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AUGUST 23
2007*The voice of Interior Alaska since 1903*A new type of cloud may hold
answers about global warming**ATMOSPHERIC HIGH**

INTERIOR/ALASKA B1

CLOUDS: Satellite mapping

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Physics, said.

In the summer the temperature of that particular region of the atmosphere, known as the mesopause, plummets to 300 degrees below zero Fahrenheit. Due to the complex air patterns within the atmosphere, the mesopause is actually colder in summer than winter. When the lower levels of the atmosphere are warmer, the mesopause is colder, leaving some scientists to think that the increase in the noctilucent clouds — since colder temperatures mean more clusters of frozen particles — is directly linked to global warming. The clouds are yet another piece of the complex “interlocking system” of the environment being affected by climate change, Collins said. In order to fully understand that system and how the changes work together and affect humans, the scientific community must understand all the pieces including the frozen clouds.

“The question which everyone in Alaska is dealing with is what are the symptoms of climate change and, as in medicine, how do these symptoms reflect the underlying processes,” he said.

Lubken said it’s difficult to

study the clouds because they are so high up — only a small number of scientists have access to the sophisticated equipment it takes. Most weather balloons can only go 10 miles up, with a few more sophisticated ones able to reach 20 miles. In order to collect data on the noctilucent clouds, scientists have to use lasers, radar equipment, rockets or satellites.

Those constraints have meant information on the clouds and the mesopause they form in have been limited. A new satellite, launched in April, is dedicated to the study of the mesopause, giving researchers like Collins hope of more reliable data.

“This is the first satellite to focus on looking at these clouds and figuring out what’s going on with them,” Collins said.

Data has already begun to come in from the satellite, known as Aeronomy of Ice in the Mesosphere, or AIM, and several scientists at this week’s conference presented reports of studies using that data. Collins said the data coming from the satellite is very exciting and will help contribute to a broader understanding of the upper atmosphere, noctilucent clouds and how both fit into the changing climate.

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Clouds may be key to understanding climate change

By **ROBINSON DUFFY**
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Even after the late summer sun has slipped below the horizon, clouds 50 miles above the Earth's surface capture and reflect the last waning rays of light.

The wispy clouds, glowing an incandescent white in the pale twilight, may simply be beautiful curiosities to the casual observer. To a group of international scientists meeting at the University of Alaska Fairbanks this week, the noctilucent clouds offer a glimpse into a little understood region of the atmosphere and perhaps even a hint into the changing global climate.

"The clouds are interesting not only as clouds but because of a whole mix of environmental questions around the clouds," Richard Collins, a researcher at UAF's Geophysical Institute, said.

A four-day conference at the university, scheduled to end today, has brought

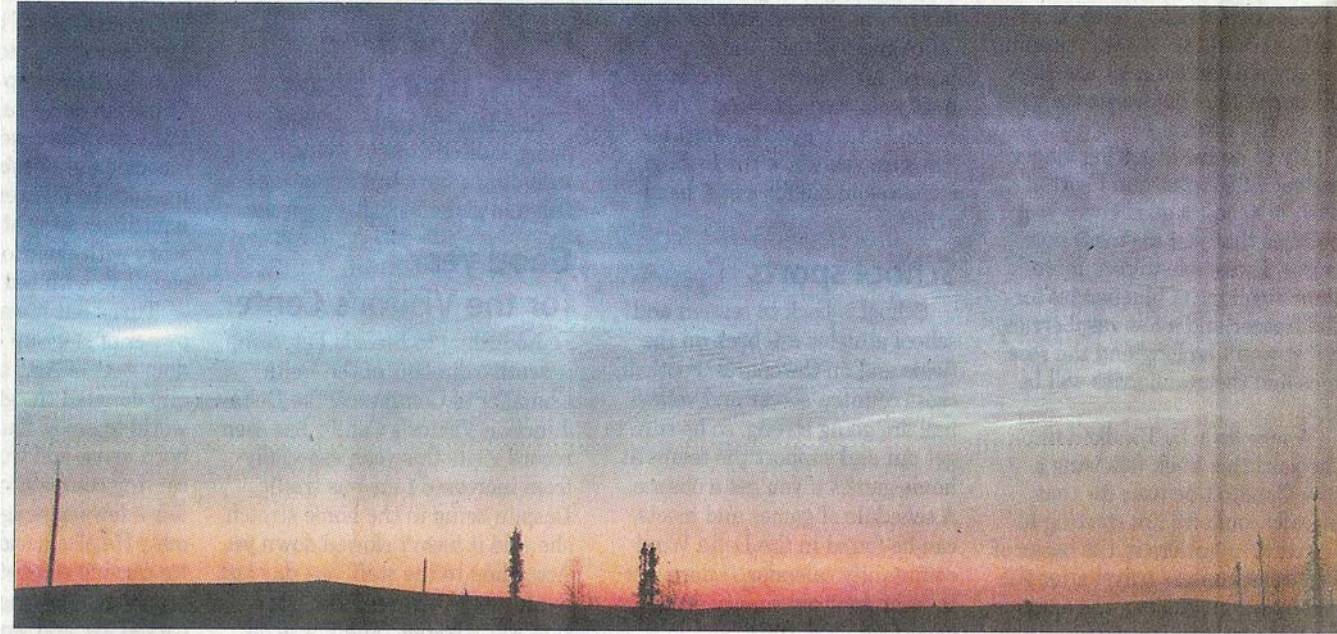
noctilucent cloud experts from across the world to discuss the frozen high-altitude phenomena. About 50 scientists, or as Collins put it, almost all of the "high-altitude cloud nerds" in the world, attended the conference.

Noctilucent clouds are a fairly recent phenomena, Collins said. They have only appeared in the atmosphere in the last two centuries or so. In recent years the clouds have appeared to grow brighter, leaving scientists wondering why.

Noctilucent clouds form in a region of the atmosphere different than the one humans live and breathe in. The clouds, made up of microscopic ice crystals, form 50 miles up. By comparison, the white puffy clouds usually seen hanging in the sky typically are only one to four miles up.

"Everything is entirely different up there," Franz-Josef Lubken, the director of Germany's Institute for Atmospheric

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Noctilucent clouds shine in the dark portion of the sky over the Poker Flat Research Range.

Photo courtesy Richard Collins, UAF Geophysical Institute