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Business Standard
20 May, 2016

Saab offers fighter jet under Make in India

It has significantly improved avionics system, when compared to previous versions of the Gripen

Swedish defence firm Saab has unveiled a fighter aircraft, Gripen E. The company said the jet is being offered to India under the Make in India initiative, along with transfer of technology.

"The Gripen E is a specific configuration of Gripen NG chosen by the Swedish customer. The exact configuration for another customer such as India will depend on discussions with that customer," Jan Widerstrom, country head and chairman, Saab India Technologies said.

In 2019, deliveries of the Gripen E to Sweden and Brazil will begin.

Gripen E is equipped with a highly integrated and sophisticated sensor suite including an Active Electronically Scanned Array (AESA) radar, Infra Red Search and Track (IRST), Electronic Warfare (EW) suite and datalink technology, which, when combined gives the pilot, and co-operating forces exactly the information needed at all times.

Five nations currently operate Gripen: Sweden, South Africa, Czech Republic, Hungary and Thailand. Brazil has ordered Gripen, and it has also been downselected in Slovakia.

Besides that, Empire Test Pilots' School (ETPS) uses Gripen as platform for test pilot training.

In 2019, deliveries of the next generation Gripen for Sweden and Brazil will begin.

Saab, which had lost out in the Medium Multi-Role Combat Aircraft tender in 2011 which was won by French firm Dassault Aviation, anticipates that the Indian Air Force (IAF) will need more the 36 Rafale fighter jets that it is buying from France to beef up its depleting fleet.

The company has not only offered to set up a base here but also help in the development of aerospace capability for the next 100 years. It has also offered to partner in developing the next version of indigenous Light Combat Aircraft Tejas and the Advanced Medium Combat Aircraft (AMCA), being developed and designed by Aeronautical Development Agency.

The Indian Air Force had in last October said it would need at least six additional squadrons comprising 108 Rafale fighter jets or similar jets to shore up its capabilities.

With the government cancelling the multi-billion tender for 126 MMRCA, there is renewed hope in the aviation industry that India may go in for fresh bids to fill up the gaps.

Besides Saab, the US' Lockheed Martin, Boeing and the France's Dassault Aviation have offered their jets in line with the government's push for Make in India.

Deccan Herald
20 May, 2016

Indian Navy deployment in South China Sea irks Beijing

New Delhi: Beijing on Thursday conveyed its concerns over Indian Navy warships' visit to South China Sea, prompting New Delhi to retort that such deployment was not unusual.

"When Indian ships participate in maritime exercises in the South China Sea, of course China will show concern," a Chinese official was quoted telling journalists in New Delhi. He drew a parallel between India's concerns over "trouble" in Indian Ocean with China's concerns over Indian Navy ships' visit to South China Sea.

Four warships of Indian Navy's Eastern Fleet - indigenously built guided missile stealth frigates INS Satpura and INS Sahyadri, indigenous guided missile corvette INS Kirch and sophisticated fleet

support ship INS Shakti - sailed out on Wednesday for a two-and-a-half-month long operational deployment to the South China Sea and North West Pacific Ocean.

New Delhi dismissed China's concerns and said that Indian Navy's deployment in and around South China Sea was not unprecedented.

"Indian ships' visit (to South China Sea) is a normal thing which has been happening. It's not something which happened only this time," Pradeep Kumar Rawat, Joint Secretary (East Asia) in the Ministry of External Affairs, told journalists, when his comment was sought. The ships of Indian Navy will make port calls at Cam Rahn Bay (Vietnam), Subic Bay (Philippines), Sasebo (Japan), Busan (South Korea), Vladivostok (Russia) and Port Klang (Malaysia) during overseas deployment. The Indian Navy ships will take part in Malabar-16 naval drill with warships of US and Japan.

The Asian Age
20 May, 2016

CIA: India could have gone nuclear in 1964

As early as 1964, the US intelligence community had concluded that India was in a position to develop nuclear weapons, a declassified state department report said, citing frequent change of the fuel core of the Canada-supplied reactor at Trombay.

“The Indians are now in a position to begin nuclear weapons development if they chose to do so.”

“We have no evidence, however, of a weapon research and development programme and would expect to see some if the programme existed,” the state department Bureau of Intelligence and Research (INR) said in a report on May 14, 1964.

The report along with several others was published on Wednesday by the National Security Archive and the Nuclear Proliferation International History Project. Noting that the fuel core of the Canadian-Indian Reactor at Trombay was being changed every six months, the US intelligence report had raised questions about India’s nuclear objectives.

The bureau said a six-month period was quite short for “normal research reactor operations,” but it was the optimum time for using the reactor’s spent fuel for producing weapons grade plutonium. The report also said the Canadians had not established specific safeguards when they made the reactor available to India, thus giving the Indians a free hand in using the newly-built Phoenix plutonium separation plant to produce the fissile material.

According to the state department report, “India’s leadership might have had nationalistic motives for building the Phoenix plant but if it wanted a nuclear weapons capability it would seek such a capability”. The bureau report said it had no “direct evidence” of an Indian weapons programme and believed it was “unlikely” that India had made a decision to build a bomb.

Nevertheless, it was “probably no accident” that “everything the Indians (had) done so far would be compatible with a weapons programme if at some future date it appeared desirable to start one.”

The report also said that by late 70s, the CIA knew that China had aided Pakistan’s nuclear weapons programme by providing it with weapons design information wondered whether China would help Pakistan, among other countries, acquire a nuclear capability. The US experts believed China had limited resources and seemed “cautious and indecisive” on the question of nuclear assistance. A year later, intelligence reports concerning visits to China by Pakistani defence and science advisers sparked the question, “will Communist China give nuclear aid to Pakistan?”

The Pioneer
20 May, 2016

Six Army Mountaineers Successfully Scale Mt Everest

A team of six Indian Army mountaineers led by Lt Colonel Ranveer Jamwal successfully scaled Mount Everest on Thursday morning. Concurrently, the Lhotse summit team led by Major Nooruddin Ahmed is attempting to summit Mount Lhotse, the fourth highest peak in the world at 8,501 metres.

The Indian Army climbers were among the initial lot of mountaineers to successfully climb Everest after a hiatus of two years as the peak was closed due to the devastation caused by the earthquake in Nepal last year.

Incidentally, the same team was at the Everest base camp last year for the expedition when the 7.9 earthquake struck Nepal on April 25. The team took part in rescue mission to bring out trapped mountaineers. Twenty two international climbers and local sherpas were killed in the avalanche triggered by the earthquake. However, the Indian team camp that was also in the path of the avalanche remained unharmed. The expedition was called off.

The 30-member Indian Army's Everest expedition 2016 was flagged off by Vice Chief of Army Staff Lt General MMS Rai on March 30. Five members of the team will now participate in the tough and intensive "Tenzing Hillary Everest Marathon" on May 29. It is considered to one of the toughest trail marathons in the world, Army officials said.

Army Chief General Dalbir Singh Suhag congratulated the team for successfully climbing the world's highest peak. Team leader Jamwal has the record of having led 17 people to the summit. He had earlier scaled the peak twice in 2012 and 2013.

The Tribune
20 May, 2016

BSF lodges strong protest with Pak Rangers over trans-border tunnels

The BSF today raised a slew of issues like trans-border tunnels, infiltration bids by militants and suspicious activities by elements inimical to peace along the 198-km International Border (IB) at a sector commander-level flag meeting held near Octroi border outpost in Suchetgarh area of RS Pura sector in Jammu district.

"A sector commander-level flag meeting between BSF and Pakistan Rangers was held on international boundary on Pakistan side near BOP Octroi from 9.30 am to 12.30 pm. The BSF delegation was led by DIG BS Kasana while Brig Wasim Jafar Bhatti headed the Rangers' delegation," said an officer.

During the meeting various important issues, including Infiltration bids, suspicious movement, violation of sanctity of IB and illegal entry of Pak civilians in Indian territory, unwanted objections on maintenance of border infrastructures by Rangers, burning of 'sarkanda' (wild growth) near border without prior intimation, digging of tunnels, movement of Pakistani civilian and farmers during late night, and hunting of wild animals during night were discussed, he said.

The BSF delegation again lodged a strong protest with Rangers about digging of a tunnel from Pakistan side into Indian territory which was detected on March 3 this year near Allah Mai-De Kothe post in RS Pura sector.

"However, Pakistan Rangers denied their involvement in the digging of tunnel but assured the delegation that all measures will be taken by them so that such incidents do not occur in future," said the officer.

The meeting was held in a cordial, positive and constructive atmosphere.

It was agreed upon to re-energise the existing mechanisms of communication between the two border guarding forces and to hold meetings and contacts at all levels, whenever required, for maintaining peace and tranquility on the border.

The trans-border tunnel that originated from Pakistan was detected 30 metres inside the Indian territory from Zero Line near AMK post. It was the third such tunnel found on the border since July, 2012.

The Times of India
20 May, 2016

India eligible for NSG only if it signs NPT, says China

Objection Raised After Diplomacy on Membership Stepped Up

Formalising a new position that seeks to block India's quest for membership of the Nuclear Suppliers Group, China has said NSG is linked to the Non-Proliferation Treaty, indicating India would be eligible to be a member only if it signed the NPT.

A senior Chinese diplomat denied it was a "bilateral issue. "As a member of the UNSC, we are the watchdog of the world; we must ensure the rules are followed. And we must also think about others, not just India who wants an exception to the rules."

On the evolving South China Sea problem, the Chinese diplomat hinted at Beijing's uneasiness with reports of India and US conducting joint patrols. "When there is some trouble in the South China Sea, India is worried. When Indian ships participate in maritime exercises in the South China Sea, of course, China will show concern."

The US, he said, is asking for an exception for India on NSG. "China would never block India's entry into any world body but what about the efficiency of the regime?" "China," he said, "joined the NPT in 1992. The treaty has some problems and Indians believe there are double standards. But it only recognises nuclear weapons states as those that tested weapons before 1967. China did not make this rule, western powers did. We just have to maintain the rules."

This is China's newest objection to India's NSG bid, slightly different from its earlier stand asking for a criteria-based exception. As India has stepped up its diplomacy on NSG membership, China, too, has stepped up its opposition. Indian officials deny any link between NPT and NSG.

With the US once again openly endorsing the Indian membership to the NSG last week, India has begun preparations for the group's plenary meeting, scheduled to be held in Korea in June.

India has been preparing for its accession for years now. Since its NSG waiver in 2008, India has engaged many members of the NSG to give them all a closer look into its nuclear system, its non-proliferation practices etc.

When President Pranab Mukherjee travels to China next week, he will engage the Chinese leadership on India's NSG membership.

In fact, sources said that India would be stepping up its conversations with China on the issue as the NSG plenary draws near. Prime Minister Narendra Modi will make a big push at the highest levels to get the US to make good on its commitment to get India into the exclusive club.

DNA India
16 May, 2016

Pakistan to raise India's Prithvi-II missile test at international level

The missile test now strengthens India's position in the very exclusive Ballistic Missile Defence club.

Reacting to the recent supersonic interceptor missile test by India, adviser to the Prime Minister on Foreign Affairs Sartaj Aziz has said that Pakistan will acquire advanced technology to improve its defence and will also raise the matter at the International arena.

Quoting Radio Pakistan, the Dawn stated that Aziz expressed concern over India's missile test, saying it will disturb the balance of power in the region.

Asserting that Pakistan is not oblivious to its defence, Aziz added that Islamabad will continue to upgrade its defensive capabilities.

Assuring that Pakistan would raise its voice at the international level against India's defense developments, the diplomat alleged that India is enjoying the cooperation of the United States, as Washingtonthinks a strong India is vital to contain China.

India successfully test fired its indigenously developed Prithvi-II missile from a test range off the Odisha coast on Sunday.

The missile was launched at 11.15 am from the launching complex.

The success of Advanced Air Defence interceptor missile test now strengthens India's position in the very exclusive Ballistic Missile Defence club of the US, Russia and Israel.

The Statesman
20 May, 2016

Chinese Jets Intercept Us Plane in SCS

Tensions between the Two Nations Escalate

Two Chinese fighter jets made an "unsafe" interception of a US spy plane in the disputed South China Sea, the Pentagon said today as tensions between the two countries escalated over the strategically crucial waterway. The "unsafe" interception of a United States EP- 3 reconnaissance aircraft was carried out by two Chinese J-11 tactical aircraft, which the Pentagon said was on an international airspace over South China Sea. Chinese jets came within 50 feet of the American aircraft at one point, Pentagon spokesman Captain Jeff Davis said in a statement.

"We have made progress reducing risk between our operational forces and those of the People's Republic of China by improved dialogue at multiple levels under the bilateral Confidence Building Measures and the Military Maritime Consultative Agreement," Davis said.

"Over the past year, we have seen improvements in PRC (Peoples Republic of China) actions, flying in a safe and professional manner. We are addressing the issue through the appropriate diplomatic and military channels," he said.

The interception comes days after General Joseph Dunford, Chairman of the Joint Chiefs of Staff, held a video tele conference with Chinese People's Liberation Army's Chief of the Joint Staff Department General Fang Fenghui on efforts to reduce tensions in South China Sea. Tensions between China and the US are high in the South China Sea,a vital shipping route believed to be home to vast energy deposits.

China claims almost all of South China Sea which is disputed by the Philippines, Vietnam, Malaysia, Brunei and Taiwan. Beijing has been building islets in the disputed region into artificial islands with military facilities including radar systems and airstrips. The US has been dispatching its warships into the waters claimed by China to assert freedom of navigation. America, which is embarked on a foreign policy "pivot" towards Asia, fears China is seeking to impose military controls over the entire region.

China Refutes Allegations

China today angrily refuted US allegations that two of its fighter jets carried out an "unsafe" intercept of an American military aircraft over the disputed South China Sea and asked Washington to stop reconnaissance of its coastline.

"After checking with the relevant authorities what US said is not true," Chinese Foreign Ministry spokesman Hong Lei told media that the Chinese planes came dangerously close to its maritime reconnaissance plane.

The Tribune
20 May, 2016

Top US firm to build 4 N-reactors in China

Top US company Westinghouse will build four nuclear reactors in China even as American firms are struggling to enter into a commercial agreement to establish such plants in India.

"I think that's a clear example of how the world's commitment to a low-carbon future has a positive economic impact in the US," White House Press Secretary Josh Earnest said.

The Tribune
20 May, 2016

'CIA in 1970s knew about Sino-Pak N-cooperation'

By late 70s, the CIA knew that China had aided Pakistan's nuclear weapons programme by giving it weapons design information, according to just declassified US documents

A few years after China's first nuclear test in October 1964, State Department Bureau of Intelligence and Research wondered whether China would help Pakistan, among other countries, acquire a nuclear capability.

The Statesman
20 May, 2016

NATO finalises details of military build-up

NATO foreign ministers meet today to finalise the alliance's biggest military build-up since the end of the Cold War to counter what they see as a more aggressive and unpredictable Russia.At a Warsaw summit in July,NATO leaders will sign-off on the revamp which puts more troops into east European member states as part of a "deter and dialogue" strategy, meant to reassure allies they will not be left in the lurch in any repeat of the Ukraine crisis.Ministers will also discuss the growing challenges on NATO's southern flank, from conflict in Syria and Iraq to instability across North Africa amid fears terrorist groups such as Islamic State (IS) can exploit the turmoil.

In November,IS attacks in Paris left 130 dead and fellow jihadis followed that up with more killings in March in Brussels -- home to NATO HQ, the European Union and a host of diplomatic offices.

The Hindustan Times
20 May, 2016

New Type 1 diabetes treatment eliminates need for insulin shots

An Islet Transplant Can Give Patients a Long-Term, Effective Glucose Control without the Need of Insulin

LONDON: The University of Aberdeen and a not-forprofit London-based centre have developed a technology that eliminates the need to administer insulin shots to Type 1 diabetes patients by transplanting laboratory-grown islets that produce insulin.

Called Islexa, the technology holds hope for millions of Type 1 patients across the world, including India, which has one of the largest diabetes-afflicted populations. The technology is collaboration between the university and the Cell and Gene Therapy Catapult (CGT).

A CGT spokesperson told Hindustan Times: "The technology is still in the pre-clinical stage and we are aiming for the first in man studies in the next few years here in the UK. Once the clinical trials have been completed and the product has gained market approval, we see no reason for the treatment to not be globally available."

The Islexa technology works by reprogramming donated pancreatic tissue into fully functional islets that will significantly increase the number of patients who can receive the treatment.

Type 1 diabetes is normally treated by administering insulin injections. An islet transplant can give patients effective, long-term glucose control without the need of insulin administration.

CGT CEO Keith Thompson said: "The collaboration has already delivered promising results and the formation of Islexa will accelerate the development of these lab grown islets and ultimately get this potential treatment to thousands of patients."

Kevin Docherty of the University of Aberdeen said the technology is based on converting pancreatic tissue into functional islets. "This has an advantage over the use of stem cells as source material, since at the moment they generate only the insulin-producing beta cells," he said.

The Statesman
20 May, 2016

Antibiotics threat to human existence

Superbugs to Kill Someone Every 3 Seconds By 2050

A report by the British government has warned that so-called superbugs could kill ten million people worldwide by 2050 - unless sweeping global changes are agreed to tackle increasing resistance to antibiotics.

The Review on Antimicrobial Resistance warns that failure to take action could allow common ailments and minor injuries become lifethreatening due to immunity from existing drugs. Economist Lord Jim O'Neill, who was commissioned by British Prime Minister David Cameron to undertake the report, said awareness was key to changing attitudes to medicines.

The review states that doctors should be forced to perform diagnostic tests on patients before prescribing antibiotics which are currently being dished out "like sweets".It recommends reducing the vast quantities of antibiotic medicines given to farm animals.It also wants a global public awareness campaign and a drive to develop new antibiotics.

One of Lord O' Neill's proposals suggests that big pharmaceutical companies should "play or pay" - meaning they either join the search to hunt for new antibiotics or be forced to pay a fine. But those who do and find successful new treatments should be rewarded handsomely.

The Pioneer
20 May, 2016

High BP can trigger vascular dementia!

Hypertension or high blood pressure is known for causing heart attacks, strokes and kidney failure. But a new study published in the latest edition of the American Heart Association has warned that high blood pressure can trigger vascular dementia too.

Vascular dementia is the second most common type of dementia (after Alzheimer's disease) with symptoms that can include memory loss and difficulties with thinking, problem-solving or language. In vascular dementia, these symptoms occur when the brain is damaged because of problems with the supply of blood to the brain.

Researchers from the George Institute for Global Health (GIGH) after analysis of health records of more than four million people found heightened blood pressure was associated with a 62 per cent higher risk of vascular dementia between the ages of 30-50. Around seven lakh people in India are affected with the vascular dementia which is

caused by reduced blood supply to the brain due to diseased blood vessels.

Lead author of the study, Professor Kazem Rahimi from GIGH, said, "Vascular dementia rates are increasing all over the world and will pose a significant economic and social burden in both developed and developing countries. So these results are particularly important."

"We already know that high blood pressure can raise the risk of stroke and heart attack," added Dr Vivekanand Jha from the Institute. "What makes this study significant is that, for the first time it has shown that high blood pressure is also associated with a significantly higher risk of vascular dementia," he added.

Professor Rahimi, from the Institute, said, "Our results suggest that lowering blood pressure, either by exercise, diet or blood pressure lowering drugs, could reduce the risk of vascular dementia."

The study also found that high blood pressure was still a risk factor even after adjusting for the presence of stroke, the leading cause of vascular dementia.

The study was supported by the NIHR Oxford Biomedical Research Centre, the NIHR Career Development Fellowship, the Rhodes Trust, the Australian Health and Medical Research Council, the Oxford Martin School, the Wellcome Trust, the Medical Research Council, the Dunhill Medical Trust and the Stroke Association.

The Indian Express
20 May, 2016

The curious lightness of an early atmosphere

Two new studies suggest that the young Earth may have been even less like today's than was previously thought

"THE past is a foreign country. They do things differently there." So wrote L.P. Hartley, in "The Go-Between". He was speaking of human affairs, but replace the word "country" with "planet" and you have a succinct description of Earth almost 3 billion years ago. Viewed from the present it was then, indeed, a foreign planet. Just how foreign has been shown by two geological studies published this week.

Both hail from Australia, a land rich in ancient rocks. One is the result of painstaking measurements of little balls of quartz, calcite and chlorite found in lava that erupted 2.74 billion years ago, during the Archaean aeon. The other used saws and acid to winkle tiny meteorites out of limestone a mere 20m years younger. Though the questions the teams asked of their rocks seem, at first glance, to

have little in common, and neither group was aware of the other's efforts, by a quirk of scientific synchronicity their findings complement each other, shedding an intriguing new light on the planet that Earth once was.

Sanjoy Som and his colleagues at the University of Washington, in Seattle, were looking at lava to measure ancient atmospheric pressures. They chose lava as their barometer because it traps gas bubbles as it solidifies, and the size of those bubbles depends on the pressure they experienced.

At the top of a flow, this is the air pressure. At the base, it is the air pressure plus the weight of the lava above. So bubbles at the bottom—or rather, the mineral infills that have taken their places—are smaller. Measure how much smaller and, if you know the mass of the lava in between, you can calculate the atmospheric pressure experienced by the bubbles at the top. As the team report in Nature Geoscience, this suggests an air pressure no more than half of today's, and probably only a quarter.

The limestone investigators at Monash University, in Melbourne, were also looking for spherical inclusions. Their prey, however, were not bubbles but micrometeorites. When Andrew Tomkins started the study, his objective was to calculate the rate at which the ancient Earth was being bombarded by space dust. Soon, though, he became less interested in counting the grains than in analysing their chemistry. As he and his colleagues report in Nature, this showed that the atmosphere which had melted them as they hit it may have been as rich in oxygen as today's is. And that was completely unexpected.

Thin pickings

Viewed separately, these results are both weird. There is no obvious reason why the Archaean atmosphere should have been so much thinner then than it is today. And there is strong geochemical evidence that at this time it was oxygen-free. Put the results together, though, and in one way, at least, they reinforce each other.

Geochemistry mostly deals with the lower atmosphere. Micrometeorites are influenced by what happens at very high altitudes—75km or above. And it is quite possible to have oxygen at extreme altitude even if there is none lower down; you just have to generate it in situ, rather than have it waft up from below. Ultraviolet light drives a lot of chemistry in the upper atmosphere, and is quite capable of producing oxygen from sulphur dioxide or carbon dioxide. Dr Tomkins and his colleagues plumped for carbon dioxide as the most probable source of the oxygen for which they see evidence, but note that there is a problem: the chemistry of the micrometeorites suggests there was not much carbon monoxide around, while ultraviolet destruction of carbon dioxide would have produced a fair bit of it.

An alternative source of oxygen is water. Normally you would not expect water in the upper atmosphere; today's stratosphere is more or less bone dry. But calculations by Raymond Pierrehumbert, a modeller of atmospheres at Oxford University, and his colleague Robin Wordsworth, at Harvard, suggest that the thinner an atmosphere is, the more water vapour leaks into its upper levels. And Dr Som's results indicate that at this point in history the atmosphere may have been thin indeed.

That extra water, split by ultraviolet, might thus provide enough oxygen to account for Dr Tomkins's results—which would also provide independent support for Dr Som's. This does not, however, explain why the atmosphere was so much thinner than today's.

Dr Som's colleague David Catling lays the responsibility for that at the door of life itself. Life has a deep and abiding interest in nitrogen, the gas that makes up most of the atmosphere. Some bacteria specialise in taking atmospheric nitrogen and turning it into the sort of biological compounds necessary for building proteins and DNA; if they did not, there would be hardly any life on Earth.

Today almost all the nitrogen thus used is returned to the atmosphere through other biological pathways. But those pathways depend on there being oxygen around, because they need oxidised forms of nitrogen to work with. In the oxygen-free Archaean the mechanisms restoring life's used nitrogen to the atmosphere are likely to have been a lot less effective. Ammonium ions, a reactive form of nitrogen, could have built up in the oceans, or been absorbed into various minerals; nitrogen-rich organic molecules could have accumulated in sediments.

This leads Dr Catling to suggest that air pressure on the early Earth might have followed a U-shaped curve. It could have started quite high, with most of the nitrogen in the atmosphere. When bacteria learned how to use that nitrogen the amount in the atmosphere would have dropped, possibly quite steeply, as the element shifted into the oceans and sediments. After the Archaean, when oxygen provided by photosynthesis changed the atmosphere's chemistry, the nitrogen would have been flushed out of those sumps and returned to the air. How deep, wide and asymmetric that U might be are now subjects for further inquiry.

No pressure, then

The idea that changes in life's nitrogen cycle could alter atmospheric pressure, possibly in step with changes in the oxygen level, is fascinating to those who study the early Earth. But the low pressures in the Archaean that the idea seeks to explain are also a problem for them.

Studies of stellar evolution suggest that in the solar system's early days the sun was a lot less bright, and thus less warming, than now. Despite this, Earth was at least reasonably temperate. This implies that the ancient atmosphere must have provided the planet with a considerably stronger greenhouse effect than today's does. What sort of greenhouse could have been strong enough to deal with this faint-young-sun problem, as it is known, has been a subject for academic debate for decades. Some think that a fairly straightforward mixture of carbon dioxide and methane in the nitrogen could do the trick. Others do not.

Everybody agrees, though, that a thinner atmosphere of the sort Dr Som describes would make the conundrum harder to explain. Greenhouse gases absorb more heat at higher pressures, so one solution to the faint-young-sun problem has been to suggest that Archaean air pressure, rather than being a quarter of today's value, might have been twice as high as it is now. Dr Pierrehumbert says it is going to be "very hard to reconcile" low atmospheric pressure with an unfrozen Earth.

It may of course be that Dr Som's result is wrong—it relies on but a single example, after all. His group and others will be trying to replicate it using lavas elsewhere. And other techniques can furnish "palaeo-barometers"; indeed, Dr Catling says he is working on one such. But however the details pan out, the idea that air pressure may have changed—and changed a lot—during the early history of the Earth is now firmly in play. The past may be a foreign country, but geologists are painstakingly assembling the dictionary needed to translate what is written there into language the present can understand.

The Hindu
20 May, 2016

Google's new 'Assistant' helps with daily tasks

Google Inc unveiled its answer to Amazon's Alexa virtual assistant along with new messaging and virtual reality products at its annual developer conference on Wednesday, doubling down on artificial intelligence and machine learning as the keys to its future.

Google Chief Executive Sundar Pichai introduced Google Assistant, a virtual personal assistant, along with the tabletop speaker appliance Google Home.

He also unveiled Allo, a new messaging service that will compete with Facebook's WhatsApp and Messenger products and feature a chatbot powered by the Google Assistant. Allo, like WhatsApp,

will also have end-to-end encryption when it is rolled out this summer. Duo, a companion app seeking to rival Apple's FaceTime, will allow video calls.

Amazon's Echo, a surprise hit that has other tech giants racing to match it, uses a virtual assistant called Alexa, a cloud-based system that controls the Echo speaker and responds to voice-controlled commands by users.

Like Alexa, Google Assistant can search the Internet and adjust your schedule. Mr. Pichai said Google Assistant can use images and other information to provide more intuitive results.

"You can be in front of this structure in Chicago and ask Google who designed this and it will understand in this context that the name of that designer is Anish Kapoor," said Mr. Pichai, pointing toward a photo of Chicago's Cloud Gate sculpture. For Google Home, the Google Assistant merges with Chromecast to control home devices.

The Statesman
20 May, 2016

Antarctic ice loss to raise sea-level by 3 mtrs

Current Rates of Climate Change May Trigger Instability

Current rates of climate change may trigger instability in a major Antarctic glacier, ultimately leading to a sea-level rise of almost three metres, a new study has warned. Researchers studied the Totten Glacier, a significant glacier in Antarctica.

It drains one of the world's largest areas of ice on the East Antarctic Ice Sheet (EAIS). They discovered that if climate change continues unabated, the glacier may cross a critical threshold within the next century, entering an irreversible period of rapid retreat. This would cause it to withdraw up to 300 kilometres inland in the following centuries and release vast quantities of water, contributing up to 2.9 metres to global sea-level rise.

The EAIS is currently thought to be relatively stable in the face of global warming compared with the much smaller ice sheet in West Antarctica, but Totten Glacier is bucking the trend by losing substantial amounts of ice. The research from Imperial College London and institutions in Australia, the US, and New Zealand shows that Totten Glacier may be even more vulnerable than previously thought.

Earlier, the team had found that there is currently warm water circulating underneath a floating portion of the glacier that is causing more melting than might have been expected.

The new research looks at the underlying geology of the glacier and shows that if it retreats another 100-150 km, its front will be sitting on an unstable bed and this could trigger a period of rapid retreat for the glacier. This would cause it to withdraw nearly 300 km inland from its current front at the coast.

Retreating the full 300 km inland may take several hundred years, said Martin Siegert, from the Imperial College London.

However, once the glacier crosses the threshold into the unstable region, the melting will be unstoppable - at least until it has retreated to the point where the geology becomes more stable again. "The evidence coming together is painting a picture of East Antarctica being much more vulnerable to a warming environment than we thought," Siegert said.