

UNIT-II

SOLAR RADIATION

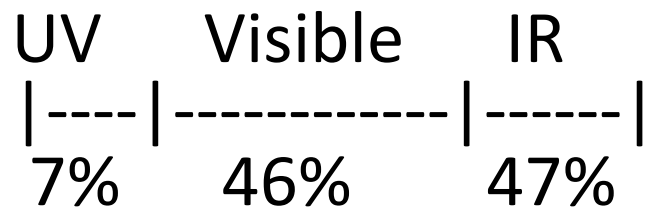
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Introduction to Solar Radiation

- **What is Solar Radiation?**
- Solar radiation is the energy emitted by the Sun in the form of electromagnetic waves.
- It is the primary source of energy for life on Earth.
- Used for solar heating, electricity generation, and agriculture.

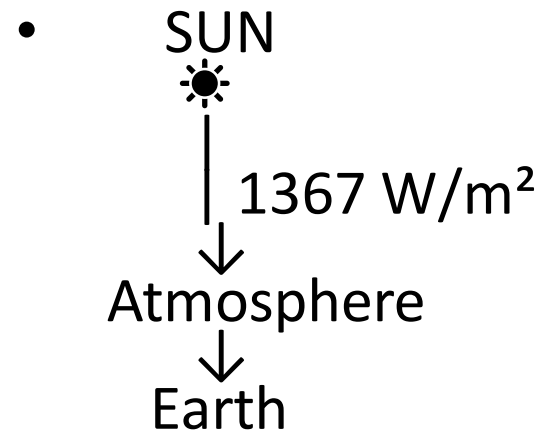
Solar Spectrum

- **Components of Solar Radiation**
- Ultraviolet (UV): 7%
- Visible Light: 46%
- Infrared (IR): 47%
- **Diagram:**
- Solar Spectrum



Solar Constant

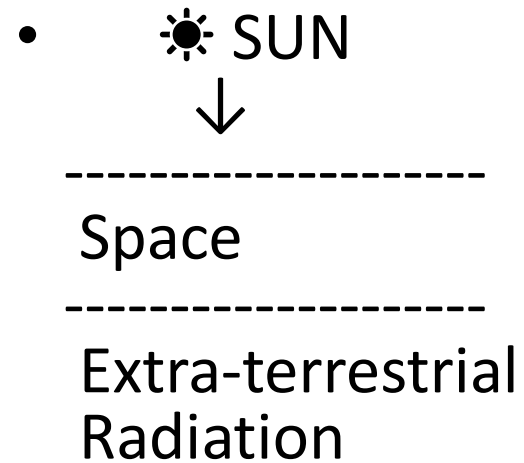
- **Solar Constant**
- Solar constant is the amount of solar energy received outside Earth's atmosphere.
- Value \approx **1367 W/m²**
- **Diagram:**



Extra-Terrestrial Solar Radiation

- **Definition**
- Solar radiation received outside Earth's atmosphere.
- No atmospheric losses.

- **Diagram:**

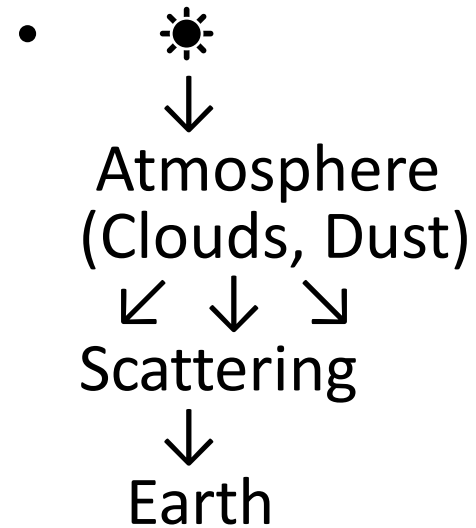


Terrestrial Solar Radiation

- **Definition**

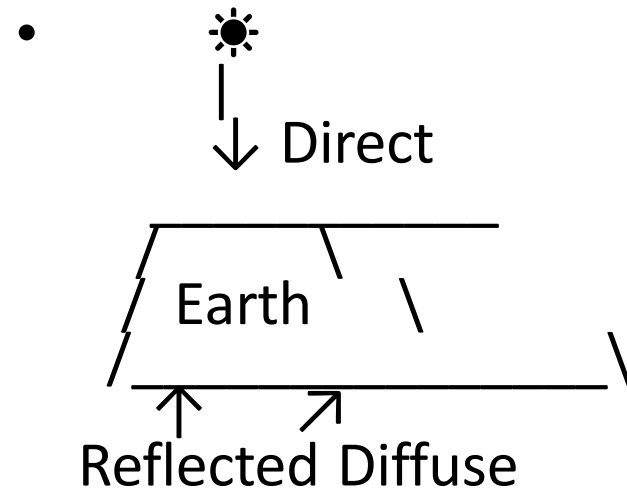
- Radiation reaching Earth's surface after atmospheric absorption and scattering.

- **Diagram:**



Types of Solar Radiation

- **Components**
- Direct Radiation
- Diffuse Radiation
- Reflected Radiation
- **Diagram:**



Factors Affecting Solar Radiation

- **Factors**
- Latitude
- Season
- Time of Day
- Atmospheric Conditions
- Cloud Cover
- Dust and Pollution
- **Diagram:**
- Sun Position

