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HEADLINE: UNIVERSE EXPANSION IS ACCELERATING;
GALAXIES SPREAD FASTER THAN LIGHT REACHES EARTH; SKY SOMEDAY WILL BLACKEN

BYLINE: Keay Davidson; Francisco Examiner

BODY:

A sensational cosmic discovery has left experts expressing amazement and horror. By analyzing light from exploding stars, scientists have discovered that the **universe is expanding** faster with time, like an accelerating race car. That contradicts the widely held assumption that cosmic expansion is slowing over time.

Eventually, some experts speculate, the universe will expand so fast that galaxies - clusters of stars - will move away faster than their light can reach Earth. Experts greeted the finding with something "between amazement and horror," says Australian astronomer Brian Schmid in Friday's issue of Science. He leads one of two independent international teams - both including scientists from the University of California at Berkeley - that made the discovery. It resembles science-fiction writer Arthur C. Clarke's short story about the fulfillment of a doomsday prophecy. In the last scene, a man looks skyward and sees the stars wink out, one by one. The finding verifies a weird cosmic force, the cosmological constant, suggested eight decades ago by physicist Albert Einstein. Whereas gravity is an attractive force, the cosmological constant is repulsive - it pushes matter apart - and drives the ever-accelerating expansion. "When you actually find the evidence for (the cosmological constant) and it hits you between the eyes - well, yes, I am surprised," said one of the team scientists, Craig Hogan of the University of Washington. The new force complicates the already confused science of cosmology. According to James Glanz, author of the Science article, University of Chicago astronomer Rocky Kolb "says that the universe is starting to look like a cosmic version of the Marx brothers movie . . . in which more and more people show up in a ship's stateroom, leading to chaos." "The galaxies will eventually expand away from us faster than the speed of light and we won't be able to see them. Eventually, in 100 (billion) to 150 billion years, we will live in a dark universe" except for our own galaxy and nearby ones to which it is gravitationally tied, says Berkeley astronomer Adam Riess, lead author of one of the studies. Riess' Berkeley colleague on the study is astronomer Alexei Filippenko. At Lawrence Berkeley National Laboratory, a separate study led by astronomer Saul Perlmutter has reached similar conclusions about the rate of cosmic expansion. In recent decades, astronomers assumed that the rate of expansion is slowing, as galaxies gravitationally tug on each other. They also debated the rate of slowing. Rapid slowing implies the universe will eventually collapse back in a big crunch; gradual slowing implies it will expand forever. To measure the rate, astronomers used telescopes to analyze light from exploding stars or supernovae. By estimating how much the light dimmed as it crossed space, they calculated the distance to remote galaxies. Light travels at 186,000 miles per second - the farther you look into space, the deeper you see into the past. When astronomers look at the most distant galaxies, they see light that is billions of years old.

NOTES:

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