The Diabase Magma Evolution Discussion at Luoji Village of Northwest Yunnan

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1 Introduction

The mafic dikes is derived from the mantle basaltic magma and differentiation or affected by crustal contamination effects of magma filling a space, dikes basic magma as a representative of the mafic dikes, can be on the ocean and ancient continental lithosphere stretching and tectonic-magmatic evolution play an important indicator of, Research diabase dikes for understanding the nature of the mantle source region and its tectonic setting revealed, in particular, to understand stretching context mantle source region properties and lithosphere asthenosphere material contribution is important, the study area is located in Ganzi - Litang with the southern section, with previous studies more in Ganzi - Litang combined with a middle of the northern section of a comparative study, Base in the region - ultrabasic rocks widely invasive Lapo, the Secretary the Ravine and Zhangjiashan along the base of the oceanic crust - ultrabasic cumulates Department, which can identify diabase dikes proportion of more good outcrop, this article focuses on the diabase dikes at Luoji Village magma evolution and background.

2 Magma Evolution Discussion

2.1 Magmatic evolution

There is no significant correlation between the Mg # values of diabase (34.48% to 45.02%, 39.17%, on average), and high field strength elements Ni, Sr, Cr, V, and Nb/La values, which indicates that the AFC process is not very clear or substantial. From the Nb/La-SiO₂ diagram (Fig. 1a) reflect the diabase evolution process to separate crystallization, both with assimilation signs. InCaO CaO/Al₂O₃ diagram (Fig. 1b) show that in the diabase is given priority to with monoclinic pyroxene crystallization separation, plagioclase not separation, lower Mg # may advance the basic-ultrabasic rocks upfront fractional crystallization took away a large number of Mg, also suggesting a possible for crystallization process source area is loss of Mg # or loss of Mg in the late magmatic differentiation process.

2.2 Assimilation

Luo Ji diabase showed a significant positive correlation between Th/Nb-Ce/Nb and Th/Yb-Ta/Yb, indicating that there is some assimilation. Generally, the crustal material with low Nb and high Th characteristics, and crustal contamination will inevitably lead to the negative correlation between Nb, Th. Positive correlation between Nb-Th table diabase Ming source contamination effect on trace elements is much larger than the crustal contamination. Any kind of mafic magma during ascent suffered crustal contamination in its role should be, but the degree of difference. Nb / Ta-La / Yb diagram, Luo ji diabase not showing the negative correlation between the

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apparent crustal contamination. The research area diabase slight negative Nb anomalies, which implies certain crustal contamination. Therefore, the geochemical characteristics of diabase in this area may be mantle source contamination or intrusion of magma in crustal contamination caused by.

3 Magmatic Evolution and Background

Ganzi - Litang with the Early Triassic began subducting Permain begin to open, to the late Late Triassic ocean basin closure. Combined with the latest research information to draw the Luo ji Permian - Triassic period mainly experienced the three stages of tectonic stages. Continental rift basins stage as early Permian - Permain, Late Permian shorter initial stage of the ocean basin and Permain - Early Triassic oceanic crust subduction stage. Finally, the formation of a remnant ocean basin and accept terrigenous clastic rocks, as well as the latest found in logi tectonic zone represent oceanic crust ultrabasic pyroxene peridotite, zircon U-Pb age of 253.3 ± 7.5Ma belonging to the late Permian period, and with the continuing crustal tension, a lot of mafic magma eruption, combined diabase REE diagrams and spider web diagram board basalt, and its characteristics are similar to OIB from Ti/100-Zr-3Y (Fig. 2a) and of Zr-of Zr / Y, diabase all fall the basalt within plate, from the the Nb * 2-Zr/4-Y (Figure 2b), diabase cast point fall in an intraplate alkaline basalts and intraplate tholeiite these two areas, in general, the tholeiitic basalts and alkaline basalts combination produce intercontinental rift initial ocean basin or oceanic island environment, which can be inferred oceanic island diabase formation of large ocean basin environment, the formation time of the late Permian late, belonging Ganzi - the Litang extends with the residual product.

4 Conclusion

1 Luo Ji diabase in clinopyroxene crystallization, plagioclase without separation, low Mg# suggesting a possible source for crystallization process is a loss of Mg# or in the late magmatic differentiation process of loss of Mg#.

2 Geochemical characteristics may diabase presented for the mantle source region contamination or magma invasion process caused by crustal contamination

3 Luo Ji Xiang diabase should be formed in ocean basin within the ocean island environment, related to mantle plume activity. Inferred diabase should be formed in the Late Permian late belonging to Garze - Litang extend with the the residual products.

Key words: diabase, background, magmatic evolution, Yunnan