RS #3: Microwaves

- Microwaves has special properties which are important for remote sensing due to their long wavelengths (1cm to 1m).
- This longer wavelength of microwave radiation can penetrate through cloud cover, haze, dust and all but the heaviest rainfall.

the longer wavelengths are not susceptible to atmospheric scattering which affects shorter optical wavelengths

Facts: All objects emit microwave energy of some magnitude, but the amounts are generally very small.

-From this, passive microwave sensing is very similar in concept to thermal remote sensing.

-Passive microwave sensor detects the naturally emitted microwave energy within its field of view.

This energy is related to temperature and moisture properties of the emitting object or surface

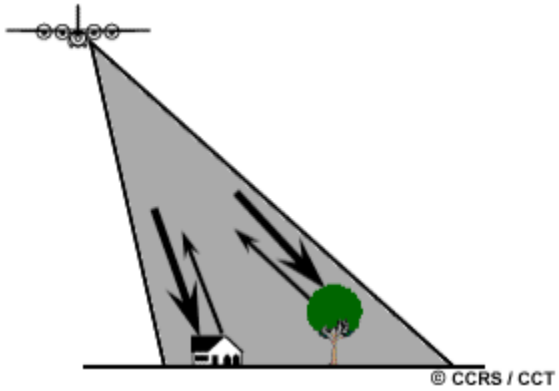
Microwave energy emitted by 1)Atmosphere 2)Surface reflection 3)Surface emissions 4)Transmitted from subsurface

Applications of *passive microwave* RS includes: Meteorology, Hydrology, Oceanography

Active microwave sensors provide their own source of microwave radiation to illuminate the target

Imaging: Radio Detection and Ranging (RADAR)

Non-Imaging: Altimeters & Scatterometers



Radar is essentially a **ranging or distance measuring device** which consists of: transmitter, receiver, antenna, and electronics system to process and record the data.