

south trend of Oligocene-Miocene volcanics which extend from south of Pipipa 1 to north of Cormorant 1 in a belt 20-30 kilometres wide (See Figure 5.5). Such volcanics may be evidence for a thin lithosphere above a thermally domed mantle. In addition, the tuffs and flows may act as thermal blankets, as they have lower thermal conductivities than surrounding adjacent sediments, hence, both effects may act to increase the local temperature gradient for the EVCM.

It may be postulated that the area of maximum volcanic activity is likely to coincide with the area of maximum intrusive activity. In Cormorant 1, 248' of syenite was intersected and in the Toolka 1 well, 345' were penetrated. These intrusive intersections may possibly indicate a single, laterally continuous body. A thermal pulse associated with such an event probably would have a significant effect on local maturation.

The above distribution in time and space of volcanic activity leads to the following model.

- a) surface temperature is 4.44°C .
- b) In the basin centre the temperature gradient is approximately $37^{\circ}\text{C}/\text{km}$ rising along the north-eastern and southwestern flanks to values in the vicinity of $40-41^{\circ}\text{C}/\text{km}$.
- c) In parts of the northwestern end of the basin igneous intrusive and extrusive events may have