Dr. Mario H. Acuna

Co-Investigator in the MESSENGER mission to Mercury and the twin-spacecraft STEREO mission

NASA Goddard Space Flight Center

Research Specialty: Magnetic fields and plasmas

Comfortable with the following age ranges: all

Comfortable with the following audience sizes: all

Dr. Mario H. Acuña is a research scientist at NASA Goddard Space Flight Center. He was born in Córdoba, Argentina in 1940. He received his undergraduate degree from the University of Córdoba, earned the MSEE degree from the University of Tucumán, Argentina in 1967 and the Ph.D. degree in Space Physics from The Catholic University of America, Washington, DC in 1974. Dr. Acuña's research interests center around aerospace instrumentation and experimental investigations of magnetic fields and plasmas in the solar system. As Principal Investigator, Co-Investigator, Instrument Scientist and Project Scientist he has played a crucial part in many NASA missions, including *Explorers* 47 & 50, ISEE3, *Mariner* 10, *Pioneer* 11, *Voyagers* 1 & 2, MAGSAT, Project Firewheel, *Viking* (Swedish), AMPTE, *Ulysses*, the *Giotto* mission to Comet Halley, *Mars Global Surveyor*, *Near Earth Asteroid Rendezvous*, *Lunar Prospector*, and ACE. He has been selected by NASA as Co-Investigator for the *Inner Magnetosphere Explorer* Mission (IMEX), and currently is a Co-Investigator in the MESSENGER mission to Mercury and the twin-spacecraft STEREO mission. Dr. Acuña served as U.S. Project Scientist for the International Solar Terrestrial Physics Program, a coordinated research effort by Japan, Europe, Russia and the US involving more than 1,000 investigators and the launch of at least seven spacecraft in the middle 90's, and Project Scientist for the SAC cooperative program with Argentina, Brazil, Italy and Denmark.

Dr. Acuña has been honored by NASA and by other organizations with numerous awards including the Distinguished Service Medal (NASA's highest honor) in recognition of his contributions to engineering, physics and space research. In 1991 he was honored by the Catholic University Alumni Association with the Outstanding Engineering Achievement Award, by the Society of Hispanic Professional Engineers with an Outstanding Technical Contribution Award and was appointed as a Senior Fellow by the Goddard Space Flight Center. Dr. Acuña is a Fellow of the American Geophysical Union, a member of the Institute of Electrical and Electronics Engineers, the Scientific Research Society of North America (Sigma

Xi), the Committee for Space Research and International Association of Geomagnetism and Aeronomy, the Inter-Agency Consultative Group, WG-1, and is a founding member of the Latin American Association of Space Geophysics (ALAGE).

Presentation Overviews and AV Requirements:

Classroom Visit Presentation

A Tour of the Solar System **Grades: K-12**

Join Dr. Mario Acuna, a research scientist form NASA Goddard Space Flight Center, as he take you on a tour of the solar system, from our dynamic Sun all the way out to the giant planets and little Pluto. While on the tour, Dr. Acuna will tell you how hwe came to be a space scientist and why it's so important to study our solar system. If you ask the right questions he may even share with you how he was able to make fundamental discoveries about the Red Planet and its violent past.

AV Requirements: LCD projector, 35 mm slide projector and projection screen

Family Science Night Presentation

Seeing the Invisible

We learn in school that the Earth is a "giant magnet" and compasses used by explorers and navigators for more than 4,500 years always point North. But what is this mysterious force that we call "magnetism" and causes the needle to point in a given direction? Where does it come from and do other planets and stars produce it? If it were to disappear tomorrow, would it have important consequences for our planet? Can planetary magnetism tell us anything about a planet's past and what may have happened 4.5 billion years ago?

We are familiar with the fascinating pictures of other worlds taken by our cameras aboard spacecraft. But, what else do these wonderful machines do? Measuring the magnetic field of a planet is just one of many observations that are carried out in these fantastic journeys.

AV Requirements: LCD projector, lavaliere microphone and projection screen

Mario H. Acuñ
Formal Bio

Mario H. Acuña was born in Córdoba, Argentina in 1940 where he received his undergraduate degree in humanities and economics from the University. He earned the MSEE degree from the University of Tucumán, Argentina in 1967 and the PhD. degree in Space Physics from The Catholic University of America, Washington, DC in 1974.

From 1963 until 1967 he worked for the Electrical Engineering Department and Ionospheric Research Laboratory of the University of Tucumán as well as the Argentine National Space Research Commission (CNIE) as a Teaching and Research Associate. These activities included several cooperative sounding rockets programs with NASA's Goddard Space Flight Center involving US and South American scientists as well as X-ray research with high altitude balloons and meteorological satellite tracking stations. In 1967 he moved permanently to the US joining the Fairchild-Hiller Corporation, Germantown, MD, to provide engineering and scientific support to NASA. In 1968 he became Head of the Electronic Systems Division (TSD). Since 1969 he has been associated with NASA's Goddard Space Flight Center in Greenbelt, MD where his interests have centered around aerospace instrumentation and experimental investigations of the magnetic fields and plasmas in the solar system. As Principal Investigator, Co-Investigator, Instrument Scientist and Project Scientist he has played a crucial part in many NASA missions, including Explorers 47 & 50, ISEE3, Mariner 10, Pioneer 11, Voyagers 1 & 2, MAGSAT, Project Firewheel (Germany, Canada, US & UK), Viking (Sweden), AMPTE (Germany, US, UK), ISPM (NASA/ESA, currently ULYSSES), the GIOTTO mission to Comet Halley, and numerous other programs. In 1986 he was selected as Principal Investigator for the Mars Observer Magnetic Field Investigation now replaced by the Mars Global Surveyor Mission which arrived at Mars in September 1997 and is currently in orbit around the red planet making fundamental discoveries about Mars' magnetism. His research laboratory is recognized throughout the world as the leader in the development of instrumentation for the measurement of geophysical magnetic fields as well as plasmas, electromagnetic waves, gamma and X-rays. The laboratory has also supported since 1984 the Defense Meteorological Satellite Program of the US Air Force with the provision of advanced magnetic field instrumentation. In addition to these responsibilities Dr. Acuña served as US Project Scientist (and Science Manager) for the International Solar Terrestrial Physics Program, a $2.4B coordinated research effort by Japan, Europe, Russia and the US involving more than 1000 investigators and the launch of at least seven spacecraft in the middle 90's, and Project Scientist for the SAC cooperative program with Argentina, Brazil, Italy and Denmark. He is also the Team Leader for the Near Earth Asteroid Rendezvous Magnetic Field Experiment which landed on 433 Eros in February 2001, was the Lead Co-Investigator in the Magnetic Field and Electron Reflectometer experiment for the Lunar Prospector Mission, Instrument Scientist for the ACE spacecraft Magnetic Field Experiment launched in August 1997 and now in orbit around the L1 libration point between the Earth and the Sun. He was selected by NASA as Co-Investigator in the Inner Magnetosphere Explorer Mission (IMEX), a University-class Small Explorer Mission, a collaboration with the Universities of Minnesota and Colorado and the Aerospace Corporation and is currentlya Co-Investigator in the Messenger mission to Mercury and the twin-spacecraft STEREO mission.

Dr. Acuña has published over 115 refereed papers dealing with planetary exploration, magnetic fields and plasmas in the solar system, instrumentation for space research and other related subjects. He has been honored by NASA and other organizations with numerous prestigious awards including the Schneebaum Memorial Award for Engineering Excellence, the John C. Lindsay Award for Space Science, the NASA Medal for Exceptional Scientific Achievement, the Exceptional Service Medal, the Award of Merit and the Distinguished Service Medal (NASA's highest honor) in recognition of his contributions to engineering, physics and space research. In 1991 he was honored by the Catholic University Alumni Association with the Outstanding Engineering Achievement Award, by the Society of Hispanic Professional Engineers with an Outstanding Technical Contribution Award and was appointed as a Senior Fellow by the Goddard Space Flight Center.

In 1985 he was selected by the IEEE Magnetics Society as one of three Distinguished Lecturers to speak throughout the US on the subject of Space Magnetometry. Dr. Acuña is a Fellow of the American Geophysical Union, a member of the Institute of Electrical and Electronics Engineers, the Scientific

Research Society of North America (Sigma Xi), the Committee for Space Research and International Association of Geomagnetism and Aeronomy, the Inter-Agency Consultative Group, WG-1, and is a founding member of the Latin American Association of Space Geophysics (ALAGE).