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One Hundred and Eight minutes

April 12th 1961: Yuri Alekseyevich Gagarin opens the gates of the sky

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April 12th 1961 – April 12th 2011.
Fifty years have passed from that 108 minutes that stunned the world in which the 27 years old always smiling and pleasant looking cosmonaut Yuri Alekseyevich Gagarin (1934-1968) became the first human being in space. Today, fifty years later, Russia and the whole world proudly celebrate this man and the milestone placed by him and by the great team of engineers led by Sergei Korolev who designed and built the Vostok spacecraft.
Today the whole world celebrates Gagarin, but in the early sixties the world was different from today. Paranoia is the keyword best explaining that times: the world was fighting the cold war between the Western world and the Soviet block. At that time, Nikita Khrushchev, the successor of Stalin, was ruling the Soviet Union and Gagarin's successful flight was the second major propaganda coup for the Soviet Union in the space race, after the successful launch of the Sputnik 1 in 1957. The Soviet Union was claiming the technological and ideological superiority of real socialism with respect to capitalism. The mission was kept secret until the last and the announcement of the first man in space was made by Radio Moscow only 53 minutes after its start - once the success had become certifiable.
Despite these facts, the achievement and the courage of Yuri Gagarin remain a matter of fact. He not only opened the gates of the sky to human exploration, but also triggered a series of further achievements which lead the Neil Armstrong to be the first man on Moon on July 21st 1969 and to the first flight of the Space Shuttle Columbia exactly 20 years later, on April 12th 1981.
Nowadays, the cold war is over and space exploration is performed by several nations on the world besides the historical contenders USA and the Russian Federation. Former enemies are cooperating on the International Space Station, regularly serviced by the Soyuz modules and by the Space Shuttles, in their last missions, doing scientific and technological research. Today propaganda represents only a limited trigger for space exploration, which is experiencing a slowing down caused by the enormous financial costs associated to it. It's news of these days that President Barak Obama was forced to cancel the *Moon Return Project* of the NASA for budgetary problems. Space exploration today is limited to maybe less spectacular missions but surely of higher scientific, technological and economical value. Today, we all profit in our daily life from several of the technologies developed for the space exploration, the world has become smaller thanks communication satellites, we navigate with the GPS or have unprecedentedly precise weather forecasts. New materials are developed an experimented in space. The first "space tourists" have already been on board of the International Space Station.

... "POYEKHALI!" ... "Let's go!
[20 seconds of interferences and noise during the lift-off]
***"Dawn-1** [the call sign of Sergei Korolev, the Chief Designer of the Vostok 1],*
***here Kedr** [Cedar, the call sign of Gagarin].*
All goes well. Noise in the cockpit is weak. Feeling good, feeling overloaded, vibration, everything is fine" ...
The lift-off of Vostok 1 is history!

Even if its heart rate was regular, 62 beats per minute half an hour before lift-off, no-one can imagine what Yuri Gagarin was thinking in the endless two hours before the lift-off he passed in the Vostok 3KA-3 (Vostok 1) capsule and in the minutes during and after the start. One fact is that in 1961 no one knew for sure whether a human being could withstand the conditions in space. Some scientists believed that weightlessness could induce madness and

make it impossible to coordinate movements. For this it has been decided to control the Vostok 1 by automatic systems or by ground control. Pilot's manual controls were looked by a code in a sealed envelope to be opened only in case of emergency - Nikolai Kamanin, the supervisor of the mission, gave anyway the code to Gagarin before the mission. In addition to this, it was feared that the extreme G-forces during the lift-off and the re-entry could crush a human body. Finally no one knew the effects of exposure to cosmic radiation. Gagarin knew all these issues. He wasn't simply a well-trained pilot sent in a mission but a very smart and intelligent person. A Soviet Air Force physician evaluated him as follows: "Modest; embarrasses when his humour gets a little too racy; high degree of intellectual development is evident in Yuri; fantastic memory; distinguishes himself from his colleagues by his sharp and far-ranging sense of attention to his surroundings; a well-developed imagination; quick reactions; persevering, prepares himself painstakingly for his activities and training exercises, handles celestial mechanics and mathematical formulae with ease as well as excels in higher mathematics; does not feel constrained when he has to defend his point of view if he considers himself right; appears that he understands life better than a lot of his friends".

Gagarin was selected for the flight among twenty candidates along with Gherman Titov (the backup cosmonaut for the mission and the second human who went in the space, for 25,3 hours and 17 orbits, with the Vostok 2) after an extremely intense training procedure and experiments designed to test physical and psychological endurance. The pilots were brought at the limits of their physical capabilities. In addition, the fact that both Gagarin and Titov were rather short men (Gagarin was 1,57 meter tall) was an advantage to enter in the very small Vostok 1 cockpit: the module had a diameter of 2,3 meters. It has been suggested that Gagarin was favoured with respect to Titov to be the first man in space also for his modest origins, an asset in the Soviet society. Titov was belonging to the middle class. Gagarin was born in Klushino, in the Oblast of Smolensk at the border with Belarus, on March 9th 1943. His father Alexey Ivanovich, a skilled carpenter, and his mother Timofeyevna Gagarina, worked both in a collective farm (kolkhoz). Yuri Gagarin received a technical education and became in his youth a passionate hobby pilot of small aircrafts. After he completed his technical school training he entered in the military pilot school in Orenburg and gained on a MIG-15 his pilot's wings. Gagarin was married and had two daughters.

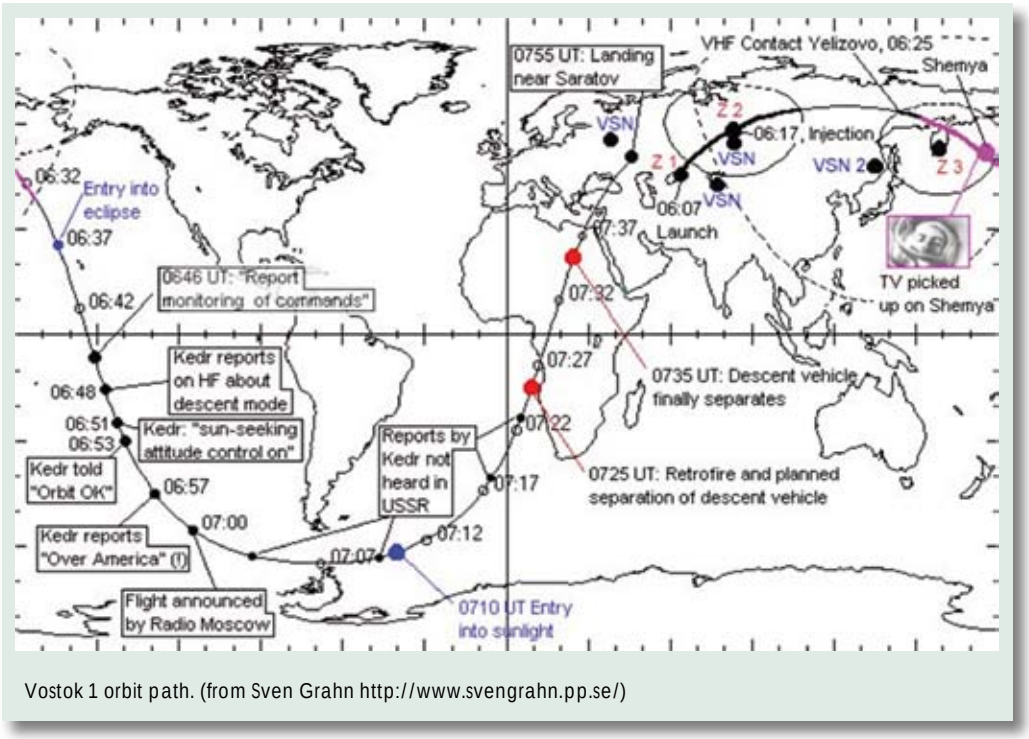
The launch of the Vostok 1 Capsule occurred from the Baikonur Cosmodrome Site No.1 (Kazakhstan) at 6:07 UTC. Orbit was reached on 06:17 with the separation of the last stage of the Vostok spacecraft. Gagarin made one orbit passing over Siberia, the Pacific Ocean (from Kamchatka peninsula to the south of Chile) the South Atlantic Ocean, Africa, the Middle East and landed (parachuted) again in the Soviet Union 108 minutes after the start at 7:55. Gagarin experienced the eclipse of the sun behind earth while flying over the Pacific Ocean and the South Atlantic.

The Vostok 1 landing module.

On 7:00 precisely, while the Vostok 1 was flying over the South Pacific Radio Moscow announced the success of the mission causing sensation all over the world. The mission risked turning into a disaster at its end because the service module didn't detach properly. When finally the cables joining the re-entry module to the service module were torn the landing could proceed correctly: 7000 meters from the ground, the hatch of the Vostok capsule was released, and two seconds later Gagarin was ejected. The main parachute was deployed from the Vostok spacecraft at 2500 meters altitude. Gagarin safely landed, ten minutes later with respect to the module, in the Saratov region of central Russia. The first people to make contact with the newly returned cosmonaut were peasant Anna Takhtarova and her four-year-old granddaughter Margarita. "I looked round and saw this orange monster with a huge head coming towards us" Margarita recalled in an interview with tabloid daily Komsomolskaya Pravda and continued: "Grandma helped Yuri Gagarin take off his helmet -- she pressed some kind of button. And when we saw a smiling face in front of us we understood that it was a human being in front of us".

00:00 UTC	Final testing of the spacecraft begins on the launchpad; Sergei Pavlovich Korolev attends.
02:30 UTC	Yuri Gagarin and Gherman Titov wake and eat Space food for breakfast
02:45 UTC	"Gagarin and Titov undergo tests, which they both pass with flying colours"
03:00 UTC	A Medical service car arrives at the launch site delivering food for the spacecraft.
03:00 UTC	Gherman Titov suits up
03:20 UTC	Gagarin suits up. He and Titov are taken to the launch site
03:50 UTC	Gagarin records his speech to the nation
04:00 UTC	Yuri and Korolev go through pre-flight checks.
05:10 UTC	50 minute alert
05:30 UTC	30 minute alert. Titov is told he can now take off his suit and go to the observatory.
05:50 UTC	Hatch is closed. 10 minute availability. Gagarin is ready to start.
06:07 UTC	"Vostok-1 launches. Yuri Gagarin shouts ""POYEKHALI!"" ('Let's go!')"
06:09 UTC	Booster sections shut down and the nose fairing releases.
06:13 UTC	Rocket core stage shuts down
06:14 UTC	Vostok 1 starts to pass over Russia
06:15 UTC	Gagarin begins to lose radio contact with Zarya-1
06:17 UTC	The Final stages shut down. Vostok 1 reaches orbit
06:21 UTC	Gagarin can see the North Pacific ocean
06:22 UTC	Radio signals from Vostok-1 are picked up on the American Radar Station
06:25 UTC	"6 minutes in orbit, Gagarin asks Zarya-3 for orbital parameters."
06:31 UTC	Gagarin is reaching the VHF radio horizon - soon to be out of radio range.
06:37 UTC	Entry into eclipse
06:42 UTC	Gagarin passes over the North Pacific near the equator
06:48 UTC	Vostok 1 crosses the Equator. Communication is by HF radio
06:49 UTC	Gagarin reports he is on the dark side of the Earth
06.51 UTC	Gagarin switches on sun seeking altitude
06:53 UTC	Khabarovsk Ground Station tell Gagarin he is in a stable orbit
06:57 UTC	Over South Pacific between New Zealand and Chile.
06:57 UTC	Gagarin is announced as MAJOR YURI GAGARIN
07:00 UTC	News of mission is broadcast on Radio Moscow.
07:07 UTC	Status message was not received by ground stations.
07:10 UTC	Entry into sunlight
07:12 UTC	Over the South Atlantic Ocean
07:13 UTC	News of the first man in space is sent out to the World - TASS report. Status message sent by Gagarin is not received by ground stations.
07:17 UTC	Status message sent by Gagarin is not received by ground stations.
07:22 UTC	Status message sent by Gagarin is not received by ground stations.
07:25 UTC	Vostok 1's fires retros for 42 seconds
07:25 +10	Commands sent to separate the service module. Separation fails.
07:26 UTC	Re-entry module and Service module begin a bumpy re-entry
07:35 UTC	"Service Module wires burn through, separation complete"
07:37 UTC	Vostok-1 is over Egypt
07:55 UTC	Vostok-1 capsule lands near Saratov
08:05 UTC	Yuri Gagarin lands
Announcement is made that Yuri Gagarin has landed safely	
Timeline assembled by Vix Southgate, writer and illustrator	

Phases of the Vostok 1 mission on April 12th 2011.



Vostok 1 orbit path. (from Sven Grahn http://www.svengrahn.pp.se/)

After the flight, Gagarin became a worldwide celebrity. He was sent on a world tour to promote the Soviet Union's primate in sending the first human into space. His openness towards everyone he met on his world tour charmed the West in the midst of the cold war. He turned out to be an excellent ambassador and his enormous popularity opened him several doors. The cosmonaut ended up meeting, among many other authorities, the H.M. The Queen of England for a breakfast. When he expressed doubt over how to use the cutlery in front of him, the Queen apparently replied: "My dear Mr Gagarin, I was born and brought up in this palace, but believe me, I still don't know in which order I should use all these forks and knives." She then added in a whisper: "Each time, you take the knife and fork that lie at the outer edge".

Gagarin died in a MIG-15 crash on March 27th 1968 along with a flight instructor, Vladimir Seryogin. In the course of the years several conspiracy theories have arisen on his death. Recently de-classified documents demonstrate that these theories have no fundament.

Today, exactly fifty years later, we can only be grateful to this hero of modern times. It is true that his great achievement was dictated by the Soviet propaganda during the dark years of the cold war, nevertheless Gagarin represented even at that time a positive image for everyone and, as Sergei Korolev once declared, possessed a smile which "lit-up the cold war".

REFERENCES AND NOTES

Several sources were employed to write this article. Among these: The Russian Federal Space Agency (http://www.roscosmos.ru/), BBC (http://www.bbc.co.uk/), The Guardian (http://www.guardian.co.uk/), Die Zeit (http://www.zeit.de/), http://yurisnight.net/, Vix Southgate (http://www.vixsouthgate.co.uk/), Sven Grahn (http://www.svengrahn.pp.se/) and many others.