

WEST PACIFIC: MODERN MERCURY-BEARING METALLIFEROUS DEPOSITS

OZEROVA N. Institute for Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry, Russian Academy of Sciences, Moscow, Russia

The western margin of Pacific Ocean represents, metallogenically, the Western branch of the Pacific Mercury Belt. In connection with this fact, newly formed mercury-bearing deposits in adjacent parts of Pacific must be considered in geological conjunction with continental mercury manifestations. Recent degasification of mercury (Hg) in studied region was detected using atmochemical anomalies over deep faults over water surface and in the continental part. Among the ocean deposits the high Hg contents discovered in hydrothermal fields of the Woodlark, Manus and Low Basins (Papua-New Guinea) and Piip submarine volcano (Aleutian Arc). First example - Woodlark Basin. Hg concentrations - $n \cdot 10^{-3}$ - $3,5 \cdot 10^{-2}$ wt.% were detected in opal-barite deposits with sulfide impurities and $5 \cdot 10^{-6}$ - $1,2 \cdot 10^{-4}$ wt.% in Fe-Mn hydroxides. The first values are high and they are corresponded with low Hg industrial limit for Hg deposits. Positive correlation between Hg-Zn, Hg-Cu and Hg-Ag pairs was determined. Among the Hg-bearing minerals Sb-analogues of laffittit were reported with 37 wt.% of Hg. The second example - Manus Basin. Hg contents are lower: $1,5 \cdot 10^{-5}$ - $7,5 \cdot 10^{-4}$ wt.%. In comparison with Woodlark different type of correlation occurred: Hg-Ag and Hg-Pb. In ZnS were detected $1 \cdot 10^{-5}$ - $5 \cdot 10^{-4}$ wt.%. Hg is basically related to sulfides. But it is not inconceivable that finely disperse cinnabar and other Hg-bearing minerals are existent here as well sorbed Hg: in other case it is difficult to explain high Hg concentrations in bulk analyses. Study of Hg behavior in oceanic metalliferous newly formed deposits is helpful for their genesis comprehension as well as for study of global Hg metallogeny. In economic context, such study is important for involvement of new type of mineral resources, environmental researches, and assessment of Hg impurity during mining activity.