Lunar Surface Innovation
CONSORTIUM

LSIC Dust Mitigation Focus Group

Monthly Meeting
February 16, 2022

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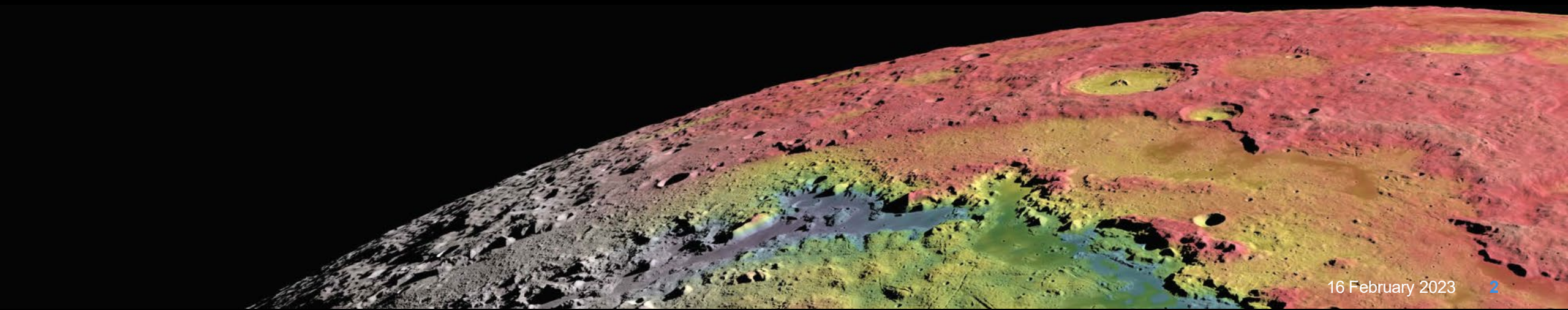
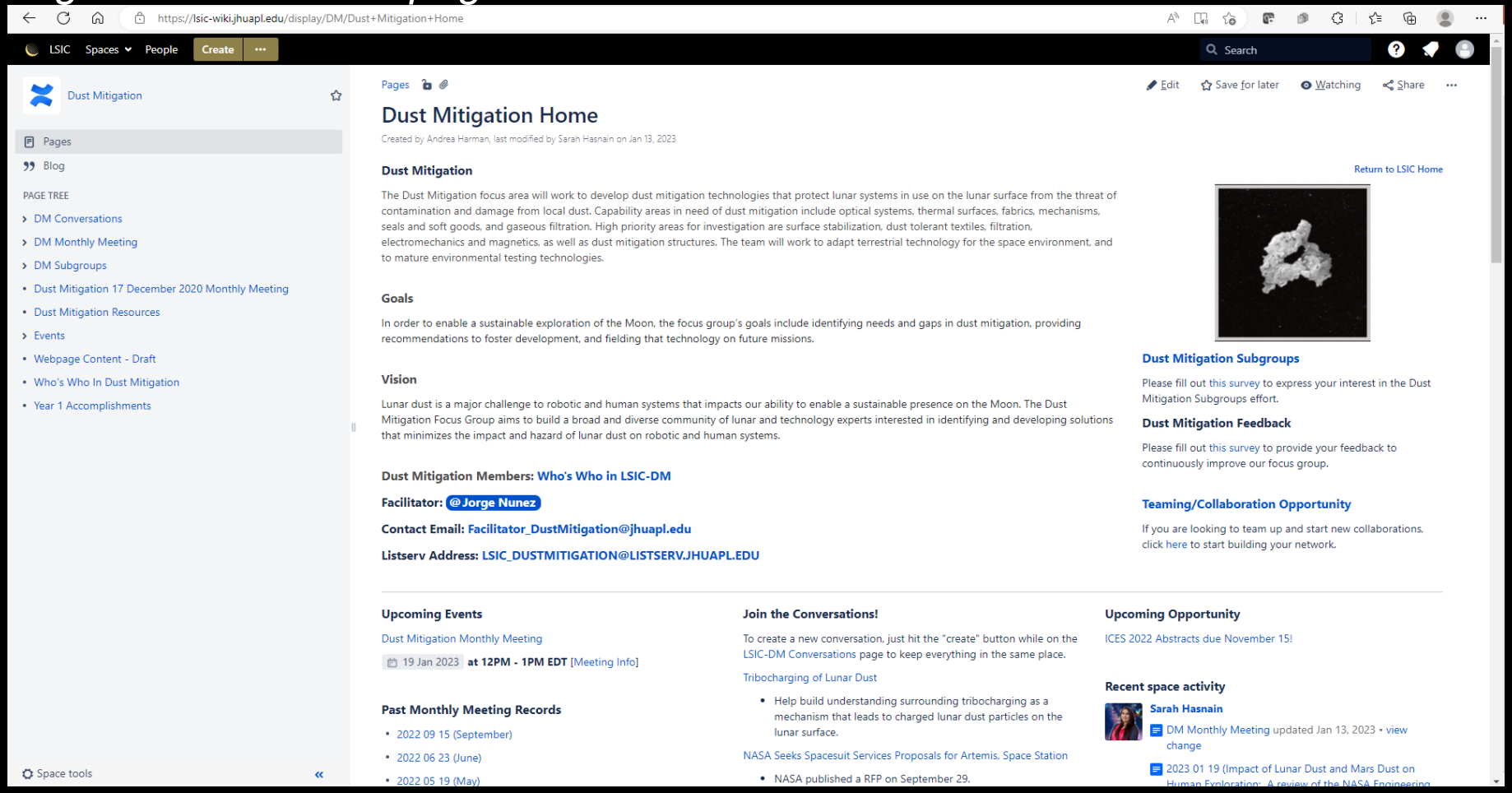
Agenda

- Welcome, LSIC and Focus Group Updates
- Upcoming Opportunities and Meetings
- Featured Technology Presentation:
  - **“A Path to an Enduring Lunar Presence”**
    - Sarah Hasnain, LSIC Excavation & Construction Co-Facilitator + Autonomy & Site Planning Subgroup
- Discussion on dust mitigation gaps and opportunities for technologies needed for a sustained lunar presence



LSIC Dust Mitigation Wiki Page

- **To request access, please contact lsic-wiki-admins@listserv.jhuapl.edu**
- *Dust Mitigation Discussion page and wiki*

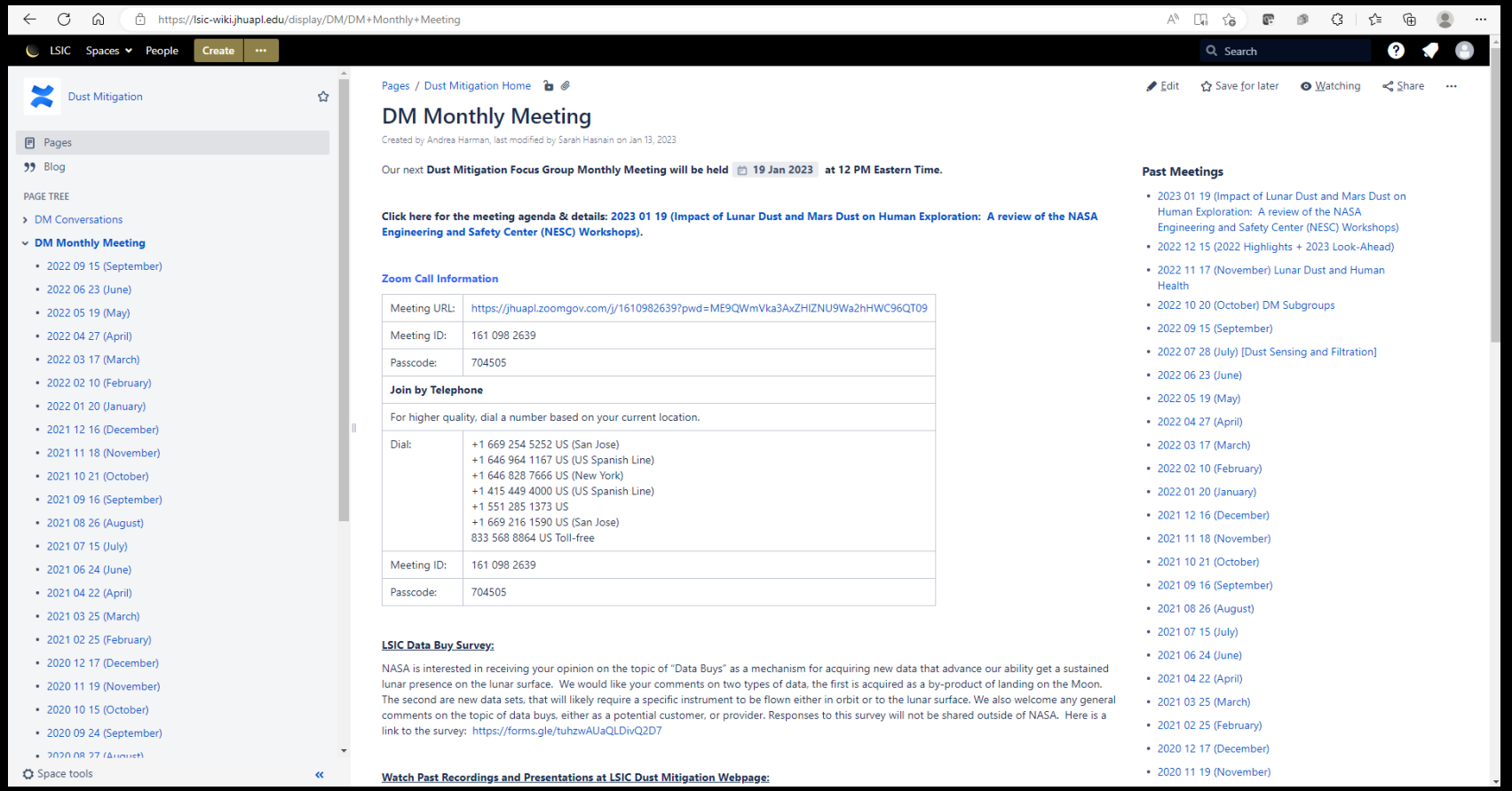


https://lsic-wiki.jhuapl.edu/display/DM/Dust+Mitigation+Home

Join the Discussion on our Wiki Page

- **To request access, please contact lsic-wiki-admins@listserv.jhuapl.edu**
- *Dust Mitigation Discussion page and wiki*

- 1. Sign-in to add a comment
- 2. Add comment at bottom of page
- 3. You can comment before, during, or after today's meeting



https://lsic-wiki.jhuapl.edu/x/GoAZ

Updates and Communications

- Monthly LSIC newsletter – New edition came out early February 2023
  - POC: Josh Cahill
  - https://lsic.jhuapl.edu/Resources/LSIC-Resources.php
- Mailing list
  - The listserv goes to all participants. Use with caution. But feel free to use!
  - Please make sure to add LSIC_DUSTMITIGATION@LISTSERV.JHUAPL.EDU to safe senders list.
  - If we need smaller, focused lists we can set those up
- Updates to the webpage - https://lsic.jhuapl.edu/Our-Work/Focus-Areas/index.php?fg=Dust-Mitigation
  - Notes, slides, recordings from telecons posted here
- Keep up on the Wiki!
  - Confluence is free to you and available to all registered LSIC members
  - **To request access, please contact lsic-wiki-admins@listserv.jhuapl.edu**
- Lightning Talks at monthly focus group meetings
  - Anyone can volunteer to give a featured talk (~15 mins)
  - Email me if you want to sign up: Facilitator_DustMitigation@jhuapl.edu

Follow the Code of Conduct for all Focus Group communications

https://lsic.jhuapl.edu/Resources/LSIC-Resources.php

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Space Technology Funding Opportunities

Current Tech Development Opportunities

- **NASA Innovative Advanced Concepts (NIAC) 2022 Phase II Call for Proposals »**
  - Proposals Due January 18, 2023
- **FY 2023 Phase I SBIR and STTR Solicitations »**
  - Phase I opportunity opened on Jan. 10, 2023 and closes on March 13, 2023.
  - The NASA SBIR and STTR Phase I Solicitations are open to small businesses with 500 or fewer employees. To apply for an STTR, a small business must partner with a non-profit research institution such as a university or a research laboratory. SBIR Phase I contracts last for six months and STTR Phase I contracts last for 13 months, both with a maximum funding of $150,000.
  - Selections scheduled to be announced on June 5, 2023.
- **Lunar Surface Technology Research (LuSTR) Opportunities »**
  - NOIs Due: March 22, 2023; Proposals Due: April 24, 2023

Future Solicitation and Opportunities

- **NASA Innovation Corps Pilot »**
  - Proposals may be submitted at any time through March 29, 2023, but applications will be reviewed in intervals on the following dates: July 22, 2022; Sept. 16, 2022; Nov. 17, 2022; and Jan 20, 2023

NASA SBIR & STTR Solicitations 2023

- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)
- *Open to U.S. small businesses*
  - *May collaborate with universities and industry partners*
- Phase I: Up to $150 K for 6 Mo
- Phase II: Up to $850 K for 24 Mo
- Focus Area 24: “Dust Mitigation and Extreme Lunar Environment Mitigation Technologies”
- **Phase I Solicitation Closes March 13, 2023**
- **Phase II Solicitations Due by last day of Phase I contract**
- **Phase I Selections expected June 5, 2023**
- https://sbir.nasa.gov/solicit-detail/97360

NASA SBIR & STTR Solicitations 2023

- Focus Area 24: Dust Mitigation and Extreme Lunar Environment Mitigation Technologies
  - 2 Sub-topic areas
- 1. Lunar Dust Filtration and Monitoring (Z13.04)
  - Lead Center: GRC
  - Participating Center(s): JSC, KSC
- 2. Components for Extreme Environments (Z13.05)
  - Lead Center: KSC
  - Participating Center(s): GRC, JSC, LaRC
- https://sbir.nasa.gov/solicit-detail/79614

NASA LuSTR Solicitation 2023

- NASA's Space Technology Mission Directorate (STMD) has released "Lunar Surface Technology Research (LuSTR) Opportunities" as an appendix to the SpaceTech-REDDI-2023 solicitation.
- The LuSTR appendix is available at: https://tinyurl.com/2023LuSTR
- LuSTR solicits proposals in response to the following three topics:
  - **Active Dust Mitigation**
  - Lunar Extreme Access and Exploration via Cooperative Multi-Robot
  - Extraction of Metals from Lunar Regolith for Additive Manufacturing

- LuSTR23 NOIs Due March 22, 2023 @5:00 PM EDT
- LuSTR23 Proposals Due April 24, 2023 @5:00 PM EDT

LSIC Activities

Recent and Upcoming LSIC Meetings and Workshops (https://lsic.jhuapl.edu/Events/)

- LSIC Dust Mitigation Focus Group Meeting (03/16)
- LSIC Spring Meeting (04/24 – 04/25, 2023) – New Date!
  - Abstracts due Feb 15!
  - Johns Hopkins Applied Physics Laboratory (Hybrid)
- LSIC Dust Mitigation Workshop (05/24 – 05/25)
  - Follow-up to DM Workshop from 2021
  - Information to be sent later

Other Recent and Upcoming Dust Mitigation Related Workshop and Meetings

- Lunar and Planetary Science Conference - LPSC (03/13 – 03/17, 2023)
  - The Woodlands, TX
  - https://www.hou.usra.edu/meetings/lpsc2023/index.shtml
- Space Resources Week 2023 (04/19 – 04/21, 2023)
  - Luxembourg
  - https://www.spaceresourcesweek.lu/
- Dust, Atmosphere, and Plasma Environment of the Moon and Small Bodies Workshop (06/05 – 06/07, 2023)
  - Boulder, CO
  - http://impact.colorado.edu/dap/2023/index.html

LSIC Spring Meeting

****NOW**** April 24th – 25th at Johns Hopkins Applied Physics Lab

Abstracts are due Feb. 15th. Registration is now open!

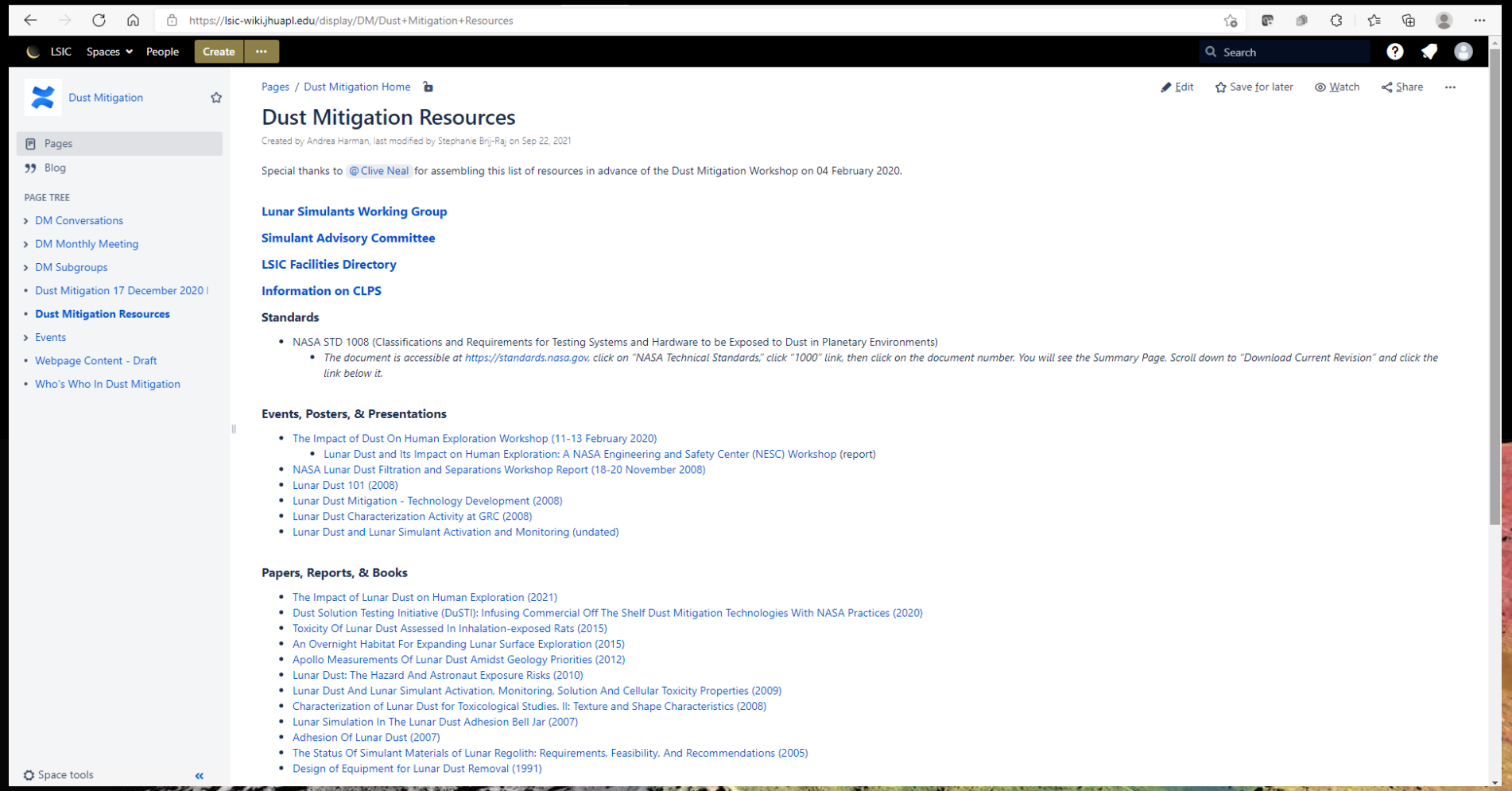
*Please remember to utilize the abstract template provided on webpage

LSII | Data Buys Survey

- NASA is interested to learn more about the interest in the LSIC community of NASA conducting data buys from commercial providers
- There are two types of data to consider
  - Data acquired as a by product of landing on the Moon
  - Dedicated data that require a specific instrument to be flown
- What kind of data access is required?
  - Does NASA buy an entire data set and put it in PDS?
  - Do users buy data directly from the providers?
- Survey Link: https://forms.gle/tuhzwAUaQLDivQ2D7

Dust Mitigation Resources

- Looking for info on lunar dust or dust mitigation resources? Checkout our resources page on the Dust Mitigation Wiki page on Confluence: https://lsic-wiki.jhuapl.edu/x/94Rf



Get Involved with Dust Mitigation

- Sign-up to Receive LSIC and Dust Mitigation FG Updates:
  - Fill out the LSIC Survey and indicate interest in Dust Mitigation to receive news and event invitations:
  - https://lsic.jhuapl.edu/News/Sign-Up.php
- Help us improve the Dust Mitigation Focus Group!
  - Feedback survey: https://docs.google.com/forms/d/e/1FAIpQLSdjuTIK_TLMnCM4_aSMLAzLS762qtzbgmcOd2fgizICsab6KQ/viewform
- Join one of the Dust Mitigation Subgroups!
  - Dust Mitigation Subgroup Membership/Leaders survey:
  - https://forms.gle/AGpyJcNZBd6ihdaq7
  - Still looking for subgroup leads!
- Interested in Teaming/Collaborating with Others?
  - Add yourself to our Who's Who page: https://lsic-wiki.jhuapl.edu/display/DM/Who%27s+Who+In+Dust+Mitigation
- Looking for info on lunar dust or dust mitigation resources?
  - Checkout our resources page on the Dust Mitigation Wiki page on Confluence: https://lsic-wiki.jhuapl.edu/x/94Rf

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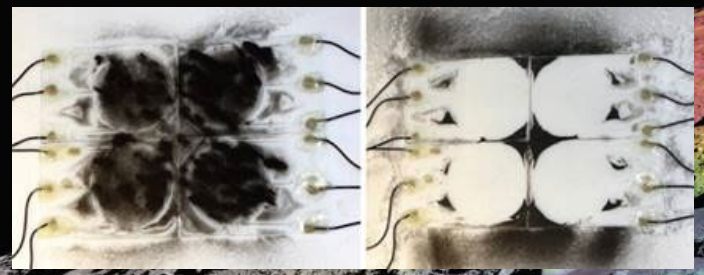
Dust Mitigation FG Subgroups

- Standards & Interoperability [Subgroup Lead: Dan Hawk]
  - Standards and interoperability across testing and operational use cases
- Isolation Technologies [Subgroup Lead: Ron Creel]
  - Technologies that keep dust out
- Materials & Coatings
  - Optical Systems – Viewports, camera lenses, solar panels, space suit visors, mass spectrometers, other sensitive optical instruments
  - Thermal Surfaces – Thermal radiators, thermal painted surfaces, thermal connections
  - Fabrics – Space suit fabrics, soft wall habitats, mechanism covers
  - Seals and Soft Goods – Space suit interfaces, hatches, connectors, hoses
- Mechanisms & Connectors
  - Mechanisms – Linear actuators, bearings, rotary joints, hinges, quick disconnects, valves, linkages
  - Dust-tolerant connectors
- Modeling & Monitoring
  - Gaseous Filtration – Atmosphere revitalization, ISRU processes
  - Dust monitoring – Cabin and external dust monitoring
  - Dust plume modeling

Interested in leading a Dust Mitigation Subgroup?

Fill out our survey!
https://forms.gle/AGpyJcNZBd6ihdaq7

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Today's Technology Presentation

"A Path to an Enduring Lunar Presence"

Sarah Hasnain

LSIC Excavation & Construction Co-Facilitator

+ Autonomy & Site Planning Subgroup

Sarah.Hasnain@jhuapl.edu

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