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PART I: SYSTEMS, EQUIPMENT AND FACILITIES

GAATS (Gander automated Air Traffic System) - Update

Phase 3 of the North Atlantic (NAT) CPDLC Trials began 16th December 2003 in Canadian and UK oceanic airspace. Speed and level clearances are now being

issued via CPDLC and the reaction from the pilot and controller community has been very positive.

Work is progressing on a project to add ADS functionality to GAATS. This will allow the controller to request on-demand position reports, periodic position reports, and to establish vertical or lateral deviation contracts, etc. The first phase of implementation will replace the centralized waypoint reporting (CADS) functionality currently provided by ARINC. The first phase is scheduled to be implemented this summer and will result in significant financial savings for Nav Canada. Full ADS functionality is scheduled for implementation in fall 2004.

New separation algorithm software is currently in the final phase of development. This is a high priority item and will be implemented as soon as practicable.

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. Once implemented, the current controller to controller telephone co-ordination will be reduced. Other states have recently implemented this capability and testing is ongoing with New York and Reykjavik, as higher priority initiatives permit. An operational trial between Reykjavik and Gander is tentatively scheduled to begin in May, with the intention of full implementation prior to July. Implementation with New York is planned for later this fall.

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 Northern Radar Project began in 1999 with the decision to acquire a radar facility for Yellowknife following a cost-benefits analysis. Since then, 4 additional sites have been added to increase the radar coverage in Canadian airspace, where the numbers justified such acquisitions. Kuujuaq, Iqaluit, La Ronge and Chisasibi are now fully operational. Stony Rapids (SK), the last site in this phase of radar acquisition, is in the final phase of testing. This facility should be in full operational use in June 04. In addition to these new sites, the Brisay radar facility has been upgraded to this new technology. A complete training radar was also acquired as part of this project for NCTI, and a one-channel maintenance and testing facility was purchased for the Technical System Centre in Ottawa.

NAV CANADA is conducting a Business Case Analysis to examine and compare the benefits and costs of using either radar or ADS-B “out” to improve flight profiles for air traffic routinely traversing the Hudson Bay area. ADS-B “out” refers to the broadcast of Global Positioning System (GPS) derived position data from aircraft equipped with an enhanced Mode-S transponder, GPS and Extended Squitter. The benefits were determined in collaboration with the major customers operating in this airspace and with air traffic controllers with extensive experience controlling this traffic. Results of the analysis are expected in May 2004.

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 added to Montreal and Ottawa in the near future. Plans are underway to expand PDC service to SITA subscribers, and to upgrade to the 623 communications protocol.

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. 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 antenna. The Vancouver ASDE was commissioned on 05 September 2003. The Calgary system has been successfully installed, with Systems Acceptance Testing (SAT) completed in October. Work continues on fine tuning the radar during snow conditions. 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 begins April 16. Operational Readiness Demonstration is set to begin in early June. Ottawa will be the next system to be replaced following Dorval, with Phase 1 (RDP) completed in early July 2004, followed by antennae and tx/rx being replaced in late August/early September 2004. Following the Ottawa installation will be Quebec City, with the new system installed by early November.

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	June 2004	June 2004
Edmonton (for Calgary)	May 2005	November 2005
Vancouver Surrey	July 2004	Richmond/Surrey Move

Oct/Nov 2004

Vancouver Richmond

SASS will not be installed in Richmond due to workload and the planned move to Surrey.

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.

Seventy-seven (77) sites across the country now have kiosks, only Quesnel PIK remain to be installed due to renovations.

A contract was awarded for the procurement of eighty-one (81) PIK units. American weather information can now be accessed through the PIK via a link to the FAA. Seventeen recent installations have been completed. The final installations that complete the project schedule are listed below. Sites that have received their PIK units recently include;

Ottawa Aviation services installed February 9th
Rockcliffe Flying Club installed February 10th
Peterborough installed February 12th.
Dryden installed February 19th

Quesnel will receive their PIK unit in May 2004.

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, Edmonton, Halifax and Winnipeg FICs are now operational. 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 REMARK, 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	Moncton	Toronto City Centre
(Pearson)	Victoria	London
Ottawa	Mirabel	
Halifax	Kelowna	Buttonville (Deferred to FY 04/05)
Winnipeg	Abbotsford	
Hamilton		

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

Aviation Weather Web Site (AWWS) - Update

The Aviation Weather Web Site continues to draw increased user activity as updates and more new features are added to the site. Upcoming improvements include the planned Internet Flight planning System (IFS) enhancement, which will allow users to file their flight plans on-line. The IFS is now undergoing operational BETA testing and is expected to be fully operational by May 2004.

Another new service planned for release in August 2004, is Weather Mail (Wx Mail), which will allow registered users to automatically receive an email delivery of weather information from their "My Wx Data" folder, directly to their personal email account, on days and at times (up to 5 times per day), of their choosing.

Internet Flight Planning Service (IFS) has been undergoing BETA testing since March 2004. The results are encouraging and the system has been well received by our stakeholders and operational personnel alike. We have begun testing with the other operational units and are looking for a national release in early May 2004.

Other plans for future improvements over the next one-to-five years include:

- 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;

It is expected that the internet accessible Automated Supplementary Enroute weather Prediction system (ASEP) will become operational on AWWWS in late Fall 2004. ASEP 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 third phase, involving the three northern FICs, is progressing slowly with an anticipated Fall 2006 timeframe completion of North Bay FIC, with the others to follow. The work involved for the final three FICs is primarily the installation of new systems and equipment in order to be brought up to current FIC standards.

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.

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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 all airspace above 14,000 feet controlled by Gander, Moncton, Winnipeg, Toronto, Montreal, Edmonton and Vancouver ACCs with the exception of the designated suppress areas.

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 including the recently published charts for Hamilton. With the new Hamilton RNAV STAR procedures, two RNAV (GPS) approaches have also been published for runways 06 and 24. For the first time in Canada 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 procedure or revisions to any current procedure. This committee, comprised of members from the Aeronautical Information Services (NAV CANADA), Transport Canada, Air Canada, air traffic controllers and Airspace & Procedures reviews the design criteria, legality, flyability and air traffic control procedures surrounding the change.

Two new RNAV SID procedures for GPS equipped aircraft will be trialed for Montreal's Pierre-Elliott-Trudeau International airport starting in May this year. These procedures will serve runways 06L, 06R and 10. The tentative publishing date for the procedures will be for August 2004.

The RNAV SID trial that was scheduled for Ottawa has been put on hold pending the relocation of Ottawa TCU to Montreal ACC. New SID trials are being coordinated for Halifax. Also established is a Greater Toronto Airports Authority RNAV SID Working Group chaired by NAV CANADA. 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.

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 within designated RVSM airspace.

Transport Canada's CBAAC 0226 (issued 2004. 03.19. supersedes and replaces CBAAC 0186) outlines the process for obtaining RVSM Operations Specification approval, including height-keeping performance monitoring, and may be downloaded from the TC Web site at: tcinfo/civilaviation/commerce/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"

Aircraft height keeping performance monitoring, can be accomplished by over-flight of a ground based monitoring system or use of a Global Positioning System (GPS) Monitoring Unit (GMU). If convenient, aircraft can overfly the Gander HMU (see AIP RAC 12.16.9). Two additional 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.

GMU aircraft height-keeping performance monitoring is available on a commercial basis 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

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 North American RVSM Implementation Group (NARIG), a tri-lateral Canadian, Mexican and USA Group is scheduled to meet in Ottawa May 11- 13, 2004. This second meeting of the Group, in addition to addressing the wider issue of tri-lateral implementation, will serve as an update/ interim readiness assessment of the RVSM programs in the respective states concerned. The interim readiness assessment will review progress to date on the RVSM elements that will be considered in the GO/Delay Decision, to be taken in September 2004.

SDRVSM current activities include:

Concluding Agreements with the FAA with respect to procurement and operation of ground based height-keeping performance monitoring systems, and ongoing monitoring of North American RVSM operations;

The ACCs and NOC are developing Unit specific RVSM Training Programs for controller and operations support staff;

The ATM Service Design Simulation Centre, in conjunction with Toronto and Montreal ACCs, is conducting both Fast Time and Real Time simulations to support sectorization delimitation in an RVSM environment in the airspace concerned; and

Bi-lateral discussions are ongoing with the FAA addressing commonality in both ATC and Pilot procedures, in support of a transparent interface at the common Canadian – US airspace boundary.

The following documents have been placed on the NAV CANADA RVSM web site: SDRVSM Implementation Plan; SDRVSM Guidance Material; AIC 1 /04; and CBAAC 0226.

The following documents have been superseded and removed from the RVSM web site:

SDRVSM Operational Concept, AIC 9/02, and CBAAC 0186.

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

SatNav – Wide Area Augmentation System (WAAS) in Canada

As described in previous 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 winter 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 in May 2004. Adjustments to the FAA's budget now mean that the stations will be fielded in stages: Goose Bay and Gander in 2005, followed by Winnipeg and Iqaluit in 2006. This will provide for maximum expansion of coverage across eastern Canada in the first phase. Installation of the stations in Winnipeg and Gander Area Control Centres will be quite straightforward, whereas the stations in Goose Bay and Iqaluit will require more site preparation work and the use of satellite communications to relay WAAS input data to master stations in the USA. Potential SatCom service providers are being evaluated for technical compliance and cost effectiveness. During the winter, NAV CANADA and FAA engineers and technologists visited Goose Bay and Iqaluit to confirm technical details. Site preparation planning is under way to ensure that the sites will be ready for equipment fielding. After fielding and commissioning each site, the site data will be logged and validated by a "shadow system" for 6-9 months prior to integration into the operational WAAS.

The plan is to start providing WAAS-based service in western Canada in late 2005 and eastern Canada in early 2006. The benefits from Winnipeg and Iqaluit stations will be realised in late 2006 when the stations are integrated into the WAAS network.

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 must also develop the means of importing WAAS status data, necessary for generation of WAAS NOTAMS, and a method of distributing Canadian WAAS NOTAMS. 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 ▲

