

History of Islam

An encyclopedia of Islamic history

The Miracle of Ice from the Heavens

The Miracle of Ice from the Heavens

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When we ponder the phenomena of the universe, we see new insights into God's words. When we contemplate God's words, we get a deeper understanding of the phenomena in the world around us. Revelation explains creation. Creation explains Revelation.

Many have pondered over God's description of rain. The Qur'an reveals:

*Have you not seen how Allah does indeed move the clouds,
Then merges them together,
Then makes them layered?
Then, you see rain pouring forth from between them?
And He brings down (water) from the heavens—
From mountains of ice—
And grants it to whom He will,
And turns it away from whom He will. (al Nur, 24:43)*

Traditional commentators have discussed the meanings of 'mountains in the sky'. Literally the verse says: 'are sent from the skies from mountains of (from) cold'. The construction is passive. The word *min* appears three times. The first indicates the general origin of the rain in from the skies, the second specifies the origin further in from mountains and the third describes of what the mountains consist, what they contain or are characterized by, namely, cold. This led the early generations, among them the Prophet's cousin, Ibn 'Abbas, to conclude that 'there are mountains in the skies just as there are on the earth'. 'Mountains' can be used figuratively to mean 'a great quantity', as when we say that so- and-so has 'mountains of gold', meaning 'he has a lot of gold'.

The language of the Qur'an is so rich that the verse could also mean that 'mountains of cold' descend from the skies. Anyone who has been caught in a heavy winter hailstorm will readily understand the image. Most English translators render *baradin* as hail. This is no doubt correct but something of the quality of the image is diminished. However, striking and powerful though the language and imagery are, we shall not be concerned with them here. Rather, we shall concentrate our attention on the scientific implications of the words used in the verse.

Hail is 'frozen rain' or 'stones of frozen water' and can be aptly described as 'mountains' descending from heaven or 'comets of ice'.

Several scientists have researched the hypothesis that the source of all the oceans is storms of icy comets that enter the earth's atmosphere at a rate of 20 per minute. These comets, which are believed to contain about 100 tons of water each, vaporize on impact with the atmosphere and fall as rain or snow.

The roots of this hypothesis are found in data received by the Dynamics Explorer 1 (DE1), a high-altitude, polar-orbiting satellite. The DE1 had been conducting the first global exploratory imaging mission of the earth. Professor Frank of Iowa University was interested in receiving the first global maps of the earth's aurora. From a vantage point on the satellite, which orbits as far as 14,500 miles from earth, a photometer designed and operated by his team, measured the ultraviolet emissions from atomic oxygen in the atmosphere.

The bright or visible half of the earth, illuminated by the sun, is known as the 'dayglow'. The dayglow is caused by sunlight being absorbed and re-radiated by oxygen at 180 miles above the earth's surface. Scientists use the dayglow to learn about the structure of the atmosphere at high altitude. The dayglow images Frank received contained some unexpected features. He noticed the sky was speckled with dark spots or atmospheric holes. Frank and his partners witnessed about 30,000 such spots or holes during their 2,000 hours of observation. They scrutinized the measurements for faulty instrumentation, possible computer glitches, statistical flaws, telemetry interference, failing sensors and paint flecks on the imager. After eliminating the possibility of spurious effects, the scientists published their results on the atmospheric holes (Frank et al, 1986, pp.307-10). The images revealed that the spots were about 30 miles wide and lasted up to three minutes. So what were they? How did they appear?

Frank concluded they were being caused by water vapor in the outer fringes of the atmosphere. He calculated that it would need a 30-ft ball of loosely packed water and ice breaking up and vaporizing about 1,000 to 2,000 miles away from the earth to produce a cloud of water vapor the size of the dark spots on his satellite images.

He suggested that the holes in the dayglow were formed by small, comet-like objects entering the earth's atmosphere. Sixty miles from the earth's surface, the cloud of water vapor continues to plummet until it reaches a height of about 35 miles, where it gets mixed up with the air in the upper atmosphere. Winds circulating into the stratosphere turn the water vapor into ice crystals, which then fall and become part of the lower altitude's water vapor, eventually turning into precipitation and ending up in the sea. At the observed rate of 20 per minute, this is calculated to result in an increase of the equivalent of one inch of water all over the earth's surface every 10,000 years.

Erikson (1987, p.20) suggested the barrage of icy comets began around 4.2 billion years ago, and that they were at their most intense during the 300 million years that followed. Dr Clayne Yeates, deputy project scientist at the Jet Propulsion Laboratory in Pasadena, said that the comets of ice or snowballs continue to move at 10 km per second relative to the earth. At about 1,000 km above the earth they break up into hail due to tidal waves and then turn to vapor in the atmosphere. Finally, the vapor falls as rain and joins the earth's water cycle.

Clayne Yeates (Huyghe, 1988, pp.8-11) began a direct telescopic search for these small comets using the 36-inch Spacewatch Telescope at Kitt Peak, Arizona – one of the few telescopes in the world sufficiently sensitive to detect these small comets directly. As these objects are too fast and too dark to be picked up on a photographic plate they needed to use a charged coupled detector (CCD) that counts individual

photons of light and is 100 times more sensitive than a photographic plate. The Spacewatch Telescope is just such an instrument. The objects are indeed there. Telltale streaks appeared on the telescope's images at the rate of more than one a minute, just as Frank had predicted.

Frank certainly did not set out to interpret the Qur'anic verse quoted above, nor does the imagery of the verse need any strengthening to be effective. Yet, may we not say that, with every new observation of God's universe, we are enabled to see new shades of meanings in His words.

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