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50 YEARS AGO

Major energy cosmic?

Previous ideas on how long and how far [cosmic rays] travel in interstellar space were probably incorrect. It now appears that either these nuclei are younger and have passed through less of the Milky Way galaxy than previously thought ... or ... cosmic radiation fills all of space, not just our galaxy. If this is so, then the physical processes of producing cosmic rays must be as common as those which produce star light.

UPDATE: The galaxy is teeming with cosmic rays — and we now know a lot more about these subatomic particles that tear through space with tremendous energy, up to roughly 100 billion billion electron volts. The lowest-energy cosmic rays come from the sun. Zipper particles are probably shot out of supernovas within the Milky Way. The source of the most energetic (and rare) cosmic rays are an enduring mystery, but they probably originate from outside our galaxy.

WHAT WERE THEY THINKING?

How to melt an ice cave

If you want to keep an ice cave cold, don’t shut the door.

That’s the lesson learned from studying China’s largest year-round ice cave, which thankfully has no doors to close and is just fine. Cold winter breezes act as natural air conditioning and keep this frozen grotto perpetually chilly, researchers report online October 22 in The Cryosphere. And summer heat barely penetrates its depths.

The 3-million-year-old Ningwu ice cave in China’s Shanxi province contains a single entrance connected to the top of a deep, bowling pin—shaped chamber. Geologists Shaohua Yang and Yaolin Shi of the Chinese Academy of Sciences in Beijing digitally re-created the 85-meter-deep formation and found that buoyant, warm outside air doesn’t flow very deep into the cave. Winter’s cold air, however, flushes heat out of the cave system. This convection maintains freezing temperatures year-round even as a thousand visitors explore the cave daily from May to October.

Well-intentioned caretakers for at least two other ice caves in China have installed airtight doors, hoping to keep out heat and trespassers. But the doors also block winter’s frigid air and will cause the spectacular ice formations to completely melt within 40 years, the researchers predict. — Thomas Sumner

HOW BIZARRE

A cloud of microbes

Everyone’s storing data in the cloud these days — including, apparently, people’s microbes.

The bacteria that live in and on a human body form a personal microbial cloud. This microscopic mist, which spreads through the air and settles on nearby surfaces, can be used to identify the presence of a person. Sometimes, the clouds are unique enough to pin down the person’s identity, researchers report September 22 in PeerJ.

After three volunteers sat, each alone, in a sanitized room for four hours (with a sterilized laptop for entertainment), human-associated bacteria had gathered on collection dishes scattered in the room. Species included Staphylococcus epidermidis, common on human skin, and Streptococcus oralis, often found in the mouth. Each person gave off types and amounts of bacteria so distinct that the participants could be identified by their microbes. In a different experiment, five of eight people could be recognized by bacteria caught in air filters in the room. — Sarah Schwartz