



Figure 7. Geographic distribution of the three distinct temperature profile styles in the study area. The convex temperature profile prevails in the contractional setting in the southwest where exhumation has removed large amount of overburden and where permafrost is thin or absent. The-concave temperature profiles are predominant in the north and northeast, where rapid deposition in a cold arctic delta may have caused thermal disequilibrium. Mixed-convex and concave temperature profiles may indicate a complex hydrodynamic situation. The co-occurrence of discharge of-upwelling deep warm fluids and recharge of meteoric water from the cold arctic surface along the fault zone and the structural partitioning of the rifted margin may be conducive to the occurrence of both types of temperature profiles. Straight line temperature profiles are scattered across the basin, predominantly around-Richards Island and north in the offshore areas, with a few occurrences Tuktoyaktuk Peninsula, representing perhaps a thermal status closer to equilibrium.