

Paper Number: 1269

## New ammonoid aragonite $^{87}\text{Sr}/^{86}\text{Sr}$ records of Mesozoic environmental change

Zakharov, Y.D.<sup>1</sup>, Dril, S.I.<sup>2</sup>, Tanabe, K.<sup>3</sup>, Shigeta, Y.<sup>4</sup> Baraboshkin, E.Y.<sup>5</sup> and Michailova, I.A.<sup>5</sup>

<sup>1</sup>Far Eastern Geological Institute, Russian Academy of Sciences (Far Eastern Branch), Stoletiya Prospect 159, Vladivostok, 690022, Russia. E-mail: [yurizakh@mail.ru](mailto:yurizakh@mail.ru)

<sup>2</sup>Institute of Geochemistry of Russian Academy of Sciences (Siberian Branch), Favorsky Street 1a, Irkutsk, 664033, Russia,

<sup>3</sup>The University Museum and the Department of Earth and Planetary Science. The University of Tokyo, Tokyo, 113-003, Japan.

<sup>4</sup>National Museum of Nature and Science, 4-1-1 Amakubo, Tsukuba, Ibaraki 305-0005, Japan.

<sup>5</sup>Moscow State University, Leninskiye Gory MGU 1, Moscow, 11991, Russia

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Much of data on Phanerozoic Sr-isotope stratigraphy has been derived from whole-rock samples and calcitic fossils. We focus in this paper on some Mesozoic Sr-isotope oscillations, based on data on the following aragonite-preserved ammonoid shells: (1) *Hedenstroemia hedenstroemi* from the lowest Olenekian of the Buur River basin, Arctic Siberia ( $^{87}\text{Sr}/^{86}\text{Sr}=0.708043$ ); (2) *Boreomeekoceras keyserlingi* from the uppermost Olenekian of the Olenek River basin, Arctic Siberia ( $^{87}\text{Sr}/^{86}\text{Sr}=0.709041$ ), showing very close Sr-isotope composition with the living *Nautilus pompilius* from Philippines (0.709148) (10); (3) *Arctohungarites* sp. from the Anisian of Taimir, Arctic Siberia ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707744$ ); (4) *Harpoceras falcifer* and *Hildaites serpentinum* from the lower Toacian of western Switzerland ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707300-0.707382$ ); (5) *Procerites funatus* from the lower upper Callovian of the Ulyanovsk area ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707429$ ); (6) *Deshaesites volgensis* – sp. 45/96 and 50/96 from the lower Aptian of the Ulyanovsk area ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707333-0.707382$ ); (7) *Douvilleiceras* sp., *Eotetragonites umbilicostatus* and *Cleoniceras besairei* from the lower Albian of Madagascar ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707241-0.707276$ ) (8) *Pseudoschloenbachia umbulazi* from the upper Santonian of British Columbia ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707281$ ); (9) *Submortonoceras* from the lower Campanian of California ( $^{87}\text{Sr}/^{86}\text{Sr}=0.707198$ ) (Fig. 1).

Following partly Jones and Jenkins [1], we presume that there is the close correspondence in time between episodes of increased hydrothermal activity at ocean ridges, significantly controlled by negative seawater Sr-isotope excursions, and sea level rises, usually resulted in the OAEs activity and climatic warming. The surprising event, exceedingly large swing in  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio between the Capitanian

minimum and the latest Olenekian maximum, seems to be a result of strongest plate tectonic activity at the end of Palaeozoic time and some contrast conditions of the Early Triassic.

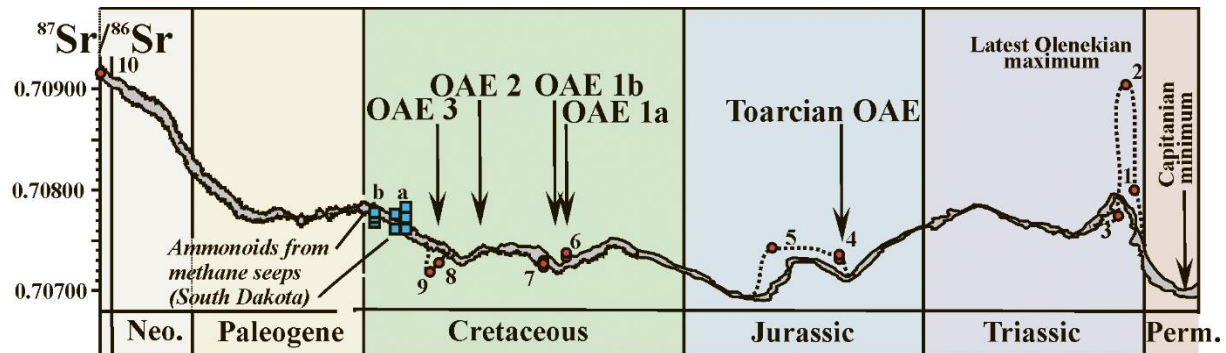


Figure 1. The seaway  $87\text{Sr}/86\text{Sr}$  curve [2], corrected and confirmed in outline by data on Sr-isotope composition of Mesozoic ammonoid and living Nautilus aragonite. 1-10 – cephalopods (this study); a and b – Data from Cochran et al. [3, 4]

#### References

- [1] Jones and Jenkyns (2001) *Amer J Sci* 301: 112-149
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