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Goddard Space Flight Center

Inside Wallops

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New Technology Will Increase On-Time Landings

Help may soon be on the way to air travelers frustrated with ever-increasing delays at the nation's airports.

NASA Langley Research Center, Honeywell Technology Center and Honeywell Airport Systems have developed new technology that could solve a significant part of the problem. Called Airborne Information for Lateral Spacing (AILS) and Closely Spaced Parallel Approaches (CASPER), the systems expand on existing communication and navigation technology to allow planes to land safely in bad weather on parallel runways spaced as closely as 2,500 feet apart.

NASA 757 *NASA Langley Research Center Photo*

Currently, the minimum runway separation during low visibility is 4,300 feet, which means that some of the nation's busiest airports have to shut down one of their closely spaced runways when weather conditions deteriorate. Some of the airports where this new technology could improve on-time arrivals are Detroit, Seattle, Minneapolis and Memphis.

With the AILS/CASPER system, aircraft coming in to land "talk" to each other through Automatic Dependent Surveillance-Broadcast, a technology under development by the FAA and industry. Differential Global Positioning System signals provide precise information about each plane's location.

A satellite landing system that transmits Global Position System (GPS) data was installed at Wallops this past spring to support the test and research flights for the project.

Researchers from Langley conducted several test flights in a NASA King Air during June and July 1999. From late July through September, personnel from Langley and Honeywell conducted the AILS/CASPER research flights in a NASA 757 and a Honeywell G4 aircraft.

In support of this research, Wallops provided airspace coordination with VACAPES and project control tower, air traffic control, radar tracking, photographic, fueling, and ground support services as well as emergency services standby.

Mars Climate Orbiter Failure Board Releases Report

Wide-ranging managerial and technical actions are underway at NASA's Jet Propulsion Laboratory in response to the loss of the Mars Climate Orbiter and the initial findings of the mission failure investigation board.

These actions include: a newly assigned senior management leader, freshly reviewed and augmented work plans, detailed fault tree analyses for pending mission events, daily telecons to evaluate technical progress and plan work yet to be done, increased availability of the Deep Space Network for communications with the spacecraft and independent peer review of all operational and contingency procedures.

The failure board's first report identifies eight contributing factors that led directly or indirectly to the loss of the spacecraft. These include inadequate consideration of the entire mission and its post-launch operation as a total system, inconsistent communications and training within the project and lack of complete end-to-end verification of navigation software and related computer models.

"The 'root cause' of the loss of the spacecraft was the failed translation of English units into metric units in a segment of ground-based, navigation-related mission software, as NASA has previously announced," said Arthur Stephenson, chairman of the Mars Climate Orbiter Mission Failure Investigation Board.

The Board's report is available on-line at: **ftp://ftp.hq.nasa.gov/pub/pao/reports/1999/MCO_report.pdf**

NASA Fuels Land Mine Removal Efforts

The same rocket fuel that helps power the Space Shuttle as it thunders into orbit will now be taking on a new role, with the potential to benefit millions of people worldwide.

Leftover rocket fuel from NASA is being used to make a new flare that destroys land mines where they were buried without using explosives. The flare was developed by Thiokol Propulsion in Brigham City, UT, the NASA contractor that designs and builds rocket motors for the Space Shuttle.

Thiokol is using the surplus propellant through an agreement with NASA's Marshall Space Flight Center. "Clearly, this project has the potential to save lives worldwide," said Marshall Center Director Arthur G. Stephenson. "Marshall is happy to help in this humanitarian endeavor."

The flare is safe to handle and easy to use. People working to deactivate the mines simply place the flare next to the uncovered land mine and ignite it from a safe distance using a battery-triggered electric match. The flare burns a hole in the land mine's case and ignites its explosive contents. The explosive burns away, disabling the mine and rendering it harmless.

Occasionally, the mine detonates before the explosive is fully consumed. When this occurs, the explosion is more controlled and minimized, causing less damage than other mine disposal methods, according to Charles Zisette, program manager with Thiokol. Other methods include deactivation by hand or deliberate detonation, both highly dangerous processes.

An estimated 80 million or more active land mines are scattered around the world in at least 70 countries. Land mines kill or maim 26,000 people a year, most of them women or children, and usually after military hostilities have ended. Worldwide, there is one casualty every 22 minutes.

Using leftover rocket fuel to help destroy land mines incurs no additional costs to taxpayers. To ensure enough propellant is on-hand for each Shuttle mission, NASA allows for a small percentage of extra propellant in each batch. Once mixed, surplus fuel solidifies and cannot be saved for use in another launch. In its solid form, however, it is an ideal ingredient for Thiokol's new flare.

Be Alert - Don't be a Victim

The holiday season is approaching and often proves to be prime season for criminal activity. With the rush to complete shopping and holiday preparations, we are often distracted making for an easy target.

A criminal will strike when we least expect it. The following are only a few of the common mistakes women often make that could result in them being robbed, kidnapped, attacked, and/or raped.

Bottom line: Be alert and be careful!

1. Pulling over when a man drives alongside of you pointing at your car pretending something is wrong.

If this happens, drive to the nearest well-lit and populated gas station and look the car over yourself (or ask an attendant). Never pull over. Many women have fallen for this for fear they have a flat tire or other problem with the car.

2. Not locking car doors while driving.

There are several cases where the attacker simply walks up to a woman's car while she's at a traffic light and jumps in with a weapon.

3. When at home alone, opening the door when you have not positively identified who is there.

If you don't have a peep hole, get one. There are countless cases where the attacker gains access to his victims simply by knocking on their door.

4. Not being alert in parking lots.

If you go shopping alone, don't be shy about asking store personnel or security for an escort to your car. Too many women are either abducted from parking lots or even raped while in the parking lot. Always look in the back seat before entering your car. Cars provide hiding places for attackers, both inside them and in between them.

Be aware of your surroundings by looking to the left and right and behind you. Keep your head up all the time. You may appear paranoid and look funny to others, but an attacker will think twice about approaching someone who appears so aware of what's going on.

5. Trusting a clean cut, honest looking stranger.

Not all criminals look like monsters. They often look like they could be your friendly grocer, bank teller, waiter, neighbor, clergy, doctor, etc. They are every age and only a small number actually look scary.

Space Reserved for Mailing Labels

Mission 2005

by the Technology Roadmap Team

During the recent NASA Wallops Retreat to discuss 'Mission 2005' it was agreed that there was a need to formulate and solidify Wallops' technology strategy. To do this we need the help of individuals at every level of all the organizations at Wallops. Here's how you can help.

Wallops' technology strategy needs to align with many high level 'roadmaps'. Most of all, it needs to be aligned such that the items produced as a result of technology efforts actually solve problems. We need you to tell us where, is the greatest need for a 'leap forward' in your job. Ask yourself, "If solved, what one technical challenge would radically improve or even revolutionize some part of my job or the jobs of those in my office/project/area?"

You may think of an effort that would lower costs of doing business, would dramatically enhance safety of projects or missions, would add a new functionality to existing systems, or would lead to a whole new line of business.

Whatever your idea is, we'd like to hear about it. You don't have to elaborate to the detail required to design something, just describe the idea and how it would help. We plan to collect as many ideas as possible and then assemble them to help create a Wallops Technology Plan.

Send your ideas by e-mail to Joel.M.Simpson.1@gsfc.nasa.gov or call Larry Rossi, x1590; Jay Pittman, x1506; Steve Raque, x1675 or Joel Simpson, x1070.

Key Appointment

GHG Corporation recently selected Norris R. Beasley its Deputy Program Manager at Wallops.

Beasley will manage GHG administrative, technical, engineering, operations employees supporting the Consolidated Space Operations Contract (CSOC).

Federal Employees Health Benefits Open Season Nov. 8 to Dec. 13

A Proclamation by The President of The United States of America

National American Indian Heritage Month

Ours is a nation inextricably linked to the histories of the many peoples who first inhabited this great land. Everywhere around us are reminders of the legacy of America's first inhabitants. Their history speaks to us through the names of our cities, lakes, and rivers; the food on our tables; the magnificent ruins of ancient communities; and, most important, the lives of the people who retain the cultural, spiritual, linguistic, and kinship bonds that have existed for millennia.

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by virtue of the authority vested in me by the Constitution and laws of the United States, do hereby proclaim November 1999 as National American Indian Heritage Month. I urge all Americans, as well as their elected representatives at the Federal, State, local, and tribal levels, to observe this month with appropriate programs, ceremonies, and activities.

IN WITNESS WHEREOF, I have hereunto set my hand this first day of November, in the year of our Lord nineteen hundred and ninety-nine, and of the Independence of the United States of America the two hundred and twenty-fourth.

Thrift Savings Plan Open Season Nov. 15, 1999 to Jan. 31, 2000

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