CNS/ATM Focus Team Advanced Navigation Focal Group
Teleconference, Friday August 21, 1998, 0700-0800 PDT

Participants
ACN: Brian Harkness (ANFG Team Leader)
NWA: Frank Alexander
Boeing: Roger Nicholson, Dave Nakamura, John Ackland, Ed Porisch, Kathleen Pirotte

Near-Term Goal
Have preliminary cost/benefits analysis of value of new procedures for today's navigation capabilities done for SFO meeting in November.

Plans
1. Define type of operation under analysis (use Air Canada's definition for starters)
2. Talk to airlines for cost/benefits estimates: NW, Air Canada, Lufthansa, US Air, MITRE, NASA, Continental
3. Get FAA and Eurocontrol help for infrastructure costs
4. Identify Risks

Actions
Pirotte & Nicholson. Assemble list of navigation capacity enhancement studies, and extract benefit data. Call upon: FAA (Fujisaki), Eurocontrol (Rawlings/Makins/Reid), Northwest (Alexander, Minneapolis FMS tracks and ongoing UPT trials), Air Canada (Harkness, RNAV data on free flow trials, Toronto), USAir (Detroit, Boston?), Lufthansa (Frankfurt studies), Continental (Houston), Mitre, NASA (CTAS benefit analysis report), etc.

Meeting Details
The teleconference was based upon Navigation Services document developed following the previous ANFG (June 23, 1998) meeting and emailed to CAFT ANFG and Core group members.

There was general discussion on navigation issues, terminal area operations, institutional issues, labor (pilots and controllers) - training and acceptance, ATM and EFM tools, user fees, and so on. Also, navigation capability may not be installed based on operational enhancements, for example, GPS may be installed as part of Enhanced GPWS, and not to obtain RNP capability.

The group resolved to focus on system throughput / capacity enhancements using existing navigation capability (keeping pressure on the runway - airlines want to keep airplanes moving through the system).

ANFG will perform benefit analysis based on existing FMS/RNAV navigation capability (i.e., inertial DME/DME, without GPS/RNP) with emphasis on the terminal area. Refer to RTCA/DO-236 MASPS: RNP for RNAV (SC 181, January 27, 1997) Appendix D, RNP RNAV assessment criteria for existing aircraft. Currently, Boeing (and Airbus?) aircraft are not RNP certified without GPS. For initial departure operational phase, will need to assume TOGA update to runway threshold or quick inertial alignment just prior to takeoff. Operations in radar environment will be assumed to provide equivalent integrity for the assumed RNP levels (in certified RNP capability GPS/RAIM and the FMS provide integrity). The group also noted that some airlines may not have RNAV capability due to limitations in their Flight Planning Systems.

The group also discussed time synchronization for non-GPS equipped aircraft (GPS provides UTC, or a universal coordinated time standard). Procedural methods can be used such as those employed for North Atlantic operations using a VHF time source, or other time sources such as ACARS (many airline fleets have ACARS, whose time is readily available to the flight deck). The group resolved to use existing time sources and time requirements.

The ANFG analysis will be conducted independent of unpredictable risk (such as political issues). Some of the FMS/RNAV work is related to environmental issues (noise, and the ability to fly predictable, precise tracks).

Brian Harkness, Air Canada, tel 905-676-4710, fax 905-676-4440, email bharkness@aircanada.ca

Roger Nicholson, Boeing, tel 425-717-1520, fax 425-717-1191, email roger.nicholson@boeing.com