Draft 2 dated 30 November 2006 - Proposal to the FAI Executive Board in accordance with item at the FAI General Conference October 2006 (Draft 1 was distributed at General Conference)
by Ian Strachan, Chairman IGC GNSS Flight Recorder Approval Committee & UK Delegate to IGC

FAI Technical Commission on Navigation and Airspace

Provisional title: FAI Commission on Navigation and Airspace (CoNA)

1. **Terms of Reference**

1.1 To co-ordinate knowledge and information within and on behalf of FAI on Air Navigation Systems and on Airspace rules, regulations and policy, as they may affect the types of aviation in which FAI is involved.

1.1.1 The term "Navigation" is to be interpreted widely. It includes position and altitude recording and the processing of such data for the validation of flight performances to FAI standards. It includes any potential use of such systems by FAI, its National members and Commissions, for championships, records, certificates of achievement. Also to aid compliance with FAI, National and International rules and procedures for and the avoidance of restricted airspace and other aircraft.

1.1.2 To co-ordinate information on Air Traffic Management (ATM) and Airspace issues as they may affect FAI activities. This includes an International perspective including a study and documentation of relevant rules and procedures so that they can be made available to FAI members. This include those of ICAO and the principal world Aviation Regulatory Bodies such as the European EASA, US FAA and other equivalent bodies. In the European area, fraternal relations with Europe Air Sports (EAS) are to be maintained.

1.1.3 To produce and maintain an information database for use by FAI members on the above and related subjects.

1.2 To make regular reports to General Conference and to other FAI events as necessary.

1.3 To attend conferences and make presentations to and on behalf of FAI where necessary.

1.4 Statutes and By-law procedures for Technical Commissions apply.

2. **Rationale**. Airspace restrictions for sporting aircraft are becoming more critical in many areas where other air traffic is growing. At the same time the accuracy of navigational systems is getting better, particularly those that are based on satellites in earth orbit. Such systems are already in use in many areas of FAI for the recording of evidence for Sporting purposes, but they have wider uses including those in 1.1.1 and 1.1.2 above.

2.1 A knowledge of the technology of navigational and reporting systems such as the future ADS-B system (see below) is needed by FAI. This is so that its members and Associations can be provided with the technical knowledge to liaise, and have credibility with, Air Traffic Management (ATM) bodies, Government Departments and others as appropriate.

2.1.1 This knowledge already exists in several areas within FAI and its air sports and NACs. Such FAI expertise and knowledge is to be co-ordinated by CoNA and produced and formatted with the furtherance of air sports in mind.

Some examples:

3. **ADS-B = Automatic Dependant Surveillance - Broadcast.**

3.1 US FAA - Fact Sheet 2 May 2006, extract: ADS-B is the future of Air Traffic Control. Instead of using radar for aircraft separation, in the future, GPS-based equipment will provide Controllers and pilots with more accurate information that will help keep aircraft safely separated not only in the sky but on runways ... Radar is essentially a product of 1940s World War II technology and … has problems discriminating airplanes from other returns including "clutter".

3.2 Aviation Week Magazine - 27 November 2006 page 10: "ADS-B ground stations are much cheaper to acquire, install and maintain than radar, which is not as accurate. This is one reason why the FAA has decided to go nationwide with ADS-B, so it can de-commission hundreds of secondary surveillance radars .... (*Nations not going this way)* will be stuck with a World War II-era surveillance system while the rest of the world proceeds with satellite navigation."

3.3 Sport Aviation and ADS-B. Many sport aircraft are already carrying, or could carry, GPS-based equipment. The future use of the GPS-based ADS-B system on a worldwide basis opens up the possibility of better relations with Air Traffic authorities and even the possibility of extending the airspace in which sport aircraft can fly. In contrast, radar-based technologies will become obsolete over the next few years. An indication of this is the confirmation to the author by the Chief Scientific Advisor to the US FAA during a meeting in London in October 2006 that the intention of the FAA is to close down their network of expensive Air Traffic radar stations as ADS-B comes on line. This has also been reported in the Public Domain.

5. **Future Satellite systems**. The US GPS system is updated as new satellites are put in orbit and old ones taken off-line. The future European Galileo system will be independent of the US GPS and opens up the possibility of dual receivers of greater accuracy, integrity and redundancy than before. There is also the Russian GLONASS system. Enhancements to basic system accuracy are provided by regional Satellite-Based Augmentation Systems (SBAS). These increase accuracy by monitoring errors at ground stations in the area concerned and making corrections available to compatible receivers. Such systems in service include WAAS (North America) and EGNOS (Europe). Other future SBAS systems include GAGAN (India), MSAS (Japan) and a system for Australia.

7. **In summary** - there is a lot for FAI to monitor and in which to develop expertise, credibility and a co-ordinated approach wherever possible, for our future good. Even, the future survival of air sport in some areas.

Annex: Provisional Glossary of Terms to support the above.
Produced by the Author mainly by combining and editing the existing Glossaries from the General Section of the Sporting Code and the Technical Specification for IGC-approved GNSS Flight Recorders. It needs strengthening with Air Traffic Management terms such as those from ICAO and other sources.
