

THE ROLE OF THE NON GNSS SYSTEMS PROVIDERS

20TH. PNT Advisory Board Meeting

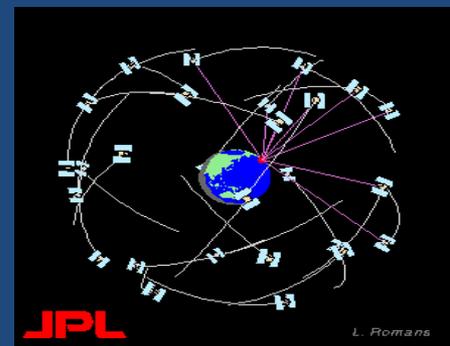
Nov.15-16, 2017

- Crowne Plaza Redondo Beach, California

Refaat Rashad



Preface



- Throughout the world, the GNSS signals are offered free of charge to the end user independent of where they operated
- Over the past three decades, GPS has grown into a global utility providing multi-use services that are integral to security, economic growth, transportation safety, and research and development that are an essential element of the worldwide economic infrastructure

- GPS is “America’s gift to the world
- GNSS is the Providers Soft Velvet Power Across the World

The Benefits of GNSS



- The benefits of the GNSS are all around us, contributing to the economic growth, trade, and productivity of many -countries.
- Promoting safety, efficient, effective and increased transportation capacity and speed up rescue operations and unlimited capabilities to support many nations needs.
- It is a formidable instrument for time-stamping financial transactions.
- Facilitating the social activities, the communication networks and strengthen the security measures.

- **Transport**, Road, Rail, Air, and Maritime
- **Location** Based Services
- **Mapping** and Surveying,
- **Emergency**, Security, and Humanitarian Services,
- **Science**, Environment, and Weather,
- **Fisheries** and precise Agriculture,
- **Civil** Engineering,
- **Crucial** Time Reference Function,
- **Energy** and power distribution

GNSS Applications

***GNSS has become the invisible public
utility,
It is hard to go without it***

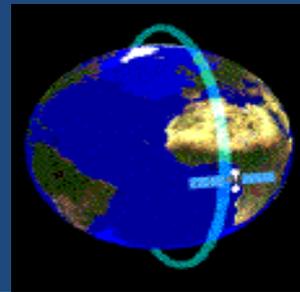
THE COST OF PROVIDING THE GNSS

- The cost of R&D
- The cost of Building up
- The cost Experiments, the Trail and Errors
- The cost of Fail and Success
- The social cost of the Tax Payers
- The cost of Implementation and Administration
- The cost of maintaining the system Efficient Effective, Available, and providing the needs of the End Users,
- And above all, the cost a long history of quality education
- etc...etc.....

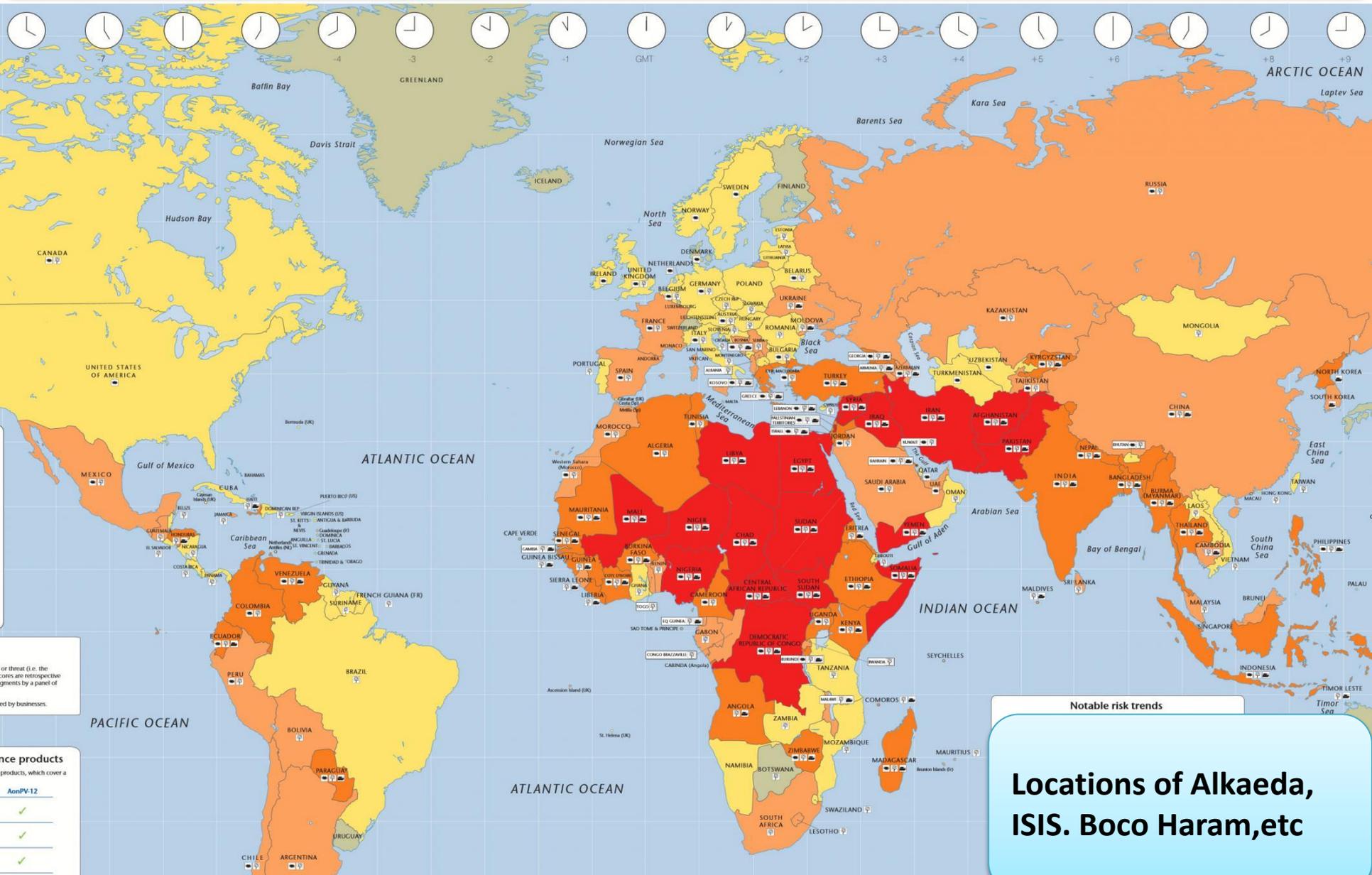
The Commitments of the Providers

- To maintain system integrity, reliability, spectrum availability, signal coverage, signal strength, signal propagation, signal continuity, signal acquisition and tracking continuity, ensuring, efficient, effective, and resilient PNT independent sources.

What are The Commitments of the Non-Providers



Interferences Jamming / Spoofing on GNSS



The Non developing countries may unaware of GNSS vulnerabilities.

Even when they are, they are not willing to invest in more expensive equipment to reduce their threat of disruption. And reluctant to implement the IDM concept.

What do we expect from the Non-Providers?

- They should contribute to maintain the GNSS signals clean, un-contaminated by Interferences, Jamming or Spoofing and provide the necessary equipment to protect the signals. (does it cost ?)
- Set local measures and enforce regulations to seal trading or the use of interference devices, and have a plan for IDM in their respective countries

To what extent the Non-Providers may
cooperate

- 1-Voluntarily, cooperate in protecting the GNSS signals.
- 2-The providers may schedule a Bilateral Memorandum of understanding and Dialogues program with the non-providers, regarding the IDM and the related information exchange
- 3-Urge the International Organizations to take a significant action in this respect with their member states
- 4-Launch an excessive awareness and education program for the non- providers focus on the cost/ benefits of GNSS and signals protection

International Organizations

ICAO, IMO, ITU, IALA, IHO, and UNOOSA have an crucial course to play with their member states in protection of the GNSS signals in their specific domains and enhance the Interference Detection and Mitigation.

*They may request their member states to provide a National Radio-navigation Plan (NRP) to show the use of the GNSS and the necessary measures for the Interference Detection and Mitigation
IDM*

The Good of the GNSS Signals

- Extremely Useful
- Free Charges



The Bad of the GNSS Signals

- Extremely weak
- Extremely vulnerable



The Ugly of the GNSS

- If Not Able to
Maintain
If Not Able to
Protect



* Conclusion

The Non System Providers have Unprecedented Opportunities to Capitalize on the free use of the GNSS

Maintain

Protect

Mitigate

Educate

A stylized world map in shades of blue and white is positioned at the top. Below it, a 3D globe with a grid pattern is shown. The background features a blue wave-like graphic.

Providing GNSS or Not.

Protect The Signals

Thank You!

