

fault. Several "bright spots" evident on the seismic lines in the area could be the result of igneous activity. These extrusives are probably the same age as the intrusion penetrated in Flinders 1.

- 2) *Convection Model* (Figure 10.6): A higher percentage of sands (greater porous section) in the upper EVCM has allowed the generation of convective heat cells in these sediments, raising the maturity of organic matter uniformly. The lower EVCM (high percentage of shales, silts, and coals) is not conducive to conduction due to the lower gross porosity and impermeable nature of the beds, thus inhibiting heat flow.

10.9 Maturity Maps - Assumptions

To illustrate the distribution of mature sediments, maturity maps have been constructed at several major stratigraphic levels:

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|----|------------------------------|---------------------------------|
| 1) | Top EVCM | (Figure 10.7 and Enclosure 20) |
| 2) | Top Upper <i>M.diversus</i> | (Figure 10.8 and Enclosure 21) |
| 3) | Top Middle <i>M.diversus</i> | (Figure 10.9 and Enclosure 22) |
| 4) | Top Lower <i>M.diversus</i> | (Figure 10.10 and Enclosure 23) |
| 5) | Top Palaeocene | (Figure 10.11 and Enclosure 24) |
| 6) | Basement | (Figure 10.12 and Enclosure 25) |

In addition palaeo-maturity maps were made for basement in order that the volume of source rocks mature within the basin at various stages during its development could be determined.

To this end the following maps were produced:

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|----|---|----------------|
| 1) | Basement Vitrinite Reflectance at Palaeocene Time | (Figure 10.13) |
| 2) | Basement Vitrinite Reflectance at Middle <i>M.diversus</i> Time | (Figure 10.14) |
| 3) | Basement Vitrinite Reflectance at Upper <i>M.diversus</i> Time | (Figure 10.15) |
| 4) | Basement Vitrinite Reflectance at Top Demon's Bluff Time | (Figure 10.16) |
| 5) | Basement Vitrinite Reflectance at Late Oligocene Time | (Figure 10.17) |
| 6) | Basement Vitrinite Reflectance at Late Miocene Time | (Figure 10.18) |