

Q1 : Section 5.6.2 "Cost of Access to Space" beginning on page TBD-19 of "SALMON-3 PEA TBD: 2019 Astrophysics Explorers Mission of Opportunity" states

"The costs for PEA-provided access to space options listed below will be subtracted from the PEA tbd Cost Cap and held in the Astrophysics Division at NASA, who will also manage any and all launch contingencies. The following costs are associated with access to space provided under this PEA:

...

*** For a constellation of CubeSats up to a total of 24U or a SmallSat, missions utilizing one port on an Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA), or for missions utilizing a small launcher, see the LSP Small Payload Access to Space Catalog in the Program Library for costs."**

Does this mean that there is a charge to the \$35M Cost Cap for SmallSats that utilize an ESPA? Please clarify. (Note: Q&A 7 takes precedence over this Q&A 1, due to updated policy decisions)

A1 : There were mistakes on the Draft PEA page TBD-20. The corrected text, revised on 11/26/2018, is below. The Access to Space information will be corrected in the Final PEA. The draft LSP Small Payload Access to Space Catalog is available in the Program Library and the final version will be posted when the final PEA is released.

available through the Program Library. The costs for PEA-provided access to space options listed below will be subtracted from the PEA tbd Cost Cap and held in the Astrophysics Division at NASA, who will also manage any and all launch contingencies. The following costs are associated with access to space provided under this PEA:

- Costs associated with access to the ISS for SCMs will be outside the PIMMC.
- Costs associated with access to the lunar Gateway for SCMs will be outside the PIMMC.
- Costs associated with high-altitude scientific balloons and launch services will be outside of the PIMMC.
- Costs associated with access to space on an ESPA, for SmallSats or for one or more CubeSats up to a total of 24U, will be outside the PIMMC.
- For a SmallSat or constellation of CubeSats up to a total of 24U utilizing a Surf Board, Aft Bulkhead Carrier or C-Adapter Platform, there will be a charge of \$4.5M to the PIMMC (see *LSP Small Payload Access to Space Catalog* in the Program Library).
- Costs associated with access to space for a single 1U, 1.5U, 2U, or 3U CubeSat that uses the CubeSat Launch Initiative (CSLI) will be provided outside the PIMMC. For a single 6U, two 6U or a single 12U, there will be a charge to the PEA cost cap ranging up to \$2M based on size and destination (see *LSP Small Payload Access to Space Catalog* in the Program Library).
- For ~~constellation of CubeSats up to a total of 24U or a SmallSat, missions utilizing one part on an Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA), or for~~ missions utilizing a small launcher, see the *LSP Small Payload Access to Space Catalog* in the Program Library for costs.

For non-PEA-provided access to space options, any costs for access to space must be included in the PIMMC. Also, see Requirement tbd-20 for launch service advisory service fees of \$2M required for proposals that use non-PEA-provided launch services.

For non-NASA-PEA-provided access to space options and any nonstandard services for NASA-PEA-provided access to space, costs shall be included in the PIMMC.

The cost cap and cost of access to space for the SCM options are reiterated in the following table.

SCM option	Cost cap (see Section 5.6.1)	Access to space (see Section 5.3.6)	Cost of access to space to PIMMC (see Section 5.6.2)
"Full" SCM	\$75M	PI-provided	
ISS or lunar Gateway	\$75M (\$35M for CubeSat)	PEA-provided	None
Balloon Payload	\$35M	PEA-provided	None
SmallSat or CubeSat(s) on ESPA	\$35M	PEA-provided	None

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SmallSat or CubeSats on Surf Board, etc.	\$35M	PEA-provided	See above
SmallSat or CubeSats - Other	\$35M	PI-provided	
CubeSat up to 12U	\$35M	PEA-provided (CSLI)	Up to \$2M
SCM (including SmallSat) using a Small Launcher	\$75M or \$35M	PEA-provided	See above

Q2 : Will the ESPA Grande be offered for a PEA-provided launch?

A2 : No; only the non-Grande version of the ESPA will be offered. Edit 11/26/2018: Yes, the ESPA Grande will be offered for a PEA-provided launch. This will be corrected in the Final PEA.

Q3 : What is considered a SmallSat?

A3 : For this call, a SmallSat is a “small complete mission with a PI-managed cost cap under \$35M, using a spacecraft compatible with an ESPA-class payload interface.” This will be corrected in the Final PEA.

Q4 : Can a CubeSat constellation use more than one ESPA port?

A4 : Yes, a CubeSat constellation will be allowed to use multiple ESPA ports. This will be corrected in the Final PEA.

Q5 : Will the comment period for the Missions of Opportunity PEA end on December 7, 2018?

A5 : Comments on the MO PEA will be accepted through December 21, 2018.

Q6 : Will there be additional clarification of the access to space for the MO PEA?

A6 : Access to space for the MO PEA will be clarified on or about Monday December 10.

Q7 : The draft Program Element Appendix (PEA) allows proposers to propose alternative access to space, including contributed launch services. Will this option be included in the PEA itself?

A7 : Alternative access (non-PEA-provided launch vehicle and launch services) will not be an option in the final PEA, because NASA can now offer a larger range of rideshare options as PEA-provided launches. The Table on page TBD-20 of the draft PEA will be replaced by that below: ESPA includes ESPA Grande. A revised version of the LSP Small Payload Access to Space Catalog will be posted.

SCM option	Cost cap (see Section 5.6.1)	Access to space (see Section 5.3.6)	Cost of access to space to PIMMC (see Section 5.6.2)
Balloon Payload	\$35M	PEA-provided	None
ISS or lunar Gateway	\$75M (\$35M for CubeSat)	PEA-provided	None
CubeSat up to 12U	\$35M	PEA-provided	Up to \$2M
SmallSat or CubeSats on Surf Board, etc.	\$35M	PEA-provided	\$4.5M
SmallSat or constellation of CubeSat(s) up to 24U total, on ESPA	\$35M	PEA-provided	None
“Full” SCM on ESPA	\$75M	PEA-provided	\$10M

SCM (including SmallSat) using a Small Launcher	\$75M or \$35M	PEA-provided	\$10M or \$15M
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Q8 : Why is there a charge to the PI-Managed Cost Cap of a “full” SCM for access to space on an ESPA, but no charge for the same access for a SmallSat?

A8 : NASA is particularly interested in demonstrating that compelling astrophysics science can be done with a SmallSat as a secondary payload, and therefore provides an incentive to propose at that level.

Q9 : What orbits are anticipated for PEA-provided access to space for Small Complete Missions and SmallSats utilizing one or more ports on an Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA)?

A9 : We anticipate that rideshares on an ESPA or ESPA Grande will be offered as PEA-provided launch services to the following orbit categories:

- a) to Low Earth Orbit at 400km-600km
- b) to Geostationary Transfer Orbit and beyond: this option may include the ESPA Grande on the NASA Heliophysics IMAP mission if space is available, and a rideshare with ESA’s PLATO for a mission proposed as a science collaboration with ESA scientists.
- c) to cislunar space; see e.g. the Statement of Work for Commercial Lunar Payload Services (CLPS) in the Program Library.

Q10 : How will the requested orbit affect the likelihood of a rideshare proposal being selected?

A10 : After the evaluation, but prior to the selection decision, NASA will perform an accommodation study of selectable investigation proposals to assess the extent to which the proposed investigation is compatible with the expected rideshare opportunities. The NASA Small Spacecraft Systems Virtual Institute (<https://www.nasa.gov/smallsat-institute>) will operate a website that consolidates and shares known public information on ESPA-Class launch accommodation opportunities and capabilities. A proposed investigation with a high probability of being compatible with several platforms is more likely to be selected than one with less flexible accommodation and orbit requirements.

Q11 : If a mission on ISS would extend beyond 2024, will NASA still provide the funding to support the continued operations?

A11 : A proposer should assume that there will be no change in the accessibility of ISS as a science platform beyond 2024.