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Comparison of 400-ky paleoclimatic Record from Lake Baikal and the Records from Atlantics and Antarctica

M.A. Fedorin , E. L. Goldberg

Limnological Institute of the Siberian Branch of RAS, Irkutsk, Russia

(mikeph@mail.ru / 7-3952-422125 / 7-3832- 332307)

New orbitally tuned timescales are constructed both for geochemical record from Lake Baikal reflecting continental paleoclimatic changes and for records of *global* paleoclimate: benthic δ^{18}O in oceanic sediments; ice δD and gas δ^{18}O and CH_4 in "Vostok" ice core. All the chronologies are built using the same procedure applied to origin records. The method is based on uniform (in time) binding of a paleorecord to adopting superposition of orbital series (ETP). Compared to traditional orbital correlation, the method employed uses not only precession and obliquity targets, but also eccentricity to create *full* model of paleorecord's approximation. To find best approximation of a record the following parameters are varied: i) chronology t(Z); ii) amplitudes and phases of orbital components in the model. Quasi-Newton non-linear methods serve to achieve best fit. Ambiguity of the solution is eliminated by preliminary Monte Carlo search and by applying known absolute dates for record itself. The method was first checked on synthetic data and then applied to the real records.

Under the chronologies constructed, the spectra of the records changed in coordination with orbital model: the orbital periods (19, 23, 41, $\sim$100 ky) are accentuated; in addition, the combination cycles ($\sim$30- and $\sim$70 ky) are changed in some records. This allows estimating the relation between non-linearities of climatic response and those caused by chronological non-linear distortions for each paleoclimatic record.

The detailed depth-age model allowed estimating sediment accumulation rates dZ/dt both within interglacials and glacial intervals in Lake Baikal. We derive competitive contribution of clastic (terrigenous) and autigenic (biogenic, etc.) sedimentation into the observed values of *mean* sediment accumulation rate on top of underwater Academichesky Ridge in Lake Baikal during last 450 ky.

Within models created we analyze the estimated phases in response to changing precession, obliquity and eccentricity, for all the records. The earliest reaction to all three orbital parameters is determined for continental paleoclimate recorded in Baikal bottom sediments. Obvious enough in this analysis is 100-kyr cycle of orbital eccentricity which leads in Lake Baikal paleorecord. The probable reasons for fast response are relatively low inertness of compact climatic system of the continent itself, as well as its operation as self-consistent climatic machine, which is able to reproduce planetary climatic patterns within the continent.

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