



Edition 13 Winter 2004

PART I: SYSTEMS, EQUIPMENT AND FACILITIES 1

- GAATS (GANDER AUTOMATED AIR TRAFFIC SYSTEM) - UPDATE 1
- OCEANIC CLEARANCE PROCESSOR (OCP II) – UPDATE 2
- NORTH ATLANTIC GROUND/GROUND DATA LINK – UPDATE 2
- FLIGHT INFORMATION MANAGEMENT SYSTEM (FIMS)- NEW 2
- NEW RADARS IN THE NORTH – UPDATE 3
- PRE-DEPARTURE CLEARANCE (PDC) – UPDATE 3
- ASDE - UPDATE 3
- SASS (SCHEDULING & SEQUENCING SYSTEM) - UPDATE 4
- PILOT INFORMATION KIOSKS - UPDATE 4
- PATWAS - UPDATE 5
- D-ATIS/TVGS - UPDATE 5
- AVIATION WEATHER WEB SITE (AWWS) - UPDATE 5
- FLIGHT INFORMATION CENTRE PROJECT - UPDATE 6
- CONVERGING RUNWAY DISPLAY AID (CRDA) - UPDATE 7

PART II: PROCEDURES 8

- CONFLICT ALERT (CA) - UPDATE 8
- FLIGHT MANAGEMENT SYSTEMS (FMS) & AREA NAVIGATION (RNAV) STANDARD ARRIVAL/DEPARTURE ROUTES (STARS & SIDS) - UPDATE 8
- RVSM IN SOUTHERN DOMESTIC AIRSPACE (SDRVSM) – UPDATE 8
- SATNAV – WIDE AREA AUGMENTATION SYSTEM (WAAS) IN CANADA 10

PART I: SYSTEMS, EQUIPMENT AND FACILITIES

GAATS (Gander automated Air Traffic System) - Update

Phase 3 of the North Atlantic (NAT) CPDLC Trials became operational on 16th December 2003 in Canadian and UK oceanic airspace. This phase added

additional uplink and downlink messages including speed and level clearance messages. The software changes to both GAATS and GSIT (including an improved HMI) was implemented without incident and reaction from the pilot and controller community has been very favorable. Work is progressing on a project to add ADS functionality to GAATS. This will enable additional functionality over and above the current waypoint reporting (CADS), e.g. on-demand position reports, vertical or lateral conformance reports, etc. It will also remove the costs associated with service provided by an outside party. The first phase of implementation is scheduled for Spring 2004.

Contact: Harold Martin, Manager Flight Data Processing, (613) 248-7509. ▲

Oceanic Clearance Processor (OCP II) – Update

The current Oceanic Clearance Processor (OCP II) was implemented on May 13, 2002. It sends initial oceanic clearances to all aircraft equipped with avionics conforming to ARINC Specification 623 while continuing to serve the current ARINC Specification 620 avionics aircraft. However, unlike the equivalent UK system, it does not allow the pilot to send a clearance request to the controller and it does not provide the capability to send a "Clearance Confirmed" message to the pilot. Without this last item the pilot must still contact Clearance Delivery by voice to confirm the clearance. With it the process becomes voiceless. OCP II will be upgraded by adding these capabilities. Implementation is scheduled for December 2004.

Contact: Harold Martin, Manager, Flight Data Processing, (613) 248-7509. ▲

North Atlantic Ground/Ground Data Link – Update

The Gander flight data processing system (GAATS) has had the North Atlantic Common Co-ordination Interface Control Document functionality for ground-to-ground data link communications since 1996. However, other states have only recently implemented this capability. Technical testing is continuing with New York and with Reykjavik from the Technical Systems Center. Once implemented, the current telephone controller to controller co-ordination will be reduced. Implementation is dependent on priorities but currently scheduled for late 2004.

Contact: Harold Martin, Manager, Flight Data Processing, (613) 248-7509. ▲

Flight Information Management System (FIMS)- New

FIMS will replace the MIDS and FWGS with an integrated and scalable system that includes additional functionality such as electronic flight data strips, paperless forms and advanced sectorization capability to support FICs.

The system is comprised of two parts: Flight Data and METLAB. The METLAB portion is undergoing performance improvements. Training is being enhanced to include new functionality. A FIMS workstation has been installed in one control position in Kingston FSS for operational evaluation and feedback. Equipment has also been installed for training purposes in Halifax and training and evaluation is anticipated by summer/fall 2004.

Contact: Harold Martin, Manager, Flight Data Processing, (613) 248-7509 . ▲

New Radars In The North – Update

The first four of the new Northern radars: Kuujuaq, Yellowknife, Iqaluit and La Ronge, are now in full operation. In addition, the Brisay radar facility was upgraded (Nov 03) to the same Mode S technology. The fifth new radar site, Chisasibi (QC), has commenced its operational trial in Dec 03, and should be fully commissioned by Feb 2004. Stony Rapids (SK), the last site in this phase of radar acquisition, is in the final phase of construction. This facility should be in full operational use in Mar/Apr 04. A complete training radar was also acquired as part of this project for NCTI in addition to a one-channel maintenance and testing facility for the Technical System Centre in Ottawa.

NAV CANADA is conducting a Business Case Analysis to study the feasibility of expanded air traffic surveillance in the airspace overhead Hudson Bay. The objective is to identify the most cost effective means of delivering random route benefits to our customers, using either surveillance radar or ADS-B, whichever is most cost effective.

Contact: Lanny Beischer, Manager, Surveillance Systems, (613) 248-7227. ▲

Pre-Departure Clearance (PDC) – Update

Pre-Departure Clearance (PDC) combines EXCDS and datalink capabilities to provide initial IFR departure clearances to subscribing air carriers, reducing voice communications and frequency congestion. PDC is in operation at Vancouver, Calgary, Edmonton, Saskatoon, Winnipeg, Toronto and Halifax, and will be expanded to Montreal and Ottawa in the near future.

Contact: Lanny Beischer, Manager, Surveillance Systems, (613) 248-7227. ▲

ASDE - Update

Airport Surface Detection Equipment (ASDE) systems are becoming increasingly sophisticated and important as a method of reducing runway incursions. In assessing the feasibility of an ASDE system for Halifax, the company has determined that, in addition to enhancing safety, ASDE could produce half a million dollars in annual savings for aircraft operators by providing smoother control over movements on the ground. The contract for new ASDE systems for Halifax, St John's, Quebec City, Montreal Dorval, Ottawa, Winnipeg, Calgary, Vancouver and NCTI has been awarded and the plan is to have the systems installed over the next three years.

The Engineering firm Motioneering, from Guelph, Ont. Is continuing work to resolve the vibration problem with the Halifax antennae. The Vancouver ASDE was commissioned on 05 September 2003. The Calgary system has been successfully installed, with Systems Acceptance Testing (SAT) completed in October, and commissioning expected shortly. The Dorval ASDE will be installed in two phases

to minimize downtime. The Radar Data Processing (RDP) equipment has been installed and SAT completed in December. Phase 2, installation of antennae and tx/rx equipment will follow in April. Ottawa will be the next system to be replaced following Dorval, with Phase 1 occurring in early summer 2004.

Contact: Lanny Beischer, Manager, Surveillance Systems, (613) 248-7227. ▲

SASS (Scheduling & Sequencing System) - Update

The Scheduling and Sequencing System (SASS) is a computer-based system used to assist Air Traffic Management Unit (TMU) controllers in allocating available landing slots. It will provide the capability to apportion potential delays (into designated major airports) when demand exceeds capacity. SASS installations are planned for Toronto, Vancouver and Calgary operations. SASS will provide the ability to maximize airport efficiency and deal with traffic surges.

Some SASS capabilities in Phase 1 of the project will provide but are not limited to the following:

- Blocked slots and intervals
- Capability to set flight and blocked slot priorities (routine, exempt, priority)
- Manual time assignment (drag & drop on timeline)
- Manual meter fix assignment (drag & drop to another timeline)
- Pre-departure schedule (Airport, Airline/Operator, Aircraft)
- Specify airport and runway arrival rates dynamically in the future
- Set bedpost priorities on a timed basis
- Set an aircraft in suspend status
- Handle stream classes
- Statistics logging

SASS Schedule:

Site	Install	Commission
Toronto	Jan 2004	June 2004
Vancouver Richmond	Apr 2004	June 2004
Vancouver Surrey	Fall 2004	Richmond/Surrey Move

Contact: Larry Everett, Flight Data Processing Specialist - ATS, (613) 248-6875. ▲

Pilot Information Kiosks - Update

The Pilot Information Kiosk is designed to give pilots quick and accurate weather and aeronautical information through Internet and Phone, in support of the interpretive briefings provided by flight services specialists at FICs.

Fifty-nine (59) sites across the country now have kiosks, 13 identified sites have been processed and are going to be installed during this fiscal year.

Contact: William Estrada, Manager FSS Information Systems, (613) 248-6872. ▲

PATWAS - Update

The Pilot's Automatic Telephone Weather Answering Service (PATWAS) is being expanded and enhanced. From its humble beginnings as a prototype system in Ontario, to its earlier introduction in the west, PATWAS is becoming a truly national system offering bilingual, improved weather product handling, more responsive menu navigation for users, voice recognition and faxback capability. The PATWAS systems installed at Quebec, London, Kamloops and Edmonton FICs are now operational. The revised date for the launch of PATWAS at Winnipeg and Halifax is 1st quarter 2004. The launch date for the Northern FICs is 2005.

Contact: Joe Clapp, Manager, Communications & Facilities, (613) 248-7240. ▲

D-ATIS/TVGS - Update

Similarly, our D-ATIS/TVGS (Data Link – Automated Terminal Information Service and Text to Voice Generation System) is being deployed to cut down waiting times for routine information by first automatically converting text ATIS messages to voice and broadcasting them on the appropriate VHF frequency. At predetermined towers, a copy of the text message is also relayed to third party distributors for data link dissemination on demand. The TVGS is working well and we are expanding the available vocabulary to improve processing of PIREP, AIRMET and SIGMET. D-ATIS has now been commissioned at the following towers:

DATA LINK Tower		Non DATA LINK tower (VHF ATIS only)
Saskatoon	Quebec City	Sault St. Marie
Thunder Bay	Gander	St-Hubert
Regina	St. John's	Sudbury
Vancouver	Dorval	Waterloo
Calgary	Edmonton Int.	Edmonton City Centre
Toronto (Pearson)	Moncton	Buttonville (Deferred to FY 04/05)
Ottawa	Victoria	Toronto City Centre (planned January 2004)
Halifax	Mirabel	London (planned February 2004)
Winnipeg	Kelowna	
Hamilton	Abbotsford	

Contact: Joe Clapp, Manager, Communications & Facilities, (613) 248-7240. ▲

Aviation Weather Web Site (AWWS) - Update

Since the launch of the new weather web site in August 2001, the number of daily site visits has increased from approximately 2,100 to over 22,600. NOTAM information has been available on the internet since January 2003. Request for NOTAM information averages 4000 requests per day. As part of the ongoing evolution of AWWS, the on-line file-a-flight-plan service is now undergoing operational BETA testing, and is expected to be fully operational by March 2004. Other future plans include the gradual addition of the following features over the next one-to-five years:

- improve the VFR/IFR “dot plot” displays by developing a “mouse over” display of TAFs or METARs;
- add atmospheric vertical sounding data (tephigrams) for the use of glider pilots;
- add colour imagery from Remote Video Acquisition System (RVAS) weather cameras;
- add the ability for registered users to select a series of forecast products and observations, and save them as a package for subsequent recall;
- add the ability to navigate back from displayed graphics such as the GFA or FD charts without using the browser “back” button;
- add colour satellite imagery, as is found on the Environment Canada public site;
- add looping capability for radar and satellite imagery;
- add a “printer friendly” capability that will correctly orient weather charts and fit them to a single page;
- add some Pacific Coast weather charts produced by the Department of National Defence;
- design a “mouse-over” capability for the GFA, where location names will appear when a user’s mouse cursor touches a reference point;
- add Gander Oceanic SIGMETs and AIREPs;
- develop the capability to download upper wind and temperature information in a format that can be ingested by flight planning software such as Destination Direct or Jeppesen Flight Star;
- design a method to allow book-marking of dynamic web pages;
- design a method to download information to a personal data assistant (PDA);
- provide airport ATIS broadcasts via the web;

The Internet accessible Automated Supplementary Enroute weather Prediction system (ASEP) is expected to become operational in Fall 2004. Through the Aviation Weather Web Site, this system will allow users to select weather predictions derived from Environment Canada’s super computer model of the atmosphere. The predictions will be specific to the user’s route, date/time of the flight (up to 40 hours into the future), and preferred cruising altitude. The ASEP predictions are presented to the user as colour profile (cross section) and plan view (bird’s eye) graphics which are very easy to interpret. Pilot and flight dispatcher users will have access to the ASEP predictions, as will our Flight Information Centre (FIC) weather briefers.

Contact: John Foottit, Manager Aviation Weather Services (613) 563-5603. ▲

Flight Information Centre Project - Update

The Flight Information Centre Project (FIC) is seeing flight information services such as pre-flight weather briefings, flight planning and en-route radio communications centralized across Canada into nine facilities: Halifax, Quebec City, London, Winnipeg, Edmonton, Kamloops, Whitehorse, Yellowknife and North Bay.

In order to ensure consistent service delivery at all times, the FICs are being implemented progressively in three phases. The initial rollout saw FICs established

at Halifax, Quebec and Edmonton; Phase II saw FICs commencing transitions at London in September 2002, Kamloops in December 2002 and Winnipeg in May 2003. Of these six southern FICs, five will have completed service transitions by end of February 2004, with work continuing at the Kamloops FIC until late 2004. The three northern FICs locations were identified during an earlier Northern Service Review, but still require new systems and equipment implementations in order to be brought up to current FIC standards. These implementations are scheduled for 2004-05.

Contact: Carol Adams, General Manager Airport Operations - Flight Information Centres, (613) 248-4080. ▲

Converging Runway Display Aid (CRDA) - Update

CRDA has proven to be a very useful tool in optimizing the use of converging runways and in determining in-trail spacing for aircraft on approach or converging enroute. It has now been implemented in Calgary and Halifax, TCU and Tower and is being used in enroute operations as an In Trail Spacing Aid (ITSA) in Vancouver.

Several enhancements have been made to the CRDA functionality and are included in version 1.10.3 of RSiT. Certification has been completed and site testing began in Vancouver June 21/22. Pending successful completion of the site test, 1.10.3 will be distributed to Edmonton and Winnipeg. Montreal will receive 1.10.3 when French testing is completed, which should be in the near future. Toronto will receive the system when testing with the RDPS 163 cards is completed. Moncton and Gander will not receive RSiT Version 1.10.3, as they have CSiT.

This version of software incorporates a 'Super-Smart' CRDA In-Trail ghosting capability. The previous 'Smart In-Trail Ghosting' feature of CRDA used the wake turbulence classification of the leading aircraft only in order to determine the spacing to be used when projecting the In-Trail ghost images. This version considers the wake classes of both the leading and the trailing aircraft

A new CRDA enroute configuration had been introduced. The enroute configuration 'flattens' all ghosts on to the beta baseline, providing a much better representation of relative spacing between aircraft that are on widely divergent flight paths.

CRDA has also been modified to handle special weight category aircraft, such as the B757 (a special weight category aircraft is one whose wake turbulence characteristics are treated differently depending on whether it is the leading or trailing aircraft in a pair). This change was driven by the fact that there is an increasing number of aircraft that fall into the special weight category class.

Contact: Christine Guerin, Manager ATM Service Design, (613) 248-3921. ▲

Part II: Procedures

Conflict Alert (CA) - Update

Conflict Alert (CA) is functionality within RDPS that is designed to provide the controller with sufficient advance warning to avoid a potential mid-air collision. As the CA system provides critical safety alerting, exhaustive testing has taken place both at the TSC and in the field to ensure that the system functions as required while nuisance alarms are minimized. Over the past year, the software has been modified to incorporate design changes indicated by operational trials in Moncton and Toronto as well as to implement alerting capability in RVSM airspace.

Conflict Alert functionality is now operational in high-level airspace controlled by Gander, Moncton, Winnipeg, Toronto, Montreal and Vancouver ACCs and in all airspace above 14,000 feet at Edmonton ACC. The plan is to implement Conflict Alert in all applicable enroute airspace above 14,000 feet by the end of FY 03/04.

Contact: Lanny Beischer, Manager, Surveillance Systems, (613) 248-7227. ▲

Flight Management Systems (FMS) & Area Navigation (RNAV) Standard Arrival/Departure Routes (STARs & SIDs) - Update

There are currently forty published RNAV STAR procedures in Canada with two more for Hamilton being published effective February 19, 2004. Along with the new Hamilton RNAV STAR procedures, two RNAV (GPS) approaches are also being published for runways 06 and 24. This will be the first time that aircraft flying a STAR will be able to transition to an approach that does not rely on ground-based navigational aids.

To ensure for a high quality assurance system, a RNAV Review Committee has been established which looks at any new RNAV procedures or revisions to a procedure. This committee, comprised of members from the Aeronautical Information Services (NAV CANADA), Transport Canada, Air Canada, air traffic controllers and Airspace & Procedures looks at the design criteria, legality, flyability and air traffic control procedures surrounding the change.

The RNAV SID trial that was scheduled for Ottawa has been put on hold pending the relocation of Ottawa TCU to Montreal. New SID trials will be coordinated for Halifax. Also established is a Greater Toronto Airports Authority RNAV SID Working Group. On the working group are members from GTAA, TC, Air Canada and NAV CANADA who will look into the development and implementation of SID procedures for Toronto's LBPIA.

Contact: Doug Buchanan, Manager, Airport & Terminal Operational Procedures, (613) 563-5554. ▲

RVSM IN SOUTHERN DOMESTIC AIRSPACE (SDRVSM) – Update

The implementation of SDRVSM in Canada, DRVSM in the USA, MRVSM in Mexico and RVSM throughout the Caribbean and South America is scheduled for 09:01 UTC January 20, 2005. The expansion of RVSM throughout the Americas from the North Pole to the South Pole will be a significant step in the global

implementation and will bridge the current RVSM environments of the Atlantic and Pacific Regions.

RVSM airspace is exclusionary, and aircraft and operators that have not received RVSM approval from their responsible State authority, with limited exceptions, will not be permitted to operate in RVSM airspace.

To support aircraft height keeping performance monitoring, two ground based systems, one in the vicinity of Ottawa, ON, the second in the vicinity of Lethbridge, AB, are scheduled to be operational in October/November 2004. Pending the installation of these systems, aircraft height-keeping performance monitoring, using GPS based height monitoring units (GMU), is available from:

ARINC, Annapolis, MD.
Contact point:
RVSM Ops Center
Tel: 410 266 4707
Email rvsmops@arinc.com

CSSI Inc. Washington, DC.
Contact Point:
RVSM Monitoring
Tel: 202 863 2175
Email monitor@cssiinc.com

Transport Canada's CBAAC 0186 outlines the process for obtaining RVSM Operations Specification approval and may be downloaded from the TC website <[http://www.tc.gc.ca/Civil Aviation/circulars/menu.htm](http://www.tc.gc.ca/Civil%20Aviation/circulars/menu.htm)>

Guidance Material on the Approval of Operators/Aircraft for RVSM Operations (91-RVSM) and other relevant documentation on SDRVSM are posted on the NAV CANADA web site www.navcanada.ca under "Service Projects- RVSM"

Operators intending to operate in RVSM airspace that do not have aircraft and operator approval, are urged to start the RVSM authorization process with Transport Canada as soon as possible.

The National Operations Centre (NOC) is working with the FAA ATC Command Center to develop Traffic Management Strategies. The NOC is also addressing the process for coordinating approvals of a limited number of aircraft/operators, such as state aircraft and humanitarian flights, that are exempt from the RVSM approval requirements and will operate in RVSM airspace.

The North American RVSM Implementation Group (tri-lateral, NAV CANADA, Mexico and the FAA) held its first meeting December 2-45, 2003. The meeting addressed issues common to the concurrent implementation of RVSM by the three states, with ongoing issues being resolved through bi-lateral meetings. The next meeting of the Group will be held in Ottawa in May 2004.

Recent Project activities include: Fast Time Simulations of Toronto traffic by the ATM Service Design Simulation Centre in support of Sector delimitation under an RVSM environment; resolution of airspace interface issues / inter facility Agreements between FAA ARTCCs and adjacent NAV CANADA ACCs, and discussions with the FAA concerning procurement and development of Agreements related to ground-based height monitoring systems.

The Project Office has scheduled a meeting for February 16-17, 2004 with ACC operations and training representatives to address /finalize RVSM procedures, and a national SDRVSM training plan. This will enable the ACCs to develop both classroom and simulation training modules over the coming months for delivery in the fall of 2004.

Contact: Don MacKeigan, SDRVSM Project Manager, (613) 563-5678 or mackeid@navcanada.ca ▲

SatNav – Wide Area Augmentation System (WAAS) in Canada

As described in the Summer and Fall 2003 TechWatch Bulletins, the U.S. Federal Aviation Administration (FAA) commissioned WAAS on July 10, 2003, and WAAS signals already cover much of Canada.

NAV CANADA continued its work with the FAA through the end of the year to develop the details of an agreement to host three WAAS stations in Winnipeg, Goose Bay and Gander to boost performance in the USA (and in eastern Canada), and a fourth station in Iqaluit to improve coverage in Quebec and Labrador. Technical, cost-sharing and legal issues have been resolved, and we expect the agreement will be signed around the end of January 2004. The plan is to start installing the stations in early 2005, and to start providing WAAS-based service in Canada in late 2005.

One of the keys to providing service is a WAAS NOTAM system. NAV CANADA is working with the FAA's Volpe Center on concepts and the development of the details of system operation. NAV CANADA continues to work with Transport Canada on the regulatory aspects of WAAS operations.

Contact: Ross Bowie, SatNav Program Manager, (613) 563-5648 or bowier@navcanada.ca. ▲