

UNISPACE+100 (2068)



Dear Delegates,

I deeply welcome you all to MASUN XXVII, in this exciting and prominent special committee. My name is Shahrukh Nasim, and I will be your head chair. I am currently a junior, studying Information Systems and Operations Management. I have been a member of the Model United Nations club here for quite some time now. I have attended various international competitions, as well as college level competitions in the United States. I am a writer by passion, and have written for environmental NGO's such as World Wildlife Fund and Pakistan Sustainability Network. I am also the secretary of the Theta Chi Fraternity on campus.

I write poetry and have a deep interest towards the world of literature. Space itself is an extraordinary topic that creates an abundance of ideas in the world of technology and nature. Day by day, we are experiencing new innovations, ideas, and discoveries. I truly believe that growing up to scientists such as Carl Sagan, Neil Degrasse Tyson and Bill Nye really helped excel my interests. I aspire to be an environmentalist in the near future and would like to start my career with a company that can relate to my interests or passion. I hope that this committee will teach you more on sustainability and progress you to become leaders of the United Nations and this country. With that being said, I am so excited to be a part of this wonderful committee and I look forward to hearing solutions that will help make this committee a success. If you have any questions in regards to the topic or a general overview of anything else, please feel free to contact me. I look forward to meeting you all!

Sincerely,

Shahrukh Nasim

Head Chair, UNISPACE+100 (2068)

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Dear Delegates,

Welcome to MASUN XXVII, we here at George Mason MUN are very excited to have you join us for a weekend on this specialized committee! I am Andrew Naioti, your Vice Chair. At Mason, I am a Sophomore this year studying History and International Politics. I have been a member of Mason MUN since Freshman year and I worked MASUN XXVI last year, but have not yet had the chance to attend collegiate conferences outside of Mason yet. I have worked as interns for both my county government, my local historical society and am planning to stay in the D.C region this Summer. At GMU, beyond MUN, I am deeply involved with the Roosevelt Policy think tank, the GMU Democrats and Mason Ambassadors. In school, my sister was an engineer with an intense passion for space and that is where I believe she instilled a great deal of my interest in space. Along with Star Trek of course. In 1961 in the midst of an international arms race, President Kennedy announced we were to put a man on the moon by the end of the decade and America responded. I can only imagine where we can be by 2030 with the benefit of international cooperation as we move beyond the realm of Earth and into the greater vastness of space. I hope this committee will help further your knowledge of the complexities that exist when furthering space exploration and colonization, but also help to foster inspiration to bring your experience to this field or wherever you hope to go in your professional life. In the next months, we will be preparing for your arrival in March and should you have any questions, feel free to contact either Shahrukh or I about anything! Looking forward to meeting you all at MASUN XXVII and hearing how you plan to make this committee a success!

Sincerely,

Andrew Naioti

Vice Chair, UNISPACE+100 (2068)

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COMMITTEE SUMMARY

The United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE) is hosted irregularly by the Committee on the Peaceful Uses of Outer Space (COPUOS). First formed to facilitate diplomatic avenues of resolving conflicts involving cosmic and interplanetary matters, it evolved to become a vehicle for establishing international laws pertaining to space as well as ensure cooperation between nations for the benefit of all mankind. Four major prior conferences have been held: UNISPACE I in 1968, UNISPACE II in 1982, UNISPACE III in 1999, and UNISPACE+50 in 2018. A fifth conference was planned to take place in 2034 but it was cancelled by the political instability stemming from the tumultuous reunification of Korea. This conference was convened on the one hundredth anniversary of the first UN convention on space travel to settle the various disagreements that have arisen around the question of the future of space and the laws pertaining thereof, as detailed below.

UNISPACE I was hosted by COPUOS in response to the rapidly advancing space race between the United States (US) and Union of Soviet Socialist Republics (USSR). It called for focus to be placed on the vast potential space offered for the betterment of mankind and scientific discovery. It also called for international cooperation and unity, especially in partnership with less developed nations, for such advancements and discoveries. It also led to the establishment of the United Nations Office for Outer Space Affairs (UNOOSA) Programme on Space Applications in 1971, which “implemented trainings and workshops, using space technology in such diverse areas as telecommunications, environmental monitoring [...] agricultural and forestry development, cartography, geology and other resource development applications” (“UNISPACE Conferences”).

The rising threat of an arms race in space necessitated the formation of the UNISPACE II conference. The conference concluded that space should remain an area free from the military conflicts of terrestrial states, keeping space an area of peaceful exploration. This conference also established regional centers of space technological learning (“UNISPACE Conferences”). The UNOOSA Programme on Space Application was also strengthened and expanded to increase “opportunities for developing countries to participate in educational and training activities in space science and technology” (“UNISPACE Conferences”).

UNISPACE III laid out goals to protect the environment of space and laid out development goals for the new millennium. This conference reiterated the importance of cooperative development and inclusion of developing nations for the purpose of sharing the educational value of potential discoveries. Among other declarations, this conference also supported actions to guarantee that “all space activities, in particular those which may have harmful effects on the local and global environment, are carried out in a manner that limits such effects” (“The Space Millennium”).

UNISPACE+50 established programs to mitigate dangers from space weather, asteroids, and other meteoroid objects, as well maintain and improve cooperative networks while laying the groundwork for space governance. The first line of diplomacy concerning space remains the UN

and its relevant subsidiary organs. Additionally, UNOOSA expressed support for plans for the development of four pillars of future space exploration: economy of space, space society, accessibility to space for all, and space diplomacy (“UNISPACE+50”).

Delegates are reminded that resolutions and other actions should follow the laws of physics and environmental sustainability. Sound policy making and rational thought is what makes this committee extraordinary. Be sure to get creative and think of solutions that can help in terms of colonization, waste disposal, sustainability, and the modification of extraterrestrial objects for habitation. Also remember that we are heading towards a climax in the technological revolution, and technology plays a large role in this committee. An environmental approach is also necessary for topics pertaining to sustainability.

SOURCES

“UNISPACE Conferences.” *United Nations Office of Outer Space Affairs*. N.d. Web.

“The Space Millennium: Vienna Declaration on Space and Human Development.” *UNISPACE III*. 30 July 1999. PDF.

“UNISPACE+50.” *United Nations Office of Outer Space Affairs*. N.d. PDF.

INTRODUCTION OF PARTICIPANTS

1. Algeria - Algerian Space Agency
2. Argentina - National Space Activities Commission
3. Australia - Commonwealth Scientific and Industrial Research Organisation
4. Bangladesh - Space Research and Remote Sensing Organization
5. Brazil - Brazilian Space Agency
6. Canada - Canadian Space Agency
7. Egypt - National Authority for Remote Sensing and Space Sciences
8. France - National Center of Space Research
9. Germany - German Aerospace Center
10. India - Indian Space Research Organization
11. Iran - Iranian Space Agency
12. Israel - Israeli Space Agency
13. Italy - Italian Space Agency
14. Japan - Japan Aerospace Exploration Agency
15. Mexico - Mexican Space Agency
16. Morocco - Royal Centre for Remote Sensing
17. Nigeria - National Space Research and Development Agency
18. Pakistan - Space and Upper Atmosphere Research Commission
19. People's Republic of China - China National Space Administration
20. Peru - National Commission for Aerospace Research and Development
21. Poland - Polish Space Agency
22. Russia - Russian Federal Space Agency
23. South Africa - South African National Space Agency
24. Sweden - Swedish National Space Board
25. Turkey - TÜBİTAK Space Technologies Research Institute
26. Ukraine - National Space Agency of Ukraine
27. United Kingdom - UK Space Agency
28. United Republic of Korea - Korea Aerospace Research Institute
29. United States - National Aeronautics and Space Administration
30. Venezuela - Bolivarian Agency for Space Activities

Topic 1: Cosmic Colonization

HISTORY

Since the first Apollo mission, space laws have been brought up with upmost concern in regards to who can actually determine the issues brought up. It has come across as one of the most controversial issues as to who has the final legal say in the matter. Currently, many prominent members have begun a major appeal to head towards a check and balance system. The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space, written in 1962 as part of the greater Outer Space Treaty, adopted by the UN General Assembly, decrees among many points, that

- Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.
- States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration. (“Declaration”).

In recent years, however, there has been a push by more hawkish elements across the globe to disregard past agreements like the one above in favor of a more direct and colonial approach. In cooperation with international law and UN doctrine, an intergovernmental organization designed entirely for space colonization working in joint cooperation may create a functioning space society. While these three positions dictate policy on a macro scale, any craft or space ‘modules’ built have the inner workings operating under the laws of the nation that built it (“Patents”). NASA has outlined six major problems to overcome to attain successful orbital living: materials, energy, transportation, communication, life support, and radiation protection (“Space Settlement Basics”). Another concern is gravity, Mars and the Moon have $\frac{1}{3}$ and $\frac{1}{6}$ the gravity of Earth, respectively, and this could lead to developmental issues for beings raised on those extra terrestrial objects. Additionally, some also believe that permanent planetary or lunar colonization is not worth pursuing for the reason that it would be difficult to fulfil and safeguard against the concerns listed previously, and that instead the focus should be on orbital stations (“Space Settlement Basics”).

CURRENT EVENTS

SpaceX launched its first exploratory manned mission to Mars in 2041 to collect samples and measure and examine Martian weather and other environmental factors. This encourages various world governments to reinvigorate their space programs, particularly Russia and the US. More trips in 2048 and 2053 by SpaceX encourage the US, Russia, and China to send their own vessels in 2051, 2053, and 2054 respectively. In 2061, SpaceX, the US, and a team of European astronauts join for another trip to test viability of permanent settlement, determining the project to be technologically and relatively cost viable within a few years. Arguments soon arose from many corners of the globe over who, if anyone, would have hegemonic jurisdiction over settlements on

Mars. Some nationalist groups believe Mars should be conquered and carved up like the so much of Earth was, yet others believe Mars should remain *terra nullius* like Antarctica or the Moon. Either way, many smaller nations have begun partnering with themselves and with their traditional political and military allies in many cases to try to get in on the action.

NASA released a generalized plan for Martian colonization with three major components. The first and second phases of this program, “Earth Reliant”—the development and continued study of health, communications, and other scientific experimentation on the ISS while remaining reliant on a connection to Earth for resources—and “Proving Ground”—a series of human launch tests to deep space for the performant of experimentation and return them in just a number of days—have been successful (“Journey to Mars”). Many now believe it is time for phase three, “Earth Independent,” where the hope is that we will be able to send scientists and other researchers to distant locations with limited to no resource help from Earth beyond an initial batch (“Journey to Mars”). They hope to give Martian colonists the ability to function independently from Earth’s protection given the lessons and resources provided from phase one. This plan is only a rough outline of the kind of developments that need to be done before long lasting settlement is a real possibility for human civilization.

GUIDING QUESTIONS

1. If humanity is unable to unify itself and create world peace, or at the minimum, create a stale environment of coexistence, isn’t there a danger in expanding the human race into space and beyond?
2. What conflicts might arise in determining territorial sovereignty, especially in joint missions with astronauts from two or more independent nations?
3. What will the effects of select nations that house space programs colonizing other planets or moons be with those nations who feel left out due to their lack of orbital space technology at home on Earth?
- 4.

SOURCE

“Journey to Mars: Pioneering Next Steps in Space Exploration.” *National Aeronautics and Space Administration*. 8 Oct. 2015. PDF.

“Patents and Space-related Inventions.” *European Space Agency*. 22 Nov. 2012. Web.

“Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.” *United Nations General Assembly*. 13 Dec. 1963. Web.

“Space Settlement Basics.” *National Aeronautics and Space Administration*. N.d. Web.

Topic 2: Space Waste Disposal and Proactive Sustainability

HISTORY

One of the most prominent issues amongst the space race is the disposal and often environmental harms that come alongside space travel. Many national space agencies have worked continuously to create environmental standards and practices to help battle the pollution and debris that spacecraft tend to leave behind, as well as the disposal of various equipment along the mission route. Each variety of rocket propellant delivers its own blend of ozone-depleting substances such as solid propellants, which tend to be way harsher than the original liquid ones and affects both the stratosphere and ozone layer (Rastogi). Additionally, UNOOSA reported in 2007 that “as the population of debris continues to grow, the probability of collisions that could lead to potential damage will consequently increase” (“Report”). Debris even as small as a golf ball moving at upwards of 17,000 mph pose not only a threat to significantly damage satellites and space stations, but also create deadly environments for astronauts. The Inter-Agency Space Debris Coordination Committee was formed through the cooperation of several major national space agencies to confront this issue, and has released guidelines for mitigating the amount of debris that can endanger spacecraft, but there is criticism that they have not taken enough action. The issue of a sustainable form of space travel is becoming an increasingly popular concern as people not only seek to mitigate the environmental impact of space travel, but also reduce the economic cost through recycling and other measures, and so the issue requires additional attention.

CURRENT EVENTS

Questions have arisen, especially with regard to responsibility to protect the cosmic environment. Who is culpable for debris from individual missions? Are states responsible for individual corporations and other private groups that may be polluting beyond internationally accepted levels? Who has jurisdiction to punish groups and institutions that violate treaties and UN resolutions? It is a problem with no clear cut answer that must be addressed immediately, and various environmental organizations are starting to rise in terms of disposal and how it can be eradicated with alternatives. Another end of the spectrum amongst the topic is proactive sustainability while in the process of space travel.

In terms of sustainability, if planetary settlement is pursued by the delegates of this conference, it is important to consider the effects resources extraction and development might have on the planet and its environment. SpaceX has previously held that one of the most important mission points in their planned settlement of Mars consists of landing and utilizing the frozen water and other naturally abundant resources to help reduce the various costs and burdens that are involved in interplanetary travel (Woolf). That way instead of bringing material and dealing with weight issues, it can be extracted from the area itself that was brought up the idea to habitat in the first place. This also creates issues with sustainability on the planet’s surface, as rapid extraction of resources could cause significant environmental damage, as can be seen in some places on Earth.

GUIDING QUESTIONS

1. What are some ways to prevent depleting substances from affecting the ozone layer in course of space travel?
2. What are some creative methods to enhance the methods for sustainability, while at the same time taking the economic and political factors into consideration?
3. How might we apply terrestrial treaties to extraterrestrial situations? Is this even possible?
4. How would we measure the potential impact any action might have on an extraterrestrial surface with how little we know about their natural environments?
5. What are some ways we can mitigate pollution in space and clean up what is already there?

SOURCES

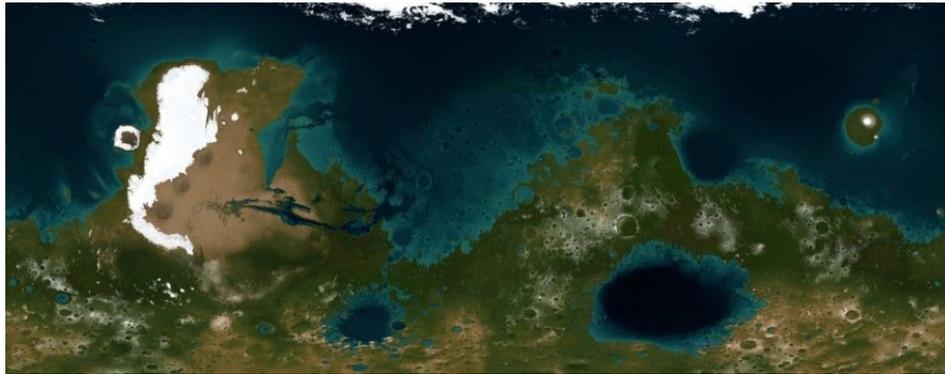
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Rastogi, Nina. "Dirty Rocks." *Slate*. Nov. 2009. Web. 15 Jan. 2017.

"Report of the Scientific and Technical Subcommittee on its forty-fourth session, held in Vienna from 12 to 23 February 2007." *COPOUS*. United Nation General Assembly. 6 March 2007. PDF.

Woolf, Nicky. "SpaceX founder Elon Musk plans to get humans to Mars in six years." *The Guardian*. 28 Sep. 2016. Web. 15 Jan. 2017.

Topic 3: Terraformation of extraterrestrial objects for habitation



Artist rendition of a terraformed Mars

HISTORY

Terraforming the surfaces of any extraterrestrial planets or moons was until very recently, the topic of science fiction. The billionaire inventor, engineer, and businessman Elon Musk has been attempting to reinvigorate a depressed interest in space and space exploration since the turn of the century (D'Estries). While a number of potential ideas or solutions to the inhospitable nature of space and Mars had been presented and are still presented, Musk's stands out as the most far reaching and controversial. Musk laid out his plan in 2015, detailing the use of thermonuclear detonations on the Martian poles to vaporize carbon dioxide trapped in the polar ice caps which in turn would lead to enhanced greenhouse effects to thicken the Martian atmosphere (Thomas). At present, the Martian atmosphere is 100x thinner than Earth's, atmospheric pressure is 1% of Earth's, and the average planetary surface temperature is -81.4° Celsius (Williams). When the atmosphere thickens, the planet begins to warm and starts deflecting solar winds that would prevent habitable conditions by stripping the surface of what little atmosphere it had (Thomas).

Less radical propositions for the terraforming of Mars do exist, and are more likely to gain traction due to NASA's (and others') uncooperative stance on the "nuclear option" out of fear of the possible negative side effects of such action, marked with a statement on the Musk plan: "We are also committed to promoting exploration of the solar system in a way that protects explored environments as they exist in their natural state" (Thomas). Many groups have long preferred orbital colonization with space stations instead of permanent planetary bases, partly because of gravitational concerns, but also out of a desire to preserve the natural state of other planets.

CURRENT EVENTS

Concerns regarding the possibility of destroying extraterrestrial life have made many scientists wary of many proposed programs to terraform Mars and other bodies, including even direct contact, stating that "initial human mission[s] to Mars should include isolation of humans from any direct contact with materials from Mars for planetary protection purposes" (Harrington). Over the years various different proposals have been made regarding the how of terraformation—directing mirrors at the surface, covering the planet in a dust to trap heat, nukes

releasing trapped carbon dioxide and creating a greenhouse effect—but now folks are beginning to ask why and if it is ethically justified. The nuclear option would require the vacation of the century old Outer Space Treaty signed in 1967 that among other things banned the positioning and use of nuclear weapons in outer space. More recent UN resolutions include a prohibition on any one nation taking unilateral action to alter the natural state of cosmic objects beyond sample collection and observation, passed in 2059, and a proposal passed to require all space agencies be monitored by UNOOSA, however many states—including Russia, China, and the US—have been slow or altogether opposed to adopting these measures and little has changed as a result. The UN has also issued several declarations condemning SpaceX’s colonial ambitions without international approval.

GUIDING QUESTIONS

1. Taking into account cost, logistics, morality, and time span, is the SpaceX “nuclear option” or any other alternative proposal an adequate solution or is there another undiscovered option with greater potential?
2. Is the terraforming of Mars or other extraterrestrial surface a morally questionable issue given the fact that humanity is not completely sure that life unbeknownst to us could be destroyed in the varied processes used to transform the Martian landscape?
3. Can humanity thrive by coexisting with extraterrestrial surfaces as they exist presently or is the manipulation of landscapes necessary to successfully colonize any planet in future generations?

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- D'Estries, Michael. "5 Ways to Terraform Mars without Nuclear Weapons." *MNN - Mother Nature Network*. Mother Nature Network, 14 Sept. 2015. Web. 11 Jan. 2017.
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- Thomas, Evan. "Why Musk's 'Nuking Mars' Idea Isn't All That Far-Fetched." *Newsy*. Newsy, 11 Sept. 2015. Web. 11 Jan. 2017.
- Williams, Matt. "How Do We Terraform Mars?" *Universe Today*. N.p., 03 Oct. 2016. Web. 11 Jan. 2017.

RESOURCES FOR FURTHER RESEARCH

- www.spacex.com
- www.nasa.gov
- www.energy.gov
- www.epa.gov
- https://www.nasa.gov/mission_pages/station/main/index.html
- <http://www.planetary.org/>
- <https://airandspace.si.edu>

- www.washingtonpost.com/news/energy-environment/
- http://www.unoosa.org/pdf/gadocs/A_7285E.pdf
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