GEORGE F. SWITZER

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EXPERIENCE

High Performance Computing Facilitator

NASA Langley Research Center, Hampton, VA
03/2021 – 09/2025

1) Responsible for promoting efficient and effective use of high-performance computing (HPC) resources to impact research goals with three concentrations: consulting, training, and future capability awareness.
2) Coordinated and facilitated training events at Langley and across the agency to develop workforce HPC skills improvement.
3) Identified topics and arranged speakers for monthly HPC meeting benefiting research staff at NASA Langley and across the agency. Presenters ranged from local NASA researchers to industry experts bringing awareness about new technologies and how to use existing HPC resources.

10/2023 Transferred to Computational Aerosciences Branch

Member of the Subsonic Flight Demonstration Team for Low-Speed Computational Fluid Dynamic (CFD) analysis of the X-66 Boeing transonic truss braced wing (TTBW) design.

1) Applied FUN3D to conduct several CFD simulations to generate Cp, force and moment, and skin friction surface plots for several angles of attack.
2) Applied FUN3D to investigate methods to estimate X-66 dynamic derivatives.
3) Created Python scripts to automate post-processing of FUN3D results.

Organized several HPC related training events.

RADAR ENGINEER

Analytical Mechanics Associates, Hampton, VA
01/2016 – 03/2021

Applied and modified the Terminal Area Simulation System (TASS) Large Eddy Simulation (LES) Fortran model to investigate HIWC related phenomena and its ability to be detected by airborne radar.

1) Served as Principal Investigator for the National Advanced Supercomputing (NAS) center project, “LES Modeling for High Ice Water Content.”

2) Participated in the RTCA Special Committee 230 Working Group 10, “Airborne Weather Detection Systems.”
3) Applied Python scripting language to analyze and visualize TASS simulation data.
4) Created, documented, and delivered TASS based data sets to industry partners supporting development of sensor technology.
5) Updated and improved capability of the Airborne Doppler Weather Radar Simulation program for evaluating radar performance against TASS based data sets.

SENIOR SCIENTIST

Analytical Services & Materials, Inc., Hampton, VA
10/2008 – 12/2015

1) Analyzed flight data to determine performance metrics for evaluation of aircraft signal reception of Automatic Dependent Surveillance-Contract (ADS-B) in oceanic airspace.
2) Modified Fortran program Traffic Manager (TMX) for simulation of aircraft operations evaluating the Pair-wise Trajectory Management concept.

Responsibilities from 10/2008 through 03/2013:

1) Applied TASS LES model to evaluate the effects of atmospheric phenomenon on aircraft wake vortices to develop models for analysis of flight systems and operations.
2) Mentored a Governor’s Fellow student during the summer of 2011.
3) Trained team members in the operation of TASS post processing software
4) Created automation strategies for TASS and related post processing software to significantly reduce processing time.
5) Investigated TASS turbulence generation methodologies.
6) Directed and planned necessary research assessing TASS model performance on new supercomputer systems.

SUPPORT SCIENTIST

Northwest Research Associates, Inc., Redmond, WA
08/2005 - 10/2008

1) Conceived and formulated research ideas to mitigate software limitations to meet NASA milestones, lead software development teams
2) Created large 3-D data sets for government and industry, and developing post processing software to analyze large 3-D data sets.
3) Created tools and methods to study and generate empirical model relationships for aircraft vortex behavior as related to turbulence intensity and thermal stratification.

RESEARCH AEROSPACE ENGINEER

RTI International, Hampton, VA
03/1993 - 04/2005

Participated on teams from industry, university, and government to develop advanced concepts for improving aircraft operations in the National Airspace System.

1) Lead projects for over 10 years to interpret TASS model results.
2) Project lead to improve/enhance the Airborne Doppler Weather Radar Simulator.
3) Coordinated TASS model development across many different organizations.

Applied research with the TASS model to national airspace safety and efficiency programs.

1) Turbulence Prediction and Warning System (TPAWS) 2000 – 2005
2) Aircraft Vortex Spacing System (AVOSS) 1995 – 2004
3) Windshear 1993 – 1996

Applied the TASS model to support the National Transportation and Safety Board (NTSB) in specific aircraft crash investigations:

1) AA587 – 2002: Flight AA 587 crashed in New York, NY on November 12, 2001.
2) US AIR 1016 - 1994: US Air flight 1016 crashed at Charlotte, NC, on July 2, 1994.

EDUCATION

1) 1987 Master's Degree / Aerospace Engineering
   Virginia Polytechnic Institute & State University Blacksburg, VA
2) 1985 Bachelor's Degree / Aeronautical Engineering
   California Polytechnic State University San Luis Obispo, CA