

Petrography and geochemistry of mafic blocks in the Hurricane Mountain *mélange* in west-central Maine

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The Hurricane Mountain *mélange* is an accretionary zone that is exposed for 160 km in west-central Maine. It is thought to mark the suture zone between the Gander and Boundary Mountain terranes. The *mélange* is characterized by a sedimentary matrix containing mafic and ultramafic blocks. The igneous blocks are medium-sized, generally ranging from 1.5 to 5 m in height and 2–9 m in length. Blocks at the southwest end of the *mélange*, on Stony Mountain and along Cold Stream vary in concentration, often appearing in clusters. The blocks are primarily metamorphosed mafic rocks. Eleven samples were analyzed by INAA for major and trace elements. Four of the mafic blocks have the following concentrations: SiO₂ (48–50%), Al₂O₃ (14–16%), Fe₂O₃^T (11–13%), CaO (9–12%), MgO (6.5–7.5%), TiO₂ (1.5–2%), P₂O₅ (<0.5%), and MnO (<0.5%). Field evidence and discrimination diagrams

suggest that these samples originated as basalt formed in an ocean-floor environment.

While many of the blocks are mafic rocks metamorphosed to greenschist facies, other blocks within the *mélange* include volcanoclastic-arkosic sandstone, quartzite, metaconglomerate, serpentinite, felsic metavolcanic rocks, granite, and amphibolite. Near Indian Pond, at the northeast end of the *mélange*, we observed an amphibolite block with the following mineral assemblage: hbl + ab + ep + qtz + rt + py. This *mélange* block of originally mafic volcanic breccia reached lower epidote-amphibolite metamorphic facies. Titanite rims and partial titanite replacement of rutile crystals suggest the amphibolite underwent later retrograde greenschist metamorphism.