

[Help](#)

Category:Strontium Isotope stratigraphy in the Chalk Group

From Earthwise

[Jump to navigation](#) [Jump to search](#)

The analysis of the ratio of the two commonly occurring isotopes of strontium in marine carbonates, Strontium-86 (^{86}Sr) and Strontium-87 (^{87}Sr), shows that it has varied systematically throughout geological time, but that at any given time in open oceans, it has been approximately constant (Faure, 1986). Variation of the ratio of these isotopes with time is thought to be due to the changing proportions of strontium contributed to the oceans by different sources, the most significant of which is believed to be riverine supply (Faure, 1986; McArthur et al., 1992).

The variation of the $^{87}\text{Sr}/^{86}\text{Sr}$ ratio for the Cenomanian-Maastrichtian Chalk Group succession in the BGS Trunch Borehole [TG 2933 3455], Norfolk, was determined by McArthur et al. (1992). These authors measured $^{86}\text{Sr}/^{87}\text{Sr}$ values at regular depths throughout the borehole, and calibrated the best fit curve with the well constrained biostratigraphical data from the Trunch succession. Strontium isotope ratios were derived from analyses of both macrofossil and nannofossil samples, those of the former being judged to be the most representative of values for the Late Cretaceous.

The reliability of the Trunch strontium curve for correlation was tested by measuring the $^{87}\text{Sr}/^{86}\text{Sr}$ ratio from a sample of chalk at Studland, Dorset, and comparing the known biozonal age of this chalk with that of chalk in the Trunch Borehole having the same isotopic ratio. McArthur et al. (1992) concluded that within the limits of analytical error, the isotopic correlation of the successions at Trunch and Dorset agreed with the biostratigraphical correlation.

The bulk of the $^{87}\text{Sr}/^{86}\text{Sr}$ data for Trunch shows little evidence of having been affected by diagenesis, and is inferred to mostly reflect the Late Cretaceous marine ratio of these isotopes. (McArthur et al., 1992). Only at two intervals in the borehole are values sufficiently unusual to suggest the influence of diagenesis, and in both cases (210m -250m & 432m-470m) hardgrounds and omission surfaces in the succession are thought to be the cause of the anomalies (McArthur et al., 1992).

References

FAURE, G. 1986. Principles of Isotope Geology. (2nd edit) (John Wiley & Sons: New York.)

McARTHUR, J M, THIRWALL, M F, GALE, A S, KENNEDY, W J, BURNETT, J A, MATTEY, D, & LORD, A R. 1992. Strontium isotope stratigraphy for the Late Cretaceous: a new curve, based on the English Chalk. In **HAILWOOD, E A & KIDD, R B** (eds.). High Resolution Stratigraphy. *Geological Society Special Publication*, No. **70**, pp. 195-209.

This category currently contains no pages or media.

Retrieved from

'http://earthwise.bgs.ac.uk/index.php?title=Category:Strontium_Isotope_stratigraphy_in_the_Chalk_Group&oldid=1991'

[Category:](#)

- [Stable Isotope stratigraphy of the Chalk Group](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Category](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)

- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Browse properties](#)

• This page was last modified on 2 October 2013, at 08:32.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

