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CHRONOLOGY OF MAJOR NASA LAUNCHINGS

OCTOBER 1, 1958, THROUGH DECEMBER 31, 1962

Prepared by
NASA Historical Staff
(AFEH)

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National Aeronautics and Space Administration
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FOREWORD

This chronology of major NASA launchings, a revision of the edition issued in October 1962, is intended to provide an accurate and ready historical reference, compiling and verifying information previously scattered over several sources. It spans NASA's first four years. It includes launchings of all vehicles larger than sounding rockets launched either by NASA or under "NASA direction" (e.g., ABMA served as launching agent for the early Jupiter C and Juno II shots, and AFBMD for the Thor-Able shots).

An attempt has been made to classify the performance of both the launch vehicle and the payload and of total results in terms of primary mission. Three categories have been used for vehicle performance and mission results--successful (S), partially successful (P), and unsuccessful (U). A fourth category, unknown (Unk), has been provided for payloads where launch vehicle malfunctions did not give the payload a chance to exercise its main experiments. These divisions are necessarily arbitrary, since many of the results cannot be neatly categorized. Also they ignore the fact that a great deal was learned from shots which may have been classified as unsuccessful.

A few unique items require separate treatment. Their dates have been kept in sequence, but their history has been relegated to footnotes.

Dates of launchings are referenced to local time at the launch site.

The original table was prepared by Robert Rosholt of the NASA Historical Office, who made a comparative analysis of the several general chronologies prepared by the NASA Historical Office, the first six semiannual reports of NASA, and the Space Activities Summary prepared by the NASA Office of Public Information. Additional information and guidance was received from Headquarters Offices, from Launch Operations Center, and from the very useful comments received on the October 1962 version. For further information on each item, see Aeronautics and Astronautics, 1915-1960; Aeronautical and Astronautical Events of 1961; and Aerospace Science and Technology--Chronology for 1962, all prepared by the NASA Historical Office.

The Historical Office invites comments on content and format of this chronology. Quarterly supplements will be issued for 1963.

CHRONOLOGY OF MAJOR NASA LAUNCHINGS, OCTOBER 1, 1958, THROUGH DECEMBER 31, 1962

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance: Vehicle S	Vehicle P	Vehicle U	Payload S	Payload P	Payload U	Payload Unk	Mission Results S	Mission Results P	Mission Results U	Remarks
1958															
Oct 11	PIONEER I	--	Scientific lunar probe	Thor-Able (AMR)		x		x					x		Uneven separation of 2nd and 3rd stages; reached 70,700 miles. Verified Van Allen Belt.
Oct 22	Beacon	--	Scientific earth satellite	Jupiter C (AMR)			x				x			x	Premature upper-stage separation.
Nov 8	PIONEER II	--	Scientific lunar probe	Thor-Able (AMR)			x				x			x	3rd-stage failure; reached 963 miles; its brief data indicated equatorial region had higher flux and energy levels than previously thought.
Dec 6	PIONEER III	--	Scientific lunar probe	Juno II (AMR)		x		x					x		Premature cutoff on 1st stage; reached 63,580 miles. Radiation belt discoveries.
1959															
Feb 17	VANGUARD II	--	Scientific earth satellite	Vanguard (AMR)		x			x					x	Excess satellite wobble. Cloud cover data not used.
Mar 3	PIONEER IV	--	Scientific lunar probe	Juno II (AMR)		x		x					x		2nd and 3rd stage propulsion and pitch malfunction. Communicated to 407,000 miles.
Apr 13	Vanguard	--	Scientific earth satellite	Vanguard (AMR)			x				x			x	2nd-stage failure.
May 28	See * below														

* May 28, 1959. Included in the nose cone of an Army-launched (from AMR) Jupiter IRBM were medical experiments sponsored by NASA. Two monkeys, Able and Baker, were successfully recovered after a 1700-mile flight.

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance: Vehicle S	Vehicle P	Vehicle U	Payload S	Payload P	Payload U	Payload Unk	Mission Results S	Mission Results P	Mission Results U	Remarks
1959 (cont'd)															
Jun 22	Vanguard	--	Scientific earth satellite	Vanguard (AMR)			x				x			x	2nd-stage failure.
Jul 16	Explorer	S-1	Scientific earth satellite	Juno II (AMR)			x				x			x	Destroyed after 5½ seconds.
Aug 7	EXPLORER VI	S-2	Scientific earth satellite	Thor-Able (AMR)	x			x				x			Mapped Van Allen belt. Photographed cloud cover.
Aug 14	Beacon	--	Scientific earth satellite	Juno II (AMR)			x				x			x	Premature fuel depletion in 1st stage; upper-stage malfunction.
[Aug 21	See * below]														
Sep 9	Big Joe	--	Suborbital Mercury capsule test	Atlas-Big Joe (AMR)	x			x				x			Capsule recovered after re-entry test.
[Sep 16	See ** below]														
Sep 18	VANGUARD III	--	Scientific earth satellite	Vanguard (AMR)	x			x				x			Magnetic fields, radiation belt, and micrometeorite findings.
[Sep 24	See *** below]														
Oct 4	Little Joe 1	LJ-6	Suborbital Mercury capsule test	Little Joe (WS)	x			x				x			Qualify booster for use with Mercury test program.

* Aug 21, 1959. While a Little Joe was being readied for firing (at WS) a malfunction caused the Mercury escape rocket to fire. The vehicle was undamaged but the capsule was lost in the ocean.

** Sep 16, 1959. An Army Jupiter IRBM, containing a NASA biological experiment, was destroyed by the Range Safety Officer shortly after launch (from AMR).

*** Sep 24, 1959. An Atlas-Able vehicle, scheduled to launch a Pioneer lunar-orbit payload, exploded on the launching pad (at AMR) while being static-tested.

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1959 (cont'd)															
Oct 13	EXPLORER VII	S-1a	Scientific earth satellite	Juno II (AMR)	x			x				x			Radiation and magnetic storm findings.
Oct 28	Shotput I	--	Suborbital communications test	Augmented Sergeant (WS)	x				x				x		Canister ejection successful, 100-foot sphere inflation unsuccessful. Successful test of Delta stage.
Nov 4	Little Joe 2	LJ-1A	Suborbital Mercury capsule	Little Joe (WS)	x				x				x		Capsule escape test. Escape rocket had a delayed thrust buildup.
Nov 26	Pioneer	--	Scientific lunar probe	Atlas-Able (AMR)			x				x			x	Shroud failure after 45 seconds.
Dec 4	Little Joe 3	LJ-2	Suborbital Mercury capsule test	Little Joe (WS)	x			x				x			Escape system and biomedical test; monkey (Sam) used.
1960															
Jan 19	Shotput II	--	Suborbital communications test	Augmented Sergeant (WS)	x				x				x		Canister ejection successful, sphere inflation unsuccessful.
Jan 21	Little Joe 4	LJ-1B	Suborbital Mercury capsule test	Little Joe (WS)	x			x				x			Escape system and biomedical test; monkey (Miss Sam) used.
Feb 27	Shotput III	--	Suborbital communications test	Augmented Sergeant (WS)	x				x				x		Canister ejection successful, sphere inflation unsuccessful.
Mar 11	PIONEER V	--	Scientific deep space probe	Thor-Able (AMR)	x			x				x			Communicated data from 17,700,000 mi., position signal from 22,500,000 mi.
Mar 23	Explorer	S-46	Scientific earth satellite	Juno II (AMR)			x				x			x	Failure in upper stages.

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1960 (cont'd)															
Apr 1	Shotput IV	--	Suborbital communications test	Augmented Sergeant (WS)	x			x				x			Twelve-sentence voice message relayed successfully.
Apr 1	TIROS I	A-1	Meteorological earth satellite	Thor-Able (AMR)	x			x				x			First true meteorological satellite; photographed cloud cover.
Apr 18	Scout	--	Launch vehicle development test	Scout X (WS)			x							x	Structural failure prevented 3rd-stage ignition. (2nd and 4th stages were dummies).
[May 9	See * below]														
May 13	Echo	A-10	Communications earth satellite	Thor-Delta (AMR)			x							x	Failure in upper stages.
May 31	Shotput V	--	Suborbital communications test	Augmented Sergeant (WS)	x			x				x			Inflation successful despite excess spin.
Jul 1	Scout	--	Launch vehicle development test	Scout (WS)		x								x	Ground tracking failure led to erroneous destruction by Range Safety Officer.
Jul 29	Mercury	MA-1	Suborbital Mercury capsule test	Mercury-Atlas (AMR)			x				x			x	Atlas exploded; capsule re-entry qualification test.
Aug 12	ECHO I	A-11	Communications earth satellite	Thor-Delta (AMR)	x			x				x			First passive communications satellite; 100-foot sphere used for passive communications and air density experiments.
Sep 25	Pioneer	P-30	Scientific lunar orbiter	Atlas-Able (AMR)			x				x			x	2nd-stage failure.

* May 9, 1960. The first production model of the Mercury capsule was tested in a "pad abort" test (at WS). The escape rocket was used rather than a launch vehicle.

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance: Vehicle S	Vehicle P	Vehicle U	Payload S	Payload P	Payload U	Payload Unk	Mission Results S	Mission Results P	Mission Results U	Remarks
1960 (cont'd)															
Oct 4	Scout	--	Launch vehicle development test	Scout (WS)	x			x				x			Air Force Special Weapons Center payload included.
Nov 3	EXPLORER VIII	S-30	Scientific earth satellite	Juno II (AMR)	x			x				x			Ion, electron, and micrometeoroid measurements.
Nov 8	Little Joe 5	LJ-5	Suborbital Mercury capsule test	Little Joe (WS)	x					x				x	Mercury escape system qualification; premature escape-rocket firing.
[Nov 21	See * below]														
Nov 23	TIROS II	A-2	Meteorological earth satellite	Thor-Delta (AMR)	x			x				x			Combined infrared measurements with photography. Wide-angle photographs substandard.
Dec 4	Explorer	S-56	Scientific earth satellite	Scout (WS)			x				x			x	2nd-stage failure; combined vehicle test and Beacon inflatable sphere.
Dec 15	Pioneer	P-31	Scientific lunar orbiter	Atlas-Able (AMR)			x				x			x	Exploded after 70 seconds.
Dec 19	Mercury	MR-1A	Suborbital Mercury capsule test	Mercury-Redstone (AMR)	x			x				x			235-mile flight.
1961															
Jan 31	Mercury	MR-2	Suborbital Mercury capsule test	Mercury-Redstone (AMR)		x		x				x			Booster oversped; chimpanzee (Ham) in 16-minute flight.

* Nov 21, 1960. Upon being fired (from AMR), a Mercury-Redstone (MR-1) rose one inch, stopped firing, and settled back on the launching pad; was fired again on December 19. The Mercury capsule escape rocket also fired. The capsule was recovered and also reused on December 19.

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance: Vehicle S	Vehicle P	Vehicle U	Payload S	Payload P	Payload U	Payload Unk	Mission Results S	Mission Results P	Mission Results U	Remarks
1961 (cont'd)															
Feb 16	EXPLORER IX	S-56a	Scientific earth satellite	Scout (WS)	x				x			x			Repeat of 12/4/60 shot. Satellite tracking transmitter did not function, but optical tracking provided atmospheric density data.
Feb 21	Mercury	MA-2	Suborbital Mercury capsule test	Mercury-Atlas (AMR)	x			x				x			1,425-mile flight.
Feb 24	Explorer	S-45	Scientific earth satellite	Juno II (AMR)			x				x			x	2nd-stage malfunction prevented 3rd and 4th-stage firing.
Mar 18	Little Joe 5A	LJ-5A	Suborbital Mercury capsule test	Little Joe (WS)	x				x				x		Mercury escape system qualification; premature escape-rocket firing.
Mar 24	Mercury	MR-BD	Vehicle test for Mercury flight	Mercury-Redstone (AMR)	x							x			Booster development test necessitated by MR-2 flight.
Mar 25	EXPLORER X	P-14	Scientific satellite-probe	Thor-Delta (AMR)	x			x				x			Magnetometer probe. Highly eccentric orbit (145,000-mile apogee).
Apr 25	Mercury	MA-3	Orbital Mercury capsule test	Mercury-Atlas (AMR)			x				x			x	Failure in 1st stage. Abort successful.
Apr 27	EXPLORER XI	S-15	Scientific earth satellite	Juno II (AMR)	x			x				x			Gamma-ray experiment.
Apr 28	Little Joe 5B	LJ-5B	Suborbital Mercury capsule test	Little Joe (WS)		x		x				x			One booster engine fired late. Repeat of Mercury escape system test.
May 5	FREEDOM 7	MR-3	Suborbital manned Mercury flight	Mercury-Redstone (AMR)	x			x				x			First U. S. suborbital manned space-flight; Shepard flight.

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance: Vehicle S	Vehicle P	Vehicle U	Payload S	Payload P	Payload U	Payload Unk	Mission Results S	Mission Results P	Mission Results U	Remarks
1961 (cont'd)															
May 24	Explorer	S-45a	Scientific earth satellite	Juno II (AMR)			x				x			x	2nd-stage failure.
Jun 30	Explorer	S-55	Scientific earth satellite	Scout (WS)			x				x			x	3rd-stage failure. Vehicle test and micrometeorite experiment.
Jul 12	TIROS III	A-3	Meteorological earth satellite	Thor-Delta (AMR)	x			x				x			One camera system failed by end of July.
Jul 21	LIBERTY BELL 7	MR-4	Suborbital manned Mercury flight	Mercury-Redstone (AMR)	x			x				x			Grissom flight.
Aug 15	EXPLORER XII	S-3	Scientific earth satellite	Thor-Delta (AMR)	x			x				x			Various experiments including energetic particles profile.
Aug 23	RANGER I	P-32	Scientific lunar probe	Atlas-Agena B (AMR)		x			x				x		First space test of Hanger instrumentation only partial success, since Agena failed to restart. Remained in parking orbit. Orientation, communications, and electronics worked well for more than 100 orbits.
Aug 25	EXPLORER XIII	S-55a	Scientific earth satellite	Scout (WS)		x		x					x		Premature re-entry due to tip-off. Vehicle test and micrometeoroid experiment.
Sep 13	Mercury	MA-4	Orbital Mercury capsule test	Mercury-Atlas (AMR)	x			x				x			One orbit. Capsule recovered. Tracking network checked.
Oct 19	P-21 PROBE	P-21	Scientific geoprobe	Scout (WS)	x			x				x			Reached 4,261 miles. Electron density measurement, vehicle test.
Oct 27	Saturn	SA-1	Launch vehicle development test	Saturn C-1 (AMR)	x							x			1st stage only.

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1961 (cont'd)															
Nov 1	Mercury	MS-1	Orbital Mercury network check	Mercury-Scout (AMR)			x				x			x	Destroyed after 30 seconds; Air Force-launched.
Nov 18	RANGER II	P-33	Scientific lunar probe	Atlas-Agena B (AMR)		x					x			x	Space test of Ranger instrumentation unsuccessful since Agena failed to restart. Remained in parking orbit.
Nov 29	Mercury	MA-5	Orbital Mercury capsule test	Mercury-Atlas (AMR)	x			x				x			Two orbits. Enos, the chimpanzee, was recovered.
1962															
Jan 15	Echo (test)	AVT-1	Suborbital communications test	Thor (AMR)	x				x				x		Canister ejection and opening successful, but 135-foot sphere ruptured.
Jan 26	RANGER III	P-34	Scientific lunar lander	Atlas-Agena B (AMR)		x			x				x		First Ranger attempt at moon; Atlas over-accelerated; missed moon by 22,862 miles; gamma-ray sensor worked.
Feb 8	TIROS IV	A-9	Meteorological earth satellite	Thor-Delta (AMR)	x			x				x			Performed as planned.
Feb 20	FRIENDSHIP 7	MA-6	Orbital manned Mercury flight	Mercury-Atlas (AMR)	x			x				x			First U. S. manned orbital flight; Glenn [illegible]; 3 [illegible].
Mar 1	Re-entry	--	28,000 ft/sec re-entry test	Scout (WS)		x		x					x		Re-entry speed lower than planned.
Mar 7	OSO I	S-16	Scientific earth satellite	Thor-Delta (AMR)	x			x				x			Transmitted data on solar flares.
Mar 29	P-21A PROBE	P-21a	Scientific geoprobe	Scout (WS)	x			x				x			Reached 3,910 miles.

Date	Name	NASA Code	General Mission	Launch Vehicle (Site)	Performance							Mission Results			Remarks
					Vehicle			Payload							
					S	P	U	S	P	U	Unk	S	P	U	
1962 (cont'd)															
Apr 23	RANGER IV	P-35	Scientific lunar lander	Atlas-Agena B (AMR)	x					x			x		First U. S. spacecraft to land on moon; crashed onto moon, timer failure causing loss of control over spacecraft; no mid-course correction, TV, or lunar-capsule separation.
Apr 25	Saturn	SA-2	Launch vehicle development test	Saturn C-1 (AMR)	x			x				x			1st stage only. Project Highwater utilized dummy upper stages.
Apr 26	ARIEL I	S-51	Scientific earth satellite	Thor-Delta (AMR)	x			x				x			First international satellite; explored ionosphere (UK #1).
May 8	Centaur	F-1	Launch vehicle development test	Atlas-Centaur (AMR)			x							x	Centaur exploded before separation.
May 24	AURORA 7	MA-7	Orbital manned Mercury flight	Mercury-Atlas (AMR)	x			x				x			Carpenter flight, 3 orbits.
Jun 19	TIROS V	A-50	Meteorological earth satellite	Thor-Delta (AMR)	x			x				x			Orbit more elliptical than planned; infrared system failed prior to launch.
Jul 10	TELSTAR I	A-40	Communications earth satellite	Thor-Delta (AMR)	x			x				x			First active communications satellite; owned by AT&T, launched by NASA.
Jul 18	Echo (test)	AVT-2	Suborbital communications test	Thor (AMR)	x			x				x			Inflation successful; radar indicated sphere surface not as smooth as planned.
Jul 22	MARINER I	P-37	Scientific Venus probe	Atlas-Agena B (AMR)			x				x			x	Atlas deviated from course, was destroyed by Range Safety Officer.
Aug 27	MARINER II	P-38	Scientific Venus probe	Atlas-Agena B (AMR)		x		x				x			First spacecraft to scan another planet; passed 21,100 mi. from Venus on December 14; extended space communications record to 54.7 million mi.

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1962 (cont'd)															
Aug 31	Re-entry	--	28,000 ft/sec re-entry test	Scout (WS)			x	x						x	Tardy 3rd-stage ignition; desired speed not achieved.
Sep 18	TIROS VI	A-51	Meteorological earth satellite	Thor-Delta (AMR)	x			x				x			Performed as planned.
Sep 28	ALOUETTE	S-27	Scientific earth satellite	Thor-Agena B (PMR)	x			x				x			Ionosphere sounder satellite built by Canada. First NASA satellite launch from PMR.
Oct 2	EXPLORER XIV	S-3a	Scientific earth satellite	Thor-Delta (AMR)	x			x				x			Energetic particles satellite. Highly eccentric orbit.
Oct 3	SIGMA 7	MA-8	Orbital manned Mercury flight	Mercury-Atlas (AMR)	x			x				x			Schirra flight, 6 orbits; first astronaut recovery in Pacific.
Oct 18	RANGER V	P-36	Scientific lunar lander	Atlas-Agena B (AMR)	x					x				x	Payload, including mid-course guidance, did not function because spacecraft failed to get power from solar cells. Passed within 450 miles of the moon.
Oct 27	EXPLORER XV	S-3b	Scientific earth satellite	Thor-Delta (AMR)	x				x			x			Difficult to analyse data from 2 of 7 experiments because of high spin rate. To study artificial radiation belt.
Nov 16	Saturn	SA-3	Launch vehicle development test	Saturn C-1 (AMR)	x			x				x			1st stage only. Project Highwater utilized dummy upper stages.
Dec 13	RELAY	A-15	Communications earth satellite	Thor-Delta (AMR)	x				x				x		First launch with uprated Delta. Power supply voltage originally too low for communications experiments; voltage built up and early in Jan. 63 transatlantic TV transmissions began.
Dec 16	EXPLORER XVI	S-55b	Scientific earth satellite	Scout (WS)	x			x				x			Micrometeoroid satellite.