



THE 2021 MANFRED LACHS SPACE LAW MOOT COURT COMPETITION

INTERNATIONAL COURT OF JUSTICE

**Case Concerning Mega-Constellations,
Autonomous Space Operations and Freedom of Scientific Investigation**

PROCLIVIA

(APPLICANT)

vs.

ASTERIA

(RESPONDENT)

AGREED STATEMENT OF FACTS



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Autonomous Space Operations and Freedom of Scientific Investigation**

Agreed Statement of Facts:

1. In early 2025, inspired by the successes of the ‘NewSpace’ wave, the privately-owned CUSKO entity (Consortium Utilizing Satellites in Key Orbits), registered in PROCLIVIA, publicly announced its plan to deploy a 1500-satellite constellation in 25 orbital planes between 790 and 810 km altitude around Earth to provide affordable global broadband communications services: the *CUSKO-E-TM* constellation. The constellation featured two revolutionary technologies never previously used in spaceflight: its satellites were propelled by *monostazine*, a newly developed ‘green propellant’ replacing the toxic hydrazine; and it was the first constellation to use an autonomous attitude and orbit control system (AOCS) reminiscent of self-driving cars. On the basis of background surveillance data, whenever the system determined it to be necessary, orbital manoeuvres within the *CUSKO-E-TM* constellation would be automatically executed by a computer using the SARASTRO (Satellite Autonomy enabling Revolutionary ASTROnautics) software.
2. In April 2025, CUSKO filed for a license under the PROCLIVIAN Space Act, requesting authorisation to launch and operate the *CUSKO-E-TM* constellation. The PROCLIVIAN Space Act required the approval of a comprehensive operational risk assessment, a safety plan and an environmental impact assessment as preconditions for any non-governmental space activities. Despite CUSKO submitting detailed assessments, the PROCLIVIAN authorities declined to authorise CUSKO to launch and operate the *CUSKO-E-TM* constellation because of the novel automated operations concept, the novel propellant and the uncertainties associated with a self-operating fleet of satellites, notifying CUSKO that it was impossible to qualify and quantify the associated risks.
3. Disappointed by what it publicly criticised as “*opposition to innovation*”, CUSKO turned to the small neighbouring island State of ASTERIA, which at that time had not enacted a national space law. In fact, ASTERIAN authorities had to that point in time never had to deal with any space activities in their own country. As a young independent State adjacent



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to the much larger, highly industrialised PROCLIVIA, and geographically separated from the latter by the *Reefland*, the world's most famous coral reef, ASTERIA kept strong ties with its neighbour. Their close relations were *inter alia* solemnly underlined in the *Orokanga Accord*, a non-legally binding, political statement of good neighbourliness and scientific cooperation signed in 1998 at the occasion of ASTERIA's 20-year anniversary of independence.

4. Allured by the prospects of publicity and tourism interest in the wake of CUSKO's "green space technology revolution", the ASTERIAN authorities invited CUSKO to relocate to ASTERIA, in exchange for exempting CUSKO from taxes and offering land to build company premises. CUSKO followed the ASTERIAN government's invitation in December 2025, officially registering the company in ASTERIA and relocating its head office to its capital city *Hayden*. However, CUSKO maintained both its satellite manufacturing plant and its mission support centre in *Mittama*, the capital city of PROCLIVIA, since both had already been built and a physical transfer of those complex infrastructures would have been neither economically viable nor possible from a schedule point of view, considering its tight launch program. Following the relocation by CUSKO to ASTERIA, the ASTERIAN government followed the advice of its Attorney-General that it was not necessary for it to enact any specific national space law.
5. In June 2026, CUSKO launched and deployed the first *CUSKO-E-TM* satellites from its own ORAMI (Operational Rocket Ascent Management Infrastructure) platform, a former oil rig that had been built in PROCLIVIA, licensed as an oil rig by the PROCLIVIAN authorities, and subsequently converted by CUSKO into a floating launch pad towed to, and anchored in, the exclusive economic zone of ASTERIA in January 2026. By December 2026, a total of 150 satellites had successfully been deployed in their intended orbital planes, and the *CUSKO-E-TM* constellation was declared operational by CUSKO. At that time, ASTERIA issued a commemorative coin equivalent to one hundred *Kebcy* (the official currency of ASTERIA) to celebrate what it called "*a safe eco-logical spaceflight revolution*".
6. In February 2027, a well-informed investigative online platform, *The Discovery Journal*, reported that both the functioning of the monostazine-propelled engines and the SARASTRO system had raised concerns among the mission support experts of CUSKO. Allegedly, several satellites had been lost within weeks after their deployment and at least one unplanned close conjunction event occurred (which the journal called "*a near miss with the potential to turn the dream of eco-constellations into a space debris nightmare*").



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7. Making the news in both countries, the journal article prompted the CUSKO management to issue a press release in which it did not deny the allegations but stated that “*our constellation continues to operate in good health, providing first services to users and delivering on the promises of a sustainable future in space and on Earth*”. It also informed the public that it had, from the time it decided to relocate to ASTERIA, adapted the technical parameters of its constellation, including its emergency escape protocol, to comply with the 2023 “Protocol Against Misapplication and Interference of Automation” (PAMINA), the only international standard in existence for autonomous operation of transportation systems. PROCLIVIA had considered becoming PAMINA-compliant already in 2024 but had decided instead to develop and rely on its own technology, which it regarded as more compatible with the design of its future space program.
8. Concerned by the allegations, ASTERIA requested the CUSKO management to clarify any potential risks arising from the deployment and operation of the constellation. The reply received one week later asserted that the constellation did not pose any risk beyond those risks typically associated with any other space activities of that size and complexity but that, nevertheless, the SARASTRO software and the relative positioning of the satellites would be re-assessed and possibly reorganised to further improve safety. Upon receipt of this response, ASTERIA unilaterally publicly declared a “safety zone” at the orbital altitude of the *CUSKO-E-TM* constellation, requesting space actors intending to enter or cross that zone to submit advance information of their plans so as to avoid risk of collision.
9. Not satisfied by the depth of information supplied to it by the CUSKO management, ASTERIA then turned to the PROCLIVIAN authorities to request, via a diplomatic note at the margins of the June 2027 COPUOS session, a copy of all technical documentation that CUSKO had originally provided in April 2025 as part of the PROCLIVIAN licensing process, in order to better understand the possible risk of operating a large satellite constellation. This request remained unanswered. No further attempts to reach out to PROCLIVIA for information were made by ASTERIAN authorities, and no further technical problems were reported on the *CUSKO-E-TM* constellation. At the same COPUOS session, ASTERIA announced that it had become a State Party to the Liability Convention as from 1 June 2027, and repeated in its statement the information requirement it had specified for its declared safety zone.
10. In September 2028, PROCLIVIA launched and subsequently registered the newest generation of its governmental *Discovery of the Antarctic and Maritime Explorer*



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(*D.A.M.E.*) satellites into outer space: *D.A.M.E.-7T*, the world's most advanced, complex and expensive governmental Earth observation satellite ever built, destined to become a central part of PROCLIVIA's ambitious scientific programme that it had been carrying out ever since the International Geophysical Year (IGY) 1957-1958 in and around Antarctica. PROCLIVIA had advertised the mission several months ahead of its launch as opening “*a new era of discovery, seventy (7T) years after the IGY*”.

11. In order to reach its designated quasi-polar orbit at 900 km altitude, which it was meant to achieve by a series of orbit-raising manoeuvres, the *D.A.M.E.-7T* satellite had to cross the densely populated orbital zone utilized by the *CUSKO-E-TM* constellation. To reduce the risk of collision with other space objects, *D.A.M.E.-7T* was equipped with the *Waltzing Wizard*, a ground-breaking collision avoidance system that, on the basis of background surveillance data, would automatically calculate the best trajectory during the spiralling-out phase. Whenever the *Waltzing Wizard* system determined it to be necessary, the *D.A.M.E.-7T* satellite's on-board computer would execute positioning manoeuvres to avoid obstacles.
12. The novel anti-collision system had been developed by *Endeavour Enterprise*, a privately-owned start-up registered in January 2026 in PROCLIVIA, under a governmental contract from PROCLIVIA, which described the *Waltzing Wizard* both as a risk mitigation measure and an example of PROCLIVIAN expertise and innovation. To support the company achieving this task against a challenging schedule, and to maximise the probability of success of the system, PROCLIVIA provided *Endeavour Enterprise* with all information it had on the *CUSKO-E-TM* constellation from CUSKO's unsuccessful licensing attempt of 2025, including copies of the three original technical assessments.
13. PROCLIVIA did not inform ASTERIA of the exact satellite trajectory of *D.A.M.E.-7T* nor of its novel collision avoidance system, and ASTERIA did not provide any information to PROCLIVIA on the final configuration of the constellation and programming parameters of the SARASTRO software. After its successful deployment in a parking orbit by the PROCLIVIAN *Boomerang* reusable air-to-space launch system, *D.A.M.E.-7T* commenced its spiralling-out manoeuvre towards its final orbit. However, the attempt to cross the orbital shell at 790-810 km, which was populated by *CUSKO-E-TM* satellites, ultimately led to a cascade of catastrophic events.
14. As the newly launched *D.A.M.E.-7T* satellite gradually approached the *CUSKO-E-TM* constellation zone, the SARASTRO software interpreted it as an unknown massive space



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object. In the absence of any available pre-programmed or uploaded information regarding that object, the SARASTRO software executed an emergency escape manoeuvre, which consisted of an automatically sequenced repositioning of those *CUSKO-E-TM* satellites it determined would be at risk of collision. Immediately thereafter, the *Waltzing Wizard* system, having received ambiguous orbital positioning data regarding those *CUSKO-E-TM* satellites, executed its own emergency escape manoeuvre.

15. At 02h56 UTC on 15 September 2028, as a result of those two uncoordinated emergency manoeuvres, *D.A.M.E.-7T* collided with a *CUSKO-E-TM* satellite, causing the destruction of both spacecraft. While part of the resulting debris cloud remained at its orbital altitude, several large fragments of the *D.A.M.E.-7T* satellite – including its plutonium battery – were propelled by the collision to a perigee of approximately 400 km. Since the satellite had been placed in a quasi-polar orbit to overfly the Earth's poles, that debris, after having re-entered the atmosphere without entirely burning up, eventually crashed into the *Uvavian Ice Shelf* in Antarctica in October 2033, breaking up on impact and thus resulting in the spread of plutonium on the Antarctic surface close to where PROCLIVIA had been conducting its scientific studies.
16. The spectacular loss of *D.A.M.E.-7T* together with the radioactive pollution brought an abrupt end to the decades-long uninterrupted scientific investigations by PROCLIVIA in Antarctica, where it eventually had to close down its two research stations, *SEEKER-I* and *SABERT-V*. At the same time, CUSKO lost hundreds of customers after it and the Government of ASTERIA had been accused of irresponsible profit-making at the cost of hindering safe access to space for others.
17. Following the spacecraft collision in September 2028, PROCLIVIA and ASTERIA had initiated discussions through diplomatic channels and had agreed to undertake a joint technical investigation, which had been completed in early 2030. In the findings of the investigation, PROCLIVIAN and ASTERIAN experts: (a) agreed that all background surveillance data had been accurate and were thus not a factor in the collision; but (b) failed to agree on the exact circumstances leading to the collision, with each claiming that their respective on-board software systems had functioned strictly in accordance with their programming parameters. With the subsequent crash of the debris in Antarctica, and given that the diplomatic discussions had by that time stalled, PROCLIVIA decided to commence proceedings at the International Court of Justice. ASTERIA accepted the Court's jurisdiction and the parties submitted the foregoing Agreed Statement of Facts. There are no issues of jurisdiction before the Court.



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18. On the basis of the foregoing Agreed Statement of Facts, PROCLIVIA has requested the Court to declare and adjudge that:

- a. *ASTERIA violated international law by not authorising and continuously supervising the space activities of CUSKO.*
- b. *ASTERIA is liable under international law for the loss of the D.A.M.E.-7T satellite and PROCLIVIA is not liable under international law for the loss of the CUSKO satellite.*
- c. *ASTERIA is internationally responsible for impeding PROCLIVIA's exercise of the freedom of scientific investigation under both the Outer Space Treaty and the Antarctic Treaty.*

On the basis of the foregoing Agreed Statement of Facts, ASTERIA has requested the Court to declare and adjudge that:

- a. *PROCLIVIA violated international law by not cooperating and exchanging information that would have enabled ASTERIA to assess the risks posed by a mega-constellation.*
- b. *PROCLIVIA is liable under international law for the loss of the CUSKO satellite and ASTERIA is not liable under international law for the loss of the D.A.M.E.-7T satellite.*
- c. *ASTERIA is not responsible under international law for any alleged interruption of PROCLIVIA's scientific investigation of Antarctica conducted from outer space.*

19. ASTERIA and PROCLIVIA are both parties to the UN Charter and the Antarctic Treaty. PROCLIVIA is a party to all five UN space treaties, while ASTERIA has only signed (but not ratified), in the wake of its independence in 1978, the Outer Space Treaty. The *Orokanga Accord* is a non-legally binding “Declaration of Friendly Relations, Good Neighbourliness and Scientific Cooperation” between ASTERIA and PROCLIVIA, signed by former prime ministers *Francis Flinders* of PROCLIVIA and *Matthew Schubert* of ASTERIA in 1998. The *PAMINA Protocol* is an international technical standard based on UN-recommended block chain technology and issued in 2023 by the International Organisation for Standardisation (ISO), which contains recommendations of a general nature for the use of autonomous transportation systems, without making specific reference to any particular type of system. PROCLIVIA has been compliant in all relevant respects with applicable international nuclear safety frameworks.