

**Assessment Of The Variation Between Land Surface Temperature And The Atmospheric Temperature Using Landsat 8 Imagery On The North Western Region Of Bangladesh From 2013 To 2018**

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Global warming is a common hazardous syndrome in many regions of the world especially in the developing countries which are mostly susceptible to be the victim of this problem. Land surface temperature (LST) is a very fundamental variable whereas the atmospheric temperature is works as a function of LST largely. The absorption and release of sunlight by the ground are two fundamental factors to determine the emitted heat which can be calculated from the Landsat 8 Thermal Infrared Sensor (TIRS) images consisting the thermal band 10 and 11, especially useful for surface temperature monitoring. This study is focused on determination of surface temperature with the help of processing the thermal band 10 following the formula  $T = K_2 / (\ln(K_1/L_\lambda + 1))$  whereas, T is the top of atmosphere brightness temperature expressed in degree Celsius and the atmospheric temperature data had been collected from Bangladesh Meteorological Department. Moreover,  $L_\lambda =$  TOA spectral radiance (Watts/ (m<sup>2</sup> \* srad \*  $\mu$ m)),  $K_1 =$  Band-specific thermal conversion constant from the metadata ( $K_1\_CONSTANT\_BAND\_x$ , where x is the thermal band number),  $K_2 =$  Band-specific thermal conversion constant from the metadata ( $K_2\_CONSTANT\_BAND\_x$ , where x is the thermal band number). This temperature is in Kelvin but this had been converted to Celsius by subtracting 273.15 from the determined temperature, T. Finding out the difference between this two data is the objective of this research which might help to obtain a clear concept about the relation between them in the study area region. Pattern of temperature rise due to global warming is also another outcome of this study.