

APSCC Monthly e-Newsletter

December 2022

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.org.kr. To unsubscribe, send an email to info@apsc.org.kr with a title "Unsubscribe."

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

INSIDE APSCC

APSCC – PTC'23 Session: A New Era for Satellite Connectivity- from Broadband to Direct to Device

The satellite industry is on the cusp of new era driven by low-cost, ubiquitous connectivity to sites and devices worldwide. From satellite broadband offers by tier 1 telcos, to mobile data from satellite to smart phones, one trend is clear: satellite solutions are rapidly becoming mainstream via crossover into telecom. This market evolution is especially important in the Pacific where geography and economics play an important role in determining which technology actually "wins". This session will discuss the satellite connectivity market today and tomorrow in the Pacific, and the role that satellite-telco convergence plays in an increasingly intertwined telecom ecosystem.

Date: Tuesday, 17 January 2023

Venue: Hilton Hawaiian Village, Hawaii

Moderators:

Gregg Daffner, President of APSCC; CEO of GapSat

Christopher Baugh, President of NSR (Analysys Mason)

Speakers:

Vaibhav Magow, Vice President, International Division, Hughes Network Systems India, India

James Alderdice, Vice President, Asia-Pacific, Lynk Global Inc, USA

Ivan Fong, Managing Director of Pacific, Kacific

John Turnbull, Director, AU, PNG and the Pacific, SES

Mark Dankberg, CEO of Viasat (invited)

APSCC cordially invites members and colleagues to the APSCC – PTC'23 session.

SATELLITE BUSINESS

SES-21 Goes Operational to Serve the United States

December 1, 2022 – SES announced today that the new SES-21 satellite became operational today at the orbital position of 131 degrees West, after launching on October 4, 2022. Upon reaching its final fixed position and completing testing, SES will begin transitioning customers to the new satellite. SES-21 will enable SES to continue delivering C-band broadcast and radio services to millions of American homes, as well as provide other critical network communications services to the United States. SES-21 was successfully launched by United Launch Alliance (ULA) in tandem with SES-20 from Cape Canaveral, Florida. SES-20 and SES-21 are highly efficient all-electric 702SP satellites manufactured and assembled in Los Angeles by Boeing. SES is launching five satellites as part of a broader Federal Communications Commission (FCC) program to clear a portion of C-band spectrum to enable wireless operators to deploy 5G services across the contiguous U.S. (CONUS). Satellite operators, including

SES, have been tasked by the FCC to clear the lower 300MHz of C-band spectrum throughout the CONUS by December 2023. SES-21 is critical to that effort, enabling SES to transition existing services to the upper C-band frequencies while maintaining uninterrupted services for customers. SES-20, the other C-band SES satellite launched by ULA in October, is scheduled to go into service before the end of the year.

INTEGRASYS Starts a New Project: Space4Green

December 1, 2022 – The new project coordinated by INTEGRASYS, Space4Green, started on November 23rd with a kick-off meeting in Seville, where the team had the opportunity to present their well-anticipated software solution. They exposed the objectives and the overall idea of the project, which has been carefully curated with other 9 European businesses, composed not only of technological partners but also end-users. With this meeting, INTEGRASYS is starting off a project totally coordinated by the company. It started to take off on November 1st of 2022 and is going to end on the 31st of October 2024; having a total cost of almost 3 million euros. Space4Green is “a Business-to-Business (B2B) platform for digital data sharing supporting automated verification of data trustworthiness, including time, position, and identity associated with the data handling process.” This means creating a way of developing automatic transactions that are trustworthy so that information, goods, services, and more can be safely transferred between stakeholders much faster. The project is based on the idea of combining the European Space Technology (Galileo OSNMA and Copernicus Service) with blockchain, mobile platforms, and the Internet of Things, so we can obtain verified and trustworthy information to help the environment and enable a safe platform for transactions. The idea is that Space4Green will have a powerful impact on the agriculture industry, making it more sustainable and eco-friendlier. The use of Earth Observation via satellites is going to help farmers in things like keeping track of crops and livestock and providing land data and projections about rainfall. This project can also help in other areas such as fishing where it can help with monitoring sustainable fishing quotas and making sure the common fisheries policy is being followed. Thus, contributing to developing new cutting-edge SATCOM applications and making technological advances in the agricultural industry.

Inmarsat Reaches Deal with Zamil Offshore to Roll-out Fleet Connectivity for Saudi Aramco Chartered Vessels

November 30, 2022 – Inmarsat has reached an agreement with offshore services provider Zamil Offshore to roll out an Internet-of-Things (IoT) solution to more than 60 vessels in the Gulf area. The solution – powered by Fleet Connect and Fleet Data delivered through Inmarsat’s award-winning Fleet Xpress – will allow Zamil to identify trial and select the best solutions to meet vessel performance expectations set by its charterer, Saudi Aramco. The announcement follows a successful trial on the fleet’s anchor tug, Zamil 57. As the world’s leading energy and chemicals producer, Saudi Aramco is contributing to Saudi Vision 2030, a strategic framework that aims to reduce Saudi Arabia’s dependence on oil and diversify its economy. This means Aramco needs deeper insight and control over the performance of its chartered ships, including those piloted by Zamil. Fleet Connect will provide the dedicated bandwidth to support vessel CCTV capabilities and other value-added services, while Fleet Data will power enhanced data analytics for efficiency and sustainability.

Vocus Signs Agreement with SpaceX to Provide Starlink Business to Customers

November 30, 2022 – Vocus, Australia’s specialist fibre and network solutions provider, has signed an agreement with SpaceX to offer Starlink Business, powered by satellites in Low Earth Orbit (LEO), to Australian enterprise and civil government customers. To be sold as Vocus Satellite – Starlink, the solution provides premium installation or the option of self installation, 100% Australian-based support and integration with existing network solutions for Australian enterprise and civil government customers. Starlink Business provides a high gain antenna, additional throughput allocation, and extreme weather performance, helping ensure high bandwidth and low latency for critical operations 24/7.

Cobham Satcom Introduces Multi-band Innovation to Significantly Simplify Maritime Operations

November 23, 2022 – Cobham Satcom, the leading provider of radio and satellite communications solutions to the maritime and land mobile sectors is proud to add first-to-market innovation and versatility to its proven, industry-standard Sea Tel technology with the introduction of SeaTel 1500, a 1.5-meter dual-band, multi-orbit VSAT antenna solution. Available in single Ku- or Ka-band, or as a ‘two antennas in one’ dual Ku-Ka-band configuration, the SeaTel 1500 is a cutting-edge antenna system enabling vessels to seamlessly switch from Ku- to Ka-band in a simple click, ensuring that they benefit from the best available satellite offering to optimize their operational expenses and ensure always-on connectivity. In a world of communication technology transition marked by the emergence of new satellite constellations, what the cruise, offshore energy, government, and superyacht sectors really require is the flexibility to take advantage of the most reliable, highest performing satellite communication the future may bring. As a future-ready multi-orbit satcom solution, SeaTel 1500 allows vessels to use their antennas within multiple satellite operator networks thanks to its ability to switch to different frequencies and networks on forthcoming non-geosynchronous satellite constellations, such as LEO, MEO and HEO.

Kacific and Telikom Limited Solidify Partnership, Focus on Further Expansion in Papua New Guinea

November 17, 2022 – Telikom Limited is working with Kacific Broadband Satellites Group (Kacific) to expand Telikom Limited’s network and back up its fibre network. The strategic partnership agreement will also allow Telikom Limited to expand Kacific’s Gigstarter services across all parts of Papua New Guinea, further enhancing the country’s digital upgrade. With a decades-long history of providing telecommunications services to PNG’s communities and businesses, Telikom Limited signed up with Kacific in mid-2021 to offer satellite broadband services to hard-to-reach customers. Through connecting a range of infrastructure including schools, hospitals, governments and churches in highland regions, Telikom Limited has achieved steady growth reaching over 150 sites, with more sites added every month. The ongoing partnership will provide Telikom Limited with greater capacity to connect its residential and business customers. Offering a fully managed service and pay-as-you-grow plan, Kacific’s Gigstarter model ensures that communities can benefit from low-cost, fast internet access, no matter where they are located. Telikom Limited will also leverage the efficiency and flexibility of Ka-band satellite technology as a secure, reliable fibre backup system in one of its main sites in Lae, PNG’s second-largest city, for the first time. The partners have just completed the installation and commissioning of a 4.5metre satellite dish for the fibre back up service.

Vallianz Accelerates Digitalisation of Offshore Support Vessel Fleet with Inmarsat’s Fleet Xpress

November 17, 2022 – Vallianz Holdings, an established provider of offshore marine and engineering solutions for the global energy industry, is accelerating the digitalisation of its fleet of offshore support vessels (OSV) with a comprehensive package of connectivity services from Inmarsat, the world leader in global, mobile satellite communications. With its headquarters in Singapore, Vallianz operates an OSV fleet worldwide that will benefit from industry-leading connectivity through Inmarsat’s Fleet Xpress solution, which supports a variety of Internet of Things (IoT) applications for crew welfare, cyber security, data capture and analysis and more. Through Fleet Data, provided on the Fleet Edge platform, Vallianz can collect, transfer, store and analyse IoT data to support decision-making in real time. Also included is Fleet Connect, which offers Vallianz and its technology partners access to the vessels through dedicated bandwidth. The offshore specialist has already adopted ultra-low-bandwidth maritime-surveillance technology to enable live vessel monitoring from a shore-based operations centre.

OneWeb Welcomes Sat One as Specialist Distribution Partner in Western Australia

November 16, 2022 – OneWeb, the low Earth orbit (LEO) satellite communications company, announced today Sat One as a distribution partner. Based in new Perth, Western Australia, Sat One will help to deliver OneWeb’s high-speed, low-latency communications services in Australia. Supported by a global network of gateways and user terminals, OneWeb’s LEO platform will provide

high-bandwidth connectivity to expand Sat One's existing capabilities in Australia. The partnership will enable reliable internet access for end users, no matter how remotely located they are. With the start of services in 2023, OneWeb's partnership with Sat One will focus on expanding bandwidth for a variety of industries such as mining, oil and gas. This will bring a range of benefits including improved productivity, health and safety, asset tracking, environmental monitoring and crew scheduling, while also helping remote employees stay connected. Sat One also aims to extend its existing connectivity in local communities in hard-to-reach areas and through challenging weather conditions.

SpeQtral Launches Southeast Asia's First Quantum Networks Experience Centre

November 16, 2022 – SpeQtral, a Singapore-based Quantum Communications company, today announced the launch of Southeast Asia's first Quantum Networks Experience Centre ("QNEX") in partnership with Toshiba Digital Solutions Corporation ("Toshiba"). QNEX is a collaborative technology showcase that will be open to strategic partners including government agencies and private enterprises, such as banks, telcos, and data centres. It will serve as a platform to explore and prototype commercial Quantum Cryptographic use cases based on Quantum Key Distribution ("QKD"). QKD leverages the laws of quantum physics to create 'un-hackable' encryption keys, that will enhance the resilience of communications infrastructure against existing and future cyber-attacks, including attacks fronted by Quantum Computers.

Intellian Awarded Contract to Design and Supply User Terminals for Viasat Maritime

November 15, 2022 – Viasat and Intellian announced a contract award for Intellian to design and supply a bespoke range of Ka-band user terminals exclusively for Viasat's Maritime connectivity solution. In addition to the bespoke new terminals, Intellian will also develop a 100cm upgrade kit for Intellian's popular NX Series. The NX Series is the world's market leading VSAT maritime antenna, and this conversion kit will enable thousands of vessels the opportunity to connect to Viasat services. The new 60cm and 100cm bespoke user terminals leverage Intellian's innovative satellite terminal technology and geostationary satellite orbit (GEO) modem integration expertise. With many world-firsts and industry leading innovations, Intellian has quickly garnered the reputation for engineering excellence through their customer-centric approach. With the new range of Viasat products, customers will benefit from highly reliable access to Viasat's satellite network, including the upcoming ViaSat-3 constellation. The launch of the first of the trio of ViaSat-3 satellites is scheduled for the first quarter of 2023, and is expected to be in service for the maritime market in 2023. From streaming to video conferencing, Intellian and Viasat will empower a true at-home and in-office experience for superyacht, energy, and commercial customers, so everybody onboard can do anything online. Viasat offers customers access to on-demand, 24/7 personalised support to keep up and running, fixed pricing for a high quality experience, and flexibility to meet seasonal demands.

Signing off the Final Agreement Relating to the Combination between Eutelsat and Oneweb

November 15, 2022 – Following the issuance by the employee representative bodies of their opinion on the proposed combination between Eutelsat Communications and OneWeb announced on 26 July 2022, the Board of Directors of Eutelsat Communications has approved the transaction. Consequently, Eutelsat and the main shareholders of OneWeb (Bharti, the UK Government, Softbank and Hanwha) signed on November 14th the final combination agreement. Completion of the transaction remains subject to the customary conditions precedent, in particular the approval by the relevant regulatory authorities. Given the currently expected timetable for review by these authorities, the Extraordinary General Meeting of Eutelsat shareholders called to approve the transaction is now expected to be held in the second or third quarter of 2023. This possible change from the initially announced timetable should have no significant impact on the combined entity's financial outlook released in connection with the proposed combination.

AST SpaceMobile Deploys Largest-Ever Commercial Communications Array in Low Earth Orbit

November 14, 2022 – AST SpaceMobile, Inc., the company building the first and only space-based

cellular broadband network accessible directly by standard mobile phones, announced today that it had successfully completed deployment of the communications array for its test satellite, BlueWalker 3 (“BW3”), in orbit. BW3 is the largest-ever commercial communications array deployed in low Earth orbit and is designed to communicate directly with cellular devices via 3GPP standard frequencies at 5G speeds. Now that it has been unfolded, the satellite spans 693 square feet in size, a design feature critical to support a space-based cellular broadband network. The satellite is expected to have a field of view of over 300,000 square miles on the surface of the Earth. The unfolding of BW3 was made possible by years of R&D, testing and operational preparation. AST SpaceMobile has a portfolio of more than 2,400 patent and patent-pending claims supporting its space-based cellular broadband technology. Additional details on the BlueWalker 3 mission can be seen in this video.

GA-ASI, SES and Hughes Team Up to Demonstrate NextGen SATCOM on MQ-9B SkyGuardian

November 10, 2022 – General Atomics Aeronautical Systems, Inc. (GA-ASI), SES and Hughes Network Systems (HUGHES) worked together to successfully demonstrate multi-orbit satellite communications (SATCOM) using a GA-ASI-supplied MQ-9B SkyGuardian® Remotely Piloted Aircraft (RPA). The demonstration took place on Oct. 20, 2022, at GA-ASI's Desert Horizon flight operations facility in El Mirage, Calif. The higher data rate SATCOM transmission featured SES's multi-orbit satellite communications service leveraging high-throughput, low-latency Medium Earth Orbit (MEO), and Geostationary (GEO) fleet, and was powered by a Hughes HM series software-defined modem and Hughes Resource Management System. The demonstration used SES's O3b MEO system that provides fiber-like carrier-grade performance, scalability, and resilience that set the path to widely leveraging open architectures and achieving network sovereignty. SES's multi-orbit fleet that delivers global coverage, high-throughput, low-latency and increased levels of security, was leveraged to show how unmanned aircraft, such as the GA-ASI MQ-9 series, can maintain high-workload, mission-critical connectivity and resiliency, even in contested environments. During the demonstration, the connectivity service seamlessly roamed between O3b MEO and AMC-15 GEO satellites. Later this year, SES will be launching its second-generation MEO system, O3b mPOWER, to further support governments through unprecedented performance, waveform-agnostic service and enabling network sovereignty.

SES and Shevon to Boost African Mining Connectivity

November 10, 2022 – A leading African mining company based in the DRC will be enjoying high-speed satellite-based connectivity services as part of a new agreement between Shevon and SES, the two companies announced today. The two-year agreement will see Shevon provide for the first time SES's O3b Medium earth Orbit (MEO) high-throughput and low-latency connectivity services, enabling the DRC mining company to implement new services and applications that will improve workers' safety, digitalise operations and maximise profitability through increased agility and automation. The new agreement reflects the strength and success of the existing long-term partnership between the two companies.

Viasat and Cobham Satcom Announce Strategic Collaboration on Maritime Connectivity System

November 10, 2022 – Viasat Inc and Cobham Satcom announced the companies are collaborating on a new, advanced satellite connectivity solution for the maritime and energy industries in preparation for the launch of Viasat's next generation satellite constellation, ViaSat-3. The connectivity system, which will include a portfolio of groundbreaking antenna systems from Cobham Satcom, is being meticulously designed to deliver advanced, high-speed connectivity that will leverage the immense satellite capacity expected from the ViaSat-3 constellation. Each of the three ViaSat-3 satellites is anticipated to deliver at least 1 Terabit of data per second (1Tbps) — equal to 1,000 Gigabits per second, which will provide flexibility to offer even faster Internet speeds and manage increasingly data-hungry applications. In addition, the collaboration will include the introduction of the industry first upgrade kit, which will allow conversion of existing Ku and other Ka band services to Viasat services. Viasat and Cobham Satcom will work with Cobham Satcom's broad global distribution

network to provide customers professional fit for purpose pre-sales and after-sales support.

MTN Renews Intelsat Contract to Expand Broadband Access in South Sudan

November 9, 2022 – Intelsat has been chosen by MTN, a multinational telecommunication group offering cellular network access and business solutions, to further the company’s leadership while meeting the demand for broadband in remote areas of South Sudan. Through its strategic agreement with Intelsat, MTN is improving its network capacity and providing enhanced connectivity to enterprises in South Sudan, as well as expanding mobile broadband coverage to communities in rural areas of the country. MTN is utilizing Intelsat’s expertise and advanced connectivity infrastructure to diversify its offerings, enhance application performance, strengthen network resiliency, and deliver a competitive advantage.

Tizeti and Eutelsat Collaborate to Bridge Nigeria’s Digital Divide with Community Satellite Broadband

November 9, 2022 - Eutelsat Communications has inked a deal with Tizeti, West Africa’s pioneer solar-based internet service provider and a leading provider of community connectivity solutions to jointly improve broadband penetration in Nigeria, especially in underserved locations. The two companies announced during the sidelines of the AfricaCom 2022 trade fair that they will deploy Eutelsat’s KA-band satellite connectivity, Konnect, to reach remote communities throughout Nigeria and provide fast, and affordable internet services. Despite 44.5 percent broadband penetration, covered largely by Mobile Network Operators, reliable internet connectivity is still limited to a few states. The partnership between Tizeti and Eutelsat will provide a complementary solution that leverages satellite broadband infrastructure and Tizeti’s community Wi-Fi management platform to deliver a fast and affordable public wi-fi hotspot service, especially in remote areas that are difficult to reach by terrestrial broadband infrastructure.

E-Space Authorized to Offer Space-Based Services throughout the Kingdom of Saudi Arabia

November 9, 2022 – E-Space announced that the Kingdom of Saudi Arabia's Communications, Space and Technology Commission (CST) has now listed E-Space in their new Satellite Registry to land communications traffic in the Kingdom. This is a critical step that will allow E-Space to deliver its innovative, space-based, smart internet of things (Smart-IoT) solutions in a key economy in the Middle East. The Kingdom recently revamped its regulatory framework for non-terrestrial networks (NTN), which includes the promotion and entry of global satellite operators. In line with its new national spectrum strategy and Saudi Vision 2030, the CST will grant landing/operating rights to satellite operators that meet certain requirements, from delivering innovative satellite-based solutions to utilizing spectrum efficiently to offer unique services in the Kingdom. E-Space is developing a global satellite service that will deliver revolutionary services in the new Smart-IoT sector based on bringing the latest innovations in Non-Geostationary Orbit (NGSO) satellites and sustainable spacecraft design.

OneWeb and Airtel Africa Collaborate to Provide Enhanced Connectivity Services in Africa

November 8, 2022 – OneWeb announced the signing of a partnership agreement with Airtel Africa, a leading provider of telecommunications and mobile money services across Africa. This strategic agreement will help to deliver OneWeb’s high-speed, low-latency LEO connectivity services to government and enterprise customers across wide swathes of the continent. The partnership will focus on delivering satellite communications services to enterprise and civil government customers for a wide range of use cases, including for connectivity in rural areas, agriculture, hospitals, hotels, schools, and in the energy and mining sectors. OneWeb and Airtel Africa will also provide critical backhaul in unserved and underserved regions. This announcement builds upon OneWeb’s existing initiatives in Africa, including installations of Satellite Network Portals (SNP) in Angola, South Africa, Ghana, Senegal and Mauritius. With only four more launches to go, OneWeb also remains on track to activate its coverage solutions in Africa, and elsewhere around the world, in 2023.

Inspiring with STEM: Intelsat Begins Application Process for STEM Program in Africa

November 8, 2022 – Intelsat, operator of the world’s largest integrated satellite and terrestrial networks and leading provider of inflight connectivity (IFC), is accepting applications to its Space STEM (science, technology, engineering, and math) program from teenagers across the African continent. This partnership with MaxIQ Space chooses high school students from across the continent to be involved in an intensive program where students design, build and, for certain missions, launch satellites into space. This unique opportunity is entirely virtual, with each student receiving a STEM kit and engaging in virtual workshops delivered by space education specialists. Each workshop comprises lessons, practical activities, assignments and experiments. This will be the third year Intelsat has partnered with MaxIQ Space, inspiring a love of space among teens across the African continent. Intelsat will sponsor 30 scholarships for the Space STEM program for candidates who successfully meet the criteria.

Intellian Receives WGS Certification for the new NX PM VSAT Terminal

November 7, 2022 – Intellian Technologies, a leading provider of feature-rich, resilient satellite communications solutions, announces that their flagship v130NX PM Dual-Ka (AN/USC-73) terminal has been certified for use on the Wideband Global SATCOM (WGS) constellation. WGS is a high-capacity United States Space Force satellite communication system, developed in partnership between the Defense Departments of the US, Canada, Australia and other member nations. Intellian’s v130NX PM Dual-Ka (AN/USC-73) is now approved for use on the WGS satellite constellation by the United States Space Force, Space Delta 8 (USSF), without any caveat or special stipulations. The terminal provides Naval WGS users unprecedented flexibility to access WGS without the complexity inherent in legacy WGS/DSCS certified maritime terminals. Built upon the field tested and market proven NX series, the v130NX PM Dual-Ka terminal features the AptusNX antenna management and control system which provides an intuitive interface for configuration and maintenance.

Antamina Selects Gilat for Multimillion-Dollar E-Learning Project

November 3, 2022 – Gilat Satellite Networks Ltd., a worldwide leader in satellite networking technology, solutions, and services, announced today that Antamina, one of the largest copper/zinc mines in the world, selected Gilat for a multimillion-dollar e-learning project in the Municipality of San Marcos, a rural area near the Antamina mine in Peru. Gilat will deploy terrestrial and VSAT backhauling for connectivity and provide services to schools in San Marcos. Through the 4-year project, thousands of students and teachers will gain access to training and educational resources, as well as laptop computers and other connected devices.

OneWeb and Paratus Sign a Multi-year Gateway Installation Agreement

November 3, 2022 – Paratus Group announces a multi-year agreement with OneWeb to build a gateway in Luanda, Angola, which will be operational in the second half of 2023. This new gateway will provide low Earth orbit (LEO) satellite services to several countries in the region and will facilitate the provision of high-speed, low-latency connectivity to businesses, government, schools, clinics, and hospitals in under-served areas. This is the first of several planned OneWeb gateways in Africa. This agreement, combined with the recent launch of the Paratus fibre connection to the Democratic Republic of Congo (DRC); the inauguration of the Paratus Group’s data centres in Zambia and Namibia; and coverage in all of the Angolan provinces, means that Paratus has the requisite infrastructure to provide a highly sophisticated network hub in Angola and one that allows for expansion beyond its borders. The teleport will consist of 16 antennas and a network hosting facility, linking to OneWeb’s LEO infrastructure and thereby connecting Africa to the world and the world to Africa.

Rivada Space Networks Issues RFP for its Satellite Constellation

November 3, 2022 – Rivada Space Networks announced that it has issued its request for proposals

for 600 low earth orbit (LEO) satellites, having released the RFP for the associated heavy-lift launch services two weeks ago. The company anticipates selecting a prime contractor for the space segment, parts of the ground segment and system integration for the LEO constellation by the end of 2022 in parallel to the selection of the launch service provider. Since formally launching in March 2022, Rivada Space Networks has been on a fast-track mission to complete the detailed definition of the overall system architecture and provide the production and deployment framework needed to place a firm contract for the constellation and associated launch services. The preceding phase B study concluded that the procurement plan will successfully fulfill the requirements associated with the company's high priority ITU Ka-band filings. With a contract for manufacturing and launch in place by the end of 2022, deployment will start in 2024, with 300 satellites in orbit by mid-2026 and full constellation deployment expected by mid-2028.

Digicel Pacific Bolsters Coverage across Papua New Guinea with Additional O3b Capacity from SES

November 2, 2022 – Digicel Pacific, the leading telecommunications provider in the Pacific region, is bolstering its coverage in Papua New Guinea, leveraging SES's O3b medium-earth orbit (MEO) satellite system to provide its customers with seamless connectivity following damage to the international Pipe Pacific Cable (PPC) which typically connects Papua New Guinea to Australia and rest of the world. The additional O3b services will continue to help Digicel Pacific maintain connectivity during outages caused by such cable breaks while also expanding coverage across the remote parts of the country, a crucial enhancement for the 80% of Papua New Guineans residing in rural areas. The support from SES comes at a critical time for the South Pacific island after a 7.7 magnitude earthquake in September caused damage to multiple cable systems, resulting in large disruption to data services across most of the country. During the disruption, SES assisted Digicel Pacific with emergency bandwidth, providing an increase of 40% in high-performance, low-latency O3b services deployed across 12 sites throughout the country to keep communities connected. SES also stepped in with an incremental 3 Gbps of capacity and additional ground equipment to enable Digicel Pacific to restore its network connectivity and critical communications services for both consumers and telecommunication customers.

Ground Control Joins Inmarsat ELEVATE Programme to Focus on Satellite IoT Opportunities

November 2, 2022 – Inmarsat has launched a new IoT service plan to drive growth and generate long term business for its distribution partners. This new service plan will be available to distribution partners who have signed up to its ELEVATE programme, with remote connectivity solutions provider, Ground Control, the first business to benefit from the offering. Inmarsat's new 'Internet of Things Growth Plan' will give distribution partners access to a preferential pricing framework to help build competitive large scale IoT solutions using the BGAN M2M service. The pricing plan is just the latest benefit to be enjoyed by members of the ELEVATE programme, the goal of which is to attract highly innovative, fast-moving IoT solution providers into the BGAN M2M fold. With Inmarsat and Ground Control building on their existing relationship and pledging even closer strategic alignment going forward, the latter will unlock value from the new pricing model as the businesses look to work together on larger scale, global IoT projects over the coming months.

BROADCAST

MEASAT Migrates Manila Broadcasting Company onto MEASAT-3d

November 23, 2022 – MEASAT Global Berhad ("MEASAT") has begun migrating Manila Broadcasting Company ("MBC") stations onto its latest MEASAT-3d satellite. This makes MBC the first media organisation in the Philippines to broadcast through the new state-of-the-art satellite. Today, MBC is the largest broadcast network in Asia, with over 200 stations throughout the Philippines archipelago. It operates six AM and FM networks – DZRH, 90.7 Love Radio, 101.1 Yes The Best, 96.3 Easy Rock, Aksyon Radyo, and Radyo Natin. MEASAT-3d is co-located with MEASAT-3a and MEASAT-3b at the 91.5°E orbital hotslot to form one of the region's most powerful and robust video neighbourhoods

with unrivalled in-orbit redundancy and expansion capacity.

Qatar Airways Brings All the Action and Excitement of Live Sports In-flight with Inmarsat and Panasonic Avionics

November 18, 2022 – Qatar Airways has selected Sport 24, produced by IMG and exclusively available in-flight from Panasonic Avionics, in partnership with Inmarsat, to provide its passengers with 56 live FIFA World Cup™ matches as well as other major sporting events directly on their personal devices, on flights equipped with the airline’s Super Wi-Fi service. Passengers can connect to the onboard Super Wi-Fi network, click on the Live TV banner and enjoy all the latest action from sporting events from around the world. Panasonic Avionics’ Live Television service can be offered across a range of in-flight entertainment and in-flight connectivity configurations. It is being streamed on Qatar Airways via Inmarsat’s award-winning GX Aviation inflight broadband – the first time the connectivity provider has delivered Panasonic Avionics’ Live Television. It will be available on all aircraft equipped with Super Wi-Fi across Qatar Airways’ fleet, with the first aircraft now live. Qatar Airways selected Panasonic Avionics’ Live Television due to the wide range of live sporting action available to its passengers through Sport 24, including the forthcoming FIFA World Cup Qatar 2022™.

Arqiva and MainStreaming in Streaming Video Distribution Partnership

November 14, 2022 – Arqiva and MainStreaming have forged a technology and services partnership, to jointly offer distribution services for the media streaming market. The partners will explore how the combination of MainStreaming’s cutting-edge CDN technology and broadcast-grade streaming experience with Arqiva’s global media infrastructure and managed services capability can offer more scalable, flexible, and programming-centric content distribution services for the media streaming market. With ever-growing viewer numbers on streaming services and the increasing strategic value of online audiences, the streaming needs of the biggest broadcasters and service providers are greater than ever. The combination of a large audience served, consistently high video quality, and low latency is the tough combination to get right hour after hour. As such, secure, scalable and cost-effective content distribution networks are vital. Existing streaming distribution networks are not well suited to deliver either the quality of service required by service providers or the quality of experience expected by audiences. The growing carbon footprint of streaming services is also a concern for both providers and audiences. Arqiva and MainStreaming are coming together to address these issues and to challenge conventional approaches to content distribution.

TAP Digital Media Ventures Corporation Signs World Cup 2022 Distribution on ABS-2 Capacity

November 7, 2022 – TAP Digital Media Ventures Corporation (TAPDMV) has selected ABS as the satellite broadcast partner for the distribution of FIFA World Cup 2022 on their World Cup HD TV (WCTV) channel on ABS-2 East Hemi beam. ABS will provide additional bandwidth coverage for the World Cup TV channel which will broadcast live transmission of the matches in Qatar from 20 November to 18 December 2022.

LAUNCH / SPACE

Eutelsat Selects Thales Alenia Space to Build a New Flexible Software-Defined Satellite

December 1, 2022 – Eutelsat has selected Thales Alenia to build a next-generation highly flexible, software-defined satellite (SDS). The Flexsat (for flexible satellite) will be based on Thales Alenia Space’s cutting-edge ‘Space Inspire’ (INstant SPace In-orbit REconfiguration) product line, enabling seamless reconfiguration and instant in-orbit adjustment to offer an optimum level of customer service, maximising the effective use of the satellite resources. The new satellite will expand Eutelsat’s in-orbit assets providing more than 100 Gbps of incremental capacity over the Americas to support the surging Connectivity market. Its performances combined with the high level of flexibility in terms of coverage, bandwidth allocation, and power levels, will offer an unparalleled quality of service to Eutelsat’s B2B customers for its ADVANCE backhauling, enterprise, government, aero, and

maritime solutions. It will also be able to accommodate joint GEO-LEO services, specifically in zones where demand is highly concentrated. The Flexsat is expected to be delivered in 2026. The capital expenditure associated with the programme is embedded in Eutelsat's standalone capital expenditure and adjusted discretionary free cash flow estimates for FY2022-23 and FY2023-24. It is also included in the financial trajectory of the proposed combination of Eutelsat and OneWeb.

Arianespace Ariane 6 to Launch Intelsat Satellites

November 30, 2022 – Arianespace signed a contract with longtime customer Intelsat to launch two satellite payloads, IS-41 and IS-44, using the heavy-lift Ariane 64 from Europe's Spaceport in French Guiana in 2025. This agreement repurposes a previous launch contract and adds one additional satellite. Thales Alenia Space is manufacturing the IS-41 and IS-44 satellites, which are based on the innovative and flexible Space Inspire product line. The two software-defined satellites, fully reconfigurable in orbit, will collectively weigh close to 8000 kg at launch and will be placed into the requested geostationary transfer orbit. Ariane 6 has been designed from the outset to be scalable and able to integrate, during its life and on a regular basis, new technologies. Ariane 6's incremental development is intended to regularly improve the performance of the launch solutions offered by Arianespace and always better fulfil the needs of both institutional and commercial customers. These developments are funded and managed by the European Space Agency (ESA) and implemented by Ariane 6's launcher system prime contractor ArianeGroup.

Thales Alenia Space and ESA Φ-Lab Collaborate to Jointly Develop Disruptive Earth Observation Space Solutions Based on Artificial Intelligence

November 30, 2022 – Thales Alenia Space and the European Space Agency (ESA) have signed a letter of intent to collaborate in supporting the creation of future disruptive space-based solutions in the Earth Observation domain. Thales Alenia Space will cooperate with the ESA Φ-lab to explore innovative technologies based on Artificial Intelligence (AI) and their applications to use cases of significant interest to both entities. Artificial Intelligence and new computing paradigms like neuromorphic, quantum, and edge computing, applied to both optical and radar Earth Observation data, are a strategic area of interest for both Φ-lab and Thales Alenia Space. Key topics of the collaboration include end-to-end learning for Synthetic-Aperture Radar (SAR) data, physically-based Artificial Intelligence to extract information from SAR data and enable object detection, recognition and classification, collective intelligence and federated learning at the edge, and the use of AI and Earth Observation in immersive-reality scenarios such as Augmented and Virtual reality for satellite and mission data management.

Arianespace Supporting the European Union's Copernicus Programme with Vega C

November 29, 2022 – Arianespace announced having signed with the European Commission (Directorate General for Defence, Industry and Space), a contract for the procurement of five launch services with Vega C for the Copernicus component of the European Union's (EU) Space Programme. Sentinel satellites are part of Copernicus, one of the flagships of the European Union Space Programme, which counts among the leading Earth Observation systems worldwide. Copernicus provides continuous, independent and reliable Earth observation data and services to public authorities, companies and citizens. It presently includes seven dedicated Sentinel satellites: Sentinel-1A radar imaging satellite, Sentinel-2A and -2B optical imaging satellites, Sentinel-3A and -3B for ocean and atmosphere monitoring; Sentinel-5P enables monitoring the quality of air, while Sentinel-6 is monitoring sea levels. Vega C, the new European light launcher, has been specifically upgraded to launch satellites of the class of the Copernicus component and is perfectly suited to serve the Earth Observation market because of its performance and versatility. With Vega C and Ariane 6, Arianespace is able to offer the best possible solutions to orbit all kind of payloads for any range of applications.

Astrocast Launches Four Spacecraft; Increases Constellation to 14 Satellites

November 28, 2022 – Astrocast, a leading global nanosatellite IoT network operator, launched four Astrocast 3U spacecraft on Saturday, 26th November into space. This launch is a significant milestone for Astrocast’s nanosatellite IoT network; and enables the company to increase its commercial constellation to 14 satellites – making Astrocast one of the top 40 satellite operators in the world, based on the number of satellites currently in orbit. These new satellites improve the capacity and reliability of Astrocast’s network and will play a key part in providing direct-to-satellite and highly secured connectivity to customers across the globe. This recent launch mission took place at Sriharikota, India’s Satish Dhawan Space Center. India’s Polar Satellite Launch Vehicle (PSLV-C54) mission – with Spaceflight – carried Astrocast’s spacecraft as a co-passenger to sun-synchronous orbit (SSO) into space, along with the Indian national primary satellite.

Japan Space Imaging Corporation Signs up to Satellite Vu’s Early Access Option Programme

November 28, 2022 – Satellite Vu, the British company launching a unique constellation of satellites that will deliver insights supporting global challenges, from the highest resolution thermal data from space, has signed a multi-million pound purchase option with Japan Space Imaging Corporation (JSI) following the opening of Satellite Vu’s Early Access Option Programme (EAOP). The EAOP provides customers and partners with preferred access to Satellite Vu’s imagery, products, and services; as well as the opportunity to secure satellite capacity to support operational and business requirements. Tokyo based space company, JSI, is the leading provider of geospatial information including satellite data, serving defence and intelligence customers as well as civil and commercial markets in Japan. Equipped with Satellite Vu’s data and insights, JSI will expand their global imaging portfolio with high-resolution thermal data for any location on the planet. Ahead of first launch in May 2023, Satellite Vu has been collecting sample data via an aerial campaign. Partners of the EAOP can influence the location of further aerial campaigns, as well as benefiting from early access to the archive. This will give EAOP partners a head start in applying the insights from Satellite Vu’s unique data, and developing their workflows, ahead of the satellite’s launch.

SpaceChain Paves the Way for Blockchain Processing in Space with Seventh Payload Launch

November 26, 2022 – SpaceChain has successfully launched its second Ethereum Virtual Machine (EVM) payload into space aboard a SpaceX Falcon 9 rocket, which is on its way to the International Space Station (ISS) for installation via the SpaceX Dragon 2 spacecraft. The mission marks SpaceChain's seventh successful blockchain payload launch into space, and the second integration of its payload with Velas, the world's fastest EVM blockchain and open-source platform for decentralized applications. Once installed and tested on the ISS via Nanoracks, the space node will be capable of processing Velas blockchain on the ISS and sending Velas digital assets from space, such as VLX, tokens and NFTs, in addition to performing complete high-speed transaction services across the Velas platform, including smart contract deployment and coin minting.

Successful Launch of EUTELSAT 10B

November 23, 2022 – Eutelsat has announced that the EUTELSAT 10B satellite was successfully launched into Geostationary Transfer Orbit by SpaceX using a Falcon 9 expendable rocket that lifted off from Cape Canaveral, Florida, USA at 21.57 pm Eastern time on November. Built by Thales Alenia Space, EUTELSAT 10B is an all-electric satellite based on the Spacebus NEO platform. The satellite embarks a powerful 5th generation digital transparent processor, offering capacity allocation flexibility and an optimal spectrum use. Responding to strong growth in demand for mobile connectivity, EUTELSAT 10B is carrying two multi-beam HTS Ku-band payloads: a high-capacity payload, covering the North Atlantic corridor, Europe, the Mediterranean basin and the Middle East, offering significant throughput in the busiest air and sea traffic zones, and a second payload to extend coverage across the Atlantic Ocean, Africa and the Indian Ocean. The satellite’s HTS payloads will be able to process more than 50 GHz of bandwidth, offering a throughput of approximately 35 Gbps. Firm multi-year capacity commitments have already been secured with several leading in-flight

connectivity service providers, representing more than one third of the incremental HTS capacity. These partners will rely on EUTELSAT 10B to provide airlines with in-flight connectivity services.

Macquarie University and Gilmour Space Partner to Deliver New Space Technology Set for Orbit

November 22, 2022 – Macquarie University's Australian Astronomical Optics (AAO) has signed an agreement with pioneering manufacturer Gilmour Space Technologies to produce a new sovereign space technology, set to launch in 2023. Gilmour Space Technologies is one of Australia's innovative NewSpace companies and the leading venture-backed manufacturer of launch vehicles and satellite platforms. AAO Macquarie is world renowned for its ground-based precision instrumentation for telescopes and is now branching out to non-astronomy applications in space. As part of this new partnership with Gilmour Space, a team of technical specialists from AAO Macquarie will construct and deliver a thermal camera payload.

EchoStar and Maxar Amend Agreement for Hughes JUPITER 3 Satellite Production

November 22, 2022 – EchoStar Corporation announced an amended agreement with Maxar Technologies for production of the EchoStar XXIV satellite, also known as JUPITER™ 3. The satellite, designed for EchoStar's Hughes Network Systems division, is under production at Maxar's facility in Palo Alto, CA. The amended agreement compensates EchoStar for past production delays by providing relief on future payments and expands EchoStar's recourse in the event of any further delays. The satellite is currently planned to launch in the first half of 2023. Once in service, JUPITER 3 will deliver over 500 Gbps of high-throughput satellite capacity, doubling the size of the Hughes JUPITER fleet over North and South America. The satellite will bring ample capacity to grow the company's flagship satellite internet service, HughesNet®, and help meet consumer, aeronautical and enterprise demand for more bandwidth and higher speeds. The satellite is now undergoing final integration in preparation for dynamics testing. Remaining work on the satellite consists of the launch dynamics test, final spacecraft performance tests and shipment to the launch base.

Sidus Space Signs MOU with Capital C to Provide Maritime Satellite Design and Surveillance

November 22, 2022 – Sidus Space, Inc., a Space-as-a-Service company focused on mission critical hardware manufacturing combined with commercial satellite design, manufacture, launch, and data collection, has signed a MOU with Capital C. As part of the agreement, Sidus will assist in developing, delivering, and maintaining surveillance and tracking systems with software that utilizes satellite imagery, sensor data, and data delivery. Sidus will provide continued access to LEO satellite communications systems as well as the design and manufacture of specialized marine parts as a preferred vendor to Capital C. This partnership blends Sidus' rich manufacturing heritage with areas of strategic growth including satellite technology and data subscriptions as it prepares to launch its proprietary, partially 3-D printed, LizzieSat™ satellites in 2023. The use of 3-D printing, as opposed to traditional manufacturing, is a sustainable method that reduces waste, resources, cost and time. Capital C is a design and technology company specializing in designing yachts that are at the forefront of sustainability and are Carbon Positive, incorporating advanced technology, robotics, safety systems and autonomous systems within its designs, which are also focused on environmentally friendly and greatly reduced emissions capabilities.

Airbus and ArianeGroup Sign Ariane 6 Transition Batch Contract in Spain

November 21, 2022 – Airbus and ArianeGroup have signed a contract for the next transition batch of Ariane 6 large carbon fibre structures. The contract includes the manufacturing and supply of innovative, large, lightweight structures for the next fourteen Ariane 6 launchers, to be manufactured until 2025. The contract will support ArianeGroup's ramp up to full production rate by then. Airbus builds up to four carbon fibre structures for each Ariane launcher at its Getafe site, near Madrid. The new state-of-the-art 4.0 industrial facility includes a dedicated manufacturing and assembly line for the Ariane 6 launcher structures. The latest technology innovations have resulted in a reduced mass while delivering a stronger structure in a single piece at a lower cost. The Interface Structure (upper

and lower) is the largest space carbon fibre structure ever produced in Europe. The other structures include the Launch Vehicle Adapter, for the upper stage; and the Equipped Solid Rocket upper part of each rocket booster.

NASA, Japan Announce Gateway Contributions, Space Station Extension

November 18, 2022 – NASA and the Government of Japan on November 17 announced further contributions by Japan to Gateway, a key component of the agency's Artemis missions for long-term lunar exploration. NASA Administrator Bill Nelson participated virtually from the agency's Kennedy Space Center in Florida in an event held in Tokyo that included Minister of Education, Culture, Sports, Science and Technology Keiko Nagaoka, as well as U.S. Ambassador to Japan Rahm Emanuel. Under the Gateway Implementing Arrangement, NASA will provide an opportunity for a Japan Aerospace Exploration Agency (JAXA) astronaut to serve as a Gateway crew member on a future Artemis mission. This formally represents the first commitment by the U.S. to fly a Japanese astronaut beyond low-Earth orbit aboard NASA's Space Launch System (SLS) rocket and Orion spacecraft. In addition to the Gateway arrangement, Minister Nagaoka announced Japan's commitment to participate in the International Space Station Program through 2030, the first international partner to join the United States in formally committing to space station operations through 2030.

SITAEL Signs Deal with SES to Supply a PLATiNO Platform in the Framework of the EAGLE-1 Project

November 17, 2022 – SITAEL has been awarded the contract by SES to supply a PLATiNO platform in the framework of the EAGLE-1 project, aimed at developing and validating Europe's first satellite Quantum Key Distribution (QKD) system. PLATiNO Platform has been chosen by SES for the high level of modularity and flexibility that allows to integrate different types of payloads. It is the first contract ever for supplying a satellite platform between an Italian company and the international satellite connectivity services provider SES. The PLATiNO platform is the result of the best capabilities of the Italian space industry and is based on the technologies developed by SITAEL together with Thales Alenia Space, Leonardo and Airbus Italia for ASI (Italian Space Agency). PLATiNO is a new generation "all-electric" and multifunctional platform, designed to perform a wide range of services, that can also be deployed in satellite constellations. Despite its compact size, it has unique pointing and agility performance and is suitable for a variety of missions in low earth orbit, from radar to optical observation, from telecommunications to electronic intelligence.

NASA Awards SpaceX Second Contract Option for Artemis Moon Landing

November 16, 2022 – NASA has awarded a contract modification to SpaceX to further develop its Starship human landing system to meet agency requirements for long-term human exploration of the Moon under Artemis. With this addition, SpaceX will provide a second crewed landing demonstration mission in 2027 as part of NASA's Artemis IV mission. Known as Option B, the modification follows an award to SpaceX in July 2021 under the Next Space Technologies for Exploration Partnerships-2 (NextSTEP-2) Appendix H Option A contract. NASA previously announced plans to pursue this Option B with SpaceX. The contract modification has a value of about \$1.15 billion. The aim of this new work under Option B is to develop and demonstrate a Starship lunar lander that meets NASA's sustaining requirements for missions beyond Artemis III, including docking with Gateway, accommodating four crew members, and delivering more mass to the surface. NASA initially selected SpaceX to develop a human landing system variant of Starship to land the next American astronauts on the Moon under Artemis III, which will mark humanity's first return to the lunar surface in more than 50 years. As part of that contract, SpaceX will also conduct an uncrewed demonstration mission to the Moon prior to Artemis III.

Boeing-Built Space Launch System Core Stage Powers First NASA Artemis Mission to Moon

November 16, 2022 – NASA's Space Launch System rocket, powered by the Boeing-built core stage, lifted off at 1:47 a.m. ET from the Kennedy Space Center. Eight and a half minutes into flight, the core stage completed its mission and separated from the upper stage of the rocket, sending NASA's Orion

spacecraft on its first journey around the Moon. During the mission, the core stage demonstrated several important functions, including fueling both tanks, actuating the hydraulic system, igniting the engines, running thrust vector control programs in flight, depleting the fuel tanks, shutting down the engines, and conducting successful separation and disposal maneuvers. The Boeing team is preparing the next stages for their respective flights. Core Stage-2, or CS-2, will launch the first crew of the Artemis program and is in the final assembly area at Michoud. CS-3 is manifested to launch the first crewed lunar landing since Apollo, which will include the first woman and first person of color. That stage, as well as CS-4, is already in work at Michoud. Additionally, the structural test article of a newer, more powerful upper stage known as the Exploration Upper Stage is in fabrication.

Synspective and GCRS Announce Partnership for SAR Satellite-Based Risk Analysis Solutions in South Asia

November 15, 2022 – Geo Climate Risk Solutions Pvt. Ltd. (GCRS), a solution provider, consultancy, and advisory services firm that focuses on natural hazards risk analytics and environmental and sustainability challenges, and Synspective, a synthetic aperture radar (SAR) satellite data and solutions provider, are pleased to announce a new partnership for SAR-based analysis solutions for critical infrastructure and mining industries in India and across South Asia. Under this partnership, GCRS and Synspective will join together to provide risk analysis solutions for critical infrastructure and mining industries to accelerate net-zero initiatives in the region. Also, GCRS will apply Synspective's SAR satellite data to evaluate and map land subsidence/displacement along critical infrastructure systems and assets, including hydrocarbon and water pipelines, roads, and railway corridors. The two companies will pursue opportunities to estimate ground biomass using SAR data as well as develop near real-time predictive models to monitor floods and landslides.

Thales Alenia Space to Lead European Feasibility Study for Data Centers in Space

November 14, 2022 – Thales Alenia Space has been chosen by the European Commission to lead the ASCEND (Advanced Space Cloud for European Net zero emission and Data sovereignty) feasibility study for data centers in orbit, as part of Europe's vast Horizon Europe research program. A consortium led by Thales Alenia Space has been set up to find an ambitious solution for Europe, namely to install data center stations in orbit, powered by solar power plants generating several hundred megawatts. This project could help meet Europe's Green Deal goal of achieving carbon neutrality by 2050 and would also be an unprecedented development in the European space and digital ecosystem. This concept makes direct use of the energy produced in space outside of the earth atmosphere: the only link with the ground would be high-throughput Internet connections based on optical communications, a technique for which Europe has mastered the underlying technologies. For the ASCEND feasibility study, Thales Alenia Space is leading a consortium of companies with complementary areas of expertise spanning the environment (Carbone 4, VITO), cloud computing (Orange, CloudFerro, Hewlett Packard Enterprise Belgium), launch vehicles (ArianeGroup) and orbital systems (German aerospace center DLR, Airbus Defence and Space and Thales Alenia Space).

ClearSpace to Work with Intelsat on Commercial GEO Life-Extension Mission

November 14, 2022 – ClearSpace announces a collaboration with Intelsat to promote a more sustainable space economy through the development and use of satellite life extension services. This collaboration represents the expansion of ClearSpace's in-orbit services to geostationary operators and will focus on one of Intelsat's operational assets that will be approaching the end of its nominal service life in the 2026-2028 timeframe. This program builds upon ClearSpace's core capabilities being developed under the European Space Agency's (ESA) ClearSpace-1 debris removal mission and its work with the UK Space Agency to develop a reusable, refuellable, servicing platform. To date, Intelsat is the only satellite operator in the world to have employed commercial life extension services, and with this endeavour, Intelsat continues its tradition of facilitating the emergence of cutting-edge satellite services.

Intelsat Announces Successful Launch of Galaxy 31 and Galaxy 32 Satellites

November 12, 2022 – Intelsat announced the successful launch of Galaxy 31 and Galaxy 32, geosynchronous communications satellites that will ensure service continuity to Intelsat’s North American media customers. The Maxar-manufactured Galaxy 31 and Galaxy 32 satellites launched aboard SpaceX’s Falcon 9 rocket from Cape Canaveral Space Force Station in Florida at 11:06 a.m. EST. Galaxy 31 will replace Galaxy 23 at 121 degrees west and will begin service in early 2023. The satellite will provide distribution services to cable headends throughout the United States. Galaxy 32 will replace the C-band payload of Galaxy 17 at 91 degrees west in early 2023. This satellite will provide service continuity for Intelsat’s media customers with high-performance distribution to viewers in North America. Today’s launch continues Intelsat’s Galaxy fleet refresh plan that started with Galaxy 30 in 2020 and carries the second set of a total of seven new Intelsat satellites launching in the next six months.

SES Selects Arianespace to Launch EAGLE-1 Satellite for Europe’s Quantum Cryptography

November 9, 2022 – The EAGLE-1 satellite, which will support the end-to-end secure Quantum Key Distribution (QKD) system for Europe, will be launched for SES by Arianespace on a Vega C rocket from French Guiana as early as Q4 2024. The satellite will be placed into Low Earth Orbit (LEO). The EAGLE-1 project comprising satellite and ground infrastructure, is developed by SES and its consortium of 20 European partners, with the European Space Agency (ESA) and the European Commission support. Under the recently-signed agreement with ESA, SES and its partners will design, develop, launch and operate a satellite-based end-to-end QKD system for the purpose of testing and validating space-based secure transmission of cryptographic keys. Following the launch, the EAGLE-1 satellite will complete three years of in-orbit mission supported by the European Commission. During this operational phase, the satellite will allow European Union governments and institutions, as well as critical business sectors, early access to long-distance QKD that would path the way towards an EU constellation enabling ultra-secure data transmissions. The EAGLE-1 project is co-funded by the ESA contribution of Germany, Luxembourg, Austria, Italy, the Netherlands, Switzerland, Belgium, and the Czech Republic under ARTES, as well as the European Commission through Horizon Europe.

Intelsat Chooses SWISSto12 to Build Intelsat 45

November 7, 2022 – Intelsat announced that scale-up manufacturer SWISSto12 will produce the Intelsat 45 satellite (IS-45). With the order, Intelsat becomes the first commercial customer for the innovative HummingSat geostationary (GEO) telecommunications product. Scheduled for launch in 2025, Intelsat 45 will provide Ku-band fixed-satellite services enabling Intelsat to provide specialized and efficient service to Media and Network customers. HummingSats are just over one cubic meter in volume, one-tenth the size of conventional satellites placed in geostationary orbit. SWISSto12 is developing the satellites in collaboration with the European Space Agency (ESA) through its public-private-partnership program. Each HummingSat is designed to launch as a rideshare mission on a rocket carrying one or more large spacecraft to GEO transfer orbit. The new satellite product line recently passed its system requirements review, assessed by a panel of ESA experts.

Sateliot to Launch First 5G Nanosatellite Constellation on SpaceX Falcon 9 Rockets

November 7, 2022 – Sateliot, the first satellite telecommunications operator providing IoT connectivity, will launch its second nanosatellite in Q1 2023 as a Falcon9 payload. SpaceX has been selected by Sateliot to bring this first stage of its 5G nanosatellite constellation from Cape Canaveral, FL, to a low-Earth orbit. This new nanosatellite differs from the first, launched in March 2021, as it has the availability to provide 5G IoT-NB standard connectivity. With this advancement, Sateliot will commence commercial tests, paving the way for massive IoT adoption. Following its launch, Sateliot, along with 500 companies from its Early Adopter Program, will begin testing it. This gives the early adopters a competitive advantage and sets them up as pioneers in the market. Sateliot has reached a €1B portfolio, thanks to pre-commercial agreements with these companies.

Airbus Partners with Space Compass to Serve the Japanese Market with Mobile Connectivity and Earth Observation Solutions

November 7, 2022 – Airbus HAPS Connectivity Business (Airbus HAPS) has signed a Letter of Intent (LOI) with Space Compass Corporation of Japan (Space Compass) for a cooperation agreement to service the Japanese market with mobile connectivity and earth observation services from the Stratosphere with Airbus' record breaking Zephyr platform. Airbus HAPS is an Airbus subsidiary, which intends to provide new environmentally-friendly services from its stratospheric-operating, Zephyr solar-powered aircraft for Mobile Connectivity, Platform Mobility, Earth Observation and for Government applications. With the ability to provide low-latency 4G/5G services, Zephyr acts as a tower in the sky, complementing terrestrial networks, and providing MNOs with a profitable solution to serve rural and remote areas as well as an emergency response.

NASA's Communications Services Project Sees Inmarsat Government Select Rocket Lab to Develop L-Band Radio

November 3, 2022 – Rocket Lab USA, Inc. has been selected by Inmarsat Government as partner to develop and manufacture an L-band radio in support of NASA's Communications Services Project (CSP). CSP seeks to accelerate the development of commercial near-Earth communications services by partnering with satellite communications (SATCOM) providers. Rocket Lab will help enable Inmarsat's InCommand, a real-time, near-Earth telemetry, command, and control (TT&C) service for satellites in low Earth orbit (LEO) for the CSP with the Company's new Frontier-L radio connecting to Inmarsat's ELERA global L-band network in geosynchronous orbit (GEO). As NASA prepares to decommission the agency's owned and operated Tracking and Data Relay Satellite System (TDRSS) system, which has provided communication for the Hubble Space Telescope, the International Space Station, and numerous NASA's Earth-observation satellites, the CSP aims to tap into commercial satellite communications services to ensure future NASA missions have similar reliable, secure, and high-performance space relay capabilities. Rocket Lab's Frontier-L radio is a transmitter that will support Inmarsat Government's demonstrations of a variety of TT&C applications, enabled by Inmarsat's ELERA worldwide L-band network, including Launch and Early Operations Phase (LEOP), ubiquitous command and control, real-time tasking, and contingency operations for satellites in LEO orbits.

Successful Launch of EUTELSAT HOTBIRD 13G Satellite

November 3, 2022 – Eutelsat Communications announced that EUTELSAT HOTBIRD 13G satellite was successfully launched into Geostationary Transfer Orbit by SpaceX using a Falcon 9 rocket that lifted off from Cape Canaveral, Florida. EUTELSAT HOTBIRD 13G is the second of two satellites built by manufacturer Airbus Defence and Space to be placed at Eutelsat's flagship 13-degree East neighborhood position, replacing three older satellites. It is also based on the Eurostar Neo telecommunications satellite platform, developed under an ESA Partnership Project with Airbus designed to foster innovation and competitiveness in the European space industry. Once into orbit and positioned, the satellite EUTELSAT HOTBIRD 13G will, with its twin EUTELSAT HOTBIRD 13F launched on October 15th, reinforce and enhance broadcast of more than a thousand television channels into homes across Europe, Northern Africa and the Middle East. Moreover, the two satellites will offer advanced features in terms of uplink signal protection and resilience.

Exotrail and Isar Aerospace Sign Multiple Launch Services Agreement

November 3, 2022 – The space mobility operator Exotrail and the European launch service provider Isar Aerospace announced today a multiple launch services agreement. Isar Aerospace's launch vehicle Spectrum will launch Exotrail's spacevan™ vehicle on several firm launches to low Earth (LEO) and geostationary transfer orbits (GTO) from Isar Aerospace's launch sites in Andøya, Norway and CSG, French Guiana, between 2024 and 2029. With the combination of launchpads, Isar Aerospace provides access to all orbits at a high cadence. With the demand for flexible and cost-efficient access to space continuing to rise, Exotrail and Isar Aerospace have partnered to break new ground in the

delivery of satellites. This combination of both service offers enables customers to launch single satellites and satellite constellations and place them in the orbit of their choice driving forward telecommunication, Earth observation, space logistics and exploration. With this agreement, Exotrail extends its manifest to keep on providing competitive solutions and meet the market's growing demand for precise satellite delivery in Low Earth Orbit (LEO), with specific orbital planes, inclinations and altitudes, as well as further to the geostationary orbit (GEO). Doing so, the company keeps on building up its spacedrop™ manifest for the years to come, with a stable financial framework and without compromising service flexibility. The spacevan™ vehicles will embark on the Spectrum launcher, with the possibility to fly from Isar Aerospace's two launch facilities.

EXECUTIVE MOVES

Pradman Kaul, President of Hughes Network Systems, to Retire at Year End

December 1, 2022 – Pradman Kaul, President of Hughes Network Systems has decided to retire at the end of this year. On January 1, 2023, Paul Gaske will assume the role of Chief Operating Officer, succeeding Mr. Kaul and reporting to Hamid Akhavan, CEO of EchoStar. Pradman Kaul will retire from his position as President of Hughes Network Systems at the end of the year. Upon his retirement, Mr. Kaul will continue to serve on the Board of Directors of EchoStar and will be appointed its Vice Chairman. He joined the company in 1973 as its tenth employee and has been a force in the satellite industry since then, assuming the role of President of Hughes in 2000. Industry 'firsts' commercialized under Mr. Kaul's leadership include: the first broadband satellite network; the first commercial satellite implementation for a national retailer; the first satellite internet service; and the first multipath satellite-plus-wireless service for consumers.

Eutelsat Appoints Christophe Caudrelier as Chief Financial Officer

November 24, 2022 – Eutelsat Communications has appointed Christophe Caudrelier as Chief Financial Officer, effective at the latest on 2nd January 2023. Christophe Caudrelier brings a wealth of experience as CFO from his 30-year career in global industries where operational excellence and long-term investments are key to successfully addressing the evolving customer expectations. His appointment follows the announcement by Sandrine Térán that she is stepping down as Chief Financial Officer to move on to other professional projects.

Boeing Reorganizes Defense, Space & Security Business Unit

November 17, 2022 – Boeing announced a series of executive leadership changes and reorganizations aimed at accelerating operational discipline, first-time quality and performance while streamlining senior leadership roles and responsibilities. Space, Intelligence & Weapon Systems, led by Vice President and General Manager Kay Sears, which will include space exploration and launch programs, satellites, munitions, missiles, weapon system deterrents, maritime undersea, Phantom Works Space and subsidiaries (BI&A, Millennium, Insitu, Liquid Robotics, Spectrolab, Argon and DRT). Between now and Feb. 4, 2023, Jim Chilton, senior vice president for Space and Launch, will continue to manage space exploration and launch programs, satellites and Phantom Works Space.

Kevin Ramani Joins Fleet Space as its new Chief Revenue Officer

November 16, 2022 – Fleet Space announced the appointment of Kevin Ramani as its Chief Revenue Officer (CRO). Fleet Space has seen a 45% increase in staff since January 2022 and is now focusing on expanding their presence on a US and Global Scale. A key addition to the Fleet Space leadership team, Kevin will have overall responsibility for all matters relating to revenue generation, including sales, new business development and delivering customer-facing services. Kevin has been fascinated by space since childhood: at the age of 15, he took part in a robotics competition, working with mentors from NASA's Jet Propulsion Laboratory (JPL). After studying Mechanical Engineering at UC Santa Barbara, he joined JPL himself, working on projects including the Phoenix Mission that discovered

water and ice on Mars, and the Curiosity Rover mobile lab that located organic particles on the Red Planet.

Spire Global Appoints Philip Plantholt as General Manager of Spire Aviation

November 15, 2022 – Spire Global, Inc., a leading global provider of space-based data, analytics and space services, today announced that it has promoted Philip Plantholt to Aviation General Manager. An aviation industry veteran, Mr. Plantholt has been at the forefront of digital transformation and technological system adoptions, helping aviation companies adopt commercial data services. In his new role as Aviation General Manager, Mr. Plantholt will help shape and execute Spire Aviation’s business growth strategy, guiding product development and enhancing commercial aviation relationships. He will report to Theresa Condor, Chief Operating Officer of Spire.

REPORTS

New WTA Report, “How to Win Business from a Telco or MNO,” Explores New Opportunities for Teleports in Terrestrial Telecom

November 22, 2022 – The World Teleport Association (WTA) today released *How to Win Business from a Telco or MNO*, a new research report that details the experiences of teleport and satellite operators and their technology partners that have made the investments necessary to win telco business and the lessons learned about the challenges, requirements and opportunities. The report is sponsored by Kratos. In this report, WTA interviews satellite and teleport operators about the new opportunities they are finding in the telco sector, the requirements they face, their integration strategies and how their ways of doing business are changing as a result.

Inmarsat New Report Demonstrates How Maritime Industry Challenges Are Met Most Effectively Through Connectivity

November 15, 2022 – A new report compiled by maritime innovation consultancy Thetius makes a compelling case that shipping companies seeking to meet current and emerging challenges facing the maritime industry will benefit from a strategic approach to connectivity. Published by Inmarsat, a world leader in global, mobile satellite communications, *‘The Network Effect: Strategising Connectivity at Sea for Maximum Impact’* also provides guidance on effective connectivity framework strategies. The report details the business benefits and specific capabilities that shipping companies can access by applying an effective connectivity strategy across their business IT, crew, and operational networks. These include voyage and port-call optimisation, emissions reduction, condition monitoring and condition-based maintenance, trade facilitation, seafarer welfare and training, remote surveys and pilotage and telemedicine services.

Euroconsult Predicts Global Governmental Space Exploration Investments to Reach \$31B by 2031

November 3, 2022 – The latest edition of the *Prospects for Space Exploration report* from Euroconsult predicts global governmental investments in space exploration will reach \$31B within the next decade. The report identifies key budget drivers that include the continuation of increased funding in transportation, orbital infrastructure, and in lunar exploration. The public and private focus on establishing a sustainable lunar presence, while also maintaining a sustained LEO human presence, will also beat the heart of space exploration roadmaps in the years to come.

Quilty Analytics’ Latest Report Examines the Economic Reality of the Small Launch Vehicle Market

November 2, 2022 – The global satellite and space analysts at Quilty Analytics just published an in-depth analysis of the nascent commercial small launch market as part of their ongoing quarterly deep dive into the space infrastructure sector. The 40-page report gives a complete breakdown of the small launch landscape from its inception to today. With investors pouring more than \$4.5 billion into more than 100 new small-launch startups, the demand for these rockets will be determined by several factors illustrated throughout the report. After reviewing two decades of financial activity, the Quilty

analysts also highlight the recent trends toward diversification among launch providers and identify the challenges that threaten their promises of lower-cost, on-demand access to space.

UPCOMING EVENTS

India Satcom, December 15-16, New Delhi, India, <https://broadbandindiaforum.in/india-satcom-2022-2/>

PTC'23, January 15-18, Honolulu, USA, <https://www.ptc.org/ptc23/>

Smallsat Symposium 2023, February 7-9, Silicon Valley, CA, USA, <https://2023.smallsatshow.com/>

Global Space & Technology Conference (GSTC) 2023, February 15-16, Singapore, <https://www.space.org.sg/gstc>

SATELLITE 2023, March 13-16, Washington DC, USA, <https://www.satshow.com/>

SATELLITE was launched with the goal to connect and unite the satellite industry as we headed toward new frontiers. Over the past 42 years, SATELLITE has served the satellite and space communities and broadened the scope of content to encompass professionals in commercial markets benefiting from satellite technology and applications, such as broadcasting, media & entertainment, government/military, aviation, automotive, financial, healthcare, telecommunications and more.

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Space Symposium 2023, April 17-20, Colorado, USA, www.spacesymposium.org

Space Tech Expo, May 3-4, Long Beach, CA, USA, <https://www.spacetechempo.com/>

CABSAT 2023, May 16-18, Dubai, UAE, <https://www.cabsat.com/>

Asia Tech x Singapore 2023, June 6-9, Singapore, <https://asiatechxsg.com/>

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About APSCC

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