

6.3.1 Ahmedabad

The GHG emission of Ahmedabad was 1.4 MtCO_{2e} in 1975 that escalated to 4.2 MtCO_{2e} in 1990 and 10.9 MtCO_{2e} in 2015. A majority of the GHG emissions in 2015 (Figure 6.1, top) were contributed by the energy sector (60%) and industry sector (22%), followed by residential sector (11%) and transport sector (7%). As per the ICLAP model estimates (Figure 6.1, bottom), there would be an increase in emissions at 5.2% per annum, leading to 13.6 MtCO_{2e} in 2030 and 17.8 MtCO_{2e} in 2050.

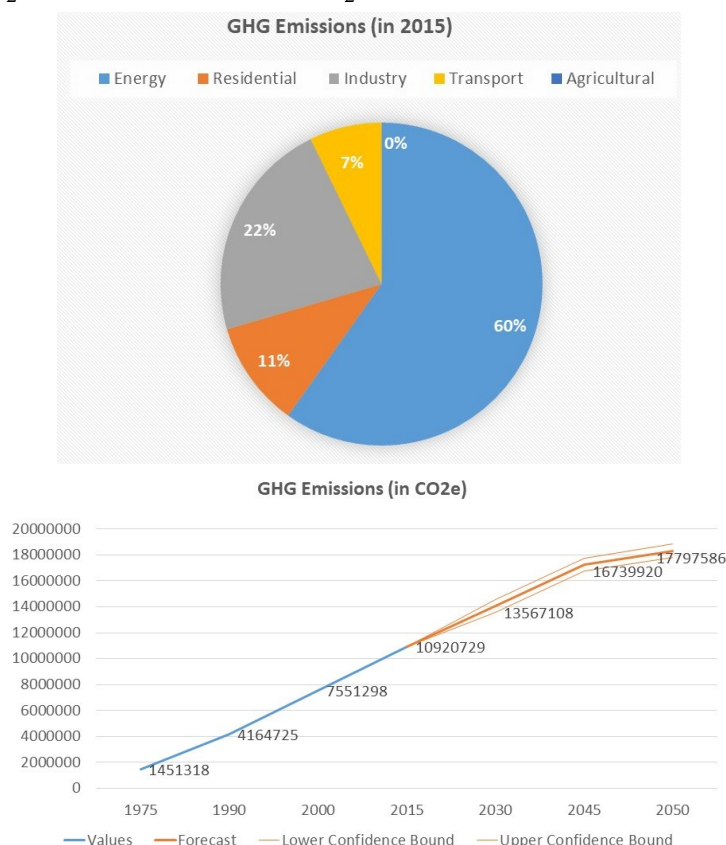


Figure 6.1: GHG contributions from different sectors in Ahmedabad (top); ICLAP model estimates for Ahmedabad's GHG emissions till 2050 (bottom)

The results for climate variability in Ahmedabad indicate that depending on the emission scenarios, there would be a temperature increase of 0.5–3.1 degC from 2030-80s (Figure 6.2, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.7 degC during 2030s (above the 1980 baseline temperature), 1.4 degC in 2050s, peaking to 1.6 degC during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.2 (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), 1.7 degC in 2050s further rising sharply to 3.1 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.2 (bottom). Meanwhile, the precipitation change for Ahmedabad shows high variability in the long run, ranging from 10 to 150 mm from the normal (Figure 6.3, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of about 25 mm during 2030s (above the 1980 baseline rainfall), rising to 30 mm in 2050s, rising again to 100 mm during 2070s and stabilizing to 95 mm during 2080s.

The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.3 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows Ahmedabad's city rainfall increase to around 90 mm (above the 1980 baseline rainfall) during 2030s, rising up to 60 mm in 2050s, rising up to 100 mm in 2060s, and about 150 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.3 (bottom).

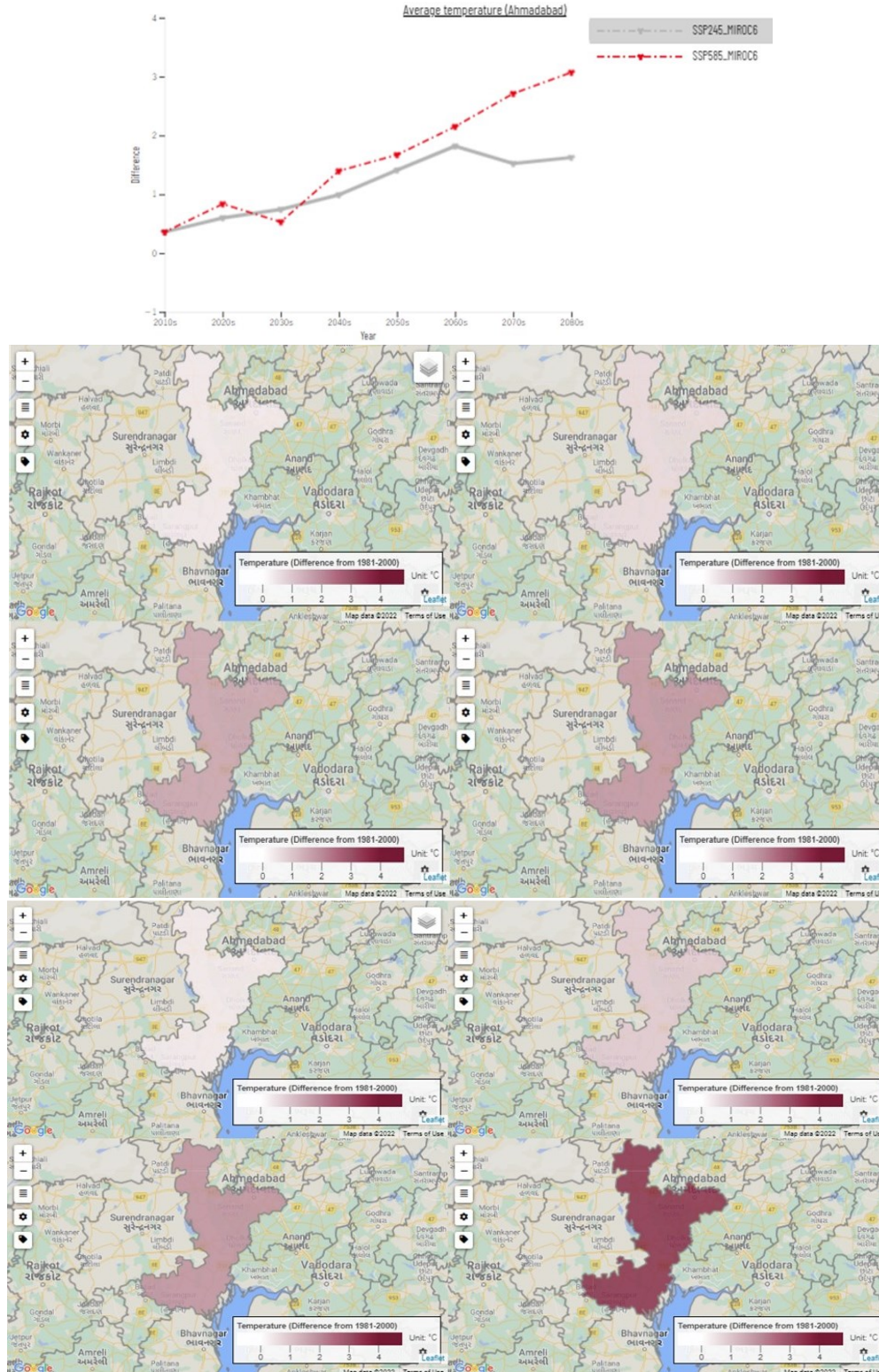


Figure 6.2: Temperature increase in Ahmedabad under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

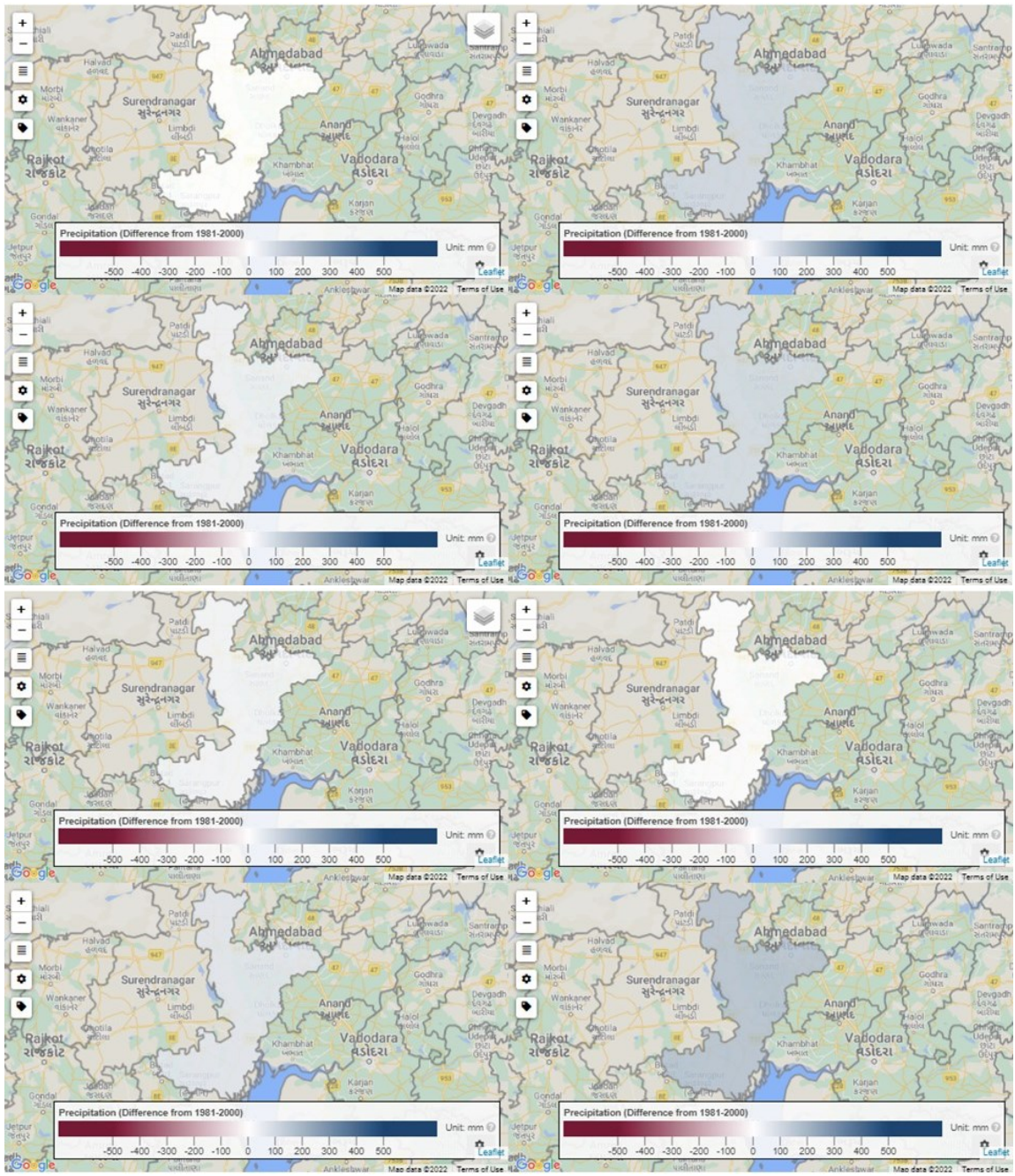
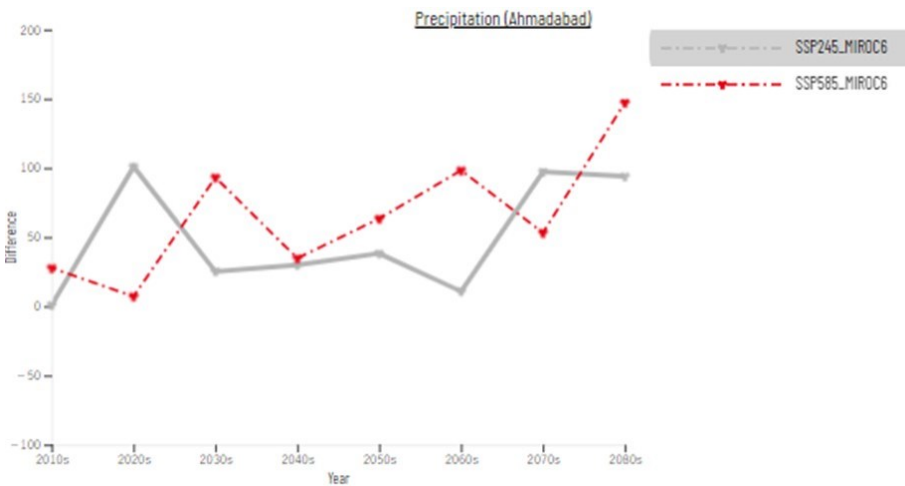


Figure 6.3: Precipitation variation in Ahmadabad under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)