Developing Countries' Perspectives on Implementation Strategies

by
Adigun Ade ABIODUN

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OUTLINE

- Revisiting the Guidelines
- The missing contributions of the developing countries at the S&T level
- Incentives for the developing countries to comply with the guidelines
- Minimum actions by the developing countries
- The Space powers and the industrialised countries – The need to be real.

Revisiting the Guidelines (1)

1: Limit debris released during normal operations

2: Minimize the potential for break-ups during operational phases

3: Limit the probability of accidental collision in orbit

4: Avoid intentional destruction and other harmful activities

5: Minimize potential for post-mission break-ups resulting from stored energy

Revisiting the Guidelines (2)

1. **The Guidelines are in the interest of all. Hence, both the IADC and COPUOS deserve much congratulations for the efforts and collaboration that led to their development and adoption.**
2. **It is a sound technical document that warrants international support which would readily come if it is given an appropriate legal backing – Hence, due consideration should be given to either a new convention or a revisit of the Liability Convention.**

Revisiting the Guidelines (3)

- **Guideline 4 is simply an anomaly that needs further elaboration by legal experts, taking into consideration (a)*The Space Treaty, and (b)The Liability Convention.***

- **Because most of the developing countries are not space faring nations, they lack the national mechanism to implement the space debris mitigation practices and procedures highly articulated in the guidelines.**

The missing contributions of the developing countries at the S&T level

- The establishment of COPUOS and all its major activities, including UN-SAP, UN-SPIDER;
- The Organisation of First UNISPACE in 1968, UNISPACE-82 in 1982, and UNISPACE III in 1999
- All became realities as a result of the initiatives of and pressures from the developing countries.
- Question - Why was it not feasible to involve a number of critical developing countries in IADC?

Incentives for the developing countries to comply with the guidelines (1)

1. Safety and security - They are sitting targets from space debris generated by nations with space assets – Most already had a space debris experience. Examples include

- Republic of South Africa in 2000
- Fiji in 2001
- Countries within the equatorial belt in April 2003, The Equatorial countries; and
- Chilean Airline (Lan Chile) in 2007

Examples of man-made space objects that re-entered South Africa

- USA's Delta rocket debris that survived re-entry in April 2000, and landed in South Africa.
- Such objects can hit a person, a home or homes, mobile or immobile objects including buildings, stationary or moving vehicles and aircraft. Should the falling debris carry enough heat, it can also initiate a conflagration, particularly in an oil field or create radiation hazards if it is nuclear-powered.

Trajectory of Delta second stage reentr
which left debris in South Afric

Recovered Delta second stage propellant tank

Recovered Thrust chamber

Recovered Pressure sphere

Space Debris in the Developing Countries (Fiji)

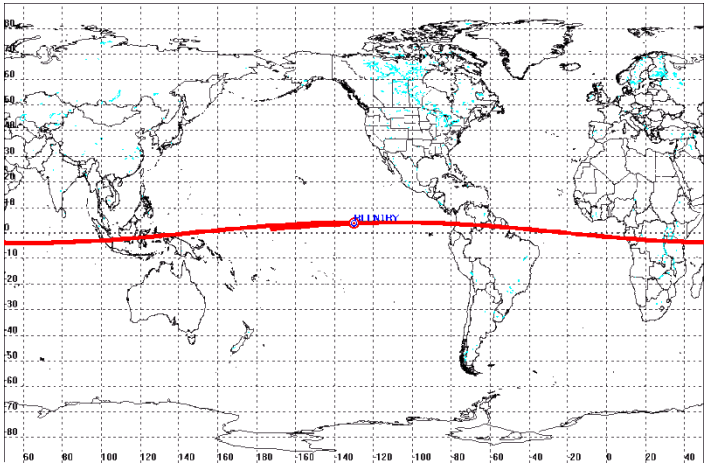
Pieces of the Russian space station Mir race across the sky above Fiji as it makes its descent into the earth's atmosphere March 23, 2001. Mir plunged to earth after Russian Mission Control fired engines to nudge it out of the orbit it has kept for 15 years

Space Debris Experience along the Equator

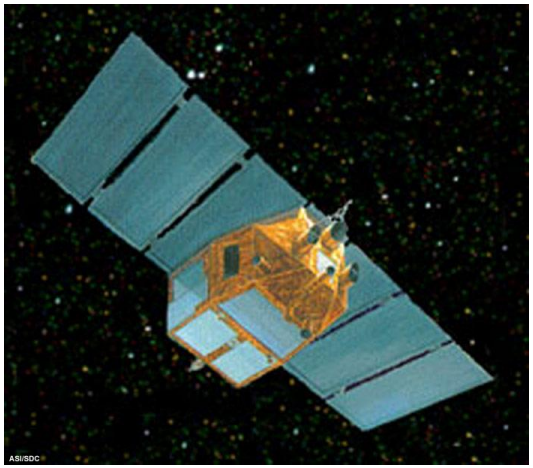
What actually happened to BEPPOSAX?

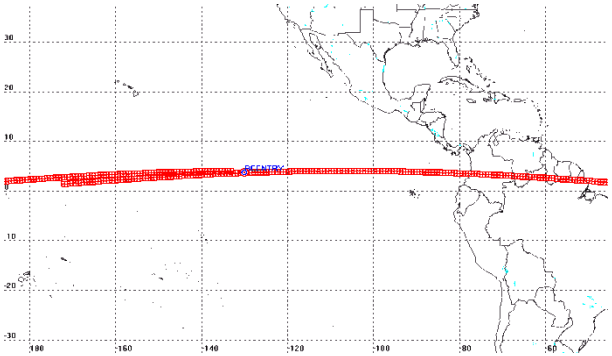
- BEPPOSAX crash-landed in the equatorial Pacific, about 186 miles northwest of Galapagos Island, on April 29, 2003 at 10:57 pm Nigerian time.

BEPPOSAX REENTRY REPORT,
30 April, 2003, 09:30 UTC, No. 25



BEPPOSAX SATELLITE





Space Debris Experience by Chile's Airline

On March 27, 2007, wreckage from a Russian spy satellite passed dangerously close to a Lan Chile Airbus A340, which was travelling between Santiago, Chile, and Auckland, New Zealand carrying 270 passengers. The plane was flying over the Pacific Ocean, which is considered one of the safest places in the world for a satellite to come down because of its large areas of uninhabited water.

Incentives for the developing countries to comply with the guidelines (2)

Today, many developing countries own space assets which include:

1. **Communication satellites at GEO; and**
2. **Earth Observation Satellites at LEO.**

Certainly the preservation of these space assets are critical for the social and economic development of the countries that have made such investments.

Minimum actions by the developing countries

- Recognise that all nations have a stake in protecting the common global resource – the outer space environment; Establish appropriate national enabling legislation
- Invest in a national functional Emergency preparedness;
- Enhance science and technology education including space science at the local level and utilise indigenous inquiring minds to undertake appropriate research in these disciplines.
- Invest in and contribute to international efforts in tracking technologies, methods and networks for the tracking of space debris and NEOS;
- Effectively participate in regional and international collaboration on knowledge generation and knowledge sharing; and
- Avoid using services of launch service providers that do not comply with the Space Debris Guidelines

CONCLUSION

The Space powers and the industrialised countries – The need to be real.

- **GLOBAL EXPLORATION STRATEGY–THE FRAMEWORK FOR COORDINATION – 2007**

- **SPACE DEBRIS GUIDELINES - 2007**

If indeed "*The Global Exploration Strategy*" is "to expand the opportunity for participation in space exploration to all nations and their citizens", and if the true intensions of the *Space Debris Guidelines* are to preserve the outer space environment for future generations, both in the space-faring as well as in the non-space-faring countries of the world, the rules of engagement would, as of necessity, have to drastically change to allow for genuine collaborative development and sharing of knowledge. That is the only way we all can gain access to common knowledge and experience that can foster collective global space exploration. I hope this will happen in my life-time.