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## DENVER EDUCATORS STEP INTO NASA'S CLEANEST ROOM TO WATCH A SPACERAFT BEING BUILT

Two Denver-based education researchers recently were afforded a rare opportunity to view first-hand the assembly of a NASA spacecraft in an ultra-clean facility, as part of their preparation to develop a unique education outreach program about a mission to collect particles of "solar wind."

Greg Rawls and John Ristvey, Aurora residents, employed by one of the U. S. Department of Education's Regional Education Laboratories, Mid-continent Research for Education and Learning (McREL), recently were allowed to do what only a handful of people in the world have done: don protective clothing and enter a NASA "clean room" at the Johnson Space Center (JSC) in Houston as part of the education and public outreach efforts for NASA's upcoming Genesis mission.

"It [the clean room] was so pristine. Imagine trying to meet all of the unique technological needs that have influence on the scientific outcomes of the mission," remarked Rawls. "As an educator, I can't help picturing kids tackling these types of problems by using the same critical thinking skills . . . it gives me goose-bumps."

The clean room will be used to insure that a canister designed to collect minute particles of the solar wind as part of the Genesis mission is free of contamination at the time of launch. The solar wind is composed of streams of electrically charged particles that are emitted from the surface of the sun. Scientists hope by studying the particles they will obtain clues to the origin, or "genesis," of the sun and other bodies in the solar system, including the planets.

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The Genesis mission, which is scheduled to launch in January 2001, will send a spacecraft with the super-clean canister into an area of space where the gravitational fields of the sun and the Earth cancel each out. Once in orbit there, the canister will open and unfold ultra-pure collectors, which will trap "wind-borne" solar particles for two years. At the end of that time, the canister will stow its collectors and return to Earth. Eventually, its cargo of solar wind particles will be sent to the JSC clean room and stored for analysis.

NASA scientist Eileen Stansbery designed and supervised the clean room that Rawls and Ristvey visited. She said she is excited about the opportunity to participate in the Genesis mission because it will add to public and scientific understanding of the evolution of the solar system. "The public will own the [Genesis] solar wind samples," she said. "In essence, they will be a national resource."

Clean rooms, which are used in a variety of fields from health care to the electronics industry, are rated on a scale that ranges from 100,000 to one, indicating the amount of contamination by dust and other airborne particles that may be expected to be found within. Class 1 clean rooms are the most sanitary. The average room in a house has approximately 350,000 minute dust particles moving through a cubic foot of air in a minute; thus it is class 350,000. The Genesis clean room is certified as class 10—the purest of NASA's clean rooms.

Like the NASA technicians who work in the clean room, Rawls and Ristvey entered the facility through a dressing area where they donned protective "bunny suits," which cover them from head to toe. But rather than protecting the technicians from their environment, these suits protect the clean room from the technicians' bodies, including flakes of skin and other contaminants.

Ristvey noted that the visit to the clean room is just one of many features of the Genesis mission that will make it unique in terms of educational outreach both to students in the classroom and to members of the general public. McREL, for example, will produce an educational video and an on-line electronic field trip about the clean room visit.

Added Rawls, "The electronic field trip and video will offer an audio-visual experience where science teachers, students and the public can learn about—and actually experience for themselves—the importance of clean room technology."

McREL, based in Aurora, Colorado, is a private, nonprofit organization whose purpose is to improve education through applied research and development. McREL provides products and services, primarily for K-12 educators, to promote the best instructional practices in the classroom.

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Notice to editors: More information about NASA's Genesis mission may be found at <http://genesismission.jpl.nasa.gov>. Digital photographs of Rawls' and Ristvey's visit to the clean room are available, at a resolution of 300 dpi in 3x5 and 5x8 sizes, from Jacinta Behne at McREL (see Contact Info.)