

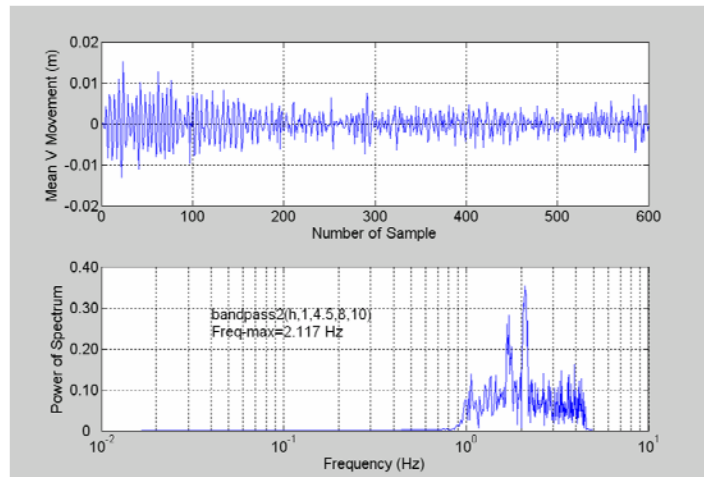
Monitoring Bridges by GNSS

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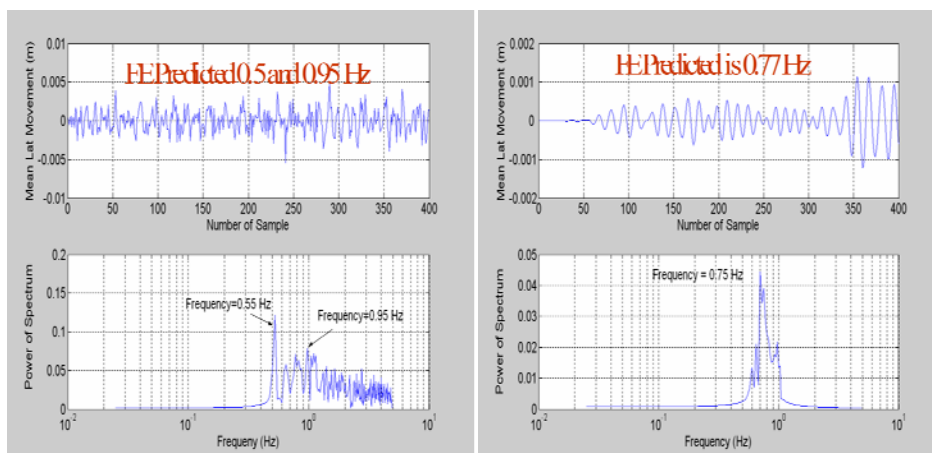


- 7 Bridges, case studies
- Large and small suspension bridges, one viaduct, one cable stayed bridge
- New tests on the Severn Suspension Bridge, antennas on cables and towers

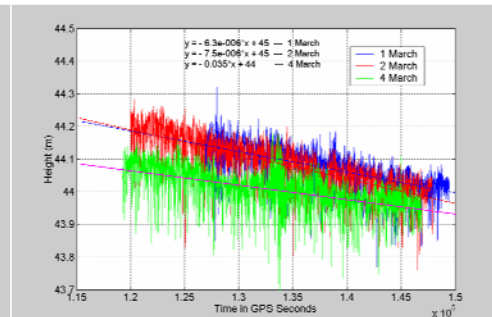
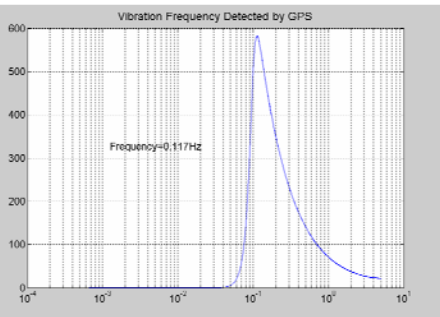
Nottingham Wilford Suspension Bridge



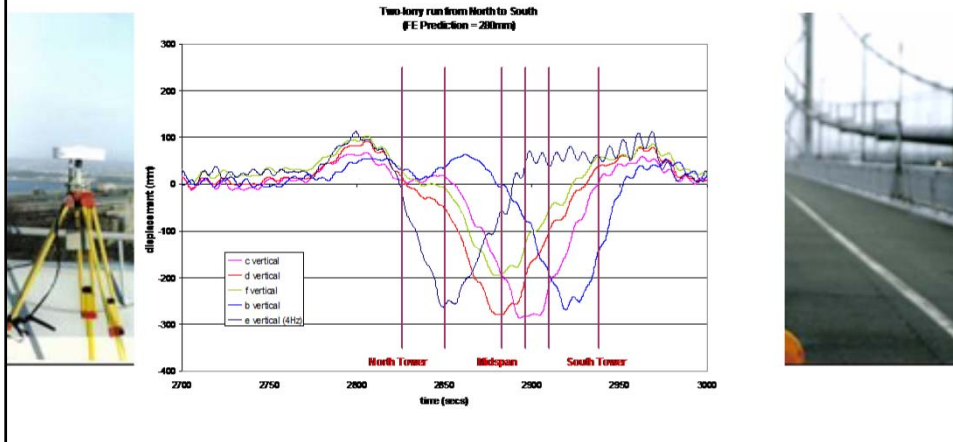
London Millennium Suspension Bridge



Humber Bridge



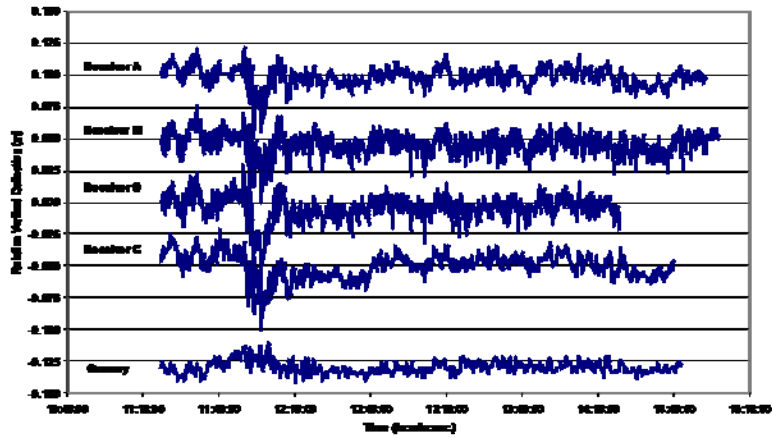
Forth Road Bridge



Avonmouth Viaduct



Height Results



Seohae Grand Bridge, Korea

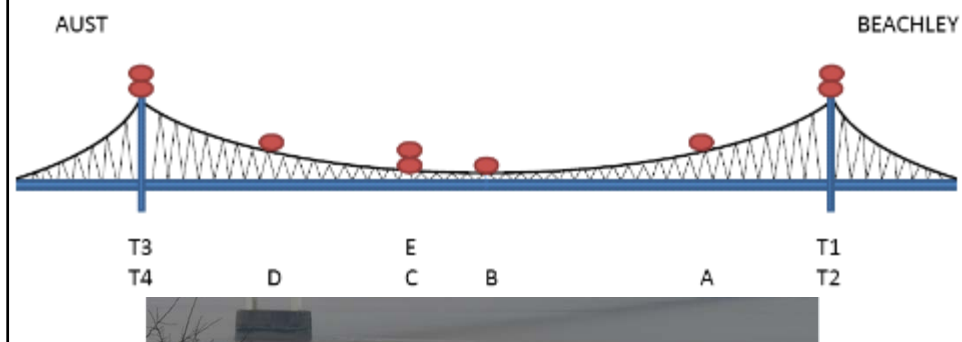
Location: From Kyeonggi-do Pyeongtaek-si
Poseoung-myun Naegi-ri To Choongcheongnam-
do Dangjin-gun Songak-myun Bokwoo



Severn Suspension Bridge

9 GNSS receivers

2 reference stations



Reference station and backup

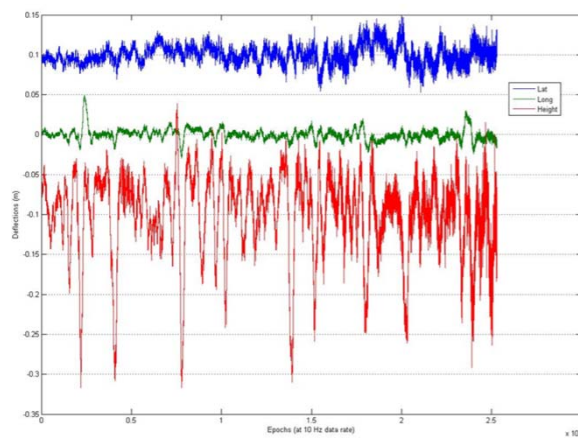
Post Processed OTF



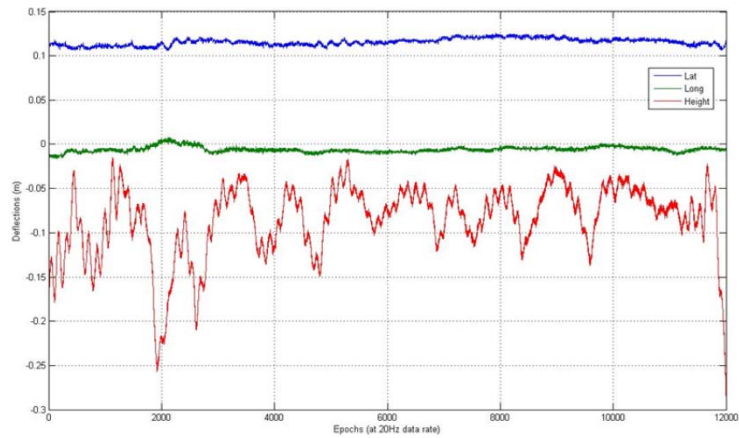
Antenna locations, tower and cable



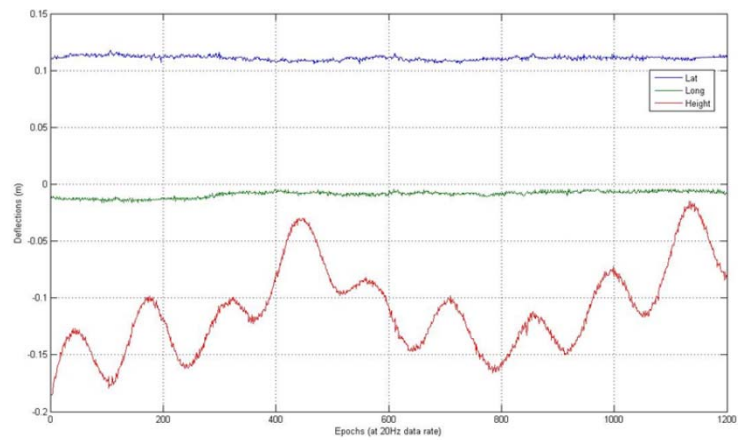
Movements location A, 40 min period



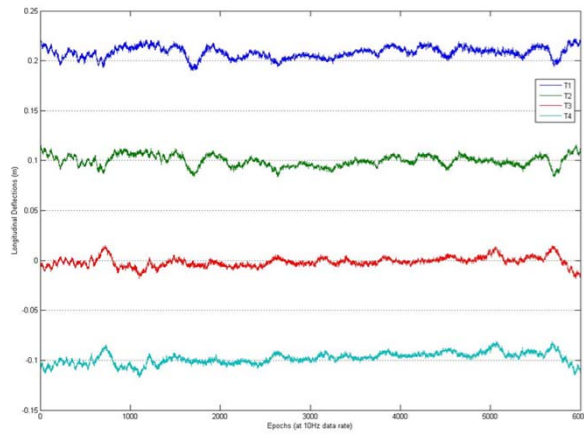
Location B 10 mins



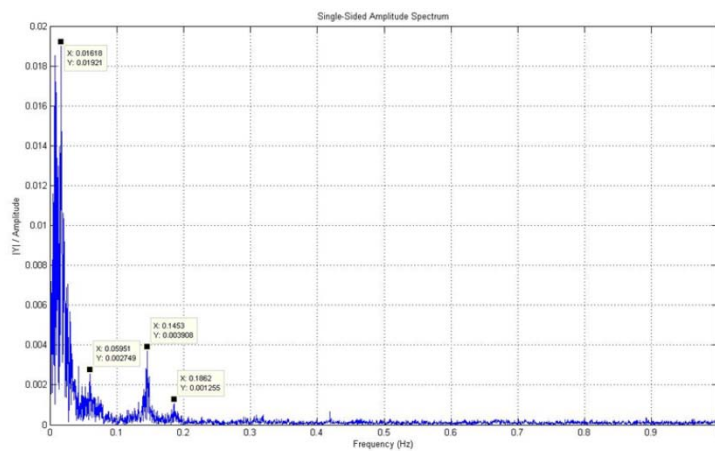
Location B 1 min



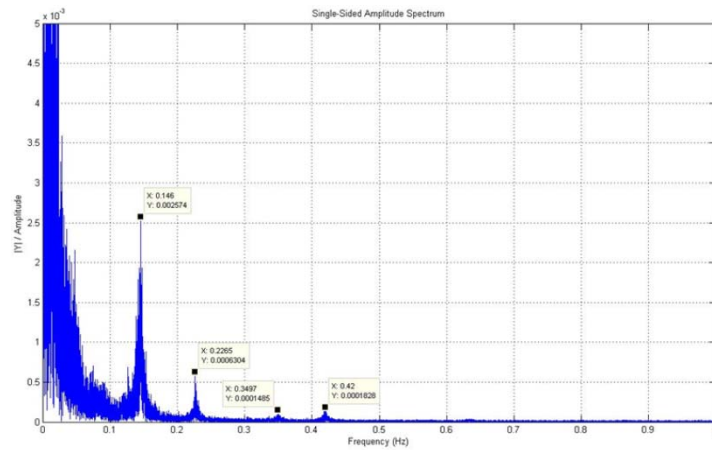
Tower Longitudinal movements, 10 mins



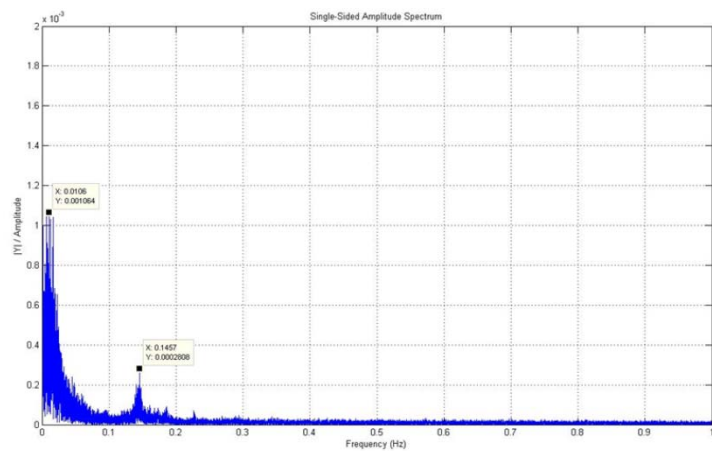
Location A spectral analysis



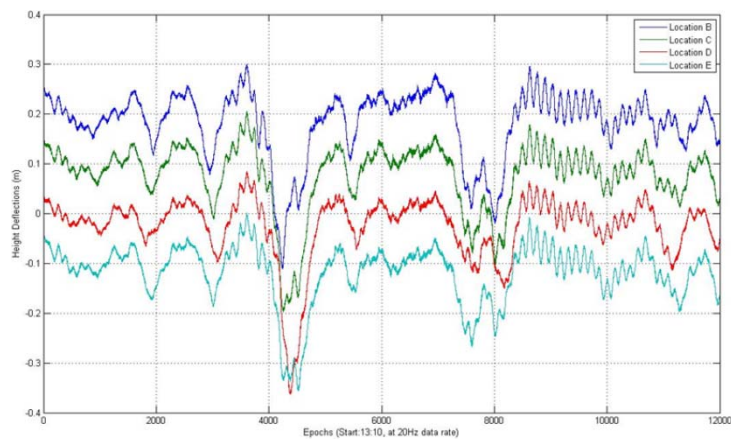
Location B spectral analysis



Tower T1 spectral analysis



Height 4 locations 10 mins



Conclusions

- Valuable monitoring tool and technique
- Forth and Severn suffer wire breaks
- Long term monitoring?

