15. Control Segment

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The control segment of the Global Positioning System is a network of ground stations that monitors the shape and velocity of the satellites' orbits. The accuracy of GPS data depends on knowing the positions of the satellites at all times. The orbits of the satellites are sometimes disturbed by the interplay of the gravitational forces of the Earth and Moon.

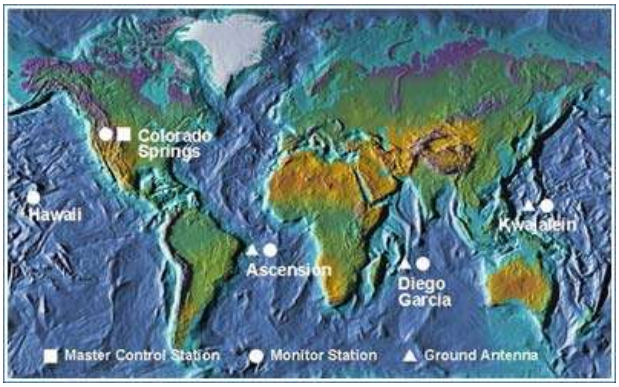

Figure 5.16.1 The control segment of the Global Positioning System

Credit: U.S. Federal Aviation Administration, 2007b

Monitor Stations are very precise GPS receivers installed at known locations. They record discrepancies between known and calculated positions caused by slight variations in satellite orbits. Data describing the orbits are produced at the **Master Control Station** at Colorado Springs, uploaded to the satellites, and finally broadcast as part of the GPS positioning signal. GPS receivers use this satellite Navigation Message data to adjust the positions they measure.

If necessary, the Master Control Center can modify satellite orbits by commands transmitted via the control segment's ground antennas.

‹ 14. Space Segment up 16. User Segment ›

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