

Science & Digital Briefs

By [Highway Shopper](#) Editor Dave Bunting

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Finally I resume my blog! With holidays and snow removal, I'm a whole month and a hundred issues behind.

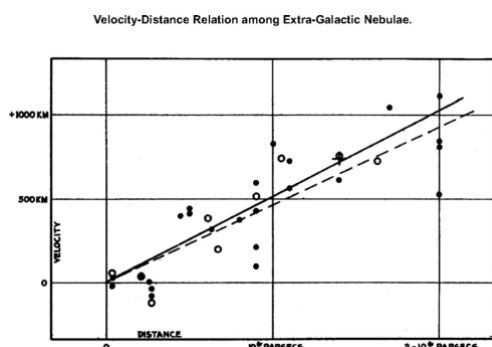
I'd originally intended this column to be only briefs: a headline, a couple sentences and a link.

In order to catch up, I'll now try to revert to that style. Here goes!

[Have we made measurements of the outward acceleration of distant galaxies?](#)

Have we measured the increase in the redshift?

Here's a discussion in Reddit Astroastronomy of their replies to that exact question. I continue to have that same question myself.



[Hubble's Law: Hubble's famous classic 1929 paper](#)

Hubble showed that galaxies are receding away from us with a velocity that is proportional to their distance from us: more distant galaxies recede faster than nearby galaxies. Hubble's classic graph of the observed velocity vs. distance for nearby galaxies is presented in [Fig. 1](#); this graph has become a scientific landmark that is regularly reproduced in astronomy textbooks.

[Info: shpr.fyi/measureexpansion](https://shpr.fyi/measureexpansion)

[Fusion ignition is a very major breakthrough in worldwide energy production](#)

American scientists have announced what they have called a major breakthrough in the long-elusive goal of creating energy from nuclear fusion.

The U.S. Department of Energy said on Dec. 13, 2022, that for the first time – and after several decades of trying by all nations – U.S. Livermore Lab scientists in California have managed to get more energy out of the process than they had to put in.

Development of fusion reactors in coming decades will make vast changes in all human lives in all nations. Gone will be the dangerous and waste-producing nuclear fission reactors, coal and other carbon-fueled generators and the bothersome wind and solar farms. Fusion produces its own fuel and no waste.



[Artificial Intelligence- AI- Please slow down!](#)

More than once this year, AI experts have [repeated](#) a familiar refrain: "Please slow down!"

In 2022, we hit the generative AI that can produce creative works made up of text, images, audio, and video. This year, deep-learning AI emerged from a [decade of research](#) and began making its way into commercial applications, allowing millions of people to try out the tech for the first time. AI creations inspired wonder, created controversies, prompted existential crises, and turned heads-- and created great justified fear worldwide!

[China's COVID means serious shortages and delays for iPhones, other electronics](#)

China's electronics manufacturing is under threat from a widespread coronavirus outbreak in China, with supply chain experts warning of a growing risk of months-long disruption to the production of all electronics.

Manufacturing has had to contend with more than a month of chaos at its main assembler Foxconn's megafactory in Zhengzhou, China, following a Covid-19 outbreak that started in October.

As the Chinese government reverses its zero-Covid policy, a longer-lasting risk now looms: the potential of worker shortages at component plants or assembly factories across the country.

"We should be seeing a lot of operations get impacted by absenteeism, not just at factories, but warehouse, distribution, logistic and transportation facilities as well," said a group that tracks millions of supply chain mapping services.

[Not so fast on electric cars!](#)

Toyota CEO Akio Toyoda recently warned, "I think Battery Electric Vehicles are just going to take longer to become mainstream than the media would like us to believe."

Cold temperatures reduce EV range and increase charging times." When temperatures drop to 5 degrees Fahrenheit, a vehicle that's supposed to be able to go 250 miles between charges will make it only 135 miles. At 32 degrees [a Tesla Model 3](#) that in ideal conditions can go 282 miles between charges will make it only 173 miles.

The Transportation Department is requiring states to build charging stations every 50 miles along interstate highways and within a mile of off-ramps to reduce the likelihood of these scenarios. But most state electrical grids aren't built to handle this many charging stations and will thus require expensive upgrades. Illinois, for one, warns of "challenges related to sufficient electric grid capacity, particularly in rural areas of the state."

Federal law prohibits charging stations in rest areas.

Charging stations in rural areas with little traffic are also unlikely to be profitable and could become "stranded assets," as many states warn. Wyoming says out-of-state traffic from non-Tesla electric vehicles would have to increase 100-fold to cover charger costs under the administration's rules. Tesla has already scouted out premier charging locations for its proprietary network. Good luck to competitors.

New Mexico warns that "poor station maintenance can lead to stations being perpetually broken and unusable, particularly in rural or hard to access locations.

Dave Bunting, Dec. 26, 2022

Credits in links in items.

See these columns on my blog
daverant.com