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Publication Team

Dr R Balasubramaniam
Dr S Kishore Kumar
Dr P Raghothama Rao
Ms Harpreet A De Singh
Dr Satish Chandra
Mrs Chandrika R Krishnan
Mr Hemanth Kumar R

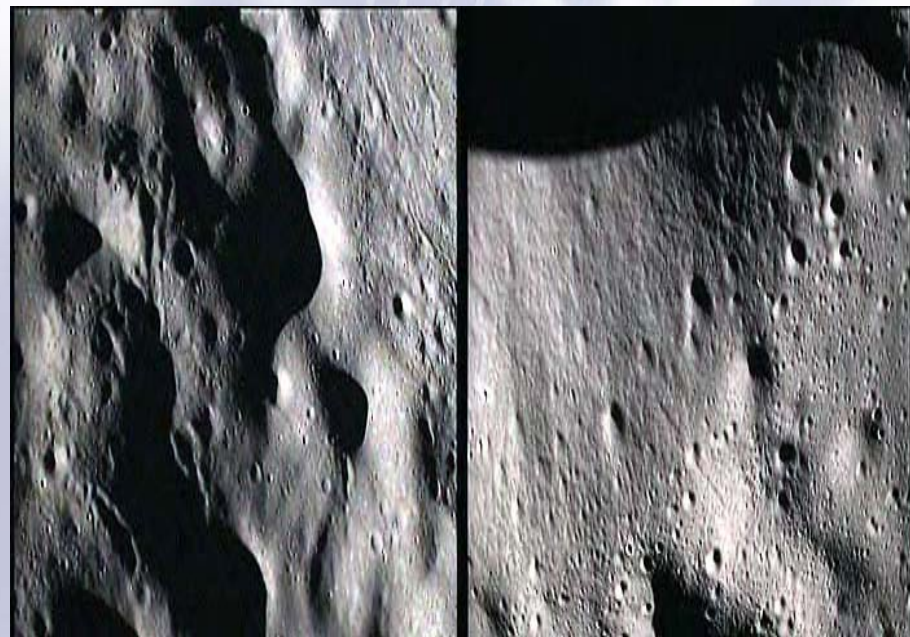
Head Quarters

The Aeronautical Society of
India
13-B, Indraprastha Estate
New Delhi 110 002, India
Tel: ++91 11 23370516
Fax: ++91 11 23370768
e-mail: aerosoc@bol.net.in

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Tri-colour on the moon - Details under Technology

READER'S RESPONSE

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

Govt approves Horizontal Aviation Agreement with European Union

Government today said it has approved an agreement with the European Union to bring all 26 bilateral air services agreements with member nations in conformity with legal requirement. "The new arrangement will bring all the existing bilateral air services agreements between EU member states and India in line with the European Commission law at one go, thereby obviating any threat of legal challenge," Finance Minister Mr P Chidambaram told reporters. The Union Cabinet gave an ex-post facto approval last night to the Horizontal Aviation Agreement, signed in Marseilles on September 28 during Prime Minister Manmohan Singh visit to France at the India-EU Summit, he said.

Source: PTI

DRDO's projects get financial wings

A world-class aeronautical testing range and Rs 42,000 crore worth of products: that's what the Defence Research and Development Organisation (DRDO), in its 50th year now, will get over the next decade. Land near Chitradurga has been identified for the range, which will have the capability to test parachutes, radar and unmanned vehicles. This will supplement the DRDO's testing range in Kolar. Announcing this at the inauguration of Aerosem-2008, a national seminar of aero-cluster laboratories, Dr Prahlada, chief controller (Research & Development), said 4,200 acres of barren land was identified by the government at Kudapura Kaval, 20 km from Chitradurga, for the range. It is expected to be operational in two to three years and will be developed on the lines of the missile testing range at Balasore.

Source: Times of India

France offers longer range air to air missiles to India

France has offered to upgrade India's 51 frontline Mirage 2000 fighters in a "compressed delivery time-frame", which could prove a boon to New Delhi in the backdrop of Indian Air Forces' force levels depleting to an alarming all time low of 32 Squadrons. And as part of the upgradation deal almost at the final stages of conclusion, the new Mirages would come armed with longer range Air to Air Missiles to enhance

the fighters capability in beyond visual range combat. The fighters would be armed with new MICA missiles with a range of taking on targets almost 40 kms away, almost double the range of present missiles on Indian fighters.

Source: Times of India

ISRO to set up atmospheric studies centre near Tirupati

The Indian Space Research Organisation (ISRO) is ready to establish a world-class facility for atmospheric studies near Tirupati, according to a statement from the Andhra Pradesh Chief Minister's Office today. The ISRO Chairman, Mr G. Madhavan Nair, in a message informed the Chief Minister, Dr Y.S. Rajasekhara Reddy, that ISRO planned to establish a facility for advanced atmospheric studies in Andhra Pradesh. Mr Nair said this in response to Dr Reddy's congratulatory message on Chandrayaan-I mission success and sought the State's support to help them expand their facility near Tirupati. The Chief Minister wanted ISRO to establish a Human Space Programme (Astronaut Training and Biomedical engineering Centre) and offered land in Anantapur district close to Bangalore.

Source: Business Line

Moon impact probe device sends vital videos

Chandrayaan-1's crowning glory and India's lunar flag-bearer, the Moon Impact Probe, has generated 15,000 video frames that ISRO wants to weave into a movie. "We plan to animate every frame into a movie form to document the 25-minute descent over a distance of 100 km. This will prepare us to design our next mission for a soft-landing," Mr M. Annadurai, Project Director for Chandrayaan-1, told Business Line. The Moon Impact Probe (MIP) carried a video imaging device along with two instruments. A full video should be ready in a day or two. While the main spacecraft continues to circle the moon once in two hours, clicking it pole to pole for two years, the flag-bearing MIP crashlanded with its three instruments, but not before sending vital information to lunar scientists. Teams are getting in place to study the data over the coming weeks, Mr Annadurai said.

Source: Business Line

India asked for Moon, we gave it'

ISRO chairman Dr G Madhavan Nair was naturally exultant at India having reached the Moon. In the company of former President A P J Abdul Kalam and former ISRO chairman U R Rao, Nair said: "It is the month of Karthika. It has been very fruitful and productive. We should say that the Moon has been favourable to us. India asked for the Moon and ISRO has given the Moon to India." At a press conference at ISTRAC, where the Chandrayaan-1 was being tracked, Nair observed: "It is right to remember that it was India's first Prime Minister Jawaharlal Nehru who in 1962 laid the foundation for India's space programme. On his birth anniversary, it is befitting to have our flag on the Moon."

Source: Times of India(15-11-2008)

Tejas' maiden flight by night successful

Tejas, Light Combat Aircraft, achieved an important milestone when it took to the skies by night. In its maiden flight by night, the Prototype Vehicle-3 aircraft took off at 8:05 pm from the HAL airport and carried out a set of predetermined manoeuvres to demonstrate its night capability. The aircraft was piloted by Gp Capt. N. Tiwari of the National Flight Test Centre. Wg. Cdr R.K. Dash as the test director, along with several Senior Officers of the Tejas Programme, was at the telemetry station, monitoring the progress of the flight. The flight met all its test objectives, said an official press release. The night qualification marks an important step towards achieving Initial Operational Capability (IOC). The flight will pave the way for systems and weapon integration for delivery by night.

Source: Hindu

IAF clears BIA's runway plan

Air Chief Marshal F H Major said the Air Force has cleared the proposal for the second runway at Bangalore International Airport (BIA). Marshal Major, who called on chief minister B S Yeddyurappa, told reporters that the Air Force has given clearance to the BIA for construction of the second runway. The runway is slated to come up on the south side of the airport. The proposal had run into turbulence as the approach path for landing aircraft was in line with the approach path of air base runway at Yelahanka.

Source: Times of India

India setting up world's third naval pilots training facility

To help its fighter pilots hone their skills ahead of more aircraft carriers joining the fleet, the Navy is setting up a shorebased training facility (SBTF) here for MIG29K and Naval LCA aircraft. This will be the third such mock night deck facility in the world with only the US and Russia having the other two. The work on the SBTF has already started at the Naval air base, INS Hansa, which houses the Navy's fighter squadrons and training squadrons flying the existing fleet of sea harriers, Navy sources said here. The work on setting up the SBTF with the ski-jump facing the sea-front in INS Hansa has been handed over to Goa Ship yard Limited (GSL), a defence public sector undertaking, through the Bangalore based Aeronautical Development Agency (ADA).

Source: Indian Express

Kaveri in LCA by 2009

Kaveri engine will be installed into the Light Combat Aircraft Tejas by the end of 2009, said Director of Gas Turbine Research Establishment (GTRE) Director, Mr T Mohan Rao. Briefing newsmen on the sidelines of a function organised to mark the Raising Day function of GTRE at its premises at C V Raman Nagar, Mr Rao said, "Two more milestones are yet to be crossed by the engine, prior to its installation which is likely to be by Dec 2009. "It has cleared all the tests for airworthy certification, he said. The engine is yet to be tried under fully simulated altitude conditions, which will take place in Moscow between February and March, next year. India's

consultants in the venture are CIAM of - Russia, MTU of Germany and ATC in UK, he added.

Source: Deccan Herald

Arjun displays firepower in Chandipur

The Proof and Experimental Establishment (PXE) conducted trials of India's first indigenous main battle tank (MBT) 'Arjun' and the sophisticated Bofors gun from its test range at Chandipur-on-sea, 15 km from Balasore. "The important test was the functioning

proof of Fin Stabilised Armour Piercing Discarding Sabot (FSAPDS) ammunition for Arjun. tests, aimed at demonstration, showed encouraging results in terms of accuracy, acceleration and ballistic performance," PXE director Anoop Malhotra said. The successful trial of Arjun is reported to have boosted the morale of defence scientists and officials who had been facing criticism from various quarters for the tank's low accuracy, frequent breakdown of power packs and problems with its gun barrel during the accelerated user-cum-reliability trials last year.

Source: Indian Express

"Everything went exactly as planned, and on dot"

The Indian Space Research Organisation (ISRO) achieved a milestone when Chandrayaan-1 was successfully inserted into the lunar orbit following a complex manoeuvre (see The Hindu, November 8) that enabled it to free itself from Earth's gravity and be captured by the Moon. In this operation, once the spacecraft was at a distance of about 500 km from the Moon, the satellite orientation was turned around so that it faced in the direction opposite to the original orbit direction. The on-board retro rockets were then fired to slow down the spacecraft for it to be captured by the Moon's gravity. The firing was carried out at 16:51 hrs IST, which lasted for 817 seconds, according to the ISRO press release. This, according to M. Annadurai, the Chandrayaan-1 project director, succeeded in applying a braking velocity of 366.8 m/s.

Source: Hindu

Mission perfect

The successful critical manoeuvre that put Chandrayaan-1 in an orbit around the moon marked the completion of the most important phase of the Indian lunar mission. The rest of the mission involves only standard orbit manoeuvres, the likes of which the Indian Space Research Organisation (ISRO) is quite used to, and the performance of the on-board scientific instruments during the mission life of two years. The precision with which the crucial operation was executed has unequivocally demonstrated ISRO's capability to take up the more complex deep space missions as distinct from numerous near-earth missions in the past. The achievement has put India in the exclusive club of space-faring

nations that have ventured beyond the sphere of earth's gravitational influence. That ISRO brought this off in its first attempt is all the more commendable.

Source: Hindu

It's Mission Sun now for ISRO

After Chandrayaan-I Moon odyssey, it's in a way "Mission Sun" for team ISRO. Scientists at the Indian Space Research Organisation are in an advance stage of designing a spacecraft, named Aditya, to study the outermost region of the sun called corona. "That's a mini-satellite. In fact, the design is just getting completed," ISRO chairman Dr G Madhavan Nair said. "During solar maxim, which is happening, we would like to see the type of emissions which are taking place in the sun and how it interacts with the ionosphere and atmosphere and so on," he said. According to Dr Jayati Datta, deputy programme director, space science office, ISRO, Aditya is the first space-based solar coronagraph intended to study corona. Aditya would be the first attempt by the Indian scientific community to unravel the mysteries associated with coronal heating, coronal mass ejections and the associated space weather processes and study of these would provide important information on the solar activity conditions, she said.

Source: Times of India

Tricolour on the moon

India kissed the Moon when the Moon Impact Probe of Chandrayaan-1 landed on the lunar surface. The probe — which has the Indian Tricolour painted on it — crashlanded at 8.31 pm. ISRO described it as a perfect operation. Thus, India became the fourth nation in the world to join the global Moon Club, after the US, the former Soviet Union and Japan. Though the European Space Agency, comprising 17 countries, had sent an impact probe, it is not included in the list as it is not a country. The MIP was the brainchild of former President APJ Abdul Kalam, who witnessed its separation from the main orbiting craft and its crashlanding 32 km from the Shackleton crater in the Moon's South Pole, from the Mission Control Room at ISRO's Telemetry, Tracking and Command Network (ISTRAC) in Bangalore.

Source: Times of India

Chandrayaan-II will be launched in 2012, says Nair

ISRO chairman Dr G Madhavan Nair got a royal welcome at the Sathyabhama Deemed University, which is hosting an international conference in space technology. Posters dotting the campus bore pictures of a victorious looking Dr Nair with the slogan, "He is a great hero, India and abroad." A sign, perhaps, of how India's lunar mission Chandrayaan has captured the imagination of the youth and upped ISRO's brand value. Dr Nair, instead, focuses on the relevance of ISRO's future missions, its challenges and the management lessons that India Inc could glean from the state-run space agency. ET caught up with Dr Nair a day before the Moon Impact Probe (MIP) is ejected from the Chandrayaan satellite, following which the Indian flag will crash land on the moon, literally! Excerpts: Can Chandrayaan be termed a complete success when the MIP lands? No, it will still amount to 95% success since we have to map the moon's surface for the next year and a half. Mineral mapping and surface feature mapping will be paramount. We can gauge 100% success only after that, but we haven't slotted a time yet.

Source: Economic Times

Shourya's success

The recent Shourya ballistic missile tested successfully is the latest feather in the Defence Research and Development Organisation's (DRDO) arsenal. The fact that Indian defence scientists were able to build the Shourya despite the Missile Technology Control Regime sanctions in place, is creditable. Moreover, given the on-going attrition of DRDO's human resources it speaks volumes of our defence scientists' capabilities. Shourya's most critical systems related to control and navigation, on board avionics, materials and launch mechanism are entirely indigenous. Over the years the DRDO has successfully managed to increase its integration with industry, especially the private sector as co-partners in the development of missilery. In a sense, the Shourya demonstrates the capabilities and confidence levels of the industry and defence technologists to develop a sophisticated missile-to-missile system.

Source: Deccan Herald

Aircraft maintenance unit near Bangalore

The company recently secured approval from the regulator Directorate General of Civil Aviation to set up the aircraft MRO. Air Works CEO Fredrick Growth said that the company, which already has one hangar at Hosur airport that can house two turboprop ATR-72 size aircraft, and runway for narrow and wide-bodied aircraft, would construct two more larger hangars by 2009. "We have plans to pump in \$40 million into the project", he said, adding that the funds would be put in to set up the additional hangars, the aircraft painting operations as well as for future engine and components facilities. The company, which claims to be the largest general aviation and MRO firm in India, would provide services like line and base maintenance, aircraft painting, structural repairs, cabin and avionic upgrades.

Source : Deccan Herald

Airlines may be asked to cut fee

Taking a strong view of the hefty transaction fee being charged by airlines and travel agents on air tickets, the government is likely to ask them soon to either lower it drastically or do away with it completely. The fee came into effect after airlines decided to implement "zero commission" norm for travel agents from November 1, making air travel costlier. Since then, the seller of a ticket, either the airline or the agent, have started deducting an additional amount of Rs 350 to Rs 500 on economy and business class tickets on domestic sector and between Rs 1,200 and Rs 10,000 on the international tickets, depending on the distance flown. Official sources said there was no justification to charge such high transaction fees over and above the ticket price, which already included high fuel surcharges and congestion charges, among others.

Source: Times of India

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Aviation doom: AAI fears 15% revenue loss in '08-09

The slowdown in aviation industry has hit the fortunes of state-run Airports Authority of India (AAI) hard. The country's biggest airport operator fears a 10% to 15% drop in revenue this financial year over last year's figure of Rs 3,000 crore, at a time when projects worth Rs 12,500 crore need to be executed in the 11th Five Year Plan and Rs 3,400 crore investment is required this year. The drop in revenue projections may also force AAI to revise upwards its earlier projection of raising Rs 2,650 crore from the market in 2008-09 and 2009-10. "We had earlier planned to raise Rs 1,100 crore this fiscal and the balance next year. The government had also allowed raising this amount through private placement of bonds and external commercial borrowings. But with global financial markets down, ECBs don't remain a viable alternate now," said a senior official.

Source: *Times of India*

India's 10 latest defence procurement programmes

The Ministry of Defence is reportedly planning to double its arms procurement and spend over \$20 billion (over Rs 120,000 crore), more than twice the amount spent in the past 10 years on an annual basis. On the table are major naval acquisition

programmes, including buying six submarines for about \$2.3 billion and \$3 billion worth modernizations of India's artillery corps. Companies are, therefore, eyeing huge opportunities in the defence sector, also on the back of the India-US nuclear deal. For instance, US aerospace major Boeing alone sees a \$20-billion opportunity in India's defence sector over the next decade. It is bidding for defence orders worth \$15-\$20 billion for F/A-18 Super Hornet combat jets, P8I maritime surveillance aircraft and Apache combat helicopters.

Source: *Economic Times*

India negotiating \$1.5 bn defence deal with Israel: Report

India is negotiating a deal with Israel to purchase four intelligence and early warning planes at a cost of USD 1.5 billion. Indian Defence Secretary Vijay Singh is leading a delegation to Israel this week to discuss the purchase of the planes and missiles from Israel Aerospace Industries (IAI), daily Ha'aretz reported. The Indian delegation will also discuss cooperation with Israel on intelligence matters and in the war on terror, sources close to the Israeli defence industries reportedly told the daily. Earlier, India had bought Phalcon AWACS plane radars from IAI for \$1.1 billion, a deal that has been delayed but likely to come through by early 2010.

Source: *NDTV Arabia*

Excellence awards for HAL

Hindustan Aeronautics Limited (HAL) has bagged the Raksha Mantri's Awards for Excellence 2006-07 for both, the Best Performing Division of DPSUs and the Best Design Effort. "It is a testimony to our tireless efforts in innovation," an elated HAL Chairman Mr Ashok K Baweja said. Jagdish Raj, Executive Director, Transport Aircraft Division (TAD)-Kanpur received the award for Best Performing Division from Raksha Mantri A K Antony at the awards ceremony, in New Delhi on Friday. V P Mathur, AGM (Design), of the same Division received the award for Design Effort in development of Maritime Reconnaissance and Intelligence Warfare (MRIW) aircraft on DO-228 platform for the Indian Navy.

Source: *Deccan Herald*

Luminaries to grace IISc. centenary celebrations

The Indian Institute of Science (IISc.) in its centenary year will be drawing a host of luminaries and dignitaries, including Prime Minister Manmohan Singh, who will participate in the celebrations. According to sources at the IISc., the Prime Minister will visit the campus on December 3 and will be present for the curtain-raiser of the centenary celebrations and for the release of an institute publication authored by eminent scientist C.N.R. Rao. Four Nobel laureates will deliver lectures during the centenary conference to be held between December 13 and 16. They are Martin Rees, leading astronomer; Desmond Tutu, Archbishop Emeritus of Cape Town; American economist Eric S. Maskin; and South African biologist Sydney Brenner.

Source: *Hindu*

ICEAE2009

Iisc Centenary International conference and Exhibition on Aerospace Engineering
Department of Aerospace Engineering
Indian Institute of Science

Date : 18 – 22 May, 2009

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ICEAE 2009 conference secretariat
Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012, India
Email: iceae@aero.iisc.ernet.in
Phone : +91-80-22932416, 22932417

Aeronautical Society of India

Launch of Co-operation and Joint Programmes by Aeronautical Society of India (AeSI) and RAeS (Royal Aeronautical Society) was held on 19th November 2008 at hotel Orchid Central in Bangalore.

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Dr R Balasubramaniam
Editor – e-news Editorial Team
The Aeronautical Society of India
Suranjandas Road
New Thippasandra Post
Bangalore – 560 075
Telefax : 080 25273851
Email : editoraesi@dataone.in
editoraesi@yahoo.com

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