6.3.8 Pune

The GHG emissions of Pune was 0.33 $MtCO_2e$ in 1975, that escalated to 0.81 $MtCO_2e$ in 1990 and 3.01 $MtCO_2e$ in 2015. A majority of the GHG emissions in 2015 (Figure 6.22, top) were contributed by the industry sector (47%) and residential sector (23%), followed by transport sector (21%) and energy sector (9%). As per the ICLAP model estimates (Figure 6.22, below), there would be an increase in emissions at 5.6% per annum, leading to 3.61 $MtCO_2e$ in 2030 and 4.77 $MtCO_2e$ in 2050.

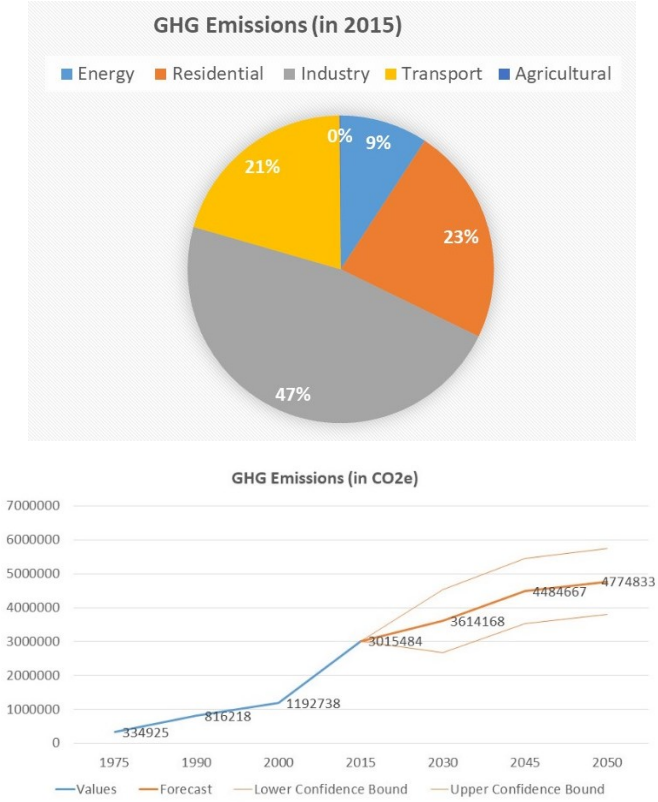

Figure 6.22: GHG contributions from different sectors in Pune (top); ICLAP model estimates for Pune's GHG emissions till 2050 (bottom)

The results for climate variability in Pune indicate that depending on the emission scenarios, there would be a temperature decrease of 0.4 degC in 2030 and increase of 2.5 degC in 2080s (Figure 6.23, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.6 degC during 2030s (above the 1980 baseline temperature), 1.0 degC in 2050s, peaking to 1.2 degC during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.23 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 0.4 degC during 2030s (above the 1980 baseline temperature), 1.5 degC in 2050s further rising further to 2.5 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.23 (bottom). Meanwhile, the precipitation change for Pune shows a very high variability in the long run, ranging from 50 to 400 mm from the normal (Figure 6.24, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of about 150 mm during 2030s (above the 1980 baseline rainfall), 230 mm in 2050s, rising again to 300 mm during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.24 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows Pune's city rainfall increase

to around 270 mm (above the 1980 baseline rainfall) during 2030s, rising up to 270 mm in 2050s, re-escalating to about 380 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.24 (bottom).

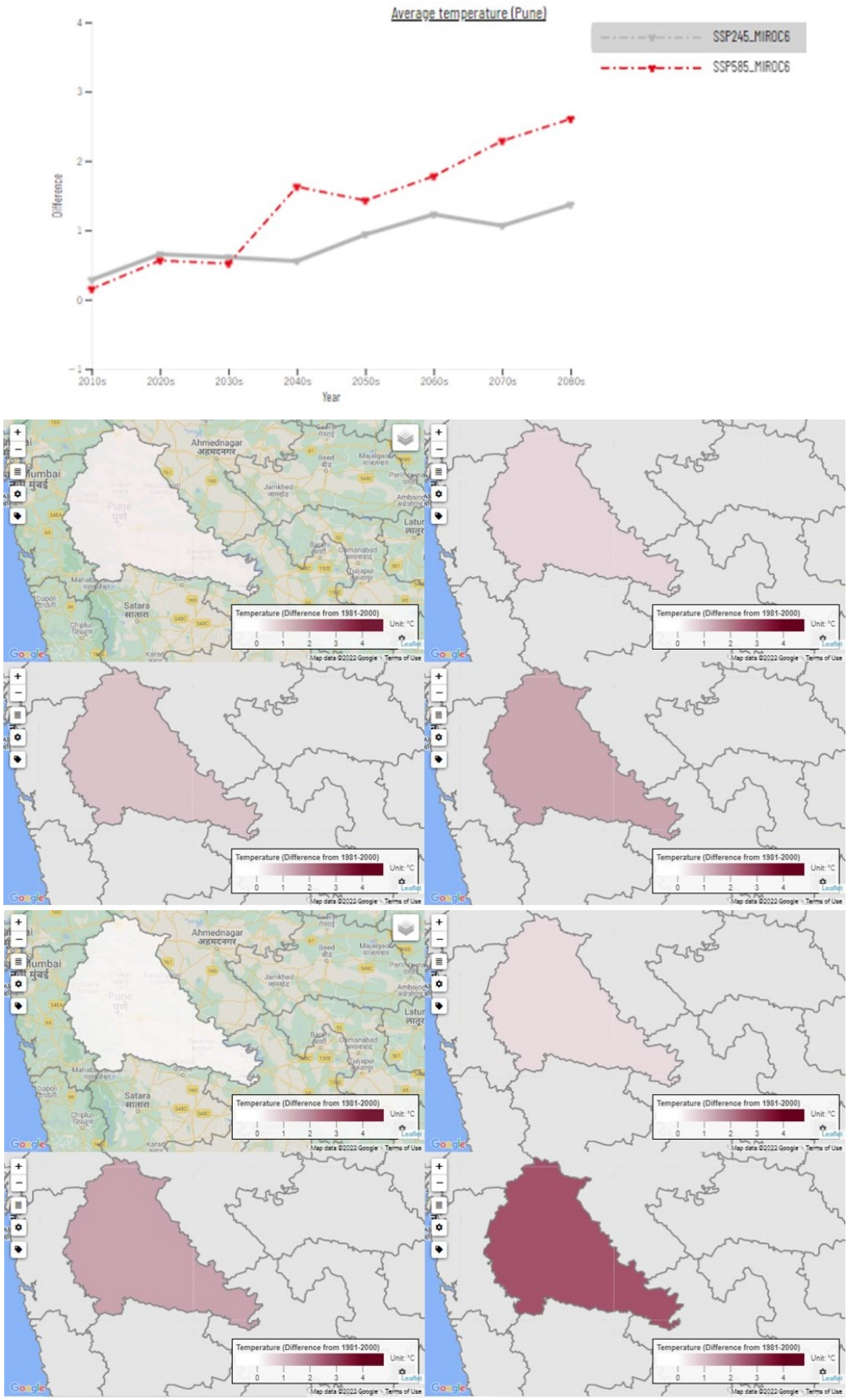

Figure 6.23: Temperature increase in Pune under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

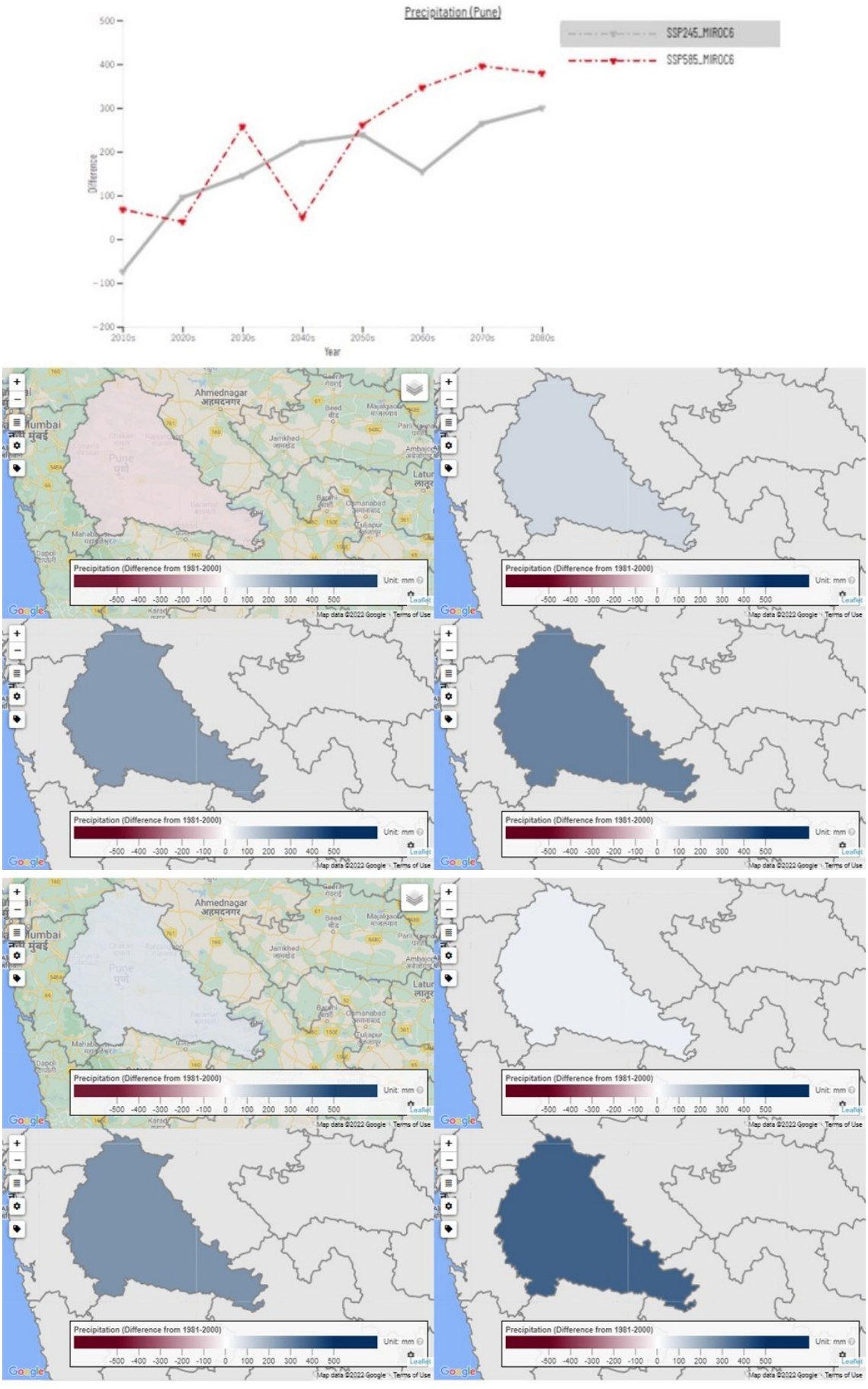

Figure 6.24: Precipitation variation in Pune under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)