

## ILA 8/10 – 2001

Welcome to Saint-Germain-en-Laye, the hometown of IALA. It gives me great pleasure to be here today and give this keynote speech on behalf of IALA.

What I am going to say is not necessarily what you want to hear, but I will try to develop the thoughts we have in IALA and what we will concentrate the next 4 years work program on from 2002-2006 after our Sydney Conference.

The main priorities will be on

- Risk Assessment and Risk Management
- Quality Assurance and certification
- The Environment
- Cost effective utilisation of Resources.

The main area of development is expected to be within VTS and the introduction of AIS.

This will be reflected in the implementation of the IALA Strategic plan and the work plan for our committees of which I expect we will have four, depending on the approval of the IALA Council

The Radio Navigation Committees program will be the Committee with most interest to ILA members; the work plan is based on the following long-range speculation or you could call it future scenario:

### Strategic View

There are manor developments underway in the field of navigation, in particular the third generation satellite systems GPS 3, GLONASS K and Galileo. Although these will not come into operation during the period under consideration they must be borne in mind when planning other systems; they are likely to provide the integrity needed for safety critical applications, as well as enhanced accuracy.

Another development that could directly affect the peiod 2002-2006 is the trend towards integration of systems, both at the provider level and at the user level. This trend is likely to accelerate with the development of “software receivers,” which can accept signals from a variety of sources and a wide range of frequencies and take advantage of low-cost processing power to arrive at combined solutions. Users

may not need to know which system they are using; the receiver will select the best signals and crosscheck to ensure integrity.

Other non-radio navigation position sensors may also be part of the mix: inertial navigation systems such as ring-laser gyros have been too expensive for non military use, but are likely to become more affordable. Geomagnetic positioning is another area under investigation, although still in the research phase.

This prompts the question whether augmentation systems such as radio beacon DGNSS and Eurofix be need in the future. They will certainly be needed in the period under consideration (2002-2006), but in the longer term their continued existence will depend on the value they can add to the unaugmented GNSS. Developments are already underway to improve the accuracy and integrity of DGNSS. This will be one of the main topics in the work program.

The shift towards the multimodal use of radio navigation systems seems to have become a new major trend. It will become less viable to provide positioning systems for a single mode of transport. Except in safety critical operations the use of certified equipment may become less of a requirement. These trends will place a greater burden on the service provider to ensure the inherent safety of their systems and the consequences have to be thoroughly studied and considered.

Integration of systems at the user end could also make demands on the service provider. It will no longer be acceptable for the user to e presented with information on several different displays; there must be data fusion between, for example ECDIS, radar and positioning systems. This fusion must be seamless, unambiguous and reliable. This may mean changes to the input signals, from radio navigation systems, including radar aids to navigation.

There will also be a merging of positioning and communications systems, for example (third generation cellular) is likely to incorporate positioning, either from an external source (GNSS) or using triangulation by base stations. For the land user this is likely to be the main source of position data and it could also be used in a number of maritime positioning applications.

The effect of all these developments may be that aids to navigation authorities become information providers as well as system providers. An example of this is the “intelligent buoy”, carrying not just a light and a racon, but meteorological and hydrographic sensors. There would be fewer of these than conventional buoys, but the service they provide would be greatly enhanced. This may or may not be part of

the AIS development and the method of presenting such information is a matter for investigation, but the subject would be expected to form part of the work program.

The present scenario is not foreign to you. The Radio navigation is today depending mainly on GPS, with GLONAS and other systems also playing a note. The provision from terrestrial systems such as Loran C has been declining and several chains are planned to be close down.

The reasons for this, in my opinion unfortunate, situation is clear. GPS has from the beginning been user friendly with worldwide coverage and it has proved itself to be highly reliable. In addition and perhaps most importantly it has been, up till this moment provided free.

Who can compete with a free system of quality? At the same time the providers of terrestrial services have failed to take care of the user, there are no receivers available, which are really user friendly, multi system, reliable and low price – consequently there are hardly any users of Loran C out there. Who will continue to provide a service with no user? This has been realised and programs for multipurpose receivers are now under development but it could prove to be too little, too late.

CDN, Saudi-Arabia and NELS are doubtful on how to continue or if the system should abandon.

At the same time, Europe seems to go ahead with the Galileo project and thereby providing an additional satellite system.

This is not a promising scenario, in IALA our Radio navigation policy has been as agreed by the Council in 1992, that a terrestrial radio navigation system under national control should be provided as an alternative to the military owned satellite systems. The terrestrial system recommended has always been Loran C. In spite of this clear policy the membership has been reluctant to follow it and a successful coverage with Loran C has not been achieved.

We know that satellites systems have their shortcomings and they are vulnerable to unintended and intended disturbance.

The successful development of the Differential GPS has enhanced the safety, but you cannot be entirely responsible for the provision of somebody else's signal!

Nevertheless, the position fix for ENC, ECDIS and AIS are all based on GPS. This is a great worry for IALA. The newly released VOLPE vulnerability study on GPS does not bring surprise in the content, but it can prove to be a big eye-opener to the responsible politicians and authorities. Who after the Sept. 11<sup>th</sup> events will have to realise that intended jamming is a highly possible risk? This could or must lead to the focal interest being addressed to Loran-C as the logic back-up system to choose. We will have to see.

Your Conference will provide the floor to discuss these things further and as things are developing today, it may be the time for the Conference was chosen exactly right.

I wish you an interesting and fruitful conference.

Thank you.