Kelci Garcia
Senior Division Engineering
Parabolic Solar Desalination for the Developing World

"Water, water, everywhere and all the boards did shrink, water, water, everywhere nor any drop to drink." Sea water covers 75% of the planet; paradoxically many coastal areas are without fresh drinking water. The purpose of this project was to eradicate the aforementioned paradox using a sustainable source of energy. One of the most efficient solar collectors/concentrators of solar energy is the parabolic mirrored dish. In my project I combined the physics of energy and engineering techniques to produce the life blood of our planet, water, all in a transportable, sustainable, and affordable package for the developing world. Dual axis tracking was implemented for maximum efficiency. I built a parabolic mirror and steam generator with a heat exchanger. The heat exchanger condenses the steam and produces fresh water. Caloric calculations were taken and although hardware materials available for this project couldn't endure the intense heats attained, as demonstrated in the accompanying DVD. I am confident of the final product attainable from this ambitious project. I am hoping to build a more rugged prototype that can be used in the developing world. I hope to build an attachment capable of producing electricity in addition to fresh water. One of my "E.T. (Energy Transfer) Dishes" could supply a village with sustainable telecommunication power, lighting power, and fresh water. With these basic needs met people could use the lighting for studying, less time collecting fresh water, and internet access. This could greatly enhance the life of a village.