

# RESEARCH SPOTLIGHT

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## First assessment of noctilucent cloud variability at midlatitudes

As the Sun dips below the horizon, the last rays of light can glint off crystals of ice high in the atmosphere, lighting up the sky with an electric blue glow. Known as noctilucent clouds, these collections of ice crystals occur most often at high latitudes, but the long polar days make them difficult to see. With the eye, noctilucent clouds can best be seen at night between 50° and 60° latitude in both hemispheres.

Investigations with other techniques, such as lidar, however, have made noctilucent clouds easier to detect during the day as well as at night. Although they show up less than 10% of the time at midlatitudes, noctilucent clouds are an important component of the summer atmosphere. Their properties and occurrence may indicate patterns of behavior in the middle atmosphere.

*Gerding et al.* are the first to have measured the daily variation of noctilucent cloud behavior at midlatitudes from the ground. From a research site in Kühlungsborn, Germany, a town located near 54°N, the authors used a suite of equipment, including lidar, to study how noctilucent clouds evolve throughout the day. From 1800 hours of summertime observations, the authors found 100 hours that



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*Noctilucent clouds in the atmosphere in northern Germany.*

contained noctilucent clouds and observed within them recurrent daily patterns in brightness and activity. The data showed that noctilucent cloud activity rises and falls with local solar time, being highest at 5 a.m. and lowest at 7 p.m., with a secondary maximum at 2 p.m. Cloud brightness peaks twice, once at 4 a.m. and once at 6 p.m.

The authors found that noctilucent cloud activity is not related to tidal temperature variation at noctilucent cloud altitudes. Rather, they found that noctilucent cloud activity for their location is highest after a bout of southward polar wind and lowest during weak or northward winds. (*Geophysical Research Letters*, doi:10.1002/2013GL057955, 2013) —CS

—COLIN SCHULTZ, Writer