

GHANA'S FIRST SATELLITE (GHANASAT-1) WILL BE LAUNCHED TO THE INTERNATIONAL SPACE STATION (ISS) BY SPACE X, FLIGHT 11 FROM KENNEDY SPACE CENTRE IN FLORIDA, USA ON JUNE 1, 2017 AT 21:55 UTC

Article by: Benjamin Bonsu (Project Manager of Ghanasat-1)



The flight model of Ghanasat-1



Team members of Ghanasat-1: Joseph Quansah (left), Benjamin Bonsu (middle), Ernest Matey (right)

The quest of the All Nations University College (ANUC) at Koforidua to make Ghana a space-faring nation took a giant leap forward when the first-ever successfully designed and developed satellite by Ghanaian students in Japan was handed over to the Japan Aerospace Exploration Agency (JAXA) after going through a rigorous safety review and flight fit test in February this year.

JAXA took delivery of the Cubesat, dubbed Ghanasat-1, on February 9, 2017 and handed it over to the National Aeronautics and Space Administration (NASA) in Florida, USA on February 13.

Ghana's first satellite will be launched to the International Space Station (ISS) by Space X, Flight 11 from Kennedy Space Centre in Florida, USA. Consequently, Ghanasat-1 will be deployed from the International Space Station into orbit at an altitude of 420km on June 1, 2017 at 21:55 UTC.

The deployment of Ghanasat-1 will be watched live at JAXA Tsukuba Space Centre in Japan by Ambassador of Ghana H. E. Parker-Allotey and managements of All Nations University.

The successful launch of the cubesat, which weighs 1,000grams is expected to make the dream of Ghana becoming a space-faring nation a reality and also boost the country's capacity to take advantage of space science technology in the future.

The Ghanasat-1, described as the first private University satellite in Sub-Saharan Africa, has low and high resolution cameras on-board to take pictures of our homeland and provide data that can be used to monitor coastal areas of Ghana.

It also has Digi-Singer SNG mission from which the national anthem and other independence songs will be broadcast from space as well as collect requested songs from the ground and send to the satellite to broadcast in space. An initiative aimed at stimulating interest in science, technology, engineering and mathematics (STEM) education in high schools and tertiary institutions.

It will also embark on a scientific mission to investigate the radiation effects on commercial-off-the-shelf microprocessors. This means it will measure the single event latch-up occurrence that degrades electronic system on board satellites due to the harsh space environment and analyse this data to contribute to scientific research.

The two-year project, made possible through a collaboration between the ANUC and the Kyutech Institute of Technology (Kyutech) in Japan, began in October 2015 and was completed in December 2016.

It was carried out entirely by three young engineering graduates of the All Nations University College, who designed, assembled and tested the satellite when they joined the Birds project implemented by Kyutech for other four nations aspiring to be space-faring.

The trio, led by Benjamin Bonsu, a PhD student in Applied Science for System Engineering; Joseph Quansah and Ernest Teye Matey, executed the project under the supervision of Professor Mengu Cho, Director of Laboratory of Spacecraft Environment Interaction Engineering (LaSEINE) and other faculty members of Kyutech.

The young engineers, along with their team in Ghana, were the founding members of ANUC's Space Science and Technology Laboratory (SSTL) which designed, developed and launched successfully the University's miniaturised Cansat on May 15, 2013, an initiative that attracted the attention of both local and international media.

The trio completed their Bachelor of Science degree in Electronics and Communications Engineering at ANUC in 2013 and constructed the University's amateur Ground Station that currently allows the station to receive information from passing satellites. An achievement that has made ANUC the first University in Ghana and Sub-Saharan Africa to accomplish such success in space science technology applications.

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