

5.3.10 Hong Kong

The GHG emissions of Hong Kong was 5.4 MtCO₂e in 1975, that escalated to 24.9 MtCO₂e in 1990 and 43.7 MtCO₂e in 2015. A significant proportion of the GHG emissions in 2015 (Figure 5.28, top) were contributed by the energy sector (53%), followed by the industry sector (28%) and transport sector (15%). Meanwhile, the emissions from residential sector (4%) and agricultural sector (~0%) were marginal. As per the ICLAP model estimates (Figure 5.28, below), there would be an increase in emissions at 5.3% per annum, leading to about 56.6 MtCO₂e in 2030 and 72.9 MtCO₂e approximately in 2050.

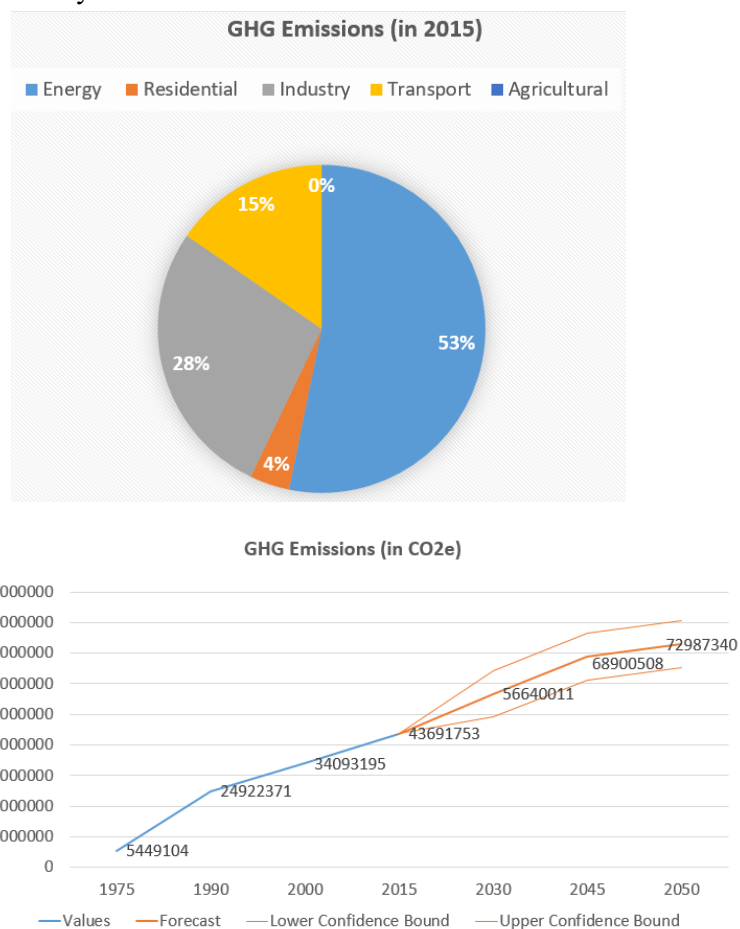


Figure 5.28: GHG contributions from different sectors in Hong Kong (top); ICLAP model estimates for Hong Kong's GHG emissions till 2050 (bottom)

The results for climate variability in Hong Kong indicate that depending on the emission scenarios, there would be a temperature increase of 1.0–2.8 degC from 2030 to 2080s (Figure 5.29, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 1.0 degC in 2030s (above the 1980 baseline temperature), 1.3 degC in 2050s, peaking to 1.6 degC in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 5.29 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 1.0 degC in 2030s (above the 1980 baseline temperature), 1.8 degC in 2050s further rising to 2.8 degC above normal in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 5.29 (bottom). Meanwhile, the precipitation change for Hong Kong shows a very high variability in the long run, ranging -20 mm to 380 mm from the normal (Figure 5.30, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 30 mm in 2030s (from the 1980 baseline rainfall), 130 mm in 2050s. The rainfall is expected to remain normal in 2060-70s, where after it re-escalates robustly to 220 mm above normal in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 5.30 (middle). Meanwhile,

the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows Hong Kong's rainfall to be above 80 mm (from 1980 baseline) during 2030s, decline to -20mm in 2040s, then rebound to +100 mm in 2050s and peaking to 380 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 5.30 (bottom).

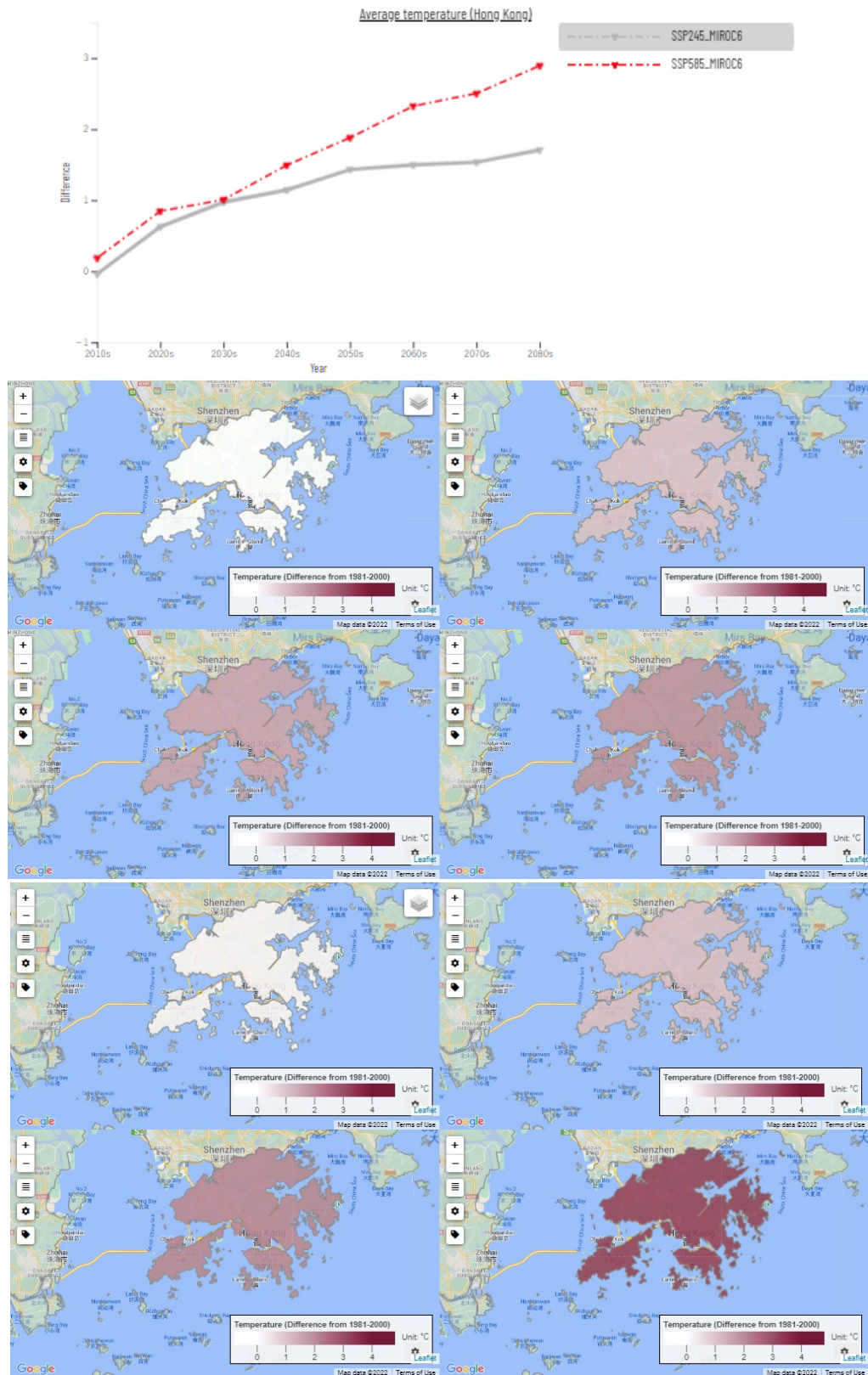


Figure 5.29: Temperature increase in Hong Kong under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

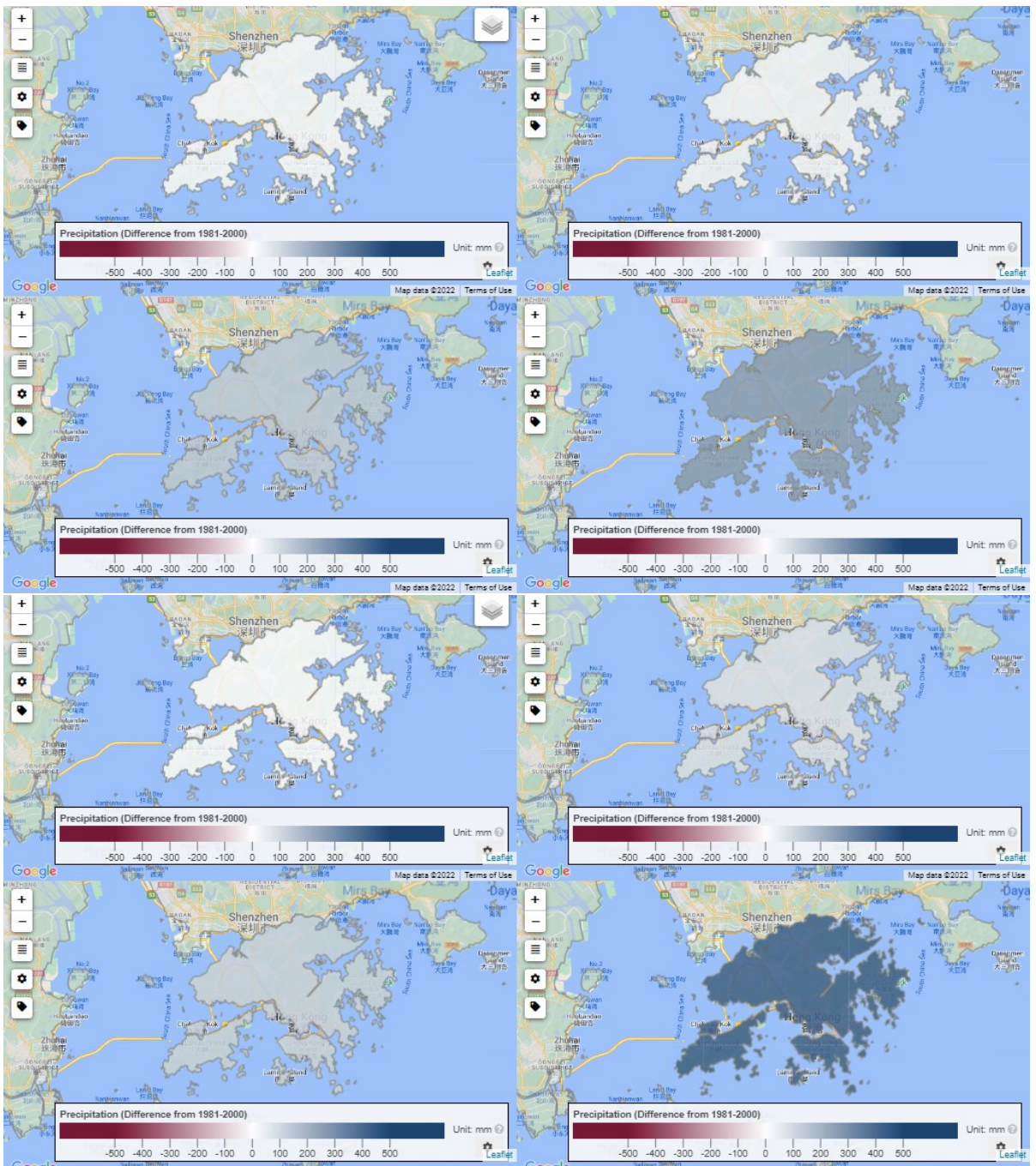
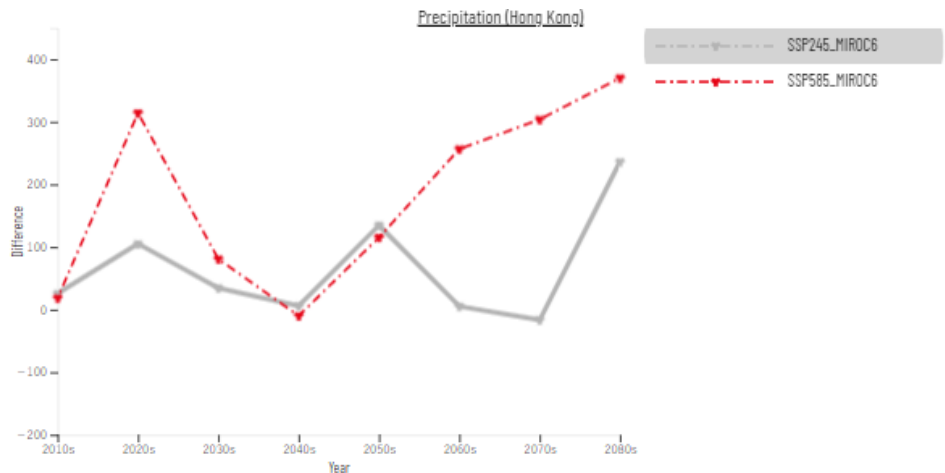


Figure 5.30: Precipitation variation in Hong Kong under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)