

**Applied Technology Institute (ATLcourses.com)**

*Stay Current In Your Field • Broaden Your Knowledge • Increase Productivity*

349 Berkshire Drive • Riva, Maryland 21140

888-501-2100 • 410-956-8805

Website: [www.ATLcourses.com](http://www.ATLcourses.com) • Email: [ATI@ATLcourses.com](mailto:ATI@ATLcourses.com)

## **Boost Your Skills With ATLcourses.com!**



### **ATI Provides Training In:**

- **Acoustic, Noise & Sonar Engineering**
- **Communications and Networking**
- **Engineering & Data Analysis**
- **Information Technology**
- **Radar, Missiles & Combat Systems**
- **Remote Sensing**
- **Signal Processing**
- **Space, Satellite & Aerospace Engineering**
- **Systems Engineering & Professional Development**

**Check Our Schedule & Register Today!**

The Applied Technology Institute (ATLcourses.com) specializes in training programs for technical professionals. Our courses keep you current in state-of-the-art technology that is essential to keep your company on the cutting edge in today's highly competitive marketplace. Since 1984, ATI has earned the trust of training departments nationwide, and has presented On-site training at the major Navy, Air Force and NASA centers, and for a large number of contractors. Our training increases effectiveness and productivity.

**Learn From The Proven Best!**

## STRIKING IT RICH IN SPACE

*“The next generation of billionaires is going to come from the business of space.”*

Space Industrialization Expert  
Art Dula, Houston, Texas, 1986

In 1985 the financial experts at the Center for Space Policy in Cambridge, Massachusetts, cobbled together some rather amazing estimates for the probably growth rates for the industrialization of space. During that year revenues from Space Industrialization – the private, profit-making use of the special environmental properties of outer space for the benefit of all mankind – totaled only \$4 billion per annum. But their estimates indicated that, 15 years later with the dawning of the 21<sup>st</sup> Century, the annual take would skyrocket to more than \$65 billion.

Slack-jawed pundits quickly concluded that those courageous predictions were too high by a factor of ten, or more. Some of them concluded that large-scale satellite-based industries would probably never materialize along the space frontier.

Today, however, our once-empty skies are thick with commercially-productive satellites. At this moment, more than 900 of them are swarming along the space frontier. The biggest moneymakers are hovering along the geosynchronous arc in a thin, metal daisy-chain of relay stations 23,300 miles high. At last count, 370 geosynchronous satellites were up there marching in single file, one behind the other. On average, they are spaced about one degree apart with 380 miles separating each one from its two nearest neighbors in space.

Most of those geosynchronous satellites are providing reliable and effective communication services to the people living on planet earth. Telephone calls, internet messages, television programs, electronic teleconferences, even whole newspapers are streaming from one terrestrial location to another through these electronic marvels in space.

A bit lower, 12,500 miles high, 28 GPS satellites are broadcasting precise radionavigation signals to 500 million users scattered around the globe. They help guide commercial jetliners, aircraft carriers, Boy Scout troops, taxicabs, army tanks, and police helicopters toward their intended destination.

Lower still, are swarms of man-made satellites that provide us with a worldwide weather-watch warning us of impending storms and hurricanes. And nearby earth resources satellites help us manage our water supplies, our farmlands and forests, and our sprawling

cities more effectively. Still other satellites positioned in low-altitude orbits help us monitor pollution sources, greenhouse gases and widely scattered oil drilling and mining operations.

More than half of all the satellites now in space, 460 of them, are owned and operated by private businesses and government entities in the United States. In 2008, 68 new ones were lofted into their destination orbits to provide a variety of beneficial services. They were sent there from 20 active spaceports (launch complexes) spotted around the globe.

In 1985, when the financial experts at the Center for Space Policy predicted that, within 15 years, revenues from Space Industrialization would grow from \$4 billion to \$65 billion per annum, skeptical pundits were convinced that this was a ridiculous pipe dream that would never actually materialize.

In actual fact, however, revenues streaming in from the space frontier in 2001 totaled \$78 billion and by 2006 they had grown to \$143 billion per annum. Averaged over the entire 21-year interval between 1985 and 2006 their compound growth rate amounted to 17.5 percent per year.

To many commentators, Houston’s space industrialization expert Art Dula sounded a little foolish when he made some rather colorful predictions in 1986 concerning the future of Space Industrialization. But as things have turned out, he was precisely right, when he concluded that: “The next generation of billionaires was going to come from the business of space.”

Tom Logsdon

