

A viation technology is set to undergo revolutionary changes in the next few years. The basic communications, navigation and surveillance (CNS) system for civil aviation in use today throughout the world is, according to ICAO, "the one implemented in the late 1940s, with periodic upgrades and enhancements over the years."

A little over a decade ago, a **Special Committee on Future Air Navigation Systems (FANS)**, established by the Organization, found the need to change from the current ground-based systems to the use of satellite technology.

Since then, one of ICAO's most significant achievements has been the development of such a satellite-based system concept to meet the future communications, navigation, surveillance/air traffic management (CNS/ATM)* needs of civil aviation.

In essence, it involves the application of today's high technologies in satellites and computers, data links and advanced flight deck avionics, to cope with tomorrow's growing operational needs. It will make obsolete much of today's expensive ground-based equipment, which uses line-of-sight technology and has inherent limitations.

But it is not these characteristics that make it a new frontier for aviation. It will be its impact as an integrated global system with consequential changes to the way air traffic services are organized and operated.

* Communications, Navigation, Surveillance and Air Traffic Management System

SATELLITE TECHNOLOGY MARKS A NEW FRONTIER FOR AVIATION

With the new system, communications with aircraft for both voice and data, except for polar regions, will be by direct aircraft-to-satellite links and thence to air traffic control (ATC) centres via a satellite ground earth station and ground-ground communications network.

In terminal areas, where line of sight communication limitations are not a problem, very high frequency (VHF) communications automated with data link and secondary

surveillance radar (SSR) Mode S data link will be used.

In order to build flexibility into the system, the Committee created for navigation purposes, the concept of RNP, or required navigation performance. RNP specifies the performance of the system and leaves the selection of equipment to aircraft operators.

The CNS/ATM systems concept, which has received the endorsement



JAL's MD-11 features CMA-2102 High-Gain Satcom Antenna from Canadian Marconi.