



Jet Propulsion Laboratory
California Institute of Technology

What Does A Laboratory Historian Do, Anyway?

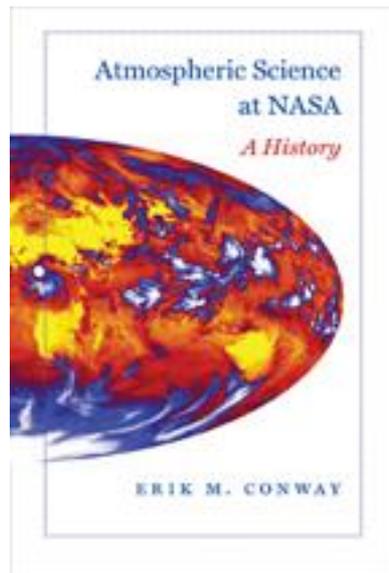
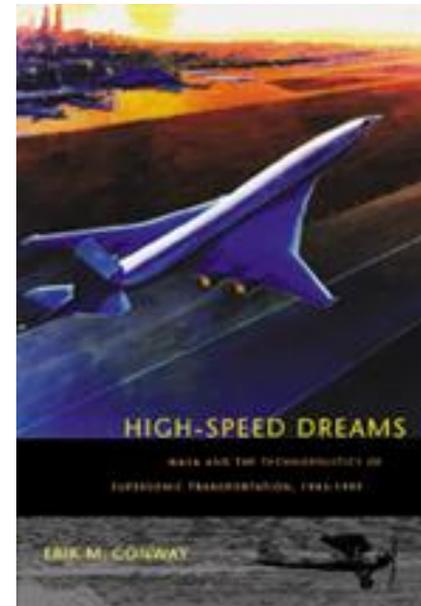
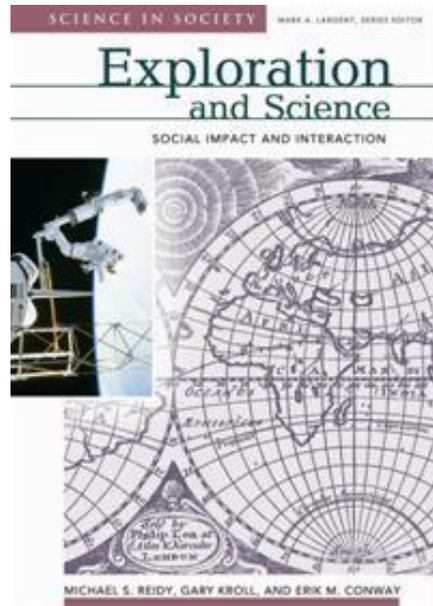
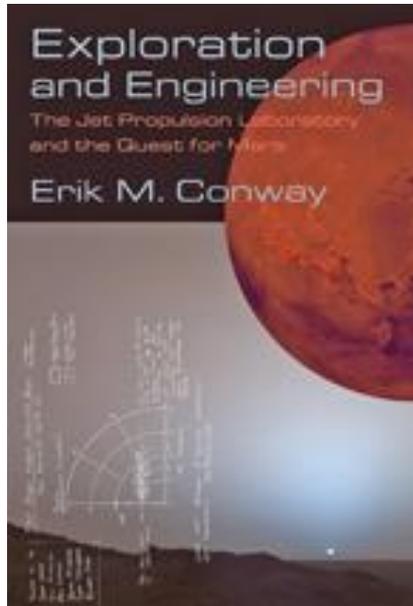
Erik M. Conway, Communications and Education Division, 14 June 2018



Introduction

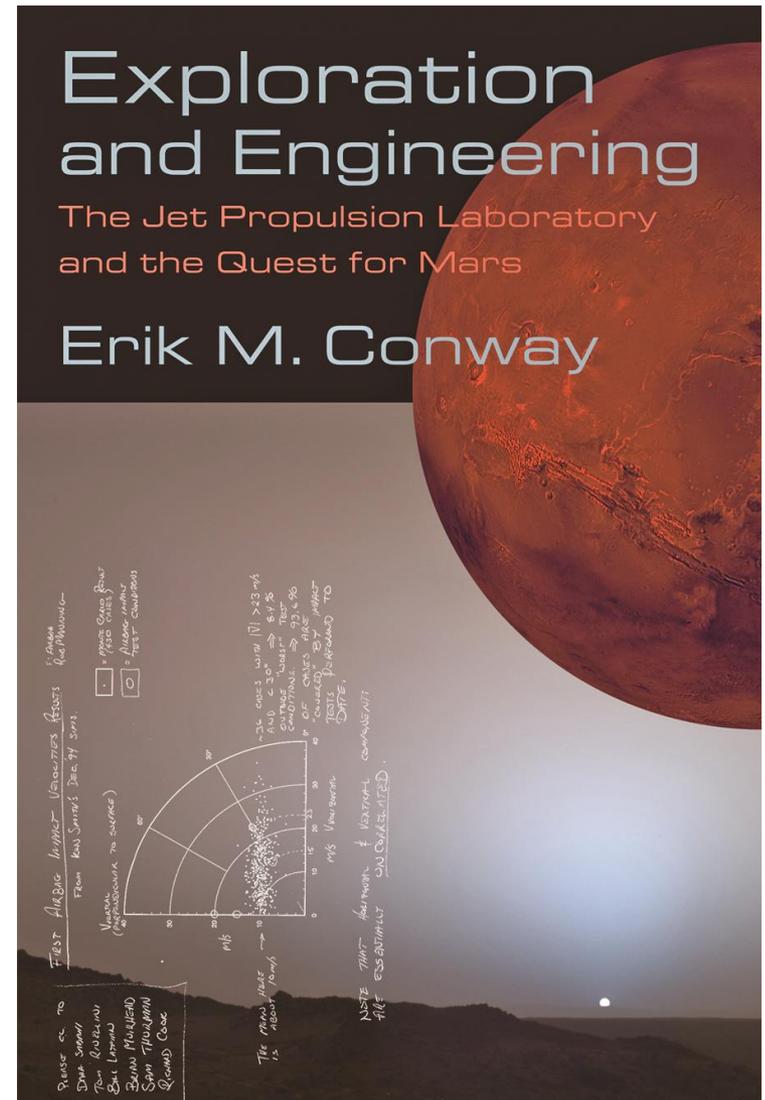
- Who Am I?
 - Ex-Navy (enlisted & officer)
 - BS in Geomechanics (1990)
 - Ph.D. History of Science and Technology (1998)
 - NASA Langley Research Center historian (1998-2004)
 - JPL Historian (2004-?)

Research Related Work



E&E

- Published by Johns Hopkins University Press in March 2015
- Paperback released October 2016
- Reviews in
 - Endeavour
 - Isis
 - Technikgeschichte
 - British Journal for the History of Science
 - Metascience
 - Technology and Culture



Destination MOON

The American ROCKETEER

EXPLORER One

Beginnings of the Space Age

Beginnings of the Space Age
75th Anniversary

The PATHFINDERS

JPL

JPL and the Space Age

To The RESCUE

JPL

JPL and the Space Age

The Changing Face of MARS

Beginnings of the Space Age

The Footsteps of VOYAGER

Beginnings of the Space Age

Blu-ray Disc

The STUFF of DREAMS

Beginnings of the Space Age

Recent Interviews - Documentary

Name	Date
Les Deutsch	5/6/2016
Sarah Gavit	7/7/2016
Matt Golombek	11/28/2016
Brian Muirhead	11/28/2016
Dara Sabahi	11/30/2016
Rob Manning	11/30/2016
Jennifer Trosper	12/1/2016
Miguel San Martin	12/1/2016
James N Wilson	12/2/2016
Sam Thurman	12/2/2016
Richard Cook	1/12/2017, 1/26/2018
John Callas	10/3/2017
Charles Whetsel	11/28/2017
Frank Jordan	1/12/2018
Richard Zurek	1/12/2018

Interviews—NEO project

Project start: 2016

Due: Dec. 2018

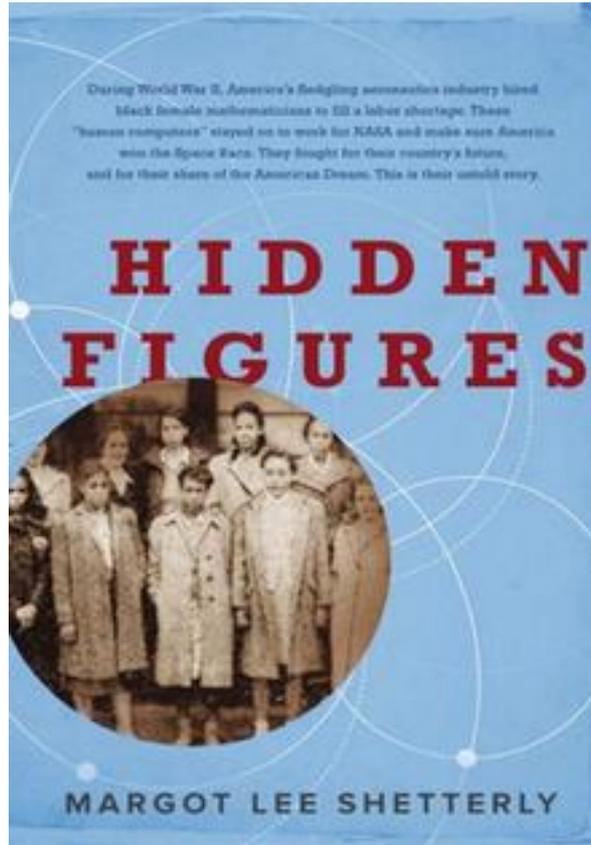
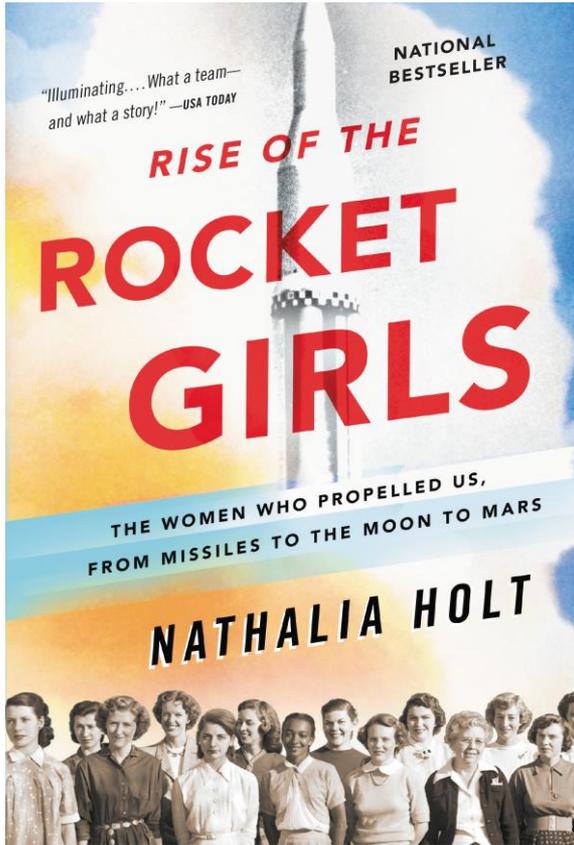
Two co-authors: Don Yeomans, Meg Rosenberg

Subjects: 41 (mostly scientists)

Transcripts and audio files become part of the project collection

Collected documents all digitized and archived in project collection

Ackerman	Thomas	12-Jul-16				
Baines	Kevin	29-Feb-16				
Bambery	Raymond	16-Feb-17				
Benner	Lance	23-Jun-17				
Binzel	Richard	17-Oct-17				
Boslough	Mark	14-Dec-16				
Brown	Peter	18-Oct-16				
Bus	Schelte	25-Jan-16				
Chesley	Steven	9-Mar-17	12-Sep-17			
Christiansen	Eric	27-Jan-16				
Harris	Alan W	16-Jun-16	5-May-17			
Harris DLR	Alan	17-Oct-16				
Hildebrand	Alan	20-Sep-16	21-Sep-16			
Jedicke	Rob	24-Feb-16				
Johnson	Lindley	29-Jan-16	9-May-16	29-Aug-17	5-Sep-17	12-Sep-17
Jurgens	Roy	25-Jul-16				
Kaiser	Nick	20-Jun-17				
Larsen	Jeff	1-Aug-16				
Larson	Steven	4-Aug-16	17-Oct-16			
Lawrence	Kenneth	19-May-16	27-Jan-17			
Mainzer	Amy	20-Jun-17	25-Sep-17			
McMillan	Robert	25-Jan-16	1-Aug-16	17-Aug-17		
Morgan	Thomas	15-Jul-16				
Morrison	David	17-May-16				
Ocampo	Adrianna	16-Feb-16				
Pilcher	Carl	28-Feb-16				
Pravdo	Steven	7-Apr-17				
Rabinowitz	David	20-Jan-17				
Scotti	James	2-Aug-16				
Shoemaker	Carolyn	7-Feb-17				
Skiff	Brian	7-Jan-17				
Spahr	Timothy	26-Jan-16				
Stokes	Grant	25-Feb-16				
Tagliaferri	Edward	14-Dec-17				
Tholen	David	27-Jan-16	20-Jun-17			
Tonry	John	20-Jun-17				
Wainscoat	Richard	20-Jun-17				
Wasserman	Lawrence	10-Feb-17				
Williams	Gareth	30-Nov-17				
Williams	James	9-Jun-16				
Worden	Pete	7-Oct-16				



Women Made Early Inroads at JPL



Macie Roberts' computing group circa 1955. Roberts is standing on the far right of the image, conferring with one of the other women. Barbara Paulson is on the telephone (standing, back left). Helen Ling is at the second desk in the left row. The remaining women are unidentified. Image credit: JPL

In the 1940s, women started playing instrumental roles in missions at JPL. By the 1950s, well before the advent of the desktop computer, it wasn't unusual for young women around the United States to be hired out of high school to do calculations.

Barbara Paulson arrived at JPL in 1948. In those days, JPL designed rockets for the U.S. Army. Paulson calculated rocket paths, or trajectories. "One Corporal (rocket) trajectory took all day," she says. "The early Friden mechanical calculators we used couldn't do logarithms, so we used these big books of atmospheric densities as a function of altitude that had been calculated by Work Projects Administration people during the Great Depression."

Paulson also played a role in the historic launch of the JPL-built Explorer 1. On the night of Jan. 31, 1958, she was assigned to the operations center for Explorer 1. She plotted data coming in from the satellite and a network tracking station.

Over time, a group of about a dozen women was formed to perform trajectory calculations. Macie Roberts and, later, Helen Ling, both supervisors for the group, hired only women. Their attitude reflected a general cultural belief of the times that some kinds of jobs were more appropriate for women than for men. "Men back then always thought they knew more than you did," Ling remembers. "So if you hire them under you, they're uncomfortable, you're uncomfortable. So I just hired women just out of college. I thought that if you didn't give them a chance, they'll never get a chance."

Ling also liked to rehire women who left JPL. In the 1960s, before the Lab had a family leave policy, women who were having children had to quit. Paulson left to have her first daughter and



Explorer 1



SECTIONS ON PARADE - CHEMISTRY - SECTION SIX

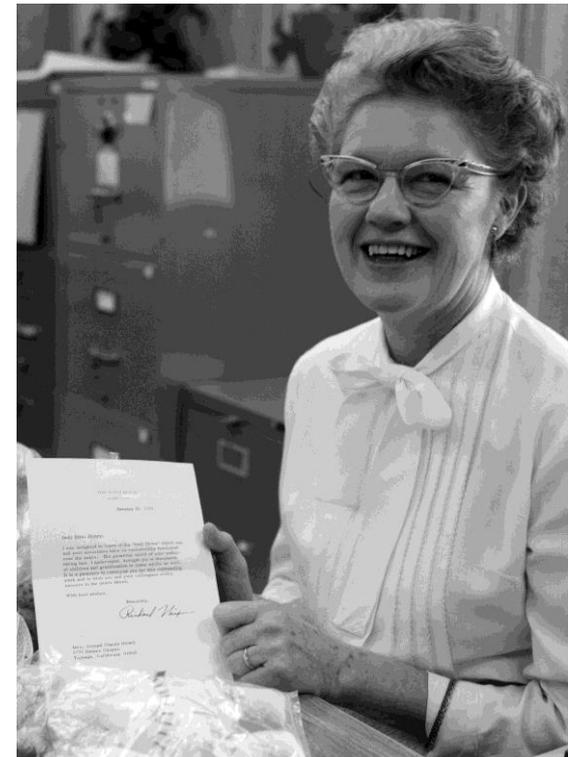


CHEMISTRY SECTION AND ATTACHED MECHANICS, as of March 1st, include: First Row from left to right; John Basinski, George Soyka, Hayes Schlundt, George Misko, Howard Keller, Bill Orr, Marlowe Pichel, Glenn Thornton, Bob Neal, John Shaffer, Gerard Elverum, and Maurice Frech. Second Row, left to right; Alan Magnussen, Dwight Weber, Alfred Darnell, Edwin Clark, Dr. Leland G. Cole, Dr. Peter L. Nichols, Jr., Julia Shedlesky, Angela Kirnbauer, Luz Trent, Lois Taylor, Dr. David Altman, Section Chief, Dr. Henry Wise, Milton Farber, and Keith Booman. Not present in the picture are Arthur F. Grant, Dr. S. S. Penner, Chester Hissong, R. A. Taylor, Walter Johnson, Rod MacLean, Fred DeGraff, and Charles Thomas.

Lois Taylor



Internal / Life of Lab stories



Mariner 9 Mystery



- M9 model out in storage
- Used to be in main auditorium
- Trying to identify what kind of model it is
- Is it the PTM?

Public Engagement Activities

A portrait of Erik Conway, a man with glasses and a blue button-down shirt, looking slightly to the right. The background is dark. The video player interface is visible at the bottom.

Erik Conway
JPL Historian

▶ ⏸ 🔊 0:14 / 2:51





PERIODIC TABLE OF THE ELEMENTS

Li	Be											B	C	N	O	F	Ne																											
Na	Mg	Al	Si	P	S	Cl	Ar											K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr									
Rb	Sr	Y	Zr	Nb	Mo	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe											Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac														Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu					







Communicating climate science to a suspicious public: How best to explain what we know?

National Aeronautics and Space Administration



Fall Meeting 2014
Poster: ED33B-3510

Erik M. Conway and Randal K. Jackson
Jet Propulsion Laboratory, California Institute of Technology

CONTEXTS

NASA Space and Earth Science Public Engagement

Science Communication

Public Misinformation

History of Climate Science

CHALLENGE

A 2006 Earth Observing System review panel noted that NASA climate research had essentially no public recognition

January 2008 Google searches found no NASA websites in the first page of results for either "climate change" or "global warming."

Yet NASA has been top US funder of climate science since 1990s.

GOAL

Create the "Go-To" Global Change Internet Experience for the Public

PHILOSOPHY AND CONTENT

Provide a set of "key indicators" of change
Existed NOWHERE else at the time

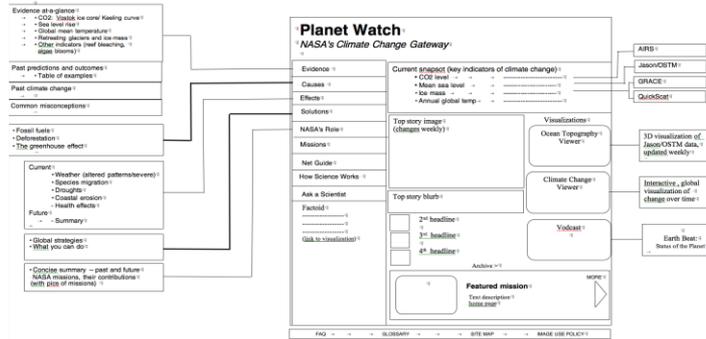
Must stick close to current science

Clear, simple explanations of processes

Storytelling elements strongly desired

"News feed" to aggregate stories related to current missions

INITIAL CONCEPT



INITIAL CONTENT



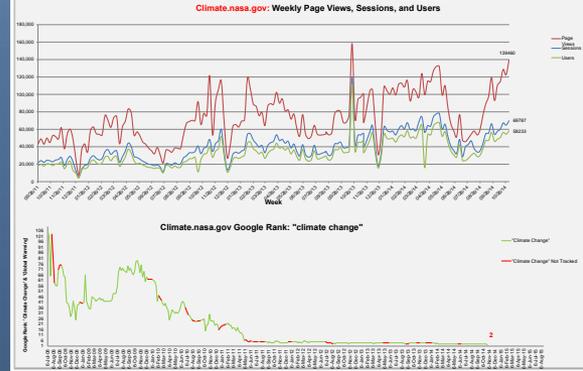
SITE EVOLUTION



DID WE SUCCEED?

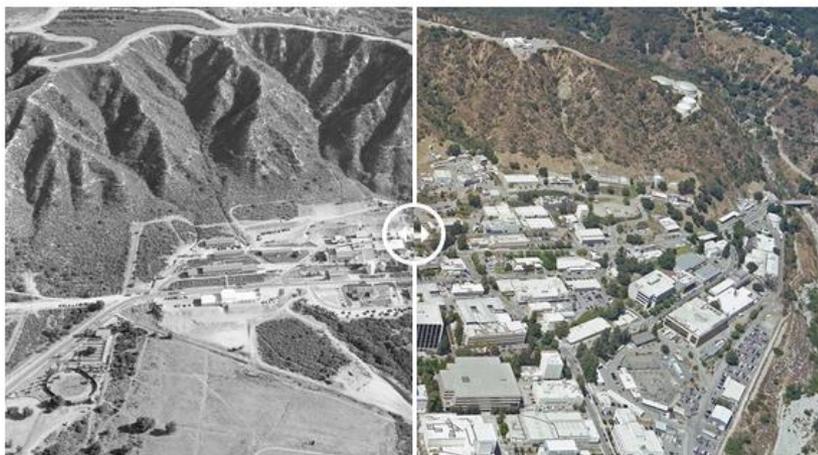
Webby awards in 2009, 2010, and 2011

Communicator Award in 2009





On Halloween 1936, five grad students studying at Caltech and two amateur rocket enthusiasts drove out to a dry canyon wash in the foothills of the San Gabriel Mountains and helped jump-start the Space Age. It took them four attempts to light a liquid rocket engine. But the result was encouraging enough to keep going and to build more rockets, which led to an institution where this kind of work could be done every day -- the Jet Propulsion Laboratory. This gallery pairs vintage images from JPL's history with images that show what the lab looks like today. Grab the slider to move between the lab's past and present.



The Lab From the Air: The "then" image of JPL from above was taken in September 1950, when the lab's main patron was the U.S. Army. The "now" image was taken in 2005. Among the signs of expansion: what used to be a green field on the western part of the lab (left side) is now occupied by JPL's administration building (wide building with black windows), what is known as "The Mall" (an open-air gathering space) and an employee parking lot.



Welcome to JPL: This is what greeted visitors in December 1957. There is no sign at this location today -- instead there is just a stairway that runs up the side of the main administration building (Building 180). The official lab sign has moved farther south, just as the lab itself has expanded farther south out from the base of the San Gabriel Mountains. The "now" picture is from July 2016.

UNCLASSIFIED CONFIDENTIAL



15-2942-B



15-2942-C



15-2942-D



15-2943



15-2944



15-2945-A



15-2945-B



15-2946



15-2947



15-2948



15-2949-A



15-2949-B

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