



ACADEMY MODEL UNITED NATIONS 2010
BERGEN COUNTY ACADEMIES

JOINT CRISIS COMMITTEE:
EUROPEAN SPACE AGENCY

ALEX PAE
HEEWOO KIM

Hello Delegates,

We would like to welcome you to the Academy Model United Nations 2010 Conference, and more specifically, to the European Space Agency of the Joint Crisis Committee.

Your President for this committee is **Alex Pae**, who is a senior in the Academy for Engineering Design Technology here at the Bergen County Academies. He has participated in AMUN freshman year in UNDP (United Nations Developmental Program), then in NATO (North Atlantic Treaty Organization) in his sophomore year, and was a staff member in JCC America last year. Throughout the school year, Alex is involved in many activities, including Battle Bots, Global Wildlife Fund, and BT Knights Lacrosse. He aims to continue his studies and become a successful engineer.

For Vice President, we have **Heewoo Kim**, who is a senior in the Academy for the Advancement of Science and Technology. She has participated in AMUN as a delegate in UNCTAD (United Nations Conference on Trade & Development) during her freshman year and as a staff member in NATO (North Atlantic Treaty Organization) during her junior year. Aside from Model UN, she is involved in the New Jersey Science League, the BCA Math Team, HOSA (Health Students Occupation of America), National Honor Society, and the Bergen Tech Golf Team. After high school, Heewoo hopes to major in Chemistry.

First, we would like to point out how committee will run – First of all, committee will spend most of its time in moderated and unmoderated caucus, as there is little to no use for the speakers' list for our format. The JCC itself will run on an altered time pattern: 10 minutes of committee will cover half a year of simulated time. At the end of each 10-minute interval, delegates will have come to a consensus on a course of action for the whole committee. (Note that we, your President and Vice President, will be the ones who have the final say on what the ESA will pursue and propose to crisis. Therefore, it is your responsibility as a delegate to persuade us to support any actions and policies that you propose or endorse.)

There are two main areas of interest: science and military/defense. We, the ESA, can apportion and budget money as a committee into these two categories. If we decide to put it into science, we will have to create a scientific project to pursue, and submit this to crisis. This could be anything from, say, advanced armor plating to even manned missions to a planet. The crisis staff will determine a cost and a timeframe, and the timeframe can be shortened with more funding.

Science projects will result in science points - an increase in science points will increase your country's income, and will provide it with an advantage in warfare as well. (Initial science points have been assigned in the Economic data found in our background guide – these points can increase, and they will affect your cash flow and military strength greatly.)

The other option is in the field of military spending. Here, we can choose to build armies, fleets, armored units, and space weapons as we see fit; however, there are surcharges to many actions. For example, any launch into space will require an extra \$200bn. Any movement of troops will require \$100bn. Finally, any declaration of war requires \$1.4tr. Also, it cannot immediately

follow a war - there will be a three-year moratorium following any war, to preserve debate in committees.

We can choose to spend money on either science or military, spend on both, or even spend on none and let the money appreciate. This appreciation will occur every 10 minutes in peacetime. In war, however, the timeframe shifts drastically. Each *5 minutes* will represent *2 hours* of time - this means, of course, that any war is global war, and crisis will see to it that this happens. In war, decisions can be made every 5 minutes, but there is negligible cash flow and projects are effectively put on hold. Decisions can be made to move units and attack, and the winner of battles will be determined by the types of units, numbers on each side, terrain, and country that battle is fought in.

We guarantee that although the Joint Crisis Committee may at times be challenging, your efforts will be rewarded as JCC will also be an exciting and enriching experience. In order to prepare for this experience, make sure to review this guide that we have prepared for you. This by all means is not a restriction, as you are free to use outside research as you see fit. Most importantly, always remember to have an open mind throughout the conference, as you may find it useful to be able to think, analyze, and express your opinions quickly during this short conference.

The JCC staff has worked hard in order to put together engaging challenges throughout the AMUN conference, and we hope that you will appreciate this experience. Work hard, press on; but most importantly, have fun!

Best of luck,

Alex Pae
alepae@bergen.org

Heewoo Kim
heekim@bergen.org

Background of the ESA

History to 2009

After the Second World War, many European scientists left Western Europe to work either in the US or the Soviet Union. Although Western European countries could still invest in research and space-related activities, European scientists realized that independent national projects would be unable to compete with the major superpowers. In 1958, Pierre Auger (F) and Edoardo Amaldi (I), two prominent members of the Western European scientific community, recommended that European governments set up a "purely scientific" joint organization for space research with CERN as a model. Furthermore, in 1960, scientists from ten European countries, the 'Groupe d'etudes europeen pour la Collaboration dans le domaine des recherches spatiales' (GEERS), with Harrie Massey (UK) as President and Auger as Secretary, set up a commission in which government representatives would decide on possibilities of European cooperation in space.

European nations decided to have two different agencies, one to develop a launch system, the European Launch Development Organisation (ELDO), and the other, the European Space Research Organisation (ESRO), to develop spacecraft. In 1967, European Space Operations Centre (ESOC) was set up in Darmstadt, Germany. By 2009, it had operated more than 50 satellites in 40 years of history. Disputes were common and in 1972, ESRO established itself as a leader in space exploration, as ELDO was dealing with technological problems, cost overruns, and political dispute. The idea of a new single European space organization began to be discussed. ELDO was eventually downsized and dismantled in 1974.

The European Space Agency (ESA), which was established in 1975, was made up of a

group of European nations with the goal of focusing on the advancement of knowledge. ESA was created by the merging of ELDO and ESRO. Although this agency had some involvement in the military when necessary, research has always been its top priority. Upon establishment, the ESA was comprised of 18 member states from Europe including: Sweden, Switzerland, Germany, Denmark, Italy, UK, Belgium, Netherlands, Spain, France, Ireland, Austria, Norway, Finland, Portugal, Greece, Luxemburg and the Czech Republic. Canada, which entered the European Space Agency later on, has been an associate member since the beginning of 1979. In addition to allowing the Canadians to bid for and receive contracts to work on programs, the associate membership allowed Canada to pass decisions in ESA's programs and activities. Future cooperation from nations such as Latvia and Lithuania were also signified. ESA launched its first major scientific mission in 1975: Cos-B, a satellite monitoring gamma-ray emissions in outer space. One of the most successful space missions ever, it operated for over six years, four years longer than planned.

In 1980, a French company, Arianespace, was formed to produce, operate, and market the Ariane 5 rocket as part of ESA's Ariane programme. As the successor of ELDO, ESA had begun to build rockets for unmanned scientific and commercial payloads. Ariane took mostly commercial payloads into orbit from 1984 onward. An advanced launch system, Ariane 4, operated between 1988 and 2003 and established ESA as the world leader in commercial space launches in the 1990s. During the 90's and the early new millennium, Ulf Merbold from Germany became the first ESA astronaut to fly on a US Space Shuttle during the STS-9 Spacelab mission. Also, projects such as SOHO, Ulysses, and the

Hubble Space Telescope were all jointly carried out by the ESA with NASA. Other scientific missions in cooperation with NASA included Cassini-Huygens, to which ESA contributed the successful Huygens probe along with the Mars Express orbiter and its lander, Beagle 2. Mars Express, the first fully European mission to any planet, played a key role in an international exploration program which spanned the next two decades.

The European Space Policy was signed on 22 May 2007, which unified the approach of the ESA with those of the individual European Union member states. Jointly drafted by the European Commission and ESA's Director General, Jean-Jacques Dordain, it created for the first time a common political framework for space activities in Europe. ESA's Columbus laboratory was launched on Space Shuttle Atlantis to the International Space Station (ISS). ESA then became a fully responsible partner in the operations and utilization of the ISS and was thus entitled to fly its own astronauts for long-duration missions as members of the resident ISS crew. ATV Jules Verne, ESA's first Automated Transfer Vehicle, also launched to take vital supplies to the ISS. The Czech Republic formally became the ESA's 18th Member State on November 12th, 2008.

Soon afterwards, Herschel and Planck launched. ESA astronaut Frank De Winne joined the first ISS crew of six, and in October became the first European commander of an ISS expedition. ESA selected new astronauts for the first time since 1992: two Italian, one French, one Dane, one German, and one British. The new recruits joined the European Astronaut Corps and started their training to prepare for future missions to the International Space Station and beyond.

The budget of 2005 was €2.977 billion which was a 10% increase in budget from 2004, and 2006 was estimated at €2.904 billion. Even through inflation and a receding economy, the budget leveled around the 2005 budget mark for the next 5 years until 2010. Around 22% of the budget went towards launch vehicles, which took up the majority of the funds, while human space flight came second in the budget spending. The three largest contributors to the ESA were France (29.3%), Germany (22.7%), and Italy (14.2%). The 2009 budget was €3.591 billion. The headquarters was located in Paris and the Administrator was Jean Dordain.

ESA's activities fell into two categories – "mandatory" and "optional." Programmes carried out under the General Budget and the Science Programme budget were 'mandatory'; they included the Agency's basic activities (studies on future projects, technology research, shared technical investments, information systems and training programmes). All member states contributed to these programmes in proportion to their Gross Domestic Product (GDP). The other programmes, known as 'optional', were only of interest to some Member States, who were free to decide on their level of involvement. Optional programmes included projects such as Earth observation, telecommunications, satellite navigation, and space transportation. Similarly, the International Space Station and microgravity research were financed by optional contributions.

ESA had three major rocket designs: Ariane 5, Soyuz, and Vega. The Ariane 5 was the primary launcher of the ESA. Although it failed its first trial run in 2002, it succeeded in the next 15 trials. Next was the Soyuz which was a Russian medium payload that was brought to the ESA in 2009. The

Russians were allowed to build Soyuz for the ESA (which proved to be successful for 40 years), and were allowed entry to the Kourou space site located in French Guiana that the French possessed. This allowed the Soyuz to possess twice its payload due to Kourou's proximity to the equator. This would be the first in many steps to obtain joint projects between the ESA and the Russian Space Agency. Finally, the Vega was ESA's small payload which was planned to be launched sometime in 2009. Italy promoted this the most, supplying 65% of the funds.

The purpose of the ESA was not for human exploration of space but for creating a research agency that pushed for unmanned exploration, unlike the Soviets and Americans during the Space Age in the 1960s-1970s. But as the ESA was able to associate and work with the Russians, this purpose changed to human space flights by the later half of the 1980s, and created a prospective astronaut training university in Germany. The ESA astronaut corps consisted of 12 members that came from the large Western European Countries. In the summer of 2008, many applied to the school and only 40 were left by early 2009. After more interviews, four more were picked by the end of 2009.

Cooperation was agreed upon from the ESA with countries such as Brazil, China, India, Argentina, and Russia. The ESA also had joint projects with NASA of the US and the International Space Agency along with Russia and Japan's JAXA. Although the ESA was not a body of the EU because it contained a couple of members not in the EU, the ESA and the EU held similar goals, and often collaborated in projects such as the Galileo satellite program.

Russia and Europe's proximity allowed deals to pass. One of these deals was a deal that was inked by Roscosmos head Anatoli Perminov and the ESA's Jean-Jacques Dordain at the Moks aviation and space show outside Moscow. Under the deal, the ESA used Russia's Proton rocket as part of its Exomars's project to send a robotic rover to the Mars surface, and buy Russian parts for the rover's power supply system.

Former Italian astronaut Umberto Guidoni stressed the importance of the European Union as a driving force for space exploration, as he stated that "since other players are coming up such as India and China it is becoming ever more important that Europeans can have an independent access to space. We have to invest more into space research and technology in order to have an industry capable of competing with other international players."

History to 2031

In 1975, the European Space Agency (ESA) formed with the mission to provide for, and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems. On a specific note, by elaborating and implementing a long-term European space policy, by recommending space objectives to the Member States, and by concerting the policies of the Member States with respect to other national and international organizations and institutions; by elaborating and implementing activities and programmes in the space field; by coordinating the European space programme and national programmes, and by integrating the latter progressively and as completely as possible into the European space programme, in particular as regards the

development of applications satellites; by elaborating and implementing the industrial policy appropriate to its programme and by recommending a coherent industrial policy to the Member States.

During the summer of 2009, Pakistan cleared the last remaining Taliban pockets from Swat Valley and turned attention to the militants along the Afghani border. On June 26, the Taliban admitted that they were the ones behind a suicide bombing in Pakistani-administered Kashmir, a bombing that had killed two soldiers and wounded three. As a result, tensions between the Taliban and Pakistan in Kashmir heated up throughout the summer. By the end of August, the two sides were stalemated. A couple months later, on September 29, 2009, India attacked "terrorist camps" in Pakistani-administered Kashmir with 3,000 infantry supported by Indian Air Force (IAF) strike planes. Pakistan counter-attacked with 4,000 infantry and struck the IAF bases. India committed more infantry. On October 12, 2009, while stalemated in Kashmir, India attacked Pakistan's southern plains with its three armor-heavy "Strike Corps." Only a few hours later, Pakistan announced that it had destroyed CARTOSAT 2A, an Indian reconnaissance satellite that was launched on April 28, 2008. Afterwards, Pakistan threatened to destroy even more satellites unless India retreated. As a result, "Will India nuke Pakistan?" became a press cliché. Six days later, at an emergency meeting of the United Nations Security Council, the United States harshly criticized India and Pakistan. Russia censured only Pakistan, while China remained silent on these issues. Nevertheless, the Security Council unanimously passed a resolution calling for an unconditional surrender from both parties. The following day, India and Pakistan declared a ceasefire, while Russia hosted negotiations. To Pakistan's chagrin,

India was not asked to withdraw from the newly occupied regions of Kashmir and during the last day of negotiations, the Pakistani delegate signed the agreement and stormed out.

After about two years, on December 23, 2011, *The New York Times* reported that India had destroyed INSAT-1B, which was a weather satellite launched in 1983, with a kinetic kill device. The Indian government quickly took responsibility for the test, while the United States and Russia issued critical statements stressing the importance of transparency in matters of space technology.

A little over a year later, on January 29, 2013, India sent its first manned mission into Low Earth Orbit (LEO), three years ahead of initial estimates by the Indian Space Research Organization (ISRO). The early mission was due in part to a series of increases in the ISRO budget, starting in 2010 and peaking in 2012. While initial estimates placed the cost of the mission at the equivalent of \$3 billion, the ISRO was, at this point, the most amply funded space agency on earth, boasting a budget of \$27.24 billion, compared to NASA's 2012 budget of \$20.69 billion.

A year and a half later, on August 12, 2015, an Islamic Fundamentalist terror movement destroyed the U.S. embassy in Riyadh, Saudi Arabia, using three long-range rockets that were stolen from a Russian installation. 217 people were killed, including diplomats, embassy workers, and civilians. A US spy satellite detected the launch 2 minutes and 30 seconds after its occurrence, but US fighters and missiles could not intercept the launch.

A few months later, on November 21, 2015, an August 12 incident report filed by the US

government revealed that the spy satellite's information could have been used along with the interceptor missiles based in space in order to successfully intercept the three terrorist-launched missiles before detonation in Riyadh.

On February 14, 2016, the United States formally withdrew from the Outer Space Treaty, explaining a need to defend against global and potentially space-based terrorist, which caused the global community to be suspicious. However, its efforts to prevent the US from developing a space-based weapons platform were futile.

Roughly less than three years later, on December 4, 2018, the Chinese military designed two types of ground-based lasers that had the capability of rapidly destroying space machinery. Missiles were perceived by global community as a strategic deterrent to orbiting weapons platforms.

Various countries had been banking on space war, terrorism, and destruction. However, the motives of the European Space Agency, the motives to advance research, had not changed even after three decades.

On January 15th, 2019, the ESA, thanks to proper funding and a stable economy, had explored various space programs in its departments to further improve its space exploration. Due to its funding on various non-militarized areas, the ESA had the most advanced non-weapon space technology, such as communications and intelligence. Europe had to continue to have a prominent role in space at a time when other world powers were rapidly developing their space capabilities. This implied that the ESA must consolidate its position as a global space agency. This was instrumental for serving its Member States and the European Union in

developing a competitive economy, and indispensable in contributing to global policies and increasing knowledge.

However, the ESA had received many offers to assist other countries due to the communications monopoly it had. The ESA launched many communication, weather, and global positioning satellites during 2005 and 2015 which proved to be successful in helping the citizens of Europe to become more modern and technologically advanced. The ESA had vowed to not utilize these satellites for the wrong reasons and assured that it was only for the well-being of its citizens, as its earlier motto stated.

Furthermore, the ESA had plans to explore Mercury or Mars with a human exploration team, possibly in 2020. This move should not have alarmed any of the other nations because the ESA was made strictly for research and exploration rather than for weaponization. There was a competitive space industry across Europe, with researchers leading the way in scientific discovery, high-quality satellite-based services for European citizens and governments, and a strong share in the global space market. The ESA in concert with the European Union, national bodies responsible for space and international partners, managed the research and development programs needed to maintain the position as second to none in space for the future. The results led to outstanding scientific discoveries and a stronger, richer European identity.

On October 2, 2019, the US finished its design and construction of the space weapons platform, which was scheduled to be operational as of July 2024. Scheduled to be sent up in parts and assembled in space, the platform required 16 separate shuttle missions before completion.

A year later, on September 29, 2020, the United Nations General Assembly (UNGA) met to discuss the military ambitions of the United States in space at the 75th session. Strong anti-weaponization positions were put forth by many non-space faring nations, but all the major space faring nations present, including all involved in this JCC, declined to comment extensively. Nonetheless, A/Res./75/34 was passed, recommending further review of this issue by the UN Security Council. Europe had supported the passing of this issue, since Europe knew that conflicts between countries could become dangerous and eventually become a threat to the missions that the ESA undertook.

A few months later, on December 19, 2020, the UNSC quickly tabled the topic after it became obvious that a majority of the P-5 (US/China/Russia) would not pass a resolution condemning the actions of the United States.

On May 22, 2022, Russian scientists announced a breakthrough in ion acceleration technology, which allowed for the propulsion of craft in outer space at an efficiency never seen before. American and Russian investors poured capital into start-up ventures.

The ESA had a neutral background on the ongoing feud in military and weaponization of outer space. Research was fundamental for the ESA and its motives did not change. However, if other nations threatened or put into danger ESA's research of outer space, then the ESA would most definitely step in and moderate such dangers to the general council of countries that were participating in the space arms race.

On December 2022, Russian physicist Igor

Galitskiy created a working plasma fusion reactor, one that delivered 20MW of sustained power. Further experiments showed that the toroid fusion reactor created by Galitskiy was more powerful, efficient, and safe than the nuclear fission reactors that were used widely at the time. Fusion looked to become the new alternative energy of choice. Europe wanted to buy this type of fusion reactor, which would be a great addition to supply the energy to their fleet. Russia and Europe had built stronger ties from the past with this transaction and the ESA hoped that it would not offend any nations with this deal.

Two months later, in February of 2023, the United States, weakened by welfare spending, entered a long, deep depression. As unemployment reached 24 percent, the country's space weapons plans were tabled. The following month, China demanded that the US renounce its plans for the completion of its space weapons platform. Two months later, the US announced that the completion of the space weapons platform would resume as soon as possible. Additionally, the US expressed worries about the ever expanding space arms of China and urged for its cessation.

During 2024, India declared its plans to build its own space station, where the ESA gave support with technology and supplies.

As more and more countries got involved in space arms, things in space went downhill. In 2025, the additional satellites launched into orbit by numerous nations, along with the space arms established by the US, China, and India, formed considerable debris in space.

In October 2025, Russia, a strong opponent of space weapons, got a hold of the global economy due to its massive fusion reactor

sales that made up 68 percent of the alternative energy market. Meanwhile, the US emerged from its depression as unemployment decreased to 11 percent.

On March 16th 2026, the debris, which wasn't yet seen as problematic, struck a Chinese satellite and destroyed it. China, thinking that the US had attacked, retaliated and quickly destroyed out 14 US satellites.

The following day, the US, still struggling from the depression and shocked by China's sever attack, was hesitant to declare war on China. Meanwhile, China realized its mistake and started negotiations.

During April of 2026, the global community, which realized a need for the restriction on China's powers, collectively censured China and called for cessation of all Chinese space weapons. The value of the Yuan was forcibly raised, which resulted in a decrease in Chinese profits in its exports and a weaker hold on the global market. With the prices of the Chinese goods raised, India took the opportunity to grab a bigger share of the market. However, India still remained inferior to Russia in terms of economic power. Europe, with its dominance in the market, remained out of these conflicts, hopefully supporting its neutrality.

Two months later, Russia led the movement to strip China of all space weaponry, calling China an "irresponsible, volatile terror upon the world." China was forced to reduce its program but refused to acquiesce. As a result, Russia threatened both economic and military action against China. Soon afterwards, Russian troops were seen training near the Chinese border. Europe criticized these actions, knowing that the ties built with Russia in the past may be cut because of Russia's aggressive acts.

A month later, the United States, the "victim," resumed its space weapons unopposed, although Russia expressed a bit of distaste. The US worked on rebuilding all the satellites that were destroyed to finish its weapons platform and also unveiled a plan to create an ablation program (Laser Broom), which would clear the orbit of the debris caused by the Chinese attacks, as well as the pre-existing debris.

In 2027, ESA revealed that the destination of the decade voyage would be Mars and that preparations were ahead of schedule. With Russia's fusion reactor energy generator and years of sufficient supplies and research, ESA's new Artinco fleet was ready to launch during the year. The ESA followed through with its large expedition to Mars with a squadron of 8 ships. With the ESA's advance technology, the time to get to Mars was merely 2-3 months and, with the funding the ESA had received, the explorers were able to maintain stay for over a year on the red planet. With its large spacecraft fleet, which was the top in the world, space exploration for the ESA could be a reality that many could only dream of earlier. Final calculations had made the launch date sometime in 2030.

Meanwhile, in 2028, tensions between Russia and China heated up, as Russia once again threatened of both economic and military action. Although weakened economically and militaristically, China still had a space arms program slightly superior to that of the US. Also, in 2029, India demonstrated the capability of rapidly destroying space machinery. Finally, on Feb 12th, 2031, the US program for ablation was complete.

Cabinet Members

Henrich P. Koeppel, Director of Manned Space Programs

Dr. Henrich P. Koeppel, the German representative, is well known for his strong support for research and advancement of scientific knowledge. However, this is not the only area that he supports, as he is also a strong advocate of war. Dr. Koeppel has been known to have a liberal stance on spending, whether it is spending towards future research or towards military purposes.

Umberto L. Cheli, Director of Space Weaponry Development

Dr. Umberto L. Cheli, the Italian representative, unlike Dr. Koeppel, is opposed to scientific research and using funds to advance knowledge. Instead, he strongly favors advancing military and defense. He holds a neutral position on spending. However, he would much prefer spending to be towards military uses, rather than towards scientific research.

Leopold M. Perrin, ESA Liaison with EU Space Battle Groups (EUSBG)

Leopold M. Perrin, the representative from France, has strong views on science and the military. As a retired Lieutenant Colonel, Perrin strongly advocates advancement in the military, as he feels that the ESA should always be prepared to defend itself. However, he does not have interest in the scientific advancement, and is against spending money for research, as this money could be spent towards building up the military. He has a very liberal stance on spending, but specifically wants money to be used towards military advancements.

Soren Sture, Director of Mission Logistics

Soren Sture, the Swedish representative, is slightly against scientific research, as he slightly favors focusing on military strength instead. However, he is not as open to spending money as is Leopold M. Perrin or

Dr. Koeppel. He prefers that the ESA be careful of spending and spend only when it is extremely necessary to.

Eilert Halle, Director of Research

Dr. Eilert Halle, the representative from Norway, as the Director of Research, is understandably fully supportive of the advancement of scientific knowledge, and really wants to further space awareness. On the other hand, he is known for his anti-belligerent stance, and does not like spending money on war or the military. Generally, he is against heavy spending, but can be convinced to do so when he feels it is necessary.

Dr. Petra Depsina, Director of Satellite Operations

Dr. Petra Depsina, the representative from Greece, is well-known for her championing of science and space research, as well as her anti-aggression stance. She is also known for her strong opposition of heavy spending, and would like the ESA to be very careful when using its funds.

A. Diego Clemente, Chief Scientific Advisor

A. Diego Clemente, the representative from Spain, strongly supports the advancement of science and the exploration of space. He is known for his opposition on war and military spending, although he is not as opposed as Dr. Eilert Halle or Petra Depsina on these issues. In addition, he is open to heavy spending, but feels that money would be much better spent on science than on the military.

Albert K. Clapham, Missions Director

Albert K. Clapham, the representative of the United Kingdom, is known to be slightly supportive of scientific research, but does not care for research as passionately as others, such as Dr. Koeppel or Dr. Eilert

Halle. He is also known for being strongly anti-belligerent, and does not like any aspects of war. He does not mind spending money, but would like to know that the spending is justified before supporting it.

Dobromil Boguslaw, Chief Scientific Advisor

Dr. Dobromil Boguslaw, the Polish representative, is not as enthusiastic about scientific research as others are, as he is neutral on the subject of scientific research. Regarding the military, he is slightly against any military spending and prefers that the ESA does not get involved in aggressive behavior. Dr. Boguslaw is very liberal when it comes to spending.

Juliana C. Meintje, Director of the European Astronaut Corps

Dr. Juliana C. Meintje, the representative from Netherlands, is known for being against many things, including scientific research, aggression, and spending. She is strongly against war, but not as strongly opposed to research. Either way, she does not like spending money, but will agree on spending if completely necessary.

Radomir Mikulas, Treasury Director

Dr. Radomir Mikulas, the representative from the Czech Republic, is known for championing the advancement of scientific research and space exploration. However, he has not promoted the use of funding towards the military, and continues to be against military spending. Generally, he is very liberal when it comes to spending, but would like to see it used on research.

Andre F. Philibert, Director of Finance

Dr. Andre F. Philibert, the representative of Switzerland, just like Dr. Radomir Mikulas, strongly advocates the advancement of scientific research and space exploration. He is also known for being strongly against war,

and does not support money spent on military purposes. However, he fully believes in government spending towards appropriate issues, specifically towards research.

Economic Assets

	Population	GDP per capita (thousand USD)	Science Points	Relative yearly revenue	Absolute Yearly Revenue (trillion USD)	Portion of yearly revenue available (ratio)	Absolute yearly revenue available (trillion USD)
USA	375	40	4	8100	1.944	0.34	0.66096
Russia	200	50	15	6500	1.56	0.59	0.9204
India	1500	15	5	12375	2.97	0.28	0.8316
China	1500	13	3	10335	2.4804	0.28	0.694512
ESA	500	40	19	13800	3.312	0.3	0.9936

Below are the **economic data** for the ESA and other nations.

Note – The general formula for yearly revenue is population multiplied by GDP per capita (adjusted for PPP) multiplied by the number of science points over 100 added to 0.5. Absolute yearly revenue in US\$ is obtained by multiplying yearly revenue by 0.24.

Military Assets

Found in the tables below are the **military data** for the ESA.

	Armies (~80K) Cost: \$100bn	Ground Laser Battery Cavalry Division (~20K) Cost: \$500 bn	Fleets (20 vessels) Cost: \$900 bn	Orbiting Space Platform (2000 planes) Cost: \$700 bn	Air Wing (2000 planes) Cost: \$700 bn	Missile Battery (reusable) Cost: \$100 bn	Kinetic Kill Device (10 devices) Cost: \$3.4 tr	Orbiting Space Laser (leads to more reliable units and fleets) Cost: \$500 bn	Recon Satellite Platform (good against all or nothing)
ESA	5	2	0		1	1		0	
ESA	0			0				0	

Surcharges:

- Launch (any equipment/weapon) Cost: 200 bn
- Move troops (to adjacent territory) Cost: \$100 bn
- Declare war (after war weariness moratorium) Cost: \$1.4 tr

*Note – All costs are approximate and subject to change. Building proposals may be denied at any point in time by crisis staff, but sufficient explanation will be given. Launch surcharge applies to all launches. Surcharges on troop movements is designed so that war cannot be indiscriminately fought, and this is the same logic behind the declaration of war surcharge.