Use of GPS Techniques and VDatum for Efficient Emergency Response

After high impact events such as hurricanes, critical shipping lanes are often choked with debris, effectively shutting down maritime commerce critical to the Nation. Rapid response to open shipping lanes is vital to the U.S. economy. Response efforts are often delayed by loss of infrastructure, primarily water level gauging stations and tidal bench marks, to support hydrographic surveys desperately needed to open shipping lanes. Deploying a portable dual frequency GPS base station and determining accurate position data using NOAA's Online Positioning User Service (OPUS) allows response teams to be survey ready within hours of deployment. Use of real-time or post-processed kinematic dual frequency GPS methods provides accurate height data aboard Navigation Response Team vessels. With the application of NOAA's VDatum tool, GPS heights can be converted to elevations relative to chart datum (Mean Lower Low Water) for real-time or near real-time surveys, thereby converting the vessel into a mobile water level gauge and eliminating the need to establish temporary water level gauges prior to survey operations. Additionally, VDatum supports the collection and quick turn around of airborne Light Detection and Ranging (LIDAR) data that is often collected during such events to evaluate elevation and shoreline changes as well as evaluate the infrastructure impacts. With these tools and techniques, desperately needed surveys to determine minimum keel clearance and shoreline impacts can rapidly and efficiently be conducted to open waterways to critically needed maritime commerce and support recovery efforts