

**HerschelFORM PDF<sub>La</sub>T<sub>E</sub>X PACKAGE**  
**USERS' MANUAL**

**Herschel Space Observatory**  
**GT1 and OT1 Proposals**

Version 2.1

(OT1 AO Version)

20 May 2010

DEADLINE FOR PROPOSAL SUBMISSION IS:  
**31 March 2010, 12:00 UT**  
**for GT1 (Guaranteed Time) Proposals**  
and  
**22 July 2010, 12:00 UT**  
**for OT1 (Open Time) Proposals**

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Table 1: Astronomical L<sup>A</sup>T<sub>E</sub>X Symbols

<code>\micron</code>	$\mu\text{m}$	<code>90\deg</code>	$90^\circ$	
<code>\jkh</code>	$JHK$	<code>16\sqdeg</code>	$16\text{deg}^2$	
<code>\jh</code>	$J-H$	<code>28\arcmin</code>	$28'$	
<code>\hk</code>	$H-K$	<code>11\arcsec</code>	$11''$	
<code>\jk</code>	$J-K$	<code>5\fd4</code>	$5^{\text{d}}4$	
<code>\sq</code>	$\square$	<code>8\fh2</code>	$8^{\text{h}}2$	
<code>\mv</code>	$m_V$	<code>2\fm56</code>	$2^{\text{m}}56$	
<code>\Mv</code>	$M_V$	<code>10\fs08</code>	$10^{\text{s}}08$	
<code>\onehalf</code>	$\frac{1}{2}$	<code>23\fdg12</code>	$23^\circ12$	
<code>\onethird</code>	$\frac{1}{3}$	<code>3\farcm6</code>	$3'6$	
<code>\twothirds</code>	$\frac{2}{3}$	<code>0\farcs27</code>	$0'27$	
<code>\threequarters</code>	$\frac{3}{4}$	<code>\slantfrac{{22}}{{7}}</code>	$\frac{22}{7}$	(braces unless one character)
<code>\onequarter</code>	$\frac{1}{4}$	<code>\squig\$</code>	$\sim$	(math mode only)
<code>25\kms</code>	$25\text{ km s}^{-1}$	<code>\lesssim\$</code>	$\lesssim$	(math mode only)
<code>\peryr</code>	$\text{yr}^{-1}$	<code>\gtrsim\$</code>	$\gtrsim$	(math mode only)
<code>M\subsun</code>	$M_\odot$	<code>\la\$</code>	$\lesssim$	(math mode only)
<code>\sun</code>	$\odot$	<code>\ga\$</code>	$\gtrsim$	(math mode only)
<code>\earth</code>	$\oplus$	<code>\nodata</code>	$\dots$	(tables only)

## 1 Getting started

### 1.1 Introduction

The HerschelFORM pdfL<sup>A</sup>T<sub>E</sub>X package has been created to provide a standard mandatory template for Herschel proposers.

The manual describes the use of the HerschelFORM package, which is composed of the macros that are defined in the HerschelFORM class and style files and the `templatelarge.tex` template file. The macros allow the computer controlled typesetting of applications for observing time with the Herschel Space Observatory. If you are already familiar with T<sub>E</sub>X or L<sup>A</sup>T<sub>E</sub>X, you will probably have no difficulty using the macros provided. You should follow the instructions given below and keep in mind that all of your input must conform to the standard L<sup>A</sup>T<sub>E</sub>X rules.

The HerschelFORM pdfL<sup>A</sup>T<sub>E</sub>X package has been built by adapting the ESO ESOForm package<sup>1</sup>. It has been prepared with the following version of pdfL<sup>A</sup>T<sub>E</sub>X: pdfT<sub>E</sub>X, Version 3.141592 (Web2C 7.5.5). If you encounter any serious pdfT<sub>E</sub>X or pdfL<sup>A</sup>T<sub>E</sub>X problem, please contact Helpdesk at <http://herschel.esac.esa.int/esupport/>, describing the problem and indicating which version of pdfL<sup>A</sup>T<sub>E</sub>X you are using. For ease of use, we have adopted (and already included in the `herschelformlarge.cls` and `herschelformsmall.cls` class files) a number of L<sup>A</sup>T<sub>E</sub>X definitions of commonly used astronomical symbols (the most relevant are listed in Table 1).

For every call, the application template has and will be updated according to the nature and characteristics of the call. *Please note that only proposals prepared using the latest version of HerschelFORM will be valid and accepted by the Herschel Space Observatory.*

### 1.2 How to Obtain the HerschelFORM Proposal Package

The HerschelFORM Proposal Package may be obtained over the web via the URL:

<http://herschel.esac.esa.int/Tools.shtml>

<sup>1</sup>This Users' Manual is maintained by the Herschel Science Centre Community Support Team. The Herschel Space Observatory HerschelFORM Users' Manual and the whole HerschelFORM Package are adapted, with permission, from the ESO ESOFORM manual and the ESOFORM package, which is maintained by the ESO Visiting Astronomers Department (VISAS), while the background software for ESOFORM was provided by the ESO User Support System (USS) Department.

### 1.3 Description of the Content of the HerschelFORM Proposal Package

The HerschelFORM package consists of:

- A L<sup>A</sup>T<sub>E</sub>X class file (`herschelformlarge.cls` and `herschelformsmall.cls`) that, together with the style files `common2elarge.sty` and `common2esmall.sty` and `config.sty`, defines all the macros required to generate the application form for observing proposals;
- The template proposal (`templatelarge.tex` and `templatenormal.tex`), which the users may edit directly in order to create a new proposal according to whether their proposal is large (100 hours or more), or small (under 100 hours);
- This Users' Manual (`usersmanual.tex`), which contains all the information required to fill the templates, as well as instructions on the electronic submission of proposals (via the HSpot proposal submission interface);
- A short README file.

You can view your proposal or the blank template file at any point by compiling the modified template and opening the PDF file that is generated. To compile it, simply type:

```
pdflatex myproposal.tex
```

Where `myproposal.tex` is the name that you have given to the file.

The file `myproposal.pdf` will be generated. Open this with any program that will read PDF format.

### 1.4 Getting help

Should you need assistance from the Herschel Science Centre (HSC) to prepare your proposal, please contact Helpdesk at the address <http://herschel.esac.esa.int/esupport/> for questions related to the HerschelFORM package as well as for more general questions about instrument performance, Observatory policies, etc. Note that this is a web-only interface with no e-mail question submission.

## 2 HOW TO FILL IN THE TEMPLATE

### 2.1 General warnings and guidelines

For proposal generation and submission it is mandatory to use the Herschel Science Centre provided HerschelFORM pdfL<sup>A</sup>T<sub>E</sub>Xtemplate and associated package. Proposals must conform strictly to the standard format. Proposals that do not conform will be rejected without explanation.

If you have a Large Proposal, defined as any proposal of 100 hours or more, you must use the Large Proposal template (`templatelarge.tex`). Otherwise, use the Normal Proposal template (`templatenormal.tex`) whether requesting 1 hour, or 99 hours of Herschel time. The Large Proposal template gives a maximum of 8 pages for proposal justification; the Normal Proposal template reduces this to just 6.

You should fill in the appropriate template file (`templatelarge.tex`, for a Large Proposal or, for a Normal Proposal, `templatenormal.tex`) with your favourite editor. The easiest way to write a proposal is to modify the file `templatelarge.tex` or `templatenormal.tex` by following the examples therein and the detailed instructions given in the present manual. Input in the template is allowed **only within the arguments of the provided HerschelFORM macros**.

The template format tolerates the use of L<sup>A</sup>T<sub>E</sub>X commands such as `item` within the `itemize` environment, but may in some cases give unsatisfactory output. This is a feature of L<sup>A</sup>T<sub>E</sub>X, not a bug in the HerschelFORM package. In particular, to control the line length and ensure that they do not run off the edge of the page, lines in the `itemize` environment and similar environments *can* be cut *by hand* in the editor to ensure that L<sup>A</sup>T<sub>E</sub>X respects the desired line length, but a more reliable solution is to use the `itemize` environment as described below. However, as detailed below, some L<sup>A</sup>T<sub>E</sub>X commands and environments such as `begintable` and `beginfigure` do not work within the HerschelFORM pdfL<sup>A</sup>T<sub>E</sub>Xtemplate and associated package; again, these are features, not bugs and not under our control.

Please note that **it is the responsibility of the applicants to stay within the box and page limits** and to eliminate potential overfill/overwrite problems. Proposers should be as concise as possible, but must remember that the requirements of a space observatory that will carry out observations automatically, with

every detail of the observations defined weeks in advance, require much greater care with the definition of the details of the observations than those made under direct, real time astronomer control in a ground-based observatory.

Any text not fitting within the allocated pages will be ignored by the pdfL<sup>A</sup>T<sub>E</sub>X compiler and will not appear in your PDF file. It is the responsibility of the proposers to check that their proposal description does not exceed the maximum acceptable length and is thus cut-off in compilation. To this effect, proposers should carry out a careful visual inspection of a print-out of their proposal prior to submitting it. Please note that when the proposal is compiled with pdfL<sup>A</sup>T<sub>E</sub>X, the length of the text is checked, and a warning message is issued if the page limit for any section is exceeded, but compilation is NOT interrupted. These warnings may easily be overlooked in the real-time terminal window from which pdfL<sup>A</sup>T<sub>E</sub>X is run because of the continued scrolling resulting from other output, but it is recorded in the logfile generated by L<sup>A</sup>T<sub>E</sub>X. Users are thus strongly encouraged to check this log file, or to scroll the screen back to check for warning messages .

The P.I. *must* check the generated pdf file carefully, before submission, to ensure that all sections have been correctly filled in.

## 2.2 Description of the Proposed Programme: BOX 1 - Maximum 4 pages total for Large Proposals, 3 pages total for Normal Proposals

This is the first of the six sections that comprise your proposal description and scientific justification. The first four of these six sections are all subject to a strict page limit. These first four sections are the scientific justification will sum a maximum of no more than 7 pages for a Large Proposal, with individual maxima of 4, 1, 1 and 1 respectively and 6 pages for a Normal Proposal, with individual maxima of 3, 1, 1 and 1 respectively. Please note that you are not permitted to use extra pages for one section because you saved on another. You should not modify the page limits, style, or the font sizes in any way; HOTAC will reject any such modified proposals without explanation.

These sections are each activated by different macros.

Please check the Herschel Space Observatory Policies and Procedures document:

<http://herschel.esac.esa.int/Documentation.shtml>

for further details of the required content for each section.

For this first section - the description of the proposed programme - you have a limit of a total of four pages (including figures) for a Large Proposal and 3 pages (including figures) for a Normal Proposal, that must be distributed between the following three sub-sections:

```
\ScientificGoals{}
\ExploitationPlan{}
\OtherFacilities{}
```

**Section 1.1)** Scientific rationale: scientific background of the project, pertinent references; the need to have Herschel Space Observatory data for the present proposal; justification that the proposal meets the three top-level goals that have been defined in the case that you wish it to be considered as a Large Proposal.

This section must include a brief summary of the data to be collected and justification the total observing time requested. The content of this section should be placed between the curly braces of the macro `\ScientificGoals{}`.

**Section 1.2)** A brief, clear description of how the proposer plans to exploit the data scientifically after the observations are made. This description should be as non-technical as possible so that it is clearly understandable even to non-experts in the proposed field. The content of this section should be placed between the curly braces of the macro `\ExploitationPlan{}`.

**Section 1.3)** An explanation of what other facilities (ground-based or satellite) will be combined with the requested Herschel Space Observatory observations. A description of whether these observations are already available, are being requested simultaneously, or will be requested in the future. Planned follow-up to Herschel Space Observatory observations should be detailed, as should the dependence of Herschel Space Observatory data reduction on the future availability of observations from other facilities.

Please state if the current proposal is linked to any others that are currently being submitted. The content of this section should be placed between the curly braces of the macro `\OtherFacilities{}`.

### 2.2.1 References: BOX 1 (cont'd)

The references should be included within the 4 or 3 pages of description. They should be listed in alphabetical order, **one per line** and preferably use the simplified abbreviations used in *Astronomy & Astrophysics*. They should ideally be separated by the  $\text{\LaTeX}$  command `\smallskip`. The template file contains an example of how to fill in this section so that space is saved between the lines and making the `itemize` environment give satisfactory output. It is the proposer's responsibility to ensure that enough space is left for this information and that it is germane, concise and legible.

This section is not obligatory and only appears if it has content. The list of references should appear in the curly braces of `\References{}`.

### 2.2.2 Figures: BOX 1 (cont'd)

The pages of the description of the proposed programme can include the required number of figures provided that the total does not exceed maximum number of pages for the proposal type. This material can be included using the macros `\MakePicture{ }{ }` and `\MakeCaption{ }`.

**NOTE THAT POSTSCRIPT IMAGES ARE NOT VALID.** Since the proposals are compiled using the pdf $\text{\LaTeX}$  package, only JPEG and PDF file formats are accepted by the package (i.e. this is not our decision, but is a feature of pdf $\text{\LaTeX}$  itself). Images in other formats should be converted into one of the accepted formats using appropriate tools (such as ps2pdf, convert, or gimp). In order to reduce the size of the file, **we strongly suggest using the PDF format for simple plots and graphs that have a monochrome background, and JPEG for large figures (such as astronomical images) with many levels of grey or colours.**

The figure macro `\MakePicture{ }{ }` must be used. It has two arguments: the name of the file of the picture, and a list of optional keywords specifying formatting parameters of the image (as defined in the `graphicx` package). For example:

```
\MakePicture{MyPic1.pdf}{width=15cm,height=8.0cm,angle=90}
\MakePicture{MyPic2.jpg}{width=12cm}
```

The filename should have a .jpg or .jpeg extension for JPEG files, and a .pdf extension for PDF files; other extensions are not accepted by the package.

If you need to produce double figures with two (or more) images side-by-side across the page this must be done in the `tabular` environment. Various examples are given in the template file, for example:

```
\begin{center}
\begin{tabular}{ll}
\includegraphics{galaxy.pdf} & \includegraphics{galaxy.pdf} \\
\includegraphics{galaxy.pdf} & \includegraphics{galaxy.pdf} \\
\end{tabular}
\end{center}
```

This produces a 2×2 matrix of images. However, this method does not allow a caption to be defined; your caption must be written as text outside the `tabular` environment.

The caption macro `\MakeCaption{ }` takes one single argument, which should contain any  $\text{\LaTeX}$  caption. For example:

```
\MakeCaption{Write whatever caption you need, using \LaTeX, unless you have defined a
matrix of figures as in the second example above, in which case this command will not work
and you should use the alternative method that is outlined above.}
```

These figures will be printed immediately following the scientific description. You must check the pdf output generated by pdf $\text{\LaTeX}$  before submitting your proposal to make sure that the attachments are properly included. In particular, colour figures should still be **readable if printed in black and white**.

It is **your responsibility** to check that your attachments **fit within the allocated pages**. Please note that when the proposal is compiled with pdf $\text{\LaTeX}$  the space required by the attachments is checked.

### 2.2.3 Environments that do not work in pdfL<sup>A</sup>T<sub>E</sub>X and their alternatives

The following environments *do not* work in pdfL<sup>A</sup>T<sub>E</sub>X:

```
\begin{figure} \end{figure}
```

Instead you *must* use:

```
\includegraphics{}
```

And:

```
\begin{table} \end{table}
```

In this case you *must* use:

```
\begin{tabular} \end{tabular}
```

## 2.3 Technical Implementation: BOX 2 - Maximum 1 page total

The main criterion in the award of Herschel Space Observatory time is “helium into science”; in this section you must demonstrate that you will generate efficiently the observations from which you produce science. All proposals receive a detailed technical assessment that is carefully considered by HOTAC. Bear in mind that the call is likely to be considerably oversubscribed and that HOTAC may reject all or part of your proposal if the proposed technical implementation is not convincing.

There are four sections to fill in:

```
\ObsStrategy{}
```

```
\TimeRequirements{}
```

```
\TimeConstraints{}
```

```
\Duplications{}
```

**Section 2.1)** This section is to justify the technical aspects of your proposal: how you plan to make the observations, target selection and the AOTs selected for the observations. This information is critical to proposal assessment. HOTAC may request extra technical details, or may even reject completely, without warning, any project or sub-project completely if insufficient, unclear, or unconvincing technical information is given.

The content of this section should be placed between the curly braces of the macro `\ObsStrategy{}`.

**Section 2.2)** Here is where you must justify the total amount of observing time that you have requested. This calculation must be completely transparent and consistent with the time shown in HSpot.

The content of this section should be placed between the curly braces of the macro `\TimeRequirements{}`.

**Section 2.3)** A key part of the technical implementation is to justify any constraints on your observations, be they timing, chopper orientation, or the scan or the array orientation on the sky. Constraints usually make observations less efficient, particularly for scheduling, but may be essential to make the observations possible, or to obtain the science that is required. All constraints should be declared and justified in the proposal; new constraints cannot be added later unless the need for them is declared in advance and dummy constraints are submitted initially.

The content of this section should be placed between the curly braces of the macro `\TimeConstraints{}`.

This information should be consistent with the constraints declared in the observation summary table defined in Section 3.

Users should state in this section of the proposal template if part (or all) of the proposal is under ToO conditions and which are the triggering conditions and required reaction times. ToO observations are of four types depending on the required reaction time. The faster the required reaction, the stronger the justification should be, as an urgent re-planning of an already planned Observing Day may be necessary, which is not lightly approved given Herschel’s normal operational turnaround cycle.

\* ToO Critical, means that observations should be made without delay, even if this means changing the instrument active on the telescope for the next schedulable OD. This requires considerable effort both at HSC and MOC and should only be contemplated in the most exceptional cases.

\* ToO Hard, means that a maximum of 7 days should elapse between triggering and the carrying out of the observation. Again, this will imply an urgent re-planning of an already prepared Observing Day.

\* ToO Soft, means that up to 3 weeks may elapse between triggering and carrying out the observation. Re-planning of an already planned Observing Day may be necessary, but much greater scheduling flexibility is available to the HSC Mission Planners and to MOC.

\* ToO Slow, means that the ToO observation will normally be carried out more than 3 weeks later. This is the easiest option to schedule and may be appropriate for events with a relatively long lead-up time.

**Section 2.4)** Here you should give a description of your findings of analysis of your target list with the HROST (Herschel Reserved Observations Search Tool). Any potential duplications with approved observations must be detailed and justified as being permissible within the rules on duplications. Details of what constitutes a duplication of existing observations can be found in the Policies and Procedures Document for the OT1 Call. HOTAC will not approve observations that duplicate already approved science.

The content of this section should be placed between the curly braces of the macro `\Duplications{}`.

### 2.3.1 Including figures in your technical implementation plan

You may include figures if these are required to explain details of the technical implementation of your project, however, these must be included in your 1 page space allowance according to proposal type; no extra pages may be added to include figures.

To do this, two commands have been defined:

`\MakeTechPicture{}`

To place the figure within the Technical Implementation section, and:

`\MakeTechCaption{}`

To add the figure caption.

It is important to use this command rather than `\MakePicture{}` as this latter command will, by definition, place the figures in the "Description of the Proposed Programme section".

## 2.4 Data processing plans and archival value: BOX 3 - Maximum 1 page total for all the sub-sections

This consists of three individual sections for Large Proposals and two pages for Normal Proposals. The length of the sections can be variable according to the project's needs, but the sum must be less than 1 page. The aim of this section is to demonstrate that the team has the tools and the capability to deal with the quantity of data that will be generated by their project and that the time dedicated to the proposal will be converted into data of lasting value to the community.

For a Large Proposal, the text should be entered as arguments of the following three macros:

`\DataProcessing{}`

`\ProductGen{}`

`\ArchiveValue{}`

The final sub-section is suppressed for Normal Proposals.

**Section 3.1)** This section should provide a brief explanation of the strategy for data reduction and analysis with a description of available hardware, software, and manpower.

The content of this section should be placed between the curly braces of the macro: `\DataProcessing{}`

**Section 3.2)** Here you should describe any special software that you plan to use in analysing your data other than the Herschel Space Observatory Pipeline. In the case that you *do* plan to use own software, this should be described in enough detail that the steps and processes involved are fully understandable.

In this section you should describe the software, the programming language(s) used, the algorithms used and the assumptions behind them and the documentation that will be supplied (note that it is obligatory to supply adequate documentation). It must be shown that the results generated from your own software can be reproduced and independently verified, if necessary.

Note that users are strongly encouraged to use HCSS-compatible software unless there is a good reason not to.

The content of this section should be placed between the curly braces of the macro: `\ProductGen{}`

**Section 3.3) - ONLY FOR LARGE PROPOSALS** Here you should show that your proposal fulfills the basic requirement that the data produced by a Large Proposal should have lasting archival value. Note that this includes the possibilities and opportunities that your proposal offers to the wider community to use your data after the proprietary period has ended. You should describe the long-term benefits of your data as an archival resource and the use(s) that it may later have to other users.

The content of this section should be placed between the curly braces of the macro: `\ArchiveValue{}`



## 2.5 Management and outreach plan: BOX 4 - maximum 1 page total

This comprises of two sections that should total no more than one page.

The macro `\ManagementRemark` must be used to provide a brief report on how the team's work will be organised, what makes it suitable for a project of this kind, the particular talents and abilities that it brings to bear and the resources that the team has committed to the project. For a Large Proposal you should demonstrate that you have the resources to manage and process efficiently the large quantity of data that will be received.

The macro `\Outreach` should be used to describe how project results could be publicised and spread beyond the specialist Herschel community, especially to the general public and what special impact they might have in the media (e.g. do you expect to produce spectacular images, or unusual or high-impact results, or a newsworthy discovery?).

## 2.6 List of team members, roles and relevant experience: BOX 5 - No page limit

The applicants should provide, with the macro `\Members{}{}`, a list of the team members along with their role and relevant information on their experience and qualifications that make them suitable for that role. Use one occurrence of `\Members{}{}` per team member.

As a guide, this information should take up no more than 5 lines per team member. The individual members should be separated with a small amount of vertical space, to be created, if necessary, with the standard L<sup>A</sup>T<sub>E</sub>X command `\smallskip`. For example:

```
\Members{Name1 Initial(s).} {[Affiliation,] Status (Professor, Post-doc, student, etc.),  
Role in consortium, Relevant qualifications for this role}
```

```
\smallskip
```

```
\Members{Name2 Initial(s).} {[Affiliation,] Status (Professor, Post-doc, student, etc.),  
Role in consortium, Relevant qualifications for this role}
```

```
\smallskip
```

```
\Members{Name3 Initial(s).} {[Affiliation,] Status (Professor, Post-doc, student, etc.),  
Role in consortium, Relevant qualifications for this role}
```

This section may be as long as is necessary, always respecting the requirement that it should be as concise as possible within the limitations of completeness.

## 3 Observation summary table

### 3.1 Information about the different Astronomical Observing Templates (AOTs) requested in your proposal

The final macro (`\ObservingMode`) allows the description of the different parameters characterising your observations. This breakdown is necessary to know the global demands for instruments and to be able to plan in advance to ensure the most efficient scheduling of proposals given that in most cases AOTs will have to be blocked together as full or pairs of Operational Days. This macro takes nine arguments, to be specified between seven pairs of curly braces {}, which are related to the parameters described below.

**1. AOT ID.** Each instrument offers different basic configurations, for example, PACS Photometer, SPIRE Spectrometer, HIFI Spectral Scan that are pre-defined. These are Astronomical Observing Templates (AOTs) that you personalise to form a single observation that adapts the AOT to the exact configuration that you require: an Astronomical Observing Request, or AOR. Your proposal may involve several AOTs, which must usually be scheduled separately; there is no limit to the number of AOTs that may be requested, if justified, in a single proposal. Each AOT required by a proposal should be identified. Each additional parameter that is added in subsequent braces will characterise these observations further.

Provide the keyword of the instrument AOT that is required for each sub-set of observations. The list of keywords of AOTs is given in Table 2. You can find further information in each of the instrument users' manuals; these can be found at the url:

<http://herschel.esac.esa.int/Documentation.shtml/>

Table 2: Keywords of Available AOTs. This list will be fixed for all calls. The abbreviation is the default AOT identifier shown in HSpot.

Instrument	AOT keywords
PACS	PPhoto, PSpecL, PSpecR
SPIRE	SPhoto, SSPEC
HIFI	HPoint, HMap, HScan
Parallel	SPParallel

Provide, in the first pair of curly braces, the AOT to be used (e.g. for PACS Photometer, enter PPhoto; for SPIRE Spectrometer, enter SSPEC; for HIFI Mapping, enter HMap; etc.) For example,

```
\ObservingMode{HMap}{ }{ }{ }{ }
```

A proposal may use any or all of the 9 permitted Herschel AOTs.

Within any AOT there are various possible observing modes (Point Source, Small Map, Large Map, etc.) It is not necessary to sub-divide the AOTs in this table, even if you require more than one observing mode for a particular AOT.

**2. REQUESTED TIME.** For efficient observation planning it is essential that the breakdown of requested time per instrument is known, given that in the majority of cases, each AOT will be blocked as full Observing Days (ODs).

Provide, in the second pair of curly braces, the total amount of time in hours, as reported by HSpot, which is required for the observations that you have requested in this particular observing mode.

For example,

```
\ObservingMode{HMap}{15.6}{ }{ }{ }{ }
```

**3. Number of AORs.** Please specify how many AORs, in total, use this particular AOT.

For example,

```
\ObservingMode{HMap}{15.6}{20}{ }{ }{ }
```

**4. MOVING TARGETS.** Please specify how many moving targets you have to be observed with this AOT. Put a **number** corresponding to the number of AORs for moving targets in the brace if you have moving targets. Otherwise leave blank.

For example,

```
\ObservingMode{HMap}{15.6}{20}{4}{ }{ }
```

**5. TIMING CONSTRAINTS** You **MUST** specify if you have any constrained observations in the requested AOT, as these will affect telescope scheduling. A time constrained observation is any observation that has a tick in the "T" column in the HSpot observing table, namely it:

- (i) Is defined with a chopper avoidance angle
- (ii) Is defined with a map orientation constraint
- (iii) Is defined as fixed time, or with a timing window

Put a **number** in this brace corresponding to the number of constrained observations defined if there is at least one time constrained AOR, otherwise leave blank.

For example,

`\ObservingMode{HMap}{15.6}{20}{4}{5}{}`

You should declare a time constrained observation if it is planned that the observation will be time constrained, even if the AOR that is submitted with this proposal does not yet include the constraint. The need for constrained observations must be clearly justified in the technical justification.

**5. GROUPINGS AND CONCATENATIONS** You MUST specify if you have grouped or concatenated observations that will affect telescope scheduling in the requested AOT ("G" column ticked in HSpot AOR table).

If you have any grouped or concatenated observations you should put a **number** within the brace that corresponds to the number of concatenations that you have defined and the total number of AORs in concatenations, otherwise leave this field blank. This is a vital sanity check with your submitted AORs.

For example, 6 concatenations with a total of 12 AORs in them, would be given as follows

`\ObservingMode{PPhoto}{10.9}{12}{ }{ }{6/12}{ }`

**6. FOLLOW-UP** You MUST specify if you have sequenced observations that will affect telescope scheduling in the requested observing mode ("F" column ticked in HSpot AOR table).

A sequenced observation is any observation in which the AORs must be carried out in a certain order, or with a defined spacing in time.

Put a **number** in this brace defining how many follow-ups you have defined and the total number of AORs that they contain if there is at least one sequencing of AORs, otherwise leave blank. For example,

`\ObservingMode{HMap}{15.6}{30}{ }{ }{ }{ }{ }{1/6}`

You should declare sequenced observations if it is planned that the observation will be sequenced, even if the AOR that is submitted with this proposal does not yet include the sequencing. The need for sequenced observations must be clearly justified in the technical justification.

### The use of multiple AOTs in a proposal

If more than one AOT is required for execution of the proposal, then fill as many lines as needed. For example,

`\ObservingMode{HPoint}{63.5}{30}{5}{2/8}{ }`  
`\ObservingMode{PSpecL}{38.6}{25}{1}{ }{ }{10/20}`  
`\ObservingMode{SSpec}{83.4}{5}{ }{ }{5}{ }`  
`\ObservingMode{HScan}{17.1}{8}{ }{ }{ }`  
`\ObservingMode{PSpecR}{22.4}{60}{ }{4/12}{ }{20/60}`

## 3.2 Target notes

You have the opportunity to add some notes to the observation summary list by using the macro `\TargetNotes`. Here you may add extra details of the observations (observing modes, filters to be used, Local Oscillator Frequency or Frequencies, etc.): anything that you feel is necessary to give HOTAC a full and complete picture of your observing proposal. Keep this information as clear and concise as possible.

# 4 SUBMISSION OF THE APPLICATION

Once you have prepared your proposal you must submit it formally

Proposals must be prepared as L<sup>A</sup>T<sub>E</sub>X source files, making use of the **HerschelFORM** pdfL<sup>A</sup>T<sub>E</sub>X package. Proposals received in any other format, or with modified HerschelFORM macros, will be rejected.

When the L<sup>A</sup>T<sub>E</sub>X source file of your application is complete, **please process it with pdfL<sup>A</sup>T<sub>E</sub>X** so as to identify any possible L<sup>A</sup>T<sub>E</sub>X format errors. In particular, we **strongly** recommend that you

- review the log file generated by L<sup>A</sup>T<sub>E</sub>X so as to check for the presence of warning messages issued by the HerschelFORM macros. Such messages report, among others, instances in which a text field is too long, so that your input is truncated in the pdf file that is generated, and part of the information that you submit will not be communicated to HOTAC;

- carefully inspect a printed copy of the output to make sure that all parts of the application are duly completed, and that their formatting is appropriate.

**Please note** that while a significant number of checks are performed by the HerschelFORM package when running pdfL<sup>A</sup>T<sub>E</sub>X, a successful outcome of this process **does not guarantee** that a proposal is fully compliant.

Proposals must be submitted via the HSpot Proposal Submission Tool. You should upload the pdf file of your proposal, following the instructions in HSpot.

You will be requested to finalise the submission by clicking on the corresponding button in the HSpot proposal submission tool. **It is essential that you execute this final step:** your proposal will not be submitted until this is done, even though you have uploaded all the necessary files!

Upon submission of a correctly completed proposal, the Herschel proposal validation software will return, first, a pop-up message on the screen to confirm that the proposal has been successfully sent to the Proposal Handling System at the Herschel Science Centre; note that this pop-up does not guarantee that the proposal has been received, nor that it has been processed correctly. Later, after the proposal has been processed successfully in the Proposal Handling System, you will receive, by email, a confirmation message and an identifier assigned to the valid proposal. This identifier and the email that contains it, represent the official confirmation that the proposal successfully entered the Proposal Handling System and was processed correctly. We recommend strongly that you save this email with the identifier as the identifier will be required if you wish to download and/or update the submitted proposal later.

## Submission Problems

The pop-up message should be returned within seconds of submission. If after a minute this pop-up has not appeared, you should abort the submission and repeat it.

The proposal submission acknowledgment email is normally received within a few minutes of completion of a submission. However, during the last few hours before the submission deadline, the system may be slowed down by the high load, and the acknowledgment process may take tens of minutes or, in extreme cases, even hours for very Large Proposals. Please **be patient**: even though it may seem as if “nothing is happening”, the system most likely is actually busy processing a queue of proposals and many thousands of AORs. Please **do not** make a new attempt to submit the same proposal: this will only increase the load on the system and make it even slower, quite apart from causing the Proposal Handling System to believe that the resubmission is a new proposal.

If you have not succeeded in obtaining the pop-up confirmation of your submission by the deadline, please contact the Herschel Science Centre via Helpdesk (<http://herschel.esac.esa.int/esupport/>) labelling your query as “critical” .

Once you have uploaded the PDF of your proposal, your attempt, and the time at which you initiated it, are recorded in the Herschel system, so that anomalous delays due to the proposal reception system will be duly identified; this system is closely monitored at closure and Herschel Science Centre staff will usually be aware of any unusual problems with the system in real time, often before the users are.

**Be aware** that if you experience difficulties due to the proposal reception system, you most likely are not the only user that is suffering from them, and the various problem reports must be handled sequentially, so it may be a few minutes before you receive feedback from the Herschel Science Centre.

A safe way to avoid submission problems (often related to heavy system load during the last few hours before the deadline) is to submit your proposal early. We strongly encourage you to send in your applications and all attachments several days before the deadline. The system allows you to submit and update the proposal as many times as is necessary before the deadline, so it is always a good idea to submit an early version of the proposal as a safety precaution, well before the deadline and then fine-tune it (this also means that if you suffer a disk crash, or local system problems, your proposal is not lost).

**All proposals and their attachments must reach the Herschel Science Centre servers via the HSpot interface BEFORE 12:00 UT on the date of the deadline. Responsibility for verifying that the Herschel Science Centre has correctly received your proposal before the proposal submission deadline rests entirely with the P.I. Provided that the proposal has been successfully received before the deadline, the submission will be accepted, processed, and acknowledged, even if this processing continues well after the deadline has passed.**

**Revisions, corrections, and/or modifications submitted after the deadline will not be accepted unless specifically requested by Herschel Science Centre staff.**

**IMPORTANT NOTICE**

Electronic proposal submission does not allow applicants to sign their proposals. Therefore the Herschel Science Centre assumes that P.I.'s take full responsibility for the contents of the proposal, in particular in regard to the names of co-investigators and the agreement to act according to and abide by ESA rules should observing time be granted.