

## A Closer Look: The Crash of Swissair Flight 111

# Few bodies and only small debris recovered

### 'Black boxes' sought but beacon silent

By DON PHILLIPS  
and STEVEN PEARLSTEIN  
The Washington Post

PEGGY'S COVE, Nova Scotia — Family members of the victims of Swissair Flight 111 began gathering here to mourn and identify the dead yesterday as investigators seeking to discover the cause of the crash found only small bits of debris and no significant clues.

The picturesque fishing village of Peggy's Cove began to settle in for what could be a long search for evidence and remains. So far, investigators said, the largest piece of the aircraft found measures only about one square yard — a testament to the enormous force with which the McDonnell Douglas MD-11 jumbo jet slammed into the Atlantic Ocean on Wednesday evening.

Authorities gave up yesterday on the possibility they would find any of the 229 people aboard the flight alive. They officially called off rescue attempts and focused on cleaning up. Exasperated authorities also ordered curiosity-seekers looking for debris to keep their boats away from the crash scene and nearby shore.

Most of the bodies have not been recovered. Officials said the condition of the remains will make identification extremely difficult.

**INVESTIGATORS SAID** the Swissair crew, in conversations with air traffic controllers, gave no indication of why the cockpit had begun to fill with smoke around 13 minutes before the crash. They also said that none of the small pieces of the aircraft thus far recovered showed any obvious indication of fire.

Vic Gerden, lead investigator for the Transportation Safety Board of Canada, said that after listening to tapes of radio transmissions between Flight 111 and the air traffic control facility at Moncton, New Brunswick, "initially there isn't a great deal more information" about what might have gone wrong.

"The crew indicated there was smoke in the cockpit," he said. "We don't have further indication of the problem."

The Canadian Navy yesterday brought in a submarine with a sophisticated side-scanning sonar to look for the cockpit voice recorder

and flight data recorder — the so-called "black boxes."

Finding the devices may take time because a beacon that sends a tracking signal to guide searchers was not working in the water, Philippe Bruggisser, chief of Swissair's parent SAirGroup, said in Geneva.

Benoit Bouchard, chairman of the Canadian safety board, acknowledged that the investigation would be difficult "if we do not find the black boxes quickly."

**HEAVY FOG** moved in off the coast, hampering the search for debris. Sgt. Andre Guertin of the Royal Canadian Mounted Police said searchers did find up to 100 suitcases in the water, and they appeared to be "in fairly good condition."

The suitcases could be helpful if it can be determined where they were stored in the aircraft cargo hold. If they show no signs of fire or explosion in subsequent detailed examination, that would mean that the problem that brought down the airplane was elsewhere.

Meanwhile, friends and relatives of the dead began arriving.

On this normally busy Labor Day weekend, the provincial government of Nova Scotia managed to find more than 500 hotel rooms for the American and European relatives and offered to foot the bill for lodging and meals. Hundreds of Nova Scotians also offered their homes, food, cars and flowers. Numerous memorial services are scheduled for tomorrow.

Several relatives made solemn journeys to the rocky Nova Scotia coastline. Peter Gerety, the brother of Pierce Gerety, a U.N. official who was aboard Flight 111, picked up two rocks there.

"I just felt like having a memento," said Gerety. "It's such a beautiful place; that's the irony of it." Gerety said he would keep one stone and deliver the other to his brother's widow.

The mourners were scheduled to meet as a group last night with Swissair and Canadian officials, who were to brief them on the investigation.

**GERDEN SAID** a transcript of the air traffic control conversations would be released today. He described an airplane that was attempting a rapid descent toward Halifax while dumping fuel over the ocean and apparently attempting to troubleshoot some problem.

The plane had made a normal takeoff from New York's John F. Kennedy International Airport en route to Geneva. Gerden said the first indication to controllers of trouble was when the crew gave the call "Pan! Pan! Pan!" — an international signal of a serious problem, but short

of a mayday call or a declared emergency. However, he said that somewhat later in their descent the crew indicated a more serious emergency.

He said the crew first asked for clearance to return to Boston, but controllers told them the plane was only 58 miles from the Halifax airport. Beginning at 10:14 p.m. Atlantic time with the first call, the crew began a descent that included two "orbits," 180-degree turns that headed the plane back in the opposite direction, apparently to lose altitude for a landing and to continue dumping fuel. The plane descended to below 10,000 feet before the crew's final transmission; it crashed at 10:27 p.m.

Gerden said there was no information on the transcript to indicate terrorism or to indicate that there was smoke in the passenger cabin.

**INVESTIGATORS ARE** poring over maintenance records for the aircraft and also seeking to learn whether it has complied with all airworthiness directives by regulatory agencies and service bulletins.

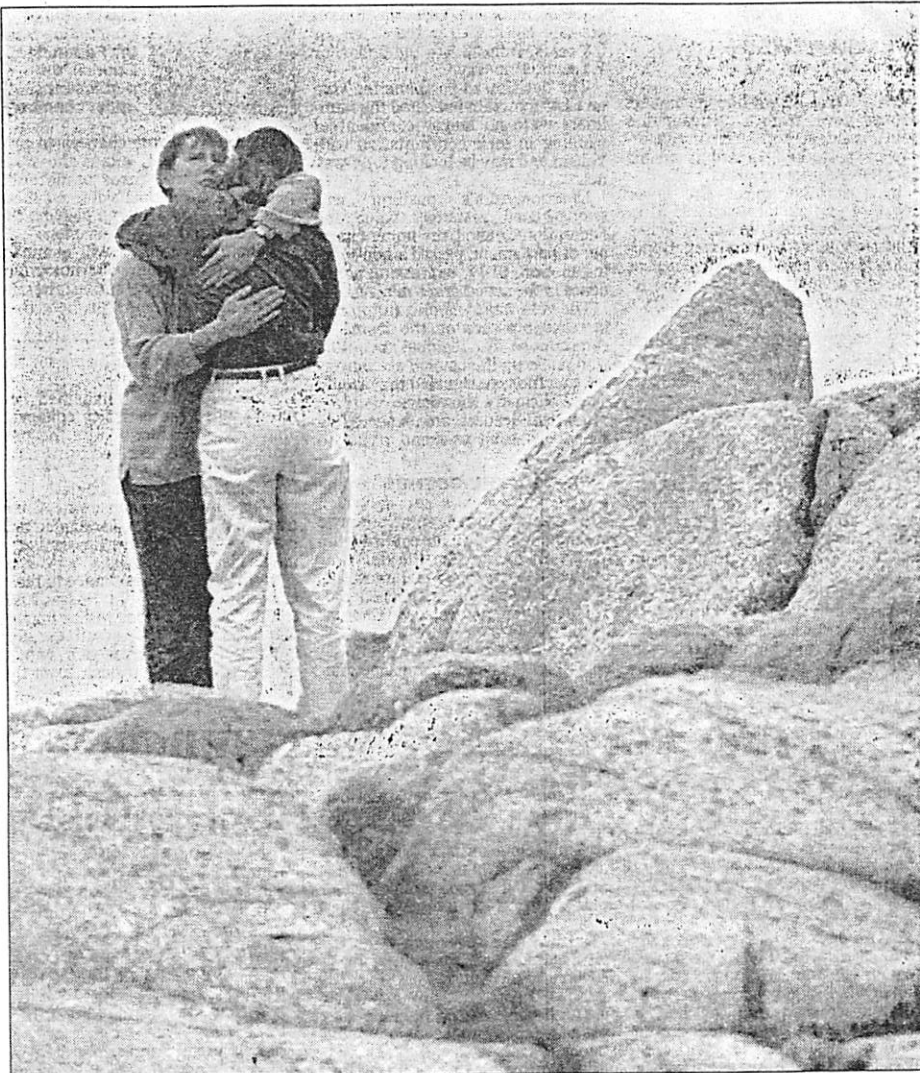
At least two of the six directives from the Federal Aviation Administration applying to the MD-11 involve wiring problems. In one case, a 1997 directive told airlines to correct wiring problems in an electrical cabinet behind the pilots. Another in 1996 recommended wiring changes to separate flight-control cables from electrical wiring in the rear of the aircraft because of reports of burned electrical wiring caused by chafing against flight-control cables.

A Swissair spokesman said the first directive was complied with, and the second probably was, but officials are still checking records.

In the absence of any other clues, investigative sources said there were four obvious areas of inquiry — including possible sabotage, although there is no hint of that so far.

The other most obvious possible causes are that some hazardous material exploded or began burning in the jet's cargo hold; that there was a short-circuit and possible fire in the electrical cabinet that is behind and below the pilots; or that the air conditioning packs that are almost directly below the pilots overheated or short-circuited. All three have caused crashes in the past.

**HAZARDOUS MATERIALS** have emerged as a serious problem facing aviation, not only because passengers and cargo shippers sometime ship flammable or corrosive items that would not be allowed on board, but also because some shipments may contain several chemicals that do not cause any problem on their



Unidentified relatives of victims of Swissair Flight 111 sought each other's comfort yesterday along the shoreline in Peggy's Cove, Nova Scotia. Most bodies from the downed jet have not been recovered.

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own but when mixed together might cause fires.

The FAA began a hazardous material oversight program following the crash of ValuJet Flight 592 into the Florida Everglades on May 11, 1996. That crash was caused when a number of oxygen generators that were mislabeled "empty" were somehow

triggered in the jet's cargo hold. The generators can produce temperatures as high as 500 degrees.

Swissair, which has a good safety record, nonetheless has had problems with hazardous material enforcement in the United States. Since 1987, Swissair has been subject to only six FAA enforcement actions,

but all six of them involved hazardous materials, according to FAA records. The agency did not immediately provide details of the incidents, but none apparently led to fines and only two led to warning letters — both of them in 1987.

The Associated Press contributed to this story.

# Tie-in with Delta Air Lines may complicate liability issue

By RANDOLPH E. SCHMID  
Associated Press

WASHINGTON — The plane that crashed in Nova Scotia this week wasn't just Swissair Flight 111; it was also a Delta Air Lines flight.

More and more, Americans traveling overseas buy tickets from a U.S. carrier only to learn they are flying on another airline, thanks to a system called code-sharing.

The system has become common, but the crash may raise new questions of liability.

In the Swissair flight, 53 people aboard had Delta tickets, the Atlanta-based airline reported. The crew included a Delta flight attendant.

Northwest Airlines and KLM Royal Dutch Airlines had the first international code-sharing arrangement approved by the U.S. Department of Transportation; it took effect in 1989.

Since then, the system has become popular as a way for a domestic carrier to offer what seems to be a greater choice of international flights and to book a seemingly seamless trip for customers.

Even if an airline doesn't fly to a particular city, it can sell tickets to go there, keeping passengers from spending their money elsewhere.

Take a customer who wants to fly from Washington to Zurich, Switzerland, for example.

Delta can offer a choice of flying from Washington to New York and from there to Zurich on Swissair, or it can sell a seat on an Austrian Airlines flight direct from Washington to Zurich. Either way, it avoids having to refer passengers to another airline.

The federal government — which approves all code-sharing agreements — requires airlines to tell their customers if they will be flying on another airline. But the ticket handed to the customer will still say Delta or United or whatever airline sold it — and that airline will get the money.

As an example of how extensive the practice is, Delta has code-shar-



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**Philippe Bruggisser, chief of Swissair's parent SAirGroup, said yesterday in Geneva, Switzerland, that a beacon that sends a tracking signal to guide searchers to flight data recorders was not working.**

ing agreements with Aerovias de Mexico, Air France, Air Jamaica, Finnair, Korean, Sabena and Transbrasil airlines, in addition to Swissair and Austrian.

In most code-share agreements, said Terry Trippler of the Airfare-Report.Com Inc., one carrier simply buys a block of seats on the other and then sells those seats at whatever price it wants.

United Airlines, for example, might have an agreement to buy a group of seats aboard a Lufthansa flight. If it sells all of them for more than it paid, it makes money. If any go unsold, it's United's loss.

In other cases, the agreement is what's called a "soft" code share, he said. In that case, one airline sells

seats on the other on a one-by-one basis as long as any are available.

The crash may raise a new question in code-sharing — liability.

Texas attorney Mike Slack, former chairman of aviation law for the American Trial Lawyers Association, said that area of law remains unclear, as the issue has yet to be decided in court.

There could be some type of joint enterprise liability, he said, and it's possible that survivors of Delta passengers will have to look no further than Delta for compensation.

Other experts say the actual operator of the airplane is liable, potentially along with the plane's manufacturer and the maker of any component that might have failed.

## A list of the victims

The 215 passengers and 14 crew members aboard Swissair Flight 111. The airline did not provide hometowns or nationalities. Some ages and hometowns were provided by family members or employers.

### Passengers:

Abady, George  
Abery, Keith  
Aboufaam, Sleiman, Bloomfield Township, Mich.  
Aboutaam, Suada, Bloomfield Township, Mich.  
Acevedo, Ingrid, New York  
Aellen, Pierre-Andre  
Albertsen, Else, 74, Tenafly, N.J.  
Albertsen, Torkild, 76, Tenafly, N.J.  
Alleaume, Bruno  
Alsaud, Bandar  
Amposta, Mathieu  
Babolat, Pierre  
Baconnier, Pascal  
Baeumer, Ludwig, 61, Geneva  
Ball, Eudyce  
Ball, Martin  
Bell, Patrick W.  
Benjamin, Jesse James  
Benjamin, Stacey  
Benjamin, Wahkyn  
Benjamin, Whitney Ginger  
Bilger, Joachim, 49, Geneva  
Bittenbinder, Suzanne, 33, West Palm Beach, Fla.  
Bolsterli, Andrew  
Bouchout, Geoffroy  
Boure, Faye  
Boure, Rosline  
Bove, Jane  
Burckhard, Erich  
Burghardt, Susan  
Burrus, Dominique  
Burrus, Thierry  
Calvet-Mazy, Catherine, 37, France  
Cappola, Maxine  
Caripides, Gabriela  
Caripides, Peter  
Caripides, William  
Cagar, Natasa  
Chapman, Cauley  
Chapman, Mark  
Chatelain, Odette  
Chatelain, Raoul  
Chevey, Nathalie  
Chevey, Nicolas  
Clement-Mann, Mary-Lou, 51, Columbia, Md.  
Coburn, Richard  
Colinbarrand, Thierry  
Colmery, Barry, Canfield, Ohio  
Colmery, Julie, Canfield, Ohio  
Danon, Albert  
Degraef, Maarten  
Demeire, Jana  
DePledge, Caroline, Concord, Mass.  
DePledge, Jane, Concord, Mass.  
DePledge, Michael, Concord, Mass.  
DePledge, Norman, Concord, Mass.  
DeRoussan, Yves, 41, Canada  
Diba, Mahmood  
Ditchkus, Lenora, Teaneck, N.J.  
Ditchkus, Michael, Teaneck, N.J.  
Donaldson, Rhonda, 35, Atlanta  
Dumitru, Christian  
Ezell, Patricia  
Fetherolf, Tara, 16, Haverford, Pa.  
Fine, Douglas

Frevier, Maryvonne  
Froghi, Zhora  
Fuhrmann, William  
Gambone, Deborah, Watertown, Conn.  
Gambone, Michael, Watertown, Conn.  
Garboudes, Amanda  
Garboudes, Christine  
Garboudes, Herve  
Garboudes, Tristan  
Gerety, Pierce J. Jr., 56, New York  
Hammond Joan, 65, Edmonds, Wash.  
Hammond, Paul, Edmonds, Wash.  
Hastie, Cherie, 59, Marietta, Ga.  
Hausman, Thomas, 33, New York  
Hewsom, Roberte  
Hoche, Gabriel, 62, Richmond, Va.  
Hootsev, Andrew  
Hoel, Anne Sophie  
Hoel, Francois  
Hoel, Marie-Francoise  
Hoel, Olivia  
Hoel, Paul Edouard  
Hopcraft, Pauline, Gates Mills, Ohio  
Hopcraft, Lawrence, 55, Gates Mills, Ohio  
Iconomopoulou, C.H.  
Jackman, Olivier  
Janan, Jay, 40, Basking Ridge, N.J.  
Jegge, Evelyn  
Jegge, Isabelle  
Jhurani, Samesh  
Junod, Maryline, 42, New York  
Kaiser, Maria  
Karamanoukian, Serge  
Kassel, James T., 34, Medford Lakes, N.J.  
Kefalidis, N.  
Kief, Kevin  
Kinder-Geiger, Klaus, 36, Long Island, N.Y.  
Kitsinger, Eric  
Klein, Stanley  
Kleinman, Karen, Shelton, Conn.  
Kleinman, Leonard, Shelton, Conn.  
Kohler, Stephane  
Kokoruda, Jean, Trumbull, Conn.  
Kokoruda, Robert, Trumbull, Conn.  
Kreis, Thomas  
Kretschmer, Heidi  
Lamotta, Joseph, 49, New York  
Lampietti, Dario  
Lattimer, Don, New York  
Lattimer, Nancy, New York  
Lemaitre, Anne-Laure  
Lesachot, Jean-Luc  
Levy, Ronny M.  
Librett, Jeffrey M.  
Lucas, Anna B., 74, Las Vegas  
Lucas, James N., 72, Las Vegas  
Maillet, Denis, 37, Baton Rouge, La.  
Maillet, Karen Domingue, 37, Baton Rouge, La.  
Maillet, Robert, 14 months, Baton Rouge, La.  
Makarevitch, Manuel  
Mallin, Gilda  
Mallin, Ralph  
Mann, Dr. Jonathan, 51, Columbia, Md.  
Manthiou, Loukia  
Martin, Joseph  
Mehrarabansamit, Elahah  
Mendo, C.  
Milne, Alma, 66, Fairview Park, Ohio  
Milne, Robert, 67, Fairview Park, Ohio  
Miralai, Astrid  
Miralai, Chantal  
Miralai, Houchang  
Molinier, Francoise  
Molinier, Jean-Philippe  
Monay, N.  
Morero, Jean-Philippe  
Morero, Marie-Antoine  
Mortimer, Hilda B., 69, Stamford, Conn.  
Mortimer, John H., 75, Stamford, Conn.  
Moser, Julie  
Mozes, Jean-Max, 51, Haworth, N.J.  
Munari, Jaques

Napoli, Phyllis  
Navarro, Yolanda  
Nelson, Tara, 35, Mystic, Conn.  
Neuweiler, Adrienne  
Neuweiler, John  
Noceto, Betty  
Noceto, Claude  
Ogara, William  
Omran, A.  
Pereau, Clelia  
Pereau, Jean-Louis  
Pereau, Joelle  
Pereau, Sylvie  
Pereau, Yves  
Perroud, Eric  
Pinoesch, Sker  
Plumleigh, Charlotte, 56, Lakewood, Colo.  
Plumleigh, Glen, 56, Lakewood, Colo.  
Rappaz, M. Cecile  
Rappaz, Michel  
Ratnavale, J.  
Ratnavale, V.  
Richard, Karine  
Rizza, A.  
Rizza, Victor  
Romano, Raymond  
Rossi, Maurizio  
Salakoutindova, E.  
Salama, Magda  
Sanna, Nino  
Saugy, Crystel  
Scarboro, Alan  
Scott, Matthew, 33, New York  
Scouler, Norman, 45, England  
Sequi, S.  
Shaw, Stephanie  
Scheer, Diane, Norfolk, Mass.  
Scheer, Donald, 49, Norfolk, Mass.  
Shuster, Stephanie, 32, Summit, N.J.  
Smith, Caroline, Augusta, Ga.  
Spanne, Per, 53, New York  
Spanopoulou, Eugenia  
Spanopoulou, Hootsev Plato  
Sperber, Julie, San Juan Capistrano, Calif.  
Sperber, Thomas, San Juan Capistrano, Calif.  
Springer, H. Lloyd, Boca Raton, Fla.  
Springer, Judith, Boca Raton, Fla.  
Stauffer, Peter  
Stauter, Dr. Robert, 45, Warren, Ohio  
Tahmouh, Albert  
Tahmouh, Odette  
Thioudellet, Alexandre  
Thioudellet, Emmanuel  
Thompson, Ernest  
Thorens, Sebastien  
Tomov, Nenad  
Topf Gibson, Nancy  
Tsalis, Christos  
Tzamaridouaki, Maria  
Villet, Vincent  
White, Rowenallee  
Wilcox, Alex  
Wilcox, Petra  
Wilkins, Monte, 19, Yucaipa, Calif.  
Williams, Dr. Roger, 54, Salt Lake City  
Wilson, Jonathan, 22, Brandon, Fla.  
Zenios, Marino  
Zhu, Li

**Crew:**  
Betrisey, Irene  
Birkie, Raphael  
Castioni, Anne-E.  
Eberhart, Patricia  
Furter, Colette  
Loew, Stephan  
Oberhansli, Rene  
Pazeller, Seraina  
Pompili, Jeannine  
Reutemann, Regula  
Schwab, Peter  
Wiprachtiger, Brig  
Zimmermann, Urs, pilot  
Zuber, Florence