



Dr. George M. Resch
March 26, 1940, to November 22, 2001

George Resch was born in Baltimore, Maryland, in 1940, the son of George and Stella Resch. As an undergraduate, he attended the University of Maryland, where he obtained a B.S. degree in Physics in 1963. He subsequently pursued his graduate studies at Florida State University, obtaining his M.S. degree in 1965 and continuing with research leading to a dissertation entitled “Low-Frequency Spectra Of Compact Radio Sources,” receiving his Ph.D. degree in 1974. During this period, he carried out research at the Clark Lake Radio Observatory and subsequently at radio telescopes in Green Bank, West Virginia, and Arecibo, Puerto Rico. He collaborated extensively with colleagues from the Haystack Observatory, the Massachusetts Institute of Technology, Goddard Space Flight Center, and the University of Maryland in a group known informally as the “Quasar Patrol,” performing very long baseline interferometry (VLBI) observations to monitor the time-variable structure of extragalactic radio sources.

He began his career at the Jet Propulsion Laboratory in 1975, working on Project ARIES (Astronomical Radio Interferometer for Earth Surveying), in which the VLBI technique was used to detect and monitor crustal deformation of the Earth. He moved to the Telecommunications and Data Acquisition Program Office in 1983, and in 1985 became Manager of the Deep Space Network’s Advanced Systems Program, overseeing a broad portfolio of research and development tasks in deep-space telecommunications and navigation. In 1993, he returned to the Engineering and Science Directorate, leading the Deep Space Tracking Systems Group in the Tracking Systems and Applications Section. Since 1997, he also served as Manager of DSN Science Services, coordinating the use of the DSN as a unique science instrument.

Over the past two decades, George concentrated much of his own personal research interest on the development of water vapor radiometry to calibrate the effects of the atmosphere on precision radio metric measurements. George contributed a number of articles on the subject to this publication over a period spanning nearly 20 years. Only 4 days after his death, the Cassini spacecraft began the most sensitive search ever for low-frequency gravitational radiation based on precise DSN tracking measurements, using a new state-of-the-art water vapor radiometer that George helped to develop. He was a member of the American Astronomical Society, the American Geophysical Union, and the physics honorary society Sigma Pi Sigma.

George leaves behind his son Michael, who lives with his family in Corona, California.

Dedication

This issue is dedicated to the memory of Dr. George M. Resch, who died unexpectedly on November 22, 2001. He'll be greatly missed.

Dr. Resch served many roles in his career at JPL. His greatest impact on this publication was in his role as the Advanced Technology Program Manager, when his program made significant contributions that resulted in progress frequently reported here. Personally, I most appreciated George's warm personality, his love of people, and his desire that everybody have fun doing their work.

To express some of the feelings of those of us who worked with George, several passages follow from his friends and colleagues.

Joe Yuen

George Resch was one of the true gurus of the Deep Space Network. He knew its engineering, its technology, its operations, its capabilities, and its future—which he helped shape in so many ways. He knew how to apply his knowledge to a wide variety of communications, radio metric, and science applications. George's individual contributions could be measured in publications, but those would be but a hint of George's true value. His real value lay in leveraging his wealth of knowledge and experience—through coaching and mentoring and through a myriad of ideas that inspired the success of others.

Most encounters with George Resch were invariably alike: a pipe, a friendly greeting, a wise and witty remark, and an astounding technical revelation. George had that rare double attractiveness of personal charm and technical prowess. Like other gurus, George held court with his followers, not on a mountaintop, but at a picnic table outside the JPL cafeteria. There they would discuss the latest VLBI or Delta-DOR advances and formulate plans of action. George was always in the center of these discussions, always asking the right questions, always steering the discussions away from a technical impasse.

This past year Delta-DOR helped the Odyssey spacecraft to navigate safely into orbit about Mars. It was a fitting tribute to George and his persistent push for that technology over the last two decades. While George was delighted by this success, he was nevertheless involved in many future initiatives, including arrays of small antennas for the DSN of the future. As the new Acting Chief Scientist of this Directorate, he was a strong advocate for radio science, radio astronomy, and planetary radar, all of which are enabled by the DSN and its unique technologies. George had a unique way of combining his multi-faceted technical expertise to push the DSN's capabilities to accomplish outstanding science.

Yes, the DSN community has suffered a great loss with George's passing. However, George's accomplishments and ideas will live on with us and the DSN for years to come.

Bill Weber

The Deep Space Network lost a friend, advocate, and innovator with the unexpected passing of George Resch on November 22, 2001. I met George through his role as manager of the DSN Advanced Systems Program, a broad program of research and development that has fueled the growth of the DSN into the unique and unsurpassed instrument that it is today. George managed the program through a particularly productive stretch in the mid-1980s and early 1990s. Many of the DSN's current state-of-the-art capabilities—advanced coding, beam-waveguide antennas, Ka-band, digital receivers, 5-nrad VLBI, GPS-based media calibration, to name a few—had their inception and/or critical development during this time.

As a new hire to the Lab in 1985, I worked in this program, in the area of advanced radio tracking techniques for improved spacecraft navigation. Through my interactions with George, I quickly learned that he had the technical breadth and depth—along with the big-picture view—to serve him well in his role as Program Manager. Even more important, though, was the fact that George understood that research was ultimately a human enterprise. He genuinely cared about each of the people working in his program and realized that the most important product of a technology program was not the next new widget, but rather the intellectual growth of the people working in that program, for that would be the wellspring of tomorrow's innovations. His commitment to world-class research, and his love of the DSN, nurtured the program and attracted many of us to join him in advancing the state of the art in deep-space communications and navigation.

He will be missed.

Chad Edwards

George Resch was a man with many roles at JPL. In addition to being the Acting Chief Scientist for the IPN-IS Directorate and a Manager for multiple tasks in the Deep Space Network, George was also a Technical Group Supervisor in the Tracking Systems and Applications Section for many years. George's group was a large and diverse one. It included a core team that contains much of JPL's intellectual leadership and expertise in radio interferometry and VLBI—expertise that enabled a successful Delta-DOR implementation and operation for Mars Odyssey—as well as several individuals working on optical interferometry flight projects, GPS flight projects, and physics research experiments.

Although George was typically outwardly self-deprecating about his role as a Supervisor, in fact he took this job very seriously. He felt it was possibly the most important role he had at the Laboratory, as it was where he had a direct impact on the careers of his group employees. He was extremely dedicated to providing support to his group members and had an approach of providing caring—albeit at times “tough”—guidance that brought out the best in a diverse group of individuals, many of whom became high achievers.

His endless concern for the welfare of his employees and for their futures and career paths made him one of the most conscientious, caring, and effective Group Supervisors I have encountered in my 19 years at JPL. There are some who say that being a Group Supervisor is the most difficult job at JPL. Whether or not that is true, in this role George was an exceptional person who benefited individuals and the Laboratory as an institution in ways that will be appreciated for many years to come.

Steve Lichten

It is with a saddened heart that this remembrance of George Resch is written, yet it is also with the greatest of respect for the person that he was, both technically and personally.

George was the Manager of the Deep Space Network's Advanced Systems Program from 1985 to 1993, a program that provided technology for the future DSN. During that time I was a work area manager within the program and had regular interactions with him. George consistently sought the answers to the really important questions, like how did it actually work and what did it do for the end user. He demonstrated an ability to understand difficult technical subjects on a level that went far beyond the supporting mathematics, and he helped those around him understand that dimension as well. His calm and respectful demeanor, punctuated with an inviting sense of humor, made working with him a most enjoyable experience. I remember once when George asked if I could explain the technology I was working on to a group of high school students. I initially said no, but then remarked that if I could explain it to the Advanced Systems Program Manager, I could certainly do it to a group of high school kids. It was said in jest and we both had a good laugh. Yet it is true that often just explaining something to George helped me to really understand the subject myself.

George moved on from the Advanced Systems Program Manager's job in 1993, leaving it in a very healthy state. The program has often been viewed as one of the most beneficial and productive technology programs at JPL. I now have the privilege of managing that same Advanced Systems Program (now called the IPN-IS Technology Program). Many of the program's processes, values, and expectations in use today are directly derived from those of George's tenure. He has made a lasting impression on our technical environment and on our lives, and we are the better for it. George, we will miss you!

Jim Lesh

Many of us have wonderful memories of years spent working with George Resch in the Telecommunications and Data Acquisition Technology Development Office and in the Telecommunications Science and Engineering Division at JPL. George was an outstanding member of a unique group of experts—the Premier Navigators of our Solar System. His presentation style was illuminating and delightful, whether explaining our technology development activities to our leaders at NASA Headquarters or in our many meetings and lunchtime and after-hours discussions.

George knew much about many different disciplines and was willing to take time to answer questions and give explanations with amazing clarity. His presence—and his superb sense of humor—always brightened the day for many of us. George was a great person and a great friend. He will be missed, and he will be long remembered.

Bob Clauss

George Resch was like a brother to me: we fought all the time, but our fights were on ideas, technical concepts, programmatic issues, and our inevitable differences of opinion on how to deal with them. They were friendly fights, and we always laughed when we finished, and we usually finished with a consensus on what to do next, together. We even laughed when we realized we did not have a consensus, because we knew we had more to do to get it together. We would sometimes not see each other for weeks as we went our separate ways; then we would get together to bang heads on some issue and it was as if we had never been apart. I got very angry with George on occasion, but as I look back it was because he had turned out to be right again. I shall miss him always.

Joel Smith