

Third QB50 Workshop

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**Guidelines for preparing a proposal,
template for the Table of Contents,
selection process and criteria**

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Guidelines for preparing a proposal

Proposals for CubeSats for QB50 are solicited by CubeSat teams from

- a single university/institute,
- two or more universities/institutes in collaboration
- a university/institute and an industrial company in collaboration (in this case the university/institute must have the lead).

To minimise the work for the proposing teams and reviewers but at the same time contain all the important information, proposals for atmospheric double CubeSats and special In-Orbit-Demonstration (IOD) double or triple CubeSats should be between

15 and 20 pages

Suggested outline of proposals

Longer proposals will, of course, not be rejected just because they exceed the page limit guideline. These pages include the

- Cover Page,
- Table of Contents
- all figures, photos, tables,
- references and acronyms.

Annexes are in addition. It is obligatory that all proposals follow the same outline. This makes it much easier for the reviewers to quickly find certain topics/facts in the proposal.

Suggested outline of proposals

Cover Page

giving the

- Name of the CubeSat
- Category of the proposal (standard atmospheric double CubeSat, special In-Orbit Demonstration (IOD) double or triple CubeSat, Interdisciplinary)
- Name, city, country of the proposing university/institute
- Name, address, telephone number and email address of the Team Leader (Principal Investigator or Project Manager)

Table of Contents

1. The QB50 flight opportunity (max. 1 page)

(this chapter is mainly required for distribution of the proposal to persons who are not familiar with QB50, e.g. national funding agencies, sponsoring industries, or colleagues inside or outside your university)

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2. Satellite design

2.1 Attitude Determination and Control Subsystem (ADCS)

2.2 Electrical Power Subsystem (EPS)

2.3 On-board Computer (OBC), On-Board Data Handling (OBDH)

2.4 Telemetry, Tracking and Command (TT&C) subsystem

2.5 Structure, thermal control

2.6 Budgets

2.6.1 Mass

2.6.2 Power

2.6.3 Link budget, data rate

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3. Experiment description and required resources (if applicable)
(this could be a small scientific or technological experiment that can be accommodated in the functional unit of your double CubeSat)
4. Ground segment (e.g. availability of a ground station)
5. Operations (pre-launch operations, early in orbit operations, commissioning, sequence of events, operational modes, housekeeping)
6. Availability of facilities
(e.g. clean room, test facilities)

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7. Expertise of the proposing team and/or the university/institute (e.g. past satellite launches)
8. Model philosophy, qualification test plan, AIV
9. Schedule
10. Progress reporting, delivery of test documentation, attendance at Project reviews
11. Acronyms
12. References

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Annex 1

- Cost breakdown (hardware, manhours, travel expenses)
- Envisaged funding sources

Annex 2

- CubeSat management, functions of team members
- List of key persons, their role in the team, expertise (short, max. 10 lines CV) and availability throughout the Project duration (give a realistic percentage of the time for each key person)
- Main Point of Contact (this does not have to be the team leader) (name and full address, email, office phone number, mobile phone number)

Annex 3

- Letters of support from a senior professor at your university/institute
- A funding agency (a letter at this stage is helpful but not mandatory)
- Industry (collaborating with a university/institute team or sponsoring a CubeSat)

Guidelines for preparing a proposal

Proposals for special In-Orbit Demonstration (IOD) double or triple CubeSats should follow the same outline. For IOD CubeSats, Chap. 3 will be a major chapter of the proposal, describing in detail the intended experiment.

Guidelines for preparing a proposal

- ‘Interdisciplinary Proposals’ are encouraged.
- Such proposals do not include the provision of a CubeSat, instead they propose to use certain data from other CubeSats to carry out interesting and novel science investigations, that would not be done by a CubeSat team, making use of the special expertise of the proposing team.
- This could involve a single CubeSat or a large number or all CubeSats and it could be done in real time or post flight.
- A good example for an Interdisciplinary Proposal is the ‘Tomography of the E- and F-layers of the ionosphere’ using the GPS data of all CubeSats. This investigation has been proposed in early 2011 by the Finish Institute for Meteorology.
- As a guideline, proposals for interdisciplinary science investigations should be no longer than

10 pages

Guidelines for preparing a proposal

Obviously, proposals from universities/institutes or industry, pursuing their own science or technology goals, just making use of the 'cheap' launch opportunity, are not encouraged.

When in doubt, please contact the QB50 Main Point of Contact,
Dr. C.O. Asma at VKI.

Selection process

- The submission of proposals to VKI will be followed by a proposal clarification and evaluation period.
- The selection of 50 proposals will be made by the Selection Committee at their meeting on 2-3 May 2012.
- As a guideline, it is intended to select 40 atmospheric double CubeSats and 10 special In-Orbit Demonstration (IOD) double or triple CubeSats.
- The numbers can change depending on how many CubeSat proposals of high technical quality and with guaranteed funding are received.

Selection process

- All proposing teams will be individually notified already on 4 May 2012 of the outcome of the selection process.
- The selected teams will be asked to obtain a formal letter from their national funding agencies guaranteeing the timely availability of funding for the development of their CubeSat. Such a letter should be submitted to VKI preferably within a few weeks or months after selection.
- Thereafter, a Contractual Agreement between the university/institute of the CubeSat team selected for flight and VKI will be prepared and signed by both parties. The selection procedure is completed with the signing of this Contract.

Selection criteria

The availability of funding for developing a CubeSat will be a critical issue in the selection process. Availability of a ground station will be an advantage in the selection process but is not a necessary condition for participation in QB50. The following selection criteria will be applied

- **Availability of funding**
- **Quality of the proposal**
- **Expertise of the proposing team**

Geographical distribution (if there are more than 50 proposals of good technical quality and with guaranteed funding the emphasis will be placed on selecting CubeSats from as many different countries as possible. This stresses the global character of QB50 and eases the burden on national funding agencies).