**INTRODUCTION**

Most of the developing cities are facing fast urbanization. Due to this, construction of high rise commercial and residential buildings were scattered within the vicinity of urban area. This resulted to change the land use, transforming vegetation area into asphalted and concreted roads. Furthermore, human activities alter energy balance of urban areas, in effect, inducing its own microclimate. These affects weather of the urban area (Cicek & Turkoglu, 2005).

Researches on urban weather of the developed cities revealed the pronounced effect of urbanization is on temperature. Vose et al., (2005) and Easterling et al., (1997) disclosed that there were increased in both minimum and maximum temperature of most part of the globe including the Southeast Asian Region. In line with the study conducted by Ren et al., (2008), that on estimate, urban warming was at 0.11°C/decade for the period of 1960 to 2000.

In the Philippines, limited literatures are available in understanding the effect of rapid urbanization on weather and climate. Due to this, the researcher focus on analysing the night temperature (T_{nm}) of Metro Manila. The study covered years from 2000 up to 2010. The datasets were taken from National Center for Environmental Prediction (NCEP) Final (FNL) grib 1 Reanalysis II which is maintain by the UCAR and the WRF V3.4.1 model. The model were able to utilized the night temperature (T_{nm}) is the temperature processed by the model every 21UTC or 11:00 PM PST were presented in. Fig. 3.

Increasing T_{nm} (except April) are visible for all the areas. T_{nm} of MM are consistently higher than the selected areas, approx. 2°C to 3°C. Trend magnitudes are ranging from −0.104 to 0.06, highest during October. No computed significant trends (except April of Bulacan).

**RESULT & DISCUSSION**

The WRF model were able to utilized the night temperature of the selected areas. Metro Manila (MM) is warmer than all the selected areas in this study. This is an evident of UHI intensity which opposes the cooling effect (breezes) of Manila Bay and Laguna Bay. UHI intensity is affected by land modification and population increases. Since, there is an increasing number of commercial and residential buildings that are scattered within MM. Buildings increase surface roughness resulted to reduce the rate of ventilation in urban areas. In addition, evapotranspiration by plants is a major cooling process for the land surface and the atmosphere. Transforming vegetation into high rise buildings in MM results to less evapotranspiration process, large sensible heat and warmed environment. All of them contributed in altering the energy budget and weather of the urban areas.

**DATA & METHODS**

**Domain**

Manila, Pasig and Quezon City were selected to represent the T_{nm} of Metro Manila. Those cities were classified by USGS as urban/build up area (LU=1). The land area of these cities covered 40% of the land area of Metro Manila (Fig.1). And having a 43 % of the Metro Manila’s population (2010).

Rural areas of Bulacan, Rizal and Cavite (areas around 25 km away from Metro Manila) were incorporated to compare night temperature.

**Data**

NCEP 1x1 degree FNL Reanalysis boundary condition from 2000-2010. WRF V3.4.1 1-way nesting as Mesoscale Model. Process were illustrated in Fig.2

All Jan, Apr, Jul and Oct of 2000 - 2010 were chosen as data, generated by the model. Those months represent the 4 climate classifications.

A nonparametric Mann Kendall (MK) Trend analysis with Sen’s slope estimator were used in detecting and measuring the magnitude of the trend, respectively (Hirsch et al., 1993, Karpouzos et al., 2010; Chen et al., 2011).

**REFERENCES**


**CONCLUSION**

Trend magnitudes are ranging from −0.104 to 0.06, highest during October. No computed significant trends (except April of Bulacan).