

# Jesus Walked on Ice, Study Says

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The New Testament story describes Jesus walking on water in the Sea of Galilee but according to a study led by Florida State University Professor of Oceanography Doron Nof, it's more likely that he walked on an isolated patch of floating ice.

The study points to a rare combination of optimal water and atmospheric conditions for development of a unique, localized freezing phenomenon that Nof and his co-authors call "springs ice."

In what is now northern Israel, such ice could have formed on the cold freshwater surface of the Sea of Galilee -- known as Lake Kinneret by

modern-day Israelis -- when already chilly temperatures briefly plummeted during one of the two protracted cold periods between 2,500 and 1,500 years ago.

A frozen patch floating on the surface of the small lake would have been difficult to distinguish from the unfrozen water surrounding it. The unfrozen water was comprised of the plumes resulting from salty springs situated along the lake's western shore in Tabgha -- an area where many archeological findings related to Jesus have been documented.

"As natural scientists, we simply explain that unique freezing processes probably happened in that region only a handful of times during the last 12,000 years," Nof said. "We leave to others the question of whether or not our research explains the biblical account."

It isn't the first time the FSU researcher has offered scientific explanations of watery miracles. As a recognized expert in the field of oceanography and limnology -- the study of freshwater, saline and brackish environments -- Nof made waves worldwide in 1992 with his oceanographic perspective on the parting of the Red Sea.

His latest research appears in the April 2006 Journal of Paleolimnology, a scientific publication that addresses the reconstruction of lake history.

Using paleoceanographic records of the Mediterranean Sea's surface temperatures along with analytical ice and statistical models, Nof and his colleagues focused on the dynamics of a small section of Lake Kinneret comprising about 10,000 square feet near the salty springs that empty into it. Their analysis supports the likelihood that a brief blast of frigid air descended over the lake and dropped to 25 F (-4 C) for at least two days, coinciding with the chill that had already settled in for a century or more and quite possibly encompassed the decades in which Jesus lived.

If these atmospheric conditions existed simultaneously over a lake such as Kinneret, a floating ice patch could develop above the plumes generated by the salty springs.

Such a perfect combination of conditions on the low-latitude Kinneret might well seem miraculous. In the last 120 centuries, Nof calculates the odds as roughly once in 1,000 years. However, during the life of Jesus the prevailing climate may have favored the more frequent formation of springs ice -- about once in 30 to 160 years.

Floating springs ice partially or entirely surrounded by unfrozen water could be virtually impossible for distant observers to discern, particularly if subsequent rains had smoothed its surface; and 2,000 years ago, even those with a better view might not have recognized a natural phenomenon so rare in their corner of the world.

"In today's climate, the chance of springs ice forming in northern Israel is effectively zero, or about once in more than 10,000 years," Nof added.

Among numerous honors throughout his career, Nof won the prestigious Nansen Medal from the European Geosciences Union in 2005. He is FSU's Distinguished Fridtjof Nansen Professor of Physical Oceanography and a member of its Geophysical Fluid Dynamics Institute.

In addition to Nof, the co-authors of "Is There A Paleolimnological Explanation for 'Walking on Water' in the Sea of Galilee?" are Professor Ian McKeague (Columbia University biostatistics department and formerly of FSU's department of statistics) and Professor Nathan Paldor (Hebrew University of Jerusalem, department of atmospheric science).

Source: Florida State University, By Libby Fairhurst

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