

APSCC Monthly e-Newsletter

January 2024

The Asia-Pacific Satellite Communications Council (APSCC) e-Newsletter is produced on a monthly basis as part of APSCC's information services for members and professionals in the satellite industry. Subscribe to the APSCC monthly newsletter and be updated with the latest satellite industry news as well as APSCC activities! To renew your subscription, please visit www.apsc.or.kr. To unsubscribe, send an email to info@apsc.or.kr with a title "Unsubscribe."

News in this issue has been collected from December 1 to December 31.

INSIDE APSCC

2024 APSCC Webinar Series - Leveraging Multiple Orbits to Bring a Multitude of Connectivity Solutions in Asia on January 16 (TUE)

The satcom sector has experienced significant disruption over the past decade, with capacity coming from new orbits and in sometimes exotic frequency bands. This has been met with ever more complex customer requirements, a complexity that was accelerated with the mass digitization brought on by the Covid-19 pandemic. The first in 2024 APSCC Webinar Series, today's discussion will dive into the state of the market today, in particular focusing on Eutelsat's combined GEO/LEO offering with OneWeb in the context of the Asia-Pacific region.

Speakers: Bala Balamurali, Regional Director, South East Asia and Pacific Region, Eutelsat OneWeb

Fabio La Gioia, Senior Product Manager, Eutelsat OneWeb

Andy Smart, Product Management Director for EMEA, Intellian Technologies

Moderator: Blaine Curcio, Affiliate Senior Consultant, Euroconsult

Join the first edition of the 2024 APSCC Webinar Series at 9 am Hong Kong/Singapore time (UTC+8) on January 16! <https://apsc.or.kr/webinar/>

APSCC 2024 Satellite Conference & Exhibition (APSCC 2024), November 5-7, Bangkok

APSCC Satellite Conference & Exhibition, the largest three-day annual gathering of the Asia-Pacific satellite and space community, is the defining platform that brings the professionals of the satellite and space industry together for market insight, striking partnerships and concluding business deals. Connect, communicate, and collaborate on the industry's challenges and opportunities that lie ahead to improve the quality of life in the Asia-Pacific region through Satellite and Space! This year the APSCC 2024 Satellite Conference and Exhibition will be heading to Bangkok, Thailand. Regarding sponsorship, exhibition and speaking opportunity, please contact the APSCC 2024 team at apsc2024@apsc.or.kr

SATELLITE BUSINESS

Axelspace Raises \$44 Million, Closing Series D Funding Round to Accelerate Growth toward Social Implementation of Microsatellite Applications

December 21, 2023 – Axelspace Holdings Corporation announced that the company completed its Series D funding round raising approximately JPY 6.24 billion (equivalent to USD 44.0 million). This brings the cumulative amount of equity financing to approximately JPY 14.3 billion. Axelspace Corporation, a wholly owned subsidiary of Axelspace Holdings, will use the new funds to meet more diverse customer demands. This involves enhancing our Earth observation services through the expansion of our proprietary microsatellite constellation which currently consists of five satellites under operation, providing full-scale services of microsatellite development and operation to both

public and private sectors, and constructing optical data relay satellite constellations. In the 15 years since its establishment in 2008, Axelspace has demonstrated a proven track record in the development and operation of a total of nine microsattellites, including a technology demonstration satellite for the Japan Aerospace Exploration Agency (JAXA). In addition to the Earth observation service “AxelGlobe” which started in 2015, Axelspace has been progressing its research and development to realize an innovative one-stop service, “AxelLiner.” This service was announced in 2022 aiming to offer feasibility studies, designing, manufacturing, launch, and in-orbit operations for microsattellites, and its demonstration satellite is expected to launch in early 2024. (More information available at <https://www.axelspace.com/>)

Mangata Networks Forges Strategic Collaboration with Microsoft to Pioneer AI-Enabled Edge Cloud Connectivity via Satellite

December 21, 2023 – Mangata Networks, a global company offering satellite-enabled connectivity & intelligent edge computing solutions, has signed a partnership with Microsoft aimed at developing an AI-enabled edge cloud product connected via satellite. This partnership represents a long-term commitment between Mangata Networks and Microsoft, marking the beginning of a sustained collaborative journey aimed at continuously advancing cloud technology through innovative satellite connectivity. Mangata will provide seamless connectivity and intelligent cloud computing services around the globe, bringing the benefits of Azure innovation anywhere in the world. The network is powered by a multi-orbit constellation of HEO (highly elliptical orbit) and MEO (medium Earth orbit) satellites and a terrestrial network of edge data centers. (More information available at <https://www.mangatanetworks.com/>)

Equatorial Space Inaugurates New HQ in Singapore

December 20, 2023 – Singapore’s launcher startup, Equatorial Space, reveals a new, 12,000 square foot headquarters and production facility in the Tuas area of the island-state at an opening ceremony attended by 40 representatives from Singapore’s government agencies and fellow industry players. The facility features a 40ft-container-accessible production floor, and a 420 square foot avionics & payload processing room being fitted to ISO 8 standards to support its suborbital launch services starting 2024, and orbital launches beginning in 2026. Equatorial Space is a Techstars-backed, Singapore-headquartered rocket propulsion and launcher company started in 2017. In 2020, Equatorial Space became the first company in Southeast Asia to test launch a commercially developed rocket prototype, testing its core technologies. It will begin orbital launch services in 2026. (More information available at <https://www.equatorialspace.com/>)

Hughes Elevates Rural America’s Internet Experience with the New Hughesnet

December 19, 2023 – Hughes Network Systems, LLC (HUGHES) today introduced new Hughesnet® high-speed satellite internet plans that allow customers to connect, stream and play wherever they live. The plans leverage capacity from the new Hughes JUPITER™ 3 satellite to offer faster speeds and unlimited data, as well as feature low-latency Hughesnet Fusion® and Whole Home Wi-Fi. Bringing unprecedented capacity for internet connectivity to the Americas, the Hughes JUPITER 3 is the world’s largest commercial communications satellite. This ultra-high-density satellite features more than 300 spot beams that alleviate congestion and deliver a faster experience. The state-of-the-art ground system for JUPITER 3 has a new dedicated fiber backbone to reduce latency and artificial intelligence (AI) that automatically reroutes traffic around congestion. The JUPITER-powered Hughesnet plans feature download speeds up to 100 Mbps. The Hughesnet Fusion plan allows customers to enjoy gaming and playing online like never before. Introduced to the market last year as the first consumer-ready multipath technology, Hughesnet Fusion seamlessly blends satellite and wireless technologies into a low-latency, more responsive internet experience – now with unlimited data and faster speeds. The Whole Home Wi-Fi lets users connect, stream and play anywhere in their home. (More information available at <https://www.hughes.com/>)

Bayanat and Yahsat Boards Recommend Merger to Create an AI-powered Space Technology Champion with Global Reach

December 19, 2023 – Bayanat AI PLC (“Bayanat”), a leading AI-powered geospatial solutions provider, and AI Yah Satellite Communications Company P.J.S.C. (“Yahsat”), a leading global satellite operator, announced today that their respective Boards of Directors have unanimously voted to recommend to shareholders a merger of the two Abu Dhabi-headquartered and ADX-listed entities. The proposed merger will create an AI-powered space technology champion in the MENA region with an implied market capitalization of over AED 15 billion (over USD 4 billion), based on both entities’ closing share prices as at 18 December 2023, the last day of trading prior to announcement of the merger. This would make it one of the most valuable publicly listed space companies in the world by market capitalization, with additional potential for significant global growth and synergies. The combined entity will be vertically integrated and optimally positioned to capture regional and international opportunities in geospatial and mobility solutions, satellite communications and business intelligence. With a strengthened financial position, enhanced AI-powered technological capabilities and a diversified product portfolio, the combination will also establish a platform for transformative technologies to enable space-based services with significant impact on societies and economies. It is moreover expected to benefit from considerable revenue synergies and economies of scale that will best position the organization for innovation and profitable growth. (More information available at <https://www.yahsat.com/en>)

Overseas Shipholding Group Installs Starlink Satellite Internet Service on Entire Fleet

December 19, 2023 – Overseas Shipholding Group, Inc. (OSG), a leading provider of energy transportation services, is set to mark a pioneering moment in the Jones Act and US Flag industries by equipping all vessels in its fleet with Space X’s Starlink satellite internet service. Since the introduction to the market of Starlink’s Global Maritime service earlier this year, OSG’s IT department has worked to substantially complete installation of Starlink equipment on every vessel in the fleet of OSG and ATC, with full installation expected by year end. OSG marks this advancement as part of the Company’s commitment to a new era of seamless connectivity for seafarers on board all OSG vessels. The availability of Starlink allows seafarers to enjoy high-speed internet access even in the most remote maritime locations, staying connected with loved ones via video calls, accessing streaming services and social media, and attending to personal matters while at sea. (More information available at <https://www.osg.com/>)

HawkEye 360 Expands Spectrum Scanning through the Acquisition of RF Solutions from Maxar

December 18, 2023 – HawkEye 360 Inc., the world’s leading defense technology company for space-based radio frequency (RF) data and analytics, announced today the acquisition of RF Solutions from Maxar Intelligence, a provider of secure, precise, geospatial intelligence. RF Solutions was formed from the Aurora Insight acquisition that Maxar Intelligence completed in January 2023. With this acquisition, HawkEye 360 gains ownership of two existing RF satellites (Charlie and Delta), RF scanning intellectual property, and a multi-year global database rich in RF collections ranging from 1.4 GHz to 40 GHz. The additional satellites will enable HawkEye 360 to expand frequency coverage to include 26 to 40 GHz. This broader range will enhance customer understanding of the signal activity occurring in each region of the world. The two new satellites bring HawkEye 360’s total constellation to 23 satellites and facilitate the detection, characterization, and geolocation of radio frequency signals from a broad range of emitters used for communication, navigation, and security. HawkEye 360 will continue expanding the constellation to address clients’ increasing demands for RF Intelligence, aiming to launch a dozen more satellites in 2024. (More information available at <https://www.he360.com/>)

Lynk Signs Letter of Intent to Become Publicly-Listed, Leading Satellite-to-Phone Company Through a Business Combination with Slam Corp.

December 18, 2023 – Lynk Global and Slam Corp. announced that they have signed a non-binding

letter of intent (“LOI”) for a potential business combination. Under the terms of the LOI, the combined company would operate as Lynk Global, Inc. and its common stock and warrants are expected to be listed on Nasdaq under the ticker symbol “LYNK” and “LYNKW,” respectively. Lynk was founded in 2017 by Charles Miller, President and CEO; Margo Deckard, COO; and Tyghe Speidel, CTO. Lynk’s proprietary technology created the sat2phone category, which encompasses products and services that leverage mobile phones. It designs, builds, and operates proprietary “cell-tower-in-space” satellites that provide direct-to-standard-phone connectivity and global coverage. Lynk believes it is the world’s only patented, proven, and commercially licensed sat2phone system. Lynk has proven two-way sat2phone connectivity on all seven continents, including SMS, emergency alerts, voice calls, and data and is scaling to provide ubiquitous service at broadband speeds. Lynk partners with wireless providers and mobile network operators (“MNOs”) to deliver connectivity to their customers through their existing mobile devices. (More information available at <https://lynk.world/>)

Kymeta Hawk u8 is the First Flat Panel Antenna to be Approved on Eutelsat OneWeb’s LEO Network for Land Mobility

December 14, 2023 – Kymeta and Eutelsat Group announced that the Kymeta electronically steered Hawk u8 LEO terminal is now approved for land mobility on the Eutelsat OneWeb LEO network, becoming the first flat panel antenna to be approved on their LEO network for land mobility. This offering unlocks a new era of connectivity for customers who require exceptional performance and reliable connectivity while on the move. Kymeta’s deep roots in providing mobility extend back to the launch of its first product in 2017. By tapping into Eutelsat OneWeb’s enterprise-grade connectivity network, all vehicles can now connect easily and seamlessly on the pause and on the move. (More information available at <https://www.kymetacorp.com/>)

FreeWave Joins Viasat’s ELEVATE Program to Provide One-Stop Industry IoT Solutions

December 14, 2023 – Viasat, Inc. announced FreeWave Technologies, an industry Internet of Things solution manufacturer, has joined its ELEVATE program. ELEVATE is a growth program, ecosystem and marketplace for ambitious IoT solution providers, connectivity wholesalers, enablers and OEMs who want to work with Viasat to use its network and footprint to scale. As an ELEVATE partner, FreeWave will offer an ecosystem of IoT data-driven network solutions – helping customers to connect, visualize and future-proof remote operations. As part of the program FreeWave will have new access to Viasat’s global L-band network to provide Internet of Things (IoT) and satellite connectivity services. This will enhance the company’s ability to deliver robust IoT solutions in challenging environments where demanding performance and exceptional support are crucial for its customers’ network productivity and revenue. (More information available at <https://www.viasat.com/>)

Eutelsat OneWeb Signs Exclusive Distribution Agreement with Rawafed Libya to Deliver Connectivity Services across Libya

December 13, 2023 – Eutelsat Group announced the signing of an exclusive distribution partnership agreement between Eutelsat OneWeb, its connectivity business unit and Rawafed Libya for Telecommunications & Technology (RLTT), the Libyan telecoms operator, for the delivery of high-speed, low latency connectivity across Libya. RLTT is expanding its relationship with Eutelsat Group to include a hybrid bundle of both enhanced GEO and LEO services, in this new landmark agreement. Eutelsat OneWeb will provide exclusive access to its Low Earth Orbit (LEO) powered connectivity constellation, delivering full connectivity over Libya from early 2024. The multi-million-dollar, multi-year contract further cements the existing long-standing relationship between Eutelsat Group and RLTT. The services will provide high-speed, low latency connectivity for a range of applications including commercial connectivity to the Oil and Gas and Financial Services industries, Government sectors, cellular backhaul for telecoms operators and remote connectivity for humanitarian organizations. (More information available at <https://www.eutelsat.com/en/home.html>)

SES Showcases High-Speed Internet Connectivity on MEO Satellites in the Philippines

December 13, 2023 – To advance connectivity technologies, SES has recently undertaken a set of proof-of-concept tests to evaluate the performance of SES's medium earth orbit (MEO) satellite constellation for the Department of Information and Communications Technology (DICT). The DICT is the government agency in the Philippines tasked with planning, developing, and promoting the country's ICT development agenda. The demo leveraged SES's O3b and O3b mPOWER systems; these are MEO satellite constellations designed to bring connectivity to the "other three billion" — those who lack consistent, reliable access to communications systems. The test drive included showcasing breakthrough speeds of 500Mbps download and 80Mbps upload, which is six times faster than the Philippines' median fixed broadband download speed of 83.09 Mbps and comparable to the median upload speed of 79.42 Mbps, as of September 2023, according to Ookla's Speedtest Global Index. Operating 8,000km away from the Earth's surface, SES's MEO constellations deliver high-throughput, low-latency services, making MEO the ideal orbit for superior Internet access, cloud-based applications, and 5G capabilities. SES has recently launched two more O3b mPOWER satellites for its second-generation MEO constellation which is set to start service in Q2 2024. The high speeds demonstrated in the proof-of-concept can empower communities and villages in isolated areas — connecting them to buyers, suppliers, banking, and other institutions that will help build rural communities' livelihoods. Enhanced connectivity can also provide access to new technologies and services that will aid the development of the countryside. (More information available at <https://www.ses.com/>)

Thai Aerospace Partners with Rivada for Network Expansion

December 12, 2023 – Thai Aerospace Industries (TAI), an aerospace and aviation services company headquartered in Bangkok, is partnering with Rivada Space Networks to bring highly reliable and secure connectivity services to the commercial, military and general aviation sectors in Thailand and beyond. Rivada's global low-latency point-to-point network of 600 low earth orbit (LEO) satellites, the "OuterNET™," is a unique next-generation constellation combining inter-satellite laser links with advanced onboard processing that provide unique routing and switching capabilities, to create an optical mesh network in space. For its Government and Defense divisions, Rivada's OuterNET™ will enable Thai Aerospace Industries to improve connectivity across their airfields, providing them with an easy to deploy network with higher bandwidth and improved security for resilient and more reliable communications services. TAI is also an independent provider of aviation services in Southeast Asia. Commercial and military operators are increasingly under pressure to reduce their maintenance, repair and overhaul costs without compromising fleet effectiveness or safety. Using Rivada's OuterNET™ will enable TAI to have better control and management of its aviation servicing center. TAI is also looking into expanding into the burgeoning enterprise sector and has strong relationships with the telecommunication companies in Thailand, which can use Rivada's OuterNET™ to bring enterprise-grade connectivity anywhere on the globe. (More information available at <https://rivadaspace.com/>)

Intellian Completes Parabolic Terminal Portfolio Development for Eutelsat OneWeb, Enabling More Connectivity Solutions for Customers across Land and Sea

December 12, 2023 – Intellian Technologies and Eutelsat OneWeb announce the launch of OW130L for Eutelsat OneWeb customers. The OW130L will offer a robust, reliable service on Eutelsat OneWeb's network while also being very tolerant to rain fade and ensuring delivery on the highest Service Level Agreements (SLA). The dual parabolic terminal is particularly suitable for customers requiring high-capacity connectivity, such as those operating critical national infrastructure. The announcement is the culmination of a rigorous development process to launch a suite of six parabolic terminals to meet customer demands across Land and Maritime markets. The OW130L joins the Enterprise portfolio which includes the variants of the dual OW70L and the single fast retrace OW50SL, as well as the OW70M and OW50M in the Maritime portfolio. (More information available at <https://www.intelliantech.com/en/home>)

EUMETSAT Awards Spire Global Multi-million Euro Contract for Satellite Weather Data

December 12, 2023 – Spire Global has been awarded a multi-million euro contract by EUMETSAT, Europe’s meteorological satellite agency, to provide radio occultation (RO) data. The contract is for an initial period of two years, from 2024-2026, with three optional, one-year extensions. The award follows a successful pilot program, which demonstrated the benefits of Spire’s RO data for weather forecasting accuracy and value. The Company’s RO data provides information about the vertical profiles of pressure, humidity and temperature across all points of the globe, including in the most remote regions and open oceans. Spire will provide the data in near-real time, and it will be distributed to the EUMETSAT user community globally for use in weather forecast modeling. (More information available at <https://spire.com/>)

mu Space Brings Low Earth Orbit (LEO) Connectivity Solutions to Mainland Southeast Asia

December 8, 2023 – mu Space and Advanced Technology CO., LTD, Satellite manufacturer and satellite internet service provider, has reached an exclusive deal with OneWeb to provide Low Earth Orbit (LEO) connectivity solutions across mainland Southeast Asia including Thailand, Laos, Cambodia, Vietnam, Myanmar and Malaysia this year. The deal aims to provide internet connectivity to underserved remote areas, with mu Space being pioneers of the aerospace industry in Mainland Southeast Asia, the company intends to provide satellite internet connectivity to remote areas for both commercial and civil governmental use. mu Space aims to give a chance to everyone in Mainland Southeast Asia to stay connected to the internet. Being the sole distributor for OneWeb in this region, mu Space will provide a wide range of services to each sector, including the government, telecommunications, aviation, maritime, land vehicle, backhauling and healthcare sectors to support the customer’s needs as well as connecting remote communities in the region. (More information available at <https://muspacecorp.com/>)

Space Compass, NTT DOCOMO, NTT and SKY Perfect JSAT to Develop Direct-to-Device Service via Space-based Non-terrestrial Network

December 7, 2023 – Space Compass, NTT DOCOMO, INC., Nippon Telegraph and Telephone Corporation (NTT) and SKY Perfect JSAT Corporation (SKY Perfect JSAT) jointly announced today that they have been selected by the National Institute of Information and Communications Technology (NICT) to develop direct-to-device (D2D) mobile services, which will be deployed via a space-based non-terrestrial network (NTN) using high-altitude platform stations (HAPS). The project is part of the NICT’s Innovative ICT Fund Projects for Beyond 5G/6G, known as Beyond 5G, which envisions a society where connectivity is assured over the air, sea, and space regardless of user location. Space Compass, which plans to launch HAPS services in Japanese fiscal year 2025, will lead the project, define network service requirements and evaluate demonstrations conducted under the project. DOCOMO, which plans to develop a HAPS-based mobile communications business spanning air, sea and space for 5G evolution and 6G, will mainly develop ground base stations and HAPS-equipped base stations for mobile communications, focusing on maximizing service-link efficiency and capacity. NTT will mainly develop the control technology of the HAPS feeder link, such as site diversity and control of the transmit power, for robust service quality. SKY Perfect JSAT, which plans to offer the NTN business by connecting satellites and HAPS networks to multi-terrestrial networks, will mainly focus on developing alternative feeder link methods, such as satellite-backhaul and improvement of connection rates through the multi-connection of ground gateway stations. (More information available at <https://space-compass.com/en/>)

Kratos Demonstrates 100% Interoperability Success Using the DIFI Standard for Satellite Ground Technology

December 7, 2023 – Kratos Defense & Security Solutions, Inc., a technology company in defense, national security and global markets, announced today that it demonstrated 100% interoperability success at the first ever DIFI Plugfest where satellite solutions providers converged to test the interoperability of their Digital IF products. Founded under the auspices of the IEEE, the Digital IF

Interoperability (DIFI) Consortium is an independent, international group of companies, organizations, and government agencies that have an interest in the interoperability of satellite ground system equipment. Its Digital IF/RF standard is intended to accelerate industry transformation beyond stove-piped, hardware-based systems to digital software-defined networks. “Plugfests” are events held to test electronic equipment and software product interoperability between vendors against a technical standard. Seven equipment makers participated in this inaugural DIFI Plugfest, led by Kratos providing the most products tested. (More information available at <https://www.kratosdefense.com/>)

Vivacom and Eutelsat Group Launch Fourth European Ground Station in Bulgaria

December 6, 2023 – Vivacom, part of the United Group, the leading telecommunications and media services provider in South-eastern Europe, and Eutelsat Group, one of the world's leading satellite Internet providers, announced the commercial launch of their ground station in Bulgaria. This fourth-of-its-kind facility in Europe and one of 35 already operating in the world, will enable expanded communications services for Eutelsat Group’s low Earth orbit (LEO) connectivity services. A year ago, Vivacom announced that it started the construction of the station of the satellite operator OneWeb, which since September this year merged with the French Eutelsat and now operates under the name Eutelsat Group. The project is being implemented at Vivacom's site in Stara Zagora municipality, where it will provide additional jobs in the region for the next 10 years. It will also put Stara Zagora on the world map of space technology and communications. Because of all these economic benefits, the project has been awarded Class C certification. The ground station consists of 18 antennas and a mini data centre that connects the LEO satellites to the optical network and data centres in Bulgaria and Europe. Construction began in late 2022 and, despite the adverse weather conditions, was completed in May 2023, and was followed by a successful testing-and-commissioning procedure. (More information available at <https://www.eutelsat.com/en/home.html>)

Tekniam Partners with Rivada for Emergency Communications & Disaster Recovery

December 6, 2023 – Tekniam, a US based company providing emergency connectivity for disaster response and recovery, is partnering with Rivada Space Networks to use The OuterNET to provide a resilient and easy to deploy network that saves lives and livelihoods when normal communications fail. Rivada’s global low-latency point-to-point connectivity network of 600 low earth orbit (LEO) satellites, the “OuterNET,” is a unique next-generation architecture combining inter-satellite laser links with advanced onboard processing that provide unique routing and switching capabilities to create an optical mesh network in space. This approach to “orbital networking,” in which data stays in space from origin to destination, creates an ultra-secure satellite network with pole-to-pole coverage, offering end-to-end latencies much lower than terrestrial fiber over similar long distances. And by routing traffic on a physically separated network, it provides a layer of defense for any organization that needs to securely share data between widely distributed sites. (More information available at <https://rivadaspace.com/>)

Viasat and Airbus Deliver Secure Broadband SATCOM for Irish Defence Forces on C295 MSA Aircraft

December 5, 2023 – Viasat Inc. announced that it has integrated a secure, flexible broadband Ku- and Ka-band airborne technology onto the Airbus C295 MSA aircraft for the Irish Air Corps (IAC), a division of the Irish Defence Forces focused on the Military Air Defence of Ireland airspace and supporting United Nations peacekeeping operations. Viasat and Airbus collaborated to integrate Viasat’s flexible dual-band broadband terminal, the GAT-5530, on the C295 MSA aircraft to provide enhanced capability to this multi-purpose military airborne platform. Airbus completed delivery of two C295 MSA aircraft to the Irish Defence Forces earlier this year. This integration of the Viasat GAT-5530 terminal will enable greater capability through secure, reliable satellite connectivity and enhance support for a range of command, control and communication (C3) mission needs – from tactical transport of troops and supplies to intelligence, surveillance, and reconnaissance (ISR). The GAT-5530 terminal supports the entire ITU Ku- and Ka-bands, which includes 3.5GHz of commercial

and military Ka-band. This multi-faceted terminal offers greater operational flexibility for military customers as they seek increased resilience with multi-frequency (Ku/Mil-Ka/Commercial-Ka), multi-orbit (GEO, MEO, LEO, HEO), multi-network communications architectures. (More information available at <https://www.viasat.com/>)

BROADCAST

Rotana's Nine High Definition Channels now on Es'hail-2 Satellite

December 14, 2023 – Es'hailSat, the Qatar Satellite Company, is proud to announce that nine High Definition television channels from Rotana Group are now available on Es'hail-2 satellite located at the 26° East hotspot covering Middle East and North Africa (MENA) region. This is part of a multi-channel, multi-year deal between Rotana and Es'hailSat which adds to the premium television channel video neighborhood that has seen multiple channels added over the course of the year. Rotana is an unrivaled leader in entertainment with an extensive repertoire encompassing free-to-air TV channels, radio stations, a distinguished music label, an unparalleled movie library, a regional advertising and media agency, and a digital and social media dominance. Rotana's TV channels offer a mesmerizing blend of the latest Egyptian and Arabic movie premieres, timeless classics, and contemporary masterpieces, captivating audiences across the Arab world. With the region's largest movie library, Rotana caters to diverse tastes, providing an unmatched viewing experience for all. Es'hailSat provides satellite, broadcast, teleport and managed services from Doha, Qatar and brings to this relationship more than 12 years of experience in catering to broadcasters, telecommunication companies, enterprises, mobility applications and governments across the Middle East and North Africa. Es'hailSat's infrastructure including two satellites at 25.5/26 East together with our 50,000 sqm teleport facility provides reliable and robust connectivity services. (More information available at <https://www.eshailsat.qa/en/>)

SES Space & Defense Awarded Global Satellite Services Contract to Support USAGM

December 12, 2023 – SES Space & Defense, a wholly-owned subsidiary of SES, will provide satellite broadcast distribution in support of the United States Agency for Global Media (USAGM), Global Network Division (GN) for global distribution of video and audio programming. USAGM awarded the five-year Global Satellite Services (GSS) contract through the General Services Administration (GSA) Complex Commercial SATCOM Solutions (CS3) contract vehicle. SES Space & Defense is harnessing SES's expertise in broadcast services, coupled with the capabilities offered by trusted industry partners, to manage satellite and terrestrial content delivery. This effort supports the USAGM GN division, and is aimed at distributing over 4,000 hours of original programming every week to an audience exceeding 215 million individuals, spanning 100 countries. The comprehensive global support provided by SES Space & Defense to the USAGM network includes transmission to sites worldwide responsible for delivering shortwave Amplitude Modulation (AM), Frequency Modulation (FM), and Television (TV) broadcasts. The services delivered by SES Space & Defense will benefit USAGM and the entities they support, including Voice of America (VOA), Radio Free Europe / Radio Liberty (RFE/RL), Office of Cuba Broadcasting (OCB), Radio Free Asia (RFA), and Middle East Broadcasting Network (MBN) for their High Definition (HD) and Standard Definition (SD) video and radio content distribution across the globe. (More information available at <https://sessd.com/>)

HD+ Stream Enhances Mobile TV Experience with Flexibility and Convenience

December 6, 2023 – SES's subsidiary in Germany, HD PLUS, has expanded its content service portfolio to audiences with a new video streaming offering. Designed for smartphones and tablets, HD+ Stream allows "on the go" users to enjoy 80+ HD channels and a wide variety of content on their mobile devices without a HD+ TV subscription. HD+ Stream offers several flexible features, including a search function to easily find content on live TV or in media libraries, a comprehensive TV guide for personal program planning, a re-start function, and a reminder function. Up to two streams can be

used simultaneously on a total of five different devices, including an option to watch content on a TV screen via HD+ IP. HD+ Stream joins the innovative line-up of services including HD+ ToGo, HD+ IP, as well as HD+ via satellite which will soon feature an updated TV app designed to improve the content viewing experience. To find out more about HD+ offering, visit the HD+ website. (More information available at <https://www.ses.com/>)

LAUNCH / SPACE

PhilSA Engineers Arrive at SSTL to Commence Work on the Build of their Medium Resolution Satellite M

December 19, 2023 – Surrey Satellite Technology Ltd (SSTL) and the Philippines Space Agency (PhilSA) today announced the arrival of PhilSA engineers in Guildford, UK, to commence work on the manufacturing phase of their Medium Resolution Earth Observation Satellite mission. The Multispectral Unit for Land Assessment (MULA) project originally started in December 2020 and was designed for PhilSA engineers to develop hands-on space mission experience and to address Earth Observation applications of national and international importance. Now in manufacture, MULA will be developed and launched by PhilSA and SSTL engineers for operation from the Philippines. The project includes technology training and a technology licence for PhilSA to use as a basis for future domestic satellite missions that focus on national requirements. MULA is the first implementation of SSTL's TrueColour optical payload, which is designed to provide 5m Ground-Sampling Distance imagery in the same 9 visible spectral bands as the Copernicus Sentinel-2 mission, over a 120km swath. This allows PhilSA to utilise many off-the-shelf applications based on Sentinel data sets, at higher spatial and temporal resolution and supports disaster monitoring and impact assessment, forestry, precision agriculture, maritime surveillance, and land-use mapping. MULA is a 3-axis controlled 130kg satellite, measuring approximately 0.75x0.85x1m. It carries a green propulsion system in support of collision avoidance manoeuvres and end-of life disposal and carries secondary payloads for tracking of ship using the Automatic Identification of Ships (AIS) standard, and tracking of Aircraft using the Automatic Dependent Surveillance-Broadcast (ADS-B) standard. (More information available at <https://www.sstl.co.uk/>)

Launch Vehicle Telemetry Expected to Become Commercially Available Faster as InRange Moves to Market

December 18, 2023 – Viasat, Inc. is working with Safran Data Systems to jointly bring InRange to market so launch providers and spaceports can relay launch vehicles' telemetry in flight throughout their trajectory - and without having to rely on ground networks. InRange uses Viasat's global L-band satellite fleet - which Viasat now operates following the acquisition of Inmarsat in May - to provide real-time telemetry data for launch missions. By using space-based communications, InRange will allow launch mission controllers to monitor the performance of missions beyond the line of sight, without the need for ground communications infrastructure. A global satellite communications network can also prevent so-called 'blackout zones' when a launch vehicle moves into an area not covered by Earth-based connectivity. Under the MoU, Safran Data Systems will provide its telemetry antennas, onboard transmitters, and Cortex modems to support the InRange system for commercial launch systems virtually anywhere in the world. The companies will also explore different commercial models to allow launchers to purchase and use the InRange system 'off the shelf'. The move will be another commercial milestone for InRange, following a recent European Space Agency joint contract to test the system on Skyrora's sub-orbital Skylark L launch vehicle next year. InRange is part of Viasat's wider in-orbit communications services which are designed to enable real-time data transfer between satellites in different orbits, for uses like government communications, earth observation, or climate monitoring. This includes the IDRS space relay service, which enables operators to command and control Low Earth Orbit satellites whatever the mission. (More information available at <https://www.viasat.com/>)

Rocket Lab Reaches New Annual Launch Record with 10th Electron Mission This Year

December 15, 2023 – Rocket Lab USA successfully launched its 42nd Electron rocket and deployed a satellite for Japan-based Earth imaging company the Institute for Q-shu Pioneers of Space, Inc. (iQPS). The mission was Rocket Lab’s 10th Electron launch for the year, surpassing the Company’s previous annual record of nine launches in 2022. For the fifth year in a row, Electron has retained the title of second most frequently launched U.S. rocket annually. The mission, named “The Moon God Awakens”, launched from Pad B at Rocket Lab’s Launch Complex 1 in New Zealand at 17:05 NZDT / 04:05 UTC on December 15th. Named after the Japanese God of the Moon, the iQPS-SAR-5 satellite “TSUKUYOMI-I” is a synthetic-aperture radar (SAR) satellite that will collect high-resolution images of Earth. The satellite joins another iQPS satellite already in orbit and forms part of what will eventually be a 36-satellite constellation capable of monitoring Earth at specific fixed points every 10 minutes. The mission went from contract signing to successful launch in just eight months, once again demonstrating Rocket Lab’s ability to provide tailored, dedicated launches on rapid timelines. (More information available at <https://www.rocketlabusa.com/>)

Thales Alenia Space Selects the UK’s National Satellite Test Facility for FLEX Satellite First Test Campaign

December 15, 2023 – Thales Alenia Space has selected the UK’s National Satellite Test Facility (NSTF), at RAL Space in Oxfordshire, for the first comprehensive assembly, integration and test campaign of the European Space Agency’s FLEX (Fluorescence Explorer) satellite. FLEX satellite will be used to map the fluorescence of the Earth’s vegetation, which will provide a better understanding of the Earth’s state of health and vegetation productivity on a global scale. As prime contractor, Thales Alenia Space will lead the satellite platform assembly, integration and test campaign planned in 2025, following the receipt of the FLORIS (Fluorescence Imaging Spectrometer) innovative instrument. Developed by Leonardo, this high-resolution imaging spectrometer will map the Earth’s vegetation fluorescence to quantify photosynthetic activity. Information from FLEX will improve our understanding of how carbon moves between plants and the atmosphere and how photosynthesis affects the carbon and water cycles. In addition, information from FLEX will give us a better insight into plant health. This is especially important today since the Earth’s growing population is placing increasing demands on the production of food and animal feed. It is estimated that there will have to be more than a 50% increase in agricultural production by 2050 to meet demand. Understanding plant health and productivity is therefore essential to managing resources. The FLEX satellite will orbit in tandem with one of the Sentinel-3 satellites (part of Europe’s Copernicus program), also built by Thales Alenia Space. It will take advantage of Sentinel-3’s optical and thermal sensors to provide an integrated package of measurements to assess plant health. (More information available at <https://www.thalesaleniaspace.com/en>)

Rocket Lab Signs Deal to Launch South Korean Satellite

December 8, 2023 – Rocket Lab USA, Inc., a global leader in launch services and space systems, today announced it has signed a launch services agreement to launch an Earth observation satellite for the Korea Advanced Institute of Science and Technology (KAIST) on a rideshare mission in the first half of 2024. KAIST’s NeonSat-1 will be the primary payload on an Electron rideshare mission that will also deploy NASA’s Advanced Composite Solar Sail System, or ACS3 satellite. The mission will lift-off from Rocket Lab Launch Complex 1 in New Zealand. NeonSat-1 is a high-resolution optical satellite that will be deployed as a technology demonstration for a planned future Earth observation constellation. KAIST is Korea’s leading science and technology institution, having developed and operated Korea’s very first satellite KAIST when it was successfully launched more than 30 years ago. In addition to being launched by Electron, KAIST’s NeonSat-1 will use Rocket Lab’s MLB satellite separation system in the Company’s latest demonstration of its vertically integrated space systems strategy. (More information available at <https://www.rocketlabusa.com/>)

Thales Alenia Space Signs a Multi-Satellite Contract with PT Len Industri to Provide Radar and Optical Imagery

December 7, 2023 – Thales Alenia Space has signed a multi-mission contract with PT Len Industri to provide a state-of-the-art Earth observation constellation combining both radar and optical sensors and dedicated to the Indonesian Ministry of Defence (MoD). Both companies will join forces to deploy an end-to-end system including space and ground segment in Indonesia. This Earth Observation constellation includes optical and radar satellites seamlessly integrated and operated through a multi-mission ground segment in which Telespazio is contributing. Thales Alenia Space operationally proven solutions are powered by Artificial Intelligence to guarantee fast system responsiveness and enhanced Intelligence, Surveillance and Reconnaissance capability. The constellation will be operated by PT Len to satisfy the MoD’s requirements regarding Indonesia’s security and sovereignty. In conjunction with Thales Alenia Space, PT Len will develop a multimission ground segment system to provide control, maintenance, data processing, and analytic functions for the Defense Satellite System. Additionally, PT Len will grant the MoD access to the existing high revisit Earth observation satellite constellation through a partnership with BlackSky. This service will provide early ISR satellite capability for the MoD and Indonesian National Armed Forces prior to the Defense Satellite System operation. The Indonesian Earth Observation constellation will be built on Thales Alenia Space’s all-in-one radar and optical offer leveraging its strong expertise in delivering complex end-to-end systems that also embrace Telespazio key building blocks for ground segment. The Indonesian Earth Observation constellation builds on the long standing optical sensors capabilities of Thales Alenia Space in France and on the SAR satellites expertise of Thales Alenia Space in Italy. (More information available at <https://www.thalesaleniaspace.com>)

Uzma and Satellogic Sign Multi-Million Dollar +3-Year Agreement to Advance Geospatial Capabilities in Southeast Asia

December 7, 2023 - Uzma and Satellogic Inc. announced a groundbreaking collaboration aimed to evolve the landscape of satellite imagery capabilities and geospatial services in Southeast Asia. The agreement includes leveraging a state-of-the-art EO satellite designed and manufactured by Satellogic that is planned to be launched in the second half of 2024 as “UzmaSAT-1” aboard a SpaceX Falcon 9 rocket, and extensive tasking access to the Satellogic constellation. Through its wholly owned subsidiary, Geospatial AI Sdn Bhd (“Geospatial AI”), Uzma will leverage access to high-temporal and high-resolution satellite imagery from Satellogic’s commercial fleet of sub-meter resolution EO satellites, which is the largest in the world. Through this collaboration with Satellogic, Geospatial AI, a two-time recipient of the Smart Technology Innovation of the Year* award, positions itself to accelerate the development of valuable geospatial applications, providing actionable insights for a rapidly growing market. A pivotal aspect of this collaboration is the tasking capacity made available to Uzma, empowering Uzma to capture precise satellite imagery on-demand, including frequent revisits, maximum responsiveness, and extensive collection capacity especially suited to scale its business. This will enable Uzma to swiftly respond to market trends and opportunities, allowing its customers to access up-to-date and accurate geospatial data for informed decision-making. (More information available at <https://www.uzmagroup.com/>)

ESA Entrusts Airbus Further for Earth Observation Standard Reference TRUTHS Mission

December 4, 2023 – Airbus has been awarded the latest phase in the European Space Agency (ESA) TRUTHS mission as part of ESA’s Earth Observation Earth Watch programme. The contract covers detailed definition of the mission and payload, and focuses on payload development and de-risking activities with an option for the procurement of long lead time hardware ahead of the full implementation phase following the 2025 ESA Ministerial budget meeting. The contract is worth €109.3 million including options and was signed at COP28 in Dubai. The TRUTHS satellite mission will measure the Sun’s radiation and the sunlight reflected off Earth’s surface relative to an accurate reference, which will then be used to improve the climatological data sets and calibrate the observations of other satellites. This space-based climate and calibration observing system will

enable data from other satellites to be compared more easily providing greater standards of data harmonisation for even more accurate climate change forecasts. (More information available at <https://www.airbus.com/en/space>)

Airbus Starts Galileo Second Generation Satellite Production

December 1, 2023 – Full production has begun on the six Galileo Second Generation (G2) satellites at Airbus' site in Friedrichshafen, Germany, with the arrival of the first satellite Flight Model structure from Beyond Gravity in Zurich. After initial preparation the panels will be dispatched to other Airbus sites before final integration and testing at Friedrichshafen. The Galileo G2 satellites are scheduled for launch in the coming years to support the initial deployment and validation of the G2 System. To meet the demanding schedule to deliver all six satellites in less than two years, Airbus has developed a coordinated production programme to leverage the spacecraft manufacturing, integration, and testing expertise across Airbus sites including Backnang (near Stuttgart), Friedrichshafen, Madrid, Ottobrunn (near Munich) and Toulouse. The second satellite structure is due to arrive in early 2024 and the third towards the end of next year. Airbus' modular approach to the manufacturing of the G2 satellites will see three spacecraft being produced in parallel at any one time. The G2 satellites will incorporate enhanced navigation antennas which will help improve accuracy of the flagship European Global Navigation Satellite System. The spacecraft, equipped with electric propulsion for the first time and higher-strength navigation antennas, will also feature fully digital payloads which will be easily reconfigured in orbit, enabling them to actively respond to the evolving needs of users with novel signals and services. (More information available at <https://www.airbus.com/en/space>)

EXECUTIVE MOVES

Pedro Duque Appointed as New President of Hispasat

December 19, 2023 – The Board of Directors of Hispasat, Redeia's Spanish satellite communications operator, approved today the appointment of Pedro Duque as the company's new president. This decision came after an extraordinary Shareholders' Meeting in which the Sociedad Estatal de Participaciones Industriales (SEPI), a shareholder of Hispasat with 7.41%, proposed Pedro Duque as president of the operator, replacing Jordi Hereu. Aeronautical engineer from the Technical University of Madrid (UPM), as an astronaut for the European Space Agency (ESA) he made two space flights in 1998 and 2003. From then until 2018, Duque continued to be linked to space, performing different functions, both management as operational, at ESA and as executive president of the private satellite company Deimos Imaging. Between 2012 and 2014 he was member of the board of AENA Aeropuertos, until its partial privatization. Between June 2018 and July 2021, the new president of Hispasat was Minister of Science and Innovation of the Government of Spain. (More information available at <https://www.hispasat.com/en>)

Comtech Names John Ratigan as Chief Corporate Development Officer

December 6, 2023 – Comtech announced the appointment of satellite communications (SATCOM) and defense technology industry leader John Ratigan as the company's first Chief Corporate Development Officer (CCDO). With differentiated expertise across the global satellite technology sector, Ratigan brings over three decades of leadership experience to his position as Comtech's CCDO. Ratigan's experience is uniquely well aligned with Comtech's strategic business priorities and continued expansion into new growth markets. Prior to joining Comtech, Ratigan served as CEO and President of iDirect Government as well as holding a position as an Executive Committee Member of ST Engineering iDirect. (More information available at <https://comtech.com/>)

Orbex Appoints John Bone as Chief Commercial Officer

December 6, 2023 – UK-based orbital launch services company, Orbex, has announced the appointment of John Bone as its new Chief Commercial Officer. This key appointment comes as Orbex advances its preparations for the launch of Orbex Prime, expected to be the UK mainland's first

vertical rocket launch. John Bone brings a wealth of experience to Orbex, with over 20 years in the Space Industry, including 18 years in Director or C-level positions. His comprehensive knowledge of the industry and high-level contacts across Europe and the UK make him an invaluable addition to the Orbex team. John has been instrumental in the growth of various organisations in the sector, and has played a pivotal role in supporting the North East Space Industry's growth since 2014 as the chair of the North East Space Leadership Group. (More information available at <https://orbex.space/>)

REPORTS

New Historic High for Government Space Spending Mostly Driven by Defense Expenditures

December 19, 2023 – The leading strategic space consulting and market intelligence firm Euroconsult has released the 23rd edition of its annual *Government Space Program report* confirming the growing financial efforts achieved by governments in the space sector. Keen to capitalize on the expanding space economy and to further strengthen their sovereign capabilities, government space expenditures have increased to \$117 billion, a 15% increase compared to last year. Throughout history, government spending has predominantly been directed towards investments in civil space activities.

Four Tons of Satellites to be Launched Daily by 2032, Demand Concentrates by a Handful of Players

December 12, 2023 – Euroconsult announces the release of its highly anticipated 26th edition flagship report, *"Satellites to be Built and Launched"*. This edition forecasts an average of over 2,800 satellites launched annually – equivalent to 8 satellites per day and totaling a mass of 4 tons - between 2023 and 2032. The report sheds light on the long-term dynamic of the satellite market, emphasizing sustained demand, the concentration of NGSO constellations, and the seismic shifts caused by a handful of mega constellations, with a particular focus on the short-term bottleneck faced by established vendors.

Global Mining Industry Seeing the Sustainability Benefits of Satellite-Enabled Internet of Things

December 6, 2023 – A study by Viasat has revealed that 86% of mining businesses say they have plans to increase the use of IoT technology within the next year to more accurately measure and understand the impact of sustainability initiatives. The same number says the use of satellite-enabled IoT solutions is critical to improving sustainability. The findings come from a global, independent research report [Accelerating sustainable action through IoT](#) commissioned by Viasat. The study explores the views of more than 200 senior technology and ESG decision-makers within mining firms across Europe, North and South America, Africa and Asia. The report found 85% of all contributors think their business is more sustainable compared to industry peers. A further 84% admitted peers may be more focused on perception around sustainability - rather than tangible metrics and outcomes - due to the lack of visibility of validated data as support.

UPCOMING EVENTS

Middle East Space Conference, January 8-10, Muscat, Oman, <https://www.euroconsult-ec.com/euroconsult-events/middle-east-space-conference/>

Convergence India 2024, January 17-19, New Delhi, India, <http://www.convergenceindia.org>

PTC'24, January 21-24, Honolulu, Hawaii, USA, <https://www.ptc.org>

Register today for the premier digital infrastructure, telecommunications, and ICT event of the year! Join top-level executives, technologists, thought leaders, investors, and more, as we set the business agenda for the year and set the course for the future of the industry. We've curated an experience that promises to elevate your professional growth and strategic planning.



APSCC @PTC'24: Integrating Satellite and Terrestrial Services in Asia/Pacific

The panel will examine the next steps in integrating and harmonizing satellite and terrestrial infrastructures and services. For too long, communications satellite systems have largely operated as parallel communications universes and not as components of a shared ecosystem. Historically, satellites were used to supplement terrestrial networks and extend/backhaul telco and cellular coverage but were viewed as just filling in the gaps of the terrestrial systems.

Today, satellite industry players are actively participating in the standards bodies designing next generation fixed and mobile systems. Further integration can be foreseen as satellite operators seek partners to roll out more direct-to-consumer broadband services, including direct-to-device mobile services soon. In this way, satellites are becoming more integrated/harmonized with the operations of telcos, cable systems, and mobile service providers. This panel will offer an intermodal review of the expanded integration of these networks and the new roles for satellites in the global network infrastructure.

Date: January 23, 2024 (Tuesday)

Time: 2:00 PM-2:45 PM HAT (45 min)

Venue: MPCC, South Pacific 4, Hilton Hawaiian Village, Hawaii

Moderator:

Gregg Daffner, CEO, GapSat / Emeritus President, APSCC

Timothy Logue, Principal, TJLNova Consulting

Speaker:

Ronald van der Breggen, Chief Commercial Officer, Rivada Space Networks

Josh Reed, Principal Solution Sales Specialist, Telstra InfraCo

Alexander Schumann, General Manager, Microcom

John Turnbull, Vice President, Enterprise & Cloud, Australia & Pacific, SES

Global Space and Technology Convention, February 14-16, Singapore,

<https://www.space.org.sg/gstc/>



Asia Video Summit, March 13-14, Hong Kong, <https://asiavideosummit.com/>

Satellite 2024, March 18-21, Washington DC, USA, <https://www.satshow.com/>

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About APSCC

APSCC is a non-profit, international organization representing all sectors of satellite and space-related industries. The aim of the organization is to exchange views and ideas on satellite technologies, systems, policies and outer space activities in general along with satellite communications including broadcasting for the betterment of the Asia-Pacific region. Conferences, forums, workshops, and exhibitions are organized through regional coordination with its members in order to promote new services and businesses via satellite as well as outer space activities. APSCC membership is open to any government body, public or private organization, association, or corporation that is involved in satellite services, risk management or associate fields such as data-casting, informatics, multi-media, telecommunications and other outer-space related activities with interests in the Asia-Pacific region. More information is available at www.apsc.or.kr.