

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Learning and Knowledge Development for a Globally Sophisticated Workforce (5)

Author: Prof. Mariel Borowitz
Georgia Institute of Technology, United States

ANALYSIS OF GLOBAL SPACE WORKFORCE AND EDUCATION

Abstract

The activities and infrastructure that comprise the global space economy rely on a workforce of hundreds of thousands of professionals around the world. Although the U.S. workforce decreased from 2010 to 2011, continuing a five year period of decline that began in 2006. However, long-term space employment levels have remained relatively consistent and there has been real salary growth. Other leading space actors, such as Europe and Japan, have also maintained their space industry workforce over time, and have experienced growth from 2010 to 2011.

The high-paying jobs available to space workers require highly developed skills and education. For example, at NASA, almost all of the individuals hired in 2011 held a bachelor's degree, and more than half held an advanced degree. More than half of ESA employees also held a university degree. A robust space workforce requires adequate math and science education at the primary and secondary levels as well as a sufficient supply of science and engineering university graduates. Education trends around the world show that some countries, such as China, are scoring high in international primary and secondary assessments as well as greatly increasing the number of first degree graduates.

This paper presents the Space Foundation's findings from The Space Report 2013, drawing from multiple data sources, including the Bureau of Labor Statistics, the National Center for Education Statistics, the Organization for Economic Cooperation and Development, and many others, to identify trends in global space employment and global space education. In addition to these data, this paper attempts to explain some of the drivers of changes within the global workforce, including those caused in the United States by the retirement of the Space Shuttle. A snapshot of the demand for highly educated individuals is presented based on projections from the Bureau of Labor Statistics, as well as reports on commercial hiring practices. This is compared with data on international primary and secondary educational achievement in math and science, and the number of space-related undergraduate and graduate degrees attained in various regions and particular spacefaring nations.