ESTIMATING THE UNIFIED LUNAR TIME IN SPACE NAVIGATION AS THE KEY CONDITION FOR THE SYNCHRONIZED OPERATION OF TWO GLOBAL SPACEPORTS – EAST AND WEST

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III International Conference of RNKIFNT RAS
Moscow, 2026, April 2

"Thus, the path and hope of others will be cut short, Russian power will grow over Siberia and the Arctic Ocean and reach the main European settlements in Asia and America" [in Alaska].

Mikhailo Lomonosov (1762-1763).[12]

Civilization "Through thorns to the Stars" stubbornly builds a new socio-economic formation of K.E. Tsiolkovsky. Russia, "cooling its economy," may fall out of the grandiose process of the global trend of space industrialization. But this will not stop the progress of civilization itself, and the latter will build its historical space future without Russia, in spite of Russia, and at the expense of Russia. «Per aspera ad astra!»

Topic:
I. The Eastern Spaceport project on the Kuril Islands.
II. The Western spaceport project on the island of Cuba and Cape Canaveral.
III. The unified reference standard time of the 25th Lunar time zone, as the unified time for space navigation and the way to globally synchronize flights between the western and eastern spaceports.

Abstract. Trump issued US Decree No. 1 on colonization of the Moon, 2017. At the stage of space industrialization, disposable spaceports should be replaced by environmentally friendly reusable space complexes-spaceports using mobile offshore platforms. Two global spaceports are being created: the western one [on the island Cuba and Cape Canaveral] and the eastern one [on the Kuril Islands]. Space navigation of longitude calculations is linked to the 180° Magellanic meridian of

date change; and to the 00° meridian of Greenwich, into which the meridian of Magellan passes through the North and South Poles. The American Standard Time Act, 1918, has been added with unified 25 zone of lunar time [1,3], taking into account the relativistic Einstein correction. The *unified* launch time of Artemis II to the Moon according to the 25th reference standard of the lunar belt was: **09:059 LTC** (April 2, 2026, 01:35 moscow time/April 1, 2026, 18:35 EDT). *Unified* landing time: **00:007 LTC** (April 11, 2026, 03:07 moscow time (MSK) /April 10, 2026, 20:07 EDT; *00:07 GMT*). The conclusion of Murtazin, Head of the Ballistics Department of RSC Energia [2].

Keywords: planetary space industrialization; reusable rocket; reusable spaceport; space complex; offshore platform; western spaceport on the island of Cuba and Cape Canaveral; eastern spaceport on the Kuril Islands; unified 25 lunar time zone. The annular meridian, as the sum of the zero meridian of Greenwich [00°] passing through the poles, into the meridian of the Magellan date change [±180°].

I. ON MARCH 17, 2026, THE US SENATE DEMANDED THAT NASA LEGISLATE TO BUILD A PERMANENT BASE ON THE MOON AHEAD OF CHINA

The Moon colonization program was adopted by Trump, the 45th President of the United States, who issued Decree No. 1 on colonization of the Moon on December 11, 2017. Washington is not going to concede to China in the lunar race and wants to reinforce its desire for primacy not only with political statements, but also with legal obligations for NASA.

China has stated that it plans to start building a base at the south pole of the Moon by 2035. And judging by the pace of development of the Chinese space program and robotics, China really has a serious chance of becoming the leader in this race. NASA now faces not just the task of "returning to the Moon," but a specific commitment to build a base and do it before China. In this context, Russia, with its "successes" in the economy and in space, is not even considered in the United States today as a real competitor in the colonization of outer space in general, and the Moon in particular.

Has the Russian economy averaged almost zero or even negative growth since 1991 to 2026? According to statistics, GDP growth averages no more than 1% per year [data from Academician Aganbegyan]? Is Russia's cosmonautics 55-65 years behind the United States? Did the collapse of the USSR objectively become an act of Russia's "geopolitical" and economic "suicide"? [4]

As a first step towards the practical colonization of the Moon, NASA has successfully implemented the Artemis I automatic lunar flyby mission program, which was conducted from November 16, 2022 to December 11, 2022.

As a second step, a successful mission was conducted - the Artemis II manned lunar flyby program, which was conducted from *April 1*, 2026, at 18:35 EDT [April 2, 2026, at 01:35 Moscow Time] to *April 10*, 2026, at 20:07 EDT; [April 11, 00:07 GMT] (April 11, 2026, 03:07 Moscow TIME).

According to the 25th lunar time zone, the *launch* time ["launch longitude"] was the same universal value for all 24 Earth time zones: *09 chronos (chr.) 059 min* [or briefly: **09:059 LTC**].

According to the 25th lunar time zone, the time of *landing* ["longitude of landing"] was the same universal value for all 24 Earth time zones (*00 chronos (chr.) 007 min*): **00:007 LTC** (April 10, 2026, 20:07 EDT; April 11, 2026, 03:07 MSK; 00:07 GMT).

On April 7, 2026, the Orion spacecraft flew at a distance of approximately 6,400-9,650 km from the lunar surface, circled the far side of the Moon and received a "gravitational boomerang" that sent it back to Earth. *baby.ru; naukatv.ru*.

The maximum approach to the Moon occurred at 02:02 Moscow time [MSK], when the spacecraft passed about 6550 km above its surface.

Orion had disappeared from Earth's field of view behind the moon for about 40 minutes 20 minutes earlier. The crew got in touch again at 02:25 Moscow time. [5] The mechanism of returning to Earth.

Thirty minutes before entering the atmosphere, Orion dropped a service module with engines. The capsule with the crew entered the dense layers of the atmosphere at a speed of ≈11.2 kilometers per second. *ura. News*.

Flooding occurred in the Pacific Ocean off the coast of San Diego. The spacecraft entered the atmosphere at a speed of almost 40,225 km/h, withstood the heating of the shell to 3,000 °C and parachuted on April 10, EDT (April 11, 2026 GMT/MSK). *ura. news; naukatv.ru*

The launch of the Artemis II flight and its 10-day flight were carried out almost exactly on the Jewish Passover [Exodus; Passover] from the evening of April 1 to the evening of April 9, 2026.

II. CREATING THE UNIFIED LUNAR TIME SCALE. NASA'S POSITION TODAY

1). Addressing the issue of creating a single lunar time scale, on April 3, 2024, Reuters reported that the White House instructed NASA to create the unified time standard for the Moon and other celestial bodies. kommersant.ru; ixbt.com.

This is a direct assignment from NASA, received from the US Government, to create the 25th lunar time zone by analogy with the 24th existing time zones on Earth under the American Calder Act of March 19, 1918.

[The NASA SCaN program serves as the office of the US Agency for Space Communications and Navigation.]. [10, 11]

2). According to the instructions of Arati Prabhakar, head of the White House Office of Science and Technology Policy (OSTP), a plan to establish coordinated lunar time (LTC=ULT) should be submitted by the end of 2026. *RBC.ru; ixbt.com*.

The aim of the project is to provide time benchmarks for lunar vehicles and satellites, which require exceptional accuracy to complete their tasks. *rg.ru*

3). Without the unified standard for lunar time, it is difficult to ensure the security of data transmission between spacecraft and the synchronization of communications between Earth, lunar satellites, lunar and other space bases and astronauts. *kommersant.ru; ixbt.com*,

4). The unified standard of lunar time, the 25th time zone, is necessary to plan and carry out the landing on the Moon of the Artemis IV crew members. Without resolving the issue of a reference standard estimate of lunar time by the end of 2026, it is impossible to carry out large-scale long-term colonization of the Moon.

5). Currently, there is no single generally accepted reference standard for calculating time on the moon. Therefore, activities on the Moon are coordinated using the time zone of the place on Earth where the headquarters of the spacecraft launch mission into outer space is located [that is, there is an orientation to UTC time of a specific launch site on Earth].

6). For example, the Apollo missions used the local Central Time Zone of the United States, since control was carried out from Houston, Texas.

Chinese activity on the Moon is conducted according to local Chinese Standard Time. *en.wikipedia.org*. This situation is inconvenient for mass flights to the Moon.

7). By the end of 2026, NASA plans to develop the unified coordinated lunar time (LTC=ULT) — the unique, fixed, unified, reference standard system for lunar time – the 25th time zone.

8). It should be ready by the time of the planned first manned flight and landing of NASA astronauts on the Moon under the Artemis IV program.

9). S.L. Morozov solved the issue of the reference standard 25 lunar time zone in 2023. The publication was published in 2024 in London. [1]

III. THE WAY TO ESTIMATE TIME IN LUNAR NAVIGATION. THE POSITION OF THE UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS.

1). All calculations of flight time to the Moon, where applicable, are based today only on the Earth's UTC calendar scale (NPLI) – "Earth coordinated time". [11].

UTC was introduced in 1972 by the International Bureau of Weights and Measures (BIPM) as a result of the need to create a unified time standard for international communications and navigation on Earth.

Peaceful use of outer space. Humanity is entering a new era of lunar exploration, in which a record number of states and organizations are participating, and this may forever change our relations with our nearest celestial neighbor.

2). Member States are working with the United Nations to preserve the Moon as an area of global cooperation, guided by the fundamental principle of the Outer Space Treaty: "the exploration and use of outer space, including the Moon, should be carried out in the interests and for the benefit of all countries." Created by the UN General Assembly in 1959.

3). The UN Committee on the Peaceful Uses of Outer Space plays a key role in shaping international space law, addressing new challenges and promoting international cooperation.

4). The United Nations Office for Outer Space Affairs serves as the Secretariat of the Committee. It supports this work by helping countries create the necessary legal, institutional, scientific and technical conditions for the development of space ecosystems and the benefits of space.

IV. RESUME

1. The Moon is unavailable for instrument research today. ESA believes that in order to achieve an accurate estimate of lunar time, an "ensemble of atomic clocks" must be physically placed on the Moon. But this event is scheduled at ESA no earlier than 2031.

2. Nature itself coordinated the dynamics of the movement of the Earth and the Moon. On Earth, it is possible to use two different annual calendar systems: a) 12-month and b) 13-month.

3. On the Moon, it is possible to use only one annual calendar system - the 13-month calendar. Therefore, the unified lunar-terrestrial calendar can only be 13-month. It was created 10 years ago [2016] and operates as the state-owned space state "Asgardia", it is freely available on the Internet.[3]

4. The Moon does not have the terrestrial "Magellanic date line" when moving from the Western Hemisphere to the Eastern Hemisphere and vice versa [the Moon does not have a transition between the hemispheres]. The Moon always faces the Earth with only one side.

5. Time on the Moon is therefore not circular, as on Earth, but linear and the same throughout the Moon on both sides. Such the calendar of the linear reference standard of lunar time was first created by S.L. Morozov.

He works on the Internet [3]. In 2023, S.L. Morozov made the discovery on the unified linear reference standard for the lunar time zone. [1]

The Space Age needs the "Unified dynamic reference standard Christian fixed digital calendar for Earth, Moon, and Business."

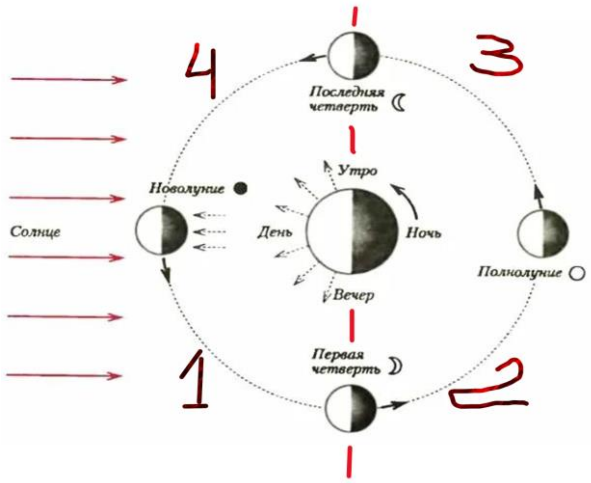
The automatic dual simultaneous Keplerian-Gregorian digital 13-month space annual report card the Morozov calendar, uniform for the Earth and the Moon, [dynamic reference standard] has been available on the Internet since 2016.[3]

V. THE LENGTH OF TIME OF ONE REVOLUTION (CYCLE) OF THE MOON DEPENDS ON THE POSITION OF THE «OBSERVER» RELATIVE TO THE MOON

1). *Regarding the "observer" on the star Spica* in the constellation Virgo (the constellation on the flag of Brazil), which is located at a distance of 303 light-years from the Sun, the Moon has an average duration of one full sidereal month ≈27.321661 average solar days (27 days 7 hours 43 minutes 11.5 seconds). *dic.academic.ru; bigenc.ru*.

2). *Relative to the "observer" on the Earth at the latitude of Jerusalem*, the Moon has an average duration of phase change in the form of a "molad interval" of the Synodic Jewish month ranging from 29 days 6 hours 30 minutes (29.27 days) to 29 days 20 hours (29.83 days). The oscillation range is about 13 hours and 30 minutes. *en.wikipedia.org*. The Hebrew calendar uses the long-term average month length, which is known as the "molad interval." It is equal to the average synodic Jewish month, since ancient times, and is 29.520594 days. *en.wikipedia.org*

3). *Relative to the "observer" on the Sun*, the full light cycle of the Moon is exactly *28 days – four light phases of 7 days each*.



Luminous solar Astronomical 4 Phases of the Moon

The light solar cycle of the Moon (the light lunar day is equal to the light lunar month). The Phases quarters of the Moon (7 Earth days in each).

The linear lunar day contains 10 chronoses of 2.4 Earth hours each. Total: both the circular earth day and the linear lunar day contain the same total number of hours – 24 hours.

Each earth's circular hour has 60 minutes. And in each linear lunar hour there are not 60 minutes, but 144 minutes [60 minutes*2.4=144 minutes].

That is, each lunar minute, as well as each earth minute, contains the same number of seconds, exactly 60 seconds each.

The linear lunar month contains 280 lunar chronos hours [28 lunar days*10 hours-chronos=280 chronos] or 672 terrestrial circular hours [280 chronos*2.4=672 terrestrial hours]. *The lunar day and the lunar night have an average duration of 140 linear chronoses each.*

The Earth passes through all 24 geographical time zones in one Earth day. The lunar time zone is equivalent to an independent geographical time zone. It is rigidly linked to the Greenwich time zone, like all other 24 geographical time zones of the Earth.

The "watershed" or the reference point of the Moon's light solar cycle – the lunar day - is *located strictly along the line between the end of the first and the end of the third phase.*

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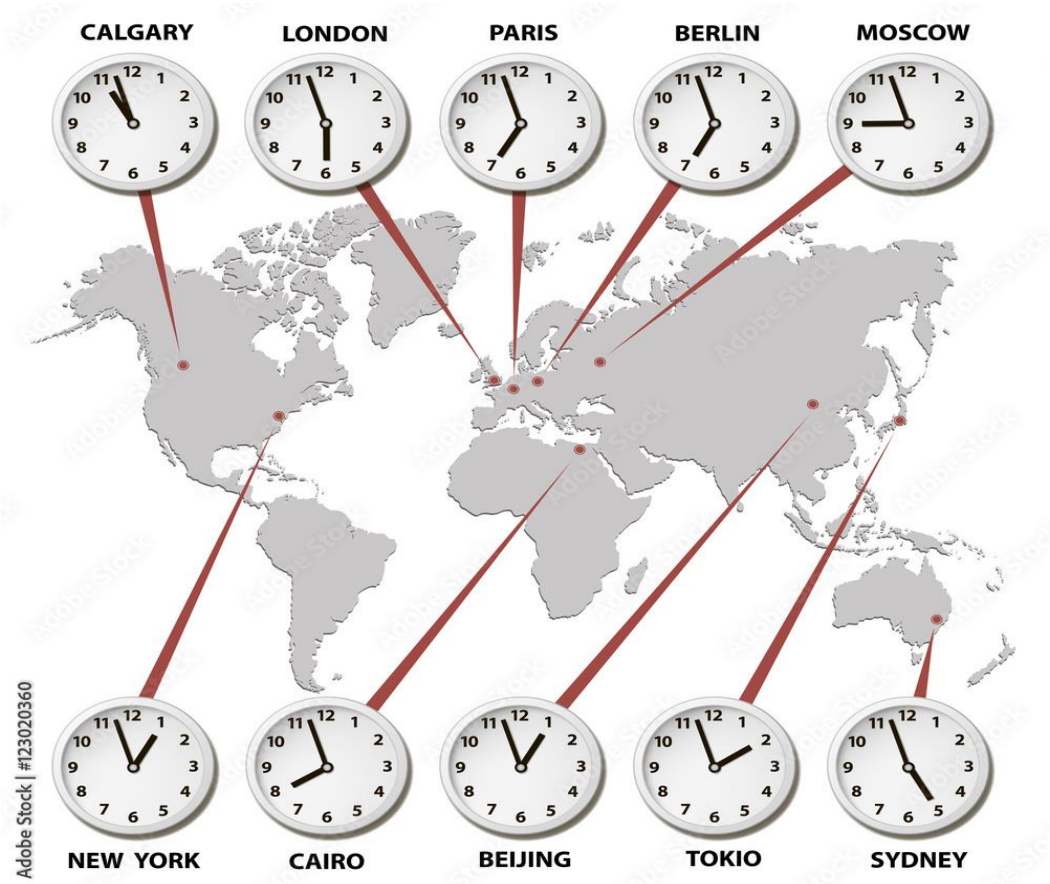
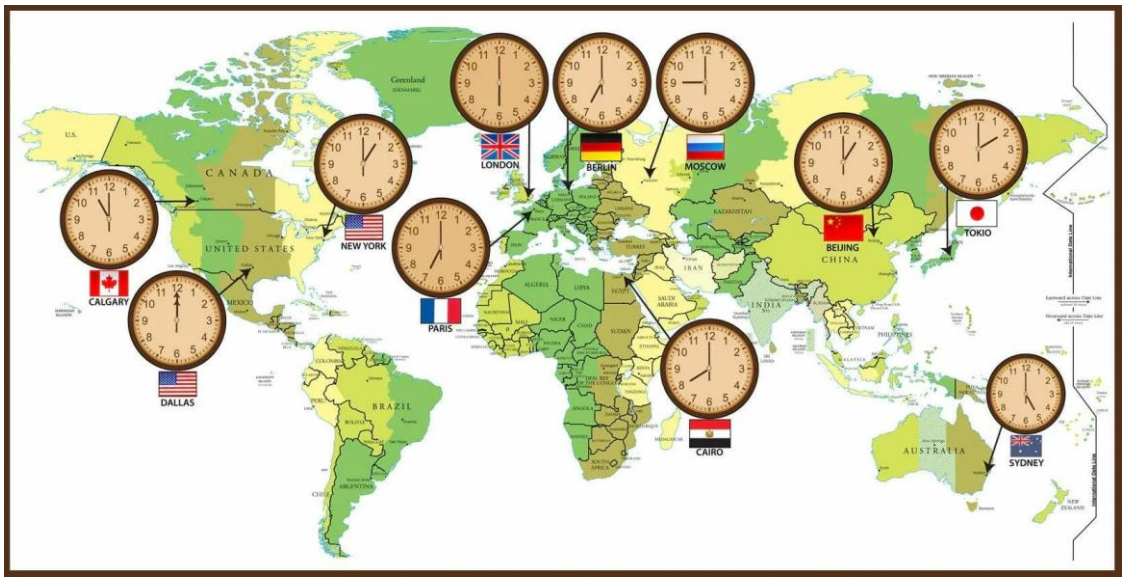
The "watershed" or the reference point of the Moon's light solar cycle – the lunar day - is located strictly along the line between the end of the first and the end of the third phase.

One average "light solar" cycle of the Moon for a fixed observer on the Sun itself is 28 days. Of these, on the equator of the Moon, 14 days are the light part (lunar day); and 14 days are the dark part (lunar night).

The same time takes place on the entire surface of the moon; this is a single reference standard lunar time zone. In 2023, S.L. Morozov resolved the issue of a single linear lunar reference time standard. This is a single 25 lunar time zone. The publication was published in 2024.[1]



There is the Unified linear reference standard lunar time of the Universe for all 10 time zones. This is the unified reference standard 25 lunar time zone: *07 chr. 069 min*. ULT=LTC – or for short: **07:069 LTC**



The NASA Central Control Center in Houston has 11 time zones of observation. For all 11 time zones, there is the unified linear reference standard lunar time of the Universe. This is the unified 25 lunar time zone:
07 chr. 072 min. – ULT=LTC – or briefly: **07:072 LTC**

Time is at the poles of the Earth. The polar orbit paradox or the pole time paradox: "What is the time at the poles of the Earth"? Time at both poles of the Earth will always be the same.

All 24 meridian time zones converge at the poles. This is the pole time paradox. But they have the unified and unique lunar time. This is the unified reference standard 25th lunar time zone: *(XX) chr. (xxx) min. – ULT=LTC* – or for short: **(XX):(xxx) LTC**. You can't do without it in polar orbit.

LUNAR [MOON'S OR LUNA'S] TIME OR TIME OF THE MOON

This is the absolute [or effective] time of the cosmos in units of "khronos" or "lunar quasi–hours" [from 0 to 9 khronos]

LUNAR TIME 07 хр: 136 мин : 35 сек : 608 мсек

(GMT+03:00) Moscow, St. Petersburg, Kuwait 22 ч : 04м : 35с : 608мс

Z Timezone	C Annual cycle	Y Year	A Day of the Year	M Month	D Day of the month	W A week	d Day of the week	L/T Time
	Long cycle	Space	Space	Space	Space	Space	Space	Lunar time
(GMT+03:00)	0	2026	104	IV TAU	20	15	6 FRI	07:136:35:608
	Short cycle	Gregorian	Gregorian	Gregorian	Gregorian	Gregorian	Gregorian	Local time
	15	2026	104	IV APR	14	16	2 TUE	22:04:35:608

The tableau of the unified reference standard lunar time [3]

VI. THE FIRST SUCCESS OF NAVIGATING THE 13-MONTH CALENDAR ON THE FLIGHT TO THE MOON

Decree No. 38 On the implementation of the 13-month State space calendar of Asgardia was adopted on 16 Capricornus 0003 (December 18, 2019).

The module of the first space state of Asgardia, located on the *Blue Ghost* lunar probe of the private American company Firefly Aerospace, which has been officially using the state 13-month space calendar for 10 years [2016-2019].

The Blue Ghost lunar landing probe of the private American company Firefly Aerospace *made the 100% successful soft landing on the Earth's natural satellite on March 2, 2025, after a month and a half journey to the Moon*.

The moon landing took place at *03:34 EDT* on the East Coast of the USA (or at *11:34 Moscow time*). According to the unified standard of the reference lunar time: **Aries [Aries], 5; 2025**, *03 chronos (chr) and 082 minutes* [**03:082 LTC**]. There is a navigational accuracy of the Moon landing. *stoletie.ru*

For comparison: the Russian AMS Luna-25 crashed on August 19, 2023 on the surface of the Moon due to the *navigational error in determining the altitude above the landing site.*

Similarly, on **October 19, 2016**, ESA's Schiaparelli descent module crashed while landing on the surface of Mars. The cause of the accident was a navigation error in the operation of the inertial measurement unit, as the result of which the *navigation altitude above the landing site on Mars* was incorrectly determined. *ru.wikipedia.org**

On **March 2, 2025**, the Asgardia space State successfully delivered its **Coat of Arms, Flag and Constitution** to the Moon in the Sea of Crises on the USS Mission 139 spacecraft called the *Blue Ghost*.

VII. THE PROBLEM OF REUSABLE SPACECRAFT

On March 30, 2026, an absolute record for reusable space launches was set: Elon Musk's Falcon 9 flew into space and returned 34 times. [6]

March 30, 2026 from Cape Canaveral Space Center (SLC-40) The Falcon 9 rocket launched another batch of 29 Starlink satellites into low Earth orbit.

The few minutes after launch, the first stage, the absolute leader of the SpaceX fleet, made an accurate landing on the Just Read the Instructions marine unmanned platform ship in the Atlantic.

It was a dynamic, powered, fully controlled, precise landing at a pre-arranged location at sea, rather than a passive parachute landing. This is the 34th flight of the same accelerator in just over five years of operation. B1067 has already flown with NASA cargo (including Crew and CRS missions), with European and Asian satellites.

The significant part of the flights is devoted to the deployment of the Starlink constellation. The 33rd flight took place about a month ago. *The company continues to increase the life of boosters: the goal is to bring them up to 40 or more flights*.

VIII. ACUTE SHORTAGE OF REUSABLE SPACEPORTS AND ROCKETS: IN THE UNITED STATES, ALMOST ALL NASA SPACE LAUNCHES ARE PERFORMED FROM THREE REUSABLE, ENVIRONMENTALLY FRIENDLY SPACEPORTS AT CAPE CANAVERAL

The *revolutionary transition* from disposable spaceports and rockets to reusable ones. The limited number of reusable spaceports in the United States threatens the country with congestion in terms of launches, according to *The Wall Street Journal.*

Almost all American launches are carried out from only three eco-friendly reusable spaceports [out of 14 available] located in Cape Canaveral, Florida, due to strict environmental restrictions.

In 2023, 145 rockets were launched, 134 of which were carried out by Elon Musk's SpaceX company. In 2024, the Cape Canaveral Space Center in Florida became the most popular and busiest [9] — 93 rockets were launched from it (21 more than in 2023).

The problem is particularly acute for small space companies, which have to adjust to the schedule of larger players in the space industry. In search of a solution, the space industry has turned its attention *to alternative sites*, including the northern spaceport on *Kodiak Island in Alaska*, right on the border with Russia.

Currently, the *American Kodiak cosmodrome in Alaska* is undergoing a permit procedure for up to 25 launches per year, which may partially relieve existing spaceports and provide new opportunities for small space companies. [*the Vostochny cosmodrome in Russia is designed for about 10 one-time launches per year*] [7]

IX. CONCLUSION" BY R. MURTAZIN ON "DISPOSABLE SPACE" IN THE USSR AND IN RUSSIA

In May 2025, the head of the ballistics department of RSC Energia, *Rafail Murtazin*, publicly pointed out in an interview with MK that reusable flights from the Vostochny cosmodrome were objectively impossible.

"Our rockets, when launched from the Vostochny cosmodrome, fly over mountains and gorges at almost all inclinations. And where there are no mountains, there is a frozen, uninhabited tundra." "*In the case of disposable rockets*, it does not matter what kind of terrain is under it." "*But since there was no program to create reusable launch vehicles in 1993, no one took this circumstance into account when choosing the location of the Vostochny cosmodrome*.

And even if there was such a program, no one offered another place for the cosmodrome, except for Vostochny." "To carry the return stage after landing [*by parachute*] Roscosmos has planned to fly the world's largest Mi-26 helicopter. And there are no guarantees that such an operation will take place without damage to the stage or helicopter.

In short, in our conditions of continental spaceports, there may be no economic effect. "*The use of mobile sea-based landing platforms on land is, of course, impossible.* [2]

X. "CONCLUSION" BY IVAN MOISEEV, HEAD OF THE INSTITUTE OF SPACE POLICY

During the development of Soyuz-5, the possibility of [*passive*] return of the first stage *by parachutes* was considered. This made it possible to make the rocket [passively] reusable. The Falcon 9 and Soyuz-5 are almost comparable in payload capacity, but on condition that the first stage of the Falcon 9 is non—returnable.

If the first stage of the Falcon 9 is dynamically returned to earth on the engine, then its payload capacity automatically becomes 15.6 tons instead of 22.8 tons [part of the fuel is spent on breaking the rocket before landing].

The single-use (non-returnable) Soyuz-5 is larger than the returnable version of Elon Musk's rocket by about 10-15%. In the Falcon 9, the first stage returns when there is an excess of power, when the rocket is not fully loaded with payload.

In the reusable version, it flies with an underload of about 25-30%. And when it is necessary to launch a heavy satellite, the first stage of the Falcon 9 is made disposable, it does not return, and then the Falcon-9 becomes more powerful than the Russian Soyuz-5.

In the Russian Soyuz-5, the first stage is heavier than the Falcon-9 by almost 10 tons. This is because the domestic rocket is made of more massive aluminum-magnesium alloys, while SpaceX uses aluminum and lithium-based alloys.

The latter are 40% lighter than aluminum and magnesium alloys, although it costs more. Therefore, the payload of the Soyuz-5 is ≈10 tons less than that of the Falcon 9, all other things being equal. [8]

The first stage of the Soyuz-5 rocket *is not returnable*. 3dnews.ru In 2020, the head of the RCC Progress announced that there are no plans to create actively recoverable stages [on engine braking] for Soyuz-5. "Instead of placing production on site, somewhere in Komsomolsk-on-Amur, space technology is transported across the country by rail, which has restrictions on the weight of cargo and its dimensions." It is very expensive. These are objective limitations for all Soyuz-5 series missiles and Angara series missiles.

The Vostochny cosmodrome is today, unfortunately, perhaps an expensive one–time technological dead end for disposable Russian cosmonautics, which practically cannot be reusable either at the Vostochny cosmodrome or at all other 5 continental cosmodromes in Russia.

This one-time spaceport problem, along with the 1966 [Soyuz] and 1965 [heptyl Proton] disposable rockets themselves It is an irremediable negative birthmark of the former USSR, *which has been inherited by modern Russian cosmonautics*.[2]

Today, according to *The Wall Street Journal*, there is a worldwide shortage of reusable eco-friendly spaceports due to the sharply increased need for the coming era of space Industrialization.

In the United States, only two giant factories of Elon Musk intend to produce up to 10,000 rockets per year and launch up to 1,000 rockets per month into space to the Moon alone. Thus, up to *200 rockets per day* will have to be launched per launch window [the Vostochny cosmodrome in Russia is designed for *about 10 launches per year*]. None of the 6 Russian single-use continental cosmodromes are operating in reusable mode today.

In the USA, only three spaceports [out of 14 available] fully meet environmental reusable standards. All of them are located on the Florida Peninsula at Cape Canaveral.

Is Russia today theoretically insufficiently protected from defeat in a missile war with the United States? Is the entire northern geographical arc of Russia from the Kola Peninsula to Kamchatka and the Bering Strait almost de facto open?

Is Russia open to hitting US ICBM missiles from Greenland if they are installed there?

Is there a direct threat of control of the Northern Sea Route from Canada, Norway, Greenland and Alaska?

In Soviet times, there was no such acute problem in principle. But now this acute problem needs to be solved as an independent strategic task.

XI. THE WESTERN REUSABLE SPACEPORT PROJECT IN CUBA

It can be assumed that NASA can significantly expand the capacity of its three unique modern reusable spaceports at Cape Canaveral by opening a branch in Cuba.

Logically, it is an ideal location for the sea transportation of large rockets from factories in California and Texas through the Panama Canal.

We are talking about a reusable spaceport project in Cuba, as an addition to the spaceports at Cape Canaveral, in the Western Hemisphere of the Earth. Can it be made equally "for five": the USA, Cuba, China, India and Russia?

In a geopolitical sense, the middle and southern parts of Cuba's territory may be convenient for equipping the latest reusable spaceports and launch pads.

In addition to the three existing reusable spaceports at Cape Canaveral, NASA can easily add up to 50 new spaceports and launch sites in Cuba. The strategic and commercial interesting here is obvious.

Cuba is closer to the equator than Florida, and is more convenient in terms of logistics for sea and air transportation. *In Cuba, it is convenient to use mobile sea-based landing platforms for precisely refloated reusable rocket stages.*

The United States and Russia can either take the necessary territory on a long-term lease from the Cuban government, or work together with Cuba, or even with the addition of China and India to this team. *Why is it beneficial for Russia?*

XII. THE EASTERN REUSABLE SPACEPORT PROJECT ON THE KURIL ISLANDS [DKK]

Russia today has 6 continental "one-time" spaceports:

1). Plesetsk;

2). Kapustin Yar;

3). Yasny;

4). Baikonur;

5). Free;

6). Vostochny

All of them were designed for disposable missile systems. Therefore, even if Russia acquires or manufactures reusable missile systems itself, it will not be able to physically use them.

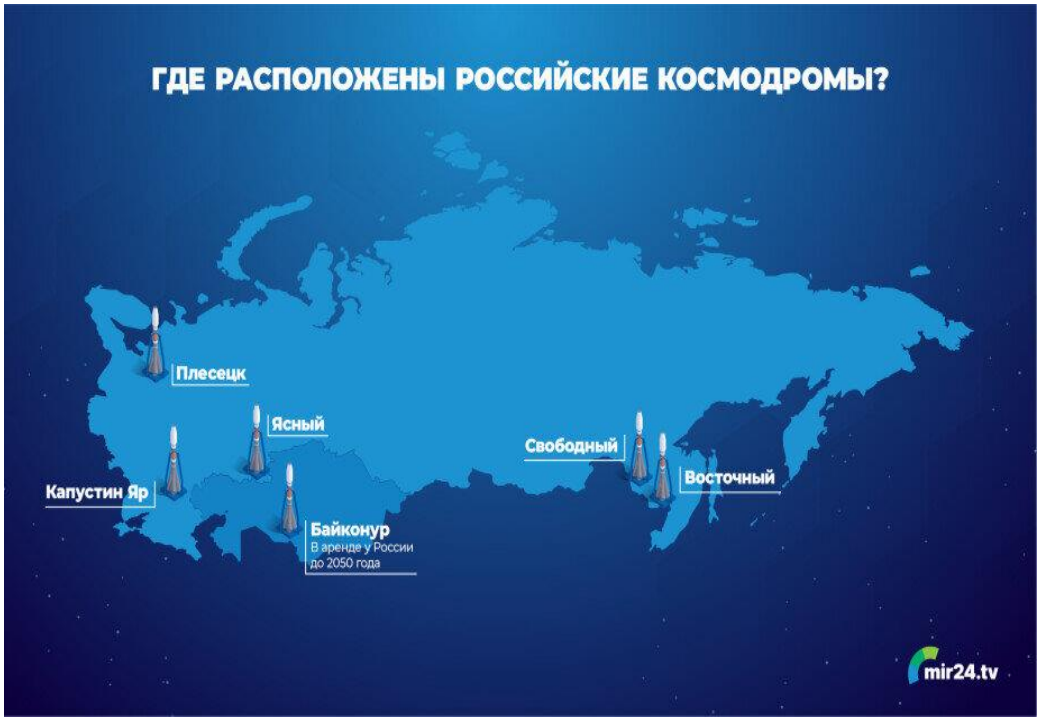
If Russia wants to stay in the space trend, it must build new reusable spaceports to use reusable rocket systems.

The "conclusion" on the entire "disposable space" in the USSR and in Russia, as a technologically backward dead end, was made by Rafail Murtazin, head of the ballistics department of RSC Energia.

Therefore, we have proposed to build

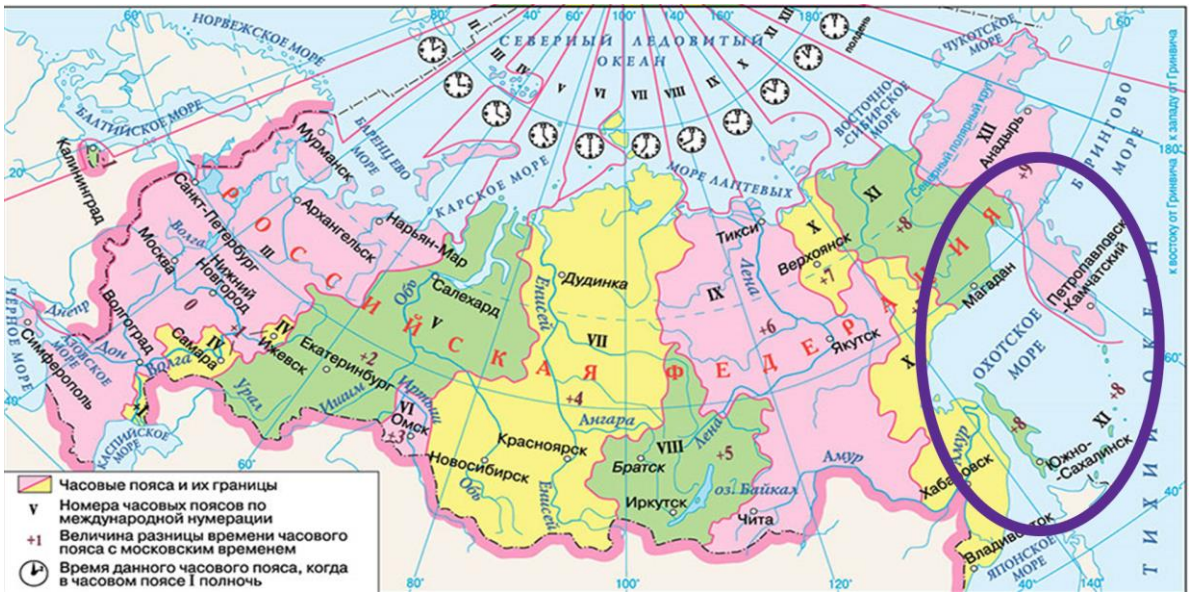
1). The Russian Far Eastern Reusable Space Complex (RCC) on the Kuril Islands [Eastern Reusable Spaceport], and be a founding member

2). Reusable Western spaceport in Cuba. Technically, these projects are very similar.[2]

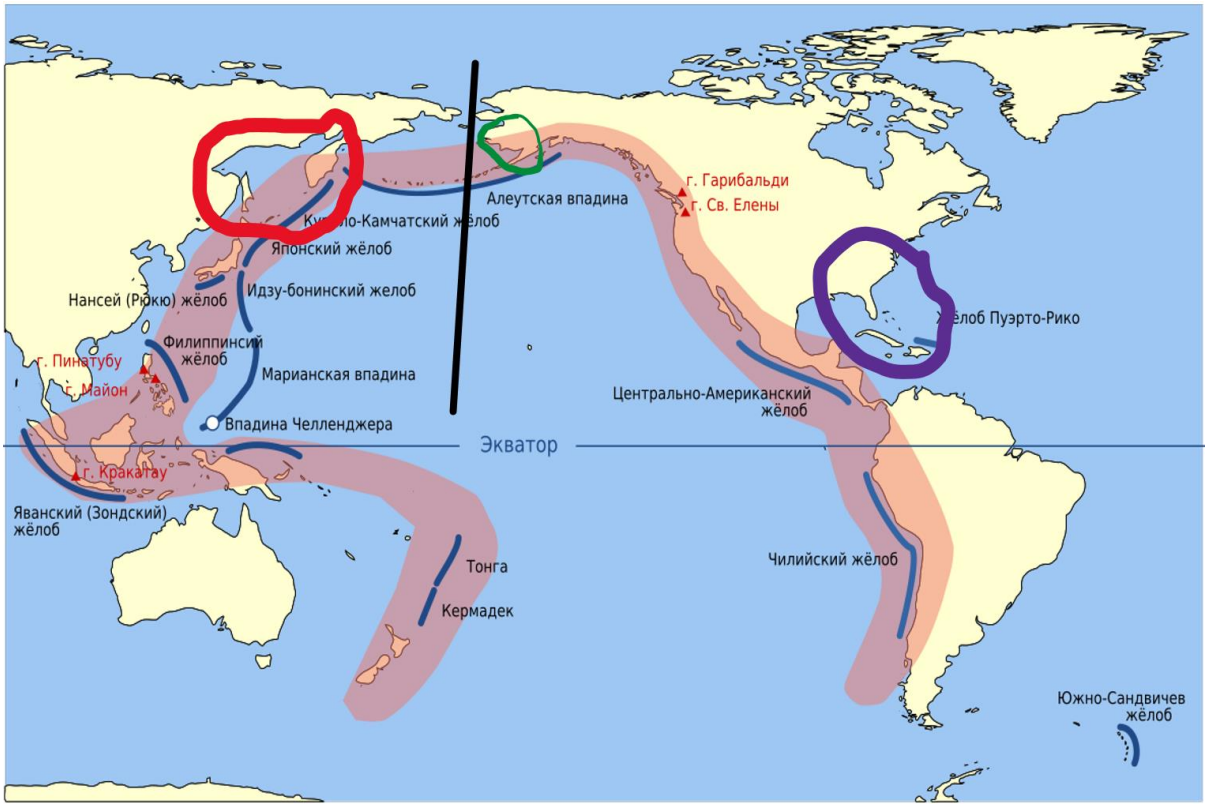


Are Russia's six continental single–use spaceports a dead end in the development of cosmonautics?

The Vostochny cosmodrome has two launch complexes [the third in the project]. On the "East". In the 10 years [2016-2025], 20 orbital launches were completed, with an average of 2 launches per year. The estimated load is approximately 10 one-time launches per year. Full-fledged reusable launches are fundamentally impossible from any of Russia's 6 continental cosmodromes.



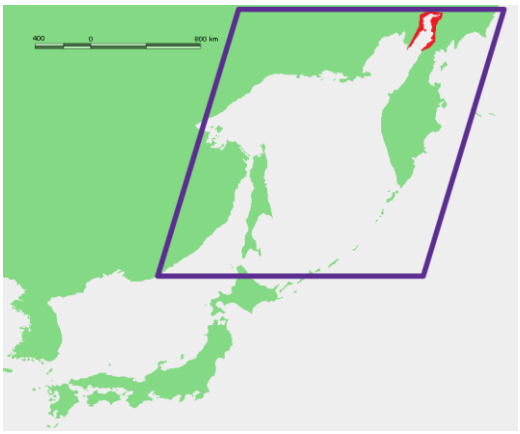
Russian Far Eastern Reusable Space Complex [DKK]



The geopolitical location of the eastern and western world spaceports "Japan-Kuril-Sakhalin" Pacific seismic belt

The territory of the proposed Far Eastern reusable space complex [DKK – Krasny Krug], a Russian reusable spaceport on the Kuril Islands, has been allocated. USA Kodiak Cosmodrome in Alaska [green circle]. The U.S. spaceports at Cape Canaveral in Florida [purple circle] – and the American western reusable spaceport in Cuba.

THE PROPOSED TERRITORY OF THE DKK



The DKK should include:
1). Sakhalin Island;
2). Kuril Islands;
3). Kamchatka Peninsula;
4). Penzhinskaya Bay;
5). shipbuilding plant;
6). aviation plant

XIII. UNIFIED GLOBAL SPACE NAVIGATION BASED ON THE UNIFIED REFERENCE STANDARD 25 LUNAR TIME ZONE

The proposed American Western reusable spaceport in Cuba is located geopolitically in the Western Hemisphere of the Earth.

The proposed Russian eastern reusable spaceport is located geopolitically in the Eastern hemisphere of the Earth. But functionally, it is the same planetary space system, dialectically interconnected through the Panama Canal.

Global space industrialization will physically develop through the construction and interaction between these two global spaceports. Figuratively speaking, these will be the basic, cornerstone objects of K.E. Tsiolkovsky's unified sixth space socio-economic formation.

The unified linear reference standard of lunar coordinated time - the unified 25th lunar time zone - is considered in this context as the unified, universal, absolute, global time of the world space civilization. It is objectively the basis for a unified space and terrestrial navigation. Both global spaceports [East and West] will complement each other perfectly logically through the Panama Canal.

After the launch of these two global projects, up to 80% of all space launches will take place through them. These two convenient spaceports represent the future of world space exploration in the 21st century.

XIV. CONCLUSIONS

The Moon colonization program of Trump, the US President, who issued Decree No. 1, 2017, served as the beginning of the transition of civilization to the stage of planetary space industrialization within the framework of Tsiolkovsky's space socio-economic formation. Artemis II was launched to the Moon on April 2, at 01:35 Moscow time (April 1, at 18:35 EDT).

The launch time according to the reference standard of the 25th lunar time zone [1,3] is the same for both spaceports: **09:059 LTC**.

The time of Artemis II landing on Earth is the same: **00:007 LTC** (April 11, 2026, 03:07 Moscow time / April 10, 2026, 20:07 EDT; 00:07 GMT).

The first proposed spaceport on the island of Cuba and Cape Canaveral is located in the Western Hemisphere. The second spaceport is located on the Kuril Islands in the Eastern Hemisphere.

These are two parts of a single system of spaceports connected through the Panama Canal.

The Eastern and Western spaceports will cover the needs of both hemispheres of the Earth in all types of satellite orbit inclinations.

The meridian ring divides the globe at the poles into two hemispheres, the Western and Eastern, and is a key navigation element from which 24 terrestrial time zones, longitude, with a zone duration of 1.0 hour, 15° each, are counted.

To the indicated 24 hourly time zones of meridian longitude [Standard Time Act, 1918, known as the American Calder Act], the 25th hourly zone of lunar time is added.

A relativistic Einstein correction is made in the amount of 1 second every 50 years (time on the Moon is shorter than time on Earth).

The conclusion of Murtazin, head of the Ballistics department of RSC Energia [2], is given, which shows the objective impossibility of conducting reusable flights from the Vostochny cosmodrome and from all other five Russian continental cosmodromes.

In 2023, Morozov for the first time resolved the issue of the unified 25 lunar reference standard time zone. [1,3]

The Space Age needs the Unified dynamic reference standard Christian fixed digital calendar for Earth, Moon and Business. [3]

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