

Allen Witkowski

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Aerospace Engineering Consultant

Consulting engineering services including design, integration, testing, validation and verification, and project management. 30 years of experience in government and large aerospace company contracts, executing program management of complex spacecraft subsystem design, analysis, test, and manufacture. Internationally recognized subject matter expert in the field of interplanetary probe Aerodynamic Decelerator Systems (ADS) engineering. Involved in every NASA planetary probe decelerator project from 1992 to date. Strategic and methodical in using every available resource and engaging disparate teams in support of a common goal within fixed time constraints and limited budgets, often with changing requirements and unanticipated development discoveries.

CORE COMPETENCIES

- Engineering Management
 - Problem Resolution
 - ISO Management Methods
 - Technical Analyses
 - Test Design / Execution
 - Project Management
 - Engineering Forensic Analysis
 - Product Management
 - Aerospace Technical Reporting
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PROFESSIONAL EXPERIENCE

Katabasis Engineering, LLC

2017-Present

Independent consultant and entrepreneur specializing in aerodynamic decelerators, textiles, and associated engineering. Ongoing contracts for consultation support with various NASA government entities including NASA JPL and NASA Engineering and Safety Center (NESC). Awarded 2018 NASA Small Business Innovation Research (SBIR) Phase I grant to develop innovative textile strain measurement system.

Pioneer Aerospace Corporation, South Windsor, CT

1988-2017

An aerodynamic decelerator systems company that supports the US Government and foreign allies with the design, analysis, test and manufacture of parachute and other decelerator systems and applications. Now doing business as Zodiac Parachute and Protection America as part of the Safran corporation.

Director of Engineering Operations (2007-2017)

Directly responsible for over two-thirds of the engineering staff in coordination of duties, assignments, and work product. Duties include the tracking of employee development, training, and resource allocation to customer/project needs.

- Active participant in direction / development of overall company strategy and mission goals.
- Supported ISO and associated management standards and implementation, including active management representative to Material Review Board and continuous improvement initiatives.
- Supported the Business Development office in the generation of marketing, industry research, and all engineering development proposals.

Program Manager (1996-2017)

Responsible for the proposal, costing, contracting, and subcontracting for large and small programs, including all NASA Planetary Probe decelerator systems for the period. Coordinated all design, development, analysis, validation & verification, qualification, and manufacturing elements of the contracted systems.

- Projects included all successful NASA Mars lander systems from Mars Pathfinder (1997) to Mars Science Laboratory (2012), as well as in-flight Mars InSight and in-development Mars 2020.
- Contracts included both Fixed Price and Cost Plus Fixed Fee and resulted in at least half of the sales for the local facility for most of the period of employment.
- Efforts included highly technical, single fault, specialty products that were produced with changing customer requirements under fixed launch date schedules.

Project/Test Engineer (1988-1996)

Responsible for the support of many varied and complex products and test programs for a small department that required independent action and on the job training by unsupervised action.

- Activities included advancements in the state of the art for: pyrotechnic device timing, aerial test vehicle design and instrumentation and decelerator analytical methods.

EDUCATION / CERTIFICATIONS

B.S., Aeronautical Engineering, Embry Riddle Aeronautical University, Daytona Beach, FL

PROFESSIONAL TRAINING

Ammunition and Explosives Certification Training, AMTEC Corporation, 2007

Managing Technical Professionals & Organizations, MIT Sloan School of Management, 2003

Helmut Heinrich Parachute Systems Technology Short Course, University of Minnesota, 1994

AWARDS and HONORS

AIAA Associate Fellow, Recognition of Professional Standing and Successful Practice, 2011

Robert H Goddard Award, Exceptional Achievement in Engineering in the NASA Balloon Program, 2008

NASA Group Achievement Awards: Mars Pathfinder 1997, Mars Polar Lander 1999, Stardust 2006, Mars Exploration Rovers 2004, Genesis 2004, Mars Scout Phoenix 2008, Mars Science Laboratory 2012

NASA Certificates of Appreciation: NASA Quality Leadership Forum 2006, NASA Advanced Planning and Integration Office 2005, NASA Johnson Space Center X-38 Project 1998

PROFESSIONAL AND VOLUNTEER ORGANIZATIONS

International Planetary Probe Workshop Organizing Committee – IPPW (2010-Present)

American Institute of Aeronautics and Astronautics – AIAA (1996-Present)

NASA Engineering and Safety Center – NESC (2010 – Present)

PUBLICATIONS

Overview of the InSight Parachute Decelerator System

Allen Witkowski, David Buecher, Devin Kipp, IPPW-13 03-PR-06, 13th International Planetary Probe Workshop, Applied Physics Laboratory, Maryland, June, 2016.

InSight Parachute Pack Rotation Discovery and Investigation

Allen Witkowski, David Buecher, Devin Kipp, IPPW-13 03-PR-07, 13th International Planetary Probe Workshop, Applied Physics Laboratory, Maryland, June, 2016.

Verification and Validation Testing of the Parachute Decelerator System Prior to the First Supersonic Flight Dynamics Test for the Low Density Supersonic Decelerator Program

J. Gallon, A. Witkowski, AIAA-2015-2162, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Parachute Decelerator System Performance During the Low Density Supersonic Decelerator Program's First Supersonic Flight Dynamics Test

I. Clark, J. Gallon, A. Witkowski, AIAA-2015-2130, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Deployment of the 30.5 meter Parachute on the Supersonic Flight Dynamics Test

E. Brandeau, J. Gallon, A. Witkowski, C. Tanner, AIAA-2015-2129, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Pilot Deployment of the LDSD Parachute via a Supersonic Ballute

C. Tanner, C. O'Farrell, J. Gallon, I. Clark, A. Witkowski, P. Woodruff, AIAA-2015-2128, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Stress Analysis of the LDSD Supersonic Ballute

V. Grychanyuk, M. Kandis, A. Witkowski, AIAA-2015-2114, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

LDSB Supersonic Ballute Design and Packing

P. Woodruff, C. Yanaros, A. Witkowski, C. Tanner, AIAA-2015-2113, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Design of Subscale Parachute Models for LDSB Transonic Dynamics Wind Tunnel Testing

A. Witkowski, w. Machalick, C. O'Farrell, AIAA-2015-2110, 23rd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 30-April 2, 2015.

Aerodynamic Characterization of New Parachute Configurations for Low-Density Deceleration

C. Tanner, I. Clark, J. Gallon, T. Rivellini, Allen Witkowski, AIAA-2013-1358, 22nd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 25-28, 2013.

Low Density Supersonic Decelerator Parachute Decelerator System

J. Gallon, A. Witkowski, I. Clark, T. Rivellini, D. Adams, AIAA-2013-1329, 22nd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 25-28, 2013.

Mars Science Laboratory Technora Age Study Results

John Fabiszak, Allen Witkowski, AIAA-2013-1306, 22nd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 25-28, 2013.

Mars Science Laboratory Parachute System Performance

Allen Witkowski, Mike Kandis, AIAA-2013-1277, 22nd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 25-28, 2013.

Parachute Models Used in the Mars Science Laboratory Entry, Descent, and Landing Simulation

J. Cruz, D. Way, J. Schidner, R. Powell, D. Kipp, D. Adams, A. Sengupta, A. Witkowski, M. Kandis, AIAA-2013-1276, 22nd AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Daytona Beach, FL, March 25-28, 2013.

Mars Science Laboratory Technora Age Study

Allen Witkowski, Jerry Rowan, Douglas S. Adams, AIAA-2011-2513, 21st AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Dublin, Ireland, May 23-26, 2011.

Phoenix Mars Scout Parachute Flight behavior and Observations

Douglas S. Adams, Allen Witkowski, Mike Kandis, IEEE-AC-1534, IEEE Aerospace Conference, Big Sky, MT, 2011.

Unique Aspects of Accommodating Two Recent Parachute Tests at the National Full-Scale Aerodynamics Complex

Patrick W. Goulding II, Charles R. Rogers, Douglas S. Adams, Allen Witkowski, Kenneth J. Desabrais, Thomas P. Jenkins, AIAA-2011-1261, 49th AIAA Aerospace Sciences Meeting and Exhibit, Orlando, Florida, January 4-7, 2011.

Aerodynamic Decelerators for Modern Venus Probes/Landers

Allen Witkowski, Ethiraj Venkatapathy, Peter Zell, Gary Allen Jr., IPPW-7 Paper #529, 7th International Planetary Probe Workshop, Barcelona, Spain, June 14-18, 2010.

Evaluation of Long Term Space Effects on Textiles from the Genesis Drogue Parachute

Allen Witkowski, IEEE-AC-1182, IEEE Aerospace Conference, Big Sky, MT, 2010.

Reefing the Mars Science Laboratory Parachute

Allen Witkowski, Mike Kandis, IEEE-AC-1181, IEEE Aerospace Conference, Big Sky, MT, 2010. *Supersonic Performance of Disk-Gap-Band Parachutes Constrained to a 0-Degree Trim Angle*

Anita Sengupta, Richard Kelsch, James Roeder, Mark Wernet, Allen Witkowski, Mike Kandis, *Journal of Spacecraft and Rockets* 2009, 0022-4650 vol.46 no.6 (1155-1163) doi: 10.2514/1.41223.

Energy Modulators for Recovery of High Altitude Balloon Payloads

Walter Machalick, Mike Kandis, Allen Witkowski, Erich Klein, AIAA-2009-2821 AIAA Balloon Systems Conference, Seattle, Washington, May 4-7, 2009.

Design of Subscale Parachute Models for MSL Supersonic Wind Tunnel Testing

Allen Witkowski, Mike Kandis, James Reuter, Walter Machalick, Richard Kelsch, Anita Sengupta, AIAA-2009-2999, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Supersonic Testing of 0.8 m Disk Gap Band Parachutes in the Wake of a 70 deg Sphere Cone Entry Vehicle

Anita Sengupta, Mark Wernet, James Roeder, Richard Kelsch, Allen Witkowski, Thomas Jones, AIAA-2009-2974, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Inflation Characteristics of the MSL Disk Gap Band Parachute

Allen Witkowski, Mike Kandis, Douglas Adams, AIAA-2009-2915, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Comparison of Subscale Versus Full-Scale Wind Tunnel Tests of MSL Disk Gap Band Parachutes

Allen Witkowski, Mike Kandis, Anita Sengupta, Kurt Long, AIAA-2009-2914, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Mars Scout Phoenix Parachute System Performance

Allen Witkowski, Mike Kandis, Douglas Adams, AIAA-2009-2907, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Findings from the Supersonic Qualification Program of the Mars Science Laboratory Parachute System

Anita Sengupta, Adam Steltzner, Allen Witkowski, Graham Candler, Carlos Pantano, AIAA-2009-2900, 20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Seattle, Washington, May 4-7, 2009.

Supersonic Disk Gap Band Parachute Performance in the Wake of a Viking-Type Entry Vehicle from Mach 2 to 2.5

Anita Sengupta, James Roeder, Richard Kelsch, Mark Wernet, Allen Witkowski, Mike Kandis, AIAA-2008-6217, AIAA Atmospheric Flight Mechanics Conference and Exhibit, Honolulu, Hawaii, August 18-21, 2008.

Overview of the Mars Science Laboratory Parachute Decelerator System

Anita Sengupta, Allen Witkowski, Jerry Rowan, Yaro Taeger, Mike Kandis, Walt Malachick, Joe Moran, Keith Baker, Doug Smith, Joe Morris, Eric Thome, Mark Masterleo, AIAA-2007-2578, 19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Williamsburg, VA, May 21-24, 2007.

Mars Scout Phoenix Canopy Stress Analyses

Allen Witkowski, Mike Kandis, Mike Accorsi, AIAA-2007-2528, 19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Williamsburg, VA, May 21-24, 2007.

Mars Scout Phoenix Parachute Canopy Structural Test Peak Load Prediction Technique

Yaro Taeger, Allen Witkowski, Mike Kandis, AIAA-2007-2566, 19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Williamsburg, VA, May 21-24, 2007.

Stardust Parachute Trajectory Performance Reconstruction

Allen Witkowski, Mike Kandis, AIAA-2007-2546, 19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Williamsburg, VA, May 21-24, 2007.

An Overview of the Mars Science Laboratory Parachute Decelerator System

A. Sengupta, A. Steltzner, A. Witkowski, and J. Rowan, IEEE-AC-1432, IEEE Aerospace Conference, Big Sky, MT, March 2007.

Mars 2007 Scout Phoenix Parachute Decelerator System Program Overview

Allen Witkowski, IEEE-AC-1581, IEEE Aerospace Conference, Big Sky, MT, 2007.

Mars Deployable Decelerators Capability Roadmap Summary

Allen Witkowski, Glen Brown, IEEE-AC-1585, IEEE Aerospace Conference, Big Sky, MT, 2006.

Mars Subsonic Parachute Technology Task System Overview

Allen Witkowski, Walter Machalick, Yaro Taeger, Pioneer AIAA-2005-1657, 18th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Munich, Germany, May 23-26, 2005.

Mars Exploration Rover Parachute System Performance

Allen Witkowski, Mike Kandis, Robin Bruno, Juan Cruz, AIAA-2005-1605, 18th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Munich, Germany, May 23-26, 2005.

High Altitude Test Program for a Mars Subsonic Parachute

Robert Mitcheltree, Robin Bruno, Eric Slimko, Curtis Baffes, Edward Konefat, Allen Witkowski, AIAA-2005-1659, 18th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Munich, Germany, May 23-26, 2005.

Mars Exploration Rover Parachute Decelerator System Program Overview

Allen Witkowski, Robin Bruno, AIAA-2003-2100, 17th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Monterey, California, May 19-22, 2003.

Opening Loads Analyses for Various Disk-Gap-Band Parachutes

Juan Cruz, Mike Kandis, Allen Witkowski, AIAA-2003-2131, 17th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Monterey, California, May 19-22, 2003.

A Summary of Dynamic Testing of the Mars Exploration Rover Parachute Decelerator System

Yaro Taeger, Allen Witkowski, AIAA-2003-2127, 17th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Monterey, California, May 19-22, 2003.

Structural Testing of Parachutes in the National Full-Scale Aerodynamics Complex 80- by 120-foot Wind Tunnel at NASA Ames

Peter Zell, Juan Cruz, Allen Witkowski, AIAA-2003-2130, 17th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, Monterey, California, May 19-22, 2003.

Parafoil Recovery Subsystem for the Genesis Space Return Capsule

John Smith, Allen Witkowski, Paul Woodruff, AIAA-2001-2017, 16th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar, 16th, Boston, MA, May 21-24, 2001.

Mars Pathfinder Parachute System Performance

Allen Witkowski, AIAA-1999-1701, CEAS/15th AIAA Aerodynamic Decelerator Systems Technology Conference, Toulouse, France, June 8-11, 1999.

The Stardust Sample Return Capsule Parachute Recovery System

Allen Witkowski, AIAA-1999-1741, CEAS/15th AIAA Aerodynamic Decelerator Systems Technology Conference, Toulouse, France, June 8-11, 1999.

The Comet Recovery System

Edwin Vickery, John Smith, Allen Witkowski, Donald Thompson, AIAA-1995-1574, 13th AIAA Aerodynamic Decelerator Systems Technology Conference, Clearwater, FL, May 15-18, 1995.