



Imagine bridges not meeting in the middle, planes landing next to – rather than at – airports, ships frequently running aground, and the north-bound commuter train on the same track at the same time as a south-bound freight.... And imagine the Internet forever gridlocked.

This is just a glimpse of what our lives would be like without geodesy. Geodesy is the science of measuring the size and shape of the Earth and precisely locating points, or coordinates, on the Earth. These geodetic coordinates can tell us exactly where we were, where we are, and where we'll be when we get there.

But the mere application of geodesy alone doesn't create order out of chaos. Geodesy shapes our lives today through a combination of three innovative tools:

- the Global Positioning System (GPS), which supplies the coordinates;
- NOAA's National Spatial Reference System (NSRS), which gives the GPS coordinates integrity; and
- Geographic Information Systems (GIS), which make the coordinates useful.

As our society and economy become increasingly dependent on complex technologies, the need for precise positioning and consistent, reliable data intensifies. This imaginative trio of GPS, NSRS, and GIS is providing the order needed for ensuring public safety, enhancing economic prosperity, and protecting environmental quality throughout the nation.

*"Geography without geodesy is a felony."*

*–Gunther Greulich, Past President,  
American Congress on Surveying and Mapping*



**LEFT: More than 98 percent of the nation's tonnage in international commerce moves by sea. Without accurate geodetic information, nautical charts would be fraught with errors, and accidents, groundings, and spills of hazardous cargo could become the rule rather than the exception. (Photo: American President Lines)**

**BELOW: This dramatization of construction of a bridge across a large intercoastal waterway demonstrates how chaotic our lives would be not only without geodesy but without NOAA's National Spatial Reference System. Geodetic data on the mainland came from one source, while the data on the barrier islands came from another.... And never the twain shall meet! (Photo: Zurich U.S.)**

