MARKERS OF REDUCING ENVIRONMENT IN OCEANIC PHOSPHORITES

BATURIN, G. N. Institute of Oceanology, Russian Academy of Sciences, Moscow,Russia

It is generally accepted that initial phosphogenic environment may change from reducing to oxic. The first one induces accumulation of a series of characteris- tic microelements coupled with manganese depletion, whereas the second produces the opposite effect. To evaluate the imprint of reducing environment upon phosphorite composition, nine microele- ments along with manganese were nalyzed in a series of Recent, Pliocene-Pleisto- cene, and Miocene phosphorites from inner and outer Namibian shelf,including grains and nodules of various size toge- ther with enclosing sediments. For this aim,concentration coefficients(CC) dete- rmined as Me/Mn in phosphorite versus Me/Mn in average shale were used. Three elements showed highest CC reaching 1000 to 2000 (Cd) and 300 to 1000 (Mo and U). Much lower values are characteristic of Pb(up to 40-160),Zn(10-120), Cu (10-60), and Ni (10-30), whereas Co showed cons- tant depletion (about 1 or less).Usual- ly, grains are richer in microelements as compared to nodules.The large Miocene nodules are lower in all microelements as compared to smaller both Recent and Pliocene-Pleistocene nodules.The uncon- solidated Recent accretions are somewhat depleted in Cd, Mo, U, and Ni as compa- red to enclosing diatom oozes and equire higher concentrations in course of fur- ther diagenesis. The average elemental concentration sequence established ear- lier by Altschuler in ancient onland phosphorites is very similar to ours implying that formation of most phospho- rite deposits was initially related to reducing environment.