
Identification of local maxima in regional geochemical datasets

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Strong regional or 'global' geochemical features tend to set the regional threshold too high for the detection of more subtle anomalies. For example, background levels of fluoride in lake water are much lower in southern Labrador than farther north, which results in the non-appearance of an anomalous response to the REE mineralization at Pope's Hill if regional threshold values, derived for the whole of Labrador, are applied to the data. A filtering method has been devised which highlights local maxima in regional datasets, whether local background is high or low. Processing the fluoride data in this way shows that Pope's Hill is indeed associated with a local maximum. Where background is particularly high, for example in the Flowers River region, filtering the data has the equally desirable effect of drawing attention to local hotspots, in both fluoride and REE, in what is essentially a large regional anomaly.

Elsewhere in Labrador, filtering the data has revealed the presence of an As dispersion train down-ice from Strange Lake. Dispersion from the Voisey's Bay Ni-Cu-Co deposits is also more clearly indicated in filtered data, although a subtle Ni response in lake sediment had been noted previously. The filtering of Br data in the lake sediments from Newfoundland results in the appearance of a number of local maxima in the interior of the island, which are masked in unfiltered data by the dominant effect of coastal lakes and the probable effects of marine incursion.

It is believed that a number of anomalies of potential economic interest may have been overlooked because of the masking effects of variable local background. It is proposed to re-evaluate the regional geochemical datasets from both Labrador and Newfoundland and release the results in 2013.