

# Notes from Extreme Environments Monthly Meeting

*August 2020*

## Notes From Discussion

Presentation by Mark Hillburger, "Strategic Technology Plan Midterm Review: Advanced Materials, Structures, and Manufacturing (AMSM)

Question about having funding opportunities broken out by organization type.  
Organizations should look for PIs to partner with.

Question about Strategic Technology Plan Release.

Currently being developed, just had mid-term review. Should be publicly available on NASA's website once complete. Refer to NASA technology taxonomy (<https://www.nasa.gov/offices/oct/taxonomy/index.html>) published earlier this year, and series of technology roadmaps (<https://www.nasa.gov/offices/oct/home/roadmaps/index.html>) that were published in 2015.

Question from chat: Does AMSM scope include in situ manufacturing and construction?  
Yes. Separate book on in situ resource utilization also.

Question from chat: Does AMSM include ISRU?

No, ISRU is in a different book. There is lots of cross-coordination across books, however, esp. between AMSM and ISPCP.

Question from chat: What about batteries in extreme environments?

In a separate book on power systems. AMSM will cut across many technologies because all will come to AMSM with their various needs.

Mark to send information on current gaps in books, requesting feedback from LSIC EE members.

Presentation by Marshall Eubanks on "Communications Environment"

Question from chat: Regards Comm, what about lunar surface comm? Not surface to orbit but surface to surface? What about cell phone like service? or internet-like service?

Local relays on the surface would not be too different from terrestrial factory floors or mining camps - think about the protocols used there.

## Notes from Chat

Request for attendees to participate in LSIC Capabilities Database

([https://docs.google.com/forms/d/e/1FAIpQLScfc52J3TydolwrLn1nvwTDF9tuk8fVihh2ay8bLzdFUQdhFQ/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLScfc52J3TydolwrLn1nvwTDF9tuk8fVihh2ay8bLzdFUQdhFQ/viewform?usp=sf_link))

Questions asked in NASA presentation:

- David Eisenman: Does AMSM scope include in situ manufacturing and construction? ANSWERED
- charles radley: What about batteries in extreme environments ?
- ANSWERED
- David Eisenman: Does AMSM include ISRU? ANSWERED
- Angeliki Kapoglou: Could you explain what does “transformative approach concept” means?
- charles radley: how about radiation effects on electronics ?
- David Eisenman: Will AMSM and all the other areas for which strategic plans are being developed prepare a WMS so people will know what's in and what's not?
- David Eisenman: WBS not WMS.
- hbarnaby: Concerns about electronic systems?
- john schaf: Two areas of concern: lunar dust and its effect on connectors and cooling of electronic systems, and lunar radiation environments, both benign and worst case solar week

(Unanswered questions will be answered and distributed back to EE members. Text for answered questions in the Notes From Discussion section)

Questions asked in Communications presentation:

- David Eisenman: Regards Comm, what about lunar surface comm? Not surface to orbit but surface to surface? What about cell phone like service? or internet-like service?
- Mike Ching: For comms covering the far side there are additional concerns for maintaining the pristine radio-free environment for research.
- David Eisenman: How is comm done at the south pole? Is that good enough?
- Timothy Anderson: there are freqs designated already
- Clive Neal: Can these communications papers be put into a database for the group/subgroup to get all on the same page?
- Timothy Anderson: For those looking for the freqs designations: NASA Recommendation SFCG 32-2R2 Communication Frequency Allocations and Sharing in the Lunar Region
- marshall Eubanks: David, do you mean terresrial S. Pole?

(Text for answered questions is in the Notes From Discussion section)