



PRESS RELEASE
For immediate release

11 October 2005: Russian Cosmonaut Krikalev becomes the Absolute Record Holder in Accumulated Space Flight Time

Lausanne, Switzerland, 8 October 2015 - **Ten years ago, on October 11th 2005 at 01:10:00 (UTC), the manned transport space vehicle “Soyuz TM - 6” landed in the north of Kazakhstan. Hours before, the eleventh expedition to the International Space Station (ISS) undocked and returned to Earth with the three crew members on board. Amongst them was the Russian pilot-cosmonaut Sergei K. Krikalev, who completed his sixth orbital space flight mission over the period from 1988 to 2005. By ending this journey, the total cumulative time he spent in space summed up to 803 days, 9 hours, 39 minutes and 9 seconds and set the [Absolute World Record in the category “Accumulated Space Flight Time”](#). In other words and to give a better idea of the dimension of this truly exceptional achievement: Krikalev spent 2 years, 10 weeks, 2 days, 22 hours, 1 minute and 9 seconds in space, including eight Extravehicular Activities (EVAs or space walks).**

From Engineering and Aerobatics to Cosmonautics

Since he was a little boy, the Russian showed interest in air sports. After he graduated from secondary school, his choice was either to become a military pilot and study engineering on the side or to study engineering and learn all he could about flying. Young Krikalev chose the second option, to study engineering and to join an Aero Club. He competed in aerobatic competitions, winning a national championship and a place on the Soviet national team. Already after four years of testing spaceflight equipment, developing spaceflight procedures and working in-flight control positions, in 1985 he was selected as a cosmonaut.

Over the timeframe of 17 years, the Russian went on six different missions. With the last one he exceeded the [record of 748 days held of Sergei Avdeyev](#) by 7.5%. ICARE President Anu Ojha OBE stated: *“On April 12th 1961, Yuri Gagarin became the first human to orbit the Earth – and since then less than 560 other people have (to date) qualified as astronauts or cosmonauts by flying above the 100km “Karman Line” altitude used by FAI to signify the boundary between aeronautical and astronautical achievements.”* According to Mr. Nicolas Bérend from the French Aerospace Lab ONERA, who functioned as ICARE Technical Expert to review the record claim, this number of space flights was reached by only seven other spacemen, including also one of the five longest spaceflights in history with his second mission aboard the Orbital Station MIR (microgravity research laboratory from 1986 – 2001).

	Expeditions	Launch	Return	Duration	Mission
1.	"Expedition 4" to Orbital Station "MIR" on the manned transport space vehicle "Soyuz TM – 7"	26 Nov 1988	27 Apr 1989	151 days 11 hours 08 minutes 24 seconds	Flight Engineer; Scientific research, experiments, spacewalks
2.	"Expedition 9" to Orbital Station "MIR" on the manned transport space vehicle "Soyuz TM – 12"	18 May 1991	25 Mar 1992	311 days 20 hours 00 minutes 54 seconds	Flight Engineer; Scientific researches and experiments, repair- maintenance and prevention works
3.	On board of the reusable Space Shuttle "Discovery"	03 Feb 1994	11 Feb 1994	8 days 07 hours 09 minutes 22 seconds	Flight Engineer; First joint U.S./Russian space shuttle mission, performances of experiments and studies
4.	On board the reusable Space Shuttle "Endeavour"	04 Dec 1998	16 Dec 1998	11 days 19 hours 17 minutes 59 seconds	Flight Engineer; The crew became the first men to enter the ISS, operating on technical works on the outside of ISS, spacewalks
5.	"Expedition 1" to the ISS on the manned transport space vehicle "Soyuz TM – 31"	31 Oct 2000	21 Mar 2001	140 days 23 hours 38 minutes 55 seconds	Commander; Operations in activation and equipping of ISS systems, service maintenance, joint operations, station development, scientific research and programs
6.	"Expedition 11" to the ISS on the manned transport space vehicle "Soyuz TM – 6"	15 Apr 2005	11 Oct 2005	179 days 00 hours 23 minutes 35 seconds	Commander; Scientific technical researches, equipping and maintaining ISS, spacewalks

"It is a beyond impressive spaceflight record, Mr. Krikalev has had the privilege of contributing to key events in the history of astronautics," Mr. Bérend added, *"he lead a new era of international cooperation in space at the same time as ISS itself."* In fact, Krikalev was inducted into the International Space Hall of Fame at the New Mexico Museum of Space History in 1993 and was quoted with: *"The further you travel, the more you feel part of a big group of people. Traveling outside of Earth, I get this feeling of being part of mankind; it is an international adventure."* He retired from spaceflight in 2007 and today the 57-year old is a prominent rocket scientist and vice president of Rocket and Space Corporation Energia, a Russian manufacturer of spacecraft and space station components.

Time traveler by 0.02 seconds

A captivating detail about this record is the effect of time dilation during his flights. He has actually lived for 0.02 seconds less than everyone else on Earth, this means, he has travelled 0.02 seconds into his own future! The calculation relies on Albert Einstein's theories of relativity, which state that the passage of time is relative and diverse for two objects moving at different speeds (special relativity) or experiencing different levels of gravity as they are slightly further away from the center of the planet (general relativity). The effect of their speed relative to the Earth – special relativity - will be to "slow down" an astronaut's clock relative to a clock on Earth, whilst the effect of their increased gravitational distance from Earth – general relativity - would be to "speed up" their clock relative to a clock on Earth. Both of these competing effects must be measured and combined to give the overall effect for any spacecraft – and for an astronaut aboard the ISS at an altitude of 400km, it's the special relativity effect that dominates, slowing down their internal clocks compared to clocks on Earth. Over the 803 days of his missions, the cumulative time difference between Krikalev's internal space clock and a clock on Earth totals around 0.02 seconds. He is a genuine time-traveller!

Exceeded by countryman Gennady Padalka (Геннадий Иванович Падалка)

Although the FAI has not yet received an official record claim, Krikalev's achievement was just surpassed a few weeks ago by his fellow countryman cosmonaut Gennady Padalka. He and two other cosmonauts flew to the ISS for six months in March this year to conduct research on the influence of weightlessness on the human body to prepare long-term space missions, including a manned flight to

Mars. On September 12th he returned to Earth, after staying in space for 168 days, bringing his total duration up to 879 days with five mission flights and ten EVA's. Therefore, he spent approximately two months more in space than Krikalev.

As Padalka is still an active cosmonaut he even plans to go much further by passing the 1000 days mark. *“That is a symbolic milestone. This figure is significant for space exploration as it is the order of magnitude for the duration of future missions to Mars. A whole new range of astronautic record lies there,”* Mr. Bérend added. *“Even after more than half a century of human spaceflight, the challenges still push our engineering, medical and technological expertise to its limits. The long-duration spaceflight achievements of Padalka and Krikalev are essential stepping stones for future human exploration beyond Earth orbit – if we are to return to the Moon and go further still – to a near-earth asteroid and, ultimately, on a two year voyage to the planet Mars. There are ambitious plans for an international human mission to Mars sometime in the late 2030s and, if they are realized, it means that, right now, in primary and high school classrooms across the world, there are a number of schoolchildren who have no idea at all that in 20 to 25 years' time they may be participating as crew members in the human race's next “giant leap” – the first human landing on another planet,”* the ICARE President added.

We are for sure keeping our eyes open during the next couple of months when we look up to the stars, as with this objective in mind, we are certain Padalka is already planning his next mission to explore the fascination of the wide universe.

- [Download the pictures of the record in High Resolution](#)

About the FAI

The [Fédération Aéronautique Internationale \(FAI\), the World Air Sports Federation](#), is the world governing body for air sports and for certifying world aviation and space records. The FAI was founded in 1905 and is a non-governmental and non-profit-making organisation recognised by the International Olympic Committee (IOC).

FAI activities include Balloons and Airships, Power Flying, Gliding, Helicopter flight, Parachuting, Aeromodelling, Aerobatics, Hang Gliding, Microlight and Paramotor flying, Amateur-Built and Experimental Aircraft, Manpowered flying, Paragliding and all other Aeronautic and Astronautic sporting activities.

For more details, please contact the FAI – Fédération Aéronautique Internationale

Faustine Carrera
Communication Manager
Maison du Sport International
Av. de Rhodanie 54
1007 Lausanne
0041 21 345 10 70
communication@fai.org

###