



REXUS/BEXUS

EXPERIMENT PROPOSAL FORM.

Your text should be intelligible to scientists of various fields and engineers with a general scientific background.

Before you submit your proposal, please ensure that you have read the **REXUS/BEXUS User Manuals** and **Esrange Safety Manual** for more detailed information.

To submit your proposal to DLR, please download the **Letter of Intent** (pdf file) for registration and this **Experiment Proposal Form** (as word file).

Forms and Manuals are available at www.rexusbexus.net.

The completed forms have to be sent electronically before their deadlines to rexusbexus@dlr.de

Team/Short experiment name	<i>E.g. the acronym of the full experiment title</i>
Full experiment title	

- REXUS**
 BEXUS
- spinning with 4 Hz
 - despun with Yo-Yo to about 0.08 Hz
 - not of importance for our experiment

Science & Organisation

Team Information	
Student team leader:	<i>Include name, nationality, university, field of study, level of study (bachelor, master, diploma or PhD), academic year, date of birth and any additional team roles of the leader if applicable.</i>
Contact information of team leader:	<i>Include at least the phone number, email address and postal address.</i>
Members of your team:	<i>Include name, nationality, university, field of study, level of study (bachelor, master, diploma or PhD), academic year, date of birth, and expected team role(s).</i>

What is the scientific and/or technical objective of your experiment?	<i>This description should outline the scientific/technical question addressed, the assumptions made and the research methods chosen to solve the question. Expected results should be stated.</i>
Are you planning to fly an existing REXUS/BEXUS experiment?	<i>If yes, what will be the improvements?</i>
Why do you need a rocket / a balloon?	<i>Clarify, why your experiment cannot be done on ground and needs rocket or balloon flight environment.</i>
What flight characteristics do you require?	<p><i>If you need a rocket:</i></p> <ul style="list-style-type: none"> - Does your experiment require a reduced gravity environment? - What are the expected duration of the phenomenon and the minimal acceptable duration of the reduced gravity period? <p><i>Note: Maximum 120 seconds of reduced gravity conditions of approximately 10⁻² g may be available depending on the composition of the payload.</i></p> <ul style="list-style-type: none"> - What is the optimal altitude or altitude range for your experiment? - Specify if you require any other flight characteristics. <p><i>If you need a balloon:</i></p> <ul style="list-style-type: none"> - What is the optimal altitude for your experiment? - What is the minimum float time to perform your experiment? - Does your experiment require daylight, if so for what duration/part of the flight? <p><i>If part of the flight should be in the night/dawn/dusk, please also state this but note that these flight conditions cannot be guaranteed.</i></p> <ul style="list-style-type: none"> - Specify if you require any other flight characteristics. <p><i>Note: Ejections from the BEXUS balloons are not allowed.</i></p>
Where did you get the idea from?	<i>E.g. research programme at your university, already performed similar experiment, scientific publications, books, ...</i>

Describe your experiment	<i>This part should link the scientific objective(s) to the experiment itself. Explain how you are going to fulfil the scientific goal.</i>
What data do you want to measure?	
How do you want to take measurements?	
Describe the process flow of your experiment.	

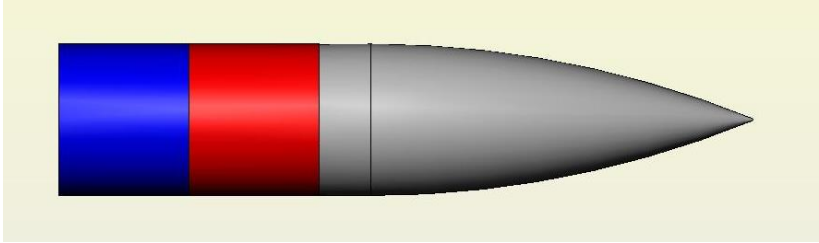
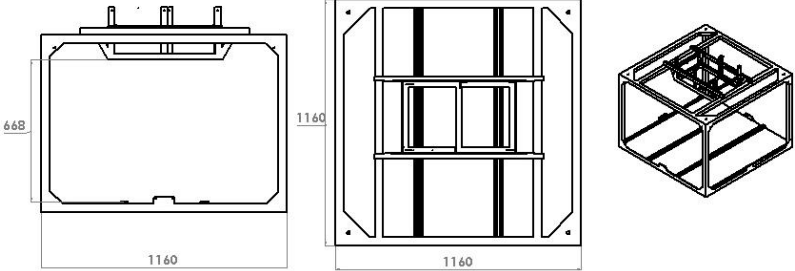
What do you plan to do with your data after the flight?	
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Organisation of your project	<i>How will you organise/distribute work within your team? <u>Please note that you are responsible for all aspects of your experiment (science, mechanical & electrical engineering, software, etc.)</u></i>
Are you scientifically and technically supported by institutes and/or senior scientists?	<i>Please indicate the name of the institute(s) and senior scientist(s). It is mandatory for every experiment to have an endorsing professor.</i>
Do you have access to a workshop or a laboratory that meets the fabrication and testing needs of your experiment?	
Do you have all the material and equipment that is needed for your experiment? If not, how do you plan to obtain it?	
How do you plan to finance your expenses?	
Who else will support you (sponsors, others)?	

Outreach Programme	
Describe your outreach programme for before, during and after the REXUS/BEXUS flight campaign.	<i>How are you planning to present your experiment to the public? E.g. newspaper, local radio, webpage, social media, presentation at the university, ... <u>The execution of an outreach programme is mandatory!</u></i>

Experimental Set-up & Technical Information

Mechanics	
Describe your experimental set-up.	<i>Describe and outline the preliminary set-up of your experiment. Include at least a sketch or block diagram of the experiment (CAD drawings are optional).</i>
Estimate the dimensions and the mass of your	<i>For REXUS: Do not include the rocket structure (module and bulkhead) into the mass budget.</i>

<p>experiment (kg and m).</p>	
<p>Indicate the preferred position of your experiment:</p>	<p><i>REXUS:</i> Indicate the orientation of your experiment and the preferred position in the rocket: module or nosecone section. Do you need access to the outside environment? Holes? Hatches?</p>  <p><i>BEXUS:</i> Define preferred position in the gondola, inside units, external units? Do you need access to the outside environment?</p>  <p style="text-align: center;"> Front view of a gondola Top view of with mounting rails </p>

<p>Electrics / Electronics</p>	
<p>Will you need the 28 V DC power supply from the REXUS service system or power from the BEXUS gondola, respectively?</p>	
<p>Will you need (additional) batteries? What do you need for charging?</p>	<p><i>Qualified batteries are listed in the REXUS and BEXUS User Manuals.</i></p>
<p>Estimate the electrical consumption of your experiment (Ah or Wh).</p>	
<p>Do you use any equipment with high inrush currents? If so estimate the current (A).</p>	<p><i>E.g. Motors may need high inrush currents which exceed the nominal allowed current limit.</i></p>
<p>Do you need auxiliary power? Do you need a</p>	<p><i>Auxiliary power for charging or consumption before launch is not standard. Mention here whether you need auxiliary power and why.</i></p>

separate umbilical?	
Use of uplink and downlink:	<p><i>Please indicate expected data rates for uplink and downlink.</i></p> <p><i>Please note: In addition to on-board storage, it is mandatory that you downlink housekeeping/scientific data during flight.</i></p> <p><i>On BEXUS, an uplink is also available throughout the flight. On REXUS, an uplink is not normally available during flight but should be used during ground testing.</i></p>
REXUS only: Do you need to use the REXUS TV Channel?	<p><i>There is one TV channel available, so only one experiment can use it at any one time and a maximum of three experiments can be connected. Why should one be your experiment? At what stage of the flight do you need it and for how long?</i></p>
Provide an event timeline, including the experiment actions during flight, such as timer or telecommand events.	<p><i>Describe your event timeline from start of countdown..</i></p>

Environmental Questions & Safety Issues	
Does the experiment use wireless devices?	<p><i>E.g. Wifi (WLAN), Bluetooth, infrared, data transmitters... Describe the type of devices and frequencies used.</i></p>
Does the experiment create any disturbing magnetic or electrical fields?	
Do you expect to use high voltages in any part of your experiment?	<p><i>Please indicate the voltage, its use within the experiment and any expected protection devices.</i></p>
REXUS only: Does your experiment eject anything from the rocket?	<p><i>Note: number and size of holes/hatches in a module are limited. Please refer to the REXUS User Manual.</i></p>
Is the experiment sensitive to light?	
Is the experiment sensitive to vibrations?	
Does the experiment generate vibrations?	<p><i>e.g. vacuum pump, rotating devices ...</i></p>

<p>Will you use any flammable, explosive, radioactive, corrosive, magnetic or organic products?</p>	<p><i>Specify any products you will use with any of these characteristics.</i></p>
<p>Will you use a laser?</p>	<p><i>Which class? Is the laser path securely contained?</i></p>
<p>Is your experiment airtight? Are parts of your experiment airtight?</p>	<p><i>Yields to a pressurized experiment (1 bar) when the vehicle reaches higher altitude with lower pressure values. This question should remind you that there will be a very low ambient pressure environment for your experiment.</i></p>
<p>Are there any hot parts (> 60°C)?</p>	<p><i>Mention any parts besides electronics that heat up.</i></p>
<p>Are there any moving parts? Are the moving parts reachable?</p>	<p><i>This is important for the preparation before launch. Access to the experiment will be discussed with EuroLaunch. E.g. a tappet is used for a moving part.</i></p>
<p>Do you need any pressure systems from EuroLaunch before launch?</p>	<p><i>If you know that you need for example a pressurized nitrogen-bottle for your experiment before launch, please mention it here. All pressurized bottles will be handled by EuroLaunch personnel.</i></p>
<p>Is there any aspect in your experiment which you believe may be viewed as a safety risk by others (regardless of whether you will mitigate this risk in your design)?</p>	

<p>Additional comments</p>	<p><i>Is there any information that is of importance for your proposal and not addressed above</i></p>
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Drawings can be inserted below and referenced in the above table.

