

UNOOSA

*Novice
Specialized*



TOPIC: Ethics in Space Exploration

CHAIRS: Lauren Chao, Deacon Lesser

LAIMUN XXIX

December 2-3

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LAIMUN XXIX

December 2-3

Letter from the Secretaries-General

Dear Delegates,

On behalf of our entire staff, it is our pleasure to welcome you to Session XXIX of the Los Angeles Invitational Model United Nations (LAIMUN) conference. LAIMUN XXIX will take place on Saturday, December 2 and Sunday, December 3 of 2023 at the Mira Costa High School (MCHS) campus.

Our staff, composed of over 120 MCHS students, has been working tirelessly to make your debate experience the best it can be. You will find your dais members to be knowledgeable about the issues being debated and MUN procedure. We pride ourselves in hosting a conference that is educational and engaging, and we hope you take advantage of that as you prepare and debate.

At LAIMUN, we value thorough research and preparation. We ask that delegates write position papers following [these directions](#). The deadline to submit position papers to be considered for Committee and Research Awards is Friday, November 24 at 11:59 PM PT. The deadline to submit to be considered for Committee Awards is Thursday, November 30 at 11:59 PM PT.

We also encourage all delegates to read the [LAIMUN Rules of Procedure](#) for conference-specific information and as a reminder of points and motions that can be made during committee.

Feel free to reach out to our staff with any questions or concerns you may have. Delegates can find their chairs' contact information next to their committee profile and the Secretariat's email addresses on the staff page. Any member of the LAIMUN staff will be happy to assist you.

We look forward to seeing you in December!

Sincerely,

Akash Mishra and Lily Stern
Secretaries-General, LAIMUN XXIX
secretarygeneral@mchsmun.org



Introduction to the USG

Hi Delegates!

My name is Aidan Tacinelli and I am honored to welcome you to LAIMUN XXIX! In my fourth and final year of Model UN at Mira Costa, I am the Under Secretary-General of the Specialized Branch, and I cannot wait to see what everyone has prepared for debate.

In the Specialized Branch, we have selected extremely current and pressing topics that will require research and preparedness. Be sure to bring your creative solutions, accurate country policy, and active enthusiasm to each of your respective committees. All of our chairs are excited to see the level of debate brought about by delegates, and are ready to accommodate you in any way that they can.

With that being said, we want to create a safe space for everyone to share their ideas and form solutions as a community. Please do your part in being respectful to other delegates and your chairs. Every staff member is held to a high level of professionalism, which you can return by dressing appropriately and following LAIMUN's guidelines.

We do not tolerate plagiarism or pre-written resolutions in any aspect. If any delegate is found to have plagiarized on their position paper, resolutions, or even speeches, they will be disqualified from receiving committee awards.

Don't forget to submit your position papers, prepare your speaking, and print out any papers you may need.

I can't wait to see each committee's resolutions and the passion that comes along with them. If you have any questions, you can reach me at specialized@mchsmun.org! You can also look on the LAIMUN XXIX website to email any of your chairs or other members of our secretariat.

Best of luck,

Lily Stern and Akash Mishra
Secretaries-General

Aidan Tacinelli
Under-Secretary General

Introduction to the Dias

Hello delegates!

My name is Lauren Chao and I will be co-chairing with Deacon for UNOOSA Novice! I am a senior at Mira Costa and I have been involved in the MUN program since my freshman year. I've debated in numerous local conferences including SOCOMUN, CHSMUN, Edison MUN, Surf City, and SCMUN and participated in multiple travel conferences including BMUN and MUNUC, and I am looking forward to debating at BUSUN this fall. I've been a legal and a chair for Specialized committees before, such as World Bank Advanced and Arab League Advanced, and I hope you guys will enjoy participating in these committees as much as I do!

At Mira Costa, I am president of both the Asian American Club and the Living on One Microfinance Club, and I have been a part of the Girls' Soccer program for all four years of high school. Outside of school, I participate in National Charity League, write a blog about Asian culture, literature, media, and religion, and play club soccer for the FRAM GA 06 soccer team.

We will be looking for creative but feasible solutions, effective collaboration between delegations, and confident speaking. Novice debates can be daunting, but if you push yourself out of your comfort zone in debate and in pre-debate preparation, you will notice significant improvements and feel more comfortable in these new environments. That being said, don't be afraid to reach out to us to ask questions or to introduce yourself by emailing us at unoosa.nov.laimun.xxix@gmail.com. We are so excited to see you guys in debate!

Lauren Chao

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Hi Delegates!

My name is Deacon Lesser and I'm a junior at Mira Costa. I'm on the Varsity Water Polo Team and Swim Team and I love being active in other ways: I love skiing and scuba diving. I also love nature and being able to experience it through camping and sightseeing. I'm the president of the Ski and Snowboarding Club and I often ski at Mammoth mountain. I'm also part of the Wharton Investor's Club and the Creative Writing Club. I'm also part of the South Bay Food Initiative to feed the hungry across the South Bay. I'm a big reader and I love a lot of different novels, though I haven't been able to recently, and I also watch a lot of movies and shows.

I love MUN in the way delegates can develop their speaking abilities and give really powerful speeches about a topic to give solutions. I love this committee because it provides a unique opportunity outside the range of the normal topics where delegates can have the ability to create interesting solutions, so I can't wait to see what you all come up with. My favorite part about committee is when a delegate takes the room with a moving speech to drive home their solution and perspective, especially when they do so while actually understanding their country's viewpoint. I've been lucky enough to visit Berlin for MUN as well as colleges like UC Berkeley and UC Davis. MUN provides a unique opportunity to learn more about other people and understand new perspectives in order to come together and provide a solution for a problem. I'm looking forward to seeing you all come together and eloquently argue your way to great resolutions together.

Deacon Lesser

Committee Description

The United Nations Office for Outer Space Affairs regulates the common mission of space exploration. In this committee, you will explore topics like how to prevent space debris, space militarization, and international telecommunications regulation. Since space, commonly termed the “final frontier”, is agreed to be under shared ownership internationally, this committee serves to properly regulate its use and the exploitation of extraplanetary bodies. For example, they would take a particular interest in asteroid mining and how to prevent nations from creating an imbalance of resources because of it.

Rather than exploit resources, UNOOSA seeks to create a collaborative environment in space where nations can work together to perform scientific research and expand the frontier of mankind. The largest achievement of this mission, so far, has been the establishment of the International Space Station (ISS), where astronauts and scientists of different national backgrounds can collaborate on research to propel us forward.

Another large sector that the UNOOSA has begun to regulate is the privatization of space explorations. While nations like the United States initially just hired for-profit contractors to assist nationally-funded missions to space, private companies like SpaceX have begun to become competitors in this industry. Therefore, it is the UNOOSA’s job to see how the international community can best regulate these companies to ensure that they act properly in such a dangerous environment. The world of space is high-stakes, and the UNOOSA helps to prevent catastrophe for generations to come.

Topic: Ethics in Space Exploration

I. Background:

Humans first ventured into the deep abyss of space in April 1961, when the Soviet Union's Yuri Gagarin and his spacecraft Vostok 1 circled Earth.¹ The first steps taken on an extraplanetary object then occurred on July 20, 1969 when Neil Armstrong and Edwin "Buzz" Aldrin from the United States of America set foot on the moon.² Space has become limited here on earth, and outer space has therefore become the new frontier that humanity has chosen to explore and conquer— attracting scientists and governments from various member countries of the United Nations. The National Aeronautics and Space Administration (NASA) was allotted \$32.35 billion in budgetary resources for the 2023 fiscal year alone.³ The total amount of money the international community spends on space-related operations includes this enormous figure, as well as financial resources from other space agency powerhouses. These financial resources appear in public or private forms, coming from agencies such as Roscosmos from Russia, the European Space Agency (ESA) of the European Union, and SpaceX.⁴ With this many resources being dedicated to space, it is only right that legislation be enacted to legitimize this burgeoning

¹ Mai, Thuy. "April 1961 - First Human Entered Space." NASA, 7 May 2015, www.nasa.gov/directorates/heo/scan/images/history/April1961.html.

² Dunbar, Brian. "The First Person on the Moon." *NASA*, www.nasa.gov/audience/forstudents/k-4/stories/first-person-on-moon.html?sa=X&ved=0ahUKEwizmOn24-DNAhWqC8AKHbiQBWQQ9QEIGDAA. Accessed 15 June 2023.

³ *USAspending.Gov*, www.usaspending.gov/agency/national-aeronautics-and-space-administration?fy=2023. Accessed 15 June 2023.

⁴ "Top 3 Biggest Private Space Companies." *Earth.Com*, 29 Sept. 2020, www.earth.com/earthpedia-articles/top-3-biggest-private-space-companies/.

field. This exploration frenzy has brought positive outcomes— like the advancement of science and technology, an exciting future set in space, and improved knowledge in regards to weather and communication. However, it has also resulted in negative consequences— such as risks to astronauts’ health, space debris from spacecraft, and the destruction of our own environment, with added potential for extra-planetary environment damage.⁵ These reasons have therefore necessitated ethics in space, or the utilization of conduct and moral judgement to create codes for the exploration and development of space.

Some argue that the solution of most ethical sense would be allocating time and resources to address problems that plague Earth and its inhabitants, instead of enabling the world’s 1% to spend their money on sci-fi fantasies. Nearly 676 million people are living in poverty as of 2022 despite the UN’s Sustainable Development Goal 1, which is to end poverty globally. Thus, it is believed that money for space exploration could be redirected to provide better standards of living to those in need.⁶ Space could very likely become an exclusively first world endeavour, leaving the third world and the global South even further behind in our constantly progressing planet. .

Both backward and forward contamination occur when humans embark on or return from a space mission. Backward-contamination is defined as the harm or pollution of Earth while forward-contamination is defined as the harm or pollution of other planetary ecosystems by

⁵ Munro, Daniel. “If Humanity Is to Succeed in Space, Our Ethics Must Evolve.” *Centre for International Governance Innovation*, 4 Apr. 2022,

www.cigionline.org/articles/if-humanity-is-to-succeed-in-space-our-ethics-must-evolve/.

⁶ “Goal 1 | Department of Economic and Social Affairs.” *United Nations*, sdgs.un.org/goals/goal1. Accessed 15 June 2023.

objects and people from Earth.. Backward-contamination is rarely a problem due to the building process of spacecraft, which often includes measures to detach parts from the craft and often leave the craft in space forever. However, forward-contamination has proven itself to be more of an issue, as the impact of our actions on planetary bodies like the Moon and Mars– as well as space in general– is uncertain, but considering precedents of invasive species and diseases on Earth, forward- contamination could leave future settlements decimated. The question then becomes one of balance. It concerns whether we should explore the unknown—possibly harming organisms and possible extraterrestrial lives and lands—or whether we should choose to leave it be, away from Earth’s dangerous hands. In a new place, we do not know the extent to which our actions will impact places and things outside of our own.⁷

Technology is another facet of the ethics in space problem. Satellites are the main issue, due to their inconvenient locations in the sky as well as the often disputed motives for satellite surveillance. Low Earth orbit satellites (LEOs) are satellites at altitudes below 1000 km used for satellite imaging, communications, internet access, and data for weather and climate patterns. The number of LEOs has expanded in recent years,⁸ leading them to fill up Earth’s atmosphere and pose challenges to stargazers, both amateur and professional. LEOs also constitute safety threats to people on the ground with regards to space debris. Many countries and companies use satellites for surveillance purposes, but thought must be lent to ethics pertaining to the security of the territory with the data they choose to collect, and the security of those who are surveilled, and

⁷ Miller, Elizabeth. “The Ethics of Space Exploration.” Blue Marble Space Institute of Science, 12 Sept. 2017, bmsis.org/the-ethics-of-space-exploration/.

⁸ “Low Earth Orbit.” ESA, www.esa.int/ESA_Multimedia/Images/2020/03/Low_Earth_orbit. Accessed 15 June 2023.

the space that they occupy. Similar to the way exploration in space is limited to more affluent countries, so is the space that satellites take up, and the ethical implications of this are concerning. The abuse of this technology must also be taken into account as to not perpetuate hostility.⁹

The last major issue debated in space ethics is the harm to human life and health. The Apollo 1 command module fire was responsible for the deaths of three astronauts in 1967 and was the catalyst for more rigid safety measures in the exploration of space and the preceding tests. It took the deaths of seven more astronauts in the Challenger space shuttle to force NASA to finally prioritize human lives over schedules and requirements of missions. Now, where there are more resources and demands poured into space exploration programs, legislation and protections for astronauts in testing must be taken into consideration. The high counts of radiation and density from space currently affects astronauts, and in the future, it could severely harm space tourists. Radiation is caused mainly from galactic cosmic rays (GCRs) and solar particle events (SPEs), and scientists have not yet discovered how to protect astronauts from the harmful particles that GCRs and SPEs create. When one is subjected to these kinds of radiation, conditions such as leukaemia, cardiovascular diseases, cataracts, cerebral problems, hereditary consequences, and infertility are at risk of appearing.¹⁰ Astronauts also lose 10% of their proximal femoral bone mass within half a year in space, and need to later undergo a recovery

⁹Pompidou, Alain. "The Ethics of Space Policy." Unesdoc.Unesco.Org, unesdoc.unesco.org/ark:/48223/pf0000120681/PDF/120681eng.pdf.multi. Accessed 15 June 2023.

¹⁰Detsis, Emmanuel. "Ethics in Space: The Case for Future Space Exploration." *NCBI*, 2022 Nov 3. In: O'Mathúna D, Iphofen R, editors. *Ethics, Integrity and Policymaking: The Value of the Case Study* [Internet]. Cham (CH): Springer; 2022. Chapter 9. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK589344/>

process lasting three to four years.¹¹ Astronauts are still sent out on missions despite the potential adverse health effects and recovery complications, and solutions to protect astronauts are needed.

II. UN Involvement:

The United Nations Office for Outer Space Affairs (UNOOSA) was created in 1958 and based out of Vienna, Austria. It operates under the United Nations Committee on the Peaceful Uses of Outer Space, which also has two subsidiary bodies. The Scientific and Technical Subcommittee and the Legal Subcommittee both assist UNOOSA in its goal of peaceful interactions in space. It was established in reaction to the Cold War progression and the Space Race between the Soviet Union and the United States of America, which fueled further space exploration.¹² This space exploration clearly necessitated a body to regulate the safety of operations in space, as the two superpowers both vied for control over space and orbiting technology without the ideals of cooperation or safety—necessarily at the forefront in favor of extreme and rapid progression of technology. UNOOSA is the central point through which operations or conflicts in space are regulated and coordinated between countries. Its foundational goal is to promote international cooperation in space and space exploration, including its goal of access to space for all and outlining proper ethics in space.¹³

UNOOSA provides multiple different ways of fulfilling its goal of collaboration and partnership between nations in space. It provides a platform to discuss different countries’

¹¹ Dunbar, Brian. “Preventing Bone Loss in Space Flight with Prophylactic Use of Bisphosphonate: Health Promotion of the Elderly by Space Medicine Technologies.” *NASA*, 27 May 2015, www.nasa.gov/mission_pages/station/research/benefits/bone_loss.html.

¹² “Space Race.” *Homepage*, airandspace.si.edu/exhibitions/space-race. Accessed 15 June 2023.

¹³ Hazuki, Mori. “United Nations Office for Outer Space Affairs.” *Access to Space for All*, www.unoosa.org/oosa/en/ourwork/access2space4all/index.html. Accessed 15 June 2023.

policies on space exploration as well as possible solutions to problems within the issue.

UNOOSA has passed multiple resolutions to create multilateral compromise when it comes to space and equal exploration. For example, the Outer Space Treaty establishes basic principles regarding the exploration of outer space. One of these principles is the tenet that, “outer space shall be free for exploration and use by all States.”¹⁴ The enforcement of this principle is a topic that UNOOSA has devoted itself towards.

Another important principle underlined by the Outer Space Treaty is the idea that “outer space is not subject to national appropriation by claim of sovereignty”. This has been addressed by UNOOSA, which continues to protect the rights of countries. However, while access to space may be protected, countries' individual access to resources such as satellite information vary widely, and there is a clear difference of influence in space between developed and developing nations. UNOOSA has passed multiple treaties and guiding principles to help international cooperation and facilitate partnership across states in the interest of mankind, but lacks the ability to address important issues like the inequalities of a nation's actual ability to pursue interests and objectives in space.¹⁵ Research shows that the top three nations—the United States, Russia, and China—hold over 3 times the number of orbiting satellites than the rest of the world, exhibiting the need to address equity through UNOOSA.¹⁶

¹⁴ Robert, Wickramatunga. “United NationsOffice for Outer Space Affairs.” *The Outer Space Treaty*, www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html. Accessed 15 June 2023.

¹⁵ Msiget. “United NationsOffice for Outer Space Affairs.” *Space Law Treaties and Principles*, www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html. Accessed 15 June 2023.

¹⁶ Statista Research Department, and Apr 13. “Number of Satellites in Space in 2022.” *Statista*, 13 Apr. 2023, www.statista.com/statistics/264472/number-of-satellites-in-orbit-by-operating-country/.

III. Topics to Consider:

A. Health and Safety Concerns for Astronauts

The main dangers for astronauts in space are radiation exposure, isolation, confinement, distance from Earth, lack of gravity, and habitation conditions. While radiation is invisible to the eye, it is regarded as the most hazardous out of the main dangers. On the ground of Earth, humans are protected by the magnetosphere from the Sun's charged particles, particle radiation from solar plasma, and cosmic rays.¹⁷ In space, however, astronauts are subject to ten times the radiation exposure than that of Earth, and the effects of the exposure increase the risk of cancer and problems in the central nervous system, including motor function and behaviour. Solar particle events are unpredictable surges of particles from the Sun. Astronaut suits can block against low energy radiation and shielding using polyethylene or similar anti-radiation materials acts as protection for astronauts against radiation's high energy. However, galactic cosmic rays are very energetic and cannot be stopped by shielding because increased mass from shielding materials lessens the ability of the craft. Shielding is often discouraged because secondary particles can remain inside the shield and spacecraft, leading to an exponential increase in exposure. Mental health is also a factor that must be considered, given astronauts are isolated and confined for the duration of their journey. No matter how integrated a crew is, disruption is unavoidable. This often results in irregular sleep schedules and stress, impacting the astronauts' decision making skills and their overall health. The lack of gravity in space impacts the skeletal,

¹⁷ "Earth's Magnetosphere: Protecting Our Planet from Harmful Space Energy – Climate Change: Vital Signs of the Planet." *NASA*, 16 Nov. 2021, climate.nasa.gov/news/3105/earths-magnetosphere-protecting-our-planet-from-harmful-space-energy/#:~:text=Our%20magnetosphere%20plays%20the%20role,called%20the%20Van%20Allen%20Belts.

muscular, and cardiovascular systems of astronauts, as they spend up to two years surviving in three-eighths of Earth's gravity. Crew members exercise fifteen hours a week when in space, yet no amount of exercise can slow the deterioration of their bones, with the recovery process after returning to Earth asking for three or four more years from them. Space exploration demands a lot from astronauts and leaves them with health complications in return. A discussion about the effects of space on astronauts is necessary, and the popularization of space travel requires consideration for future travellers' health.¹⁸

B. Astroethics

Astroethics is defined as the study of ethics in regards to astrobiological investigations. It has been applied to recent events such as the prospect of settling Mars, planetary protection policies, and humanity's responsibility or lack thereof to society on other planets in order to determine their moral ramifications.

The website of NASA's Office of Planetary Protection mentions a policy of planetary protection in 1956, which set the precedent for the Committee on Space Research (COSPAR) that influenced future planetary protection treaties. The treaties outline humankind as a united force, one that rejects military establishments on celestial bodies and imperialism of any kind. However, it does not outline repercussions for the destruction of life or land outside of our own. Documents on the preservation of extraterrestrial life must be mandated and globalised to allow for a clear definition of ethics when it comes to non-Earth life forms. Additionally, existing

¹⁸ Mars, Kelli. "5 Hazards of Human Spaceflight." *NASA*, 27 Mar. 2018, www.nasa.gov/hrp/5-hazards-of-human-spaceflight.

treaties do not provide for private organisations, with there being little to no consequences for acting unethically in space.

Humans have put themselves in a position as preservers of life in our solar system, yet an idea to ponder is whether we truly are responsible for non-Earth beings and if we truly have the right to claim non-Earth land as our own. From this, issues of our involvement in spreading life throughout the universe and the subsequent danger we put on other life and land arise.¹⁹

C. Destruction of Other Planetary Environments

In recent years, the exploration of foreign planetary bodies has risen to the forefront of sensational media. Due to its increased popularity, it has opened the door to the major investment options of the world's wealthiest: Life on another planet. The National Space Society's 29th Milestone includes the idea of terraformation, or the physical transformation of other planets to have earth-like conditions.²⁰ Although a far off prospect, as entrepreneurs begin to form new missions to Mars and other planets, the idea of living on another planet becomes more and more possible.²¹ However the terraformation of a planet to suit the needs of the human also presents an ethical issue: Why should humans be allowed to destroy other planetary environments simply to

¹⁹ Chon-Torres, Octavio A. "Astrobioethics: International Journal of Astrobiology." *Cambridge Core*, 10 Apr. 2017, www.cambridge.org/core/journals/international-journal-of-astrobiology/article/astrobioethics/AB72BF5A327A011B9C4EA3E2C2475C87.

²⁰ "NSS Roadmap to Space Settlement Milestone 29: Terraforming and Para-Terraforming - National Space Society." *National Space Society - Working to Create a Spacefaring Civilization*, 19 May 2021, space.nss.org/space-settlement-roadmap-29-terraforming/#:~:text=DESCRIPTION,it%20habitable%20for%20Earth%20life.

²¹ "Mars & Beyond." *SpaceX*, www.spacex.com/human-spaceflight/mars/. Accessed 15 June 2023.

better suit our needs? This question must be explored before determining whether beginning life on a planet other than Earth is morally correct.

In the same way that mass media and standardization contributes to modernization and Americanization, where all places start to look more and more similar, losing their characteristics, some are worried about the standardization of planets.²² Terraforming, although a process that has not yet been developed, is bound to eventually become a topic just like journeying to Mars is currently as humans begin to overpopulate our homeworld. Therefore, brainstorming ways in which terraforming can be done while simultaneously preserving the overall environment of a planet is a topic to consider, as well as whether or not terraforming should be done at all— especially considering the position that individual countries have been put in with the effects of modernization.

D. Inequality for Developing Nations

Developing nations technically have equal access to space due to the laws outlined in the Outer Space Treaty. However, they often they do not possess the technology needed to be able to send the proportionate amount of satellites, research equipment, or other scientific devices as many developed countries do. In this way, despite efforts to begin space programs, developing countries have far less resources when it comes to space travel than already established and developed countries such as the United States, the United Kingdom, China, and Russia.²³ The world has followed a pattern where certain developed and privileged nations are able to attain a

²² Anderson, Darran. “Why Every City Feels the Same Now.” *The Atlantic*, 24 Aug. 2020, www.theatlantic.com/technology/archive/2020/08/why-every-city-feels-same-now/615556/.

²³ Chu, Jennifer. “Satellites in the Developing World.” *MIT News | Massachusetts Institute of Technology*, news.mit.edu/2011/developing-satellites-0804#:~:text=But%20now%2C%20a%20number%20of,driven%20disease%20such%20as%20malaria. Accessed 15 June 2023.

certain quality that allows for the exploitation of developing nations. The question to examine is whether space travel will follow the same trend.

One important ethical consideration that must be made is why developed nations and even individual entrepreneurs are allowed into space before developing nations, and whether or not those who are in space first will be able to control laws in space exploration and travel. Developed countries often set norms that developing countries then must follow, and the moral question is whether it is correct for space travel to follow the same age-old process that the world has continually followed— or whether equity rules will be set in place to raise developing nations to the capabilities of developed ones.

IV. Case Study: Apollo XIII

The Apollo XIII mission was the seventh manned mission in the Apollo program. Conducted in 1970, the mission's goal was to land on the Moon, and was the third mission to do so. After being launched from the Kennedy Space Center, two days into the mission, an oxygen tank in the service module failed and the mission to land on the moon was aborted.²⁴ This mission exemplifies the need for safety precautions before space exploration, as universal procedures are sometimes forgone in favor of the excitement of new space projects. However it is simply unethical for States to put citizens and astronauts in harm's way in the launching of missions such as the Apollo XIII mission. The routine stir of the oxygen tanks damaged wiring inside, causing an explosion that jettisoned the tanks' contents into space. The astronauts inside

²⁴ Dunbar, Brian. "Apollo 13." *NASA*, 29 Mar. 2017, www.nasa.gov/mission_pages/apollo/missions/apollo13.html.

experienced extreme hardship and horrible conditions despite the training they received from NASA.²⁵

Astronauts, while trained for malfunctions and possible resets, are not expendable resources. Over 30 astronauts and cosmonauts have perished while participating in activities to further mankind in the journey of space exploration. These casualties should not be taken lightly, as preventing human death is of the utmost importance of UNOOSA's goal of space travel. Peace in space exploration, after all, is the mantra of the Committee on the Peaceful Uses of Outer Space. Therefore, the Apollo mission represents an ethical conundrum. It highlighted a few key ethical issues that can be used to make a better environment for future space travel.

One important principle highlighted in the Apollo XIII mission was the value of human life above the objective of the mission. The mission was, of course, a lunar landing. However, when the oxygen malfunction occurred, the resources were bent to the needs of the crew in order to bring them back alive. Sacrificing the mission's original purpose in order to spare human lives should always be of the utmost importance. Safety precautions can be taken to ensure not only the lives of humans but also the mission objective. Thus, multiple intensely thorough safety checks must be conducted to predict safety hazards, and later prevent catastrophes. When this is not completed, missions can go even worse than the Apollo XIII mission. The infamous Challenger space shuttle broke apart 73 seconds after liftoff and caused the deaths of all seven crew members aboard.²⁶ The Challenger mission was delayed several days before launch, and

²⁵ Lewis, Robert. "We Are Human Health and Performance." *NASA*, 11 Feb. 2015, www.nasa.gov/hhp/mission-and-goals.

²⁶ "Challenger Disaster." *Encyclopædia Britannica*, www.britannica.com/event/Challenger-disaster. Accessed 16 June 2023.

was delayed until 11:38 on the day of the launch. At an altitude of 14,000 meters, the craft exploded and wreckage rained down on the Atlantic Ocean.

In order to avoid events like the Challenger explosion at all costs, human life must be prioritized through numerous safety checks and training. This training gives astronauts the knowledge to act correctly in such situations as the Apollo XIII mission, in which all three astronauts returned safely to Earth despite the scrapping of the mission. The Apollo mission was not released to the public immediately, but ethical considerations took place to determine how information was released. This is another issue raised by the mission. Over 10,000 people watched as the Apollo XIII lander fell to Earth as its astronauts were rescued. Yet if this mission had gone badly, public support would plummet. This is just another notion that must be considered when discussing ethics in space exploration.

V. Guiding Questions:

1. Is it truly necessary and ethical to keep exploring space?
2. What alternatives can the international community take advantage of instead of continuing to risk human lives in the pursuit of space?
3. How can humans settle new planetary territories without disrupting the environment and life of the planet itself?
4. How will you keep the gap between first and third world countries from growing if space exploration is mostly limited to the wealthiest, most advanced countries? How can third world countries be involved, whether that is contributions or their own space programs?

5. With regards to your country's policy, is it better to focus on problems on Earth like poverty and education instead of venturing out into space and allocating resources to do so?
6. How does your country view satellite surveillance and would they see it as a necessity for peace and defence or a threat to democracy?
7. What precautions does your country have in the event of an interstellar disturbance like a meteor or space debris?
8. Should restrictions and oversight be applied to private space agencies the same way they are applied to public space agencies? Should more resources and funding go to public or private space agencies?
9. How do countries avoid disputes of territory and sovereignty in space? How will territory be allocated and delineated?

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