Integrating all available aero, ground and marine magnetic data a composite magnetic anomaly map of India and its contiguous region has been generated. The map published in 2006 has been augmented by including data from Kutch, Saurashtra, Deccan trap covered region, etc. The main objective behind the compilation of this map was to show the importance of a magnetic anomaly map in bringing out the structural details related to tectonic activity by looking below the sediments, Deccan Traps, Salt covered regions etc. The composite anomaly map brings out the smooth continuation of the long wavelength anomalies from the continent into the offshore region. From the composite magnetic anomaly map, India and its contiguous region can be divided into five different tectonic terrains each with characteristic magnetic signature. From the anomaly map it appears that there is a region that has been subjected to high tectonic activity running across the center of the sub-continent from western offshore up to Brahmaputra valley in east dividing the country into a northern and southern block. The magnetic sources as identified from the generated analytic signal map include iron ore, high grade metamorphic rocks, mafic to ultramafic intrusives and trap flows. Crustal structure model has been generated along two profiles running NS and EW, cutting across different tectonic terrains, using gravity and magnetic data, available seismic, magnetotelluric, heat flow data etc to constrain the model. The result of these will be presented.