made here on the difference between photographic infrared and thermal infrared. Photographic infrared sensitive film can image **reflected** infrared energy at wavelengths from 900 nanometres to 1.1 micrometers. Thermal infrared systems detect **emitted** infrared energy at wavelengths from 3 micrometers to 15 micrometers. There is a common misconception that infrared sensitive film can be used to measure heat differences.

The ability and efficiency of an object to radiate thermal infrared radiation is termed as that object's "emissivity". Emissivity is defined as the ratio of radiant flux from a body to that from a black body at the same kinetic temperature. Materials with a high emissivity absorb and radiate large proportions of incident and kinetic energy. Thermal infrared remote sensing systems, therefore, are considered as passive sensors since they merely record this energy emitted by all objects naturally. Clouds, rain, and atmospheric moisture will adversely affect the performance of infrared systems. Their optimum performance is restricted to good weather conditions, preferably at night. Imagery acquired from thermal infrared systems is best when collected during the evening, to avoid thermal interruptance by daytime solar activity.

There are two broad categories of infrared sensor that are available. They are classified as infrared linescanners (IRLS) and forward looking infrared (FLIR) systems.

Thermal infrared linescanners have been developed and utilized for a variety of military, commercial and scientific applications. Airborne linescanning systems consist of three basic components: an optical-mechanical scanning subsystem, a thermal infrared detector, and an image recording and printing subsystem.

Most infrared linescanners look vertically and collect infrared data by flying directly over the target. A rotating mirror reflects the emitted radiation from the ground surface onto a cooled infrared sensitive detector. Generally, for imaging "earth"