INTERNATIONAL INSTITUTE FOR ASTRONAUTICAL SCIENCES
1830 22nd street, Suite 6, Boulder, CO 80302 astronauticsinstitute.org Tel: (888) 520-2050

IIAS-02 PAYLOAD SOLICITATION FREQUENTLY ASKED QUESTIONS

NB - The IIAS-02 Call for Science solicitation submission has been extended to February 15th at 2359 PST.

GLOSSARY

IIAS - International Institute for Astronautical Sciences
IIAS-FOP - The International Institute for Astronautical Science Flight Opportunities Program
NET - No Earlier Than
VG - Virgin Galactic

QUESTIONS

PAYLOAD AND LOCKER COSTS & SPECIFICATIONS

Q1. Where can we find the cost related to the proposed experiments? Alternatively, if we create a wearable device for an individual on the flight, what would the associated costs be?

A1. There is no cost of flying a wearable, nor for basic payload integration or pre- and post-flight data collection. Extensive payload integration may incur more costs. We expect the proposer to cover any costs regarding shipping payloads, acquiring and storing samples on dry ice, printing and mailing surveys, for example. The researcher is responsible for covering locker space, hardware costs, shipping, storage, logistics, travel, back-up devices, logistics, and excessive integration (excessive integration costs will of course be discussed with the proposer should this be a consideration). If your payload requires locker space, please refer to questions 2, 3 and 4.

Q2. Is there a baseline idea of the associated costs to support our payloads, assuming our project fits within a single middeck locker?

A2. A single middeck locker is 18.50”W x 12.25”H x 21.50” in dimensions and the dimensions of the other lockers sizes can be found in Virgin Galactic’s Payload Users’ Guide here. Pricing for middeck locker sizes will be discussed with down-selected payload proposal teams directly.

Q3. Are any costs incurred for the payload fully related to development and logistics, or will there be a cost from IIAS or Virgin Galactic to take the proposal to space?

A3. If we select your idea, basic integration costs, and the cost of flying the payload as a passive or active payload will be covered, minus any lockers costs (see Q2 for pricing details). The proposer is responsible for shipping, logistics, development, prototyping, hardware, locker costs and anything beyond basic payload integration.

Q4. What is the cost of the rack? Do we have to pay for it entirely?

A4. Racks are provided, but you would need to pay for locker space (pricing for middeck locker sizes will be discussed with down-selected payload proposal teams directly), if required to store your payload or if your experiment requires spaceship power and/or data. A payload stored in a locker can be autonomous, or human-tended, meaning the astronauts interact with the outside of the locker

during flight or retrieve a payload that's stored in a locker during flight. Wearables stored on the researcher do not incur any extra cost.

Q5. If we build our own locker, would that reduce the costs? How much would it cost to use our own locker?

A5. Virgin Galactic provides single middeck lockers that may be used for your flight, or researchers can build their own lockers; the price is the same in both scenarios. For double, triple, and quad lockers, the proposers are required to build their own lockers.

Q6. What are the maximum dimensions (L × W × H) and weight specifications for a wearable payload?

A6. We don't have standard maximum dimensions and weight restrictions for wearables, however, the general parameter is that they need to fit within a flight suit pocket. More detailed guidance will be provided for any wearables that are ultimately selected for flight.

Q7. It's listed that the human tending to your experiment during spaceflight is funded, does that mean someone affiliated with IIAS will be assigned to the payload, or can someone from the research team fly with the payload and carry out the experiment?

A7. This solicitation is specifically for the IIAS-02 mission, as such one of the three assigned flyers (Kellie Gerardi, Dr. Shawna Pandya, Dr. Norah Patten) will be assigned to work with and/or operate the payload during the spaceflight.

Q8. Is there the possibility to apply for funding that could also support their development efforts as part of the project?

A8. All submissions should pursue their own funding for development, logistics, shipping, transportation costs, etc. This solicitation covers the cost of the suborbital flight, and provides human operators for passive and active payloads. This solicitation does not cover development costs. For down-selected projects that would benefit from additional support from the IIAS-02 and IIAS-FOP team, there are opportunities to request a letter of support or jointly apply for grants and funding.

Q9. What are the maximum weight and dimensions for a free-floating payload? How much would this cost?

A9. For a free-floating payload, it should ideally be able to fit in a flight suit pocket. For bigger payloads, you can purchase a payload locker (see dimensions and prices in Q2) to store your payload, and the researchers can retrieve it in flight. All proposed free-floating payloads will need to undergo approvals from both IIAS and VG.

Q10. You've discussed both wearables and lockers. Is there an option to place/attach a small (size of deck of cards) stand-alone experiment (e.g. air quality monitor) to a cabin panel? Are there any existing mount points that will survive the 3-4g already in place?

A10. Virgin Galactic's standard offering does not include mounting points other than the payload racks. Any payloads that need to be mounted to the cabin wall would be a non-standard service, requiring special consideration and pricing.

Q11. Will you do any flight tests of the lockers?

A11. Virgin Galactic's payload lockers will be tested during its Delta spaceship flight test campaign.

Q12. Is it okay to use Apple devices including iPhones and Apple watches?

A12. VG continues to evaluate various smart devices for future research flights, and down-selected payloads must go through the relevant VG approvals in order to be flight-qualified. There is no blanket approval of smart devices at this time and each will be evaluated on a case-by-case basis.

Q13. Is Bluetooth acceptable to use in flight?

A13. VG continues to evaluate various devices for future research flights, including Bluetooth-enabled devices. All down-selected payloads must go through the relevant VG approvals in order to be flight-qualified. There is no blanket approval of Bluetooth devices at this time and each will be evaluated on a case-by-case basis.

Q14. Is it possible for the audio from the flight to be used for research purposes? If we are linking it to other data, can it be time-stamped to match with different markers?

A14. Audio and video are recorded from the flight, and can be time-stamped to match other data, such as biometric data from wearables. If you are requesting this as part of your data, please make sure to include that in your proposal submission, and then in your ethics approval and consent form.

PROPOSAL SUBMISSION GUIDELINES & CLARIFICATIONS

Q15. Can I submit the project alone?

A15. Yes, you can submit a project alone.

Q16. Can I use my personal funds to possibly come to you and show you how the experiment works?

A16. If selected, and if it makes sense, you are welcome to use your personal funds for crew training and familiarization for the project, however we cannot commit to this at this time; for reasons of logistics and crew coordination, it may be more appropriate to train remotely, for example.

Q17. I am an international company, is there any restriction or consideration I should be aware of in collaborating with them on this proposal?

A17. We very much welcome international submissions; all payloads will need to adhere to US export control and security regulations.

Q18. Can companies participate?

A18. Yes, companies can participate in this solicitation.

Q19. When does the IIAS-02 Internal/External Payload Proposal Form have to be submitted?

A19. The initial deadline of January 31, 2025 at 2359 PST has been extended to **February 15, 2025 at 2359 PST.**

Q20. Is there more than one proposal form to fill out?

A20. No, only the IIAS-02 payload solicitation needs to be submitted. You can find the solicitation here**.**

Q21. Can I submit my proposal in another format?

A21. No, even if you have previously proposed this for other flights, the information needs to be submitted on the IIAS-02 application, as we have very specific questions we ask. Proposals that are submitted outside the solicitation form will not be considered, although additional visuals, schematics and figures that can help the reviewers understand the payload are welcomed as part of your submission.

Q22. Is it necessary to have a sponsor to submit the proposal?

A22**.** You do not need a sponsor to submit a proposal.

Q23. Can an existing proposer co-submit with several PIs?

A23. Yes, we invite collaborative proposals that include multiple PIs.

Q24. If an experiment requires ethics approval, is there a deadline for that approval? Do proposals already need to have approval, or should a timeline be provided in the solicitation?

A24. You do not already need to have approval at the time of submission, however we do request you have ethics approval in place by Q3 2025, so that your payload is ready to go for our current NET flight timeline of 2026.

Q25. Can you submit more than one proposal?

A25. Yes.

MISSION PARAMETERS

Q26. Will there be an opportunity for an additional person to participate on the flight? Understanding the crew arrangement will help assess the feasibility of including this payload as part of the mission.

A26. The IIAS-02 team is manifested as a three-person team with Kellie Gerardi, Dr. Shawna Pandya & Dr. Norah Patten representing IIAS.

Q27. Can you please clarify what the operating window is outside of the zero-gravity period? Are maneuvers permitted during reentry?

A27. Researchers are able to collect data during flight week and throughout the entire flight profile through prior coordination with Virgin Galactic. Seated maneuvers are generally possible outside of the microgravity phase, but not during the burn phase.

IIAS-LED SUBMISSIONS

Q28. I have completed AST101 [within IIAS] but wanted to confirm whether completing additional classes like AST102 (Fundamentals of Microgravity Science) or BIO103 (Human Research Participants in Microgravity Research) would be required for this proposal. If so, would it be acceptable if I complete these by next year?

A28. AST101 and BIO103 are not required to submit the proposal, although they can help with your understanding of microgravity sciences and payload preparation.

TYPES OF PROPOSALS, DATA COLLECTION & DATA ACCESS

Q29. Would a behavioural experiment involving the crew be feasible, given the 3-minute window of microgravity?

A29. Yes, we welcome behavioral health proposals. We will be evaluating proposals based on how they fit within the 3-minute exposure to microgravity, and/or the pre and post-flight periods.

Q30. I would like to collect physiological and/or psychological data pre and post-flight; not during the actual flight. Would my proposal qualify for this payload solicitation?

A30. Yes.

Q31. If an academic study comes out of a payload, would there be any constraints from VG on publishing that study/data?

A31. We aim to help facilitate and optimize publications and the sharing of results. We request publications and presentations be reviewed by Virgin Galactic ahead of time to ensure no Virgin Galactic proprietary information is shared publicly. We will discuss any data-sharing restrictions more closely with shortlisted proposals, where applicable.

Q32. Is a behavioural experiment that involves pre- and post-flight psychometric measures/testing valid for submission? Can such a study also submit a package of mixed-methods studies (e.g. biomonitoring, hardware, behavioural, etc.)?

A32. Yes.

Q33. Is it possible to scan the upper region of the torso to perform a cardiac ultrasound? We are thinking of how to adapt our system design to best work with the flight suit/limitations of access to the upper torso region.

A33. This is feasible in theory, and would require pre-planning of how the flight suits are zipped, and what is worn underneath, such as a sports bra or tank top. Please be sure to consider and address the privacy of the three female research astronauts, both in the context of knowing there could be other crew members in the cabin, and also knowing that the flight is videoed. Lastly, please be sure to address how you will protect that health data of the astronauts.

Q34. Did you see any SANS (the Spaceflight Associated Neuro-ocular Syndrome) impact from IIAS-01?

A34. We did not study SANS during IIAS-01, but very much welcome proposals related to neuroscience for IIAS-02 as this is one of our stated priority areas of research.

Q35. For experiments requiring cold storage during the flight, will dry ice be generally provided on the flight for all samples from all experiments, or will it need to be supplied by the PI?

A35. Experiments requiring cold storage in-flight will need to purchase a locker to store the samples and design the lockers to maintain its contents at the needed temperature. This locker and payload design will need to pass Virgin Galactic's payload safety review process.

Cold storage can be coordinated pre- and post-flight, as has been done on previous missions. The PI is responsible for acquiring the dry ice and working with any necessary shipping companies if the samples need to stay cold during shipment. VG is happy to provide information on dry ice and shipping providers used in the past.

PROPOSAL DEVELOPMENT, EVALUATION CRITERIA, FEEDBACK AND NOTIFICATION TIMELINES

Q36. Can you provide the evaluation criteria for the proposal? Additionally, who will be assessing it?

A36. The evaluation criteria can be found here. Briefly, we will be evaluating proposals on the basis of technical merit, justification including novelty and innovation, scientific returns and societal impacts, feasibility, suitability to suborbital flight and our mission profile, crew preference, and opportunities for IIAS researchers to collaborate. At this time, the proposals will be evaluated by the IIAS-02 crew (Kellie Gerardi, Dr. Shawna Pandya, Dr. Norah Patten) and IIAS' Director of Bioastronautics, Dr. Aaron Persad, with plans to bring in external subject matter experts where proposals are beyond the scope of expertise of the review team.

Q37. Do we know yet when final decisions on the initial submissions round will be made and communicated?

A37. With the new deadline extension to February 15, 2025, we expect to take 6-12 weeks to evaluate proposals, and expect to announce shortlisted projects will likely be announced 90 after the submission deadline, however this is subject to the total number of proposals received, and this timeline may be extended if needed to give the review team time to evaluate all received proposals.

Q38. Will submitted proposals receive feedback?

A38. We would like to, as we believe in amplifying science, however this depends on the volume of submissions we receive, so we will not commit to feedback at this time. If bandwidth allows, we plan on doing so.

Q39. I have developed a cubesat to measure solar radiation and I am currently working on making it compact. I am seeking guidance on testing the model in a low-gravity environment and would also appreciate assistance in making a record or registering this achievement. Can you guide me regarding the same?

A39. Unfortunately we do not have bandwidth to co-develop payloads for this round of submission, however, we are able to answer specific questions submitted for this round. We additionally intend on working closely with shortlisted payloads and proposal teams to integrate, optimize and advance those proposals for spaceflight.