FIRST RESULTS OF EOS ASTER AND MODIS AND NOAA AVHRR OBSERVATIONS OVER MARSEILLE DURING THE UBL/CLU-ESCOMPTE EXPERIMENT.

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Knowledge of land surface emissivity is critical to derive accurate land surface temperatures and to study the surface energy budget. Little information exists on urban surfaces emissivities, the values of which are < 1, and spectraly variable. Given the heterogeneity of urban surfaces, in-situ measurements of emissivity lack spatial resolution, whereas estimates of emissivity derived from land-covers types lack accuracy. As part of the UBL/CLU-ESCOMPTE experiment (http://medias.obs-mip.fr/escompte), an image was collected over the Marseille region, by the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER). The ASTER instrument, aboard the polar-orbiting EOS Terra satellite, collects high spatial resolution (15-90 m) multi-spectral data (14 bands, visible, near and thermal IR). The five thermal bands enable direct estimates of surface emissivities and accurate temperatures, at a 90 m resolution. Sixty images from the MODerate resolution Imaging Spectroradiometer (MODIS), aboard EOS satellite, were also collected during the ESCOMPTE experiment. The MODIS instrument is a moderate resolution (0.25-1 km) imaging spectroradiometer with 36 bands in visible, near and thermal IR. A third dataset consists of NOAA Advanced Very High Resolution Radiometer (AVHRR) images at moderate spatial (1 km) and spectral (5 bands) resolution. First results of these multi-sensors observations over Marseille will be presented. Near-simultaneous data from ASTER, MODIS and AVHRR will be analyzed. Results of surface emissivities and surface temperatures will be interpreted as a function of surface properties, such as land cover and fractional vegetation index.

Keywords : EOS-ASTER, EOS-MODIS, NOAA-AVHRR, surface emissivity, surface temperature, UBL/CLU-ESCOMPTE, Urban climatology.