

SCIENTIFIC AMERICAN

A microscopic image of cells, likely from a developing organism, showing various stages of cell division and differentiation. The cells are stained in shades of blue and green, with some showing prominent nuclei and others appearing as smaller, more rounded structures. The background is dark, making the cells stand out.

Growing the
Adolescent Mind

Recycling
Space
Junk

Redefining
Alzheimer's

A Cellular Revolution

Long-overlooked molecular blobs
are transforming our understanding
of how life works

The Astronaut Club

A close look at every person who's ever gone to space

TEXT BY CLARA MOSKOWITZ

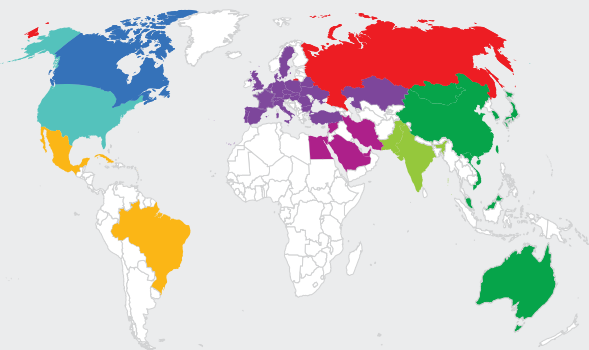
GRAPHIC BY ZANE WOLF

IN 1960 NO ONE had ever traveled beyond Earth. Now more than 700 people have flown past the 50-mile-high mark that was considered the boundary of space when spaceflight first got started. At that time, the Soviet Union and the U.S. were the only teams, and military men around 30 years old were practically the only players. Since then, astronauts have diversified in many ways: men and women from 47 countries have reached space, including residents of every continent, most in the employ of space agencies and some with private companies. Diversity hasn't been a straightforward march, though: in 1963 the U.S.S.R. launched the first woman into space, but in subsequent years only five more female cosmonauts flew in total, whereas dozens of male cosmonauts went up each decade.

The number of space visitors peaked in the 1990s, when NASA flew an average of six space shuttle missions a year, each usually carrying five to seven astronauts. The first shuttle launched in 1981, but the program took a nearly three-year hiatus after the *Challenger* disaster in 1986. The shuttle fleet was grounded again for more than two years when *Columbia* broke up on its return trip to Earth.

Region

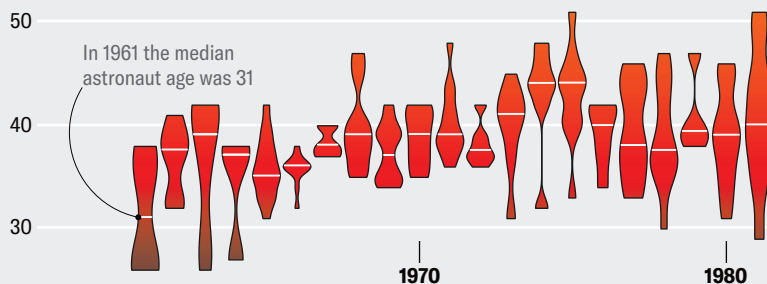
- Canada
- U.S.
- Russia
- Europe and Central Asia
- South Asia
- East Asia and Pacific
- Latin America and Caribbean
- Middle East and North Africa



Annual Age Distributions of Astronauts Sent to Space

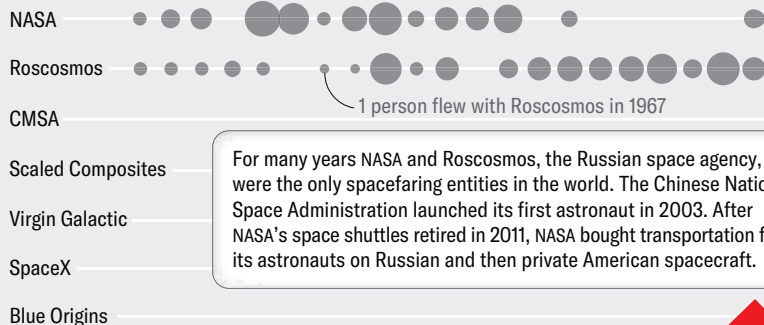
Age in Years
60

The ages of astronauts are shown here for each year when people flew to space, and the width of each blob represents the number of fliers for each age. Both the average age of astronauts and the spread in ages have gradually risen over time.

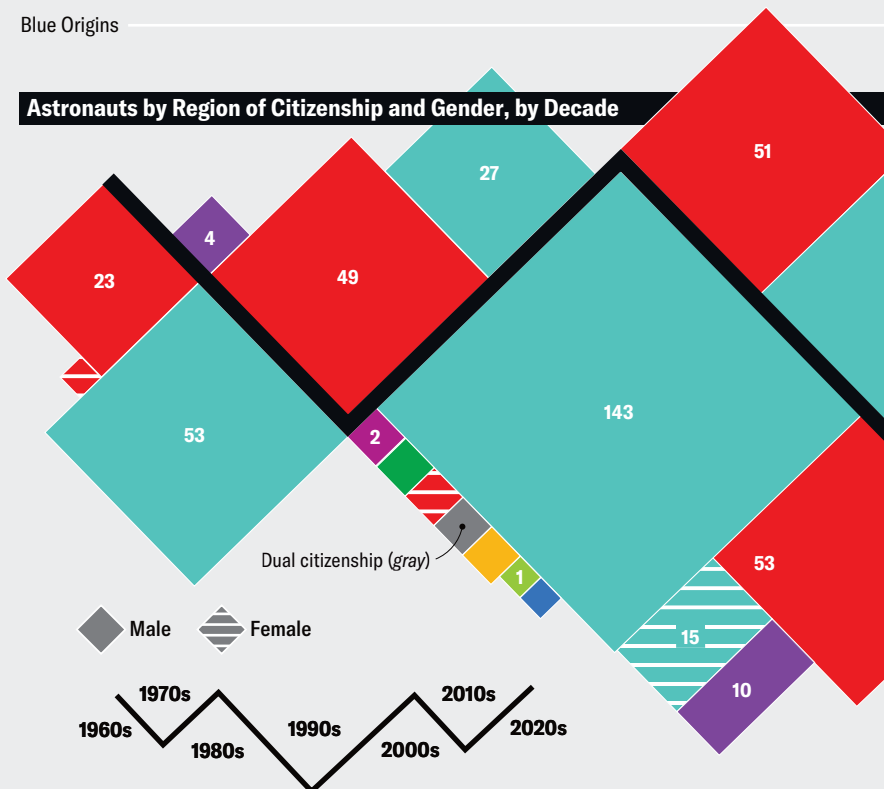


Astronauts Sent to Space by Operator over Time

● Public Operator ○ Private Operator



Astronauts by Region of Citizenship and Gender, by Decade



In 2021 William Shatner went to space at 90.5 years of age. Ed Dwight followed in 2024 at 90.7 years

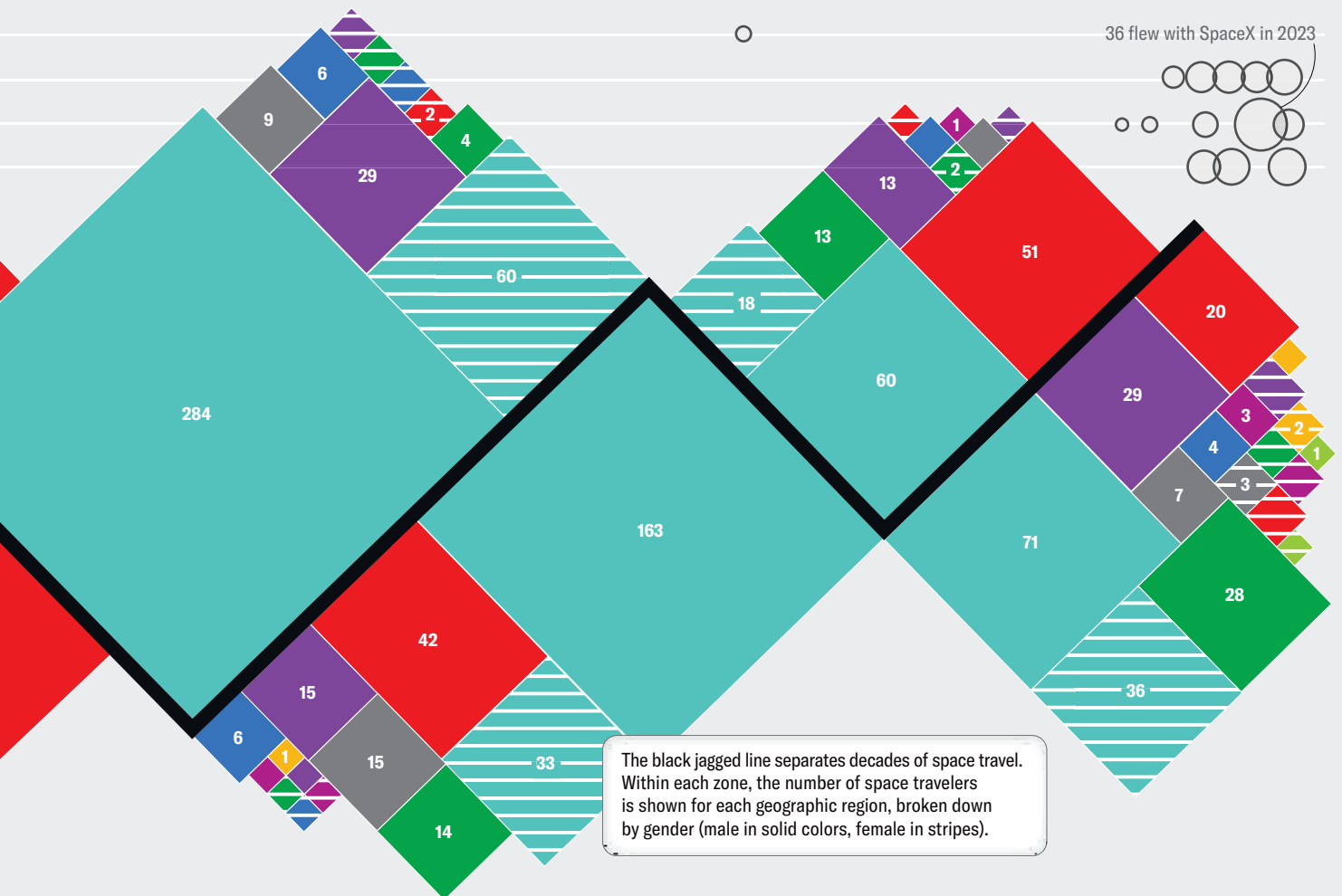
In 1998 John Glenn flew on a mission at 77 years of age, 36 years after his first trip to space

In 2024 the median age was 50 years

58 people flew with NASA in 1985

In 2021 Oliver Daemen became the youngest person in space at age 18

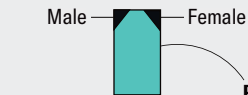
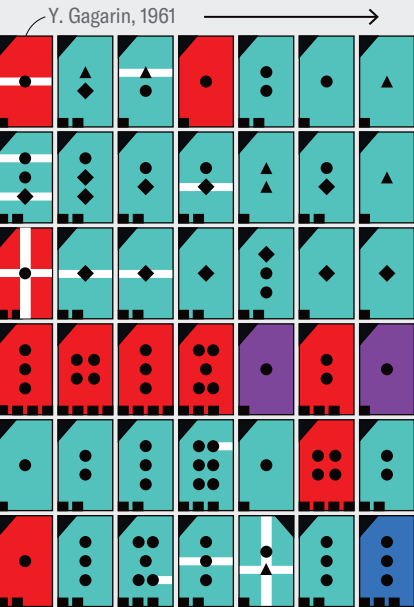
36 flew with SpaceX in 2023



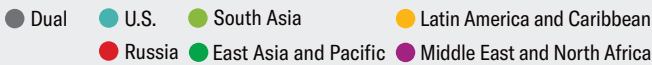
Each tile represents an individual space flier. Color and tile symbols signify each person's region of citizenship, gender, number of missions, duration in space, type of flight, and public or private status. Vertical white lines mark astronauts who died on space missions, and white circles indicate astronauts who were in space at press time (December 2024).

Mission Data for Individual Astronauts

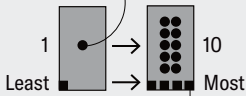
Each rectangle represents an astronaut. Rectangles are



Region of Citizenship

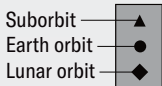


Number of Missions

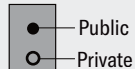


Total Time in Space (quartiles)

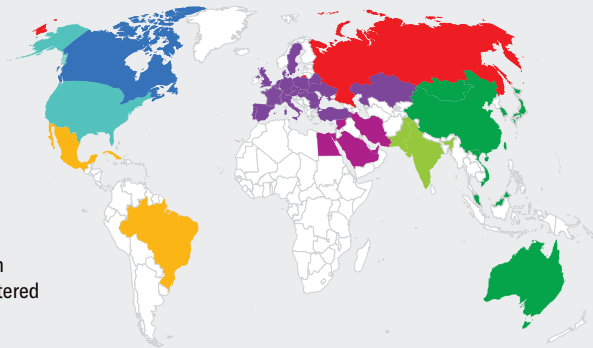
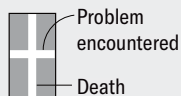
Mission Orbit



Operator



Currently in space (white)



organized by first date in space, from Yuri Gagarin on April 12, 1961, in the top left to the crew of Blue Origin's NS-28 mission on November 22, 2024, on the bottom right.

