European Space Policy Institute

ESPI Insights

Space Sector Watch

Issue 14
March 2021

THIS MONTH IN THE SPACE SECTOR...

PERSEVERANCE AND THE FUTURE OF EUROPEAN SPACE EXPLORATION

Dear Friends of ESPI,

On February 18th, following the infamous seven minutes of terror, the Mars Perseverance Rover touched down just North of the Martian equator. Perseverance is NASA's fifth successful Martian mission in a row and most modern rover to date. The HD-images of the rover's landing once again demonstrated U.S. ability to innovate and lead when coming to space exploration milestones and showed an increasingly strong technical and scientific understanding of the Martian environment and landing procedure.

In the wake of Perseverance and other significant international mission successes, Europe remains one of the most reliable "partner of choice" in space exploration, boasting long-term experience and invaluable contributions to international scientific, robotic, and human spaceflight missions which provided the tools for extraordinary European missions such as Rosetta and ExoMars. In line with this, the Perseverance rover also included key European contributions:

- The SuperCam, jointly developed by CNES and Los Alamos National Laboratory (LANL) with participation from the University of Valladolid,
- The Mars Environmental Dynamics Analyzer (MEDA), by the Spanish Astrobiology Centre and the Madrid National Institute of Aeronautics,
- The Radar Imager for Mars' Subsurface Experiment (RIMFAX), by the Norwegian Defence Research,
- The Laser retroreflector Array (LaRA), by the Italian National Institute for Nuclear Physics.

In addition to other recent feats, this new U.S. achievement raises the perennial question of European ambitions in the international space exploration arena and casts a shadow on the political will that would be necessary to pursue them. It is undeniable that unlike major space powers – which have all skilfully used space exploration to suit their political and strategic agendas – Europe has not pursued its capacity to exploit the benefits stemming from space exploration into geopolitical influence. This is primarily because European space exploration programmes have historically followed a programmatic science-based and technology-oriented approach targeted at cascading positive benefits.

Whereas this approach has greatly contributed to ensuring programmatic stability and making Europe a highly regarded partner for international cooperation (unlike more volatile counterparts), it has nevertheless prevented the continent from reaping the full benefits of a more politically laden exploration programme. Such political dimension remains an indispensable element for implementing a long-term vision in space exploration, exercising a strong weight in shaping the future international space agenda and attracting the best partners to capitalise from such cooperation. While European capabilities could pertain in more ambitious exploration or human spaceflight programmes, little consensus amongst Member States has prevented it to do so.

If no such decisions are to be made regarding the future of European space exploration, then Europeans may find themselves undermined by no longer being able to partake as an equal in the conducting of the global space exploration agenda and remain bound to participate in larger planetary robotic or manned missions. Finally, and perhaps most importantly, Europe must ask itself whether it wishes to play a more politically laden role on the international scene through its coordinated approach or on the contrary, favorize the pursuit of nationally driven initiatives.

Yours sincerely,

Jean-Jacques Tortora

Director of ESPI

Policy & Programmes

Joe Biden nominates Bill Nelson as new NASA administrator

Credit: U.S. Senate

On March 19th, the White House released a statement communicating President Joe Biden's nomination of Bill Nelson as new NASA administrator. Bill Nelson formerly chaired the Space Subcommittee of the U.S. House of Representatives for 6 years and was Ranking Member of both the Senate Space and Science subcommittee and the Committee on Commerce, Science and Transportation. He also served as astronaut as part of the 24th flight of the Space Shuttle in 1986 and was involved in the drafting of various space legislations in Congress such as the 2010 NASA bill. Bill Nelson has experience serving in public office for over 40 years and was appointed to the Advisory Council of NASA by his predecessor Jim Bridenstine in 2019.

The European Commission publishes 2021 DG DEFIS Management Plan

The European Commission (EC) published the 2021 DG DEFIS Management Plan on March 2nd, which sets out the key contributions of the DG to the EC's action. In particular, the Management Plan outlines the contributions of the DG DEFIS in four of the six main political priorities of the EC for the period 2020-204, namely the priorities on "A European Green Deal", "A Europe fit for the digital age", "A stronger Europe in the world" and "Promoting our European way of life". The document also sets out the 10 main priorities of the DG for 2021, which chiefly include objectives related to the adoption of the EU Space Programme, the deployment of new initiatives such as the European Defence Fund, the GOVSATCOM component and new support mechanisms for innovation and entrepreneurship in the space sector. The document delineates additional objectives for the DG including the update the Industrial Strategy, the implementation of activities aiming to support industrial recovery from the COVID-19 crisis and the continued oversight over the EU flagship programmes and the EU SST.

CNES Board of Directors approves government subsidy agreement for space stimulus plan

On March 11th, CNES held its 366th Board of Directors session and approved the new subsidy agreement between the French government and the agency. In the framework of the space stimulus plan, the subsidy agreement mandated the agency to be the sole entity responsible for the execution of the plan with regards to the space sector and outlined its implementation strategy. As part of the competitiveness component of the Recovery plan, €365 million in new funding were allocated to stimulate the space industry. The funding is composed of a €165 million budget envelope dedicated to launcher programmes that will focus on supporting the industrial sector's recovery for the losses induced by the Covid-19 crisis and an additional €200 million envelope allocated to support innovation in France.

French Space Command conducts its first military space exercise with U.S. and Germany

Credit: Armée de l'Air et de l'Espace

On March 8th, the French Space Command (CDE) launched its first military exercise focused on space, which lasted four days and was conducted in collaboration with the German Space Situational Awareness Centre and the U.S. Space Force. The mission, named AsterX 2021, aimed to evaluate the CDE's current operational readiness level in circumstances where its space assets and those of its allies were threatened. The 18 simulated event exercises that were completed involved possible scenarios ranging from antisatellite attacks to meteorological events and were held in the CDE's headquarters in Toulouse.

Russia and China sign MoU to establish future International Lunar Science Station

Credit: Roscosmos

On March 9th, China and Russia signed a MoU establishing a collaboration between the two countries in the development an International Lunar Science Station (ILRS). The ILRS is projected to be a research station based partly in orbit and on the lunar surface and represents an expansion of concepts previously developed by China in the framework of their lunar exploration projects. To this effect, the country's planned Chang'e-6 and Chang'e-7 missions will represent the robotic foundation of the station along with the Chang'e-8 mission still in development. Russia is also projecting a series of lunar missions in the next decade, specifically through its Luna 25, Luna 26 and Luna 27 lunar lander missions, the latter of which is the subject of a cooperation agreement with China.

Airbus selected by the French Armed forces for upgrade of Syracuse IV ground stations

Airbus Defence and Space won an initial order worth approx. €100 million placed by the French Armed Forces for the construction and upgrade of the Syracuse IV programme's ground stations. The order is a 10-year framework agreement named "Copernicus" and represents the first contract won by Airbus as regards to the French Directorate General of Armaments' Syracuse IV programme. Within the scope of the contract, Airbus will be initially tasked with the development of Pegasus, the French Ministry of Defence's satellite communications management system, which is a unique portal that will be accessible to all its units. The projected upgrades to the Syracuse IV ground stations are in line with recent efforts undertaken by the French Armed Forces to restructure the programme, with Thales also receiving a contract for the delivery of ground stations in February. In addition to the development of Pegasus, Airbus is also projected to assist the Armed Forces in the improvement of operability of the Comcept.

U.S. DoD awards $384 million in contracts to SpaceX and ULA for military satellites launch

On March 9th, SpaceX and ULA won contracts worth $159 million and $224 million respectively for the launch of military satellites on behalf of the DoD, which are expected to be carried out in 2023. The basic launch services are projected to be implemented in the framework of the DoD's National Security Space Launch (NSSL) Phase 2 contracts. SpaceX is expected to carry out its launches for the USSF-36 and NROL-36 missions on board a Falcon 9 from Cape Canaveral, while ULA projects to launch the USSF-112 and USSF-87 missions on its new Vulcan Centaur rockets.

NASA awards Northrop Grumman Mars Ascent Propulsion system contract

Credit: NASA

On March 4th, NASA awarded Northrop Grumman a contract valued at approx. $84.5 million for the supply of propulsion support services and products for the agency's Mars Ascent Vehicle (MAV). In the framework of their agreement, the company is expected to deliver solid propulsion systems and controls for the MAV, which is expected to launch in 2026 in the context of NASA and ESA's Mars Sample Return (MRS) mission. The company is also expected to deliver a fetch rover that will be launched in conjunction with the MAV. The MAV and the fetch rover are projected to collect the Martian soil samples selected by NASA's Perseverance rover, which successfully landed on the planet last month.

UK furthers efforts in the space sector

UK government drives path towards regulation of commercial spaceflight services

On March 5th, the UK government published its response to the commercial spaceflight consultation that it launched in 2020 in order to receive insights from key stakeholders in the country, as it looks to take further steps towards a favourable regulation of commercial spaceflight activities from UK soil. The government is expecting to enact a new legislation stemming from the comments it received, as it aims to complements both its Space Industry Act of 2018 and its National Space Strategy with the objective of increasing the country's share of the global space market to 10% by 2030. The new regulations to be enacted have the objective of supporting the development of new commercial spaceflight activities, including by providing additional backing to the UK's growing launcher and spaceport market. The document precedes a recent report commissioned by Scotland's development agency which found that UK spaceports have the potential of generating up to £5.5 billion over the span of the next decade.

Credit: UK government

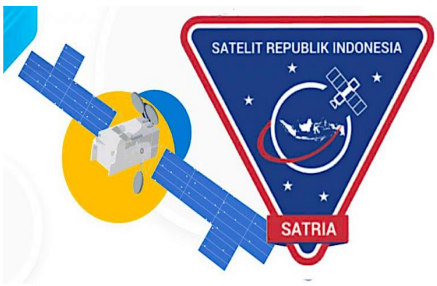
UK publishes new Integrated Review of Security, Defence, Development and Foreign Policy

On March 16th, the UK published its new Integrated Review of Security, Defence, Development and Foreign Policy that cements the place of space as a key pillar of UK strategy in these domains. The document recognises the government's will to play an influential role in shaping the international order through cooperation in the space domain and outlines the necessity to continue leading international initiatives, especially concerning the development of principles for responsible behaviour in space. The policy also highlights the UK's ambition to have more autonomy in the space domain by 2030.

UK Space Agency continues to support national space innovation

On March 19th, UKSA provided £1 million in total funding to five projects in order to support UK participation in international innovation efforts with partners such as NASA, the CSA, and Mitsubishi Heavy Industries. The funding comes through the UKSA's National Space Innovation Programme (NSIP) and aims to strengthen the UK's international partnerships in the field of research and innovation in space technologies and increase the country's export potential.

Indonesian government secures US$545 million project financing for Satria-1 satellite



Credit: Indonesian Telecommunication and Information Technology Accessibility Agency (BAKTI

The Indonesian government completed the financing of their Satria-1 broadband satellite after a one year delay due to the Covid-19 crisis. The government received project financing from institutions such as Bpifrance, Banco Santander, the Korean Development Bank and the Asia Infrastructure Investment Bank. The financing is composed mainly of loans worth approx. $431 million with a second tranche of $114 million in equity. Satria-1 is expected to supply broadband services over the entire Indonesian territory with the aim of also bridging the digital divide in the country. The broadband satellite is projected to be manufactured and delivered by Thales Alenia Space, following a contract award completed in 2019, and launched by SpaceX in 2023.

NOAA-17 satellite breaks up in-polar orbit 8 years after decommissioning

Credit: NOAA

On March 20th, the Space Force's 18th Space Control Squadron confirmed that the NOAA-17 weather satellite broke up in orbit into at least 43 pieces. The satellite was manufactured by Lockheed Martin and launched in 2002 for the agency with the objective of monitoring weather conditions from polar orbit for a duration of 3 years. The satellite remained in operations beyond its design lifespan, with NOAA decommissioning it in 2013 due to instrument failures. The cause of the break-up has not been disclosed by the agency, although the Space Control Squadron confirmed that no signs of collision were found. The incident comes 6 years following the breakup of the NOAA-15 satellite and further raises questions on orbital debris mitigation standards.

Two new space agencies: Rwanda and Costa Rica

The Rwandan Chamber of Deputies voted the establishment of the new Rwanda Space Agency on March 10th. The RSA is entrusted with the task of administrating the national spatial data and imagery, advising the government on the provision of new national and international space policies and implementing existing policies and strategies. In addition, the agency is expected to supply space services in support of development of activities in domains such of agriculture and emergency responses as well as to play a role in activities related to security such as communication, Intelligence, Surveillance and Reconnaissance (ISR).

In addition, Costa Rica also launched a new national space agency, with the President signing the Law for the Creation of the Costa Rican Space Agency (AEC) on March 27th. The AEC will be subject to the guidelines issued by the Ministry of Science, Technology and Telecommunications and will have the objective of coordinating the country's activities in the space sector and offer complementary training services for international experts.

In other news

ESA launches new Business Incubation Centre (BIC) in Greece: The new BIC is situated in Marousi, a suburb of Athens, and was launched in cooperation with the Greek Ministry of Digital governance. The new centre is ESA's 22nd BIC and has the objective of supporting the development of the Greek space industry and is projected to incubate 25 start-ups over the course of the next 5 years.

NASA successfully completes second SLS hot fire test: The RS-25 engines powering the core stage of the agency's SLS rocket completed the hot fire test by firing for approx. 8 minutes. The test completes the Green run test campaign, which aims to evaluate the readiness of the rocket and validate the design phase. The success is an important milestone for NASA as it readies for the first unmanned launch of the SLS in an orbit around the Moon in the next months.

OHB Sweden awarded €32 million from ESA for Arctic Weather Satellite Mission: The company will lead a consortium of 31 industrial actors for the manufacture and delivery of a satellite prototype in the framework of the ESA mission. The mission has the objective of guaranteeing almost instant weather forecasting updates in the Arctic region, with the agency potentially projecting to build a constellation of satellites for this purpose.

NASA and Blue Origin enter agreement to collaborate on lunar gravity technology: Through the agreement, NASA will benefit from the new upgrades made to the New Shepard suborbital rocket system. These upgrades will enable the company to approximate lunar gravity for a period of 2 minutes, thus offering a lunar gravity testing service to potential customers. The first test is projected to take place in 2022.

Relativity Space awarded first DoD contract to launch a payload: The payload is expected to be launched from the Defence Innovation Unit of the DoD on board the company's 3D printed Terra 1 rocket, which is capable of placing payloads weighing from 450 to 1200 kilos in orbit.

The U.S. Space Force signs a $500 million contract with LinQuest: The agreement is for the supply of trade space analysis support and is an extension of a previous contract between the DoD and the Perduco Group, which were acquired by LinQuest in 2019.

ISRO creates three new Space Technology Incubation Centres: The inauguration of the incubation centres follows the signing of signed three MoUs with three technology institutes. The three institutes will be responsible for Western, Eastern and Central regions respectively.

Industry & Innovation

Airbus upholds active month in March with key agreements

Airbus selected by Sky Perfect JSAT

Credit: Airbus

On March 25th, Airbus was awarded a new contract by Japanese satellite operator Sky perfect JSAT for the manufacture of the Superbird-9 for an expected $275 million. Sky Perfect JSAT is the biggest satellite operator in Japan and the order represents the first ever agreement between a Japanese operator and Airbus. Superbird-9 is expected to be a turnkey solution based on Airbus' OneSat family of satellites and will thus have the capability to be reconfigurable on-obit. The contract covers the manufacture and delivery of the satellite as well as associated services for its operation. JSAT projects to operate the satellite to supply both broadband and broadcasting services.

Airbus selected by Eutelsat for Eutelsat 36-D

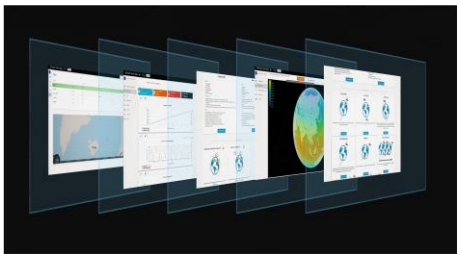
On March 22nd, Airbus signed a contract with Eutelsat for the manufacture and delivery of the Eutelsat 36D geostationary satellite. The order is for the replacement and enhancement of the current Eutelsat 36B satellite, which is in operation at 36° East and represents one of the most important orbital locations for the company in terms of overall revenue, as it provides broadcast and government services to Africa, Russia and Europe. The new satellite is expected to be fully electric, based on the design of Airbus' Neo platform. The new contract is the first commercial GEO order of 2021 as the satellite is projected to be launched in 2024.

Airbus signs MoU with Fujitsu and Thales to compete for UK MoD opportunity

On March 9th, Airbus signed a MoU with Fujitsu and Thales UK to form a new industrial consortium, named ICELUS, in order to compete for a Systems integrator opportunity offered by the UK Ministry of Defence. The newly created consortium will be led by Airbus and aims to join forces to compete for the UK's upcoming Land Environment Tactical Communications and Information Systems programme (LE TacCIS). The programme is expected to be a framework project that will include various sub-programmes and projects that have the objective of developing a new generation of strategic and tactical communication capabilities for the UK in the land environment.

Exotrail and Thales Alenia Space sign contract to adopt ExoOPS-Mission Design SaaS

Thales Alenia Space signed a contract with French start-up Exotrail in order to make use of the company's SaaS solution, called ExoOPS-Mission Design. ExoOPS-Mission Design software is a simulation environment dedicated to propulsion, which builds on the company's innovative flight dynamic system. The objective of the software is that of enabling satellite operators to optimise their launch scenarios by designing them on the ground before the operational phase, which allows them to optimise the performance of their services. The software was created specifically considering operator needs related to the mission design of satellite constellations and is projected to be used by Thales' Navigation& IoT and advanced projects team. The latest contract follows the recent adoption of the ExoOPS-Mission design software by other leading space institutions such as CNES and Eutelsat.



Credit: Exotrail

Arianespace and Avio sign new contract for the provision of 10 additional Vega C rockets

Credit: Arianespace

The two companies signed a new agreement for the initiation of activities aimed at the delivery of 10 Vega C launchers expected to start launching from 2023. The contract represents the first order from Arianespace comprised exclusively of Vega C rockets, with Avio maintaining its role as prime contractor for the manufacture of the Vega line of launchers. The additional order represents a ramp up of production for the new vehicles, specifically aimed at meeting demand for institutional actors for launches in the next few years. The maiden flight of the Vega C launcher was recently postponed from 2021 to early 2022 following the delay in scheduled launches of the Vega rocket due to the Covid-19 pandemic and to the recent failures.

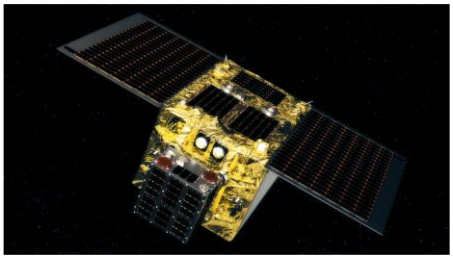
ICEYE and Swiss Re enter into a strategic partnership

The Finnish start-up ICEYE entered into a strategic partnership with leading insurance and reinsurance provider Swiss Re to enhance insights for its insurance services worldwide, in particular for disaster response and advanced flood risk management. The partnership aims to combine ICEYE's constellation of synthetic aperture Radar (SAR) satellites with Swiss Re's natural catastrophe services in order to provide new services such as early warning systems and live flood monitoring capabilities. ICECYE is currently the largest satellite operator for SAR satellites, with its constellation currently offering global coverage. While the partnership presently focuses mainly on flood management, the cooperation might also be extended to other types of natural disasters such as damages from earthquakes and wildfires in the future.

Umbra Lab receives experimental licence from FCC

The U.S. Earth Observation start-up expects to launch two X-band radar satellites in 2021 following the issue of an experimental license from the FCC. The license, together with the recently enacted loosening of geospatial imagery restrictions by NOAA, enables the company to provide satellite imagery with the maximum resolution capacity it can provide. Umbra expects to supply two services, providing images with a 15-cm ground sampling distance for the government as well as other approved entities.

Astroscale's ELSA-D spacecraft reaches Orbit



Credit: ESA

On March 22nd, the Russian company GK Launch Services successfully placed Astroscale's ELSA-D debris removal spacecraft in orbit following a rideshare mission. The ELSA-D spacecraft is a solution developed by the Japanese start-up and manufactured by Surrey Satellite Technology in order to respond to the problem of space debris and is part of growing number of international initiatives that aim to clean-up orbits. The mission was partially funded by the UK government and will include a six-month end-of-life on-orbit servicing demonstration where the spacecraft will validate the technologies necessary for space debris removal. Astroscale has become the most funded start-up headquartered in Japan following the closing of a Serie E round worth $51 million in 2020.

In other news

BlackSky and Rocket Lab sign new contract for the launch of 8 new BlackSky satellites: The launch agreement was signed one week after the latest launch of one of the company's satellite on board a Rocket Lab rideshare mission from New Zealand. The launch is planned for 2021 thus anticipating the original 2022 schedule. BlackSky and Rocket Lab are part of the recent series of space companies to go public through mergers with SPAC companies this year.

ESA awards contract to Surrey Satellite Technology (SSTL) for HydroGNSS: The contract is for the manufacture and delivery of the HydroGNSS satellite as a part of ESA's second Scout Earth Observation small satellite mission. The satellite will have the purpose of measuring essential hydrological climate variables and will be operated by SSTL.

Telespazio Ibérica leads consortium for the operations of Galileo Information Centre in Mexico: The centre is financed together with the European Commission's DG DEFIS for a period of 36 months and will cover Mexico, Central America and the Caribbean. It is the third Galileo information Centre following the opening of those in Brazil and Chile, whose objective is that of promoting the Eu Space Programme and creating market opportunities in the region.

OneWeb awards SatixFy contract for development of In-Flight Connectivity terminal: The system will be manufactured by SatiyFy and is designed to work on OneWeb's LEO and GEO satellite networks. The terminals will use the Electronically Steered Multibeam Antenna technology developed by SatixFy and will enable the deployment of connectivity services to a variety of actors including commercial and government aviation end-users.

Telespazio and Gilat Satellite Networks collaborate to provide connectivity in Brazil: The two companies signed a contract for the delivery of enterprise connectivity and the supply of VSAT terminals for an undisclosed company in Brazil's energy sector. The contract entails the use of Gilat's SkyEdge II-c multi-service platform to supply cloud services.

Novelsat and Bharat Sanchar Nigam Limited (BSNL) sign new backhaul contract: The contract for the provision of high-capacity broadband connectivity was awarded by System Integrator Precision Electronics (PEL) on behalf of the state owned BSNL. The supply of the service will be carried out under the framework of a Universal Service Obligation project funded by the Indian Department of Telecommunications.

Lockheed Martin signs agreement with Omnispace to develop space-based 5G network: The two companies entered into a strategic agreement to explore the possibility of joint-developing a global non-terrestrial 5G network aiming to supply communication services to government, enterprise and commercial devices.

Economy & Business

Ongoing SPAC trend continues to gain traction in space sector

Spire Global to merge with SPAC company NavSight Holdings

Credit: Spire Global

On March 1st, the U.S. company Spire Global and the SPAC company NavSight holdings entered into a definite merger agreement, making the space-based data and analytics company one of the latest actors in the space sector to go public through a SPAC merger. The deal is expected to provide Spire Global with an additional $475 million in funds, which also include a $245 million private investment in public equity (PIPE) from investors such as BlackRock, Hedosophia and Tiger Global. The combined public company's valuation is projected to be approx. $1.6 billion following the finalisation of the transaction. Prior to the merger, Spire Global had raised more than $220 million from groups such as Promus Ventures, Seraphim Capital and RRE ventures.

Rocket Lab to merge with SPAC company Vector

The California-based launch provider Rocket Lab also concluded a definite merger agreement with the SPAC company Vector Acquisition Corporation and is expected to become a publicly traded company on the Nasdaq stock exchange following the finalisation of the transaction planned in Q2 2021. As one of the only private companies in the U.S. that has provided regular access to space through its Electron and Photon spacecraft, Rocket Lab's merger will enable the development of a larger launch vehicle called the Neutron. The merger is projected to result in the company raising up to $320 million from Vector and $470 million in the form of a PIPE from 39 investors, which include BlackRock, Vector Capital and Neuberger Berman. In addition to the current value of its balance sheet, the funds raised is expected to give Spire Global a total of approx. $750 million in pro forma cash. The company foresees the Neutron Rocket to be a medium class launch vehicle with a reusable first stage and with a capacity of 8000 kilos to LEO, and scheduled its maiden flight for 2024. The combined company is also projected to have a valuation of roughly $4.1 billion following the finalisation of the transaction.

Redwire to merge with SPAC company Genesis Park Acquisition

Credit: Redwire

The U.S. space infrastructure company Redwire concluded an agreement with the SPAC Genesis Park Acquisition on March 25th as it expects to go public through their merger at the end of Q2 2021. The company is expecting to receive approx. $170 million of new funds following the merger, which will include roughly $100 million in PIPE from Servest Management and Crescent Park. The combined company is projected to be valued at roughly $615 million in enterprise valuation following the closing of the transaction. Redwire was founded in 2020 by the private equity firm AE industrial Partners and subsequently acquired a number of companies specialised in the space sector including Made in Space, Adcole Space, Roccor and LoadPath in order to strengthen its space infrastructure manufacturing capabilities as it projects to generate a revenue of $163 million in 2021.

ESA awards two new ESA Boost! Contracts

Credit: ESA

On March 24th, ESA awarded two new development contracts worth a total of approx. €10.5 million to UK start-ups Orbex and Skyrora under its Boost! Commercial Space Transportation Services and Support programme. In particular, the agency awarded Orbex and Skyrora a €7.45 million and a €3.5 million contract respectively as both companies are projecting to start supplying launch services for ESA in 2022. The new contracts follow those awarded by the agency in 2020 to German launch companies Rocket Factory Augsburg, HyImpulse and Isar Aerospace with the objective of supporting the growing market for small commercial launcher services in Europe. The ESA Boost! contracts represent a means for ESA to not only supply co-funding to support the scaling up of activities but also include types of non-financial support such as project guidance and access to state-of-the-art facilities. Orbex is expected to partner with Elecnor Deimos' subsidiaries in the UK and in Portugal in order to fulfil its engagements under the new contract, as it seeks to become the first company to launch from the UK's Space hub in Sutherland.

ABL Space Systems closes $170 million Series B round

On March 26th, the U.S. start-up and small satellite launcher ABL Space Systems closed a Series B funding worth $170 million which saw the company valued at approx. $1.3 billion. The funding round was led by investment management fund T. Rowe Price, and also included participation from Fidelity Investments. The company seeks to support its current expansion and development efforts with the newly raised capital, as it completes the development of its RS1 launch vehicle, which is expected to complete its maiden flight in 2021, and the GSO deployable launch system. With the GSO system, the company expect to be able to launch the RS1 from any location making it one of the most flexible solutions on the market. The new funding is in line with the recent trend of successes for the company, as it closed a $90 million round of funding in 2020 and was recently selected by Lockheed Martin for a launch from the Shetland space port in Scotland within the scope of the UK Pathfinder launch programme.

Japanese space start-up Gitai raises $17.1 million Series B

The Tokyo based space robotics company Gitai completed its Series B round of funding on March 1st, raising a total of approx. $17.1 million from investors such as the Space frontier Fund, DCI Venture Growth Fund, Dai-ichi Life insurance company and Ep-GB. Following the new funding round, the company aims to expand its business and cover costs related to the expansion of personnel, including with the objective of entering the U.S. market, as well as for their projected extra-vehicular technology demonstration presently scheduled for 2023. The company is currently focused on the on-orbit servicing market and is projected to offer an innovative and general-purpose solution through its robot named S1. To this end, Gitai has previously closed deals with companies like Nanoracks to demonstrate the capabilities of its technology.

Speedcast emerges from Chapter 11 following $500 million in equity funding

Credit: Speedcast

The communications and IT services provider Speedcast successfully emerged from Chapter 11 proceeding after completing its restructuring process, which sees the company arising from bankruptcy under the ownership of the Centerbridge Partners. The new owners have invested $500 million in equity funding in order to complete Speedcast's restructuring process, with approx. $215 million in cash and $285 million in previous Debtor in Possession (DIP) financing. The new funding effectively signifies that Speedcast emerged from Chapter 11 with $550 million in pro forma revenue in 2020 and has successfully wiped out all previous debt. The company had filed for bankruptcy in 2020 mainly citing difficulties encountered due to the Covid-19 pandemic and its effect on the cruise and oil markets. The change in ownership means that the formerly Australian company will now be headquartered in Texas.

Chinese company Xingyun raises $400 million

On March 18th, the Chinese company Xingyun closed a round of funding worth approx. $400 million led by a group of investors including China Merchant's Capital, Shenzhen Capital Group and ICBC Investment. The new round has the objective of funding the State-owned company's Industrial IoT ambitions, as it develops a narrowband constellation that is expected to enable the China Aerospace Science and Industry Corporations's CASICloud business model. The constellation is expected to be completed and operational in 2023 as Xingyun projects to create a service similar to that of Iridium as it targets company's using currently Iridium's services.

Earth Observation start-up Pixxel closes new seed round

The Bengaluru-based start-up raised $7.3 million in seed funding on March 17th, with the objective of manufacturing the world's highest resolution hyperspectral satellite constellation. The funding included participation from investors such as Lightspeed Ventures, Blume, Ryan Johnson and growX as the company aims to launch its first hyperspectral satellite in 2021. Pixxel projects to manufacture satellites capable of beaming over 50 times more information than current generation multispectral satellites and aims target the agriculture, energy and environmental conservation. The new round of funding is a key milestone in the start-up's scaling up following its partnerships with NASA, Maxar and ISRO.

Hiber secures €26 million in new funding round led by the European Innovation Council Fund


Credit: HIber Global

On March 30th, the Dutch start-up Hiber closed a new funding round by raising €26 million with the aim of furthering the expansion and development of its network of IoT satellites. The round was led by the European Innovation Council, which contributed in the scope of its newly created €278 million EIC fund, and also included participation from private investors such as Finch Capital, Hartenlust Group and the public-owned Netherland Enterprise Agency. The EIC participated by means of a co-investment with the Dutch government, as a part of the first round of equity investments carried out at the start of the year to finance 42 highly innovative European start-ups with a total of €178 million.

In other news

Ark Invest launches new Space Exploration and Innovation focused exchange traded fund: The U.S. based investment adviser launched its eight ETF named ARKX with the objective of providing added exposure to both domestic and foreign securities for space companies with which it will be engaged. The fund counts companies such as Virgin Galactic, Airbus, Thales, Iridium, L3Harris and Kratos specialised in the funding of disruptive technologies.

South Korean company Kencoa Aerospace raises $26 million to expand in U.S. market: The company is expected to dedicate a third of the capital it raised in order to expand the business of its subsidiary company Kencoa Aerospace LLC, which is currently based in Georgia. The expansion follows contracts signed with major actors in the space sector such as Blue Origin and Boeing, for whom it will produce parts to be assembled in NASA's Space Launch System.

Loft Orbital and Anywaves conclude partnership agreement: Loft Orbital ordered two S-band antennas from the French start-up Anywaves as it readies for the launch of its YAM-3 satellite on board a SpaceX Falcon 9 in June of 2021. The YAM-3 is expected to be used as the preliminary block for a new constellation of satellites ordered by an unspecified client aiming to build a new IoT service.

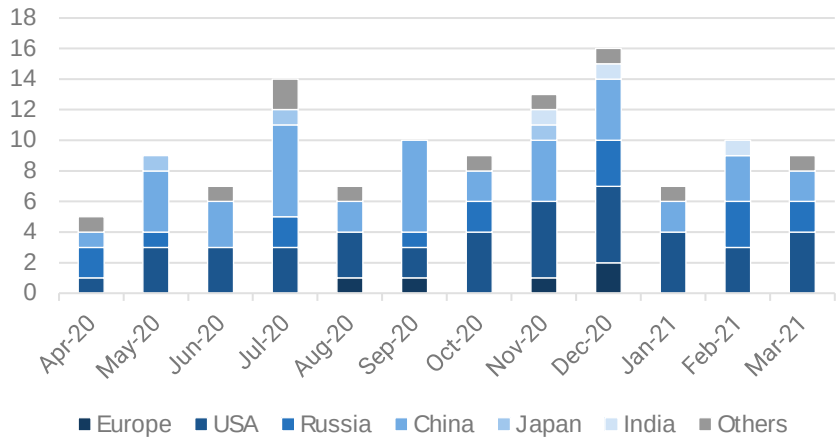
Amazon Web Services (AWS) launches space accelerator programme with Seraphim Capital: Amazon launched a new programme named the AWS Space Accelerator with the objective of supporting the growth of space start-ups in all stages development through AWS. The AWS space accelerator will offer the business support programme in collaboration with Seraphim Capital to leverage the group's experience in the sector.

Launches & Satellites

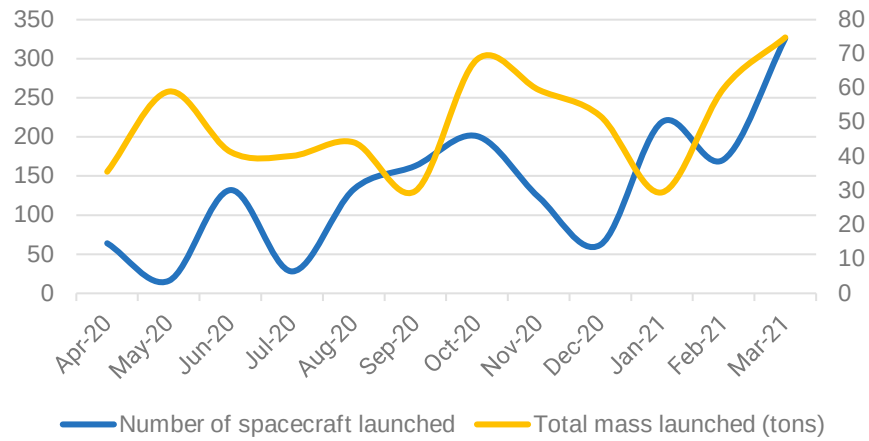
Global space activity statistics

March 2021	USA	Russia	China	Others	Total
Number of launches	4	2	2	1	9
Number of spacecrafts launched	240	75	4	7	326
Mass launched (in kg)	62 400	6572.9	5500	289	74761.9

Launch activity over the year

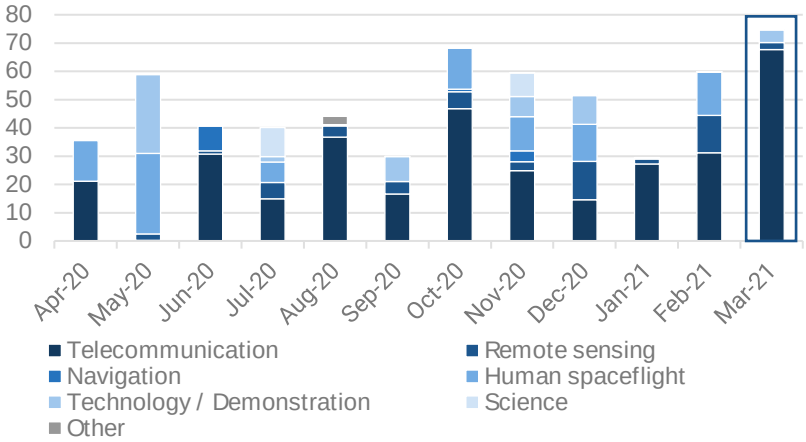


Evolution of the number of launches per launch country



Evolution of launch activity over the year 2020-2021

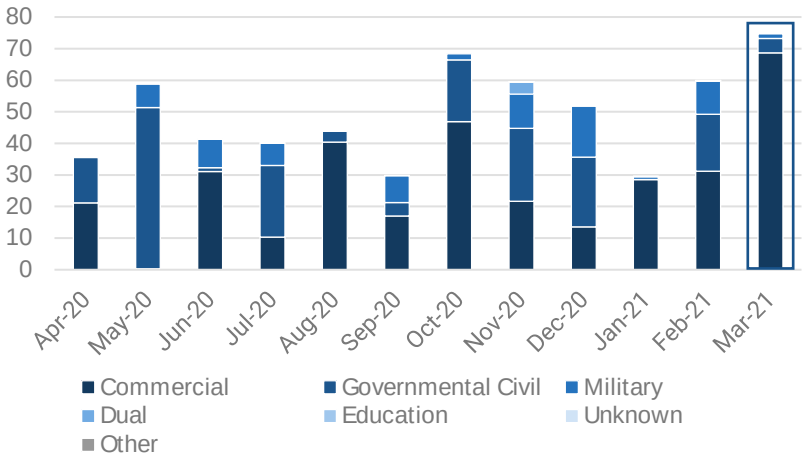
Satellite missions and markets



Evolution of the total mass launched (tons) per mission (Apr. 2020-Mar. 2021)

March 2021	Telecom	Remote sensing	Science	Tech/Demo	Other
Europe	5302			28.4	0.25
USA	62 400	56		6	
Russia				14	
China		1500		4000	
Japan		400		192	
Others	47	516	9	291	0.25

Total mass (kg) launched by mission and customer country



Evolution of the total mass launched (tons), per market (Apr. 2020-Mar. 2021)

March 2021	Commercial	Governmental Civil	Military	Education
Europe	5327.8	1	1.8	
USA	62 457		5	
Russia	8			6
China		4000	1500	
Japan	592			
Others	250	548	12	53.3

Total mass (kg) launched by market and customer country

Launch Log

Launch date	Launch country	Launcher	Spacecraft name	Main customer	Customer country	Prime manufacturer	Manufacturer country	Mass (kg)	Mission	Market
04/03/2021	USA	Falcon-9 v1.2 (Block 5)	Starlink 17 (60 satellites)	SpaceX	USA	SpaceX	USA	260 (each)	Telecommunication	Commercial
11/03/2021	USA	Falcon-9 v1.2 (Block 5)	Starlink 20 (60 satellites)	SpaceX	USA	SpaceX	USA	260 (each)	Telecommunication	Commercial
11/03/2021	China	CZ-7A	Shiyan 9	Unknown (China, Public)	China	CAST	China	4000	Tech / Demo	Governmental Civil
13/03/2021	China	CZ-4C	Yaogan 31-04 (A, B & C)	People's Liberation Army	China	CAST	China	500 (each)	Signal Intelligence	Military
14/03/2021	USA	Falcon-9 v1.2 (Block 5)	Starlink 21 (60 satellites)	SpaceX	USA	SpaceX	USA	260 (each)	Telecommunication	Commercial
22/03/2021	Russia	Soyuz-2-1a Fregat	3B5GSAT	Sateliot	Spain	Open Cosmos	United Kingdom	3	Telecommunication	Commercial
			BCCSAT-1	Bangkok Christian College	Thailand	KMUTNB	Thailand	1	Tech / Demo	Education
			BeeSat (4 satellites)	TU Berlin	Germany	TU Berlin	Germany	0,33	Tech / Demo	Education
			CANYVAL-C 1 / Pumbaa	Yonsei University	South Korea	Yonsei University	South Korea	3	Astronomy	Governmental Civil
			CANYVAL-C 2 / Timon	Yonsei University	South Korea	Yonsei University	South Korea	1	Astronomy	Governmental Civil
			CAS500-1	Korea Aerospace Research Institute	South Korea	Korea Aerospace Research Institute	South Korea	500	Earth Observation	Governmental Civil
			ChallengeOne	TELNET	Tunisia	TELNET	Tunisia	3	Tech / Demo	Commercial
			CubeSX-HSE / NIU VShE-DZZ	HSE University	Russia	SPUTNIX	Russia	3	Tech / Demo	Education
			CubeSX-Sirius-HSE	HSE University	Russia	SPUTNIX	Russia	3	Tech / Demo	Education
			DIY-1 / Arduiqube	diysatellite	Argentina	diysatellite	Argentina	0,25	Radio Amateur	Education
			DMSat 1	MBRSC	UAE	UTIAS/SFL	Canada	15	Earth Observation	Governmental Civil
			ELSA-d Chaser	Astroscale	Japan	Astroscale	Japan	175	Tech / Demo	Commercial
			ELSA-d Target	Astroscale	Japan	SSTL	United Kingdom	17	Tech / Demo	Commercial
			FEES	GP Advanced Projects	Italy	GP Advanced Projects	Italy	0,3	Tech / Demo	Commercial
			GRBAlpha	University of Košice	Slovakia	University of Košice	Slovakia	1	Tech / Demo	Governmental Civil
			GRUS 1 (B, C & E)	Axelspace	Japan	Axelspace	Japan	100	Earth Observation	Commercial
			GRUS 1D	FSTRA	Japan	Axelspace	Japan	100	Earth Observation	Commercial

			Hiber 3	Hiber	Netherlands	ISIS	Netherlands	4	Telecommunication	Commercial
			Kepler (6 & 7)	Kepler Communications	Canada	Kepler Communications	Canada	16	Telecommunication	Commercial
			KMSL	Chosun University	South Korea	Chosun University	South Korea	3	Biology	Governmental Civil
			KSU-Cubesat	King Saud University	Saudi Arabia	King Saud University	Saudi Arabia	1	Earth Observation	Education
			LacunaSat 2b	Lacuna Space	UK	Open Cosmos	United Kingdom	3	Telecommunication	Commercial
			NAJM-1	KACST Space and Aeronautics Research Institute	Saudi Arabia	LinaSpace	USA	50	Tech / Demo	Education
			NanoSatC-Br 2	INPE	Brazil	ISIS	Netherlands	2	Earth Science	Governmental Civil
			Orbikraft-Zorky	SPUTNIX	Russia	SPUTNIX	Russia	8	Tech / Demo	Commercial
			SAMSON (1, 2 & 3)	Technion – Israel Institute of Technology	Israel	Technion – Israel Institute of Technology	Israel	8	Tech / Demo	Governmental Civil
			SMOG-1	Budapest University of Technology and Economics	Hungary	Budapest University of Technology and Economics	Hungary	0,25	Tech / Demo	Education
			STECCO	AMSAT-Italy	Italy	La Sapienza University of Rome	Italy	0,25	Radio Amateur	Education
			Unicorn-1	Alba Orbital	UK	Alba Orbital	United Kingdom	0,5	Tech / Demo	Commercial
			UniSat 7	GAUSS Srl	Italy	GAUSS Srl	Italy	25	Tech / Demo	Commercial
			WildTrackCube-SIMBA	University of Nairobi	Kenya	La Sapienza University of Rome	Italy	1	Tech / Demo	Education
22/03/2021	New Zealand	Electron Photon-LEO	BlackSky 7	BlackSky Global	USA	LeoStella	USA	56	Earth Observation	Commercial
			Centauri 3	Fleet Space Technologies	Australia	Tyvak Nano-Satellite Systems	USA	10	Telecommunication	Commercial
			Gunsmoke-J 1	US Army SMDC	USA	Los Alamos National Laboratory	USA	5	Tech / Demo	Military
			Myriota 7	Myriota	Australia	Tyvak Nano-Satellite Systems	USA	5	Telecommunication	Commercial
			Photon Pathstone	Rocket Lab	New Zealand	Rocket Lab	New Zealand	200	Tech / Demo	Commercial
			RAAF-M2	Royal Australian Air Force	Australia	University of New South Wales	Australia	12	Tech / Demo	Military
			Veery Hatchling	Care Weather Technologies	USA	Care Weather Technologies	USA	1	Tech / Demo	Commercial
24/03/2021	USA	Falcon-9 v1.2 (Block 5)	Starlink 22 (60 satellites)	SpaceX	USA	SpaceX	USA	260	Telecommunication	Commercial
25/03/2021	Russia	Soyuz-2-1b Fregat	OneWeb (36 satellites)	OneWeb Ltd.	UK	OneWeb Satellites (USA)	USA	147	Telecommunication	Commercial

Launch Highlights

First commercial launch for GK Launch Services

Credit: Telnet Holding

On March 22nd, a Soyuz rocket launched from Baikonur with 38 satellites on board. The launch is remarkable for several reasons. First, this is the first all-commercial launch provided by GK Launch Services, which means that none of the satellites on board were for the Russian government. Second, the launch sent to orbit the Astroscale ELSA-d demonstration mission. The mission is made of two spacecraft, one "Chaser" and one "Target", which will perform three types of close approach. This will enable the company to test its technology before providing commercial active debris removal services (and, in the future, other in-orbit services). Finally, the first Tunisian satellites, which was built in the country, was launched on this occasion.

Rocket Lab launches its second Photon satellite

On March 22nd, Rocket Lab sent satellites to orbit for six customers, as well as the second of its Photon satellites. Photon is a kick stage space tug allowing to deploy the satellites to precise orbit. Once its mission is over, though, Photon can be used as a satellite. This second spacecraft, called Pathstone, was used to test technologies on an upcoming lunar mission that Rocket Lab will conduct for NASA later in the year, called CAPSTONE. More precisely, Pathstone will demonstrate a new avionics stack, software, radio, sensors, actuators, custom solar panels. Onboard the launch was also a satellite for the U.S. armed forces, which raised some protests in New Zealand, with the Green Party asking the government to deny licensing of the launch.

Credit: Rocket Lab

Credit: CASC

Long March 7A succeeds in reaching orbit

On March 11th, the second launch of the new Long March 7A rocket occurred and succeeded. This event marks the first success for the launcher, as the first flight of the rocket in March 2020 failed because of a loss of pressure after upper stage separation. The rocket is able to launch up to 7 tons to a geostationary transfer orbit and can be used for lunar and deep space missions as well as future Beidou launches in highly elliptical orbit. Long March 7A is part of the new generation of Chinese launchers, which use liquid propulsion. Chinese authorities have been secretive about the payload to be launched and have described it as a "technology verification" spacecraft.

OneWeb continues the deployment of its constellation

Credit: OneWeb

On March 25th, 36 more OneWeb satellites were put in orbit with a Soyuz spacecraft launched from the Cosmodrome of Vostochny, in Russia. This was the second launch for OneWeb since the company has emerged from bankruptcy in November 2020. The company has now launched 146 satellites in orbit and is planning to provide service in the Arctic region later in the year. Three more launches would be required for that. The launch was also the first of the year for Arianespace as well as the first launch from Vostochny in 2021.

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