

Scientists have quantified the temperature of Earth's oceans over half a billion years ago by combining fossil data and climate models. High latitude (~65°S) sea temperatures were in excess of 20°C.

Throne of Solomon' manifests glorious Persian civilization



koja12ro.com

Iranian ancient citadel Throne of Solomon (Takht-e Soleyman), known as Zoroastrian fire temple, manifests glorious Persian civilization.

Located in northwestern Iran, the site lies in a broad and remote mountain valley between cities of Zanjan and Tekab — consisting of an oval platform about 350 by 550 square meters, according to ifnews.com.

In earlier ancient period, the area was known as 'Shiz' or 'Adur Gushnas' which literally means the 'Fire of the Warrior Kings'; but later was named the Throne of Solomon.

Built during the Sassanid era, the ruins introduce the principal Zoroastrian sanctuary and a Sassanid temple dedicated to Anahita, the goddess of water and fertility in ancient Persian mythology.

Fire and water have been among the fundamental elements since ancient times. Fire was believed to conceive a divine messenger between the visible world and the invisible (gods) and water was considered as the source of life.

There is a lake with floor springs at the region surrounded

by massive stone walls and 38 towers.

A volcanic conical core mound is also located near the area which is known as Solomon's Prison (Zendan-e Soleyman).

The 107-meter tall mound has a giant hole on top, with 65 meters span and nearly 80 meters depth.

Centuries ago, the hole was full of water, fed by floor springs, but later it was dried due to an earth quake.

The structures partly restored in the Mongol period (Ilkhanid) in 13th Century. The designs of the fire temple, the palace and

the general layout have strongly influenced the development of Islamic architecture.

Archeological excavations have unveiled traces of an occupation during the Achaemenid period, as well as later Parthian settlements in the citadel.

Persia was a conquering empire but also regarded in some ways as one of the more glorious and benevolent civilizations of antiquity.

As an outstanding ensemble of royal architecture, Takht-e Soleyman was inscribed on UNESCO's World Heritage list on July 3, 2003.

Turkish province invites visitors to discover natural wonders

Mother nature has finally woken up in Anatolia, offering a visual feast to tourists and photographers. The Sarkamış district of Kars Province, which is known as the 'Land of Martyrs', best displays the mysteries and wonders of the natural world to all its guests.

"Growing in the Scots pine forests in Sarkamış, it leaps out of the soil with the arrival of spring. This yellow bride takes its beauty from Kars and its color from Sarkamış. It is a reverse tulip because of our martyrs here."

"Fritillaria caucasica, the Caucasian beauty,



daily.sabah.com

In the district that sits at an altitude of 670 meters, there are beautiful Scots pine forests in which many different plant species grow, daily.sabah.com reported.

Among them, a slew of endemic species — including Fritillaria michailovskyi and Fritillaria caucasica, which is a kind of reverse tulip from the Caucasus — decorate the forests.

These two species appeal to nature lovers of every age, and especially draw the attention of photo enthusiasts.

As birds chirp and hum away, a group of photographers are almost always trying to capture the beauty of the plants in the lush region.

Professor Fatma Güneş, who is an academic at Trakya University's Faculty of Pharmacy, explained to Anadolu Agency (AA) that 40 tulip species naturally grow in Turkey and 17 of them are only found there.

Güneş said, "Fritillaria michailovskyi is one of them.

comes from the Caucasus Mountains. While it grows in such high places, its color gets darker. "We do not know whether it is the Sun or snow that makes this species dark, but the plant is a kind of dark purple.

"No matter if they are yellow or black or any other color, these plants fill the mountains in Kars, decorating them."

Burhan Özba, a nature photographer, talked about Sarkamış mesmerizing people with its natural beauty and rich flora.

"Fritillaria michailovskyi, one of the endemic plants in regions with an altitude of 762 meters, adds a unique beauty to nature. Additionally, Fritillaria caucasica, which are also known as 'Weeping Brides', can be found here."

Another photography lover Hasan Çellat said they waited impatiently for months to take pictures of these beautiful flowers and stressed that everybody should come out and see them.

Highway noise alters monarch butterfly's stress response

New research suggested the monarch butterfly's stress response can be disrupted by exposure to prolonged periods of highway noise.

Every year, the iconic monarch butterfly migrates south from the US to Mexico, according to UPI.

The insects number in the millions. But each year, there are a few million less found at their wintering grounds. Population numbers have been declining for decades.

Scientists and conservationists have blamed a number of factors, but most point to habitat loss as the primary cause of their decline.

To solve the problem, monarch habitat restoration projects have cropped up across the US — patches of milkweed where monarchs can lay their eggs and where caterpillars can eat leaves until it's time for their metamorphosis.

Many of these milkweed patches have been placed along highways.

Andy Davis, an ecologist at the University of Georgia, said, "It seems like it's a win-win."

"Not only are they located all across the country, but roadside wildflower plantings are pretty and can reduce maintenance costs at the

same time.

"But one of the things that's been overlooked with this push to develop roadside habitats is the vehicle noise. If you actually step outside and listen at one of these roadside habitat sites, it's deafening."

In a series of experiments, Davis



Road and highway noise could be altering the stress response of monarch caterpillars.

and his colleagues showed monarch caterpillars are physiologically affected by exposure to highway noise. The experiments showed caterpillars exposed to the noise for short periods of time experience elevated heart rates.

Their heart rate increased the same amount as humans and other animals when exposed to stress.

When exposed to longer periods of stress, 10 to 14 days, the caterpillars' heart rate normalized, suggesting the insect had become desensitized to the stressor. That

they escape or defend themselves.

"The monarchs' journey to Mexico could be one of the most stressful journeys that any insect undertakes in the world."

Researchers also found the caterpillars began to exhibit more aggressive behaviors after prolonged exposure to stress, biting and fighting each other. Some of the lab researchers were even bit.

Davis said, "I was shocked. It was just a little pinch but it was just so surprising."

"I checked with a number of long-term monarch researchers, who've collectively probably reared over 10,000 monarch larvae, and they said they've never, ever had that happen."

"But if you look at the literature, there is some research that shows that heightened levels of long-term stress in insects is usually correlated with levels of aggression."

The findings, published in the journal *Biology Letters*, suggested more research needs to be done to ensure monarch habitat restoration projects placed along highways aren't harming the species' ability to migrate.

could be a problem for the monarchs when they attempt to fly south.

Davis said, "The whole reason heart rates increase when animals perceive a threat is so they can pump more blood to the muscles to help

Sensitive ice stream has been draining Greenland glaciers for 45,000 years

Over the last 45,000 years, a thin drainage stream, stretching more than 595 meters through Greenland's ice sheet and glaciers, has been narrower than it is today more than half the time.

New analysis of the ultra-sensitive ice stream, the Northeast Greenland Ice Stream, suggested the long, narrow ribbon drains as much as 12 percent of the massive Greenland Ice Sheet, UPI wrote.

The new research — conducted by scientists at Oregon State University and published in the journal *Nature Communications* — showed the ice stream continued to drain the ice sheet during the glacial maximum, a prolonged period of extreme cold, suggesting the stream is especially sensitive to environmental change.

Oregon State geologist Anders Carlson said, "There are some parts of the ice sheet that are relatively stable and others that show evidence of very rapid retreat — a pattern we're seeing today as well as thousands of years ago. "Some of it relates to bed topography —

when the bed is below sea level, it stabilizes that part of the ice sheet. In low spots, it is unstable."

Carlson and his colleagues suggest the stream is especially sensitive to warm summer temperatures.

Scientists also believe a period of accelerated drainage flow, beginning 9,000 years ago, may have been triggered by the Earth's orbit, which inched slightly closer to the Sun.

Researchers sampled and studied ice cores to estimate shifts in air temperature over the last 45,000 years.

Their analysis showed that even during the glacial maximum, summer temperatures remained relatively warm, causing the stream to continue draining the ice sheet throughout the cold spell.

Carlson said, "That period was also quite dry and there wasn't nearly as much snowfall, which may have driven the ice margin to be smaller."

Scientists were able to estimate glacial



The Northeast Greenland Ice Stream fans out and terminates at several outlet glaciers.

retreat by measuring the amounts of beryllium-10 in rocks.

When retreating glaciers expose rocks, cosmic rays react with the quartz to produce the isotope.

Though the stream has been draining the Greenland Ice Sheet consistently for 45,000 years, the evidence suggested it is in a period of accelerated flow.

Nicolaj Larsen of Aarhus University in Denmark said, "Modern observations have shown that the NEGIS is very susceptible to changes in both air and ocean temperatures and is presently in a phase of rapid ice retreat."

Almost half of Australian big business moving to renewables

Almost half of Australia's large businesses are actively transitioning to cheaper renewable energy, including many going off the grid by building their own generators and battery storage, as power bills threaten their bottom line.

A new report by the Climate Council details the increased speed of a business-led transition to renewables as power bills have increased, according to theguardian.com.

The average household and small-business energy bill is more than 80 percent higher than a decade ago. Gas prices have increased three-fold in five years.

Many businesses — including 46 percent of large operations — have responded by seeking green alternatives.

The Climate Council report said the capacity of Australian businesses to generate their own solar power had doubled in less than two years.

Business owners report making their investment back through cost savings in less than five years.

The general manager of AustChilli at Bundaberg, Ian Gaffel, said the decision to invest in solar panels was a 'no-brainer'.

AustChilli employed more than 100 people in the agriculture and food manufacturing process.

The business initially built a 100kW solar system and about 18 months ago added an additional 200kW.

Solar now accounts for about a quarter of the business's power usage.

Gaffel said, "We looked for many years at the idea before jumping in a few years ago."

"We're a growing business so as we've grown the energy we're using goes up. My role is on the financial side and from the numbers it was a very easy decision."

"It takes away that unknown of 'what's the power bill going to do next'. For us to be able to get some stability ... and generate energy that won't be subject to those fluctuations. Anybody who has the ability to spend on capital investment, it's a no-brainer."

"The cost savings gave the business more confidence and certainty when deciding to expand and hire more employees."

"The next step for the business will likely be battery storage, which will further decrease its reliance on the energy grid."

The story is being repeated across the country, particularly in the manufacturing industry, where increased power bills have squeezed profits.

The Melbourne-based Carlton and United Breweries is moving towards 100 percent renewable energy.

The company is adding a rooftop solar installation and has signed an agreement with a solar farm near Mildura to provide most of the brewery's power needs for the next 12 years.

Sun Metals, which runs a power-intensive zinc refinery near Townsville, is one of Queensland's biggest energy consumers.

To help justify a planned \$300-million expansion, the business is building a massive solar farm that will produce one third of its energy needs. The refinery will be the largest single-site consumer of renewables in the country.

Greg Bourne, who is a member of the Cli-



Carlton and United Breweries is moving towards 100 percent renewables and Sun Metals is building a solar farm.

mate Council and an energy expert, said businesses who transitioned to renewable energy to cut costs and take control of their power bills were also playing a crucial role in transitioning the nation away from aging, polluting and unreliable fossil fuels.

He said, "This report shows that the rising cost of energy is the number one concern for Australian businesses over the next decade, so it's no surprise that a variety of businesses ... are all turning to affordable renewable energy and storage solutions."

"This is a worldwide transition, with businesses around the globe taking advantage of the investment opportunities associated with renewable energy, with 131 of the world's largest companies on their way to being powered by 100 percent renewables."

The Clean Energy Regulator said the government's 2020 renewable energy target had effectively been met by projects that have been built, commissioned, or are under construction.