



Trimble VRS Technology



Trimble VRS Corrections

Trimble® VRS™ corrections are more important now than ever before, due to the increasing need for real-time high-accuracy positioning. This brief explains the ease of use and benefits of VRS corrections and provides information about VRS technology as it relates to Mapping & GIS products and applications.

Highlights

- ▶ Real-time corrections for high-accuracy mapping in-the-field
- ▶ Increase productivity, save time and money

What are VRS corrections?

A Trimble VRS system is one option for providing real-time differential correction to a GNSS receiver. It is the most commonly used technology behind most network correction services worldwide. Corrections are necessary to eliminate errors and improve the accuracy of GNSS positions in collected data.

VRS corrections are available from a variety of public and commercial services. VRS networks and subscription services provide dual-frequency (L1/L2) real-time differential GPS (DGPS) and in many cases DGNSS (GPS and GLONASS) corrections to improve accuracy as data is collected.

A VRS service uses data from several (permanent) reference stations to compute corrections that are generally more accurate than corrections from a single reference station. These corrections are then broadcast over the Internet.

For more information about GNSS, refer to the following sections of the Trimble Geo 7 series User Guide—Using the GNSS receiver, Ensuring the accuracy of your GNSS data.

WHY DO I NEED VRS CORRECTIONS?

The use of VRS corrections helps ensure the accuracy of GNSS data, independent of the distance to the nearest reference station. One of the best ways to achieve decimeter accuracy with the high-accuracy Trimble Geo 7X handheld and Trimble R2 GNSS receiver is by using VRS corrections. This accuracy can be achieved not only after postprocessing but in real time, on the spot, in the field.

Real-time data collection means that field workers know a location has been mapped to the desired accuracy level—streamlining workflows and reducing the risk that they will need to recollect data. Using a VRS correction source provides the flexibility to work anywhere within the correction network and provides the best possible accuracy.

AREN'T VRS CORRECTIONS JUST FOR SURVEYORS?

The need for reliable and accurate positioning is not limited to surveying. Today, a variety of industries including electric and gas utilities, water and wastewater services, and land management projects require mapping products that provide decimeter or better accuracy positioning in real time.





TRIMBLE H-STAR TECHNOLOGY AND VRS CORRECTIONS

Trimble H-Star™ technology works in real time and supports real-time differential correction sources, such as corrections from a Trimble VRS network or Trimble VRS Now™ subscription service. In particular, the Trimble Geo 7X handheld with H-Star technology uses VRS corrections to attain decimeter accuracy in real time.

VRS corrections can be used with other Mapping & GIS receivers to help improve accuracy, but only the Trimble Geo 7X handheld achieves consistent real-time decimeter accuracy with H-Star.

WHERE IN THE WORLD CAN VRS CORRECTIONS BE USED?

Today, municipalities and governments are building VRS networks across the globe, and many private companies have also seen the benefits in setting up their own VRS networks. Review this online list of some of the Trimble VRS installations around the world to find out about accessing a VRS network: www.trimble.com/infrastructure/vrs-installations.aspx

For further information, please visit www.trimble.com or contact a local Trimble reseller who can advise on locally available networks or provide information on setting up a VRS network.

TRIMBLE VRS NOW SUBSCRIPTION SERVICES

Subscription services such as Trimble VRS Now provide instant access to VRS corrections on demand without the cost or work involved in setting up a VRS network.

The Trimble VRS Now subscription services are available in defined coverage areas as noted below. However, the method of usage and benefits of such subscription services are also applicable to using other VRS correction sources such as private or public VRS networks.

There are three levels of service available including the Trimble VRS Now H-Star service specific to the needs of Mapping & GIS customers:

- ▶ DGNSS corrections for submeter accuracy.
- ▶ H-Star corrections for decimeter accuracy.
- ▶ RTK (real-time kinematic) corrections for centimeter accuracy.

The Trimble VRS Now H-Star correction service is currently available to users in coverage regions throughout Europe and the USA.

A subscription to the H-Star service gives the ability to obtain real-time, decimeter level accurate positions consistently and directly at the job site.

For specific queries on Trimble VRS Now subscription services contact a Trimble reseller.



WHO USES VRS CORRECTIONS AND SUBSCRIPTION SERVICES AND WHY?

Organizations around the world are already using VRS corrections and subscription services in order to improve accuracy and efficiency in their data collection and maintenance operations.

For example, one of the UK's largest metropolitan district councils utilized VRS corrections to collect spatially accurate data on more than 12,000 street signs and road markings. UK traffic management legislation required high accuracy mapping of signs and road markings, so council workers used Trimble GeoExplorer® series handhelds in conjunction with Trimble's VRS Now service to collect high-accuracy real-time data quickly and accurately. In the words of the chief surveyor for the council:

"Accessing the Trimble VRS Now service for real-time corrections in the field was easy. The field workers just received the VRS connections via a cellular connection, which then connected to the GeoExplorer handheld via Bluetooth®. There were no wires and no bulky accessories, and the precise corrections were delivered right to the handheld."

He also stated: "Being able to achieve such high accuracy in the field eliminated a lot of post-processing work back in the office, which meant we could focus on the task at hand—collecting data as efficiently and accurately as possible... with Trimble VRS Now, corrections are actually delivered directly to the handheld on the spot, so you immediately have accurate information at your fingertips."

To find information about how other Mapping & GIS customers are using Trimble solutions, go to www.trimble.com/mappingGIS.



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