

Kalpana Chawla

Kalpana Chawla (March 17, 1962 – February 1, 2003) was an Indian-born American astronaut and the first woman of Indian origin in space.^{[2][3]} She first flew on Space Shuttle *Columbia* in 1997 as a mission specialist and primary robotic arm operator. In 2003, Chawla was one of the seven crew members who died in the Space Shuttle *Columbia* disaster when the craft disintegrated during its re-entry into the Earth's atmosphere.^[4] Chawla was posthumously awarded the Congressional Space Medal of Honor^[5] and several streets, universities, and institutions have been named in her honor^{[6][7][8]}

Contents

Early life

Career

First space mission

Second space mission

Death

Honors and recognition

See also

References

Further reading

External links

Early life

Chawla was born on 17 March 1962, but her official date of birth was altered to 1 July 1961 to allow her to become eligible for the matriculation exam.^[9] As a child, Kalpana liked to draw pictures of airplanes.^[10]After getting a Bachelor of Engineering degree in Aeronautical Engineering from Punjab Engineering College, Chandigarh,^[11] she moved to the United States in 1982 where she obtained a Master of Science degree in Aerospace Engineering from the University of Texas at Arlington in 1984.^[12] Chawla went on to earn a second Masters in 1986 and a PhD^[13] in aerospace engineering in 1988 from the University of Colorado Boulder

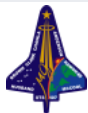
Career

In 1988, she began working at NASA, where she did computational fluid dynamics (CFD) research on vertical and/or short take-off and landing (V/STOL) concepts. In

1993, she joined Overset Methods, Inc. as Vice President and Research Scientist specializing in simulation of moving multiple body problems.^[14] Chawla held a Certificated Flight Instructor rating for airplanes, gliders and Commercial Pilot licenses for single and multi-engine airplanes, seaplanes and gliders.^[15] After becoming a naturalized U.S. citizen in April 1991, Chawla applied for the NASA Astronaut Corps^[16] She joined the corps in March 1995 and was selected for her first flight in 1996.

Kalpana Chawla



Born	March 17, 1962 Karnal, Punjab, India (now in Haryana, India)
Died	February 1, 2003 (aged 40) Aboard Space Shuttle Columbia over Texas, U.S.
Alma mater	Punjab Engineering College University of Texas at Arlington University of Colorado at Boulder
Time in space	31d 14h 54min ^[1]
Selection	1994 NASA Group
Missions	STS-87, STS-107
Mission insignia	 
Awards	

First space mission

Her first space mission began on November 19, 1997, as part of the six-astronaut crew that flew the Space Shuttle Columbia flight STS-87. Chawla was the first Indian-born woman to fly in space. She spoke the following words while traveling in the weightlessness of space, "You are just your intelligence". On her first mission, Chawla traveled over 10.4 million miles (16737177.6 K M) in 252 orbits of the earth, logging more than 372 hours (15 Days and 12 Hours) in space.^[14] During STS-87, she was responsible for deploying the Spartan satellite which malfunctioned, necessitating a spacewalk by Winston Scott and Takao Doi to capture the satellite. A five-month NASA investigation fully exonerated Chawla by identifying errors in software interfaces and the defined procedures of flight crew and ground control. After the completion of STS-87 post-flight activities, Chawla was assigned to technical positions in the astronaut office to work on the space station.

Second space mission

In 2000, Chawla was selected for her second flight as part of the crew of STS-107. This mission was repeatedly delayed due to scheduling conflicts and technical problems such as the July 2002 discovery of cracks in the shuttle engine flow liners. On January 16, 2003, Chawla finally returned to space aboard Space Shuttle Columbia on the ill-fated STS-107 mission. The crew performed nearly 80 experiments studying earth and space science, advanced technology development, and astronaut health and safety. During the launch of STS-107, Columbia's 28th mission, a piece of foam insulation broke off from the Space Shuttle external tank and struck the left wing of the orbiter. Previous shuttle launches had seen minor damage from foam shedding,^[17] but some engineers suspected that the damage to Columbia was more serious. NASA managers limited the investigation, reasoning that the crew could not have fixed the problem if it had been confirmed.^[18] When Columbia re-entered the atmosphere of Earth, the damage allowed hot atmospheric gases to penetrate and destroy the internal wing structure, which caused the spacecraft to become unstable and break apart.^[19] After the disaster, Space Shuttle flight operations were suspended for more than two years, similar to the aftermath of the Challenger disaster. Construction of the International Space Station (ISS) was put on hold; the station relied entirely on the Russian Roscosmos State Corporation for resupply for 29 months until Shuttle flights resumed with STS-114 and 41 months for crew rotation.

Death

Chawla died in the Space Shuttle Columbia disaster which occurred on February 1, 2003; she was killed, along with the other six crew members, when the Columbia disintegrated over Texas during re-entry into the Earth's atmosphere, shortly before it was scheduled to conclude its 28th mission, STS-107.^[20]

Chawla's remains were identified along with the rest of the crew members and were cremated and scattered at National Park in Utah in accordance with her wishes.

Honors and recognition

- Asteroid 51826 Kalpana chawla one of seven named after the Columbia's crew.^[21]
- On February 5, 2003, the Prime Minister of India announced that the meteorological series of satellites, MetSat, was to be renamed "Kalpana". The first satellite of the series, "MetSat-1", launched by India on September 12, 2002 was renamed Kalpana-1".^[22]
- 74th Street in Jackson Heights, Queens, New York City has been renamed "Kalpana Chawla Way" in her honor.^[6]
- The Kalpana Chawla Award was instituted by the Government of Karnataka in 2004 to recognize young women scientists.^[23]
- NASA has dedicated a supercomputer to Chawla.^[24]
- One of Florida Institute of Technology's student apartment complexes, Columbia Village Suites, has halls named after each of the astronauts, including Chawla.



The crew of STS-107 in October 2001. From left to right: Brown, Husband, Clark, Kalpana Chawla, Anderson, McCool, Ramon

- The NASA Mars Exploration Rover mission has named seven peaks in a chain of hills, named the Columbia Hills, after each of the seven astronauts lost in the Columbia shuttle disaster. One of them is Chawla Hill, named after Chawla.
- Steve Morse from the band Deep Purple created the song "Contact Lost" in memory of the Columbia tragedy along with her interest in the band. The song can be found on the album *Bananas*.^[25]
- Novelist Peter David named a shuttlecraft, the *Chawla*, after the astronaut in his 2007 *Star Trek* novel, *Star Trek: The Next Generation: Before Dishonor*.^[26]
- The Kalpana Chawla ISU Scholarship fund was founded by alumni of the International Space University (ISU) in 2010 to support Indian student participation in international space education programs.^[27]
- The Kalpana Chawla Memorial Scholarship program was instituted by the Indian Students Association (ISA) at the University of Texas at El Paso (UTEP) in 2005 for meritorious graduate students.^[28]
- The Kalpana Chawla Outstanding Recent Alumni Award at the University of Colorado given since 1983, was renamed after Chawla.^[29]
- The University of Texas at Arlington, where Chawla obtained a Master of Science degree in aerospace engineering in 1984, opened a dormitory named Kalpana Chawla Hall in 2004.^[30] In addition, the university dedicated the Kalpana Chawla Memorial on May 3, 2010, in Nedderman Hall, one of the primary buildings in the College of Engineering.^[31]
- The girls' hostel at Punjab Engineering College is named after Chawla. In addition, an award of INR twenty-five thousand, a medal, and a certificate is instituted for the best student in the Aeronautical Engineering department.^[32]
- The Government of Haryana established the Kalpana Chawla Planetarium in Jyotisar, Kurukshetra.^[8]
- The Indian Institute of Technology, Kharagpur, named the Kalpana Chawla Space Technology Cell in her honor.^[7]^[33]
- Delhi Technological University named a girls' hostel block after Chawla.^[34]
- A military housing development at Naval Air Station Patuxent River Maryland, has been named Columbia Colony and includes a street named Chawla Way.
- Hostel blocks in Maulana Azad National Institute of Technology, Sagar Institute of Research & Technology, VIT University, Samrat Ashok Technological Institute and Pondicherry University have been named after Chawla.^[35]^[36]
- Kalpana Chawla Government Medical College (KCGMC) is a Medical College formed for women located in Karnal, Haryana, India named after Chawla.



Kalpana Chawla Hall, University of Texas Arlington

See also

- List of Asian American astronauts
- List of female astronauts

References

1. "Life facts" (<http://spaceflight.nasa.gov/shuttle/archives/sts-107/memorial/chawla.html>) NASA. Retrieved February 27, 2014.
2. Salim Rizvi (December 11, 2006). "Indo-US astronaut follows Kalpana's footsteps" (http://news.bbc.co.uk/2/hi/south_asia/6169111.stm) New York: BBC. Retrieved November 20, 2012. "Almost four years after the death of the first American astronaut Kalpana Chawla in the Columbia space shuttle disaster, NASA has sent another woman of Indian origin into space."
3. Nola Taylor Redd. "Kalpana Chawla: Biography & Columbia Disaster" (<http://www.space.com/17056-kalpana-chawla-biography.html>). *Space.com*. Tech Media Network Retrieved November 20, 2012.
4. "Kalpana Chawla" (http://www.msnbc.msn.com/id/28436243/ns/technology_and_science-space/t/nasa-reports-new-details-columbia-deaths/) Retrieved 2012-05-24.
5. "Astronaut Bio: Kalpana Chawla 5/04" (<https://www.jsc.nasa.gov/Bios/htmlbios/chawla.html>). *www.jsc.nasa.gov*. Retrieved 2018-01-05.
6. Rajghatta, Chidanand (Jul 12, 2004). "NY has Kalpana Chawla Way" (<http://timesofindia.indiatimes.com/world/NYhas-Kalpana-Chawla-Way/articleshow/775327.cms>). *The Times of India* Retrieved 27 February 2014.

7. Saxena, Ambuj. "Kalpana Chawla Space Technology Cell | Flickr – Photo Sharing!" (<https://www.flickr.com/photos/ambuj/421069342/>) Flickr. Retrieved 2010-12-10.
8. "IBN News" (<http://ibnlive.in.com/news/planetarium-in-kalpana-chawlas-memory/36993-11.html>) ibnlive.in.com. 2010-02-03 Retrieved 2010-12-10.
9. Salwi, Dilip M (February 20, 2004). "Did you know Kalpana was called Monto?" (<http://www.rediff.com/news/2004/feb/20spec.htm>) Rediff.com. Archived (<https://archive.is/20170820195308/http://www.rediff.com/news/2004/feb/20spec.htm>) from the original on August 20, 2017 Retrieved August 20, 2017.
10. http://harrisonpublishing.net/pdf/book/kalpana_book.1.1.pdf
11. <https://www.jsc.nasa.gov/Bios/htmlbios/chawla.html>
12. Chawla, Kalpana (1984), *MS Thesis Optimization of cross flow fan housing for airplane wing installation* University of Texas at Arlington, p. 97
13. Chawla, Kalpana (1988), *PhD Thesis Computation of dynamics and control of unsteady vortical flows* University of Colorado at Boulder p. 147
14. "Kalpana Chawla (PH.D)" (<http://www.jsc.nasa.gov/Bios/htmlbios/chawla.html>). Biographical Data NASA. Retrieved September 14, 2014.
15. "Kalpana Chawla" (<http://www.iloveindia.com/indian-heroes/kalpana-chawla.html>) I Love India Retrieved September 14, 2014.
16. Basu, Biman (May 2012). "Book Review: Biography of Kalpana Chawla" (<http://www.niscair.res.in/jinfo/sr/2012/SR%2049%285%29%20%28Book%20Review%29.pdf>) (PDF). *Science Reporter*. pp. 40–41. Retrieved 2013-07-06.
"Born on 17 March 1962 in Karnal, Haryana"
17. Columbia Accident Investigation Board (August 2003): "6.1 A History of Foam Anomalies (page 121)" (http://s3.amazonaws.com/akamai.netstorage/anon.nasa-global/CAIB/CAIB_lowres_chapter6.pdf) (PDF). Retrieved June 26, 2014.
18. Marcia Dunn (February 2, 2003). "Columbia's problems began on left wing" (http://staugustine.com/stories/020203/new_1299125.shtml) Associated Press via staugustine.com.
19. "Molten Aluminum found on Columbia's thermal tiles" (https://www.usatoday.com/news/nation/2003-03-04-shuttle-investigation_x.htm) USA Today. Associated Press. March 4, 2003 Retrieved August 13, 2007.
20. Correspondent, A. "Space Shuttle Explodes, Kalpana Chawla dead" (<http://www.rediff.com/us/2003/feb/01kalp.htm>) Rediff.
21. "Tribute to the Crew of Columbia" (<http://www.jpl.nasa.gov/releases/2003/columbia-tribute.cfm>) NASA JPL. Retrieved 2007-06-10.
22. "ISRO METSAT Satellite Series Named After Columbia Astronaut Kalpana Chawla" (<http://www.spaceref.com/news/viewnews.html?id=732>) Spaceref.com Retrieved 2007-06-10.
23. "Kalpana Chawla Award instituted" (<http://www.hindu.com/2004/03/23/stories/2004032310280500.htm>) The Hindu. Chennai, India. 2004-03-23 Retrieved 2007-06-10.
24. "NASA Names Supercomputer After Columbia Astronaut" (<http://space.about.com/cs/nasanews/a/chawlacompute.htm>). About.com. Retrieved 2007-06-10.
25. "Space Music – Rock/Pop" (<http://www.hobbyspace.com/Music/music1.html>). HobbySpace. 2005-08-31 Retrieved 2010-12-10.
26. David, Peter; *Star Trek: Next Generation: Before Dishonor* Page 24.
27. Kalpana Chawla International Space University Scholarship (<http://www.kcscholarship.org>) Archived (<https://web.archive.org/web/20110301005248/http://www.kcscholarship.org/>) March 1, 2011, at the Wayback Machine
28. "Kalpana Chawla Memorial Scholarship" (<https://web.archive.org/web/20111002025936/http://academics.utep.edu/Default.aspx?tabid=45209>) UTEP. Archived from the original (<http://academics.utep.edu/Default.aspx?tabid=45209>) on October 2, 2011 Retrieved June 10, 2008.
29. "Kalpana Chawla Award" (<https://web.archive.org/web/20120309065132/https://www.cualum.org/awards/chawla-award-winners/>) University of Colorado Archived from the original (<http://www.cualum.org/awards/chawla-award-winners/>) on March 9, 2012 Retrieved February 12, 2012.
30. "Kalpana Chawla Hall" (<http://www.uta.edu/housing/housing/residence-halls/kc-hall.php>) University of Texas at Arlington. Retrieved 2013-05-16.
31. "Kalpana Chawla Display Dedicated at Nedderman Hall" (<http://www.uta.edu/news/releases/2010/05/kalpana-chawla-display.php>). The University of Texas at Arlington Retrieved 2013-05-16.

32. "Punjab Engineering College remembers Kalpana"(<https://web.archive.org/web/20060827232518/http://www.expressindia.com/fullstory.php?newsid=18844>) *The Indian Express* Archived from the original (<http://www.expressindia.com/fullstory.php?newsid=18844>) on August 27, 2006 Retrieved June 10, 2007.
33. "Space Technology Cell" (<https://web.archive.org/web/20071230094113/http://www.kcstc.iitkgp.ernet.in/>) Kcstc.iitkgp.ernet.in. Archived from the original (<http://www.kcstc.iitkgp.ernet.in/>) on 2007-12-30. Retrieved 2010-12-10.
34. "Delhi University" (<http://hostels.dtu.ac.in/girls-hostels/kalpana-chawla-hostel/>)
35. "SIRT" (http://sirtbhopal.ac.in/new/?page_id=1741)
36. "Pondicherry University" (<http://www.pondiuni.edu.in/content/hostels-thing>).

Further reading

- among The girl stars-Life and Dreams of Kalpana Chawla by Gurdeep Pandher
- *India's 50 Most Illustrious Women*(ISBN 81-88086-19-3) by Indra Gupta
- Kalpana Chawla, a life(*ISBN 0-14-333586-3*) by Anil Padmanabhan
- *The Edge of Time: The Authoritative Biography of Kalpana Chawla*(ISBN 978-0976827917) by Jean-Pierre Harrison

External links

- [Kalpana Chawla Excellence Awards 2012](#)
 - [Kalpana Chawla profile in India Currents 1998](#)
-

Retrieved from 'https://en.wikipedia.org/w/index.php?title=Kalpana_Chawla&oldid=833931945

This page was last edited on 3 April 2018, at 02:21.

Text is available under the [Creative Commons Attribution-ShareAlike License](#)additional terms may apply By using this site, you agree to the [Terms of Use](#) and [Privacy Policy](#). Wikipedia® is a registered trademark of the [Wikimedia Foundation, Inc.](#), a non-profit organization.