Steven L. Morris

PhD, PE, FRAeS

Principal

Dr. Morris is an aeronautical/mechanical engineer and a Principal of Engineering Systems Inc. (ESi). He has over 40 years of experience in aeronautical and mechanical engineering, including theoretical, computational, and experimental investigations.

Dr. Morris' consulting work includes the determination of aircraft maneuvers and performance characteristics from recorded radar data, on-board systems, accident reconstruction, flight data recorder analysis, static/dynamic/aerodynamic performance of vehicles and fixed objects, load estimation, aircraft ice accretion predictions, and other aeronautical engineering analyses.

Dr. Morris served for over 24 years as an officer in the U.S. Air Force with duties including teaching and directing a wide variety of courses in aeronautics and engineering design at the U.S. Air Force Academy and Air Force Test Pilot School. He retired in the grade of Lieutenant Colonel. He is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA) and Fellow of the Royal Aeronautical Society (RAeS).

Dr. Morris has taught and published more than 30 papers and reports and co-authored a book titled "An Introduction to Aircraft Flight Mechanics: Performance, Static Stability, Dynamic Stability, and Classical Feedback Control" that is being used as a textbook at the U.S. Air Force Academy, as well as other universities. He has won the AIAA Summerfield Book Award.

Education

PhD, Aerospace Engineering. Texas A & M University. 1989

MS, Aeronautical Engineering. Air Force Institute of Technology. 1980

BS, Engineering Sciences. USAF Academy. 1975

Licenses & Certifications

- State of Colorado P.E. License 39816

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ESi Colorado Springs

5575 Tech Center Drive, Suite 115
Colorado Springs, CO 80919

Areas of Specialization

- Airplane & Helicopter Accident Reconstruction
- Aircraft Flight Path Reconstruction
- Aircraft Design
- Flight Dynamics & Simulation
- Radar Data Analysis
- Aerodynamics
- Experimental & Computational Fluid Dynamics
- Aircraft Icing
- Thermodynamics & Lasers
- Space-Based Navigational Systems

Positions Held

Engineering Systems Inc., Colorado Springs, Colorado

- Principal, 2019 – Present
- Principal & Manager of Colorado Operations, 2018–2019
- Senior Managing Consultant & Manager, Colorado Operations, 2012–2018
- Senior Consultant & Regional Office Manager, Colorado, 2011–2012
- Senior Consultant, 2000–2010

SRS Technologies, Colorado Springs, Colorado

- Senior Engineering Specialist, 1999–2000

Department of Aeronautics, USAF Academy, Colorado

- Associate Professor and Deputy Department Head, 1996–1999

HQ U.S. Space Command, Colorado Springs, Colorado

- Chief, Force Enhancement Branch, Plans Directorate, 1994–1996

Department of Aeronautics, USAF Academy, Colorado

- Associate Professor and Deputy Department Head, 1989–1994
- Assistant Professor and Resource Manager, 1984–1986

Weapons Laboratory, Kirtland Air Force Base, New Mexico

- Chief, Chemical Laser Weapons Systems Group, 1980–1984

USAF 6585th Test Group, Holloman Air Force Base, New Mexico

- Group Test Engineer, 1976–1978

Continuing Education

- **Basic Aircraft Accident Investigation Course** – Transportation and Safety Institute, 2009

Professional Affiliations/Honors

American Institute of Aeronautics and Astronautics

- Associate Fellow, 1999–Present
- Member, Applied Aerodynamics Technical Committee, 2003–2006; 2008-2014
- Member, Atmospheric Flight Mechanics Technical Committee, 1991-1994; 1998-2001
- Member, AIAA Corporate Member Committee

- Member, Region V Deputy Director for Education, 1990-1994
- Member, Region V Deputy Director for Precollege Outreach, 1990-2001
- Recipient, Summerfield Book Award, 2006
- Recipient, Sustained Service Award, 2005

Society of Automotive Engineers

- Member, 2004-Present
- Member, AC-9C Aircraft Icing Technology Committee, 2004 – Present
- Chair, AC-9C Aircraft Icing Technology Committee, 2013–2015
- Vice Chair, AC-9C Aircraft Icing Technology Committee, 2011–2013
- Secretary, AC-9C Aircraft Icing Technology Committee, 2009–2011

Royal Aeronautical Society

- Fellow, 2019-Present

International Society for Air Safety Investigators

- Member, 2010-Present

USAF Academy

- Honoree, Outstanding Military Educator in Aeronautics, 1991
- Recipient, Robert L. Wenning Outstanding Academic Instructor Award, Test Pilot School, Class 91B, 1992 & 1993
- Recipient, Daniel H. Daley Award, Outstanding Member of the Department of Aeronautics, 1994
- Member, Department of Aeronautics Advisory Panel, 1999 – Present

Marquis Who's Who

- Listee, Who's Who in the West, 1994-1995
- Listee, Who's Who in America, 2000-2010
- Listee, Who's Who in the World, 2001
- Listee, Who's Who in Science and Engineering, 2005-2006

Strathmore's Who's Who

- Listee, 1998-Present

The International Who's Who

- Listee, 2000

Tau Beta Pi, National Engineering Honor Society

- Member, 1998-Present

Sigma Gamma Tau, National Aerospace Engineering Honor Society

- Member, 1989-Present

Outstanding Young Men in America

- Honoree, 1981

Publications

"Use of Specific Excess Power in Aviation Accident Analysis," T.P. Jung, **S.L. Morris**, J.H. Slane, R.C. Winn, S. Brandt, and K.M. Greene, American Institute of Aeronautics and Astronautics, AIAA-2021-1337, January 2021.

"Unconventional Sources of Data for Accident Reconstructions," **S.L. Morris** and R.C. Winn, American Bar Association, Aviation and Space Law Committee News, Summer 2019.

"Using GPS and Accelerometer Data to Reconstruct Aircraft Flight Parameters," J.H. Slane, R.J. Butler, and **S.L. Morris**, American Institute of Aeronautics and Astronautics, AIAA-2008-7032, August 2008.

"Analysis of a Hoverwing in Ground Effect," **S.L. Morris**, R.J. Butler, J.H. Slane, T. McLaughlin, C. Gamble, and J. Martin, American Institute of Aeronautics and Astronautics, AIAA-2008-0431, January 2008.

"Using GPS-Based Data Acquisition to Evaluate Vehicle and Driver Performance," R.J. Butler, R.C. Winn, **S.L. Morris**, J.H. Slane, D. Turnquist, and M. Wooddell, American Institute of Aeronautics and Astronautics, AIAA-2008-1146, January 2008.

"Evaluation of a General Aviation Flight Data Recorder," J.H. Slane, R.J. Butler, J.J. Emmerling, **S.L. Morris**, R.C. Winn, and K.B. Kumley, American Institute of Aeronautics and Astronautics, AIAA-2007-6365, August 2007.

"Aerodynamic Effects in the Milwaukee Baseball Stadium Heavy-Lift Crane Collapse," R.C. Winn, J.H. Slane, and **S.L. Morris**, American Institute of Aeronautics and Astronautics, AIAA-2005-24272, January 2005.

"An Introduction to Aircraft Flight Mechanics: Performance, Static Stability, Dynamic Stability, and Classical Feedback Control," T.R. Yechout, **S.L. Morris**, D.E. Bossert, and W.F. Hallgren, American Institute of Aeronautics and Astronautics, ISBN:1-56347-577-4, May 2003.

"Assessment of the Accuracy of Flight Path Reconstruction from ATC Radar Data Using Various Smoothing and Reconstruction Techniques," R.C. Winn, J.H. Slane, and **S.L. Morris**, American Institute of Aeronautics and Astronautics, AIAA 2002-0391, January 2002.

"One Approach to Developing a 'Hands On' Flight Mechanics Program," T.R. Yechout and **S.L. Morris**, ASEE Rocky Mountain Section Conference Technical Paper, April 1998.

"Flight Simulation and Aeronautical Education: Ten Years of Experience," T.R. Yechout and **S.L. Morris**, SAE/AIAA Technical Paper 975635, October 1997.

"Analysis of the Ice Accretion on the Ejector of the Really Quiet Hush Kit for the Gulfstream II and III," R.C. Winn and **S.L. Morris**, REALLY Quiet LLC, Report 10719C-1, December 2001.

"Ice Accretion Analysis on a UAV Wing: Part 4," R.C. Winn and **S.L. Morris**, Israel Aircraft Industries, Report 8454C-4, May 2001.

"Ice Accretion Analysis on a UAV Wing: Part 3," R.C. Winn and **S.L. Morris**, Israel Aircraft Industries, Report 8454C-3, March 2001.

"Ice Accretion Analysis on a UAV Wing: Part 2," R.C. Winn and **S.L. Morris**, Israel Aircraft Industries, Report 8454C-2, March 2001.

"Ice Accretion Analysis on a UAV Wing," R.C. Winn and **S.L. Morris**, Israel Aircraft Industries, Report 8454C, December 2000.

"A Video-Based Experimental Investigation of Wing Rock," **S.L. Morris**, Texas A&M University, PhD Dissertation, 1989.

"A Video-Based Experimental Investigation of Wing Rock," **S.L. Morris** and D.T. Ward, American Institute of Aeronautics and Astronautics, Paper 89-3349CP, August 1989.

"Nonintrusive Measurements of Vortex Flows on Delta Wings in a Water Tunnel," **S.L. Morris**, D.T. Ward, G.N. Macolm, and L.C. Lewis, American Institute of Aeronautics and Astronautics, Paper 88-2595CP, August 1988.

"Final Report: Space Shuttle Hatch Jettison Wind Tunnel Study," **S.L. Morris**, D.T. Ward, and L. Pham, Texas A&M University, AERO TR-88-6, 1988.

"An Innovative Approach to Nonintrusive Qualitative Measurements of Vortex Flows," G.N. Macolm, L.C. Lewis, D.T. Ward, and **S.L. Morris**, Eidetics TR 88-101, 1988.

"A Diagnostic Study of Flow in the Wake of a Disk Using a Photon Correlation Laser Velocimeter," **S.L. Morris**, Air Force Institute of Technology, Master's Degree Thesis, 1980.

Presentations

"The Use of Virtual Reality in Aviation Accident Analysis and Reconstruction," C. Fox, J. Lucek, **S.L. Morris**, R.C. Winn, and M.T. Kenner, SMU Air Law Symposium, Dallas, TX, March 2019.

"Aviation Accident Reconstruction Using Virtual Reality and Other New Technologies," R.C. Winn, C. Fox, **S.L. Morris**, M.T. Kenner, and J. Lucek, DRI 2019 Product Liability Seminar, Austin, TX, February 2019.

"The Use of Virtual Reality in Accident Reconstruction," T.P. Jung, **S.L. Morris**, and R.C. Winn, ATS-2018 American Institute of Aeronautics and Astronautics Rocky Mountain Section Annual Technical Symposium, Colorado Springs, October 2018.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, Orlando, FL, October 6-9, 2025.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Virtual, April 28–May 1, 2025.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 16–19, 2024.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Luton, England, July 10–11, 2023.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Wichita, KS, March 6–10, 2023.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 19–22, 2022.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Virtual, February 2–5, 2021.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Virtual, September 8–11, 2020.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Seattle, WA, April 8–11, 2019.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Oklahoma City, OK, October 29–November 1, 2018.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 18–21, 2018.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Patuxent River, MD, July 30–August 2, 2018.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Lucerne, Switzerland, September 25–28, 2017.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Seattle, WA, April 24–27, 2017.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 13–16, 2016.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Atlantic City, NJ, June 27–30, 2016.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Seattle, WA, April 21–24, 2015.

“Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification,” **S.L. Morris**, University of Kansas Continuing Education Program, Las Vegas, NV, March 4–7, 2014.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, Orlando, FL, November 12–15, 2013.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, Seattle, WA, April 24–27, 2012.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, Lawrence, KS, December 19–23, 2011.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 13–16, 2011.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, Montreal, Canada, May 9–12, 2011.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 21–24, 2010.

"Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification," **S.L. Morris**, University of Kansas Continuing Education Program, San Diego, CA, September 21–24, 2009.

"Thriving on Change at the Air Force Academy," R.J. Stiles, W.F. Hallgren, **S.L. Morris**, M.L. Smith, and F.T. Gilliam, ASEE 1994 Annual Conference, Edmonton, Alberta, Canada, June 1994.

"The Air Force Academy's Use of Flight Simulator in Its Aeronautics Curriculum," **S.L. Morris** and W.F. Hallgren, ASEE 1994 Annual Conference, Edmonton, Canada, June 1994.

"Use of Projects and Demonstrations in the Flight Mechanics Curriculum at the USAF Academy," **S.L. Morris**, AIAA Atmospheric Flight Mechanics Conference, August 1993.

"Space Shuttle Hatch Jettison Wind Tunnel Study," **S.L. Morris** and D.T. Ward, 11th Annual American Astronautical Society Guidance and Control Conference, Keystone, CO, January–February 1988.

"Vortex Flow Tests," **S.L. Morris** and D.T. Ward, 11th Annual American Astronautical Society Guidance and Control Conference, Keystone, CO, January–February 1988.

"New Tools in Aircraft Accident Reconstruction to Assist the Insurer," **S.L. Morris**, Aviation Insurance Association Annual Conference, Colorado Springs, CO, May 2015.

"Analyzing In-Flight Breakups and Other Underwriting Nightmares," **S.L. Morris**, Aviation Insurance Association Annual Conference, Miami, FL, May 2011.

"Icing Analysis on Unmanned Aerial Vehicles," **S.L. Morris**, Society of Automotive Engineers AC-9C Aircraft Icing Subcommittee, Orlando, FL, April 2005.

"Compensating for the Lag in Flammable Vapor Concentration Meters," R.C. Winn and **S.L. Morris**, 1st International Energy Conversion Engineering Conference, Portsmouth, VA, August 2003.

“Flight Simulators and Handling Qualities,” **S.L. Morris**, NASA Langley Research Center, Hampton, VA, June 2002.

“Aircraft Icing Overview,” **S.L. Morris**, NASA Langley Research Center, Hampton, VA, June 2002.

“Aircraft Accident Reconstruction,” **S.L. Morris**, NASA Langley Research Center, Hampton, VA, June 2002.