



Dr. James L. Green is the Director of the Planetary Science Division at NASA Headquarters, Washington DC. He received his Ph.D. in Physics from the University of Iowa in 1979. Dr. Green has written over 110 scientific articles in refereed journals involving various aspects of magnetospheric physics of the Earth and Jupiter.

Dr. Green has also worked at NASA's Marshall Space Flight Center (MSFC) from 1980 to 1985 in the Solar System Division. In addition, he was also a safety diver in the Neutral Buoyancy Simulator supporting NASA's manned spaceflight program making over 150 dives.

In 1985, Dr. Green transferred to the Goddard Space Flight Center (GSFC) until he came to NASA Headquarters in 2006. While at GSFC, Dr. Green was a co-investigator and deputy Project Scientist on the Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) mission. Dr. Green was a 1988 recipient of the Arthur S. Flemming award given for outstanding individual performance in the federal government and was awarded the Kotani Prize in 1996 in recognition of his international science data management activities.

**Dr. James Green**  
**“The Search for Life Beyond Earth in Space and Time”**  
**Wednesday March 8, 2017**  
**7:30 p.m.**  
**Lakehead University ATAC 1003**

About 4.5 billion years ago a supernova exploded causing a nearby interstellar cloud to collapse creating our solar system. What emerged first was our sun blowing the lighter gases outward, allowing the heavier elements to remain in the inner solar system forming our terrestrial planets. We are so lucky to have Venus and Mars, two terrestrial planets that are very similar to the Earth, close in size, with significant atmospheres. Planetary scientists have developed the capability to model how these planets have evolved since their birth and what may happen to them in the distant future. Comparative planetology tells us that terrestrial planetary atmospheres have been in a process of continual change based on the extent of their sources and sinks. We are finding some startling parallels in which both Venus and Mars had environments that would have been habitable for life, as we know it, in their distant past. In addition, we are finding Europa and Enceladus are thought to have an ocean of liquid water beneath their icy crust surface in contact with mineral-rich rock, and may have the three ingredients needed for life as we know it: liquid water, essential chemical elements for biological processes, and sources of energy that could be used by living things. With these discoveries in mind we are looking for potentially habitable exoplanets and have made some significant discoveries.