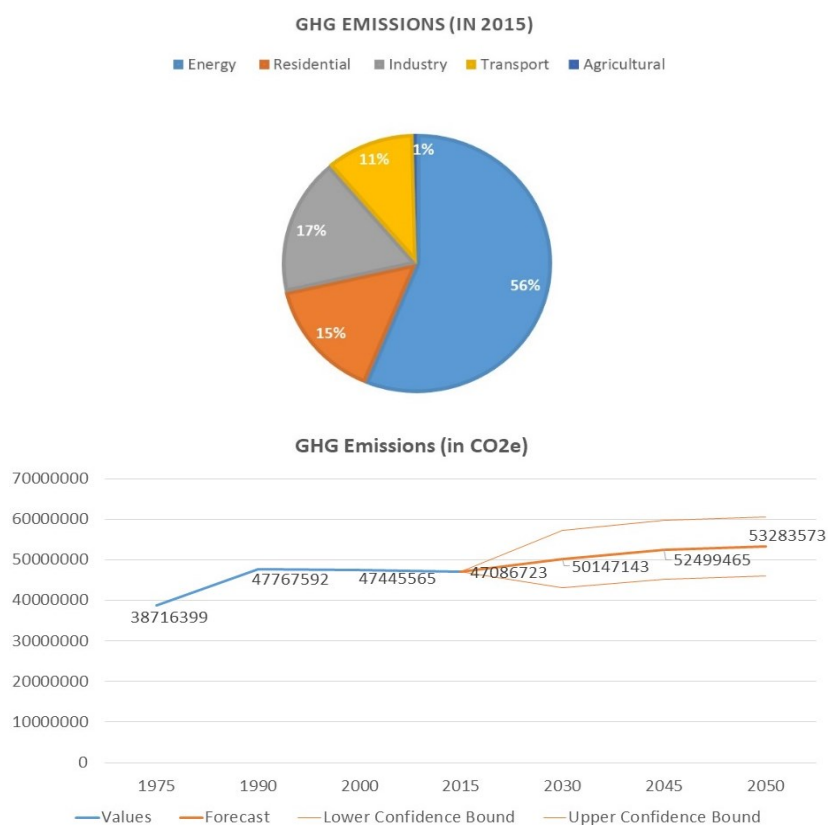


### 7.3.2 Nagoya

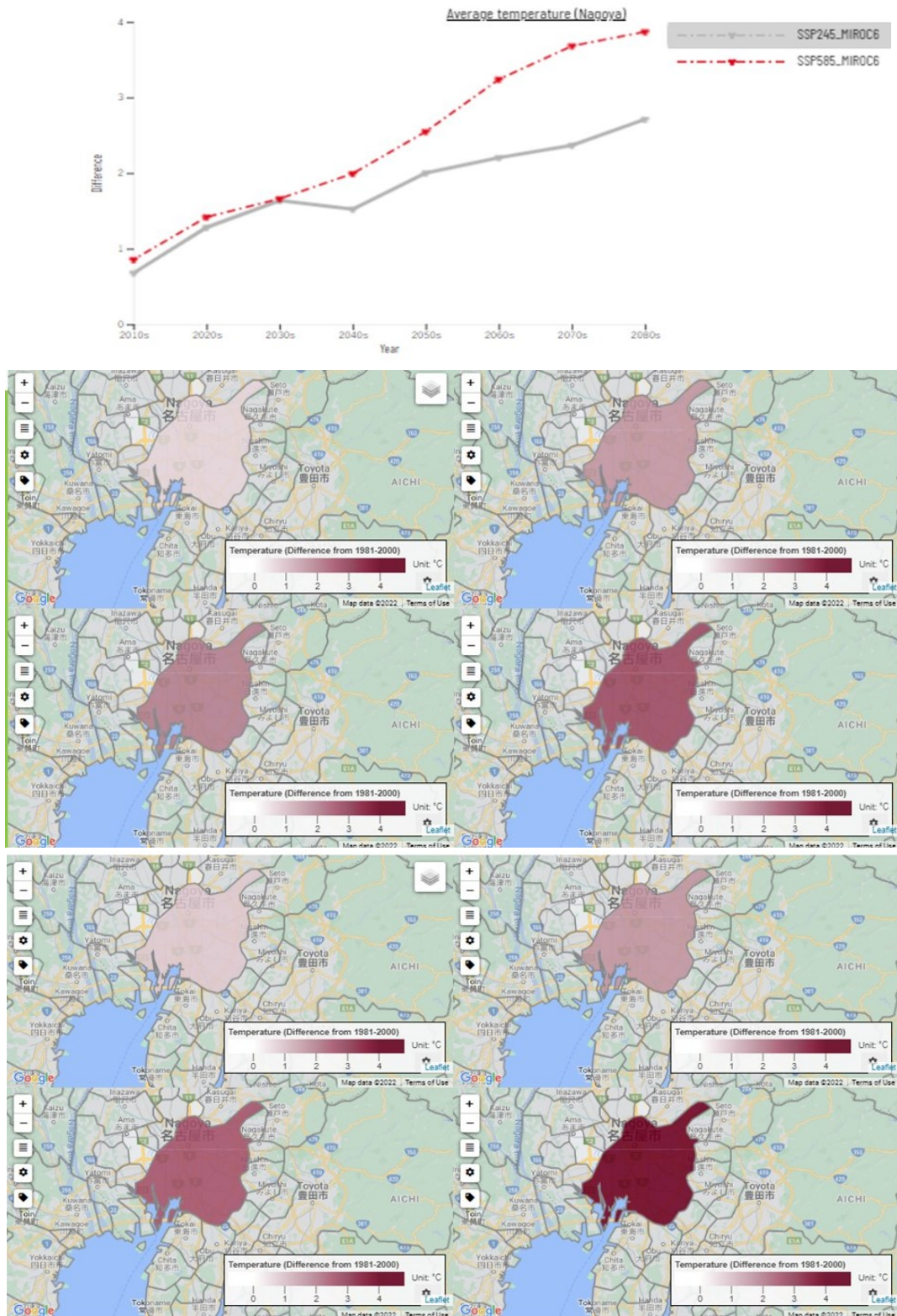
The GHG emissions of Nagoya was 38.7 MtCO<sub>2e</sub> in 1975, escalating to 47.7 MtCO<sub>2e</sub> in 1990 and 47.4 MtCO<sub>2e</sub> in 2015. A majority of the GHG emissions in 2015 (Figure 7.4, top) were contributed by the energy sector (56%) and industry sector (17%), followed by residential sector (15%) and transport sector (11%) and remaining is agricultural sector (1%). As per the ICLAP model estimates (Figure 7.4, bottom), there would be an increase in emissions at 0.5% per annum, leading to 50.1 MtCO<sub>2e</sub> in 2030 and 53.3 MtCO<sub>2e</sub> in 2050.



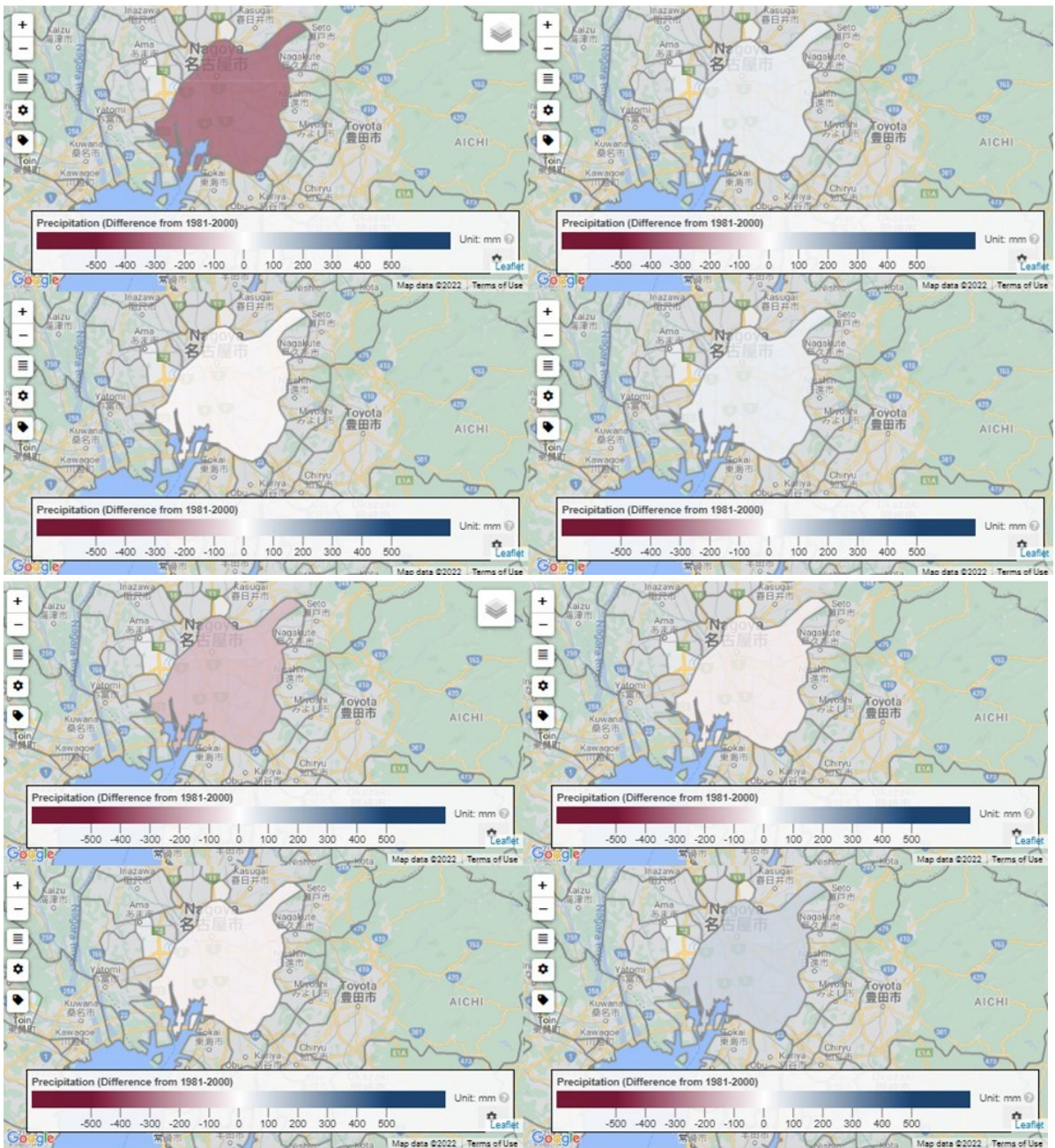
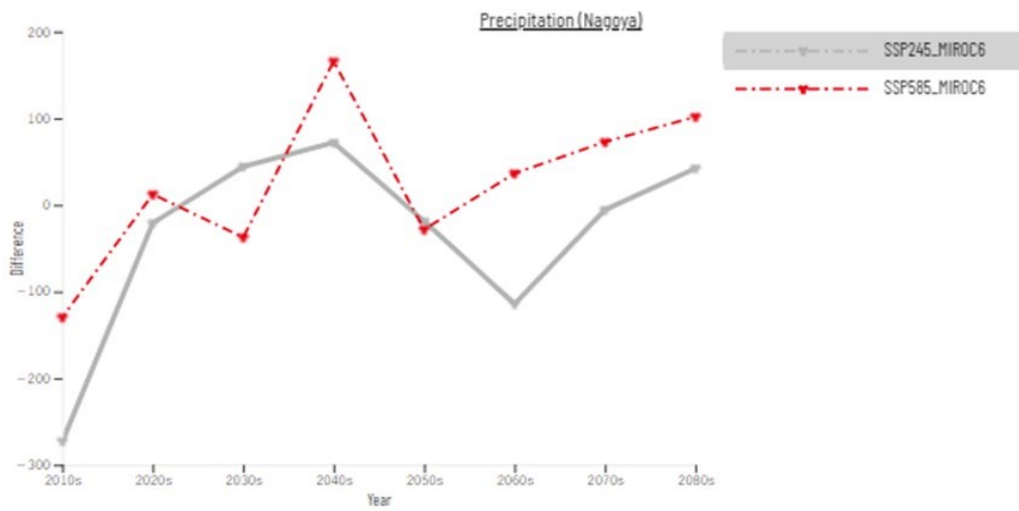
**Figure 7.4: GHG contributions from different sectors in Nagoya (top); ICLAP model estimates for Nagoya's GHG emissions till 2050 (bottom)**

The results for climate variability in Nagoya indicate that depending on the emission scenarios, there would be a temperature increase of 1.7–3.9 degC from 2030–80s (Figure 7.5, top). The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an increase of 1.7 degC during 2030s (above the 1980 baseline temperature), 2.0 degC in 2050s, peaking to 2.5 degC during 2080s. The spatial results for moderate scenario over 2010–80s are mapped in Figure 7.5 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585\_MIROC6) exhibits an increase of 1.8 degC during 2030s (above the 1980 baseline temperature), 2.4 degC in 2050s further rising sharply to 3.9 degC above normal up to 2080s. The spatial results for high emission scenario over 2010–80s are mapped in Figure 7.5 (bottom). Meanwhile, the precipitation change for Nagoya shows a very high variability in the long run, ranging from -130 to 175 mm from the normal (Figure 7.6, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an increase of about 40 mm during 2030s (above the 1980 baseline rainfall), declining to -30 mm in 2050s, rising again to 30 mm during 2080s. The spatial results for moderate scenario over 2010–80s are mapped in Figure 7.6 (middle). Meanwhile, the

scenario corresponding to the pathway with the highest GHGs (SSP585\_MIROC6) shows Nagoya's city rainfall declines to -40 mm (above the 1980 baseline rainfall) during 2030s, rising to 175 mm in 2040s, diminishing to -30 mm during 2050s, rising to 75 mm in 2060s, re-escalating to about 100 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 7.6 (bottom).



**Figure 7.5: Temperature increase in Nagoya 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 7.6: Precipitation variation in Nagoya 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)**