

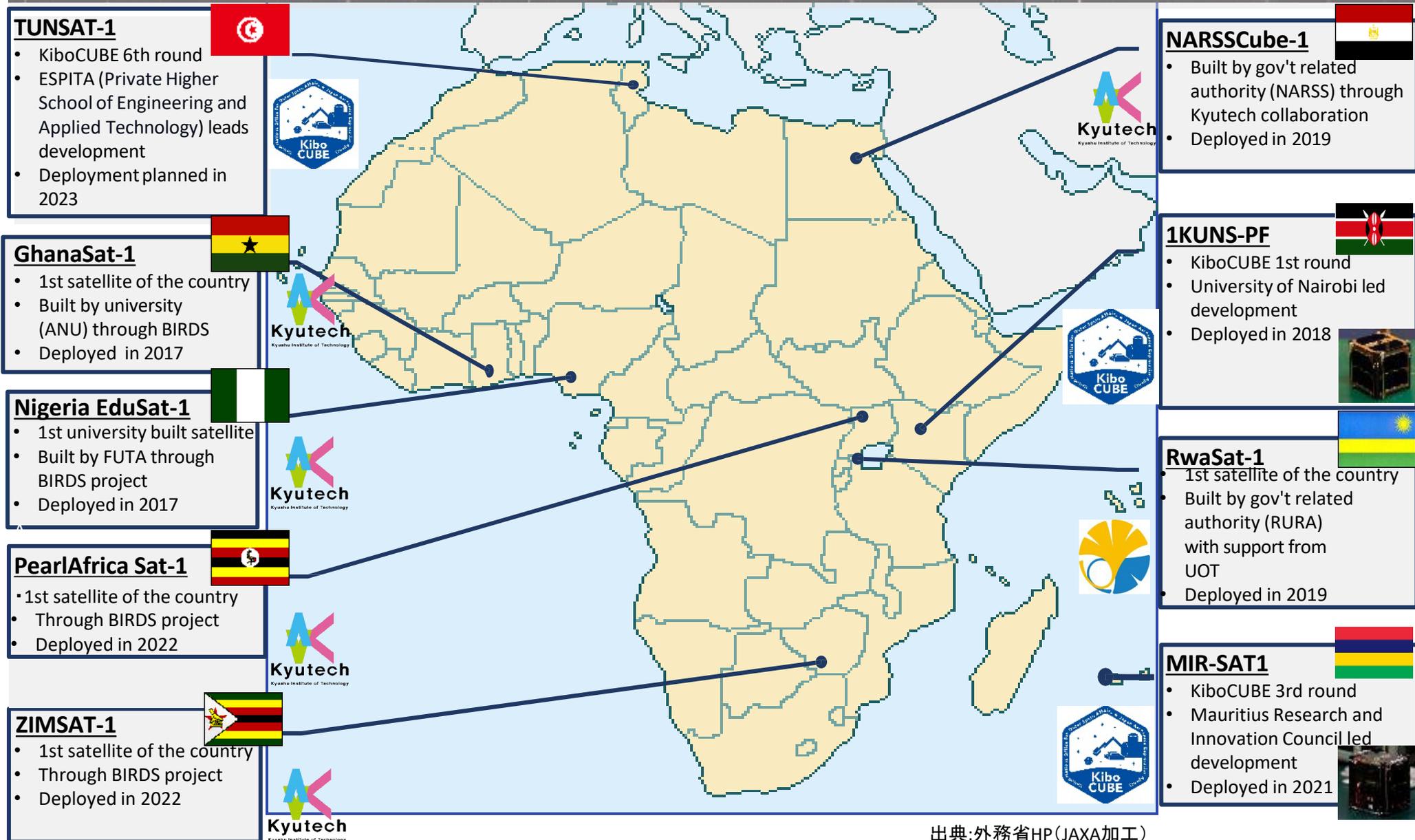


# “CubeSat collaboration between Africa and Japan”

**NISHIMOTO AKIRA**  
International Relations and Research Department  
Japan Aerospace Exploration Agency  
(JAXA)

Successful  
deployment of  
1KUNS-PF  
(Kenyan  
Satellite,  
selected as  
1st round of  
KiboCUBE)  
2018

# Africa-Japan CubeSat Cooperation



出典:外務省HP(JAXA加工)

# KiboCUBE : Joint Program of JAXA and UNOOSA

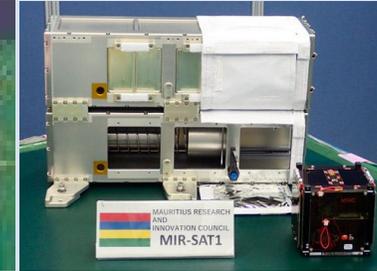


## What is KiboCUBE?

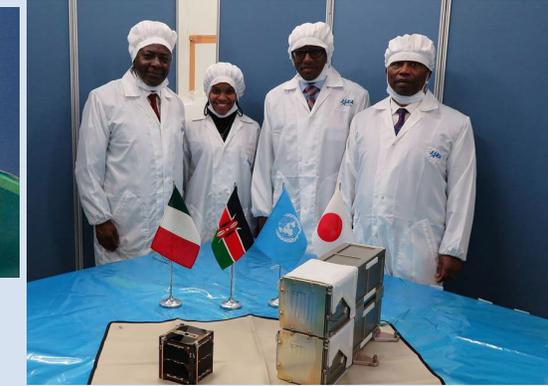
- # Collaboration program between UNOOSA and JAXA
- # To provide educational and research institutions from developing countries with the opportunity to develop a CubeSat and have it deployed from "Kibo"



1 KUNS-PF (Kenya)



MIR-SAT 1 (Mauritius)



## Selected Winners in Africa



**KENYA, 2016**  
Team from the University of Nairobi



**Deployed in 2018**



**MAURITIUS, 2018**  
Team from the Mauritius Research and Innovation Council (MRIC)



**Deployed in 2021**



**Tunisia, 2022**  
Team from the Private Higher School of Engineering and Applied Technology (ESPITA)



**Under development**

**Deployment Ceremony**



CubeSat handover to JAXA



Launch



Final setting @ISS



Deployment from "Kibo"



# Kyutech : BIRDS Project (BIRDS-1 ~ BIRDS-5)



## BIRDS Project



The Joint Global Multi-Nation Birds Satellite project. acronym as **“BIRDS project.”** is a cross-border interdisciplinary satellite project. for non-space faring countries supported by Japan (Kyushu Institute of Technology; **Kyutech**)

## Participating countries in Africa



Ghana



Nigeria



**BIRDS-1**  
(deployed in 2017)



Egypt

(supported by Kyutech  
other than BIRDS)

(deployed in 2019)



Uganda



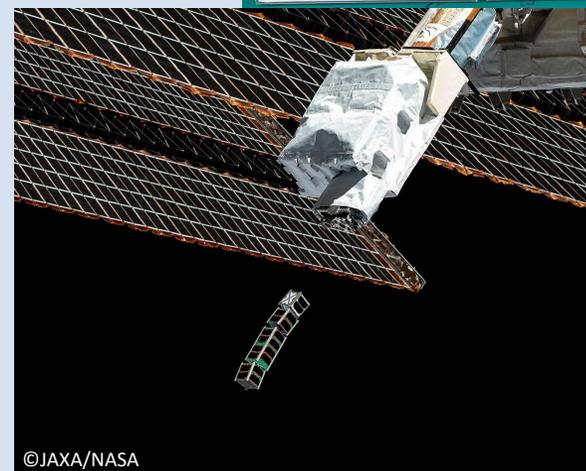
Zimbabwe



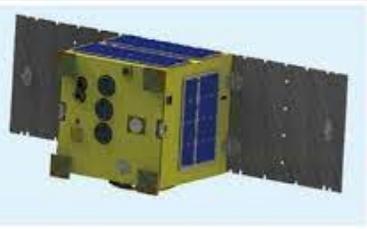
**BIRDS-5**  
(deployed in 2022)



PearlAfricaSat-1  
(Uganda)  
ZIMSAT-1  
(Zimbabwe)



# University of Tokyo : Collaboration with Multi Sector



© Space Edge Lab.

Satellite collaboration : Rwanda Govt. and Univ. of Tokyo



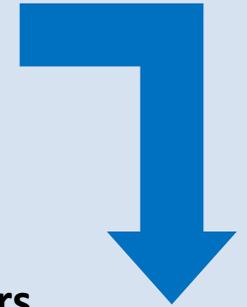
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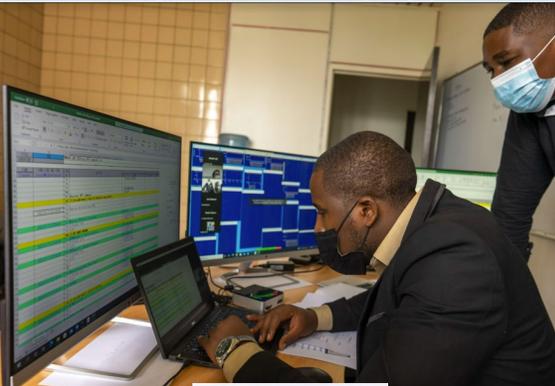


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CubeSat development with Rwandan researchers

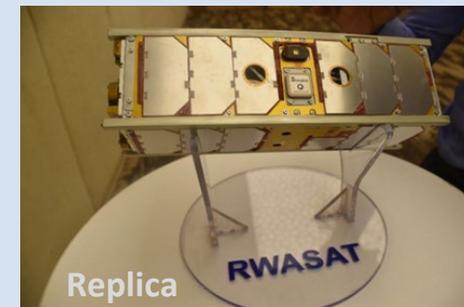


Remote operation of RWASAT-1 in Rwanda



© Space Edge Lab.

**= Case of Rwanda =**



Replica

© Space Edge Lab.

Launch to "Kibo"



©JAXA



©JAXA/NASA

Deployment of RWASAT-1



© Space Edge Lab.

Joint Press Conference of Launch



©JAXA

H-II/B for launch of satellites



Handover to JAXA

RWASAT-1(3U)  
Completion of the CubeSat



## Main theme : “Toward establishing Sustainable Space Activities”

**Objective** : To deepen the understanding of space players in Africa and Japan, at what stage we are now, to what specific issues we are facing, and what effective efforts we can make, to further promote space activities in African continent

### Contents :

1. Program introduction (KiboCube, Kibo Academy, BIRDS Project etc.)
2. Message of Astronauts on J-SSOD deployment
3. Mission Report of CubeSat Development & Operation (African partner countries)
4. Lessons - Learned (Summary of achievement & Future actions required)
5. Discussion for future satellite development and utilization in Africa

**Opportunity  
& Challenge**

### 9 African Countries – Cooperation through CubeSat Deployment

(KiboCUBE) Kenya, Mauritius, Tunisia  
(Kyutech(BIRDS)) Ghana, Egypt, Nigeria, Uganda, Zimbabwe  
(Univ. of Tokyo) Rwanda

# Workshop on Africa-Japan CubeSat Cooperation and KiboCUBE Academy in Tunis



## Workshop on Africa-Japan Cubesat Cooperation (26 August, 2022 Participants : 120)



AFRICA-JAPAN CUBESAT COOPERATION WORKSHOP



## KiboCUBE Academy in Tunis (25 August, 2022 Participants : 270) (online included)



CubeSat Mission Report  
Session Participants ©JAXA

Reported from 4 nations deployed satellites from Japanese Experiment Module "Kibo"  
(Kenya, Mauritius, Nigeria, Egypt)  
and 3 nations expected to be deployed satellites  
(Uganda\*, Zimbabwe\*(*deployed Dec.*), Tunisia)



©JAXA



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Opening Remarks



©JAXA  
Project Report



©JAXA  
Panel Discussion

## Findings of the Workshop

1. African CubeSat partners still have intention to keep developing their own CubeSats.
2. Africa-Japan CubeSat Workshop enabled to strengthen ties among African CubeSat partners.
- 3 It is significant to promote satellite data utilization to contribute to solutions on the ground.
4. It will be beneficial for both African countries and Japan to discuss next satellite collaboration in the future.

- \* 1U
- \* Partner : UNOOSA
- Free launch / deployment
- \*2016~
- \*Target: Public entities of developing countries

## Kibo CUBE

- Program in collaboration with UNOOSA
- To provide 1U size CubeSat deployment opportunities for Access to Space for All

## J-CUBE (Fee-Based)

- To provide more challenging satellite deployment opportunities for various countries in collaboration with Japanese universities

- \* 1-3U
- \* Partner : UNISEC ※
- Fee-based launch / deployment
- \*2021~
- \*Two categories including International Collaboration

## Kibo CUBE Academy

- To provide opportunities for educational aspects through satellite lifecycle
- Sustained international contribution by construction of relation in various countries and university in Japan

Online education program (2021~)

\*Offer of the theoretical knowledge to develop, operate and utilize a CubeSat

\*Partner: UNOOSA , \*Cooperation: UNISEC Global

※UNISEC:  
University Space  
Engineering Consortium



**Thank you for your attention**