

# SATELLITES SET TO REVOLUTIONIZE AIRCRAFT NAVIGATION WORLDWIDE

**T**hey orbit our world like man-made stars 11,000 miles out in the inky blackness of space. And like the stars that have traditionally been used for guidance ever since man first set sail to explore the oceans, they herald the dawn of a new era in the traditionally esoteric science of worldwide navigation.

They are the "galaxies" of satellites built by both the United States and the Russian Federation.

Created first and foremost as defense systems, today they are

being evaluated for more peaceful purposes. Namely, to provide civil aviation with the best navigation tool possible, as well as the least expensive design of a foolproof air collision avoidance system.

Both scheduled to be operational circa 1995, they are known respectively as **GPS** (Global Positioning System), comprising 24 satellites launched since 1989 and operational since February 1994, and **GLONASS** (Global Orbiting Navigation Satellite System), of which some 15 are currently in orbit.



Both are high enough above the earth that they can avoid the problems sometimes encountered by land-based systems. And their technology is so accurate that it enables them to give pinpoint positions to within 100 metres anywhere in the world, 24 hours a day, regardless of weather conditions.

As early as 1966, ICAO was acutely aware of the potential use of such satellites for solving aeronautical navigational problems, particularly over oceans and seas, and sparsely populated land masses.

Also over jungles, mountains, and deserts where many of the Organization's Contracting States, particularly the smaller ones, have difficulty installing and maintaining conventional ground-based radar, communications, and navigational aid equipment in such harsh terrain.

In order to fully understand the possible benefits of such technology, however, it should be pointed out that the basic communications, navigation, and surveillance (CNS) systems for civil aviation in use today throughout the world have essentially been in use since the late 1940s.

## TRADITIONAL NAVIGATION

The raison d'être of the Chicago Convention, signed in 1944, was the maintenance of the safety, regularity and efficiency of international civil aviation air services. Central to this has been the establishment of air navigation plans in each region of the world so that flights can enjoy standard air navigation services and facilities anywhere on earth.