AAS Statement on Transparency in Cislunar and Interplanetary Spaceflight Activities

Adopted 9 September 2024

The American Astronomical Society believes that spaceflight activities in cislunar and interplanetary space should be conducted in an open and transparent way. Such transparency is essential for promoting space situational awareness, reducing interference between missions, avoiding interference with observations of natural objects, including observations of potentially hazardous asteroids, and ensuring the peaceful exploration and use of outer space, including the Moon and other celestial bodies.

We note that:

(1) there is currently no requirement for space operators to publicly report trajectory details for objects placed on Earth escape, Lagrange, or cislunar trajectories (hereafter, 'deep space objects');

(2) there have been numerous examples of such objects being discovered serendipitously by astronomers and temporarily misclassified as near-earth asteroids, interfering with planetary defense efforts;

(3) UN Resolution 1721B and the 1974 Convention on Registration of Objects Launched into Outer Space require the provision of orbital parameters in UN filings, but this requirement has been largely ignored for deep space objects;

(4) the US Space Force, which provides publicly available orbital data for space objects, does not currently include deep space objects, with catalog information largely limited to objects within 100,000 km of Earth;

(5) current US rules allow for disposal of LEO upper stages to a heliocentric trajectory without reporting the trajectory used;

(6) the techniques for tracking distant objects are in general similar to those used by astronomers for asteroid studies, rather than the military radar-based techniques used for low Earth orbit satellites;

(7) the increasing level of activity in deep space includes missions from many different countries and operators, including commercial operators, which is in contrast to the situation in prior decades;

(8) ensuring the safety of trajectories and surface activities, as well as minimizing interference with both remote and in-situ scientific observations, requires a higher level of coordination than previously seen for deep space operations;

(8) some US government funded astronomical surveys have been restricted from publishing data that contain incidental observations of certain objects in Earth orbits, including deep space objects beyond 100,000 km;

(9) there is no available evidence that current activities of any nation in cislunar space or beyond are military in nature;

(10) foreign nations have retained open, non-exclusionary invitations to scientific collaboration on lunar facilities, consistent with the 1967 Outer Space Treaty and international law, and secrecy of trajectory information or activities could harm collaboration in deep space, on the Moon, and beyond;

(11) States Parties to the 1967 Outer Space Treaty, including the United States, recognize "the common interest of all [human]kind in the progress of the exploration and use of outer space for peaceful purposes", a position affirmed by the Artemis Accords, which also recognize the signatories' "mutual interest in the exploration and use of outer space for peaceful purposes" and note that there is "benefit for all humankind to be gained from cooperating in the peaceful use of outer space";

We therefore believe that:

(A) The US government should require US government agencies and non-governmental entities placing objects (including inert objects and upper stages) on cislunar, Lagrange or escape trajectories to publicly report, and continually update as practicable, the trajectory of those objects using a common, open standard. This trajectory information could, for example, be in the form of orbital elements (geocentric, heliocentric, selenocentric, etc.) or a state vector, in a specified coordinate system. Such reporting should include government activities. This is consistent the Artemis Accords, which affirms the "importance of compliance" with the Outer Space Treaty and the Registration Convention and further emphasizes the US commitment to transparency in its space exploration efforts (Section 4) and the need for the registration of space objects to foster cooperative activities (Section 7).

(B) Trajectory information for deep space objects should be collated, and in the case of actively maneuvering objects regularly updated, and placed in a public repository that is operated by an entity that can work effectively with the international space community. The existing JPL Horizons site is one example of a repository with suitable capabilities. We also note the increasing responsibility of the US Department of Commerce for space situational awareness.

(C) It is preferable that deep space situational awareness be performed on an international basis, maintaining transparency and publicly available information, and leveraging the relevant expertise of the astronomical community. The groundwork for such international coordination could begin at the agency level using existing technical forums such as the Inter-Agency Debris Committee (IADC), COSPAR, and the IAF.

(D) The practice of restricting publication of observations of artificial objects impedes the implementation of the above principles. This practice should be reviewed to determine if there are in fact any national security reasons for applying such restrictions to objects in deep space (beyond 100,000 km), given that open source research strongly suggests that no sensitive missions operate there. This process should be as transparent as practicable, and might also be extended to other regions of space, including to objects in low Earth orbit.

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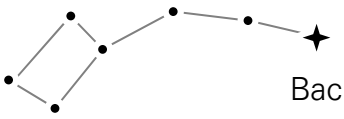

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