



**Mr. Thomas E. Nolan**

MISR Operations Engineer

NASA Jet Propulsion Lab

Research Specialty: Oceanography

Comfortable with the following age ranges: all

Comfortable with the following audience sizes: all

A “wondering wanderer” describes me best. My Mom taught me to stop and notice the flowers, revel the birds, and to be awed by the sea, and these early lessons have grown into a career of fascinating adventure. My degree is in Marine Biology and Oceanography, which presented me with the opportunity to train dolphins, do killer whale research, spend months at an island marine laboratory, and more months on research cruises from French Polynesia to Hawaii, along the coasts of California and Mexico, and to the Aleutian Islands. I came to the Jet Propulsion Laboratory (JPL) because satellite oceanography revolutionized the science of oceanography and I wanted to stay on the “cutting edge.” And only at an extraordinary place like JPL could this lead to yet another wonderful adventure, that of “Satellite Jockey.” I now command the “Multi-Angle Imaging Spectro-Radiometer” (MISR) on the Terra satellite, the flagship of NASA’s Earth Observing System which studies Earth system science. Bringing the “Wow! I Didn’t Know That!” of NASA Earth science to both formal and informal education is my passion. I am married with three children and have lived in California, Alaska, and New Mexico.

**Presentation Overviews and AV Requirements:**

***Seeing Here from There; Earth Science from 830 Miles Up***

**Grades: K-12**

This is a world tour of NASA investigations into the Earth sciences. Data from our satellites is filling computers at an alarming rate, but the world’s scientists are gobbling it up faster and faster. Missions studying our land, air, and oceans are giving us a better understanding of Earth systems dynamics than ever before. Besides learning more about the way things are currently, we now know more about our past than ever before in the entire history of our human existence. The questions that are baffling us in each category will be discussed, for after all, science is really all questions, isn’t it?

**AV Requirements:** LCD projector, two extension cords and projection screen

***Doing the Impossible is what NASA Does Best***

**Grades: K-12**

Discovery occurs in a sequence of three things: Dream It, Plan It, Do It. From wacky dreams, to science fiction, to the mission planners, and eventually to your TV set and home computer, NASA brings dreams into reality. The unimaginable has been done over and over, but NASA

cannot rest. A bumper sticker that would be appropriate for NASA reads, "If you are not living on the edge, you are taking up too much room." Once a concept or a design has been proven, NASA's charter says that we must turn it over to others and find new frontiers to explore. Telling NASA "it can't be done" only makes us hungrier and more driven towards new discoveries. This talk inspires students to wonder, explore, and discover the varied roads from impossible to possible.

**AV Requirements:** LCD projector, two extension cords and projection screen

*Forward, Into the Past*

**Grades: K-12**

Ancient myths and civilizations are time locked, preserved and hidden by Earth's processes, but new technology has helped find and learn from these timeless treasures. From finding the richest city in the world in the middle of the desert (no, not Las Vegas!), or discovering the buried Nile riverbed that is far from its current course, archeology is flush with new discoveries. What do seeds in our country's northern lakes reveal to us about the Ice Age? What can the Spanish priests of the 1500s tell us about our climate now? Did an event more than 15,000 years ago determine the outcome of our Civil War?

Learn how airplanes are helping to preserve Lewis & Clark archaeological digs. Modern tools are preserving ancient history, like finding the Titanic with Bob Ballard, or learn about his latest quest to find Noah's Ark in the Black Sea.

**AV Requirements:** LCD projector, two extension cords and projection screen

**Thomas E. Nolan**  
**Formal Bio**

**Experience**

**NASA/Jet Propulsion Laboratory-**

**Operations Engineer, Multi-angle Imaging Spectro-Radiometer (MISR) Project**

- Monitor the health and safety of our instrument that is currently orbiting Earth on the Terra spacecraft.
- Prepare and send commands to the instrument to gather its science and for calibrations
- Construct Standard Operating Procedures
- Obtain and maintain archive records of MISR Operations
- Create weekly, monthly, and quarterly Operations Reports to management

**Lead Outreach Coordinator** Earth Science Flight Projects. Responsibilities include:

- Creation and implementation of several innovative communication via Internet and live presentations at conferences and meetings
- Utilization of technology in global educator training via online science workshops
- Creation, training, and development of Ocean Envoys Program, a national network of 180 alpha educators giving presentations on behalf of NASA and JPL
- Staff development and training for informal education community
- Development and maintenance of electronic network of 10,000 ocean educators

**JPL Leadership and Committees Served**

- Deputy Lead for JPL Earth Sciences Outreach Program
- Lead for JPL Earth Sciences Informal Education
- Lead for Lewis & Clark Bicentennial Education multi-agency collaborations
- Lead for Earth Science Outdoor Education
- Co-Lead for JPL Earth Sciences Education
- Member of JPL Speakers Bureau
- Session Chairperson for NASA ESE Education Forum
- NASA ESE Product Review Team member

**Accomplishments**

- Worked extensively with the science community, especially PIs and CoIs
- Coordinated with the Multi-Mission Operations team leads
- Developed programmatic outreach strategies directly with Project and Mission Managers
- Member of launch teams for SRTM, ACRIMSAT, and Jason-1 missions
- Familiar with remote sensing instruments and observation strategies
- Performed Contract Management duties with several universities and institutions
- Attained Deputy Lead status for Earth Science Outreach in first three months at JPL
- Reduced budget by 25% while increasing effective reach by process improvement and cost containment measures
- Initiated data analysis and assessment tools for evaluation of program effectiveness
- Developed excellent relations with various internal and external organizations
- Created and implemented online strategies and workshops

**University of Southern California-**

**Public Communications** Wrigley Marine Science Center and WIES. Responsibilities included:

- Program development for science talks program and dissemination of science information
- Event design and logistical coordination for public involvement
- Creation and structural support for donation campaign and organization
- Programmatic evaluation and course-correction for several elements of program

**Applied Biological Systems Laboratories-**

**Ocean Laboratory Manager** Responsibilities included:

- Design, development, and management of Ocean Science Lab for marine effluent toxicity
- Sought and won contracts from state and federal agencies, environmental and oil companies

**National Oceanic and Atmospheric Administration-  
Marine Mammal Observer** Responsibilities included:

- Onboard monitoring and observation of marine mammal incidental take of Japanese fleet while in American waters
- Investigation and research into the incidental take of Dall's porpoise

**Education**

**BS Degree in Biology**, University of Southern California, 1977