Reading the Cold War through Outer Space: The Past and Future of Outer Space

Yang Pachankis

Abstract— The article takes a history based technical analysis on the governing activities by outer space laws. It outlined the spirit of the outer space law and treaty by the scientific development of the earth's orbits & solar objects' orbits. It focuses on the contamination of outer space by human activities in large scale structure with concluding scientific evidence. It analyzed geopolitical conflicts in terms of satellite technologies. They are analyzed based on the utility-science dichotomy, and the subject(s) that ultimately benefit from and control the utility. The texts are arranged by the contrast between the American led globalization and Russian hegemony with dictatorial powers. The technical analysis is nuclear science based with epistemology.

Index Terms— Command chains, Historical legal research, Humanitarian principles, Military sociology, Nonproliferation, arms control, and disarmament, Satellite distribution, Sociology of knowledge, Space and outer space laws, The spirit of law.

1 Research Background

THE development of outer space law resulted from arms control and disarmament during the Cold War. The research prioritized the history on the inception of nuclear knowledge and the first use of nuclear weapon in human history. Albeit the development & production of nuclear weapon was contributed by the emergence of dictatorial powers in land and aerospace, the thermonuclear knowledge was constructively applied to the exploration of outer space. The pilot research found that the use of atomic and hydrogen bombs on Japan after Pearl Harbor attack was contributed by its geopolitical threat to the NASA Deep Space Network, and the technical-analytical research took a perspective on global justice for political economy in the peaceful development of outer space. [4]

2 Introduction

The founding document on outer space law aimed at prohibiting the disruption of thermonuclear environment in outer space, especially the reversal thermonuclear flow designs of weaponry being deployed in orbit or in outer space. [9] Human-made contamination on the ecological relevance of earth was especially addressed on radioactivity and impact on reentry. [13] The utilitarian principle comprised of the modern civil outer space treaties. [7] However, with the increasing rates of earth-bound orbit satellites deployed by states for realpolitik & power political purposes, the increased efficacy in spatial resources and geospatial resources management by such powers further creates gaps in distribution justice in coordinated global politics. [2] The article seeks to analyze the scientific foundations of outer space law in the context of space law from the historic developments of the Cold War.

3 Method

The research is evidence orientated on the scientific grounds of outer space exploration. It used a functional technical analysis on the space objects launched into orbit(s) in relation to celestial bodies. [10] The functional analysis established the scientific basis for the Cold War between Russian hegemony and America led globalization. The geopolitical elements are covered by launching sites analysis. Unethical technical factors have been identified such as the dictatorial command lines for satellite capacity building. The inevitable marginal conflicts from the unjust uses of outer space are differentiated by the spirit of humanitarian law. The ongoing domain politics, cybersecurity, and cyber warfare are considered to be a result from the realpolitik and power political top-down designs of the technological developments. The analysis is quantitative-driven with qualitative elements.

Image 1 NATO vs. Warsaw (1949-1990)
By Heitor Carvalho Jorge (CC 3.0)

- *Yang Immanuel Pachankis' graduate research was suppressed by the dissertation committee of the Communication University of China with the Chinese name Yang Cao. He completed his question-driven research with his parents' support. He was victimized by human trafficking operated by the Chinese People's Liberation Army, and was misunderstood by the American intelligence during his dissertation research in 2019. He is married to John Edward Pachankis with the ordination by the Universal Life Church. He is in the transitional justice for matrimony with intergovernmental procedures. Current e-mail: yang.pachankis@gmail.com*

3 Results

The research results are interpreted in terms of the satellite orbits, grouped into four subsections – namely the interpretation on the early strategic development in outer space, the geopolitical tensions resulted from geographic proximity, a rearrangement on the notion of time after the historic analysis, and the scientific exploration driven current development of outer space.

3.1 Early Strategic Development in Outer Space

In the geo-outbound activities, on 1 February 1958 the United States of America launched the first space research and exploration driven satellite Explorer 1 with the base of Greenwich Universal Time. Nonfunctional objects are also designed for launch until the first practical application of space-technology was in place on 1 April 1960 among the Beta constellation groups. [12] The formation of the cosmos hence started to shape the epistemological foundation of the furtherest human-made probes in outer space that laid better foundations for its constant space endeavors. By the year of 1962, the US sent 72 objects into outer space from Cape Canaveral/Eastern Test Range, Vandenberg AFB/Western Test Range, and Wallops Island. The competition course shifted in 1965 when on 6 April 1965 where Intelsat 1 Early Bird was sent into Geosynchronous orbit by USA and started launching satellites for UK and Canada in 1962 and two joint missions with Italy in 1964.

By contrast, even though USSR sent the first ever artificial satellite into space on 4 October 1957 for the "physical" study of the atmosphere, its approaches are largely purpose driven with existing knowledge for deductive production with communist formations. [14] The 16 entries of objects launched from Baikonur Cosmodrome, Kazakhstan to the outer space dated back to 16 March 1962 in the document presented to the United Nations Committee on the Peaceful Use of Outer Space, and they all suggest USSR's limited purpose of carrying man to the moon in the 16 entries. [11] The communist propagandas on ideological formation hence started with MOLNIYA 1 on 23 April 1965 for television programme transmission and long-range two-way multi-channel telephone and telegraph communications.[1] The top-down command base use of satellite contributed to the spread of communist organizations and command chains via communication methods. [14] Such signal-action controls on human beings for territorial marginalization with geopolitics for commune building hence shaped the totalitarian politics. The type of "democracy" as a territory-based discourse on power consolidation in "guided democracy" hence shapes the deductive proof on the order of dictatorship formation in the communist block. [5]

[1] With retrogressive analysis, I have noticed that my undergraduate transgender-themed graduation co-production, aimed at marriage equality for LGBTQIA+ population, was inserted with tech-transfer broadcasting soundtracks in the post-production sequences. Interruptions were detected during The Science of Consciousness 2022 conference, which means my dissertation research on the FBI and P. R. China's source of nuclear power capacity is still not irrelevant in the military intelligences.

3.2 Geopolitical Tensions Resulted from Geographic Proximity

Even that the non-overlapping focus of space technology development of the two powers have supplementary elements in scientific exploration, the need to fuel rocketing needs underlies the geopolitical competitions. Apart from civilian consumption needs, the power sources were not just about energy - its potential military uses also deeply affected the scientists. The looming dangers of military uses urged Albert Einstein and other physicists writing to Frank D. Roosevelt, and the president took leadership domestically and *inter alia*, which resulted in the liberal institutionalist approach and founding of the United Nations. [7] The significance of corporate management reveals itself both in President Roosevelt's speech and the outer space law document. [10] By sea on Christmas Day in 1911 on GMT through Sun Yet-sun, solar calendar was brought to imperial China and organized the first modern political party in the territory. The United States Federal Reserve system established in 1913 with the next year the world's banker was transferred from London to New York. [6] The competition for energy and industrial complex in banking constituted the key of Cold War in the 1970s with Europe and Arabic states with oil pipelines. The geopolitical proximity and Russian hegemony against U.S. allies were at the core of tension with space competition. In the space realm, USSR's approach was largely dominant of the earth sphere. It is also in this sense; the disturbance of the nations took stage. In 1970 USA sent NATO 1 in Geosynchronous orbit, which eliminated USSR's potential threat to US dominance in and from outer space.

Even though the competition for power in and from outer space resulted in hunger for energy resources, the fundamental political paradigm with command chains are the major population games that shaped the Maoist human rights abuses in Chinese politics. However, the global distributions on fundamental resources empowered by the NATO formations shaped the initial humanitarian paradigm and developmental regionalism in sea port regions worldwide.

3.3 Arranging Time from Above

The pattern of outer space cooperation grooming also reflects the changing of international relations. The parallel activities of the United Nations *Ad Hoc* Committee on the Peaceful Uses of Outer Space play a significant part in the ease of bipolarity. Japan and China sent their first satellite in 1971, and India in 1975. The pattern of USA cooperatives mainly resided with Atlantic and European states. The United States was further advantaged with maturity in energy source technology in outer space. On 3 March 1972 USA launched the first recorded space object carrying a nuclear power source Pioneer 10. On 16 April 1972, nuclear power source was used in Apollo Lunar Surface Experiment Package in Apollo 16. Systematic approaches were adopted from 1961 to 1980 deploying power source on the moon and Jovian planets. [13] USSR's NPS satellite COSMOS 516 launched on 21 August 1972, and the reactor shut down on 25 September 1972. In 1962, USA launched two space objects respectively for UK and Canada. Apart from another sent for UK, USA facilitated two

joint missions with Italy in 1964. And the USSR's mission remained steadily on the atmospheric sphere. Italy delivered their first satellite in 1967 and did Australia; Germany got onboard with USA in 1969, and delivered independently in 1974; and UK and Spain in 1974. In 1977 European Space Agency sent the first satellite registered by France on ESA's behalf. Canada and Czechoslovakia delivered their first space object in 1978. It was the increasing numbers of launching states and sites that flattened the geopolitical game; and also, from those time on, United States of America increased Intelsat delivery in outer space missions.

At the end of Cold War, USSR achieved space launch via Salyut 7. The series of attempt was aimed for military, propagation, and national economy purposes if not also hegemonic purposes. [8] The outer space activities of USSR withered from 1989, and from 1992 the registries changed to Russian Federation. In contrast United States' outer space activities withered between 1986 and 1988, and rebooted from 1989. It was also in the year 1989 and 1991, Czechoslovakia delivered its second and third space object before it turned to Czech Republic. On an overall look the world's outer space activities remained steady between the years. It was during the year 1990 United States succeeded in air-based launch. Albeit with Central Intelligence Agency and National Security Agency's role & interception in the process, it could be said that the end of Cold War was achieved by the NATO's economic success from the waters, and the political success in international relations from China's key persons in leadership. On a strategic level, the United States' allied knowledge and design on outer space missions is more sophisticated than USSR's as the fore founder powers in this unprecedented development in history. This is contributed by the lack of bottom-up knowledge production in the absolute power projections by the totalitarian communist regimes with deductive logics in intelligence gathering.

3.4 Outer Space Development

As by December 2020, 10,241 objects have been delivered to outer space by 28 launching facilities in 16 countries. 9,041 of them are United Nations registered and 1,200 are not registered with the United Nations. 1,960 of the objects are decayed, 248 of them deorbited, and 61 in disposal/graveyard orbit. The paving stones of energy sources in outer space and the legacies from the Cold War still leaves their traces in the solar system, with four of them now in interstellar positions. They are Pioneer 10, Pioneer 11, Voyager 2, and Voyager 1.

51 states and organizations own 1,147 Geosynchronous orbit objects in outer space linking the governance of the planetary earth and beyond. The geophysical activities of launching states and alternative delivery methodologies of space-based launch, air-based launch, sea-based launch, and submarine-based launch forms new disturbance in international relations. The world's outer space activities remained no growth. With a drop in 2001, it steadily grew and doubled in the year 2013, 2017, and 2020.

At the far side of outer space, after USSR started on development of systems to permit the creation of an artificial lunar satellite for the investigation of circumlunar space, and development of inboard systems for putting a station into selenocentric orbit on 31 March 1966, and USA's lunar explorations to the year 1974, China and India cooperated in the lunar sphere since 2007 by investigating the its origin and evolution, and Queqiao in Moon L2 has set up a communication link between Earth and the far side of Moon. Japan's selenocentric mission "AKATSUKI" (PLANET-C) adheres to the terrestrial planet Venus. They are constructive approaches to European Space Agency's SOHO's international effort for the study of solar-terrestrial physics in Sun L1.

The most studied planets in the solar system are Mars and Venus, both with 15 objects delivered onto, apart from some planetary moons and asteroids with major cooperation in Sun L2. 1,372 objects are delivered into outer space and recovered, largely consisted of International Space Station and missions. The geo-directional bound estimation of knowledge hence shaped the cosmic understandings of the universe by signal transmissions, and the influences it has on the planetary space as a morphological general relativity to the black hole singularity. [17] Current paradigms on the galactic nuclei in the course of studies still adhere to the fundamental material production paradigm with a balance between the engineering materialism and the generation in monetary and financial realms' quantification method, whereby the wider truths remain to be discovered & explored on white hole gravity, with ethical bias factors in LASER technologies that contribute to the gravitational waves and the limitations in empiricism with galactic nucleus. [16]

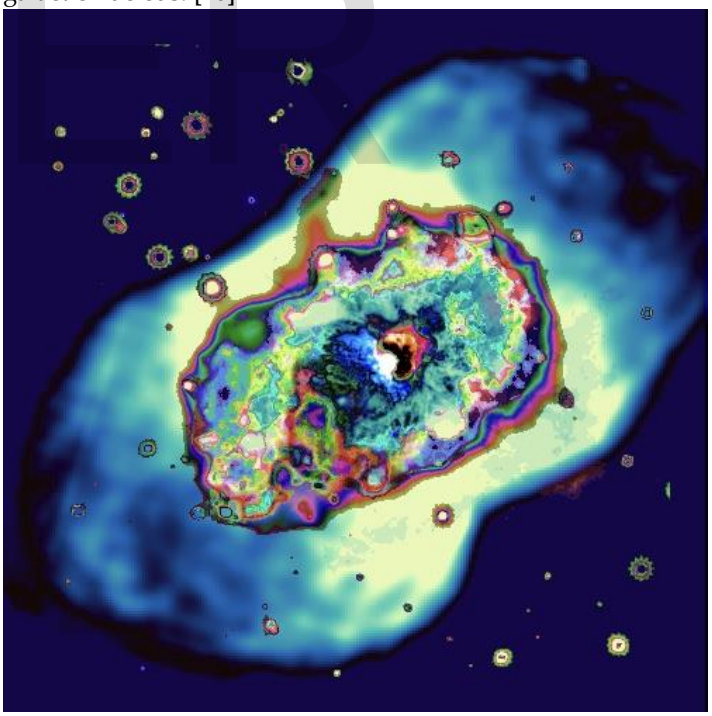

Figure 1 The photonsphere containing white hole thermonuclear astrochemical potential in Eta Carina NGC 3372.

4 Conclusions

The Peaceful Development of Outer Space is treated as a humanitarian treaty in defense of dictatorial expansionism in the global technological arena. The financial and economic scavengers on the earth orbits becomes of the modern banking problems in the global equality in distributive justice. New forms of technological extrapolations by dictatorial powers with militant ambitions have rendered the outer space treaties ineffective in the subtle yet severe breaches in the spirit of the peaceful development of outer space. The restraining power of the Roman Statute on the United Nations Security Council members is limited to hold global criminal justice accountable, with ongoing Russian-Ukrainian war. Consequentialist ethics in the applied sciences as in technologies should be rigorously adopted with in-depth analysis in the space sciences. However, without paradigm shifts in the top-down power political regimes, the resource wastes and increasing knowledge gaps may create further future crisis, despite of what has already set in motion.

Data Availability

The data behind *Figure 1* is openly available on NASA Data Challenge at the URL: http://waps.cfa.harvard.edu/eduportal/js9/softwareChallenge.php.

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