

## **FINDINGS FROM SBAG 18, JANUARY 17-18, 2018**

### **Discovery Program:**

**SBAG is pleased to see that NASA is continuing to strive to meet the recommended launch cadence for Discovery-class missions laid out in the Decadal Study of one mission every 24 months or less, providing a healthy PI-led Discovery program.** Allowing Psyche to launch during an earlier launch window and announcing that the next draft Discovery AO is targeted for release in September 2018, with the final AO and proposals due in the first half of 2019, are all positive steps. If the budget allows, SBAG encourages selection of more than one mission to fly from the upcoming AO round, which would be beneficial to both mission proposal teams and review panelists, reducing the incredible amount of effort and considerable investment of time and resources necessary to reply to single opportunities and selections in rapid succession.

### **New Frontiers Call:**

**SBAG is pleased that the New Frontiers selection continues to be on schedule, and encourages NASA to try to adhere to the Decadal Survey recommendation of selections approximately 5 years apart.** SBAG believes that frequent competition for PI-led missions is essential for a healthy exploration program.

### **Moving-object Tracking for WFIRST:**

**SBAG encourages NASA to pursue means of preserving support for moving-object tracking on the Wide-Field Infrared Survey Telescope (WFIRST).** In the tradition of conducting cutting-edge solar system science with NASA astrophysics assets, moving-object tracking will enhance the overall scientific return of the WFIRST mission and enable potential groundbreaking investigations of the Inner Oort Cloud, (non-Jupiter) Trojan asteroids, and binary asteroids with highly disparate size ratios similar to Ida and Dactyl. Without support for moving-object tracking, investigations of binary asteroids, asteroid families, active asteroids, Trojan asteroids (including providing context for the NASA Discovery mission Lucy), Centaurs and Kuiper Belt objects, and comets, all of which were called out by the WFIRST Solar System Working Group as important potential science targets, would be difficult or impossible.

### **Transparency about Major Changes to ROSES and Announcements of Opportunity:**

**SBAG recommends that NASA clearly communicate the reasons behind changes to ROSES proposal calls and major changes between announcements of opportunity.** Recent changes to ROSES-17 such as amendment 44 (not calling Early Career Fellowships in ROSES-17) and the lack of a New Frontiers Data Analysis Program were met by confusion in the community. Additionally, the lack of radioisotope power systems (RPS) in the new Discovery announcement created many questions in the community. Abrupt changes without clear explanations in the call or announcement of opportunity can result in confusion and stress in the community. While clarification is often given in community town halls or during assessment group meetings, these only target a limited audience. SBAG recommends that, when

possible, clear explanations be given in the call or announcement of opportunity so the community as a whole can understand NASA's rationale behind the changes made.

#### **USGS Studies of Asteroid Resources:**

**SBAG encourages NASA to consider collaborating with the United States Geological Survey (USGS) on matters of shared interest regarding asteroid resources, and to explore the possibility of supporting small bodies experts as appropriate, perhaps via establishing new dedicated research and analysis programs, for collaborations with USGS on this topic.** USGS has taken increased interest in asteroids as part of their role in assessing resources, including those "beyond the borders of the United States". They have recently completed the "Feasibility Study for the Quantitative Assessment of Mineral Resources in Asteroids" (Open-File Report 2017-1041) with input from several planetary scientists. The SBAG community welcomes the USGS interest in small bodies, and has expertise that can be consulted for follow-up studies.

#### **Arecibo Observatory:**

**SBAG would like to express its appreciation to NSF and NASA for their continued support of the Arecibo Observatory in Puerto Rico, particularly in light of the damage incurred from Hurricane Maria.** Arecibo Observatory is one of only two planetary radar facilities regularly contributing to knowledge of physical characteristics and refined orbits for small bodies passing near Earth. In this capacity, Arecibo data are of critical importance to planetary science and planetary defense. Unfortunately, damage incurred from Hurricane Maria in September 2017 has reduced Arecibo's observing capabilities. Repair of the reflecting surface is in progress, but is not yet complete. SBAG is encouraged by the NSF Record of Decision for Arecibo Observatory that states, if feasible, NSF intends to repair the site to its pre-hurricane condition. SBAG also appreciates NASA's continued support of the planetary radar program through the upcoming management transition and support for procuring additional klystrons, that will, coupled with the reflector repair efforts, bring the observatory back to full strength.

#### **Radioisotope Power Systems:**

**SBAG is disappointed that radioisotope power systems (RPS) will not be available for the 2019 Discovery mission opportunity but applauds NASA's efforts to sponsor the production of plutonium-238 and RPS technologies.** SBAG encourages NASA to continue on that path as RPS can enable missions to targets of particular interest to the small bodies community, such as Kuiper Belt Objects and Centaurs. SBAG also encourages the Planetary Science Division to include updates on the status of RPS technology developments and availability in future status reports.

#### **Mission Studies for Ceres and KBOs:**

**SBAG enthusiastically supports the ongoing and upcoming pre-decadal studies about the exploration of Ceres and of Kuiper Belt objects (KBOs).** These studies build on the recent results of the Dawn and

New Horizons missions that revealed the complexity of dwarf planets and their potential for past and possibly ongoing geological activity. Pre-decadal studies provide an avenue for following up on the results of recent missions and ensure the best science questions are identified and emphasized in the next decadal survey. These studies are also critical to ensure potential technology gaps are addressed in a relevant timeframe.

**NEOCam:**

**SBAG is enthusiastic that NASA is continuing to work with the NEOCam team and the Jet Propulsion Laboratory to streamline and make necessary changes to the proposed mission such that it can be fully funded and implemented, particularly if it retains multichannel imaging.** With its planned multichannel imaging capability, NEOCam will become a dedicated space asset to both detect and characterize near-Earth objects. The multichannel capability is critical to enable the timely determination of each object's size. SBAG therefore encourages NASA to find a NEOCam solution that retains multichannel imaging.

**SIMPLEx Call:**

**SBAG appreciates the release of the draft of the Small Innovative Missions for Planetary Exploration (SIMPLEx) solicitation.** The small bodies community is excited about opportunities to use small, low-cost platforms for a variety of applications. However, further delays to the release of the full SALMON-3 solicitation will result in missed mission opportunities. SBAG encourages NASA to release the full solicitation as soon as possible and make selections without delay.