

# APSCC Monthly e-Newsletter

## MARCH 2020

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.apscc.or.kr](http://www.apscc.or.kr). To unsubscribe, send an email to [info@apscc.or.kr](mailto:info@apscc.or.kr) with a title "Unsubscribe."

*News in this issue has been collected from February 1 to February 29.*

### SATELLITE BUSINESS

#### **SES and Telesat Respond to FCC Adoption of C-band Report and Order**

February 28, 2020 - SES, S.A. and Telesat, as founding members of the C Band Alliance, congratulate Chairman Ajit Pai and the Commission on the adoption of the C-band Report and Order. This momentous decision is a win-win-win for U.S. leadership in 5G, American taxpayers, and the nearly 120 million U.S. households that rely on the C-band for their cable and broadcast programming. SES and Telesat look forward to reviewing the Commission's order in detail and working with the FCC and all stakeholders to accomplish an efficient and expeditious transition of the C-band while protecting critical satellite services.

#### **Intellian Sets New Standards for Satellite Terminals with v240MT Gen-II Launch**

February 28, 2020 - Intellian, the global leader of mobile satellite communication antenna systems, has announced the launch of its next generation tri-band product, the v240MT Gen-II antenna. Developed from the award-winning tri-band v240MT – the first multi-orbit, multi-frequency and auto-switching antenna in the market, with over 150 systems already deployed – the new product adds a host of additional features and value, including the ability to operate multiple antennas seamlessly via its dual datacenter capability, and enhanced Ku-band performance. The ability to automatically switch between C-, Ku-, and Ka-bands, and between GEO, MEO and LEO orbits, makes the v240MT Gen-II truly vendor agnostic and allows customers to select the best and most economical provider at any time, without hardware modifications. The device is also modem agnostic, effectively allowing users to connect to any network, anywhere, delivering on Intellian's stated aim to make maritime communications as simple, intuitive and seamless as possible. This flexibility is reinforced by the option to choose BUCs from 40W up to 400W, enabling unprecedented high throughput out of the box.

#### **Kratos to Build Advanced Space Radio Monitoring System to Assure Satellite Spectrum**

February 27, 2020 - Kratos Defense & Security Solutions announced that it was awarded an \$11.5 million contract to build an advanced space radio monitoring system for a government customer. The system will incorporate Kratos technologies and integrated products to help the country regulate and protect the satellite spectrum. As part of the multi-million dollar project, Kratos is responsible for the turnkey design, installation and integration of the advanced space radio monitoring system including the core satellite technology and associated hardware and software. The system includes a fixed site and mobile unit to monitor satellite downlinks. The scope of work includes Kratos antennas, a satellite monitoring and geolocation solution and an Unmanned Aerial Vehicle (UAV) spectrum analysis solution. Kratos will deploy GeoMon, a specific application for frequency regulators to implement ITU missions, as well as the Monics carrier monitoring, satID geolocation, Compass network Monitor & Control (M&C) and Skyminer ground system data analytics products integrated with the Kratos-designed antennas/RF system to provide an end-to-end management solution. Skyminer will enable the operators to collect performance data across ground systems and use business intelligence to analyze satellite measurements from both regulatory and technical perspectives.

#### **Thaicom 5 Satellite Ends Service**

February 27, 2020 - Thaicom Public Company Limited announced the successful migration of its customers from the Thaicom 5 satellite to Thaicom 6 and other satellites. The Company has put in its best effort to resolving the technical anomaly in order to ensure the continuity of services to its customers. The migration and service restoration were completed on 20 February 2020. Meanwhile, the Company completed the deorbiting of Thaicom 5 on 26 February 2020. On 17 December 2019, Thaicom 5 experienced a technical issue causing technical limitations to monitoring the status of the satellite. The Company has performed several unsuccessful attempts to recover the satellite's technical incident ever

since the anomaly occurred, resulting in the satellite manufacturer's opinion to deorbit the Thaicom 5 satellite. Thaicom 5 provided reliable satellite communication services for 14 years since its launch in May 2006. The Company would like to thank the Ministry of Digital Economy and Society (MDES) and the National Broadcasting and Telecommunications Commission (NBTC) for their prudent decision to support and approve of the relevant process

### **Kacific Conducts First Mobile Backhaul over Geo-Stationary Ka-band Satellite in Pacific Islands**

February 27, 2020 - Kacific Broadband Satellites Group (Kacific) has successfully conducted the first Geo-Stationary Ka-band mobile backhaul test in the Pacific Islands. The ten-minute call between Kacific CEO Christian Patouraux in Singapore and a large mobile operator in the Melanesia region utilised the recently launched Kacific1 HTS satellite. The trial was quickly set up using an existing mobile cell site and connected by ethernet into one of Kacific's Newtec MDM2510 VSAT modems, a 3W transceiver and an inexpensive 1.2m dish. A layer 3 accelerated TCP/IP link via the Kacific1 Ka Band HTS satellite then via Kacific Broken Hill Teleport, in Australia, was then established. From there onto the public internet, across an undersea cable to the mobile operator's location on a Pacific island. A point-to-point GRE tunnel was then established and within minutes between the 3G Base Station and the 3G Core (SGSN/GGSN). Kacific offer a range of cost-effective mobile backhaul solutions across dedicated terrestrial links or secure public internet tunnels for both end-to-end Layer 2 or Layer 3 use cases on its new high-powered Kacific1 Ka-band satellite.

### **Orange and SES Team up on O3b mPOWER Communications System**

February 27, 2020 - Orange, one of the world's leading multi-service telecommunications operators and present in 18 countries in Africa, will be the first telco to adopt the ground-breaking O3b mPOWER, SES's next-generation Medium Earth Orbit (MEO) satellite communications system, to exponentially ramp up its consumer and business services, starting in the Central African Republic. O3b mPOWER is the world's only fully-funded non-geostationary orbit (NGSO) broadband system in development today. Positioned at only 8,000 kilometres away from Earth, the system will power low-latency high-throughput solutions that can be seamlessly integrated into existing terrestrial networks. When operational in 2022, O3b mPOWER will provide multiple terabits of throughput globally to drive digital transformation and cloud adoption virtually anywhere on the planet. The highly flexible O3b mPOWER constellation comprises ultra-high-capacity, low-latency, high-power MEO satellites, each with up to 5,000 fully-shapeable and steerable beams that can be shifted and scaled in real-time to meet customers' demands. The system is ideally suited for domestic cellular backhaul and simultaneous international IP trunking applications.

### **Iridium Certus 700 Upgrade Brings the Fastest L-band Speeds to the Industry**

February 27, 2020 - Iridium Communications announced that the Iridium Certus 700 service is commercially available and is providing the fastest L-band speeds in the industry. When first launched in early 2019, Iridium Certus provided L-band upload and download speeds of up to 352 kbps. With the upgrade to Iridium Certus 700, provided at no additional cost to Iridium Certus 350 subscribers, top download speeds have now doubled to up to 704 kbps. That is more than 270 kbps faster than the top download speed of the closest competitive L-band solution, for the same price per kilobit as Iridium Certus 350. Unique in the satellite industry, Iridium Certus is the only broadband service that provides truly global, weather-resilient coverage for on-the-move internet and high-quality voice access. Delivered through small form factor, cost-effective antennas and terminals currently available from Cobham and Thales, Iridium Certus has seen growing adoption by the maritime and land-mobile/connected vehicle markets.

### **Intelsat FlexMove Managed Service Powered by All-In-One Starwin Ku Auto Satellite Terminal**

February 24, 2020 - Starwin has launched high compact Starwin satellite terminal on Intelsat New Flexmove service, providing broadband connectivity to Starwin users in almost 190 countries. Starwin is the first automatic terminal fully operated for Intelsat FlexMove COTP (Communication on the pause) application. Intelsat is debuting first of its kind of FlexMove managed service including Starwin's Ku high integration fully auto affordable connectivity that is 20 times faster than current land mobile satellite solution on the market. Starwin's high compact auto terminal provides portable connectivity featuring all in one solution to be integrated flat antenna, BUC, LNB, Modem, Wifi, power supply in one cabinet, liberated engineer from over 1 hour installation and cabling, powering FlexMove service with more convenience, full automatic functionality to let Starwin terminal automatically point to satellite enabling fast speed connection for users to access public internet connection and private IP solution within 2 minutes in most remote locations.

### **AMOS-17 and Get SAT Establish New Era for Mobile Satcom ISR**

February 24, 2020 - Spacecom, operator of the AMOS satellite fleet, and Get SAT revealed that using AMOS-17's steerable KA-band HTS beams and Get SAT's miniaturized Micro-SAT satcom terminals, they have successfully tested and demonstrated full mobile broadband satcom capabilities for ISR (Intelligence, Surveillance and Reconnaissance) applications. Enabled by AMOS-17's powerful KA-band HTS beams and extremely small terminals at both ends, the team created a small footprint, high capacity true tactical solution for deployed units. Get SAT's micronized efficient Micro-SAT terminal demonstrated a return channel of over 10Mbps, hence offering breakthrough SWaP (Size, Weight and Power) for broadband communications required by various ISR sensors. By using a transportable 1.2m. Ka-band hub and the powerful capabilities of Spacecom's AMOS-17 digital payload, the team created an ideal configuration for Communications On-The-Move applications in the Middle East, Africa, Europe and Asia.

### **Advantech Announces Technology and Distribution Partnership with TXMission**

February 21, 2020 - Advantech Wireless Technologies Inc. has signed a sales and distribution agreement with the California and Watford, England based TXMission, a designer and manufacturer of high performance SmallSat modems for the New Space Industry. The companies will together develop a comprehensive suite of SmallSat, Airborne and Comms-On-The-Move (COTM) communication products for markets requiring versatile, extremely low size, weight and power (SWaP) products that provide leading-edge performance. The range of fully integrated SmallSat and UAV/Airborne products to be developed will include advanced RF transceivers, multi-gigabit modems for onboard and ground segment applications, low SWaP satellite terminals, antennas, network management systems and 5G technology solutions.

### **Lightweight Satcube Ku First Satellite Terminal Fully Operational on Intelsat FlexMove**

February 20, 2020 - Satcube has launched the lightweight Satcube Ku satellite terminal on Intelsat's new FlexMove service, providing broadband connectivity to Satcube users in nearly 190 countries. Satcube Ku is the first satellite terminal fully operational for Intelsat FlexMove Comms on the Pause (COTP) applications. Intelsat's first-of-its-kind "FlexMove", end-terminal managed service including the Satcube Ku, offers affordable connectivity that is 20 times faster than current Land Mobile satellite solutions on the market. The partnership enables on-the-spot portable broadband access and an outstanding service offering based on Intelsat Epic<sup>NG</sup> satellites for Satcube users around the globe, in addition to a new market opportunity for solutions providers and resellers. At only 8 kilos, Satcube's compact terminal provides portable connectivity, featuring an intuitive user interface with assisted pointing function to enable satellite broadband access in 60 seconds in the most remote locations. The Satcube Ku is a perfect match for Intelsat FlexMove COTP (Comms-on-the-Pause) services designed for temporary use in fixed locations. Satcube Ku terminal is not vertical-specific, complementing the entire Intelsat portfolio.

### **Cavli Wireless Pioneers Launch of the First 5G Test Network in India**

February 20, 2020 - Cavli Wireless, a global leader in cellular Internet of Things (IoT) solutions, and Maker Village, the Indian IoT and hardware innovation hub, are collaborating to launch India's first 5G network test lab in Q3 2020. The lab will enable IoT OEMs and ODMs to test their prototypes in real-world settings to fast track the product development processes, and will mark the first time Indian engineering teams have access to a local cutting-edge, fully functional test platform with 5G coverage. The lab will go live just in time to help 5G technology's momentous transformation of cellular technologies, such as Narrowband IoT (NB IoT) and long-term machine type communication (LTE-M), into mass adoption. In addition to providing complimentary Hubble subscriptions, Cavli will provide test network users with the soon-to-be-released C200-Series 5G IoT cellular modules/modems and the C1X, C3X, C4X series cellular IoT modules and modems, which will be released later this year.

### **ERT with Hughes Selected by the National Weather Service to Expand Managed Network Services**

February 19, 2020 - ERT together with Hughes Network Systems announced their selection by the National Weather Service (NWS) to upgrade and expand managed satellite and wireless services at NWS locations in the contiguous United States, Hawaii, Alaska, and Pacific Region. ERT and subcontractor Hughes will provide the NWS with the network services needed to gather and report local weather tracking and forecasting data using capacity on the Hughes JUPITER 1 (EchoStar XVII) and JUPITER 2 (EchoStar XIX) High-Throughput Satellites (HTS). At mission-critical locations, Hughes will provide 4G LTE wireless backup that ensures a dual-path network architecture for increased availability. Also as part of the managed service, the team will install Hughes HR4860 Secure SD-WAN Gateways at the locations and provide a live dashboard with 24x7 access to network performance data and analytics.

### **Panasonic Avionics and Nelco Turn on Satellite Communications Services for Aviation over India**

February 19, 2020 - Panasonic Avionics announced an agreement with Nelco to provide satellite connectivity services to customers flying into India and over Indian airspace. With this agreement, Panasonic becomes the first satellite communications provider to begin inflight connectivity (IFC) operations under Nelco's Department of Telecommunications license for In-Flight and Maritime Connectivity (IFMC), in accordance with the Flight and Maritime Rules. As a result of this agreement, Panasonic, and its subsidiary ITC Global, now offer connectivity to both aircraft and maritime vessels operating within India. With the implementation of the agreement and subject to regulatory approvals from relevant authorities, Indian full-service carrier Vistara may become the first airline in the country to offer satellite connectivity on international flights. With equipment already installed on more than 2,500 aircraft, vessels, and other platforms, Panasonic and ITC Global are already delivering connectivity services to customers in the aviation and maritime markets, providing them with access to satellite-based high-quality broadband internet services over India.

### **Intelsat Introduces "FlexMove" Managed Service for Ubiquitous Land Mobile Connectivity**

February 18, 2020 - Intelsat launched FlexMove, a new end-terminal managed service that makes it easy and affordable for people to connect to the Internet, private data networks and cloud services from virtually anywhere in the world, including while on-the-move, or on-the-pause at a temporary site. Businesses, first responders and humanitarian-aid organizations can now use this secure, reliable, "always-on" service to stay connected anywhere their jobs take them. Intelsat FlexMove service packages offer pre-set data rates sold by the gigabyte and can be used on qualified terminals available through a global network of solution partners, including Intelsat's FlexMove launch partner GRC. Intelsat's easy-to-use service portal enables FlexMove solution partners to provision, configure and quickly monitor network access in real-time through an online interface or integrated APIs. FlexMove-qualified terminals are manufactured and supplied by Kymeta, for COTM applications, and by Satcube and Starwin, for COTP applications.

### **Inmarsat Launches Connectivity Services in Saudi Arabia across Land, Sea and Air**

February 18, 2020 - Inmarsat announced that it will bring its world-leading maritime, aviation and enterprise connectivity solutions to customers based in Saudi Arabia through new partner agreements. The company additionally announced that it has secured new spectrum licences to deliver both its narrow-band (L-band) and high-capacity broadband (Ka-band), Global Xpress (GX), services in Saudi Arabia, enabling Saudi-based businesses to deploy these services for the first time. Fixed and mobile satellite telecommunications distributor Sada Al Ammah and Global Beam Telecom have been appointed as Inmarsat's first distribution partners in Saudi Arabia and the region and they will work closely with Inmarsat's Maritime, Aviation and Enterprise businesses to roll-out services in the region. Global Beam Telecom and Sada Al Ammah will work with Inmarsat's Enterprise business to bring the benefits of its award-winning connectivity services to land-based users in the Middle East.

### **Gilat's ESA Terminal Achieves Another Industry-First with In-flight Connectivity over NGSO**

February 18, 2020 - Gilat Satellite Networks announced that Gilat's first-to-flight Electronically Steered Antenna (ESA) terminal achieved yet another industry-first with in-flight connectivity over NGSO, that well-positions Gilat to win the vast opportunities in the ESA market. The demonstration showed high performance and instantaneous Ka-band switchovers between and operating on Telesat's Phase 1 LEO satellite and its Anik-F3 GEO satellite, onboard Honeywell's Boeing 757 commercial test aircraft, across several flight tests. Gilat's high throughput and small form factor ESA operated continuously over GEO then instantaneously switched connectivity to operate on LEO when it came into view, and back to GEO after operating on LEO. The ESA terminal demonstrated high performance, with broadband throughput of up to 58 Mbit/sec on both FWD and RTN, round trip delay as low as 18msec and robust operation at low elevation angles of down to 20 degrees. Gilat's ESA is a no moving parts, full electronic beam steering flat panel antenna with an extremely low profile. Gilat's innovative design combines the benefits of ESA with the advantages of Ka-band, as highlighted by the performance achieved in this testing. The ESA terminal serves both GEO and NGSO constellations and as such opens the market to low latency real-time applications.

### **Parallel Wireless to Deliver on Etisalat's OpenRAN Vision across Middle East, Asia and Africa**

February 18, 2020 - Parallel Wireless, Inc., the leading U.S.-based OpenRAN company delivering the world's only software-defined end-to-end 2G, 3G, 4G & 5G OpenRAN solution for coverage and capacity, announced that Etisalat, one of the world's leading telecom groups in emerging markets with over 148

million subscribers, is set to trial Parallel Wireless 2G, 3G, 4G & 5G OpenRAN across its markets in Middle East, Asia and Africa. Today's announcement is aligned with Etisalat Group objectives of achieving digital transformation with the deployment of best-in-class technologies to support 2G, 3G, 4G and 5G connectivity. Parallel Wireless enables a shift to open, software-based, and virtualized OpenRAN network architectures to overcome deployment and cost challenges, while also delivering network agility and much lower deployment and maintenance cost.

#### **Isotropic Demonstrates Remarkable Performance of Intellian's NX-Series Antennas**

February 18, 2020 - Isotropic, the trusted provider of global Internet services offering unrivaled connectivity; and Intellian, the global leader in mobile satellite communication antenna systems, have announced the completion of network acceptance testing on Intellian's new NX-Series of antennas. Testing was conducted at Isotropic's Lake Geneva facility over its Amazonas-2 and Galaxy-28 networks and utilized ST Engineering iDirect's X7 modem. The new series of antennas are also compatible with the iQ LTE modem, which is uniquely suited for a range of enterprise voice and data services. The NX Series offers high-speed data and industry-leading performance, further strengthened by exceptionally efficient RF design for use on every vessel type. The antennas feature an optimized reflector and radome, frequency tuned for both Ku- and Ka-bands, and a single coaxial cable which combines Tx, Rx, and DC power, to simplify installation. The system also features data and reference signals between the antenna and the antenna control unit (ACU). Intellian's innovation means that dual antenna operation is achieved without the use of a mediator and enhanced remote management and trouble-shooting capabilities are available via the AptusNX intelligence management platform. Higher bandwidth packages may also be accessed through high power BUC options.

#### **Intersputnik's Business Development Program Underway in Mongolia**

February 17, 2020 - In January 2020 Intersputnik transferred to Mongolian operator Isatcom LLC an interest-free loan in the amount of USD 300,000 for the purchase of hub station and user terminal equipment to be used to upgrade and expand Isatcom's VSAT network in the territory of Mongolia. Made available under a program for the development of satellite telecommunications business in the member countries of Intersputnik, which has recently been approved by the Board and the Operations Committee, this loan will help Isatcom implement a project to update the existing satellite network, offer advanced telecommunications satellite services in Mongolia, and further develop up-to-date satellite services in the country. The main purpose of the approved Development Program is to assist the member countries of Intersputnik in carrying out innovative space projects including those in the field of satellite telecommunications, satellite radio and video broadcasting, manufacture of satellite and telecommunications equipment, and upgrading of the ground satellite telecommunications segment.

#### **Comtech Receives \$1.4 Million Heights™ Networking Platform Order to Support Maritime Communications Network in Asia**

February 13, 2020 - Comtech Telecommunications Corp. has announced that during its second quarter of fiscal 2020, Comtech EF Data Corp. received a \$1.4 million equipment order from a major maritime service provider in Asia. The service provider, a long-standing customer of Comtech EF Data, specified the Heights™ Networking Platform and complementary RF products, including the LPOD Block Up Converters and the MBT-4000 Multi-Band RF Transceivers. After an exhaustive evaluation of VSAT platforms, Heights was selected as the best fit for its demanding maritime applications, which include maritime safety, maritime traffic administration, fishing and environmental protection. With the growth of the requirements of this service provider, it requires the most powerful and efficient VSAT platform, capable of delivering the highest possible data rate in its most demanding of maritime environments. The customer also requires the same level of industry-leading reliability and flexibility that it experiences with its existing installed base of networking products previously supplied by Comtech EF Data.

#### **Intellian's GX100NX Fleet Xpress Terminal Gains Inmarsat Product Approval**

February 12, 2020 - Intellian, the global leader of mobile satellite communication antenna systems, has received product approval from Inmarsat for the new GX100NX antenna. This announcement follows excellent results achieved during recent testing at Inmarsat's innovative, hi-tech facility in Ålesund, Norway, followed by a wholly successful sea trial. The Ka-band GX network from Inmarsat is being enhanced and expanded at an extraordinary rate, with fully-funded plans to increase the number of GX satellites over the next four years from four to twelve. This is in response to rapidly increasing user demand for high speed data services across the globe, including the typically hard-to-reach Arctic regions. The latest of the new satellites – GX5 – was successfully launched in November 2019 and is positioned to

cover the EMEA region. Once in service later this year, GX5 will deliver twice the capacity of the entire existing GX fleet of four spacecraft combined. Intellian's highly efficient next-generation GX100NX antenna supports 2.5GHz Ka wideband networks out of the box and is supplied with a 5W BUC as standard, with the option to upgrade to a high-power 10W unit. This makes the GX100NX upgradable and futureproof for Inmarsat's next generation high-capacity, high-speed constellation and future network upgrades.

#### **Enabel Partners with SES to Connect Foreign Aid Projects in Africa via Satellite**

February 12, 2020 - The Belgian development agency Enabel and SES will deliver satellite-based communications for the development and foreign aid projects spearheaded by the Belgian and other European governments. Under the multi-year framework contract awarded following a public tender, SES will bring managed end-to-end connectivity infrastructure and services to over 130 sites to support Enabel and development projects in 20 countries across Africa. The end-to-end connectivity solution delivered by SES will be supporting Enabel in its goal of providing partners with the right digital solutions and latest technologies. The connectivity will power Enabel's projects and activities, further reinforcing the agency's commitment to the 'Digital for Development' policy (D4D) of the Belgian Development Cooperation and of the European Commission, the Principles for Digital Development and the UN Sustainable Development Goals. As part of the solution, SES will provide antennae, installation, satellite bandwidth and end-to-end services to allow Enabel and its partners to upgrade the skills of African professionals, elevate the healthcare system and improve the people's living conditions.

#### **ST Engineering's Aerospace Arm Secures 5-year Nacelle Maintenance Contract from Qantas**

February 11, 2020 - ST Engineering has announced that its Aerospace arm, has secured a five-year nacelle maintenance contract from Qantas Airways. Under the agreement, ST Engineering will provide nacelle maintenance services starting from 2020 to the airline's Boeing 737-800 and Airbus A330 fleet. ST Engineering's solutions for aircraft engine nacelles cover both aftermarket services and original equipment manufacturing, which are supported by a network of distribution centres, satellite stores and repair shops across the globe. In Stockholm, the Group has a Nacelle MRO facility that cover a wide range of engine nacelles including the latest Boeing 787 Trent 1000 and GenX engine nacelles. In Middle River, U.S., the Group has a facility specialising in the design and production of thrust reversers, engine nacelle components and other aerostructures.

#### **The Industries of Artificial Intelligence and Space to Meet for AIxSPACE Courtesy of Innovitech & Euroconsult**

February 11, 2020 - For the first time, the industries of AI and space have decided to combine their expertise in order to surpass the human limitations imposed by the infinite vastness of space. AIxSPACE, dedicated to the applications of artificial intelligence (AI) within the space industry has been launched by Euroconsult and Innovitech, experts in both space and innovation respectively. For this first edition, the event will be held on June 1st, 2020 in Montreal (QC), one of the major global hubs for artificial intelligence and innovation. AIxSPACE will address five key areas of the space industry currently working symbiotically with artificial intelligence and look to provide an in-depth analysis of the themes in question. The event will consider the barriers AI can break in space innovation once applied to the following: robotics in deep space exploration, astronaut health, earth observation, satellite communications and connected aviation.

#### **Spaceflight Industries Signs Definitive Agreement to Sell Spaceflight, its Rideshare Launch Services Provider, to Japan's Mitsui & Co., Ltd and Yamasa Co., Ltd.**

February 11, 2020 - Spaceflight Industries, Inc. has signed a definitive share purchase agreement with Mitsui & Co., Ltd., in partnership with Yamasa Co., Ltd. to sell its satellite rideshare launch business, Spaceflight, Inc. Mitsui & Co.'s planned acquisition of the launch service provider is a unique opportunity for Spaceflight to further invest and expand its commercial and government rideshare launch services while Mitsui & Co. expands its portfolio to offer space services. Financial details of this deal are not disclosed. The acquisition transaction will now undergo review by the Committee on Foreign Investment in the United States (CFIUS) which evaluates the national security aspects of foreign direct investment in the U.S. economy. The review process takes several months, and the companies anticipate the deal to be approved in the second quarter of 2020. Upon regulatory approval, Spaceflight will continue to operate as an independent U.S.-based company, with a 50/50 joint venture ownership stake by Mitsui & Co. and Yamasa.

### **SSC and Geo-Insights to Expand Business Together in the Asian-Pacific Region**

February 11, 2020 - Swedish Space Corporation (SSC) and Geo-Insights (GI) have signed a memorandum of understanding (MoU) for collaborative activities regarding satellite ground station services on the Asia-Pacific market, ultimately expanding their businesses in the region. The agreement will provide new possibilities for SSC and GI to serve their existing and future customers in Asia-Pacific, currently the fastest growing space market globally. The partners will co-operate to expand satellite ground systems and services in the region by sharing capacity and competence. GI is a joint venture company formed between DSO National Laboratories and ST Engineering Electronics. Leveraging on the strengths of its parent companies, GI offers geospatial analytics and value-added services based on satellite imagery data to address growing global demands for timely insights, and SSC is a premier supplier of ground stations and satellite operation services globally.

### **Comtech to Provide Satellite Ground Equipment to Support Backup Communications Network for Airports in Colombia**

February 10, 2020 - Comtech EF Data has been selected by Bansat to supply satellite communications ground equipment to support the Aeronautica Civil de Colombia's backup communications network for 28 airports in Colombia. The Aeronautica Civil de Colombia, Colombia's Civil Aviation Authority (also known as Aerocivil), is a government entity responsible for developing and operating a system of Air Traffic Control and Navigation throughout the country. It strives to ensure the orderly development of civil aviation in Colombia, the aviation industry and the safe use of its airspace, facilitating different modes of transportation enhancing the country's competitiveness. Comtech EF Data's CDM-425 Advanced Satellite Modem and LPOD C-Band Block Up Converter (BUC) will be deployed to support the backup communications network.

### **RigNet Signs Long-term Agreement with Northern Offshore**

February 10, 2020 - RigNet announced that it has signed a long-term agreement with Northern Offshore, a global offshore drilling company, to provide various services to their fleet of rigs in the Middle East. Under this agreement, RigNet will provide several solutions including VSAT Managed Communications Services, CrewFlix Video on Demand, CrewHotspot internet, and Enhanced Cyber Services (ECS). RigNet is providing an advanced VSAT solution with voice and high-speed data communications as well as 24/7 remote network monitoring and technical support. This will be combined with RigNet's ECS offering, an improved data and system security solution with real-time threat detection, as well as an advanced conditional access system tailored for 3rd-party partners on offshore rigs. In addition, RigNet is also providing crew information and entertainment services from its CrewConnect portfolio, including CrewFlix, RigNet's video-on-demand service and Crew Hotspot, a dedicated crew internet access point. The CrewConnect portfolio provides services for improved crew morale in remote locations, enhancing operational efficiency through reduced employee turnover and increased productivity.

### **SES's and Gilat Telecom's Resilient Network Restores Connectivity in Africa**

February 10, 2020 - High-performance internet connectivity was restored in the Democratic Republic of Congo (DRC) within just four days after the West Africa Cable System (WACS) undersea cable cut, thanks to the combined efforts of Gilat Telecom and SES, the companies have announced. The recent cable cuts affected much of Sub-Saharan Africa, causing internet outages and slow speeds. The swift restoration to bring the service back to Gilat Telecom's DRC customers was achieved by leveraging unparalleled high-throughput, low-latency O3b Medium Earth Orbit (MEO) satellite capabilities. An O3b MEO system customer of SES since 2014, and the first in Africa, Gilat Telecom recently expanded its partnership with SES to provide more bandwidth to rural areas and extend services beyond Kinshasa and Lubumbashi, reaching unserved or underserved Kisangani, Mbuji-Mayi and Bunia, to customers such as Orange DRC. Under the new agreement, Gilat Telecom is using multiple Gbps of bandwidth on the O3b system and is now also adding services via SES's Geostationary Earth Orbit (GEO) satellites. The expanded capabilities enabled by SES's multi-orbit fleet will allow Gilat Telecom to deploy 4G/LTE networks and support cloud computing services, even in the remotest areas of the DRC.

### **Vislink Technologies Receives Orders for Satellite Communications Equipment from Airbus**

February 10, 2020 - Vislink Technologies has announced that it has received orders valued at over \$400,000 for satellite communications equipment from Airbus Defence and Space Limited (Airbus). The orders are for ground terminals to be used in support of the Airbus contract with the UK Government, providing satellite communications services to UK Government agencies and the Ministry of Defence through the Skynet 5 program. One of the orders received is included under a new Master Purchase

Agreement (MPA) that Vislink has signed with Airbus. The MPA covers the supply of Vislink MSAT, MANTIS and NewSwift satellite communication solutions and related equipment and engineering services to Airbus. There is the potential for additional orders to be placed under this MPA as a subsequent phase of the program is implemented.

### **ST Engineering Launches GEOEARTH**

February 6, 2020 - ST Engineering announced the launch of GEOEARTH, a cloud-based geospatial analytics platform that provides one-stop and immediate access to satellite imagery data and analytics tools that will help businesses to derive new insights as well as to accelerate decision making. Moving away from traditional standalone systems that are costly, time consuming and limited by system capabilities, GEOEARTH's open platform provides immediate streaming access to high-resolution imagery from TeLEOS-1, Singapore's first commercial earth observation satellite, together with a suite of data analytics tools. Applications that can benefit from GEOEARTH include airport operations, business intelligence, monitoring of maritime activities, land-use survey and scene-change analysis. Streaming access to high-resolution TeLEOS-1 imagery GEOEARTH provides immediate access to archived satellite images, compared to the current lead time of up to three days. Users will be able to search for their desired satellite images, preview areas of interest at full resolution, and download the required area of interest anytime, anywhere.

### **SES Networks' High-performance Connectivity Enhances EU Fisheries Control Operations**

February 6, 2020 - EFCA leverages SES Networks' high-performance satellite-enabled managed connectivity services to allow real-time data exchange between a lightweight Remotely Piloted Aircraft System (RPAS), EFCA's chartered vessel the Lundy Sentinel, and the headquarters on land to ensure timely decision-making. The managed connectivity solution delivered by SES Networks also enables high-performance connectivity to support daily operations aboard patrol vessels. The service is part of a framework agreement between SES Networks and the European Maritime Safety Agency (EMSA). The patrolling missions in the Mediterranean Sea, the western waters of the north-east Atlantic Ocean, North Sea and Baltic Sea see EFCA use the multipurpose vessel comprising a suite of EMSA solutions, such as pollution and oil spill monitoring and response, and a lightweight quadcopter RPAS. SES Networks' secure solution enables managed services ranging from RPAS real-time data transfer to internet broadband to video and voice applications. SES Networks has also enabled other EMSA operations by providing managed satellite communications to support various European authorities, including recent missions in southern Europe, and environmental protection and fisheries control in Iceland.

### **Azercosmos and Infostellar to Enter into Ground Station Partnership**

February 6, 2020 - Azerbaijani satellite operator Azercosmos and Japanese Ground Segment as a Service provider Infostellar have signed an agreement that will enable Infostellar customers access to their satellite constellations from the Azercosmos Ground Station (AGS), located in the Absheron peninsula. AGS is ideally positioned at the unique location between Europe and Asia. Being a universal ground station, AGS provides satellite operators with secure, highly reliable services, enabling a real-time transmission environment for satellites in low earth orbit. AGS has the capacity to provide on-demand and continuous services to all global satellite operators. The station consists of a 5.5m S/X-Band antenna system and a network infrastructure that makes it compact and versatile. IP connection to two backbone optical lines provides network resilience and redundancy. Moreover, AGS has the ability to be flexible in terms of system configuration and modulation, based on the technical requirements of customers.

### **NGMN Alliance and ESOA Members Collaborate to Extend Rural Connectivity with Non-Terrestrial**

February 5, 2020 - The Next Generation Mobile Networks (NGMN) Alliance in collaboration with members of the EMEA Satellite Operators Association (ESOA) have progressed the development of Non-Terrestrial Networks (NTNs) as 3GPP enhances 5G to support non-terrestrial access in their Release 17 work programme. Providing a convincing case for the implementation of NTN technology, the NGMN Alliance worked with key ESOA members Avanti, Echostar, Inmarsat, Intelsat, One Web, and Thales Alenia Space, to successfully demonstrate to 3GPP that space-based networks provide an effective alternative for network connection beyond traditional deployment methods, especially in rural areas.

### **L3Harris Passes Preliminary Design Review for Experimental Satellite Navigation Program**

February 5, 2020 - L3Harris Technologies has reached a major milestone in the U.S. Air Force's Navigation Technology Satellite-3 (NTS-3) project – passing the preliminary design review that defines the spacecraft's path to delivery and allows the program to move to the next phase of development. NTS-3 is

an experimental program examining ways to improve the resiliency of the military's positioning, navigation and timing capabilities. It will also develop key technologies relevant to the Global Positioning System (GPS) constellation, with the goal of future transition to the GPS IIF program. In collaboration with the Air Force Research Laboratory, Space and Missile Systems Center, and United States Space Force, L3Harris is combining experimental antennas, flexible and secure signals, increased automation, and use of commercial command and control assets.

### **Live Testing with Telesat's LEO Satellite Confirms Advantages of New C-COM Transportable Antenna System**

February 4, 2020 - C-COM Satellite Systems Inc., the world's leading provider of commercial grade auto-acquire mobile satellite antennas, has announced the completion of its first live test of a low-cost commercially available, 74cm parabolic, flyaway antenna system, with Telesat's Phase 1 LEO satellite. C-COM's fully automatic, highly compact, and easy to deploy iNetVu® FLY-74 Ka-band transportable antenna was used during the live testing at Telesat's Allan Park facility in Ontario, Canada. The iNetVu® FLY-74 has been tracking Telesat's Phase 1 LEO satellite over a six-month period. Full-duplex throughput data rates of up to 158 Mbps on the downlink and 158 Mbps on the uplink were achieved at extremely high spectral efficiencies, all while demonstrating the ultra-low latency capabilities (20-40 msec) of Telesat LEO. The on-air tests were conducted using a Newtec MDM 6000 modem. The FLY-74 antenna acquired and tracked the LEO satellite at elevation angles as low as 10 degrees above the horizon.

### **Aerkomm to Supply Hong Kong Airlines with In-Flight Connectivity**

February 4, 2020 - Aerkomm Inc. announced that its wholly owned subsidiary, Aircom Pacific, Inc. has signed an agreement with Hong Kong Airlines Ltd to provide Hong Kong Airlines with both its AirCinema and AERKOMM K++ In-Flight Entertainment and Connectivity (IFEC) solutions. Under the terms of the agreement, Aircom shall provide to Hong Kong Airlines its Ka-band AERKOMM K++ IFEC system for installation on its fleet of 12 Airbus A320 and 5 Airbus A330-300 aircraft as well as the AERKOMM AirCinema system for the Airbus A320 aircraft. The AERKOMM AirCinema system, which Aircom is designing and implementing specifically for Hong Kong Airlines, will introduce free high speed internet access to the seat back screens of Hong Kong Airlines' Airbus A320 aircraft, connected via the Ka-band AERKOMM K++ IFEC system. Instead of the traditionally preloaded and fixed selection of in-flight entertainment, passengers will have access to high-speed internet steaming services for videos, music, live TV, and social media. Aircom and Hong Kong Airlines will work closely together to develop the AERKOMM AirCinema system, thus making Hong Kong Airlines the launch customer for this innovative solution.

### **SES Gives to Princess Cruises First Access to O3b mPOWER Satellite-based Communications System**

February 3, 2020 - Princess Cruises, a leading brand of the Carnival Corporation, has announced a new dimension in its connectivity partnership with SES and will become the first global cruise ship fleet with early access to SES's ground-breaking O3b mPOWER network augmenting the Princess MedallionClass experience as it scales across the fleet. SES is enabling global, high-performance connectivity to Princess Cruises using its hybrid medium earth orbit (MEO) and geostationary (GEO) network. The combination of the globally-deployed Princess MedallionClass ships, the Ocean Guest Experience "Cloud Connected" Platform and SES's multi-constellations satellite network not only creates unmatched and ubiquitous global Wi-Fi service levels, but ensures seamless land/sea digital experience enablement including OceanView TV (OTT, Mobile and VOD) and is disrupting the traditional commodity satellite bandwidth model.

## **BROADCAST**

### **SES Announces NHK WORLD-JAPAN Joins Growing TV Channels on Ethiosat**

February 26, 2020 - SES announced that NHK WORLD-JAPAN has launched on the Ethiosat TV platform, bringing the total channel count of the bouquet to 43. NHK WORLD-JAPAN, the international broadcast service of Japan's public broadcaster, NHK, provides the latest news, NHK NEWSLINE along with technology, lifestyle and entertainment programs such as great gear, Dining with the Chef, J-Arena, and Journeys in Japan. In addition, the channel offers an assortment of documentaries and specials including Asia Insight and NHK Documentary. The free-to-view Ethiosat platform, which already delivers a wide variety of popular local content, was launched in October 2019. It is Ethiopia's first dedicated TV platform, delivering a high-quality viewing experience for viewers across the country. The introduction of NHK WORLD-JAPAN ensures viewers will have access to quality international programming as part of their

Ethiosat experience. This growing offering of both local and relevant international content has been made possible by agreements between the Association of Ethiopian Broadcasters (AEB), the Ethiopian Broadcasting Corporation (EBC) and SES. Ethiosat is hosted on SES's NSS-12 satellite at the orbital location of 57 degrees East. To view Ethiosat TV channels, Ethiopian households should contact their local satellite antenna installer to re-configure the position of their home's antenna. This will allow them to receive content from SES's NSS-12 satellite.

#### **Rohde & Schwarz Teams-up with Cellnex and RTVE to Leverage 5G Live Broadcast Experience**

February 25, 2020 - Rohde & Schwarz, together with leading European independent telecoms infrastructure provider, Cellnex, and Spinner, a leading partner in RF technology, is highlighting Broadcast/Multicast capabilities over 5G in Barcelona, Spain. In a project that goes live on 25 of February, the team will transmit a 5G live Broadcast signal provided by RTVE on air, highlighting a totally new mobile live experience to smartphones, tablets and a range of SIM-less devices across central Barcelona. 5G Broadcast is one of the main pillars of the 5G ecosystem as it offers Network Operators and Broadcasters revolutionary opportunities in several new business areas while offloading data capacity to create high spectral efficiency and reduced costs. Using 5G Broadcast/Multicast, Mobile Network Operators can deliver premium content to consumers on the move with consistent high Quality-of-Service (QoS) and higher Quality of Experience (QoE).

#### **Satellite Mediaport Services Teleport to Provide Broadcast Services for EUTELSAT 8 West B**

February 24, 2020 - Satellite Mediaport Services (SMS Teleport), the largest independent teleport in the United Kingdom, announced that Eutelsat has selected SMS to provide back-up teleport-based broadcast satellite services for its EUTELSAT 8 West B satellite. SMS Teleport is providing Eutelsat with 24/7/365 redundant teleport services from its Rugby, UK teleport. Connected via a diverse fibre linkup to Eutelsat's Paris-Rambouillet teleport, which provides the principal uplink to EUTELSAT 8 West B, the two teleports are reliably ensuring superior quality broadcasts from the satellite across the Middle East and North Africa. From its orbital position, EUTELSAT's 8 West B satellite provides the 8° West video neighbourhood with its broadcast needs. As one of the most dynamic neighbourhoods in the global satellite TV market, reaching over 90% of TV homes in the region, the satellite offers powerful signals for the region's broadcasters.

#### **Eutelsat Selected by AfricaXP for DTH Satellite Services across Sub-Saharan Africa**

February 13, 2020 - Channel network and content distributor AfricaXP has signed multi-year agreements with Eutelsat Communications for Ku-band capacity on two Eutelsat satellites, positioned at 16° East and 7° East. This capacity will enable AfricaXP to extend the reach of its DTH free-to-air TV platform, Premium.Free. Currently broadcast in West Africa, the platform will leverage the unparalleled coverage of Eutelsat's 7° East hotspot to roll out a regionally customized offer of 23 channels across Eastern and Southern Africa from mid-February. In addition, AfricaXP will launch an inaugural, 10 channel French language bouquet from Eutelsat's 16° East position with its powerful footprint over French-speaking African countries.

#### **Viasat and fuboTV Sign In-flight Video Distribution and Technology Partnership**

February 7, 2020 - Viasat Inc., a global communications company, and fuboTV, a sports and news-focused live TV streaming service, announced a video streaming distribution and technology partnership that advances how content can be delivered and consumed in-flight. The partnership is the first to leverage innovative technology standards from the global technical association, the Streaming Video Alliance (the Alliance), and apply them to in-flight connectivity. These standards enable airlines that sign-up for the Viasat/fuboTV partnership to seamlessly make fuboTV's live streaming premium over-the-top (OTT) and video on-demand (VOD) sports, entertainment and news programming available to all passengers – at no charge – on U.S. flights equipped with Viasat satellite internet.

#### **Intertrust and Friend MTS Extend Partnership to Fight Video Streaming Piracy**

February 6, 2020 - Intertrust, a pioneer in Digital Rights Management (DRM) technology, and Friend MTS, a leading global provider of content protection services, has announced an extended partnership agreement that enhances Intertrust's ExpressPlay content protection platform with cutting-edge Friend MTS anti-piracy and watermarking technology services. Now, an additional layer of protection is introduced that is complementary to the ExpressPlay content security suite, which features ExpressPlay DRM™ and ExpressPlay XCA™. Intertrust enters this new reseller agreement with Friend MTS with a joint objective to tackle piracy with an anti-piracy platform that provides an end-to-end solution that can shut

down an illicit stream by stopping transmission of content from the endpoint where it is being redistributed illegally, or by compiling a forensic evidence package that can be utilized for subsequent legal action. The ExpressPlay anti-piracy solution incorporates Friend MTS content and revenue security functionality, which includes content monitoring and legal enforcement for linear channels, live events and non-live VOD content. The ASiD (Advanced Subscriber ID) watermarking solution supports OTT, IPTV and broadcast platforms, with high performance extraction capable of addressing live events – in particular, live sports programming.

### **PanAccess' Nigerian Broadcast Bouquet on Amos-17 Ku-band**

February 3, 2020 - Spacecom, operator of the AMOS satellite fleet, today announced that it is providing Ku-band capacity from its AMOS-17 communication satellite to PanAccess, a leading German broadcast services company, for broadcasting to Nigeria. PanAccess' growing broadcast bouquet, originating in Germany, consists of dozens of channels and is broadcast free-to-air from the satellite located at the 17°E orbital position over Africa. PanAccess specializes in providing high-end one-way or two-way CAS and DRM security solutions around the globe. It offers a seamless service portfolio for consumers using any device.

## **LAUNCH / SPACE**

### **New Zealand Joins NASA Science Mission to Monitor Climate Change Impacts**

February 25, 2020 - New Zealand researchers and engineers will join NASA's Cyclone Global Navigation Satellite System (CYGNSS) mission after the Ministry of Business, Innovation and Employment signed a science partnership agreement with the world's biggest space agency in Washington DC last year. In a cutting-edge new collaboration, NASA's next generation Global Navigation Satellite System Reflectometry (GNSS-R) receivers will be installed on Air New Zealand Q300 aircraft, collecting and processing important environmental data as they fly across the country. To support the science objectives of the mission, the University of Auckland has received \$1.5 million in funding from the Ministry of Business, Innovation and Employment to establish a Science Payload Operations Centre to process and analyse the data for research purposes.

### **Northrop Grumman Successfully Completes First Docking of Mission Extension Vehicle with Intelsat 901 Satellite**

February 26, 2020 - Northrop Grumman Corporation and the company's wholly-owned subsidiary, SpaceLogistics, have successfully completed the first docking of the Mission Extension Vehicle-1 (MEV-1) to the Intelsat 901 (IS-901) spacecraft in order to provide life-extension services. This historic accomplishment marks the first time two commercial satellites have docked in orbit and the first time that mission extension services will be offered to a satellite in geosynchronous orbit. MEV-1, launched Oct. 9, 2019, recently completed its orbit raising to an orbit approximately 180 miles above geosynchronous orbit. IS-901 is a fully operational communication satellite that is running low on fuel. Intelsat removed 901 from service in December 2019, transferring customers to other satellites in its extensive fleet, in order to raise its orbit to the same altitude as MEV-1 in preparation for docking. MEV-1 then completed the historic docking with IS-901 on February 25. The combined spacecraft stack will now perform on-orbit checkouts before MEV-1 begins relocating the combined vehicle to return IS-901 into service in late March. Under the terms of the contract with Intelsat, MEV-1 will provide five years of life extension services to the IS-901 satellite before returning the spacecraft to a final decommissioning orbit. MEV-1 will then move on to provide mission extension services to a new client spacecraft.

### **Pléiades Neo well on Track for Launch mid-2020**

February 24, 2020 - The first two Airbus-built Pléiades Neo imaging satellites have started comprehensive environmental testing, to ensure they are ready for in-orbit operation. During the tests, the satellites are subjected to extreme temperatures and vacuum, vibration and acoustic noise, as well as electromagnetic interference. This will ensure they can withstand the harsh conditions they will experience during launch and their mission in orbit. These first two new generation very high-resolution satellites are on schedule for launch as planned in mid-2020. They will join the already world leading Airbus constellation of optical and radar satellites, improving both the revisit and resolution capacities. Entirely funded, manufactured, owned and operated by Airbus, Pléiades Neo will provide institutional and commercial customers with high-level insights for the next 12 years. Each satellite will be adding half a million km<sup>2</sup> per day at 30cm resolution to Airbus' offering. The images will be streamed into the OneAtlas on-line platform, thanks to an

innovative cloud-based ground segment architecture, allowing customers to have immediate access to freshly acquired and archived data as well as analytics.

#### **Successful Launch of Meridian Satellite from Plesetsk Cosmodrome**

February 20, 2020 - The Russian Aerospace Forces crew successfully launched the Soyuz-2.1a carrier rocket with the Russian communications satellite Meridian onboard. The launch and injection into orbit went as planned. In three minutes after the launch the Titov Main Test and Space Systems Control Centre automated complex acquired the Soyuz 2.1a rocket track. At the designated time, the Meridian spacecraft was injected into the final orbit and acquired by the ground control means of the Russian Aerospace Forces. The satellite maintains stable telemetry connection, all the onboard systems function as planned. The Meridian satellite is meant to provide communication between the sea vessels, ice patrol aircraft in the Northern Sea Route district with the coastal and ground stations, as well as to develop the satellite communication station network in the Northern Siberia and the Far East in order to support Russia's economic development.

#### **South Australian Space Companies Sign Agreement for First Payload Launch from Australian Soil**

February 20, 2020 - Two South Australian space industry start-up companies will collaborate to launch Australia's first payload to space aboard a suborbital rocket. Southern Launch will be the launch service provider when DEWC Systems launch their Space Payload 1 from Southern Launch's test range at Koonibba, in the far west of South Australia. The 27 cm long payload will launch on a T-Minus Engineering Dart rocket and carry miniature sensors, antennae and communications equipment that will be tracked in real time at DEWC's ground station. The payload is expected to reach an altitude of around 100 kms before being ejected from the launch vehicle and descending to Earth. During descent DEWC will detect, identify and locate radar signals through various altitudes and environments. The companies are waiting on final launch approval from the Australian Space Agency before announcing a launch date.

#### **Roscosmos and Space Adventures Sign Contract for Orbital Space Tourist Flight**

February 19, 2020 - State Space Corporation "Roscosmos" and Space Adventures have signed a contract for the implementation of the short duration space flight of two spaceflight participants on board the same "Soyuz" spacecraft to the Russian segment of the International Space Station. The flight is scheduled to launch in late 2021. Roscosmos and Space Adventures have been cooperating in space tourism since 2001, when the first space tourist – Dennis Tito – flew on orbit. In total, seven people have visited the space station in the frame of space tourism program with Charles Simonyi visiting the ISS twice.

#### **Exotrail Secures Contract with AAC Clyde Space to Equip Their Spacecrafts for Eutelsat's ELO 3 & 4**

February 19, 2020 - Exotrail, a French company dedicated to providing innovative on-orbit transportation solutions for the small satellite market have announced that they have signed a contract with AAC Clyde Space, Europe's leading nanosatellite solutions specialist. Exotrail will equip them with cutting-edge propulsion solutions for their customers, including global satellite telecommunications leader Eutelsat for its ELO 3 and ELO 4 spacecraft. The French company will provide propulsion systems for the two 6U CubeSats which will be manufactured and delivered to orbit by AAC Clyde Space. The Eutelsat mission is a precursor to a potential constellation called ELO (Eutelsat LEO for Objects). The contract is to be delivered before the end of the year, both satellites will be launched in 2021.

#### **Space Adventures and SpaceX to Launch Private Citizens on the Crew Dragon Spacecraft**

February 18, 2020 - Building on the success of Crew Dragon's first demonstration mission to the International Space Station in March 2019 and the recent successful test of the spacecraft's launch escape system, Space Adventures has entered into an agreement with SpaceX to fly private citizens on the first Crew Dragon free-flyer mission. This will provide up to four individuals with the opportunity to break the world altitude record for private citizen spaceflight and see planet Earth the way no one has since the Gemini program. If interested parties are secured, this mission will be the first orbital space tourism experience provided entirely with American technology. Private citizens will fly aboard SpaceX's fully autonomous Crew Dragon spacecraft launched by the company's Falcon 9 rocket, the same spacecraft and launch vehicle that SpaceX will use to transport NASA astronauts to the International Space Station.

#### **Arianespace Orbits JCSAT-17 and GEO-KOMPSAT-2B**

February 18, 2020 - Arianespace successfully launched two satellites using an Ariane 5 rocket from the Guiana Space Center (CSG), Europe's Spaceport in French Guiana (South America): JCSAT-17 for the Japanese operator SKY Perfect JSAT Corporation, and GEO-KOMPSAT-2B for the Korea Aerospace Research

Institute (KARI). JCSAT-17, built by Lockheed Martin Space, will offer flexible broadband communications services to users in Japan and the Asia-Pacific region. Its payload includes S-, C- and Ku-band transponders. The S and C-band transponders will be used by NTT DOCOMO, Inc., the largest telecommunications company in Japan. With the support of SKY Perfect JSAT, NTT DOCOMO will offer flexible mobile communications services in Japan and surrounding areas, based on an indefeasible right of use (IRU) contract. GEO-KOMPSAT-2B is the third KARI satellite to be launched by Arianespace, following the multi-mission COMS (Communication, Ocean, Meteorological Satellite) in 2010 and GEO-KOMPSAT-2A in 2018 – both orbited by Ariane 5. GEO-KOMPSAT-2B has two main payloads: GOCI II (Geostationary Ocean Color Image), supplied by Airbus Defence and Space; and GEMS (Geostationary Environmental Monitoring Spectrometer), supplied by Ball Aerospace & Technologies. GEO-KOMPSAT-2 is a South Korean government program to develop and operate two geostationary satellites for civil applications: GEO-KOMPSAT-2A for meteorology and space environment monitoring missions; and GEO-KOMPSAT-2B, for environmental monitoring of both land and oceans. The GEO-KOMPSAT-2 program is a follow-up to the COMS (Communication, Ocean and Meteorological Satellite) program.

### **Mitsubishi Electric Completes New Satellite Production Facility**

February 18, 2020 - Mitsubishi Electric Corporation has completed construction of a new facility for the production of satellites at the company's Kamakura Works in Kamakura, Japan. Together with existing facilities, Mitsubishi Electric's combined annual capacity will increase to 18 satellites, up from 10 at present, which will enable the company to satisfy the growing demand for governmental satellites in Japan and commercial communication satellites worldwide. The new facility will increase production efficiency, shorten production time, reduce costs and elevate product quality for enhanced competitiveness. It will incorporate information technologies based on Mitsubishi Electric's e-F@ctory solutions, which extract hidden benefits from existing resources through integrated automation to realize improved efficiencies, reduced costs and increased productivity. In addition, the new facility will incorporate Mitsubishi Electric products, such as a heat pump air-conditioning system, LED lights and high-efficiency transformers to further reduce energy consumption.

### **Blue Origin Opens Huntsville Engine Factory**

February 17, 2020 - Blue Origin opened its rocket engine production facility in Huntsville, AL. The world-class engine manufacturing facility in The Rocket City will conduct high rate production of the BE-4 and BE-3U engines. These engines will undergo testing at NASA Marshall Space Flight Center on the historic Test Stand 4670. BE-7, the lunar landing engine, is also currently in test at NASA Marshall. Blue will add more than 300 jobs to the local economy with an investment of over \$200 million in the facility.

### **NASA Awards Contract to Launch CubeSat to Moon from Virginia**

February 14, 2020 - NASA has selected Rocket Lab to provide launch services for the Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment (CAPSTONE) CubeSat. Rocket Lab, a commercial launch provider licensed by the Federal Aviation Administration, will launch the 55-pound CubeSat aboard an Electron rocket from NASA's Wallops Flight Facility in Virginia. After launch, the company's Photon platform will deliver CAPSTONE to a trans-lunar injection. The engine firing will allow the CubeSat to break free of Earth's gravity and head to the Moon. Then, CAPSTONE will use its own propulsion system to enter a cislunar orbit, which is the orbital area near and around the Moon. The mission is targeted for launch in early 2021 and will be the second lunar mission to launch from Virginia.

### **EGNOS Payload Enters Service on EUTELSAT 5 West B**

February 14, 2020 - Eutelsat Communications has announced that the GEO-3 payload of the European Geostationary Navigation Overlay System (EGNOS), a hosted payload aboard its EUTELSAT 5 West B satellite, has successfully entered into service. EUTELSAT 5 West B is hosting the Eutelsat-procured EGNOS payload under a 15-year agreement signed in 2017 with the European Global Navigation Satellite Systems Agency (GSA). The contract also includes technical services and a European ground infrastructure, including two gateways installed at Eutelsat's Rambouillet and Cagliari teleports.

### **Astranis Raises \$90 Million to Power Next Generation of Internet Connectivity**

February 13, 2020 - Astranis announced a \$90 million financing round to launch its first commercial satellite and build the foundation for the internet infrastructure of the future. The round was led by Venrock, with significant participation from existing investor Andreessen Horowitz. Astranis aims to solve a problem in the modern space race that hasn't been cracked: bringing the next four billion people online with low-cost, reliable internet. The \$120 billion market is growing quickly – demand for internet is rising

40% per year, every year – but until now, there has been no practical, cost-effective solution for bringing internet access to remote parts of the world. Astranis is singularly focused on solving this problem. Astranis is building a first-of-its-kind micro-geostationary orbit (GEO) satellite that is 20 times smaller in size than that of its predecessors – just 350 kg – compared to traditional satellites that are upwards of 6,500 kg. Its secret sauce is a flexible, ultra-wideband software-defined radio technology, which allows Astranis to replace heavy and bulky analog radio hardware with lightweight, compact, digital alternatives. The satellites are small enough to be manufactured and launched in months instead of years, all with more bandwidth than was previously possible with the same form size.

### **New South Wales and Luxembourg Sign MoU on Future Space Activities**

February 13, 2020 - The Grand Duchy of Luxembourg and the State of New South Wales, Australia, signed a Memorandum of Understanding (MoU) on future space activities. The Memorandum puts in place a framework for cooperation on space related activities such as Space science, technology and applications, including high-tech instrumentation, ground communications and services, smart payloads development, space and intra-space communications and commercialisation of space data. New South Wales and Luxembourg both have strong space industries and research communities. The MoU will enable a mutually beneficial exchange of ideas and personnel as well as the exploration of commercial possibilities.

### **Kleos Scouting Mission Satellites Dispatched to India for Launch**

February 12, 2020 - Kleos Space S.A. has dispatched its four Scouting Mission nanosatellites to Chennai, India, in preparation for launch aboard PSLV C49 from the Satish Dhawan Space Centre. The dispatch starts the Kleos specific launch activity for the Scouting Mission satellites on PSLV C49, a rideshare mission conducted by the Indian Space Research Organisation (ISRO) that includes satellites from other organisations such as Spire Global. The satellites are being transported to the integration facility where they will undergo a system checkout and mechanical inspection prior to battery charging, and fuelling. The satellites will be armed for flight, inserted into their dispensers and finally integrated onto the PSLV launch vehicle. Kleos' Scouting Mission satellites will detect and geolocate maritime radio frequency transmissions to provide global activity-based intelligence, enhancing the intelligence, surveillance and reconnaissance (ISR) capabilities of governments and commercial entities when Automatic Identification System (AIS) is defeated, imagery unclear or targets out of patrol range. Used with other data sources, Kleos' independent geolocation data will assist the detection of hidden maritime activity, such as piracy, drug and people smuggling and illegal fishing.

### **Soyuz-5 Rocket Engine Experimental Works Commenced**

February 12, 2020 - Voronezh Center for Rocket Engine Manufacturing (NPO Energomash integrated rocket manufacturing structure, part of Roscosmos) started experimental works to create a four-chamber engine RD-0124MS for the second stage of the Soyuz-5 Russian perspective carrier rocket developed by RSC Progress (part of Roscosmos). Design and development works included two successful test firings of the first propulsion unit with a shortened nozzle. The tests confirmed working sustainability of the combustion chamber under low pressure. This mode of RD-0124MS is included in its design as part of a carrier rocket. In parallel with analyzing the results, the specialists are also getting ready to test the second propulsion unit. The early tests will provide the calculations necessary to test the engine assembly and define its characteristics in accordance with the current technical design specification.

### **Astroscale Selected as Commercial Partner for JAXA's Commercial Removal of Debris Demonstration Project**

February 12, 2020 - Astroscale Holdings Inc. has been selected as the commercial partner for Phase I of the Japan Aerospace Exploration Agency's (JAXA) first debris removal project, a groundbreaking step by Japan to commercialize space debris removal. The JAXA Commercial Removal of Debris Demonstration project (CRD2) consists of two mission phases to achieve one of the world's first debris removal missions of a large object, the first of which has been awarded to Astroscale. This first phase will be demonstrated by the end of the Japan Fiscal Year 2022 and will focus on data acquisition on an upper stage Japanese rocket body. Astroscale will be responsible for the manufacturing, launch and operations of the satellite that will characterize the rocket body, acquiring and delivering movement observational data to better understand the debris environment. The CRD2 project will further cement Japan's leadership in developing the technology and policies that will drive this growing market.

### **Arianespace and Starsem Launch 34 OneWeb Satellites to Help Bridge the Digital Divide**

February 7, 2020 - A year after orbiting the first six OneWeb satellites, Arianespace has launched another

batch – involving 34 satellites this time – to help its customer offer global Internet access to all. Arianespace will carry out 19 more Soyuz launches – along with the Ariane 62 version's first flight – at the service of OneWeb, with these flights performed from three different space centers and occurring primarily during 2020 and 2021. Today's mission was the 50th Soyuz launch operated by Arianespace and Starsem, as well as the second successful mission for Arianespace in 2020. Today's launch, the 27th Soyuz mission carried out by Arianespace and Starsem from Baikonur, Kazakhstan, injected 34 OneWeb satellites into orbit, bringing the total to 40. The first six satellites in the OneWeb constellation were successfully orbited by Arianespace a year ago, in February 2019. Nineteen more Soyuz launches for this constellation will be carried out from three space centers (Kourou in French Guiana, Baikonur and Vostochny in Russia), along with the first Ariane 62 launch – with the missions taking place primarily in 2020 and 2021. OneWeb will start customer demonstrations in 2020 and will offer global 24/7 coverage starting in 2021.

### **Airbus Unveils New Portfolio of Earth Observation Satellites**

February 6, 2020 - Airbus has redefined its portfolio of turnkey Earth observation systems, specifically designed for the international market. Responding to current market trends, the company now offers a portfolio of end-to-end systems that complies with the increasing variety of user requirements and business models of its customers. This new portfolio encompasses off-the-shelf products ranging from the constellation-ready S250 optical and S250 radar all the way to absolute-high-end systems with the S850 radar and the S950 optical. It also includes the S450 optical, formerly known as the AstroBus-S. The portfolio comprises: The constellation-ready S250 optical and S250 radar, two small satellites that benefit from Airbus' most recent advancements in the New Space sector (as also applied in the production of OneWeb satellites), with the French CO3D four-satellite constellation being the first to build on this product. The flight-proven S450 optical, recently selected for the PerúSAT-1 (launched in 2016) and THEOS 2 (launch planned in 2021) programmes. The S850 radar, a highly sophisticated radar system whose technological capabilities enable advanced applications both in the observation domain and in scientific contexts. The S950 optical, a high-end optical satellite that is also the base for Airbus' own Pléiades Neo four-satellite constellation (starting in 2020).

### **Momentum to Deliver 3U Nanosatellite for Singapore's NuSpace and Aliena in 2021**

February 6, 2020 - Momentum, provider of in-space transportation services for satellites, announced a launch service agreement with Singapore-based companies, NuSpace and Aliena. Momentum's Vigoride orbital transfer vehicle will carry the NuX-1 3U nanosatellite to its final orbit, after launching onboard a SpaceX Falcon 9 rocket from Vandenberg, California during the first quarter of 2021. NuX-1 is a demonstration satellite recently announced by NuSpace in partnership with Aliena. It will demonstrate autonomous orbit control maneuvers using Aliena's ultra-low power miniature Hall-thruster – a first for CubeSats of that size – as well as NuSpace's Attitude Determination & Control Systems (ADCS) that comes equipped with an autonomous orbit control system. The nanosatellite will also carry an Internet-of-Things (IoT) payload for NuSpace and constitute the pathfinder for NuSpace's planned IoT constellation. NuSpace and Aliena are spin-offs from research done respectively by the National University of Singapore (NUS) and the Nanyang Technological University (NTU). Together, they aim to address the upcoming demand for large smallsat constellations, providing an integrated smallsat solution that is able to perform autonomous orbit maintenance. NuSpace plans to roll out an IoT constellation of nanosatellites covering the equatorial belt first, before expanding to global coverage. Aliena will provide turn-key, compact and low power electric propulsion solutions for small and nano satellites that serve a plethora of services and applications.

### **Exolaunch Awarded a PSLV Launch Contract for Spire's Satellites**

February 6, 2020 - Germany's Exolaunch has confirmed that it will arrange a milestone cubesat launch to send four of Spire's cubesats into low-inclination orbit on the Indian Polar Satellite Launch Vehicle (PSLV) in early 2020. With this launch, Spire Global – a data analytics company with the world's largest constellation of satellites for weather, maritime and aircraft data tracking – aims to diversify its satellite orbits. The mission will also serve as the springboard for an exciting new collaboration between Exolaunch and Indian launch services provider, New Space India Limited (NSIL) – the commercial arm of the Indian Space Research Organization (ISRO). Exolaunch will arrange launch services and mission technical support using its advanced cubesat deployment system, the 12U EXOpod – the most adaptable of its kind on the market. It will also utilize the EXObot deployment sequencer to control the safe and precise separation of Spire's satellites. The early 2020 launch is a collaboration between three major new space players and signals a pioneering year ahead for small satellite missions and associated technologies. Spire is unique in that it has launched over 100 satellites which operate across a broad range of orbits.

### **Astrocast and Spaceflight Ink New Launch Contract**

February 6, 2020 - Astrocast announces the signing of a new contract with Spaceflight for the launch of 10 additional IoT nanosatellites. This new contract will be the 6th launch booked with Spaceflight for Astrocast. Both Astrocast's test and fully functional satellites were also launched with Spaceflight within the last year. In total, Spaceflight is now set to launch 30 of the 100 satellites that will complete the Astrocast IoT Nanosatellite Network. The launch of the satellites is expected to take place in late 2021. Astrocast SA, in partnership with the European Space Agency, Airbus, and Thuraya, is developing an advanced nanosatellite network for the Internet of things (IoT). Airbus, the CEA and Astrocast have developed a low-cost ASIC and data-protocol that provides the most power efficient satellite modem for IoT applications. The constellation will consist of 100 CubeSat satellites in Low Earth Orbit (LEO) and will provide low latency global coverage. Astrocast was founded in 2014 by the developers of SwissCube, one of the longest lasting, operational nanosatellites in space.

### **NASA Selects SpaceX to Provide Launch Services Contract for Earth Science Mission**

February 4, 2020 - NASA has selected SpaceX of Hawthorne, California, to provide launch services for the agency's Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission. The total cost for NASA to launch PACE is approximately \$80.4 million, which includes the launch service and other mission related costs. The PACE mission currently is targeted to launch in December 2022 on a Falcon 9 Full Thrust rocket from Cape Canaveral Air Force Station in Florida. The PACE mission represents the nation's next great investment in understanding and protecting our home planet. The mission will provide global ocean color, cloud, and aerosol data that will provide unprecedented insights into oceanographic and atmospheric responses to Earth's changing climate. PACE will help scientists investigate the diversity of organisms fueling marine food webs and the U.S. economy, and deliver advanced data products to reduce uncertainties in global climate models and improve our interdisciplinary understanding of the Earth system. NASA's Launch Services Program at the agency's Kennedy Space Center in Florida will manage the SpaceX launch service. The PACE mission is managed at NASA's Goddard Space Flight Center in Greenbelt, Maryland, for the agency's Science Mission Directorate in Washington.

### **Black Sky Aerospace Facilitating Australia's First International Rocket Testing and Sounding Rocket Launch Partnership**

February 4, 2020 - Queensland based launch provider, Black Sky Aerospace and UK company Raptor Aerospace will conduct Australia's first privately operated, international rocket motor test and sounding rocket launch campaign. The campaign is planned to take place at the Beyond the Blue Aerospace sub-orbital launch facility just outside of Goondiwindi in Queensland's outback. Scheduled for blast-off mid - February 2020, the Raptor Aerospace team intends to undertake a campaign where they can first test and space qualify their own launch vehicles and systems. Coming to Australia to undertake this type of test and recovery campaign is more practical than carrying it out in the UK. It is very difficult to embark on a land-based rocket launch campaign in the UK, where the desired outcomes are the recovery of the systems for further analysis. This is due to the dense population and busy European airspace. The vast launch and recovery area provided by Beyond the Blue Aerospace, and the project requirements enabled by Black Sky Aerospace will completely resolve any logistical, population or airspace challenges that Raptor aerospace might face in Europe.

### **SATLANTIS Enters into Launch Services Agreement with Firefly Aerospace**

February 4, 2020 - Firefly Aerospace announced the execution of a Launch Services Agreement with SATLANTIS, a provider of high-performance payload technologies for Earth observation and remote sensing. Beginning in 2022, SATLANTIS will utilize the Firefly Alpha launch vehicle to deploy a constellation of satellites with breakthrough high-resolution multispectral cameras with four bands of 80 cm native resolution.

### **Maxar Technologies to Build Next-generation Intelsat Epic Satellite with NASA Hosted Payload**

February 3, 2020 - Intelsat has selected Maxar Technologies to manufacture Intelsat 40e, a next-generation geostationary communications satellite scheduled to launch in 2022. Maxar will integrate NASA's Tropospheric Emissions: Monitoring of Pollution (TEMPO) payload with the Intelsat 40e satellite. Based on Maxar's proven 1300-class satellite platform and Intelsat Epic, Intelsat 40e will provide Intelsat customers across North and Central America with flexible, high-throughput, "coast-to-coast" coverage. The additional capacity will also support the growing number of customers utilizing Intelsat managed-service offerings, including those working with Intelsat to solve connectivity challenges for commercial and private planes, moving vehicles on land and other mobility applications. In 2019, NASA selected Maxar to

host its TEMPO payload utilizing the Space and Missile Systems Center Hosted Payload Solutions (HoPS) contract vehicle. Now that Maxar has identified Intelsat 40e as the satellite, the company will begin the integration process. TEMPO is a UV-visible spectrometer that will detect pollutants by measuring sunlight reflected and scattered from the Earth's surface and atmosphere. The resulting data from TEMPO will be used to enhance air-quality forecasts in North America, enabling the more effective early public warning of pollution incidents. The combined Intelsat 40e and TEMPO programs are expected to be accretive to Maxar's earnings and cash flow on an annual basis throughout the production process.

## EXECUTIVE MOVES

### **Myriota Appoints Barbara Swanson as Chief Revenue Officer**

February 13, 2020 - Myriota has appointed Barbara Swanson as its first CRO to grow its global customer base. Swanson will head up the sales and marketing teams and be responsible for building and executing the strategy to drive uptake in key international markets. The position will be integral to building Myriota's global partner network and making data accessible to all through low-cost, low-power, secure direct-to-orbit connectivity for IoT. Swanson, a highly experienced global sales executive, specialised in SaaS technology for the past 20 years. Most recently, she held the role of Vice President, Sales & Managing Director, Asia-Pacific for Germany-based TeamViewer, which is a leader in IoT and produces remote control, monitoring and collaboration software. Swanson is now returning to her career after taking two-years of parental leave with her three young children.

### **SES Names Sandeep Jalan as New Chief Financial Officer**

February 11, 2020 - SES announced the Board of Directors has appointed Sandeep Jalan as Chief Financial Officer (CFO) of SES. He will assume the position from 6 May 2020. Sandeep has 30 years of experience in financial and operational leadership roles across Asia and Europe. He is most recently the CFO of Aperam, a global leader in the stainless, electrical and specialty steel industry, a role he has held since 2014. Previously, he worked for the ArcelorMittal Group since 1999 where he held various roles including the CFO of ArcelorMittal Long Carbon Europe and was part of the M&A team responsible for numerous acquisitions in both steel and mining. He was also the CFO & Company Secretary for Ispat Alloys Ltd from 1993 to 1999.

### **Orbital Micro Systems Names David Gallaher Chief Operating Officer**

February 10, 2020 - Orbital Micro Systems (OMS) has announced that David Gallaher has been appointed chief operating officer. A co-founder of OMS, Gallaher will lead business development and productization of the company's advanced weather data solutions. Prior to this appointment, Gallaher served as OMS's chief data scientist, and will continue to lead the company's scientific team. Before co-founding OMS, Gallaher served in environmental research capacities for several high-profile organizations, including the National Snow and Ice Data Center, Exxon, Advanced Sciences Incorporated, the Petroleum Information Corporation, and the city of Boulder, Colorado.

### **PJ Beylier Resigns as CEO of SpeedCast**

February 3, 2020 - Speedcast International Limited advises that the Board has accepted the resignation of PJ Beylier as CEO, effective from 1 February 2020. While the preliminary view of the FY19 result is a little greater than 10% below the Company's previous guidance, that result includes a number of items (such as procurement savings and sale of minor surplus assets) that do not directly contribute to ongoing earnings. In light of the disappointing preliminary FY19 result, the Board accepted PJ Beylier's resignation from his role. He remains available to support the management team and the interim leadership over the next three months. A global search for Speedcast's new CEO has commenced with Russell Reynolds, with a particular focus on Europe and the US for candidates. In the interim, existing Board Directors Peter Shaper and Joe Spytek have agreed to act as co-CEOs of the Company. Peter and Joe will also continue as Directors.

## REPORTS

### **NSR Report: Smallcells a New Key to Unlocking \$39 Billion in Satellite Backhaul Revenue**

February 25, 2020 - NSR's *Wireless Backhaul via Satellite, 14th Edition* report forecasts \$39 billion in 2019-2029 cumulative capacity revenues for Satellite Backhaul. With backhaul networks rapidly transitioning to 4G and the installed base continuously expanding, Mobile Backhaul via Satellite offers sizable

opportunities in all regions. Smallcells will play an increasingly important role in this growth, as lower costs expand the addressable market to areas previously uncovered due to industry cost metrics. The multiple M&As in the VSAT platform space are particularly relevant for the Backhaul market. The combination of Comtech/Gilat/UHP will create a very dominant actor in this market while iDirect/Newtec clearly sees Backhaul and 5G one of their primary growth engines. Additionally, as MNOs are increasingly willing to outsource network management, multiple groups are moving into offering end-to-end services, including new entrants like Towercos.

### **NSR Releases Space Tourism and Travel Markets Report**

February 21, 2020 - Space tourism is one of the most ambitious, and exciting, opportunities in the satellite and space sector. For over two decades, numerous commercial entities have been developing the infrastructure, technology, and policy, which would enable space travel and tourism, yet there remains no commercial opportunity today. Offering historical context and development of commercial suborbital and orbital travel & tourism; NSR's *Space Tourism and Travel Markets (STTM)* provides a clear perspective on the industry, enabling long-term strategies for decision makers all along the value chain.

### **NSR Report: In-orbit Satellite Services Pave the Way to Manage Space Assets**

February 11, 2020 - NSR's *In-Orbit Servicing & Space Situational Awareness Markets, 3rd Edition* report, has been released, forecasting over \$3.1B in cumulative revenues generated by 2029 for applications such as satellite life extension, relocation, de-orbiting, salvage, robotics, and space situational awareness. NSR's analysis shows progress of this much-anticipated technology and business as launches of satellite constellations continue, and there is growing concerns and opportunity to service in-orbit infrastructure to more accurately and efficiently manage orbital assets. The in-orbit servicing (IoS) market stands ready to develop quickly, as Northrop Grumman's Mission Extension Vehicle launch in late 2019 kick-starts a flurry of life extension and space tugs in-orbit service technologies. Meanwhile, increasing partnerships between players and "future-proofing" of satellites, such as OneWeb's recent announcement to install a grappling handle on its satellites to help with future de-orbiting, are aiding the commencement of services and their sustainability.

### **NSR Report: Constellations Drive a \$3.8 Billion Opportunity for Optical Satcom Equipment**

February 5, 2020 - NSR's *Optical Satellite Communications, 2nd Edition* report, has released, projecting a \$3.8 billion cumulative revenue opportunity until 2029 for space-based laser communications. The market is largely equipment-centric, with a significant portion of the revenue flow going to lasercom terminal manufacturers. Progress in this market is heavily dependent on the progress made by non-GEO constellation operators and their ability to launch and close their business cases. Free space optical communications (FSOC) continue to remain a niche alternative to today's radio frequency based satcom ecosystem, used primarily by governments and research organizations for demonstration missions. However, business requirements and technological maturity in recent years has spurred a new wave of interest in optical satellite communications as a potential gamechanger.

### **New WTA Report Provides Key Insights into Good Security Practices**

February 5, 2020 - The World Teleport Association (WTA) released *High Performance: Safety & Security*, a new research report that shares insights about the most common under-appreciated safety and security issues at teleports and how their management can best address them. Safety and security are two sides of the same coin in the management of the complex technology and operations of a teleport. Good safety processes protect the health and welfare of employees operating amid the potential dangers of high voltage, microwaves and combustibles. In addition to being the right thing to do, it reduces disruption and avoidable expenses for the business. Good security procedures protect the business from malicious actors, whether outside or inside the business, while offering another layer of protection for the people working for the company. Employees do not always appreciate the additional tasks that good security adds to their working day, but the potential for major negative impact on the business makes it worthwhile.

## **UPCOMING EVENTS**

**Satellite 2020**, March 9-12, Washington DC, USA, <https://2020.satshow.com>

**Global Aerospace Summit**, March 17-19, Abu Dhabi, UAE, [www.aerospace summit.com](http://www.aerospace summit.com)

**36th Space Symposium**, March 30 - April 2, Colorado Springs, Colorado, USA, [www.spacesymposium.org](http://www.spacesymposium.org)

**CABSAT 2020**, March 31- April 2, Dubai, UAE, [www.cabsat.com](http://www.cabsat.com)

CABSAT now in its 26th edition presents SATEXPO, the only platform in the MEASA region bringing senior buyers in sat-comms, tech and business solutions together for 3 days under one roof. SATEXPO represents the entire ecosystem of satellite carriers, manufacturers, service providers and integrators serving government and military,

**Future of Video India**, April 8, Mumbai, India, [https://avia.org/all\\_events/the-future-of-video-india-2020/](https://avia.org/all_events/the-future-of-video-india-2020/)

**NAB 2020**, April 18-22, Las Vegas, Nevada, USA, [www.nabshow.com](http://www.nabshow.com)

**ConnecTechAsia 2020**, June 9-11, Singapore, [www.connectechasia.com](http://www.connectechasia.com)

**APSCC Summit @ConnecTech Asia**, June 9-11, Singapore, [www.connectechasia.com](http://www.connectechasia.com)

**OTT Summit**, June 29-30, Singapore, <https://ottsummit.asia>

**Convergence India 2020**, July 7-9, New Delhi, India, [www.convergenceindia.org](http://www.convergenceindia.org)

### **Editorials and Inquiries**

*News, comments, and suggestions can be sent to the editor at:*

*Inho Seo, Editor, APSCC Publications*

*Asia-Pacific Satellite Communications Council (APSCC)*

*T-1602, 170, Seohyeon-ro, Bundang-gu, Seongnam-si,*

*Gyeonggi-do, SEOUL 13590, Rep. of KOREA*

*Tel: +82 31 783 6247*

*Fax: +82 31 783 6249*

*E-mail: [editor@apsc.or.kr](mailto:editor@apsc.or.kr) Website: [www.apsc.or.kr](http://www.apsc.or.kr)*

### **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](http://www.apsc.or.kr).*