



National Aeronautics and  
Space Administration

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# Information Summaries

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# Astronaut Fact Book



*Man must rise above the Earth –  
to the top of the atmosphere and  
beyond – for only thus will  
he fully understand the world  
in which he lives.*

Socrates  
500 B.C.



## PREFACE

The National Aeronautics and Space Administration (NASA) selected the first group of astronauts in 1959. From 500 candidates having the required jet aircraft flight experience and engineering training as well as height below 5 feet 11 inches, 7 military men became the Nation's first astronauts. The second and third groups chosen included civilians who had extensive flying experience. By 1964, requirements had changed, and emphasis was placed on academic qualifications; in 1965, 6 scientist astronauts were selected from a group of 400 applicants who had a doctorate or equivalent experience in the natural sciences, medicine, or engineering. The group named in 1978 was the first of space shuttle flight crews and was composed of 15 pilots and 20 mission specialists; 6 of the 35 were women and 4 were members of minorities. Since then, 8 additional groups have been selected with a mix of pilots and mission specialists.

In total, 293 U.S. astronauts have been selected in the 17 groups from 1959 through 1997; there are 120 astronauts and 25 candidates currently in the program; 123 astronauts have retired, resigned or been reassigned; and 25 are deceased.

Several sections are included in this document to provide general information about the international astronauts who are participating in the U.S. Space Program.

Payload specialists are career scientists or engineers selected by their employer or country for their expertise in conducting a specific experiment or commercial venture on a space shuttle mission. Information about them is not included in the Astronaut Fact Book.

The space flights and statistics listed in this publication are those which resulted from the vertical takeoff of an American space vehicle. Astronauts listed are individuals who participated in the United States astronaut program including those who are in the training program.

NASA accepts applications for the Astronaut Candidate Program on a continuing basis and selects candidates as needed.



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### **Cover Art**

Astronaut wings.



## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Adamson, James C.	1984	10	2	Former
Akers, Thomas D.	1987	12	4	Former
Aldrin, Buzz	1963	3	2	Former
Allen, Andrew M.	1987	12	3	Former
Allen, Joseph P.	1967	6	2	Former
Altman, Scott D.	1995	15	1	Current
Anders, William A.	1963	3	1	Former
Anderson, Michael P.	1995	15	1	Current
Anderson, Clayton C.	1998	17	0	Candidate
Apt, Jerome	1985	11	4	Former
Archambault, Lee J.	1998	17	0	Candidate
Armstrong, Neil A.	1962	2	2	Former
Ashby, Jeffrey S.	1995	15	0	Current
Bagian, James P.	1980	9	2	Former
Baker, Ellen S.	1984	10	3	Current
Baker, Michael A.	1985	11	4	Current
Barry, Daniel T.	1992	14	1	Current
Bassett, Charles A., II	1963	3	0	Deceased
Bean, Alan L.	1963	3	2	Former
Blaha, John E.	1980	9	5	Former
Bloomfield, Michael J.	1995	15	1	Current
Bluford, Guion S., Jr.	1978	8	4	Former
Bobko, Karol J.	1969	7	3	Former
Bolden, Charles F., Jr.	1980	9	4	Former
Borman, Frank	1962	2	2	Former
Bowersox, Kenneth D.	1987	12	4	Current
Brady, Charles E., Jr.	1992	14	1	Current
Brand, Vance D.	1966	5	4	Former
Brandenstein, Daniel C.	1978	8	4	Former
Bridges, Roy D., Jr.	1980	9	1	Former
Brown, Curtis L., Jr.	1987	12	4	Current
Brown, David M.	1996	16	0	Current
Brown, Mark N.	1984	10	2	Former
Buchli, James F.	1978	8	4	Former
Bull, John S.	1966	5	0	Former
Burbank, Daniel C.	1996	16	0	Current
Bursch, Daniel W.	1990	13	3	Current
Cabana, Robert D.	1985	11	3	Current
Cagle, Yvonne D.	1996	16	0	Current
Caldeiro, Fernando (Frank)	1996	16	0	Current
Caldwell, Tracy E.	1998	17	0	Candidate

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Camarda, Charles J.	1996	16	0	Current
Cameron, Kenneth D.	1984	10	3	Former
Carey, Duane G.	1996	16	0	Current
Carpenter, M. Scott	1959	1	1	Former
Carr, Gerald P.	1966	5	1	Former
Carter, Manley Lanier, Jr.	1984	10	1	Deceased
Casper, John H.	1984	10	4	Current
Cernan, Eugene A.	1963	3	3	Former
Chaffee, Roger B.	1963	3	0	Deceased
Chamitoff, Gregory E.	1998	17	0	Candidate
Chang-Díaz, Franklin R.	1980	9	6	Current
Chapman, Philip K.	1967	6	0	Former
Chawla, Kalpana	1995	15	1	Current
Chiao, Leroy	1990	13	2	Current
Chilton, Kevin P.	1987	12	3	Former
Clark, Laurel B.	1996	16	0	Current
Cleave, Mary L.	1980	9	2	Former
Clifford, Michael R.	1990	13	3	Former
Coats, Michael L.	1978	8	3	Former
Cockrell, Kenneth D.	1990	13	3	Current
Coleman, Catherine G.	1992	14	1	Current
Collins, Eileen M.	1990	13	2	Current
Collins, Michael	1963	3	2	Former
Conrad, Charles, Jr.	1962	2	4	Former
Cooper, L. Gordon, Jr.	1959	1	2	Former
Covey, Richard O.	1978	8	4	Former
Creamer, Timothy J.	1998	17	0	Candidate
Creighton, John O.	1978	8	3	Former
Crippen, Robert L.	1969	7	4	Former
Culbertson, Frank L., Jr.	1984	10	2	Current
Cunningham, Walter	1963	3	1	Former
Curbeam, Robert L., Jr.	1995	15	1	Current
Currie, Nancy J.	1990	13	2	Current
Davis, N. Jan	1987	12	3	Current
Duffy, Brian	1985	11	3	Current
Duke, Charles M., Jr.	1966	5	1	Former
Dunbar, Bonnie J.	1980	9	5	Current
Edwards, Joe F., Jr.	1995	15	1	Current
Eisele, Donn F.	1963	3	1	Deceased
England, Anthony W.	1967	6	1	Former
Engle, Joe H.	1966	5	2	Former

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Evans, Ronald E.	1966	5	1	Deceased
Fabian, John M.	1978	8	2	Former
Ferguson, Christopher J.	1998	17	0	Candidate
Fincke, E. Michael	1996	16	0	Current
Fisher, Anna L.	1978	8	1	Current
Fisher, William F.	1980	9	1	Former
Foale, C. Michael	1987	12	4	Current
Foreman, Michael J.	1998	17	0	Candidate
Forrester, Patrick G.	1996	16	0	Current
Fossum, Michael E.	1998	17	0	Candidate
Freeman, Theodore C.	1963	3	0	Deceased
Frick, Stephen N.	1996	16	0	Current
Fullerton, Charles G.	1969	7	2	Former
Gardner, Dale A.	1978	8	2	Former
Gardner, Guy S.	1980	9	2	Former
Garriott, Owen K.	1965	4	2	Former
Gemar, Charles D.	1985	11	3	Former
Gernhardt, Michael L.	1992	14	3	Current
Gibson, Edward G.	1965	4	1	Former
Gibson, Robert L.	1978	8	5	Former
Givens, Edward G., Jr.	1966	5	0	Deceased
Glenn, John H., Jr.	1959	1	1	Former
Godwin, Linda M.	1985	11	3	Current
Gordon, Richard F., Jr.	1963	3	2	Former
Gorie, Dominic L.	1995	15	1	Current
Grabe, Ronald J.	1980	9	4	Former
Graveline, Duane E.	1965	4	0	Former
Gregory, Frederick D.	1978	8	3	Former
Gregory, William G.	1990	13	1	Current
Griggs, S. David	1978	8	1	Deceased
Grissom, Virgil I.	1959	1	2	Deceased
Grunsfeld, John M.	1992	14	2	Current
Gutierrez, Sidney M.	1984	10	2	Former
Haise, Fred W., Jr.	1966	5	1	Former
Halsell, James D., Jr.	1990	13	4	Current
Ham, Kenneth T.	1998	17	0	Candidate
Hammond, L. Blaine, Jr.	1984	10	2	Former
Harbaugh, Gregory J.	1987	12	4	Current
Harris, Bernard A., Jr.	1990	13	2	Former
Hart, Terry J.	1978	8	1	Former

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Hartsfield, Henry W., Jr.	1969	7	3	Former
Hauck, Frederick H.	1978	8	3	Former
Hawley, Steven A.	1978	8	4	Current
Helms, Susan J.	1990	13	3	Current
Henize, Karl G.	1967	6	1	Deceased
Henricks, Terence T.	1985	11	4	Former
Herrington, John B.	1996	16	0	Current
Hieb, Richard J.	1985	11	3	Former
Higginbotham, Joan E.	1996	16	0	Current
Hilliard, Patricia C.	1998	17	0	Candidate
Hilmers, David C.	1980	9	4	Former
Hire, Kathryn P.	1995	15	1	Current
Hobaugh, Charles O.	1996	16	0	Current
Hoffman, Jeffrey A.	1978	8	5	Former
Holmquest, Donald L.	1967	6	0	Former
Horowitz, Scott J.	1992	14	2	Current
Husband, Rick D.	1995	15	0	Current
Irwin, James B.	1966	5	1	Deceased
Ivins, Marsha S.	1984	10	4	Current
Jemison, Mae C.	1987	12	1	Former
Jernigan, Tamara E.	1985	11	3	Current
Jett, Brent W.	1992	14	2	Current
Johnson, Gregory C.	1998	17	0	Candidate
Johnson, Gregory H.	1998	17	0	Candidate
Jones, Thomas D.	1990	13	3	Current
Kavandi, Janet L.	1995	15	0	Current
Kelly, James M.	1996	16	0	Current
Kelly, Mark E.	1996	16	0	Current
Kelly, Scott J.	1996	16	0	Current
Kerwin, Joseph P.	1965	4	1	Former
Kregel Kevin R.	1992	14	3	Current
Lawrence, Wendy B.	1992	14	3	Current
Lee, Mark C.	1984	10	4	Current
Leestma, David C.	1980	9	3	Former
Lenoir, William B.	1967	6	1	Former
Lind, Don L.	1966	5	1	Former
Lindsey, Steven W.	1995	15	1	Current
Linenger, Jerry M.	1992	14	3	Former
Linnehan, Richard M.	1992	14	2	Current

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Llewellyn, John A.	1967	6	0	Former
Lockhart, Paul S.	1996	16	0	Current
Lopez-Alegria, Michael E.	1992	14	1	Current
Loria, Christopher J.	1996	16	0	Current
Lounge, John M.	1980	9	3	Former
Lousma, Jack R.	1966	5	2	Former
Love, Stanley G.	1998	17	0	Candidate
Lovell, James A., Jr.	1962	2	4	Former
Low, G. David	1984	10	3	Former
Lu, Edward T.	1995	15	1	Current
Lucid, Shannon W.	1978	8	5	Current
Magnus, Sandra H.	1996	16	0	Current
Massimino, Michael J.	1996	16	0	Current
Mastracchio, Richard A.	1996	16	0	Current
Mattingly, Thomas K., II	1966	5	3	Former
McArthur, William S., Jr.	1990	13	2	Current
McBride, Jon A.	1978	8	1	Former
McCandless, Bruce, II	1966	5	2	Former
McCool, William C.	1996	16	0	Current
McCulley, Michael J.	1984	10	1	Former
McDivitt, James A.	1962	2	2	Former
McMonagle, Donald R.	1987	12	3	Former
McNair, Ronald E.	1978	8	2	Deceased
Meade, Carl J.	1985	11	3	Former
Melnick, Bruce E.	1987	12	2	Former
Melroy, Pamela A.	1995	15	0	Current
Melvin, Leland D.	1998	17	0	Candidate
Michel, F. Curtis	1965	4	0	Former
Mitchell, Edgar D.	1966	5	1	Former
Morin, Lee M.	1996	16	0	Current
Morgan, Barbara R.	1998	17	0	Candidate
Mullane, Richard M.	1978	8	3	Former
Musgrave, Story	1967	6	6	Former
Nagel, Steven R.	1978	8	4	Former
Nelson, George D.	1978	8	3	Former
Newman, James H.	1990	13	2	Current
Noriega, Carlos I.	1995	15	1	Current
Nowak, Lisa M.	1996	16	0	Current
Ochoa, Ellen	1990	13	2	Current
O'Connor, Bryan D.	1980	9	2	Former

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
O'Leary, Brian T.	1967	6	0	Former
Oefelein, William A.	1998	17	0	Candidate
Olivas, John D.	1998	17	0	Candidate
Onizuka, Ellison S.	1978	8	2	Deceased
Oswald, Stephen S.	1985	11	3	Current
Overmyer, Robert F.	1969	7	2	Deceased
Parazynski, Scott E.	1992	14	2	Current
Parker, Robert A. R.	1967	6	2	Former
Patrick, Nicholas J. M.	1998	17	0	Candidate
Peterson, Donald H.	1969	7	1	Former
Pettit, Donald R.	1996	16	0	Current
Phillips, John L.	1996	16	0	Current
Pogue, William R.	1966	5	1	Former
Poindexter, Alan G.	1998	17	0	Candidate
Polansky, Mark L.	1996	16	0	Current
Precourt, Charles J., Jr.	1990	13	4	Current
Readdy, William F.	1987	12	3	Current
Reightler, Kenneth S., Jr.	1987	12	2	Former
Reilly, James F.	1995	15	1	Current
Reisman, Garrett E.	1998	17	0	Candidate
Resnik, Judith A.	1978	8	2	Deceased
Richards, Paul W.	1996	16	0	Current
Richards, Richard N.	1980	9	4	Former
Ride, Sally K.	1978	8	2	Former
Robinson, Stephen K.	1995	15	1	Current
Rominger, Kent V.	1992	14	3	Current
Roosa, Stuart A.	1966	5	1	Deceased
Ross, Jerry L.	1980	9	5	Current
Runco, Mario, Jr.	1987	12	3	Current
Schirra, Walter M., Jr.	1959	1	3	Former
Schmitt, Harrison H.	1965	4	1	Former
Schweickart, Russell L.	1963	3	1	Former
Scobee, Francis R.	1978	8	2	Deceased
Scott, David R.	1963	3	3	Former
Scott, Winston E.	1992	14	2	Current
Searfoss, Richard A.	1990	13	3	Current
Seddon, Margaret Rhea	1978	8	3	Former
See, Elliot M., Jr.	1962	2	0	Deceased
Sega, Ronald M.	1990	13	2	Former
Sellers, Piers J.	1996	16	0	Current

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

Astronaut	Selection Year	Group	# Flights	Status
Shaw, Brewster H., Jr.	1978	8	3	Former
Shepard, Alan B., Jr.	1959	1	2	Deceased
Shepherd, William M.	1984	10	3	Current
Shriver, Loren J.	1978	8	3	Former
Slayton, Donald K.	1959	1	1	Deceased
Smith, Michael J.	1980	9	1	Deceased
Smith, Steven L.	1992	14	2	Current
Spring, Sherwood C.	1980	9	1	Former
Springer, Robert C.	1980	9	2	Former
Stafford, Thomas P.	1962	2	4	Former
Stefanyshyn-Piper, Heidemarie M.	1996	16	0	Current
Stewart, Robert L.	1978	8	2	Former
Still-Kilrain, Susan L.	1995	15	2	Current
Sturckow, Frederick W.	1995	15	0	Current
Sullivan, Kathryn D.	1978	8	3	Former
Swanson, Steven R.	1998	17	0	Candidate
Swigert, John L., Jr.	1966	5	1	Deceased
Tani, Daniel M.	1996	16	0	Current
Tanner, Joseph R.	1992	14	2	Current
Thagard, Norman E.	1978	8	5	Former
Thomas, Andrew S. W.	1992	14	2	Current
Thomas, Donald A.	1990	13	4	Current
Thorne, Stephen D.	1985	11	0	Deceased
Thornton, Kathryn C.	1984	10	4	Former
Thornton, William E.	1967	6	2	Former
Thuot, Pierre J.	1985	11	3	Former
Truly, Richard H.	1969	7	2	Former
van Hoften, James D. A.	1978	8	2	Former
Veach, Charles Lacy	1984	10	2	Deceased
Voss, James S.	1987	12	3	Current
Voss, Janice E.	1990	13	4	Current
Walheim, Rex J.	1996	16	0	Current
Walker, David M.	1978	8	4	Former
Walz, Carl E.	1990	13	3	Current
Weber, Mary E.	1992	14	1	Current
Weitz, Paul J.	1966	5	2	Former
Wetherbee, James D.	1984	10	4	Current
Wheelock, Douglas H.	1998	17	0	Candidate
White, Edward H., II	1962	2	1	Deceased
Whitson, Peggy A.	1996	16	0	Current

## ALPHABETICAL LIST OF U.S. ASTRONAUTS

<b>Astronaut</b>	<b>Selection Year</b>	<b>Group</b>	<b># Flights</b>	<b>Status</b>
Wilcutt, Terrence W.	1990	13	3	Current
Williams, Clifton C., Jr.	1963	3	0	Deceased
Williams, Donald E.	1978	8	2	Former
Williams, Jeffrey N.	1996	16	0	Current
Williams, Sunita L.	1998	17	0	Candidate
Wilson, Stephanie D.	1996	16	0	Current
Wisoff, Peter J. K.	1990	13	3	Current
Wolf, David A.	1990	13	2	Current
Woodward, Neil W., III	1998	17	0	Candidate
Worden, Alfred M.	1966	5	1	Former
Young, John W.	1962	2	6	Current
Zamka, George D.	1998	17	0	Candidate

## ALPHABETICAL LIST OF INTERNATIONAL ASTRONAUTS IN U.S. PROGRAM

Astronaut	Selection Year	Country	# Flights	Status
Cheli, Maurizioó	1992	Italy	1	Former
Chrétien, Jean-Loup J.M.	1995	France	1	Current
Clervoy, Jean-François	1992	France	2	Current
Doi, Takao	1995	Japan	1	Current
Duque, Pedro	1996	Spain	0	Current
Eyharts, Leopold	1998	France	0	Candidate
Fuglesang, Christer	1996	Sweden	0	Current
Garneau, Marc	1992	Canada	2	Current
Guidoni, Umberto	1996	Italy	1	Current
Hadfield, Chris A.	1992	Canada	1	Current
Krikalev, Sergei	1992	Russia	1	Former
MacLean, Steve	1996	Canada	1	Current
Mohri, Mamoru	1996	Japan	1	Current
Nespoli, Paolo	1998	Italy	0	Candidate
Nicollier, Claude	1980	Switzerland	3	Current
Noguchi, Soichi	1996	Japan	0	Current
Ockels, Wubbo J.	1980	The Netherlands	1	Former
Payette, Julie	1996	Canada	0	Current
Perrin, Philippe	1996	France	0	Current
Pontes, Marcos	1998	Brazil	0	Candidate
Schlegel, Hans	1998	Germany	0	Candidate
Thiele, Gerhard	1996	Germany	0	Current
Titov, Vladimir	1992	Russia	2	Former
Tognini, Michel	1995	France	0	Current
Tryggvason, Bjarni V.	1998	Canada	0	Candidate
Vittori, Roberto	1998	Italy	0	Candidate
Wakata, Koichi	1992	Japan	1	Current
Williams, Dafydd Rhys	1995	Canada	1	Current

## CURRENT U.S. ASTRONAUTS

**ALTMAN, Scott D.**, Commander, U.S. Navy

Pilot.

Born August 15, 1959, in Lincoln, Illinois. Hometown, Pekin, Illinois.

Bachelor of science in aeronautical/astronautical engineering from University of Illinois; master of science in aeronautical engineering, Naval Postgraduate School.

Flew on STS-90.

Cumulative hours of space flight are more than 381.

**ANDERSON, Michael P.**, Lieutenant Colonel, U.S. Air Force

Mission Specialist.

Born December 25, 1959, in Plattsburgh, New York. Hometown, Spokane, Washington.

Bachelor of science in physics/astronomy from University of Washington; master of science in physics from Creighton University.

Flew on STS-89.

Cumulative hours of space flight are more than 211.

**ASHBY, Jeffrey S.**, Captain, U.S. Navy

Pilot.

Born June 16, 1954, in Dallas, Texas. Hometown, Evergreen, Colorado.

Bachelor of science in mechanical engineering from University of Idaho; master of science in aviation systems from University of Tennessee, Knoxville.

**BAKER, Ellen S.**, Civilian

Mission Specialist.

Born April 27, 1953, in Fayetteville, North Carolina. Hometown, New York, New York.

Bachelor of arts in geology from State University of New York at Buffalo; doctorate of medicine from Cornell University; masters in public health from the University of Texas School of Public Health.

Flew on STS-34, STS-50 and STS-71.

Cumulative hours of space flight are more than 686.

**BAKER, Michael A.**, Captain, U.S. Navy

Pilot.

Born October 27, 1953, in Memphis, Tennessee. Hometown, Lemoore, California.

Bachelor of science in aerospace engineering from University of Texas.

Flew on STS-43, STS-52, STS-68 and STS-81.

Cumulative hours of space flight are more than 965.

## CURRENT U.S. ASTRONAUTS

**BARRY, Daniel T.**, Civilian

Mission Specialist.

Born December 30, 1953, in Norwalk, Connecticut. Hometown, South Hadley, Massachusetts.

Bachelor of science in electrical engineering from Cornell University; master of engineering, master of arts and a doctorate of philosophy in electrical engineering and computer science from Princeton University; doctorate of medicine from the University of Miami.

Flew on STS-72.

Cumulative hours of space flight are more than 214.

Cumulative EVA time is more than 6 hours.

**BLOOMFIELD, Michael J.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born March 16, 1959, in Flint, Michigan. Hometown, Lake Fenton, Michigan.

Bachelor of science in engineering mechanics from U.S. Air Force Academy; master of science in engineering management from Old Dominion University.

Flew on STS-86.

Cumulative hours of space flight are more than 259.

**BOWERSOX, Kenneth D.**, Commander, U.S. Navy

Pilot.

Born November 14, 1956, in Portsmouth, Virginia. Hometown, Bedford, Indiana.

Bachelor of science in aerospace engineering from U.S. Naval Academy; master of science in mechanical engineering from Columbia University.

Flew on STS-50, STS-61, STS-73 and STS-82.

Cumulative hours of space flight are more than 1,212.

**BRADY, Charles E., Jr.**, Captain, U.S. Navy

Mission Specialist.

Born August 12, 1951, in Pinehurst, North Carolina. Hometown, Robbins, North Carolina.

Doctorate of medicine from Duke University.

Flew on STS-78.

Cumulative hours of space flight are more than 405.

**BROWN, Curtis L., Jr.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born March 11, 1956, in Elizabethtown, North Carolina.

Bachelor of science in electrical engineering from U.S. Air Force Academy.

Flew on STS-47, STS-66, STS-77 and STS-85.

Cumulative hours of space flight are more than 977.

## CURRENT U.S. ASTRONAUTS

**BROWN, David M.**, Commander, U.S. Navy

Mission Specialist.

Born April 16, 1956, in Arlington, Virginia.

Bachelor of science in biology from the College of William and Mary and a doctorate of medicine from Eastern Virginia Medical School.

**BURBANK, Daniel C.**, Lieutenant Commander, U.S. Coast Guard

Mission Specialist.

Born July 27, 1961, in Manchester, Connecticut.

Bachelor of science in electrical engineering from the U.S. Coast Guard Academy and a master of science in aeronautical science from Embry-Riddle Aeronautical University.

**BURSCH, Daniel W.**, Commander, U.S. Navy

Mission Specialist.

Born July 25, 1957, in Bristol, Pennsylvania. Hometown, Vestal, New York.

Bachelor of science in physics from U.S. Naval Academy; master of science in engineering science from Naval Postgraduate School.

Flew on STS-51, STS-68 and STS-77.

Cumulative hours of space flight are more than 746.

**CABANA, Robert D.**, Colonel, U.S. Marine Corps

Pilot.

Born January 23, 1949, in Minneapolis, Minnesota.

Bachelor of science in mathematics from U.S. Naval Academy.

Flew on STS-41, STS-53 and STS-65.

Cumulative hours of space flight are more than 627.

**CAGLE, Yvonne D.**, Lieutenant Colonel, U.S. Air Force

Mission Specialist.

Born April 24, 1959, in West Point, New York.

Bachelor of science in biochemistry from San Francisco State University and a doctorate of medicine from the University of Washington.

**CALDEIRO, Fernando (Frank)**, Civilian

Mission Specialist.

Born June 12, 1958, in Buenos Aires, Argentina.

Bachelor of science in mechanical engineering from the University of Arizona, an A.A.S. in aerospace technology from the State University of New York at Farmingdale and a master of science in engineering management from the University of Central Florida.

## CURRENT U.S. ASTRONAUTS

### **CAMARDA, Charles J.**, Civilian

Mission Specialist.

Born May 8, 1952, in New York, New York

Bachelor of science in aerospace engineering from the Polytechnic Institute of New York, a master of science in engineering science from George Washington University and a doctorate of aerospace engineering from Virginia Polytechnic Institute and State University.

### **CAREY, Duane G.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born April 30, 1957, in St. Paul, Minnesota.

Bachelor of science in aerospace engineering and mechanics and a master of science in aerospace engineering, University of Minnesota-Minneapolis.

### **CASPER, John H.**, Colonel, U.S. Air Force

Born July 9, 1943, in Greenville, South Carolina. Hometown, Gainesville, Georgia.

Bachelor of science in engineering science from U.S. Air Force Academy;  
master of science in astronautics from Purdue University.

Flew on STS-36, STS-54, STS-62 and STS-77.

Cumulative hours of space flight are more than 825.

### **CHANG-DIAZ, Franklin R.**, Civilian

Mission Specialist.

Born April 5, 1950, in San Jose, Costa Rica.

Bachelor of science in mechanical engineering from University of Connecticut;  
doctorate of philosophy in applied plasma physics from Massachusetts Institute of Technology.

Flew on STS 61-C, STS-34, STS-46, STS-60, STS-75 and STS-91.

Cumulative hours of space flight are more than 1,269.

### **CHAWLA, Kalpana**, Civilian

Mission Specialist.

Born July 1, 1961, in Karnal, India.

Bachelor of science in aeronautical engineering from Punjab Engineering College;  
master of science in aerospace engineering from University of Texas; doctorate of philosophy in aerospace engineering from University of Colorado.

Flew on STS-87.

Cumulative hours of space flight are more than 376.

## CURRENT U.S. ASTRONAUTS

### **CHIAO, Leroy**, Civilian

Mission Specialist.

Born August 28, 1960, in Milwaukee, Wisconsin. Hometown, Danville, California.

Bachelor of science in chemical engineering from University of California, Berkeley; master of science in chemical engineering from University of California, Berkeley; doctorate of philosophy in chemical engineering from University of California, Santa Barbara.

Flew on STS-65 and STS-72.

Cumulative hours of space flight are more than 567.

Cumulative EVA time is more than 13 hours.

### **CLARK, Laurel B.**, Commander, U.S. Navy

Mission Specialist.

Born March 10, 1961, in Ames, Iowa.

Bachelor of science in zoology and a doctorate of medicine from the University of Wisconsin-Madison.

### **COCKRELL, Kenneth D.**, Civilian

Pilot.

Born April 9, 1950, in Austin, Texas. Hometown, Rockdale, Texas.

Bachelor of science in mechanical engineering from University of Texas; master of science in aeronautical systems from University of West Florida.

Flew on STS-56, STS-69 and STS-80.

Cumulative hours of space flight are more than 906.

### **COLEMAN, Catherine G.**, Lieutenant Colonel, U.S. Air Force

Mission Specialist.

Born December 14, 1960, in Charleston, South Carolina.

Bachelor of science in chemistry from Massachusetts Institute of Technology; doctorate of philosophy in polymer science & engineering from University of Massachusetts.

Flew on STS-73.

Cumulative hours of space flight are more than 381.

### **COLLINS, Eileen M.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born November 19, 1956, in Elmira, New York.

Bachelor of arts in math and economics from Syracuse University; master of science in operations research from Stanford University; master of arts in space systems management from Webster University.

Flew on STS-63 and STS-84.

Cumulative hours of space flight are more than 419.

## CURRENT U.S. ASTRONAUTS

**CULBERTSON, Frank L., Jr.**, Captain, U.S. Navy

Pilot.

Born May 15, 1949, in Charleston, South Carolina. Hometown, Holly Hill, South Carolina.

Bachelor of science in aerospace engineering from U.S. Naval Academy.

Flew on STS-38 and STS-51.

Cumulative hours of space flight are more than 354.

**CURBEAM, Robert L., Jr.**, Lieutenant Commander, U.S. Navy

Mission Specialist.

Born March 5, 1962, in Baltimore, Maryland.

Bachelor of science in aerospace engineering from United States Naval Academy; master of science in aeronautical engineering from Naval Postgraduate School; degree of aeronautical and astronautical engineering from Naval Postgraduate School.

Flew on STS-85.

Cumulative hours of space flight are more than 284.

**CURRIE, Nancy J. (Sherlock)**, Lieutenant Colonel, U.S. Army

Mission Specialist.

Born December 29, 1958, in Wilmington, Delaware. Hometown, Troy, Ohio.

Bachelor of arts in biological science from Ohio State; master of science in safety engineering from University of Southern California; doctorate of philosophy in industrial engineering from the University of Houston.

Flew on STS-57 and STS-70.

Cumulative hours of space flight are more than 454.

**DAVIS, N. Jan**, Civilian

Mission Specialist.

Born November 1, 1953, in Cocoa Beach, Florida. Hometown, Huntsville, Alabama.

Bachelor of science in applied biology from Georgia Institute of Technology, and in mechanical engineering from Auburn University; master of science and doctorate of philosophy in mechanical engineering from University of Alabama in Huntsville.

Flew on STS-47, STS-60 and STS-85.

Cumulative hours of space flight are more than 673.

**DUFFY, Brian**, Colonel, U.S. Air Force

Pilot.

Born June 20, 1953, in Boston, Massachusetts.

Bachelor of science in mathematics from U.S. Air Force Academy; master of science in systems management from University of Southern California.

Flew on STS-45, STS-57 and STS-72.

Cumulative hours of space flight are more than 667.

## CURRENT U.S. ASTRONAUTS

### **DUNBAR, Bonnie J.**, Civilian

Mission Specialist.

Born March 3, 1949, in Sunnyside, Washington.

Bachelor and master of science in ceramic engineering from University of Washington; doctorate of philosophy in biomedical engineering from University of Houston.

Flew on STS 61-A, STS-32, STS-50, STS-71 and STS-89.

Cumulative hours of space flight are more than 1,208.

### **EDWARDS, Joe F., Jr.**, Commander, U.S. Navy

Pilot.

Born February 3, 1958, in Richmond, Virginia. Hometowns, Roanoke and Lineville, Alabama.

Bachelor of science in aerospace engineering from United States Naval Academy; master of science in aviation systems from University of Tennessee, Knoxville.

Flew on STS-89.

Cumulative hours of space flight are more than 211.

### **FINCKE, Edward Michael "Mike,"** Major, U.S. Air Force

Mission Specialist.

Born March 14, 1967, in Pittsburgh, Pennsylvania.

Bachelor of science in aeronautics and astronautics as well as earth atmospheric, and planetary sciences from the Massachusetts Institute of Technology and a master of science in aeronautics and astronautics from Stanford University.

### **FISHER, Anna L.**, Civilian

Mission Specialist.

Born August 24, 1949, in St. Albans, New York. Hometown, San Pedro, California.

Bachelor of science in chemistry; doctorate of medicine; master of science in chemistry from University of California at Los Angeles.

Flew on STS 51-A.

Cumulative hours of space flight are more than 191.

### **FOALE, C. Michael**, Civilian

Mission Specialist.

Born January 6, 1957, in Louth, England. Hometown, Cambridge, England.

Bachelor of arts in physics from Cambridge University; doctorate of philosophy in laboratory astrophysics from Cambridge University.

Flew on STS-45, STS-56, STS-63, STS-84/Mir and Mir/STS-86.

Cumulative hours of space flight are more than 3,840.

Cumulative EVA time is more than 10 hours.

## CURRENT U.S. ASTRONAUTS

**FORRESTER, Patrick G.**, Lieutenant Colonel, U.S. Army

Mission Specialist.

Born March 31, 1957, in El Paso, Texas.

Bachelor of science in applied sciences and engineering from the U.S. Military Academy and a master of science in mechanical and aerospace engineering from the University of Virginia.

**FRICK, Stephen N.**, Lieutenant Commander, U.S. Navy

Pilot.

Born September 30, 1964, in Pittsburgh, Pennsylvania.

Bachelor of science in aerospace engineering from the U.S. Naval Academy and a master of science in aeronautical engineering from the U.S. Naval Postgraduate School.

**GERNHARDT, Michael L.**, Civilian

Mission Specialist.

Born May 4, 1956, in Mansfield, Ohio.

Bachelor of science in physics from Vanderbilt University; master of science and doctorate of philosophy in bioengineering from the University of Pennsylvania.

Flew on STS-69, STS-83 and STS-94.

Cumulative hours of space flight are more than 731.

Cumulative EVA time is more than 6 hours.

**GODWIN, Linda M.**, Civilian

Mission Specialist.

Born July 2, 1952, in Cape Girardeau, Missouri. Hometown, Jackson, Missouri.

Bachelor of science in mathematics and physics from Southeast Missouri State; master of science and doctorate of philosophy in physics from University of Missouri.

Flew on STS-37, STS-59 and STS-76.

Cumulative hours of space flight are more than 634.

Cumulative EVA time is more than 6 hours.

**GORIE, Dominic L.**, Commander, U.S. Navy

Pilot.

Born May 2, 1957, in Lake Charles, Louisiana.

Bachelor of science in ocean engineering from United States Naval Academy;

master of science in aviation systems from University of Tennessee, Knoxville.

Flew on STS-91.

Cumulative hours of space flight are more than 235.

## CURRENT U.S. ASTRONAUTS

**GREGORY, William G.**, Lieutenant Colonel, U.S. Air Force  
Pilot.

Born May 14, 1957, in Lockport, New York.

Bachelor of science in engineering science from U.S. Air Force Academy;  
master of science in engineering mechanics from Columbia University; master  
of science in management from Troy State University.

Flew on STS-67.

Cumulative hours of space flight are more than 399.

**GRUNSFELD, John M.**, Civilian

Mission Specialist.

Born October 10, 1958, in Chicago, Illinois.

Bachelor of science in physics from Massachusetts Institute of Technology; master  
of science and doctorate of philosophy in physics from University of Chicago.

Flew on STS-67 and STS-81.

Cumulative hours of space flight are more than 644.

**HALSELL, James D., Jr.**, Lieutenant Colonel, U.S. Air Force  
Pilot.

Born September 29, 1956, in Monroe, Louisiana.

Bachelor of science in engineering from U.S. Air Force Academy; master  
of science in management from Troy State University; master of science  
in space operations from Air Force Institute of Technology.

Flew on STS-65, STS-74, STS-83 and STS-94.

Cumulative hours of space flight are more than 1021.

**HARBAUGH, Gregory J.**, Civilian

Mission Specialist.

Born April 15, 1956, in Cleveland, Ohio. Hometown, Willoughby, Ohio.

Bachelor of science in aeronautical and astronautical engineering from Purdue  
University; master of science in physical science from University of Houston-  
Clear Lake.

Flew on STS-39, STS-54, STS-71 and STS-82.

Cumulative hours of space flight are more than 817.

Cumulative EVA time is more than 11 hours.

**HAWLEY, Steven A.**, Civilian

Mission Specialist.

Born December 12, 1951, in Ottawa, Kansas.

Bachelor of arts in physics and astronomy from University of Kansas; doctorate  
of philosophy in astronomy and astrophysics from University of California  
at Santa Cruz.

Flew on STS 41-D, STS 61-C, STS-31 and STS-82.

Cumulative hours of space flight are more than 651.

## CURRENT U.S. ASTRONAUTS

**HELMS, Susan J.**, Lieutenant Colonel, U.S. Air Force

Mission Specialist.

Born February 26, 1958, in Charlotte, North Carolina. Hometown, Portland, Oregon.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master of science in aeronautics and astronautics from Stanford University.

Flew on STS-54, STS-64 and STS-78.

Cumulative hours of space flight are more than 812.

**HERRINGTON, John B.**, Lieutenant Commander, U.S. Navy

Mission Specialist.

Born September 14, 1958, in Wetumka, Oklahoma.

Bachelor of science in applied mathematics from the University of Colorado at Colorado Springs and a master of science in aeronautical engineering from the U.S. Naval Postgraduate School.

**HIGGINBOTHAM, Joan E.**, Civilian

Mission Specialist.

Born August 3, 1964, in Chicago, Illinois.

Bachelor of science in electrical engineering from Southern Illinois University at Carbondale; a master of science in management from Florida Institute of Technology and a master of science in space systems from Florida Institute of Technology.

**HIRE, Kathryn P.**, Commander, U.S. Naval Reserve

Mission Specialist.

Born August 26, 1959, in Mobile, Alabama.

Bachelor of science in engineering and management from U.S. Naval Academy; master of science in space technology from Florida Institute of Technology.

Flew on STS-90.

Cumulative hours of space flight are more than 381.

**HOBAUGH, Charles O.**, Major, U.S. Marine Corps

Pilot.

Born November 5, 1961, in Bar Harbor, Maine.

Bachelor of science in aerospace engineering from the U.S. Naval Academy.

## CURRENT U.S. ASTRONAUTS

**HOROWITZ, Scott J.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born March 24, 1957, in Philadelphia, Pennsylvania. Hometown, Thousand Oaks, California.

Bachelor of science in engineering from California State University at Northridge; master of science and doctorate of philosophy in aerospace engineering from Georgia Institute of Technology.

Flew on STS-75 and STS-82.

Cumulative hours of space flight are more than 617.

**HUSBAND, Rick D.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born July 12, 1957, in Amarillo, Texas.

Bachelor of science in mechanical engineering from Texas Tech University; master of science in mechanical engineering from California State University.

**IVINS, Marsha S.**, Civilian

Mission Specialist.

Born April 15, 1951, in Baltimore, Maryland.

Bachelor of science in aerospace engineering from University of Colorado.

Flew on STS-32, STS-46, STS-62 and STS-81.

Cumulative hours of space flight are more than 1,032.

**JERNIGAN, Tamara E.**, Civilian

Mission Specialist.

Born May 7, 1959, in Chattanooga, Tennessee.

Bachelor of science in physics and master of science in engineering science from Stanford University; master of science in astronomy from University of California at Berkeley; doctorate in space physics and astronomy from Rice University.

Flew on STS-40, STS-52, STS-67 and STS-80.

Cumulative hours of space flight are more than 1,278.

**JETT, Brent W.**, Commander, U.S. Navy

Pilot.

Born October 5, 1958, in Pontiac, Michigan. Hometown, Ft. Lauderdale, Florida.

Bachelor of science in aerospace engineering from U.S. Naval Academy; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS-72 and STS-81.

Cumulative hours of space flight are more than 458.

## CURRENT U.S. ASTRONAUTS

**JONES, Thomas D.**, Civilian

Mission Specialist.

Born January 22, 1955, in Baltimore, Maryland. Hometown, Essex, Maryland.

Bachelor of science in basic sciences from U.S. Air Force Academy; doctorate of philosophy in planetary science from University of Arizona.

Flew on STS-59, STS-68 and STS-80.

Cumulative hours of space flight are more than 963.

**KAVANDI, Janet L.**, Civilian

Mission Specialist.

Born July 17, 1959, in Springfield, Missouri.

Bachelor of science in chemistry from Missouri Southern State College; master of science in chemistry from University of Missouri; doctorate of philosophy in chemistry from University of Washington.

Flew on STS-91.

Cumulative hours of space flight are more than 235.

**KELLY, James M.**, Major, U.S. Air Force

Pilot.

Born May 14, 1964, in Burlington, Iowa.

Bachelor of science in aeronautical engineering from the U.S. Air Force Academy; master of science in Aerospace Engineering from the University of Alabama.

**KELLY, Mark E.**, Lieutenant Commander, U.S. Navy

Pilot.

Born February 21, 1964, in Orange, New Jersey.

Bachelor of science in marine engineering and nautical science from the U.S.

Merchant Marine Academy and a master of science in aeronautical engineering from the U.S. Naval Postgraduate School.

**KELLY, Scott J.**, Lieutenant Commander, U.S. Navy

Pilot

Born February 21, 1964, in Orange, New Jersey.

Bachelor of engineering in electrical engineering from the State University of New York Maritime College and a master of science in aviation systems from the University of Tennessee, Knoxville.

**KREGEL, Kevin R.**, Civilian

Pilot.

Born September 16, 1956, in New York, New York. Hometown, Amityville, New York.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master of public administration from Troy State University.

Flew on STS-70, STS-78 and STS-87.

Cumulative hours of space flight are more than 996.

## CURRENT U.S. ASTRONAUTS

**LAWRENCE, Wendy B.**, Commander, U.S. Navy

Mission Specialist.

Born July 2, 1959, in Jacksonville, Florida.

Bachelor of science in ocean engineering from U. S. Naval Academy; master of science in ocean engineering from Massachusetts Institute of Technology.

Flew on STS-67, STS-86 and STS-91.

Cumulative hours of space flight are more than 894.

**LEE, Mark C.**, Colonel, U.S. Air Force

Mission Specialist.

Born August 14, 1952, in Viroqua, Wisconsin.

Bachelor of science in civil engineering from U.S. Air Force Academy; master of science in mechanical engineering from Massachusetts Institute of Technology.

Flew on STS-30, STS-47, STS-64 and STS-82.

Cumulative hours of space flight are more than 789.

Cumulative EVA time is more than 25 hours.

**LINDSEY, Steven W.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born August 24, 1960, in Arcadia, California. Hometown, Temple City, California.

Bachelor of science in engineering sciences from U.S. Air Force Academy; master of science in aeronautical engineering from Air Force Institute of Technology.

Flew on STS-87.

Cumulative hours of space flight are more than 376.

**LINNEHAN, Richard M.**, Civilian

Mission Specialist.

Born September 19, 1957, in Lowell, Massachusetts.

Bachelor of science in animal sciences/microbiology from University of New Hampshire; doctorate of veterinary medicine from the Ohio State University, College of Veterinary Medicine.

Flew on STS-78 and STS-90.

Cumulative hours of space flight are more than 787.

**LOCKHART, Paul S.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born April 28, 1956, in Amarillo, Texas.

Bachelor of arts in mathematics from Texas Tech University and a master of science in aerospace engineering from the University of Texas.

## CURRENT U.S. ASTRONAUTS

**LOPEZ-ALEGRIA, Michael E.**, Commander, U.S. Navy

Mission Specialist.

Born May 30, 1958, in Madrid, Spain. Hometowns, Madrid, Spain, and Mission Viejo, California.

Bachelor of science in systems engineering from U.S. Naval Academy; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS-73.

Cumulative hours of space flight are more than 381.

**LORIA, Christopher J.**, Major, U.S. Marine Corps

Pilot.

Born July 9, 1960, in Newton, Massachusetts.

Bachelor of science in general engineering from the U.S. Naval Academy.

**LU, Edward T.**, Civilian

Mission Specialist.

Born July 1, 1963, Springfield, Massachusetts. Hometowns, Honolulu, Hawaii, and Webster, New York.

Bachelor of science in electrical engineering from Cornell University; doctorate of philosophy in applied physics from Stanford University.

Flew on STS-84.

Cumulative hours of space flight are more than 221.

**LUCID, Shannon W.**, Civilian

Mission Specialist.

Born January 14, 1943, in Shanghai, China. Hometown, Bethany, Oklahoma.

Bachelor of science in chemistry; master of science and doctorate of philosophy in biochemistry from University of Oklahoma.

Flew on STS 51-G, STS-34, STS-43, STS-58, STS-76/Mir and Mir/STS-79.

Cumulative hours of space flight are more than 5,354.

**MAGNUS, Sandra H.**, Civilian

Mission Specialist.

Born October 30, 1964, in Belleville, Illinois.

Bachelor of science in physics and a master of science in electrical engineering from the University of Missouri-Rolla, and a doctorate of materials science and engineering from the Georgia Institute of Technology.

**MASSIMINO, Michael J.**, Civilian

Mission Specialist.

Born August 19, 1962, in Oceanside, New York.

Bachelor of science in industrial engineering from Columbia University and a master of science in mechanical engineering, a master of science in technology and policy, a degree of mechanical engineer and doctorate of mechanical engineering from the Massachusetts Institute of Technology.

## CURRENT U.S. ASTRONAUTS

**MASTRACCHIO, Richard A.**, Civilian

Mission Specialist.

Born February 11, 1960, in Waterbury, Connecticut.

Bachelor of science in electrical engineering and computer science from the University of Connecticut, a master of science in electrical engineering from Rensselaer Polytechnic Institute and a master of science in physical sciences, University of Houston-Clear Lake.

**McARTHUR, William S., Jr.**, Colonel, U.S. Army

Mission Specialist.

Born July 26, 1951, in Laurinburg, North Carolina. Hometown, Wakulla, North Carolina.

Bachelor of science in applied science and engineering from U.S. Military Academy; master of science in aerospace engineering from Georgia Institute of Technology.

Flew on STS-58 and STS-74.

Cumulative hours of space flight are more than 532.

**McCool, William C.**, Lieutenant Commander, U.S. Navy

Pilot.

Born September 23, 1961, in San Diego, California.

Bachelor of science in applied science from the U.S. Naval Academy, a master of science in computer science from the University of Maryland and a master of science in aeronautical engineering from the U.S. Naval Postgraduate School.

**MELROY, Pamela A.**, Lieutenant Colonel, U.S. Air Force

Pilot.

Born September, 17, 1961, in Palo Alto, California. Hometown, Pittsford, New York.

Bachelor of science in physics and astronomy from Wellesley College; master of science in earth and planetary sciences from Massachusetts Institute of Technology.

**MORIN, Lee M.**, Captain, U.S. Navy

Mission Specialist.

Born September 9, 1952, in Manchester, New Hampshire.

Bachelor of science in mathematics/electrical science from the University of New Hampshire; a master of science in biochemistry, a doctorate of medicine and a doctorate in microbiology from New York University, and a master of public health from the University of Alabama at Birmingham.

## CURRENT U.S. ASTRONAUTS

### **NEWMAN, James H.**, Civilian

Mission Specialist.

Born October 16, 1956, in Trust Territory of the Pacific Islands. Hometown, San Diego, California.

Bachelor of arts in physics from Dartmouth College; master of arts and a doctorate of philosophy in physics from Rice University.

Flew on STS-51 and STS-69.

Cumulative hours of space flight are more than 496.

Cumulative EVA time is more than 7 hours.

### **NORIEGA, Carlos I.**, Lieutenant Colonel, U.S. Marine Corps

Mission Specialist.

Born October 8, 1959, in Lima, Peru. Hometown, Santa Clara, California.

Bachelor of science in computer science from University of Southern California;

master of science in computer science from Naval Postgraduate School;

master of science in space systems operations from Naval Postgraduate School.

Flew on STS-84.

Cumulative hours of space flight are more than 221.

### **NOWAK, Lisa M.**, Lieutenant Commander, U.S. Navy

Mission Specialist.

Born May 10, 1963, in Washington, D. C.

Bachelor of science in aerospace engineering from the U.S. Naval Academy and a master of science in aeronautical engineering and a degree of aeronautical and astronautical engineer from the U.S. Naval Postgraduate School.

### **OCHOA, Ellen**, Civilian

Mission Specialist.

Born May 10, 1958, in Los Angeles, California. Hometown, La Mesa, California.

Bachelor of science in physics from San Diego State; master of science and doctorate of philosophy in electrical engineering from Stanford University.

Flew on STS-56 and STS-66.

Cumulative hours of space flight are more than 484.

### **OSWALD, Stephen S.**, Civilian

Pilot.

Born June 30, 1951, in Seattle, Washington. Hometown, Bellingham, Washington.

Bachelor of science in aerospace engineering from U.S. Naval Academy.

Flew on STS-42, STS-56 and STS-67.

Cumulative hours of space flight are more than 814.

## CURRENT U.S. ASTRONAUTS

**PARAZYNSKI, Scott E.,** Civilian

Mission Specialist.

Born July 28, 1961, in Little Rock, Arkansas. Hometowns, Palo Alto, California, and Evergreen, Colorado.

Bachelor of science in biology and doctorate in medicine from Stanford University.

Flew on STS-66 and STS-86.

Cumulative hours of space flight are more than 521.

Cumulative EVA time is more than 5 hours.

**PETTIT, Donald R.,** Civilian

Mission Specialist.

Born April 20, 1955, in Silverton, Oregon.

Bachelor of science in chemical engineering from Oregon State University and a doctorate in chemical engineering from the University of Arizona.

**PHILLIPS, John L.,** Civilian

Mission Specialist.

Born April 15, 1951, in Fort Belvoir, Virginia.

Bachelor of science in mathematics and Russian from the U.S. Naval Academy; a master of science in aeronautical systems from the University of West Florida; and a master of science in geophysics and space physics, and a doctorate in geophysics and space physics from the University of California-Los Angeles.

**POLANSKY, Mark L.,** Civilian

Pilot.

Born June 2, 1956, in Paterson, New Jersey.

Bachelor of science in aeronautical and astronautical engineering and a master of science in aeronautics and astronautics from Purdue University.

**PRECOURT, Charles J.,** Colonel, U.S. Air Force

Pilot.

Born June 29, 1955, in Waltham, Massachusetts. Hometown, Hudson, Massachusetts.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master of science in engineering management from Golden Gate University.

Flew on STS-55, STS-71, STS-84 and STS-91.

Cumulative hours of space flight are more than 932.

## CURRENT U.S. ASTRONAUTS

**READDY, William F.**, Captain, U.S. Naval Reserve

Pilot.

Born January 24, 1952, in Quonset Point, Rhode Island. Hometown, McLean, Virginia.

Bachelor of science in aeronautical engineering from U.S. Naval Academy.

Flew on STS-42, STS-51 and STS-79.

Cumulative hours of space flight are more than 672.

**REILLY, James F.**, Civilian

Mission Specialist.

Born March 18, 1954, Mountain Home Air Force Base, Idaho. Hometown, Mesquite, Texas.

Bachelor of science in geosciences from University of Texas-Dallas; master of science in geosciences from University of Texas-Dallas; doctorate of philosophy in geosciences from University of Texas-Dallas.

Flew on STS-89.

Cumulative hours of space flight are more than 211.

**RICHARDS, Paul W.**, Civilian

Mission Specialist.

Born May 20, 1964, in Scranton, Pennsylvania.

Bachelor of science in mechanical engineering from Drexel University and a master of science in mechanical engineering from the University of Maryland.

**ROBINSON, Stephen K.**, Civilian

Mission Specialist.

Born October 26, 1955, in Sacramento, California.

Bachelor of science in mechanical/aeronautical engineering from University of California; master of science in mechanical engineering from Stanford University; doctorate of philosophy in mechanical engineering from Stanford University.

Flew on STS-85.

Cumulative hours of space flight are more than 284.

**ROMINGER, Kent V.**, Commander, U.S. Navy

Pilot.

Born August 7, 1956, in Del Norte, Colorado.

Bachelor of science in civil engineering from Colorado State University; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS-73, STS-80 and STS-85.

Cumulative hours of space flight are more than 1,090.

## CURRENT U.S. ASTRONAUTS

**ROSS, Jerry L.**, Colonel, U.S. Air Force

Mission Specialist.

Born January 20, 1948, in Crown Point, Indiana.

Bachelor and master of science in mechanical engineering from Purdue University.

Flew on STS 61-B, STS-27, STS-37, STS-55 and STS-74.

Cumulative hours of space flight are more than 849.

Cumulative EVA time is more than 23 hours.

**RUNCO, Mario, Jr.**, Lieutenant Commander, U.S. Navy (Retired)

Mission Specialist.

Born January 26, 1952, in Bronx, New York. Hometown, Yonkers, New York.

Bachelor of science in meteorology and physical oceanography from City College of New York; master of science in meteorology from Rutgers University.

Flew on STS-44, STS-54 and STS-77.

Cumulative hours of space flight are more than 551.

**SCOTT, Winston E.**, Captain, U.S. Navy

Mission Specialist.

Born August 6, 1950, in Miami, Florida.

Bachelor of arts in music from Florida State University; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS-72 and STS-87.

Cumulative hours of space flight are more than 590.

Cumulative EVA time is more than 19 hours.

**SEARFOSS, Richard A.**, Colonel, U.S. Air Force

Pilot.

Born June 5, 1956, in Mount Clemens, Michigan. Hometown, Portsmouth, New Hampshire.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master in aeronautics from California Institute of Technology.

Flew on STS-58, STS-76 and STS-90.

Cumulative hours of space flight are more than 938.

**SELLERS, Piers J.**, Civilian

Mission Specialist.

Born April 11, 1955, in Crowborough, Sussex, United Kingdom.

Bachelor of science in ecological science from the University of Edinburgh (Scotland), and a doctorate in biometeorology from Leeds University (United Kingdom).

## CURRENT U.S. ASTRONAUTS

**SHEPHERD, William M.**, Captain, U.S. Navy

Mission Specialist.

Born July 26, 1949, in Oak Ridge, Tennessee. Hometown, Babylon, New York.

Bachelor of science in aerospace engineering from U.S. Naval Academy;  
degree in ocean engineering and master of science in mechanical engineering  
from Massachusetts Institute of Technology.

Flew on STS-27, STS-41, and STS-52.

Cumulative hours of space flight are more than 440.

**SMITH, Steven L.**, Civilian

Mission Specialist.

Born December 30, 1958, in Phoenix, Arizona. Hometown, San Jose, California.

Bachelor and master of science in electrical engineering and master of arts  
in business administration from Stanford University.

Flew on STS-68 and STS-82.

Cumulative hours of space flight are more than 509.

Cumulative EVA time is more than 19 hours.

**STEFANYSHYN-PIPER, Heidemarie M.**, Lieutenant Commander, U.S. Navy

Mission Specialist.

Born February 7, 1963, in St. Paul, Minnesota.

Bachelor and a master of science in mechanical engineering from the  
Massachusetts Institute of Technology.

**STILL-KILRAIN, Susan L.**, Lieutenant Commander, U.S. Navy

Pilot.

Born October 24, 1961, in Augusta, Georgia.

Bachelor of science in aeronautical engineering from Embry-Riddle University;  
master of science in aerospace engineering from Georgia Institute  
of Technology.

Flew on STS-83 and STS-94.

Cumulative hours of space flight are more than 471.

**STURCKOW, Frederick W.**, Major, U.S. Marine Corps

Pilot.

Born August 11, 1961, in La Mesa, California.

Bachelor of science in mechanical engineering from California Polytechnic  
State University.

**TANI, Daniel M.**, Civilian

Mission Specialist.

Born February 1, 1961, in Ridley Park, Pennsylvania.

Bachelor and a master of science in mechanical engineering from the Massachusetts  
Institute of Technology.

## CURRENT U.S. ASTRONAUTS

### **TANNER, Joseph R.**, Civilian

Mission Specialist.

Born January 21, 1950, in Danville, Illinois.

Bachelor of science in mechanical engineering from University of Illinois.

Flew on STS-66 and STS-82.

Cumulative hours of space flight are more than 502.

Cumulative EVA time is more than 11 hours.

### **THOMAS, Andrew S. W.**, Civilian

Mission Specialist.

Born December 18, 1951, in Adelaide, Australia.

Bachelor of engineering and doctorate of philosophy in mechanical engineering from University of Adelaide (Australia).

Flew on STS-77, STS-89/Mir and Mir/STS-91.

Cumulative hours of space flight are more than 3,615.

### **THOMAS, Donald A.**, Civilian

Mission Specialist.

Born May 6, 1955, in Cleveland, Ohio.

Bachelor of science in physics from Case Western University; master of science in materials science from Cornell University; doctorate of philosophy in materials science from Cornell University.

Flew on STS-65, STS-70, STS-83 and STS-94.

Cumulative hours of space flight are more than 1040.

### **VOSS, James S.**, Colonel, U.S. Army

Mission Specialist.

Born March 3, 1949, in Cordova, Alabama. Hometown, Opelika, Alabama.

Bachelor of science in aerospace engineering from Auburn University; master of science in aerospace engineering sciences from University of Colorado.

Flew on STS-44, STS-53 and STS-69.

Cumulative hours of space flight are more than 602.

Cumulative EVA time is more than 6 hours.

### **VOSS, Janice E.**, Civilian

Mission Specialist.

Born October 8, 1956, in South Bend, Indiana. Hometown, Rockford, Illinois.

Bachelor of science in engineering science from Purdue University; master of science in electrical engineering from Massachusetts Institute of Technology; doctorate of philosophy in aeronautics and astronautics from Massachusetts Institute of Technology.

Flew on STS-57, STS-63, STS-83 and STS-94.

Cumulative hours of space flight are more than 909.

## CURRENT U.S. ASTRONAUTS

**WALHEIM, Rex J., Major**, U.S. Air Force

Mission Specialist.

Born October 10, 1962, in Redwood City, California.

Bachelor of science in mechanical engineering from the University of California-Berkeley and a master of science in industrial engineering from the University of Houston.

**WALZ, Carl E.**, Lieutenant Colonel, U.S. Air Force

Mission Specialist.

Born September 6, 1955, in Cleveland, Ohio.

Bachelor of science in physics from Kent State University; master of science in solid state physics from John Carroll University.

Flew on STS-51, STS-65 and STS-79.

Cumulative hours of space flight are more than 833.

Cumulative EVA time is more than 7 hours.

**WEBER, Mary E.**, Civilian

Mission Specialist.

Born August 24, 1962, in Cleveland, Ohio. Hometown, Bedford Heights, Ohio.

Bachelor of science in chemical engineering from Purdue University; doctorate of philosophy in physical chemistry from University of California at Berkeley.

Flew on STS-70.

Cumulative hours of space flight are more than 214.

**WETHERBEE, James D.**, Captain, U.S. Navy

Pilot.

Born November 27, 1952, in Flushing, New York.

Bachelor of science in aerospace engineering from University of Notre Dame.

Flew on STS-32, STS-52, STS-63 and STS-86.

Cumulative hours of space flight are more than 955.

**WHITSON, Peggy A.**, Civilian

Mission Specialist.

Born February 9, 1960, in Mt. Ayr, Iowa.

Bachelor of science in biology/chemistry from Iowa Wesleyan College and a doctorate of biochemistry from Rice University.

**WILCUTT, Terrence W.**, Lieutenant Colonel, U.S. Marine Corps

Pilot.

Born October 31, 1949, in Russellville, Kentucky. Hometown, Louisville, Kentucky.

Bachelor of arts in math from Western Kentucky University.

Flew on STS-68, STS-79 and STS-89.

Cumulative hours of space flight are more than 724.

## CURRENT U.S. ASTRONAUTS

**WILLIAMS, Jeffrey N.**, Lieutenant Colonel, U.S. Army

Mission Specialist.

Born January 18, 1958, in Superior, Wisconsin.

Bachelor of science in applied sciences/engineering from the U.S. Military Academy and a master of science in aeronautical engineering and a degree of aeronautical engineer from the U.S. Naval Postgraduate School.

**WILSON, Stephanie D.**, Civilian

Mission Specialist.

Born September 27, 1966, in Boston, Massachusetts.

Bachelor of science in engineering science from Harvard University and a master of science in aerospace engineering from the University of Texas.

**WISOFF, Peter J. K.**, Civilian

Mission Specialist.

Born August 16, 1958, in Norfolk, Virginia.

Bachelor of science in physics from University of Virginia; master of science and doctorate of philosophy in applied physics from Stanford University.

Flew on STS-57, STS-68 and STS-81.

Cumulative hours of space flight are more than 754.

Cumulative EVA time is more than 5 hours.

**WOLF, David A.**, Civilian

Mission Specialist.

Born August 23, 1956, in Indianapolis, Indiana.

Bachelor of science in electrical engineering from Purdue University; doctorate of medicine from Indiana University.

Flew on STS-58, STS-86/Mir and Mir/STS-89.

Cumulative hours of space flight are more than 3,408.

**YOUNG, John W.**, Captain, U.S. Navy (Retired)

Pilot.

Born September 24, 1930, in San Francisco, California.

Bachelor of science in aeronautical engineering from Georgia Institute of Technology.

Flew on Gemini 3, Gemini 10, Apollo 10, Apollo 16, STS-1 and STS-9.

Cumulative hours of space flight are more than 835.

Cumulative EVA time is more than 20 hours (On the moon.)

## CURRENT INTERNATIONAL ASTRONAUTS IN THE U.S. SPACE PROGRAM

### **CHRÉTIEN, Jean-Loup J.M.**, French Space Agency

Mission Specialist.

Born August 20, 1938, in La Rochelle, France.

Educated at L'Ecole communale a Ploujean, the Collège Saint-Charles a Saint-Brieuc, and the Lycee de Morlaix. He received a masterís degree in aeronautical engineering from the French Air Force Academy.

Flew on STS-86.

### **CLERVOY, Jean-François**, European Space Agency

Mission Specialist.

Born November 19, 1958, in Longeville-les-Metz, France. Hometown, Toulouse, France.

Baccalauréat from Collège Militaire de Saint Cyr l'Ecole; passed Math. Sup. and Math Spé. M' at Prytanée Militaire, La Flèche. Graduated from Ecole Polytechnique, Paris; Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, Toulouse; and Ecole du Personnel Navigant d'Essais et de Reception, Istres, as a Flight Test Engineer.

Flew on STS-66 and STS-84.

### **DOI, Takao**, Japanese Space Agency

Mission Specialist.

Born September 18, 1954 in Minamitama-gun, Tokyo, Japan.

Bachelor of engineering from University of Tokyo; master of engineering from University of Tokyo; doctorate in aerospace engineering from University of Tokyo.

Flew on STS-87.

### **DUQUE, Pedro**, European Space Agency

Mission Specialist

Born March 14, 1963, in Madrid, Spain.

Escuela Tecnica Superior de Ingenieros Aeronauticos, Universidad Politecnica, Madrid, Spain.

### **FUGLESANG, Christer**, European Space Agency

Mission Specialist

Born March 18, 1957, in Stockholm, Sweden.

Royal Institute of Technology (KTH), masters of science degree in engineering physics from the University of Stockholm, doctorate in experimental particle physics and docent in particle physics.

## CURRENT INTERNATIONAL ASTRONAUTS IN THE U.S. SPACE PROGRAM

**GARNEAU, Marc**, Canadian Space Agency

Mission Specialist.

Born February 23, 1949, in Quebec City, Canada.

Bachelor of science in engineering physics from the Royal Military College of Kingston, Ontario, Canada, and a doctorate in electrical engineering from the Imperial College of Science and Technology, London, England. Attended the Canadian Forces Command and Staff College of Toronto.

Flew on STS-41G and STS-77.

**GUIDONI, Umberto**, Italian Space Agency

Mission Specialist

Born August 18, 1954, in Rome, Italy.

Doctorate in astrophysics and a bachelor of science in physics, from the University of Rome.

**HADFIELD, Chris A.**, Canadian Space Agency, Colonel, Canadian Air Force

Mission Specialist.

Born August 29, 1959, in Sarnia, Ontario, Canada.

Bachelor degree in mechanical engineering, Royal Military College, Kingston, Ontario, Canada; post-graduate research at University of Waterloo, Ontario, Canada; master of science degree in aviation systems, University of Tennessee.

Flew on STS-74.

**MACLEAN, Steve**, Canadian Space Agency

Mission Specialist

Born December 14, 1954, in Ottawa, Ontario, Canada.

Bachelor of science, honors physics, and doctorate in physics from York University, Toronto, Canada.

**MOHRI, Mamoru**, Japanese Space Agency

Mission Specialist

Born January 28, 1948, in Hokkaido, Japan.

Master of science in physical science from Hokkaido University, doctorate in physical science from South Australia State Flinders University.

**NICOLLIER, Claude**, European Space Agency

Mission Specialist.

Born September 2, 1944, in Vevey, Switzerland.

Bachelor of Science in physics from University of Lausanne, Switzerland; master of science in astrophysics from University of Geneva.

Flew on STS-46, STS-61 and STS-75.

## CURRENT INTERNATIONAL ASTRONAUTS IN THE U.S. SPACE PROGRAM

**NOGUCHI, Soichi**, Japanese Space Agency

Mission Specialist

Born April 15, 1965, in Yokohama, Japan.

Master of aeronautical engineering and bachelor of aeronautical engineering from the University of Tokyo, Japan.

**PAYETTE, Julie**, Canadian Space Agency

Mission Specialist

Born October 20, 1963 in Montreal, Quebec, Canada.

Bachelor of engineering from McGill University, masters of applied science from the University of Toronto, international baccalaureate, United World International College of the Atlantic, South Wales, UK.

**PERRIN, Philippe**, Lt. Colonel, French Air Force

Mission Specialist

Born January 6, 1963, in Meknes, Morocco.

Degree as Ingenieur Polytechnicien from the Ecole Polytechnique, Palaiseau, France.

**THIELE, Gerhard P.J.**, German Space Agency

Mission Specialist

Born September 2, 1953, in Heidenhelm/Brenz, Germany.

Studied physics at Ludwig-Maximilians Universitat, Munich and Ruprecht-Karls-Universitat in Heidelberg. Doctoral thesis at the Institute for Environmental Physics of Heidelberg Universitat.

**TOGNINI, Michel**, French Space Agency

Mission Specialist.

Born September 30, 1949, in Vincennes, France.

Educated at Lycee de Cachan, Paris. Received an advanced mathematics degree from Epa Grenoble and an engineering degree from the French Air Force Academy.

**WAKATA, Koichi**, Japanese Space Agency

Mission Specialist.

Born August 1, 1963, in Omiya, Saitama, Japan.

Bachelor of science in aeronautical engineering and master of science in applied mechanics degrees from Kyushu University.

Flew on STS-72.

**WILLIAMS, Dafydd (David) Rhys**, Canadian Space Agency

Mission Specialist.

Born May 16, 1954 in Saskatoon, Saskatchewan, Canada.

Bachelor of science in biology from McGill University, Montreal; master of science physiology department, doctorate of medicine, and master of surgery from McGill University, Montreal.

## 1998 U.S. ASTRONAUT CANDIDATE CLASS

**ANDERSON, Clayton C.**, Civilian

Mission Specialist.

Born February 23, 1959, in Omaha, Nebraska.

Bachelor of science in physics from Hastings College, Nebraska, master of science in aerospace engineering from Iowa State University.

**ARCHAMBAULT, Lee J.**, Major, U.S. Air Force

Pilot.

Born August 25, 1960, in Oak Park, Illinois.

Bachelor and master of science in aerospace/aeronautical engineering from University of Illinois-Urbana.

**CALDWELL, Tracy E.**, Ph.D.

Mission Specialist.

Born August 14, 1969, in Arcadia, California.

Bachelor of science in chemistry from California State University-Fullerton; Ph.D. in Physical chemistry from the University of California-Davis.

**CHAMITOFF, Gregory E.**, Ph.D.

Mission Specialist.

Born August 6, 1962, in Montreal, Canada.

Bachelor of science in electrical engineering from California Polytechnic State University; master of science in aeronautical engineering from California Institute of Technology; Ph.D. in aeronautics/astronautics from the Massachusetts Institute of Technology.

**CREAMER, Timothy J.**, Major, U. S. Army

Mission Specialist.

Born November 15, 1959, in Ft. Huachuca, Arizona.

Bachelor of science in chemistry from Loyola College in Baltimore, Maryland; master of science in physics from Massachusetts Institute of Technology.

**FERGUSON, Christopher J.**, Lt. Commander, U.S. Navy

Pilot.

Born September 1, 1961, in Philadelphia, Pennsylvania.

Bachelor of science in mechanical engineering from Drexel University; master of science in aeronautical engineering from the Naval Postgraduate School.

**FOREMAN, Michael J.**, Commander, U.S. Navy

Mission Specialist.

Born March 29, 1957, in Columbus, Ohio.

Bachelor of science in aerospace engineering from the U.S. Naval Academy; master of science in aeronautical engineering from the Naval Postgraduate School.

## 1998 U.S. ASTRONAUT CANDIDATE CLASS

**FOSSUM, Michael E.**, Civilian

Mission Specialist.

Born December 19, 1957, in Sioux Falls, South Dakota.

Bachelor of science in mechanical engineering from Texas A&M University; master of science in systems engineering from the Air Force Institute of Technology; master of science in physical science and space science from the University of Houston-Clear Lake.

**HAM, Kenneth T.**, Lt. Commander, U.S. Navy

Pilot.

Born December 12, 1964, in Plainfield, New Jersey.

Bachelor of science aerospace engineering from the U.S. Naval Academy; master of science in aeronautical engineering from the Naval Postgraduate School.

**HILLIARD, Patricia C.**, M.D.

Mission Specialist.

Born March 12, 1963, in Indiana, Pennsylvania.

Bachelor of science in biology from Indiana University of Pennsylvania; M.D. from the Medical College of Pennsylvania.

**JOHNSON, Gregory C.**, Civilian

Pilot.

Born July 30, 1954, in Seattle, Washington.

Bachelor of science in aerospace engineering from the University of Washington.

**JOHNSON, Gregory H.**, Major, U.S. Air Force

Pilot.

Born May 12, 1962, in Upper Ruislip, Middlesex, United Kingdom.

Bachelor of science in aeronautical engineering from the U.S. Air Force Academy; master of science in flight structure engineering from Columbia University.

**LOVE, Stanley G.**, Ph.D.

Mission Specialist.

Born June 8, 1965, in San Diego, California.

Bachelor of science in physics from Harvey Mudd College; master of science and a Ph.D. in astronomy from the University of Washington.

**MELVIN, Leland D.**, Civilian

Mission Specialist.

Born February 15, 1964, in Lynchburg, Virginia.

Bachelor of science in chemistry from the University of Richmond; master of science in materials science from the University of Virginia.

## 1998 U.S. ASTRONAUT CANDIDATE CLASS

**MORGAN, Barbara R.**, Civilian

Mission Specialist.

Born November 28, 1951, in McCall, Idaho.

Bachelor of arts in human biology from Stanford University; teaching credentials from the College of Notre Dame in Belmont, California.

**OEFELEIN, William A.**, Lieutenant, U.S. Navy

Pilot.

Born March 29, 1965, in Ft. Belvoir, Virginia.

Bachelor of science in electrical/electronics engineering from Oregon State University; Master of science in aviation systems from the University of Tennessee Space Institute.

**OLIVAS, John D.**, Ph.D.

Mission Specialist.

Born May 25, 1966, in North Hollywood, California.

Bachelor of science in mechanical engineering from the University of Texas-El Paso; master of science in mechanical engineering from the University of Houston; Ph.D. in mechanical engineering & materials science from Rice University.

**PATRICK, Nicholas J.M.**, Ph.D.

Mission Specialist.

Born March 22, 1964, in Saltburn, North Yorkshire, United Kingdom.

Bachelor of arts and a master of arts in engineering from the University of Cambridge, England; master of science and Ph.D. in mechanical engineering from Massachusetts Institute of Technology.

**POINDEXTER, Alan G.**, Lt. Commander, U.S. Navy

Pilot.

Born November 5, 1961, in Pasadena, California.

Bachelor of aerospace engineering from Georgia Institute of Technology; master of science in aeronautical engineering from the Naval Postgraduate School.

**REISMAN, Garrett E.**, Ph.D.

Mission Specialist.

Born February 10, 1968, in Morristown, New Jersey.

Bachelor of science in economics and in mechanical engineering from the University of Pennsylvania; master of science and Ph.D. in mechanical engineering from the California Institute of Technology.

## 1998 U.S. ASTRONAUT CANDIDATE CLASS

**SWANSON, Steven R.**, Civilian

Mission Specialist.

Born December 3, 1960, in Syracuse, New York.

Bachelor of science in engineering physics from the University of Colorado-Boulder; master of applied science in computer systems from Florida Atlantic University; Ph.D. in computer science from Texas A&M University.

**WHEELOCK, Douglas H.**, Major, U.S. Army

Mission Specialist.

Born May 5, 1960, in Binghamton, New York.

Bachelor of science in applied science from the U.S. Military Academy; master of science in aerospace engineering from Georgia Institute of Technology.

**WILLIAMS, Sunita L.**, Lt. Commander, U.S. Navy

Mission Specialist.

Born September 19, 1965, in Euclid, Ohio.

Bachelor of science in physical science from the U.S. Naval Academy; master of science in engineering management from the Florida Institute of Technology.

**WOODWARD, Neil W., III**, Lieutenant, U.S. Navy

Mission Specialist.

Born July 26, 1962, in Chicago, Illinois.

Bachelor of arts in physics from the Massachusetts Institute of Technology; master of science in physics from the University of Texas-Austin.

**ZAMKA, George D.**, Major, U.S. Marine Corp.

Pilot.

Born June 29, 1962, in Jersey City, New Jersey.

Bachelor of science in mathematics from the U.S. Naval Academy; master of science in engineering management from the Florida Institute of Technology.

## 1998 INTERNATIONAL ASTRONAUT CANDIDATES IN THE U.S. SPACE PROGRAM

**EYHARTS, Léopold**, European Space Agency

Born April 28, 1957, in Biarritz, France.

Graduated as engineer from the Salon de Provence Air Force Academy.

**NESPOLI, Paolo**, European Space Agency

Born April 6, 1957, in Milan, Italy.

Bachelor of science in aerospace engineering and an master of science in aeronautics and astronautics from Polytechnic University of New York.

Laurea in Ingegneria Meccanica, Università degli Studi di Firenze.

**PONTES, Marcos**, Brazilian Space Agency

Born March 11, 1963 in Bauru, Brazil.

Graduated with a bachelor of science degree in aeronautical engineering from the Instituto Tecnológico de Aeronáutica University, and a masters degree in systems engineering from the Navy Post Graduate School in Monterey, California.

**SCHLEGEL, Hans**, European Space Agency

Born August 3, 1951, in Überlingen, Germany.

Graduated in Physics from Aachen University.

**TRYGGVASON, Bjarni V.**, Canadian Space Agency

Born September 21, 1945, in Reykjavik, Iceland.

Bachelor of Applied Science in Engineering Physics from the University of British Columbia, and postgraduate work in engineering with a specialization in applied mathematics and fluid dynamics at the University of Western Ontario.

Flew as a payload specialist on STS-85.

**VITTORI, Roberto**, European Space Agency.

Born October 15, 1964, in Viterbo, Italy.

Graduate of the Italian Airforce Academy. Currently attending the IV year of a Physics degree at the University of Perugia.

## FORMER U.S. ASTRONAUTS

**ADAMSON, James C., Colonel**, U.S. Army (Retired)

Born March 3, 1946, in Warsaw, New York.

Bachelor of science in engineering from U.S. Military Academy; master of science in aerospace engineering from Princeton University. Graduate of the U.S. Navy Test Pilot School.

Flew on STS-28 and STS-43.

Cumulative hours of space flight are more than 334.

**AKERS, Thomas D.**, Lieutenant Colonel, U.S. Air Force

Born May 20, 1951, in St. Louis, Missouri. Hometown, Eminence, Missouri.

Bachelor and master of science in applied mathematics from University of Missouri-Rolla.

Flew on STS-41, STS-49, STS-61 and STS-79.

Cumulative hours of space flight are more than 814.

Cumulative EVA time is more than 29 hours.

**ALDRIN, Buzz**, Colonel, U.S. Air Force (Retired)

Born January 20, 1930, in Montclair, New Jersey.

Bachelor of science in mechanical engineering from U.S. Military Academy; doctorate of science in astronautics from Massachusetts Institute of Technology.

Flew on Gemini 12 and Apollo 11.

Cumulative hours of space flight are more than 289.

Cumulative EVA time is more than 2 hours.

**ALLEN, Andrew M.**, Lieutenant Colonel, U.S. Marine Corps

Born August 4, 1955, in Philadelphia, Pennsylvania.

Bachelor of science in mechanical engineering from Villanova University.

Flew on STS-46, STS-62 and STS-75.

Cumulative hours of space flight are more than 904.

**ALLEN, Joseph P.**, Civilian

Born June 27, 1937, in Crawfordsville, Indiana.

Bachelor of arts in mathematics and physics from DePauw University; master of science and doctorate of philosophy in physics from Yale University.

Flew on STS-5 and STS 51-A.

Cumulative hours of space flight are more than 313.

Cumulative EVA time is more than 12 hours.

**ANDERS, William A.**, Major General, U.S. Air Force Reserve (Retired)

Born October 17, 1933, in Hong Kong.

Bachelor of science in nuclear engineering from U.S. Naval Academy; master of science in nuclear engineering from Air Force Institute of Technology.

Flew on Apollo 8.

Cumulative hours of space flight are more than 147.

## FORMER U.S. ASTRONAUTS

### **APT, Jerome**, Civilian

Born April 28, 1949, in Springfield, Massachusetts. Hometown, Pittsburgh, Pennsylvania.

Bachelor of arts in physics from Harvard College; doctorate of philosophy in physics from Massachusetts Institute of Technology.

Flew on STS-37, STS-47, STS-59 and STS-79.

Cumulative hours of space flight are more than 847.

Cumulative EVA time is more than 10 hours.

### **ARMSTRONG, Neil A.**, Civilian

Born August 5, 1930, in Wapakoneta, Ohio.

Bachelor of science in aeronautical engineering from Purdue University; master of science in aerospace engineering from University of Southern California.

Flew on Gemini 8 and Apollo 11.

Cumulative hours of space flight are more than 205.

Cumulative EVA time is more than 2 hours.

### **BAGIAN, James P.**, Civilian

Mission Specialist.

Born February 22, 1952, in Philadelphia, Pennsylvania.

Bachelor of science in mechanical engineering from Drexel University; doctorate of medicine from Thomas Jefferson University.

Flew on STS-29 and STS-40.

Cumulative hours of space flight are more than 337.

### **BEAN, Alan L.**, Captain, U.S. Navy (Retired)

Born March 15, 1932, in Wheeler, Texas.

Bachelor of science in aeronautical engineering from University of Texas.

Flew on Apollo 12 and Skylab 3.

Cumulative hours of space flight are more than 1,671.

Cumulative EVA time is more than 10 hours.

### **BLAHA, John E.**, Colonel, U.S. Air Force (Retired)

Born August 26, 1942, in San Antonio, Texas.

Bachelor of science in engineering science from U.S. Air Force Academy; master of science in astronautical engineering from Purdue University.

Flew on STS-29, STS-33, STS-43, STS-58, STS-79/Mir and Mir/STS-81.

Cumulative hours of space flight are more than 3,864.

### **BLUFORD, Guion S., Jr.**, Colonel, U.S. Air Force (Retired)

Born November 22, 1942, in Philadelphia, Pennsylvania.

Bachelor of science in aerospace engineering from Pennsylvania State University; master of science and doctorate of philosophy in aerospace engineering

from Air Force Institute of Technology; master in business administration from the University of Houston-Clear Lake.

Flew on STS-8, STS 61-A, STS-39, and STS-53.

Cumulative hours of space flight are more than 688.

## FORMER U.S. ASTRONAUTS

**BOBKO, Karol J., Colonel, U.S. Air Force (Retired)**

Born December 23, 1937, in New York, New York.

Bachelor of science from U.S. Air Force Academy; master of science in aerospace engineering from University of Southern California.

Flew on STS-6, STS 51-D, and STS-51-J.

Cumulative hours of space flight are more than 386.

**BOLDEN, Charles F., Jr., Brigadier General, U.S. Marine Corps**

Born August 19, 1946, in Columbia, South Carolina.

Bachelor of science in electrical science from U.S. Naval Academy; master of science in systems management from University of Southern California.

Flew on STS-61C, STS-31, STS-45, and STS-60.

Cumulative hours of space flight are more than 680.

**BORMAN, Frank, Colonel, U.S. Air Force (Retired)**

Born March 14, 1928, in Gary, Indiana.

Bachelor of science from U.S. Military Academy; master of science in aeronautical engineering from California Institute of Technology.

Flew on Gemini 7 and Apollo 8.

Cumulative hours of space flight are more than 477.

**BRAND, Vance D., Civilian**

Born May 9, 1931, in Longmont, Colorado.

Bachelor of science in business and aeronautical engineering

from University of Colorado; master of science in business administration from University of California at Los Angeles.

Flew on Apollo-Soyuz Test Project, STS-5, STS 41-B, and STS-35.

Cumulative hours of space flight are more than 746.

**BRANDENSTEIN, Daniel C., Captain, U.S. Navy (Retired)**

Born January 17, 1943, in Watertown, Wisconsin.

Bachelor of science in mathematics and physics from University of Wisconsin, River Falls, Wisconsin.

Flew on STS-8, STS 51-G, STS-32, and STS-49.

Cumulative hours of space flight are more than 788.

**BRIDGES, Roy D., Jr., Major General, U.S. Air Force (Retired)**

Born July 19, 1943, in Atlanta, Georgia.

Bachelor of science in engineering science from U.S. Air Force Academy; master of science in astronautics from Purdue University.

Flew on STS 51-F.

Cumulative hours of space flight are more than 190.

## FORMER U.S. ASTRONAUTS

**BROWN, Mark N., Colonel, U.S. Air Force (Retired)**

Born November 18, 1951, in Valparaiso, Indiana.

Bachelor of science in aeronautical and astronautical engineering from Purdue University; master of science in astronautical engineering from U.S. Air Force Institute of Technology.

Flew on STS-28 and STS-48.

Cumulative hours of space flight are more than 249.

**BUCHLI, James F., Colonel, U.S. Marine Corps (Retired)**

Born June 20, 1945, in New Rockford, North Dakota. Hometown, Fargo, North Dakota.

Bachelor of science in aeronautical engineering from U.S. Naval Academy; master of science in aeronautical engineering systems from University of West Florida.

Flew on STS 51-C, STS 61-A, STS-29, and STS-48.

Cumulative hours of space flight are more than 490.

**BULL, John S., Civilian**

Born September 25, 1934, in Memphis, Tennessee.

Bachelor of science in mechanical engineering from Rice University; master of science and doctorate of philosophy in aeronautical engineering from Stanford University.

**CAMERON, Kenneth D., Colonel, U.S. Marine Corps (Retired)**

Born November 29, 1949, in Cleveland, Ohio.

Bachelor and master of science in aeronautics and astronautics from Massachusetts Institute of Technology.

Flew on STS-37, STS-56 and STS-74.

Cumulative hours of space flight are more than 562.

**CARPENTER, M. Scott, Commander, U.S. Navy (Retired)**

Born May 1, 1925, in Boulder, Colorado.

Bachelor of science in aeronautical engineering from University of Colorado.

Flew on Mercury 7.

Cumulative hours of space flight are more than 4.

**CARR, Gerald P., Colonel, U.S. Marine Corps (Retired)**

Born August 22, 1932, in Denver, Colorado.

Bachelor of science in mechanical engineering from University of Southern California; bachelor of science in aeronautical engineering from U.S. Naval Postgraduate School; master of science in aeronautical engineering from Princeton University; honorary doctor of science in aeronautical engineering from Parks College, St. Louis University.

Flew on Skylab 4.

Cumulative hours of space flight are more than 2,017.

Cumulative EVA time is more than 15 hours.

## FORMER U.S. ASTRONAUTS

**CERNAN, Eugene A.**, Captain, U.S. Navy (Retired)

Born March 14, 1934, in Chicago, Illinois.

Bachelor of science in electrical engineering from Purdue University; master of science in aeronautical engineering from U.S. Navy Postgraduate School.

Flew on Gemini 9, Apollo 10, and Apollo 17.

Cumulative hours of space flight are more than 566.

Cumulative EVA time is more than 24 hours.

**CHAPMAN, Philip K.**, Civilian

Born March 5, 1935, in Melbourne, Australia.

Bachelor of science in physics and mathematics from University of Sydney; master of science in aeronautics and astronautics and doctorate of science in instrumentation from Massachusetts Institute of Technology.

**CHILTON, Kevin P.**, Brigadier General, U.S. Air Force

Born November 3, 1954, in Los Angeles, California.

Bachelor of science in engineering sciences from U.S. Air Force Academy; master of science in mechanical engineering from Columbia University.

Flew on STS-49, STS-59 and STS-76.

Cumulative hours of space flight are more than 704.

**CLEAVE, Mary L.**, Civilian

Born February 5, 1947, in Southampton, New York.

Bachelor of science in biological sciences from Colorado State University; master of science in microbial ecology and doctorate of philosophy in civil and environmental engineering from Utah State University.

Flew on STS 61-B and STS-30.

Cumulative hours of space flight are more than 262.

**CLIFFORD, Michael R.**, Lieutenant Colonel, U.S. Army (Retired)

Born October 13, 1952, in San Bernardino, California. Hometown, Ogden, Utah.

Bachelor of science from U.S. Military Academy; master of science in aerospace engineering from Georgia Institute of Technology.

Flew on STS-53, STS-59 and STS-76.

Cumulative hours of space flight are more than 666.

Cumulative EVA time is more than 6 hours.

**COATS, Michael L.**, Captain, U.S. Navy (Retired)

Born January 16, 1946, in Sacramento, California.

Bachelor of science from U.S. Naval Academy; master of science in administration of science and technology from George Washington University; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS 41-D, STS-29, and STS-39.

Cumulative hours of space flight are more than 463.

## FORMER U.S. ASTRONAUTS

**COLLINS, Michael**, Major General, U.S. Air Force Reserve (Retired)

Born October 31, 1930, in Rome, Italy.

Bachelor of science from U.S. Military Academy.

Flew on Gemini 10 and Apollo 11.

Cumulative hours of space flight are more than 265.

Cumulative EVA time is more than 1 hour.

**CONRAD, Charles, Jr.**, Captain, U.S. Navy (Retired)

Born June 2, 1930, in Philadelphia, Pennsylvania.

Bachelor of science in aeronautical engineering from Princeton University.

Flew on Gemini 5, Gemini 11, Apollo 12, and Skylab 2.

Cumulative hours of space flight are more than 1,179.

Cumulative EVA time is more than 13 hours.

**COOPER, L. Gordon, Jr.**, Colonel, U.S. Air Force (Retired)

Born March 6, 1927, in Shawnee, Oklahoma.

Bachelor of science from U.S. Air Force Institute of Technology; doctorate of science in aeronautical engineering from Oklahoma City University.

Flew on Mercury 9 and Gemini 5.

Cumulative hours of space flight are more than 225.

**COVEY, Richard O.**, Colonel, U.S. Air Force (Retired)

Born August 1, 1946, in Fayetteville, Arkansas. Hometown, Fort Walton Beach, Florida.

Bachelor of science in engineering sciences from U.S. Air Force Academy; master of science in aeronautics and astronautics from Purdue University.

Flew on STS 51-I, STS-26, STS-38, and STS-61.

Cumulative hours of space flight are more than 645.

**CREIGHTON, John O.**, Captain, U.S. Navy (Retired)

Born April 28, 1943, in Orange, Texas.

Bachelor of science from U.S. Naval Academy; master of science in administration of science and technology from George Washington University.

Flew on STS 51-G, STS-36, and STS-48.

Cumulative hours of space flight are more than 404.

**CRIPPEN, Robert L.**, Captain, U.S. Navy (Retired)

Born September 11, 1937, in Beaumont, Texas.

Bachelor of science in aerospace engineering from University of Texas.

Flew on STS-1, STS-7, STS 41-C, and STS 41-G.

Cumulative hours of space flight are more than 565.

## FORMER U.S. ASTRONAUTS

**CUNNINGHAM, Walter**, Colonel, U.S. Marine Corps Reserve (Retired)

Born March 16, 1932, in Creston, Iowa.

Bachelor and master of arts in physics from University of California at Los Angeles. Advanced management program, Harvard Graduate School of Business.

Flew on Apollo 7.

Cumulative hours of space flight are more than 263.

**DUKE, Charles M., Jr.**, Brigadier General, U.S. Air Force (Retired)

Born October 3, 1935, in Charlotte, North Carolina.

Bachelor of science in naval sciences from U.S. Naval Academy; master of science in aeronautics from Massachusetts Institute of Technology.

Flew on Apollo 16.

Cumulative hours of space flight are more than 265.

Cumulative EVA time is more than 20 hours.

**ENGLAND, Anthony W.**, Civilian

Born May 15, 1942, in Indianapolis, Indiana.

Bachelor and master of science in Earth sciences from Massachusetts Institute of Technology; doctorate of philosophy in geophysics from Massachusetts Institute of Technology.

Flew on STS 51-F.

Cumulative hours of space flight are more than 190.

**ENGLE, Joe H.**, Major General, Air National Guard/U.S. Air Force

Born August 26, 1932, in Dickinson County, Kansas.

Bachelor of science in aeronautical engineering from University of Kansas.

Flew 16 flights in USAF/NASA X-15 - 3 flights into space; flew on Space Shuttle approach and landing tests 2 and 4, STS-2, and STS 51-I.

Cumulative hours of space flight are more than 224.

**FABIAN, John M.**, Colonel, U.S. Air Force (Retired)

Born January 28, 1939, in Goosecreek, Texas.

Bachelor of science in mechanical engineering from Washington State

University; master of science in aerospace engineering from U.S. Air Force Institute of Technology; doctorate of philosophy in aeronautics and astronautics from University of Washington.

Flew on STS-7 and STS 51-G.

Cumulative hours of space flight are more than 316.

## FORMER U.S. ASTRONAUTS

### **FISHER, William F.**, Civilian

Born April 1, 1946, in Dallas, Texas.

Bachelor of arts from Stanford University; master of science in engineering from University of Houston; doctorate of medicine from University of Florida.

Flew on STS 51-I.

Cumulative hours of space flight are more than 170.

Cumulative EVA time is more than 11 hours.

### **FULLERTON, Charles G.**, Colonel, U.S. Air Force (Retired)

Born October 11, 1936, in Rochester, New York.

Bachelor and master of science in mechanical engineering from California Institute of Technology.

Flew Space Shuttle approach and landing tests 1, 3 and 5; STS-3 and STS 51-F.

Cumulative hours of space flight are more than 382.

### **GARDNER, Dale A.**, Captain, U.S. Navy (Retired)

Born November 8, 1948, in Fairmont, Minnesota.

Bachelor of science in engineering physics from University of Illinois.

Flew on STS-8 and STS 51-A.

Cumulative hours of space flight are more than 336.

Cumulative EVA time is more than 11 hours.

### **GARDNER, Guy S.**, Colonel, U.S. Air Force (Retired)

Born January 6, 1948, in Altavista, Virginia.

Bachelor of science in engineering sciences, astronautics and mathematics from U.S. Air Force Academy; master of science in astronautics from Purdue University.

Flew on STS-27 and STS-35.

Cumulative hours of space flight are more than 320.

### **GARRIOTT, Owen K.**, Civilian

Born November 22, 1930, in Enid, Oklahoma.

Bachelor of science in electrical engineering from University of Oklahoma; master of science and doctorate of philosophy in electrical engineering from Stanford University.

Flew on Skylab 3 and STS-9.

Cumulative hours of space flight are more than 1674.

Cumulative EVA time is more than 13 hours.

### **GEMAR, Charles D.**, Lieutenant Colonel, U.S. Army

Born August 4, 1955, in Yankton, South Dakota. Hometown, Scotland, South Dakota.

Bachelor of science in engineering from U.S. Military Academy.

Flew on STS-38, STS-48 and STS-62.

Cumulative hours of space flight are more than 581.

## FORMER U.S. ASTRONAUTS

**GIBSON, Edward G.**, Civilian

Born November 8, 1936, in Buffalo, New York.

Bachelor of science in engineering from University of Rochester; master of science in engineering from California Institute of Technology; doctorate of philosophy in engineering and physics from California Institute of Technology.

Flew on Skylab 4.

Cumulative hours of space flight are more than 2,017.

Cumulative EVA time is more than 15 hours.

**GIBSON, Robert L.**, Captain, U.S. Navy

Born October 30, 1946, in Cooperstown, New York. Hometown, Lakewood, California.

Bachelor of science in aeronautical engineering from California Polytechnic Institute.

Flew on STS 41-B, STS 61-C, STS-27, STS-47 and STS-71.

Cumulative hours of space flight are more than 868.

**GLENN, John H., Jr.**, Colonel, U.S. Marine Corps (Retired)

Born July 18, 1921, in Cambridge, Ohio.

Bachelor of science in engineering from Muskingum College.

Flew on Mercury 6.

Cumulative hours of space flight are more than 4.

**GORDON, Richard F., Jr.**, Captain, U.S. Navy (Retired)

Born October 5, 1929, in Seattle, Washington.

Bachelor of science in chemistry from University of Washington; honorary doctorate of science from Niagara University.

Flew on Gemini 11 and Apollo 12.

Cumulative hours of space flight are more than 315.

Cumulative EVA time is more than 1 hour.

**GRABE, Ronald J.**, Colonel, U.S. Air Force (Retired)

Born June 13, 1945, in New York, New York.

Bachelor of science in engineering science from U.S. Air Force Academy.

Flew on STS 51-J, STS-30, STS-42, and STS-57.

Cumulative hours of space flight are more than 627.

**GRAVELINE, Duane F.**, Civilian

Born March 2, 1931, in Newport, Vermont.

Bachelor of science and doctorate of medicine from University of Vermont; master of science in public health from Johns Hopkins University.

## FORMER U.S. ASTRONAUTS

**GREGORY, Frederick D.**, Colonel, U.S. Air Force (Retired)

Born January 7, 1941, in Washington, D.C.

Bachelor of science from U.S. Air Force Academy; master of science in information systems from George Washington University.

Flew on STS 51-B, STS-33, and STS-44.

Cumulative hours of space flight are more than 455.

**GUTIERREZ, Sidney M.**, Lieutenant Colonel, U.S. Air Force (Retired)

Born June 27, 1951, Albuquerque, New Mexico.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master of arts in management from Webster College.

Flew on STS-40 and STS-59.

Cumulative hours of space flight are more than 488.

**HAISE, Fred W., Jr.**, Civilian

Born November 14, 1933, in Biloxi, Mississippi.

Bachelor of science in aeronautical engineering from University of Oklahoma.

Flew on Apollo 13 and Space Shuttle approach and landing tests 1, 3, and 5.

Cumulative hours of space flight are more than 142.

**HAMMOND, L. Blaine, Jr.**, Colonel, U.S. Air Force

Born January 16, 1952, in Savannah, Georgia. Hometown, St. Louis, Missouri.

Bachelor of science in engineering science and mechanics from U.S. Air Force Academy; master of science in engineering science and mechanics from Georgia Institute of Technology.

Flew on STS-39 and STS-64.

Cumulative hours of space flight are more than 462.

**HARRIS, Bernard A., Jr.**, Civilian

Born June 26, 1956, in Temple, Texas.

Bachelor of science in biology from University of Houston; doctorate of medicine from Texas Tech University.

Flew on STS-55 and STS-63.

Cumulative hours of space flight are more than 438.

Cumulative EVA time is more than 4 hours.

**HART, Terry J.**, Civilian

Born October 27, 1946, in Pittsburgh, Pennsylvania.

Bachelor of science from Lehigh University; master of science in mechanical engineering from Massachusetts Institute of Technology; master of science in electrical engineering from Rutgers University; honorary doctorate of engineering from Lehigh University.

Flew on STS 41-C.

Cumulative hours of space flight are more than 167.

## FORMER U.S. ASTRONAUTS

**HARTSFIELD, Henry W., Jr.**, Colonel, U.S. Air Force (Retired)

Born November 21, 1933, in Birmingham, Alabama.

Bachelor of science in physics from Auburn University; master of science in engineering science from University of Tennessee.

Flew on STS-4, STS 41-D, and STS 61-A.

Cumulative hours of space flight are more than 482.

**HAUCK, Frederick H.**, Captain, U.S. Navy (Retired)

Born April 11, 1941, in Long Beach, California.

Bachelor of science in physics from Tufts University; master of science in nuclear engineering from Massachusetts Institute of Technology.

Flew on STS-7, STS 51-A, and STS-26.

Cumulative hours of space flight are more than 435.

**HENRICKS, Terence T. "Tom"**, Colonel, U.S. Air Force

Born July 5, 1952, in Bryan, Ohio. Hometown, Woodville, Ohio.

Bachelor of science in civil engineering from U.S. Air Force Academy; master of arts in public administration from Golden Gate University.

Flew on STS-44, STS-55, STS-70 and STS-78.

Cumulative hours of space flight are more than 1,026.

**HIEB, Richard J.**, Civilian

Born September 21, 1955, in Jamestown, North Dakota.

Bachelor of arts in mathematics and physics from Northwest Nazarene College; master of science in aerospace engineering from University of Colorado.

Flew on STS-39, STS-49, and STS-65.

Cumulative hours of space flight are more than 766.

Cumulative EVA time is more than 17 hours.

**HILMERS, David C.**, Colonel, U.S. Marine Corps (Retired)

Born January 28, 1950, in Clinton, Iowa.

Bachelor of arts in mathematics from Cornell University; master of science in electrical engineering from U.S. Naval Postgraduate School.

Flew on STS 51-J, STS-26, STS-36, and STS-42.

Cumulative hours of space flight are more than 494.

**HOFFMAN, Jeffrey A.**, Civilian

Born November 2, 1944, in Brooklyn, New York. Hometown, Scarsdale, New York.

Bachelor of arts in astronomy from Amherst College; masters degree in materials science from Rice University; doctorate of philosophy in astrophysics from Harvard University.

Flew on STS 51-D, STS-35, STS-46, STS-61 and STS-75.

Cumulative hours of space flight are more than 1,211.

## FORMER U.S. ASTRONAUTS

### **HOLMQUEST, Donald L.**, Civilian

Born April 7, 1939, in Dallas, Texas.

Bachelor of science in electrical engineering from Southern Methodist University; doctorate of philosophy in physiology and doctorate of medicine from Baylor University; juris doctor from University of Houston.

### **JEMISON, Mae C.**, Civilian

Born October 17, 1956, in Decatur, Alabama.

Bachelor of science in chemical engineering from Stanford University; doctorate of medicine from Cornell University.

Flew on STS-47.

Cumulative hours of space flight are more than 190.

### **KERWIN, Joseph P.**, Captain, Medical Corps, U.S. Navy (Retired)

Born February 19, 1932, in Oak Park, Illinois.

Bachelor of arts in philosophy from College of the Holy Cross; doctorate of medicine from Northwestern University Medical School. Naval Aviator.

Flew on Skylab 2.

Cumulative hours of space flight are more than 672.

Cumulative EVA time is more than 3 hours.

### **LEESTMA, David C.**, Captain, U.S. Navy (Retired)

Born May 6, 1949, in Muskegon, Michigan.

Bachelor of science in aeronautical engineering from U.S. Naval Academy; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS 41-G, STS-28, and STS-45.

Cumulative hours of space flight are more than 532.

### **LENOIR, William B.**, Civilian

Born March 14, 1939, in Miami, Florida.

Bachelor of science, master of science and doctorate of philosophy in electrical engineering from Massachusetts Institute of Technology.

Flew on STS-5.

Cumulative hours of space flight are more than 122.

### **LIND, Don L.**, Civilian

Born May 18, 1930, in Midvale, Utah.

Bachelor of science in physics from University of Utah; doctorate of philosophy in high energy nuclear physics from University of California at Berkeley.

Flew on STS 51-B.

Cumulative hours of space flight are more than 168.

## FORMER U.S. ASTRONAUTS

**LINENGER, Jerry M.**, Captain, U.S. Navy

Born January 16, 1955, in Mount Clemens, Michigan. Hometowns, Eastpointe, Michigan, and Coronado, California.

Bachelor of science in bioscience from the U.S. Naval Academy; master of science in systems management from University of Southern California; doctorate of medicine from Wayne State University; master of public health in health policy from University of North Carolina; doctorate of philosophy in epidemiology from University of North Carolina.

Flew on STS-64, STS-81/Mir and Mir/STS-84.

Cumulative hours of space flight are more than 3,435.

**LLEWELLYN, John A.**, Civilian

Born April 22, 1933, in Cardiff, Wales, UK.

Bachelor of science and doctorate of philosophy in chemistry from University College at Cardiff.

**LOUNGE, John M.**, “Mike,” Civilian

Born June 28, 1946, in Denver, Colorado.

Bachelor of science in physics and mathematics from U.S. Naval Academy; master of science in astrophysics from University of Colorado.

Flew on STS 51-I, STS-26, and STS-35.

Cumulative hours of space flight are more than 482.

**LOUSMA, Jack R.**, Colonel, U.S. Marine Corps (Retired)

Born February 29, 1936, in Grand Rapids, Michigan.

Bachelor of science in aeronautical engineering from University of Michigan; degree of aeronautical engineer from U.S. Naval Postgraduate School.

Flew on Skylab 3 and STS-3.

Cumulative hours of space flight are more than 1,619.

Cumulative EVA time is more than 11 hours.

**LOVELL, James A., Jr.**, Captain, U.S. Navy (Retired)

Born March 25, 1928, in Cleveland, Ohio.

Bachelor of science from U.S. Naval Academy; Advanced Management Program, Harvard Business School.

Flew on Gemini 7, Gemini 12, Apollo 8, and Apollo 13.

Cumulative hours of space flight are more than 715.

**LOW, G. David**, Civilian

Born February 19, 1956, in Cleveland, Ohio.

Bachelor of science in physics-engineering from Washington and Lee University, and in mechanical engineering from Cornell University; master of science in aeronautics and astronautics from Stanford University.

Flew on STS-32, STS-43 and STS-57.

Cumulative hours of space flight are more than 714.

Cumulative EVA time is more than 6 hours.

## FORMER U.S. ASTRONAUTS

**MATTINGLY, Thomas K., II**, Rear Admiral, U.S. Navy

Born March 17, 1936, in Chicago, Illinois.

Bachelor of science in aeronautical engineering from Auburn University.

Flew on Apollo 16, STS-4, and STS 51-C.

Cumulative hours of space flight are more than 508.

Cumulative EVA time is more than 1 hour.

**McBRIDE, Jon A.**, Captain, U.S. Navy (Retired)

Born August 14, 1943, in Charleston, West Virginia.

Bachelor of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on STS 41-G.

Cumulative hours of space flight are more than 197.

**McCANDLESS, Bruce, II**, Captain, U.S. Navy (Retired)

Born June 8, 1937, in Boston, Massachusetts.

Bachelor of science from U.S. Naval Academy; master of science in electrical engineering from Stanford University; master of science in business administration from University of Houston Clear Lake.

Flew on STS 41-B and STS-31.

Cumulative hours of space flight are more than 312.

Cumulative EVA time is more than 11 hours.

**McCULLEY, Michael J.**, Captain, U.S. Navy (Retired)

Born August 4, 1943, in San Diego, California.

Bachelor and master of science in metallurgical engineering from Purdue University.

Flew on STS-34.

Cumulative hours of space flight are more than 119.

**McDIVITT, James A.**, Brigadier General, U.S. Air Force (Retired)

Born June 10, 1929, in Chicago, Illinois.

Bachelor of science in aeronautical engineering from University of Michigan.

Flew on Gemini 4 and Apollo 9, and was the Apollo Spacecraft Program Manager.

Cumulative hours of space flight are more than 338.

**McMONAGLE, Donald R.**, Lieutenant Colonel, U.S. Air Force

Born May 14, 1952, in Flint, Michigan.

Bachelor of science in astronautical engineering from U.S. Air Force Academy; master of science in mechanical engineering from California State University at Fresno.

Flew on STS-39, STS-54 and STS-66.

Cumulative hours of space flight are more than 605.

## FORMER U.S. ASTRONAUTS

**MEADE, Carl J.**, Colonel, U.S. Air Force

Born November 16, 1950, at Chanute Air Force Base, Illinois.

Bachelor of science in electronics engineering from University of Texas; master of science in electronics engineering from California Institute of Technology.

Flew on STS-38, STS-50 and STS-64.

Cumulative hours of space flight are more than 712.

Cumulative EVA time is more than 6 hours.

**MELNICK, Bruce E.**, Commander, U.S. Coast Guard (Retired)

Born December 5, 1949, in New York, New York.

Bachelor of science in engineering from U.S. Coast Guard Academy; master of science in aeronautical systems from West Florida University.

Flew on STS-41 and STS-49.

Cumulative hours of space flight are more than 311.

**MICHEL, F. Curtis**, Civilian

Born June 5, 1934, in LaCrosse, Wisconsin.

Bachelor of science and doctorate of philosophy in physics from California Institute of Technology.

**MITCHELL, Edgar D.**, Captain, U.S. Navy (Retired)

Born September 17, 1930, in Hereford, Texas.

Bachelor of science in industrial management from Carnegie Institute of Technology (now Carnegie-Mellon University); bachelor of science in aeronautical engineering from U.S. Naval Postgraduate School; doctorate of science in aeronautics and astronautics from Massachusetts Institute of Technology.

Flew on Apollo 14.

Cumulative hours of space flight are more than 216.

Cumulative EVA time is more than 9 hours.

**MULLANE, Richard M.**, Colonel, U.S. Air Force (Retired)

Born September 10, 1945, in Wichita Falls, Texas.

Bachelor of science in military engineering from U.S. Military Academy; master of science in aeronautical engineering from U.S. Air Force Institute of Technology.

Flew on STS 41-D, STS-27, and STS-36.

Cumulative hours of space flight are more than 356.

## FORMER U.S. ASTRONAUTS

### **MUSGRAVE, Story**, Civilian

Born August 19, 1935, in Boston, Massachusetts. Hometown, Lexington, Kentucky. Bachelor of science in mathematics and statistics from Syracuse University; bachelor of arts in chemistry from Marietta College; master of business administration in operations analysis and computer programming from University of California at Los Angeles; master of science in physiology and biophysics from University of Kentucky; master of arts in literature from University of Houston; doctorate of medicine from Columbia University. Flew on STS-6, STS 51-F, STS-33, STS-44, STS-61 and STS-80. Cumulative hours of space flight are more than 1,166. Cumulative EVA time is more than 26 hours.

### **NAGEL, Steven R.**, Colonel, U.S. Air Force (Retired)

Born October 27, 1946, in Canton, Illinois. Bachelor of science in aeronautical and astronautical engineering from University of Illinois; master of science in mechanical engineering from California State University at Fresno. Flew on STS 51-G, STS 61-A, STS-37, and STS-55. Cumulative hours of space flight are more than 721.

### **NELSON, George D.**, Civilian

Born July 13, 1950, in Charles City, Iowa. Bachelor of science in physics from Harvey Mudd College; master of science and doctorate of philosophy in astronomy from University of Washington. Flew on STS 41-C, STS 61-C, and STS-26. Cumulative hours of space flight are more than 410. Cumulative EVA time is more than 10 hours.

### **O'CONNOR, Bryan D.**, Colonel, U.S. Marine Corps (Retired)

Born September 6, 1946, in Orange, California. Bachelor of science in engineering from U.S. Naval Academy; master of science in aeronautical systems from West Florida University. Flew on STS 61-B and STS-40. Cumulative hours of space flight are more than 383.

### **O'LEARY, Brian T.**, Civilian

Born January 27, 1940, in Boston, Massachusetts. Bachelor of arts in physics from Williams College; master of arts in astronomy from Georgetown University; doctorate of philosophy in astronomy from University of California at Berkeley.

## FORMER U.S. ASTRONAUTS

**PARKER, Robert A. R.**, Civilian

Born December 14, 1936, in New York City, New York.

Bachelor of arts in astronomy and physics from Amherst College; doctorate of philosophy in astronomy from California Institute of Technology.

Flew on STS-9 and STS-35.

Cumulative hours of space flight are more than 462.

**PETERSON, Donald H.**, Colonel, U.S. Air Force (Retired)

Born October 22, 1933, in Winona, Mississippi.

Bachelor of science from U.S. Military Academy; master of science in nuclear engineering from U.S. Air Force Institute of Technology. Graduate of Air Force Test Pilot School and War College.

Flew on STS-6.

Cumulative hours of space flight are more than 120.

**POGUE, William R.**, Colonel, U.S. Air Force (Retired)

Born January 23, 1930, in Okemah, Oklahoma.

Bachelor of science in education from Oklahoma Baptist University; master of science in mathematics from Oklahoma State University.

Flew on Skylab 4.

Cumulative hours of space flight are more than 2,017.

Cumulative EVA time is more than 13 hours.

**REIGHTLER, Kenneth S., Jr.**, Captain, U.S. Navy

Born March 24, 1951, in Patuxent River, Maryland. Hometown, Virginia Beach, Virginia.

Bachelor of science in aerospace engineering from U.S. Naval Academy; master of science in aeronautical engineering from U.S. Naval Postgraduate School; master of science in systems management from University of Southern California.

Flew on STS-48 and STS-60.

Cumulative hours of space flight are more than 327.

**RICHARDS, Richard N.**, Captain, U.S. Navy

Born August 24, 1946, in Key West, Florida. Hometown, St. Louis, Missouri.

Bachelor of science in chemical engineering from University of Missouri; master of science in aeronautical systems from University of West Florida.

Flew on STS-28, STS-41, STS-50 and STS-64.

Cumulative hours of space flight are more than 813.

## FORMER U.S. ASTRONAUTS

### **RIDE, Sally K.,** Civilian

Born May 26, 1951, in Los Angeles, California.

Bachelor of science in physics; bachelor of arts in English; master of science and doctorate of philosophy in physics from Stanford University.

Flew on STS-7 and STS 41-G.

Cumulative hours of space flight are more than 343.

### **SCHIRRA, Walter M., Jr.,** Captain, U.S. Navy (Retired)

Born March 12, 1923, in Hackensack, New Jersey.

Bachelor of science from U.S. Naval Academy; graduate of U.S. Naval Test Pilot School.

Flew on Mercury 8, Gemini 6, and Apollo 7.

Cumulative hours of space flight are more than 295.

### **SCHMITT, Harrison H.,** Civilian

Born July 3, 1935, in Santa Rita, New Mexico.

Bachelor of science in geology from California Institute of Technology; doctorate of philosophy in geology from Harvard University.

Flew on Apollo 17.

Cumulative hours of space flight are more than 301.

Cumulative EVA time is more than 22 hours.

### **SCHWEICKART, Russell L.,** Civilian

Born October 25, 1935 in Neptune, New Jersey.

Bachelor of science in aeronautical engineering from Massachusetts Institute of Technology; master of science in aeronautics and astronautics from Massachusetts Institute of Technology.

Flew on Apollo 9.

Cumulative hours of space flight are more than 241.

Cumulative EVA time is more than 1 hour.

### **SCOTT, David R.,** Colonel, U.S. Air Force (Retired)

Born June 6, 1932, in San Antonio, Texas.

Bachelor of science from U.S. Military Academy; master of science in aeronautics and astronautics and engineer in aeronautics and astronautics from Massachusetts Institute of Technology.

Flew on Gemini 8, Apollo 9, and Apollo 15.

Cumulative hours of space flight are more than 546.

Cumulative EVA time is more than 20 hours.

### **SEDDON, Margaret Rhea,** Civilian

Born November 8, 1947, in Murfreesboro, Tennessee.

Bachelor of arts in physiology from University of California at Berkeley; doctorate of medicine from University of Tennessee.

Flew on STS 51-D, STS-40 and STS-58.

Cumulative hours of space flight are more than 722.

## FORMER U.S. ASTRONAUTS

**SEGA, Ronald M.**, Colonel, U.S. Air Force Reserve

Born December 4, 1952, in Cleveland, Ohio. Hometowns, Northfield, Ohio, and Colorado Springs, Colorado.

Bachelor of science in physics and math from U.S. Air Force Academy; master of science in physics from Ohio State; doctorate of philosophy in electrical engineering from University of Colorado.

Flew on STS-60 and STS-76.

Cumulative hours of space flight are more than 420.

**SHAW, Brewster H., Jr.**, Colonel, U.S. Air Force (Retired)

Born May 16, 1945, in Cass City, Michigan.

Bachelor and master of science in engineering mechanics from University of Wisconsin.

Flew on STS-9, STS 61-B, and STS-28.

Cumulative hours of space flight are more than 533.

**SHRIVER, Loren J.**, Colonel, U.S. Air Force (Retired)

Born September 23, 1944, in Jefferson, Iowa.

Bachelor of science in aeronautical engineering from U.S. Air Force Academy; master of science in aeronautical engineering from Purdue University.

Flew on STS 51-C, STS-31, and STS-46.

Cumulative hours of space flight are more than 386.

**SPRING, Sherwood C.**, Colonel, U.S. Army (Retired)

Born September 3, 1944, in Hartford, Connecticut.

Bachelor of science in general engineering from U.S. Military Academy; master of science in aerospace engineering from University of Arizona.

Flew on STS 61-B.

Cumulative hours of space flight are more than 165.

**SPRINGER, Robert C.**, Colonel, U.S. Marine Corps (Retired)

Born May 21, 1942, in St. Louis, Missouri.

Bachelor of science in naval science from U.S. Naval Academy; master of science in operations research and systems analysis from U.S. Naval Postgraduate School.

Flew on STS-29 and STS-38.

Cumulative hours of space flight are more than 237.

**STAFFORD, Thomas P.**, Lieutenant General, U.S. Air Force (Retired)

Born September 17, 1930, in Weatherford, Oklahoma.

Bachelor of science from U.S. Naval Academy.

Flew on Gemini 6, Gemini 9, Apollo 10, and Apollo-Soyuz Test Project.

Cumulative hours of space flight are more than 507.

## FORMER U.S. ASTRONAUTS

### **STEWART, Robert L.**, Brigadier General, U.S. Army (Retired)

Born August 13, 1942, in Washington, D.C.

Bachelor of science in mathematics from Southern Mississippi University; master of science in aerospace engineering from University of Texas at Arlington.

Flew on STS 41-B and STS 51-J.

Cumulative hours of space flight are more than 289.

Cumulative EVA time is more than 12 hours.

### **SULLIVAN, Kathryn D.**, Civilian

Born October 3, 1951, in Paterson, New Jersey.

Bachelor of science in Earth sciences from University of California at Santa Cruz; doctorate of philosophy in geology from Dalhousie University, Halifax, Nova Scotia.

Flew on STS 41-G, STS-31, and STS-45.

Cumulative hours of space flight are more than 532.

Cumulative EVA time is more than 3 hours.

### **THAGARD, Norman E.**, Civilian

Born July 3, 1943, in Marianna, Florida. Hometown, Jacksonville, Florida.

Bachelor and master of science in engineering science from Florida State University; doctorate of medicine from University of Texas.

Flew on STS-7, STS 51-B, STS-30, STS-42 and Mir/STS-71.

Cumulative hours of space flight are more than 3,360 including time on Mir.

### **THORNTON, Kathryn C.**, Civilian

Born August 17, 1952, in Montgomery, Alabama.

Bachelor of science in physics from Auburn University; master of science and doctorate of philosophy in physics from University of Virginia.

Flew on STS-33, STS-49, STS-61 and STS-73.

Cumulative hours of space flight are more than 975.

Cumulative EVA time is more than 21 hours.

### **THORNTON, William E.**, Civilian

Born April 14, 1929, in Faison, North Carolina.

Bachelor of science in physics and doctorate of medicine from University of North Carolina.

Flew on STS-8 and STS-51B.

Cumulative hours of space flight are more than 313.

### **THUOT, Pierre J.**, Commander, U.S. Navy

Born May 19, 1955, in Groton, Connecticut. Hometowns, Fairfax, Virginia and New Bedford, Massachusetts.

Bachelor of science in physics from U.S. Naval Academy; master of science in systems management from University of Southern California.

Flew on STS-36, STS-49 and STS-62.

Cumulative hours of space flight are more than 654.

Cumulative EVA time is more than 17 hours.

## FORMER U.S. ASTRONAUTS

**TRULY, Richard H.**, Vice Admiral, U.S. Navy (Retired)

Born November 12, 1937, in Fayette, Mississippi.

Bachelor of aeronautical engineering from Georgia Institute of Technology.

Flew on Space Shuttle approach and landing tests 2 and 4, STS-2, and STS-8.

Cumulative hours of space flight are more than 199.

**van HOFTEN, James D. A.**, Civilian

Born June 11, 1944, in Fresno, California.

Bachelor of science in civil engineering from University of California at Berkeley;  
master of science in hydraulic engineering and doctorate of philosophy in fluid  
mechanics from Colorado State University.

Flew on STS 41-C and STS 51-L.

Cumulative hours of space flight are more than 337.

Cumulative EVA time is more than 21 hours.

**WALKER, David M.**, Captain, U.S. Navy

Born May 20, 1944, in Columbus, Georgia. Hometown, Eustis, Florida.

Bachelor of science from U.S. Naval Academy.

Flew on STS 51-A, STS-30, STS-53 And STS-69.

Cumulative hours of space flight are more than 724.

**WEITZ, Paul J.**, Captain, U.S. Navy (Retired)

Born July 25, 1932, in Erie, Pennsylvania.

Bachelor of science in aeronautical engineering from Pennsylvania State  
University; master of science in aeronautical engineering from U.S. Naval  
Postgraduate School.

Flew on Skylab 2 and STS-6.

Cumulative hours of space flight are more than 793.

**WILLIAMS, Donald E.**, Captain, U.S. Navy (Retired)

Born February 13, 1942, in Lafayette, Indiana.

Bachelor of science in mechanical engineering from Purdue University.

Flew on STS 51-D and STS-34.

Cumulative hours of space flight are more than 287.

**WORDEN, Alfred M.**, Colonel, U.S. Air Force (Retired)

Born February 7, 1932, in Jackson, Michigan.

Bachelor of science in military science from U.S. Military Academy; master  
of science in astronautical and aeronautical engineering and instrumentation  
engineering from University of Michigan.

Flew on Apollo 15.

Cumulative hours of space flight are more than 295.

Cumulative EVA time is more than 39 minutes.

## DECEASED ASTRONAUTS

**BASSETT, Charles A., II**, Captain, U.S. Air Force

Born December 30, 1931, in Dayton, Ohio.

Bachelor of science in electrical engineering from Texas Technological College.

Died February 28, 1966, in St. Louis, Missouri, in the crash of a T-38 jet.

**CARTER, Manley Lanier, Jr., "Sonny,"** Captain, U.S. Navy

Born August 15, 1947, in Macon, Georgia.

Bachelor of arts in chemistry and doctorate of medicine from Emory University.

Flew on STS-33.

Cumulative hours of space flight are more than 120.

Died April 5, 1991, near New Brunswick, Georgia, in the crash of a commercial airliner while on NASA business travel.

**CHAFFEE, Roger B.**, Lieutenant Commander, U.S. Navy

Born February 15, 1935, in Grand Rapids, Michigan.

Bachelor of science in aeronautical engineering from Purdue University.

Died January 27, 1967, at NASA John F. Kennedy Space Center, Florida, in the Apollo spacecraft fire.

**EISELE, Donn F.**, Colonel, U.S. Air Force (Retired)

Born June 23, 1930, in Columbus, Ohio.

Bachelor of science in astronautics from U.S. Naval Academy; master of science in astronautics from U.S. Air Force Institute of Technology.

Flew on Apollo 7.

Cumulative hours of space flight are more than 260.

Died December 2, 1987, in Tokyo, Japan, of a heart attack.

**EVANS, Ronald E.**, Captain, U.S. Navy (Retired)

Born November 10, 1933, in St. Francis, Kansas.

Bachelor of science in electrical engineering from University of Kansas; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Flew on Apollo 17.

Cumulative hours of space flight are more than 301.

Cumulative EVA time is more than 1 hour.

Died April 6, 1990, in Scottsdale, Arizona, of a heart attack.

**FREEMAN, Theodore C., Captain**, U.S. Air Force

Born February 18, 1930, in Haverford, Pennsylvania.

Bachelor of science from U.S. Naval Academy; master of science in aeronautical engineering from University of Michigan.

Died October 31, 1964, at Ellington Air Force Base, Houston, Texas, in the crash of a T-38 jet.

## DECEASED ASTRONAUTS

**GIVENS, Edward G., Jr.**, Major, U.S. Air Force

Born January 5, 1930, in Quanah, Texas.

Bachelor of science in naval sciences from U.S. Naval Academy.

Died June 6, 1967, near Houston, Texas, in an automobile accident.

**GRIGGS, S. David**, Civilian

Born September 7, 1939, in Portland, Oregon.

Bachelor of science from U.S. Naval Academy; master of science in administration from George Washington University.

Flew on STS 51-D.

Cumulative hours of space flight are more than 167.

Cumulative EVA time is more than 3 hours.

Died June 17, 1989, near Earle, Arkansas, in the crash of a World War II era training plane.

**GRISSOM, Virgil I.**, Lieutenant Colonel, U.S. Air Force

Born April 3, 1926, in Mitchell, Indiana.

Bachelor of science in mechanical engineering from Purdue University.

Flew on Mercury 4 and Gemini 3.

Cumulative hours of space flight are more than 5.

Died January 27, 1967, at NASA John F. Kennedy Space Center, Florida, in the Apollo spacecraft fire.

**HENIZE, Karl G.**, Civilian

Born October 17, 1926, in Cincinnati, Ohio.

Bachelor of arts in mathematics from University of Virginia; master of arts in astronomy from University of Virginia; doctorate of philosophy in astronomy from University of Michigan.

Flew on STS 51-F.

Cumulative hours of space flight are more than 190.

Died October 5, 1993, of respiratory and heart failure during a climb of Mount Everest.

**IRWIN, James B.**, Colonel, U.S. Air Force (Retired)

Born March 17, 1930, in Pittsburgh, Pennsylvania.

Bachelor of science in naval science from U.S. Naval Academy; master of science in aeronautical engineering and instrumentation engineering from University of Michigan.

Flew on Apollo 15.

Cumulative hours of space flight are more than 2,952.

Cumulative EVA time is more than 18 hours.

Died August 8, 1991, of a heart attack.

## DECEASED ASTRONAUTS

**McNAIR, Ronald E.**, Civilian

Born October 21, 1950, in Lake City, South Carolina.  
Bachelor of science in physics from North Carolina A&T State College; doctorate of philosophy in physics from Massachusetts Institute of Technology.  
Flew on STS 41-B.  
Cumulative hours of space flight are more than 191.  
Died January 28, 1986, in the STS 51-L accident.

**ONIZUKA, Ellison S.**, Lieutenant Colonel, U.S. Air Force

Born June 24, 1946, in Kealahou, Kona, Hawaii.  
Bachelor and master of science in aerospace engineering from University of Colorado.  
Flew on STS 51-C.  
Cumulative hours of space flight are more than 73.  
Died January 28, 1986, in the STS 51-L accident.

**OVERMYER, Robert F.**, Colonel, U.S. Marine Corps (Retired)

Born July 14, 1936, in Lorain, Ohio.  
Bachelor of science in physics from Baldwin Wallace College; master of science in aeronautics from U.S. Naval Postgraduate School.  
Flew on STS-5 and STS 51-B.  
Cumulative hours of space flight are more than 290.  
Died March 22, 1996, in the crash of a light aircraft he was testing.

**RESNIK, Judith A.**, Civilian

Born April 5, 1949, in Akron, Ohio.  
Bachelor of science in electrical engineering from Carnegie-Mellon University; doctorate of philosophy in electrical engineering from University of Maryland.  
Flew on STS 41-D.  
Cumulative hours of space flight are more than 144.  
Died January 28, 1986, in the STS 51-L accident.

**ROOSA, Stuart A.**, Colonel, U.S. Air Force (Retired)

Born August 16, 1933, in Durango, Colorado.  
Bachelor of science in aeronautical engineering from University of Colorado.  
Flew on Apollo 14.  
Cumulative hours of space flight are more than 216.  
Died December 12, 1994, due to complications of pancreatitis.

**SCOBEE, Francis R.**, Major, U.S. Air Force (Retired)

Born May 19, 1939, in Cle Elum, Washington.  
Bachelor of science in aerospace engineering from University of Arizona.  
Flew on STS 41-C.  
Cumulative hours of space flight are more than 167.  
Died January 28, 1986, in the STS 51-L accident.

## DECEASED ASTRONAUTS

**SEE, Elliot M., Jr.,** Civilian

Born July 23, 1927, in Dallas, Texas.

Bachelor of science from U.S. Merchant Marine Academy; master of science in engineering from University of California at Los Angeles.

Died February 28, 1966, in St. Louis, Missouri, in the crash of a T-38 jet.

**SHEPARD, Alan B., Jr.,** Rear Admiral, U.S. Navy (Retired)

Born November 18, 1923, in East Derry, New Hampshire.

Bachelor of science from U.S. Naval Academy.

Flew on Mercury 3 and Apollo 14.

Cumulative hours of space flight are more than 216.

Cumulative EVA time is more than 9 hours.

Died July 21, 1998, after a lengthy illness.

**SLAYTON, Donald K.,** Major, U.S. Air Force Reserve

Born March 1, 1924, in Sparta, Wisconsin.

Bachelor of science in aeronautical engineering from University of Minnesota.

Flew on Apollo-Soyuz Test Project.

Cumulative hours of space flight are more than 217.

Died June 13, 1993, in League City, Texas, from complications of a brain tumor.

**SMITH, Michael J.,** Captain, U.S. Navy

Born April 30, 1945, in Beaufort, North Carolina.

Bachelor of science in naval science from U.S. Naval Academy; master of science in aeronautical engineering from U.S. Naval Postgraduate School.

Died January 28, 1986, in the STS 51-L accident.

**SWIGERT, John L., Jr.,** Civilian

Born August 30, 1931, in Denver, Colorado.

Bachelor of science in mechanical engineering from University of Colorado;

master of science in aerospace science from Rensselaer Polytechnic Institute;

master of business administration from Hartford College.

Flew on Apollo 13.

Cumulative hours of space flight are more than 142.

Died December 27, 1982, of cancer.

**THORNE, Stephen D.,** Lieutenant Commander, U.S. Navy

Born February 11, 1953, in Frankfurt-am-Main, West Germany.

Bachelor of science in engineering from U.S. Naval Academy.

Died May 24, 1986, in Alta Loma, Texas, in an airplane crash.

**VEACH, Charles Lacy,** Civilian

Born September 18, 1944, in Chicago, Illinois. Hometown, Honolulu, Hawaii.

Bachelor of science in engineering management from U.S. Air Force Academy.

Flew on STS-39 and STS-52.

Cumulative hours of space flight are more than 436.

Died October 3, 1995, following a lengthy illness.

## DECEASED ASTRONAUTS

**WHITE, Edward H., II**, Lieutenant Colonel, U.S. Air Force

Born November 14, 1930, in San Antonio, Texas.

Bachelor of science from U.S. Military Academy; master of science in aeronautical engineering from University of Michigan.

Flew on Gemini 4.

Cumulative hours of space flight are more than 97.

Cumulative EVA time is more than 23 minutes.

Died January 27, 1967, at NASA John F. Kennedy Space Center, Florida, in the Apollo spacecraft fire.

**WILLIAMS, Clifton C., Jr.**, Major, U.S. Marine Corps

Born September 26, 1932, in Mobile, Alabama.

Bachelor of science in mechanical engineering from Auburn University.

Died October 5, 1967, near Tallahassee, Florida, in the crash of a T-38 jet.

## U.S. ASTRONAUT SELECTION BY GROUPS

**GROUP 1** — Mercury Astronauts, April 1959: Carpenter, Cooper, Glenn, Grissom, Schirra, Shepard, Slayton (7)

**GROUP 2** — Pilot Astronauts, September 1962: Armstrong, Borman, Conrad, Lovell, McDivitt, See, Stafford, White, Young (9)

**GROUP 3** — Pilot Astronauts, October 1963: Aldrin, Anders, Bassett, Bean, Cernan, Chaffee, M. Collins, Cunningham, Eisele, Freeman, Gordon, Schweickart, D. Scott, C. Williams (14)

**GROUP 4** — Scientist Astronauts, June 1965: Garriott, E. Gibson, Graveline, Kerwin, Michel, Schmitt (6)

**GROUP 5** — Pilot Astronauts, April 1966: Brand, Bull, Carr, Duke, Engle, Evans, Givens, Haise, Irwin, Lind, Lousma, Mattingly, McCandless, Mitchell, Pogue, Roosa, Swigert, Weitz, Worden (19)

**GROUP 6** — Scientist Astronauts, August 1967: J. Allen, Chapman, England, Henize, Holmquest, Lenoir, Llewellyn, Musgrave, O'Leary, Parker, W. Thornton (11)

**GROUP 7** — Air Force Manned Orbiting Laboratory Astronauts, August 1969: Bobko, Crippen, Fullerton, Hartsfield, Overmyer, Peterson, Truly (7)

**GROUP 8** — Pilots and Mission Specialists, January 1978: Bluford, Brandenstein, Buchli, Coats, Covey, Creighton, Fabian, A. Fisher, D. Gardner, R. Gibson, F. Gregory, Griggs, Hart, Hauck, Hawley, Hoffman, Lucid, McBride, McNair, Mullane, Nagel, Nelson, Onizuka, Resnik, Ride, Scobee, Seddon, Shaw, Shriver, Stewart, Sullivan, Thagard, van Hoften, Walker, D. Williams (35)

**GROUP 9** — Pilots and Mission Specialists, January 1980: Bagian, Blaha, Bolden, Bridges, Chang-Díaz, Cleave, Dunbar, W. Fisher, G. Gardner, Grabe, Hilmers, Leestma, Lounge, O'Connor, Richards, Ross, Smith, Spring, Springer (19)

**GROUP 10** — Pilots and Mission Specialists, May 1984: Adamson, E. Baker, M. Brown, Cameron, Carter, Casper, Culbertson, Gutierrez, Hammond, Ivins, Lee, Low, McCulley, Shepherd, K. Thornton, Veach, Wetherbee (17)

**GROUP 11** — Pilots and Mission Specialists, June 1985: Apt, M. Baker, Cabana, Duffy, Gemar, Godwin, Henricks, Hieb, Jernigan, Meade, Oswald, Thorne, Thuot (13)

**GROUP 12** — Pilots and Mission Specialists, August 1987: Akers, A. Allen, Bowersox, C. Brown, Chilton, Davis, Foale, Harbaugh, Jemison, McMonagle, Melnick, Readdy, Reightler, Runco, James Voss (15)

## U.S. ASTRONAUT SELECTION BY GROUPS

**GROUP 13** — Pilots and Mission Specialists, January 1990: Bursch, Chiao, Clifford, Cockrell, E. Collins, W. Gregory, Halsell, Harris, Helms, Jones, McArthur, Newman, Ochoa, Precourt, Searfoss, Sega, Sherlock (Currie), D. Thomas, Janice Voss, Walz, Wilcutt, Wisoff, Wolf (23)

**GROUP 14** — Pilots and Mission Specialists, March 1992: Barry, Brady, Coleman, Gernhardt, Grunsfeld, Horowitz, Jett, Kregel, Lawrence, Linenger, Linnehan, Lopez-Alegria, Parazynski, Rominger, W. Scott, S. Smith, Tanner, A. Thomas, Weber (19)

**GROUP 15** — Pilots and Mission Specialists, January 1995: Altman, M. Anderson, Ashby, Bloomfield, Chawla, Curbeam, Edwards, Gorie, Hire, Husband, Kavandi, Lindsey, Lu, Melroy, Noriega, Reilly, Robinson, Still-Kilrain, Sturckow (19)

**GROUP 16** — Pilots and Mission Specialists, May 1996: D. Brown, Burbank, Cagle, Caldeiro, Camarda, Carey, Clark, Fincke, Forrester, Frick, Herrington, Higginbotham, Hobough, J. Kelly, M. Kelly, S. Kelly, Lockhart, Loria, Magnus, Massimino, Mastracchio, McCool, Morin, Nowak, Pettit, Phillips, Polansky, P. Richards, Sellers, Stefanyshyn-Piper, Tani, Walheim, Whitson, J. Williams, Wilson (35)

**Group 17** — Pilots and Mission Specialists, June 1998: C. Anderson, Archambault, Caldwell, Chamitoff, Creamer, Ferguson, Foreman, Fossum, Ham, Hilliard, G. C. Johnson, G. H. Johnson, Love, Melvin, Morgan, Oefelein, Olivas, Patrick, Poindexter, Reisman, Swanson, Wheelock, Williams, Woodward, Zamka (25)

## CONGRESSIONAL SPACE MEDAL OF HONOR

*In honor of NASA's 20th anniversary, President Jimmy Carter visited NASA John F. Kennedy Space Center on October 1, 1978, and awarded the first Congressional Space Medal of Honor to six former astronauts. Authorized by Congress in 1969, the award recognized "any astronaut who in the performance of his duties has distinguished himself by exceptionally meritorious efforts and contributions to the welfare of the Nation and mankind."*

These astronauts received this special honor:

**Neil A. Armstrong**, for actions to overcome problems on the Gemini 8 mission and for Apollo 11 when he took his "...giant leap for mankind."

**Frank Borman**, who commanded the Gemini 7 and Apollo 8 missions. The latter was the first manned spacecraft to orbit the Moon.

**Charles Conrad, Jr.**, who participated in four space flights of increasing duration, complexity and achievement: Gemini 5, Gemini 11, Apollo 12, and Skylab 2. On the first manned Skylab mission, he commanded the crew that performed repairs to the damaged orbital workshop, thus saving the two billion dollar program from potential failure.

**John H. Glenn, Jr.**, who in Mercury 6 was the first American to orbit the Earth. The success of his flight demonstrated the value of the human pilot in space.

**Virgil I. Grissom** (posthumously), the second American in space, who took part in Mercury and Gemini flights and lost his life during preparations for the first Apollo flight. He flew on Mercury 4 and Gemini 3.

**Alan B. Shepard, Jr.**, who was the first American in space, aboard Mercury 3. He also commanded the Apollo 14 mission.

**John W. Young**, who demonstrated leadership, courage, and technical skill in a space flight career that spanned two decades and five (at that time) space flights pivotal to human progress in space. He flew on Gemini 3, Gemini 10, Apollo 10, Apollo 16, and STS-1 prior to receipt of the medal which was presented May 19, 1981, by President Ronald Reagan.

**Thomas J. Stafford**, who commanded the first flight of the lunar module to the Moon and the American crew that rendezvoused with a Soviet spacecraft in 1975. He was recognized for his past contributions, and for continuing to serve the Nation in charting a future vision for our space program. He flew on Gemini 6 and 9, Apollo 10, and the Apollo-Soyuz Test Project. The medal was presented January 19, 1991, by Vice President Dan Quayle at the direction of President George Bush.

## CONGRESSIONAL SPACE MEDAL OF HONOR

**James A. Lovell**, who flew on Gemini 7 and 12, and Apollo 8 and 13, was presented the medal on July 26, 1995. In his remarks, President Bill Clinton especially commended Lovell for his performance on Apollo 13, which demonstrated, “the kind of resourcefulness, grit, and grace under pressure that is the province of heroes.”

**Shannon Lucid**, who spent 188 days in space on the U.S. shuttle and Russian space station Mir, was presented the medal on December 2, 1996. Noting that the medal is given out sparingly because it honors “extraordinary service to the nation,” President Bill Clinton added that “Dr. Lucid achieved that kind of service for 188 days this year, the longest flight by an American in space, the longest time for any woman of any nation in space, five shuttle missions altogether.”

## EDUCATIONAL INSTITUTIONS FROM WHICH U.S. ASTRONAUTS HAVE EARNED DEGREES

**Adelaide, University of, (Australia):**

A. Thomas

**Alabama, University of, (AL):** J. Kelly

**Alabama (Huntsville), University of,**

(AL): Davis

**Alabama (Birmingham), University of,**

(AL): Morin

**Amherst College (MA):** Hoffman, Parker

**Arizona, University of, (AZ):** Caldeiro,

Jones, Pettit, Scobee, Spring

**Auburn University (AL):** Davis,

Hartsfield, Mattingly, K. Thornton,

James Voss, C. Williams

**Baldwin-Wallace College (OH):**

Overmyer

**Baylor University (TX):** Holmquest

**California Institute of Technology (CA):**

Borman, Chamitoff, Fullerton,

E. Gibson, Meade, Michel, Parker,

Reisman, Schmitt, Searfoss

**California, University of, Berkeley (CA):**

Chiao, Jernigan, Lind, O'Leary,

Seddon, van Hoften, Walheim, Weber

**California, University of, Los Angeles**

(CA): Brand, Cunningham, A. Fisher,

Musgrave, Phillips, Robinson, See

**California Polytechnic State University**

(CA): Chamitoff, R. Gibson, Sturckow

**California, University of, Davis (CA):**

Caldwell, Robinson

**California, University of, Santa Barbara**

(CA): Chiao

**California, University of, Santa Cruz**

(CA): Hawley, Sullivan

**California State University, Fresno**

(CA):

Husband, McMonagle, Nagel

**California State University, Fullerton**

(CA): Caldwell

**California State University, Northridge**

(CA): Horowitz

**Cambridge University (UK):** Foale,

Patrick

**Carnegie-Mellon University (formerly  
Carnegie Institute of Technology) (PA):**

Resnik, Mitchell

**Case Western University (OH):**

D. Thomas

**Central Florida, University of (FL):**

Caldeiro

**City College of New York (NY):** Runco

**Chicago, University of, (IL):** Grunsfeld

**Colorado, University of, (CO):** Brand,

Carpenter, Chawla, Herrington, Hieb,

Ivins, Lounge, Onizuka, Roosa, Segal,

Swanson, Swigert, James Voss

**Colorado State University (CO):** Cleave,

Rominger, van Hoften

**Columbia University (NY):** Bowersox,

Chilton, W. Gregory, G. H. Johnson,

Massimino, Musgrave

**Connecticut, University of, (CN):**

Chang-Díaz, Mastracchio

**Cornell College (NY):** Hilmers

**Cornell University (NY):** E. Baker, Barry,

Jemison, Low, Lu, D. Thomas

**Creighton University (NE):** M. Anderson

**Dalhousie University (Nova Scotia):**

Sullivan

**Dartmouth College (NH):** Newman

**Depauw University (IN):** J. Allen

**Drexel University (PA):** Bagian,

Ferguson, P. Richards

**Duke University (NC):** Brady

**Eastern Virginia Medical School (VA):**

D. Brown

**Edinburgh, University of (Scotland):**

Sellers

**Embry-Riddle University (FL):** Burbank,

Still-Kilrain

**Emory University (GA):** Carter

**Florida Atlantic University (FL):**

Swanson

**Florida Institute of Technology (FL):**

Higginbotham, Hire, S. Williams,

Zamka

## EDUCATIONAL INSTITUTIONS FROM WHICH U.S. ASTRONAUTS HAVE EARNED DEGREES

**Florida, University of, (FL):** W. Fisher  
**Florida State University (FL):** W. Scott,  
Thagard

**Georgetown University (DC):** O'Leary

**George Washington University (DC):**  
Camarda, Coats, Creighton, F.  
Gregory, Griggs

**Georgia Institute of Technology (GA):**  
Clifford, Davis, Hammond, Horowitz,  
Mangus, McArthur, Poindexter,  
Still-Kilrain, Truly, Wheelock, Young

**Golden Gate University (CA):** Henricks,  
Precourt

**Hartford College (CT):** Swigert

**Harvard College (MA):** Apt

**Harvard University (MA):** Hoffman,  
Schmitt, Wilson

**Harvey Mudd College (CA):** Love,  
Nelson

**Hastings College (NE):** C. Anderson

**Holy Cross, College of the, (MA):**  
Kerwin

**Houston, University of, (TX):** Bluford,  
Cheli, Currie, Dunbar, W. Fisher,  
Harbaugh, Harris, Holmquest,  
Mastracchio, McCandless, Musgrave,  
Olivas, Walheim

**Houston, University of, Clear Lake  
(TX):** Fossum

**Idaho, University of, (ID):** Ashby

**Illinois, University of, (IL):**  
Altman, Archambault, D. Gardner,  
Higginbotham, Nagel, Tanner

**Indiana University, (IN):** Wolf

**Iowa State University (IA):** C. Anderson

**Iowa Wesleyan College (IA):** Whitson

**John Carroll University (MT):** Walz

**Johns Hopkins University (MD):**  
Graveline

**Kansas, University of, (KS):**  
Engle, Evans, Hawley

**Kent State University (OH):** Walz

**Kentucky, University of, (KY):** Musgrave

**Leeds University (United Kingdom):**  
Sellers

**Lehigh University (PA):** Hart

**Loyola College (MD):** Creamer

**Marietta College (OH):** Musgrave

**Maryland, University of, (MD):**  
McCool, Resnik, P. Richards

**Massachusetts Institute of Technology  
(MA):** Aldrin, Apt, Cameron, Chamitoff,  
Chang-Díaz, Chapman, Coleman,  
Creamer, Duke, Fincke, England,  
Grunsfeld, Hart, Hauck, Lawrence,  
Lee, Lenoir, Massimino, McNair,  
Melroy, Mitchell, Patrick, Schweickart,  
D. Scott, Shepherd, Stefanyshyn-  
Piper, Tani, Janice Voss, Woodward

**Massachusetts, University of (MA):**  
Coleman

**Miami, University of (FL):** Barry

**Michigan, University of, (MI):**  
Freeman, Henize, Irwin, Lousma,  
McDivitt, White, Worden

**Minnesota, University of, (MN):**  
Carey, Slayton

**Missouri, University of, (MO):**  
Godwin, Richards

**Missouri, University of, Rolla (MO):**  
Akers, Mangus

**Missouri Southern State College (MO):**  
Kavandi

**Muskingum College (OH):** Glenn

**New Hampshire, University of (NH):**  
Linnehan, Morin

**New York University, (NY):** Morin

**North Carolina, University of, (NC):**  
Brady, Linenger, W. Thornton

**North Carolina Agricultural & Technical  
State University (NC):** McNair

**Northwest Nazarene College (ID):** Hieb

**Northwestern University (IL):** Kerwin

**Notre Dame, University of, (IN):**  
Wetherbee

**Ohio State (OH):** Currie, Linnehan, Sega

## EDUCATIONAL INSTITUTIONS FROM WHICH U.S. ASTRONAUTS HAVE EARNED DEGREES

**Oklahoma, University of, (OK):**

Garriott, Haise, Lucid

**Oklahoma Baptist University (OK):**

Pogue

**Oklahoma City University (OK):** Cooper

**Oklahoma State University (OK):** Pogue

**Old Dominion University (VA):**

Bloomfield

**Oregon State University (OR):**

Oefelein, Pettit

**Pennsylvania, Medical College of (PA):**

Hilliard

**Pennsylvania State University (PA):**

Bluford, Weitz

**Pennsylvania, University of (PA):**

Gernhardt, Hilliard, Reisman

**Princeton University (NJ):** Adamson,

Barry, Carr, Conrad

**Polytechnic Institute of New York (NY):**

Camarda

**Punjab Engineering College (India):**

Chawla

**Purdue University (IN):** Armstrong,

Blaha, Bridges, M. Brown, Casper,  
Cernan, Chaffee, Covey, G. Gardner,  
Grissom, Harbaugh, McCulley,  
Polansky, Ross, Shriver, Janice Voss,  
Weber, D. Williams, Wolf

**Rensselaer Polytechnic Institute (NY):**

Mastracchio, Swigert

**Rice University (TX):** Bull, Hoffman,

Jernigan, Newman, Olivas, Whitson

**Richmond, University of (VA):** Melvin

**Rochester, University of, (NY):**

E. Gibson

**Rutgers University (NJ):** Hart, Runco

**San Diego State University (CA):** Ochoa

**San Francisco University (CA):** Cagle

**Southeast Missouri State University**

**(MO):** Godwin

**Southern California, University of,**

**(CA):** Armstrong, Bobko, Bolden, Carr,  
Currie, Duffy, Linenger, Noriega,  
Reightler, Thuot

**Southern Methodist University (TX):**

Holmquest

**Southern Mississippi, University of,**

**(MS):** Stewart

**Stanford University (CA):** Bull,

E. Collins, Fincke, W. Fisher, Garriott,  
Helms, Jemison, Jernigan, Low, Lu,  
McCandless, Morgan, Ochoa,  
Parazynski, Ride, Robinson, S. Smith,  
Wisoff

**State University of New York (NY):**

E. Baker

**State University of New York-**

**Farmingdale (NY):** Caldeiro

**State University of New York Maritime**

**College (NY):** S. Kelly

**Sydney, University of, (Australia):**

Chapman

**Syracuse University (NY):**

E. Collins, Musgrave

**Tennessee, University of, (TN):**

Ashby, Edwards, Gorie, Hartsfield,  
Seddon, S. Kelly

**Texas, University of, (TX):** M. Baker,

Bean, Cockrell, Crippen, Lockhart,  
Meade, Thagard, Wilson, Woodward

**Texas, University of, Arlington (TX):**

Chawla, Stewart

**Texas, University of, Dallas (TX):** Reilly

**Texas, University of, El Paso (TX):**

Olivas

**Texas, University of, School of Public**

**Health (TX):** E. Baker

**Texas A&M University (TX):**

Fossum, Swanson

**Texas Tech University (TX):**

Bassett, Harris, Husband, Lockhart

**Thomas Jefferson University (PA):**

Bagian

**Troy State (AL):** W. Gregory, Halsell,

Kregel

**Tufts University (MA):** Hauck

**Vanderbilt University (TN):** Gernhardt

**Vermont, University of, (VT):** Graveline

## EDUCATIONAL INSTITUTIONS FROM WHICH U.S. ASTRONAUTS HAVE EARNED DEGREES

**Virginia, University of (VA):** Melvin  
**University College at Cardiff (Wales):**  
Llewellyn

**University of Tennessee Space  
Institute (TN):** Oefelein

**Utah, University of, (UT):** Lind

**Utah State University (UT):** Cleave

**Villanova University (PA):** A. Allen

**Virginia, University of, (VA):** Forrester,  
Henize, K. Thornton, Wisoff

**Virginia Polytechnic State University,**  
Camarda

**Washington, University of, (WA):**

M. Anderson, Cagle, Dunbar, Fabian,  
Gordon, G. C. Johnson, Kavandi,  
Love, Nelson

**Washington and Lee University (VA):**  
Low

**Washington State University (WA):**  
Fabian

**Wayne State University (NE):** Linenger  
**Webster University (MO):**

E. Collins, Gutierrez

**Wellesley College:** Melroy

**West Florida, University of, (FL):**

Buchli, Cockrell, Melnick, O'Connor,  
Phillips, Richards

**Western Kentucky University (KY):**

Wilcutt

**William & Mary, College of (VA):**

D. Brown

**Williams College (MA):** O'Leary

**Wisconsin, University of, (WI):** Clark,  
Shaw

**Wisconsin, University of, River Falls  
(WI):** Brandenstein

**Yale University (CT):** J. Allen

## UNITED STATES SERVICE ACADEMIES FROM WHICH ASTRONAUTS EARNED DEGREES

### **U.S. Air Force Academy:**

Blaha, Bloomfield, Bobko, Bridges,  
C. Brown, Casper, Chilton, Covey,  
Duffy, G. Gardner, Grabe, F. Gregory,  
W. Gregory, Gutierrez, Halsell,  
Hammond, Helms, Henricks,  
G. H. Johnson, Jones, J. Kelly, Kregel,  
Lee, Lindsey, McMonagle, Precourt,  
Searfoss, Sega, Shriver, Veach

### **U.S. Air Force Institute of Technology:**

Anders, Bluford, M. Brown, Cooper,  
Eisele, Fabian, Fossum, Halsell,  
Lindsey, Mullane, Peterson

### **U.S. Coast Guard Academy:**

Burbank, Melnick

### **U.S. Merchant Marine Academy:**

M. Kelly, See

### **U.S. Military Academy:**

Adamson, Aldrin, Borman, Clifford,  
M. Collins, Forrester, Gemar,  
McArthur, Mullane, Peterson,  
D. Scott, Spring, Wheelock, White,  
J. Williams, Worden

### **U.S. Naval Academy:**

Anders, Bolden, Bowersox, Buchli,  
Bursch, Cabana, Coats, Creighton,  
Culbertson, Curbeam, Duke, Edwards,  
Eisele, Foreman, Freeman, Frick,  
Givens, Gorie, Griggs, Ham, Hire,  
Hobaugh, Irwin, Jett, Lawrence,  
Leestma, Linenger, Lopez-Alegria,  
Loria, Lounge, Lovell, McCandless,  
McCool, Nowak, O'Connor, Oswald,  
Phillips, Readdy, Reightler, Schirra,  
Shepard, Shepherd, M. Smith,  
Springer, Stafford, Thorne, Thuot,  
Walker, S. Williams, Zamka

### **U.S. Naval Postgraduate School:**

Altman, Bursch, Carr, Cernan, Coats,  
Curbeam, Evans, Ferguson, Foreman,  
Frick, Ham, Herrington, Hilmers, Jett,  
M. Kelly, Leestma, Lopez-Alegria,  
Lousma, McBride, McCool, Mitchell,  
Noriega, Nowak, Overmyer,  
Poindexter, Reightler, Rominger,  
W. Scott, M. Smith, Springer, Weitz,  
J. Williams

### **U.S. Naval War College:**

J. Williams

## U.S. ASTRONAUTS' BIRTHPLACES BY STATE\*

**ALABAMA:** Hartsfield, Hire, Jemison,  
G. H. Johnson, K. Thornton,  
James Voss, C. Williams

**ARIZONA:** Creamer, S. Smith

**ARKANSAS:** Covey, Parazyński

**CALIFORNIA:** Caldwell, Chilton, Clifford,  
Coats, Hauck, Lindsey, Love, McCool,  
McCulley, Melroy, Morgan, Ochoa,  
O'Connor, Olivás, Poindexter, Ride,  
Robinson, Sturckow, van Hoften,  
Walheim, Young

**COLORADO:** Brand, Carpenter, Carr,  
Lounge, Rominger, Roosa, Swigert

**CONNECTICUT:** Barry, Burbank,  
Mastracchio, Spring, Thuot

**DELAWARE:** Currie

**DISTRICT OF COLUMBIA:** F. Gregory,  
Stewart

**FLORIDA:** Davis, Lawrence, Lenoir,  
Richards, W. Scott, Thagard

**GEORGIA:** Bridges, Carter, Hammond,  
Still, Walker

**HAWAII:** Onizuka

**ILLINOIS:** Altman, Archambault, Cernan,  
Grunsfeld, Higginbotham, Kerwin,  
Magnus, Mattingly, McDivitt, Meade,  
Nagel, Tanner, Veach, Woodward

**INDIANA:** J. Allen, Borman, M. Brown,  
England, Grissom, Reilly, Ross, Janice  
Voss, D. Williams, Wolf

**IOWA:** Clark, Cunningham, Hilmers,  
J. Kelly, Nelson, Shriver, Whitson

**KENTUCKY:** Wilcutt

**KANSAS:** Engle, Evans, Hawley

**LOUISIANA:** Gorie, Halsell

**MAINE:** Hobaugh

**MARYLAND:** Curbeam, Ivins, Jones,  
Reightler

**MASSACHUSETTS:** Apt, Duffy,  
Linnehan, Loria, McCandless,  
Musgrave, O'Leary, Precourt

**MICHIGAN:** Bloomfield, Chaffee, Jett,  
Leestma, Linenger, Lousma,  
McMonagle, Searfoss, Shaw, Wilson,  
Worden

**MINNESOTA:** Cabana, Carey,  
D. Gardner, Stefanyshyn-Piper

**MISSISSIPPI:** Haise, Peterson, Truly

**MISSOURI:** Akers, Godwin, Kavandi,  
Springer

**NEBRASKA:** C. Anderson

**NEW HAMPSHIRE:** Morin, Shepard

**NEW JERSEY:** Aldrin, Ham, M. Kelly,  
S. Kelly, Polansky, Reisman, Schirra,  
Schweickart, Sullivan, Zamka

**NEW MEXICO:** Gutierrez, Schmitt

**NEW YORK:** Adamson, M. Anderson,  
Bobko, Cagle, Camarda, Cleave,  
E. Collins, A. Fisher, Fullerton,  
E. Gibson, R. Gibson, Grabe,  
W. Gregory, Hoffman, Kregel,  
Massimino, Melnick, Parker, Runco,  
Swanson, Wetherbee, Wheelock

**NORTH CAROLINA:** E. Baker, Brady,  
C. Brown, Duke, Helms, McArthur,  
Smith, W. Thornton

**NORTH DAKOTA:** Buchli, Hieb

**OHIO:** Armstrong, Bassett, Cameron,  
Eisele, Foreman, Gernhardt, Glenn,  
Harbaugh, Henize, Henricks, Lovell,  
Low, Overmyer, Resnik, Sega,  
D. Thomas, Walz, Weber, Williams

\*See biographical sketches for city

## U.S. ASTRONAUTS' BIRTHPLACES BY STATE\*

**OKLAHOMA:** Cooper, Garriott,  
Herrington, Pogue, Stafford

**OREGON:** Griggs, Petit

**PENNSYLVANIA:** A. Allen, Bagian,  
Bluford, Bursch, Conrad, Ferguson,  
Fincke, Freeman, Frick, Hart, Hilliard,  
Horowitz, Irwin, P. Richards, Tani,  
Weitz

**RHODE ISLAND:** Readdy

**SOUTH CAROLINA:** Bolden, Casper,  
Coleman, Culbertson, McNair

**SOUTH DAKOTA:** Gemar, Fossum

**TENNESSEE:** M. Baker, Bull, Jernigan,  
Seddon, Shepherd

**TEXAS:** Ashby, Bean, Blaha, Cockrell,  
Creighton, Crippen, Fabian, W. Fisher,  
Forrester, Givens, Harris, Holmquest,  
Husband, Lockhart, Mitchell, Mullane,  
D. Scott, See, White

**UTAH:** Lind

**VERMONT:** Graveline

**VIRGINIA:** Bowersox, D. Brown,  
Edwards, G. Gardner, Melvin,  
Oefelein, Phillips, Wisoff

**WASHINGTON DC:** Nowak

**WASHINGTON:** Dunbar, Gordon,  
G. C. Johnson, Oswald, Patrick,  
Scobee

**WEST VIRGINIA:** McBride

**WISCONSIN:** Brandenstein, Chiao, Lee,  
Michel, Slayton, J. Williams

\*See biographical sketches for city

## ASTRONAUTS BORN IN OTHER COUNTRIES\*

*(Includes International Astronauts)*

<b>ARGENTINA:</b>	Caldeiro	<b>ICELAND:</b>	Tryggvason
<b>AUSTRALIA:</b>	Chapman, A. Thomas	<b>ITALY:</b>	Cheli, M. Collins, Guidoni, Nespoli, Vittori
<b>BRAZIL:</b>	Pontes	<b>JAPAN:</b>	Doi, Mohri, Wakata, Noguchi
<b>CANADA:</b>	Chamitoff, Garneau, Hadfield, MacLean, Payette, Williams	<b>MOROCCO:</b>	Perrin
<b>CHINA:</b>	Lucid	<b>PACIFIC ISLANDS:</b>	Newman
<b>COSTA RICA:</b>	Chang-Díaz	<b>PERU:</b>	Noriega
<b>ENGLAND:</b>	Foale, G.H. Johnson, Sellers, Patrick	<b>RUSSIA:</b>	Krikalev, Titov
<b>FRANCE:</b>	Clervoy, Eyharts, Perrin, Chrétien, Tognini	<b>SPAIN:</b>	Duque, Lopez-Alegria
<b>GERMANY:</b>	Schlegel Thiele, Thorne	<b>SWEDEN:</b>	Fuglesang
<b>HONG KONG:</b>	Chawla	<b>SWITZERLAND:</b>	Nicollier
		<b>THE NETHERLANDS:</b>	Ockels
		<b>WALES:</b>	Llewellyn

\*See biographical sketches for city

## ASTRONAUTS' SCOUTING RECORDS

*(Includes International Astronauts)*

Of the 293 former and current astronauts, 201 have taken part in Scouting.

### **EAGLE:**

Adamson, Armstrong, Bagian, Bluford, Bowersox, Brady, Carr, Carter, Chaffee, Chamitoff, Covey, Creighton, Duke, Eisele, Forrester, Fossum, Fullerton, W. Gregory, Griggs, Hoffman, G.H. Johnson, Jones, Lee, Lind, Lindsey, Llewellyn (King's Scout, U.K.), Lovell, McCool, McCulley, O'Leary, Onizuka, Oswald, Parazynski, Pettit, Reightler Searfoss, See, Tanner, Truly, D. Walker

### **LIFE:**

Anders, M. Baker, Bassett, Brand, Bridges, D. Brown, Casper, Cooper, Evans, Fabian, G. Gardner, Givens, F. Gregory, Kregel, Low, Mattingly, McArthur, Mitchell, Poindexter, Robinson, D. Scott, Spring, Springer, van Hoften, C. Williams

### **STAR:**

Barry, Cameron, England, W. Fisher, Garriott, R. Gibson, Gordon, Grissom, Haise, Lounge, McNair, Noguchi, Stafford

### **1st Class:**

J. Allen, Anderson, Bean, Bloomfield, Camarda, Clifford, Coats, Edwards, Engle, Freeman, Foreman, D. Gardner, E. Gibson, Hammond, Henize, Herrington, Linnehan, Nelson, Oelelein, Overmyer, Reilly, Schirra, Schweickart, W. Scott, Shepard, Veach, Worden

### **2nd Class:**

Altman, Bolden, Buchli, Carpenter, Cernan, Culbertson, Husband, Mullane, Parker, Pogue, Shriver, Swigert, W. Thornton, White, Woodward, Young

### **TENDERFOOT:**

Aldrin, Bursch, Frick, Hawley, Lousma, Love, McDivitt, Michel, P. Richards, Schmitt, S. Smith

### **EXPLORER:**

O'Connor, D. Williams

### **GIRL SCOUT:**

Cagle, Clark, E. Collins, Currie, Davis, A. Fisher, Helms, Higginbotham, Hire, Jernigan, Lawrence, Magnus, Morgan, Nowak, Seddon, Stefanyshyn-Piper, Still-Kilrain, Sullivan, K. Thornton, Janice Voss, Weber

### **CUB SCOUT:**

A. Allen, C. Brown, Burbank, Carey, Conrad, Duffy, Foale (Wolf, Germany), Gernhardt, Hadfield, Henricks, Hobaugh, M. Kelly, S. Kelly, Leestma, Lopez-Alegria, Loria, Massimino, McBride, Meade, Musgrave, Phillips, Readdy, Rominger, Sellers (Wolf), Shepherd, Thomas, Thuot, D.R. Williams, Wolf

### **WEBELO:**

M. Anderson, Fincke, Gorie, J. Kelly, Loria, Massimino, Noriega, Olivas

### **RANK UNKNOWN:**

Bull, Clervoy, Garneau, Harris, Morin, Polansky, Sellers, James Voss

## **CURRENT U.S. ASTRONAUTS IN ACTIVE MILITARY SERVICE**

### **AIR FORCE:**

M. Anderson, Archambault, Bloomfield,  
C. Brown, Coleman, E. Collins, Duffy,  
Fincke, W. Gregory, Halsell, Helms,  
Horowitz, Husband, G. H. Johnson,  
J. Kelly, Lee, Lindsey, Lockhart,  
Melroy, Precourt, Ross, Searfoss,  
Walheim, Walz

### **AIR FORCE RESERVES:**

Fossum, Kregel

### **ARMY:**

Currie, Creamer, Forrester, McArthur,  
James Voss, J. Williams, Wheelock

### **COAST GUARD:**

Burbank

### **MARINE CORPS:**

Cabana, Hobaugh, Loria, Noriega,  
Sturckow, Wilcutt, Zamka

### **NAVY:**

Altman, Ashby, M. Baker, Bowersox,  
Brady, D. Brown, Bursch, Clark,  
Culbertson, Curbeam, Edwards,  
Ferguson, Foreman, Frick, Gorie,  
Ham, Herrington, Jett, M. Kelly,  
Lawrence, Lopez-Alegria, Oefelein,  
Poindexter, Rominger,  
W. Scott, Shepherd, Still-Kilrain,  
Wetherbee, S. Williams, Woodward

### **NAVY RESERVES:**

Cockrell, Hire, G.C. Johnson, Oswald,  
Phillips, Raddy, P. Richards, Tanner

## U.S. HUMAN SPACE FLIGHT LOG

Mission	Crew	Date	Mission elapsed time (MET), hr:min:sec	Cumulative U.S. man-hr. in space, hr:min:sec
Mercury-Redstone 3	Shepard	May 5, 1961	00:15:22	00:15:22
Mercury-Redstone 4	Grissom	July 21, 1961	00:15:37	00:30:59
Mercury-Atlas 6	Glenn	Feb. 20, 1962	04:55:23	05:26:22
Mercury-Atlas 7	Carpenter	May 24, 1962	04:56:05	10:22:27
Mercury-Atlas 8	Schirra	Oct. 3, 1962	09:13:11	19:35:38
Mercury-Atlas 9	Cooper	May 15-16, 1963	34:19:49	53:55:27
Total - Project Mercury — 53:55:27				
Gemini-Titan III	Grissom, Young	Mar. 23, 1965	04:52:31	63:40:29
Gemini-Titan IV	McDivitt, White	June 3 to 7, 1965	97:56:12	259:32:53
Gemini-Titan V	Cooper, Conrad	Aug. 21 to 29, 1965	190:55:14	641:23:21
Gemini-Titan VII	Borman, Lovell	Dec. 4 to 18, 1965	330:35:01	1302:33:23
Gemini-Titan VI-A	Schirra, Stafford	Dec. 15 and 16, 1965	25:51:24	1354:16:11
Gemini-Titan VIII	Armstrong, D. Scott	Mar. 16, 1966	10:41:26	1375:39:03
Gemini-Titan IX-A	Stafford, Cernan	June 3 to 6, 1966	72:20:50	1520:20:43
Gemini-Titan X	Young, M. Collins	July 18 to 21, 1966	70:46:39	1661:54:01
Gemini-Titan XI	Conrad, Gordon	Sept. 12 to 15, 1966	71:17:08	1804:28:17
Gemini-Titan XII	Lovell, Aldrin	Nov. 11 to 15, 1966	94:34:31	1993:37:19
Total - Gemini Program — 1939:41:52				
Apollo-Saturn 7	Schirra, Eisele, Cunningham	Oct. 11-22, 1968	260:09:03	2774:04:28
Apollo-Saturn 8	Borman, Lovell, Anders	Dec. 21-27, 1968	147:00:42	3215:06:34
Apollo-Saturn 9	McDivitt, D. Scott, Schweickart	Mar. 3-13, 1969	241:00:54	3938:09:16
Apollo-Saturn 10	Stafford, Young, Cernan	May 18-26, 1969	192:03:23	4514:19:25
Apollo-Saturn 11	Armstrong, M. Collins, Aldrin	July 16-24, 1969	195:18:35	5100:15:10
Apollo-Saturn 12	Conrad, Gordon, Bean	Nov. 14-24, 1969	244:36:24	5834:04:22
Apollo-Saturn 13	Lovell, Swigert, Haise	Apr. 11-17, 1970	142:54:41	6262:48:25
Apollo-Saturn 14	Shepard, Roosa, Mitchell	Jan. 31-Feb. 9, 1971	216:01:58	6910:54:19
Apollo-Saturn 15	D. Scott, Worden, Irwin	Jul. 26-Aug. 7, 1971	295:11:53	7796:29:58
Apollo-Saturn 16	Young, Mattingly, Duke	Apr. 16-27, 1972	265:51:05	8594:03:13
Apollo-Saturn 17	Cernan, Evans, Schmitt	Dec. 7-19, 1972	301:51:59	9499:39:10
Total - Apollo Program - 7506:01:51				
Skylab SL-2	Conrad, Kerwin, Weitz	May 25-Jun. 22, 1973	672:49:49	11518:08:37
Skylab SL-3	Bean, Garriott, Lousma	Jul. 28-Sep. 25, 1973	1427:09:04	15799:35:49
Skylab SL-4	Carr, E. Gibson, Pogue	Nov. 16/73-Feb. 8/74	2017:16:00	21851:23:49
Total - Skylab Program — 12351:44:39				
Apollo-Soyuz Test Project (ASTP)	Stafford, Brand, Slayton	July 15 to 24, 1975	217:28:23	22503:48:58
Total ASTP — 652:25:09				

Source: NASA Historical Data Book Volumes 1 and 11

## U.S. HUMAN SPACE FLIGHT LOG

### Space Transportation System

Mission	Crew	Date	MET (lift-off to main gear touchdown), hr:min:sec	Cumulative U.S. man-hr. in space, hr:min:sec
STS-1	Young, Crippen	Apr. 12-14, 1981	54:20:53	22612:30:44
STS-2	Engle, Truly	Nov. 12-14, 1981	54:13:11	22720:57:06
STS-3	Lousma, Fullerton	Mar. 22-30, 1982	192:04:46	23105:06:38
STS-4	Mattingly, Hartsfield	Jun. 27-Jul. 4, 1982	169:09:31	23443:25:40
STS-5	Brand, Overmyer, J. Allen, Lenoir	Nov. 11-16, 1982	122:14:26	23932:23:24
STS-6	Weitz, Bobko, Peterson, Musgrave	Apr. 4-9, 1983	120:23:42	24413:58:12
STS-7	Crippen, Hauck, Ride, Fabian, Thagard	Jun. 18-24, 1983	146:23:59	25145:58:07
STS-8	Truly, Brandenstein, D. Gardner, Bluford, W. Thornton	Aug. 30-Sep. 5, 1983	145:08:43	25871:41:42
STS-9	Young, Shaw, Garriott, Parker, Lichtenberg, Merbold	Nov. 28-Dec. 8, 1983	247:47:24	27358:26:06
41-B	Brand, R. Gibson, McCandless, McNair, Stewart	Feb. 3-11, 1984	191:15:55	28314:45:41
41-C	Crippen, Scobee, van Hoften, G. Nelson, Hart	Apr. 6-13, 1984	167:40:07	29153:06:16
41-D	Hartsfield, Coats, Resnik, Hawley, Mullane, C. Walker	Aug. 30-Sep. 5, 1984	144:56:04	30022:42:40
41-G	Crippen, McBride, Ride, Sullivan, Leestma, Garneau, Scully-Power	Oct. 5-13, 1984	197:23:38	31404:28:06
51-A	Hauck, D. Walker, D. Gardner, A. Fisher, J. Allen	Nov. 8-16, 1984	191:44:56	32363:12:46
51-C	Mattingly, Shriver, Onizuka, Buchli, Payton	Jan. 24-27, 1985	73:33:23	32730:59:41
51-D	Bobko, Williams, Seddon, Hoffman, Griggs, C. Walker, Garn	Apr. 12-19, 1985	167:55:23	33906:27:22
51-B	Overmyer, F. Gregory, Lind, Thagard, W. Thornton, van den Berg, Wang	Apr. 29-May 6, 1985	168:08:46	35083:28:44
51-G	Brandenstein, Creighton, Lucid, Fabian, Nagel, Baudry, Al-Saud	Jun. 17-24, 1985	169:38:52	36271:00:48
51-F	Fullerton, Bridges, Musgrave, England, Henize, Acton, Bartoe	Jul. 29-Aug. 6, 1985	190:45:26	37606:18:50
51-I	Engle, Covey, van Hoften, Lounge, W. Fisher	Aug. 27-Sep. 3, 1985	170:17:42	38457:47:20
51-J	Bobko, Grabe, Hilmers, Stewart, Pailes	Oct. 3-7, 1985	97:44:38	38946:30:30
61-A	Hartsfield, Nagel, Buchli, Bluford, Dunbar, Furrer, Messerschmid, Ockels	Oct. 30-Nov. 6, 1985	168:44:53	40296:29:34
61-B	Shaw, O'Connor, Cleave, Spring, Ross, Neri-Vela, C. Walker	Nov. 26-Dec. 3, 1985	165:04:49	41452:03:17
61-C	R. Gibson, Bolden, Chang-Díaz, Hawley, G. Nelson, Cenker, B. Nelson	Jan. 12 to 18, 1986	146:03:51	42474:30:14
51-L	Scobee, M. Smith, Resnik, Onizuka, McNair, Jarvis, McAuliffe	Jan. 28, 1986	n/a	42474:30:14
STS-26	Hauck, Covey, Lounge, G. Nelson, Hilmers	Sep. 29-Oct. 3, 1988	97:00:11	42959:31:09
STS-27	R. Gibson, G. Gardner, Mullane, Ross, Shepherd	Dec. 2-6, 1988	105:05:37	43484:59:14
STS-29	Coats, Blaha, Bagian, Buchli, Springer	Mar. 13-18, 1989	119:38:50	44083:13:24
STS-30	D. Walker, Grabe, Thagard, Cleave, Lee	May 4-8, 1989	96:56:27	44567:55:39
STS-28	Shaw, Richards, Adamson, Leestma, M. Brown	Aug. 8-3, 1989	121:00:08	45172:56:19
STS-34	Williams, McCulley, Chang-Díaz, Lucid, E. Baker	Oct. 18-23, 1989	119:39:21	45771:13:04
STS-33	F. Gregory, Blaha, Musgrave, Carter, K. Thornton	Nov. 22-27, 1989	120:06:48	46371:47:04

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Mission	Crew	Date	MET (lift-off to main gear touchdown), hr:min:sec	Cumulative U.S. man-hr. in space, hr:min:sec
STS-32	Brandenstein, Wetherbee, Dunbar, Low, Ivins	Jan. 9-20, 1990	261:00:36	47676:50:04
STS-36	Creighton, Casper, Mullane, Hilmers, Thuot	Feb. 28-Mar. 4, 1990	106:18:22	48208:21:54
STS-31	Shriver, Bolden, Hawley, McCandless, Sullivan	Apr. 24-29, 1990	121:16:06	48814:42:24
STS-41	Richards, Cabana, Shepherd, Melnick, Akers	Oct. 6-10, 1990	98:10:04	49305:32:44
STS-38	Covey, Culbertson, Springer, Meade, Gemar	Nov. 15-20, 1990	117:54:31	49895:05:19
STS-35	Brand, G. Gardner, Hoffman, Lounge, Parker, Durrance, Parise	Dec. 2-10, 1990	215:05:08	51400:41:15
STS-37	Nagel, Cameron, Ross, Apt, Godwin	Apr. 5-11, 1991	143:32:44	52118:34:55
STS-39	Coats, Hammond, Bluford, Harbaugh, Hieb, McMonagle, Veach	Apr. 28-May 6, 1991	199:22:23	53514:01:36
STS-40	O'Connor, Gutierrez, Seddon, Bagian, Jernigan, Gaffney, Hughes-Fulford	Jun. 5-14, 1991	218:14:20	55041:41:56
STS-43	Blaha, M. Baker, Lucid, Adamson, Low	Aug. 2-11, 1991	213:21:25	56108:29:01
STS-48	Creighton, Reightler, Buchli, Gemar, M. Brown	Sep. 12-18, 1991	128:27:38	56750:47:11
STS-44	F. Gregory, Henricks, Musgrave, Runco, James Voss, Hennen	Nov. 24-Dec. 1, 1991	166:50:44	57751:51:35
STS-42	Grabe, Oswald, Thagard, Hilmers, Readdy, Bondar, Merbold	Jan. 22-30, 1992	193:14:44	59104:34:43
STS-45	Bolden, Duffy, Sullivan, Leestma, Foale, Frimout, Lichtenberg	Mar. 24-Apr. 2, 1992	214:09:28	60603:40:59
STS-49	Brandenstein, Chilton, Hieb, Melnick, Thuot, K. Thornton, Akers	May 7-16, 1992	213:17:38	62096:44:25
STS-50	Richards, Bowersox, Dunbar, E. Baker, Meade, DeLucas, Trinh	Jun. 25-Jul. 9, 1992	331:30:04	64417:14:53
STS-46	Shriver, A. Allen, Hoffman, Chang-Díaz, Nicollier, Ivins, Malerba	Jul. 31-Aug. 8, 1992	191:15:03	65756:00:14
STS-47	R. Gibson, C. Brown, Lee, Apt, Davis, Jemison, Mohri	Sep. 12-20, 1992	190:30:23	67089:32:55
STS-52	Wetherbee, M. Baker, Veach, Shepherd, Jernigan, MacLean	Oct. 22-Nov. 1, 1992	236:56:13	68511:10:13
STS-53	D. Walker, Cabana, Bluford, James Voss, Clifford	Dec. 2-9, 1992	175:19:47	69387:49:08
STS-54	Casper, McMonagle, Runco, Harbaugh, Helms	Jan. 13-19, 1993	143:38:19	70106:00:43
STS-56	Cameron, Oswald, Foale, Cockrell, Ochoa	Apr. 8-17, 1993	222:08:24	71216:42:43
STS-55	Nagel, Henricks, Ross, Precourt, Harris, Walter, Schlegel	Apr. 26-May 6, 1993	239:39:59	72894:22:36
STS-57	Grabe, Duffy, Low, Currie, Wisoff, Janice Voss	Jun. 21-Jul. 1, 1993	239:44:54	74332:52:00
STS-51	Culbertson, Readdy, Newman, Bursch, Walz	Sept. 12-22, 1993	236:11:11	75513:47:55
STS-58	Blaha, Searfoss, Seddon, McArthur, Wolf, Lucid, Fettman	Oct. 18-Nov. 1, 1993	336:12:32	77867:15:39
STS-61	Covey, Bowersox, Musgrave, K. Thornton, Nicollier, Hoffman, Akers	Dec. 2-2, 1993	259:58:37	79427:07:21
STS-60	Bolden, Reightler, Chang-Díaz, Davis, Sega, Krikalev	Feb. 3-11, 1994	199:09:22	80622:03:33
STS-62	Casper, Allen, Thuot, Gemar, Ivins	Mar. 4-18, 1994	335:16:41	82298:26:58
STS-59	Gutierrez, Chilton, Godwin, Apt, Clifford, T. Jones	Apr. 9-20, 1994	269:49:30	83917:23:58

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Mission	Crew	Date	MET (lift-off to main gear touchdown), hr:min:sec	Cumulative U.S. man-hr. in space, hr:min:sec
STS-65	Cabana, Halsell, Hieb, Walz, Chiao, Thomas, Mukai	July 8-23, 1994	353:55:00	86040:53:58
STS-64	Richards, Hammond, Linenger, Helms, Meade, Lee	Sep. 9-20, 1994	262:49:57	87617:53:40
STS-68	Baker, Wilcutt, Wisoff, S. Smith, Bursch, T. Jones	Sep. 30-Oct. 11, 1994	269:46:08	89236:30:28
STS-66	McMonagle, C. Brown, Ochoa, Tanner, Clervoy, Parazynski	Nov. 3-14, 1994	262:34:02	90811:54:40
STS-63	Wetherbee, E. Collins, Harris, Foale, Janice Voss, Titov	Feb. 3-11, 1995	198:28:15	92002:44:10
STS-67	Oswald, Gregory, Grunsfeld, Lawrence, Jernigan, Durrance, Parise	Mar. 2-18, 1995	399:08:48	94796:45:46
STS-71	Gibson, Precourt, E. Baker, Harbaugh, Dunbar, Solovyev, Budarin, Dezhurov, Strekalov, Thagard	Jun. 27-Jul. 7, 1995	235:22:17	<i>Due to the multi-vehicle missions and change out of crews, Cumulative man-hours will no longer be calculated.</i>
STS-70	Henricks, Kregel, Thomas, Currie, Weber	Jul. 13-22, 1995	214:20:05	
STS-69	Walker, Cockrell, Jim Voss, Newman, Gernhardt	Sep. 7-18, 1995	260:28:56	
STS-73	Bowersox, Rominger, Coleman, Lopez-Alegria, Thornton, Leslie, Sacco	Oct. 20-Nov. 5, 1995	381:52:21	
STS-74	Cameron, Halsell, Hadfield, Ross, McArthur	Nov. 12-20, 1995	196:30:46	
STS-72	Duffy, Jett, Chiao, Scott, Wakata, Barry	Jan 1-20, 1996	214:00:45	
STS-75	Allen, Horowitz, Hoffman, Cheli, Nicollier, Chang-Díaz, Guidoni	Feb. 22-Mar. 9, 1996	377:40:21	
STS-76	Chilton, Searfoss, Segal, Clifford, Godwin, Lucid	Mar. 22-31, 1996	221:15:53	
STS-77	Casper, C. Brown, A. Thomas, Bursch, Runco, Garneau	May 19-29, 1996	240:39:24	
STS-78	Henricks, Kregel, Linnehan, Helms, Brady, Favier, Thirsk	Jun. 20-Jul. 7, 1996	405:47:36	
STS-79	Readdy, Wilcutt, Apt, Akers, Walz, Blaha, Lucid	Sep. 16-26, 1996	243:18:00	
STS-80	Cockrell, Rominger, Jernigan, T. Jones, Musgrave	Nov. 19-Dec. 7, 1996	423:53:00	
STS-81	M. Baker, Jett, Wisoff, Grunsfeld, Ivins, Linenger, Blaha	Jan. 12-22, 1997	244:55:00	
STS-82	Bowersox, Horowitz, Tanner, Hawley, Harbaugh, M. Lee, S. Smith	Feb. 11-21, 1997	239:37:00	
STS-83	Halsell, Still, Janice Voss, Gernhardt, D. Thomas, Crouch, Linteris	Apr. 4-8, 1997	95:12:00	
STS-84	Precourt, E. Collins, Clervoy, Noriega, Lu, Kondakova, Foale, Linenger	May 15-24, 1997	221:20:00	
STS-94	Halsell, Still, Janice Voss, Gernhardt, D. Thomas, Crouch, Linteris	Jul. 1-17, 1997	376:45:00	
STS-85	Brown, Rominger, Davis, Curbeam, Robinson, Tryggvason	Aug. 7-19, 1997	284:27:00	

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Mission	Crew	Date	MET (lift-off to main gear touchdown), hr:min:sec
STS-86	Wetherbee, Bloomfield, Titov, Parazynski, Chrétien, Lawrence, Wolf, Foale	Sep. 25-Oct. 6, 1997	259:21:00
STS-87	Kregel, Lindsey, Chawla, W. Scott, Doi, Kadenyuk	Nov. 19-Dec. 5, 1997	376:34:00
STS-89	Wilcutt, Edwards, Reilly, M. Anderson, Dunbar, Sharipov, A. Thomas, Wolf	Jan. 22-31, 1998	211:47:00
STS-90	Searfoss, Altman, Linnehan, Hire, Dave Williams, Buckey, Pawelczyk	Apr. 17-May 3, 1998	381:50:00
STS-91	Precourt, Gorie, Chang-Díaz, Lawrence, Kavandi, Ryumin, A. Thomas	Jun. 2-12, 1998	235:54:00

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