

## Visiting Researcher Profile



### **Mr. Thomas E. Nolan**

MISR Operations Engineer  
NASA Jet Propulsion Laboratory

Research Specialty: Oceanography

### **Bio**

Bringing the “Wow! I Didn’t Know That!” of NASA Earth and Space Science to both formal and informal education is my passion. The term “wondering wanderer” describes me best because my Mom taught me to stop and notice the flowers, listen the birds, and to be awed by all that surrounds me. These early lessons have grown into a career of fascinating adventure and daily wonder and awe.

I received a Bachelor of Science degree in Biology from the University of Southern California. My education presented me with the opportunity to train dolphins, do killer whale research, spend many months over several years at an island marine laboratory and on research cruises from French Polynesia to Hawaii, along the coasts of California and Mexico, and in 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.” I knew that 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.

I am a member of the JPL Speakers Bureau, moderator for the JPL Science Bowl and the JPL/USC Ocean Science Bowl, I volunteer at the local FIRST Robotics competition, and at JPL's annual Open House. I have also been featured in several educational videos for teachers and students and was selected as an Educator at Sea onboard NOAA's ship Ka'Imimoana. I have participated in the *Journey through the Universe* program since 2003 and have thoroughly enjoyed the experience.

## **Examples of Classroom Presentations**

### ***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?

### ***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.

### ***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.

## **Examples of Family/Public Program Presentations**

### ***When Ideas Take Flight, the Human Spirit Soars***

Driven by our fascination with the unknown, we have traveled the lands, crossed the seas, and now our exploration raises our eyes and minds up into the heavens. We have imagined it ever since the dawn of time, but the first human flight was only a short 100 years ago. Earth's gravity is strong, but not strong enough to hold our machines or our imaginations. Building a permanent human presence in space is yet another step in our human hunger for knowledge. For at NASA, the impossible is temporary... very temporary!