

22 Fig.4 Mean Annual radiation and heat balance of the atmosphere (100 units of incoming solar radiation)

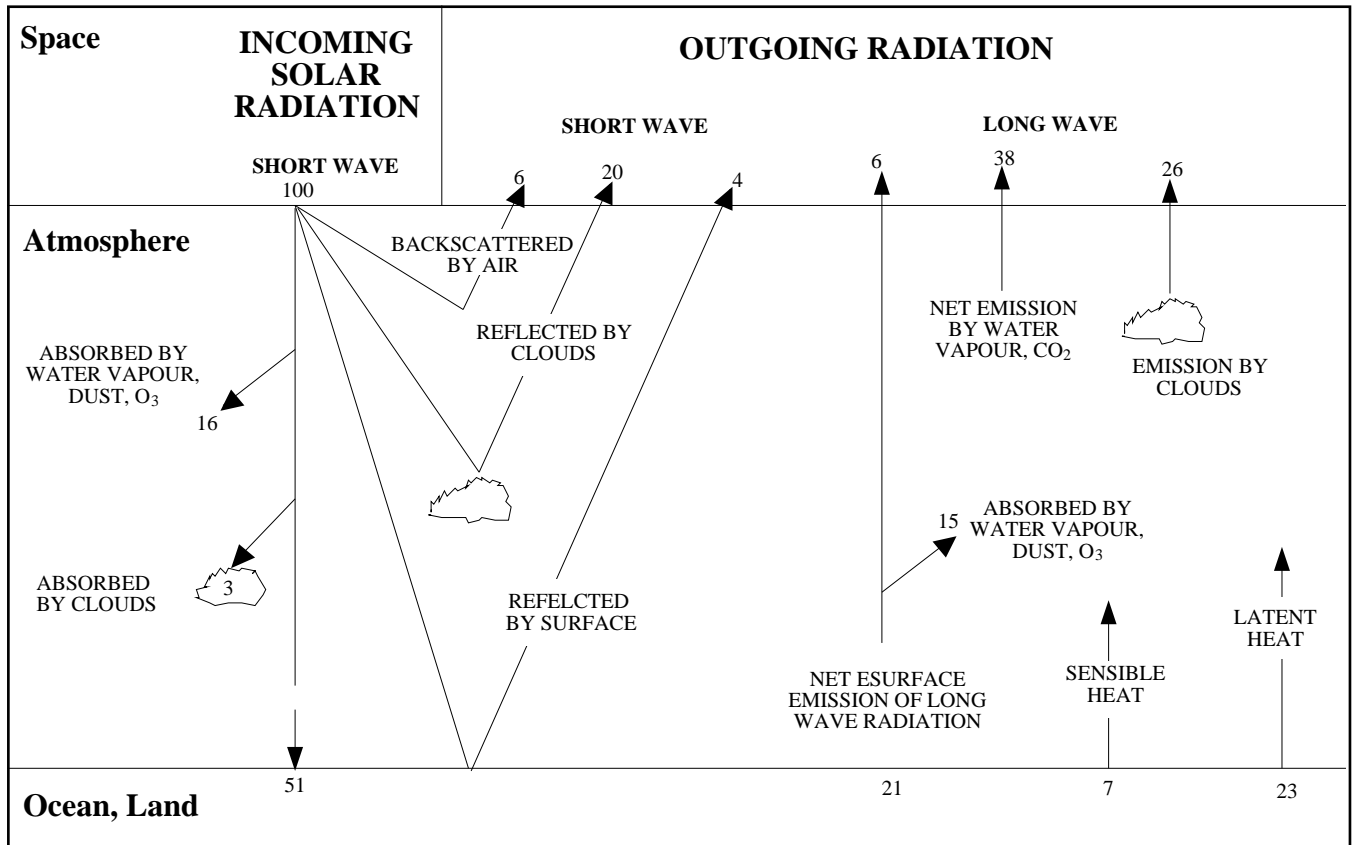


Fig.4 shows the energy balance for the earth and its atmosphere, assuming 100 units of solar radiation enter the atmosphere.

- (a) (i) How much radiation is available for absorption at the ground surface?
- (ii) What is the **technical term** for the fraction of the solar radiation **reflected** from a surface? (eg: the tops of clouds, the ground surface).
- (iii) Why may the fraction of solar radiation reflected from a surface increase in winter

- (b) Explain how the increase in levels of **greenhouse gases** (eg: CO₂, CH₄) and **ozone** O₃) may modify the energy flows in the system shown in Fig.4.

Greenhouse gases

Ozone

- (c) Explain how heat flow may vary between **summer** and **winter**, and **day** and **night**.

Summer/Winter

Day/Night