How satellite images work? A sketch of reflectance

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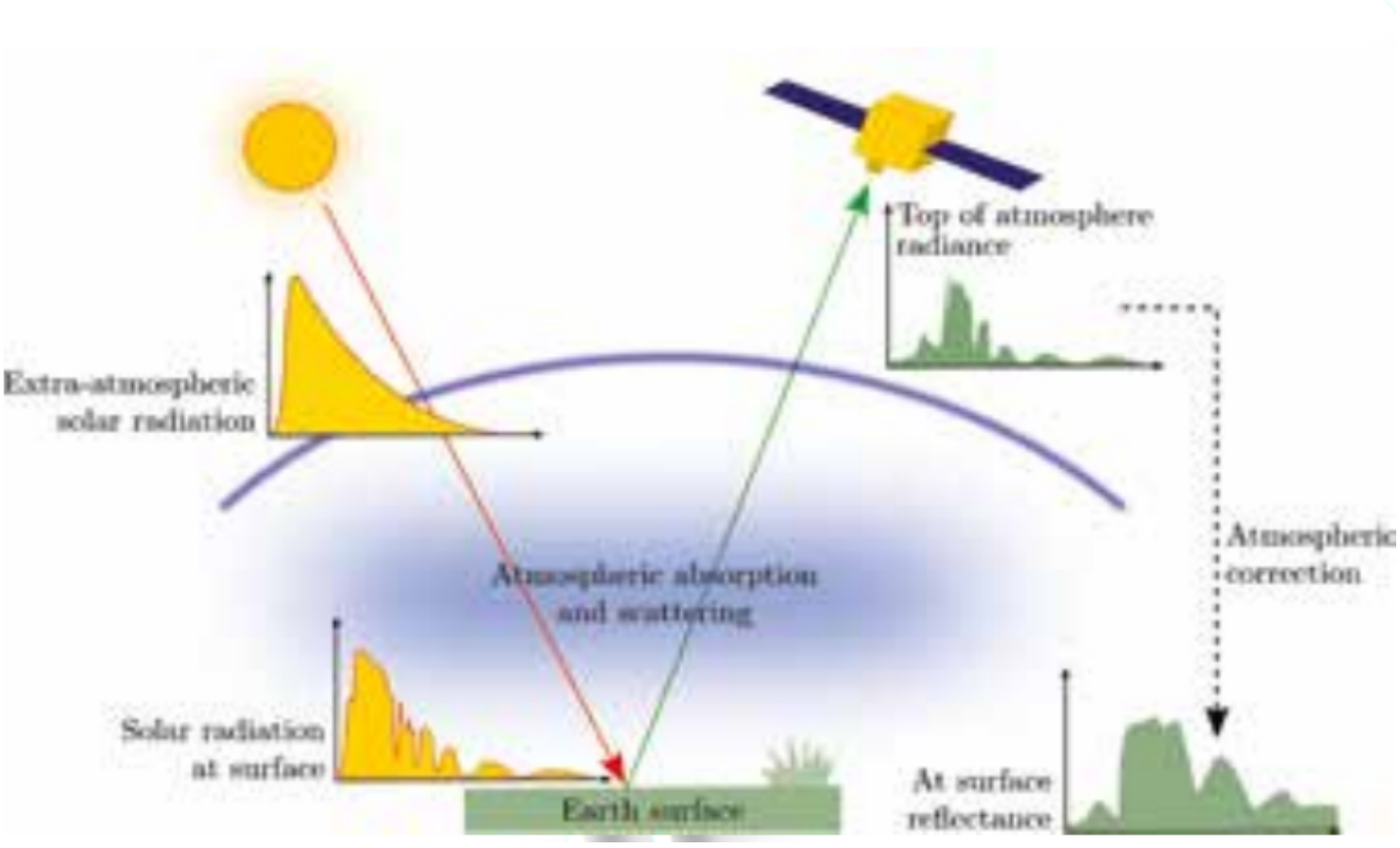
Outline

How satellite images work



Outline

Radiant flux and reflectance

- Radiant flux (flow of energy): Φ
- Reflectance: ratio between the reflected radiant flux (energy) and the incident radiant flux (energy):

$$\rho_\lambda = \frac{\Phi_{reflected}}{\Phi_{incident}} \tag{1}$$

Outline

Bits

The primary purpose of storing data in DNs is to reduce file size.

Let's see how bits work...

Shannon information: 1 bit = 0 or 1.

Let's see how bits work...

- 2 bits, how many possible combinations?
- 00, 01, 10, 11
- 4 possible values

Let's see how bits work...

- 3 bits, how many possible combinations?
- 000, 001, 010, 100, 110, 101, 011, 111
- 8 possible values

What's the rule?

- 2^{nbit}
- $2^1 = 2$ values [0,1]
- $2^2 = 4$ values [00, 01, 10, 11]
- $2^3 = 8$ values [000, 001, 010, 100, 110, 101, 011, 111]

UseR!

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