

Transport of Mercury by glaciers - central British Columbia

Mineralized occurrences of mercury were found along Pinchi Fault in the 1930's and 1940's, as a result of bedrock mapping of central British Columbia by the Geological Survey of Canada (GSC). Two of the three mercury mines in Canada have been developed along this fault (Takla Bralorne and Pinchi mines). A more recent regional survey of the surficial sediments undertaken by the GSC has demonstrated that mercury concentrations in till (a sediment type directly deposited by glaciers) are extremely high near both mines and are high at other localities along the Pinchi and Manson faults. The mercury in till is interpreted to be of detrital origin derived from the erosion of mercury-enriched bedrock.

During the last glaciation, glaciers advancing eastward, in the direction shown by the purple arrows, eroded bedrock and sediments enriched in mercury and transported the debris in a "down-ice direction". Deposition of the sediments resulted in areas of till containing high mercury concentrations that extend up to twelve kilometres from their bedrock sources along the Pinchi and Manson faults. The mercury anomalies in till are several orders of magnitude larger than the areas of mercury-rich bedrock along the faults. These observations have implications for mineral exploration as they are examples of the reworking of bedrock by glaciers. This has created large anomalous mercury-rich zones in the till that are easier to detect than the smaller point sources of mineralization in bedrock along the faults. Furthermore, they indicate that natural high mercury concentrations occur on and adjacent to the Pinchi and Manson faults and, that the mercury is derived from naturally occurring geological sources.

