



BIRDS Project Newsletter

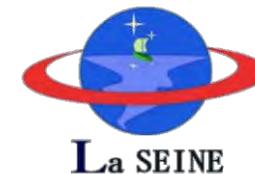
Issue No. 19 (25 August 2017)



Members of BIRDS-1 Team and BIRDS-2 Team -- 16 May 2017, at Tobata Campus
Note the mock-up being held by Antara in the front row.

Edited by:
G. Maeda, Tejumola Taiwo, Joven Javier, M. Cho,
Laboratory of Spacecraft Environment Interaction
Engineering (LaSEINE)
Kyushu Institute of Technology (Kyutech)
Kitakyushu, Japan

Project website: <http://birds.ele.kyutech.ac.jp/>
All back issues are archived at this website.

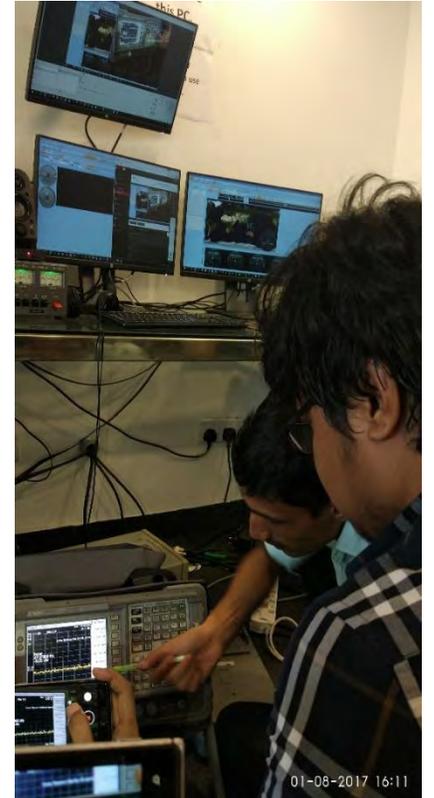


All back issues of this newsletter can be easily downloaded. Go to here: <http://birds.ele.kyutech.ac.jp/>
At the top, click on the tab called NEWSLETTER. You will get a menu for all back issues.

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The Guest Box



BRAC ONNESHA & HORYU-4 data are being analyzed by spectrum analyzer provided by BTRC (Bangladesh Telecommunication Regulatory Commission).
- from Bangladesh

01. BIRDS-1 of Nigeria (“EduSat-1”) is described in The Nigerian Tribune

This article appeared in *The Nigerian Tribune* on 29 June 2017.

To write it, the newspaper interviewed Ibukun (BIRDS-1, Nigeria) via the Internet



21 | education

Thursday, 29 June, 2017

Nigerian Tribune

‘FUTA’s EduSat-1 will promote satellite technology and space careers among children, youths’

The Federal University of Technology, Akure (FUTA) recently announced its presence in the space technology by emerging as the first university in Nigeria to build and launch a satellite into space. The historic launch took place at the Kennedy Space Centre, Florida, United States. In this on-line interview from Japan, Mr Ibukun Adebolu, one of the members of the FUTA team that achieved the feat, discusses with LAOLU HAROLDS the mission, cost and benefits of the project.

FUTA recently made history as the first Nigerian university to launch a satellite into space. Can you fill us in on the approximate time of the launch and how it went?

On Saturday June 3, 2017, 10.07 pm GMT+1 NigeriaEduSat-1, along with four other satellites of the BIRDS constellation were launched to the International Space Station (ISS) as part of cargo on a Space X dragon spacecraft on its 11th Commercial Resupply Services (CRS-11) mission. NigeriaEduSat-1 is Nigeria’s first nanosatellite and developed by FUTA, with the help of the National Space Research and Development Agency (NASRDA), and is expected to be fully operational by the end of July, 2017.

It’s gratifying that, at last, a university of technology in



Using in space: 1 and 2017.

How was this project conceptualized? Whose idea was it, and why was a satellite deemed a priority by the university and your team at this time?

I got to know about the project through FUTA’s Center for Space Research and Applications (CESRA) in 2015. I believe FUTA, through CESRA, developed a memorandum of understanding (MOU) with Japan’s Kyushu Institute of Technology with the help of Mr Tejumola Taiwo, who was at the time a Master’s (degree) student in Japan and now the BIRDS project manager.

Focusing on developing space capabilities is a step in the right

CubeSats launched into space on SpaceX Falcon9 Rocket. Apart from Japan, whose Kyushu Institute of Technology worked with FUTA, did you work with the other nations too, or was it just a matter of convenience or coincidence that they are also doing this same project at this same time?

It’s not a coincidence. The BIRDS project is a constellation of five identical nanosatellites. A constellation is a group of satellites that perform similar missions in a coordinated manner, utilizing the advantage of several satellites to obtain extended and continuous coverage. The five satellites of the BIRDS constellation belong to Japan, Ghana, Mongolia, Nigeria

and Bangladesh – participating countries in the BIRDS 1 Project. The aim of the BIRDS project is to promote satellite development technology transfer to non-space faring nations through hands-on projects. Bhutan, Malaysia and Philippines are participating in the second phase (BIRDS 2 Project), and there are plans underway to commence a third phase (BIRDS 3 Project) in October, 2017. A total of 15 students, including me, worked on developing the satellites. Since the five satellites are identical, it will be correct to say I worked on all five.

We understand the satellite was designed and built 100 percent by FUTA. How long have you been on the project?

I joined the project when it kicked off in October, 2015. Two other Nigerians, staff of NASRDA, also worked on the project from the beginning.

How much of the materials used was sourced locally or otherwise?

On this phase of the project, no material was sourced locally. I believe NASRDA has plans to continue to partner with FUTA and other Nigerian institutions to develop a made-in-Nigeria satellite in the near future.

Do you want to give us an idea how much the project has gulped, and how it was sourced, especially now that federal institutions are groaning from lack of funds?

Development costs and launch costs are about 100,000 US dollars. I believe a substantial part of this money was provided by the National Space Research and Development Agency (NASRDA) as part of its oversight and supervisory functions in the promotion of local capabilities for space development. There may be other costs incurred, but I do not have information about that at this moment.

Can you give us an idea of the size/span/weight etc of the satellite?

NigeriaEduSat-1 is a nano-satellite of the 1U form factor. It has an approximate weight of 1.1 kg and dimensions 100 mm (L) x 100 mm (W) x 113.5 mm (H).

What exactly is NigeriaEduSat-1 supposed to do up there, and what, in specific terms, will be the benefits to FUTA, and Nigeria as a country?

NigeriaEduSat-1, along with the four other nanosatellites of the BIRDS constellation will perform three onboard missions. First, we aim to take low and high resolution pictures of each home country of the participating members of the constellation. Each satellite is equipped with a 0.3 megapixel camera as well as a 5 mega pixel camera. We hope to capture distinct features of each target country, including borderline images, major rivers etc. The second mission on board each satellite is aimed at space education and outreach. Popular songs and poems are converted into digital format and uplinked to the satellite. The satellite stores the uplink file, reassembles it through an onboard digital synthesizer and retransmits the file as an audio file that can be received on ground by amateur radio operators. This mission is aimed at promoting interest in satellite technology and space careers among children and youths, who can participate by encoding the songs to be re-transmitted during major outreach events. The third onboard mission has a scientific nature. It involves the measurement of atmospheric density in the region 400 km above earth. This mission is important because it utilizes the advantage of multiple satellites collecting data simultaneously at different points in the region, enhancing the body of scientific literature already available. The effects of atmospheric drag on the satellite is computed and used to determine the density at points of interest in the region and also used in further calculations to determine each satellite position in orbit without using a GPS. Apart from the three on-orbit missions, there are also three ground based missions.

02. Day 1 of the BIRDS-2 CDR (the next few pages)

Initial discussions between Kyutech (led by Prof Cho, standing at the screen) and the delegation from Bhutan (led by Ambassador Dorji, indicated by the red dot).

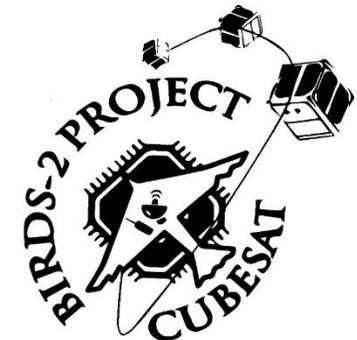
Members of the delegation from Bhutan (key members of Bhutan's "Satellite Working Group") are as follows:

- Mr. Tshewang C. Dorji
- Mr. Jigme Thinlye Namgyal
- Mr. Karma Yonten
- Mr. Sonam Phuntsho
- Mr. Pema Rinzing Rinchen

In the foreground is Prof Yamaguchi, Vice President of International Affairs, with the light-colored shirt.



The "Control Room" of LaSEINE on the 4th floor of the General Research Building of Tobata Campus.





**Exchanging of
business cards
名刺の交換**



Kyutech President (Prof. Oie, in the yellow frame below) welcomes the guests from Malaysia (7 persons), Bhutan (5 persons), and the Philippines (4 persons).



The initial meeting of BIRDS-2 delegates



President Oie and Prof. Cho



A few words from the Bhutan delegation



A few words from the Malaysian delegation



A few words from the UPD delegation



The UPD (Univ. of the Philippines Diliman) Team



A few words from the PI of the BIRDS Project



Having lunch with the BIRDS-2 students and visiting UiTM students at Sei Kyou (student cafeteria) – immediately before the CDR proper.





Print outs of the presentations



The CDR Proper
13:00 to 18:30, 18 July 2017
2nd Floor of Nakamura
Memorial Hall, Kyutech





Group Photo at Nakamura Memorial Hall after CDR Proper but before the reception

(photo by Dr. Kim, Kyutech)



Reception right after the CDR Proper
– continued on the next page.

**Dr Huzaimy (UiTM) and
Mr Wakabayashi (Kyutech)**



**Some members of the
Malaysia team**



Exterior of Nakamura Hall



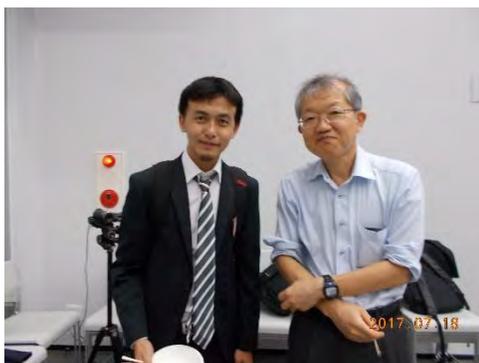
**Some members of the
Philippines team**





Above: Prof Yamaguchi (VP of International Affairs, Kyutech) with the entire Bhutan delegation.

Below: Student Cheki (Bhutan) with Prof Yamaguchi.



Warm speeches at the end of the reception



Above: Student Yamaguchi.

Below: The students line up – each said something.



Prof. Joel Marciano, representing UPD and DOST, Philippines



Mr. Jigme Thinlye Namgyal the Director General of Ministry of Information & Communications (MoIC), Royal Government of Bhutan



Assoc. Prof. Ir. Dr Mohamad Huzaimy Jusoh, Head of First UiTM Nanosatellite Project, Malaysia



Group Photo after the reception

Kyutech's Nakamura Memorial Hall

A report: Day 2 of the BIRDS-2 CDR

This report was created by Yeshey of Bhutan on 21 August 2017.

Day 2 occurred on 19 July 2017.

This report covers the following events:

- PANEL DISCUSSION 1
- PANEL DISCUSSION 2
- PANEL DISCUSSION 3
- PANEL DISCUSSION 4
- KYUTECH FACILITY TOUR
- OFFICIAL LAUNCH OF BIRDS-2 WEBSITE AND SOCIAL MEDIA PAGES
- CERTIFICATE AWARDING CEREMONY

DAY 2 of BIRDS-2 CDR

PANEL DISCUSSION 1

Ideas for Promotional and Outreach Activities in Home Countries

Moderator: Yeshey

Participants took part in a group exercise to brainstorm ideas for promotional and outreach activities in home countries, followed by brief presentation of ideas to the audience



Participants in discussion



Prof. Joel Marciano

DAY 2 of BIRDS-2 CDR

PANEL DISCUSSION 2

Development and Deployment of Magnetic Field Measurement Sensors

Moderator: Syazana

Malaysian team proposed to collaborate in measuring the geomagnetic field in participating countries by installing magnetic field measurement sensors



Dr. Huzaimy (above) and Ms. Amirah (left) from UiTM, Malaysia, presenting about magnetic field measurement in participating countries.

DAY 2 of BIRDS-2 CDR

PANEL DISCUSSION 3

Development and Deployment of Ground Sensor Terminals for BIRDS-2 Nanosatellite S&F Remote Data Collection System

Moderator: Adrian

A module developed in collaboration with UPD, Philippines, was presented to execute the Store & Forward mission



Adrian (right) presented about the module and its functionality as well as estimated costs.

Ms. Amirah (left) from UiTM, Malaysia presented about using data collected by magnetic field sensors in remote areas to demonstrate the Store & Forward mission

DAY 2 of BIRDS-2 CDR

PANEL DISCUSSION 4

Ideas on Capacity-Building and Educational Activities in Home Countries for Sustainability of Small Satellite Development

Moderator: Kiran

Experience and current developments of UPD and PEDRO, Philippines was shared with the participants in terms of capacity building and infrastructure development



Dr. Marc Talampas shared updates on PHL-Microsat (Diwata) program, developments on Diwata-1 and Diwata-2, space-related activities in UPD, the establishment of a microsatellite research laboratory and future plans and prospects



Mr. Alvin Retamar of the DOST Advanced Science and Technology Institute (ASTI) shared developments on the Philippine Earth Data Resource and Observation Center (PEDRO)

DAY 2 of BIRDS-2 CDR

KYUTECH FACILITY TOUR



Tour of Ground Station at Kyutech

Group photo at LaSEINE



Tour of BIRDS-2 working lab

The participants visited the Laboratory of Spacecraft Engineering and Interaction Engineering, Center for Nanosatellite Testing, and the BIRDS-2 working lab during the facility tour.

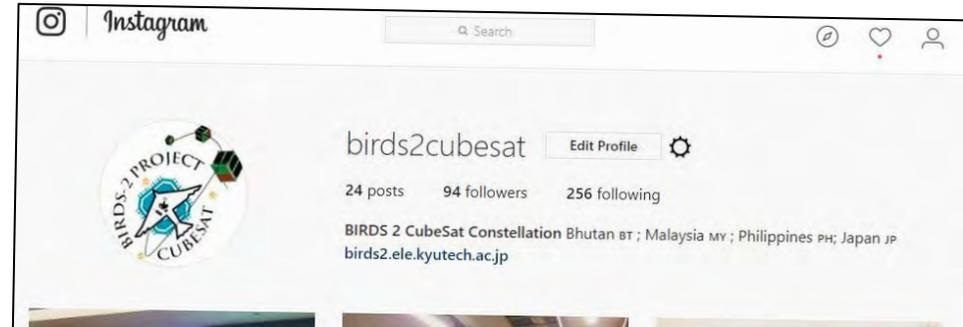
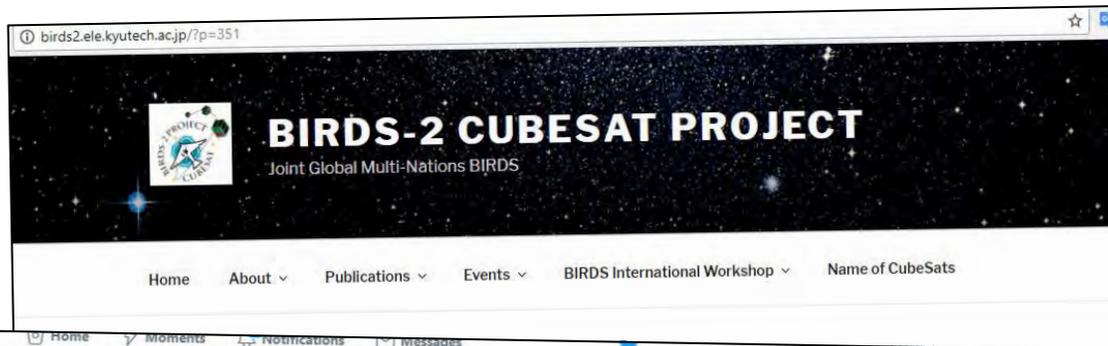
Tour of CeNT facilities



DAY 2 of BIRDS-2 CDR

Follow, like, share!!!

OFFICIAL LAUNCH OF BIRDS-2 WEBSITE AND SOCIAL MEDIA PAGES



DAY 2 of BIRDS-2 CDR

CERTIFICATE AWARDING CEREMONY



← Dr. Pauline Faure (examiner) awarding the certificate for BEST performance in solar cell assembly practice to Azami of Malaysia.

The other members were awarded certificates for satisfactory performance.

THE END OF THE “DAY 2” REPORT BY YESHEY OF BHUTAN.

04. The departure of the UiTM delegation



The entire Malaysian delegation departs Kyutech from the JR station of Kyutech (九州工大前) on 19 July 2017.

Dr Huzaimy (the blue shirt), BIRDS-2 students (Azami and Syazana), and the visitors from UiTM.

Chance photo by G. Maeda, who was going in the opposite direction to them.



اُونِيُوَرَسِيْتِي تِي كُونُوَلُو كِي مَارَا
UNIVERSITI
TEKNOLOGI
MARA

05. The visit to Kyutech by UiTM is written up at the website of UiTM

<https://fke.uitm.edu.my/v5x/index.php/news-events/372-academic-visit-to-kyutech-tobata-campus-japan-18-21-july-2017>



UITM

HOME

STUDENTS AFFAIRS

ACADEMIC

CENTRE OF STUDIES

RESEARCH & INDUSTRY

COMMUNITY

Academic Visit to KyuTech, Tobata Campus, Japan

Siti Nadhirah Mohamad Rahim News @FKE Created: 25 July 2017 Hits: 89

From the UiTM website on 9th August 2017.

KyuTech, namely Kyushu

Institute of Technology, is known for Nano-Satellite academic program for graduate students. In 2016, two (2) graduate students were involved in the Nano-Sat program named BIRDS-2. BIRDS-2 is a collaboration project between developing countries (the Philippine and Bhutan) and this collaboration is the first Nano-Sat project for UiTM.



Cont'd next page

The main purpose of this visit is the Critical Design Review (CDR) meeting; an important reviewing aspect before project finalization. Both UiTM students, Mrs Syazana Basyirah Mohammad Zaki and Mr Muhammad Hasif Azami successfully presented their parts on the BIRDS-2 project. Mr Hasif was awarded “The Best Sample in Solar Cell Assembly Practice”.

The Malaysian delegation consist of Assoc Prof Ir Dr Mohamad Huzaimy Jusoh as the leader of the project and Head of Communication Department, Dr Mohamad Fahmi Hussin @ Mohamad. On July 18th, representative from BIRDS-2 countries, including Japan, Bhutan, Philippines and Malaysia were welcomed by Kyutech President, Yuji Oie-san in a ceremony. The ceremony was closed with brief introduction from all representatives. In the afternoon, the main program CDR started and many constructive questions and comments were expressed from all participants. The next morning, participants were put together and brainstormed for potential outreach proposal to create awareness about the space technology. Continuing the momentum, Assoc Prof Ir Dr Mohamad Huzaimy presented a proposition for fully utilizing the BIRDS-2 Missions. Furthermore, two (2) FKE undergraduate students, presented specialized project related to BIRDS-2 mission. Ms Nor Maizatol Amirah Mohammed Azuan articulately presented on “AMR-MM Coupling for Space and Ground Station”, followed with presentation by Ms Nur Amirah Azahari on “Store and Forward Mission”. The session continued with presentation from Philippines representatives.

In conclusion, this short trip brings forward UiTM vision to elevate the academic program offered to students and develop reliable human capital for Malaysia. Our BIRDS-2 graduate students will continue on finalizing their AMR MM mission, deploy-able antenna subsystem and CAM Mission alongside with other team members. Always soaring upwards!!

End of this article

06. Check out this popular beer joint the next time you visit Kitakyushu

Mojiko Local Beer Brewery

地ビール -- microbrew, or local beer

[This info is from JETRO]

"Mojiko Local Beer is one of the microbrew in Kitakyushu city. We use German Malts and Yeast, German Hops, Czech Hops, and American Hops to make our original blended fruity beer.

There are two restaurants on the 1st floor and the 3rd floor, where you can have a local beer and pot baked pizza, and you can also enjoy the Mojiko night view. If You are a visitor and interested in the brewery, you can have a look at the brewery from the 1st floor."



Website: <http://mojibeer.ntf.ne.jp/> (Japanese only)

Category: Food, agricultural and fishery products

Region: Kyushu

Micro
brew

Access

Mojiko Local Beer Brewery

Higashi-Minato-machi 6-9, Moji-ku, Kitakyushu-city, Fukuoka 801-0853 Japan

About 5-minute walk from JR Mojiko Station.

Please get off the train, walk straight and pass through the Mojiko Hotel.

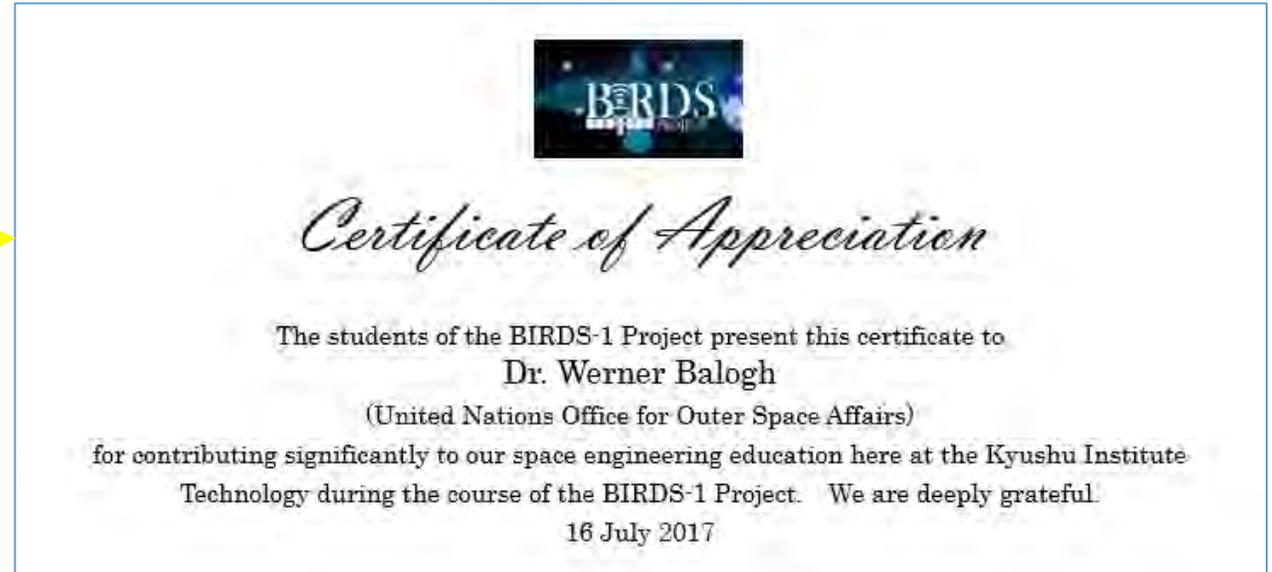
For more info: https://www.jetro.go.jp/en/ind_tourism/mojiko_local_beer_brewery.html

07. Dr. Werner Balogh receives BIRDS-1 Certificate of Appreciation during INSPIRE



Dr Werner Balogh receives this certificate of appreciation from G. Maeda (Kyutech) during the *INSPIRE Workshop* in Boulder, Colorado, USA, 1-3 August 2017. It is signed by the 15 students of the BIRDS-1 Project.

Workshop website:
<http://inspiresat.com/workshop/>



08. Steps were taken to register BIRDS-1 names with NORAD

BIRDS-1 satellites names
registered with NORAD



Norad

North American Aerospace Defense Command is a combined organization of the United States and Canada that provides aerospace warning, air sovereignty, and protection for [Northern America](#). Headquarters for NORAD and the NORAD/[United States Northern Command](#) (USNORTHCOM) center are located at [Peterson Air Force Base](#) in El Paso County, near [Colorado Springs, Colorado](#).

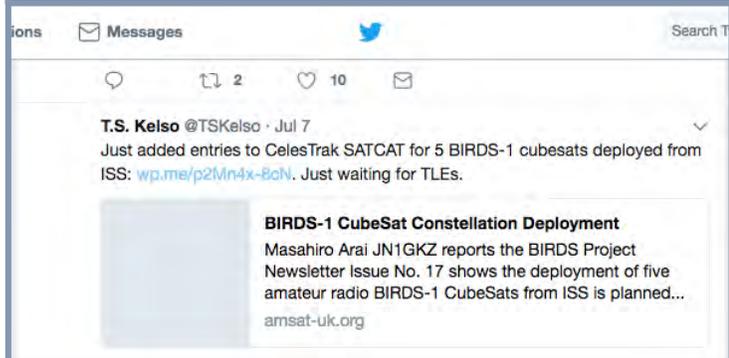
Source: https://en.wikipedia.org/wiki/North_American_Aerospace_Defense_Command

This article has 2 pages: This page and the next page.
This article was submitted to the BIRDS Project Newsletter on
15 August 2017 by **Taiwo**, who is the Project Manager of BIRDS-1.

The steps we followed

1

Dr. T. S. Kelso from Celestrak published that NORAD has assigned identification No to BIRDS were tracked



2

- BIRDS Team used available TLE for tracking
- BIRDS satellites have unique NORAD numbers
<https://www.celestrak.com/NORAD/elements/cubesat.txt>

3

- BIRDS Team Identified all satellites after tracking for more than 30 days
- BIRDS Team requested for proper naming of all BIRDS satellites
- Email sent to Dr. T.S. Kelso (TS.Kelso@celestrak.com)

4

- All BIRDS Satellites names appear on all tracking websites for tracking

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TOKI
1 42820U 98067MU 17216.37302621 .00011735
00000-0 17577-3 0 9994
2 42820 51.6390 157.9192 0004322 69.6709
290.4747 15.55425029 4357
GHANASAT-1
1 42821U 98067MV 17216.88773257 .00013777
00000-0 20531-3 0 9990
2 42821 51.6392 155.3568 0004348 73.5088
286.6381 15.55394528 4430
MAZAALAI (NUMSAT-1)
1 42822U 98067MW 17216.88821093 .00014894
00000-0 22152-3 0 9995
2 42822 51.6393 155.3602 0004370 75.4643
284.6832 15.55373455 4439
BRAC ONNESHHA
1 42823U 98067MX 17216.05376560 .00009350
00000-0 14207-3 0 9992
2 42823 51.6392 159.5383 0007995 84.8086
275.3817 15.55303965 4284
NIGERIAEDUSAT-1
1 42824U 98067MY 17216.89002434 .00014144
00000-0 21136-3 0 9997
2 42824 51.6394 155.3735 0007823 88.8444
271.3443 15.55275464 4434
    
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Japan_42820U- Toki
 Ghana_42821U- GHANASAT-1
 Mongolia_42822U- MAZAALAI (NUMSAT-1)
 Bangladesh_42823U- BRAC ONNESHHA
 Nigeria_42824U- NIGERIAEDUSAT-1

Scientists can now measure farm yields from space

21 Feb. 2017

LONDON (Reuters) — U.S. researchers have come up with a new method of estimating crop yields from small farms in Africa using high-resolution images from the latest generation of satellites — a development which could help cut hunger in poor parts of the world.

Improving agricultural productivity is one of the main ways to lift people out of poverty, but without accurate data it's difficult to identify the farmers who need help, scientists from Stanford University said.

Images from new, inexpensive satellites could be used to estimate yields and test interventions in poor regions where data is scarce, they said in a paper published in the Proceedings of the National Academy of Sciences on Feb. 13.

"Improving agricultural productivity is going to be one of the main ways to reduce hunger and improve livelihoods in poor parts of the world," said Marshall Burke, an assistant professor at Stanford's School of Earth, Energy & Environmental Sciences.

"But to improve agricultural productivity, we first have to measure it, and unfortunately this isn't done on most farms around the

world," he said in a statement.

While Earth-observing satellites have been around for more than three decades, most of their images haven't been detailed enough to show the small agricultural fields common in developing countries.

But with satellites becoming cheaper and offering improved image resolution, it is now possible to capture very small areas, the researchers said.

David Lobell, an associate professor at the school, said in a video that satellites which were once the size of school buses were now the size of fridges or even shoeboxes.

"You can get lots of them up there, all capturing very small parts of the land surface at very high resolution," added Lobell, who co-authored the study.

"Any one satellite doesn't give you very much information, but the constellation of them actually means that you're covering most of the world at very high resolution and at very low cost.

"That's something we never really had even a few years ago."

09. A new age for remote sensing -- using nimble satellites

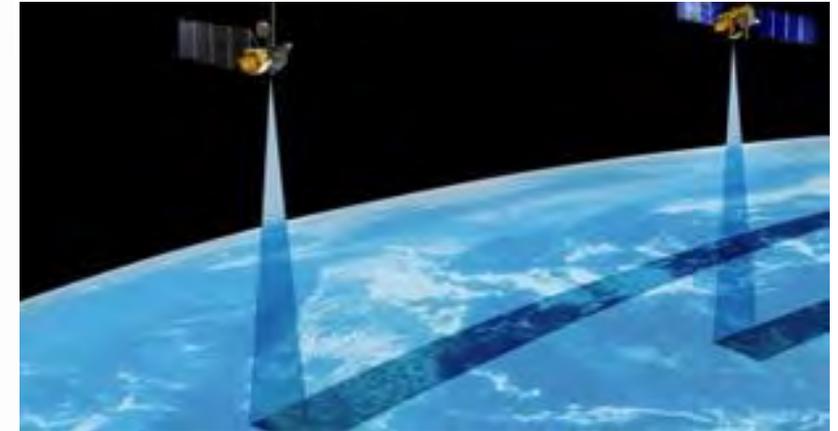


Photo credit: see the fine text below.

A game changer: Small satellites in constellation formation.

https://www.google.co.jp/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwil8Z-h_djVAhWMYbwKHb3bCKkQjRwIbW&url=https%3A%2F%2Fwww.engineering.unsw.edu.au%2Fcivil-engineering%2Fremote-sensing-and-digital-mapping&psig=AFQjCNFdf2L2LgH_7d9CkaODpk8LCE_w&ust=1502877514634820

10. Some BIRDS-1 articles that appeared in the press in Bangladesh this year

The next five pages show various newspaper articles that were published in Bangladesh (print media)

These clippings came from the BIRDS-1 Bangladesh team of Maisun, Antara, and Kafi.



রাশিয়ার স্যাটেলাইট ইন্সটিটিউটের প্রধান নির্বাহী অধ্যাপক অ্যান্ড্রিয়ার্স হেল্ডেব্র্যান্ড (বাম থেকে) অধ্যাপক মিল কলম, বাংলাদেশ সরকারের সিনিয়র অফিসার অ্যান্ড্রিয়ার্স হেল্ডেব্র্যান্ড ও ডক্টর সঞ্জয় মিত্র।

দেশের প্রথম ন্যানো স্যাটেলাইট প্রস্তুত

- আন্তর্জাতিক সহযোগিতায় প্রথম ন্যানো স্যাটেলাইট প্রস্তুত
- উৎক্ষেপণ হবে মে মাসে

বিশ্ব প্রতিযোগিতায়

আজকে সোমবার রাতে জাতিসংঘের 'স্পেস২০১৫' প্রতিযোগিতায় উত্তীর্ণ হয়ে বাংলাদেশের এই প্রথম ন্যানো স্যাটেলাইট প্রস্তুত হয়েছে। এটি বাংলাদেশের প্রথম ন্যানো স্যাটেলাইট।

এই প্রকল্পের নেতৃত্ব দিচ্ছেন ডক্টর সঞ্জয় মিত্র। এটি একটি আন্তর্জাতিক সহযোগিতায় প্রস্তুত করা হয়েছে।



একমাত্র ন্যানো স্যাটেলাইট

বাংলাদেশের প্রথম ন্যানো স্যাটেলাইট প্রস্তুত হয়েছে। এটি বাংলাদেশের প্রথম ন্যানো স্যাটেলাইট।

দেশের প্রথম ন্যানো স্যাটেলাইট প্রস্তুত



রাশিয়ার স্যাটেলাইট ইন্সটিটিউটের প্রধান নির্বাহী অধ্যাপক অ্যান্ড্রিয়ার্স হেল্ডেব্র্যান্ড (বাম থেকে) অধ্যাপক মিল কলম, বাংলাদেশ সরকারের সিনিয়র অফিসার অ্যান্ড্রিয়ার্স হেল্ডেব্র্যান্ড ও ডক্টর সঞ্জয় মিত্র।

এই প্রকল্পের নেতৃত্ব দিচ্ছেন ডক্টর সঞ্জয় মিত্র। এটি একটি আন্তর্জাতিক সহযোগিতায় প্রস্তুত করা হয়েছে।

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Daily prothom Alo – Thursday; February 9, 2017



Shpno Niye_Prothom Alo – Sunday; June 26, 2016

Quick facts about Bangladesh

Population	161,083,804
Density	1,237.5 / km ² (3,205.1 / mi ²)
Language	Bengali
Independence Year	1971
Capital	Dhaka (Dhaka)
Currency	Taka
GDP	174,000,000,000 (2014 data)
GDP per Capita	1,080 (2014 data)
Land Area	130,168 km ² (50,258 mi ²)
Water Area	13,830 km ² (5,340 mi ²)
Neighbouring Countries	India, Myanmar

<http://www.worldatlas.com/as/bd/where-is-bangladesh.html>

মহাকাশ জয়ের পথে

শীতল দিবা

বাংলাদেশের ডিজিটাল শিক্ষার উন্নয়ন ঘটানোর উদ্দেশ্যে 'মহাকাশ জয়ের পথে' নামের একটি প্রকল্প চালু করা হয়েছে। এই প্রকল্পের মাধ্যমে বাংলাদেশের শিক্ষার্থীদেরকে ডিজিটাল শিক্ষার সুযোগ দেওয়া হবে।

এই প্রকল্পের অধীনে বাংলাদেশের বিভিন্ন জায়গায় ডিজিটাল শিক্ষার কেন্দ্র স্থাপন করা হবে। এই কেন্দ্রগুলিতে শিক্ষার্থীরা ডিজিটাল শিক্ষার সুযোগ পাবে।

এই প্রকল্পের অধীনে বাংলাদেশের বিভিন্ন জায়গায় ডিজিটাল শিক্ষার কেন্দ্র স্থাপন করা হবে। এই কেন্দ্রগুলিতে শিক্ষার্থীরা ডিজিটাল শিক্ষার সুযোগ পাবে।

মহাকাশ জয়ের পথে প্রকল্পের অধীনে বাংলাদেশের বিভিন্ন জায়গায় ডিজিটাল শিক্ষার কেন্দ্র স্থাপন করা হবে। এই কেন্দ্রগুলিতে শিক্ষার্থীরা ডিজিটাল শিক্ষার সুযোগ পাবে।

এই প্রকল্পের অধীনে বাংলাদেশের বিভিন্ন জায়গায় ডিজিটাল শিক্ষার কেন্দ্র স্থাপন করা হবে। এই কেন্দ্রগুলিতে শিক্ষার্থীরা ডিজিটাল শিক্ষার সুযোগ পাবে।



11. BRAC ONNESHA ground station operation

This material was provided by BRAC University.



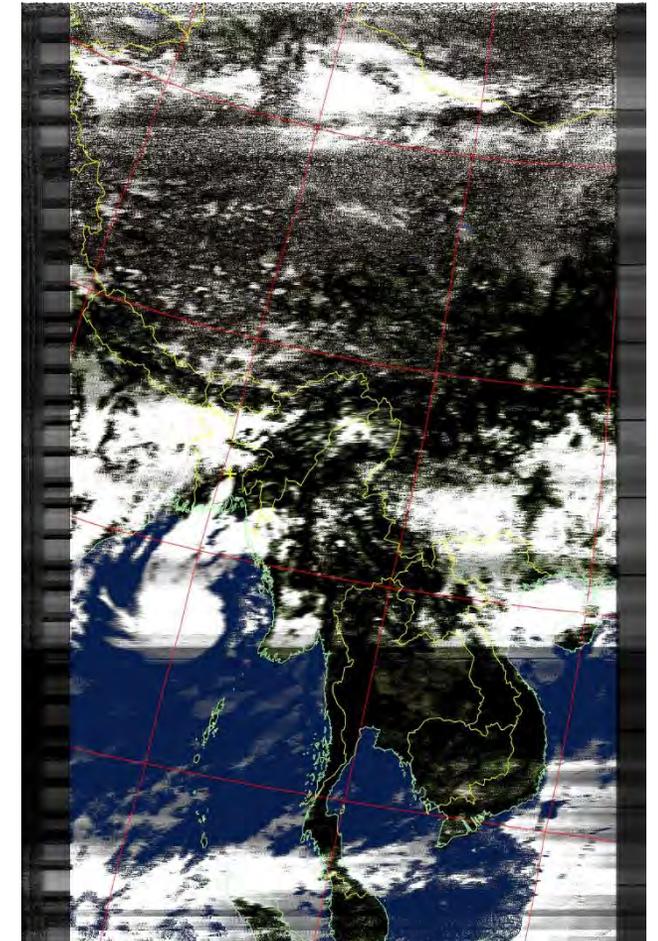
Tracking BIRDS Satellites from BANGLADESH Ground Station , BRAC University



BRAC University Teacher, Students & BTRC personnel, are trying to analyze the outside noise as this ground station is situated in densely RF area.

Custom-made UHF Yagi Antenna is being used to receive BIRDS satellite signal from BRAC University Ground Station.

BANGLADESH



This picture of **Cyclone Mora** has been captured through NOAA-19 satellite in BRAC ONNESHA GS, right before the costal areas of Bangladesh being hit.

12. A Russian Web article about BIRDS-1

Африка включилась в космическую гонку, запустив свой первый спутник

Roughly translated: "Africa joins the space race by launching its first satellite"



Африка позднее большинства остальных континентов включилась в международную космическую гонку. Первым африканским спутником, выведенным на околоземную орбиту, стал аппарат GhanaSat-1, созданный командой инженеров из Университета всех наций, расположенного в городе Кофоридуа государства Гана. Проект отнял у учёных около двух лет, а его стоимость составила 50 000 долларов. Ещё в июне спутник был доставлен в Международный космический центр NASA, а на орбиту в июле его вывела ракета компании SpaceX.

7 Августа 2017 в 10:30, **Сергей Грэй** 👁 6 193 💬 54

 > Темы > Космос > Африка включилась в космическую...

<https://hi-news.ru/space/afrika-vklyuchilas-v-kosmicheskuyu-gonku-zapustiv-svoj-pervyj-sputnik.html#comments>

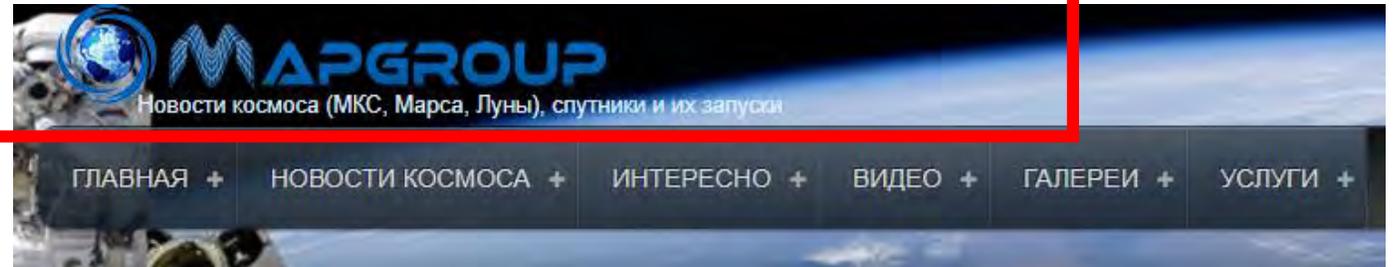
13. An Ukrainian web article about Kyutech's BIRDS Project

This is a website based in the Ukraine >>

It covers topics related to the ISS, Mars, and the Moon. As well, it covers global satellites and their launches.

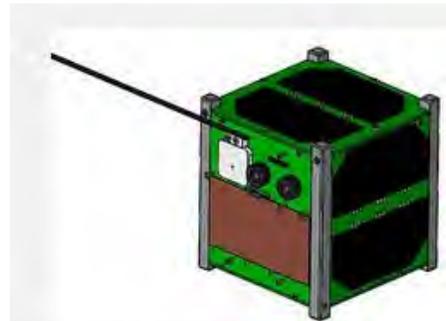
These screenshots were taken on 21 August 2017.

This article is continued on the next page.



Bird B, BTN, G, J, M, MYS, N, PHL (BRAC Onnesha, GhanaSat 1, Toki, Mazaalai, Nigeria EduSat 1)

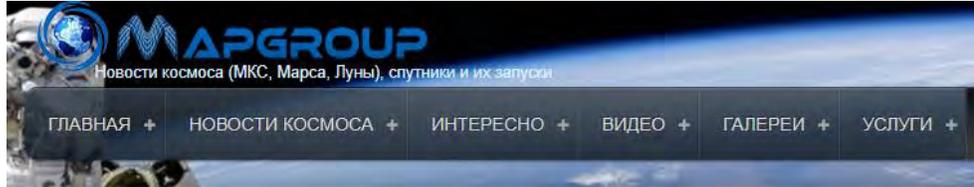
- Родительская категория: [Спутники](#)
- Категория: [Космические аппараты \(спутники\) Японии](#)



Bird B (BRAC Onnesha), Bird G (GhanaSat 1, ANUSAT 1), Bird M (Mazaalai, NUMSAT 1), Bird N (EduSat 1), Bird BTN, Bird MYS, Bird PHL - космические аппараты созданы в образовательных целях японским Технологическим институтом Кюсю (KIT) в качестве совместного проекта Global Multi-Nation Birds Satellite, который является трансграничным междисциплинарным спутниковым проектом для стран, не являющихся космическими странами, поддерживаемых Японией.

Этот проект развивается в несколько этапов. На первом этапе принимают участие в проекте четыре страны-участницы: Гана, Монголия, Нигерия и Бангладеш. В течение двух лет студенты должны спроектировать, разработать и научиться эксплуатировать пять единиц идентичных 1U CubeSats.

Continued from the previous page...



BIRDS-2 are mentioned here

Характеристики КА Bird

Название	Bird
Страна	Япония (Бангладеш, Гана, Монголия, Нигерия)
Назначение	научный, студенческий
Заказчик	Kyushu Institute of Technology (KIT)/Технологический институт Кюсю (КИТ)
Создатель	Kyushu Institute of Technology (KIT)/Технологический институт Кюсю (КИТ)
Конфигурация	1U CubeSats
Орбита	400 km x 400 km, 51.6° (орбита МКС)
Полезная нагрузка	небольшие камеры
Мощность	солнечные батареи, аккумуляторы
Масса	1 кг
Срок жизни	около 6 месяцев

КА	Дата	Космодром	РН	Примечание
Bird B (BRAC Onnesha)	03.06.2017	Космический центр Кеннеди (США)	Falcon-9 v1.2	с Dragon CRS-11, NICER, MUSES, ROSA , Bird G, Bird J, Bird M, Bird N
Bird BTN (Bhutan 1)	2018			with ?, Bird MYS, Bird PHL
Bird G (GhanaSat 1, ANUSAT 1)	03.06.2017	Космический центр Кеннеди (США)	Falcon-9 v1.2	с Dragon CRS-11, NICER, MUSES, ROSA , Bird B, Bird J, Bird M, Bird N
Bird J (Toki)	03.06.2017	Космический центр Кеннеди (США)	Falcon-9 v1.2	с Dragon CRS-11, NICER, MUSES, ROSA , Bird B, Bird G, Bird M, Bird N
Bird M (Mazaalai, NUMSAT 1)	03.06.2017	Космический центр Кеннеди (США)	Falcon-9 v1.2	с Dragon CRS-11, NICER, MUSES, ROSA , Bird B, Bird G, Bird J, Bird N
Bird MYS	2018			with ?, Bird BTN, Bird PHL
Bird N (EduSat 1)	03.06.2017	Космический центр Кеннеди (США)	Falcon-9 v1.2	с Dragon CRS-11, NICER, MUSES, ROSA , Bird B, Bird G, Bird J, Bird M
Bird PHL	2018			with ?, Bird BTN, Bird MYS

<<<< Kyutech is mentioned here

End of **BIRDS Project Newsletter** – Issue Number Nineteen

This newsletter is archived at the BIRDS Project website:

Project website: <http://birds.ele.kyutech.ac.jp/>

When a new issue is entered in to the archive, an email message is sent out over a mailing list maintained by the Editor (G. Maeda, Kyutech). If you wish to be on this mailing list, or know persons who might be interested in getting notification of issue releases, please let me know.

This newsletter is issued once per month. The purpose of it is to keep BIRDS stakeholders (the owners of the satellites) informed of project developments.