Processes of ascent and solidification of magmas inferred from the zoned plagioclase in layered gabbro, northern Oman ophiolite

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Plagioclases in the layered gabbros in the northern Oman ophiolite commonly show "double reversed zoning". The inside reversed zoning is characterized by "low-An patch" with a sharp boundary which is lower in An contents than surroundings about 20%. The outside reversed zoning is shown by a progressive increase in An content toward the rim. The processes of uplift and solidification of magmas beneath ocean ridges are inferred as follows: crystallization of plagioclase with low An contents in upper mantle, then rapid ascent into crystal magma chamber which results resorption of the low An plagioclase and crystallization of high An plagioclase. At the final stage of crystallization, increasing water contents in interstitial liquid formed progressive reverse zoning at the crystal margin.