

United Nations/United Arab Emirates - High Level Forum
Space as a Driver for Socio-Economic Sustainable Development

Space Research for Sustainable Development in Sudan

Rayan Imam

Researcher, Space Research Centre

University of Khartoum

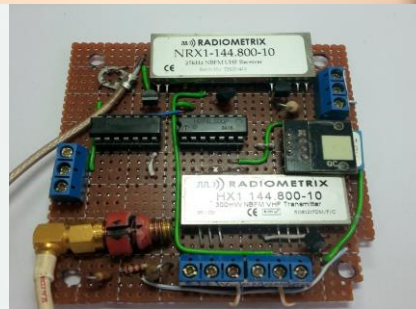
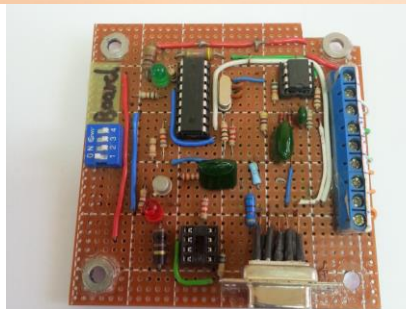
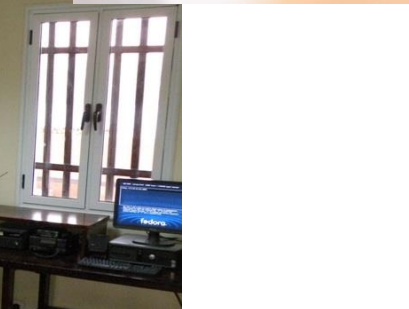
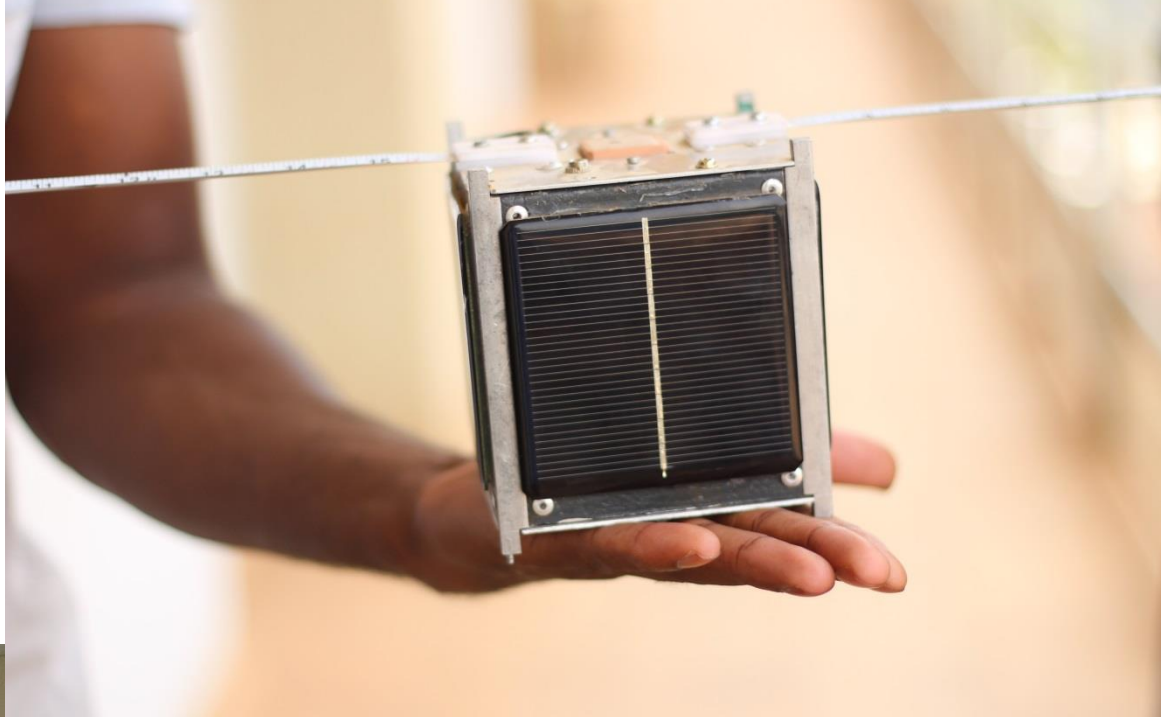
Sudan



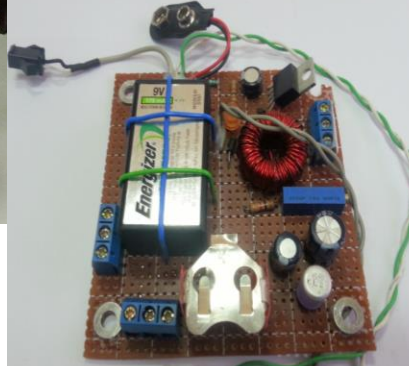
How Research in Sudan has been utilizing and
addressing space technology for Sustainable
Development

University of Khartoum Cubesat Project

- Since 2010 -



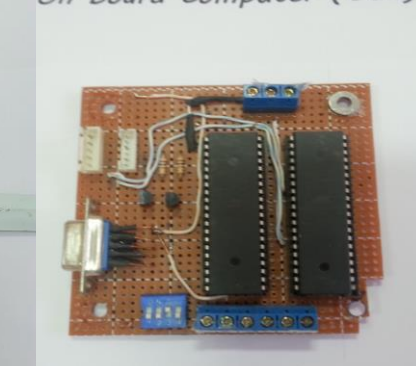
Electrical Power System (EPS)

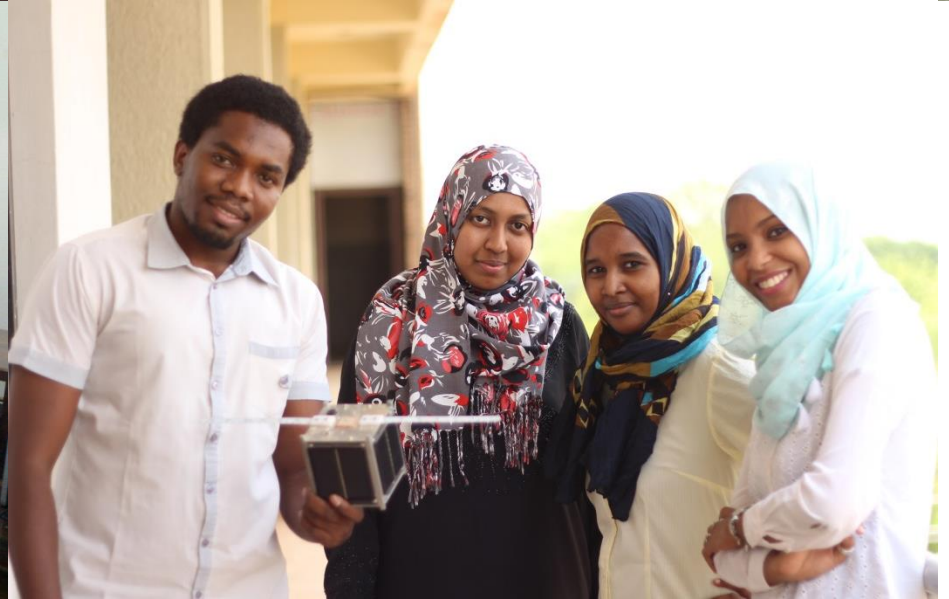


GPS and Mission System



On Board Computer (OBC)





WHY this research?

1. Sustainable development is important.
2. looking for answers to the question “why space technology for Sudan”?
3. To help us plan for our Space Research Centre.
4. To know what do we actually have at our university regarding space technology, and what have we been doing .
5. To prepare some document to help us with funding

What did I do?

- I looked at the M.Sc, PhD and Bachelor degree thesis of University of Khartoum .
- What topics related to sustainable development are being covered?
- categorize the research according to the Sustainable Development Goals.

Agriculture and animals

Previously Oil and Gas

wildlife

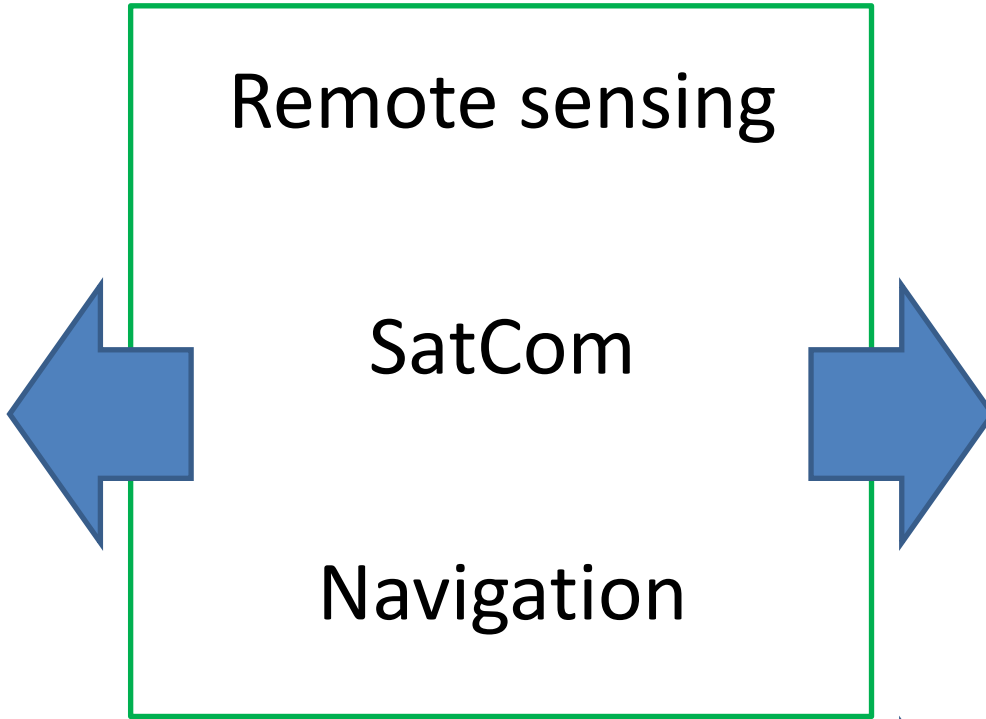
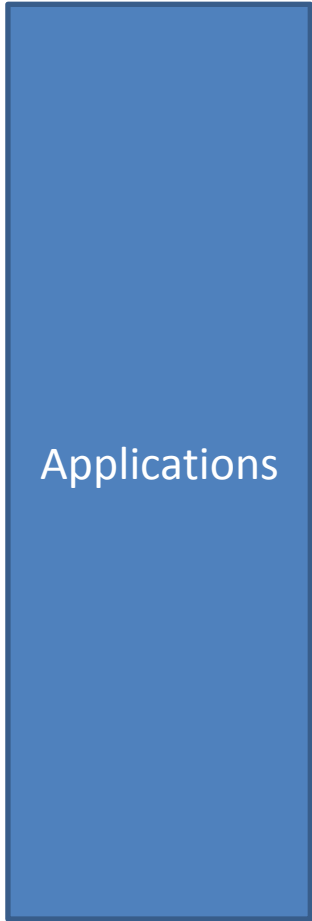
minerals

SO, most of the research if found is expected to be covering these topics

Desertification

WATER

Floods and droughts



Remote sensing

Agriculture:

- Agricultural Economics.
- Crop monitoring
- Adaptation mechanisms.
- Climate change effect on agriculture
- Water resource management
- Weather forecasting (temperatures, rainfall, ...)



Remote sensing

Water resource management:

- Rivers
- Dams
- Floods
- Rain



Remote sensing

Soil:

- Soil degradation
- Sand encroachment
- Soil depth
- Soil moisture



Remote sensing

Climate change:

- Deforestation
- Desertification
- Erosion



Remote sensing

- Coastal areas
- Wildlife



Remote sensing

- Health



Remote sensing

- Urban planning
- Archaeology
- Mining
- Geology



SatCom

- Tele-Education



Remote sensing

- Mathematical sciences
- Image processing
- Ground, aerial and satellite data comparison



Navigation

- Surveying studies
- Comparing satellite based navigation to other techniques.



Satcom

- Signal processing
- Link
- Satellite Communication technologies



Space Technology

- Nano-satellites
- Materials



Yes, Research at University of Khartoum has been utilizing space technology for sustainable development



Conclusion

- This study surveyed 400+ Postgrad thesis ,
undergrad thesis and staff publications
- the library is not fully digitized yet
- The minimum number of thesis written on
these topics and also the areas of research
covered .
- i.e. May be there are more, but definitely not
less.

- Organize a workshop
 - University of Khartoum
 - Other research bodies
 - Public and Private sector

Declaration

- Few nations have gone through all the space industry difficulties before they arrived to the magnificent capabilities they have today. The rest of nations should not go through the same. **No need to reinvent the wheel.**
- No nation should be stamped and destined to be only a consumer of space technology. We all have the right to be part of the **development and innovation.**
- Break all the barriers surrounding space technology and applications. It will be nice to see a **revolution** in space sector, just like the internet revolution or the computers.

Thank You