

NOAA-NGS CORS Network Guidelines for New and Existing Sites and its relation to IGS

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The U.S. National Geodetic Survey's Continuously Operating Reference Station (CORS) network contains approximately 900 GPS sites shared on a voluntary basis by private and public, US and foreign, partner organizations. The CORS network continues to grow in importance as the easiest way for the public to access the US National Spatial Reference System. Although the network was not initially envisaged for use in crustal deformation studies it is now routinely used to estimate Glacial Isostatic Adjustment, measure sea-level rise, and define the motion of the stable part of the North American plate. The network is expected to increase by approximately 200 stations this year and probably more in coming years due to (1) Earthscopes' plate Boundary Observatory and (2) the large number of real time positioning networks that are being established principally by state Department of Transportation and commercial organizations. This rate of growth of CORS will result in a network with a spacing of ~70 km or greater giving an unprecedented image of crustal deformation within North America. In light of this rapid expansion NGS has updated its guidelines for the establishment and incorporation of sites into CORS. The guidelines focus on minimizing the most common problems that have been identified in current IGS and CORS monuments while allowing flexibility in monument design. The guidelines emphasize the importance of the consistency of computed positional coordinates for a minimum life-time of 15yrs by giving equal importance to the quality of GNSS site's data and the associated metadata. Site operators are required to restrict changes: in the environment around the antenna, to the antenna, avoid using radomes, including a device to permit the antenna to be returned to its same position in 3D-space, etc. To improve the tracking of metadata, we have created a web-based interface to create and update ASCII site logs. To supplement the text based log and to better understand the local site construction a detailed suite of 12 site photographs is required.