

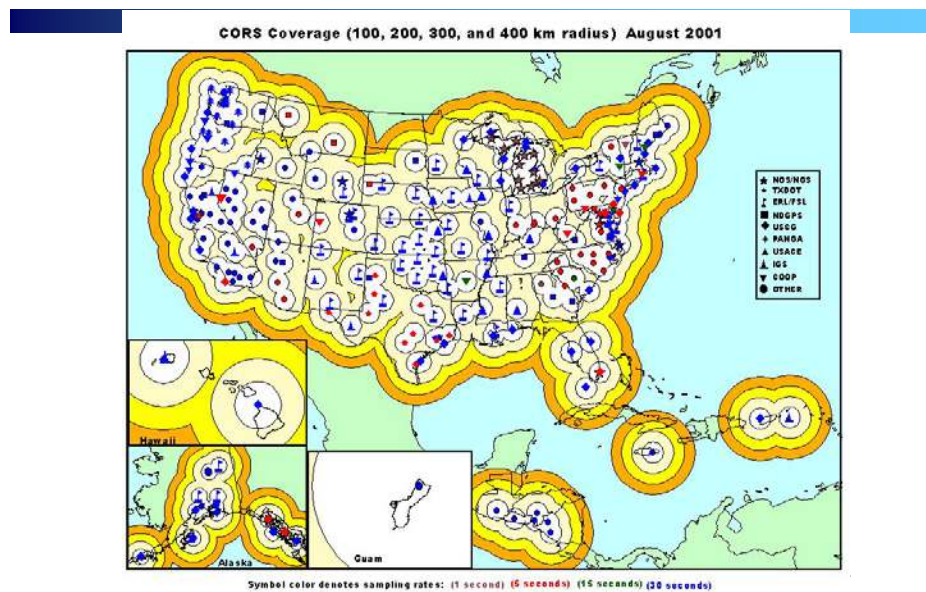
GPS – Modern Advances

The applications for Global Positioning System (GPS) applications continue to proliferate. Not only are the well defined applications proliferating, but new and innovative applications are continuing to be developed. Private industries as well as the public sector are making more and more use of surveying with GPS and they are developing new ways to utilize relative positioning GPS concepts for existing applications and for new, different applications.

In particular the applications

CORS

Continuously Operating Reference Stations



CORS OVERVIEW

- Network contained 232 sites as of October 2001
- Growing at rate of 3 sites per month
- Provides code range (C/A, P1, P2)
 - and carrier phase observations (L1, L2)
- Provides meteorological data at some sites
- Designed to meet post-processing requirements for
 - Positioning
 - Navigation
 - Meteorology
 - Geophysics



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CORS OVERVIEW-CONTINUED

- All CORS data transferred to NGS's office in MD
- GPS and "met" data converted to RINEX format
- Data made available to public via:
 - World Wide Web
 - File transfer protocol
- Data kept online for at least 4 years
- Data archived on CD-ROMs



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COOPERATIVE CORS

- GPS base stations whose data are freely disseminated by cooperating organizations
- NGS provides link from its web site to that of each cooperating organization
- Site coordinates must be consistent with the National Spatial Reference System

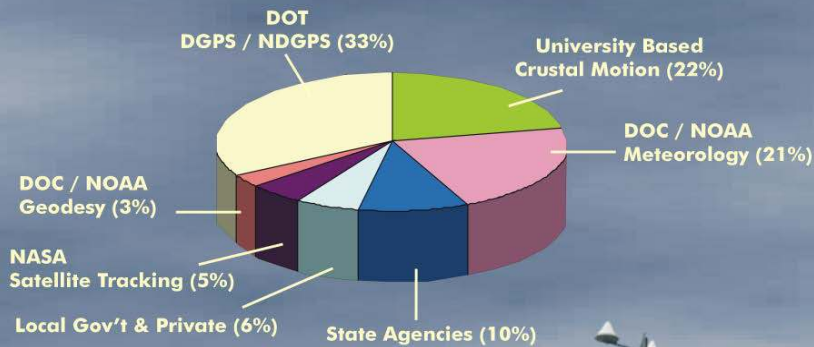


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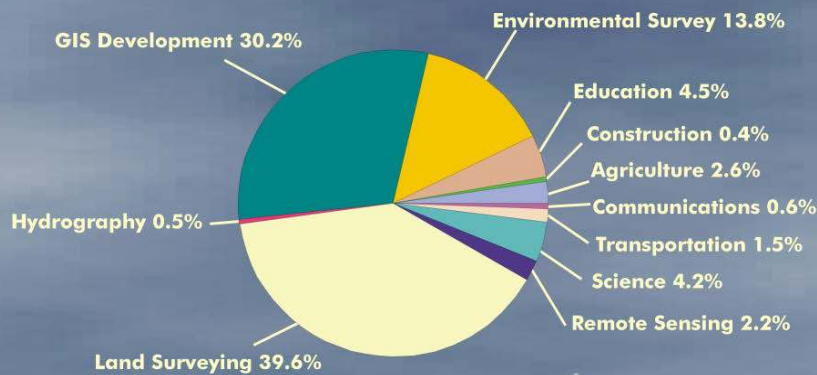


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National CORS Partners



CORS Applications



5,646
Survey responses
Fall 1999

CORS ADVANTAGES

- 3-dimensional.
- Users do not need to recon control points.
- Users do not need to set up instruments at control points.
- CORS positional coordinates are more accurate than those of other control points.
- Direct tie to National Spatial Reference System.
- CORS positions and velocities are available in both NAD 83 and ITRF coordinate systems.
- CORS positions are continuously monitored and will be updated if the site moves.



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CORS DISADVANTAGES

- Distances to sites are currently excessive.
- CORS hardware may differ from user's hardware.



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OPUS

Height Modernization

Machine Guidance Systems

Different Machines



Air Borne GPS



Network RTK