

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future - Developing the Space Workforce (5)

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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 slightly in 2010, the available data demonstrate that over the long term, space employment levels have remained consistent and there has been real salary growth. Other leading space actors, such as Europe and Japan, have also maintained their space workforce through periods of relative economic strength and weakness.

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 2010 held a bachelor's degree, and more than half held an advanced 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 2012, drawing from multiple data sources, including the Bureau of Labor Statistics, the National Center for Education Statistics, the Program for International Student Assessment, 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 by NASA's recent policy transitions. A snapshot of the demand for highly educated individuals is presented based on detailed data about the educational attainment of NASA's current and past space workforce, as well as reports on commercial hiring practices. This is compared with global data on international primary and secondary educational achievement in math and science, the number of space-related undergraduate and graduate degrees attained in various regions and particular spacefaring nations.