SPACE BRIEF

ROUND THE SPACE-WORLD IN TIME

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Dear readers,

Space is a long-term investment. The early investments in Space, such as the Landsat program, Global Positioning System (GPS) and Hubble Space Telescope, are being reaped today. Many space projects also take a couple of years from design to development to implementation. Africa's nascent investors in space need to bear in mind that while there may be some immediate fruits from their investments, the latter fruits are more sustainable, if there is a proper foundation.

Happy reading.

INTERNATIONAL COOPERATION

Space Troika meeting holds in Brussels

The Space Troika was set up in 2011, to bring together respective departments of the African Union Commission (AUC) and European Commission directorates, dealing with space matters, so as to advance cooperation in space and monitor the implementation of agreed projects. The 6th Space Troika meeting was held on 20th April, 2015, in Brussels, Belgium. Among other decisions, the Space Troika agreed to adopt the roadmap of the GMES & Africa initiative and to convene a stakeholders' workshop to launch the implementation of the first three thematic chapters; put in place an appropriate governance structure for the initiative under the overall space governance structure of the AUC; develop a policy for access and use of data and products from sentinel satellites; and to prioritise the applications listed in the Identification Study of the GMES & Africa initiative. Representatives of the European Space Agency (ESA) and the European Meteorological Satellite (EUMETSAT) were also present at the meeting.

EARTH OBSERVATION

MESA PSC4 holds in Mauritius

The fourth meeting of the Monitoring of the Environment and Security for Africa (MESA) Project Steering Committee (PSC) was held from 27-29 April, 2015, in Mauritius. Among the 24 recommendations of the meeting, the PSC recommended that the Project Coordination Team focus communication (newsletter, web stories) on early results of continental and regional activities, focusing on demonstrating the added value of already available MESA services for environmental and climate monitoring; and that the African Union Commission (AUC) initiate a process of gathering user needs in order to prepare a request for Sentinel-3 Land data, with the contribution from the MESA RICs interested in these data.

At the end of the meeting, the PSC elected the Indian Ocean Commission (represented by Mrs Gina Bonne) as Chairperson of the PSC, and Southern African Development Commission (represented by Mr Bradwell Garanganga) as Vice-Chair. The next PSC meeting will take place in the region of the Economic Community of West African States (ECOWAS) in February 2016. While MESA ends in 2016, it will be succeeded by the Global Monitoring of the Environment and Security (GMES) & Africa initiative.

Ethiopia holds consultation on satellite launch

A consultation meeting on the first Ethiopian Earth Observation Satellite Programme was held at the Elilly International Hotel, Kazeches, Addis Ababa, on 28 March, 2015. At the meeting, the feasibility study for a proposed satellite, called Ethosat1, was presented to relevant stakeholders. The study was conducted by the Entoto Observatory and Research Centre (EORC) in collaboration with the Space Technology Study Group (STSG) of Finland.

The Acting Director, Department of Human Resources, Science and Technology of the AUC, Dr. Mahama Ouedraogo, highlighted that the project is in line with the Africa Union's Agenda 2063, which recognizes Space as a building block for sustainable development. He further encouraged the stakeholders to align the programme with the continental strategies on Space, especially by involving the Pan-African University - Institute of Space Sciences.

Development of Landsat 9 begins

The National Aeronautic and Space Administration (NASA) of the United States of America (USA) and the United States Geological Survey (USGS) have started the design of Landsat 9, with a planned launch in 2023. The Landsat program which began in 1972, has being providing accurate measurements of Earth's land cover. While NASA will build, launch, perform the initial check-out and commission the satellite, USGS will operate Landsat 9 and process, archive, and freely distribute the mission's data.

Landsat 7 satellite undergoing integration (Credits: Wikipedia)

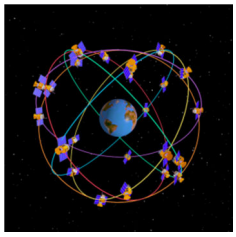
"Landsat is a remarkably successful partnership," said Sarah Ryker, USGS deputy associate director for climate and land use change, Reston, Virginia. "Last year the White House found that GPS, weather satellites, and Landsat are the three most critical types of Earth-orbiting assets for civil applications, because they're used by many economic sectors and fields of research. Having Landsat 9 in progress, and a long-term commitment to sustainable land imaging, is great for natural resource science and for data-driven industries such as precision agriculture and insurance."

The images, archived in the United States and at Landsat receiving stations around the world, are a unique resource for global change research and applications in agriculture, cartography, geology, forestry, regional planning, surveillance and education, and are freely available.

POSITIONING AND NAVIGATION

GPS marks 20th anniversary

The Global Positioning System (GPS) owned by the USA marked its 20th year of operation on Monday, April 27, 2015. GPS is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites. The GPS is currently undergoing modernization to improve its performance.



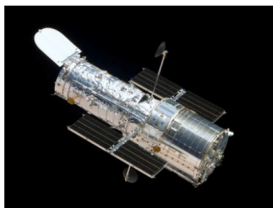
GPS satellites in their slots orbiting the Earth

In addition to GPS, other systems that are in use or under development include the Global Navigation Satellite System (GLONASS) owned by Russia, Galileo owned by the European Union, Beidou owned by China, Indian Regional Navigation Satellite System (IRNSS) owned by India, and the Quazi-Zenith Satellite System (QZSS) owned by Japan. Satellite navigation finds application in agriculture, transportation, security, surveying & construction, weather forecasting, earthquake monitoring, generation & transmission of precise timing, wireless communication, Location-Based Services and several other areas.

There are also space-based augmentation systems designed to improve the accuracy of the global navigation systems. An example is the European Geostationary Navigation Overlay Service (EGNOS). Efforts are currently on by the African Union Commission and the European Union to extend the coverage of EGNOS to sub-Saharan Africa.

SPACE SCIENCE AND ASTRONOMY

Hubble marks 25th anniversary



The Hubble Space Telescope (HST) is a telescope that was launched into space on April 24, 1990. The telescope, which was jointly developed by NASA and ESA, is named after the astronomer Edwin Hubble, who played a key role in the study of celestial objects outside our Milky Way galaxy. Hubble's orbit outside of the Earth's atmosphere allows it to observe across and beyond the Solar system without any distortion from the Earth. Hubble has recorded some of the most detailed visible-light images ever, allowing a deep view into space and time. Many of its observations have led to breakthroughs in astrophysics, such as the accurate determination of the rate of expansion of the universe. Its scientific successor, the James Webb Space Telescope (JWST), is scheduled for launch in 2018.

SPACE EXPLORATION

NASA launches new search for extraterrestrial life

NASA has launched a project to seek for signs of life beyond our solar system. The Nexus for Exoplanet System Science (NexSS) project will bring together experts from the four divisions in its Science Mission Directorate - Earth science, planetary science, heliophysics and astrophysics - together on one platform, to study the components of an exoplanet, as well as how the planet's stars and neighbor planets interact to support life. An exoplanet is a planet that does not orbit the Sun; rather it orbits another star in the universe. While our solar system contains eight planets, there are over 1800 exoplanets. "The hunt for exoplanets is not only a priority for astronomers, it is of keen interest to planetary and climate scientists as well," said Jim Green, Director of NASA's Planetary Science Division.

NExSS includes research teams from 10 different universities and two research institutes. "NExSS scientists will not only apply a systems science approach to existing exoplanet data, their work will provide a foundation for interpreting observations of exoplanets from future exoplanet missions such as TESS [Transiting Exoplanet Survey Satellite], JWST [James Webb Space Telescope], and WFIRST [Wide-field Infrared Survey Telescope]" said Paul Hertz, Director of the Astrophysics Division.

This publication is a product of: The African Youth for Space Programme; Department of Human Resources, Science and Technology, African Union Commission, Addis Ababa, Ethiopia. Contact Email: AUSpaceProgramme@africa-union.org