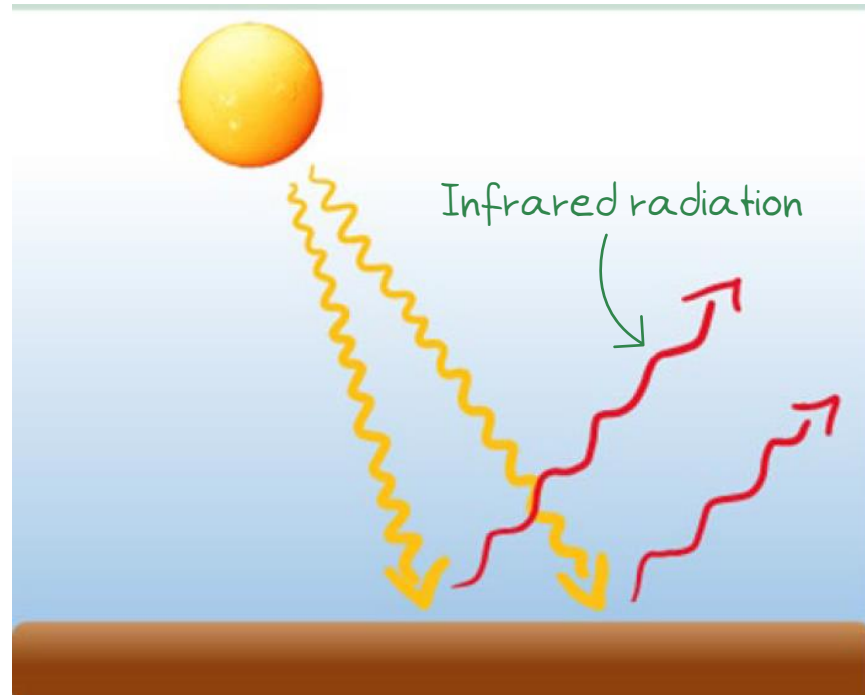


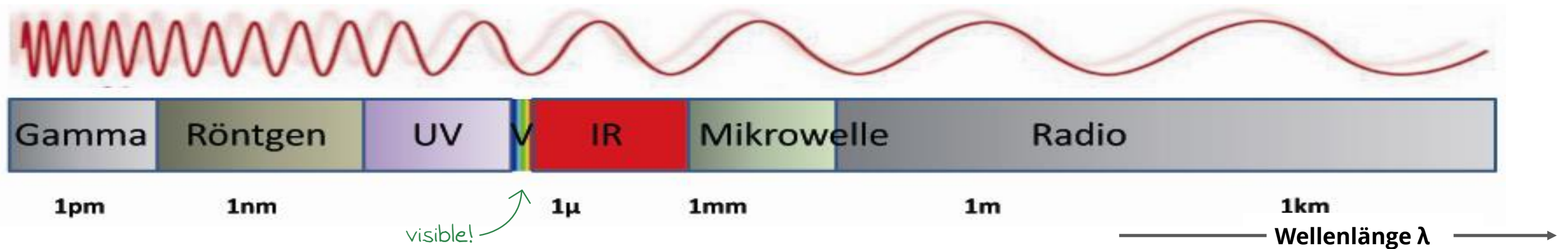
3. The Earth, a radiating Planet

Is it possible to make the invisible infrared radiation visible?



Background:

Energy is transported from the Sun to the Earth via electromagnetic waves. The largest part of solar radiation consists of short-wave electromagnetic waves (the light visible to us), which reach the ground almost without hindrance from the atmosphere, where they are then absorbed to a large extent. The ground of the Earth then radiates this received solar energy as heat radiation in the -form of long-wave infrared radiation towards space. In total, the earth absorbs as much solar energy as it radiates into space as thermal radiation - it is in radiative equilibrium. The heat radiation of the earth is invisible to us. Can it be made visible and can it be researched?



Background:

Visible light and infrared radiation have different properties. Some materials are transparent to infrared radiation (IR radiation) but not to visible light. Other materials absorb (i.e. trap) infrared radiation and allow visible light to pass through without hindrance. We explore these properties ourselves.



Image taken with a thermal imaging camera



Imaging sources: Thermal imaging camera image: pxhere.com, light bulb: Pixabay; glowing iron: Pixabay;



The hotter the iron, the brighter and whiter it glows!