Activities of the Nigerian Space Agency and Prospects of Human Spaceflight Program

Babatunde Rabiu
National Space Research & Development Agency
NASRDA, Abuja, Nigeria
Email: tunderabiu@yahoo.com
Nigeria: Heart of Africa

- Largest producer of crude oil in Africa
- 167 million people
- ¼ of African Population
National Space Research & Development Agency (NASRDA)

• an Agency of the Federal Ministry of Science and Technology

• mandated to promote the use of space technologies and applications for socio-economic development and advancement of Nigeria

• established on the 5\textsuperscript{th} of May 1999
• Abuja, 9.5° N, 7.5° E
• 1 hr ahead of GMT
• 6hrs ahead of Washington DC
National’s Space Policy

- approved in 2001
- Pursue the development and application of SS & T for socio-economic development
- Integrate the programmes of the Agency into the overall national strategies for sustainable development
- Promote Nigeria’s participation in the global industry
- Develop Astronaut’s programme
Engineering & Space Systems

- Engineering
- Physical Sciences
- Life sciences

- IAA life science programs
- Space Biology taught at UN-ARCSSTE-E
- Human expert systems (Astronaut program)
NASRDA Activity Centres

- Centre for Satellite Technology Development (CSTD)
  - satellite manufacture and space missions

- Centre for Space Transport and Propulsion (CSTP),
  - manufacture rockets and develop launch facilities

- Centre for Basic Space Science (CBSS),
  - research and development in space environment & Astro

- Centre for Space Science Technology Education (CSSTTE),
  - capacity building

- National Centre for Remote Sensing (NCRS)
  - R & D in applications areas of EO and RS

- Centre for Geodesy and Geodynamics (CGG)
  - R & D in areas of crustal movement.
Locations of NASRDA’s Infrastructures

- Abuja, 9.5° N, 7.5° E
- +1 hr GMT
NASRDA Deliverables

- surveying & mapping
- food security
- disaster management
- emergency response
- Land administration
- Minerals & oil exploration
  - Disaster monitoring systems
  - control of meningitis disease
  - desertification control and
  - monitoring of encroachment of ocean along the coast

✓ National Security
✓ Economy
✓ Agriculture
✓ Oil & Gas
✓ health
Space Research in Nigeria

• Space Research preceded creation of NASRDA
• Dated back to pre-IGY years
• About 102 Universities
• About 40 offer 1st degree courses in SS & T
• About 15 offer graduate program in SS & T
• Active participation in Space Research
• Hosted the just concluded UN/Nigeria ISWI wkshop
Nigerian satellites

International cooperation

- Nigersat-1
- Nigersat-2
- Nigersat-x
- Nigcomsat-1
- Nigcomsat-1R ---- Dec 2011?
NigeriaSat-1

- an Earth-Observation micro-satellite
- one of seven micro-satellites in Disaster Monitoring Constellation (DMC).
- Other partners in DMC international consortium are the UK, China, Algeria, Thailand, Turkey & Vietnam
- Orbit - Circular, 686km altitude, sun-synchronous
- 600km swath width
- Life Span: designed for 5 years (minimum)
- 32m GSD (ground sampling distance / resolution)
- 3.7 m parabolic dish ground station
- Launched into orbit on the 27 September 2003
- Still active
NigeriaSat-2

- an Earth-Observation Satellite
- 2.5m panchromatic (very high resolution)
- 5m Multi spectral (High resolution)
- 32m Multi spectral (medium resolution)
- Design life span 7 years
- Launched August 2011
- in partnership with a UK-based company, Surrey Space Tech. Ltd
NigComSat-1

- Communication Satellite
- A Geostationary Satellite
- Carried 40 Hybrid transponders in Ku, Ka, C and L-bands
- Coverage: Africa, Middle East, and Europe (Parts of)
- launched in May 2007
- De-orbited November 2008
Human Space Technology

• National Space Policy wants to have the first Nigerian astronaut in 2015

• Nigeria ready for human presence in space

• Progressive Astronaut Program
Challenges & Prospects

- Questions already
- Public awareness is saturated
- Transformation of scientific research
- Health, food security, quality of lives
- A shift from traditional educational programs/curriculum
NASRDA Astronaut 2015

How?

• Learning from existing national programs
• Open to Collaboration!
• Collaboration!

• **International Cooperation!**

• “It is possible” - Prof. Dr. Mazlan Othman, Director, UNOOSA
The Way Out

International cooperation!
Concluding Note

If you want to go quickly go alone;
If you want to go far go with someone

A Chinese Adage
THANK YOU