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KARA M. GREENE, Ph.D., P.E.
SENIOR STAFF CONSULTANT

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Dr. Greene is a Mechanical/Aeronautical Engineer and a Senior Staff Consultant for Engineering Systems Inc. (ESi) where she specializes in aircraft accident reconstruction and analysis. She leverages her prior military experience in her accident and reconstruction analysis. Using radar, GPS, ADS-B, aircraft system information, atmospheric data, and geographical surroundings, Dr. Greene evaluates the aircraft's performance and puts together a cohesive picture of an accident.

Dr. Greene joined ESi upon retiring from the U.S. Air Force following a 22-year career with positions including Wing Plans and Programs at Al Udied AB, Qatar, and Assistant Professor and Director of the Aeronautic Laboratory at the Air Force Academy. During her service in the Air Force, Dr. Greene was an evaluator and instructor pilot in the C-17A (Boeing Globemaster), an instructor in the T-53 (Diamond DA-40), T-52 (Cirrus SR-20), and T-41 (Cessna 172), and a pilot in the T-37 (Cessna Tweet) and T-1 (Beech Jayhawk) with a total of over 3,500 hours including combat and Night Vision Goggle (NVG) time. Currently, she has a commercial and instrument pilot FAA rating for single-engine and multi-engine aircraft.

Dr. Greene has a Ph.D. in aerospace engineering focusing on unmanned aircraft flying qualities. She has experience in wind tunnel testing and analysis, simulator and aerodynamic model building, and aircraft performance. At the Air Force Academy, she taught courses in aeronautics, experimental methods, a capstone mathematics course, and flight test techniques including data acquisition in the T-41.

Areas of Specialization

Piloting Expertise
Airplane and helicopter performance
Airplane and helicopter accident reconstruction
Radar, GPS, ADS-B Analysis
Unmanned Aircraft Systems (UAS)
Development and Operations
Aviation Operations
Aircraft Stability and Control
Aerodynamics
Wind Tunnel Testing

Education

Ph.D., Aeronautical Engineering, Air Force Institute of Technology, 2017
M.A., Counseling and Leadership, University of Colorado, 2010
M.S., Mechanical Engineering, University of Idaho, 2008
B.S., Mechanical Engineering, University of Notre Dame, 1998

Licensed Professional Engineer (P.E.)

State of Colorado…….License No. 62450

Professional Affiliations/Honors

American Institute of Aeronautics and Astronautics (AIAA)
Senior Member
AIAA Atmospheric Flight Mechanics Technical Committee

International Aviation Women's Association (IAWA)
Member
Mentor/Mentee Committee

Women of Aeronautics and Astronautics
Member

Tau Beta Pi, Engineering Honor Society
Member

Sigma Gamma Tau Engineering Honor Society
Member

Squadron Officer School
Outstanding Contributor

Air Education and Training Command (AETC) Commander's Trophy
Distinguished Graduate

Reserve Officer Training Corps
Distinguished Graduate

Paul Roberge Award
Top Pilot Candidate Graduate from AFROTC, Det 225

Continued Education

Basic Rotorcraft Accident Investigation Course, Transportation Safety Institute, U.S. Department of Transportation

Basic Aircraft Accident Investigation Course, Transportation Safety Institute, U.S. Department of Transportation

Crash Reconstruction for the Engineer, Northwestern University

Air War College

Civilian Personnel Management Course

Air Command and Staff College

Supervisor Safety Training

Squadron Office School

Combat Air Tactics School

Annual Boeing Crew Resource Management Training

Certifications

FAA Commercial Single Engine and Multiengine Pilot with Instrument Rating

Positions Held

Engineering Systems Inc., Colorado Springs, Colorado
Senior Staff Consultant, 2021-present

USAF Academy, Colorado Springs, Colorado
Director, Aeronautics Laboratory, Assistant Professor, Instructor Pilot, 2017-2020

379th Air Expeditionary Wing, Al Udeid AB, Qatar
Chief, Wing Plans & Programs and Command Post, 2016-2017

USAF Academy, Colorado Springs, Colorado
Director of Operations/Assistant Professor of Aeronautics, 2015-2016

Air Force Institute of Technology, Wright-Paterson Air Force Base, Ohio
Ph.D. Candidate, 2012-2015

USAF Academy, Colorado Springs, Colorado
Engineering Division Executive Officer/Instructor of Aeronautics, 2010-2012

University of Colorado, Colorado Springs, Colorado
Master's Degree Student, 2009-2010

Altus Air Force Base, Oklahoma
Assistant Director of Operations, Standardization and Evaluation Assistant Flight Commander, Tactics Flight Commander, C-17 Flight Training Unit Evaluator Pilot, 2005-2009

McChord Air Force Base, Washington
Assistant Readiness Flight Commander, Chief of Training, Wing Airland Planner, Executive Officer, C-17 Instructor Aircraft Commander, 2001-2005

Laughlin Air Force Base, Texas
T-37 and T-1 Student Pilot, 1999-2001

University of Colorado, Colorado Springs
Master's Degree Student, 2009-2010

University of Notre Dame, Notre Dame, Indiana
Assistant to the Commander, Detachment 225, 1998-1999

Publications

Papers

Jung, T., Morris, S., Slane, J., Winn, R., Brandt, S., **Greene, K.**, "Use of Specific Excess Power in Aviation Accident Analysis", AIAA SciTech Forum, January 2021.

Greene, K., Kunz, D., "Quickness Criteria for Large Unmanned Aircraft in Non-Precision, Aggressive and Non-Aggressive Maneuvers", AIAA Atmospheric Flight Mechanics Conference, June 2015.

Greene, K., Kunz, D., Cotting, M., "Toward a Flying Qualities Standard for Unmanned Aircraft", AIAA Atmospheric Flight Mechanics Conference, June 2014.

Siefers, T., **Greene, K.**, McLaughlin, T., and Bergeron, K., "Wind and Water Tunnel Measurements of Parachute Suspension Line", AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, June 2013.

Greene, K., Barlow, D., and Cunningham, T., "Creating a Curriculum Based on Engineering Needs," International Network for Engineering Education and Research, INEER Innovation Series Special Volume 2012, Paper 12-039, Turku, Finland, July 2012.

Presentations

Jung, T., **Greene, K.**, Winn, R. "Elbit Systems/Connolly Case: A Review of ESi's Contributions", Generali Aviation Claims Seminar, January 2023

Greene, K., Bauer, M. "Techniques in Aircraft Accident Reconstruction: Past, Present, and Future", ABA/TIPS Aviation & Space Law Seminar, November 2022

Greene, K., "Unmanned Flying Qualities Criteria Comparison Of Non-Precision Non-Aggressive and Precision Aggressive Maneuvers", Aerospace Control and Guidance Systems Committee (ACGSC) Meeting #116, October 2015

Greene, K., "Investigation of Large Unmanned Aircraft Non-Precision, Aggressive Quickness Criteria", SCI-269 Symposium on UAS Flight Testing, May 2015

Greene, K., "Flying Qualities Criteria for Unmanned Aircraft", AIAA DCASS, March 2015

Greene, K., "Flying Qualities for Unmanned Aerial Vehicles", AIAA Dayton-Cincinnati Aerospace Science

Sample Project Work

- Reconstructed the flight path of a single engine Cirrus SR22 aircraft leading up to a fatal crash. Analyzed onboard JP Instruments Engine Data Monitor 900 data, Air Traffic Control data, and Air Surveillance Radar data. Combined the collected data used to create visual simulation of the accident. Utilized the combined data and the simulations to verify the cause of the fatal crash. Developed analysis and reports for the client which lead to the settlement of the case.
- Coordinated multiple aviation experts, pilots, and others to develop a comprehensive understanding of the events leading up to two fatal nighttime crashes of a Boeing AH-64E Apache attack helicopters.
- Project managed the development and creation of demonstrative visual simulations of flight controls, Pilot Night Vision System (PNVS), onboard data tracking systems, and pilot actions leading to the fatal nighttime crash of a Boeing AH-64E Apache attack helicopter.