

## Video Transcript

### **Living on the Moon**

Tara Hayden:

50 years ago, the Apollo 11 mission landed on the moon and this mission and the missions that followed it returned samples to earth that we then studied to understand the moon's makeup and also the volatiles present in it. Volatiles are elements such as carbon-nitrogen water that is essential for life and these very early studies found that there was barely any volatiles present on the moon and that it was a born dry planetary body.

However, in 2008, Saal et al published a paper looking at green glass which is produced in fireball interruptions to the moon surface and they found significant quantities of volatiles present.

This led to a reanalysis of all the polar samples found a few tens of ppm to a few hundreds of ppm of water especially present in lunar rocks and this water is primordial water thought to have been introduced very early in the moon's history. In the 1990s the lunar prospector and Clementine orbiters detected water ice in permanently shadowed craters at the lunar poles this water ice could be used as a resource in future lunar missions that we would use to fuel the rockets or to reduce our payload going back and forth to the moon.

However, we need to have a way to extract this water from the water ice and at the Open University we are producing equipment that we can use to extract this water, and this may eventually lead to extended lunar habitation.

-End of Mini lecture-