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**EVOLUTION OF MARINE $^{87}\text{Sr}/^{86}\text{Sr}$ DURING THE CENOMANIAN - EARLY
MAASTRICHTIAN, DETERMINED FROM THE CHALK OF NORFOLK.**

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ABSTRACT

The Chalk rock, deep beneath the village of Trunch in northeastern Norfolk, is the thickest on the UK mainland. It comprises a very thick and most complete Campanian Chalk sequences, as well as a substantial thickness of Santonian to Cenomanian Chalk. The strontium contained within the chalk preserves a record of how the strontium isotopic ratio of Late Cretaceous seawater varied during the period in which the Chalk was deposited. The variations in $^{87}\text{Sr}/^{86}\text{Sr}$ provide a standard curve that permits comparison to the Trunch curve of the $^{87}\text{Sr}/^{86}\text{Sr}$ of other strata world-wide. Without the use of fossils or magnetostratigraphy. For the Santonian and Campanian stages, where the curve has its steepest slope and is best defined, correlation can be achieved with a temporal resolution of ± 0.5 myr, and a stratigraphic resolution of $\pm 14\text{m}$ of section.

**A RE-EXAMINATION OF LACUSTRINE CARBONATE FORMATION IN
HOLKHAM LAKE, NORTH NORFOLK.**

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ABSTRACT

Holkham Lake in north Norfolk has become world renowned as the only known site where vaterite (an extremely unusual polymorph of calcium carbonate) forms in natural waters. Detailed re-examination of the lakes carbonate chemistry and mineralogy during 1993-1994 failed to identify vaterite formation. It is unclear why vaterite is not present and it is possible that the original identification was wrong. Today, as in many other lakes, calcite precipitates in the water column of Holkham Lake. The conditions under which suggest that calcite precipitation is associated with photosynthetic activity in the spring and early summer as the lake warms. Isotopic mass balance shows that most of the lake bed calcite sediment is accumulated water column precipitation.

