

The History of Spaceflight (extract)
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1 Non-human astronauts

This is a preliminary list of animals in space. The exact species designations are guesses in many cases, so corrections are welcome.

The major species apart from humans to have flown are dogs, chimpanzees, macaque monkeys, and squirrel monkeys. Some of the information on the Russian dogs is from Colin Burgess' Spaceflight article [?] and Novosti Kosmonavtiki.

1.1 Orbital flights - large animals

The first animal in orbit, Laika, was reportedly originally called Kudryavka.

Table 1: Life science orbital flights: large animals

Vehicle	Date	Payload	Apogee (km)	Duration	
PS-2	1957 Nov 3	Canis familiaris 'Laika' (f 1955-1957 Nov)	1660	1d?	Died on orbit
Vostok-1 No. 1	1960 Jul 28	Canis familiaris 'Bars' (1956?-1960 Jul 28)	<100?	0:05?	Launch abort
Vostok-1 No. 2	1960 Aug 19	Canis familiaris 'Lisichka' (1956?-1960 Jul 28)			
		Canis familiaris 'Belka' (f 1957-)	324	1:02:24	First recovery
Vostok-1 No. 3	1960 Dec 1	Canis familiaris 'Strelka' (f 1958-)			
		Canis familiaris 'Pchelka' (1956?-1960 Dec 2)	232	1:01:46	Died in auto destruct
Vostok-1 No. 4	1960 Dec 22	Canis familiaris 'Mouchka' (1956?-1960 Dec 2)			
		Canis familiaris 'Zhemcuzhnaya' (1956?-)	100?	0:10?	Launch abort
		Canis familiaris 'Zhulka' (1956?-)			
Vostok-3A No. 1	1961 Mar 9	Canis familiaris 'Chernushka' (1957?-)	239	1:42	
Vostok-3A No. 2	1961 Mar 25	Canis familiaris 'Zvezdochka' (1957?-)	230	1:41	
Mercury SC9	1961 Nov 29	Pan troglodytes 'Enos' No. 81 (m, -1962 Nov 4)	237	3:20	
Voskhod 3KV No. 5	1966 Feb 22	Canis familiaris 'Veterok'	882	21.8d	
		Canis familiaris 'Ugolyok'			
Biosatellite 3	1969 Jun 29	Macaca nemestrina 'Bonny' (-1969 Jul)	388	8d	Died 1d after landing
Bion No. 6	1983 Dec 15	Macaca mulatta 'Abrek'	260	5d	
		Macaca mulatta 'Bion'			
Spacelab 3	1985 Apr 29	Saimiri sciureus 'No. 3165'	361	7d	RAHF-P
		Saimiri sciureus 'No. 384-80'			
Bion No. 7	1985 Jul 10	Macaca mulatta 'Verny'	267	7d	
Bion No. 8	1987 Sep 29	Macaca mulatta 'Gordy'			
		Macaca mulatta 'Drema'	383	13d	
		Macaca mulatta 'Yerosha'			
Bion No. 9	1989 Sep 15	Macaca mulatta 'Zhakonya'	267	14d	
		Macaca mulatta 'Zabiyaka'			
Bion No. 10	1992 Dec 29	Macaca mulatta 'Krosha'	374	12d	
		Macaca mulatta 'Ivashi'			
Bion No. 11	1996 Dec 24	Macaca mulatta 'Lapik' (1993-)	401	14d	
		Macaca mulatta 'Multik' (1993-1997)			
Shenzhou 2	2001 Jan 9	Macaca?? (monkey)		7d	Died after landing
		Canis familiaris			

1.2 Orbital flights - small animals

Mice, rats, newts, guinea pigs, frogs, turtles, and fish have also been studied. The following table excludes invertebrates, plants, and unicellular organisms. The fundulus (killifish) are pretty marginal! Perognathus =pocket mice; Cavia = guinea pig; Testudo = tortoise. Note in particular that tortoises preceded humans to the Moon. I'm guessing that the failed early circumlunar L-1 flights also carried tortoises.

Table 2: Life science orbital flights: small animals

Vehicle	Date	Payload	Apogee (km)	Duration	
CORONA 3	1959 Jun 3	Mus (4)	100?	0:10?	Died in launch failure
CORONA 4	1959 Jun 24	Mus (4)	100?	0:10?	Died in launch failure
Vostok-3A No. 1	1961 Mar 9	Mus (n)	239	1:42	
Vostok-3A No. 2	1961 Mar 25	Cavia porcellus Mus (n)	230	1:41	
L-1 No. 7	1968 Apr 22	Rana pipiens (n)			
L-1 No. 9	1968 Sep 14	Testudo horsfieldi Gray (2)?	100?	0:03	Launch failure, destroyed
L-1 No. 12	1968 Nov 10	Testudo horsfieldi Gray (2)	Circumlunar	7d	First in deep space
L-1 No. 13	1969 Jan 20	Testudo horsfieldi Gray (2)?	Circumlunar	7d	Destroyed on landing
L-1 No. 11	1969 Aug 7	Testudo horsfieldi Gray (4)	100?	0:15?	Launch abort
OFO	1970 Nov 9	Testudo horsfieldi Gray (4)	Circumlunar	7d	Deep space
Apollo CM 114	1972 Dec 7	Rana catesbeiana (2)	518	8d?	Died on orbit
Apollo SM-117	1973 Jul 28	Perognathus longimembris (5)	Lunar orbit	12d	Deep space, 1 died
Apollo CM-117	1973 Jul 28	Perognathus longimembris (6)	450		Died on or before reentry
		Fundulus heteroclitus (2)	450		
Bion No. 1	1973 Oct 21	Araneus diadematus (2)			
		Testudo horsfieldi Gray (n)	403	21.5d	
Bion No. 2	1974 Oct 22	Rattus (n)			
		Testudo horsfieldi Gray (n)	364	20.5d	
		Rattus norvegicus (40)			
Apollo CM-111	1975 Jul 15	Fundulus heteroclitus (2)	233	9d	
Soyuz No. 41	1975 Nov 17	Testudo horsfieldi Gray (n)	350	90.5d	
Bion No. 3	1975 Nov 25	Rattus norvegicus	384	19.5d	
		Testudo horsfieldi Gray (n)			
		Fundulus heteroclitus (n)			
Almaz OPS-3	1976 Jun 22	Testudo horsfieldi Gray (n)		?	
		Danio rerio (Zebra danio fish)			
Bion No. 4	1977 Aug 3	Rattus norvegicus	396	18.6d	
Bion No. 5	1979 Sep 25	Rattus norvegicus (37)	383	18.5d	
Columbia (STS-8)	1983 Aug 30	Rattus norvegicus	296	7d	AEM
Bion No. 6	1983 Dec 15	Rattus (n)	260	5d	
		(fish)			
Spacelab 3	1985 Apr 29	Rattus norvegii (24)	361	7d	RAHF-R
Bion No. 7	1985 Jul 10	Rattus (10, plus litter)	267	7d	
		Triturus (10) (newts)			
		Danio rerio (1500)			
Discovery (STS-29)	1989 Mar 13	Rattus (4)	333	5d	AEM
Bion No. 9	1989 Sep 15	Rattus (n)	267	14d	
		Triturus (n) (newts)			
		(fish)			
FSW-1 No. 3	1990 Oct 5	Cavia porcellus (n)	312	8d	
Soyuz 7K-STM No. 61	1990 Dec 2	Hyla japonica (Japanese tree frogs)(6)	404	8d	
Spacelab SLS 1	1991 Jun 5	Rattus norvegii (30)	298	9d RAHF	
Discovery (STS-48)	1991 Sep 12	Rattus norvegii (8)	570	6d	PARE-01
Spacelab J	1992 Sep 12	Cyprinus carpio? (2) (Carp)	311	8d	E01-L2
		Rana pipiens?			
Bion No. 10	1992 Dec 29	Rana pipiens (n)	374	12d	
Endeavour (STS-54)	1993 Jan 13	Rattus norvegicus (n)	300	6d	PARE-02
Discovery (STS-56)	1993 Apr 8	Rattus norvegicus (n)	300	9d	PARE-03
Spacelab SLS 2	1993 Oct 18	Rattus norvegicus (24)	288	14d	RAHF
FSW-2 No. 2	1994 Jul 3	Small animals (rats?)			
Spacelab IML 2	1994 Jul 8	Triturus, Oryzias latipes	301	15d	AAEU
Atlantis (STS-66)	1994 Nov 3	Rattus norvegicus (10)	300	10d	PARE/NIH-R
SFU	1995 Mar 18	Triturus (n)	475	?	Presumably died
Discovery (STS-70)	1995 Jul 13	Rattus norvegicus (n)	302	9d	NIH-R-2
Columbia (STS-78)	1996 Jun 20	Rattus norvegicus (12)	282	16d	AEM (2)
FSW	1996 Oct 20	Small animals			
Bion No. 11	1996 Dec 24	Triturus (n) (newts)	401	14d	
Columbia (STS-90)	1998 Apr 17	Rattus (152), Mus (18), Snails (135), Oyster toadfish (4), Swordtail fish (229), Crickets (1500)			
Shenzhou 2	2001 Jan 9	Rabbit?		7d	
Bereshit	2019	Tardigrades			

1.3 Suborbital bio flights

Details on the Soviet flights of 1951-1957 are partly from Jean-Jacques Serra.

Pat died in 1954; Mike in 1967, both at DC Nat. Zoo.

Albert I may have died prior to takeoff on V-2 No. 37.

Laika was born in 1955 and was known as Kudryavka prior to flight.

I have deleted some Arcas Biospace flights that were in an earlier version of this table since they were atmospheric flights that only reached 40 km or less.

Table 3: Life science suborbital flights

Vehicle	Date	Species	Apogee (km)
V-2 No 37	1948 Jun 11	Macaca mulatta (Albert)	63
V-2 No 47	1949 Jun 14	Macaca mulatta (Albert II)	133
V-2 No 32	1949 Sep 16	Macaca mulatta (Albert III)	4
V-2 No 31	1949 Dec 08	Macaca mulatta (Albert IV)	127
V-2 No 51	1950 Aug 31	Mouse (Albert V)	
Aerobee USAF-12	1951 Apr 18	Monkey	61; died on impact
R-1V	1951 Jul 22	Canis 'Tsygan', 'Dezik'	100
R-1B	1951 Jul 29	Canis 'Lisa' (d?), 'Dezik' (d?)	f
R-1B	1951 Aug 15	Canis 'Mishka', 'Chizhik'	100
R-1V	1951 Aug 19	Canis 'Smelaya', 'Ryzhik'	100
R-1B	1951 Aug 28	Canis 'Mishka', 'Chizhik'	100
R-1B	1951 Sep 2	Canis 'Neputeviy', 'ZIB'	100
Aerobee USAF-19	1951 Sep 20	Monkey (Albert VI) + 11 mice	71
Aerobee USAF-26	1952 May 22	2 Phillipine monkeys (Pat and Mike) + 2 mice	26
R-1D	1954 Jun 26	Canis 'Lisa' (2), 'Ryzhik'	100
R-1D	1954 Jul 2	Canis 'Damka', 'Mishka' (d)	100
R-1D	1954 Jul 7	Canis 'Damka', 'Ryzhik'	100
R-1E	1955 Jan 25	Canis 'Rita' (d), 'Lisa-2'	100
R-1E	1955 Feb 5	Canis 'Lisa' (d), 'Bulba' (d)	100
R-1E	1955 Nov 4	Canis 'Malyshka', 'Knopka'	100
R-1E	1956 May 14	Canis 'Al'bina', 'Kozyavka'	100
R-1E	1956 May 31	Canis 'Malyshka', 'Minda'	100
R-1E	1956 Jun 7	Canis 'Al'bina', 'Kozyavka'	100
R-2A No. 1	1957 May 16	Canis 'Ryzhaya', 'Damka'	212
R-2A No. 2	1957 May 24	Canis 'Ryzhaya' (d), 'Dzhoyna' (d)	212
R-2A No. 3	1957 Aug 25	Canis 'Belka', 'Modnitsa'	212
R-2A No. 4	1957 Aug 31	Canis 'Damka', 'Belka'	212
R-2A No. 5	1957 Sep 9	Canis 'Belka', 'Modnitsa'	212
R-5A	1958 Feb 21	Canis 'Palma', 'Pushok'	470
Thor Able	1958 Apr 23	Mouse (Mia)	Destroyed
Thor Able	1958 Jul 10	Mouse (Mia II)	45 min, died
Thor Able	1958 Jul 24	Mouse (Wickie)	Lost at sea
R-2A No. 6	1958 Aug 2	Canis 'Kusachka', 'Pal'ma'	212
R-2A No. 7	1958 Aug 13	Canis 'Kusachka', 'Pal'ma'	212
V-5A (R-5)	1958 Aug 27	Canis 'Belyanka', 'Pestraya'	450
V-5A (R-5)	1958 Oct 31	Canis 'Zhulba', 'Knopka'	450
AM-13 Bioflight 1	1958 Dec 13	Saimiri 'Gordo'	500?
AM-18 Bioflight 2	1959 May 28	Macaca mulatta 'Able'	483
		Saimiri 'Baker'	
R-2A No. 9	1959 Jul 2	Canis 'Otvazhnaya', 'Shezhinka'; Lepus 'Marfusha'	220
R-2A No. 10	1959 Jul 10	Canis 'Otvazhnaya', 'Zhemchuzhnaya'	220
AM-23 Bioflight 3	1959 Sep 15	14 mice	Destroyed
LJ-2	1959 Dec 4	Macaca mulatta 'Sam'	85
LJ-1B	1960 Jan 21	Macaca mulatta 'Miss Sam'	15
R-2A No. 12	1960 Jun 15	Canis 'Otvazhnaya', 'Malek'; Lepus 'Zvezdochka' ('Marfusha')	220
R-2A No. 13	1960 Jun 23	Canis Otvazhnaya, Zhemchuzhnaya	220
R-2A?	1960 Sep 16	Canis Palma, Malek	220
RVX-2A (Atlas 71D)	1960 Oct 13	Mus 'Amy', 'Sally', 'Mo' (0:20)	1800?
MR-2	1961 Jan 31	Pan troglodytes 'Ham' (No. 65)	253
Veronique AGI24	1961 Feb 22	Rattus 'Hector'	110
RVX-2A (Atlas 32E)	1961 Nov 10	Saimiri (squirrel monkey) 'Goliath' (-1961)	1
SP Pod 8 (Atlas 36E)	1961 Dec 20	Macaca mulatta 'Scatback'	500?
Veronique AGI37	1962 Oct 15	Rattus 'Castor'	120
Veronique AGI36	1962 Oct 18	Rattus 'Pollux'	110
Veronique AGI47	1963 Oct 18	Felis catus 'Felicette'	155
Veronique AGI50	1963 Oct 24	Felis catus (died on impact)	88
T-7A-S	1964 Jul 19	Rats and mice	
T-7A-S	1965 Jun 1	Rats and mice	70?
T-7A-S	1965 Jun 5	Rats and mice	70?
T-7A-S2	1966 Jul 14	Canis 'Xiao Bao' (m.)	100
T-7A-S2	1966 Jul 28	Canis 'Shan Shan' (f.)	100
Vesta 4	1967 Mar 7	Macaca nemestrina 'Martine'	233
Vesta 5	1967 Mar 13	Macaca nemestrina 'Pierette'	234
Aerobee NASA 4.213NB	1967 Dec 5	Rats, 2	137
Aerobee NASA 4.214NB	1968 Jun 24	Rats	144
Aerobee NASA 4.215NB	1968 Nov 21	Rats?	164
Aerobee NASA 4.216NB	1969 May 15	Rats	158
Canopus II/Bio-II	1969 Dec 23	Monkey 'Juan'	70

DLR W-NT-36	1970 Dec 10	Leeches (<i>Hirudo medicinalis</i>)	257
DLR W-NT-37	1970 Dec 16	Leeches	246
Kavoshgar 3	2010 Feb 3	Mouse, turtle, worm	55
Kavoshgar 5	2011 Sep 15?	<i>Macaca mulatta</i>	120?
Kavoshgar 6	2012 Sep 8	<i>Macaca mulatta</i>	120?
K. Pishgam (Iran)	2013 Jan 28?	<i>Macaca mulatta</i> 'Aftab'	120
K. Pezhuhash	2013 Dec 14	<i>Macaca mulatta</i> 'Fargam'	120

1.4 Primates in Space

From the above data, we derive a list of non-human primates who have flown above my 'space boundary' definition of 80 km. I've decided to include only primates in the astronaut listing, partly to suit my own whim and partly since there were a lot of poorly documented canids.

Albert I was from the Wright Field Aero Medical Lab. Mass was 4 kg. The AFCRL had obtained several V-2 flights, the "Blossom" series. They offered rides to AML. Evidence suggests that the monkey may have died prior to takeoff.

Albert II and IV died on impact due to parachute failure. They were from the Aeromedical Lab at Wright-Patterson.

The Aerobee flights and the V-2 flights involved seven Rhesus, Cebus and Cynomolgus monkeys.

Gordo died on splashdown. Able died from the effects of anesthesia during an operation to remove electrodes, a few days after landing. Baker died of kidney failure at age 27, in retirement at the Alabama space and rocket center.

Pat died in around 1952 at the National Zoo, after an infected bite from Mike. Mike died in 1967 at the National Zoo.

Sam was from the USAF School of Aviation Medicine. He was returned to Brooks AFB and then in 1970 to the San Antonio Zoo, dying there in 1978.

Ham, from Holloman Aerospace Medical Center, was 3yr 8mo old at launch. He retired to the Washington Zoo and then to the zoo in Asheboro, North Carolina, where he died in 1983.

The Bion monkeys were 'subadults' so probably less than a year old?

Table 4: Primate astronauts

Mission	Date	Name	S	DOB	DOD	Apogee	Duration	Landing
V-2 No 47	1949 Jun 14 2235	Macaca mulatta 'Albert II'	m	-	1949 Jun 14	130	0:06?	WSPG (69 km)
V-2 No 31	1949 Dec 08 1915	Macaca fascicularis 'Albert IV'	m	-	1949 Dec 8	127	0:06?	WSPG (61 km)
AM-13 Bioflight 1	1958 Dec 13 0853	Saimiri sciureus 'Gordo' ('Old Reliable')	m	-	1958 Dec 13	500?	0:16?	Antigua
AM-18 Bioflight 2	1959 May 28 0735	Macaca mulatta 'Able'	f	1957 Dec	1959 Jun 1	500?	0:15	Antigua
		Saimiri 'Baker'	f	1957	1984 Nov 29			
LJ-2	1959 Dec 4 1615	Macaca mulatta 'Sam'	m	-	1978	85	00:11:06	
MR-2	1961 Jan 31 1655	Pan troglodytes 'Ham' (No. 65)	m	1957 May	1983 Jan 17	253	00:16:39	
MA-5 Mercury SC9	1961 Nov 29 1507	Pan troglodytes 'Enos' (No. 81)	m	1956 Aug	1962 Nov 4	237	3:20:59	
SP Pod 6 (36E)	1961 Dec 20 0332	Macaca mulatta 'Seaback'	m	-	1961 Dec 20	500?	0:30?	MOTA, 11000 km, lost
Vesta 4	1967 Mar 7	Macaca nemestrina 'Martine'	f?	-	-	233	0:10?	
Vesta 5	1967 Mar 13	Macaca nemestrina 'Pierette'	f?	-	-	240?	0:10?	
Biosatellite 3	1969 Jun 29 0316	Macaca nemestrina 'Bonny'	m	1966?	1969 Jul 8	388	8d	Died 1d after landing
Bion No. 6 (K1514)	1983 Dec 14 0700	Macaca mulatta 'Abrek'	m	1980 May	1983 Dec 20	260	5.0d	1983 Dec 20
Spacelab 3	1985 Apr 29 1602	Macaca mulatta 'Bion'	m	1978 Dec?	1983 Dec 23	361	7:00:09	1986 May 6 1611
Bion No. 7 (K1667)	1985 Jul 10 0315	Saimiri sciureus 'No. 384-80'	m	-	-	267	6:22:00?	1985 Jul 17 0000??
Bion No. 8 (K1887)	1987 Sep 29 1250	Macaca mulatta 'Verny'	m	1982 Apr	-	267		
Bion No. 9 (K2044)	1989 Sep 15 0630	Macaca mulatta 'Gordy'	m	1982 Jun	-	383	13:15:00?	1987 Oct 12 0400?
Bion No. 10 (K2229)	1992 Dec 29 1330	Macaca mulatta 'Drema'	m	1984?	-	267	13:17:25	1989 Sep 28 2355
Bion No. 11	1996 Dec 24 1350	Macaca mulatta 'Yerosha'	m	1986 Mar?	-	374	11:14:46	1993 Jan 10 0416
		Macaca mulatta 'Zhakonya'	m	1986 Mar?	-	401	13:15:12	1997 Jan 7 0502
		Macaca mulatta 'Zabiyaka'	m	1989?	-			Died after landing
		Macaca mulatta 'Kroski'	m	1993	-			
		Macaca mulatta 'Ivasha'	m	1993	-			
		Macaca mulatta 'Lapik'	m	1993	-			
		Macaca mulatta 'Multik'	m	1993	-			
(Failed or low attempts)								
V-2 No 37	1948 Jun 11 1022	Macaca mulatta (Albert)	m	-	1948 Jun 11	63	0:06?	
V-2 No 32 Blossom IVC	1949 Sep 16 2319	Macaca fascicularis (Albert III)	m?	-	1949 Sep 16	1?	0:01?	
Aerobee USAF-12	1951 Apr 18 1839	Cebus albifrons?	m?	-	1951 Apr 18	61	0:06?	died on impact
Aerobee USAF-19	1951 Sep 20 1631	Macaca mulatta (Yorick aka Albert VI)	f	-	1951 Sep 20	71	0:06?	died after landing
Aerobee USAF-26	1952 May 21 1515	Macaca fascicularis philippinensis, (Patricia)	f	-	1954?	26	0:06?	
		Macaca fascicularis philippinensis, (Mike)	m	-	1967			
LJ-1B	1960 Jan 21 1423	Macaca mulatta 'Miss Sam'	f	-	-	0:15		
SP Pod 13	1961 Nov 10 1455	Saimiri (squirrel monkey) 'Goliath'	m	-	1961 Nov 10	0:01		
Pisgham (Iran)	2013 Jan 28?	Macaca mulatta	m	-	-	120	0:05?	

The ABMA flights were by the Army Medical Service in cooperation with the USN and USAF Schools of Aviation Medicine.

Ham was purchased by USAF on 1959 Jul 9. Enos was purchased on 1960 Apr 3. Enos's backups were Ham, Duane, Jim and Rocky, all from HAML.

Gordo was from the USN Aviation Medical School in Pensacola.

Bonny was procured commercially from sources in southeast Asia.

Krosh and Ivasha were reported to be from the Sukhumi primate center in Gruzziya, but in another source from the IMBP colony in Moskva. One of the Bion 9 monkeys was No. 2483.

Contemporary press reports on the French Vesta flights referred to 'guenon' (i.e. Cercopithecus) monkeys but later sources indicate M. nemestrina.

Table 5: Primate astronauts

Astronaut	Orgn.	Program	ID	Origin
Albert	AML	AFCRL/AML		
Albert II	AML	AFCRL/AML		
Albert III	AML	AFCRL/AML		
Albert IV	AML	AFCRL/AML		
USAF-12	AML	USAF		
Yorick	AML	USAF		
Pat	AML	USAF		
Mike	AML	USAF		
Gordo/Old Reliable	USN AMS	USAF	No. 510	
Able	USN AMS	ABMA		Independence, Missouri
Baker	USN AMS	ABMA	No. 27	Iquitos, Peru
Sam	SAM	NASA		US
Miss Sam	SAM	NASA		US
Ham	HAMC	NASA	No. 65	Cameroun (orig name Chang)
Enos	HAMC	NASA	No. 81	Cameroun
Goliath		USAF		
Scatback		USAF		
Bonny P-470	NASA ARC	NASA		SE Asia
No. 3165	NASA ARC	NASA		
No. 384-80	NASA ARC	NASA		
Krosh			No. 27906	
Ivasha			No. 26151	
Unnamed	Iran	Iran	-	

?? Location of death for Able and Bonny Multik location and cause of death