

ACCRETION TECTONICS AND FRACTAL CHARACTERISTICS OF TERRANES

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According to the digital maps of active continental margin of Northern Pacific we defined the statistical characteristics of terranes. Self-similarity of the terranes in a wide range of sizes is established. We calculate fractal dimension using the perimeter-area ratio, the value is $D = 1.33 \pm 0.01$ for the north Pacific, $D = 1.30 \pm 0.01$ for Alaska, and $D = 1.24 \pm 0.01$ for the northwestern Canada. Fractal dimension for terranes of various types and accretion ages were calculated. It was found that fractal dimension varies slightly depending on the time of accretion. This reflects the low degree of deformation of terranes during accretion and indicative of their rigidity in all ranges of sizes. Larger blocks of an earth's crust (continents and large islands) also obey to the uniform power law and are characterized by close value of the fractal dimension $D = 1.25 \pm 0.03$. It specifies on absence of any allocated characteristic sizes which could be used for classification of terranes, superterrane, microcontinents and continents. It testifies also to the uniform mechanism of association of tectonic units of the various sizes and origins.

Keywords: terranes, active margins, accretion, power law, fractal dimension.