Temperature and heat-flow plays an important role in the field of Geodynamics, many other processes can be explained on the basis of these two properties since all mechanical properties of the lithosphere, like the rheology of a region, are dependent on the temperature and pressure conditions prevailing in lithosphere in that region. Heat flow from continental/shield and oceanic lithosphere is attributable to different processes, but it is found that the heat flow from oceanic lithosphere is greater than its continental counterpart. This poster mainly concentrates on the thermal distribution, heat flow and topography of the oceanic floor at creation point, i.e., mid-oceanic ridges. Topography/subsidence of the oceanic floor, which is calculated from the thermal distribution, is an important tool in reconstructing the tectonic history of the Earth where other parameters like magnetic anomalies fail to do so. In order to determine these basic properties we need to define a theoretical model.

Two basic models are available to explain the heat flow i.e., the cooling model and the plate model. Earlier works (by various authors) show that the plate model explains the variation in depth and heat flow with increasing age of the oceanic floor, better at older ages. Variants of the plate model, like isothermal base, constant basal heat flow have been successful in explaining various anomalies, but the work presented here highlights the importance of small-scale convection at the base of the lithospheric plate. A plate model is considered with small-scale convection at the plate bottom boundary. Heat-flow and bathymetric results show that the small scale convection model explains the variation of these two properties for the oceanic lithosphere is way better than previous models for older ages (70-180 Ma).