



ESO
European Organisation
for Astronomical
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E-ELT DRSP

ESO - Reaching New Heights in Astronomy



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19 May 2009

Science Users Information

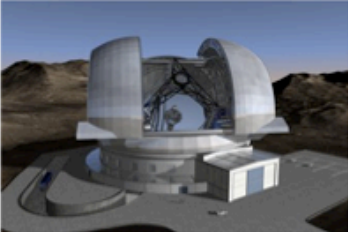
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E-ELT DESIGN REFERENCE SCIENCE PLAN: SUBMISSION FORM

The purpose of the form below is to allow members of the E-ELT user community to provide their input to the **E-ELT Design Reference Science Plan** (DRSP). All members of the community are invited and encouraged to participate in this survey. Please note that the form below will only be available until **05 June 2009** at which point the DRSP submission process will close.

The information you provide will be used by the **E-ELT Science Office** at ESO (EScO) to compile a statistical analysis of the community's requirements which will be published in a report. **If you do not wish your response to be published then please answer 'No' to the *Publication agreement* item below.** In that case the information you provide will enter the statistical analysis but it will be treated confidentially by EScO and no details will be published.

All observations serving a common scientific purpose should be grouped together into a single programme (i.e. into a single submission) even if that programme requires multiple (types of) observations. Multiple observations can be defined in a single submission by making appropriate multiple selections below. Feel free to submit as many different "observing programmes" as you like, multiple submissions are most welcome.



DRSP FORM

Fields marked with * are mandatory. All other fields are optional. Note that for all mandatory fields, "place holder" options exist.
Help text: Hovering above items displays some additional explanations concerning that item.
Note that multiple selections are possible in many cases (by clicking the options while pressing the Ctrl key).

General Information

Project title *

Useful Links

- [E-ELT project web pages](#)
- [Messenger article describing the E-ELT Baseline Reference Design \(update\)](#)
- [SPIE paper describing current instrumentation studies](#)
- [Section of the E-ELT Science web pages describing the technical assumptions for DRM simulations](#)
- [E-ELT Imaging Exposure Time Calculator](#)
- [E-ELT Spectroscopic Exposure Time Calculator](#)

In case you have any suggestions, comments or questions regarding the DRSP submission form please contact the E-ELT project scientist, [M. Kissler-Patig](#).

Design Reference Science Plan (DRSP)

Aybüke Küpcü Yoldaş

ESO

WHAT?

- A survey conducted via a web form
 - A collection of science cases provided directly by the future users of the E-ELT
 - Aims at exploring the full range of science cases for which the E-ELT will be used.
-
- The DRSP science cases are not ESO proposals.
 - The information will be used for statistical purposes.
 - The detailed information of each science case will not be published without the consent of the author.

WHY?

- Community involvement (>4000 ESO portal users contacted)
- Get very broad input: Explore the parameter space requested by the community
- Did we miss some key science cases?
- Will be used to guide
 - the performance optimisation of the telescope,
 - the prioritisation of the instruments,
 - plan the science operations modes,
 - and more...

DRSP or DRM?

Design Reference Mission (DRM): 9 science cases consisting of observing proposals and corresponding simulated data to

- ➡ assess the extent to which the E-ELT addresses key scientific questions
- ➡ assist in critical trade-off decisions

Design Reference Science Plan (DRSP)

- aims to collect more than 100 science cases
- aims to determine the community's interests
- will not include any detailed observation simulations

DETAILS

- Case (title, abstract, category, ...)
- Author(s) (country of employment, career stage, ...)
- Targets (where from, properties, coordinates, type, ...)
- Spatial requirements (resolution, FoV, multiplexity, ...)
- Spectral requirements (λ , resolution, ...)
- Instrumentation (which phase A instrument? special)
- Time requirements (exposure time, min/max, ...)
- Operational requirements (service/remote, ToO, ...)
- Synergies
- Most critical aspect?

TOOLS

- Instruments under study
(<http://www.eso.org/sci/facilities/eelt/instrumentation/index.html>)
- AO modules
(<http://www.eso.org/sci/facilities/eelt/instrumentation/index.html>)
- Imaging exposure time calculator
- Spectroscopic exposure time calculator



E-ELT Phase A Instrumentation Studies

Name	Instrument Type	Principal Investigator Institutes	Wavelength Range Spectral Resolution Field-Of-View	Information
CODEX	High Resolution, High Stability Visual Spectrograph	Luca Pasquini, ESO Istituto Nazionale di Astrofisica (INAF), Osservatori Trieste and Brera; Instituto de Astrofisica de Canarias (IAC); Institute of Astronomy, University of Cambridge; Observatoire Astronomique de l'Université de Genève;	0.37-0.69µm R > 120 000 (LowR ~ 32 000) 1"	SPIE paper (pdf)
EAGLE	Wide Field, Multi IFU NIR Spectrograph with MOAO	Jean-Gabriel Cuby, Laboratoire d'Astrophysique de Marseille (LAM) Observatoire Paris-Meudon (OPM), Laboratoire d'Etudes des Galaxies, Etoiles, Physique et Instrumentation (GEPI) and Laboratoire d'Etudes Spatiales et d'Instrumentation en Astrophysique (LESIA); Office National d'Etudes et Recherches Aéronautiques (ONERA); United Kingdom Astronomy Technology Centre (UK ATC); Durham University, Centre for Advanced Instrumentation	0.8-2.5µm R = 4000 (HighR ~ 10 000) 5' (goal 10')	SPIE article (www) presentation
EPICS	Planet Imager and Spectrograph with Extreme Adaptive Optics	Markus Kasper, ESO Laboratoire d'Astrophysique de l'Observatoire de Grenoble (LAGG); LESIA; Université de Nice; LAM; ONERA; University of Oxford; INAF, Osservatorio Padova; ETH Zurich; NOVA, Universities of Amsterdam and Utrecht	0.8-1.8µm R > 50 2" (goal 4")	SPIE paper (pdf)
HARMONI	Single Field, Wide Band Spectrograph	Niranjan Thakre, University of Oxford Centre de Recherche Astrophysique, Lyon; Departamento de Astrofisica Molecular e Infrarroja, Consejo Superior de Investigaciones Científicas, Madrid; IAC; UK ATC	0.5-2.5µm R ~ 5000, 10 000 and 20 000 10" x 5"	presentation
METIS	Mid-Infrared Imager and Spectrograph with AO	Bernhard Brandl, NOVA, University of Leiden MPIA; Commissariat à l'Energie Atomique (CEA) Saclay, Direction des Sciences de la Matière (DSM)/Institut de Recherches sur les lois Fondamentales de l'Univers (IRFU)/Service d'Astro-physique (SAp); Katholieke Universiteit Leuven; UK ATC	3-13µm lowR = 100, highR = 100 000 30"	website SPIE paper (pdf)
MICADO	Diffraction-limited NIR Camera	Reinhard Genzel, Max-Planck Institute for Extraterrestrial Physics (MPE) Max-Planck Institute for Astronomy (MPIA); Universitäts-Sternwarte Munich (USM); INAF, Osservatorio Padova; Nederlandse Onderzoeksschool voor Astronomie (NOVA); Universities of Leiden and Groningen	0.8-2.4µm N/A 30"	website
OPTIMOS	Wide Field Visual MOS	Ibid Negotiations under way with a Consortium of Science and Technology Facilities Council, Rutherford Appleton Laboratory; University of Oxford; LAM; INAF, Istituto di Astrofisica Spaziale e Fisica Cosmica, Milan; GEPI; NOVA, University of Amsterdam; INAF, Osservatori Trieste and Brera; Niels Bohr Institute, University of Copenhagen	0.37-1.4µm lowR = 5000, highR = 50 000 5' (goal 10')	
SIMPLE	High Spectral Resolution NIR Spectrograph	Livia Origlia, INAF, Osservatorio Bologna INAF, Osservatorio Arcetri; INAF, Osservatorio Roma; Uppsala Astronomical Observatory; Thüringer Landessternwarte; Pontificia Universidad Católica de Chile	0.8-2.5µm R = 100 000 (potentially 150 000) single object (slit max. 4")	presentation SPIE paper (pdf)

Post-focal AO Modules

Name	Instrument Type	Principal Investigator Institutes	Wavelength Range Field-Of-View	More Information
ATLAS	Laser Tomography AO Module	Thierry Fusco, ONERA GEPI and LESIA	0.6-13.5µm 60"	
MAORY	Multi Conjugate AO Module	Emiliano Diolais, INAF, Osservatorio Bologna INAF, Osservatorio Arcetri; INAF, Osservatorio Padova; University of Bologna; ONERA	0.8-2.4µm 2"	presentation





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THE E-ELT DESIGN REFERENCE SCIENCE PLAN

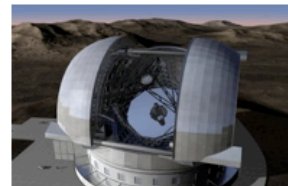
SEEKING COMMUNITY INPUT

The E-ELT Design Reference Science Plan (DRSP) is a collection of science cases provided directly by the future users of the E-ELT. The DRSP aims at exploring the full range of science cases for which the E-ELT will be used. Ultimately, it will help to define the boundaries of the parameter space over which the E-ELT will operate. It will be used to guide the performance optimisation of the telescope, the prioritisation of the instruments, as well as to plan the science operations modes. **If you consider yourself to be part of the future E-ELT user community, we would like to ask you to submit one or more science cases to the DRSP.**

Go to DRSP submission form
Deadline: 05 June 2009

To ensure the validity of the DRSP it is our aim to collect the largest possible number of science cases, and to obtain input from as large a fraction of the community as possible. We rely on your help and input to define the best facility for the community.

A science case is submitted to the DRSP using an [online submission form](#). The information that is queried by this form is akin to the information normally provided in an observing proposal except that no detailed description of the science is required. The form will be available from September 2008 until **05 June 2009**. A [workshop](#) on both the DRM and the DRSP will be held in May 2009 after which the DRSP submission process will be closed and the input received will be analysed. A report on the DRSP will be published on the [Science with E-ELT](#) page in late 2009. **Note however that science cases will not be accepted after 05 June 2009.** Information you provide will enter the statistical analysis but it will not be published.



E-ELT Science

What's New?

- 22 Jan 09
[DRM Workshop '09: 2nd announcement](#)
- 11 Dec 08
[DRM Workshop '09: 1st announcement](#)
- 10 Nov 08
[New E-ELT images and videos available](#)
- 08 Sep 08
[DRSP: seeking community input](#)


Science Case

- [Overview](#)
- [Documents](#)
- [Meetings & History](#)
- [Publications](#)


Science Working Group

- [Background](#)
- [Members](#)
- [Meetings & Recommendations](#)
- [Internal pages](#)

Design Reference Mission




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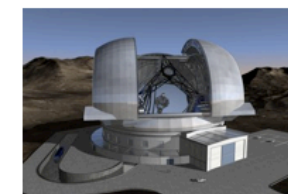
Project title *

Project acronym *

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CURRENT STATUS

- Launched in September 2008 – Deadline on 05 June 2009
- 40 science cases submitted !
- Guideline to Instrument teams: submit the top ~5 science cases
- DRM cases will be included
 - Planets & Stars
 - o S3: From giant to terrestrial exoplanets: detection, characterization and evolution (demo case)
 - o S9: Circumstellar disks
 - o S5: Young stellar clusters and the Initial Mass Function
 - Stars & Galaxies
 - o G4: Imaging and spectroscopy of resolved stellar populations in galaxies (demo case)
 - o G9: Black holes and AGN
 - Galaxies & Cosmology
 - o C10: The physics of high redshift galaxies (demo case)
 - o C4: First light - the highest redshift galaxies
 - o C7: Is the low-density intergalactic medium metal enriched?
 - o C2: A dynamical measurement of the expansion history of the Universe

HOW?

- All results will be summarised in a document
- Simple statistics over the answers
 - ❖ e.g. histogram of preferred instruments, AO modes, wavelength range, target coordinates etc. (normalised wrt total time)
- Dependence between parameters
 - ❖ e.g. spatial resolution/AO vs instrument, spectral resolution vs wavelength range, target coordinates vs site coverage etc.
- Attachment with all cases (if the author agreed)
- Analysis of the document and according actions

NOW!

- We rely on your help and input to define the best facility for the community.
- Fill in the DRSP form now!

DEADLINE: 05 June 2009

<http://www.eso.org/sci/facilities/eelt/science/drsp/>

HELP: Markus Kissler-Patig mkissler@eso.org or Aybüke Küpcü Yoldaş ayoldas@eso.org