Mapping and Planetary Spatial Infrastructure Team (MAPSIT)

Findings for the Planetary Advisory Committee (PAC), June 21–23, 2023 Meeting

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David Williams (Arizona State Univ.)

MAPSIT Findings (1 of 4)

Finding: NASA should support efforts to produce analysis-ready data in a platform-agnostic format

- One example is USGS effort to process and upload Mars data into Amazon's Open Data Registry (a cloud-based service)
  - Includes >155,000 HiRISE images, ~5000 DTMs, up to 2 petabytes (2048 TB)
- Analysis-ready data can be directly accessed via an API (Application Programming Interface), maximizing the diversity of software platforms that one could use for data access
- One such platform or data interface is GeoStac: https://stac.astrogeology.usgs.gov/geostac/

MAPSIT Findings (2 of 4)

Finding: NASA should continue to fund and support production of lunar maps (with an emphasis on geologic maps but also tactical maps, resource maps, hazard maps, etc.) at multiple scales

- Follows the recommendations of the Lunar Critical Data Products LEAG/MAPSIT Special Action Team (Stickle et al., 2021; doi:10.5281/zenodo.7236426)
- Multiple *map scales* are necessary to bridge the gap between orbital resolution and the much higher spatial resolution of landed mission data. Global and regional scale products provide important context for high resolution mission maps
- MAPSIT is encouraged by the convening of a Lunar Surface Science Workshop, *"Geological Mapping to Support Artemis Strategic Decisions"* Aug 16–17, 2023 (Virtual). Organizers: J. Skinner (USGS), A. Huff (ASU), J. Luna (TNTech), R. Watkins (NASA HQ)
- Could lunar map production be a highlighted element of a future LDAP call? Or, is a Lunar Critical Data Product call necessary? (similar to prior Mars Critical Data Product calls)

MAPSIT Findings (3 of 4)

Finding: MAPSIT encourages continuing support for planetary SDIs (Spatial Data Infrastructure)

- The Lunar SDI has great traction in the community right now and it pushing ahead with engagement and standards definition. https://psdi.astrogeology.usgs.gov/moon/about/
- The Europa SDI is about to release a defined horizontal datum that will be of immense value to missions like Clipper and JUICE https://psdi.astrogeology.usgs.gov/europa/about/

MAPSIT Findings (4 of 4)

Finding: MAPSIT should be formally consulted as the US Government ponders aspects of implementing potential changes to the lunar reference system.

- There is currently a debate about whether and how to refine the current lunar reference system
- Within the MAPSIT Steering Committee (and community at large), there is a lack of consensus on the best way to resolve the issue
- Suggest establishing a SAT (Special Action Team) to develop a community consensus on this topic

Upcoming activities

- 6th Planetary Data Workshop (PDW): June 26–28, 2023, in Flagstaff, AZ, in hybrid format
  - Organizers: Trent Hare (USGS)
- Lunar Surface Science Workshop, *Geological Mapping to Support Artemis Strategic Decisions:* Aug 16–17, 2023 (Virtual)
  - Organizers: Jim Skinner (USGS), Alexandra Huff (ASU), Jeanette Luna (TNTech), and Ryan Watkins (NASA HQ)
- Planetary Geology Mappers' Meeting: Oct 15–18, 2023 as part of GSA Annual Meeting in Pittsburg, PA. Hybrid format.
  - Organizers: Jeanette Luna (TN Tech) and Jim Skinner (USGS)