



Mars survival handbook: where to find water

Wouter A Marra

Universiteit Utrecht, Faculty of Geosciences, Physical Geography, Utrecht, Netherlands (w.a.marra@uu.nl)

Most famous observations of Mars are those of Giovanni Schiaparelli in the late 19th century. His maps contain many linear features across the surface of Mars, which he called 'canali'. The mis-translation from the Italian 'canali', meaning channel, to the English 'canal', man-made infrastructure, led to wild speculations of an advanced species struggling to survive on a planet with diminishing natural resources. Later research has proven this is not the case, at least not for Mars. Nevertheless, the possible existence of life and habitability of Mars has inspired further investigations, interplanetary missions and inevitably at some point human exploration.

While no canals exist on Mars, there is widespread evidence for occurrence of liquid water a long time ago on this planet far, far away. The ancient landscapes of Mars may provide most valuable clues for answering the ultimate question about life, the universe and everything, but Mars today is a terrible place to be as it is extremely cold and dry; there may be life, but not as we know it. Nevertheless, many humans have volunteered to go there. Some call them mad, some call them heroes, but perhaps they just want to flee from our planet facing floods, droughts and climate change? But unless we find a good source of water for these explorers, the climate on Mars will certainly cause a swift EXTERMINATION!

I have written my PhD thesis on groundwater outflow landscapes on Mars. I will review some of the most spectacular landscapes on Mars, experiments I have done in the past years to explain these landscapes and their hydrological and climate implications. Although the outlook is not so hopeful for early colonist, I will share my views on the possible sources of water on Mars today.