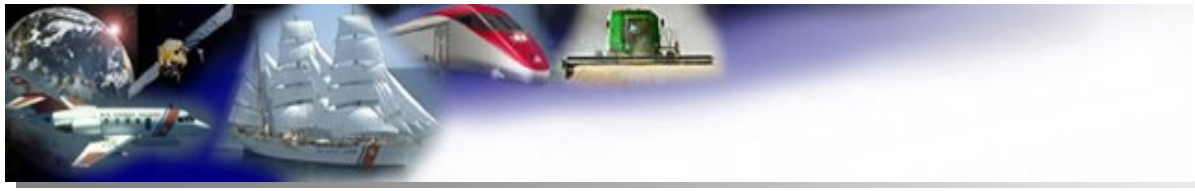
The ICG

Second Workshop on
Satellite Navigation Science and Technology
for Africa

6 - 24 April 2010
Miramare, Trieste, Italy

Ing. Mario Caporale

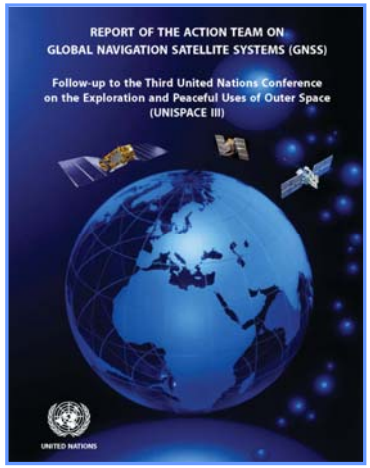


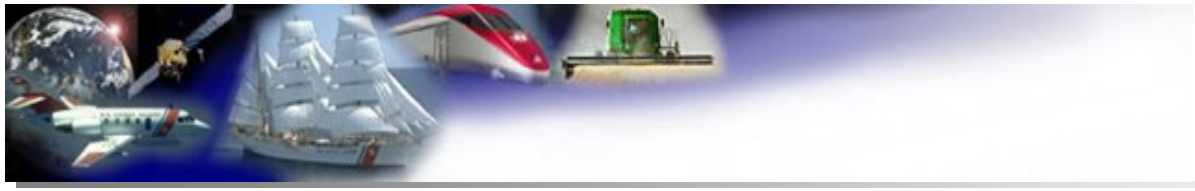
International Committee on Global Navigation Satellite Systems

The International Committee for Satellite Navigation (**ICG - International Committee on GNSS)** is the result of 3 years of works of the COPUOS *(Committee on the Peaceful Uses of Outer Space)* Action Team on Satellite Navigation, based on the *recommendations come out from the UNISPACE III:*

…to improve the efficiency and security of transport, search and rescue, geodesy and other activities by promoting the enhancement of, universal access to and compatibility of space-based navigation and positioning systems.

Report produced by the GNSS Action Team (2004)





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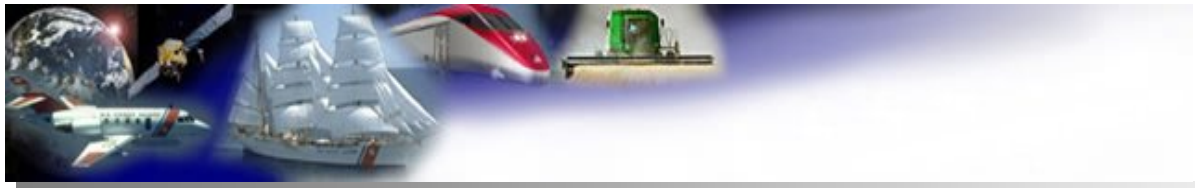
The ICG, is an **autonomous Committee**, established on a **voluntary base**, participated by representatives of **Member States** of the United Nations who have global or regional satellite navigation systems or have started or developed active promotional programmes of satellite navigation applications.

Further, a number of **International Organisations** interested to satellite navigation, participate to the works of the Committee.

The ICG has the aim to favour the compatibility and the interoperability among the various GNSS systems, promoting as well the applications and the actions devoted to protect the satellite navigation frequency spectrum.



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Objectives of the ICG

a) **Benefit users of GNSS** services through consultations among members;

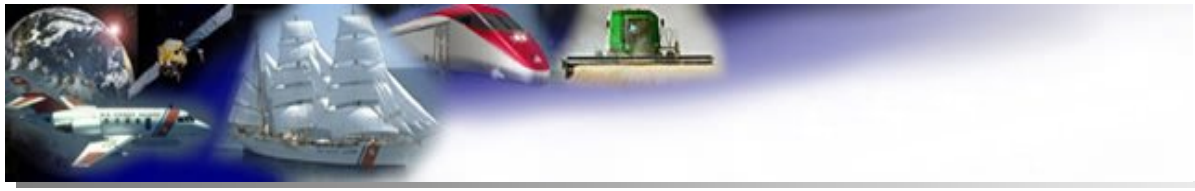
b) **Encourage coordination** among providers of GNSS core systems and augmentations in order to ensure greater compatibility and interoperability;

c) **Encourage and promote the introduction and utilization** of satellite positioning, navigation and timing services, particularly in the developing Countries;

d) Assist both the members of the ICG and the international user community by, inter alia, serving as the **focal point for international information exchange** related to GNSS activities,

e) **Better address future user needs** in the GNSS development plans and applications;

f) **Report periodically** on its activities to the COPUOS.



International Committee on Global Navigation Satellite Systems

The ICG Members are: China, European Union, Untited States, India, Italy, Japan, Russia, Nigeria, Malesya, Emirates. The Associated Members are international organisations such as: ESA, EUPOS, EUREF, FIG, IAG, IGS, CGSIC, ICA, ISPRS, IERS. The Observers are COSPAR, BIPM, IAIN, URSI and ITU.

The United Nation Office OOSA provide Secretariat for the ICG, supporting meetings preparation and conduction and planning activities.

The ICG has formed a **GNSS Service Providers FORUM** and a number of Working Groups, established at the second Assembly held in Bangalore in the period 4 - 7 September 2007.

The Providers FORUM is participated by the GNSS service Providers.
The forum is not a policy-making body, but provides a means to **promote discussion among system providers** on key technical issues and operational concepts such as compatibility and interoperability, protection of GNSS spectrum; orbital debris/orbit deconfliction; and other matters related to the work of the ICG.

The **Working Groups**, which are bodies open to the participation of Experts of the ICG Member States, are mainly focussed on:

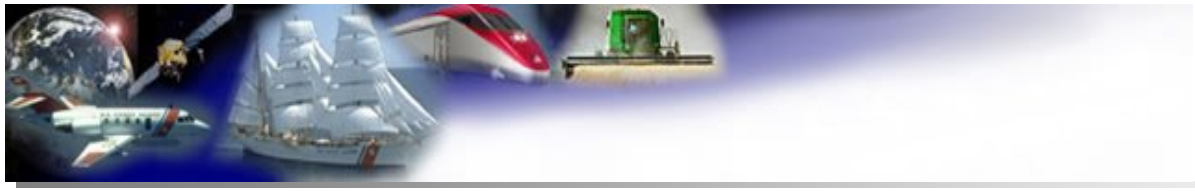
A) – Compatibility & Interoperability

B) – GNSS Services Performance Enhancement

C) – Information Dissemination

D) – Interaction with National and Regional Authorities and relevant International Organisations

The ICG further agreed to establish a **Task Force on Geodetic References** and a **Task Force on Time References** to consider improvements based on closer alignments of those key parameters



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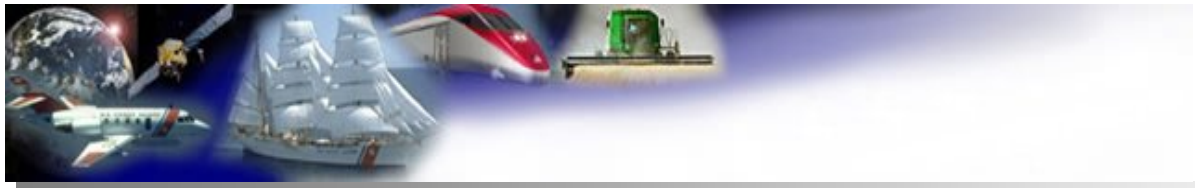
GNSS providers are aware that GNSS represent critical infrastructures that can reinforce a nation's political leadership at the global level.

At the same time, however, GNSS supports commercial industries and markets that continue to grow even in the current economically challenged conditions. Participating in those markets requires an essential compatibility with a common technical standard.

It was agreed on the following language:

"Compatibility should also respect spectral separation between each system's authorized service signals and other systems' signals. Recognizing that some signal overlap may be unavoidable, discussions among providers concerned will establish the framework for determining a mutually acceptable solution."



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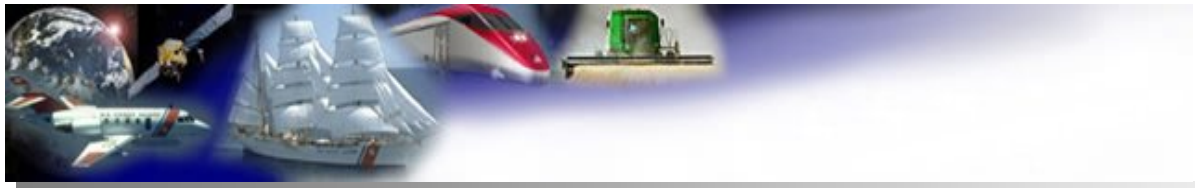
Interoperability posed an even more complex challenge.

Technical characteristics related to interoperability:

These include **common time and reference frames** or broadcast of the offsets between systems, **common carrier frequencies**, similar spreading **modulation spectra**, **common minimum and maximum power levels**, common **spreading code lengths and common code family**, and **common data message structure and encoding**.

“Geodetic reference frames realization and system time steerage standards should adhere to existing international standards to the maximum extent practical.”

The ICG also acknowledged the benefits of multiple constellation in providing improved accuracy and availability of PNT services.



The ICG Assemblies agreed that the Regional Centres for Space Science and Technology Education, affiliated with the United Nations, would act as ICG Information Centres in the future.

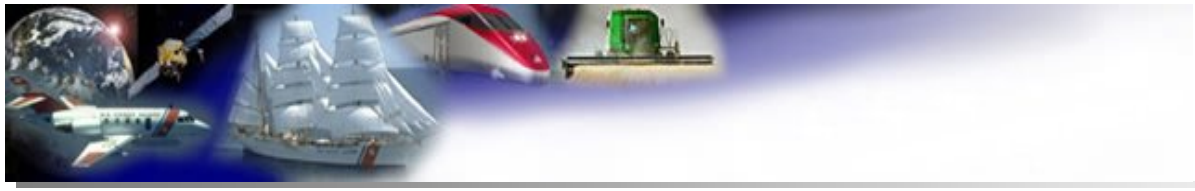
2006: First Meeting of the ICG, Vienna, December 2006

2007: Second Meeting of the ICG, Bangalore, India September 2007

2008: Third Meeting of the ICG, Pasadena, USA, December 2008

2009: Fourth Meeting of the ICG, Saint Petersburg, Russian Federation, 14 – 18 September 2009

2010: Italy and European Community to jointly host the Fifth meeting of the ICG - Turin 17-22 October 2010



International Committee on Global Navigation Satellite Systems

Web: http://www.icgsecretariat.org

Secretariat of the ICG

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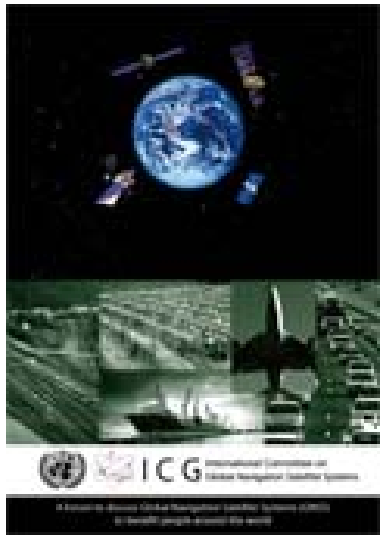


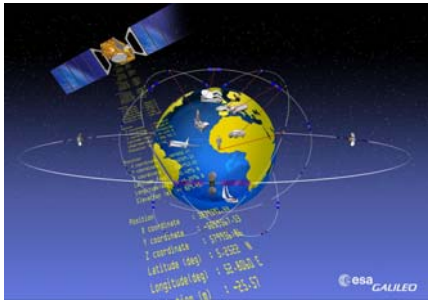
ASI role in Satellite Navigation

The Italian Space Agency:

- Fund EGNOS and GALILEO projects (one of the four European Members States major funders)

- Take part in the GALILEO & EGNOS European Management Boards and Technical Control Bodies

- Promote and develop National Application Projects aimed to foster the use of satellite navigation, armonizing them with Europea Projects



The National Application projects

Maritime Trasport (SESTANTE)

Dangerous Goods Trasport (DANGER)

Civil Aviation Trasport (SENECA)

National Space Plan 2003-2005

Disable People Support (NADIA)

Road Traffic and Infomobility (INFOSAT)

National Space Plan 2006-2008

Security of Territory and Citizen (PRESAGO)

Software Radio satellite navigation receivers (SWAN)

GALILEO TEST RANGE (GTR)

National Space Plan 2006-2008