

AREAL DISTRIBUTION OF THE LATEST VOLCANIC ACTIVITY AS A KEY TO
GLOBAL TECTONIC STYLE: COMPARISON OF NORTHERN VENUS AND
THE PACIFIC

A.T. Basilevsky, V.P. Kryuchkov, N.N. Bobina; Vernadsky Institute,
USSR Academy of Sciences, Moscow 117975 USSR

Venus and Earth are very similar in their masses and sizes that keeps waiting for similarity in geologic evolution and tectonic style. However while global tectonic style of Earth is now dominated by plate tectonics the photogeologic analysis of the results of Venera-15,16 radar survey of Venus has not discovered convincing evidences of morphologically prominent plate tectonic features [1,2,3]. That's why this paper makes an attempt to use another approach to this problem.

It is well known that the plate boundaries are the locuses of seismic, tectonic and volcanic activity while within the plates such activity is subordinate. This is illustrated by geologic map of the Pacific which simplified version (Fig. 1) was produced from [4,5]. It shows the distribution of volcanic rocks varying in age from Triassic to Quarternary. The prominent banded pattern is typical for the distribution of volcanics of various age. The bands of the latest volcanic activity outline the plate boundaries and trajectories of hot-spot volcanism.

For Venus geologic maps the age-difference approach has not been realized yet. Meanwhile traces of the latest volcanic activity presented by radar-bright flow-like features were identified on Venera-15,16 SAR images and mapped [6,7] (Fig. 2). Areal distribution of these features evidently reflecting the the latest 20% of the basaltic eruption history is described elsewhere [6,7]. Here it is important to pay attention to its spotty pattern drastically different from mostly banded character of distribution of volcanics on Earth. It is difficult to find in Fig.2 among the spots of young lava flows the linear clusters which could be considered as indicators of boundaries of the plates. The distribution seems to be close to stochastic distribution of hot spots. The evident concentration of these features within and around Lakshmi Plateau doesn't contradict to this conclusion because the whole structure of Lakshmi is considered as surface manifestation of the giant hot-spot [8]. So analysis of areal distribution of latest episodes of volcanic activity in the northern quarter of Venus and Earth's Pacific has revealed rather difference than similarity implying the difference in general tectonic styles too.

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