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GPS: FAA's New Frontier

By Charles Spence

The corporate jet landed and taxied to just 26 feet from its pre-determined spot at Le Bourget Airport near Paris, France, after a transatlantic flight. It was 1983, and the plane had navigated the ocean using only satellite guidance.

It was the first successful Atlantic crossing using the Global Positioning System (GPS), which can pinpoint a location anywhere on earth, at sea or in space, in any type of weather, day or night. It's FAA's new frontier for navigation and air traffic control.

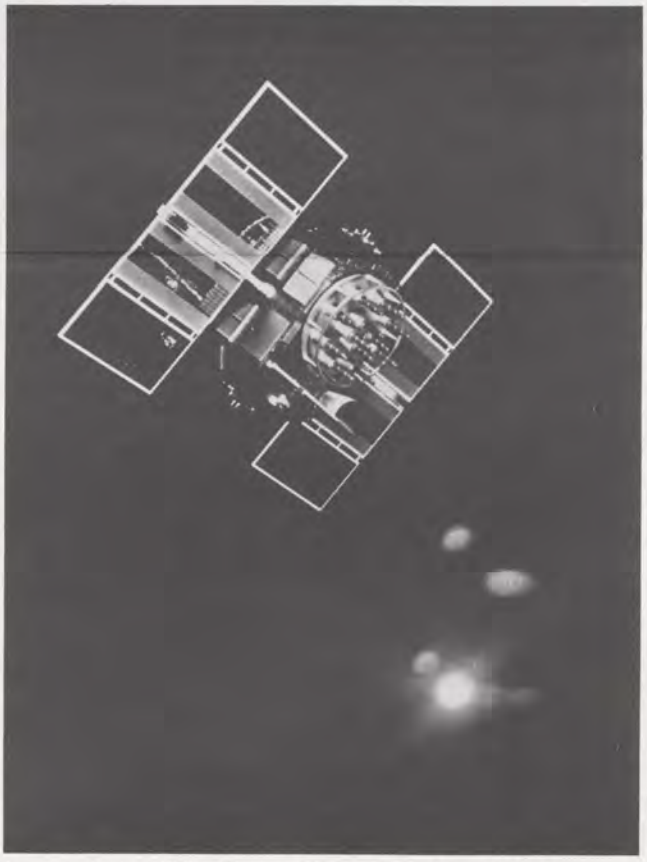
Nothing aboard the aircraft in 1983 integrated the GPS information with the plane's flight management systems. At the time, there were only five test satellites in the sky, which limited coverage of the earth and caused delays while the pilots waited for the next orbit for signal reception. Nevertheless, the crew measured enroute errors between major checkpoints in feet, not miles.

The GPS receivers for the demonstration flight to Paris were "like a Wright brothers lash-up," said the pilot of the jet, which was owned by Rockwell International Corp., the Department of Defense's contractor for building the satellites.

Under development since 1974, the system was mandated by Congress to be available for civilian use as well. The responsibility for civilian use falls to the Department of Transportation. For the FAA, this means not only acting as advocate for the system but also developing the standards, procedures and implementation for aeronautical use.

Ultimately—by the mid-1990s—GPS will consist of 24 satellites, the first of which was delivered in April 1987 and launched February 1989. Twenty-one form the core of the system, assuring that four or more satellites will always be above the horizon for receivers anywhere on earth or in space. To ensure reliability, there will be three active "spares" that will be oper-

(Continued on page 2)



A montage showing a GPS satellite, one of 24 that will ring the earth by 1991.

An aviation free-lance writer, Mr. Spence was the senior vice president for public relations at the Aircraft Owners and Pilots Association and served 15 years with Hearst newspapers.

Awards Program Involves Employees

By William J. Davis

"... and I'm pleased to present you with these two new $100 bills in recognition of your outstanding contribution to the Materiel Management Division's mission." Having said that, Dick Clevenger, manager of the division in the Acquisition and Materiel Service, handed the money to an employee who had obtained approval for a new NAS training facility at the Aeronautical Center.

This was a new version of the agency's "on the spot cash award" initiated by Clevenger's division. The differences are that this is a formal quarterly program, one in which the employees themselves participate and which makes awards in three categories. Clevenger's team spent a year and a

(Continued on page 8)

Mr. Davis is technical assistant to the manager of the Materiel Management Division, Acquisition and Materiel Service.

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FAA's New Frontier

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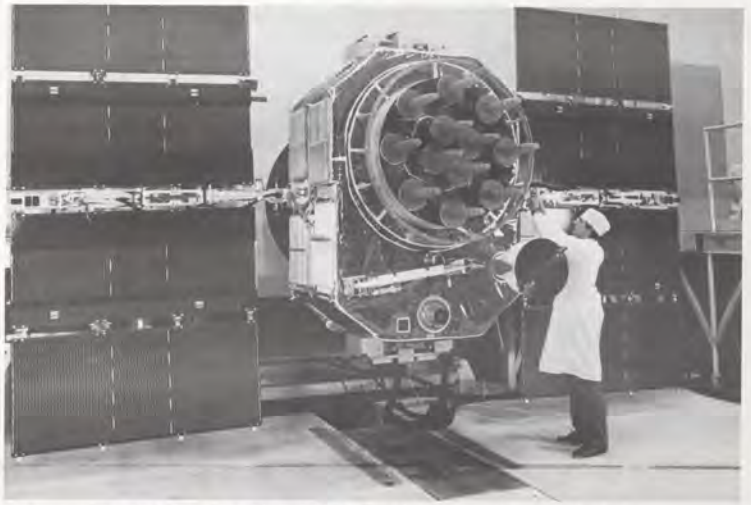


A technician assembles a GPS satellite at Rockwell International's Satellite and Space Electronics Division in Seal Beach, Calif.

ational and able to be positioned to fill in holes in coverage if any of the 21 fail.

GPS is a constellation of satellites in high earth orbit (10,898 miles), circling the earth every 12 hours. They emit radio signals that provide a precise three-dimensional position and time report when a receiver picks up information from four of the satellites. Each satellite broadcasts a pair of coded frequencies. One signal is an encrypted code for use primarily by American and NATO armed forces; the other signal is accessible to civilian users.

When the receiver synchronizes its time with ultra-stable clocks in each satellite, it determines range to known points and, in that respect, is similar to avionics now used for distance measuring equipment. The data obtained from the GPS signals reveal longitude, latitude and altitude. The satellite clocks are atomic clocks—so accurate they gain or lose only one second every 70,000 years.

Once the satellites are in space, Air Force ground controllers will be able to adjust their positions. Those controllers will fine-tune the orbits by energizing small electromagnets that alter the satellites' magnetic field and their path through space. Each satellite also has several low-power thruster rockets for the purpose.

The test satellites already have proven their value in ground-based projects. Map makers and surveyors use GPS in its limited configuration to accurately locate lakes, streams and other topographic features, as well as roads and structures.

The Coast Guard recently completed GPS tests for harbor-entrance navigation and now is working up procedures for buoy placement. Using a GPS receiver aboard ship and data from receivers at shore locations, the Coast Guard has achieved accuracy to within the eight to 20 meters required for harbor entrance and coastal navigation.

The original plans called for all the satellites to be put into orbit by the space shuttle, but the schedule fell behind after the *Challenger* explosion. Partly because of the resulting backlog of shuttle payloads, GPS plans now call for Delta II rockets to carry 20 of the first 21 satellites. The others may go up by Delta rockets or the shuttle, and all will be in place by the mid–1990s, according to Lt. Col. Joseph Dorfler of U.S. Air Force headquarters.

The Consolidated Space Operations Center at Falcon Air Force Station in Colorado is the control center for GPS. A network of automated outposts listens for signals and transmits messages back to Falcon AFS. These stations are on Ascension Island in the Atlantic Ocean, Diego Garcia in the Indian Ocean, Kwajalein Atoll in the Marshall Islands and on Hawaii.

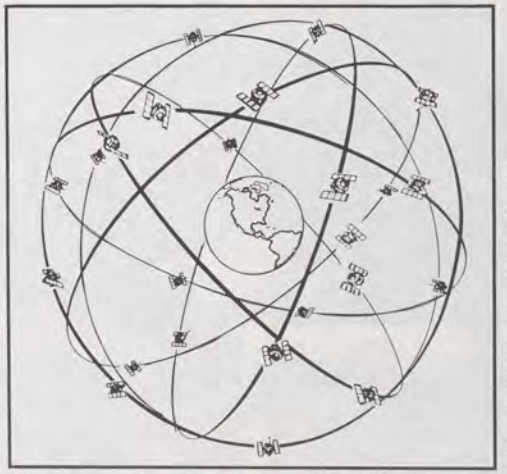
When fully operational, GPS will permit pinpoint accuracy for navigation, non-precision approaches to landing, search and rescue, crop dusting, offshore drilling and ground-vehicle tracking. Through GPS, for example, trucking companies will be able to keep track of vehicles with valuable or dangerous cargo.

"The limit to GPS is only in the imagination," says Lt. Col. James Snow, military programs manager, who works with FAA's Aviation Standards National Field Office (ASNFO) at the Aeronautical Center. Personnel there are involved with the Air Force at Randolph Field in San Antonio, Texas, developing approach procedures for GPS.

The first expected civilian aviation benefits from GPS are for oceanic flights in 1992. This would be the first time that air traffic control will know the precise location of flights outside of present long-range radar coverage.

Unlike inertial navigation systems that require the pilot to program an exact starting location, GPS calculates the aircraft's location when the pilot turns on the receiver. This, the experts agree, makes the space-based system less susceptible to human error.

Besides enroute navigation, when FAA's "Integrity Monitor System" is in place, GPS can give any airport in the world a non-precision approach.



Looking like an atom of chromium, the earth will be covered by the orbits of 24 American navigation satellites that will pinpoint objects on its surface or in the air.

Discussing airborne GPS equipment slated for tests aboard helicopters at the Technical Center are (left to right) GPS project engineer Frank Persello, electronics technician Thomas Wisser and project engineer Robert Erickson. The airborne equipment consists of a receiver and two CDUs (control display units) to show position information.

Colonel Snow points out, and this is without any additional ground installation of VOR or low-frequency beacons.

Although much has already been accomplished in proving the system, much remains to be done by FAA before civil aviation can use GPS. To date, most of FAA's work has centered on research and development (R&D). Now, as the system evolves, attention is focusing on the integrity of the system, says Jerry Bradley, R&D project manager in the Requirements & Concepts Division of the Advanced System Design Service.

Integrity of the system means assuring accuracy and reliability. "We're working now to come up with an alert system," Bradley says. "That will let users and the control centers know if a satellite fails." While exploring several alternatives, the one under closest study will continuously broadcast to the users that the satellites are functioning. "Unless the satellite reports it's good, you don't use it," Bradley says.

A potential outage poses a major communications problem for air traffic control. Because the satellites are constantly moving, controllers cannot state the area of non-coverage to pilots as they can with stationary facilities.

Since 1985, the Radio Technical Commission for Aeronautics (RTCA) has been working with FAA to develop civil requirements for GPS. Last month, RTCA began the task of developing Minimum Operational Performance Standards (MOPS) for civilian aircraft receivers. When RTCA completes MOPS development, Flight Standards will prepare Technical Standard Orders (TSOs) for the manufacture of equipment. If a TSO can be ready by next year, Bradley says manufacturers claim they can have receivers to meet the standards on the market by 1992.

The cost of early receivers for civilian aircraft is expected to range from about $5,000 to $20,000 or $30,000, depending on what the system will do. A basic position-reporting system will be lower; one integrated with the aircraft's controls will reach the upper figures.

In 1992, GPS can be used for enroute and oceanic navigation. However, pilots will not be able to use GPS for non-precision approaches until about 1995, Bradley notes. It will take that long to achieve an "integrity system"—the go-no-go alert. Because GPS is basically an R-NAV (area navigation) system, he explains, it may be possible to use a modified TERPS (Terminal Instrument Procedures) now applicable to area navigation systems.

There is considerable international interest in satellite navigation. In fact, the Soviet Union is developing and deploying its own 24-unit constellation, which is called GLONASS. However, the U.S. and Soviet governments have agreed to cooperate on the common use of the nonclassified frequencies of both systems. What FAA research people and their Soviet counterparts have to work on is making user equipment compatible with the two systems. Achieving compatibility will mean greater coverage and reliability, assuring that at least 10 satellites will be in view in any location at all times.

Other nations without advanced VOR, DME and TACAN networks like those in the United States are eying GPS as a way of obtaining navigation and approach procedures without spending for the ground facilities, although some may have reservations about being dependent on systems developed primarily for the superpowers' military establishments.

Although the Global Positioning System offers some distinct advantages, considering the United States' existing system of airways and approach aids, some researchers wonder if the U.S. needs GPS. "With what's available," said one, "we probably wouldn't start a GPS from scratch. But since civil use is riding on a military system, we're doing it, and we intend to make it the best it can be." ■

The new Central Flow Control Facility ...

The temporary "spaghetti farm" ...

The Old Central Flow Control Facility

Traffic Management
Designed for Efficiency

The Central Flow Control Facility has settled into its new quarters--certainly a delight compared to the primitive conditions in its temporary digs.

More important, according to acting facility manager John Cuprisin, is that new equipment can be used more comfortably and more efficiently and Central Flow's operation expanded.

"The facility is using the Aircraft Situation Display (ASD) introduced last year as a real-time traffic management tool," explains Cuprisin. "Its use is being expanded to include all the centers, and we expect to get more ASDs and new console desks. A new communications system has been installed.

"We also have Monitor Alert: Each of the ASDs has the capability of predicting when a sector, airport or a certain amount of airspace is reaching toward the saturation point." Eventually, each ARTCC will have this capability, he noted.

At that point, Central Flow Control will begin installing what is called an Automated Demand Resolution Advisory, "where the computer gives us alternative ways to resolve what Monitor Alert tells us is the problem," Cuprisin continued. "In consultation with the ARTCC Traffic Management Unit involved, we choose the alternative that would be better from a system viewpoint. Then we may coordinate with the other centers to change the flow of traffic."

Sometimes Central Flow Control becomes a mediator between adjacent centers as to the best way to route the flow of traffic, and sometimes it just makes the decisions as national strategy. ■

To one side of the facility, systems engineer George Adams, on detail from the Chicago ARTCC, operates the National Maintenance Control Center.

Traffic management specialist Debbie Compton operates an Aircraft Situation Display (ASD). Beyond is a large planning display, which may be used for a common additional screen. To her right are system performance monitors.

At one end of the room, National Weather Service employees Roy Smith and Eloa Johnson provide data to flow control from a Weather Service Unit.

Photos by Lance Strozier

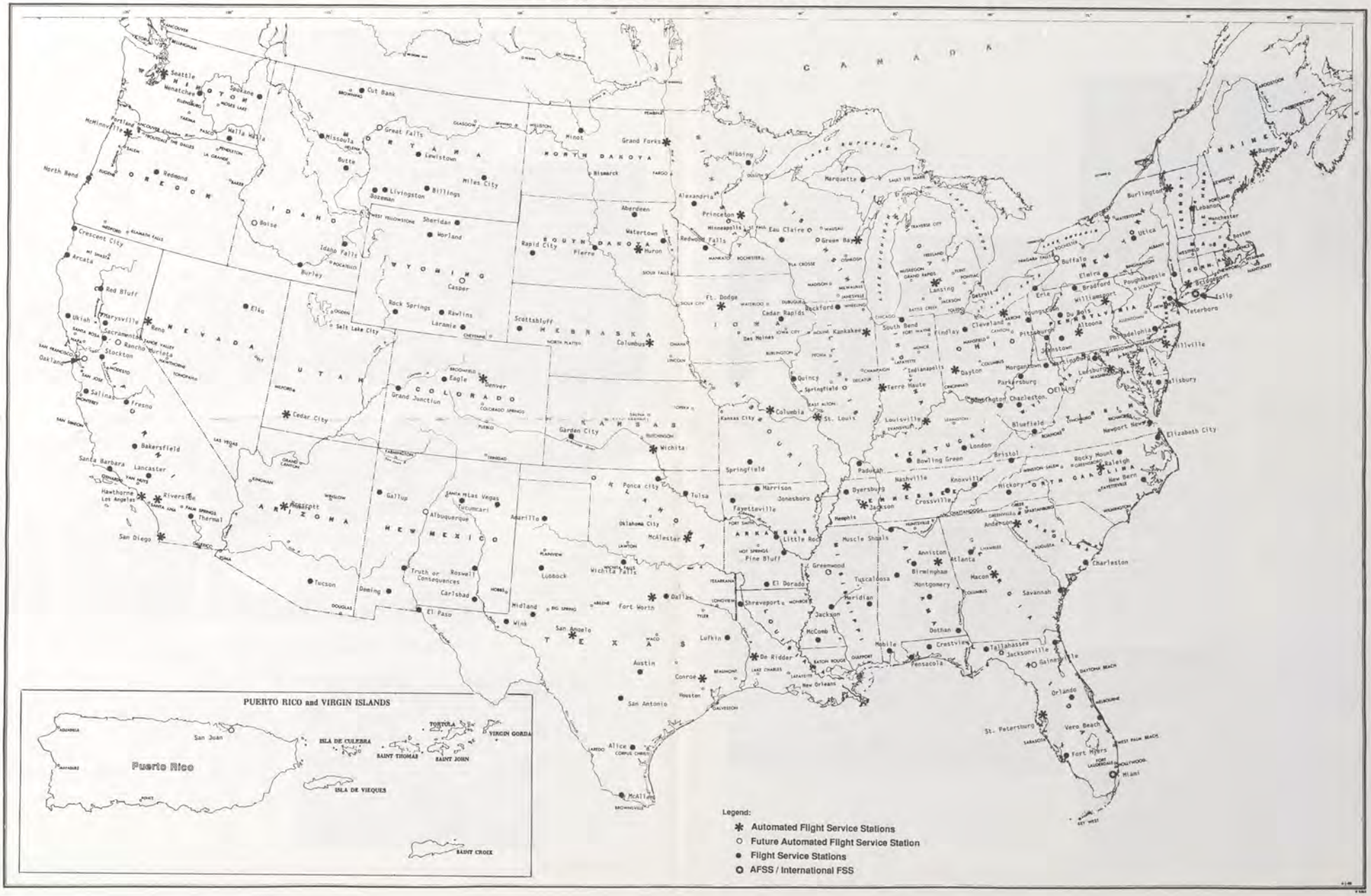
Specialists Gilbert Branson (left) and Bill Doyle discuss a problem at a position that has an old built-in telephone console. All ASDs can be set up to handle any situation, depending on the demand.

Supervisor John Gibbs (standing) chats with specialist Roger McDonald. His screen shows data, said to be in the flow control mode, with a miniature ASD to the side. The screen can be configured at the specialist's option.

Traffic management specialist Paul Kimes demonstrates a new compact telephone console that was installed as FAA World went to press

Photo by Dennis Hughes

FLIGHT SERVICE STATIONS



Awards Program

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Recipients of the Manager's Award for the third and fourth quarters of 1988, respectively, were W. Joseph Anderson (left) and Murry E. Camp (right); Lorraine E. Neal and Larry L. Thompson. This is the only award decided upon by management.

half perfecting the program, winning praise for making it a model for other FAA organizations.

For the Manager's Award cited above, Clevenger and his management team select the individual and/or group that has made the most significant contribution to the division during the past quarter. The recipient receives a special rotating plaque to keep until the next quarterly awards ceremony, as well as a certificate summarizing the activity for which it was presented, a memorandum of appreciation detailing the recipient's contribution and a cash award. A photograph is taken of the occasion. Cash means so much more than ''you'll see it in your pay check,'' notes Clevenger.

In this division, however, it is no longer solely a management decision to select award winners. In the second and third award categories, Clevenger shares this decision with all the non-management employees, who are responsible for identifying their peers who have made the most worthy contribution to the division. ''Of course,'' says Clevenger, ''this program is successful only because of the enthusiastic support and effort of division personnel.''

The ''Out-of-Division Award'' recognizes that their superior accomplishments are frequently the result of the contributions and cooperation of personnel in other FAA organizations at the regions, centers and headquarters. To acknowledge such individuals or groups, both management and non-management division personnel submit nominations for this award, but the management team makes the final decision. Out-of-division winners also receive a certificate, a memorandum of appreciation, a cash award and a picture of the presentation if made in the headquarters building.

The third category is the Employees' Award. Non-management and non-supervisory employees in the division nominate and pick the winners without any management intervention. After selection, the ballots are destroyed.

Clevenger's management philosophy is that a winning team must be motivated. Employee motivation in this instance, he believes, is best served by permitting the employees to determine who, within their own ranks, has best served the division and honors the work effort of the entire group. Management exercises no review rights and is committed to the panel's selection. The winning individual or group receives a special rotating plaque, a certificate, a memorandum, a cash award and a picture of the event.

At the beginning of each calendar quarter, a memo—the bottom portion of which is a ballot—goes out to all division employees requesting nominations for the second and third categories. The committee that makes the selections is made up of three employees—one from each branch—and a non-voting recording secretary. The trio rotates every quarter, so each employee serves only once every two years or so.

Shortly after the end of each quarter, there is an awards ceremony for all division employees. Out-of-division award winners (if within the headquarters building) and their management personnel are also invited to attend. Awards to region and center personnel are mailed to their supervisors for appropriate presentation.

Clevenger says that interest in this division program has increased since a recent decision by the Human Resource Management Division now permits on-the-spot cash awards to be given to all employees, whether general schedule or merit.

''This program provides a self-challenging goal for each member of our organization, and there is increased personal effort in vying for individual recognition,'' Clevenger says. ■

Lenora A. Newman—here, with Bill Davis, who organizes the awards program—won an on-the-spot-cash Employees' Award for the third quarter. Not present for the Out-of-Division Awards at the headquarters combined ceremony were Patty G. Booker, Aeronautical Center, third quarter, and Lynda Deaton, from Administrative Systems, the Acquisition and Materiel Service, for the fourth quarter.

Richard Clevenger (left), manager of the Materiel Management Division, presents an Employee's Award to William Davis for his support of the awards program.

Photos by Lance Strozier

Remotest Radar Tells Tales

The Deadhorse, Alaska, beacon-only radar—FAA's most northerly unmanned radar, sitting on the Arctic Ocean—can tell the Anchorage ARTCC how it's doing even in the dead of winter when the temperature drops below minus 70 degrees Fahrenheit. It does so through the National Beacon-Only Remote Maintenance System (RMS) prototype, which notifies the center within five seconds of any out-of-tolerance condition at the site.

Pacific Area Flight Service Stations

A Legend in His Own Time

Adapted from the Alaskan Region Intercom

He was the new kid on the CAA block back in 1942—and the block has never been the same again.

The Civil Aeronautics Administration block turned into the Federal Aviation Agency and then the Federal Aviation Administration block, but it was only this past December that Carl Edward Fundeen finally hung up his oscilloscope and retired from the agency, all 46 years and nine months spent in Alaska.

A native of Kennicott, Alaska, he took his first job with CAA in 1941 as an airways technician at Cordova. After six months, he left to work for a contractor, supervising the construction of a landing strip at Aniak. Three months later, he was back at CAA, working at Cordova, Yakataga, Anchorage and Middleton Island.

In 1945, he began a 19-year stint at Annette as an airways engineer, moving up to electrician lineman, mechanic foreman and finally to station manager.

In 1964, Carl and his wife, Pat, made their final move to King Salmon where he became station manager and later sector manager. A sector reconfiguration and Carl's desire to remain in what had come to be called ''Carl's Kingdom'' left him as manager of the King Salmon Sector Field Office.

Carl developed his own unique style of management long before management schools came into being. He started each day with a work plan for his people, and he ended each day with a 10-minute report of accomplishments. His employees always knew where they stood with the boss, and their production and efficiency records were among the best in the agency year after year.

It was no great surprise then when Administrator J. Lynn Helms came to King Salmon in 1983 to present the sector office with the national General NAS Sector of the Year award—the first and only time for Alaska, although Carl's sector garnered the regional award three times.

In the old days as a foreman, Carl developed a fitting reputation as the meanest, roughest and toughest guy around. Behind the image, however, was what many consider one of the kindest, empathetic and gregarious of people. He is said to have the proper mix of concern for people and for the job at hand and one who can tell someone to ''go to Hell'' and have that person look forward to the trip.

Life in ''the great land'' wasn't all work for Carl. He loved to fish and hunt. So much so that when the president of the company that used to publish *American Sportsman* magazine first met Carl, he commented that he was ecstatic to have finally met the ''master.'' He told Carl that when people in the Lower 48 talk about fishing in Alaska, they talk about Carl Fundeen!

Now Carl has all the time he needs to build on that reputation. ■

People

The information in this feature is extracted from the Personnel Management Information System (PMIS) computer. Space permitting, all actions of a change of position and/or facility at the first supervisory level and to branch manager in offices are published. Other changes usually cannot be accommodated because there are thousands each month.

Aeronautical Center

■ **Lloyd L. Aiken,** supervisor, Aircraft and Support Systems Section, Aviation Systems Branch, Data Services Division.

■ **Rudolph J. Escobedo,** manager, Supply Management Branch, FAA Depot, promotion made permanent.

■ **Lloyd D. Hawley,** unit supervisor, Frankfurt, Germany, Flight Inspection Field Office (FIFO), promotion made permanent.

■ **Jose E. Justiniano,** supervisor, Nav/Com Section, Airway Facilities Branch, FAA Academy.

■ **Jim M. McCollum,** supervisor, Flight Procedures/Inspection Section, Frankfurt FIFO, promotion made permanent.

■ **Thomas W. Morris,** supervisor, Resource Management Section, Systems and Technology Branch, Data Services Division.

■ **Kenneth R. Patterson,** unit supervisor, Atlanta, Ga., FIFO, promotion made permanent.

■ **Joseph E. Schneider,** unit supervisor, Atlanta FIFO.

Alaskan Region

■ **Larry H. Bevil,** manager, South Alaska Airway Facilities Sector, Anchorage.

Central Region

■ **Warren E. Barlow II,** supervisor, Traffic Management Unit, Kansas City ARTCC, Olathe, Kan.

■ **Lewis L. Clark,** unit supervisor, Kansas City, Mo., Flight Standards District Office, from the Kansas City Aeronautical Quality Assurance Field Office.

■ **James W. Hamm, Jr.,** supervisor, Traffic Management Unit, Kansas City ARTCC.

■ **Madelyn Jamerson,** assistant manager for training, St. Louis, Mo., Automated Flight Service Station.

■ **Donald P. Michal,** manager, Chicago Aircraft Certification Office, Des Plaines, Ill.

■ **Richard W. Pogue,** supervisor, Maintenance Engineering Electronics Section, Maintenance Engineering Branch, Airway Facilities Division.

■ **Charles R. Raymond,** area supervisor, Kansas City (Mo.) International Airport Tower.

■ **Gerald A. Styczynski,** area supervisor, Lambert Field Tower, St. Louis.

■ **Marshall D. Wolfe,** supervisor, Traffic Management Unit, Kansas City ARTCC.

Eastern Region

■ **Boyd V. Archer, Jr.,** area manager, Patrick Henry Airport Tower, Norfolk, Va., from the New York TRACON.

■ **Philip F. Brito,** section supervisor, New York Airports District Office, Valley Stream, N.Y.

■ **Thomas J. Brown,** area supervisor, Washington ARTCC, Leesburg, Va., promotion made permanent.

■ **John G. Esposito,** unit supervisor, JFK International Airport Airway Facilities Sector Field Office (AFSFO), Metro New York AF Sector.

■ **Stuart R. Jones,** assistant manager for training, New York ARTCC, Islip, N.Y.

■ **Wayne I. King,** unit supervisor, Philadelphia AFSFO, Lester, Pa., Tri-State AF Sector, from the Atlantic City, N.J., AFSFO.

■ **Walter R. Mitchell,** assistant manager for program support, Charleston, W.Va., AF Sector.

■ **Rose Orchard,** assistant manager, Altoona, Pa., Automated Flight Service Station, from the Air Traffic Division.

■ **John L. Paeper,** assistant manager, plans and procedures, New York ARTCC.

■ **John A. Pallante, Jr.,** assistant manager, airspace and procedures, Philadelphia Airport Tower.

■ **Sankey E. Parsons,** manager, Roanoke, Va., AFSFO, Charleston, W.Va., AF Sector.

■ **Ralph B. Priestley, Jr.,** assistant manager for training, New York ARTCC, from the Los Angeles ARTCC.

■ **John G. Rosenwald,** unit supervisor, Syracuse, N.Y., AFSFO, Empire AF Sector, promotion made permanent.

■ **Joseph H. Scheff,** unit supervisor in Beaver, W.Va., Harrisburg, Pa., Airports District Office.

■ **Anthony P. Spera,** chief, Planning and Programming Branch, Airports Division.

■ **Roger F. Stebbins,** assistant manager, quality assurance, New York TRACON, Garden City, N.Y.

■ **Otto N. Suriani,** section supervisor, New York Airports District Office.

■ **Johnnie B. Taylor,** unit supervisor, Newark, N.J., AFSFO, Tri-State AF Sector, promotion made permanent.

■ **Michael Zurik,** assistant manager, Data Processing Branch, Management and Budget Division.

Great Lakes Region

■ **Bernadette T. Bauer,** manager, Indianapolis, Ind., General Aviation District Office (GADO), from the Springfield, Ill., GADO.

■ **Francis L. DeVries,** area supervisor, Sioux Falls, S.D., Tower, from the Washington National Tower.

■ **Benjamin T. Driggs,** manager, Youngstown, Ohio, Tower, from the Terre Haute, Ind., Tower.

■ **James D. Fossey,** area manager, Chicago O'Hare Tower, promotion made permanent.

■ **Robert P. Jensen,** manager, Maintenance Branch, Flight Standards Division, promotion made permanent.

■ **Michael D. Kopczynski,** area manager, Dayton AFSS, from the Green Bay, Wis., AFSS.

■ **Steven J. Obenauer,** manager, Pierre, S.D., Airway Facilities Sector Field Office, Dakota AF Sector.

■ **David J. Peterson,** manager, Alexandria, Minn., FSS, from the Dayton AFSS.

■ **Bela Repay,** area supervisor, Kankakee, Ill., AFSS, from the Rockford, Ill., FSS.

■ **Farrell G. Smith,** area manager, Chicago O'Hare Tower, from the AT Division.

New England Region

■ **Deborah K. Anderson,** area supervisor, Bridgeport, Conn., Tower, from the Trenton, N.J., Tower.

■ **David T. Bayley,** area supervisor, Brainard Airport Tower, Hartford, Conn., promotion made permanent.

■ **Thomas J. Campbell,** unit supervisor, Windsor Locks, Conn., Flight Standards District Office (FSDO).

■ **Gary Clarke,** unit supervisor, Bedford, Mass., FSDO, promotion made permanent.

■ **Lawrence M. Cole,** area supervisor, Bangor, Maine, Tower, from the FAA Academy.

■ **Dominic A. Johnson,** area supervisor, Boston Logan Tower, promotion made permanent.

■ **Anthony L. Liquori,** manager, Portland, Maine, FSDO.

■ **Paul F. Murphy,** systems engineer, Boston ARTCC Airway Facilities Sector.

■ **Theodore M. Pas,** unit supervisor, Windsor Locks FSDO, promotion made permanent.

■ **Jeffrey D. Whitaker,** area supervisor, Burlington, Vt., Tower, from the Denver, Colo., Tower.

Northwest Mountain Region

■ **Robert L. Bevan,** area supervisor, Boise, Idaho, Tower, from the AT Division.

■ **William T. Butler,** area manager, Seattle-Tacoma, Wash., Tower, from the Air Traffic Division.

■ **Kelly L. Dangerfield,** area supervisor, Cedar City, Utah, Automated Flight Service Station.

■ **John B. Haley,** supervisor, Technical Support Section, Information Systems Branch, Financial & Information Resources Division.

■ **John M. Haman,** area supervisor, Denver, Colo., Tower, from Centennial Tower, Arapahoe County, Colo.

■ **Walter E. Houk, Jr.,** supervisor, Systems Planning Section, Information Systems Branch, Financial & Information Resources Division.

■ **Allan R. Johnson,** area supervisor, Eugene, Ore., Tower, from Denver Tower.

■ **Edmund M. Koc,** unit supervisor in Colorado Springs, Colo., Denver Airway Facilities Sector.

■ **Dudley Mason,** unit supervisor, Salt Lake City Flight Standards District Office (FSDO).

■ **Frederic C. McDaniel,** manager, Tacoma Industrial Airport Tower, Gig Harbor, Wash., from the AT Division.

■ **Daniel A. Piper,** manager, Ogden, Utah, Tower, from the Salt Lake City Tower.

■ **Errol H. VanEaton,** unit supervisor, Seattle FSDO.

Southern Region

■ **Herschel L. Anderson,** assistant manager, plans and procedures, Nashville, Tenn., Tower, from Jackson, Miss.

■ **Douglas R. Baker,** manager, Lynch, Ky., Airway Facilities Sector Field Office (AFSFO), Covington, Ky., AF Sector, from Columbus, Ga.

■ **Eugene B. Barnett,** manager, Page Field Tower, Ft. Myers, Fla., from the West Palm Beach, Fla., Tower.

■ **Charles B. Benefield,** staff engineer, Radar Section, Electronic Establishment Engineering Branch, AF Division, from Jacksonville, Fla.

■ **Clyde T. Brooks,** area supervisor, Greensboro, N.C., Tower, promotion made permanent.

■ **Charles D. Connally,** manager, San Juan, Puerto Rico, AF Sector Field Office, San Juan AF Sector.

■ **Daniel R. Cunningham,** manager, Craig Field Tower, Jacksonville, Fla., from Meridian, Miss.

■ **Harold R. Gausman,** assistant manager, plans and procedures, Atlanta, Ga., International Airport, from AT Division.

■ **James H. Geeslin,** supervisor, Brunswick, Ga., AFSFO Unit, Columbia, S.C., AF Sector.

■ **Steven J. Gentry,** area manager, San Juan Center/RAPCON, from Los Angeles ARTCC.

■ **Marisue C. Haigler,** assistant manager, Airports Division, from Washington Headquarters.

■ **John W. Hayhurst,** area supervisor, Nashville Automated Flight Service Station (AFSS), from Florence, S.C., FSS.

■ **William L. Horton,** area supervisor, Meridian Tower, from Dothan, Ala.

■ **Suzanne M. Hynes,** area supervisor, Louisville, Ky., AFSS, promotion made permanent.

■ **James D. Jefferson,** supervisor, Savannah, Ga., AFSFO Unit, Columbia, S.C., AF Sector.

■ **Henry M. Medlin, Jr.,** area supervisor, Raleigh Tower, from St. Petersburg-Clearwater, Fla., Tower.

■ **Jimmy C. Mills,** manager, Miami International Airport Tower.

■ **Roger B. Mull,** assistant manager, Columbia AF Sector.

■ **Richard F. Phillips,** manager, Covington, Ky., AF Sector, from New England AF Division.

■ **Raphael Stahl,** unit supervisor in Raleigh, North Carolina FSDO.

■ **Richard L. Steinkamp,** manager, Muscle Shoals, Ala., FSS, from Fort Myers, Fla., FSS.

■ **Kenneth B. Stepp,** area supervisor, Memphis ARTCC, from Hebron, Ky., Tower.

■ **Kevin M. Sullivan,** area supervisor, West Palm Beach, Fla., Tower, promotion made permanent.

■ **Cecil R. Wall,** staff officer, Evaluation Branch, Air Traffic Division, from Fort Worth, Texas, AT Division.

Southwest Region

■ **Covin C. Bennett,** supervisor, Operational Standards Section, Maintenance Operations Branch, AF Division.

■ **Marvin D. Benson,** staff engineer, Technical Inspection Section, Maintenance Operations Branch, AF Division.

■ **John W. Cates,** manager, Waco, Texas, Airway Facilities Sector Field Office (AFSFO), Austin, Texas, AF Sector.

■ **Darward A. George,** manager, Wiley Post Airport Tower, Bethany, Okla., from the Lawton, Okla., Tower.

■ **Janet G. Gordon,** area supervisor, Shreveport, La., Tower, from the Little Rock, Ark., Tower.

■ **Calmore N. Hedgpeth,** area supervisor, Houston, Texas, ARTCC, from the Fort Worth, Texas, ARTCC.

■ **Marsia L. Hupert,** area supervisor, Redbird Tower, Dallas, Texas, from DFW.

■ **Patrick W. Marable,** manager, Maintenance Operations Branch, AF Division.

■ **Oscar J. McNeil, Jr.,** area supervisor, Dallas/Ft. Worth Tower, promotion made permanent.

■ **Ronald C. Meads,** area supervisor, Dallas/Ft. Worth Tower, promotion made permanent.

■ **David P. Medina,** assistant manager, Tulsa, Okla., Tower, from Euless, Texas.

■ **John D. Newsome,** area supervisor, Midland, Texas, Tower, from Klamath Falls, Ore., Tower.

■ **John M. Ray,** area supervisor, Albuquerque, N.M., Tower, from DFW.

■ **Andres Rocha,** assistant manager for technical support, El Paso, Texas, AF Sector, promotion made permanent.

■ **Gilbert G. Rodriguez,** environmental support engineering technician, San Antonio, Texas, AF Sector, promotion made permanent.

■ **Wayne R. Schmidt,** manager, Accounting Branch, Resource Management Division.

■ **William L. Trusler,** area supervisor, Houston Intercontinental Tower, from Amarillo, Texas, Tower.

■ **Thomas Lee Ward,** assistant manager for program support, Albuquerque ARTCC AF Sector, from Dyess AFB.

■ **Tom Wyka,** area supervisor, Houston ARTCC, promotion made permanent.

Technical Center

■ **William H. Eivich,** supervisor, Work Control Section, Plant Services Branch, Plant Engineering & Services Division.

■ **Edward Guerro,** supervisor, Materiel Handling Section, Materiel Branch, Acquisition & Materiel Services Division.

■ **George J. Hartranft,** technical program manager, Navigation, Communications and Spectrum Branch, Communications/Navigation/Surveillance Division.

■ **James F. Jarrett,** technical program manager, System Design & Transition Branch, Automation Division.

■ **James A. Mathews,** supervisor, Software Section, National Automation Flight Service Branch, Automation Software Div.

■ **Ephraim Shochet,** technical program manager, ATC Technology Branch, Concepts Analysis Division.

■ **Robert H. Weiss,** director, Resource Management Service.

Washington Headquarters

■ **Jack R. Bertron, Jr.,** supervisor, Airspace Flight Procedures Section, National Flight Data Center, Airspace Rules & Aeronautical Information Division, Air Traffic Operations Service.

■ **James W. Carey,** manager, Administrative Management Branch, Program Management Division, Office of Program and Resource Management.

■ **David L. Catey,** manager, Air Carrier Branch, Air Transportation Division, Flight Standards Service.

■ **Joseph R. DeMeo,** manager, System Design & Configuration Management Div., Office of System Engineering & Program Management.

■ **Richard Huff,** manager, Airspace Branch, Airspace Rules & Aeronautical Information Div., Air Traffic Operations Service.

■ **Jackie L. Mills,** manager, FAA Records Center Facility, Emergency Operations Staff, Office of Deputy Administrator.

■ **Brian R. Moeller,** team leader, Position & Pay Policy Div., Office of Personnel.

■ **Vernon L. Moore,** supervisor, Building Services Section, Property and Services Branch, Materiel Management Division, Acquisition and Materiel Service.

Western-Pacific Region

■ **William J. Alcala,** manager, Edwards Air Force Base (AFB) Airway Facilities Sector Field Office (AFSFO), Los Angeles, Calif., AF Sector, from Long Beach, Calif., AFSFO.

■ **Robert F. Bruns,** manager, Mill Valley, Calif., AFSFO, Golden Gate AF Sector.

■ **John G. Clancy,** assistant manager, Edwards AFB RAPCON.

■ **Kurt W. Cooper,** manager, Modesto, Calif., Tower, from Stockton, Calif.

■ **Ronald K. Downie,** area supervisor, Fullerton, Calif., Tower.

■ **Fred M. Driggs,** area supervisor, Santa Barbara, Calif., TRACON, promotion made permanent.

■ **Richard W. Fennemore,** area supervisor, Arcata, Calif., Flight Service Station (FSS), from Riverside, Calif., AFSS.

■ **Gerald J. Goren,** assistant manager for training, Golden Gate AF Sector, Hayward, Calif.

■ **Alvin T. Groner, Jr.,** assistant manager for training, San Diego, Calif., AF Sector.

■ **Jay F. Jacobsen,** operations manager, Sacramento, Calif., AF Sector.

■ **Gearold W. Martin,** area manager, McClellan AFB TRACON, Sacramento, Calif.

■ **Mauro M. Martinez,** unit supervisor, San Pedro, Calif., AFSFO, San Diego AF Sector.

■ **Richard J. Mathews,** area supervisor, Los Angeles Tower.

■ **Ettori P. Milani,** manager, Bay Area Nav/Com AFSFO, Golden Gate AF Sector.

■ **James A. Mills,** manager, Analysis and Evaluation Branch, Financial & Management Resources Division.

■ **Shawn L. Moore,** area supervisor, Los Angeles TRACON.

■ **William P. Mulder,** area supervisor, Oakland, Calif., TRACON, promotion made permanent.

■ **Arthur B. Perry,** manager, Gillespie Field Tower, San Diego.

■ **Claude N. Phillips,** area supervisor, Goodyear, Ariz., Tower.

■ **R. G. Simmons, Jr.,** area supervisor, San Francisco Tower, from the San Carlos, Calif., Tower.

■ **Ronald N. Simmons,** area supervisor, El Toro Marine Corps Air Station TRACON, Santa Ana, Calif., from Santa Barbara, Calif.

■ **Pedro C. Tellez,** manager, San Diego Automated FSS, from Shreveport, La., FSS.

■ **Jerry D. Webb,** area supervisor, Van Nuys, Calif., Tower, from Burbank, Calif.

■ **Leland J. Wingard,** area supervisor, Napa, Calif., Tower.

Retirees

AERONAUTICAL CENTER
Thomas F. Arbster
Billie C. Ferguson
Marthal O. Gray
Jesse L. Howard
Delbert H. McGee
Vernon L. Parker

ALASKAN REGION
Gerald R. Edick
Earl R. Scott

CENTRAL REGION
Charles R. Bell
William E. Haivala
John W. Landry
William L. Ross
Charles H. Walker

EASTERN REGION
William B. Bracken
Richard A. Bralla
Ralph E. Cartwright
Ray C. Hawn, Jr.
Carlos Martinez-Lai
Robert F. Roland
Kenneth L. Vickers

GREAT LAKES REGION
Richard A. Bruderick
Herman W. Hallum
Chalmer G. Karnes
Allen D. Ray
Robert E. Reemer
Kenneth O. Sniay, Jr.
Kenneth F. Wolfe

NEW ENGLAND REGION
Ronald V. Cavallo
Allan Decker
Wilfred A. Duquette
Karsten L. Reinemo
Robert F. Sullivan
Ernest R. Thurber

NORTHWEST MOUNTAIN REGION
Mark D. Argo
Daniel E. Austin
Robert H. Detwiler
Ronald L. Erickson
Donal D. Kinsley
Clarence J. Kuper
Dennis J. Light
Joe A. Redwine
Willard H. Sinclair
Kenneth L. Spencer
Norris O. Swanson

SOUTHERN REGION
Joane T. Capps
Tommy W. Casteel
Clifford Quetter
Curtis P. Hathaway
Dorothy C. Ison
William H. Martin
Richard D. McCrary
Odie L. Page
Langley P. Shearer, Jr.
Roger S. Sturling
Franklin D. Wesley

SOUTHWEST REGION
George P. Bedford
Lindell V. Cain
Irvin H. England, Jr.
Griselda A. Radosevich
James R. Spencer
TECHNICAL CENTER
Robert E. Hilgendorf

WASHINGTON HEADQUARTERS
Willie M. Wade
Dwayne R. Willemssen

WESTERN-PACIFIC REGION
Yasuko Aoki
Lawrence A. Beal
Hiroto Chigawa
Donald H. Myers
Betty M. Prescott
Dieter W. Schmolinski

Federal Notebook

HIGHER GRADES NOT FORGOTTEN

Rep. Constance Morella (R-Md) and Rep. Frank Wolf (R-Va) have introduced bills to boost the pay of the Senior Executive Service, supergraders and federal judges. Exempted would be members of Congress, the vice president and the chief justice. Morella's bill would raise the pay from 6.7 to nearly 20 percent and call for a pay study of the top-grade positions.

Wolf's legislation would also require a joint resolution of Congress to turn back Presidential pay recommendations.

PANEL ADVOCATES PAY CHANGES

The commission chaired by Paul Volcker reported to President Bush that the general schedule pay system should be replaced by a locality-pay system, that top federal personnel should receive an immediate 25 percent boost in pay and that presidential political appointments should be reduced by a third.

Not recommended were any general schedule catch-up pay increase or collective bargaining for pay.

WHISTLEBLOWER BILL IS GO!

Both houses of Congress have overwhelmingly passed whistleblower legislation with the blessing of the Administration. The bill would:

- Require an employee to prove only that retaliation was a contributing factor, rather than a significant factor, in an agency's adverse action against him or her;
- Require an agency to prove by clear and convincing evidence that its actions were not retaliation;
- Make the Office of the Special Counsel (OSC) of the Merit Systems Protection Board (MSPB) an independent agency;
- Permit employees to take their cases directly to the MSPB 60 days after OSC closes an investigation or 120 days after making a complaint to OSC;
- Ban reprisals against those who testify for whistleblowers, cooperate with OSC or refuse to obey illegal orders;
- Make harassment or threats against whistleblowers prohibited personnel practices;
- Prohibit OSC from opposing whistleblowers before the MSPB; and
- Permit OSC to release whistleblowers' names only if there are criminal violations or a danger to the public.

GOOD RETIREMENT NEWS

*The Supreme Court found in favor of a Michigan federal retiree (Davis vs. Michigan, 87-1020) who sued the state for equal treatment with state and local retirees. It struck down as discriminatory a state law that exempted from income taxes local retirees but not federal retirees.

Similar laws exist in Arkansas, Arizona, Colorado, Georgia, Iowa, Louisiana, Missouri, Montana, New York, North Carolina, Oregon, South Carolina, Utah, Virginia, West Virginia and Wisconsin.

More than 600,000 retirees might be eligible for retroactive refunds for three years under the decision, but states could decide to quickly enact legislation to impose income taxes on all retirees, eliminating the discrimination and cutting out any further revenue loss, which might already amount to billions of dollars.

*When a retiree weds, providing a survivor annuity can be very costly to him or her. Rep. Frank Wolf (R-Md) has introduced a bill to restore fairness to the otherwise happy couple by requiring a reduced base annuity only from the date of marriage.

Currently, anyone who retires and later marries and elects survivor coverage must redeposit an amount equal to the usual annuity reduction from the date of retirement, plus interest. A bad-case scenario would be a GS-15 Civil Service Retirement System retiree who marries after 10 years. The reduction for a survivor annuity if married at retirement would have been about $240 a month. Paying that amount back 10 years later with interest would come to over $30,000.

HATCH ACT REFORM ENCORE

Rep. William Clay (D-Mo) and Sens. John Glenn (D-Ohio), Ted Stevens (R-Alaska) and Dennis DeConcini (D-Ariz) have introduced bills to reform the Hatch Act, which, in the Senate version, permits off-duty partisan campaigning and soliciting money for political action funds only from members of their own organization. The House bill also would permit employees to run for office and restrict soliciting funds only from superiors, subordinates and contractors.

Although the Senate bill failed to reach the floor in the last session, it now has strong support from the Majority Leader, Sen. George Mitchell (D-Maine).

U.S. Department
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Federal Aviation Administration

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FAA World

April 1989
Volume 19 Number 4

GPS: FAA's New Frontier

By Charles Spence

The corporate jet landed and taxied to just 26 feet from its pre-determined spot at Le Bourget Airport near Paris, France, after a transatlantic flight. It was 1983, and the plane had navigated the ocean using only satellite guidance.

It was the first successful Atlantic crossing using the Global Positioning System (GPS), which can pinpoint a location anywhere on earth, at sea or in space, in any type of weather, day or night. It's FAA's new frontier for navigation and air traffic control.

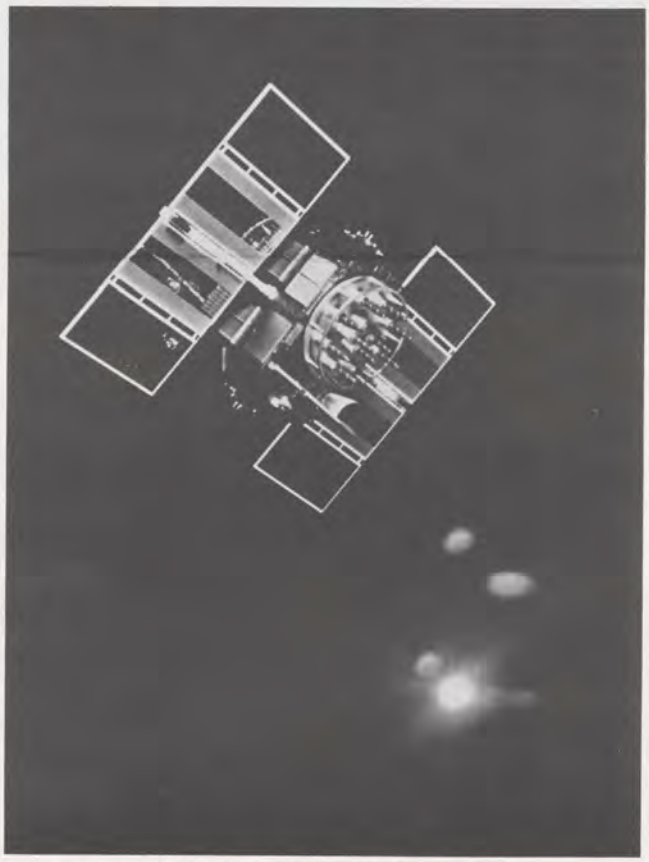
Nothing aboard the aircraft in 1983 integrated the GPS information with the plane's flight management systems. At the time, there were only five test satellites in the sky, which limited coverage of the earth and caused delays while the pilots waited for the next orbit for signal reception. Nevertheless, the crew measured enroute errors between major checkpoints in feet, not miles.

The GPS receivers for the demonstration flight to Paris were "like a Wright brothers lash-up," said the pilot of the jet, which was owned by Rockwell International Corp., the Department of Defense's contractor for building the satellites.

Under development since 1974, the system was mandated by Congress to be available for civilian use as well. The responsibility for civilian use falls to the Department of Transportation. For the FAA, this means not only acting as advocate for the system but also developing the standards, procedures and implementation for aeronautical use.

Ultimately—by the mid-1990s—GPS will consist of 24 satellites, the first of which was delivered in April 1987 and launched February 1989. Twenty-one form the core of the system, assuring that four or more satellites will always be above the horizon for receivers anywhere on earth or in space. To ensure reliability, there will be three active "spares" that will be oper-

(Continued on page 2)



A montage showing a GPS satellite, one of 24 that will ring the earth by 1991.

An aviation free-lance writer, Mr. Spence was the senior vice president for public relations at the Aircraft Owners and Pilots Association and served 15 years with Hearst newspapers.

Awards Program Involves Employees

By William J. Davis

"... and I'm pleased to present you with these two new $100 bills in recognition of your outstanding contribution to the Materiel Management Division's mission." Having said that, Dick Clevenger, manager of the division in the Acquisition and Materiel Service, handed the money to an employee who had obtained approval for a new NAS training facility at the Aeronautical Center.

This was a new version of the agency's "on the spot cash award" initiated by Clevenger's division. The differences are that this is a formal quarterly program, one in which the employees themselves participate and which makes awards in three categories. Clevenger's team spent a year and a

(Continued on page 8)

Mr. Davis is technical assistant to the manager of the Materiel Management Division, Acquisition and Materiel Service.

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FAA World

April 1989

Secretary of Transportation
Samuel K. Skinner
FAA Administrator
Robert E. Whittington, acting
Assistant Administrator—Public Affairs
Robert Buckhorn, acting
Manager—Public & Employee Communications Div.
John G. Leyden
Editor
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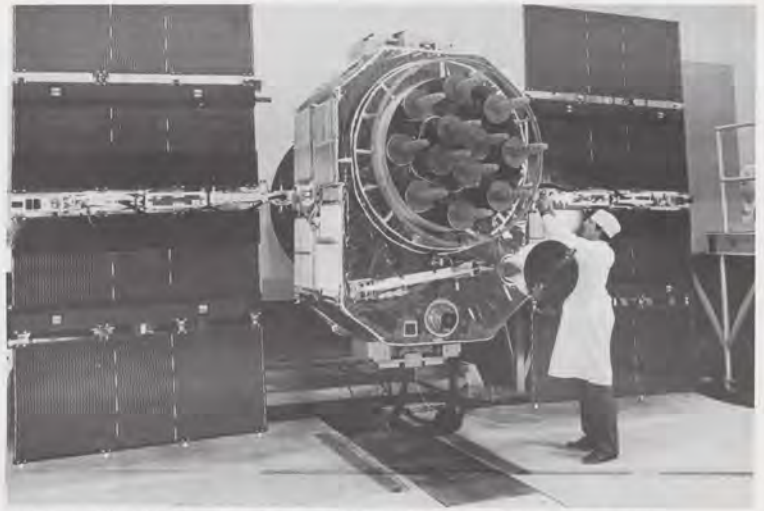
Robert Raynesford—Central Region
Kathleen B. Bergen—Eastern Region
Morton Edelstein—Great Lakes Region
Mike Ciccarelli—New England Region
Richard Meyer—Northwest Mountain Region
Jack Barker—Southern Region
Geraldine Cook—Southwest Region
Holly Baker, acting—Technical Center
Barbara Abels—Western-Pacific Region

FAA's New Frontier

continued from page 1



A technician assembles a GPS satellite at Rockwell International's Satellite and Space Electronics Division in Seal Beach, Calif.

ational and able to be positioned to fill in holes in coverage if any of the 21 fail.

GPS is a constellation of satellites in high earth orbit (10,898 miles), circling the earth every 12 hours. They emit radio signals that provide a precise three-dimensional position and time report when a receiver picks up information from four of the satellites. Each satellite broadcasts a pair of coded frequencies. One signal is an encrypted code for use primarily by American and NATO armed forces; the other signal is accessible to civilian users.

When the receiver synchronizes its time with ultra-stable clocks in each satellite, it determines range to known points and, in that respect, is similar to avionics now used for distance measuring equipment. The data obtained from the GPS signals reveal longitude, latitude and altitude. The satellite clocks are atomic clocks—so accurate they gain or lose only one second every 70,000 years.

Once the satellites are in space, Air Force ground controllers will be able to adjust their positions. Those controllers will fine-tune the orbits by energizing small electromagnets that alter the satellites' magnetic field and their path through space. Each satellite also has several low-power thruster rockets for the purpose.

The test satellites already have proven their value in ground-based projects. Map makers and surveyors use GPS in its limited configuration to accurately locate lakes, streams and other topographic features, as well as roads and structures.

The Coast Guard recently completed GPS tests for harbor-entrance navigation and now is working up procedures for buoy placement. Using a GPS receiver aboard ship and data from receivers at shore locations, the Coast Guard has achieved accuracy to within the eight to 20 meters required for harbor entrance and coastal navigation.

The original plans called for all the satellites to be put into orbit by the space shuttle, but the schedule fell behind after the *Challenger* explosion. Partly because of the resulting backlog of shuttle payloads, GPS plans now call for Delta II rockets to carry 20 of the first 21 satellites. The others may go up by Delta rockets or the shuttle, and all will be in place by the mid–1990s, according to Lt. Col. Joseph Dorfler of U.S. Air Force headquarters.

The Consolidated Space Operations Center at Falcon Air Force Station in Colorado is the control center for GPS. A network of automated outposts listens for signals and transmits messages back to Falcon AFS. These stations are on Ascension Island in the Atlantic Ocean, Diego Garcia in the Indian Ocean, Kwajalein Atoll in the Marshall Islands and on Hawaii.

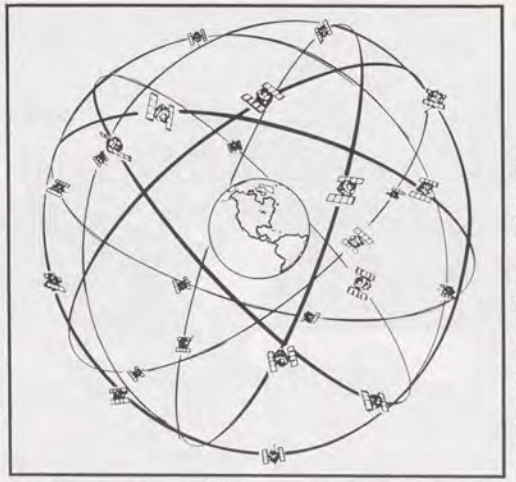
When fully operational, GPS will permit pinpoint accuracy for navigation, non-precision approaches to landing, search and rescue, crop dusting, offshore drilling and ground-vehicle tracking. Through GPS, for example, trucking companies will be able to keep track of vehicles with valuable or dangerous cargo.

"The limit to GPS is only in the imagination," says Lt. Col. James Snow, military programs manager, who works with FAA's Aviation Standards National Field Office (ASNFO) at the Aeronautical Center. Personnel there are involved with the Air Force at Randolph Field in San Antonio, Texas, developing approach procedures for GPS.

The first expected civilian aviation benefits from GPS are for oceanic flights in 1992. This would be the first time that air traffic control will know the precise location of flights outside of present long-range radar coverage.

Unlike inertial navigation systems that require the pilot to program an exact starting location, GPS calculates the aircraft's location when the pilot turns on the receiver. This, the experts agree, makes the space-based system less susceptible to human error.

Besides enroute navigation, when FAA's "Integrity Monitor System" is in place, GPS can give any airport in the world a non-precision approach.



Looking like an atom of chromium, the earth will be covered by the orbits of 24 American navigation satellites that will pinpoint objects on its surface or in the air.

Discussing airborne GPS equipment slated for tests aboard helicopters at the Technical Center are (left to right) GPS project engineer Frank Persello, electronics technician Thomas Visser and project engineer Robert Erickson. The airborne equipment consists of a receiver and two CDUs (control display units) to show position information.

Colonel Snow points out, and this is without any additional ground installation of VOR or low-frequency beacons.

Although much has already been accomplished in proving the system, much remains to be done by FAA before civil aviation can use GPS. To date, most of FAA's work has centered on research and development (R&D). Now, as the system evolves, attention is focusing on the integrity of the system, says Jerry Bradley, R&D project manager in the Requirements & Concepts Division of the Advanced System Design Service.

Integrity of the system means assuring accuracy and reliability. "We're working now to come up with an alert system," Bradley says. "That will let users and the control centers know if a satellite fails." While exploring several alternatives, the one under closest study will continuously broadcast to the users that the satellites are functioning. "Unless the satellite reports it's good, you don't use it," Bradley says.

A potential outage poses a major communications problem for air traffic control. Because the satellites are constantly moving, controllers cannot state the area of non-coverage to pilots as they can with stationary facilities.

Since 1985, the Radio Technical Commission for Aeronautics (RTCA) has been working with FAA to develop civil requirements for GPS. Last month, RTCA began the task of developing Minimum Operational Performance Standards (MOPS) for civilian aircraft receivers. When RTCA completes MOPS development, Flight Standards will prepare Technical Standard Orders (TSOs) for the manufacture of equipment. If a TSO can be ready by next year, Bradley says manufacturers claim they can have receivers to meet the standards on the market by 1992.

The cost of early receivers for civilian aircraft is expected to range from about $5,000 to $20,000 or $30,000, depending on what the system will do. A basic position-reporting system will be lower; one integrated with the aircraft's controls will reach the upper figures.

In 1992, GPS can be used for enroute and oceanic navigation. However, pilots will not be able to use GPS for non-precision approaches until about 1995, Bradley notes. It will take that long to achieve an "integrity system"—the go-no-go alert. Because GPS is basically an R–NAV (area navigation) system, he explains, it may be possible to use a modified TERPS (Terminal Instrument Procedures) now applicable to area navigation systems.

There is considerable international interest in satellite navigation. In fact, the Soviet Union is developing and deploying its own 24-unit constellation, which is called GLONASS. However, the U.S. and Soviet governments have agreed to cooperate on the common use of the nonclassified frequencies of both systems. What FAA research people and their Soviet counterparts have to work on is making user equipment compatible with the two systems. Achieving compatibility will mean greater coverage and reliability, assuring that at least 10 satellites will be in view in any location at all times.

Other nations without advanced VOR, DME and TACAN networks like those in the United States are eying GPS as a way of obtaining navigation and approach procedures without spending for the ground facilities, although some may have reservations about being dependent on systems developed primarily for the superpowers' military establishments.

Although the Global Positioning System offers some distinct advantages, considering the United States' existing system of airways and approach aids, some researchers wonder if the U.S. needs GPS. "With what's available," said one, "we probably wouldn't start a GPS from scratch. But since civil use is riding on a military system, we're doing it, and we intend to make it the best it can be." ■

The new Central Flow Control Facility ...

The temporary "spaghetti farm" ...

The Old Central Flow Control Facility

Traffic Management
Designed for Efficiency

The Central Flow Control Facility has settled into its new quarters--certainly a delight compared to the primitive conditions in its temporary digs.

More important, according to acting facility manager John Cuprisin, is that new equipment can be used more comfortably and more efficiently and Central Flow's operation expanded.

"The facility is using the Aircraft Situation Display (ASD) introduced last year as a real-time traffic management tool," explains Cuprisin. "Its use is being expanded to include all the centers, and we expect to get more ASDs and new console desks. A new communications system has been installed.

"We also have Monitor Alert: Each of the ASDs has the capability of predicting when a sector, airport or a certain amount of airspace is reaching toward the saturation point." Eventually, each ARTCC will have this capability, he noted.

At that point, Central Flow Control will begin installing what is called an Automated Demand Resolution Advisory, "where the computer gives us alternative ways to resolve what Monitor Alert tells us is the problem," Cuprisin continued. "In consultation with the ARTCC Traffic Management Unit involved, we choose the alternative that would be better from a system viewpoint. Then we may coordinate with the other centers to change the flow of traffic."

Sometimes Central Flow Control becomes a mediator between adjacent centers as to the best way to route the flow of traffic, and sometimes it just makes the decisions as national strategy. ■

To one side of the facility, systems engineer George Adams, on detail from the Chicago ARTCC, operates the National Maintenance Control Center.

Traffic management specialist Debbie Compton operates an Aircraft Situation Display (ASD). Beyond is a large planning display, which may be used for a common additional screen. To her right are system performance monitors.

At one end of the room, National Weather Service employees Roy Smith and Eloa Johnson provide data to flow control from a Weather Service Unit.

Photos by Lance Strozier

Specialists Gilbert Branson (left) and Bill Doyle discuss a problem at a position that has an old built-in telephone console. All ASDs can be set up to handle any situation, depending on the demand.

Supervisor John Gibbs (standing) chats with specialist Roger McDonald. His screen shows data, said to be in the flow control mode, with a miniature ASD to the side. The screen can be configured at the specialist's option.

Traffic management specialist Paul Kimes demonstrates a new compact telephone console that was installed at FAA World *went to press.*

Photo by Dennis Hughes

FLIGHT SERVICE STATIONS

Awards Program

continued from page 1

Recipients of the Manager's Award for the third and fourth quarters of 1988, respectively, were W. Joseph Anderson (left) and Murry E. Camp (right); Lorraine E. Neal and Larry L. Thompson. This is the only award decided upon by management.

half perfecting the program, winning praise for making it a model for other FAA organizations.

For the Manager's Award cited above, Clevenger and his management team select the individual and/or group that has made the most significant contribution to the division during the past quarter. The recipient receives a special rotating plaque to keep until the next quarterly awards ceremony, as well as a certificate summarizing the activity for which it was presented, a memorandum of appreciation detailing the recipient's contribution and a cash award. A photograph is taken of the occasion. Cash means so much more than "you'll see it in your pay check," notes Clevenger.

In this division, however, it is no longer solely a management decision to select award winners. In the second and third award categories, Clevenger shares this decision with all the non-management employees, who are responsible for identifying their peers who have made the most worthy contribution to the division. "Of course," says Clevenger, "this program is successful only because of the enthusiastic support and effort of division personnel."

The "Out-of-Division Award" recognizes that their superior accomplishments are frequently the result of the contributions and cooperation of personnel in other FAA organizations at the regions, centers and headquarters. To acknowledge such individuals or groups, both management and non-management division personnel submit nominations for this award, but the management team makes the final decision. Out-of-division winners also receive a certificate, a memorandum of appreciation, a cash award and a picture of the presentation if made in the headquarters building.

The third category is the Employees' Award. Non-management and non-supervisory employees in the division nominate and pick the winners without any management intervention. After selection, the ballots are destroyed.

Clevenger's management philosophy is that a winning team must be motivated. Employee motivation in this instance, he believes, is best served by permitting the employees to determine who, within their own ranks, has best served the division and honors the work effort of the entire group. Management exercises no review rights and is committed to the panel's selection. The winning individual or group receives a special rotating plaque, a certificate, a memorandum, a cash award and a picture of the event.

At the beginning of each calendar quarter, a memo—the bottom portion of which is a ballot—goes out to all division employees requesting nominations for the second and third categories. The committee that makes the selections is made up of three employees—one from each branch—and a non-voting recording secretary. The trio rotates every quarter, so each employee serves only once every two years or so.

Shortly after the end of each quarter, there is an awards ceremony for all division employees. Out-of-division award winners (if within the headquarters building) and their management personnel are also invited to attend. Awards to region and center personnel are mailed to their supervisors for appropriate presentation.

Clevenger says that interest in this division program has increased since a recent decision by the Human Resource Management Division now permits on-the-spot cash awards to be given to all employees, whether general schedule or merit.

"This program provides a self-challenging goal for each member of our organization, and there is increased personal effort in vying for individual recognition," Clevenger says. ■

Photos by Lance Struzier

Lenora A. Newman—here, with Bill Davis, who organizes the awards program—won an on-the-spot-cash Employees' Award for the third quarter. Not present for the Out-of-Division Awards at the headquarters combined ceremony were Patty G. Booker, Aeronautical Center, third quarter, and Lynda Deaton, from Administrative Systems, the Acquisition and Materiel Service, for the fourth quarter.

Richard Clevenger (left), manager of the Materiel Management Division, presents an Employee's Award to William Davis for his support of the awards program.

Remotest Radar Tells Tales

The Deadhorse, Alaska, beacon-only radar—FAA's most northerly unmanned radar, sitting on the Arctic Ocean—can tell the Anchorage ARTCC how it's doing even in the dead of winter when the temperature drops below minus 70 degrees Fahrenheit. It does so through the National Beacon-Only Remote Maintenance System (RMS) prototype, which notifies the center within five seconds of any out-of-tolerance condition at the site.

Pacific Area Flight Service Stations

A Legend in His Own Time

Adapted from the Alaskan Region Intercom.

He was the new kid on the CAA block back in 1942—and the block has never been the same again.

The Civil Aeronautics Administration block turned into the Federal Aviation Agency and then the Federal Aviation Administration block, but it was only this past December that Carl Edward Fundeen finally hung up his oscilloscope and retired from the agency, all 46 years and nine months spent in Alaska.

A native of Kennicott, Alaska, he took his first job with CAA in 1941 as an airways technician at Cordova. After six months, he left to work for a contractor, supervising the construction of a landing strip at Aniak. Three months later, he was back at CAA, working at Cordova, Yakataga, Anchorage and Middleton Island.

In 1945, he began a 19-year stint at Annette as an airways engineer, moving up to electrician lineman, mechanic foreman and finally to station manager.

In 1964, Carl and his wife, Pat, made their final move to King Salmon where he became station manager and later sector manager. A sector reconfiguration and Carl's desire to remain in what had come to be called "Carl's Kingdom" left him as manager of the King Salmon Sector Field Office.

Carl developed his own unique style of management long before management schools came into being. He started each day with a work plan for his people, and he ended each day with a 10-minute report of accomplishments. His employees always knew where they stood with the boss, and their production and efficiency records were among the best in the agency year after year.

It was no great surprise then when Administrator J. Lynn Helms came to King Salmon in 1983 to present the sector office with the national General NAS Sector of the Year award—the first and only time for Alaska, although Carl's sector garnered the regional award three times.

In the old days as a foreman, Carl developed a fitting reputation as the meanest, roughest and toughest guy around. Behind the image, however, was what many consider one of the kindest, empathetic and gregarious of people. He is said to have the proper mix of concern for people and for the job at hand and one who can tell someone to "go to Hell" and have that person look forward to the trip.

Life in "the great land" wasn't all work for Carl. He loved to fish and hunt. So much so that when the president of the company that used to publish *American Sportsman* magazine first met Carl, he commented that he was ecstatic to have finally met the "master." He told Carl that when people in the Lower 48 talk about fishing in Alaska, they talk about Carl Fundeen!

Now Carl has all the time he needs to build on that reputation. ■

People

The information in this feature is extracted from the Personnel Management Information System (PMIS) computer. Space permitting, all actions of a change of position and/or facility at the first supervisory level and to branch manager in offices are published. Other changes usually cannot be accommodated because there are thousands each month.

Aeronautical Center

■ **Lloyd L. Aiken,** supervisor, Aircraft and Support Systems Section, Aviation Systems Branch, Data Services Division.

■ **Rudolph J. Escobedo,** manager, Supply Management Branch, FAA Depot, promotion made permanent.

■ **Lloyd D. Hawley,** unit supervisor, Frankfurt, Germany, Flight Inspection Field Office (FIFO), promotion made permanent.

■ **Jose E. Justiniano,** supervisor, Nav/Com Section, Airway Facilities Branch, FAA Academy.

■ **Jim M. McCollum,** supervisor, Flight Procedures/Inspection Section, Frankfurt FIFO, promotion made permanent.

■ **Thomas W. Morris,** supervisor, Resource Management Section, Systems and Technology Branch, Data Services Division.

■ **Kenneth R. Patterson,** unit supervisor, Atlanta, Ga., FIFO, promotion made permanent.

■ **Joseph E. Schneider,** unit supervisor, Atlanta FIFO.

Alaskan Region

■ **Larry H. Bevil,** manager, South Alaska Airway Facilities Sector, Anchorage.

Central Region

■ **Warren E. Barlow II,** supervisor, Traffic Management Unit, Kansas City ARTCC, Olathe, Kan.

■ **Lewis L. Clark,** unit supervisor, Kansas City, Mo., Flight Standards District Office, from the Kansas City Aeronautical Quality Assurance Field Office.

■ **James W. Hamm, Jr.,** supervisor, Traffic Management Unit, Kansas City ARTCC.

■ **Madelyn Jamerson,** assistant manager for training, St. Louis, Mo., Automated Flight Service Station.

■ **Donald P. Michal,** manager, Chicago Aircraft Certification Office, Des Plaines, Ill.

■ **Richard W. Pogue,** supervisor, Maintenance Engineering Electronics Section, Maintenance Engineering Branch, Airway Facilities Division.

■ **Charles R. Raymond,** area supervisor, Kansas City (Mo.) International Airport Tower.

■ **Gerald A. Styczynski,** area supervisor, Lambert Field Tower, St. Louis.

■ **Marshall D. Wolfe,** supervisor, Traffic Management Unit, Kansas City ARTCC.

Eastern Region

■ **Boyd V. Archer, Jr.,** area manager, Patrick Henry Airport Tower, Norfolk, Va., from the New York TRACON.

■ **Philip F. Brito,** section supervisor, New York Airports District Office, Valley Stream, N.Y.

■ **Thomas J. Brown,** area supervisor, Washington ARTCC, Leesburg, Va., promotion made permanent.

■ **John G. Esposito,** unit supervisor, JFK International Airport Airway Facilities Sector Field Office (AFSFO), Metro New York AF Sector.

■ **Stuart R. Jones,** assistant manager for training, New York ARTCC, Islip, N.Y.

■ **Wayne I. King,** unit supervisor, Philadelphia AFSFO, Lester, Pa., Tri-State AF Sector, from the Atlantic City, N.J., AFSFO.

■ **Walter R. Mitchell,** assistant manager for program support, Charleston, W.Va., AF Sector.

■ **Rose Orchard,** assistant manager, Altoona, Pa., Automated Flight Service Station, from the Air Traffic Division.

■ **John L. Paeper,** assistant manager, plans and procedures, New York ARTCC.

■ **John A. Pallante, Jr.,** assistant manager, airspace and procedures, Philadelphia Airport Tower.

■ **Sankey E. Parsons,** manager, Roanoke, Va., AFSFO, Charleston, W.Va., AF Sector.

■ **Ralph B. Priestley, Jr.,** assistant manager for training, New York ARTCC, from the Los Angeles ARTCC.

■ **John G. Rosenwald,** unit supervisor, Syracuse, N.Y., AFSFO, Empire AF Sector, promotion made permanent.

■ **Joseph H. Schell,** unit supervisor in Beaver, W.Va., Harrisburg, Pa., Airports District Office.

■ **Anthony P. Spera,** chief, Planning and Programming Branch, Airports Division.

■ **Roger F. Stebbins,** assistant manager, quality assurance, New York TRACON, Garden City, N.Y.

■ **Otto N. Suriani,** section supervisor, New York Airports District Office.

■ **Johnnie B. Taylor,** unit supervisor, Newark, N.J., AFSFO, Tri-State AF Sector, promotion made permanent.

■ **Michael Zurik,** assistant manager, Data Processing Branch, Management and Budget Division.

Great Lakes Region

■ **Bernadette T. Bauer,** manager, Indianapolis, Ind., General Aviation District Office (GADO), from the Springfield, Ill., GADO.

■ **Francis L. DeVries,** area supervisor, Sioux Falls, S.D., Tower, from the Washington National Tower.

■ **Benjamin T. Driggs,** manager, Youngstown, Ohio, Tower, from the Terre Haute, Ind., Tower.

■ **James D. Fossey,** area manager, Chicago O'Hare Tower, promotion made permanent.

■ **Robert P. Jensen,** manager, Maintenance Branch, Flight Standards Division, promotion made permanent.

■ **Michael D. Kopczynski,** area manager, Dayton AFSS, from the Green Bay, Wis., AFSS.

■ **Steven J. Obenauer,** manager, Pierre, S.D., Airway Facilities Sector Field Office, Dakota AF Sector.

■ **David J. Peterson,** manager, Alexandria, Minn., FSS, from the Dayton AFSS.

■ **Bela Repay,** area supervisor, Kankakee, Ill., AFSS, from the Rockford, Ill., FSS.

■ **Farrell G. Smith,** area manager, Chicago O'Hare Tower, from the AT Division.

New England Region

■ **Deborah K. Anderson,** area supervisor, Bridgeport, Conn., Tower, from the Trenton, N.J., Tower.

■ **David T. Bayley,** area supervisor, Brainard Airport Tower, Hartford, Conn., promotion made permanent.

■ **Thomas J. Campbell,** unit supervisor, Windsor Locks, Conn., Flight Standards District Office (FSDO).

■ **Gary Clarke,** unit supervisor, Bedford, Mass., FSDO, promotion made permanent.

■ **Lawrence M. Cole,** area supervisor, Bangor, Maine, Tower, from the FAA Academy.

■ **Dominic A. Johnson,** area supervisor, Boston Logan Tower, promotion made permanent.

■ **Anthony L. Liquori,** manager, Portland, Maine, FSDO.

■ **Paul F. Murphy,** systems engineer, Boston ARTCC Airway Facilities Sector.

■ **Theodore M. Pas,** unit supervisor, Windsor Locks FSDO, promotion made permanent.

■ **Jeffrey D. Whitaker,** area supervisor, Burlington, Vt., Tower, from the Denver, Colo., Tower.

Northwest Mountain Region

■ **Robert L. Bevan,** area supervisor, Boise, Idaho, Tower, from the AT Division.

■ **William T. Butler,** area manager, Seattle-Tacoma, Wash., Tower, from the Air Traffic Division.

■ **Kelly L. Dangerfield,** area supervisor, Cedar City, Utah, Automated Flight Service Station.

■ **John B. Haley,** supervisor, Technical Support Section, Information Systems Branch, Financial & Information Resources Division.

■ **John M. Haman,** area supervisor, Denver, Colo., Tower, from Centennial Tower, Arapahoe County, Colo.

■ **Walter E. Houk, Jr.,** supervisor, Systems Planning Section, Information Systems Branch, Financial & Information Resources Division.

■ **Allan R. Johnson,** area supervisor, Eugene, Ore., Tower, from Denver Tower.

■ **Edmund M. Koc,** unit supervisor in Colorado Springs, Colo., Denver Airway Facilities Sector.

■ **Dudley Mason,** unit supervisor, Salt Lake City Flight Standards District Office (FSDO).

■ **Frederic C. McDaniel,** manager, Tacoma Industrial Airport Tower, Gig Harbor, Wash., from the AT Division.

■ **Daniel A. Piper,** manager, Ogden, Utah, Tower, from the Salt Lake City Tower.

■ **Errol H. VanEaton,** unit supervisor, Seattle FSDO.

Southern Region

■ **Herschel L. Anderson,** assistant manager, plans and procedures, Nashville, Tenn., Tower, from Jackson, Miss.

■ **Douglas R. Baker,** manager, Lynch, Ky., Airway Facilities Sector Field Office (AFSFO), Covington, Ky., AF Sector, from Columbus, Ga.

■ **Eugene B. Barnett,** manager, Page Field Tower, Ft. Myers, Fla., from the West Palm Beach, Fla., Tower.

■ **Charles B. Benefield,** staff engineer, Radar Section, Electronic Establishment Engineering Branch, AF Division, from Jacksonville, Fla.

■ **Clyde T. Brooks,** area supervisor, Greensboro, N.C., Tower, promotion made permanent.

■ **Charles D. Connally,** manager, San Juan, Puerto Rico, AF Sector Field Office, San Juan AF Sector.

■ **Daniel R. Cunningham,** manager, Craig Field Tower, Jacksonville, Fla., from Meridian, Miss.

■ **Harold R. Gausman,** assistant manager, plans and procedures, Atlanta, Ga., International Airport, from AT Division.

■ **James H. Geeslin,** supervisor, Brunswick, Ga., AFSFO Unit, Columbia, S.C., AF Sector.

■ **Steven J. Gentry,** area manager, San Juan Center/RAPCON, from Los Angeles ARTCC.

■ **Marisue C. Haigler,** assistant manager, Airports Division, from Washington Headquarters.

■ **John W. Haythurst,** area supervisor, Nashville Automated Flight Service Station (AFSS), from Florence, S.C., FSS.

■ **William L. Horton,** area supervisor, Meridian Tower, from Dothan, Ala.

■ **Suzanne M. Hynes,** area supervisor, Louisville, Ky., AFSS, promotion made permanent.

■ **James D. Jefferson,** supervisor, Savannah, Ga., AFSFO Unit, Columbia, S.C., AF Sector.

■ **Henry M. Medlin, Jr.,** area supervisor, Raleigh Tower, from St. Petersburg Clearwater, Fla., Tower.

■ **Jimmy C. Mills,** manager, Miami International Airport Tower.

■ **Roger B. Mull,** assistant manager, Columbia AF Sector.

■ **Richard F. Phillips,** manager, Covington, Ky., AF Sector, from New England AF Division.

■ **Raphael Stahl,** unit supervisor in Raleigh, North Carolina FSDO.

■ **Richard L. Steinkamp,** manager, Muscle Shoals, Ala., FSS, from Fort Myers, Fla., FSS.

■ **Kenneth B. Stepp,** area supervisor, Memphis ARTCC, from Hebron, Ky., Tower.

■ **Kevin M. Sullivan,** area supervisor, West Palm Beach, Fla., Tower, promotion made permanent.

■ **Cecil R. Wall,** staff officer, Evaluation Branch, Air Traffic Division, from Fort Worth, Texas, AT Division.

Southwest Region

■ **Covin C. Bennett,** supervisor, Operational Standards Section, Maintenance Operations Branch, AF Division.

■ **Marvin D. Benson,** staff engineer, Technical Inspection Section, Maintenance Operations Branch, AF Division.

■ **John W. Cates,** manager, Waco, Texas, Airway Facilities Sector Field Office (AFSFO), Austin, Texas, AF Sector.

■ **Darward A. George,** manager, Wiley Post Airport Tower, Bethany, Okla., from the Lawton, Okla., Tower.

■ **Janet G. Gordon,** area supervisor, Shreveport, La., Tower, from the Little Rock, Ark., Tower.

■ **Calmore N. Hedgpeth,** area supervisor, Houston, Texas, ARTCC, from the Fort Worth, Texas, ARTCC.

■ **Marsia L. Hupert,** area supervisor, Redbird Tower, Dallas, Texas, from DFW.

■ **Patrick W. Marable,** manager, Maintenance Operations Branch, AF Division.

■ **Oscar J. McNeil, Jr.,** area supervisor, Dallas/Ft. Worth Tower, promotion made permanent.

■ **Ronald C. Meads,** area supervisor, Dallas/Ft. Worth Tower, promotion made permanent.

■ **David P. Medina,** assistant manager, Tulsa, Okla., Tower, from Euless, Texas.

■ **John D. Newsome,** area supervisor, Midland, Texas, Tower, from Klamath Falls, Ore., Tower.

■ **John M. Ray,** area supervisor, Albuquerque, N.M., Tower, from DFW.

■ **Andres Rocha,** assistant manager for technical support, El Paso, Texas, AF Sector, promotion made permanent.

■ **Gilbert G. Rodriguez,** environmental support engineering technician, San Antonio, Texas, AF Sector, promotion made permanent.

■ **Wayne R. Schmidt,** manager, Accounting Branch, Resource Management Division.

■ **William L. Trusler,** area supervisor, Houston Intercontinental Tower, from Amarillo, Texas, Tower.

■ **Thomas Lee Ward,** assistant manager for program support, Albuquerque ARTCC AF Sector, from Dyess AFB.

■ **Tom Wyka,** area supervisor, Houston ARTCC, promotion made permanent.

Technical Center

■ **William H. Eivich,** supervisor, Work Control Section, Plant Services Branch, Plant Engineering & Services Division.

■ **Edward Guerro,** supervisor, Materiel Handling Section, Materiel Branch, Acquisition & Materiel Services Division.

■ **George J. Hartranft,** technical program manager, Navigation, Communications and Spectrum Branch, Communications/Navigation/Surveillance Division.

■ **James F. Jarrett,** technical program manager, System Design & Transition Branch, Automation Division.

■ **James A. Mathews,** supervisor, Software Section, National Automation Flight Service Branch, Automation Software Div.

■ **Ephraim Shochet,** technical program manager, ATC Technology Branch, Concepts Analyses Division.

■ **Robert H. Weiss,** director, Resource Management Service.

Washington Headquarters

■ **Jack R. Bertron, Jr.,** supervisor, Airspace Flight Procedures Section, National Flight Data Center, Airspace Rules & Aeronautical Information Division, Air Traffic Operations Service.

■ **James W. Carey,** manager, Administrative Management Branch, Program Management Division, Office of Program and Resource Management.

■ **David L. Catey,** manager, Air Carrier Branch, Air Transportation Division, Flight Standards Service.

■ **Joseph R. DeMeo,** manager, System Design & Configuration Management Div., Office of System Engineering & Program Management.

■ **Richard Huff,** manager, Airspace Branch, Airspace Rules & Aeronautical Information Div., Air Traffic Operations Service.

■ **Jackie L. Mills,** manager, FAA Records Center Facility, Emergency Operations Staff, Office of Deputy Administrator.

■ **Brian R. Moeller,** team leader, Position & Pay Policy Div., Office of Personnel.

■ **Vernon L. Moore,** supervisor, Building Services Section, Property and Services Branch, Materiel Management Division, Acquisition and Materiel Service.

Western-Pacific Region

■ **William J. Alcala,** manager, Edwards Air Force Base (AFB) Airway Facilities Sector Field Office (AFSFO), Los Angeles, Calif., AF Sector, from Long Beach, Calif., AFSFO.

■ **Robert F. Bruns,** manager, Mill Valley, Calif., AFSFO, Golden Gate AF Sector.

■ **John G. Clancy,** assistant manager, Edwards AFB RAPCON.

■ **Kurt W. Cooper,** manager, Modesto, Calif., Tower, from Stockton, Calif.

■ **Ronald K. Downie,** area supervisor, Fullerton, Calif., Tower.

■ **Fred M. Driggs,** area supervisor, Santa Barbara, Calif., TRACON, promotion made permanent.

■ **Richard W. Fennemore,** area supervisor, Arcata, Calif., Flight Service Station (FSS), from Riverside, Calif., AFSS.

■ **Gerald J. Goren,** assistant manager for training, Golden Gate AF Sector, Hayward, Calif.

■ **Alvin T. Gruner, Jr.,** assistant manager for training, San Diego, Calif., AF Sector.

■ **Jay F. Jacobsen,** operations manager, Sacramento, Calif., AF Sector.

■ **Gearold W. Martin,** area manager, McClellan AFB TRACON, Sacramento, Calif.

■ **Mauro M. Martinez,** unit supervisor, San Pedro, Calif., AFSFO, San Diego AF Sector.

■ **Richard J. Mathews,** area supervisor, Los Angeles Tower.

■ **Ettori P. Milani,** manager, Bay Area Nav/Com AFSFO, Golden Gate AF Sector.

■ **James A. Mills,** manager, Analysis and Evaluation Branch, Financial & Management Resources Division.

■ **Shawn L. Moore,** area supervisor, Los Angeles TRACON.

■ **William P. Mulder,** area supervisor, Oakland, Calif., TRACON, promotion made permanent.

■ **Arthur B. Perry,** manager, Gillespie Field Tower, San Diego.

■ **Claude N. Phillips,** area supervisor, Goodyear, Ariz., Tower.

■ **R. G. Simmons, Jr.,** area supervisor, San Francisco Tower, from the San Carlos, Calif., Tower.

■ **Ronald N. Simmons,** area supervisor, El Toro Marine Corps Air Station TRACON, Santa Ana, Calif., from Santa Barbara, Calif.

■ **Pedro C. Tellez,** manager, San Diego Automated FSS, from Shreveport, La., FSS.

■ **Jerry D. Webb,** area supervisor, Van Nuys, Calif., Tower, from Burbank, Calif.

■ **Leland J. Wingard,** area supervisor, Napa, Calif., Tower.

Retirees

AERONAUTICAL CENTER
Thomas F. Arbuter
Billie C. Ferguson
Marthal O. Gray
Jesse L. Howard
Delbert H. McGee
Vernon L. Parker

ALASKAN REGION
Gerald R. Edick
Earl R. Scott

CENTRAL REGION
Charles R. Bell
William E. Harvala
John W. Landry
William L. Ross
Charles H. Walker

EASTERN REGION
William B. Bracken
Richard A. Braila
Ralph E. Cartwright
Ray C. Hawn, Jr.
Carlos Martinez-Laz
Robert F. Roland
Kenneth L. Vickers

GREAT LAKES REGION
Richard A. Broderick
Herman W. Hulhurn
Chalmer G. Karnes
Allen D. Ray
Robert E. Reemer
Kenneth O. Smay, Jr.
Kenneth F. Wolfe

NEW ENGLAND REGION
Ronald V. Cavallo
Allan Decker
Wilfred A. Duquette
Karsten L. Reinemo
Robert F. Sullivan
Ernest R. Thurber

NORTHWEST MOUNTAIN REGION
Mark D. Argo
Daniel E. Austin
Robert H. Detwiler
Ronald L. Erickson
Donal D. Kinsley
Clarence J. Kuper
Dennis J. Light
Joe A. Redwine
Willard H. Sinclair
Kenneth L. Spencer
Norris O. Swanson

SOUTHERN REGION
Joane T. Capps
Tommy W. Casteel
Clifford Quetter
Curtis P. Hathaway
Dorothy C. Isom
William H. Martin
Richard D. McCrary
Odie L. Page
Langley P. Shearer, Jr.
Roger S. Sharling
Franklin D. Wesley

SOUTHWEST REGION
George P. Bedford
Lindell V. Cain
Irvin H. England, Jr.
Griselda A. Radosevich
James R. Spencer

TECHNICAL CENTER
Robert E. Hilgendorf

WASHINGTON HEADQUARTERS
Willie M. Wade
Dwayne R. Willemsen

WESTERN-PACIFIC REGION
Yasuko Aoki
Lawrence A. Beal
Hiroto Chigawa
Donald H. Myers
Betty M. Prescott
Dieter W. Schmolinski

Federal Notebook

HIGHER GRADES NOT FORGOTTEN

Rep. Constance Morella (R-Md) and Rep. Frank Wolf (R-Va) have introduced bills to boost the pay of the Senior Executive Service, supergraders and federal judges. Exempted would be members of Congress, the vice president and the chief justice. Morella's bill would raise the pay from 6.7 to nearly 20 percent and call for a pay study of the top-grade positions.

Wolf's legislation would also require a joint resolution of Congress to turn back Presidential pay recommendations.

PANEL ADVOCATES PAY CHANGES

The commission chaired by Paul Volcker reported to President Bush that the general schedule pay system should be replaced by a locality-pay system, that top federal personnel should receive an immediate 25 percent boost in pay and that presidential political appointments should be reduced by a third.

Not recommended were any general schedule catch-up pay increase or collective bargaining for pay.

WHISTLEBLOWER BILL IS GO!

Both houses of Congress have overwhelmingly passed whistleblower legislation with the blessing of the Administration. The bill would:

- Require an employee to prove only that retaliation was a contributing factor, rather than a significant factor, in an agency's adverse action against him or her;
- Require an agency to prove by clear and convincing evidence that its actions were not retaliation;
- Make the Office of the Special Counsel (OSC) of the Merit Systems Protection Board (MSPB) an independent agency;
- Permit employees to take their cases directly to the MSPB 60 days after OSC closes an investigation or 120 days after making a complaint to OSC;
- Ban reprisals against those who testify for whistleblowers, cooperate with OSC or refuse to obey illegal orders;
- Make harassment or threats against whistleblowers prohibited personnel practices;
- Prohibit OSC from opposing whistleblowers before the MSPB; and
- Permit OSC to release whistleblowers' names only if there are criminal violations or a danger to the public.

GOOD RETIREMENT NEWS

*The Supreme Court found in favor of a Michigan federal retiree (Davis vs. Michigan, 87-1020) who sued the state for equal treatment with state and local retirees. It struck down as discriminatory a state law that exempted from income taxes local retirees but not federal retirees.

Similar laws exist in Arkansas, Arizona, Colorado, Georgia, Iowa, Louisiana, Missouri, Montana, New York, North Carolina, Oregon, South Carolina, Utah, Virginia, West Virginia and Wisconsin.

More than 600,000 retirees might be eligible for retroactive refunds for three years under the decision, but states could decide to quickly enact legislation to impose income taxes on all retirees, eliminating the discrimination and cutting out any further revenue loss, which might already amount to billions of dollars.

*When a retiree weds, providing a survivor annuity can be very costly to him or her. Rep. Frank Wolf (R-Md) has introduced a bill to restore fairness to the otherwise happy couple by requiring a reduced base annuity only from the date of marriage.

Currently, anyone who retires and later marries and elects survivor coverage must redeposit an amount equal to the usual annuity reduction from the date of retirement, plus interest. A bad-case scenario would be a GS-15 Civil Service Retirement System retiree who marries after 10 years. The reduction for a survivor annuity if married at retirement would have been about $240 a month. Paying that amount back 10 years later with interest would come to over $30,000.

HATCH ACT REFORM ENCORE

Rep. William Clay (D-Mo) and Sens. John Glenn (D-Ohio), Ted Stevens (R-Alaska) and Dennis DeConcini (D-Ariz) have introduced bills to reform the Hatch Act, which, in the Senate version, permits off-duty partisan campaigning and soliciting money for political action funds only from members of their own organization. The House bill also would permit employees to run for office and restrict soliciting funds only from superiors, subordinates and contractors.

Although the Senate bill failed to reach the floor in the last session, it now has strong support from the Majority Leader, Sen. George Mitchell (D-Maine).

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