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## UFO UpDates Mailing List

### Re: Research Shows Space Snowballs

From: **UFO UpDates - Toronto** <updates@globalserve.net>  
Date: Fri, 30 May 1997 10:39:00 -0400  
Fwd Date: Fri, 30 May 1997 10:39:00 -0400  
Subject: Re: Research Shows Space Snowballs

Thanks to Steven Kaeser <steve@konsulting.com>  
for the lead to the following.....

ebk

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From:=20  
<http://search.washingtonpost.com/wp-srv/WPlate/1997-05/29/125L-052997-idx.html>

Cosmic Snowballs Detected  
Pelting Earth's Atmosphere

Objects Vaporize, Eventually Become  
Rain

By Kathy Sawyer  
Washington Post Staff Writer  
Thursday, May 29 1997; Page A01  
The Washington Post=20

BALTIMORE, May 28 -- Earth is bathed by a steady "cosmic rain" from previously undetected objects from outer space that pour vast quantities of water into the atmosphere, according to startling new evidence released today.

The objects, 20- to 40-ton snowballs the size of two-bedroom houses, streak into the atmosphere by the thousands each day, disintegrate harmlessly 600 to 15,000 miles up and deposit large clouds of water vapor that eventually fall on Earth's surface as rain, according to Louis A. Frank of the University of Iowa. He led the research team that for the first time has captured images of these objects.

The ramifications of the discovery are potentially enormous, Frank and other scientists said. If Frank's interpretation of the evidence is confirmed, it could force scientists to revise long-held beliefs about how Earth and the solar system evolved, how the building blocks of life first arose, how the oceans formed and whether fluxes in the cosmic rain could have caused the ice ages and mass extinctions of living species.

Scientists might also be compelled to study the impact of this alien precipitation on Earth's climate, the "greenhouse" effect and the "hole" in the ozone layer over Antarctica.

The discovery suggests that the volume of water on Earth is increasing. It also has implications for the evolution of other planets, such as Mars, that should be getting bathed in the same extraterrestrial drizzle.

"This relatively gentle cosmic rain -- which possibly contains organic compounds -- may well have nurtured the development of life on our planet," Frank said. He presented the unprecedented images, with graphs and analysis, to a riveted crowd of colleagues at a meeting of the American Geophysical Union here. "When it rains," he added, "look up and smile. You never know where it came from."

The evidence of snowballs from outer space comes from images taken at both ultraviolet and visible wavelengths by Frank's specially designed instrument aboard NASA's year-old POLAR spacecraft. One shows an object streaking across the sky and bursting over Europe last Sept. 26. Researchers noted that the snowballs disintegrate at altitudes well above the orbits of human occupants aboard U.S. shuttles and the Russian space station.

The new evidence resurrects a theory widely rejected as preposterous when Frank first proposed it in 1986: that a strange population of stealthy, relatively small comets made of almost pure ice has been spraying water into Earth's upper atmosphere at a sufficiently high rate over the 4.5 billion-year life of the planet to have created all the oceans.

This week, several of Frank's leading former critics said the new evidence appears solid. The scientific community must now confront the host of extremely difficult questions the findings raise, they said -- the same questions that made the initial evidence seem so implausible.

One puzzle, for example, is how these objects could have streamed through Earth's history undetected by humanity until now. In addition, if these comets are raining down on Earth, they should also be hitting the moon, where they should have been detectable as seismic events.

The findings also challenge scientists to account for the putative cosmic drizzle in Earth's known water "budget," thought to be a fixed amount of water constantly recycled through rain, evaporation and other processes. The planet's annual average precipitation is just under 34 inches, and Frank estimates the cosmic snowballs contribute enough to spread one ten-thousandth of an inch of water over the Earth's surface annually. That seems a pittance, unless it is multiplied over millions or billions of years. In any case, several experts said, it is not a trivial amount.

The consensus among scientists who have reviewed Frank's data prior to its pending publication is that the space physicist has indeed discovered a population of objects that is raining huge amounts of water into the Earth's atmosphere. But several cautioned that more data will be required before his interpretation of the evidence -- particularly as to the quantities of water involved over time -- can be accepted.

Thomas Donahue of the University of Michigan, an expert in planetary atmospheres who was among the most influential of Frank's earlier critics, said in a telephone interview from Switzerland: "There are objects in the solar system we did not suspect were there. Nobody would believe it. Now, I think they're going to have to believe it. . . . I'm glad to see Lou vindicated."

Alex Dessler, former editor of the journal *Geophysical Research Letters*, which published Frank's initial evidence on April Fool's Day 1986, later became known as Frank's most aggressive adversary. In a telephone interview, he said that he will not be convinced until a second instrument and a researcher other than Frank confirm the observations. He conceded that "there's no question something's happening" in the new data.

Frank, 58, who describes himself as a cantankerous, publicity-shy loner, said in an interview that he always understood the criticism: "The implications are enormous. They are breathtaking." He reiterated his contention that, as he is gradually proven right, "the textbooks in a dozen sciences will have to be rewritten. . . . We just have to take a different perspective on our

origins."

The new objects are different in kind from the extraterrestrial dust, rock and other material that is known to rain into Earth's atmosphere regularly, some of it forging fiery meteor trails across the sky, experts said. And they are different from the known large comets, such as Halley and this year's Hale-Bopp, of which water is a primary component along with dust and other ingredients. Comets are believed to be pristine remnants from the cloud of gas and dust that formed the solar system.

"This is all one whole new population of objects," Frank said. The evidence suggests the small ice comets move in a stream around the sun at more than 25 miles per second, slightly outpacing Earth and most likely also showering other bodies as far out as Jupiter, he said. They could come from a vast disc of comets that astronomers have theorized is circling beyond the planets, Frank said, but their source is basically another huge question mark.

The objects must be composed of something other than icy water, or they would never survive the sun's heat as they hurtle toward the inner solar system. Frank has suggested they travel through space cloaked in a protective mantle of carbon that functions like a plastic food wrap, preventing them from visibly losing their substance like ordinary comets with their glowing tails. The black carbon coat would help render such small ice comets virtually undetectable.

Water comets had never been proposed in any theory until Frank and his assistant, John Sigwarth, stumbled onto the notion in 1982 as they analyzed data from NASA's Dynamics Explorer satellite. It had taken pictures of Earth in the invisible ultraviolet "dayglow" emitted when sunlight is scattered by the atomic oxygen in the upper atmosphere. But the glowing sunny side of Earth was annoyingly speckled with thousands of puzzling dark spots, according to Frank's 1990 book on the controversy, "The Big Splash."

Only after analyzing more than 10,000 images did they conclude that these were not paint flecks on the camera or some other flaw -- but something real out there absorbing the light and creating 30-mile-diameter "holes" in the uniform glow of Earth. Frank gradually eliminated all the explanations except huge vapor clouds from comet-like snowballs. But over the intervening decade, Frank's "holes" were dismissed by most scientists as "noise," not real objects.

His pleasure was evident during his presentation today. Now he not only has detailed, extensive images of the "holes" moving below his orbiting cameras, but also, streaking above the cameras, unexpected images of the actual incoming objects. "We were surprised by the massive trails," he said.

His team spent more than a decade developing the special three-camera Visible Imaging System (VIS), which he said is unique in the civilian scientific world.

Frank was "disputed by just about every other scientist on Earth. He persevered and he's been vindicated. This almost never happens," said NASA space scientist Stephen Maran of Goddard Space Flight Center in Greenbelt.

In recent months, VIS has routinely recorded light trails of the objects streaking through Earth's upper atmosphere at a global rate of five to 30 per minute, or thousands per day, or millions per year, Frank said.

Also -- using a filter that detects visible light emitted only by fragments of water molecules -- the research shows that the objects consist primarily of water.

Space scientist Robert Meier of the U.S. Naval Research Laboratory called the light signature a "kind of `smoking gun' for water."

Lead POLAR scientist Robert Hoffman, of Goddard, said at least one military agency with appropriate detectors in orbit has agreed to consider using those assets to study the new phenomenon.

He said NASA had already begun to receive other informal

proposals for projects to study cosmic rain.

#### SNOWBALLS FROM OUTER SPACE

Thousands of snowballs the size of houses are believed to be falling toward Earth each day. At the start of its descent the comet is dark, coated with a carbon mantle. Eventually it hits the Earth as rain. Here is how a typical comet makes its trip.

1. Incoming small comet. 40 feet in diameter
2. Comet breakup. 800 miles from Earth
3. Comet vaporization. Cloud 30 miles in diameter
4. Dispersal of water vapor by winds. Condensation of water vapor into atmosphere
5. Condensation of water vapor into atmosphere.

SOURCES: NASA Goddard Space Flight Center, University of Iowa (Drawing not to scale)

@CAPTION: The trail of an object over the Atlantic Ocean, recorded in 1996 by Visible Imaging System, is seen superimposed over a view of Earth.=20

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