4.1.2   **Datums and Tools to Connect Geospatial Data Accurately**

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Geospatial technology has changed the face of mapping and surveying, and the National Geodetic Survey (NGS) is at the forefront in the implementation of many of these technologies in providing the Nation with a consistent and accurate geospatial reference system. NGS produces the National Spatial Reference System (NSRS) ensuring projects have the consistency and accuracy desired. There are many tools available to access the NSRS and these will be highlighted during this session. In particular, DS-World, CORS and the Online Positioning User Service (OPUS) will be discussed.

Using Google Earth, DS-World, makes it possible for users to display the million-plus geodetic survey marks and the GPS Continuously Operating Reference Stations (CORS) that make up the NSRS. This useful tool can display all the survey marks available in a particular geographic area and the associated information about each point, including its description, position, and other information gathered when the mark was set. You as a user can access, locate and survey these marks and tie your data layers directly to the NSRS and the most recent datums.

NGS' OPUS program is highly automated and requires minimal user input accessing the network of CORS for determining ones position. With OPUS, users can obtain high-accuracy NSRS coordinates, using only a clear view of the sky and a survey-grade GPS receiver. OPUS processes GPS data files along with CORS coordinates to provide results consistent with those of other users in the NSRS.

There are many other developments occurring in NGS that will be presented. These include: NGS role with the development of real time GPS; Modernization of the NSRS; the new adjustment and the GRAV-D program and how it may change the way we obtain vertical heights.