U.S. Human Space Flight Safety Record
(As of October 8, 2026)

Mission Type	Total # of People on Space Flight	Total # People Died or Seriously Injured[3]	Total # of Human Space Flights	Total # of Catastrophic Failures[6]
Orbital (Total)	1003[1]	17	186[4]	3
Suborbital (Total)	375[2]	3	237[5]	2
Total	**1374**	**20**	**422**	**5**

§ 460.45(c) An operator must inform each space flight participant of the safety record of all launch or reentry vehicles that have carried one or more persons on board, including both U.S. government and private sector vehicles. This information must include—

(1) The total number of people who have been on a suborbital or orbital space flight and the total number of people who have died or been seriously injured on these flights; and

(2) The total number of launches and reentries conducted with people on board and the number of catastrophic failures of those launches and reentries.

Footnotes

1. People on orbital space flights include Mercury (Atlas) (4), Gemini (20), Apollo (36), Skylab (9), Space Shuttle (852), Dragon (Falcon) (76), Starliner (Atlas V) (2), and Orion (4).
    a. Occupants are counted after reentry is complete. The crew on the Dragon Crew-13 mission has not yet reentered and therefore, is not yet counted in the HSF Safety Record.
    b. Occupants are counted even if they flew only on the launch or reentry portion. The Space Shuttle launched 817 humans and reentered an additional 35 humans from MIR and the International Space Station who launched on foreign vehicles.
    c. To avoid double counting humans in space, the occupants will only be counted once when they launch or reenter on different US vehicles. Starliner launched 2 humans and reentered with 0. Dragon Crew-9 launched with 2 humans and reentered with 4, however, to avoid double counting, the human space flight safety record will only list 2. This approach is under review.
2. People on suborbital space flights include X-15 (169), M2 (24), Mercury (Redstone) (2), SpaceShipOne (5), SpaceShipTwo (77), and New Shepard System (98)
    a. Only occupants on the rocket-powered space bound vehicles are counted per safety record criterion #11.
3. Deaths and serious injuries include X-15 (1), Apollo-Soyuz Test Project (3), Space Shuttle Challenger (7), Space Shuttle Columbia (7) and SpaceShipTwo VSS Enterprise (2)
    a. Deaths or serious injuries that occurred when there was no intent to launch (e.g. Apollo 1 fire), are not counted per safety record criterion #9
    b. Alan Bean during splashdown on Apollo 12 suffered a concussion. The FAA uses the NTSB's definition of serious injury (criterion #13), but the NTSB does not consider a concussion itself a serious injury. The FAA will remain consistent with the NTSB and not count this incident as a serious injury.
4. Orbital flights include Mercury (Atlas) (4), Gemini (10), Apollo (12), Skylab (3), Space Shuttle (135), Dragon (20), Starliner (1), Orion (1).
    a. Orbital flights will be counted once reentry is complete. The Dragon Crew-13 mission has not reentered and therefore is not yet counted.
    b. Starliner only carried occupants on launch, it did not reenter with humans on board.
5. Suborbital flights include X-15 (169), M2 (24), Mercury (Redstone) (2), SpaceShipOne (5), SpaceShipTwo (20), and New Shepard System (17)
    a. Glide flights are not counted per safety record criterion #2.
    b. Flights that fail to meet the definition of suborbital rocket in 14 CFR § 401.5 are not counted (thrust must be greater than lift) e.g. some X-15 and M2 flights.
6. X-15 Flight 191, Challenger STS-51-L, Columbia STS-107, SpaceShipTwo VSS Enterprise, Apollo-Soyuz Test Project
    a. Per safety record criterion #14, a catastrophic failure means a failure causing death or serious injury to the people on board.

Safety Record Criteria

The Informed Consent guidance contains rationale for each criteria: https://www.faa.gov/space/legislation_regulation_guidance/

1. The human space flight safety record only includes launch and reentry vehicle flights during which a human was on board. The vehicle safety record includes both manned and unmanned flights of launch and reentry vehicles designed to carry humans.
2. Licensed or permitted launches and reentries, as well as launches and reentries conducted by and for the U.S. government, count in the human space flight safety record and vehicle safety record.
3. Manned U.S. Government launches to space or reentries from space are counted in the human space flight safety record.
4. Foreign launches and reentries (those not FAA licensed or not conducted by the U.S. government) will not be counted in either safety record, unless accurate launch and re-entry information is available. For example, if a bilateral agreement to share safety data exists between the FAA and the foreign government or entity, accurate information may be available.
5. The human space flight safety record includes any flight with a human on board regardless if it occurred before, during, or after vehicle verification.
6. The vehicle safety record includes all flights during and after vehicle verification regardless of whether any humans were on board.
7. Earlier vehicle types that predate the verification of the vehicle are not part of the vehicle safety record. In this policy, a vehicle type means vehicles similar in design and structure as licensed or permitted by the FAA.
8. The launch and reentry count as one flight for both safety records for orbital and suborbital missions.
9. If there was intent to launch, vehicles that do not leave the launch pad or air-launched vehicles that do not have a successful ignition do not count as a flight in the safety records unless a mishap occurs. If a mishap occurs, the human space flight and vehicle safety record covers the timeframe from when the occupants are (or would be) exposed to vehicle hazards prior to flight until after landing when they are no longer exposed to vehicle hazards.
10. A flight with intent to launch that fails to complete its nominal flight profile is counted as a flight in both safety records.
11. Regarding hybrid launch systems, only occupants on board the rocket-powered, space-bound vehicle count toward the safety record.
12. The human space flight safety record includes flight crew, government astronauts, and space flight participants who suffered a serious or fatal injury from the time they are exposed to vehicle hazards prior to flight, until after vehicle landing when they are no longer exposed to vehicle hazards.
13. Title 49 CFR 830.2 will be used for the definition for serious injury.
14. “Catastrophic failure” from § 460.45(c) for the purpose of determining a safety record means a failure causing death or serious injury to the people on board. Launch or reentry aborts, regardless of the cause, are not counted as a catastrophic failure unless death or serious injury occurs.
15. Safety critical aborts are considered a human space flight incident in the vehicle safety record.