

Screaming Clouds

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“Mother-of-pearl clouds” appear irregularly in the winter stratosphere at high northern latitudes, about 20-30 km above the surface of the Earth. The size range of the cloud particles is near that of visible light, which explains their extraordinary beautiful colours. We argue that the Norwegian painter Edvard Munch could well have been terrified when the sky all of a sudden turned “bloodish red” after sunset, when darkness was expected. Hence, there is a high probability that it was an event of mother-of-pearl clouds which was the background for Munch’s experience in nature, and for his iconic Scream.

Currently, the leading hypothesis for explaining the dramatic colours of the sky in Munch’s famous painting is that the artist was captivated by colourful sunsets following the enormous Krakatoa eruption in 1883. After carefully considering the historical accounts of some of Munch’s contemporaries, especially the physicist Carl Störmer, we suggest an alternative hypothesis, namely that Munch was inspired by spectacular occurrences of mother-of-pearl clouds. Such clouds, which have a wave-like structure akin to that seen in the Scream were first observed and described only a few years before the first version of this motive was released in 1892.

Unlike clouds related to conventional weather systems in the troposphere, mother-of-pearl clouds appear in the stratosphere, where significantly different physical conditions prevail. This result in droplet sizes within the range of visible light, creating the spectacular colour patterns these clouds are famous for. Carl Störmer observed such clouds, and described them in minute details at the age of 16, but already with a profound interest in science. He later noted that “..these mother-of-pearl clouds was a vision of indescribable beauty!” The authors find it logical that the same vision could appear scaring in the sensible mind of a young artist unknown to such phenomena.