

FISSURE DIKE SOURCE(S) FOR THE NORTH MOUNTAIN BASALT GROUP, FUNDY BASIN
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Very large lava flows that comprise the 201 Ma North Mountain Basalt Group were derived from volcanic fissures that are now represented by large diabase dikes, either exposed on land or postulated under cover within the Bay of Fundy. Regional dikes with close ages include the Caraquet dike of interior New Brunswick and Maine, the Minister Island-Lepreau River dike system of southern coastal New Brunswick, the Christmas Cove dike of coastal Maine, and the Shelburne dike of southern coastal Nova Scotia. Lavas from the Caraquet and Shelburne dikes apparently did not reach the Fundy basin, possibly because of Mesozoic topography. However, both the Minister Island - Lepreau River and the Christmas Cove dike systems are excellent source candidates for the NMBG, based on chemistry, mineralogy, ages, and geography. The Minister Island dike apparently continues at least 50 km toward the ENE from Maine across Passamaquoddy Bay into New Brunswick, with widely offset segments exposed in Buckman's Creek, the New River, and the Lepreau River. This dike system and the Christmas Cove dike appear to be co-magmatic, but it is not clear if or how they are connected. The NMBG on Grand Manan Island has strong similarities with this dike magma.

The Christmas Cove dike in Maine is a northern extension of the Higganum dike of southern New England, which was the source of the Talcott basalt in the Hartford basin. The Talcott and North Mountain basalts are essentially identical, and therefore, co-magmatic. Regional fissure dike sources fed the basin basalts, which were isolated afterward by faulting. Thus, a vast, broad-terrane cover of North Mountain-type lavas existed outside of the Fundy basin and other Mesozoic basins in northeastern North America.