

Title: World, Mars, and OMEGA

Speaker: Jonathan Trent, Ph.D.

Director, OMEGA Global Initiative (OGI),

Scientist, NASA Ames Research Center,

Adjunct Professor, University of California at Santa Cruz

Now more than ever, we see the world through our technology and our technology reflects our ingenuity. Our ingenuity has always sustained us-- first, as hunters-and-gatherers next, as farmers, then, as industrial revolutionaries, and most recently, as masters of all our machines, culminating in the computers we carry in our pockets. (An iPhone 6 is 32,600x faster than the best computers that NASA had for the Apollo missions to the moon).

Thus, throughout our history our ingenuity has provided us, in one way or another, with critical access to water and food, and empowered us with different forms of energy. For the last 150 years, we have been exploiting the Earth's buried treasures of fossil energy (coal, oil, and natural gas) and with luxurious access to water, food, and energy, our species and civilization have flourished unimaginably and grown exponentially, especially in the last 100 years. But there are consequences to this growth and exploitation.

On the one hand, we find ourselves with 7.4 billion neighbors, people flocking to mega-cities where food is cheap and fast and available, where drinking water is so abundant that it's used to flush toilets, and energy warms and cools and cooks and lights and moves us physically or virtually around our global village. On the other hand, not all our neighbors have adequate food and clean water; our lifestyles and use of fossil energy are polluting on a global scale, impacting even the climate and resource insecurity, social instability, and weapons of mass destruction, engendering justifiable fear for the future.

Can our ingenuity cope with the global challenges at hand? Have we outgrown the Earth and should we take seriously the plans to colonize Mars? What is the OMEGA Project?