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FEATURE

NASA Satellite Captures First View of 'Night-Shining Clouds'

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A NASA satellite has captured the first occurrence this summer of mysterious shiny polar clouds that form 50 miles above Earth's surface.



Click image to enlarge.

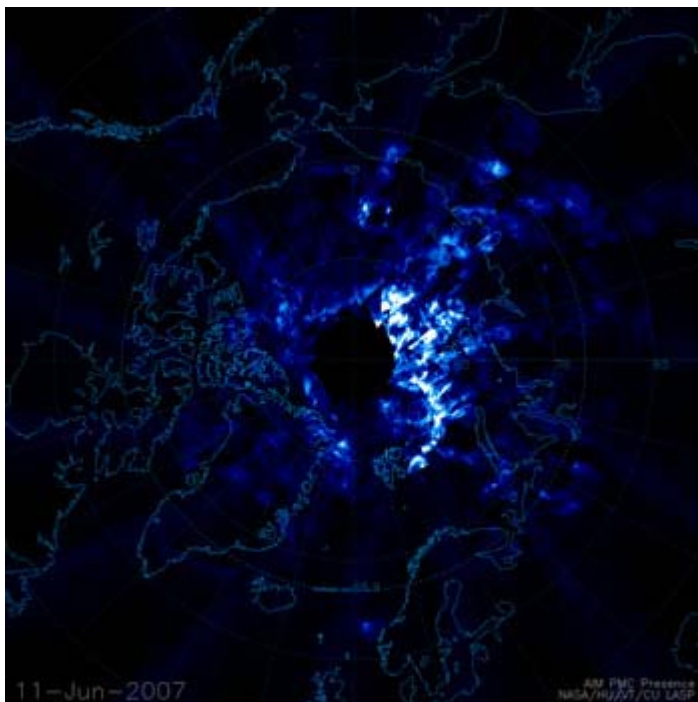
Image above: This image shows one of the first ground sightings of noctilucent clouds in the 2007 season. Credit: Veres Viktor of Budapest, Hungary taken on June 15, 2007.

The first observations of these "night-shining" clouds by a satellite named "AIM" which means Aeronomy of Ice in the Mesosphere, occurred above 70 degrees north latitude on May 25. People on the ground began seeing the clouds on June 6 over Northern Europe. AIM is the first satellite mission dedicated to the study of these unusual clouds.

These mystifying clouds are called Polar Mesospheric Clouds, or PMCs, when they are viewed from space and referred to as "night-shining" clouds or Noctilucent Clouds, when viewed by observers on Earth. The clouds form in an upper layer of the Earth's atmosphere called the mesosphere during the Northern Hemisphere's summer season which began in mid-May and extends through the end of August and are being seen by AIM's instruments more

frequently as the season progresses. They are also seen in the high latitudes during the summer months in the Southern Hemisphere.

Image right: On June 11, 2007 the cameras on the AIM satellite returned some of the first data documenting noctilucent clouds over the Arctic regions of Europe and North America. This new data reveals the global extent and structure of these mysterious clouds, to a degree that was previously unattainable. White and light blue represent noctilucent cloud structures. Black indicates areas where no data is available. Credit: Cloud Imaging and Particle Size Experiment data processing team at the University of Colorado Laboratory for Atmospheric and Space Physics



Very little is known about how these clouds form over the poles, why they are being seen more frequently and at lower latitudes than ever before, or why they have been growing brighter. AIM will observe two complete cloud seasons over both poles, documenting an entire life cycle of the shiny clouds for the first time.

"It is clear that these clouds are changing, a sign that a part of our atmosphere is changing and we do not understand how, why or what it means," stated AIM principal investigator James Russell III of Hampton University, Hampton, Va. "These observations suggest a connection with global change in the lower atmosphere and could represent an early warning that our Earth environment is being changed."

AIM is providing scientists with information about how many of these clouds there are around the world and how different they are including the sizes and shapes of the tiny particles that make them up. Scientists believe that the shining clouds form at high latitudes early in the season and then move to lower latitudes as time progresses. The AIM science team is studying this new data to understand why these clouds form and vary, and if they may be related to global change.

Once the summer season ends in the Northern Hemisphere around mid- to late August, the Southern Hemisphere spring season starts about three months later in the period around mid- to late November. AIM will then be watching for shining clouds in the Southern Hemisphere from November through mid-March when that season ends.

AIM and is managed at Goddard Space Flight Center, Greenbelt, Md and the AIM Project Data Center is located at Hampton University.

Cynthia O'Carroll
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