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NASA Technology Creates Market for Recycled Milk Bottles

Rescue blankets made of recycled plastic milk bottles are a new spin-off from NASA's research into development of lightweight metal insulation for spacecraft, according to a collaborator in the Agency's Small Business Innovative Research program.

Using the same "honeycomb" concept that will be used to make future spacecraft metal heat barriers, researchers working with scientists at Ames Research Center, have created a lightweight plastic insulation for blankets and clothing that is "better than wool." Like wool the new material can also keep a person warm, even when it is wet. Eventually, about 70,000 of the emergency blankets are expected to be distributed annually by Thermalon Industries, El Segundo, CA. Currently, 250 of the blankets are being evaluated for use in emergencies by Ames' Disaster Assistance and Rescue Team.

"The blankets are better than wool or fleece because they are non-allergenic, and they dry five times faster. The new material also is four times warmer than wool in cold and damp conditions," according to principal investigator Steve Miller of S.D. Miller & Associates, Flagstaff, AZ. "We plan to work with ambulance companies and Red Cross chapters to fully evaluate use of the blanket," he added.

Anniversary Marks Milestone of U.S. Presence in Space

Saturday, March 22, marked the one-year anniversary of a continuous U.S. presence in space, which began with the launch of astronaut Shalton Lucid aboard Space Shuttle Atlantis on the STS-76 mission to the Mir space station.

Since Lucid arrived on Mir, astronauts John Blaha and Jerry Linenger have followed in her footsteps, conducting continuous scientific experiments aboard the Russian complex as a precursor to the development and occupancy of the International Space Station.

Linenger will remain aboard Mir until mid-May, when he will be replaced by astronaut Mike Foale.



Wallops, Air Force and TRW personnel recently conducted dry-run fueling exercises in Wallops' Building M-20. The exercise included simulating loading of hydrazine into the Air Force STEP-4 spacecraft which is scheduled to be launched via a Pegasus rocket in late summer from Wallops. Photo by R. Wooten

New Missions Selected to Study Earth's Forests and Gravity Field Variability

Small, lower-cost spacecraft to study the distribution of Earth's forests and the variability of its gravity field have been competitively selected by NASA for development under a new Office of Mission to Planet Earth program called Earth System Science Pathfinders.

The Vegetation Canopy Lidar (VCL) mission, led by professor Ralph Dubayah of the University of Maryland, College Park, seeks to provide the first global inventory of the vertical structure of forests across Earth using a multibeam laser ranging device. VCL will enable direct measurement of tree heights, forest canopy structure and derived parameters such as global biomass with at least ten times better accuracy than existing assessments.

The Gravity Recovery and Climate Experiment (GRACE), led by professor Byron Tapley of the University of Texas at Austin, employs a satellite-to-satellite microwave tracking system between two spacecraft to measure the Earth's gravity field and its time variability over five years. Such measurements are directly coupled to long-wavelength ocean circulation processes and to the transport of ocean heat to Earth's poles.

Selected as an alternate, should one of the selected missions encounter serious cost, schedule or technical problems in their early development phase, is the Chemistry and Circulation Occultation Spectroscopy

Mission, led by professor Michael Prather of the University of California at Irvine.

The single principal investigator and their team, for each spacecraft, are ultimately responsible for developing the flight mission hardware from selection to a launch-ready condition in 36 months, with minimal direct NASA oversight.

The laser mapping technique to be used by VCL, which was pioneered by NASA in aircraft experiments several years ago, should help resolve a major uncertainty in the scientific understanding of the global carbon cycle, particularly the role of terrestrial ecosystem in sequestering the atmospheric carbon dioxide produced by industrial activities and automobile exhausts.

GRACE will provide a frame work for studying the gravitational signatures of gigantic continent sized underground water reservoirs, or aquifers. It also will provide a never-before-available perspective on global ocean circulation and the time variability of Earth's overall external shape, or geoid. This fundamental dataset could enable great improvements in existing ocean radar altimetry data sets, and retrospective improvements of seasonal to inter-annual climate change estimates.

The total lifecycle to NASA of VCL is \$59.8 million and \$85.8 million for GRACE.

Health Hints

by Dianne Hargrove, R.N.

Common Medications Can Have Negative Effects in the Long Term

You wake one morning with a headache and stuffy nose. In the medicine cabinet you find a nasal spray to help clear your sinuses and take a couple of aspirin with a morning cup of coffee for the headache. Then you have your first cigarette of the day.

Only awake for an hour and already there are four different drugs in your system: two stimulants in the form of caffeine and nicotine, one depressant in the form of aspirin and an antihistamine nasal spray that produces a sedative effect.

When used over long periods of time, many so called "drugs of habit" can begin to have a detrimental effect on your health and productivity. Commonly misused drugs include everything from prescription drugs to over-the-counter drugs.

A medication's ability to cross the blood-brain barrier is an important determinant of its effect on alertness and performance. Every entry of chemicals into the brain can cause a range of "felt" side effects, such as impaired judgment and slowed reaction time.

Alcohol and medications

Some prescription medicines can produce unwanted effects when mixed with alcohol. Alcohol can interact harmfully with some common non-prescription medicines, such as aspirin and allergy medicines. When alcohol and certain medicines are mixed, the problems can be minor or very severe.

Drug interaction

Your medicine cabinet probably has both prescription and over-the-counter medications. Taking more than one medication may result in a drug interaction. A drug interaction is a change in the effectiveness or safety of a medication when taken with another medication, food, tobacco, or beverage.

Coffee, tea, cola drinks and nicotine are all stimulants that work on the central nervous system. Alcohol is a central nervous system depressant. Certain foods interfere with the body's ability to absorb some prescribed drugs.

To prevent drug interactions: Read all labels and package inserts. Ask for additional information about the medication.

Safety first

Increase your awareness of the drugs you take and what effects they have on your body.



The Wallops Federal Women's Program Committee Proudly Presents Wallops Profile



Jaya Bajpayee

I am an electrical engineer in the Wallops Range Safety Branch. We are responsible for protection of life and property during NASA Wallops operations. Achieving this requires providing operations ground and flight safety, locally or in remote locations around the world. These operations include rocket launches, long duration balloon flights, and scientific research which utilize lasers. In addition, we perform hazard analysis for all radio frequency sources to ensure protection of personnel and explosives.

Everyday provides new challenges to Range Safety. I've found myself performing all sorts of work, including circuit analysis, various types of hazard analysis, vehicle flight safety analysis, assuring system safety and reliability of command destruct systems, as well as performing missile flight safety officer and/or range safety officer functions during operations. I am also part of the inter-range Flight Termination System Commonality group, which develops the design, test and documentation requirements for all ranges in the United States.

I came to Wallops nine years ago following graduation from the University of Pittsburgh. I was looking for a job that provided variety, challenge, and would let me travel around the world. When NASA offered me this job, it was too good to resist. I like every aspect of my job. I think it's fun. The biggest challenge is to do what's right and not compromise safety, even in the midst of controversy or external pressures.

My most notable mentor was my first boss, Jack Parks. He accepted

nothing less than perfection, questioned everything, and provided a lot of constructive criticism. Jack taught me not to take technical arguments personally. I think that is very important in any organization.

I enjoy hiking, sailing, and skiing. In 1995, I went on a trip that circled around the world, stopped at a number of countries, saw new cultures, met a lot of new people, went on safaris, and rode a hot air balloon. I also went diving in the great barrier reefs which was my first experience in water above my head. All the snow of 1996 made it the year of skiing. I skied a lot of locations on the east coast and went to Colorado four times.

My advise to young girls today would be that you are responsible for your life; so believe in yourself, envision how you want your life to be, set objectives and goals, and just go for it. Always have a positive attitude because that is going to be your most important asset.

Sympathy is extended to family, friends, and co-workers of Diane H. Holland who died March 15 at the University of Maryland Medical Systems, Baltimore, MD after a long battle with leukemia. She was employed by Computer Sciences Corporation.

American Red Cross Bloodmobile - March 28 Bldg. F-3. Call x1336 for an appointment.

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