



**Australian Earth Sciences Convention
Media release – Thursday 24 July 2008**

Living on Mars “a distinct possibility” within 25 years, says expert

Colonisation of Mars and the Moon by humankind is “a distinct possibility” within the next 25 years and will likely be driven by economic need or the need for alternative energy supplies on Earth, says Professor Jeff Taylor from the Hawai‘i Institute of Geophysics and Planetology, and a keynote speaker at the Australian Earth Sciences Convention in Perth today.

Professor Taylor also says that life of some form could currently exist on Mars, or has done so in the past – and while the exact type of that lifeform remains a mystery at the moment, modern space exploration technology will soon be able to provide a definitive answer.

Today (Thursday) is the final day of the four day Earth Sciences mega-conference. Professor Taylor's presentation, *New views of the chemistry and geology of the crust of Mars*, comes as NASA's latest Phoenix mission to Mars continues to beam important information on the Red Planet back to Earth.

“There has recently been a massive increase in the type and amount of information that scientists have been able to source from the exploration of Mars through unmanned space missions – and not only will this soon be able to provide more detailed information about the possible existence of lifeforms on the Red Planet, it will also assist in providing answers to some of the most difficult questions facing planetary science” says Professor Taylor, who is Director of the Hawai‘i Space Grant Program at the Hawai‘i Institute of Geophysics and Planetology, University of Hawai‘i.

“Recent missions to Mars have taken geology from being a one-planet science to a multi-planet science, and this has major ramifications for the progress we can make on the science behind many critical issues on Earth.

“Collectively, NASA's Orbiter missions and the Mars Pathfinder and Rover missions have converted Mars from being just a little dot in the sky into a massive and exciting new field for geological research. In effect, unmanned space technology has moved Mars from the realm of astronomy to the field of geology.

“The information being revealed by these missions shows that Mars and Earth have taken extremely different paths in terms of their geological development.

“Mars shut down its geological engines billions of years ago, providing geoscientists with an opportunity to consider what Earth's early landscape may have looked like. Almost 90 per cent of Mars' geological action concluded 3.5 billion years ago, whereas there is little, if any, geological information from this period remaining on Earth.

“The surface of Mars still contains many craters – some the size of Australia – caused by a meteorite bombardment which ended around 3.9 billion years ago, whereas Earth has lost all record from this period and geoscientists therefore have no way of understanding how this period may have led to the creation of an environment capable of sustaining life on Earth.

“Missions to Mars have recently uncovered exciting traces of methane gas which is leading some scientists to think there could be some form of life on Mars. While such lifeforms may be water-dwelling micro-organisms rather than the forms of Martian life made popular in science fiction, it is nevertheless a tantalising indication that life could exist, or has existed, on the planet.

“This makes sense, because even if you look at all the areas on Earth where life exists, you will find that at least some form of life essentially can survive anywhere there is water, even when that water is very hot, highly acidic or saline.”

Professor Taylor also believes that within just 25 years humankind “could make the leap to living on another planet”, and that this will probably be driven by economic interests or the need for alternative energy sources.

“It is basically human nature to want to explore and colonise new areas” Professor Taylor says. “And interestingly, even in modern times, this colonisation is most likely to be for economic reasons or, in the case of the modern world, the need for additional energy supplies. My feeling is that humans will first seek to set up a permanent base on or near the Moon, possibly so we can generate energy from solar radiation and beam it back to Earth.

“Once we are established on the Moon, then the colonisation of Mars could follow, and while this will not happen over the next year of course, it could occur within the next 25 years. There are many obstacles to overcome first, though, including the need to ensure there are the basic life supports like sufficient oxygen and water that humans need.

“Additionally, the distance from Earth to Mars is about 35 million miles and travelling there currently takes about 6 months – you’d want to take a sandwich for the road.”

Professor Taylor has undertaken extensive work on the mineralogical and chemical makeup of lunar samples and meteorites, publishing over 160 refereed articles.

His main scientific interest is in understanding the processes involved in planetary evolution, with an emphasis on magmatism and impacts on the Moon, Mars, Mercury and asteroids, and aqueous alteration processes on Mars.

The **Australian Earth Sciences Convention** is Australia’s premier geosciences conference and a major conference on the international geosciences calendar. It is hosted by the Geological Society of Australia and the Australian Institute of Geoscientists. Effectively several major conferences wrapped into one, the Convention boasts five key streams: Resources – foundation for our future ■ Geoscience in the service of society ■ The evolution of life and the solar system ■ Earth’s environments – past, present and future ■ The dynamic Earth – from crust to core.

What: 2008 Australian Earth Sciences Convention
When: Sunday 20 - Thursday 24 July 2008
Where: Perth Convention & Exhibition Centre, Perth

Professor Jeff Taylor will deliver a plenary address to the Convention at 9:45am (Perth time) today (Thursday). He will be available for embargoed interviews Wednesday evening, from 6am to 7am Perth time (8am to 9am eastern) Thursday, and from 11am Perth time Thursday onwards. Media are welcome to attend and cover his plenary address. Please phone Patrick Daley (Patrick Daley PR) on 0408 004 890 to arrange interviews with Professor Taylor or other speakers, or to attend the Convention.

Find the **full program** for the Australian Earth Sciences Convention at www.iceaustralia.com/aesc2008. Media can access **suggested speaker and topic lists** (organised into subject headings and state-specific headings), as well as other background material, on the Media page of the website (abstracts are available from Patrick Daley). **Media highlights for Day 4 (Thursday)** of the Convention can also be found on the website.