

# Allen H. Farrington

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## Career Objective

Over the past twenty-five years of my career, I have taken various levels of responsibility up to and including project and line management and I have met those responsibilities with success. I am looking to continue to expand my responsibilities within the different areas of Management to contribute to JPL's mission.

## Summary of Experience

Over the past 25 years, I have demonstrated through my project work on the Deep Space Atomic Clock, CoNNeCT, CheMin, and Urey, that I can build a project team, organize their activities, and accomplish our objectives under sometimes difficult circumstances. I can work with both individual PI's as well as larger, more diverse science teams. I have worked with multiple divisions and sections at one time blending various expertise into one cohesive team while maintaining good relationships with the line. I have extensive international experience with a variety of national space agencies as well as ESA. Through my experience in representing Division 31's Formulation activities, I have contributed to multiple proposals and development efforts. I have been personally successful in formulation as well as execution and understand the value of strategic thinking and how it informs and links to day-to-day tactical decision-making. On the more technical side, I have integrated and tested complex software-based systems and flight hardware with demanding customers. I have direct experience with a variety of flight system components including detailed experience with flight instrumentation, telecommunications subsystems as well as the C&DH systems and flight software. I have an intimate knowledge of the workings of Safety and Mission Assurance and good relationships with many key players in that area. One of my institutional strengths is my understanding of the various financial systems in place at JPL used for both project planning and execution. I am formally trained in the use of Earned Value management techniques and have significant practical experience at JPL and externally.

## Professional Activities and Awards

NASA Space Flight Awareness Award, aka "Silver Snoopy", SRTM GPS Team, 2002.

JPL Explorer Award (2008) for Strategic Leadership

Several Space Act Awards, including:

    Exceptional (RogueOS - GPS Operating System),

    Major (Software Defined Radio Technologies for Mars Communications) , and

    Regular (various software components for GPS, etc...).

JPL Award of Excellence, GPS Software Team, 2001.

Actively cleared to secret, formerly cleared higher.

Member IEEE since 1983.

Papers Presented:

*The Reality of Scientific Ambitions*, 8th European Workshop on Astrobiology EANA, Neuchâtel, Switzerland, 2008.

*From BlackJack to GOX: The Transfer, Test, and Validation of the ROCSat-3 GPS Occultation Receiver*, COSMIC Radio Occultation Workshop (II), Acer Aspire Park, Taiwan, 2004.

*Simulated Cabling for Advanced Maintenance Training*, SCSC '95, Ottawa, Ont., 1995.

*Mars Rover Computational Architecture*, USIA Conference, Washington, DC, 1987.

## Proposal Experience

I have been involved with multiple proposal efforts ranging in value from tens of thousands of dollars to hundreds of millions of dollars with both NASA and DOD. Specifically, I have led (as Proposal Manager or Capture Lead):

Discovery Program, Step 1, *GEMS* (now *Insight*), PI – Dr. Bruce Banerdt, JPL, \$425M, **Selected for Step 2 (and awarded after Step 2)**. Step 1 Capture Lead / Proposal Manager mentor.

Lunar Reconnaissance Orbiter, *Diviner Lunar Radiometer Experiment*, PI - Dr. David Paige, UCLA, \$16M, **Awarded**.

Device 6E36, *Aircraft Maintenance Training Device 6E36*, US Navy, American Systems Corporation, \$6M, **Awarded**.

Mars Scout, Mission of Opportunity, *Urey: Mars Organic and Oxidant Detector*, PI - Dr. Jeffrey Bada, UCSD, \$35M, **Awarded for Technology Development**.

ROSES-MIDP, AstroBioLab, PI - Dr. Jeffrey Bada, UCSD, \$1M, **Awarded**.

Mars Science Laboratory Instruments, *Rocklab*, PI - Dr. David Paige, UCLA, \$100M., not selected.

Various ROSES-PIDDP, ASTEP, etc..., with Dr. David Paige, UCLA & Dr. Jeffrey Bada, UCSD.

## Education

**Master of Science, Electrical Engineering - 1988.**

California Institute of Technology, Pasadena, CA.

Hughes Aircraft Company Master's Fellow.

**Bachelor of Science, Electrical Engineering - 1986.**

Duke University, Durham, NC.

Cum Laude, with Departmental Distinction.

Most Outstanding Electrical Engineer Award

ETA KAPPA NU. OSP. IEEE Student Branch Officer and Chairman.

## Chronological Employment History

### Jet Propulsion Laboratory • Pasadena • CA

Project Manager, Deep Space Atomic Clock, 7X (2012-Present)

Assistant Division Manager for Formulation, Division 31 (2010 – 2012)

Associate Project Manager - JPL - CoNNeCT (2010-2011)

Project Manager, Urey - (2006 - 2010)

Instrument Manager, CheMin - (2006 - 2007)

Center Lead, Space Telecommunications Radio System (STRS) for Constellation - (2005-2006)

Center Lead, Software Defined Radio Architecture Team (SAT) - (2005-2006)

Manager, Telecommunications, Mars Telecommunications Orbiter - (2004-2005)

Manager, Earth Science Flight GPS Receivers Office (871) - (2001-2004)

Project Manager, COSMIC GPS Receiver (335) - (2001-2004)

Senior Engineer (1997 - 2001)

**American Systems Corporation • Chantilly • VA - Project Engineer (1992 – 1997)**

**Hughes Training, Inc. • Herndon • VA - Senior Engineer (1989-1992)**

**Hughes Aircraft Company • El Segundo • CA - Member of Technical Staff (1986-1989)**

## Personal Interests

Interests include High-Power Rocketry (certified L3), College Hoops, and Ballroom Dancing.

Past volunteer work in conservation with the LA Zoo (California condors).

## Detailed Management Experience

Of my twenty-five years of experience, twelve have been in project management at varying levels of responsibility. Five years of combined Project and Line Management experience at American Systems Corporation (ASC) executing multimillion dollar contracts with the Department of Defense taught me the basics of Project Management including schedule and cost management using Earned Value, resource management (personnel) and technical management. All that experience was gained in an environment that included multiple external customers (contractual vs. "end user"). At JPL, I have been formally trained for Project Management roles and have learned a great deal about the way that JPL implements Project Management by doing it across multiple types of Projects.

As the Project Manager for the Deep Space Atomic Clock, I have led a team of over 50 people in the first flight development of a laboratory ion trap mercury atomic clock. That effort has had four major facets; 1) the normal technological development of a new flight-qualified device, 2) the establishment within JPL of the archetype Type II project, 3) the coincident establishment of a project within the newly formed NASA Space Technology Mission Directorate and the first of the competitively-selected Technology Demonstration Missions, and 4) the development of a future infusion roadmap, plan, and report for the clock technology. Each of these facets has been met to date with success.

As the Division 31 Assistant Division Manager for Formulation I participated in multiple proposal activities and represented Division 31's efforts and interests on Discovery, Explorer, and New Frontiers - Step 2. In that role I have worked with and evaluated the scope and cost proposed for over 20 proposals including evaluation of the specific Systems Engineering sections on those proposals. I also accomplished several short-term "utility" tasks on behalf of Division 31 management including maintenance of the Institution Cost Models, collection and correlation of information in support of ESD initiatives, and the support of the creation of the Foundry. I also worked closely with the other ADM4F's and ESD management in a continuous improvement effort regarding formulation activities in general.

In 2010 and 2011, I served as the JPL Project Manager and NASA Associate Project Manager for CoN-NeCT, a multi-element delivery to NASA Glenn Research Center consisting of a software-defined radio, an RF switching assembly, and various software components. This delivery was a cross-center managed effort that required significant programmatic interfaces with NASA HQ, GRC, and JPL upper management. My team delivered the hardware and software in a difficult situation and after a couple of re-plan efforts due to scope changes to the entire project, delivered everything successfully. During that time, I also served as the Division 31 Assistant Division Manager for Formulation.

I have served as the Project Manager for the Urey instrument on ExoMars prior to its cancellation due to budgetary cutbacks on the host mission. Urey was a complex, astrobiological laboratory instrument with several complex subsystems and was estimated to come in at approximately \$70M over 5 years. During my stewardship of the project, I developed and won the initial proposal for NASA support, worked with JPL laboratory management to secure funding to continue technology development during host-mission delays, and to successfully accomplish two independent technical / baseline reviews with the Mars Program / NASA HQ. Additionally, I acted as the "Executive Director" of the science team in concert with the external PI prior to the establishment of a JPL Instrument Scientist and directed the preparation of various funding proposals including both ASTEP and MIDP awards. During its brief and frustrated history, our team developed two complete instrument concepts with associated full baselines (networked schedules and grass-roots cost estimating). These activities have demonstrated to me the limitations of JPL's systems for establishing baselines and will allow me to tailor these activities more acutely in the future.

During my Urey tenure, I also was called in to manage the Instrument Development on CheMin after a less than successful PDR. I worked closely with the PI, science team, and lead the overall engineering team in concert with the Project Manager from 6X. I successfully directed the planning and engineering activities to

get the instrument development back on track and established a baseline for development and executed a successful CDR in approximately one year. Shortly after the CDR, I left CheMin to devote full time to Urey as its activities became more time consuming.

Before my instrument development experience, I spent a year working as the JPL Center lead for the Constellation ECANs (communications) Software Radio activity. This activity involved a multi-center (Glenn, Goddard, JPL, and contractors) effort to establish the architecture for the development of software radios to be used in the Constellation program. I contributed to the early development and capture of what has become the CONNECT radio delivery in support of JPL's Constellation deliveries.

For about two years, I served as the MTO Telecommunications Manager. In that role, I managed MTO's efforts with respect to the JPL-provided SDST, Electra, and 100W Ka TWTA. In addition to those traditional Telecom PEM roles, I also was the primary Telecommunications oversight and engineering manager during the procurement of the MTO Flight System. I managed approximately \$22M worth of actual and planned work (Phases A-E).

Prior to my MTO experience, I served in a dual capacity as the PEM for the COSMIC GPS Receiver development effort and as the Manager of the Earth Science Flight GPS Receivers Office (871). In my role as the COSMIC GPS PEM, I have negotiated a complex agreement involving NASA HQ, the National Science Foundation (NSF), the University Corporation for Atmospheric Research (UCAR), and two major subcontractors, Orbital Sciences Corporation and Broad Reach Engineering, Inc. (BRE). This entire agreement was executed in a manner whereby JPL performed primarily as a technical consultant to UCAR on behalf of NASA. This complex arrangement made JPL nominally responsible for the technical quality of the flight instruments delivered in support of COSMIC without having the direct contractual responsibility of managing the instrument contractor, BRE. I negotiated and "ghost wrote" the Technical Assistance Agreement for UCAR in their interactions with the Taiwanese. I also wrote and negotiated a TAA with a Russian national at UCAR and JPL for his support in GPS data processing. In my role as the Project Manager for COSMIC I executed the normal reporting to NASA and 8X management with Monthly Project Status Reviews. I presented at the Quarterly Management Reviews and have presented the COSMIC mission to the EC at occasional DRDs. COSMIC successfully launched all six receivers into orbit in March 2006 where the receivers continue to operate normally.

In my role as the Manager of the Earth Science Flight GPS Receivers Office, I reported through 870 on a variety of GPS missions with which JPL had direct involvement. JPL currently has 13 instrument-class GPS receivers in orbit with an additional 7 in various stages of development. As the Project Element Manager for 4 of the orbiting receivers and 9 of the units in progress, I interfaced with a variety of both international and domestic customers. I have worked in multiple environments involving international cooperation and ITAR issues. My domestic customers include other FFRDC's (UCAR) as well as JPL missions (OSTM) and Goddard-managed missions (ICESat). I had to constantly balance the requirements of multiple projects in various stages of maturity and work with the JPL line organizations to apply the necessary resources to accomplish every mission's goals.

Prior to my work at JPL, I worked at American Systems Corporation (ASC) a Virginia company that provided Systems Engineering and Technical Assistance to the US Navy and US Army. Two projects at ASC stand out in my mind as particularly useful in my management activities at JPL. On the TQ/TMT project, I served as the Project Engineer, equivalent to a combined JPL deputy Project Manager and Group Supervisor, for the effort after the previous Project Manager was terminated and the project was over a year behind schedule. I re-planned the remaining effort, secured the personnel resources, and participated with the new Project Manager in renegotiating the contract to allow our company to complete the development and delivery of the \$6 million system. I managed the effort to integrate, test, install, and sell off the system at the customer's site interfacing with a variety of customers including the contracting officers, the onsite end users, the third-party onsite maintenance contractor, and the independent quality assurance representatives.

I took the lessons learned from that experience and applied them to the next effort where I also served as the ASC Project Engineer on Device 6E36, an \$8M training device for the Navy. In this instance, however, I led the small proposal team writing the bulk of the technical, cost, and schedule volumes of the proposal, negotiated the effort with the customer, and led the technical team after the contract award and prior to my departure to JPL. That project continued after my departure with no major deviations to the planned implementation and finished under budget and slightly ahead of schedule. My deputy for that effort was able to take over the effort and complete the job in a way that enticed the customer to add several unsolicited upgrades to the device. After that delivery was made, I successfully recruited my successor to join us at JPL where he has been a key contributor in various Division 33 activities.