

## Evaluation of VS330 GNSS Receiver in Bridge Monitoring

M.D.E.K. Gunathilaka, S. Jathukulan, L.P.D.M. Liyanage and S. Narentheran

*Department of Surveying & Geodesy, Faculty of Geomatics, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka  
s.jathu.jathukulan@gmail.com*

Monitoring engineering structures is a vital task as far as safety aspects are concerned. Nowadays, the Real Time Kinematic (RTK) Global Navigation Satellite Systems (GNSS) are capable of providing fast and accurate measurements of bridge and various other important structures. Also the movement and damage severity can be identified using the dynamic bridge characteristics obtained from this monitoring GNSS. The aim of this work was to compare the use of RTK GNSS, DGNS and Dual Antenna Moving Base GNSS (Hemisphere VS330) in real time motion monitoring. A wooden platform was developed to mount all types of GNSS antennas to record the movements at the same time. Hypack hydrographic software was used in collecting simultaneous data from these three different sensors and the movements were compared in all 3 dimensions. The performance of the DGNS, RTK and the VS330 in x and y directions were almost identical. The average difference was at a decimeter scale between DGNS and VS330 while it was just at a centimeter scale between RTK and VS330. However, the height or vertical dimension comparison was not that successful.

**Keywords:** VS330, RTK GNSS, DGNS, structural monitoring