National Aeronautics and Space Administration

Langley Research Center

NACA & NASA

Hall of Honor

Induction Ceremony

June 1, 2017

H. J. E. Reid Auditorium
NASA Langley Research Center

Langley Research Center
NACA & NASA

Hall of Honor

WELCOME
Dave Bowles
Director, NASA Langley Research Center

PRESENTATION OF COLORS
Joint Base Langley-Eustis Honor Guard

SINGING OF THE NATIONAL ANTHEM
A1C Christina Bagley
Air Force Heritage Band

REMARKS
The Honorable Donnie Tuck
Mayor, City of Hampton

REMARKS
The Honorable Bobby Scott
U.S. Congressman from the 3rd District of Virginia

KEYNOTE SPEAKER
Christine Darden
Hall of Honor Committee

PRESENTATION OF
2017 NACA AND NASA LANGLEY
HALL OF HONOR HONOREES

Dave Bowles
Director, NASA Langley Research Center

Ira Abbott
President, Langley Alumni Association

Dave Throckmorton
Hall of Honor Committee

RECEPTION
Cake and punch provided by the Langley Alumni Association

H. J. E. Reid Auditorium • NASA Langley Research Center

Langley Research Center
NACA & NASA

Hall of Honor

The Langley Research Center NACA and NASA Hall of Honor was conceived by members of the Langley Alumni Association and the NASA Langley Research Center to pay tribute to those individuals who built exemplary careers at Langley, persevered against the status quo when required, and achieved or supported achievement in revolutionary understanding and progress on the frontiers of aerospace and science.

The Hall of Honor formally recognizes those persons whose contributions have had the most sustained and far-reaching influence on the leadership, direction, mission and capabilities of the NACA Langley Memorial Aeronautical Laboratory and NASA Langley Research Center, or whose work at Langley enabled or supported unprecedented and fundamental advancements in either a scientific or engineering field to make significant contributions to the United States' aerospace industry for aircraft or spacecraft, or to the atmospheric sciences.

The Hall of Honor also provides an opportunity for contemporary Langley employees to reflect on the contributions of these notable individuals – men and women, scientists and engineers, managers and support personnel – who made profound and enduring impacts on the work of our Center and the technological leadership of our nation.

The Class of 2017 inductees into the Hall of Honor are representative of the diversity of talent required to enable an institution such as Langley to produce the extraordinarily valuable technical products that are its hallmark. They also highlight employee diversity which is such an important contributing factor to the innovation, dedication, and expertise that characterizes the Langley culture.

Langley Research Center
NACA & NASA Hall of Honor

Class of 2017 Honorees

Smith J. DeFrance

Floyd L. Thompson

Charles H. Zimmerman

Charles J. Donlan

Clinton E. Brown

Dorothy J. Vaughan

Edward C. Polhamus

Harvey H. Hubbard

Robert A. Champine

Norman L. Crabill

Mary W. Jackson

Cornelius Driver

Katherine G. Johnson

Roy V. Harris, Jr.

James S. Martin, Jr.

M. Patrick McCormick

James H. Starnes, Jr.

Joel S. Levine

2017 Honoree

Smith J. DeFrance

Smith J. “Smitty” DeFrance (1896-1985) was employed by the NACA and NASA for 43 years, eighteen of which were at the NACA Langley Memorial Aeronautical Laboratory, where he made pioneering contributions as the designer of unique wind tunnels that provided the NACA with revolutionary test capabilities.

DeFrance was a native of Battle Creek, Michigan. During World War I, he logged more than 800 flight hours in SPAD biplanes, over France, as a fighter pilot and squadron commander. Following the war, DeFrance attended the University of Michigan, earning a bachelor of science degree in aeronautical engineering, in 1922. He then joined the staff of the Langley Memorial Aeronautical Laboratory, as employee number 63, assigned as a Junior Aeronautical Engineer.

His earliest assignment was designing a force balance for the newly opened Variable Density Tunnel; but, he moved to the Flight Research Section, and was soon elevated to the position of assistant head of that organization. DeFrance developed novel methods for collecting pressure data in fight, photographing flight paths, and developed braking techniques to minimize aircraft ground-roll after landing.

In 1929, the NACA authorized construction of the 30- by 60-foot Full-Scale Tunnel (FST) at Langley. DeFrance was selected to manage construction and early research operations of the new tunnel, as Principal Aeronautical Engineer. Construction of the massive facility was completed on time and under budget in May 1931. At the time, it was the largest wind tunnel in the world; and became one of the most important facilities in the history of the NACA, utilized for unprecedented aerodynamic studies of full-scale and model aircraft, and spacecraft, over a lifetime of almost 80 years.

In 1935, DeFrance was promoted to Assistant Chief of the Aerodynamics Division, and provided leadership for the design and early operations of three additional wind tunnels of critical importance to Langley’s future research programs: the 19-foot Pressure Tunnel, the Propeller Research Tunnel, and the 8-Foot High-Speed Tunnel.

In 1939, DeFrance was selected by NACA to lead the construction and initial operations of a new NACA laboratory (subsequently known as the Ames Aeronautical Laboratory) at Moffett Field, California. He left Langley in 1940 to become the first Engineer-in-Charge of Ames; and was the Center’s only Director, until his retirement in 1965.

In recognition of leadership of the design, construction, and early operations of iconic Langley test facilities – the Full-Scale Tunnel, 19-Foot Pressure Tunnel, Propeller Research Tunnel, and 8-Foot High-Speed Tunnel.

2017 Honoree

Floyd L. Thompson

Dr. Floyd L. Thompson (1898-1976) was the third Director of the Langley Research Center, serving from 1960 to 1968, leading the Center during the formative years of the nation's manned spaceflight program.

Thompson was born in Salem, Michigan. Following high school, he served four years in the U.S. Navy; and, in 1926, earned a bachelor of science degree in aeronautical engineering from the University of Michigan. He then joined the staff of the NACA Langley Memorial Aeronautical Laboratory, at a time when there were only about 150 employees, and was assigned to the Flight Research Division.

Thompson specialized in flight instrumentation and operations, and pressure and loads measurements. He conducted extensive research on a variety of configurations, including: aircraft, seaplanes, and dirigibles. He conducted performance analyses of the famous Navy airships, Akron and Los Angeles. During his career, he authored or co-authored more than 20 technical reports documenting the results of his research.

Thompson became Chief of the Flight Research Division in 1940; was appointed Langley's Chief of Research in 1945; and Associate Director, in charge of all research, in 1952. In 1960, Thompson succeeded Dr. H. J. E. Reid as Director of the Langley Research Center. Under his leadership, Langley excelled in programs of international importance: Project Mercury, erectable space structures enabling the world's first communications satellite (Echo), and the first solid-fueled launch vehicle (Scout) to propel a satellite into orbit.

Thompson chaired the Apollo 204 Review Board that investigated the tragic 1967 Apollo accident that claimed the lives of astronauts Grissom, White, and Chaffee. In the summer of 1968, he left Langley to become Special Assistant to the NASA Administrator, at NASA Headquarters in Washington, D. C. and retired shortly thereafter.

In 1963, President John F. Kennedy presented Thompson with the NASA Outstanding Leadership Medal "for outstanding leadership of the scientists and engineers who were responsible for the original technical concepts and who comprised the nucleus of the development team for the space flight missions of the United States in Project Mercury." Thompson was a Fellow of the American Institute of Aeronautics and Astronautics (AIAA) and served as the AIAA President in 1968. In 1974, he was awarded The Guggenheim Medal, presented in recognition of a career of notable achievements in the advancement of aeronautics.

In recognition of exemplary leadership of Langley research programs spanning both the NACA and NASA eras, and especially as Langley Center Director during the formative years of NASA's manned spaceflight program.

2017 Honoree

Charles H. Zimmerman

Charles H. "Charlie" Zimmerman (1908-1996) was an innovative designer of revolutionary research facilities, unconventional aircraft, and advanced flying vehicles.

Born in Olathe, Kansas, Zimmerman earned a bachelor of science degree in electrical engineering from the University of Kansas; and joined the staff of the Langley Memorial Aeronautical Laboratory in 1929.

Zimmerman was first assigned to the 5-Foot Vertical Wind Tunnel, a facility designed for research in aircraft spins – a frequent factor in fatal aircraft accidents of that era. The facility used models affixed to a balance to measure air loads during a simulated spin; however, this testing technique had many limitations. Zimmerman was assigned the task of developing a more capable, 15-foot tunnel that used models which were hand-launched into the flow for free-flight testing. This facility concept remains in use today in Langley's 20-Foot Spin Tunnel. His interest in free-flight model testing led to his design of the 12-Foot Free-flight Tunnel for studies of aircraft dynamic stability and control in conventional flight. This test technique was subsequently used in testing in Langley's Full-Scale Tunnel.

Zimmerman's research efforts to design aircraft capable of extremely low-speed take-off and landing indicated that configurations with low-aspect ratio wings could produce more lift at low speeds than conventional wings. This led to his design of radical, flying-saucer-like shaped configurations. After extensive testing of those, in 1937, Zimmerman left Langley to join the Chance-Vought Company, where he advocated for a Navy contract to build and test such an aircraft. A prototype, the V-173, was built and tested; but the Navy lost interest in the concept as World War II came to an end. However, the "Zimmer Skimmer" or "Flying Pancake" remains one of the most innovative concepts in the history of aircraft design.

Zimmerman returned to Langley in 1946 and, in the 1950s and 60s, was a key manager and technical leader for Langley's research into novel concepts for Vertical or Short Takeoff and Landing (V/STOL) aircraft configurations, which were capable of helicopter-like operations. In 1956, Zimmerman received the American Helicopter Society's Alexander Klemin Award in recognition "of notable achievement in advancement of rotary-wing aeronautics." He was co-inventor of the "tilt-wing" configuration, demonstrated years later in flight testing of the Ling-Temco-Vought XC-142.

In 1962, Zimmerman was named Director of Aeronautics at NASA Headquarters, Washington, D. C. He retired from NASA in 1967.

In recognition of a career of extraordinary innovation – design of unique facilities and radical aircraft configurations, and leadership of NASA's aeronautics research program.

2017 Honoree

Charles J. Donlan

Charles J. “Charlie” Donlan (1916-2011) was a researcher, wind tunnel designer, manager, and leader who helped lay the technical and organizational foundations of America’s space program.

Donlan was born in Lawrence, Massachusetts, and earned a bachelor of science degree in aeronautical engineering from the Massachusetts Institute of Technology in 1938. When offered employment with the NACA Langley Memorial Aeronautical Laboratory, he eagerly accepted – even skipping his graduation ceremony.

For the first several years of his career, Donlan worked in the Langley 15-Foot Free-Spinning Tunnel. During World War II, he was involved in the design and construction of two new 7-by-10-Foot Tunnels; and from 1945 to 1952, he was head of the section that operated the tunnels. He made significant contributions to solutions of stability and control problems encountered by the emerging swept-wing fighter aircraft of that era.

In the 1950s, Donlan was the Langley representative on the NACA Inter-Laboratory Research Airplane Panel that conceived the X-15 research airplane program, and also served as technical assistant to Director Floyd Thompson. In 1958, 6 days after the formal establishment of NASA, the Space Task Group was created at Langley, and Thompson asked Donlan to serve as its Deputy Director, under Robert Gilruth. In this role, he was specifically responsible for the selection and training of the original seven Project Mercury astronauts.

In 1961, again at Thompson’s request, Donlan left the Space Task Group to return to the Langley organization as the Center’s Associate, and later Deputy, Director. Donlan moved to NASA Headquarters in 1968 to become the Deputy Associate Administrator for Manned Space Flight (Technical), responsible for ensuring the technical excellence of NASA’s manned space flight programs. He was Director of the Space Shuttle Program from 1970 to 1973, during the time period of the shuttle’s early conceptual design.

Following his retirement from NASA in 1976, Donlan became a consultant to the Institute for Defense Analysis, considering possible uses of the Space Shuttle by the U.S. military; and he also served on the NASA Aerospace Safety Advisory Panel. Among his many honors are the NASA Outstanding Leadership Medal; and the William Randolph Lovelace II Award of the American Astronautical Society, which recognizes “outstanding contributions to space science and technology.”

In recognition of early research into the challenges of high-speed flight, leadership within the Space Task Group – including selection and training of Mercury astronauts – and consummate service as Langley Deputy Center Director, and Manager of the fledging Space Shuttle Program.

2017 Honoree

Clinton E. Brown

Clinton E. Brown (1920-2008) was an experimentalist and theoretician who made extraordinary contributions to technological advancements in both the aeronautics and space programs of the NACA and NASA.

Brown grew up in Madison, New Jersey. In 1941 and 1942, he earned bachelor and master of science degrees in mechanical engineering from Purdue University; and then joined the staff of the NACA Langley Memorial Aeronautical Laboratory. His earliest research was focused on concepts for jet engines; but, responsibility for propulsion systems technology was transferred to the Aircraft Engine Research Laboratory in Cleveland, OH. So, he re-focused his research efforts onto supersonic aerodynamics.

Brown became a member of the 9-Inch Supersonic Tunnel Section. In 1945, Langley's R. T. Jones had theoretically conceived the benefits of the swept wing to minimize drag in transonic or supersonic flight. Brown and fellow researcher Macon Ellis conducted tests of a wire at a large sweep angle, that experimentally verified the dramatic drag reductions predicted by Jones. He then conducted pioneering studies of the benefits of adding both twist and camber to maximize the performance of highly swept supersonic wings. At the time of the XB-70 program, he designed a futuristic bomber configuration, that was tested in several Langley transonic and supersonic wind-tunnels; but the wing configuration was considered too advanced for the time. Interestingly, the highly-swept and cambered stylistic wing that appears on the NASA insignia was inspired by Brown's wing concepts.

In 1952, at the request of Engineer-in-Charge H. J. E. Reid, Brown led a study group charged with addressing the challenges of hypersonic flight. This effort led directly to the identification of flight research opportunities for a research aircraft that would become the X-15.

In 1955, Brown became Chief of the Theoretical Mechanics Division. In 1959, he was chosen to lead a Langley Lunar Mission Steering Group, that developed multiple concepts for landing a man on the moon. One concept, favored by many, would have first created a space station, as a stepping-stone to the moon. Brown strongly objected to this approach, believing it would significantly delay the ultimate moon landing. His influence and advocacy were significant contributors to selection of the lunar-orbit-rendezvous approach, that enabled the successful Apollo missions.

Brown became Langley's Assistant Director in 1962, but resigned from NASA in 1964 to pursue other interests in industry and academia.

In recognition of exemplary technical contributions to enhance the performance of swept leading-edge wings for supersonic flight; and leadership of NACA and NASA's early research into the challenges of hypersonic and space flight.

2017 Honoree

Dorothy J. Vaughan

Dorothy J. Vaughan (1910-2008) was the NACA's first African-American female supervisor, and expert programmer of the earliest digital computers.

Vaughan was born in Kansas City, Missouri and grew up in Morgantown, West Virginia. She received a full-tuition scholarship to attend Wilberforce University, a historically black college in Wilberforce, Ohio; and, at the age of nineteen, graduated with a bachelor of arts degree in mathematics. She then took a position as a mathematics teacher at Robert Russa Moton High School, the African-American high school in Farmville, Virginia.

In the midst of World War II, in response to the national call for "home-front" workers, she applied for a position as a "computer" at the NACA Langley Memorial Aeronautical Laboratory. Vaughan was hired in 1943, and was assigned to the West Area Computing unit, a racially segregated group of mathematicians responsible for mathematical computations in support of engineers conducting aeronautical experiments. "Computers" used slide rules, mechanical calculators, and film readings, to convert raw data obtained in wind tunnel or flight tests into useful information that enabled engineers to analyze the flight characteristics of aircraft.

Although the West Computing unit's first two supervisors had been white, in 1949, Vaughan was promoted to become the unit's leader, making her the NACA's first female, African-American supervisor. She was valued for her management skills and was a steadfast advocate on behalf of all "computers," regardless of race, who deserved recognition or promotion.

Vaughan remained the West Area Computer unit's supervisor until 1958, when the NACA became NASA, and segregated facilities and work units were abolished. She then joined a racially and gender-integrated group on the frontier of electronic computing, where she became an expert FORTRAN programmer and contributed directly to the Scout Launch Vehicle Program.

Vaughan retired in 1971 after a 28-year career. During her career, she challenged herself to learn new technologies for research applications; and as a leader, encouraged all "computers" to advance their careers and their contributions to the NACA and NASA. Her countless computations supported the pioneering accomplishments of the NACA and NASA, and helped the nation achieve its aerospace goals from the early days of World War II to the beginnings of the Space Age.

In recognition of exemplary leadership as the NACA's first female African-American supervisor, demonstrated expertise as a programmer of the earliest digital computers, and myriad contributions to the success of the nation's aeronautics and space programs.

2017 Honoree

Edward C. Polhamus

Edward C. “Eddie” Polhamus (1923 - 2001) was a brilliant aerodynamicist who, over the span of a 37-year career at Langley, was responsible for three seminal contributions to advancement of aeronautical technology.

Born in Washington, D.C., Polhamus earned a bachelor of science degree in mechanical engineering from the University of Maryland. He joined the staff of the Langley Memorial Aeronautical Laboratory in 1944.

Polhamus’ first contribution stemmed from interest in the design of multi-mission military aircraft with high-speed cruise and short-field takeoff and landing capability. These conflicting requirements led to the concept of variable-sweep wings. Early concepts used a wing pivot point near the fuselage centerline; but, displayed unacceptable variations in stability as the wings were swept. Further, they required complex mechanisms to translate the wing fore and aft to minimize the stability problems. While conducting extensive experimental studies, Polhamus conceived the “outboard pivot concept,” in which the pivot point is located outboard of the fuselage. This concept improved aerodynamic stability, and reduced complexity and weight. First applied on the F-111 fighter bomber, it has been incorporated in every production variable-sweep wing aircraft since.

Polhamus’ second contribution was a theoretical construct for accurate prediction of the aerodynamic characteristics of slender, highly swept wings. Experimental testing had demonstrated that creation of strong vortices at the leading edge of such wings could significantly enhance low-speed lift; but, accurate prediction of the phenomenon (vortical lift) was elusive. Polhamus conceived the “leading-edge suction analogy,” which enabled accurate prediction of forces and moments in a way that could be applied in the aircraft design process.

Thirdly, Polhamus’ vision and leadership were critical to the realization of a class of revolutionary wind tunnels that operate at cryogenic temperatures. Theoretically, if the gas in a wind tunnel were extremely cold (cryogenic), simulation of near-flight aerodynamic parameters would be possible. Polhamus led a team that validated the concept by constructing a pilot tunnel to demonstrate wind tunnel operations at cryogenic temperatures. Their successful demonstration led to realization of the nation’s first, practical cryogenic wind tunnel – The National Transonic Facility.

Twice during his career (1974 and 1984), Polhamus received the NASA Medal for Exceptional Scientific Achievement. Polhamus is one of only six individuals recognized for career contributions in the Flight Technology Gallery of the Smithsonian’s National Air and Space Museum.

In recognition of extraordinary aerodynamic insights which enabled practical variable sweep wings and vortex flow control for high-performance military aircraft; and vision, advocacy, and leadership which led to realization of the National Transonic Facility.

2017 Honoree

Harvey H. Hubbard

Harvey H. Hubbard (1921-2012) was an internationally recognized expert in the field of aircraft noise generation and suppression. He performed seminal research that provided fundamental understanding of the sources of aircraft noise, and the vehicle design and operational techniques that would enable the suppression of that noise.

Hubbard was born in Swanton, Vermont; and received a bachelor of science degree in electrical engineering from the University of Vermont, in 1942. He served in the U. S. Army Air Forces during World War II.

In 1945, he joined the staff of the NACA Langley Memorial Aeronautical Laboratory. Hubbard was among the very early researchers, and the first at Langley, to conduct laboratory experiments addressing noise from propellers. His research addressed the noise generated from single, multi-bladed, dual-rotation, tandem, shrouded, and supersonic propellers; and, he published a series of propeller loudness charts for light airplanes, for use by propeller designers.

During the 1950s, turbojet aircraft made their appearance, and jet noise became a rapidly growing concern. In 1952, Hubbard conducted keystone experiments that provided considerable insight into the basic physics of jet noise generation. These experiments clearly indicated that in order to reduce jet noise, the velocity of the exhaust must be reduced. Analysis of experiment results also provided for theoretical assessment of the noise mechanisms involved, pointing the way for future noise reduction research.

In the 1960s and 70s, Hubbard was Langley's unquestioned leader in aeroacoustic research; and played a key role advocating expanded NASA research in the field. Among his career achievements were the development of the "Hubbard Criterion," a scientific method used to assess the effects of noise and vibration on people; and conception and implementation of the Langley Aircraft Noise Reduction Laboratory.

Over the course of his career, Hubbard also performed pioneering research on sonic boom and the response of structures to noise. He retired from NASA Langley in 1980.

Hubbard received the American Institute of Aeronautics and Astronautics' Aeroacoustics Award in 1979. He was a Fellow of the Institute of Noise Control Engineering and a Fellow of the American Acoustical Society.

In recognition of pioneering contributions to the understanding of aircraft noise generation and suppression mechanisms, leading to dramatic reductions in aircraft noise; and conception and establishment of the Langley Aircraft Noise Reduction Laboratory.

2017 Honoree

Robert A. Champine

Robert A. “Bob” Champine (1921-2003) was an exemplary research test pilot, who made significant contributions to both the aeronautics and space programs of the NACA and NASA.

Born in St. Paul, Minnesota, Champine earned a bachelor of science degree in aeronautical engineering from the University of Minnesota. He served as a U. S. Navy pilot from 1943 to 1947, when he began his NACA/NASA career at the Langley Memorial Aeronautical Laboratory.

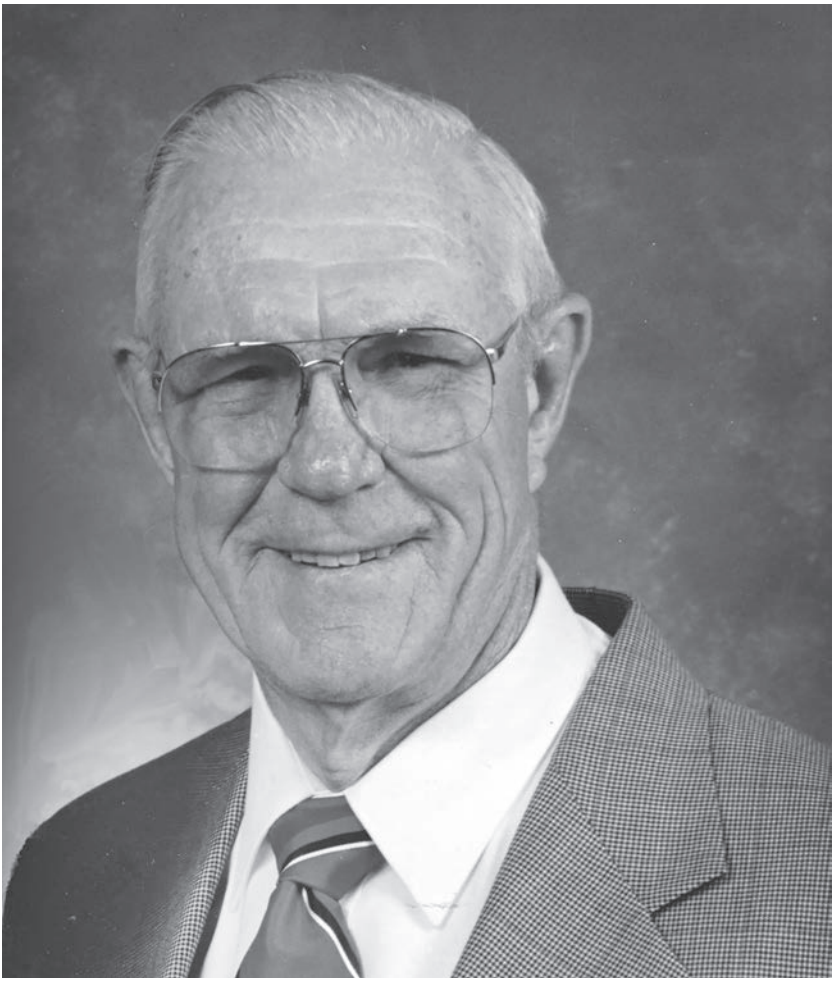
Just a few months before Champine joined the Langley staff, Captain Chuck Yeager had broken the sound barrier in the Bell X-1 research aircraft. Late in 1948, Champine was presented the opportunity to join the X-1 flight test team at the NACA Muroc Flight Test Unit, Muroc, California, and eagerly accepted. He was the 6th person, and 3rd civilian to break the sound barrier in the X-1. Although honored to have been selected to fly the X-1 and other high-speed research aircraft, Champine was disappointed in the amount of flight time available at Muroc and, in 1950, chose to return to Langley.

Upon his return, Champine was engaged in flight evaluations of multiple Air Force and Navy aircraft, as prototypes or after they entered production. Noteworthy was his work as project pilot for evaluation of the Navy’s F8U Crusader fighter aircraft -- which had exhibited numerous problems in flight, leading to fatal crashes. Champine and the Langley team identified a structural design deficiency as the problem’s source, and recommended a design change that was accepted and eliminated this major problem.

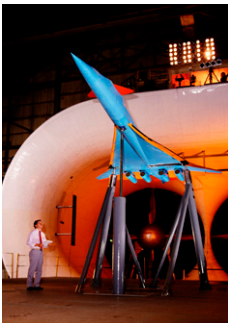
Champine also played key roles, as test pilot, in other important flight research activities, including flight demonstrations of automated approach-to-landing capabilities for helicopters, and evaluation of the flight characteristics of vertical/short take-off-and-landing aircraft.

At the dawn of the space age, Champine played key roles in the selection of the Mercury 7 astronauts, and the design and testing of the critical “g”-absorbing couch used in the Project Mercury capsules. He helped train astronauts for the Mercury, Gemini, and Apollo missions, using Langley simulators (Rendezvous and Docking Simulator, and Lunar Landing Research Facility) that he had helped design and develop.

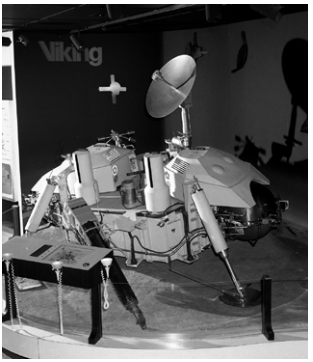
Champine retired from NASA in 1979. During his career, he logged over 11,300 flight hours in 155 different aircraft. He is a member of the Virginia Aviation Hall of Fame, and has been recognized as a Distinguished Statesman of Aviation by the National Aeronautic Association.



In recognition of an extraordinary career as an NACA and NASA test pilot – pioneering flight evaluation of research aircraft ranging from supersonic (X-1) to helicopters; development of simulators critical to the training of Mercury, Gemini, and Apollo astronauts; and leadership of astronaut training.




UNITED STATES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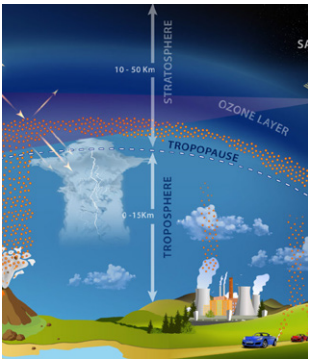
LANGLEY RESEARCH
NASA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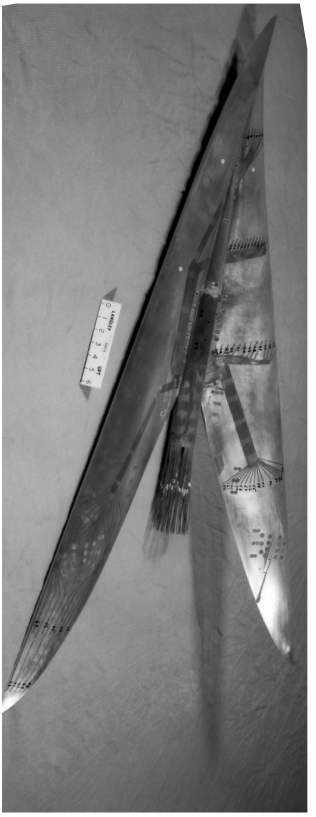

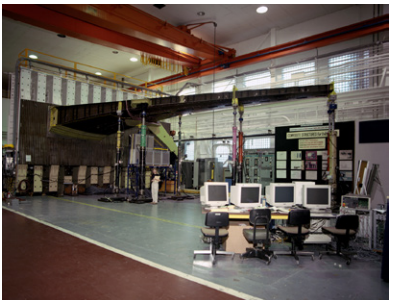

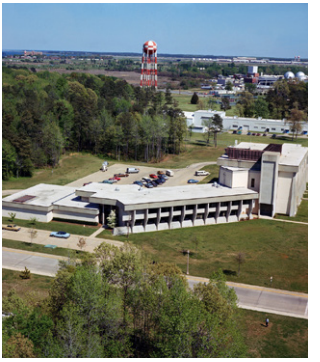

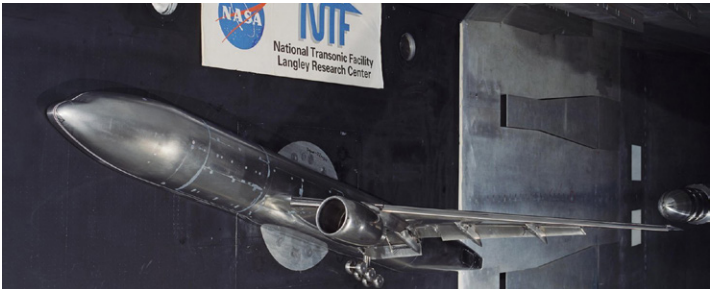
NASA
NTF
National Transonic Facility
Langley Research Center

2017 Honoree

Norman L. Crabill

Norman L. “Norm” Crabill (1926-) pursued a highly-productive, 36-year career at Langley, during which he made enduring contributions to both the aeronautics and space programs of NACA and NASA.

Crabill was born in Washington, DC. In 1949, he earned a bachelor of science degree in aeronautical engineering from Catholic University; and, subsequently, joined the staff of the NACA Langley Memorial Aeronautical Laboratory. In 1958, he earned a master of science degree in aeronautical engineering from the University of Virginia.

Crabill began his Langley career in the Pilotless Aircraft Research Division, which had founded the Wallops Flight Station, and pioneered the technique of using rocket-launched models to conduct free-flight testing of emerging supersonic aircraft configurations. From 1949 to 1960, Crabill conducted such transonic and supersonic flight tests of a variety of aircraft designs.

In the wake of President Kennedy’s 1962 call for America to place a man on the moon, NASA Langley managed the Lunar Orbiter Project, undertaken to survey the lunar surface for potential landing sites for the subsequent Apollo missions. Crabill served as Head of the Lunar Orbiter Mission Design Team, responsible for the selection of areas to be photographed; and he conceived the highly-successful idea of using the two final Lunar Orbiter missions (of five) to create comprehensive maps of the lunar surface.

Crabill was Manager of Mission Analysis and Design for the Mars Viking Project. In this position, he directed mission design efforts and served on the Landing Site Selection Working Group. In 1976, the historic Viking Project successfully placed two spacecraft on the surface of Mars and returned scientific data, and images of the planet’s surface, to Earth.

Crabill instigated and managed the Langley Storm Hazards Program, conducted to improve the state-of-the-art of severe storm hazards detection and avoidance; and for protection of aircraft against storm hazards that cannot be reasonably avoided. One of Langley’s most successful flight test programs, it utilized a specially-instrumented and lightning-hardened F-106B aircraft to collect data on triggering mechanisms for lightning strikes, and to determine threats to aircraft constructed of composite materials and using digital avionic systems.

Crabill’s career achievements have been widely recognized, as evidenced by his induction into the Halls of Fame of the Virginia Aeronautical Historical Society and the International Astronautical Federation.

In recognition of contributions to critical Langley programs including rocket-boosted supersonic model research, satellite launches, lunar observations, missions to Mars, and characterization of phenomena in severe storms.

2017 Honoree

Mary W. Jackson

Mary W. Jackson (1921–2005) overcame the barriers of gender and racial segregation to become a professional aerospace engineer and leader in ensuring equal opportunities for future generations.

Jackson was born in Hampton, Virginia; and, in 1942, earned bachelor of science degrees in both mathematics and physical sciences from Hampton Institute. Following her graduation, she held a number of jobs, as a school teacher, receptionist, and bookkeeper.

In 1951, Jackson accepted a position with the Langley Aeronautical Laboratory as a "human computer," assigned to the West Area Computers, an all-black, segregated group of mathematicians. After two years in the computing pool, she was offered a position directly supporting engineer Kazimierz Czarnecki at the 4-by-4-Foot Supersonic Tunnel. Czarnecki not only looked to Jackson to provide computing support for his research activities; but, also offered her hands-on experience conducting experiments in the wind tunnel.

Because of her demonstrated acumen, Czarnecki encouraged Jackson to enter a training program that was required to earn a promotion from mathematician to engineer. However, the training classes (from the University of Virginia) were only offered at then-segregated Hampton High School, which necessitated that Jackson get special permission from the City of Hampton to join her white peers in the classroom. Never one to flinch from a challenge, Jackson completed the courses, earned the promotion, and in 1958 became NASA's first African-American female engineer. That same year, she co-authored her first report, "Effects of Nose Angle and Mach Number on Transition on Cones at Supersonic Speeds." Over the course of her career, she had authored or co-authored six NACA and NASA technical publications.

In 1979, noting that the glass ceiling was the rule rather than the exception for Langley's female professionals, Jackson made a final, dramatic career change, leaving engineering and voluntarily accepting a reduction-in-grade to become an Equal Opportunity Specialist. After undergoing training at NASA Headquarters, she became Langley's Federal Women's Program Manager. For the remainder of her career, Jackson worked tirelessly to positively impact the hiring and promotion of the next generation of NASA's female mathematicians, engineers, and scientists. She retired from Langley in 1985.

In honor and recognition of the ambition and motivation that enabled her career progression from "human computer" to NASA's first African-American female engineer, and subsequent career supporting the hiring and promotion of other deserving female and minority employees.

2017 Honoree

Cornelius Driver

Cornelius “Neil” Driver (1925-2009) was a visionary of advanced aeronautical systems, especially supersonic civil transports, for which he was NASA’s technical leader and chief advocate.

Driver was born in Timberville, Virginia. After graduating high school, in the midst of World War II, he became a bomber pilot in the Army Air Forces. At the end of the war, he attended Virginia Polytechnic Institute and earned bachelor of science degrees in both aerospace and mechanical engineering. He began his NACA and NASA career in 1951, as a research engineer at Langley’s 4-by-4-Foot Supersonic Pressure Tunnel.

Driver’s early career focused on the design and testing of supersonic aircraft configurations, with an emphasis on supersonic aerodynamics, stability and control, and airframe/propulsion integration. In the late 1950s, there was intense military interest in a high-altitude, supersonic bomber; and the Air Force requested that Langley perform wind tunnel test of the North American XB-70 design. Driver led the testing of the XB-70 in the Supersonic Pressure Tunnel, to independently assess its supersonic efficiency, and enhance its configuration development.

The XB-70 became the technological focal point of U.S. efforts to develop civil supersonic transports. In 1959, NASA initiated the Supersonic Commercial Air Transport program, a seven-year activity that produced nineteen configuration concepts. Driver was a significant contributor to the program, and managed the contract that was awarded to Boeing to evaluate the most promising of those configurations.

In the mid-to-late 1960s, Driver was an influential participant in the National effort to develop a commercial supersonic transport, coordinating efforts among NASA, FAA, Boeing, Lockheed, and McDonnell-Douglas. Following termination of the U. S. Supersonic Transport Program, Driver personally advocated and provided leadership for the NASA Supersonic Cruise Research Program (1971-1982), that engaged multiple NASA centers and industry; and comprised research in aerodynamics, materials and structures, and advanced engine concepts.

From 1979 until his retirement in 1986, Driver served as chief of Langley’s Aeronautical Systems Division, responsible for stimulating studies of revolutionary civil and military aircraft, to identify the relative pay-off of disciplinary advances. He was author, or co-author, of over 50 technical publications, and was elected a Fellow of the Royal Aeronautical Society.

In recognition of sustained advocacy for, and engineering leadership of, NASA programs to provide the technological foundation for civil commercial supersonic transports and other revolutionary aerospace concepts and configurations.

2017 Honoree

Katherine G. Johnson

Katherine G. Johnson (1918-) made valuable contributions to NACA and NASA flight programs, from computing experimental flight- and ground-test data for the NACA to pioneering space trajectory calculations for NASA.

Johnson was born in White Sulphur Springs, West Virginia. In 1937, at the age of only 19, she graduated from West Virginia State College with a bachelor of science degree in mathematics, and took a job as a school teacher. In 1939, she was one of the first three African-Americans selected to desegregate the graduate program at West Virginia State College. After only a year of study, however, she chose to leave school to start a family.

In 1953, she joined the staff of the NACA Langley Aeronautical Laboratory, which was hiring mathematicians with teaching experience to become "human computers." The "computers" performed the thousands of time-consuming mathematical calculations required to analyze wind tunnel and flight-test data. Johnson was initially assigned to the West Computing Section, a pool of African-American women, segregated from their white counterparts. Assigned to support projects in the Maneuver Loads Branch of the Flight Research Division, she spent the next four years analyzing data from flight tests, and contributed to the investigation of a plane crash caused by wake turbulence.

The April 1957 launch of Sputnik by the Soviet Union changed aerospace history and Johnson's career. At the dawn of the space age, she became proficient in calculating trajectories for spacecraft and satellites. In 1960, she and engineer Ted Skopinski co-authored a report entitled "Determination of Azimuth Angle at Burnout for Placing a Satellite Over a Selected Earth Position," presenting the equations for an orbital spaceflight in which the landing position of the spacecraft is specified. It was the first time a woman in the Flight Research Division had received credit as an author of a research report. She was also co-author of a report describing the orbital behavior of Echo 1, NASA's first communications satellite. The 2016 best-selling book "Hidden Figures" chronicles her subsequent contributions to America's manned space program.

Later in her career, in the Dynamics and Control Division, she contributed to the analysis and design of systems for control of the motions of very-large, flexible structures in space. Johnson retired from NASA in 1986.

In 2015, President Barack Obama awarded Johnson the Presidential Medal of Freedom, citing her as a pioneering example of African-American women in Science, Technology, Engineering, and Mathematics (STEM). In 2016, Langley's new Computational Research Facility was named in her honor.

In recognition of contributions to the development of methodologies for analysis of manned mission (from Mercury to Apollo) and satellite (Echo) trajectories, and dynamic control of large space structures.

2017 Honoree

Roy V. Harris, Jr.

Roy V. Harris, Jr. (1935-) is an internationally-recognized authority in aeronautics; who made critical contributions, both as a researcher and manager, to the Nation's civil and military aviation programs.

A native of Augusta, Georgia, Harris learned to fly airplanes in high school; and during his college days, taught aerobatics and flew crop dusters. In 1958, he earned a bachelor of science degree in aeronautical engineering from the Georgia Institute of Technology; and joined the staff of the NACA Langley Aeronautical Laboratory -- just a few months prior to the creation of NASA and the facility name change to the Langley Research Center.

Harris' early career research was focused on supersonic aerodynamics and, in 1964, he published a computer code for calculating the supersonic wave drag of complete aircraft configurations. This code enabled, for the first time, accurate analyses that could be used for design of supersonic aircraft. Enhanced versions of that computer code remain in use today. He was also the first researcher to produce computer-generated drawings of complex three-dimensional aircraft.

In 1973, Harris became head of Langley's Advanced Configurations Branch. While in this position, he initiated a cooperative research program with General Dynamics to develop an advanced configuration of the F-16 fighter (the F-16XL) with superior supersonic flight performance and persistence.

Harris became Chief of the High-Speed Aerodynamics Division in 1974, leading studies in turbulent-flow drag reduction and supersonic cruise aerodynamics. He subsequently became Langley's Director for Aeronautics, in 1985, with leadership responsibility for all of Langley's aeronautical research activities. At the time of his retirement in 1998, he was Langley's Assistant Director for Research and Engineering.

During the Cold War, Harris was frequently called-upon to support the national security community in assessment of the performance capabilities of potential adversary aircraft. He initiated the NASA Advanced Aircraft Program that made significant technological contributions to new generations of highly-classified military aircraft.

Harris is a Fellow of the American Institute of Aeronautics and Astronautics (AIAA). During his career, his technical and leadership contributions were widely recognized, to include: the Presidential Rank of Distinguished Executive, NASA Distinguished Service Medal, and the AIAA Wright Brothers Lectureship in Aeronautics and Reed Aeronautics Award.

In recognition of extraordinary technical contributions and leadership of NASA research on supersonic civil and advanced military aircraft, and service to programs of critical national security interest.

2017 Honoree

James S. Martin, Jr.

James S. Martin Jr. (1920-2002) was NASA Program Manager for the Viking Project that, in 1976, placed two spacecraft in orbit around Mars and two landers on the Martian surface. The orbiters enabled the first global imagery of Mars to be sent back to Earth, and the landers were the first spacecraft to make soft landings on the surface of another planet.

Martin was born in Washington, D.C., and grew up in Springfield, Illinois. In 1942, he earned a bachelor of science degree in aeronautical engineering from the University of Michigan; and entered the aerospace workforce at Republic Aviation in Farmingdale, New York. During a 22-year career at Republic, he progressed to serve as Chief Research Engineer, and Manager of Space System Requirements.

Martin joined the staff of the NASA Langley Research Center in 1964, as assistant manager for the Lunar Orbiter program. The Lunar Orbiter Program provided detailed imagery of the lunar surface to enable selection of landing sites for the subsequent Apollo missions.

In 1967, Martin was appointed manager of the lander capsule bus system element of the Voyager Mars Program. His demonstrated leadership led to his appointment as Program Manager for the Viking Project, to soft-land two scientific spacecraft on the surface of Mars. Martin led a nationwide team of over 750 NASA, industry, and university engineers, scientists and technicians. Under his leadership, the Viking team investigated some 20 mission concepts, ultimately selecting the approach of sending an orbiter, with attached lander, into Martian orbit; and subsequently releasing the lander to traverse the Martian atmosphere and soft-land on the surface.

Enabling a successful mission requires solutions of many unique and vexing technical challenges, such as: how to deploy a parachute behind a blunt body travelling at supersonic speed, designing a terminal-descent rocket engine configuration that would not bore holes in the Martian surface, and sterilizing the spacecraft to prevent contamination of Mars with microbes from the Earth. Viking 1 was launched on August 25, 1975, and its lander successfully touched-down on the Martian surface on July 20, 1976; with Viking 2 following shortly thereafter.

Martin's contributions to the success of the Viking Project cannot be under-estimated. He possessed a thorough understanding of the technical issues; and his leadership skills and style are legendary. Martin left NASA in 1976 to become vice president of advanced programs at Martin Marietta.

In recognition of extraordinary leadership as Assistant Manager of the highly successful Lunar Orbiter Project, and as Manager of the Viking Project that placed the first two successful landers on the surface of Mars.

2017 Honoree

M. Patrick McCormick

Dr. M. Patrick McCormick (1940-) is a worldwide leader in satellite remote sensing. His research contributions in the field of remote sensing of Earth's atmosphere have led to enhanced understanding of the impacts of aerosols and clouds on the Earth's atmospheric chemistry and climate.

Born in Canonsburg, Pennsylvania, McCormick earned master of science and doctorate degrees in physics from The College of William and Mary, in 1964 and 1967, respectively. For his dissertation, he built one of the world's first Light Detection and Ranging (LIDAR) systems.

McCormick began his career at the NASA Langley Research Center in 1967, as a research scientist in the Gas Parameters Measurement Section. Early in his career, McCormick implemented his first space-borne instrument, called SAM (Stratospheric Aerosol Measurements), which flew aboard the Apollo-Soyuz Test Project in 1975. SAM was a proof-of-concept instrument, that evolved into a SAM II mission, and a series of very successful Stratospheric Aerosol and Gas Experiment (SAGE) instruments that utilize solar occultation to measure aerosols and trace gas constituents in the Earth's atmosphere. Findings from these measurement programs have significantly advanced our knowledge of the Earth's atmospheric system.

In 1975, McCormick was selected to head a new Aerosol Research Branch, a position he held for the ensuing 20 years. He led a team that has made seminal discoveries on how clouds and aerosols influence the chemistry of the Earth's climate system. Because of his exemplary leadership, NASA Langley is, today, an internationally recognized center of excellence in LIDAR and solar occultation remote sensing of the atmosphere.

McCormick also developed a ground-based LIDAR system that operated for several decades to monitor the impact of volcanic eruptions on our atmosphere and climate. In 1994, he was Principal investigator for the LIDAR In-space Technology Experiment (LITE) mission. Today's Cloud-Aerosol LIDAR and Infrared Pathfinder Satellite Observations (CALIPSO) satellite mission is a direct outgrowth of the LITE experiment; and its 10-year data record is transforming our understanding of cloud systems, aerosol sources, and their transport around the globe.

McCormick is a Fellow of the American Geophysical Union and the American Meteorological Society. He retired from NASA in 1996; and joined the faculty of Hampton University as a professor of physics, and Co-Director of the Hampton University Center for Atmospheric Sciences.

In recognition of pioneering development of remote sensing capabilities (both space-based and ground-based), and research analyses that have significantly contributed to scientific understanding of the Earth's atmospheric processes.

2017 Honoree

James H. Starnes, Jr.

Dr. James H. Starnes Jr. (1939-2003) is internationally recognized for his pioneering contributions to advance the state-of-the-art of aerospace structures. Starnes was born in California, and earned both bachelor and master of science degrees in engineering mechanics from the Georgia Institute of Technology. In 1970, he received his doctorate in aeronautical engineering from the California Institute of Technology and joined the staff of the NASA Langley Research Center.

Starnes was named Assistant Head of the Structural Mechanics Branch in 1979, and Branch Head in 1981; and in 1999 was designated as Langley's Senior Engineer for Structures and Materials. As both a researcher and leader, Starnes made enduring contributions to the understanding of the structural response of stiffened and unstiffened structures. His research resulted in development of new test methods and verified prediction tools for structural analysis and design; enabling improved vehicle design tools.

In the late 1970s, Starnes pioneered early research into the emerging technology of composite structures for aerospace applications. This work led to initiation of NASA's 10-year Advanced Composites Technology Program. Within this program, Starnes and his team developed and demonstrated full-scale composite wing and fuselage structures representative of applications for future subsonic transport aircraft.

In support of NASA's Aircraft Structural Integrity Program, Starnes led the development of verified structural analysis methods for predicting residual strength of metallic aircraft structures with multi-site damage. Working with the nation's polymeric materials community, he made significant contributions to advance the state-of-the-art of high-strength and toughness material systems, and their application to practical structural concepts. Technology that evolved from this work demonstrated 15 to 20 percent weight savings, and found application in the C-17 and B-787.

During the 1990s, Starnes played lead roles in a redesign of the Space Shuttle system's liquid oxygen tank, NASA's failure investigation of the X-33 composite cryogenic tank, and the National Transportation Safety Board's investigation of the fatal crash of American Airlines Flight 587.

Starnes was a Fellow of the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, and the American Society for Composites. As a lasting tribute to his legacy, in 2006, Langley's Structures and Materials Laboratory (B1148) was rededicated as the Dr. James H. Starnes Jr. Structures and Materials Research Laboratory.

In recognition of personal contributions, and leadership of pioneering research in advanced metallic and composite structures, that heralded their use in aircraft, spacecraft, and launch vehicles.

2017 Honoree

Joel S. Levine

Dr. Joel S. Levine (1942-) is an internationally recognized planetary scientist, with specific expertise in atmospheric processes and modeling.

Born in Brooklyn, New York, Levine earned a bachelor of science degree in physics, with a minor in astronomy, from the Brooklyn College of the City University of New York, in 1964. He earned a master of science degree in meteorology from New York University in 1967; and, for a time, worked at the Goddard Institute for Space Studies. He also holds a master of science degree (1973) in aeronomy and planetary atmospheres, and PhD (1977) in atmospheric science from the University of Michigan.

Levine was specifically recruited by Langley to support the Viking Project to send orbiter and lander spacecraft to Mars. He joined the Langley staff in 1970, and was assigned to the Aeronomy Section of the Planetary Physics Branch, where he developed numerical models of the upper atmosphere of Mars in support of the Viking Project. As the Viking spacecraft were en route to Mars, he was a guest investigator for the Orbiting Astronomical Observatory-3 (Copernicus) mission, measuring the density and distribution of atomic hydrogen in the upper atmosphere of Mars.

In the ensuing decades, Levine's research focused on Earth's atmosphere: developing models to investigate the origin and evolution of atmospheric constituents; initiation of measurement programs to understand the effects of biomass burning, and the Earth's naturally-produced methane, on trace gases in the atmosphere. In 1987, he was selected as Virginia's Outstanding Scientist by The Science Museum of Virginia.

In the early 2000s, Levine conceived and led development of the Mars Aerial Regional-scale Environmental Surveyor (ARES) of Mars concept for a robotic airplane to transit the atmosphere of Mars to investigate trace gas composition of the Martian atmosphere. From 2007 to 2009, Levine was Program Scientist for the Mars Scout Program, detailed to NASA Headquarters; and chaired the Mission Selection Panel for the Mars Atmospheric and Volatile Evolution (MAVEN) Orbiter. He also served on the Instrumentation Selection Panels for the Mars Science Laboratory (Curiosity Rover), and the Mars 2020 Rover Missions.

Among his numerous honors, Levine has been awarded both the NASA Exceptional Scientific Achievement and Outstanding Leadership Medals. Levine retired from NASA in 2011, and is currently a Research Professor in the Department of Applied Science at the College of William and Mary.

In recognition of a career of unparalleled contributions to the scientific understanding of the atmospheres of Mars and the Earth, and a sustained leadership role in defining the scientific objectives of future Mars exploration activities.

Langley Research Center
NACA & NASA Hall of Honor

Acknowledgement

The Hall of Honor Committee wishes to acknowledge all those who have pursued their research and applied their technical and management skills to enable NACA and NASA Langley to achieve its goals. All contributions, both great and small, have contributed in significant ways to the overall preeminence of Langley, NASA, and the United States in the relentless and ever-challenging quest for knowledge of our world and worlds beyond.

Special acknowledgement to Joseph Chambers for his research and authorship of the Honorees' biographies.

Special thanks to the Langley Alumni Association for the mementos presented to the Honorees and/or their families.

Visit the Hall of Honor Website at:
https://www.nasa.gov/langley/hall-of-honor

Langley Research Center
NACA & NASA Hall of Honor

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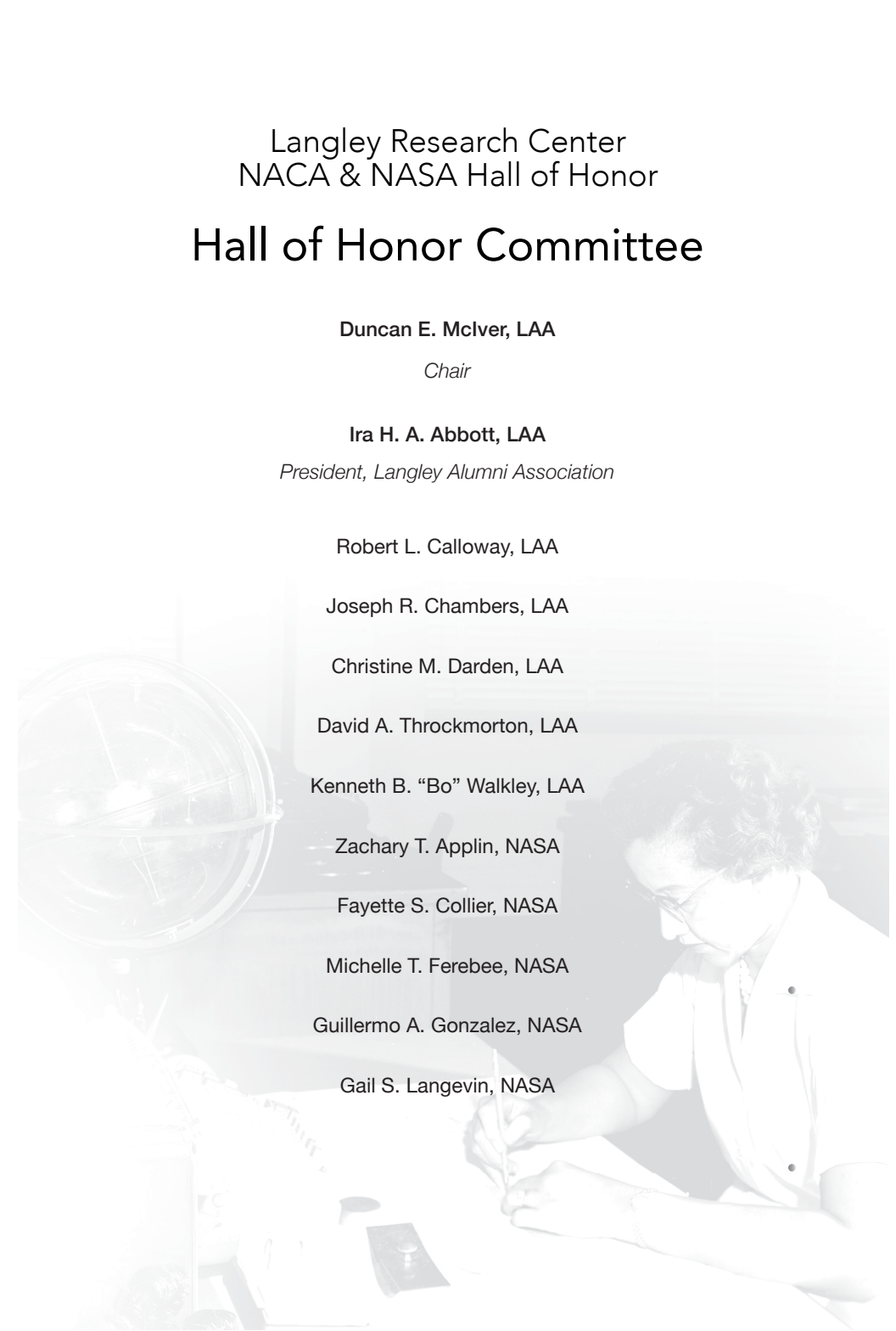


Langley Research Center
NACA & NASA Hall of Honor

Special Recognition

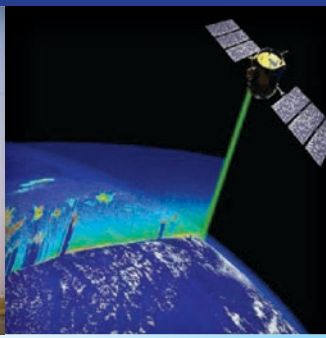
Duncan McIver

Duncan McIver is the founding member of the Langley NACA and NASA Hall of Honor Committee. He first established the vision for the Hall of Honor in 2013, and tirelessly championed the concept until it became a reality in 2015. He has provided continuing high-level leadership to the Committee as we developed the processes to secure nominations, select honorees, and plan and carry-out induction ceremonies; and he has worked closely with NASA to secure a permanent Hall of Honor display in the NACA Room. In addition, Duncan has provided able coordination with the Langley Alumni Association and fostered active communication with Langley Research Center leadership. The successful Hall of Honor induction ceremonies in August 2015 and June 2017 clearly reflect Duncan's commitment to this program. The Hall of Honor Committee wishes to provide this special acknowledgement in appreciation of all that Duncan has done to realize his vision of honoring those of have contributed so much to NACA, NASA, and the aerospace community in the United States and worldwide.

Gail Langevin

The Hall of Honor Committee wishes to express its sincere appreciation to Gail Langevin, who has worked tirelessly, to coordinate Hall of Honor activities with NASA Langley leadership, other Centers, and NASA Headquarters to ensure the overall success of the program. She joined the HoH Committee very early on and has served as the focal point for the vast array of details necessary to ensure the right things happen at the right time! Gail has been instrumental in connecting with family members of the inductees to ensure their awareness of the honor and their presence at the induction ceremony. She has ensured that all details necessary for the conduct of the induction ceremonies are in place and ready to go. Gail's support of the Hall of Honor has been accomplished on top of her many other job responsibilities. The success of the Hall of Honor has resulted in no small part from her untiring efforts on behalf of the Committee, the honorees, and family members.





National Aeronautics and Space Administration

Langley Research Center
100 NASA Road
Hampton, VA 23681-2199
https://www.nasa.gov/langley/100

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