator |
| CONICA | High-Resolution Near Infrared CAmera |
| CRIRES | Cryogenic high-resolution IR Echelle Spectrometer |
| DDT | Director's Discretionary Time (proposal) |
| EFOSC2 | ESO Faint Object Spectrograph and Camera 2 |
| ERIS | Enhanced Resolution Imager and Spectrograph |
| ESO | European Southern Observatory |
| ETC | Exposure Time Calculator |
| FLASH | First-Light Apex Sub-millimeter Heterodyne |
| FLAMES | Fibre Large Array Multi Element Spectrograph |
| FLASH | First-Light Apex Sub-millimeter Heterodyne |
| FORS2 | Focal Reducer/low dispersion Spectrograph 2 |
| GTO | Guaranteed Time Observations |
| HARPS | High Accuracy Radial velocity Planet Searcher |
| HAWK-I | High Acuity Wide field K-band Imager |
| IR | InfraRed |
| ISAAC | Infrared Spectrometer And Array Camera |
| KMOS | K-band Multi-Object Spectrograph |
| LABOCA | LARge BOlometer CAmera |
| LGS | Laser Guide Star |
| LST | Local Sidereal Time |
| MIDI | MID-infrared Interferometric instrument |
| MOS | Multi-Object Spectroscopy |
| MPIfR | Max Planck Institut für Radioastronomie |
| MUSE | Multi Unit Spectroscopic Explorer |
| NACO | NAOS-CONICA |
| NAOS | Nasmyth Adaptive Optics System |
| NGS | Natural Guide Star |
| OB | Observation Block |
| OmegaCAM | Wide Field Imager for the VST at Paranal |
| OPC | Observing Programmes Committee |
| OPO | Observing Programmes Office |
| P2PP | Phase 2 Proposal Preparation (software tool) |
| PI | Principal Investigator |
| PIONIER | Precision Integrated-Optics Near-infrared Imaging ExpeRiment |
| PWV | Precipitable Water Vapour |
| RA | Right Ascension |
| RRM | Rapid Response Mode |
| SABOCA | Submillimetre APEX BOlometer CAmera |
| SHFI | Swedish Heterodyne Facility Instrument |
| SINFONI | Spectrograph for INtegral Field Observations in the Near Infrared |
| SM | Service Mode (programme) |
| SPHERE | Spectro-Polarimetric High-contrast Exoplanet REsearch |
| SPIFFI | SPectrometer for Infrared Faint Field Imaging |

| | |
|----------|--|
| ToO | Target of Opportunity |
| USD | User Support Department |
| UT1 | Unit Telescope 1 (Antu) |
| UT2 | Unit Telescope 2 (Kueyen) |
| UT3 | Unit Telescope 3 (Melipal) |
| UT4 | Unit Telescope 4 (Yepun) |
| UV | Ultra Violet |
| UVES | UV-Visual Echelle Spectrograph |
| VIMOS | VIisible MultiObject Spectrograph |
| VIRCAM | VISTA InfraRed CAMera |
| VISIR | VLT Imager and Spectrometer for mid Infra Red |
| VISTA | Visible and Infrared Survey Telescope for Astronomy |
| VLT | Very Large Telescope |
| VLTI | Very Large Telescope Interferometer |
| VM | Visitor Mode (programme) |
| VST | VLT Survey Telescope |
| XSHOOTER | UV-Visual-NIR medium resolution echelle spectrograph |
| ZEUS-2 | Redshift (z) and Early Universe Spectrometer |
| Z-Spec | Broadband millimeter-wave Spectrometer |

(end of document)