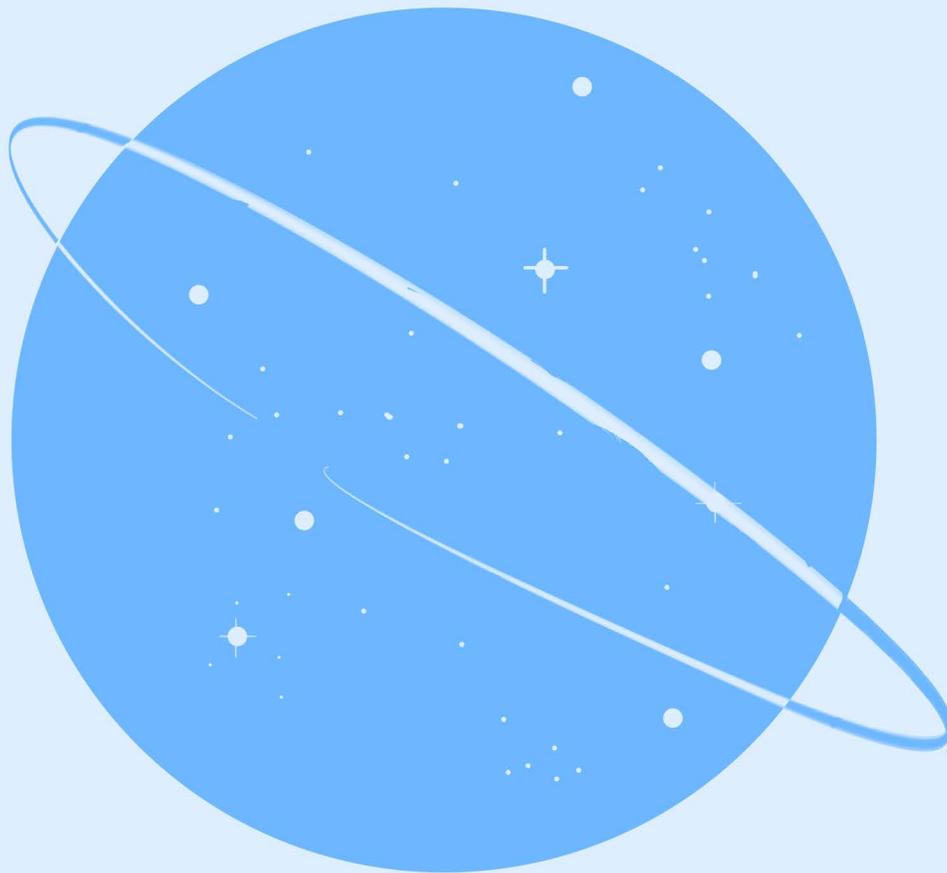




SSICsim Fall 2014

SECONDARY SCHOOL INTERACTIVE CRISIS SIMULATION



THE ODYSSEY PROGRAM

COMMITTEE BACKGROUND GUIDE

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**SSICsim 2014****SECONDARY SCHOOL INTERACTIVE CRISIS SIMULATION**

August 16th 2035
Geneva, Switzerland

Humans by nature are curious beings. Depending on who you ask, our history is either a testament to our genius or a constant reminder of our collective madness. I reject both of these views in favour of Aristotle's stance: genius and madness are two sides of the same coin.

The journey that we are about to embark on may seem like an insurmountable obstacle, but do we really face greater odds than our ancestors did when they set off across the Atlantic ocean in a vessel consisting of little more than wood, rope, and canvas? Today it is a journey easily made by hundreds on a daily basis, but in the early days of civilization, the ocean presented itself as an endless void. We are now presented with the same scenario.

As we are set to gather in Geneva in a few months, there are numerous items that we must consider in order for this program to succeed. First amongst these items is the fairly obvious question of how we are to reach the Red Planet, because while this question is obvious the answer is anything but. Should we accomplish this goal, we will immediately be presented with the task of establishing a foothold and safely returning the crew to Earth. Accomplishing any one of these tasks would be a monumental step forward for humanity and a giant leap for science. But this mission asks you to go much further.

Space is the final frontier. The voyage that we are about to set out upon is a part of our continuing legacy, to explore new worlds, to seek out new adventures and to boldly go where no one has gone before!

Regards,

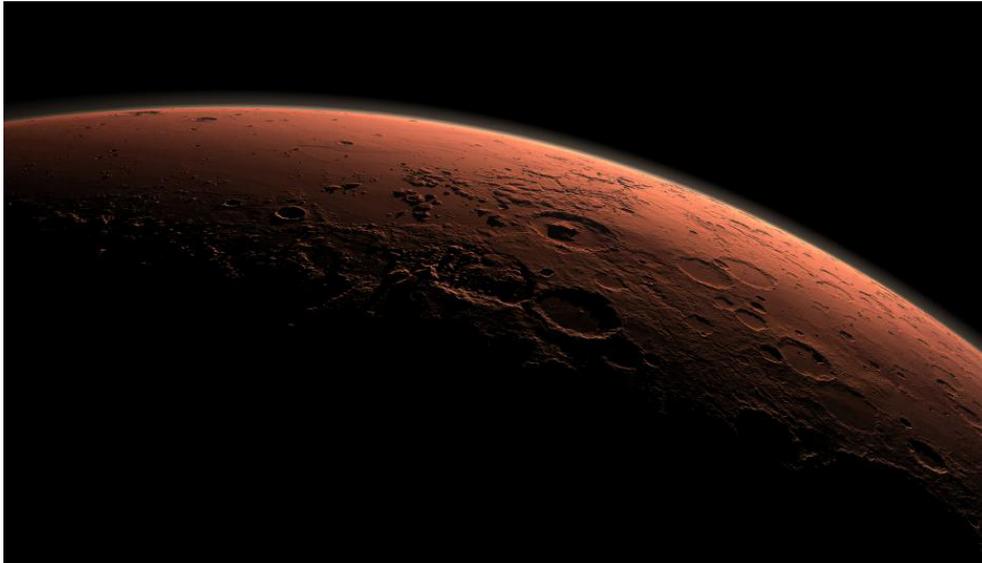
Gerrard Liam Malcolmson

Director of the United Nations Office of Outer Space Affairs
ODYSSEY Program Director



Secondary School Interactive Crisis Simulation – Fall 2014 Conference

History Of The Program



Introduction

The planet Mars, named after the Roman god of war, has long been a fascination of the human race due to its distinctive red glow in the night sky. Ancient civilizations associated this red hue with blood, death and destruction when in fact it was due to a high concentration of iron oxide. Mars was first recognized as a planet by Copernicus in the 16th century and its erratic orbit was essential in his development of the heliocentric model.

The early decades of the Cold War saw both the United States and the USSR launch multiple unmanned missions to Mars with varying degrees of success. In 1962 the Soviets launched the first probe to the Red Planet, aptly named 'Mars 1'. This probe was followed by Mars '2' and '3' in 1971 when they became the first probes to impact the surface and land on the planet, respectively. The United States, through the newly formed National Aeronautics and Space Administration (NASA), launched the Mariner program in 1962. In 1964, NASA made history when Mariner 4 performed the first successful flyby of Mars and provided close-up images of the Red Planet.

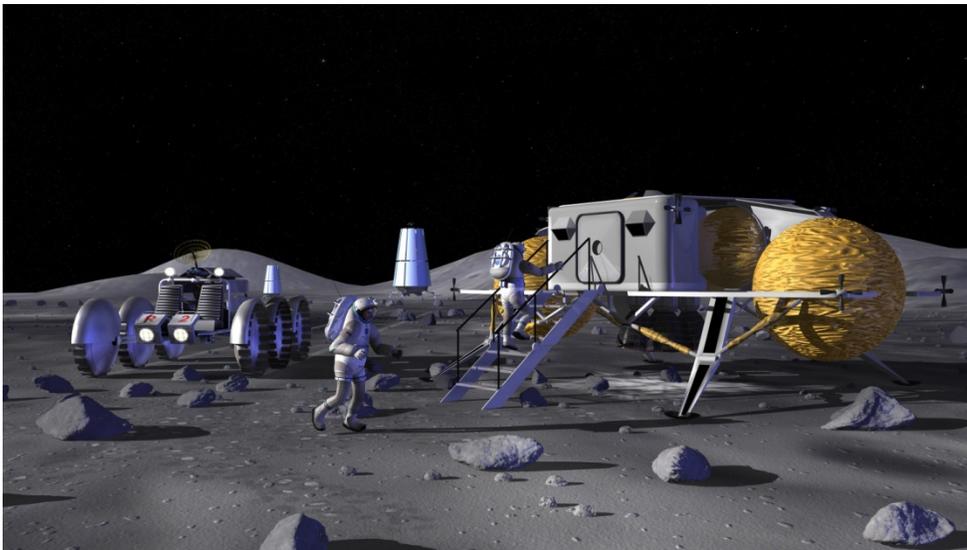
The Viking program was the first to send landers to the planet and provide humanity with data on the surface conditions. Vikings I and II launched in 1975 and landed on the planet the following year. The fact that both landers and their accompanying orbiters survived the journey to Mars and the landing itself was no small accomplishment. The Viking landers provided NASA with images and data on the Martian surface that would be vital for all subsequent missions.



Constellation Program

In 2005, NASA announced the Constellation Program which outlined the organizations goals for the next three decades. These included the completion of the International Space Station, a return mission to the Moon by 2020, and the end goal of a manned mission to Mars itself. Unfortunately, the program has not move past the planning stage because President Obama, upon taking office, ordered a review of the program. The review showed that the program is over budget by several billion dollars and would require significant funding increases to reach its goals. The Constellation program was cancelled in January of 2015, with no successor program planned. Budgetary concerns were cited as the driving force behind this cancellation, as the US government believed that it could not afford to fund such an endeavour on its own.

MINERVA Program



The death of the Constellation Program did not see the death of humanity's dream of reaching out to the Moon, Mars and beyond. In 2015 the European Space Agency (ESA), Canadian Space Agency (CSA), Chinese National Space Administration (CNSA) and NASA began a series of talks in an effort to keep the goals of the Constellation program alive. Even with the combined resources of the US, European Union and China, Mars was deemed unobtainable at the time. Instead they settled on a target that was relatively closer, the Moon.

In order to demonstrate to the world that humanity did indeed have the technology to reach out to other planets a simple visit to the moon would not suffice. A permanent human presence on the Lunar surface would serve to demonstrate this.



The MINERVA Program was officially announced on August 29th 2017, with the first mission to the moon launched in 2019. This first mission was simply to scout the chosen location for the base and to allow NASA to test its Z-2 suit off-world. In total 24 missions, each consisting of two stages, were needed to lift the necessary components to the International Space Station, and from there be transported to the Moon. The construction of MINERVA was completed in 2030. The MINERVA Program, over the course of its 11-year construction period, proved to be the catalyst for an unprecedented boom in technological research and development. No less than 9 Nobel Prizes in Medicine, Physics and Chemistry were awarded to scientists working with the program. The crowning achievement, however, was the Nobel Peace Prize that was jointly awarded to the heads of NASA, CNSA, ESA and the CSA in 2028 for the role the program played in reducing diplomatic tensions between the United States and the Peoples Republic of China, following the reunification of Korea the previous year.

The technology behind the MINERVA Program is truly impressive, and remains so to this day. NASA's Dream Chaser shuttle allowed easy access to Low-Earth Orbit (LEO) for manned spaceflights. As well, a number of launch vehicles from all member nations were used to transfer the necessary materials to LEO. The ISS played a crucial role in the construction of MINERVA, acting as a way-point for personnel and materials on their way to the Moon. A number of upgrades and renovations were necessary for the ISS to excel in this role, including special crew modules from SpaceWorks outfitted with primitive stasis units and fuel storage for outgoing craft.

The MINERVA base now consists of five habitable modules capable of supporting 7 personnel and hundreds of ongoing experiments. In order to power the base, a solar array field spanning one acre was constructed. This solar array is capable of powering the modules and the bases 3 Space Exploration Vehicles (SEV). The SEV's were developed by NASA to make exploration of remote sites more efficient by allowing rapid transport and egress from the vehicle.

Commercial Space Industry

Despite the success of the MINERVA project in developing the capabilities of the various space agencies, this growth has been overshadowed by the growth of the commercial space sector. The past decades have seen existing aeronautics titans Boeing and Lockheed Martin further develop their individual launch systems and crew vehicles (such as the CST-100 and Orion). The United Launch Alliance, which is responsible for the Delta and Atlas launch systems, was also heavily invested in as part of their joint venture.

In addition to the growth of existing multinationals, the MINERVA Program has allowed smaller companies to grow and give birth to completely new industries. Nowhere is this more



apparent than in the commercial spaceflight industry. At the present time, there are two companies offering sub-orbital spaceflights, these of course being Virgin Galactic and XCOR Aerospace. Both of these companies have a presence at Goshawk Spaceport in Scotland, Spaceport America in New Mexico and have planned expansions into Asia and South America.

Aside from commercial spaceflight, the private sector has given birth to the world's first asteroid mining companies. Planetary Resources, founded in 2010, has boasted several high-profile investors such as Erich Schmidt (Google), David Cameron (director of cultural classics such as *Terminator*, *Titanic* and *Avatar I, II, III, IV, V, VI, VII, VIII, IX, and X*). Planetary Resources business model approach to mining for minerals, such as rare earth metals, within asteroids allowed them to become the first to launch unmanned missions to seek out candidates for mining. These craft are still in the process of moving the selected asteroid into position around the moon. Notably, their PR is facing several national and international inquiries as to their safety protocols, as the asteroid they are attempting to mine is twice the estimated size of the asteroid believed to be responsible for the Tunguska Event in 1908. That particular asteroid impacted with the force 1000 x the force of *Little Boy*, the gun-type nuclear bomb dropped on Hiroshima, and equal to *Castle Bravo*, the first hydrogen bomb. Planetary Resources claims that it is taking all necessary precautions while they construct the facilities around the moon. The second asteroid mining company is Deep Space Industries. They have taken a similar approach to mining, as they intend to send drones to the candidate asteroids and tow them back to a distance where it becomes feasible to send a human crew to begin the operation.



Pre-Launch Planning

The ODYSSEY Program is a civilian endeavour. However, it must follow militaristic attention to detail if it is to be successful. Before the Apollo missions left Earth for the Moon, scientists had spent years pouring over every aspect of the mission, from the equipment that was being deployed to the contingency scenarios they would use during emergencies. There was no detail too small or insignificant to take into consideration. This will also be the case for the ODYSSEY Program. To this end, the project will be divided into three stages in order to ensure that no detail is overlooked in the mission execution.

Stage one will focus on the preparation for the mission to Mars with considerable focus on the following:

Selection Of Candidates

The human factor of this mission is undeniably the most important to consider, as human error is the most severe threat to the success of this mission. To mitigate this threat, the committee will have to carefully scrutinize the candidates for the position of mission commander that will come before the committee for panel interviews.

Following selection, candidates will also be required to undergo a rigorous training regime in order to prepare for the journey to Mars. During their training, candidates have to undergo a state of microgravity for up to 7 months and then engage in physical tasks on a replicate surface of Mars, which has only 50% of the gravity one would experience on Earth. The location that is selected for the training is also important as it must accurately simulate the cold, desert-like conditions of the Martian surface.

Equipment Selection

As a result of the MINERVA program, the committee will have a great deal of equipment and vehicles to choose from to meet their needs. NASA, the CNSA and the ESA all possess crewed vehicles capable of reaching the moon. However, they face a number of challenges in designing a vehicle capable of reaching Mars.

First and foremost amongst these challenges is the cost of the vehicle, which will likely push well past several billion dollars in addition to the overall cost of the program, which will be discussed further on. Needless to say, no single nation is capable of funding the research and development necessary for such a vehicle.



The technical challenges that such a vehicle will face include the exposure to radiation en-route, which may contaminate the vehicles crew, food and water supplies as well as interfere with vehicle systems. This also brings up the technical issues associated with the human crew. Previous unmanned missions did not have to be concerned about the psychological state of its crew after living in extremely close quarters for months at a time with limited to no access to proper medical facilities. Lastly, the final major technological barrier for a vehicle of this sort is finding a reliable fuel source. Previous suggestions range from solar sails to nuclear propulsion which would utilize a nuclear fission reaction to propel the vehicle forward and power systems.

The Method

The “who” and the “what” of the ODYSSEY Program matter little if there is no HOW. This committee is responsible first and foremost for hammering out the method through which humanity will reach the Red Planet. Travelling to Mars cannot be accomplished by simply launching a vehicle towards Mars and landing it a few months later, as unmanned missions do. The human crew presents a whole new dimension to planning this mission, as they have only limited supplies for the initial launch and cannot resupply along the way. This is why unconventional thinking may be the only way to circumvent this issue.

Questions to Consider:

1. What qualities/experience should the mission commander possess?
2. What are the technological capabilities of each agency?
3. How to deal with the human element of the mission?
4. How to travel to Mars and ensure the safe return of its crew?



Colonization

Step two highlights the ultimate goal of the ODYSSEY Program which is not to simply land on Mars, but also to establish a permanent footprint on its surface. This will likely come in the form of a small outpost. There are thousands of different concepts that have been proposed in literature, film and even video games. However, very few of these examples are realistic for the ODYSSEY Program to accomplish. Importantly, several proposals for the colonization of Mars have come forward in the past 30 years that were developed using the capabilities of national and private space agencies. One of the more prominent examples of these previous efforts include Mars One, which attempted to land ever increasing numbers of colonists on Mars starting in 2024. Despite their collapse in 2021 due to lack of funding, Mars One provided a glimpse as to what the ODYSSEY Program may attempt. However, the type of settlement will depend more on the chosen landing site than any other factor. Those sites located in the relatively colder or warmer regions of the planet may warrant additional protective measures that other locations will not. Reconnaissance will be key to ensuring all measures taken are appropriate for the selected colonization location.

In addition to the technological challenges of the colonization effort, there are a number of political challenges that come with establishing a permanent settlement on another planet. Governance of the colony may be simple in the beginning as there would be only a minuscule human presence, which would be made up entirely of scientists, comparable to the crew of the ISS. However, over time it is hoped that whatever is established on the Martian surface will be capable of expanding. While this is likely far into the future, it would be preferable for the various national agencies represented here to construct some kind of framework for the governance of such a colony. Would it be divided amongst all participating nations in a joint stewardship program, or would the colony be granted complete independence should it become self-sustaining?

Questions to Consider:

1. How will the colony be governed?
2. Design of the initial settlement.
3. Where will the settlement be located? What criteria are most important?



Mission Execution

Stage Three will begin with the launch of the mission itself. During this stage delegates will be forced to contend with any issues that may arise and threaten the success of the ODYSSEY Program. These issues may arise during any phase of the mission, from the first launch to the final landing delegates must be as prepared as they possibly can to provide decisive crisis management to those in space or on the ground.



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Appendix 1: Participating Organizations & Representative Profiles



Participating Organizations

1. National Aeronautics and Space Administration (NASA)
2. German Aerospace Centre (DLR)
3. National Centre for Space Studies (CNES)
4. United Kingdom Space Agency (UKSA)
5. Canadian Space Agency (CSA)
6. Chinese National Space Administration (CNSA)
7. Indian Space Research Organization (ISRO)
8. Japan Aerospace Exploration Agency (JAXA)
9. Russian Federal Space Agency (FKA)
10. United Korean Aerospace Research Agency (KARA)
11. Pan-Arab Space Agency (PASA)
12. African Space Agency (AfriSPACE)
13. European Space Agency (ESA)
14. Brazilian Space Agency (AEB)
15. Iranian Space Agency (ISA)
16. Italian Space Agency
17. SpaceX
18. Planetary Resources
19. Deep Space Industries
20. United Nations Office for Outer Space Affairs



Representative Profiles

Dr. Ronald Hartman – NASA

Founded by President Dwight D. Eisenhower in 1958, NASA acted as the successor to the National Advisory Council for Aeronautics. NASA was and remains the single largest national space agency in human history, with an operating budget that very few nations could afford to match. Over its history NASA, has many impressive accomplishments including the Mercury, Gemini and Apollo programs as well as its extremely successful Space Shuttle program and the leading role it played in the construction of the International Space Station. NASA's massive resources and experience in manned spaceflight should prove invaluable to the Odyssey Program

Dr. Johann Banner – German Aerospace Center – (DLR)

A member of the European Space Agency the German Aerospace Center (DLR) is the national research agency that specializes in aeronautics, space, energy, transport, disaster relief and security and has seen major success in all of these areas. The DLR has contributed to major international efforts including the ISS, the ESA's Galileo navigation satellite program as well as a number of rover and probe landings on celestial bodies within the solar system. These include the Mars Express Program which has provided the scientific community with high quality geographic imaging.

Dr. Erik Clouseau – National Centre for Space Studies (CNES)

France's national space agency was founded in 1961 and is one of the largest contributors to the European Space Agency's various initiatives. Its main focuses are: maintaining the ESA's launch capabilities at its launch facility in Guiana; researching satellite observation, telecommunications research and defense technology; and aiding in the exploration of our solar system and beyond.

Dr. Lionel Mandrake – United Kingdom Space Agency(UKSA)

The UKSA is tasked by the British government with the development of the UK's civil space policy and participating in the ESA. The United Kingdom Space Agency is quite small by international standards and has placed all of its efforts in unmanned initiatives. The UKSA does not maintain an astronaut corps. However, in 2014, it announced the construction of a commercial spaceport in Scotland. It was initially planned to be completed in 2018. However, due to the secession of Scotland from the UK, construction was delayed by two years. Goshawk Spaceport opened in 2020 and immediately became a hub for commercial spaceflight, with Virgin Galactic and Xcor Aerospace both operating hangers on site. The United Kingdom is now a global leader in commercial spaceflight; operating close to 1000 flights annually in 2032.

Dr. Donald Spinner – Canadian Space Agency (CSA)

The Canadian Space Agency's mandate is to “lead the development and application of space knowledge for the benefit of all Canadians and humanity” and to this end the CSA remains one of the most active space agencies in the world. Working closely with NASA the CSA has grown its astronaut corps from 12 in 2014 to 30 at present. The Canadian Space Agency does not operate on a very large budget in comparison to its southern neighbour. However, this has not stopped it from being instrumental in the construction of the ISS through the *Canadarms* and several crewed missions. In addition to this the CSA is also a regular partner in NASA's rover missions to Mars including *Curiosity* and the *Phoenix* lander.



Dr. Xiang Li – Chinese National Space Administration (CNSA)

In comparison to other highly industrialized nations, China's National Space Administration is relatively new. It was only founded in 1993, and it did not survive long in its original form, as in 1998 it was broken down into numerous state-owned companies tasked with meeting the administrations needs. The CNSA's operational budget has grown with the Chinese economy, standing second only to NASA at present. Notable past missions include the launch of Chang'e-1 lunar mission and Tiangong-1, China's first space station which served as a platform for the development of China's astronaut corps until it was decommissioned in 2029. Tiangong-2 is currently under construction with several modules already orbiting the Earth.

Dr. Amitabh Bachchan – Indian Space Research Organization (ISRO)

The ISRO began its space program in the late 1960's and has grown to be one of the largest and most prominent agencies in the world. The reason behind this success is the ISRO's early partnership with the Soviet Union, which allowed the ISRO access to its launch facilities. India's first satellite, Aryabhata, was launched from Volgograd Launch Station on April 19th 1975. Since then, ISRO has launched more than 70 satellites of various sizes and for various missions ranging from navigation to research. The ISRO also maintains the GSLV-III launch vehicle, which entered service in 2020 and has seen a successful launch rate of 90%. The GSLV-III's first launch was overshadowed by its first payload, as August 18th 2020 also marked India entering the history book as the fourth nation to launch its own manned mission into orbit. Indian astronauts first visited the International Space Station two years later and several more missions have been planned for the future, following an expansion of its training facilities in Bangalore.

Dr. Shigeru Miyamoto – Japan Aerospace Exploration Agency (JAXA)

JAXA was born from the merger of the three national agencies in 2003. These were previously responsible for developing Japan's space programme. This merger was meant to streamline the development of the technology to meet the needs of the programme. JAXA's first astronaut went into orbit in July of 2005 as part of STS-114. Since then, JAXA has been an active member nation of the ISS and has manned several missions. JAXA even commanded the station in March of 2014. JAXA remains launch capable for Low-Earth Orbit with its own series of launch vehicles, which are the Epsilon and H-IIA. In 2025, JAXA became a partner of the MINERVA Program and will soon begin sending crew members to the outpost. JAXA is a world leader in the development of space-age technology and will be invaluable to the program.

Dr. Dimitri Sadesky – Russian Federal Space Agency (FKA)

FKA is the successor to the Soviet space program, which held a number of historical achievements. These include launching the first satellite into orbit, developing the first intercontinental ballistic missile, launching the first animal in space and launching the first man into orbit. The FKA has continued this tradition with its key role on the construction of the International Space Station and its continued operation. Unfortunately, due to the political atmosphere in the Ukraine at the time, the FKA did not participate as a member of the MINERVA Program. The FKA remains one of the most launch capable space agencies on the planet behind NASA, operating a total of 8 Low-Earth Orbit capable facilities. In addition to these facilities the FKA maintains the largest cosmonaut corps with a total of 45 mission-ready cosmonauts at 4 separate training facilities.



Dr. Jin Hyeon – United Korean Aerospace Research Agency

The United Korean Aerospace Research Agency (a.k.a KARA) was born from the reunification of the Korean peninsula in 2027. The complete collapse of the DPRK government following the death of Kim Jong-un by an assassin left the country completely lawless. The South Korean government worked with the UN to begin the reunification process in 2027. As of today, the reunification process is still ongoing, with rioting becoming commonplace in the northern and southern regions of the new nation. The United Korean Aerospace Research Agency was announced as a means of uniting the two nations through scientific research, as well as countering several decades of technical stagnation in the north. KARA inherited the capabilities of the Korean Aerospace Research Institute and the Korean Committee of Space Technology, which has managed to launch a single satellite in 2012. The technological disparity between the two unified agencies remains a constant issue for KARA and will continue to be for the foreseeable future.

Dr. Nimat Mustafa – Pan Arab Space Agency (PASA)

First proposed in 2008 by the UAE, the Pan Arab Space Agency was meant to reduce the enormous costs of starting space program in each individual Arab nation. The proposal was officially adopted in 2017 by several Arab nations. Some of these nations include Egypt, Tunisia, and Algeria, all of which have established space programs. The Pan Arab Space Agency maintains one spaceport located in the UAE that will soon be capable of launching into LEO. PASA does not maintain an astronaut corps or its own launch vehicles. Instead, it contracts out these capabilities to private companies such as SpaceX in order to launch satellites through systems such as the Falcon 9. PASA will represent the combined capabilities of the Arab space programs in the ODYSSEY Program.

Dr. Kwasi Armand – African Space Agency (AfriSpace)

The AfriSpace is a tentative agreement between several African states and would function much like the PASA and the ESA. The African Union has agreed to send Dr. Kwasi Armand of Sierra Leone to the summit in Geneva to represent the interests of Africa in the colonization of Mars. The African Union has made no firm promises of its support for the mission. However, it hopes that its training arrangement with NASA to have two South African astronauts trained will be completed in time for them to play some role in the ODYSSEY Program.

Dr. Lucrezia Medici – European Space Agency (ESA)

The European Space Agency (ESA) was first founded in 1964 by the creation of two separate agencies: the European Launch Development Organization (ELDO) and the European Space Research Organization (ESRO). In 1975, these two organizations were combined into the European Space Agency. At this convention, 10 nation states signed on as founding members, which would eventually grow to 20 full members and a partnership with the Canadian Space Agency. In addition to these member states, the ESA maintains a strong partnership with the European Union due to their shared ideals for a unified Europe. The ESA maintains an astronaut corps comprising of citizens from its member nations. As well, it maintains its own launch facilities and a catalogue of launch vehicles. While several members of the ESA have elected to send their own representatives to the ODYSSEY Program, the ESA will be crucial in coordinating their activities as well as representing those agencies that will not be in attendance.



Dr. Sofia Velasquez – Brazilian Space Agency (AEB)

Prior to 1994, the development of Brazil's space program was directed by the Brazilian military to suit its operational needs. In 1994, however, the program was officially handed over to civilian control. The Brazilian Space Agency has accomplished a great deal since then, including the selection and training of its first astronaut. However, it has also suffered catastrophic setbacks in the process, including a very notable incident in 2003 where a launch vehicle exploded prior to takeoff, killing 21 personnel on the ground. Since this incident, the program has recovered and managed to increase the size of its astronaut corps to 5 mission-ready personnel. However, it does not have the ability to launch its own manned missions. The Brazilian Space Agency will be the sole representative to the ODYSSEY Program from South America. It will be able to, through a series of prior agreements, coordinate with other South American nations.

Dr. Amir Nazari – Iranian Space Agency (ISA)

Created in 2004 as an act by the Iranian Parliament, the ISA is responsible for developing Iran's space program and launch capabilities. This program has come under fire in the past, mainly from the United States and its NATO allies for acting as a front for the Iranian military and its alleged nuclear program. Despite these accusations, the ISA has managed to achieve launch capability and has become a partner of the CNSA in its development of LEO station and lunar program. Iran managed to send its first manned mission into orbit in 2018, two years later than originally planned. The ISA has managed to secure a seat in the ODYSSEY Program despite several western nations raising objections over its inclusion.

Dr. Giovanni Battista – Italian Space Agency (ASI)

The final member of the European Space Agency, the Italian Space Agency is another relative newcomer to the community of national space agencies, being founded in 1988. However, Italian efforts and advances in aerospace had been occurring for some time. One of these notable accomplishments include the San Marco program, which launched Italy's first five satellites beginning in the 1960's and which made Italy one of the first nations to accomplish this during the Cold War space race. In more modern times, the Italian Space Agency has played an active role in the construction and maintenance of the ISS with a number of its modules having their construction started in Italy. Italy also maintains a small corps of astronauts, a corps that never exceeds 5 active astronauts at any given time. The ASI is committed to working with the ODYSSEY Program as an individual member as well as a leading member of the ESA.

Elon Musk – Space Exploration Technologies Corporation (SpaceX)

Elon Musk has personally requested to represent the only private entity in the ODYSSEY Program as it has been his personal dream to help establish a large permanent colony on Mars. SpaceX is willing to use its considerable resources and portfolio of highly advanced launch vehicles and crewed vehicles to accomplish this mission. In addition Space X is willing to operate as a primary contractor to build and operate additional craft/technology as the program demands. However Space X is not the only company vying for this contract with Boeing and Lockheed Martin also willing to offer their own companies under the ULA.



Chris Lewicki – Planetary Resources (PR)

Planetary Resources is one of the first and most well-funded asteroid mining companies. With its high-profile donors and its successful crowdfunding campaign, it received funds for some of its earlier projects, such as the Arkyd-series of satellites. Planetary Resources is focusing its early mining efforts on asteroids that are rich with water, allowing for the sustenance of the crew and equipment of the mining operation. The first candidate asteroid 2008 UA202 was selected amongst a short list of Easily Retrievable Objects (ERO's) and is currently being brought closer to Earth to begin the first mining operation. The ODYSSEY Program is an opportunity for Planetary Resources to prove that both the company and the space mining industry are no longer elements of science fiction. Instead, it is an industry that could generate billions and provide the resources that an ever expanding human population demands. However, PR will not be the only one vying for the opportunities that the program could provide, as its one and only rival Deep Space Industries will also be bidding on the programs contracts.

Dr. John Lewis – Deep Space Industries (DSI)

While most people consider asteroid mining to be something of the future, Deep Space Industries is not one of them. Instead, this start-up company has been none too subtle about its goals within the private space industry, seeing asteroid mining as more of a first step than an ultimate end goal. In its founding announcement, Deep Space Industries made a pledge to be there when humanity first set foot on another world. Today, their presence at this conference is proof of them honouring that goal. DSI is committed to utilizing its already vast knowledge base, its slowly growing fleet of prospecting vessels, and its two yet-to-be-completed harvesting vessels, the *DSI Nostramo* and the *DSI Narcissus*, to aid the ODYSSEY Program in reaching Mars. DSI has much to gain from its participation in the program and could prove valuable to the long-term health of the colony, providing it with at least some economic draw.

Dr. Wellington Yueh - United Nations Office of Outer Space Affairs (UNOOSA)

The United Nations Office for Outer Space Affairs is the agency responsible for the peaceful promotion of space age technology and the peaceful development of outer space. For much of its history, the UNOOSA has been concerned with preventing the militarization of space. However, beginning with the ODYSSEY Program, the UNOOSA has taken on a new life. It has been forced to expand its responsibilities with the increased development of outer space and the success of the MINERVA Program. Even though the UNOOSA was not directly involved with that project, it became increasingly apparent that any future projects would require the oversight of the United Nations due to the complex political situation that would come with the settlement of a new world. As such, the UNOOSA is committed to providing the atmosphere necessary for this project to succeed and to aid the members in navigating the black hole that surrounds the political aspects of this undertaking.

