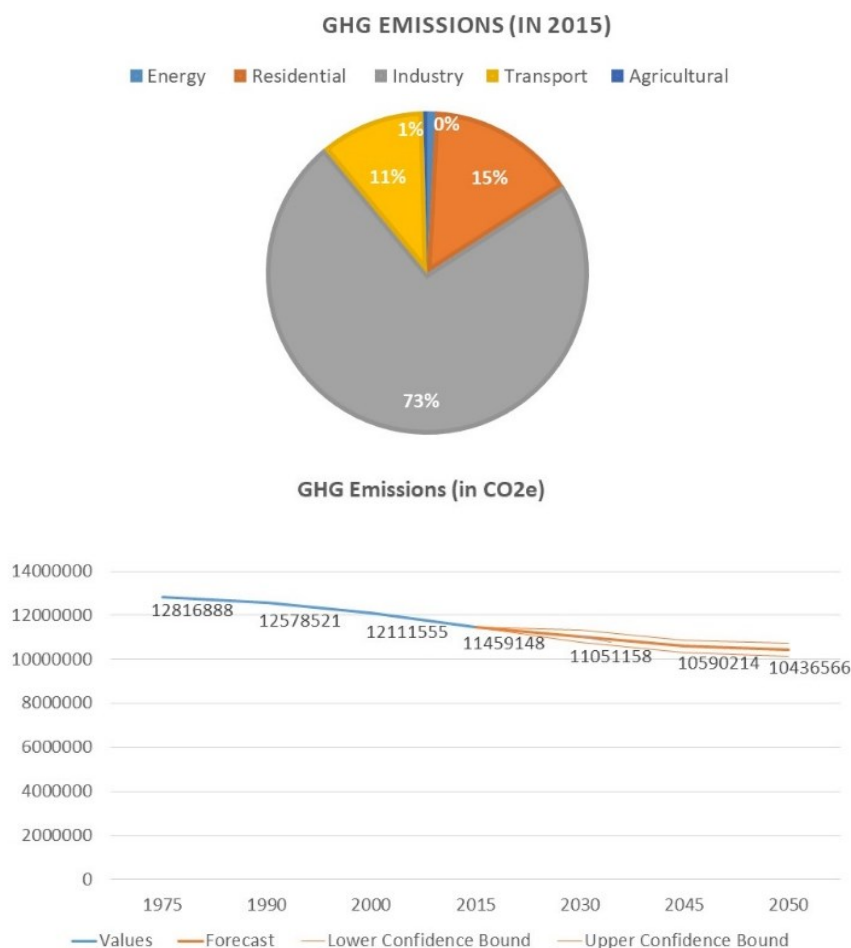


### 7.3.1 Fukuoka

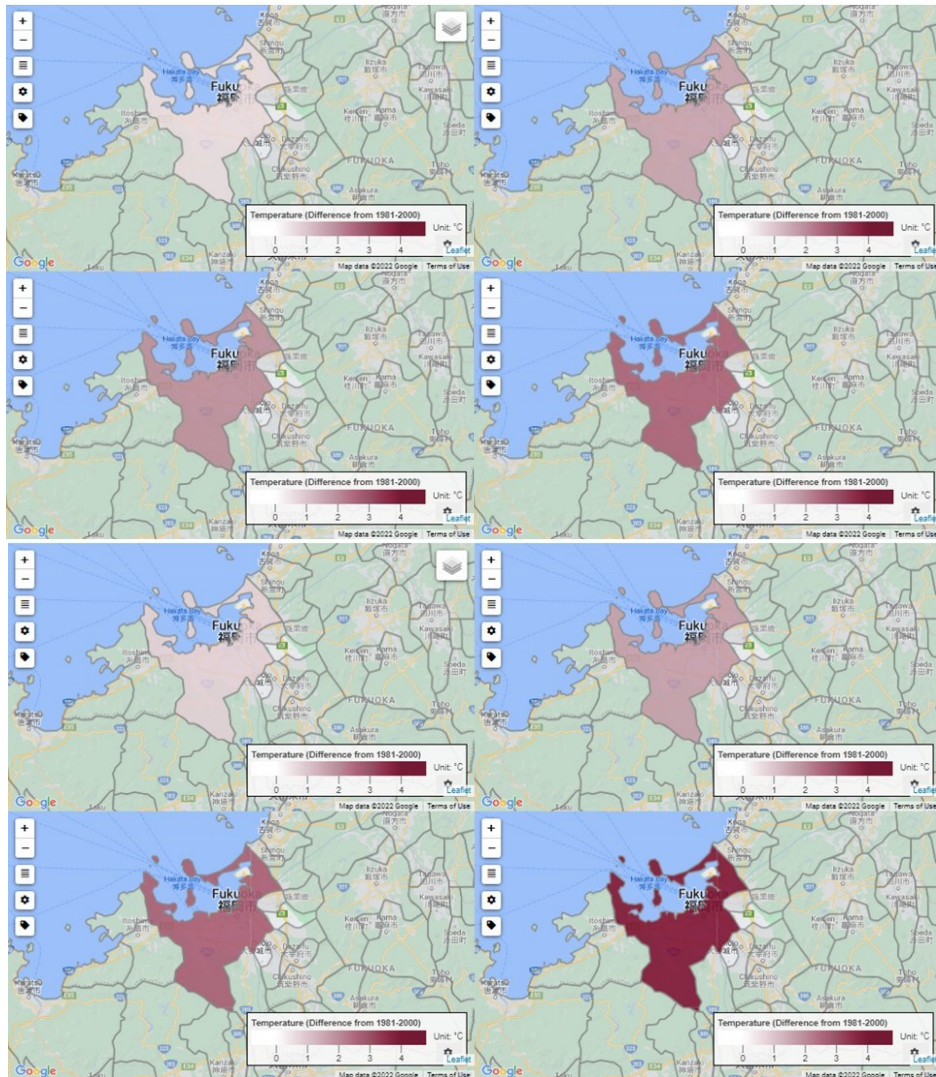
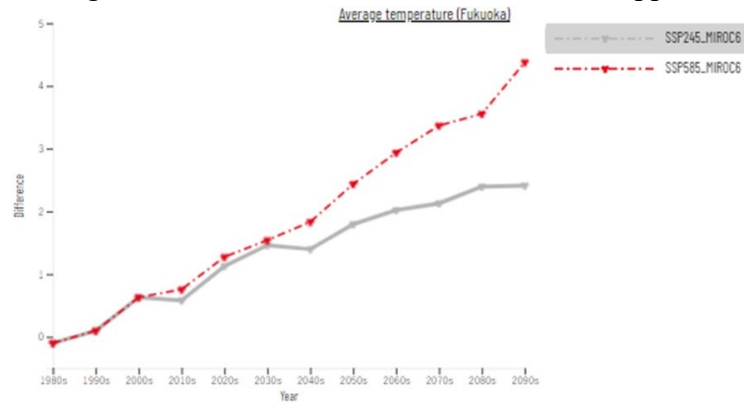
The GHG emission of Fukuoka was 12.8 MtCO<sub>2e</sub> in 1975, declining to 12.6 MtCO<sub>2e</sub> in 1990 and 11.4 MtCO<sub>2e</sub> in 2015. A majority of the GHG emissions in 2015 (Figure 7.1, top) were contributed by the industry sector (73%) and residential sector (15%), transport sector (11%) and energy sector (1%). As per the ICLAP model estimates (Figure 7.1, bottom), there would be a decrease in emissions at 0.3% per annum, leading to 11.0 MtCO<sub>2e</sub> in 2030 and 10.4 MtCO<sub>2e</sub> in 2050.



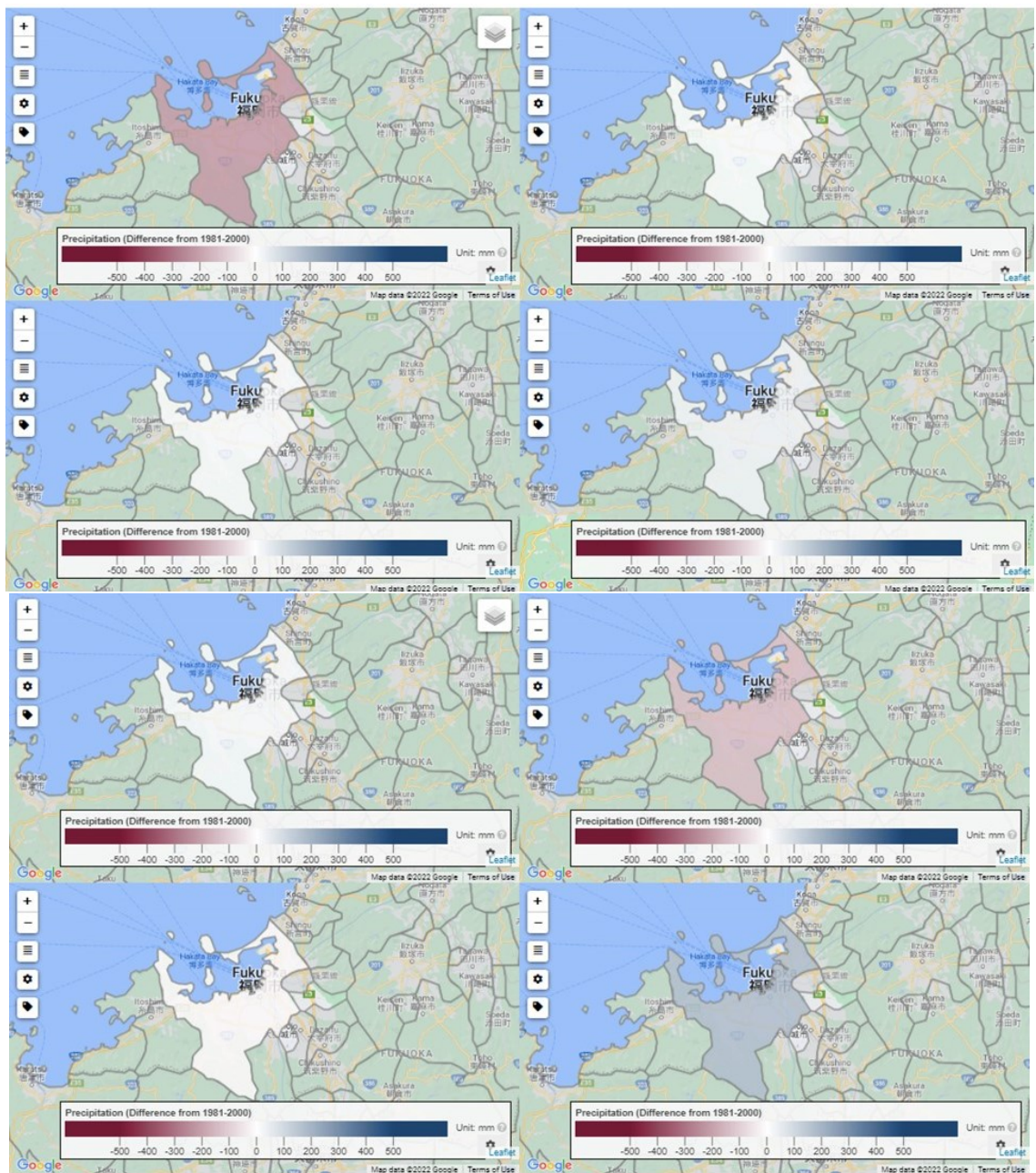
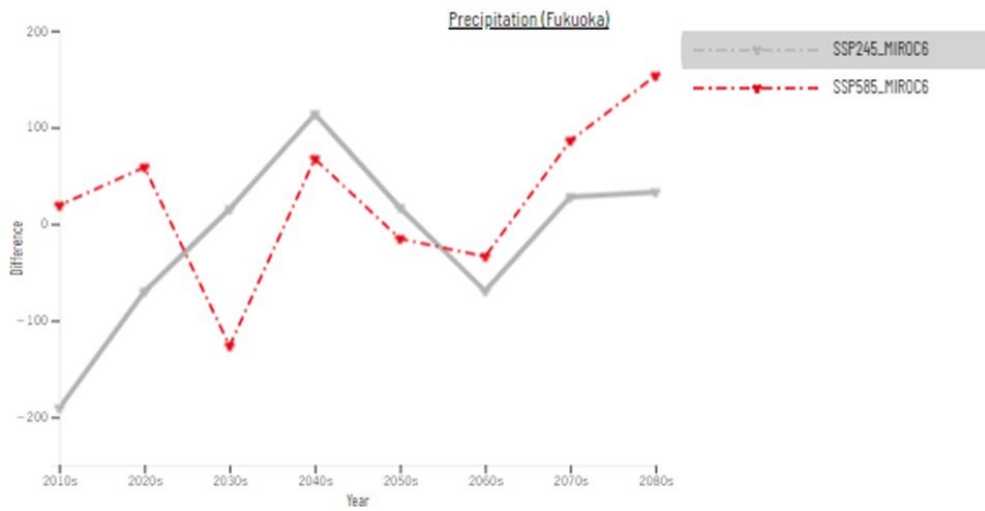
**Figure 7.1: GHG contributions from different sectors in Fukuoka (top); ICLAP model estimates for Fukuoka's GHG emissions till 2050 (bottom)**

The results for climate variability in Fukuoka indicate that depending on the emission scenarios, there would be a temperature increase of 1.4-3.4 degC from 2030-80s (Figure 7.2, top). The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an increase of 1.4 degC in 2030s (above the 1980 baseline temperature), 1.8 degC in 2050s, peaking to 2.2 degC in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 7.2 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585\_MIROC6) exhibits an increase of 1.6 degC in 2030s (above the 1980 baseline temperature), 2.4 degC in 2050s, rising steeply to 3.4 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 7.2 (bottom). Meanwhile, the precipitation change for Fukuoka shows a very high variability in the long run, ranging from -130 to 150 mm from the normal (Figure 7.3, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an

increase to about 15 mm in 2030s (above the 1980 baseline rainfall), rising but declining again to 15 mm in 2050s, falling to -80 mm in 2070s, re-escalating to 30 mm in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 7.3 (middle). Meanwhile, the scenario corresponding to the highest GHGs (SSP585\_MIROC6) pathway shows Fukuoka's city rainfall decrease to around -130 mm (above the 1980 baseline rainfall) in 2030s, improving to -20 mm in 2050s and increasing to about 150 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 7.3 (bottom).



**Figure 7.2: Temperature increase in Fukuoka 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 7.3: Precipitation variation in Fukuoka 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)**