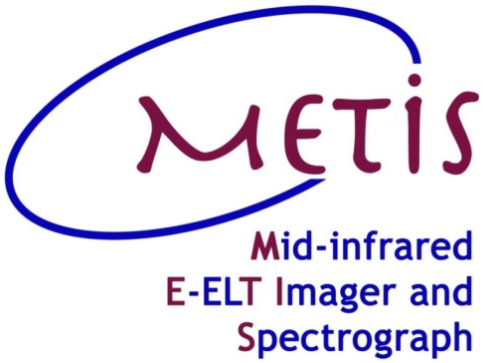

GTO and Publication Policy

E-PRO-NOVA-MET-1236

2-2

22/07/2021

	Signature and Approval		
	Name	Date	Signature
Prepared	Bernhard Brandl	22/07/2021	
Reviewed	Sascha Quanz, all co-Is	22/07/2021	
Approval	Olivier Absil, Bernhard Brandl, Markus Feldt, Paulo Garcia, Alistair Glasse, Manuel Guedel, Paul Ho, Lucas Labadie, Michael Meyer, Eric Pantin, Sascha Quanz, Hans van Winckel	22/07/2021	
Released	Felix Bettonvil	22/07/2021	Digitally approved in Polarion Digitally signed by Digitally approved in Polarion Date: 2022.05.20 13:13:35 +02'00'

REVISION HISTORY

Issue	Date	Owner	Changes
0D1	2019.01.22	BBR	First draft
0D2	2019.04.26	BBR	Text throughout added and polished
0D3	2019.05.25	BBR	Text completed for first review
0D4	2019.06.21	BBR	First feedback from PS, PM, IS included
0D5	2019.08.22	BBR	Detailed feedback from co-Is and LPMs incorporated
0D6	2019.08.30	BBR	Feedback from PGA on revised version incorporated
0D7	2019.09.03	BBR	Feedback from most co-Is on revised version incorporated
0D8	2019.09.05	BBR	Feedback from PS incorporated, and eligibility clarified
0D9	2020.01.06	BBR	Feedback from CM09 co-I splinter included
0D95	2020.02.28	BBR	Feedback from SQ, MF, OA, and MM incorporated
V1-0D	2020.03.06	BBR	Last comments from SQ incorporated
V1-0	2020.03.26	BBR	Two small corrections (6.1, 7.1.3) from OA incorporated
V1-1	2020.12.06	BBR	Section 6.4 on 'Breakthrough Publications' added, project shares [RD06] added
V1-2	2021.02.14	BBR	Co-I feedback incorporated; exiting members moved to MoU; section 1.3 (Summary) and Appendix B added; [AD06] added
V2-0	2021.02.15	FBE/BBR	Version 2; updated [RDs] and [Ads], comments from PS
V2-1	2021.05.05	BBR	Misc. feedback from co-Is and LPMs incorporated
V2-2	2021.07.21	BBR	Minor comments from MM incorporated
V2-2	2021.07.21	FBE	References updated

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ACKNOWLEDGEMENTS

We thank the VLT-MUSE PI Roland Bacon for providing a copy of the 'Publication Policy for the MUSE collaboration', from which several policies have been adopted. Furthermore, the existing policies from the VLT-SPHERE and the JWST-MIRI collaborations provided helpful guidance.

REFERENCES

Applicable documents

Table 0–1: List of applicable and reference documents

AD	Title	Reference	Issue	Date
AD01	METIS (E-ELT MIDIR) Technical Specifications	ESO-257869	2	to come
AD02	Agreement	No. 64472/ESO/15/67000/JSC	1	2015-09-28
AD03	Memorandum of Understanding	E-CON-NOVA-MET-003	2	2021-07-15
AD04	Statement of Work	ESO-257874	2	to come
AD05	E-ELT GTO Policy	ESO/Cou-1543		2014-12-05
AD06	Amendment No. 1 to AGREEMENT	No. 64472/ESO/15/67000/JSC		

Reference documents

Table 0–2: List of reference documents

RD	Title	Reference	Issue	Date
RD01	Consortium Work Packages	E-LIS-NOVA-MET-0013_5-0	5.3	2021-07-15
RD02	METIS Science Case	E-REP-ETH-MET-1014	1.0	2019-03-09
RD03	ELT GTO Funding of Instruments	ESO-321600	1.0	
RD04	VLT Science Verification Policy and Procedures	N/A	2.0	08-2006
RD05	Operational Concept Document	ESO-290965	1.0	2019-07-18
RD06	Procedure to determine Project Shares	E - PRO - NOVA - MET - 1288	1.1	2021-07-22

List of Acronyms

AIT	Assembly, Integration, and Testing
AIV	Assembly, Integration, and Verification
ALMA	Atacama Large Millimeter Array
AO	Adaptive Optics
Co-I	Co-Investigator
CPM	Consortium Project Manager
CS	Calibration Scientist
CSE	Consortium Systems Engineer
DICOPS	Declaration of Interest, Coordination, and Publication Status
ELT	Extremely Large Telescope
ESO	European Southern Observatory
FDR	Final Design Review
FITS	Flexible Image Transport System
FTE	Full-Time Equivalent
GTO	Guaranteed Time Observations
HCI	High Contrast Imaging
IR	InfraRed
IS	Instrument Scientist
JWST	James Webb Space Telescope
LMS	L/M-band Spectrometer
METIS	Mid-infrared ELT Imager and Spectrograph
MICADO	Multi-adaptive optics Imaging CamerA for Deep Observations
MIRI	Mid-InfraRed Instrument
MoU	Memorandum of Understanding
MPO	METIS Project Office
MPP	METIS Publication Point
MST	METIS Science Team
N/A	Not Applicable
NOVA	Nederlandse Onderzoekschool voor Astronomie
OT	Open Time
OTP	Open Time Proposals
PAC	Preliminary Acceptance Chile
PAE	Preliminary Acceptance Europe
PDR	Preliminary Design Review
PI	Principal Investigator
PS	Project Scientist
TBC	To Be Confirmed
TBD	To Be Determined
VISIR	VLT Imager and Spectrograph for mid-InfraRed
VLT	Very Large Telescope

1 PREFACE

1.1 Aim of this Document

The METIS Consortium[1] will be awarded 74.8 nights [AD06] of GTO (Guaranteed Time Observations) nights in return for their effort to design, build, test, and commission METIS. Since the total number of GTO nights per year, for all instruments, is capped[2], all METIS Consortium partners agreed on a joint, coordinated GTO plan to maximize the scientific return – rather than splitting the GTO between individual partners. In this joint science plan, in which all partners participate and contribute their complementary expertise, the GTO time belongs to all partners, and it is strongly anticipated to collaborate across institute boundaries on joint projects to enhance the scientific return. Over time, this GTO science plan will be adjusted to reflect the instrument performance, the evolution of the science areas, and the contributions by the partner institutions to the design, construction, testing, and commissioning of METIS. This process is supported by the METIS Science Team, and guided by the Project Scientist, the board of co-Is, and the PI.

The main purpose of this document is to define the rules which apply to the composition, approval, and execution of the METIS GTO plan, and to the resulting scientific publications. It describes the process that ensures that appropriate scientific credits and returns are provided to the individuals and institutions who contributed to the success of METIS. It also outlines the procedures for conflict resolution.

1.2 Applicability of this Document

The procedures covered in this document apply to the METIS instrument as defined in [AD01] and [AD02]. For additional functionalities beyond the instrument baseline, different rules and policies might apply.

This document is an applicable document to the METIS Memorandum of Understanding. All parties who signed the MoU also agree to the terms of this GTO policy. Future updates to this document require approval by the co-Is, according to Article 3 in [AD03]. A new version is approved if a 3/4 majority by number of co-I votes supports it.

This science policy remains applicable up to the end of the proprietary period of the GTO data from the last nominal GTO observation.

1.3 Short Summary

There is a significant number of rules and procedures defined and discussed in this document. For a brief overview we summarize the most important items here:

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[1] The usage of the term '**Consortium**' *in this document* includes the nominal members of the METIS science team, who may or may not be formally affiliated with the formal METIS Consortium partner institutes.

[2] The total amount of GTO for all instruments has to be less than 20% of the ELT science observing time per year, on average. This limit has been enforced by the ESO Council to ensure that breakthrough science with the ELT will be possible for the entire ESO community.

- METIS performs a joint GTO science plan in which all partners participate, without exclusive GTO allocations to individual partners or institutes. It is a fundamental principle of METIS to maintain a homogenous science team, insensitive to individual and institutional territorial claims.
- METIS will receive 74.8 GTO nights over a period of eight years, following commissioning.
- The GTO plan is composed by the MST under the guidance of the Project Scientist. "Theme leads" coordinate the planning for the specific scientific areas. The resulting plan has to be approved by the co-I board.
- Each Consortium partner can delegate up to five MST members. There is no expectation or direct benefit to fill all five MST positions.
- The number of GTO publications is determined by the relative shares of a partner within the project [RD06]. The scientific return will be measured in "METIS Publication Points (MPPs)", over the duration of the GTO program.
- The lead (responsible) author of a publication must be a member of the MST but may delegate the 1st authorship to another scientist (e.g., a PhD student, postdoc, METIS Fellow, or external colleague). In this case, the MPPs for the 1st author will be counted to the institution of the lead author.
- Publication plans must be transparent and posted on the "Declaration of Interest, Coordination, and Publication Status" (DICOPS) – Wiki. All papers need to go through an internal review process.
- In certain cases "Breakthrough" publications may be published with the first author named "The METIS Consortium".
- Early science publications (within the first two years after the end of the commissioning phase) follow an inclusive co-author policy to provide the maximum return to all team members[3] who helped to make METIS a success. This is followed by a more restrictive co-author policy to enhance the publication efficiency.
- MST members, who want to participate in the planning, execution and exploitation of the joint GTO plan, are expected to make significant contributions of at least 0.5 FTEs in total to METIS. Such recognizable contributions are possible in a variety of areas.
- Exiting team members who have made significant contributions to the METIS project can apply for the status of a "METIS Fellow". METIS fellows are full members of the MST, can participate in the GTO plan, and become first authors on publications.

[3] A METIS '**Consortium Member**' or '**Team Member**' is an individual who is either a nominal member of the MST, or a technical or management expert, who has specific tasks within the development of METIS, and is being paid for his/her work on METIS.

2 THE METIS SCIENCE TEAM (MST)

2.1 Main Tasks of the MST

The MST has several major tasks and responsibilities (in arbitrary order):

I. The composition of the METIS Science Case [RD02], and its ongoing revisions to keep it up-to-date.

II. The composition, implementation, execution, and scientific harvesting of the METIS GTO plan. That includes the writing and submission of specific GTO proposals according to the agreed GTO plan under the responsibility of the Project Scientist.

III. The support of technical trade-off studies, as requested by the Project Scientist (PS), to support the technical team to achieve the best instrument design and performance.

IV. The recommendation of a list of dedicated post-pipeline data analysis tools, and their priorities.

V. Planning and coordination of preparatory observations, as well as science verification (SV) observations.

VI. Support of the AIT phase through the analysis of test data with respect to calibration and performance characterization, as well as support of the commissioning phase.

VII. Establish a database of targets and preparatory observations, data, and required models.

This document focuses mainly on the tasks described under item II.

2.2 Members of the MST

The MST consists of three member groups:

A. The nominal MST members, representing the science interests of the Consortium partners or their associated communities. For each nominal Consortium partner as listed in the MoU [AD03], up to five MST members can participate in the MST. The nomination of the individual scientists for the MST will be done by the respective co-Is and has to be approved by the PI.

B. Team members with an important, specific responsibility in the project, such as the PI, the co-Is, the Instrument Scientist, the Calibration Scientist, etc.

   The membership of these members is given by their special role, does not have to be approved, and is not counted against the contingent of any specific Consortium partner.

C. Invited members, who are not affiliated with one of the METIS Consortium partners or their associated communities, but who bring in additional unique or complementary expertise, which is not already present within the MST, or who have contributed to the METIS project in the past and have acquired the status of a METIS Fellow (section 7.2.3). The members of this group are selected on a case-by-case basis and are not counted against the contingent of any specific Consortium partner.

   The nomination of external scientists can be done by any member of the MST and has to be approved by the co-Is in a simple majority vote.

Concerning (A), the Consortium partners are strongly encouraged to not, by default, aim at the nominal maximum of five MST delegates, but consider a smaller number of very effective MST scientists. A smaller number is encouraged for several reasons: The scientific return to

each partner, as described in section 7.1, is independent of the number of MST members. All MST members are expected to contribute significantly to the success of METIS (section 7.2), but also bring in their own individual expectations, which might not all be able to get satisfied sufficiently within a large team.

PhD students cannot become formal members of the MST. However, they can participate in the planning, support, and exploitation of the science plan through their supervisor.

The members of the MST at the time of writing of this document are listed in Figure 1.

2.3 Organization of the MST

The MST activities are led and coordinated by the METIS Project Scientist. The Project Scientist reports to the co-I board (Figure 1) on the main decisions taken for discussion and approval. It is the responsibility of the Project Scientist to inform the MST about the decisions of the co-I board. Figure 1 shows the organigram of the MST.

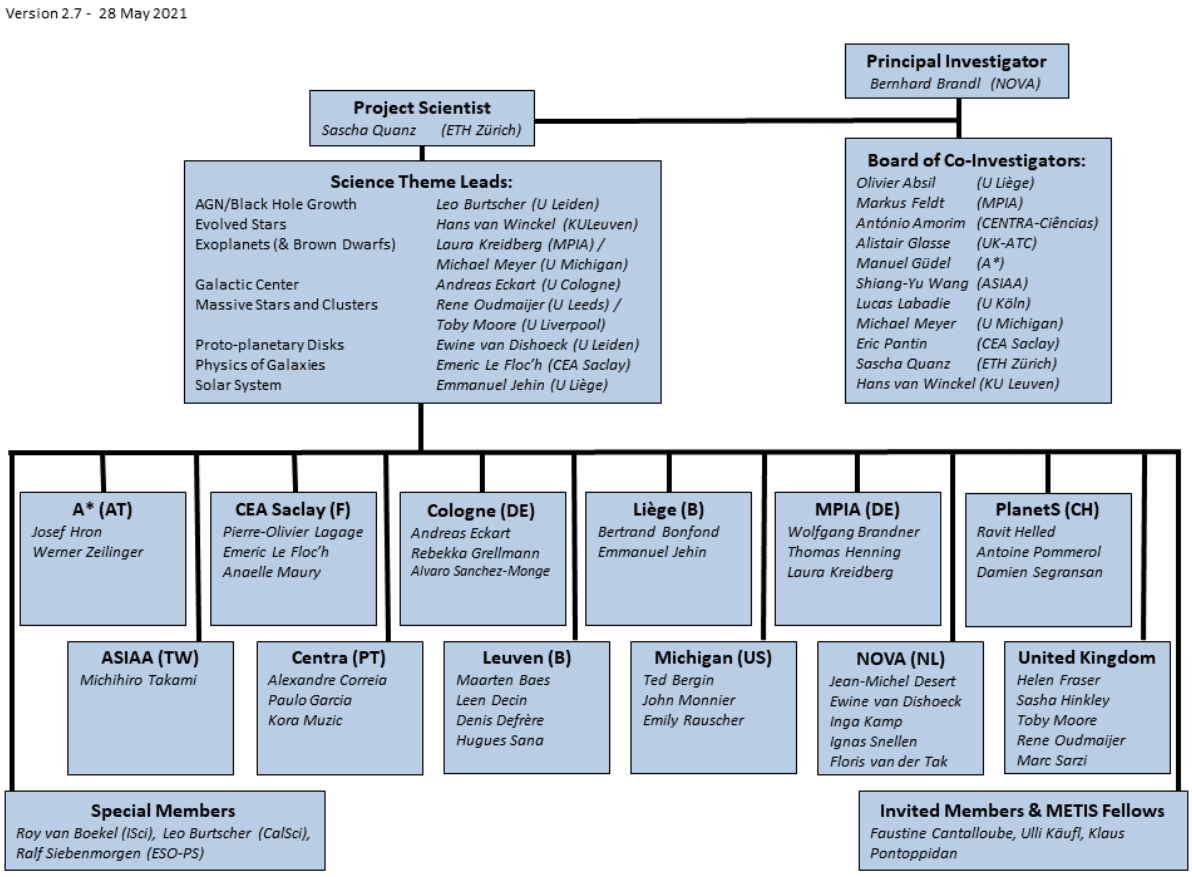

Figure 1 Organigram of the METIS Science Team. The Science Team is led by the Project Scientist, who chairs the theme leads. The latter are responsible for the composition of the topical science cases, and can draw from the expertise of the larger Science Team. The co-I board approves the implementation of the science plan. The co-I board is composed of the PI (also representing the lead Consortium partner), and one co-I from each Consortium partner. The members of the co-I board are by default members of the MST.

In order to best utilize the existing expertise, the science covered by the MST is subdivided into science themes. Each theme is coordinated and led by a 'theme lead', who supports the Project Scientist.

The **Science Theme Leads** (Figure 1) play a key role in the preparation of the GTO plan. Each Science Theme Lead leads the work toward the GTO plan of the respective science area. That work includes the composition of a ranked list of proposed targets, ensuring that the description of plans on the DICOPS-Wiki (section 6.6) is accurate and complete, guiding the preparation of the planned observations, and helping to streamline the process of publishing the scientific results. The Science Theme leads work closely with the Project Scientist to ensure an efficient involvement of the full potential of the entire MST with maximum scientific return.

The membership in a theme is based on individual science interests and may change with time. Each MST member should participate in at least one theme, but cannot be active in more than two themes. Institutional as well as individual contributions to the MST are further discussed in sections 7.1 and 7.2.

It is a fundamental principle of METIS to maintain a homogenous science team, insensitive to individual and institutional territorial claims. The MST and its activities are organized by interest groups (science "themes"), and not by Consortium partner affiliation.

3 PLANNING OF THE GTO PLAN

3.1 Main Objectives of the GTO Science Plan

The use of METIS GTO shall focus on:

I. Breakthrough observations within the areas of the main science drivers for METIS.

II. "High risk – high gain" observations, for which open time proposals (OTP) are unlikely to get observing time.

III. Feasibility demonstrations of certain types of observations, which can be used to support larger, follow-up OTPs. (Large, comprehensive observing plans cannot can be executed within the METIS GTO time).

3.2 General Guidelines for the GTO Science Plan

In order to maximize the scientific return of the METIS GTO plan, the following guidelines apply:

I. There will be no exclusive GTO allocations to individual partners or institutes. Instead, METIS will perform a joint GTO science plan in which all partners participate, bring in their complementary expertise, and jointly benefit from the enhanced scientific return.

II. No scientific areas are a priori assigned to or reserved for any particular institution or Consortium partner.

III. The METIS GTO plan will be planned and composed by the MST under the guidance of the Project Scientist (section 2). In practice, it is strongly anticipated that the MST members reach an agreement in a highly collaborative and friendly spirit, following common sense.

Based on the main objectives and general guidelines, defined in sections 3.1 and 3.2, respectively, the Project Scientist drafts a skeleton GTO plan, which indicates the scientific objectives, priorities, and potential GTO leadership roles. This skeleton plan will be reviewed by the board of co-Is and shall be available at the time when the system-level AIT activities start, in order to be able to prepare science support activities where needed.

3.3 Amount of GTO Time

According to Article 8 in the original Agreement [AD02], "*ESO shall grant the Consortium GTO quantified in 65 nights of E-ELT observing time in return for construction and commissioning of the instrument*". According to section 2.2 in the Amendment to the Agreement [AD06], the total amount of GTO has been increased to 74.8 nights.

In case additional GTO nights can be obtained via the procedures described in [RD03] – usually by cash contributions to the hardware costs by existing or new Consortium partners – these nights will be added to the Consortium GTO pool to enlarge the total number of GTO nights. In return, the new Consortium partners will participate in the joint GTO plan.

3.4 Boundary Conditions for GTO Planning

GTO nights shall be used exclusively to achieve the goals of the METIS science plan. Furthermore, the joint GTO plan shall take into account and reflect the following, important considerations and boundary conditions as defined by METIS:

I. *The science priorities as described in the Science Case document* [RD02]. It is anticipated, at least during the first two years on the ELT, that a significant fraction of GTO time is allocated to only a few areas, in which METIS is expected to make the biggest science impact.

II. *The institutional contributions to METIS* according to section 7.1. The amount of investments in labor and hardware by the various institutes, which are key to the realization of METIS, shall be reflected in the composition and publication of the GTO plan (sections 6.3 and 6.4).

III. *A good balance between "high risk – high gain" observations and low risk projects.* The former is generally unique to GTO, while the latter ensures a guaranteed return, in particular during the early phases, when the performance of the ELT and its instruments may still be below expectations or unreliable.

IV. *MST support*. Proposals which are supported by many MST members are preferred.

In addition, the joint GTO plan needs to satisfy or comply with the following boundary conditions (which are not under the control of METIS):

i. *The readiness and performance of all 1st generation instruments.*

ii. *The actual ELT performance during the first year(s) after 1st light.*

iii. *The required observing conditions* (e.g., seeing, PWV, object visibility, …).

iv. *The upper limit on the available GTO time*, given by the 20% GTO cap of the total ELT observing time per year, on average (ESO Council resolution).

v. *The ESO GTO policy:* According to [AD05], the GTO allocation process for the ELT by ESO will follow existing rules governing the use of GTO on the VLT, as defined in Appendix 2 of the "VLT/VLTI Science Operations Policy" (Cou-996 rev, approved in December 2004), modified in part by "Allocation of GTO Proposals" (Cou-1301, approved in June 2010).

It is the responsibility of the Project Scientist to compose the GTO plan according to the above boundary conditions. The resulting GTO plan needs to be approved prior to execution (section 4).

3.5 Planning and Execution of GTO Observations

The awarded GTO nights (section 3.3) must be spread over eight years. Not all of the boundary conditions listed above will be known eight years in advance. The plan will therefore be executed in several steps:

I. Definition of the overall science goals and the anticipated distribution of time (across themes and time), i.e., a conceptual GTO plan for the entire GTO period.

II. A structured plan of anticipated observations for the first observing period[4].

III. Writing and submission of specific GTO proposal(s) according to that plan.

IV. ESO approval of the proposed GTO for the first observing period.

V. Phase 2 implementation of the approved observations ("Observing blocks").

VI. Execution of the approved GTO observations.

VII. Updates of the GTO plan for all subsequent observing periods (steps I. – IV).

The Project Scientist is responsible for the top-level implementation and execution of these steps. Steps I., II., and VI. require approval by the co-I board (section 4). The responsibility for steps IV. and V. of a specific proposal rests with the PI of that proposal (see below).

The METIS PI is the nominal GTO point of contact for ESO, mainly for three objectives: *(i)* to verify that the time requested by the GTO proposals matches the allocated time in that semester; *(ii)* to inform METIS which nights that semester are allocated for GTO; and *(iii)* to provide the list of protected targets.

It might be that fast-turn-around observations triggered by new discoveries may require the submission of target-change requests for an already submitted/scheduled GTO plan in a given observing period. These requests shall also be agreed upon by the co-I board, taking into consideration whether the submission of a DDT proposal to the observatory might be an alternative approach to secure the data.

An individual GTO proposal may be led by any individual who is a member of the MST. The PI of an GTO proposal is also responsible to execute Phase 2, i.e., prepare the Observing Blocks, similar to the procedure with the VLT [RD05]. While the PI of the GTO observing proposal will often also become the lead author of the resulting publication (section 6.3) this is not necessarily required.

The PIs of approved GTO observations need to indicate the status of their project (incl. the status of the planned observations) on the DICOPS Wiki (section 6.6), and update this information in time to assist the GTO plans for the next observing period.

3.6 METIS GTO Observations on other ELT Instruments

It is expected and anticipated that GTO time awarded to METIS will be predominantly used for observations with METIS. However, METIS GTO observations using other ELT instruments are possible if the science objective is part of the METIS GTO science plan.

According to [AD05], "*Instrument consortia will be allowed to take a maximum of 25% of their awarded GTO on another instrument. The instrument selected must be in regular operation during the period of GTO. If the same GTO science is proposed for the same instrument by two consortia, priority will be given to the consortium which constructed it.*"

In cases where METIS GTO is requested on another instrument, priority will be given to proposals requiring both METIS and the other instrument to complete the science objective, with respect to proposals requesting only the other instrument.

[4] An 'Observing Period' defines the time period for which ESO accepts observing proposal. That period will be defined by ESO.

3.7 General Boundary Conditions for GTO Observations

All GTO observations have to satisfy the operating conditions for the ELT, which are listed in [RD05]. In order to facilitate the different requirements and optimize the use of observing time, most observations will eventually be scheduled in queue-schedule mode. However, according to [RD05], "*the first 50% of guaranteed time shall be taken in Visitor Mode, in order to ensure that the observatory benefits from presence of consortium experts. The remainder can be taken in any mix of Visitor- and Service-Mode nights. In the case of Service-Mode nights, proposals ranked higher than grade 3 will be treated as Class A programmes for the purpose of scheduling.*"

4 APPROVAL OF THE GTO PLAN

The METIS GTO plan will be composed by the MST (section 2) under the guidance of the Project Scientist. The plan has to be composed according to the boundary conditions described in section 3.4, with a particular emphasis on the balance between the contributions to the project and the science return (section 6.1).

The resulting plan will then be presented by the Project Scientist to the co-I board (Figure 1).

The presentation will be followed by a thorough discussion of the plan, during which all co-Is will clearly express their support, concerns, or objections, if any. It is not anticipated that the co-Is "micro-manage" the proposed GTO plan[5]. However, if a co-I believes that the proposed GTO plan does not properly reflect the relevant boundary conditions (section 3.4), the co-I board will carefully investigate that matter. If necessary, the Project Scientist will be asked to revise the GTO plan.

The goal is that the co-I board reaches a unanimous agreement. However, there is no formal voting procedure for approval. Instead, the PI will carefully listen to the discussion, and eventually make a decision, which is based on the input received from all co-Is. That decision, however, may also include further considerations, such as the memory from previous decisions (if partners give in one time, they should be paid back next time), or compromises to avoid a large disadvantage for a Consortium partner. It is the PIs responsibility to maximize the scientific return to the Consortium while maintaining a good Consortium team spirit.

Since the GTO plan has to be updated each observing period, according to the list of approved and executed GTO observations, the approval of the revised/updated GTO plan by the co-I board will also be repeated accordingly.

[5] Since the co-Is are, by definition, members of the MST, there are ample opportunities to include their specific input and ideas early in the process, and the resulting GTO plan, proposed to the co-I board, should not come as a surprise.

5 DATA ACCESS

5.1 Access to Science Verification Data

According to the *VLT Science Verification Policy and Procedures* [RD04], an integral part of the Commissioning of a new VLT instrument is a series of Science Verification (SV) observations[6].

In order to reduce the time pressure on the GTO allocation, the MST may consider proposing some observations that are part of the METIS GTO plan to ESO to be executed during SV. Such a proposal can be made by any member of the MST (section 2.1 V), but requires the support of the Project Scientist and the approval of the co-I board.

The raw and calibration SV data passing quality control are made immediately public via the ESO archive. SV data do not count against GTO.

5.2 Access to GTO Data

The proprietary time of GTO data is one year.

All METIS consortium members are obliged to keep access to METIS GTO data restricted to METIS consortium members, plus any agreed external collaborators (see section 7.3).

In general, proprietary data must not be shared with external third parties, unless the co-I board specifically approved the data sharing. Members of the MST, who work with a PhD student, post-doc, or senior colleague on a particular project (according to section 6.3), may provide access to the GTO data on that particular data to the student/postdoc. The respective MST member is fully responsible that the data are not publicly accessible, will be handled in confidentiality, and will not be spread any further during the proprietary period.

All members of the MST will get access to the data upon request to get familiar with the data formats, analysis tools, and other similar purposes. However, the scientific analysis of the data and their publication or presentation at meetings has to be coordinated with and approved by the responsible author (section 6.3) of the respective GTO observation from which the data originate.

All GTO data may be used for (internal) calibration tasks, as defined by the Calibration Scientist, at any time to monitor the scientific performance of the instrument.

[6] Under certain conditions also commissioning data can be used in publications. If so, they also fall under the rules defined in this document.

6 PUBLICATION RULES

6.1 Assessment of the Science Return

The success of METIS is based on the scientific, technical, and financial contributions from all partner institutions over many years. It is a fundamental philosophy of METIS that the science return – integrated over the duration of the GTO period – shall reflect the contributions to METIS: partners who have made big investments over many years to ensure the success of the project can expect more science return than partners who made smaller contributions. The contributions to the project are discussed in section 7.1 and can be estimated quite accurately. However, an accurate measure of the science return, based on publications in peer-reviewed scientific journals, is difficult: early publications from the ELT will receive more attention than "routine observations" after 6 years in operation; a short letter to 'nature' from the 1st year may or may not receive more citations than a more comprehensive study on a larger sample of objects in the 3rd year; the first authorship on a single paper may not always represent more science return than being second author on several high-profile papers.

Due to the lack of commonly agreed, accurate, and quantitative measures of science return, METIS applies the following approximation, based on METIS publication points (MPPs):

- First authorship on a peer-reviewed METIS GTO publication is worth 10 MPPs.
- Second authorship on a peer-reviewed METIS GTO publication is worth 3 MPPs.
- Being listed as the 3rd, 4th, or 5th co-author is worth 1 MPP.

The number of MPPs will be weighted with (i.e., multiplied by) the **impact factor** of the journal selected for publication[7].

In case of 'Breakthrough publications' (section 6.4), the MPPs will be distributed over all Consortium partners, according to their project shares [RD06].

Two aspects of the MPPs are particularly noteworthy:

A. MPPs are intended to measure the scientific recognition of the various consortium partners from a given publication (as seen by the astronomical community). MPPs are not meant to represent the actual contributions of the various authors to a given paper.

B. Ideally, the total numbers of weighted MPPs for the various Consortium partner correspond to their institutional contributions (section 7.1). In practice, this may not be achievable in the first year, and there may be fluctuations, but over longer times, the averages must work out, and equal the institutional contributions at the end of the total GTO period after eight years. In cases where the first author is not a member of the MST (section 6.3) the weighted MPPs will be assigned to the institution of the lead author (section 6.3).

Obviously, such a fixed, simple scheme cannot take all relevant factors, like the number of resulting citations, into account. It can therefore only provide a first-order approximation of the science return, and can only serve as a guide. The actual distribution of weighted MPPs and their matching of the institutional contributions (section 7.1) will therefore be assessed by

[7] The impact factor reflects the yearly average number of citations that articles published in the last two years received. The actual impact factors for each journal can be found on Wikipedia. The most common ones are: Nature Astronomy – 10.5, ApJL – 8.4, A&A – 6.2, ApJ – 5.6, AJ – 5.5, MNRAS – 5.2, PASP – 3.5. Less popular journals, for which no impact factor can be found, we assume 3.0 by default.

the board of co-Is once per observing period. The PI will instruct the Project Scientist if corrective measures need to be taken[8].

The rule that no scientific areas are a priori assigned to or reserved for any particular Consortium partner (section 3.2, II.), practically increases the science return for many individuals on the MST.

6.2 Boundary Conditions for Publications

In addition to the (section 3.2 II.) authorship considerations, discussed in section 6.1, the following general rules apply:

I. Leadership opportunities are available to all partners, provided expertise and effort contribution.

II. The lead author (section 6.3) must be very familiar with the scientific subject of the paper.

III. Any MST member can lead only one paper at a given time. The leadership starts nominally with the date that the first data for the proposed project have been taken. (This restriction avoids unnecessary claims of territories and increases the consortium publication rate).

IV. The status, topic, and authorship of all papers must be transparent to the team (section 6.6)

V. All papers need to go through an internal review process (section 6.7).

Special rules may apply to papers submitted to Nature/Science. These shall be discussed and approved, on a case-by-case basis by the co-I board.

6.3 First-/Lead-Authorship on Science Publications

The list of authors on a publication starts with the *first author*, usually followed by a number of *co-authors*.

Here we introduce the *lead author* as the scientist who is in charge of coordinating the scientific activities for that paper, and who ensures that the guidelines defined in this 'GTO and Publication Policy' are being followed. The *lead author* of a paper is always a member of the MST, and may, but does not need to, be the PI of the related GTO observing proposal.

*Lead author*ship on a particular publication will be decided on a case-by-case basis, considering many factors, including the scientific expertise, planned contributions to that publication, and the overall balance of lead/first authorships within the consortium.

The *lead author* is usually the *first author* of the paper, but this is not a requirement. Obvious cases in which the *lead author* may want to delegate the *first author*ship to another scientist are:

[8] Note that in extreme cases, these corrective measures might lead to the request to dismiss the lead-author (section 6.3) of a planned publication from first authorship. On the other hand, no one will be promoted to first authorship if not a significant contribution is made to that publication.

A. A PhD student, who is not a formal member of the MST, and who will work on the publication as part of his/her PhD thesis.

B. A scientist from the host institution or associated astronomical community of the *lead author*. This option may be desirable to attract more interest in, and gather support for METIS, from a larger community beyond to MST.

C. A "METIS Fellow" as described in section 7.2.3.

Generally, all *lead authors* are encouraged to make best use of the enthusiasm and/or expertise of young scientists within their institution (or community) in the interest of the best possible science exploitation.

In cases where the *first author* of a publication is not a member of the MST, the following restrictions apply:

- The *first author* must play a key role in the data analysis, interpretation, and/or writing of the publication.
- *First author*ship is assigned on a case-by-case basis. Being *first author* on a publication does not a priori come with the right to co-author other GTO publications.

It is anticipated that a consensus about the *lead author*ship on a publication develops naturally during the planning of GTO program, the existing expertise, and the available GTO data at the time. The Project Scientist, in consultation with the nominal MST members, will steer that process to ensure that the balance referred to in sections 7.1 and 6.2 I, can be achieved.

The resulting list of planned papers has to be approved by the co-I board. In case of disagreements between the co-Is, the PI will decide.

6.4 Generic first-/Lead-Authorship on "Breakthrough" Publications

Certain cases of "Breakthrough" publications from the METIS GTO program shall not be led by an individual first author but instead by "The METIS Consortium", followed by a list of names. The motivation for these "Breakthrough" publications is manifold:

- It sends the clear message that the "breakthrough result" is an accomplishment by the entire METIS team.
- It emphasizes the fact that METIS (and its scientific output from the joint GTO program) is the result of years of combined work from more than a hundred people.
- It may reduce unwanted tension within the MST by avoiding the battles on 1st authorship.
- It has become common practice in many science areas as well as other astronomy projects.

However, the very diverse science areas of METIS and the often unpredictable nature of discoveries make it difficult to pre-define "Breakthrough" publications. The latter, however, is a prerequisite; publications on which individuals have already been working intensely for a long time in anticipation of 1st authorship must not turned into "Breakthrough" publications at a later stage.

In practice, only observations with a certain positive outcome or a very significant increase in knowledge (new upper limits, exclusion of parameter space, the "low hanging fruits") should be considered for "Breakthrough" publications. Most likely, there will only be a small number of "METIS Consortium" publications (wrt. standard GTO publications). The following rules shall apply to "Breakthrough" publications:

I. "METIS Consortium" publications have to be defined before the observations will be taken. A later change of status from 1st-author paper to "METIS Consortium" paper is practically not feasible.

II. The list of these "Breakthrough" publications will be composed by the METIS Science Team under the guidance of the Project Scientist. This list has to be approved by a 2/3rd majority of the METIS co-I board.

III. The author list on these papers should be as follows: *(i)* 'METIS Consortium', *(ii)* the handful of co-authors who contributed most significantly to this specific paper, ordered by contribution, *(iii)* all other co-authors in alphabetical order.

6.5 Co-Authorship on Science Publications

In principle, all members of the METIS technical and science teams, who contributed significantly to the development of METIS, as defined in sections 7.1 and 7.2, are eligible to become co-authors on METIS GTO science publications.

While proper credit should be given to anyone who contributed to the success of the instrument or a given publication, it is desirable to avoid excessively long lists of co-authors on each METIS publications. In order to achieve the best balance between formal recognition and author visibility, we distinguish the two phases of *early* and *later* science publications. *Early* GTO-based publications are papers that are submitted to a journal within the first two years after the end of the commissioning phase (to be formally defined by ESO). *Later* GTO-based publications are papers that are submitted to a journal after two years after the end of the commissioning phase.

Sections 6.5.1 and 6.5.2 define the categories of eligible co-authors for early and later science publications, respectively. Based on these categories of eligible co-authors, each co-I will compile the list of names for their respective team. It is the responsibility of each co-I to ensure that this list is neither excessive (i.e., listing individuals with insignificant contributions to METIS) nor incomplete (i.e., listing all individuals who have made significant contributions according to section 7.2).

Some Consortium members will be listed by default:

- (At least) One co-author from each Consortium partner (typically but not necessarily the respective co-I)
- Members of the MPO (PI, PS, IS, CS, CSE, CPM)

After approval of the lists of names for each Consortium partner by the co-I board, the combined list will be posted on the DICOPS-Wiki (section 6.6).

Any Consortium member, who wants to become co-author on a METIS GTO-based publication, must comply with the code of conduct (section 6.5.4).

6.5.1 Early Science Publications

This phase shall be characterized by a rather inclusive co-author policy to provide the maximum return to all team members who helped to make METIS a success.

The members of the METIS Consortium who are eligible for co-authorship on early science publications are:

- Members of the MST
- Members of the technical team
- Postdocs, PhD students, and METIS Fellows (section 7.2.3) who have contributed significantly to the development of METIS and/or the science program (section 7.2), as well as new PhD students according to section 7.2.2.

The involvement of external co-authors in the early phase is not encouraged.

In case of disagreements on co-authorship, the PI will decide.

6.5.2 Later Science Publications

This phase shall be characterized by a more restrictive co-author policy to enhance the publication efficiency within the MST.

The members of the METIS Consortium who are eligible for co-authorship on later science publications are:

- MST members who are active in the same or a closely related science area/theme
- Outstanding members of the technical team, who have contributed substantially and over a long time to the success of METIS
- Postdocs, PhD students, and METIS fellows (section 7.2.3) who work in the science area of the given paper and who have contributed significantly to the development of METIS and/or the science program (section 7.2), as well as new PhD students according to section 7.2.2.

The lead author of a publication decides on the involvement of external co-authors following the rules in section 6.5.

In case of disagreements on co-authorship, the PI will decide.

6.5.3 Order of co-Authors on Science Publications

In general, the list of co-authors, following the 1st author, is ordered as follows:

1. MST members who contributed significantly to the planning of the observations, the data analysis and interpretation, provision of ancillary data, and the writing of the manuscript. Usually this concerns only a small group of people. Their names follow the 1st author, and their order is determined by the lead author, reflecting their contributions to the given publication.
2. Team members who request co-authorship on the paper. While they have contributed to the success of the project, their specific contribution to this particular science project might be rather small (e.g., commenting on the manuscript). Their names appear in alphabetical order, following the list of names defined under 1.

In some cases, e.g. for discovery papers with high visibility, the order of names might deviate from the above scheme. In these cases, their order will be determined by the board of co-Is.

6.5.4 Code of Conduct

The following rules apply to all co-authors of all publications:

1. Co-authors should have contributed to the paper in one way or another.
2. Co-authors must have read the paper.
3. Co-authors must have confirmed their co-authorship with the lead author.

Team members, who are by default potential co-authors, need to proactively confirm their co-authorship with the lead author.

In other words, all co-authors need to feel responsible for the results presented in the given paper, have made a "significant contribution" to the paper, and need to be able to explain their role ("who did what") on that paper.

6.6 Co-Authorship by external Scientists

In general, there are two categories of external scientists:

A. An individual who is not a member of the MST or the METIS technical team, but affiliated with one of the Consortium partners that enabled METIS. In this case, the lead author of the respective paper decides on his/her co-authorship.

B. An individual who is neither a member of the MST or the METIS technical team, nor affiliated with one of the Consortium partners. In this case, the lead author of the respective paper has to support his/her co-authorship, but the approval by the Project Scientist is also required. Obviously, the Project Scientist should be informed first, before the external scientist receives an invitation.

For both cases, an invitation to external scientists is based on the following requirements:

- It can only extend to one individual paper at a time.
- It requires approval by the Project Scientist.
- It requires that the invited scientist brings in unique expertise, required models or tools, or ancillary data, which would otherwise not be accessible.

The involvement of external scientists is decided on a paper-by-paper basis. Generally, external scientists do not have access to GTO data beyond the specific project they have been invited to.

In some cases, the anticipated involvement cannot be restricted to an individual co-authorship(s), e.g. if a GTO project would benefit from a collaboration with an external team that performed a survey or dedicated observation on another instrument. If these data are not publicly available, and if they are directly relevant to the planned METIS GTO observations, a collaborative agreement has to be reached. The terms and conditions of that agreement have to be defined on a case-by-case basis, and require the approval of the co-I board.

6.7 Plans for Papers and Status Information

Potential lead and co-authors, interested in the analysis and publication of a certain data set, should send a declaration of interest to the theme lead of the respective theme, with a copy to the Project Scientist. If more than one person signals interest in a given data set, co-operation is the preferred solution. This declaration of interests will enable to identify and organize sub-team for the data reduction and analysis in advance. Generally, decisions will not be taken on a "first-come-first-serve"-basis.

The relevant information on all publications must be transparent and accessible to all members of the MST. This will be accomplished by an easily accessible but password-

protected Wiki web page, the "*Declaration of Interest, Coordination, and Publication Status" (DICOPS)* – Wiki.

The lead author is responsible to post the relevant information on the DICOPS-Wiki. The relevant information needs to include:

- ✓ Title and science goal of the paper
- ✓ Name of lead author and co-authors
- ✓ Status of the observations
- ✓ Status of the paper
- ✓ The journal[9] the paper will be submitted to
- ✓ The datasets that will be used (e.g. OBS ID or OB numbers)
- ✓ Whether or not it is part of a PhD thesis

It is possible (and even anticipated) that more than one paper will result from one GTO observation or data set. In this case, the Project Scientist will negotiate the scope and balance between the related papers to avoid internal conflicts.

Generally, a specific paper/project is "protected" for one year, after which the paper shall be close to completion. If the preparation of the manuscript has been delayed for good reasons which are not due to neglect, an extension of this period maybe proposed by the Project Scientist. In case there has been no significant progress during that period, for reasons that are not related to the availability of the data, the Project Scientist may request that the lead author/team be replaced. These measures have to be approved by the co-I board in a simple majority vote.

As stated in section 6.2 III, any MST member can only lead one science paper at a time. He/she may announce a new paper as soon as a complete draft of the previous paper has been posted on the Wiki for internal review (section 6.7).

It is not allowed to work "secretly" on a paper and disclose it only at the final stage. Instead, a draft version of the paper, outlining its structure and main objectives, shall be posted on the Wiki as soon as possible.

Papers that are intended to become part of a PhD thesis need to be clearly identified as such on the Wiki page.

6.8 Submission of Publications based on GTO Data

The preparation and submission process of a paper follows a series of steps:

1. It is not acceptable that "shortcuts" are being taken to save time at the expense of data quality. The data reduction and analysis shall be based on the standard METIS pipeline or equivalent, wherever possible, applying the standard calibration recipes. If special, non-standard routines are being used, clearance needs to be provided by the METIS Calibration Scientist.

[9] The default journal for scientific publications resulting from observations with ESO telescopes is 'Astronomy & Astrophysics' (A&A), which is free of publication charge for European astronomers, or MNRAS. Submissions to other journals, in connection with the expectation that the project covers the page charges, need to be approved by the Project Scientist.

2. When the lead author considers the paper as ready for submission, the draft will be posted on the DICOPS-Wiki. The lead author informs the Project Scientist and all co-authors (section 6.4) accordingly. To ensure proper visibility of the process to the entire team, paper drafts shall always be posted on the DICOPS-Wiki page rather than circulated by email.
3. The co-authors will provide comments, suggestions, and corrections to the lead and/or 1st author within usually less but no more than four weeks. The co-authors and the Project Scientist serve as the (internal) editorial board. Their feedback must be carefully considered and implemented.
4. The lead and/or 1st author will revise the draft paper according to the comments received, and post the resulting version on the DICOPS-Wiki page. At this point, the lead author informs, by email, the entire MST about the advanced draft.
5. Steps 3. and 4. might have to be repeated, depending on the substance and/or controversy of the feedback that has been received. In case, a disagreement between the co-authors cannot be resolved directly, the Project Scientist will moderate and guide to a solution. Once this has been concluded, the paper can be submitted to the journal.
6. As soon as the referee report is received, it shall be posted on the DICOPS-Wiki and the Project Scientist and all co-authors shall be informed accordingly. The revision of the paper is coordinated by the lead author, and supported by input from the co-authors. Once the revised version is completed, it has to be posted on the DICOPS-Wiki page for at least one week before resubmission to the journal.
7. Final accepted papers must be posted on the DICOPS-Wiki and announced to the MST via email by the lead author.
8. Whether or not the paper will be posted on arXiv ("astro-ph") is up to the lead author to decide. For reasons of METIS GTO visibility, posting on arXiv is strongly encouraged. However, only science publications that went through the internal review process described above, and are considered "ready for submission", can be posted on arXiv.

In exceptional cases, where a very fast publication is deemed crucial by the co-I board, the Project Scientist might define a different procedure with shorter turnaround times on a case-by-case basis.

6.9 Follow-up Projects and non-GTO Projects

MST members (and their post-docs/students) can – and are strongly encouraged to – be PIs and co-Is of non-GTO OTPs which use METIS, provided that the science goals of the OTPs are not in competition with the METIS GTO plan.

In case of potential overlaps or conflicts, the Project Scientist has to be informed, and a solution has to be found on a case-by-case basis.

MST members may offer their personal expertise to support an OTP, but they cannot utilize tools for data reduction and analysis that have been developed for internal use, without explicit permission by the PI.

METIS GTO observations may be used as "seed" or feasibility demonstrations to enable larger OTPs. Plans to execute new or recycle existing GTO observations for OTPs have to be approved by the Project Scientist. The composition of the OTP team may differ from the team that performed the corresponding GTO observations. However, the MST member(s) on the OTP has/have to ensure that an appropriate number of MST members has been invited to

participate in the OTP. The quantitative assessment of an "appropriate" representation will be done on a case-by-case basis, and has to be approved by the PI.

If a given GTO program does not provide sufficient data for an independent publication, and needs to be complemented by an open time program for which outside expertise is mandatory, the resulting publication should include these external scientists.

The execution of parallel open time programs by members of the METIS consortium must not jeopardize the successful execution of the GTO program due to lack of resources.

6.10 Co-Authorship on technical Publications

Scientists of the MST will in general not co-author technical publications. However, in case a technical paper contains an overview of the science case (e.g. in top-level papers describing all aspects of the instrument) the Theme Leads of the science areas featured in that paper shall be co-authors, as well as the Project Scientist and the scientists who directly contributed to the paper (e.g., by specifically producing figures for that paper).

Technical papers which describe the entire instrument (and not just a particular subsystem or component) shall include at least one representative from each Consortium partner (usually but not necessarily the co-I).

The lead author ensures that the rules in section 6.5 are being followed.

6.11 Publications resulting from Commissioning and Science Verification

Publications by members of the METIS Consortium, which are based on data taken during commissioning and/or science verification, do not fall under the GTO policy defined in this document. Special rules may apply to these publications.

These rules are defined by the co-I board on a case-by-case basis.

6.12 Presentations at Conferences, Colloquia and Seminar

Any member of the MST may – and is actually encouraged to – present the METIS instrument and its scientific results at colloquia, seminars, and conferences.

In case a presentation includes yet unpublished[10] results from the METIS GTO plan, the following requirements apply:

- The lead author of the corresponding publication has approved the presentation of these unpublished results.
- The Project Scientist has approved the presentation of these unpublished results.
- The presenter has significant involvement in the plan from which the unpublished data stem.

In general, papers written for and published in conference proceedings shall not contain the unpublished data, unless it has been ensured that the publication date of the proceedings is past the publication date of the corresponding GTO science paper.

[10] Preprints on arXiv are considered to be in the public domain.

For conference proceedings, where the page number is usually very restricted, it is acceptable to restrict the list of co-authors to a few main contributors to that paper, and the addition of the term “and the METIS Collaboration”.

It is strongly desired that a copy of the presentation will be posted on the METIS Wiki site.

6.13 Conflict Resolution and Misconduct

Unless defined otherwise in this document, *conflicts* concerning scientific publications should be brought to the attention of the Project Scientist who will moderate and suggest a solution. If the proposed solution cannot be agreed on, the matter will be brought to the attention of the co-I board. If no agreement can be found, the PI will make an executive decision.

Cases of *misconduct* within the collaboration – for example, not respecting the protection of papers, working secretly on papers that were not announced, spreading proprietary data beyond the Consortium, or disregarding the rules on co-authorship – should be brought directly to the attention of the PI, who will, in consultation with the board of co-Is, judge how to proceed.

6.14 Acknowledgements

All scientific papers related to the work of the METIS consortium must mention – typically in a footnote on the cover page or at the end under ‘Acknowledgements’ – the formula[11]:

"*METIS is an ELT instrument defined and built, in close collaboration with ESO, by a consortium composed of Dutch (NOVA), German (MPIA, U Cologne), British (UK-ATC), French (CEA Saclay), Austrian (A*), Belgian (KU Leuven, U Liège), Swiss (ETH Zürich), Portuguese (Centra), US (U of Michigan), and Taiwanese (ASIAA) institutes.*"

[11] The text of this formula will be updated in case the list of METIS Consortium partners changes.

7 RECOGNIZED CONTRIBUTIONS TO THE PROJECT

7.1 Contributions by Consortium Partners

Section 6.1 states that the science return – integrated over the duration of the GTO period – shall reflect the institutional contributions to METIS. Unfortunately, there is no precise quantitative measure and track the volume and value of the contributions made by the different Consortium partners to METIS. Different currencies, salary levels, long-term experience and work efficiency, and existing infrastructures, would lead to different units describing the size of the same work package if it were done at different institutions.

7.1.1 FTE Contributions

Despite the before-mentioned shortcoming, it has been agreed that FTEs are the best approximation to the real "value" of the contributions from the partner institutions. In particular, the "granularity" of measuring the science return from the GTO program (section 6.1) is likely to be much larger than the measure of the institutional contributions to the project.

The numbers of FTEs, planned for each work package, are listed in the document "Consortium Work Packages" [RD01] and the procedure to compute these shares is defined in [RD06].

All MST members are encouraged to invest in science exploitation at a level commensurate with their capital investment. In special cases, where efforts in support of the science exploitation by far exceed the institutional contributions, or lack far behind, the co-I board will decide on an appropriate adjustment to the shares as given by [RD06].

7.1.2 Other Contributions

Significant cash contributions by Consortium partners to the METIS hardware budget, according to [RD03], will be converted to FTEs with a conversion rate of 125 k€/FTE[12].

Financial investments in hardware components of facilities/infrastructure (e.g., test cryostats, AIT facility, etc.), which are not delivered to and therefore not reimbursed by ESO, and which have been specifically and uniquely made to support METIS, might also be considered as cash contributions, if listed in [RD01]. However, the latter contributions cannot be fully counted since their value usually remains at the partner institution. The details will be worked out by the LPMs.

Very substantial science support activities, which are directly connected to METIS and are supported by the Project Scientist, will also count as contributions, provided that they have been unanimously agreed upon by the co-I board members.

7.1.3 Relative Contributions and Shares

The contributions described in sections 7.1.1 and 7.1.2 are listed in the document "Consortium Work Packages" [RD01]. That document has undergone a major update in 2020 to reflect the changes to the work packages resulting from the PDR, as well as the addition of new Consortium partners. The resulting version 5 of [RD01] will serve as reference to define the

[12] 125 k€ are the agreed mean cost of one FTE (incl. overhead) across all Consortium partners.

relative shares of the various Consortium partners, and the agreed procedure for this computation is described in [RD06].

Those shares, given as percentages in rounded numbers, guide the composition of the GTO program and the resulting publication plans (sections 6.1 and 6.2).

7.2 Contributions by individual Members of the Science Team

7.2.1 Minimum Contribution to METIS

In order to play a noticeable role in the planning (or the publication of results – see section 6), the scientist is expected to have made ***significant*** contributions to METIS over the duration of the project.

'Significant' here is defined as a minimum requirement of 'at least 0.5 FTEs in total', which could be any arrangement between half a year of full-time work and 10 years of continuous support at the 5% level (corresponding to about 2 hours per week). A larger contribution of 1.0 FTE or more is highly desirable. Such recognizable contributions include the work on:

- science simulations and modelling
- preparation of GTO observations
- management of a science plan
- preparation and/or provision of ancillary observations
- significant infrastructural support of the MST (funding, students)
- instrument modelling
- data analysis during instrument commissioning
- support of the instrument calibration activities
- support of the pipeline software development

The PS and the PI will remind all MST members of the above criteria prior to them entering the commissioning phase of the instrument on the ELT. It is the responsibility of the co-Is to ensure that all members of their respective science team, who want to participate in the science exploitation, fulfill this requirement. In case individual members of the MST fall short of the 0.5 FTE threshold, they will, in general, not be eligible to participating in the GTO plan (unless a different solution can be worked out between the respective co-I, the PI, and the Project Scientist).

In some cases, individuals may provide large contributions, which exceed the minimum contribution by a large factor, and which are not already included in an agreed work package. Examples are the provision of an essential and unique software tool, or the exclusive preparation of an ancillary data set, which is crucial to support a METIS GTO program. These cases will receive special attention by the board of co-Is.

7.2.2 Involvement of PhD students

Any accomplished MST members, who fulfils the criteria in section 7.2.1, may invite a PhD student or post-doc, working under his/her supervision, to join a GTO proposal/publication under the following boundary conditions:

- The invitation will only apply to one proposal at a time, and not extend to the entire GTO plan.
- The invitation by any individual MST member is limited to one PhD student/postdoc for any given proposal.
- The inviting MST member and the PhD student/postdoc work in the same scientific area.
- The general publication rules in section 6 apply.

7.2.3 Exiting Consortium Members and "METIS Fellows"

The formal aspects of members exiting the METIS Consortium is being addressed at higher level in the MoU [AD03].

Exiting team members who have made significant contributions to the METIS project can apply for the status of a "METIS Fellow". METIS fellows are full members of the MST, can participate in the GTO plan, and become first authors on publications.

The exiting team members has to apply via the application form in Appendix B. The application must be strongly supported by the (previous) affiliation of the exiting team member.

All applications for the status of "METIS Fellow" have to be supported and approved by the co-I board.

The MPPs (section 6.1), corresponding to a publication of a METIS fellow, will, by default, be charged to his/her former host institution (i.e., supporting co-I), although different solutions can be agreed upon on a case-by-case basis. The partner institution, which provides the necessary MPPs, shall be listed as a second affiliation of the METIS fellow on the respective publication.

7.3 External Contributions

Significant contributions from scientists who are not members of the MST may be considered for the GTO plan on a case-by-case basis, and must receive the support of the Project Scientist. Their participation in the GTO plan has to be approved by the co-I board.

APPENDIX A: OPEN QUESTIONS

This sections lists METIS GTO-related questions that are still open and should be addressed in a future revision of this document:

- Will GTO proposals with grade "B automatically be carried over to the next semester? "(Maybe this is a non-issue, since in the current ESO GTO scheme, accepted GTO proposals are always ranked "A", and protected targets are only protected for one cycle. Furthermore, ESO is moving to a 12-month observing period scheme, which extends the period of GTO target protection).

- How will METIS handle protected targets? Will this be cycle by cycle?

- Service mode observations usually result in useful data, whereas Visitor mode observations are strongly weather dependent. In how far will GTO nights, lost to bad weather, counted against the total GTO allocation?

- In how far shall the access to data from MAIT and calibration data be covered in this policy?

- Shall the rules for technical publications also be covered in this document? Many rules are likely quite different from the GTO plan. Maybe a separate reference document would be sufficient. For reference, MIRI has a technical review board, consisting of the PI and the Instrument Scientist, who will "review/discuss" each paper and check that it is OK – i.e. that it does not conflict with the paper writing plan of someone else within the project and that the topic reflects work done by the lead author, and the initial lists of authors is OK.

- How shall MPPs be distributed for papers that also include open-time data and/or data from another instrument (especially if this data is provided by an external party)? Should the MPPs be reduced according to the weight of METIS GTO data in the publication? And what about publications based on GTO data that have already been published elsewhere (e.g., case where we have one short discovery paper and a more detailed modelling paper)? Should they count for the same MPPs as the original paper?

APPENDIX B: "METIS FELLOW" REGISTRATION FORM

"METIS FELLOW" REGISTRATION FORM

This form is intended for the application and registration of individual members of the METIS Consortium, who have to move on to other jobs outside the METIS project, but who have contributed significantly to the development of METIS and want to remain associated with the METIS project.

Name of Applicant:	
New affiliation of Applicant:	
Previous METIS affiliation:	
Supporting co-I:	
Period during which the Applicant has made contributions:	
Amount of contributions (FTEs):	

Describe here the Applicant's main contributions:

FUTURE INVOLVEMENT AS AGREED BY THE METIS CO-I BOARD

Full access to GTO program (incl. lead authorship) [**MPPs will be charged** to former partner, unless others provide MPPs; the "MPP-donor" will be listed as the fellow's 2nd affiliation on the publication.]	☐ Yes	☐ No
Limited access to GTO program (co-authorship on early publications – GTO Policy 6.4.1)	☐ Yes	☐ No
Co-authorship on technical publications	☐ Yes	☐ No
Participation in AIT/commissioning	☐ Yes	☐ No
Other (describe here)		

SIGNATURES & DATES

Applicant
Supporting co-I
PI (on behalf of the co-I Board)