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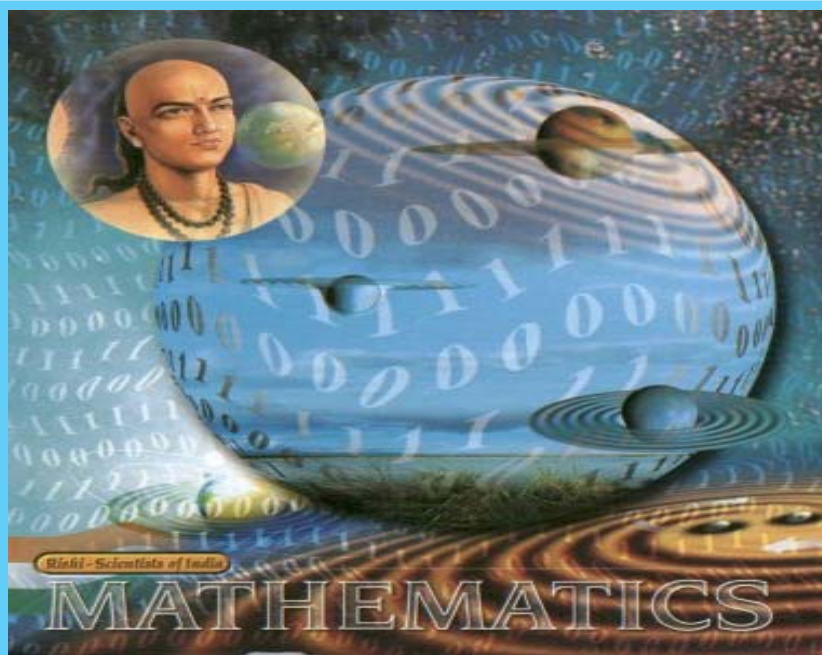
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ARYABHATTA

(476 CE) MASTER ASTRONOMER AND MATHEMATICIAN

Born in 476 CE in Kusumpur (Bihar), Aryabhatta's intellectual brilliance remapped the boundaries of mathematics and astronomy. In 499 CE, at the age of 23, he wrote a text on astronomy and an unparallel treatise on mathematics called "Aryabhatiyam." He formulated the process of calculating the motion of planets and the time of eclipses. Aryabhatta was the first to proclaim that the earth is round, it rotates on its axis, orbits the sun and is suspended in space - 1000 years before Copernicus published his heliocentric theory. He is also acknowledged for calculating p (Pi) to four decimal places: 3.1416 and the sine table in trigonometry. Centuries later, in 825 CE, the Arab mathematician, Mohammed Ibna Musa credited the value of Pi to the Indians, "This value has been given by the Hindus." And above all, his most spectacular contribution was the concept of zero without which modern computer technology would have been non-existent. Aryabhatta was a colossus in the field of mathematics.

READER'S RESPONSE

The editorial team invites your views, suggestions, to the News about Members Column and contributions to the e-news.

Tech majors eye NAL civilian aircraft project

Technology majors like Tata Consultancy Services (TCS), Wipro and Quest, apart from private sector aviation companies such as Mahindra Aerospace and L&T, are among vendors who are presently in discussions with the National Aerospace Laboratories (NAL) for designing and manufacturing around 500 small transport aircraft by 2015. India's ambitious civilian aviation programme, or RTA-70, potentially worth up to Rs 5,000 crore, is aimed at building planes for carrying 70-90 passengers on short haul flights. Similar aircraft from ATR are currently dominating the country's skies. Officials at NAL confirmed that the company is hunting for technological partners. "Negotiations are going on with various private players such as TCS, Infosys, Wipro and others to provide various expertise in the area of software, hardware and product development," a senior NAL official said on conditions of anonymity. The design and development of the prototype is estimated to cost about Rs 5,000 crore and is expected to be ready by 2015-16 for flight trials. The project committee will explore the need to go in for a public-private partnership (PPP) at the beginning so as to involve the private aerospace industry, which will be responsible for production at a later stage along with marketing and servicing subsequently, the officials added. At the peak of the project, about 500 people will be involved from various state-run agencies and about 2,000 people from the industry. Of these 500 aircraft, 200 will be sold to defence, 200 to civil aviation companies and 100 units to be exported, according to Roddam Narasimha, a member of the high-powered committee for RTA-70. India should have a major initiative to have a civil aeronautics flight programme. This project is a step in that direction," said Mr Narasimha. As trained people in the aerospace area are limited, the committee will rope in design experts from the state-run organisations such as DRDO (Defence Research and Development Organisation), Hindustan Aeronautics (HAL) and ISRO. The committee is headed by former chairman of ISRO Dr G Madhavan Nair.

Solar plane completes historic flight

A giant glider-like aircraft has completed the first night flight propelled only by solar energy, organisers said on Thursday. Solar Impulse, whose wingspan is the same as an Airbus A340, flew 26 hours and 9 minutes, powered only by energy stored during the day. It was also the longest and highest flight in the history of solar aviation, organisers said. Bertrand Piccard, the Swiss president of the project, best known for completing the first round-the-world flight in a hot air balloon in 1999, said the success of the flight showed the potential of renewable energies and clean technology. "We are on the verge of the perpetual flight," he said. Jubilant pilot Andre Borschberg said: "It was unbelievable, success better than we expected. We almost thought to make it longer, but... we demonstrated what we wanted to demonstrate so they made me come back, so here I am." Borschberg, a former Swiss air force pilot who has flown for 40 years, returned to a hero's welcome at Payerne air base, in the northwestern canton of Vaud, where hundreds gathered to watch the aircraft glide onto the Tarmac at 0700 GMT.

Source: Deccan Herald

DGCA certifies hi-tech chopper simulator

The Helicopter Academy to Train by Simulation of Flying (HATSOFF) announced that its Bell 412 full-mission simulators

has been certified to Level D, the highest qualification for flight simulators, by India's Directorate General Civil Aviation (DGCA) and the European Aviation Safety Agency (EASA). Wing Commander (Retd) Chandra Datt Upadhyay, Chief Executive Officer of HATSOFF, the joint venture owned equally by Hindustan Aeronautics Limited (HAL) and CAE, said, "The HATSOFF training centre is a first for India, and we are excited to begin offering simulation-based training that will prove to be one of the best approaches for improving safety, operational efficiency and mission readiness." The CAE-built full-mission helicopter simulator at HATSOFF features CAE's revolutionary roll-on/roll-off cockpit design, which enables cockpits representing various helicopter types to be used in the simulator.

Source: Deccan Herald

Chennai to host wind energy conference next year

An international conference-cum-exhibition event of the wind energy sector, Wind Power India, 2011, is to be held in Chennai between April 7 and 9, 2011. The conference is being organised by the World Institute of Sustainable Energy (WISE) in collaboration with the Global Wind Energy Council (GWEC) and the Indian Wind Turbine Manufacturers Association (IWTMA). The conference, the third in the biennial series which began in 2006, is being held against the backdrop of India's growth in the wind energy sector, both in terms of the expanding market and its becoming a global manufacturing hub for wind turbines. India's installed capacity is 11,800 MW. While the official estimate of the country's potential is 48,000 MW, Mr G.M. Pillai, Director-General, WISE, believes the actual potential is way above 100,000 MW. New avenues such as repowering (replacing aging machines with new, higher capacity machines) and offshore wind are opening up. As many as 16 wind turbine manufacturers are in production in the country and at least seven more are putting up their plants.

Source: Hindu Business Line

India to get two more AWACS

India will go in for two more AWACS (Airborne Warning and Control Systems), the "formidable eyes in the sky", after the last of the three Israeli Phalcons already ordered is inducted in December. IAF is also on course to induct a wide array of radars, from 19 LLTRs (low-level transportable radars) and four MPRs (Medium-Power Radars) to four Aerostat and 30 indigenous medium-range Rohini systems, towards making Indian airspace as impregnable as possible. All this is in tune with the crucial plan underway to set up five nodes of IACCS (Integrated Air Command and Control System) across the country, with the first one coming up in the western sector facing Pakistan, to plug existing gaps in the country's air defence coverage.

Source: Times of India

Boeing 787 Dream liner Makes International Debut

The Boeing 787 Dream liner made its international debut landing at the Farnborough Airport in support of the Farnborough International Air show. "It's an honor to showcase the 787 here at the Farnborough Air show," said Mr Scott Fancher, Vice President and general manager of the 787 program, Boeing Commercial Airplanes. "I can't think of a finer stage on which to present this highly anticipated airplane." This is the first international trip made by a Boeing 787 Dream liner. The airplane came via nonstop flight to Farnborough, U.K., from Seattle. "We took advantage of the flying time to conduct some flight testing on the way," Fancher said. "We're taking every opportunity to complete our testing requirements when we fly."

Source: *Planenews.com*

ISRO's CARTOSAT 2B satellite sends first images

The Indian Space Research Organisation's (ISRO's) CARTOSAT-2B satellite, which was successfully launched by PSLV C15 on July 12, is working satisfactorily with the initial phase of its operations completed. ISRO has said that the satellite, which carries a panchromatic camera, has been switched on and that high-quality images are being received. One of the images it has sent shows parts of Allahabad (Sangam) and the other shows parts of Madurai, with Meenakshi temple in the centre. The camera is capable of taking black-and-white pictures in the visible region of electromagnetic spectrum.

Source: *Deccan Herald*

India in space: No dream is too big for us

With the sixteenth consecutively successful launch of India's smaller rocket, the country's space programme is poised to take a huge leap, by soon launching Indian astronauts in space on an Indian rocket launched from Indian soil, so it seems no dream is too big for India in space. Space fairing is a risky business and certainly not meant for the faint hearted only nations and companies that have deep pockets and an abiding interests can hope to harness the full potential of the immense opportunities that space has opened up. India is among six countries that has end to end in-house capabilities in fabricating satellites and launching them into space. Within the next one year ISRO is now planning 5 rocket launches to with as many big Indian satellites. India's is a national space programme with the tax payer supporting the Indian Space Research Organisation (ISRO) with over a US\$ 1 billion annually, still the promise and potential is huge and the government needs to continue supporting this effort till such time as the Indian industry is mature enough to take on some of the tasks like those associated with assembly line type of commercial launches.

Source: *Economic Times*

India to buy special radars

IAF is finally going in for specialized and rugged mountain radars which can be deployed in high-altitude areas bordering China to ensure air intrusions by spy drones, helicopters and aircraft are detected in 'real-time'. This comes in the backdrop of continuing intrusions — the military likes to dub them 'transgressions'— by the People's Liberation Army all along the unresolved 4,056-km Line of

Actual Control, from Pangong Tso lake in eastern Ladakh to the 'finger area' in Sikkim. China, in fact, continues to needle India even in the middle sector of Uttarakhand-Himachal. Just last week, for instance, a PLA platoon on horses crossed over in the Barahoti region with sheer impunity. While most of these 'transgressions' occur on land, violations of Indian airspace are not unknown. "These light-weight mountain radars will be installed in difficult terrains like Ladakh since conventional radars cannot be deployed there. They should be able to pick up even small aircraft from a distance of 300 to 400 km away," said an officer.

Source: *Times of India*

India-US space ties take off

External Affairs Minister Mr S M Krishna and US secretary of state Hillary Clinton signed what is known as the Technology Safeguards Agreement which basically strengthens Indo-US space ties., this pact became a reality when the PSLV for the first time placed in orbit a satellite with a large number of US components. Officials say this flight is therefore politically important with regards to Indo-US relationship. The satellite is the nearly 200-kg Alsat (Algerian Satellite) which is owned by the Algerian Space Agency and is built by a French company with several US-made parts. The TSA facilitates the launch of US satellites and satellites with US components on Indian launch vehicles. It will cover launches involving satellites owned by the US government or academic institutions or by third country space agencies and universities which have US equipment on board.

Source: *Times of India*

Plan to send two Indians into space

An unmanned crew module will be put in orbit around the earth by a modified Polar Satellite Launch Vehicle (PSLV) in 2013 as a forerunner to the Indian Space Research Organisation (ISRO) sending two Indians into space, S. Ramakrishnan, Director, Liquid Propulsion Systems Centre, ISRO, said. India has plans to send two astronauts in a low-earth orbit and they will stay in space for about a week before returning to the earth. A third launch pad, at a cost of Rs.1,000 crore, will be built at Sriharikota, where the rocket that will take the astronauts into space will be assembled and launched. Mr. Ramakrishnan told journalists here, after the successful PSLV-C15 flight, that the module for the astronauts had already been designed. The life-support systems, thermal-proofing and the crew escape system in case of an emergency had been defined. "We are also planning a launch pad abort for the crew in case of an accident," Mr. Ramakrishnan said.

Source: *Hindu*

GSLV failure due to fuel pump flaw

The maiden flight of the three stage Geo-Synchronous Satellite Launch Vehicle (GSLV) with an indigenous cryogenic engine on April 15 failed because of the stopping of the Fuel Booster Turbo Pump (FBTP) in the engine. Speaking to TOI from Bangalore after the release of the failure analysis report, an ISRO official explained that in layman terms, the "cryogenic upper stage ignited correctly, but failed to sustain." He said: "Though the engine began

working, its combustion started falling which resulted in the failure of the mission." According to the report: "Vehicle acceleration was comparable with that of earlier GSLV flights up to 2.2 seconds from the start of the CUS. However, the thrust build-up did not progress as expected due to non-availability of liquid hydrogen (LH2) supply to the thrust chamber of the main engine," it said.

Source: *Times of India*

Glitch in INSAT-4B hits telecasts

INSAT-4B satellite of the Indian Space Research Organisation (ISRO) has developed a glitch – power supply from one of its two solar-panels has been cut off, affecting telecast by

several channels. INSAT-4B, built by the ISRO Satellite Centre in Bangalore, was put in orbit in March 2007 by an Ariane launch vehicle from Kourou in French Guyana. ISRO spokesman Mr S. Satish said power was not flowing from one of the solar panels to the satellite bus from July 7 nights, leading to the switching off 50 per cent of the transponders on board the satellite. INSAT-4B has 12 transponders in Ku-band and 12 transponders in C-band. Due to the malfunction, only six Ku-band transponders and six C-band transponders were on now. "Some television channels have been affected. We are working out contingency measures to restore full operation as early as possible," Mr. Satish said.

Source: *Hindu*

India tests missile shield

India tested its fledgling ballistic missile defence (BMD) system once again, taking another small step towards building a fully operational missile shield for vital areas and installations in the country. This was the fifth test of the two-tier BMD system, designed to track and destroy incoming hostile missiles both inside (endo) and outside (exo) the earth's atmosphere. The test saw an "enemy" missile being "successfully neutralised" by an endo-atmospheric interceptor, or an anti-missile missile, at a 15-km altitude over the Bay of Bengal off Orissa's coast. The first three tests in November 2006, December 2007 and March 2009 were dubbed successful, killing as they did "enemy" missiles at altitudes of 48-km, 15-km and 80-km. But the fourth, on March 15 this year, had to be aborted midway after technical glitches. For one, the BMD system will first have to be tested for a variety of flight envelopes. For another, it's yet to be tested in an integrated mode, with both the two-stage exo and single-stage endo interceptors together. The aim, after all, is to obtain a kill probability of 99.8% by first intercepting the enemy missiles outside the atmosphere and then engaging the 'leakers' inside. But DRDO, as is its wont, proclaims Phase-I of the BMD system, with interceptors which can fly at 4.5 Mach high-supersonic speeds to intercept enemy missiles with a 2,000-km strike range, will be ready for deployment by 2012 itself. DRDO says work on Phase-II has already begun to develop capabilities to intercept even near-ICBMs (intercontinental ballistic missiles). As per plans, Phase-II will tackle 5,000-km range missiles with interceptors at hypersonic speeds of 6-7 Mach. The ground reality, however, is that it will take several years for India to erect an effective missile defence shield. Even the American, Russian and Israeli missile defence systems are not considered 100% foolproof as of now. But all this does not detract from the complex project undertaken by DRDO. With seamless networks of advanced early-warning and tracking radars, robust command and control posts, and land and sea-based interceptor batteries, BMD systems after all have to swiftly detect, track and destroy incoming missiles during their parabolic trajectories. An interesting spin-off from the work being done is that it can also provide India with anti-satellite (ASAT) weapons since the technology to neutralise a ballistic missile is akin to bringing down a satellite.

Source: *Times of India*

LCA is the world's only carrier-borne light craft

The LCA (Navy), rolled out from Bangalore's HAL stables, is now ready to undergo the phase of systems integration tests leading to ground runs, taxi trials and flight. The aircraft

would be flying with the GE-F-404-IN20 engine and is specifically designed for a ski-jump take-off and arrested landing, with high landing loads, compared to its Air Force counterpart. Touted as the only carrier-borne aircraft in the light category in the world, it will be operating with a wide variety of operational weapons and equipment like the Beyond Visual Range missile, anti-ship missiles, conventional bombs, air defence guns, CCMs and drop tanks. The government had accorded its formal sanction for the naval programme in 2003. The first stage of development includes design and fabrication of one trainer and one fighter, NP1 and NP2 respectively, along with the SBTF at Goa, to simulate carrier take-off and arrested landing. A complete airframe called Structural Test Specimen, required for structural testing, is also being tested. Aeronautical Development Agency (ADA), Bangalore, has done the design, development and building of NP1, with HAL as its principal partner.

Source: *Times of India*

Astra missile makes night-test debut

India conducted its maiden night time test-firing of sophisticated Astra missile from the DRDO (Defence Research and Development Organisation) run Interim Test Range (ITR) located at Chandipur in Orissa's Balasore district. Balasore district administration sources said, the Beyond Visual Range (BVR) air-to-air missile was test fired from the launch pad number two of the premier missile testing centre at around 8.15 pm. A detailed analysis of the test is still on at the time of filing this story. Meant to be used for fighter aircrafts belonging to both the IAF as well as the Indian Navy, Astra had its last successful test launch on January 11 this year. However, that test was conducted during day time.

Source: *Deccan Herald*

Indian Air Force to sign MMRCA contract within a year

The Indian Air Force (IAF) will sign the contract to purchase 126 Medium Multi Role Combat Aircraft (MMRCA) within a year, said Chief of Air Staff, Air Chief Marshal P V Naik said. Speaking to reporters on the sidelines of the raising day of Defence Avionics Research Establishment (DARE), a unit of the Defence Research and Development Organisation, "The flight evaluation and test report will be ready

by the end of month. Then it will go to the Ministry (Defence). There are normal procedures to be followed, in the bidding process. As per procedure, sealed bids will be opened and the aircraft will be short-listed for commercial evaluation."

Source: *Deccan Herald*

Boeing aims to accelerate greening of aviation

Boeing announced a new "ecoDemonstrator Program," intended to speed up implementation of environmental technologies. "Commercial aviation is in rapid pursuit of its goal of carbon-neutral growth by 2020, primarily driven by technology advancements," Mr Billy Glover, Managing Director of environmental strategy for Boeing Commercial Airplanes, said in a news release. "The ecoDemonstrator Program can help accelerate industry efforts by providing a platform that integrates innovation and technologies in a way that ensures as they mature, they are market-ready. The program also will enable emerging technologies to be tested for further research consideration." The program will use \$25 million that the U.S. Federal Aviation Administration awarded Boeing last month (with a required company match) to be spent over the next five years on flight demonstrations of airframe and engine technologies with potential to reduce emissions and noise.

Source: *seattlepi*

Payload Payback

In the present business world scenario where razzmatazz and blitzkrieg are the buzzwords to build up a brand, here lies an industry that is worth over \$125 billion and yet we have never heard of any chest-thumping from its top players. That's Space Inc, an industry where the goals are infinite. The estimated worth quoted above is merely in the field of satellite manufacturing. If one adds sensory data sale, payload charges, and technological spin-offs, the net worth will manifold. "The potential is humongous," says Dr K Radhakrishnan, chairman of Indian Space Research Organisation (ISRO). He is quick to point out that the primary job of space sciences, nevertheless, is not money-making. But as telecommunication and broadcasting take giant strides globally, piggy riding the advances made in space, it is payback time for the investments made in space sciences. Understanding this business aspect, India too launched a marketing arm of ISRO, Antrix in 1992. The motive behind such an entity in a state-managed space research Organisation was clear: promotion and commercial exploitation of space products, services and transfer of technologies developed by ISRO. "It was a logical step," says Mr KR Sridhara Murthy, managing Director of Antrix.

Source: *Economic Times*

Indian P-8I Clears Final Design Review

Boeing has completed the final design review for the Indian Navy 737-based maritime patrol P-8I, a variant of the U.S. Navy's P-8A, and is preparing to begin fabrication of the first aircraft in the fourth quarter. The milestone for the Indian Navy, which has ordered eight P-8Is, comes as the U.S. Navy passes the 50 flight hour

point on T1, the initial test aircraft, at Patuxent River Naval Air Station, Maryland. T1 arrived at the Navy facility in April, and is focused primarily on airworthiness and envelope expansion. "The test program is on track, and we have high confidence we will meet our initial operational clearance target of 2013," says Naval Air Systems Command P-8A principal deputy program manager Martin Ahmad.

Source: *Aviation Week*

IIA scientists hold crucial tests at Easter Island

Scientists from the Bangalore-based Indian Institute of Astrophysics (IIA) successfully conducted two experiments on July 11 at Easter Island in Chile which is expected to reveal a wealth of new information about the solar corona. A team comprising IIA director S S Hasan, scientists Mr Jagdev Singh, Mr Dipankar Banerjee, Mr K Ravi and Mr F Gabriel had set up a camp at Easter Island to observe the total solar eclipse that occurred on July 11 during which they carried out two planned experiments. The first experiment was the multi-slit spectroscopy of the and corona in the iron, green and red line at a very high cadence and the second chromospheric spectra in the hydrogen-alpha line as a function of height at a high frequency of about 7 Hertz.

Source: *Indian Express*

India tops in remote-sensing satellites

With the successful launch of Cartosat-2B by the Indian Space Research Organisation (ISRO), India has reached a 'critical constellation' of 10 active remote-sensing satellites in space, which gives it a clear edge in the region for monitoring borders and movements across them. While mapping and infrastructure development are seen as the primary applications of a remote-sensing satellite, its use in spying is often underplayed. A combination of four Cartosats (1, 2, 2A and 2B) hovering 630 km above earth allows India to keep areas under close and prolonged surveillance. Multiple satellites ensure that a particular geographical area can be 'revisited' every 48 hours. Three of the Cartosats now in orbit have a spatial resolution of less than one meter (0.8 m for Cartosat-2B), which means that they can observe and photograph objects smaller than a car. Cartosat-2B's steer ability of 26 degrees allows it to stay focused on the object for a longer duration while on the move as compared to the other remote-sensing satellites, which have a range of applications.

Source: *Times of India*

ISRO plans 2013 test mission

ISRO will launch an unmanned space mission to orbit around the earth in 2013 as a prelude to its manned mission, to get an idea of the space environment and how the system behaves. ISRO chairman Dr K Radhakrishnan told this to reporters after the successful launch of PSLV-C15. "We are planning to send two humans into space and bring them back successfully. Work on this project is being done in phases... first phase comprises setting up of critical technologies and then ensuring the facilities are reliable and have a good human rating. For this we need a habitable crew module capsule, a life support system, and an escape system for the humans in case the launch has to be aborted. Specifications are being drawn up," he said. The mission to send man to

space will require augmentation of facilities at Satish Dhawan Space Centre, Sriharikota, to include a third launch pad, an astronaut training centre and a support system to take care of crew members before and after the mission, at a cost of Rs 1,000 crore. The government has sanctioned Rs 90 crore for the pre-project activity. The preliminary design for the third launch pad has been proposed to the government and the location decided.

Source: *Times of India*

Chandrayaan 2 payload to be finalised on Aug 3

The payload for Chandrayaan 2 will be finalised at a meeting scheduled to be held in Bangalore on August 3, said Dr S K Shivakumar, Director of ISRO - ISTRAC. Speaking on

'Chandrayaan - Deep Space Network' here, Dr Shivakumar described the step-by-step installation process of the Deep Space Network (DSN) antenna constructed by ISRO to track signals of Chandrayaan 1. ISRO constructed two DSN antennas -- 32-metre primary antenna and 18-metre standby antenna, at a cost of Rs 100 crore at Byalalu on the outskirts of Bangalore. The Deep Space Network antenna is currently tracking the signals of Venus express satellite from Japan and waiting permission from the European Space Agency to track their Mars express satellite. The DSN satellites will provide complete support to any future Indian moon missions, including the Chandrayaan 2.

Source: *Deccan Herald*

Civil aviation all set for a steep take-off

AFTER dedicating the Terminal-3 at the Indira Gandhi International Airport (IGIA) to the nation, Prime Minister Manmohan Singh said his government was working to align-regulatory and policy framework with the requirements of the civil aviation industry to encourage foreign direct investment. "We need to create safe, secure, efficient and environment friendly systems conducive to healthy growth of our civil aviation sector." Our regulatory and policy framework also needs to be aligned with the needs of the civil aviation industry to encourage serious investment in this vital sector. Our government is working to achieve these goals", Singh said adding that India's aviation sector has the potential to absorb up to \$120 billion of investment by 2020. The Prime Minister said analysts had predicted that domestic traffic could reach 160 to 180 million and international traffic in excess of 50 million by the year 2009.

Source: *Indian Express*

Tata defence arm in pact with Lockheed

THE Tata group's defence and aerospace arm Tata Advanced System has forged a joint venture with the US-based defence major Lockheed Martin Corporation, makers of the legendary fighter craft F-16, for manufacturing defence equipment and aircraft parts. Tata Advanced System or TASL, a wholly owned subsidiary of Tata Sons, has sought government approval for the joint venture in which Lockheed will have a 26% stake through a subsidiary while the Indian partner will hold the rest. The new company, Tata Aero structures, will design, develop and manufacture aerospace and aero structure products. The proposal submitted by TASL to the Foreign Investment Promotion Board, or FIPB, says that Lockheed Martin's wholly-owned subsidiary Lockheed Martin Aero frame Corporation (LMAC) will invest Rs 42.82 crore investments into the proposed venture for a 26% stake. The Indian partner will bring Rs 121.87 crore to the venture that is also looking to export advance technology systems to other countries. There is an export potential of \$200 million (Rs 920 crore) over a period of five years, the Tata Group said in its proposal.

Source: *Economic Times*

M&M plans 250-acre aerospace SEZ near BIA

MAHINDRA & Mahindra (M&M), the diversified business group, plans to set up a 250 acre special economic zone (SEZ) catering to the aerospace sector near the Bangalore

International Airport. According to a state government official, the M&M group has shown interest in setting up the SEZ, which is going to be built under a Public Private Partnership (PPP) model. Mrs. Anita Arjundas, CEO, real estate sector, Mahindra & Mahindra said, "Mahindra Life spaces, the infrastructure and real estate arm of the \$7.1 billion Mahindra Group, is in preliminary dialogue with the Karnataka government for developing the aerospace SEZ. The company has strong experience in this kind of industrial development zones being the pioneer in the space with its Mahindra World City at Chennai and Jaipur." M&M, which recently forayed into the aviation sector with the acquisition of two companies in Australia to manufacture aircraft, recently opened a new component making facility at Malur on the outskirts of Bangalore. The Karnataka government has plans of setting up the second SEZ focused on the aviation sector. The first facility has already come up in Belgaum which is an aerospace engineering and manufacturing SEZ by Quest Global. According to the official, the state government has already identified close to 1,200 acres for setting up aerospace SEZ at Devanahalli and it is estimated that each company would require a minimum of 250 acres to set up their facility.

Source: *Economic Times*

Terminal-3 set to wing Delhi airport into the big league

Get set for a truly global travel experience for the next domestic or international flight that you either take into or out of Delhi. With the Prime Minister, Dr Manmohan Singh, set to inaugurate the integrated domestic and international terminal building here, the National Capital will join the league of London and Singapore whose airports head the talk of world class facilities. With a capacity to handle 34 million passengers annually, Terminal 3 (T-3) in Delhi is bigger than Heathrow's T-5 (25 million) and Singapore's Changi T-3 (22 million). Spread across 5.4 million square feet, the terminal has 168 check-in counters divided into six islands with two main conveying lines to every island serving 14 counters each, more than 100 travelators and 78 boarding bridges that will be used for 90 per cent of the embarking and disembarking passengers. Assisting them in collecting their bags will be 6,400 meters of conveyor belts in a totally automated baggage handling system that can handle 12,800 bags an hour.

Source: *Hindu Business Line*

Indian Operator Buys Four Russian Helicopters

Oboronprom says it has sold four helicopters to Global Vectra Helicopters of India, including the first Kamov units to be acquired by an Indian operator. CEO Andrei Reus said Vectra will take two Ka-32 A11bc fire fighting helicopters and a pair of Mi-172s in a deal valued at around 30 million euros (\$36 million). The Mi-172s will be used for civil applications. Deliveries will begin in late 2010-11. Oboronprom is also tendering its Ka-226T, powered by a French Turbomeca turbo shaft, for the Indian air force's 197-unit scout helicopter award.

Source: *Aviation Week*

DRDO scientists awarded

Five senior scientists of various Defence Research and Development Organisation (DRDO) affiliated organisations have been conferred award of 'Outstanding Scientist' for the year 2010. A DRDO release said Mr Sivasankaran, Aeronautical Development Establishment (ADE), Dr Athithan G, from the Center for Artificial Intelligence and Robotics (CAIR), Dr U K Revankar from Defence Avionics Research Establishment (DARE), Dr Padaki V C, from Defence Bio-Engineering and Electro Medical Lab (DEBEL), Mr Ravind Sistla and Mr Kullor R from Electronics and Radar Development Establishment (LRDE), all from Bangalore.

Source: *Deccan Herald*

Young Indian scientist bags NASA award

Close on the heels of whiz kid Tathagat Avtar Tulsi joining as the youngest associate professor at IIT-Mumbai next week, another man from Bihar has brought laurels to the State. The Patna-born Saikat Guha has been selected for NASA award for his contribution to the National Space Programme and to the mission of the Jet Propulsion Laboratory, US. Working as a scientist with BBN Technologies, USA, Saikat has been awarded the prestigious

NASA Tech Brief Award for his paper, "Phase-conjugate receiver for Gaussian-state quantum illumination," which was published in the NASA Tech Brief magazine recently. A product of St Michael's High School in Patna, Saikat completed his B.Tech in electrical engineering from IIT, Kanpur, and then a doctorate from MIT, USA. The letter issued by Dr Christopher H Jagers, Awards Liaison Officer, NASA Space Act Awards, said that the Chairman, NASA Inventions and Contributions Board had selected Saikat Guha for the honour.

Source: *Deccan Herald*

Honour For scientists

Scientists Mr Krishnan P S, director, Aeronautical Development Establishment; Mr Mahalingam V S, director, Center for Artificial Intelligence and Robotics; Mr Tamilmani K, chief executive, Center for Military Airworthiness and Certification, have been conferred status of distinguished scientists. The honour is the highest in the DRDO set-up, given in acknowledgement of meritorious service in research.

Source: *Times of India*

Bangalore to host space expo in August

After the biennial defence aviation exposition, Aero India, Bangalore will get to host another international expo which is touted to be Asia's only focused exhibition on space technologies. Antrix Corporation of India, the commercial arm of Indian Space Research Organisation (ISRO) and the Confederation of Indian Industry (CII), are jointly organising the second Bengaluru Space Expo 2010 - an international exhibition and conference on space technologies, equipments, products and services from August 25 to 28 at the Bangalore International Exhibition Centre. The second edition of the expo comes at a time when there is a spurt in space launches across the world and with space agencies looking to cut costs of commercial space launches. For ISRO, the expo is important following the successful launch of Chandrayaan- 1 in 2008. It is now planning to launch Chandrayaan- 2, along with various other space missions including the manned and inter- planetary missions.

Source: *Indian Express*

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