

# **STRONTIUM ISOTOPE STRATIGRAPHY: LOWESS VERSION 3. BEST-FIT LINE TO THE MARINE SR-ISOTOPE CURVE FOR 0 TO 590 MA.**

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We provide an improved and updated version of the statistical LOWESS fit of Howarth and McArthur (1997) to the marine  $^{87}\text{Sr} / ^{86}\text{Sr}$  record and provide a second revision of the look-up table (V3:7/99) based upon it, for the quick and easy conversion of  $^{87}\text{Sr}/^{86}\text{Sr}$  to numerical age and vice versa. The table includes 95% confidence intervals on predictions of numerical age from  $^{87}\text{Sr}/^{86}\text{Sr}$  and vice versa. This version includes the Triassic and Palaeozoic record that was omitted from previous versions owing to the paucity until now of adequate data. We highlight differences between the previous V2:1/98 and this version (V3:7/99) of the LOWESS fit and discuss some aspects of it that have geological significance. Numerical calibration uses the timescales of Shackleton et al. (1994; 0 - 6.4 Ma), Cande and Kent (1995; 6.4 - 70 Ma), Obradovich (1993; 70 - 98.5 Ma) and Gradstein et al. (1995; 98.5 - 206 Ma) and AGSO (206 - 509). We give examples of dating (with the table) and correlation (without it). We show that  $^{87}\text{Sr}/^{86}\text{Sr}$  may be measured with a precision of 0.000 004, an analytical precision that is ten times better than currently common. We show that, as a consequence, dating and correlation with  $^{87}\text{Sr}/^{86}\text{Sr}$  in parts of the Jurassic can be accomplished with an accuracy better than that attainable with ammonites. Keywords: LOWESS, Sr,  $^{87}\text{Sr}/^{86}\text{Sr}$ , Strontium isotope stratigraphy, chemostratigraphy.