

20 THINGS YOU DIDN'T KNOW ABOUT CLOUDS

By Rebecca Coffey

1. When moist, warm air rises to a cooler elevation, water condenses onto microscopic "seeds" like dust, ash, or bacteria. Water + seeds + updraft = clouds.
2. If there's more water vapor than places for it to condense, already-formed ice crystals can also serve as seeds. As the crystals take on moisture, they may become too heavy for updrafts to support. Time for the umbrella.
3. It makes sense, then, that adding seeds to thin clouds should make them rain out. Believing the theory, 37,000 Chinese peasants shot rockets filled with silver iodide (a widely used seeding agent) into clouds.
4. So much for People Power. After reviewing 40 years of cloud-seeding efforts in an area north of Israel, researchers at Tel Aviv University have concluded that seeding doesn't actually produce additional precipitation.
5. Super-seeding: A team led by Stephen Salter of the University of Edinburgh has proposed using 1,500 oceangoing ships to spray salt-water into stratocumulus clouds in order to increase our planet's cloud cover.
6. They want to accomplish goals set out in 1990 by John Latham of the National Center for Atmospheric Research. He suggested that saturating the air with salt crystal seeds would create

a haze of water droplets so small that they would never rain out. The intended result: A permanent, low-hanging cloud cover that would deflect sunlight and, in theory, reverse global warming.
7. But excess cloud cover might actually warm the planet by trapping heat.
8. In fact, a 2009 Stanford University study claims that clouds created by aircraft emissions triggered an overall rise in surface temperatures of 0.03 to 0.06 degree Celsius worldwide. That would account for 4 to 8 percent of the warming that has occurred since record keeping began in 1850.
9. Nacreous clouds, or "mother of pearl" clouds, appear iridescent because of their ultrafine ice crystals, which form 10 to 15 miles up in the stratosphere.
10. Unfortunately, nacreous clouds also support chemical reactions that convert benign chlorine-containing molecules into a form that destroys Earth's ozone layer.
11. Roll clouds form when updrafts and downdrafts churn clouds into a long, spinning cylinder. They look spectacular, but they often herald an approaching storm front.
12. Highest of them all: 50 miles up, noctilucent, or "night shining," clouds glow an eerie bluish white. They are invisible by day, but after sunset they catch solar rays shining from far below the horizon.
13. Noctilucent clouds seemed to first appear after the 1883 eruption of Krakatoa and are now a common sight.
14. A June 2010 hailstorm in South Dakota dropped the largest hailstone in U.S. history. It was nearly as large as a soccer ball and weighed two pounds.
15. Bad weather likes workdays. An Israeli-American team correlated 15 years of pollution records with the National Weather Service Storm Prediction Center's records on storms. They found that hailstorms over the eastern United States peak in the middle of the week, when summertime air pollution is at its worst.
16. Cumulonimbus clouds are the ones that make your flight late. Their winds are so intense and unpredictable that pilots never go through them.
17. Not "through" but sometimes over.
18. In 1959 Lt. Col. William Rankin was flying his F-8 fighter jet over a cumulonimbus when the engine failed. He parachuted out and spent the next 30 minutes bounced around inside the storm. Amazingly, he survived.
19. In 2007 German paragliding champion Ewa Wisnierska experienced "cloud suck." While gliding under a cumulonimbus, she was pulled upward to 32,000 feet. She blacked out due to lack of oxygen but regained consciousness at roughly 23,000 feet.
20. Referring to the dark clouds on the horizon, Wisnierska said, "Usually there is no problem." **D**



A lenticular cloud over the Tararua. Rebecca Coffey's blog, *The Excuses I'm Going With*, is at rebeccacoffey.blogspot.com

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20 THINGS YOU DIDN'T KNOW ABOUT ALCOHOL

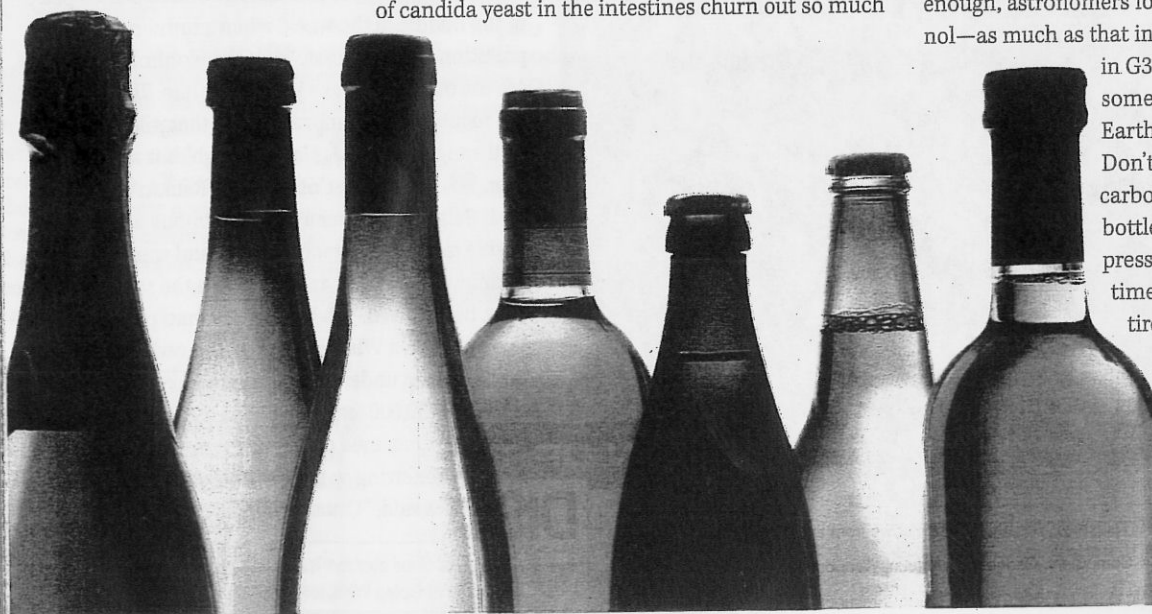
By LeeAundra Keany

1. Sobering disclaimer: The family of compounds known as alcohols are all toxins that can kill you, whether instantly, quickly, or gradually. **2.** Yet one of them—ethyl alcohol, or ethanol—is a staple of the human diet. Archaeologist Patrick McGovern speculates that fermented beverages were made as early as 100,000 years ago, when people first spread out of Africa. **3.** The seeds Johnny Appleseed sold to farmers throughout Ohio and Indiana produced apples that were inedible, but perfect for making hard cider. **4.** According to the Drunken Monkey Hypothesis, our zest for alcoholic beverages derives from our distant ancestors' impulse to seek the ripest, most energy-intensive fruits. **5.** Designated driver at the zoo: The Malaysian pen-tailed treeshrew routinely chugs the equivalent of nine glasses of wine a night in naturally fermented nectar, and yet it remains fully functional. **6.** For a treeshrew, that is. **7.** Fermentation occurs when enzymes, typically produced by yeast, convert sugar molecules in grapes or grains into ethanol. **8.** That process can also happen in your digestive system, spiking every 100 ml of blood with 0.01 to 0.03 mg of alcohol. **9.** Seriously, officer! Japanese doctors have observed patients with "auto-brewery syndrome," in which high levels of candida yeast in the intestines churn out so much

alcohol that they can cause drunkenness. **10.** No digestion required. Ethanol is such a small, simple molecule—just two carbon atoms, six hydrogens, and a spare oxygen—that it pours directly out of the stomach and small intestine into the bloodstream. **11.** A lean, muscular person will be less affected by drink than someone with more body fat: Water-rich muscle tissues absorb alcohol effectively, preventing it from reaching the brain. **12.** Drunkenness is considered an impairment of the neurons in your head, but Australian researchers recently reported that part of the feeling may result instead from the effect of ethanol on the brain's immune system. The finding could lead to new treatments for alcoholism. **13.** The times they are a-changin'. In 1895 Anheuser-Busch launched Malt-Nutrine, a 1.9 percent-alcohol-content beer prescribed by physicians as a tonic for pregnant women and a nutritional beverage for children. **14.** Until 1916 whiskey and brandy were listed as scientifically approved medicines in the *United States Pharmacopeia*. **15.** Drinking and driving: Surplus wine in Sweden is distilled into ethanol, mixed with gasoline, and sold to service stations. **16.** Ethanol was widely used as an industrial fuel in America until a tax on alcoholic beverages, levied to help pay for the Civil War, prompted a switch to kerosene and methanol. **17.** Methanol, a distillation of wood pulp, can destroy the optic nerves. "Blind drunk" was Prohibition-era slang for damage caused by drinking grain alcohol that had been cut with methanol by unscrupulous bootleggers. **18.** Interstellar brewery: The nebulae where stars form abound with hydrogen, carbon, and oxygen, the atomic building blocks of alcohol. **19.** Sure enough, astronomers found vast quantities of ethanol—as much as that in 400 trillion trillion beers—

in G34.3, an interstellar cloud some 10,000 light-years from Earth. **20.** Resolution for 2012: Don't stare at the cork. The carbon dioxide in champagne bottles creates 90 pounds of pressure per square inch, three times the pressure in automobile tires. Flying corks can cause retina detachment, double vision, and blindness. Happy New Year! 🍷

LeeAundra Keany coaches public speaking to support her writing habit. Her website is thecontrarypublicspeaker.com



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