

# V4 Space Analogue Mission

## Experiment proposal template

*The experiment proposal informs us about what you want to investigate, why it is important, how you want to do it and what outcomes and outputs you anticipate to achieve. The project should be relevant, e.g. interesting, original, important in the context of this specific mission.*

*Your elaboration will show us your familiarity with the field and that you understand the current state of research on your topic. Detailed description of proposed methodology will show us how carefully you thought about the procedures, tools and data necessary to conduct the project which will lead to better chance of its results successful dissemination. Moreover, we also want to see that your project is feasible within its timeline.*

<b>Proposed title of the project:</b>	
<b>Principle investigator (PI) of the project (name, school, e-mail):</b>	
<b>Co-investigators (co-I) in the project (name, school, e-mail):</b>	
<b>Project partners (companies, universities, other organizations), if any</b>	

*By submitting the proposal, I voluntarily give my consent to the processing of my personal data in accordance with Act No. 101/2000 Coll., on the protection of personal data (as amended) of the Hvězdárna a Planetarium hl. m Prague, s. Ó. (Planetum), which organizes the event and implements the ESERO Czech Republic project. The data will not be provided to third parties without consent.*

## **PROJECT DETAILS**

*You should respond in a clear and concise way while providing all details necessary for the evaluation of the experiment's quality.*

<p><b>Background and context:</b> <i>explain WHAT you want to do and WHY. You should introduce your idea, give necessary information and context to what is already known. Then explain why it matters, why it is important to address this problem, what benefits will it have for the field and if it has a wider relevance outside of the scope of space research</i></p>	
<p><b>Project objectives:</b> <i>write a particular focus and approach of your project and specific steps you will take to achieve the aims. The objectives can be scientific, engineering, or operational.</i></p>	
<p><b>Research question:</b> <i>write (in a single sentence, ideally) what exactly you want to find in your work. The research question should be focused on a single problem, should be researchable using proposed methods, feasible in a given timeframe and conditions, specific enough to answer thoroughly, and relevant and original to the field of space research and society more broadly.</i></p>	
<p><b>Research design and methods:</b> 1) <i>elaborate on the design of your project, if it is descriptive, correlational, or experimental.</i> 2) <i>describe the tools, procedures, measured elements and participants. Also, whether there are any specific exclusion criteria.</i> 3) <i>indicate when, how many times, during which part of the mission and who</i></p>	

<p><i>will collect the data and how much time it will consume. 4) describe how the data will be stored, transferred, and analyzed. Indicate potential obstacles, limitations and how you plan to deal with those or other potential problems. 5) if your research involves humans, please understand this would require ethics approval. Use the provided template from Hydronaut (on web).</i></p>	
<p><b>Research schedule:</b> <i>provide project schedule.</i></p>	
<p><b>Operational steps:</b> <i>steps to be completed by the analogue astronaut to fulfill the requirements of the experiment</i></p>	
<p><b>Sustainability:</b> <i>how are you considering the sustainability aspect in the proposal</i></p>	
<p><b>Diversity:</b> <i>how are you considering diversity aspect in the proposal</i></p>	
<p><b>Expected contribution:</b> <i>provide an expected output (a report, high school professional work for competition, etc.), and potential implications of your project for the community and field.</i></p>	
<p><b>Future work:</b> <i>how would you propose the experiment can be built upon or further investigated in the future?</i></p>	

**FACILITY REQUIREMENTS**

*You may respond to some of the fields in a few words, but some may require detailed explanation. Fields that are not relevant to your proposal may be filled in with “not applicable” (N/A).*

<p><b>Actions taken before and after the mission:</b> <i>are there any steps necessary before and after the mission?</i></p>	
<p><b>Special training required for Analogue Astronauts:</b> <i>is the special training of analogue astronauts required? If yes, indicate what they need to learn, when, and how long they need to train.</i></p>	
<p><b>Baseline data collection:</b> <i>please indicate whether there are any baseline data collection required, and if yes, provide summary of the plan for providing any required training</i></p>	
<p><b>Analog environment specifics:</b> <i>please indicate if you require any specific conditions within the following factors ...</i></p> <ol style="list-style-type: none"> <li>1. Specific lighting conditions:</li> <li>2. Physical isolation:</li> <li>3. Required space for habitability of environment:</li> <li>4. Volume characteristics of environment required:</li> <li>5. Personal space required:</li> <li>6. Specific team size requirements:</li> <li>7. Leadership requirements of crew:</li> <li>8. Team structure of crew required:</li> <li>9. Rest &amp; recreational options required:</li> <li>10. Quality of life support conditions required:</li> <li>11. Workload requirements:</li> </ol>	

<p>12. Mission duration:  13. Requirements for communication with outside world:  14. Level of external ground control:  15. Task relevance:  16. Other characteristics required:</p>	
<p><b>Field mission requirements:</b> <i>field mission will be conducted in enclosed space simulating the moon surface; please indicate which of the following will be required or highly desired for your study...</i></p> <ol style="list-style-type: none"> <li>1. Specific lighting conditions:</li> <li>2. Physical isolation:</li> <li>3. Required space for habitability of environment:</li> <li>4. Volume characteristics of environment required:</li> <li>5. Personal space required:</li> <li>6. Specific team size requirements:</li> <li>7. Leadership requirements of crew:</li> <li>8. Team structure of crew required:</li> <li>9. Rest &amp; recreational options required:</li> <li>10. Quality of life support conditions required:</li> <li>11. Workload requirements:</li> <li>12. Mission duration:</li> <li>13. Requirements for communication with outside world:</li> <li>14. Level of external ground control:</li> <li>15. Task relevance:</li> <li>16. Are extreme environments/conditions required to meet study objectives? <ol style="list-style-type: none"> <li>i. Unable to reach medical treatment within an hour:</li> <li>ii. Inability to return quickly:</li> <li>iii. Dangerous operations:</li> <li>iv. Environment with threat of injury or death to a subject</li> </ol> </li> </ol>	

<p style="margin-left: 40px;">similar to a spaceflight environment:</p> <p style="margin-left: 20px;">v. Other required characteristics:</p> <p>17. Identify simulation requirements</p> <p style="margin-left: 20px;">i. Confinement:</p> <p style="margin-left: 20px;">ii. Difficult logistics:</p> <p style="margin-left: 20px;">iii. Limited local infrastructure:</p> <p style="margin-left: 20px;">iv. Remote communications:</p> <p style="margin-left: 20px;">v. Autonomous operations:</p> <p style="margin-left: 20px;">vi. Autonomous medical care or “telemedicine”</p> <p style="margin-left: 20px;">vii. Moon/Mars – relevant field/EVA activity:</p> <p style="margin-left: 20px;">viii. Lunar or Martian surface:</p>	
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**Any information needed from the MCC:** *do you need more information about the expected mission conditions, about analogue astronauts, etc.?*

**List of equipment provided by you:** *please describe special hardware or software required for the study, laboratory equipment or tooling that you will provide.*

**List of equipment Hydronaut has to provide:** *please describe special hardware and software required for the study, laboratory equipment or tooling that Hydronaut has to provide.*

**Setup:** *please indicate and describe setup support that you would require for the hardware when it arrives at the analog.*

**Connectivity requirements:** *please describe if you need to access any systems, networks, applications or something similar and how.*

**Any other requirements:** *power, communications*

**Logistical plan:** *please describe if shipping support is required to deliver hardware to the analog and how.*