



News & Views

Volcanoes behind global warming pause

Cooling caused by volcanic eruptions during last 15 years is partly responsible for the recent global warming 'pause', a new study has found.

This hiatus, a mismatch between actual warming and climate-model predictions, started in 1998, when Earth's average surface temperatures halted their feverish rise.

Researchers said the average rate of warming was 0.17° Celsius per decade between 1970 and 1998, but decreased to 0.04°C per decade between 1998 and 2012. As many as 17 small volcanic eruptions since 2000 spewed enough aerosols into the atmosphere to explain a significant portion of the slowdown, researchers said.

Aerosols are fine, airborne particles such as sulphate that scatter the Sun's energy, cooling the Earth.

This cooling has offset the ongoing warming caused by greenhouse gases such as carbon dioxide by 15%, 'Live Science' reported. "Part of the lack of the increase in warming for the last 15 years may be due to the cooling effect of volcanoes," said Celine Bonfils, a study co-author from Lawrence Livermore National Laboratory (LLNL) in Livermore.

Source: Hindustan Times, 25.02.2014

India tops global remittances league again with \$70 bn in 2013

Non-resident Indians (NRIs) and expats continued to help India's forex base in 2013, especially in a year in which the rupee hit lifetime lows against the US\$. India remained the highest recipient of remittances with \$70 billion in 2013 followed by China with \$60 billion and Philippines with \$25 billion, according to a World Bank report.

India had received \$69 billion in remittances in 2012. Interestingly, at \$70 billion, India's remittances received were higher than the \$65 billion that the country earned from its flagship software services exports in 2013.

The latest issue of the Migration and Development Brief by the World Bank's said that in 2014, international migrants from developing countries are likely to send \$436 billion in remittances to their home countries, a 7.8% rise over 2013.

"Remittances have become a major component of the balance of payments of Nations. India led the chart of remittance flows, receiving \$70 billion last year (2013), followed by China with \$60 billion and the Philippines with \$25 billion," said Kaushik Basu, Senior Vice-President and Chief Economist, World Bank.

Source: Hindustan Times, 14.04.2014

India overtakes Japan as world's 3rd largest economy: World Bank

India has emerged as the third-largest economy in the world, ahead of Japan, according to the latest measure released by the World Bank on Tuesday.

The US continues to top the table, followed by China and India, in a count that is done every six years by measuring economies on the basis of their purchasing power parities (PPPs).

PPPs are price relative, according to the report, which show the ratio of prices in national currencies of the same good or services in different economies.

For example, if the price of a hamburger in France is 4.80 euro and in the US it is \$4.00, the PPP for hamburgers between the two economies is \$0.83 to the euro from the French perspective (4.00/4.80) and 1.20 euro to the dollar from the US perspective (4.80/4.00).

The report is compiled by the World Bank under the International Comparison Programme (ICP), a worldwide statistical initiative considered the largest in geographical scope.

ICP 2011, as this round is being called, covered 199 countries.

India was ranked 10th largest in the 2005 survey, and has risen to the third position in 2011.

The US controls 17.1% of the world's gross domestic product (GDP) based on PPP measure, followed by China (14.9%) and India (6.4%), leaving Japan far behind at 4.8%.

But India continues to rank poorly in terms of per-capita GDP – 127th compared to the US at 12, Japan at 33 and china at 99.

The six largest middle-income economies – China, India, Russia, Brazil, Indonesia and Mexico – account for 32.3% of world GDP, whereas the six largest high-income economies of US, Japan, Germany, France, UK and Italy account for 32.9%.

Source: Hindustan Times, 01.05.2014

The devotional power of women reforms Madhya Pradesh village

Gulab gang may have brought change in Bundelkhand region of Uttar Pradesh through use of violence and force, but a group of tribal women in a Madhya Pradesh village invoked (devotional) Bhagat tradition of bhil tribals not only to inspire men to give up alcohol and other addictions, but also to create an awareness against social evils and crimes. They also employed tribal modes like halma (community service) to build infrastructure in their village and check migration.

Teju Bai Meda, Bhoori Bai Meda, Shanti Bai Bhabar and about four dozen women decided to stop alcohol consumption in their village Navapada in Jhabua and adopted pure tribal ways to achieve it. They made a 'havan kund' – a sacred place in their village and started performing bhajans. Gradually they were successful in converting four families to the status of Bhagats – a term used in bhil tribe for people who give up liquor, non-veg and tobacco and spend time in spiritual pursuits. The influence of these four families grew to such an extent in the past four years that at present Navapada village is free of alcohol. A fine of ₹5000 is imposed on person found drunk. "We were

only four women to start the campaign. When other women saw the impact of our reformatory works on our families they too joined us,” said Teju Bai Meda.

Reforming men of their community was not their only mission though. Women from this village showed their true metal by digging four wells in their village. They also built a kutchra road to access a nearby river. (Devotional culture can bring peace in a region – Gita).

Source: *Hindustan Times*, 10.03.2014

Facts about Singapore

Current Population: 5.4 million

Projected population in 2028 : 6.9 million people

Rising sea levels a worrying factor

12 km of expressways and 80 km of transit lines already below ground

Jurong rock caverns, a huge underground oil bunker

- Located underneath the Banyan Basin, off Jurong Island on the western coast of Singapore
- Southeast Asia’s first underground liquid hydrocarbon storage facility
- Cost: US\$ 761 million
- When completed, will free 150 acres, equivalent to six petrochemical plants
- Two access shafts almost completed
- Will be ready by 2014
- Cavern itself will be up to 27m high
- Will create 1.47 million cu metres of storage space
- Tankers and ship to dock overhead to allow oil to be conducted underground

Underground science city

- 40 interconnected caverns for data centres and R&D laboratories which would support the biomedical and life sciences industries
- Estimated size is 50 acres
- Will be 30 stories below a science park
- Will house around 4,500 scientists and researchers

Malls on Orchard road (Singapore’s shopping hub)

- Ngee Ann City retail complex spans 7 levels, of which one is underground
- Is accessible by using underground walk-ways from Orchard metro station

Source: *Indian Express*, 17.11.2013

Old Underground Cities

Beijing, China

- A network of tunnels build under the city as a bomb shelter
- Has schools, restaurants, factories, theatres and a roller skating rink

Cappadocia region in Turkey

- Has around 200 cities underground

- Believed to have been built to protect in case of an invasion

Portland, USA

- Has a series of ‘Shanghai Tunnels’
- Used to move goods, later used for smuggling, ‘Shanghaiing’ (abducting of people)

Coober Pedy, Australia

- Underground city that is still home to tens of thousands
- Built to escape the heat above, is also called the world’s ‘opal capital’ for its opal

Source: Indian Express, 17.11.2013

Standing tall against polio

January 13 marks a major global public health milestone and a huge success as India celebrates the third anniversary of its last reported case of wild polio virus and counts down to when the World Health Organization (WHO) is due to declare India as officially polio-free. But with nearly seven million children still not receiving basic immunization, there is still so much more to be done, and if India were to build on this success then in a few years it could have so much more to celebrate.

That’s because the benefits of eliminating polio have the potential to go well beyond just preventing paralytic poliomyelitis. The government of India now also has the opportunity to immunize millions of children against a range of other life-threatening diseases, by helping to boost the provision of routine immunization along the way.

Back in the early 1980s an estimated 2,00,000 children in India were affected by polio every year. And as recently as 2009 nearly half of all the cases of wild polio in the world were found in India. In light of this, and the fact that India had the largest number of unimmunized children in the world, many people believed that India would end up being the last country to banish polio, while others even questioned whether it could ever be achieved.

However, thanks to the government’s strong political commitment, a multi-stakeholder approach and the use of highly-innovative methods improving polio vaccine coverage, the naysayers have now been proved wrong. But, it didn’t happen overnight, and none of it would have been possible without an army of several hundred thousand frontline workers, often working in extremely challenging situations.

This began in earnest in 1995, when the government launched its first nationwide polio immunization campaign, and, thereafter, continued to step up its efforts, bringing in national immunization days and holding regular supplementary immunization activities (SIAs), as well as other intensive immunization and surveillance activities against polio. Under this initiative as many as 175 million children have been vaccinated in a single day, thanks to the efforts of 2.3 million health workers. And when combined with the 3 million house calls made every month by a network of 9,125 community mobilisers, nearly one billion doses of polio vaccine are delivered in India each year.

But as crucial a role as this mass mobilization has played in the eradication effort, India’s other secret weapon has been – innovation. By combining meticulous micro-planning, monitoring, mobilization and data analysis, state health officials, the WHO and UNICEF, have been able to create a huge and highly effective network that is able to identify priority of problem areas, and

important changes or trends in an area, practically in real time. Although also relying upon a huge workforce, the clever design and use of accountability and prioritizing, has enabled India to use this effectively cast a polio immunization net over the entire country in a bid to reach every last child.

One remarkable example of this is the way in which teams of vaccinators board trains across the country during SIAs. Methodically working their way through the carriages they deliver two drops of the polio vaccine into the mouth of every young child they find who doesn't bear the indelible ink mark on his or her finger, to indicate he/ she has already been vaccinated. In this way they can carry out an entire sweep of a train within a few stops, and across the entire country as many as 1,00,000 children are typically vaccinated in a 24 hour period. That's 1,00,000 children who might have otherwise slipped through the net.

This kind of out-of-the-box thinking is precisely what has enabled India to beat polio. And now Bihar, once regarded as a failing state, has been applying the same innovative principles to other vaccines and achieving stunning results in the process. In less than a decade Bihar has gone from a point where just 18% of its children were receiving all three diphtheria-tetanus-pertussis (DTP) shots – a rate way too low to have a dramatic effect on public health – to a reported routine immunization coverage today of more than 85%.

This transformation has come about partly because improvements to immunization infrastructure, from this extended polio coverage, have helped strengthen routine immunization. But also because Bihar has emulated polio's successful model and created a similar system of micro-plans, monitoring, mobilization and accountability for routine immunization. In fact, in 2009 when staff compared polio microplans with existing ones for routine immunization, they found that the latter was missing a quarter of the population. Then in 2012, following a further painstaking yet meticulous line-by-line comparison, they were able to identify and add more than 50,000 transitional or high risk people to the routine immunization microplans.

And now as India begins to scale back its polio activities, reducing the number of SIAs carried out each year, encouragingly we are seeing coverage of polio continuing to rise in Bihar. So polio has helped routine immunization in Bihar and now routine immunization is returning the favour. Yet 1.4 million children under five are still dying every year from vaccine preventable disease, such as pneumonia and diarrhoea, and from malnutrition. So coming at a time when the government is on the verge of launching the 5-in-1 pentavalent vaccine, the question now is can India replicate this success to protect its children from other deadly diseases? Doing so would give us an even bigger cause for celebration!

Source: H.T. dated 13.01.2014

Linking continents

Envisioned by an Ottoman sultan in the 1860s, Turkey's undersea rail link between its European and Asian sides is finally complete. The rail link is called Marmaray. The name derives from Marmara Sea near Turkey and ray, the Turkish word for rail. The tunnel passes under the Bosphorus Strait. However, as Turkey is an earthquake-prone country, the engineering challenges faced in building the tunnel were immense. A brief look at the engineering marvel and the dangers it faces:

Deepest underwater tunnel

- Officials say that it is the world's deepest underwater tunnel (at a depth of 60 metres)
- It connects the Yenikapi (Europe) and Uskudar (Asia) districts of Istanbul

- Length of the tunnel is 13.6 km
- Submerged section measures around 1.4 km
- Short-term aim is to ease traffic on the two bridges and ferries that allow people to cross the Strait
- Long term aim is to extend rail links to Gebze (Asia) and Halkal (Europe) by 2015 – around 91 km by road
- Expected to increase use of railways in Turkey to 27%, up from roughly 3.6%

The North Anatolian fault

- Turkey is one of the world's most earthquake-prone countries
- Has been witness to 12 major earthquakes since 1939
- Rail link is located 18 km from the faultline. All 12 earthquakes have been recorded over this faultline

Engineering Challenges

- An earthquake leads to liquefaction of soil, meaning that the otherwise solid earth begins behaving like a liquid. Many times, underground structures such as storage tanks have been found on the surface after an earthquake due to this. The Marmaray undersea tunnel is built to resist earthquakes up to 7.5 magnitude on Richter Scale.
- To stop the tunnel from being dislodged by earthquakes, engineers had to ensure that the soil around the tunnel was dense. A National Geographic report says this was done by using grout, which is essentially concrete without sand. Engineers drilled holes into the soil and injected 3,000 grout columns at high pressure. The report says the Marmaray tunnel was built in 11 sections, with each connected by a flexible joint to prevent leakage. The tunnel could be one of the safest places in the city in a quake.

Source: Indian Express dated 24.11.2013

Memory as basis of everything

What makes me unique? All I can say is, I have a unique memory of myself, both in psychological and physical terms, shared with no one else in the world. Right now I am just a bundle of “memories” in my mind and body. Memory is what makes me different from others. Therefore I am curious to know what memory is.

Memory is one of the least understood subjects in science. Psychology defines it as a process in which information is encoded, stored, and retrieved. But is memory limited to the psychological domain? If so, how do millions of atoms that could be flying through the cells randomly “somehow” stay together in a double helix structure in order to create a DNA molecule in an impeccable way so that it is unique to every living creature on earth? It is difficult to explain this without knowing how memory truly works.

So memory must be evolving at a much deeper level, perhaps even from the physical level and could manifest into chemical, biological, and psychological levels. Perhaps physics has an explanation. I became curious to know which theory in physics could successfully explain memory. Surprisingly, none of the existing physical theories explain memory successfully.

Recently, a few physicists have begun to realize that memory can help us understand physics better, for memory could be more fundamental than physics itself. This notion is going to drastically

transform the way we have been looking at physical aspects of the universe. This shift in thought among physicists is because of their inability to explain the random nature of elementary particles.

Quantum mechanics (QM), the most successful theory in physics, can just give us the probability to find a particle in a given location and time. The idea that nature is inherently probabilistic – that particles have only likelihoods, until they are observed – is directly implied by the standard equations of QM. This is the central problem in QM. Einstein rejected this idea by saying, “I am convinced God does not play dice”. He believed there must be some hidden variable or property of the particle that gives rise to such weird behaviour. But this theory was not accepted by many physicists who argued that as long as we are able to make useful predictions using QM without hidden variables, it really does not matter.

After nearly 100 years, a few physicists are at the verge of proving that there could be hidden variables associated with elementary particles. They call it “path memory”, because particles seem to carry the “memory” of the path they have travelled and the interactions they have undergone along the path. Therefore, two electrons that are identical in terms of all known physical properties need not react to an experiment the same way because their path memories can be different.

As path memory builds up during the particle’s journey, its randomness seems to be increasing. In fact the particle is not behaving randomly at all. Our ignorance about the path memory (of that particle) shows up as randomness. This theory might explain how an electron inside my brain could be different from the one in the hot core of a distant star. They carry extremely different path memories.

I can now say that atoms carrying a unique combination of path memories stick together to form my DNA, defining who I am. Memory could be the basis and origin of everything. Who knows, one day we might even prove that “empty space” itself can hold memory. *Vaitheeswaran, The writer is a physicist in Bangalore.*

Source: The Speaking Tree, Times of India, 30.7. 2014

Prayer is the Cry of a Soul

We often hear people say that behind every successful man is a woman. I will modify this by saying, behind every success, there is the Divine, saying, “I am behind you”. The Divine dawns in you when you pray for Grace; when you cry for it.

Prayer is a vital tool to improve your life. What you can do, do it. What you cannot do, pray for it! When you feel the obstacle is too much to handle, deep prayer can work miracles. Whatever you do, know that a higher power has the final say and you can tap that power through your prayers.

You don’t need any special qualifications or abilities to pray. Whether a fool or a wise person, rich or poor, anybody can pray. Prayer doesn’t mean just sitting and chanting some words. It’s about being in that serene, calm, meditative state. That is why, in vedic tradition, dhyana, meditation, is done before prayer as well as afterwards. When the mind is focused, prayer becomes far more powerful.

Prayer is the cry of a soul. To whom you pray is not so important. Whereas religion puts words to the prayer, and adds symbols and rituals to it, prayer itself transcends them. It happens at the subtle level of feelings; feelings transcend words and religion. The act of praying itself has the power to bring transformation.

When you pray there should be total involvement. If the mind is preoccupied elsewhere then that is no prayer at all. When there is pain, there is more involvement. That's why people turn to prayer when they are in pain. Prayer happens when you feel grateful or when you feel utterly helpless. In either case your prayers will be answered. When you feel helpless, prayer happens by itself. That's why in Hindi we say 'Nirbal toh Balram'. If you are weak, God is with you. Prayer is that moment when you get in touch with your limitations, your boundaries.

Usually when you love something, you want to possess it and you pray for it. True prayer, however, is just the opposite of wanting to possess. It's about honouring and offering everything to the Divine. Honouring brings devotion and leads to surrender. Devotion heals.

True prayer can't happen without devotion and faith. Having faith is to realize that God's protection is there for you. Devotion is inner flowering; it starts from where you are. Unless you are lit in devotion to the Divine, your life will remain restless. In devotion, longing will arise in you and true prayer happens by itself.

Be sincere in your prayers. Do not try to outsmart the Divine. What type of time do you give the Divine? Usually you give time that is leftover; when you have nothing else to do, no guests to attend to, no parties to go to, then you go to the Divine. This is not quality time. Give prime time to the Divine. You will definitely be rewarded. If your prayers are not answered, it is because you have never given quality time.

There are four types of people who go to God – first, those who seek the truth (knowledge and freedom); second, the wise ones (gyanis); third, the ones who seek material comforts (wealth) and fourth, ones who are in misery. The wise one does not pray for something. His life itself is a prayer.

If at all you have to pray for something, pray for happiness of all the people in the world. *Loka Samastha Sukhinou Bhavantu – May everybody be happy. Follow Sri Sri Ravi Shankar at speakingtree.in*

Source: Speaking Tree, Times of India

Humour

I like Pigs. Dogs look up to us. Cats look down on us. Pigs treat us as equals.

- *Winston Churchill*

Gravitation is not responsible for people falling in love.

- *Albert Einstein*

Too bad! all the people who know how to run the country are busy driving taxicabs (drivers) and wetting hairs.

- *George Burns*