

**6 NEW PRODUCT REVIEWS | HOW TO HANDLE *WX OVERLOAD***

# CANADIAN Aviator

MAY/JUNE 2006

\$5.95

Behind The Success  
of John Lovelace's

## WINGS OVER CANADA

CANADIAN  
AVIATION  
EXPO  
ISSUE!



**Floatplane  
HOW ONE PILOT  
SURVIVED**

*FLIPOVER*



[www.oppublishing.com](http://www.oppublishing.com)



PM40069700 R10939

DISPLAY UNTIL JULY 3, 2006

**LEARN TO FLY LONGER TRIPS AND START GOING PLACES**

# STAR Performer

Canadian company develops real-time flight data recorder that alerts operators to potential problems while aircraft is in the air



**Compact gear supplies real-time flight data transmission.**

**One of the fathers of the black box recognizes that its days are numbered. So when Pierre Jeanniot saw a new technology capable of leaping over the current hardware used for aircraft system data recording and analysis, he deemed it time to help champion the new cause.**

STAR Navigation Systems Group is a relatively new company, Canadian-based, to which Jeanniot – a former CEO of Air Canada, as well as the International Air Transport Association (IATA) – is lending his expertise as chairman of its strategic advisory committee. “Black boxes were a major innovation of their time,” says Jeanniot, “but they have their short-comings and today’s technology can advance the concept.”

Computer hardware, software, and satellite technology are leading STAR’s efforts to bring data acquisition and diagnostic capability, both in real-time, to commercial aviation. The results could mean more thorough ways to investigate

accidents and arrive at quicker conclusions, or better still, the prevention of in-flight scenarios from developing into catastrophes through the immediate study of data being transmitted from an aircraft while it’s flying. Swifter identification of aircraft maintenance requirements could lessen the possibility of accidents, or at least allow for maintenance cost-savings where fewer such savings could be realized before.

Having become de rigueur back in the 1960s, the so-called black box (they’re actually fluorescent orange to make them easy to find in wreckage) has evolved into a unit comprised of a cockpit voice recorder and a flight data recorder, the total recordings from which can capture approximately 32 aircraft operational parameters from an aircraft’s last 30 minutes (or up to the final two hours) of flight time. By contrast, the new system under development from STAR – known as ISMS, or In-flight Safety Monitoring

System – is designed to record 3,000 aircraft parameters per second, with processing flexibility that could take it to 11,000 parameters per second, over the entire duration of an aircraft’s flight.

This ISMS capability is achieved through advances in data acquisition technology, hardware and software processing speed and memory storage capacity. It also relies heavily on today’s retinue of satellite systems to feed telemetric information “live” from airborne aircraft to ground stations where alert notifications can be issued should any minutia of the transferred data be instantly found to fall outside a pre-set threshold. These latter performance norms can be prescribed by the manufacturer, or they can be set to the limits so defined through operational guidelines of the aircraft’s operator.

A ground station, immediately alerted to the presence of a performance variation, will relay the alert back to the aircraft, flag its degree of urgency, and further inform designated personnel – via phone, e-mail, text-messaging, or pager – about the anomaly. While the fundamental rule of the pilot-in-command being the final authority over the safety of the aircraft stands, ISMS has the power to scramble system experts almost instantly to the aid of an aircraft thus enabling greater, and more precise, decision-making power for the crew in the cockpit.

“The infrastructure already exists for the ground stations,” explains Jeanniot. “Every airline has its own operations control centre that handles flight staffing, baggage issues, scheduling, etc., so

the structure is there to integrate ISMS." The SATCOM network provides the backbone for data to be monitored wherever an aircraft may be and, as Jeanniot further explains, its prevalence and reliability are bringing down costs, resulting in an affordability for ISMS technology that might have been financially out of reach before.

The cost of such technology, installed, is in the range of \$200,000 per aircraft. Leasing of the equipment – which includes servers, sensors, hard drives, transceivers and antennas – is a payment option which will add a monthly cost of up to \$3,000 per aircraft. Carriers signing on to the STAR system can also expect to pay for services relating to the provision of post-flight data reports, in-flight monitoring, and SATCOM time.

There are other problems, besides the substantial cost of the system. "Getting aircraft scheduled for installations is a problem, given the down time required of the aircraft," explains Viraf Kapadia, STAR CEO and co-founder of the company. An installation could take five days



**Viraf Kapadia, CEO of STAR Navigation.**

and many carriers can't afford the time to get the ISMS installation done. Nevertheless, STAR is looking towards having up to 35 installations completed by the end of 2006, a figure it hopes to increase by 10 times by 2008, making it clear that players

within the industry want this technology.

Though national air transport regulatory agencies might not be moving quickly to replace their black boxes with ISMS technology, Toronto-based STAR (which is an acronym for Situation Tracking Algorithmic Response) is pushing its technological know-how and receiving strong interest from within the industry.

A memorandum of understanding has been established with Karkov Aircraft that will see this Ukrainian manufacturer offering ISMS technology to customers of its aircraft. A similar agreement has been reached for the installation of ISMS on aircraft serviced by TAP Engineering & Maintenance of Lisbon, Portugal.

STAR's ISMS has met airworthiness standards set by Transport Canada, the FAA, and the JAA. It can be installed on any aircraft with a Supplemental Type Certificate (STC) issued by the local regulatory authority under U.S. FAR, European JAR, or Canadian CAR stipulations.

"We have STC's for our technology on Boeing 727, 737 as well as Airbus A340-300 aircraft," says Kapadia.

## Get your multi-engine instrument rating in 4-5 weeks!



**Train in actual IFR conditions  
and known ice**

**2 PFC ELITE simulators**

**3 Beechcraft Travelairs equipped  
with HSI, RMI, DME, moving  
map GPS and a fully integrated  
autopilot system**

- Airline experienced instructors • Multi-engine and Instrument Examiners on staff
- Training 7 days a week • Located on the Winnipeg International Airport
- Special student rates at hotels within walking distance
- GPS and auto-pilot training integrated into the flight training program.



**PERIMETER**  
Av TRAINING SPECIALISTS

For more information call or write:  
626 Ferry Road, Winnipeg International Airport  
Winnipeg, Manitoba, Canada R3H 0T7  
Tel: (204) 783-6848, Fax: (204) 480-4015  
[www.perimeter.ca](http://www.perimeter.ca) email: [ifr@perimeter.ca](mailto:ifr@perimeter.ca)