

# OUTER SPACE MILITARIZATION

Launching of the first satellite burst the conquest of outer space. Global community has established norms to preserve its specific use, however, the recognised nuclear powers interests interfered in a fairy agreement.

KEYWORDS: OUTER SPACE / OUTER SPACE LAW / MUTUALLY ASSURED DESTRUCTION / SATELLITE

By Gabriel Antonio Paolini

During last century, scientific and technological developments allowed great breakthroughs and achievements on unknown fields until that period of time. Launching the first artificial satellite into the outer space on October the 4<sup>th</sup> in 1975<sup>1</sup> by the Soviets, it set the framework for Space Age and the superpowers were anxious to outer space dominance. At the end of the Cold War, both superpowers have delivered into orbit thousands of missiles for military application under the suspicion of *Mutual Assured Destruction (MAD)*<sup>2</sup> terms.

According to this scenario and being aware of the situation, international community' unease led superpowers to reach legal regulation in order to restrain outer space arms race. In this perspective, the *Committee in the Peaceful Uses of Outer Space (COPOUS)* was set by the General Assembly of the United Nations (UN) in 1958 to review the scope of international cooperation in peaceful uses of outer space, to monitor the activities performed and to deal with legal affairs arising for the exploration of the space. In September 1967, it was signed *Outer Space Treaty (formally known as Treaty on Principles Governing the Activities of States)*<sup>3</sup> together with other agreements, conventions, resolutions and treaties has been the global agreement regarding international space law and peaceful exploration until today. Despite of those agreements, it is important to bear in mind, however, if the space is militarized or not.

### PROCESS UNTIL THE END OF THE COLD WAR

As World War II ended, United States had implemented *Paperclip Operation*<sup>4</sup> to include the best German scientists, engineers, and technical specialists in rocketry and other science fields. For instance, Werner M.F von Braun together with 500 men of his team work surrender to US before being captured by the USSR. On the other hand, Sergei Korolev from USSR expert in rocketry was set as manager of different projects. After the war, German engineers hired provided their knowledge; in 1947 the team

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could launch the first Soviet V-2 and quickly began with the design of the first intercontinental ballistic missile which could launch 5 tons atomic bomb over US<sup>5</sup>.

First artificial satellites had limited capacity of communication, however, in 1960 the US launched Discovered XIV a spy satellite used in Corona programme and in 1962 the USSR developed Kosmos, in both cases the missiles had the capacity to observe earth surface and recover the images by using rudimentary tools<sup>6</sup>. Therefore, both superpowers began an arm race that included Outer Space militarization, which was half-retained by international community treaties as well as the *Mutual Assured Destruction (MAD)*.

United Nations was responsible for Outer Space international Law regulation, then in 1959, it was founded the COPOUS; this committee included the *Scientific and Technical Subcommittee (STS) and Legal Subcommittee (LS)*<sup>7</sup> focused on Outer Space Law Affairs.

When space race began, it seemed enough to control the situation the *Treaty Governing the Activities of States on the Moon and Other Celestial Bodies*, also known as *Outer Space Treaty* which opened for signature in London, Moscow and Washington on 17<sup>th</sup> January 1967<sup>8</sup> but the this entered into force on 10<sup>th</sup> October 1967.

The treaty might be considered as international law basis for peaceful use of outer space and it outlined the basic framework of International Space Law<sup>9</sup>. Over the next years until now, the UN has developed several

1. De Sola Domingo, M. (1986). SDI: Outer Space Militarization and Law. *Afers Internacionals* n.º 9, Estiu-Tardor, 29.

2. Mutual assured destruction or mutually assured destruction (MAD) is a doctrine of military strategy and national security policy in which a full-scale use of nuclear weapons by two or more opposing sides would cause the complete annihilation of both the attacker and the defender. This doctrine has never been officially adopted but it led to an arm race between nuclear power nations.

3. United Nations. (2008). United Nations Audiovisual Library of International Law. File recovered on 14th April in 2014, de [http://legal.un.org/avl/pdf/ha/tos/tos\\_ph\\_s.pdf](http://legal.un.org/avl/pdf/ha/tos/tos_ph_s.pdf)

4. Hernandez, J. (2009). All you need to know about Second World War. Madrid: Nowtilus Edition, S.L.

5. Casado, J. (2011). Way to Cosmos: Astronautics secrets. File recovered on 16th April 2014. <http://libros.metabiblioteca.org/handle/001/2774>.

6. Casado, J. (2011), op.cit.

7. United Nations. (2008), op. Cit.

8. United Nations. (2008), op.cit.

9. United Nations. (2002) UN Treaties and Principles about Outer Space. Recovered on 14 th April 2014 from web site: <http://www.oosa.unvienna.org/pdf/publications/STSPACE11S.pdf>

10. United Nations (2002), Op. Cit.

11. United Nations. (2014). United Nations office Outer Space Affairs. Recovered on 14th April 2014, from web site: <http://www.oosa.unvienna.org/oosa/SpaceLaw/outerspt.html>

12. Gaddis, J. L. (1988). The Evolution of a Reconnaissance Satellite Regime. New York: Oxford University Press, 353-372.

13. Calduch, R. (1991) International Relationships- Massive Destruction Weapons (MDW) and Current dissuasion nuclear. Madrid: Social Science.

14. Calduch, R., op. Cit.



agreements, principles and resolutions complementing the *Outer Space International Law*<sup>10</sup>. By the 2012, a number of 100 countries have engaged to the Outer Space Treaty meanwhile other 26 nations signed the agreement but had not ratified it yet.<sup>11</sup>

Nevertheless, the Treaty lacked of important measures since there was a prohibition to active militarization but it was not included the passive activities which received Arm Forces direct support. This scenario implied dual use of artificial satellites, civil and military application, in particular, communications area, land observing, exploratory and warning about antagonist military activities. Despite of the fact that US and USSR agreed to the International Law conditions of the Treaty, there was an informal field to act where it was accepted the legality of the activities held in that side of the relationship between both nations including mutual espionage<sup>12</sup>.

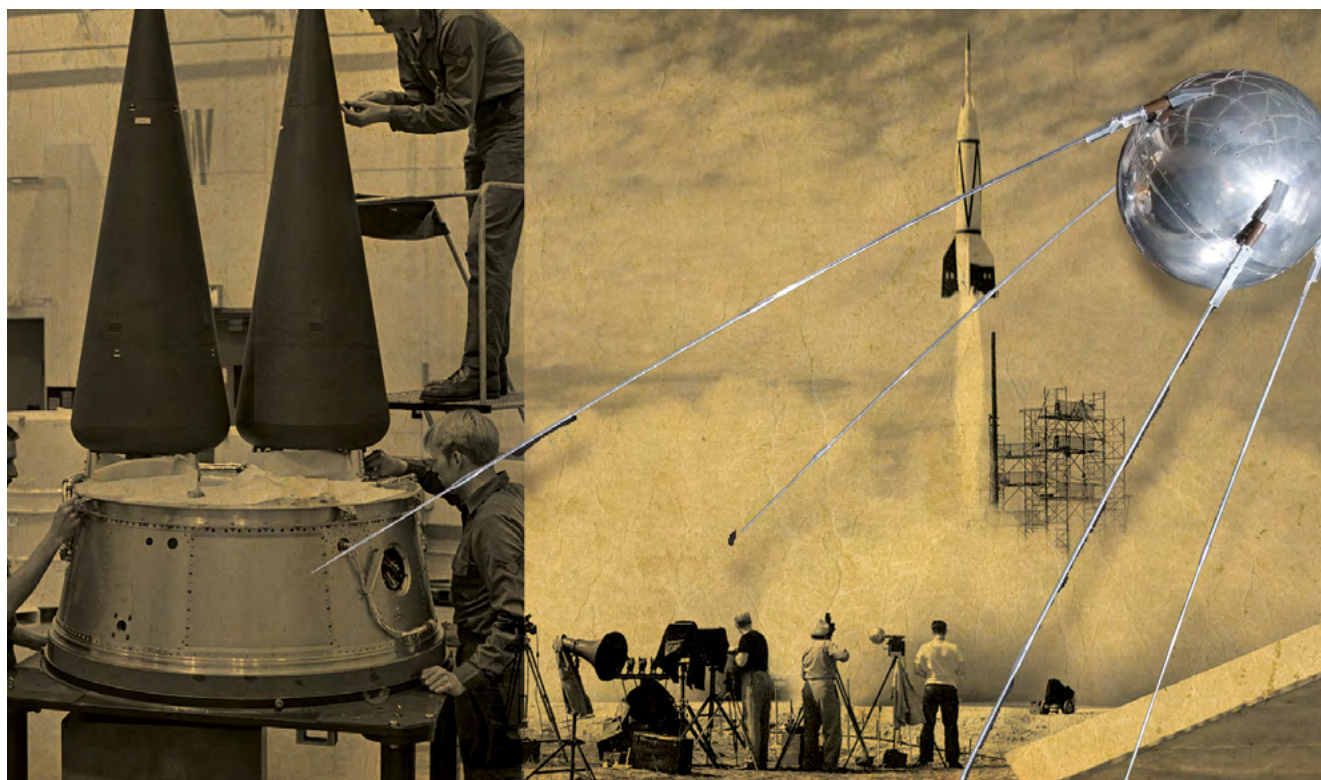
Meanwhile, the *Inter-continental Ballistic Missiles (ICBMs)* were developed in order to enhance the on-board thrusters, guidance system as well as warheads. Both nations intensified the number of silos Land-based ICBMs located in their own area but also those settled in allies countries<sup>13</sup>. The arising of Mobile-based ICBMs would become this kind of missiles more difficult to detect but easier to locate the target, since it was

possible to set them in mobiles platforms such as on trucks, ships and submarines.

In 1970, the US developed the *Minuteman III (LGM-30G)* containing 3 warheads of 170 kilotons each one but in 1973 the USSR created R16/SS-7 similar to the American's missile. *Multiple Independently targetable Re-entry Vehicles (MIRVs)* had the ability to deliver several warheads along separate trajectories, which confer it, flexibility of multiple targeting. Then, it was possible not only to intimidate several targets with the same missile, but also to defeat extraordinarily anti-missiles defence systems<sup>14</sup>.

However, the Outer Space Treaty was flouted by the use of the MIRVs since in one of the missile trajectory stages took place within earth orbit. This procedure was

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overlooking the meaning of peaceful use of the outer space. In 1969, the US and USSR began to deal with a solution to reach the disarmament of both countries. May 1972, it was signed *Strategic Arms Limitation Talks I (SALT I)* both superpowers began negotiations about the curtaining of manufacture of strategic missiles and set the limitation to the number of inter-continental missiles as well as submarine launchers. In addition, this agreement also banned anti-missile defence system placement as it was established in *Anti-Ballistic Missile Treaty (ABM, 1972)*.

Controversially, those agreements seemed to deride the “horror balance” since to be successful measurements, the US and USSR must limit the use of missiles to protect their population from a nuclear attack; apparently, the only solution possible was the implementation of MAD<sup>15</sup>.

On 18<sup>th</sup> June 1979 it was signed the *Strategic Arms Limitation Talks II (SALT II)* although a new controversial scenario was arising, in fact, US president Carter dismissed

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the US Senate to deal with this recent agreement, and finally it was not ratified due to USSR invasion of Afghanistan. However, the United States and the Soviet Union voluntarily observed the arms limits agreed upon in SALT II in subsequent years<sup>16</sup>. One of the most remarkable limitations for both countries to achieve an agreement was the inability to set a land verification system. The solution emerged in the use of satellite resources contemplated in the *National Technical Means of Verification (NTMV)*.

The satellites act as triggers of Cold War because they neutralized arms race, limited any excessive use of weapons, provided mutual information about missiles locations apart from being crucial to strengthen nuclear threat reliability by means of MAD application. During Reagan’s presidency it was proposed U.S. strategic defensive system against potential nuclear attacks from *USSR intercontinental ballistic missiles (ICBMs)* by intercepting the missiles at various phases of their flight without nuclear intervention. Then there were required pulsed lasers, continuous wave lasers (CW), particle-beam weapons, accelerator mass, missiles, among other resources scattered over the orbit or missiles launched from earth once ICBMs were detected.<sup>17</sup>

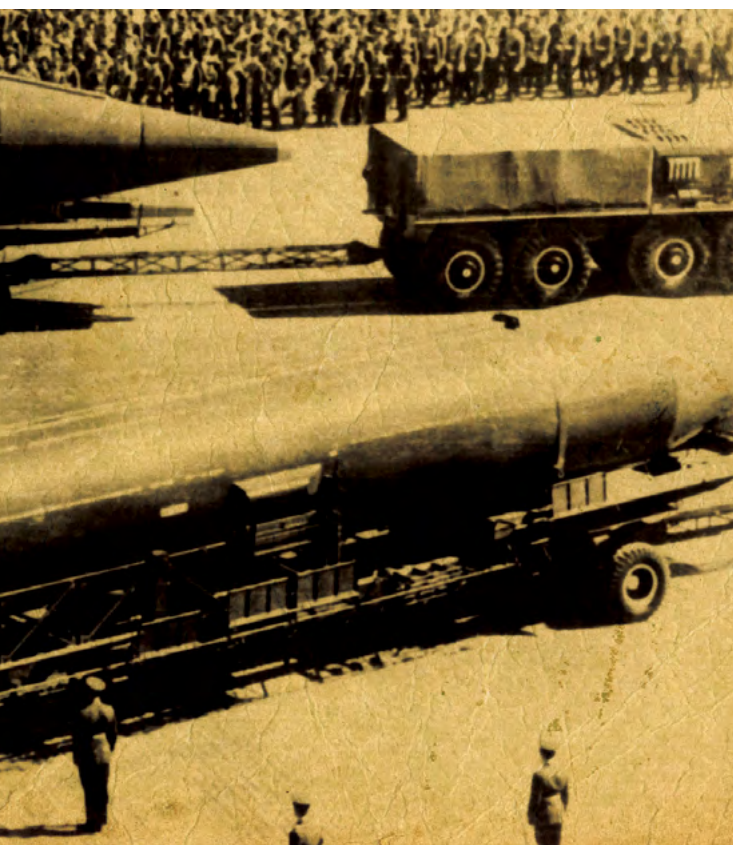
The US government was forced to seek a broader scope different from the AMD’s one, however, a new





concept was considered hazardous and impossible to apply not only by scientists but also politicians. By the end of the Reagan's presidency, it was implemented the C4ISR (Command, control, communications, computers, intelligence, surveillance and reconnaissance). These series of activities were based on satellite procedures, in order to achieve synergic action among National Forces all over the world. C4ISR provided accurate information to foresee clean wars and avoiding the use of nuclear deterrence.<sup>18</sup>

Technology has evolved significantly, in particular the US has achieved an overwhelmed supremacy on military application. Technological developments were focus on satellites used in diverse fields, for example, communications, meteorology, positioning and navigation system, early warning, target acquisitions in order to guarantee the accurate source of information and the stage of operations development in every part of the world. Though, global sudden shift that depicted the end of Cold War led to quit Star Wars hypothesis along Bill Clinton presidency and the anti-missile defence became a second-tier affair, but it emerged after 11th September terrorist attack. In addition, there was a research and essays reversal that US and USSR had developed since 1966 until 1967 respectively.



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This research was focused on neutralization or destruction of enemy's satellites launched from land-based structures although the results were not the expected ones; also, weapons platforms projects orbital based. The *US-USSR Soviet Strategic Arms Reduction Treaty*, known as *START I*, was signed 31st July 1991 while *START II* entered into force on 3rd January 1993. Both agreements played an indispensable role in ensuring the predictability and stability of the strategic balance and serving as a framework for even deeper nuclear reductions.<sup>19</sup>

#### DEVELOPMENT UNTIL NOW/BEGINNING AND CURRENCY

To maintain NATO Forces advantages all over the world, it was necessary the use of satellites and technological development during the Gulf War (1991). By means of satellite devices, it was possible to detect Iraqi troops movements next to the border some days early Kuwait Invasion (1990), unfortunately, the US did not consider it important until the invasion began<sup>20</sup>. But it was not until Kosovo War with satellite technology and guidance systems enhancement, when it was able to acquire a higher accuracy in the use of weapons since there were used satellite internal devices capable of locate the target. Even more, it was possible to reach people and objects on land to become target of missiles. Most

15. Ocaña, J.C (2003) History of XX Century International Relationships. File recovered on 18 th April in 2014 from website: <http://www.historiasiglo20.org/GLOS/SALT.htm>

16. Magnasco, M.A. (2006). Caei.com.ar. Analysis of Treaties and Agreements about Massive Destruction Weapons. File recovered on 20th May in 2014 from web site: [http://www.caei.com.ar/sites/default/files/44\\_1.pdf](http://www.caei.com.ar/sites/default/files/44_1.pdf).

17. Garcia Moreno, A. (January-March 1986). The Strategic Defence Initiative: New Technologies, old Antagonists. File recovered on 20th May in 2014 from the website: [http://codex.colmex.mx:8991/exlibris/aleph/a18\\_1/apache\\_media/8N7E59RK4UDPP5RPT62BYMR1SIM2M8.pdf](http://codex.colmex.mx:8991/exlibris/aleph/a18_1/apache_media/8N7E59RK4UDPP5RPT62BYMR1SIM2M8.pdf)

18. Freedman, L. (April de 1998). The Revolution in Strategic Affairs. Oxford University Press. pages 13-14

19. Magnasco, M.A. (2006)., op. Cit.

20. Pike, J. (7 th April in 1997). Federation of American Scientists. File recovered on 1st May in 2014, from website: <http://www.fas.org/spp/military/docops/operate/ds/images.htm>.



remarkable fact about space systems was the effective dislocation of Forces involved in this conflict.

During the 90's the US government ratified the necessity of space control, therefore, it was approved in the White House the National Space Policy (1996) by William J. Clinton.

This policy was in concordance to Outer Space Treaty terms as for US developments, management and control of space activities to guarantee a broader freedom of action but set limits to the adversaries<sup>21</sup>; however, this agreement was lacked of unrestricted und peaceful use of outer space. In May 2001, George W. Bush Jr. announced in his speech at National Defence University the development and implementation of National Missile Defence (NMD) which consisted in maritime, air and mobile land-based interceptor missiles<sup>22</sup>. Despite of the fact that this policy was in controversy to ABM statements, the critical scenario after 11<sup>th</sup> September 2001 attack would be encourage the intervention of NMD policy<sup>23</sup>. Hence, the US government abandoned the ABM treaty terms to wriggle free to apply NMD. By the end 2003, it was announced the *U.S Air Force Transformation Flight Plan*<sup>24</sup> which is currently in force until 2020. This plan implied not only the use of ASAT weapons but also The US Air Force airborne laser (ABL) which was a high-energy laser

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weapon system for the destruction of ballistic missiles carried on a modified Boeing 747-400F freighter aircraft, together with EAGLE laser weapons<sup>25</sup>. Tungsten rods with the explosive power of an intercontinental ballistic missile were launched to hit any target on land with a power like a nuclear weapon<sup>26</sup>. Evidently, these devices were defying Outer Space Treaty terms.

In 2006, George Bush stated clearly that the aim of *US National Space Policy*<sup>27</sup> was to strength national supremacy in outer space and to dismiss international treaties signed previously to achieve the goal. However, the global repercussions of the Bush's decision arrived immediately; in fact some nations demanded the outer space demilitarization. For example, in 2001 *UN*

*Conference on Disarmament*, Popular Republic of China stated a formal submission, then in 2004 the *Prevention of an Arms Race in Outer Space* (PAROS)<sup>28</sup> supported by Popular Republic of China and Russia. It was not until June 28<sup>th</sup> 2010, during Barack Obama presidency when a new National Space<sup>29</sup> policy arose; the main goals: international cooperation as well as take into account the terms stated by *guns control measures* only if these procedures would be verifiable, equitable and be able to bolstered US National Security.

However, under no circumstances it was abandoned the concept of Anti-missile Shield that achieved Europe's security. By 2015, it was believed that this policy must come into force in response to Iranian threat.

US president decision about a new policy was not accepted favourably by Russia; in fact, Russian government considered that the American plan only pretended to stay strategically ahead of them<sup>30</sup>. OTAN possess active missiles RIM-161 SM-3 anti-missile system and anti-satellite weapons (ASAT).

In 2003, it was used satisfactorily SM-3 capable to destroy an American spy satellite out of control. This system was combined with other mechanism able to detect, search and trace simultaneously a large number of missiles called Aegis<sup>31</sup> Combat System Lockheed-Martin<sup>32</sup> Corporation. Meanwhile, Russia developed anti-missile technology and ASAT, incorporating besides S-300 to be replaced then by S-400s which were active during 2007 but the developments continued until S-500 became the most accurate device<sup>33</sup>. On January 7<sup>th</sup> 2007, China's Popular Liberation Army destroyed a self-satellite put into orbit in 1999 with a ballistic missile called SC-19 Fengyun-1C from a mobile platform launcher; this action portrayed a sophisticated guide and control system, then China become an ASAT country as US and Russia.

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US reaction to China activities arose quickly; American government was aware of the fact that their military capacity soon has become vulnerable, therefore, it was decided to shoot down an American inoperable spy satellite but then the government argued to public opinion that it was merely a safety measure since the satellite might collapse against earth surface and produce severe consequences<sup>34</sup>.

On January 2010, China made another test and launched surface-to-air-missile HQ-19 armed with a kinetic vehicle which destroyed other Chinese satellite in orbit; it was only another way to depict its ASAT capacity<sup>35</sup>.

Those military tests infringe the Outer Space Treaty terms, this is a negative influence to outer space safety since there are a lot of remains from those tests which are not monitored properly and might be dangerous for satellites in orbit.

## CONCLUSIONS

International Law implemented in Outer Space Treaty is a relatively new affair after the first launchings. Although this treaty is supported by experts from UN, many of them cannot achieve an agreement about some issues since the performance of these scientists about space militarization was not enough. Rather, the UN seemed to ignore the matter or being under the influences of power turning a blind eye to space transformation process.

21. EUU. (19 th September in 1996). whitehouse.gov. File recovered on 12th April in 2014, de National Space Policy: <http://search.whitehouse.gov/search?utf8=%E2%9C%93&query=National+Space+policy+1996&m=&affiliate=wh&commit=Search>

22. Pérez Conde, E. (2002). reei.org. Recovered on 1st May in 2014, from the site : La Cortina Nuclear: [http://scholar.google.es/scholar?hl=es&q=Defensa+Nacional+Antimisil+%28NMD%29&btnG=&lr="](http://scholar.google.es/scholar?hl=es&q=Defensa+Nacional+Antimisil+%28NMD%29&btnG=&lr=)

23. Magnasco, 2006, op.cit.

24. U.S. Air Force. (November 2003). The United States Air Force Transformation Flight Plan. File recovered on 20th May in 2014, website: [http://www.au.af.mil/au/awc/awcgate/af/af\\_trans\\_flightplan\\_nov03.pdf](http://www.au.af.mil/au/awc/awcgate/af/af_trans_flightplan_nov03.pdf).

25. U.S. Air Force., op. cit.

26. Gutiérrez Espada, C. (2006). Academic Google. File recovered on 1st April in 2014, The Militarization of Outer Space: [http://scholar.google.com.ar/scholar?as\\_q=&as\\_epq=La+militarizacion+del+Espacio+Ultraterrestre&as\\_oq=&as\\_eq=&as\\_occt=any&as\\_sauthors=C](http://scholar.google.com.ar/scholar?as_q=&as_epq=La+militarizacion+del+Espacio+Ultraterrestre&as_oq=&as_eq=&as_occt=any&as_sauthors=C)

27. U.S. (31st August in 2006). whitehouse.gov. File recovered on 10th May in 2014, website: U.S. National Space Policy: <http://www.whitehouse.gov/sites/default/files/microsites/ostp/national-spacepolicy-2006.pdf>

28. Gutiérrez Espada, C. (2010). Ocw.um.es. File recovered on 1st May in 2014, U.S. policy of military use over Outer Space from Bush (2006) to Obama (2010): <http://ocw.um.es/cc.-juridicas/derecho-internacional-publico-1/ejercicios-proyectos-y-casos-1/capitulo5/documento-56-c.gutierrez-espada-reei-2010.pdf>

29. U.S (28th June in 2010). Whitehouse.gov. File recovered on 1st May 2014 from National Space Policy: [http://www.whitehouse.gov/sites/default/files/national\\_space\\_policy\\_6-28-10.pdf](http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf).

30. Dinucci & Di Francesco, 2010., op.cit.

31. It comes from the Greek; it means protector shield.

32. Dinucci, M., & Di Francesco, T., op. cit.

33. Corral Hernández, D. (14th February in 2012). ieee.es. File recovered on 15th May in 2014, Missiles and shields in Iranian neighbourhood: [http://www.ieee.es/Galerias/fichero/docs\\_opinion/2012/DIEE012-2012\\_MisilesyEscudosVecindariolrani\\_DCorralHdez.pdf](http://www.ieee.es/Galerias/fichero/docs_opinion/2012/DIEE012-2012_MisilesyEscudosVecindariolrani_DCorralHdez.pdf).

34. Sanchez Arribas, J. M. (2014). defensa.com. File recovered on 20th May in 2014, The great Chinese space military race; website : [http://www.defensa.com/index.php?option=com\\_content&view=article&id=7226:china-tras-la-carrera-del-dominio-espacial&catid=69:reportajes&Itemid=199](http://www.defensa.com/index.php?option=com_content&view=article&id=7226:china-tras-la-carrera-del-dominio-espacial&catid=69:reportajes&Itemid=199).

35. Sanchez Arribas., Op. cit.



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As a matter of truth, the space militarization has been carried out by chosen nations, the ones which have the technologic resources to afford the change; the major question was that these governments crowded around international community rights that were supposed to imply a peaceful use of outer space. The superpowers consider the space as a fundamental and strategic mean that provides them vast opportunities and advantages. Despite of the systematic violation to International Law in pursuit of the US National Security,

*"Space is not a mission, is a place. It is an operations stage and it is time we consider it properly". (USAF) Army Commander C. Henry*

the US government has positioned in first place of military developments. On the other hand, Russia has pretended to enhance the weaponry, but China dare to give balance to the struggle between US and Russia in arms race affair.

We should admit that in Cold War period the military space development acted as a fence, but at the end of it, the global environment changed and the idea of a space as a sanctuary was a fact; even today, the militarization apparently seems not to be solved. It is also alarming the uncontrolled military tests because there would be an excess of hazardous devices remains and consequently this would block safe access to other nations to this common good. It is necessary International Law perks up against the imminent space arms race; neither UN nor Disarmament Commission could be able to restrain its overgrown advance. To make the matter worse, it cannot discern at short-term a disarmament treaty that would be accepted by every nation.

