



**INTERNATIONAL INSTITUTE OF SPACE LAW**

**THE 2011 MANFRED LACHS SPACE LAW MOOT COURT  
COMPETITION**

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INTERNATIONAL COURT OF JUSTICE

**SPECIAL AGREEMENT**

BETWEEN

**REPUBLIC OF ZURIS**  
(APPLICANT)

AND

**THE COMMONWEALTH OF NOVA FREEDONIA**  
(RESPONDENT)

JOINTLY NOTIFIED TO THE COURT

COUR INTERNATIONALE DE JUSTICE

**COMPROMIS**

ENTRE

**RÉPUBLIQUE DE ZURIS**  
(DEMANDEUR)

ET

**LE COMMONWEALTH NOVA FREEDONIA**  
(DÉFENDEUR)

NOTIFIÉ CONJOINTEMENT À LA COUR

# Case concerning Environmental Contamination and Harmful Interference in Space Activities

Zuris v. Nova Freedonia

## STATEMENT OF AGREED FACTS

1. Zuris is a technologically advanced, space faring coastal state. Nova Freedonia is a space faring land-locked state which shares a border with Zuris. The two nations enjoy friendly relations even though they are economic rivals on the global stage. Zuris sells launch services on the international market, which include providing both the launch vehicle as well as the services of an offshore launch platform in international waters. Nova Freedonia possesses its own launch capability, but does not compete with Zuris in the international launch services market. Private industry within Nova Freedonia also has a launch capability, which is marketed internationally.
2. Zuris has extensive but mixed experience in interplanetary spaceflight. For example, Zuris has flown several successful missions to orbit Venus, and two to land on the surface of the planet, and also has successfully soft-landed on an asteroid. Zuris' experience with Mars has not been as successful, as three of the five missions to Mars ended in failure, resulting in the crash of the spacecraft on the Red Planet and loss of the mission. Zuris has an inconsistent record of notifying the United Nations of objects it launched into outer space.
3. Nova Freedonia has extensive experience in conducting space missions. The Commonwealth maintains a national register of objects launched into outer space, but on occasion has taken several years to enter an object into the register and to notify the United Nations. The country has enacted statutes which provide a procedure for the licensing of "launch activities" by nationals of Nova Freedonia or from locations under the jurisdiction of Nova Freedonia. As part of its lunar program, Nova Freedonia conducted a sample return mission from the lunar poles, which returned both regolith materials as well as samples of lunar ice deposits. Since the composition of the ice deposits was unknown, Nova Freedonia constructed a special state of the art research facility in a remote area which was 150 km from the nearest town. This special research facility was 200 km from Resort City, a popular tourist destination in Zuris on the shores of Cape Holiday. Cape Holiday is world famous for its lobsters, and the lobster exports constitute a significant part of the Zuris fishing industry.
4. Shortly after the 60<sup>th</sup> anniversary of the International Geophysical Year in 2017, the United Nations General Assembly adopted a Resolution declaring the International Mars Exploration Initiative [hereinafter referred to as "IMEI"] to promote missions to the Red Planet. At the next meeting of COSPAR, Nova Freedonia declared that it was going to send a landing craft named Ares 1 to Mars to examine a previously confirmed subsurface ice deposit. The mission was to conduct experiments to search for evidence of past or present life. A further purpose of the mission was to determine the extent of the ice deposit, and, as a precursor to a manned mission, to investigate the possibility that the ice could be used in support of future missions as a source of water, hydrogen, and oxygen. Nova Freedonia stated that the budget for the mission was 500 million Euros.

5. During the following IAF Congress, Zuris unveiled plans for a sample return mission to Mars and its two moons. The plan announced by Zuris envisioned six sample return probes, four of which were intended to land on different areas of Mars, including one in a polar region, by means of an air-bag type system. The two additional probes were intended to soft land, one on Deimos and one on Phobos. These latter two probes would utilize a rocket/thruster landing system.
6. All of the probes were to obtain samples of the planetary/moon surface and subsurface to a depth of five meters, and place the samples in a containment canister. The canisters were located within a small detachable portion of the landing craft, and were to launch from the surface and rendezvous with an orbiting module. The canisters would then be inserted into an Earth return module, which would detach from the orbiting module and transport the canisters back to Earth for scientific study. The mission was not designed with any *in situ* life detection experiments.
7. The announcement of the mission drew an immediate response from the international scientific community. While Zuris was congratulated for embarking on such an ambitious, complicated and far-reaching mission, it also was criticized in the media and the blogosphere for its unsuccessful track record of missions to Mars, and its lack of experience and expertise with the return of extraterrestrial materials. Suggestions began to be made that Zuris consider conducting the mission as part of a bilateral or multilateral arrangement with countries such as Nova Freedonia.
8. International pressure from special interest groups and organizations mounted on Nova Freedonia to formally partner with Zuris in the mission. At a press conference, the director of the Nova Freedonia Space Agency, Dr. Ophelia St. Jacques, stated in response to a question that Nova Freedonia had looked at the possibility of joining with Zuris in the mission, but that it was committed to its own previously announced program. She further stated that her agency did not have the budget to join new missions, especially missions as complex and expensive as announced by Zuris. Dr. St. Jacques also was asked whether Nova Freedonia would be agreeable to other arrangements that did not include the financial investment of a partner, such as selling goods or services in support of the mission to Zuris, to which she responded that it would depend on the specifics, but she would not categorically exclude that as a possibility.
9. Following the press conference, representatives of the two countries entered into negotiations for the use of Nova Freedonia's lunar sample return facility to study the Mars return samples. Six months later, the director of the Nova Freedonia Space Agency and the Zuris Minister for Space Affairs signed a Memorandum of Understanding [hereinafter referred to as "MOU"] pursuant to which Zuris agreed to purchase services from Nova Freedonia for the use of the sample return facility on a cost only basis for the "retrieval of the sample return module and the canisters contained therein, the containment and storage thereof, and the use of the research facilities."
10. The MOU further provided that Zuris had the authority to determine the schedule for scientific access to the contents of the canisters, in consultation with Nova Freedonia, and that researchers from around the world would be permitted to conduct research at the facility "without discrimination." The MOU also provided that the parties were to perform the agreement in accordance with "international standards."
11. Two months after the signing of the MOU, Zuris held a series of press conferences to announce agreements with other states and research organizations for the inclusion of experiments, sensors, and other forms of participation in the mission by third parties and countries. One of the press conferences announced that the Mars Exploration Supporters International [hereinafter known as "MESI"] would be participating in the mission.

12. MESI is a non-profit corporation incorporated in Nova Freedonia several years ago for the purpose of public advocacy of missions to Mars. It has members who pay dues in more than fifty countries, and has its headquarters in the capital city of Zuris. The majority of members of MESI are from Nova Freedonia, and approximately twenty per cent of members are from Zuris. The participation of MESI in the mission would be to provide two small, self-contained canisters containing samples of the three domains of life on Earth (bacteria, archaea, and eukaryotea) to be transported on the mission and returned to Earth for study of what changes, if any, occurred to the life forms from exposure to the space environment during the lengthy trip to and from Mars. The MESI canisters would be incorporated into the probes for Deimos and Phobos.
13. MESI prepared the canisters for integration into the probes. The canisters held six sealed vials, each containing a small sample of a form of terran life, which represented the most simple to more advanced microscopic forms. One such sample was a form of blue halophilic bacteria, a relatively simple life form. The particular sample utilized was taken from a source which is believed to have been dormant for thousands of years.
14. The MESI canisters were prepared, sealed and tested by MESI at offices it maintains in Nova Freedonia, and sent to the Zuris Ministry of Space Affairs. MESI neither sought nor was granted any licence or other form of authorization for the canister experiment from Nova Freedonia, although MESI did apply for and received an export licence from the Nova Freedonia Foreign Office, which certified that the MESI payload did not constitute a “munition” prohibited from export. MESI neither sought nor obtained any insurance coverage for its participation in the mission.
15. The sample return spacecraft was much larger and heavier than Zuris’ earlier interplanetary spacecraft, and Zuris did not have a rocket capable of launching the craft to Mars. Zuris contracted with the Dor-Godol Rocket Company, a licensed private launch services company from Nova Freedonia, which launched the Mars sample return mission from the Zuris offshore launch platform. Six months later, Ares 1 was launched by Nova Freedonia from its own launch complex. Approximately nine months later, Nova Freedonia notified the United Nations of the launch of the Ares 1 spacecraft, and, as was its normal practice, also separately listed notification of the launch vehicle. Several months later Nova Freedonia also notified the United Nations of the launch of the Dor-Godol rocket. The specific information provided related solely to the launch vehicle, and the sample return spacecraft was listed only as the payload.
16. As the Zuris spacecraft approached Mars, the probes separated from the orbiter, and began their descent to their target locations. The probe to Phobos, and all four of the probes intended for Mars, achieved touchdown as planned. The probe to Deimos, however, developed electrical problems upon separation from the orbiter, and all communications with the probe were lost. Unbeknownst to mission controllers, the probe fired its thrusters erroneously, which sent the probe into a trajectory not to Deimos, but to Mars, and the probe crashed into the northern end of the ice deposit that Ares 1 was sent to explore. The Ares 1 craft arrived at Mars on schedule about seven months later, and successfully landed at the southern end of the confirmed ice deposit. At the time of Ares 1’s arrival and landing, the fate of the Deimos probe was unknown.
17. Ares 1 confirmed the presence of water ice, and also determined that the ice deposit was sufficiently large that it could support a future manned mission by providing water, hydrogen and oxygen. However, the Ares craft also discovered that the ice contained traces of a bacteria virtually identical to blue halophilic bacteria, except that it was a purple colour, which did not match any known strain

of halophilic bacteria. Ares 1 was unable to determine whether the bacteria was of terrestrial or Martian origin.

18. Ares 1 was able to determine that purple halophilic bacteria was in a very low concentration in the Martian ice, but was present in sufficient quantities that it would need to be removed in order for the ice to be usable for future manned missions. Unfortunately, there is no known process by which the bacteria could be removed from the ice, thereby rendering the entire ice deposit unusable as a resource for Nova Freedonia's planned manned mission. In addition, within four months of the landing, each of the several extremely small fans within the spacecraft systems failed as if, in the words of the ground controllers, they were "clogged up," and in a manner not possible by just Martian dust. As each fan failed, the system associated with that fan also failed, and Ares 1 eventually shut down. The ground controllers were not able to revive the spacecraft. Nova Freedonia announced that it was not able to afford funding to either continue to try to revive the lander, or to seek a substitute source of materials for the follow-on manned mission, and cancelled its program.
19. The five other Zuris probes performed as planned. Samples of the Martian and Phobos materials were collected and placed into their respective containers. The probes lifted off, rendezvoused with the orbiter, and deposited the sample containers in the return module, which left Martian orbit for the thirteen month return flight to Earth. Seven months into the return trip, images and scans taken by instruments onboard spacecraft from India and Brazil orbiting Mars revealed traces of metal debris in a small area north of the Ares I spacecraft landing site, which matched the composition of the metal used for the Zuris probe intended for Deimos.
20. Six months later, the Zuris return module arrived at Earth. Pursuant to the MOU between Zuris and Nova Freedonia, the return module was deorbited and brought down in the territory of Nova Freedonia, where it was retrieved by a team comprised of representatives of both countries, and taken to the sample return facility for study. When the MESI canister was opened, it was discovered that the seals in the vials had leaked, and that the blue halophilic bacteria had been exposed to the environment of Phobos, and the Martian return sample. It also was discovered that the blue halophilic bacteria had taken on a purple tint, apparently the same colour as the bacteria discovered in the Martian ice deposits by Ares 1. In addition, the now purple bacteria began to replicate at a very rapid rate within the facility. The purple bacteria did not appear to be toxic in and of itself. However, it was determined that the bacteria was attracted to chlorophyll, and had a tendency to completely cover the leaves of green plants, effectively depriving the plants of carbon dioxide, causing them to suffocate.
21. The rapid reproduction of the bacteria also threatened the security of the physical structure of the sample return facility. It was calculated that left unchecked, within three months the population of the bacteria would overwhelm the ability of the filters and scrubbers of the air conditioning system to remove the bacteria from the air within the facility, and that it was possible it might escape into the atmosphere. However, it was also discovered that the bacteria was neutralized by exposure to a low concentration of sodium chloride. Officials of the Nova Freedonia Space Agency review board concluded that the fans on the Ares 1 spacecraft failed when they became clogged with biofilm from the purple halophilic bacteria.
22. As a precaution, Nova Freedonia ordered the evacuation of the sample return facility, and announced that it was going to fumigate the facility with sodium chloride. As a further precaution, Nova Freedonia announced that it was going to use crop dusters to spray a low concentration of sodium chloride around the perimeter of the facility to a radius of 10 km. In response to the

announcements by Nova Freedonia, Zuris declared that the failure of Nova Freedonia to ensure that the bacteria was contained within the sample return facility posed a threat to public health and safety, and ordered the evacuation of Resort City. Zuris also demanded through diplomatic channels that Nova Freedonia return the MESI canister to Zuris for testing and inspection. Nova Freedonia responded by informing Zuris that the MESI canister had been destroyed as a precautionary measure.

23. Nova Freedonia conducted the fumigation of the facility, and also the spraying around the perimeter of the facility. Three weeks later Nova Freedonia declared that the bacteria had been contained and/or neutralized. As a result of the declaration, Zuris lifted the mandatory evacuation of Resort City. However, in the three weeks following the fumigation and spraying of the perimeter of the facility, the natural weather patterns (primarily rain, runoff and wind) carried some of the sodium chloride into Cape Holiday, substantially raising the level of salinity in the water to a level toxic to the lobsters. The lobster population of the Cape declined the following year to the lowest level on record. The population of lobsters increased the following year, and after three years approached pre-contamination levels.
24. Zuris and Nova Freedonia have agreed to submit their dispute to the International Court of Justice.
25. Nova Freedonia asks the Court to declare that:
  - (i) Zuris is responsible under international law for the MESI experiment and that Zuris contravened international law by contaminating the environment of Mars;
  - (ii) Zuris violated international law by failing to prevent the contamination of the environment of Earth;
  - (iii) Zuris interfered with the activities of other states in the exploration and use of Mars; and
  - (iv) Zuris is liable under international law for the cost of the cancelled Ares mission and the cost to contain and fumigate the purple halophilic bacteria.
26. Zuris asks the Court to declare that:
  - (i) Nova Freedonia is responsible under international law for the activities of MESI as the launching and registry state;
  - (ii) Nova Freedonia violated international law by failing to authorize and supervise the activities of MESI;
  - (iii) Nova Freedonia contravened international law by failing to return the MESI canister to Zuris; and
  - (iv) Nova Freedonia is liable for the economic damages to nationals of Zuris for the evacuation of Resort City and the diminution in the lobster harvest in Cape Holiday.
27. Nova Freedonia and Zuris are member states of the United Nations, and are parties to the Outer Space Treaty, the Return and Rescue Agreement, the Liability Convention, the Moon Agreement, and the ITU Convention. Nova Freedonia is a party to the Registration Convention. Both Nova Freedonia and Zuris have National Scientific Institutions as members of COSPAR.