

What is DGPS?

A **Differential Global Positioning System** (DGPS) is a system designed to improve the accuracy of Global Navigation Satellite Systems (GNSS) by measuring extremely small changes in variables to provide satellite positioning corrections.

Two or more receivers observe the same set of satellites, taking similar measurements that produce similar errors when positioned closely together. A reference receiver, placed at a known location, calculates its theoretical position and compares it to the measurements provided by the navigation satellite signals. Accuracy of global satellite positioning is thereby increased from 15 meters to within a few meters. This technique compensates for errors in the satellite navigation system. The “differential” GPS or DGPS can therefore yield measurements good to a couple of metres in moving applications.

What is the advantage of DGPS?

This accuracy has a profound effect on the importance of GPS as a resource. With it, GPS becomes an important system for navigating ships, planes or even trucks around the world. It becomes a universal measurement system capable of positioning objects on a very precise scale. The application found its way also into agriculture notably in aerial pest control with the advantage of more targeted and more precise application of pesticides. This reduces the amount of pesticide required to treat a given area because of the accuracy of track spacing, thereby decreasing the costs of pest control operations. It also makes it easier to avoid unwanted contamination of uninfested areas with chemical pesticides. In the case of locust control, DGPS also allows the accurate spacing of swaths if barrier-spraying is to be used which offers even greater benefits in reducing costs and environmental contamination. Finally the DGPS provides a computer image of the exact track followed by a spray aircraft and the amount of pesticide sprayed, which would be useful both for management controls and a record of what exactly was done.