

Dr Gethin Wyn Roberts, Chair Elect Commission 6 2009-2010

Curriculum Vitae

Date of Birth; 20 October 1970

Nationality: British

Current Position: Associate Professor and Reader in Geospatial Engineering at the University of Nottingham.

Education

1989 – 1993 Beng 1st class (Hons) in Mining Engineering, The University of Nottingham

1993 – 1997 PhD, Engineering Surveying and Geodesy “Real Time On The Fly Kinematic GPS”

1999 Post Graduate Certificate in Academic Practices

Work Experience

1990 – 1991

British Coal as an Engineering Trainee.

1993 – present

The University of Nottingham. Starting as a teaching assistant whilst researching for my PhD, then a lecturer, senior lecturer, Associate Professor and now Associate Professor and Reader in Geospatial Engineering. I am involved with teaching surveying to undergraduate civil engineering students, I am the undergraduate admissions tutor for civil engineering, teach to MSc students at the IESSG, director of the MSc in Engineering Surveying and Geodesy. Manage and carry out research in areas of Engineering Surveying, currently the principal investigator on the VISTA and Mapping the Underworld projects, funded by the UK’s TSB and EPSRC, investigating the use of GNSS and other technologies to aid locating and positioning buried pipes and utilities in built up areas. Also, using GNSS technology to monitor the movements and frequencies of bridges and other structures. Using technologies such as localites and GNSS for precise positioning. I have also supervised and co-supervised 10 PhD students to successful completion.

Professional Activities

A member of the UK’s Institution of Civil Engineering Surveyors

The ICES’ UK delegate to commission 6

A member of the ICES’ Education Training and Membership Committee

A member of the ICES’ and ICE Geospatial Engineering Board

Chairman of the FIG’s Working Group 6.4 “Engineering Surveys for Construction Works and Structural Engineering”

Chairman of the FIG’s Task Force “Monitoring and Analysis of Cyclic Deformations and Structural Vibrations”

Publications

Teaching Related

Refereed Journal Publications

Smith, M J; Roberts, G W; Computer Aided Learning in Surveying, Survey Review, October 1996, Vol. 33, No. 262, ISSN 0039-6365, pp 546 - 552.

Smith, M J; Roberts, G W; Teaching Engineering Surveying through Computer Aided Learning. Habitat, Issue 4, ISSN 1362-5020, pp 26 – 30, July 1997.

Refereed Conference Proceedings

Roberts, G W; Smith, M J; Computer Aided Learning for Teaching Engineering Surveying, Proc FIG Commission 2 Joint Workshop on Computer Assisted Learning and Achieving Quality in the Education of Surveyors, ISBN 951-22-3206-5, pp 183 - 192, September 1996.

Research Related

Journals

1. ROBERTS, G. W., MENG, X., BROWN, C. J. and DALLARD, P., (2008). GPS measurements on the London Millennium Bridge. Proceedings of the Institution of Civil Engineers, Civil Engineering Innovation, ISSN 1755-0890, Volume 2, Issue 1, pp 15 – 28.
2. Roberts, G. W.; Brown, C. J.; Atkins, C.; Meng, X.; (2008) Bridge Movement; Using GPS to Monitor the Deflections of the Forth Road Bridge. Position, The Australasian Magazine of Surveying, Mapping and Geoinformation. Number 35, June/July 2008. pp 50 – 52.
3. Montillet, J. P.; Roberts, G.W.; Hancock, C.; Meng, X.; Ogundipe, O.; Barnes, J.; (2008) Deploying a Locata Network to Enable Precise Positioning in Urban Canyons. Journal of Geodesy, Publisher: Springer-Verlag Heidelberg, ISSN: 0949-7714 (Paper) 1432-1394, Issue: Volume 82, Number 6, June 2008.
4. Roberts, G. W.; Badley, M.; (2008). Deformation Monitoring Trials Using a Laser Scanner. Geomatics World, Issue 2, Volume 16, February 2008. ISSN 1567-5882.
5. X Meng, G W Roberts, C J Brown, A S Andrew (2007). Using GPS to Measure the Response of the Forth Road Bridge to Wind and Temperature Loading. Journal of Geospatial Engineering, Published by the Hong Kong Institution of Engineering Surveyors, pp 1 – 11, December 2007, ISSN 1563-3772.
6. J-P Montillet, A Taha, X Meng and G W Roberts (2007). Mapping the Underworld; testing GPS and GSM in Urban Canyons, 2007, GIS/GPS Supplement 2007; A supplement of Civil Engineering Surveyor. pp 4 - 8, ISSN 0266-139X.
7. X Meng, A H Dodson, T Moore and G W Roberts (2007) Ubiquitous Positioning; Anyone, Anything: Anytime, Anywhere. GPS World June 2007, vol 18 No 6, pp 60 – 65, ISSN 1048-5104.
8. X Meng, A H Dodson and G W Roberts (2007). Detecting Bridge Dynamics with GPS and Triaxial Accelerometers. Engineering Structures (in press).

9. J-P Montillet, A Taha, X Meng and G W Roberts (2007). Buried Assets: Testing GPS and GSM in Urban Canyons, *GPS World*, March 2007, vol 18 No 3, pp 39 - 43, ISSN 1048-5104.
10. M Meo, G Zumpano, X Meng, E Cosser, G W Roberts and A H Dodson (2006). Measurements of Dynamic Properties of a Medium Span Suspension Bridge by Using the Wavelet Transforms. *Mechanical Systems and Signal Processing*, 20 (2006):1112–1133.
11. ROBERTS, G. W., MENG, X., BROWN, C. J. and DALLARD, P., (2006). GPS measurements on the London Millennium Bridge. *PROCEEDINGS- INSTITUTION OF CIVIL ENGINEERS BRIDGE ENGINEERING*, 159(4), pp 153-162.
12. Roberts, G. W.; Brown, C. J.; Meng, X.; (2006) Deflection Monitoring of the Forth Road Bridge by GPS. *Online Journal of Space Communications*. Issue 9, Winter 2006, Eds Randy Johnson. ISSN 15420639.
<http://satjournal.tcom.ohiou.edu/issue9/main.html>
13. Roberts, G. W.; Meng, X.; Brown, C. J.; (2006) When Bridges Move: GPS-Based Deflection Monitoring. In *Sensors*. Vol 23, No 4. pp 16 – 19. April 2006. ISSN 0746-9462 <http://www.sensorsmag.com/>
14. Roberts, G. W.; Brown, C. J.; Meng, X.; (2006) Bridge Deflection Monitoring; Tracking Millimeters across the Firth of Forth. *GPS World*, February 2006, Vol 17 No 2, pp 26 – 31, ISSN 1048-5104. Questex Publications.
15. X Meng, A H Dodson, G W Roberts and M Andreotti (2006). Prototype Internet RTK GPS for Bridge Deformation Monitoring. *Survey Review*, Vol. 38 No. 299, ISSN 0039-6265, pp 348-357.
16. Roberts, G W; Brown, C J; Developments in the use of GPS for Bridge Monitoring. *Proceedings of the Institution of Civil Engineers; Bridge Engineering*, Vol 159, issue BE3, September 2006, ISSN 14784629, pp 117 – 119.
17. DODSON, A.H., MENG, X., ANDREOTTI, M., ROBERTS, G.W. and WALKER, M., (2004). Design and Realization of RTK GPS over Internet for a 'Smart Bridge'. *Survey Review*.
18. Roberts, G.W., Cosser, E., Meng, X., and Dodson, A.H. (2005), "High Frequency Deflection Monitoring of Bridges by GPS", *Proceedings 30th Congress of the International Geographical Union, Glasgow, United Kingdom, 15-20 August 2004*. *Speakers E-abstracts.*, 3 (1-2), pp. 226-231
19. Roberts, G W; Cosser, E; Meng, X; Dodson, A H; (2005). High Frequency Deflection Monitoring of Bridges by GPS. *Proc Journal of Global Positioning Systems*, Vol 3 , No 1 – 2, pp 226 – 231 (<http://www.cpgps.org/journals.php>).
20. Meo, M; Zumpano, G; Meng, X; Roberts, G W; Cosser, E; and Dodson, A H; (2004). Identification of Nottingham Wilford Bridge Modal Parameters Using Wavelet Transforms. In: *peer-refereed Proc of SPIE, Smart Structures and Materials 2004: Modeling, Signal Processing, and Control*, Ralph C. Smith, Editor, July 2004, Vol. 5383: 561-570.
21. Dodson, A H; Meng, X; Andreotti, M; Roberts, G W; and Walker, M; (2004). Design and Realization of RTK GPS over Internet for a 'Smart Bridge', *Transactions of the Journal of Nanjing University of Aeronautics and Astronautics*. Vol 22 (2), pp 91 – 97.

22. Roberts, G W; Meng, X; Cosser, E; Dodson, A H; The Use of Single Frequency GPS to Measure the Deformations and Deflections of Structures. *Civil Engineering Surveyor, GIS/GPS Supplement Autumn 2004*, ISSN 0266139X.
23. Meo, M; Zumpano, G; Meng, X; Cosser, E; Roberts, G W; and Dodson, A H; (2004). Measurements of Dynamic Properties of a Medium Span Suspension Bridge by Using the Wavelet Transforms. Accepted for publication by *Journal of Mechanical Systems and Signal Processing*.
24. Roberts, G W; Meng, X; Dodson, A H; Integrating a Global Positioning System and Accelerometers to Monitor the Deflection of Bridges. *Journal of Surveying Engineering, American Society of Civil Engineers*, pp 65 – 72, May 2004, Vol 130, No 2, ISSN 0733-9453.
25. Meng, X; Roberts, G W; Dodson, A H; Cosser, E; Barnes, J; Rizos, C; Impact of GPS Satellite and Pseudolite Geometry on Structural Deformation Monitoring: Analytical and Empirical Studies. *Journal of Geodesy*, Publisher: Springer-Verlag Heidelberg, ISSN: 0949-7714 (Paper) 1432-1394, Issue: Volume 77, Number 12, June 2004.
26. Roberts, G W; GPS – the sharpest mining tool. *Materials World*, October 2003, pp 28 – 29, Volume 11, Number 10, ISSN 09678638.
27. EVANS, A.J., ROBERTS, G.W., DODSON, A.H., DENBY, B., COOPER, S. and HOLLAND, R., (2003). Augmented Reality for Engineering Applications: the current status. In: *Engineering Surveying Showcase 2003*, number 1.
28. Cosser, E; Roberts, G W; Dodson, A H; Meng, X; Bridge Monitoring. *Civil Engineering Surveyor, GIS/GPS Supplement 2003*, ISSN 0266139X.
29. Evans, A J; Roberts, G W; Dodson, A H; Deby, B; Cooper, S; Hollands, R; Turner, M; Owen, D; Applications of Augmented Reality: Utility Companies, *Survey Review*, July 2003, Vol 37, No 289, ISSN 0039-6265, pp 168 – 176.
30. Roberts G W; Meng X; Dodson A H; Cosser E; 2002 Multipath Mitigation for Bridge Deformation Monitoring, Published in the international *Journal of GPS*, <http://www.cpgps.org/journal/journal.html>. ISSN 1446-3156, Vol 1(1) pp 25 – 33.
31. Ogundipie, O; Roberts, G W; Dodson, A H; Construction Plant Control and Guidance – The Development Continues. *Civil Engineering Surveyor GIS Supplement*, pp 4 – 9, Autumn 2002, ISSN 0266-139X.
32. Roberts G W; Evans A J; Dodson A H; Denby B; Cooper S; Hollands R; Look Beneath the Surface with Augmented Reality, *GPS World*, ISSN 1048-5104, February 2002.
33. Roberts, G. W.; Dodson; A. H., Ashkenazi, V.; Experimental Plant Guidance and Control by Kinematic GPS. *New Civil Engineer International*, pp 30 – 36, June 2000.
34. Roberts, G. W.; Dodson; A. H., Ashkenazi, V.; Experimental Plant Guidance and Control by Kinematic GPS. *Proc. Institution of Civil Engineers; Civil Engineering*, pp 19 – 25. ISSN 0965 089 X, Feb 2000.
35. Roberts, G W; Dodson, A H; Ashkenazi, V; Twist and Deflect: Monitoring motion of the Humber Bridge, *GPS World*, Vol 10, No 10, ISSN 1048-5104, pp 24-34, October 1999.
36. Roberts, G W; Dodson, A H; Ashkenazi, V; GPS-Aided Autonomous Construction Plant Control and Guidance, *Automation in Construction*, Elsevier, Vol 8, ISSN 0926-5805, 7 pages 1999.

37. Roberts, G W; Dodson, A H; Using RTK GPS to control construction plant, Civil Engineering Surveyor, ISSN 0266-139X, pp 24-26, November 1999.
38. Moore, T; Roberts, G W ; Carrier Phase GPS Navigation to the North Pole, Journal of Navigation, Vol 52, No 1, ISSN 0373-4633, pp 80 - 89, January 1999.
39. Brown, C J; Karuna, R; Ashkenazi, V; Roberts, G W; Evans, R; Monitoring of Structures using GPS, Proc Institution of Civil Engineers, Structures, ISSN 0965 092X, pp 97 - 105, February 1999.
40. Smith, M J; Roberts, G W; Baker, H C; Dodson, A H; From Construction to Meteorology, The Varied Applications of GPS. Civil Engineering Surveyor - GIS/GPS, ISSN 0266-139X, pp 9 - 13, Autumn 1998.
41. Ashkenazi, V; Roberts, G W; Experimental Monitoring of the Humber Bridge by GPS. Civil Engineer International, pp 39 - 44, February 1998.
42. Ashkenazi V. and Roberts G. W., Experimental Monitoring the Humber Bridge with GPS. Proc. Instn Civ. Engrs, Civ. Engng, vol 120, Issue 4., pp. 177-182. ISSN 0965 089 X, Nov 1997.
43. Ashkenazi, V; Roberts, G W; Dumville, M; Autonomous Guidance and Control of Construction Plant by GPS. Engineering Surveying Showcase, ISBN 0 946779430, pp 18 - 20, April 1997.
44. Ashkenazi, V; Roberts, G W; Kinematic GPS: Fast Surveying or Slow Navigation. Engineering Surveying Showcase, ISBN 0 946779430, pp 8 – 10, September 1997.
45. Ashkenazi, V; Dodson, A H; Moore, T; Roberts, G W; Real Time OTF GPS Monitoring of the Humber Bridge, Surveying World, Vol. 4, Issue 4, ISSN 0927-7900, pp 26-28, May/June 1996.

Refereed Conference Proceedings

Refereed Full Paper

46. Brown, C. J.; Roberts, G. W.; Atkin, C.; Meng, X.; Colford, B. (2007) Deflections and Frequency Responses of the Forth Road Bridge Measure by GPS. In “Fifth international Conference on Current and Future Trends in Bridge Design, Construction and Maintenance”. Edited by R Lark. Thomas Telford Publishing. pp 479 – 486. ISBN 978-07277-3593-5.
47. Roberts, G. W.; Brown, C. J.; Meng, X.; Dallard, P. R. B. (2007) Using GPS to Measure the Deflections and Frequency responses of the London Millennium Bridge. In “Fifth international Conference on Current and Future Trends in Bridge Design, Construction and Maintenance”. Edited by R Lark. Thomas Telford Publishing. pp 486 - 496. ISBN 978-07277-3593-5.
48. G W Roberts, C J Brown and X Meng (2006) The use of GPS for disaster monitoring of suspension bridges. Proc of IAG Symposium Vol. 130, Springer-Verlag. ISSN 0939-9585
49. Roberts, G. W.; Meng, X.; Brown, C. J.; (2006) The Advantages and Limitations of Using GPS for the Deflection Monitoring of Bridges. In: “Bridges – Past, Present and Future”, peer refereed Proc of the First International Conference on Advances in Bridge Engineering. Vol. 2, Brunel University Press, pp 1 – 10, ISBN-1-902316-49-5.
50. Roberts, G. W.; Meng, X.; Brown, C. J.; Andrew, A.; (2006) Measuring the Movements of the Forth Road Bridge by GPS – Lorry Trials. In: “Bridges – Past, Present and Future”,

peer refereed Proc of the First International Conference on Advances in Bridge Engineering. Vol. 2, Brunel University Press, pp 28 - 36, ISBN-1-902316-49-5.

51. Barnes, J; Rizos, C; Lee, H K; Roberts, G W; Meng, X; Cosser, E; and Dodson, A H; (2004). The Integration of GPS and Pseudolites for Bridge Monitoring. In: "A Window on the Future of Geodesy", peer-refereed Proc of IAG Symposium Vol. 128, Springer-Verlag.
52. Meng, X; Dodson, A H; Roberts, G W; and Cosser, E; (2004). Hybrid Sensor System for Bridge Deformation Monitoring: Interfacing with Structural Engineers. In: "A Window on the Future of Geodesy", peer-refereed Proc of IAG Symposium Vol. 128, Springer-Verlag.

Refereed Abstracts

53. Meng, X.; Roberts, G. W.; Brown, C. J.; (2008) Deflection Monitoring of Bridges: A Case Study of the Forth Road Bridge, IABMAS2008, Seoul, Korea, July 2008.
54. Meng, X.; Roberts, G. W.; Dodson, A. H.; Xu, L.; Wan, Z.; (2008) Recent Progress in GNSS based Long Bridge Deformation Monitoring, IABMAS2008, Seoul, Korea, July 2008.
55. Roberts, G. W.; Meng, X.; Brown, C. J.; (2008) Research into the use of GNSS to Monitor the Deflections of Suspension Bridges, and the Role of the FIG in Deformation Monitoring of Bridges. IABMAS2008, Seoul, Korea, July 2008.
56. Roberts, G. W.; Brown, C. J.; Ogundipe, O.; (2008) The use of Kinematic GPS to Monitor the Deflections and Frequencies of a 174m Long Viaduct Under Traffic Loading. FIG Working Week 2008, Stockholm, Sweden, June 2008.
57. Roberts, G. W.; Brown, C. J.; Atkins, C.; Meng, X.; (2008) The Use of GNSS to Monitor the Deflections of Suspension Bridges. Measuring the Changes, 13th International Symposium on Deformation Measurements and Analysis, Lisbon, Portugal, May 2008.
58. Roberts, G. W.; Brown, C. J.; Ogundipe, O.; (2008) Monitoring the Deformation of a Motorway Viaduct Using Kinematic GPS. Measuring the Changes, 13th International Symposium on Deformation Measurements and Analysis, Lisbon, Portugal, May 2008.
59. Taha, A.; Kokkas, N.; Hancock, C.; Roberts, G. W.; Meng, X.; (2008) A GIS Approach to GNSS Simulation in Urban Canyons, ENC 2008, Toulouse, France, March 2008.
60. Ogundipe, O.; Hancock, C.; Taha, A.; Roberts, G. W.; (2008) The Use of High Sensitivity GPS for Mapping Sub-Surface Utilities. ENC08, Toulouse, France, March 2008.
61. Roberts, G. W.; Montillet, J-P.; de Ligt, H.; Hancock, C.; Ogundipe, O.; Meng, X.; (2007) The Nottingham Localite Network. In Proceedings of the International Global Navigation Satellite Systems Society (IGNSS) Symposium 2007, The University of New South Wales, Sydney, Australia, 4 – 6 December, 2007.
62. Roberts, G. W.; Hancock, C.; Ogundipe, O.; Meng, X.; Taha, A.; Montillet, J-P.; (2007) Positioning Buried Utilities Using an Integrated GNSS Approach. In Proceedings of the International Global Navigation Satellite Systems Society (IGNSS) Symposium 2007, The University of New South Wales, Sydney, Australia, 4 – 6 December, 2007.
63. Roberts, G. W., Badley, M. (2007) Deformation Monitoring Trials Using a Leica HDS3000. FIG Working Week 2007, Hong Kong SAR 13-17 May 2007. ISBN 978-87-90907-59-4

64. G W Roberts, C Brown, C Atkins and X Meng (2007). Further Results from Using GPS to Monitor the Deflections of the Forth Road Bridge. FIG Working Week 2007, Hong Kong SAR 13-17 May 2007. ISBN 978-87-90907-59-4
65. X Meng, A H Dodson and G W Roberts (2007). Global Navigation Satellite System (GNSS) for Bridge Deflection Monitoring: Recent Activities by the University of Nottingham. In: Collected Works of Famous Educators in Highway Engineering of China: Celebration Proc. of Professor Zhuzhao Hong 80th Birthday, China Communications Press, ISBN978-7-114-05135-7, pp.425-434.
66. X Meng, A H Dodson, T Moore and G W Roberts (2007) Towards Ubiquitous Positioning (UbiPos): A GNSS Perspective. In: Proc. of ION 2007 National Technical Meeting, January 22-24, 2007, San Diego, California, USA.
67. Roberts, G. W.; Meng, X.; Taha, A.; Motillet, J.P.; The Location and Positioning of Buried Pipes and Cables in Built Up Areas. In: Proceedings of the FIG XXIII Congress, Munich, October 2006. ISBN 87-90907-52-3.
68. Roberts, G.W.; Brown, C. J.; Meng, X.; Using GPS to Monitor the Forth Road Bridge. In: Proceedings of the FIG XXIII Congress, Munich, October 2006. ISBN 87-90907-52-3.
69. J-P. Montillet, X Meng, G W Roberts (2006). Precise Positioning in Urban Canyons using GPS and GSM. In: Proc of the Second European Conference on Mobile Government, 30-31 August & 1 September 2006, University of Sussex, Brighton, UK.
70. THIENELT, M.; EICHHORN, A. ; REITERER, A. ; ROBERTS, G. (2006): Pedestrian Positioning without Map Matching Methods - Prototype of a knowledge-based KALMAN Filter (WiKaF). In: Proceedings of the Joint Symposium of Seoul Metropolitan Fora & Second International Workshop on Ubiquitous, Pervasive and Internet Mapping (UPIMap2006), Seoul, 148 – 156
71. X Meng, G W Roberts, A H Dodson and C J Brown (2006). GNSS for Bridge Deformation: limitations and solutions. In: Proc of third International Conference on Bridge Maintenance, Safety and Management (IABMAS'06), 16-19 July 2006, Porto, Portugal.
72. MENG, X., DODSON, A., MOORE, T., HILL, C.J. and ROBERTS, G., (2006). Development of the Nottingham Network RTK GPS Testbed. In: Proceedings of European Navigation Conference, ENC 2006, Manchester, United Kingdom, May 2006. pp. 5 pages
73. Meng, X.; Roberts, G. W.; Dodson, A. H.; Ince, S.; Waugh, S.; (2006) GNSS for Structural Deformation and Deflection Monitoring: Implementation and Data Analysis. Proceedings of the 3rd IAG Symposium on Geodesy for Geotechnical and Structural Engineering. 12th FIG Symposium on Deformation Measurement. 22 – 24 May 2006, Baden, Austria.
74. Roberts, G. W.; Brown, C. J.; Meng, X.; (2006) Deflection Monitoring and Frequency Analysis of the Forth Road Bridge using GPS. Proceedings of the 3rd IAG Symposium on Geodesy for Geotechnical and Structural Engineering. 12th FIG Symposium on Deformation Measurement. 22 – 24 May 2006, Baden, Austria.
75. Pytharouli, S.; Meng, X.; Stiros, S.; Roberts, G. W.; (2006) Analysis of the GPS monitoring record of the Forth Road Bridge in Scotland. Proceedings of the 3rd IAG

Symposium on Geodesy for Geotechnical and Structural Engineering. 12th FIG Symposium on Deformation Measurement. 22 – 24 May 2006, Baden, Austria.

76. Mohd-Yusoff, M.Y., Bingley, R.M., and Roberts, G.W. (2005), 'An assessment of systematic errors on a VRS network RTK system in the equatorial region', In Proceedings of the International Symposium on GPS/GNSS (GNSS 2005), December 2005, Hong Kong.
77. Roberts, G W; Meng, X; Brown, C J; Andrew, A; Monitoring the Deformations of the Forth Road Bridge by GPS, In Proceedings of the International Symposium on GPS/GNSS (GNSS 2005), December 2005, Hong Kong.
78. Roberts, G W; Meng, X; Mapping Buried Pipes and Cables Using GPS Technology, In Proceedings of the International Symposium on GPS/GNSS (GNSS 2005), December 2005, Hong Kong .
79. Roberts, G W; Brown, C J; Meng, X; The Use of GPS for Disaster Monitoring of Suspension Bridges. Proceedings of the IAG Congress, 21 – 25 August 2005, Cairns, Australia.
80. HIDE, C.D., BLAKE, S., MENG, X., ROBERTS, G., MOORE, T. and PARK, D., (2005). An Investigation in the use of GPS and INS Sensors for Structural Health Monitoring. In: The 18th Technical Meeting of the Satellite Division of the Institute of Navigation: ION GNSS 2005, Long Beach, Ca, USA, Sept 2005. pp. 2029-2038
81. Roberts, G W; Meng, X; Brown, C J; (2005). Deflection Monitoring of the Forth Road Bridge by GPS. Proc ION GNSS 2005, 13-16 September 2005, Long Beach, California, USA.
82. Meng, X., Roberts, G.W., Meo, M., and Dodson, A.H. (2005), 'Paving the Way to Real-time GNSS Bridge Health Monitoring.', Proc International Workshop on Structural Health Monitoring 2005., 12-14 September 2005., Stanford University, USA.
83. Roberts, G W; Hirst, L; (2005). Deformation Monitoring and Analysis of Structures Using Laser Scanners. Proceedings of the FIG Working Week, Cairo, April 2005.
84. Roberts, G W; Cosser, E; Meng, X; and Dodson, A H; (2004). High Frequency Deflection Monitoring of Bridges by GPS. In: proc of 2004 International Symposium on GPS/GNSS, 6-8 December 2004, Sydney, Australia.
85. Roberts, G W; Cosser, E; Meng, X; Dodson, A H; Monitoring the Deflections of Suspension Bridges Using 100Hz GPS Receivers. Proceedings of ION-GNSS04, the 17th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2004.
86. Dodson, A H; Meng, X; Andreotti, M; Roberts, G W; and Walker, M; (2004). Design and Realization of RTK GPS over Internet for a 'Smart Bridge', International INS/ITS Symposium, Nanjing, China, 15-17 October 2004.
87. Cosser, E; Hill, C J; Roberts, G W; Meng, X; Moore, T; and Dodson, A H; (2004). Bridge Monitoring with Garmin Handheld Receivers. First FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.
88. Cosser, E; Roberts, G W; Meng, X; and Dodson, A H; (2004). Single Frequency GPS for Bridge Deflection Monitoring: Progress and Results. First FIG International Symposium

on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.

89. Wang, R; Meng, X; G W Roberts and Dodson, A H; (2004). Structural Health Monitoring Systems for Bridge with Hybrid Sensor System. First FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.
90. Meng, X; Roberts, G W; Dodson, A H; Cosser, E; and M Meo (2004). Development of a Prototype Remote Structural Health Monitoring System (RSHMS). First FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.
91. Roberts, G W; Meng, X; and Brown, C J; (2004). From St Paul's to the Tate Modern – overcoming problems in monitoring bridges using GPS. First FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.
92. Cosser, E; Meng, X; J Barnes, GW Roberts, Dodson, A H; and C Rizos (2004). Precise Engineering Applications of Pseudolites Augmented GNSS. First FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, 28 June - 1 July 2004, Nottingham, UK.
93. Meng, X; Dodson, A H; Roberts, G W; M Andreotti, T Moore, E Cosser and M Capra (2004). An Internet Based Prototype Remote Bridge Health Monitoring System (RBHMS). In: Proc of ENC-GNSS2004, 16-19 May 2004, Rotterdam, The Netherlands.
94. MENG, X., DODSON, A.H., ANDREOTTI, M., ROBERTS, G.W., COSSER, E. and CAPRA, M., (2004). Prototype of a remote bridge health monitoring system using wired/Internet based RTK GPS. In: European Navigation Conference GNSS 2004, Rotterdam, The Netherlands, May 2004.
95. Roberts, G W; Meng, X; Cosser, E; Dodson, A H; The Use of Single Frequency GPS to Measure the Deformations and Deflections of Structures. Proceedings of the FIG Working Week, Athens, May 2004.
96. Roberts, G W; Cosser, E; X Meng and Dodson, A H; (2004). High Frequency Deflection Monitoring of Bridges by GPS, 2004 International Symposium on GPS/GNSS, 6-8 December 2004, Sydney, Australia.
97. Whitaker, C; Chrzanowski, A; Johansen, S K; Kopacik, A; Roberts, G W; Stiros, S; Tsakiri, M; A Report on the Activities of Commission 6 (Engineering Surveys), of the International Federation of Surveyors (FIG), Proceedings of the American Congress on Surveying and Mapping, www.acsm.net April 2004.
98. Roberts, G W; Cosser, E; Meng, X; Dodson, A H; Morris, A; Meo, M; A remote bridge health monitoring system using computational simulation and single frequency GPS data. Proceedings of the 16th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2003.
99. Roberts, G W; Evans, A; Dodson, A H; Cooper, S; Hollands, R; Denby, B; Hatton, W; Sen, M; Muller, D; Marchant, A; Tragheim, D; Shaw, M; Jones, J; The use of augmented reality, GPS and INS to visualise mining and geological data. Proceedings of the 16th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2003.

100. Roberts, G W; Meng, X; Noakes, C; GPS satellite geometry and its implications for structural deformation monitoring. Proceedings of the 16th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2003.
101. Kuras, O., Beamish, D., Meldrum, P.I., Ogilvy, R.D., Strange, K., Waller, M., Roberts, G.W. and Williams, G.M.. Detection of abandoned mineshafts using towed-array capacitive resistivity and real-time kinematic GPS navigation, 9th Meeting of the Environmental and Engineering Geophysical Society - European Section, Prague, August 31 – September 1 2003.
102. Meng, X; Dodson, A H; and Roberts, G W; (2003). Global Positioning System (GPS) for Structural Health Monitoring (SHM): A Review. In: proc of first Annual Academic Conference of the Chinese Students and Scholars Association in the UK, 7 July 2003, Nottingham (Best Presentation Award).
103. Meng, X; Dodson, A H; Roberts, G W; Cosser, E; Hybrid sensor system for bridge deformation monitoring: Interfacing with structural engineers. IUGG 2003, 30 June – 11 July Sapporo, Japan.
104. Dodson, A H; Meng, X; Roberts, G W; Cosser, E; Barnes, J; Rizos, C; Integrated Approach of GPS and Pseudolites for Bridge Deformation Monitoring. GNSS2003 conference, Gratz, May 2003.
105. Meng, X; Meo, M; Roberts, G W; Dodson, A H; Cosser, E; Emanuela Iuliano, Alan Morris; Validating GPS Based Bridge Deformation Monitoring with Finite Element Model. GNSS2003 conference, Gratz, May 2003.
106. Cosser, E; Roberts, G W; Meng, X; Dodson, A H; Measuring Dynamic Deformation of Bridges Using a Total Station. Proc 11th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS, INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Santorini, Greece, May 2003.
107. Roberts, G W; Meng, X; Cosser, E; Dodson, A H; A Morris, M Meo; A Remote Bridge Health Monitoring System Using Computational Simulation and GPS Sensor Data. Proc 11th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS, INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Santorini, Greece, May 2003.
108. Cosser, E; Roberts, G W; Meng, X; Dodson, A H; The Comparison of Single Frequency and Dual Frequency GPS for Bridge Deflection and Vibration Monitoring. Proc 11th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS, INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Santorini, Greece, May 2003.
109. Meng, X; Roberts, G W; Cosser, E; Dodson, A H; Real-time Bridge Deflection and Vibration Monitoring Using an Integrated GPS/Accelerometer/Pseudolite System. Proc 11th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS, INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Santorini, Greece, May 2003.
110. A Chrzanowski, X Ding, Roberts, G W; C Whitaker; Goals and Achievements of FIG Working Group WG 6.1 – Deformation Measurements and Analysis. Proc 11th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS,

INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Santorini, Greece, May 2003.

111. Barnes, J., Rizos, C., Wang, J., Meng, X., Cosser, E., Dodson, A. H. and Roberts, G. W. (2003). "The Monitoring of Bridge Movements using GPS and Pseudolites." 11th International Symposium on Deformation Measurements, International Federation Surveyors (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, 25-28 May, Santorini, Greece.
112. Roberts, G; Meng, X; Dodson, A; Cosser, E; The Use of Pseudolites to Augment GPS Data for Bridge Deflection Measurements. Presented at The 15th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2002
113. Roberts, G; Ogundipie, O; Dodson, A; Construction Plant Control Using RTK GPS: Case Study. Presented at The 15th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2002
114. Moore, T; Roberts, G; Veneboer, T; Pattinson, M; Close, G; Moore, R; New Developments in River Level Monitoring Using GPS Heighting. Presented at The 15th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2002
115. Roberts, G; Cosser, E; Meng, X; Dodson, A; Creating Virtual L2 GPS Data Using a Combination of L1 Receivers and L1/L2 Reference Receivers. Presented at The 15th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2002
116. Roberts, G; Strange, K; Waller, M; The Detection of Abandoned Mineshafts Using GPS and Capacitively Coupled Resistivity Imaging. Presented at The 15th International Technical Meeting of the Satellite Division of the Institute of Navigation, Portland, Oregon, USA, September 2002.
117. Roberts G W; Meng X; Dodson A H; Cosser E; Geodetic Signal Diagnosis and its Applications to Structural Deformation, Proc Second Symposium on Geodesy for Geotechnical and Structural Engineering, Berlin, Germany, May 21 – 24 2002, ISBN 3-9501492-1-X, pp 111-122.
118. Meng X; Roberts G W; Dodson A H; Cosser E; Noakes C; Simulation of the Effects of Introducing Pseudolite Data into Bridge Deflection Monitoring Data, Proc Second Symposium on Geodesy for Geotechnical and Structural Engineering, Berlin, Germany, May 21 – 24 2002, ISBN 3-9501492-1-X, pp 372-381.
119. Roberts G W; Meng X; Dodson A H; Using Adaptive Filtering to Detect Multipath and Cycle Slips in GPS/Accelerometer Bridge Deflection Monitoring Data, Proc XXII International Congress of the FIG, TS6.2 Engineering Surveys for Construction Works and Structural Engineering II, Washington DC, USA, April 19 – 26 2002.
120. Roberts G W; Evans A J; Dodson A H; Denby B; Cooper S; Hollands R; The Use of Augmented Reality, GPS and INS for Subsurface Data Visualisation, Proc XXII International Congress of the FIG, TS5.13 Integration of Techniques, Washington DC, USA, April 19 – 26 2002.
121. Roberts G W; Strange K; Waller M; The Detection of Abandoned Mineshafts using GPS and Capacitively Coupled Resistivity Imaging, Proc XXII International Congress of

the FIG, JS27 Engineering Survey Databases and Facility Management Systems, Washington DC, USA, April 19 – 26 2002.

122. Roberts G W; Ogundipe O; Dodson A H; Construction Plant Control Using RTK GPS, Proc XXII International Congress of the FIG, TS6.2 Engineering Surveys for Construction Works and Structural Engineering II, Washington DC, USA, April 19 – 26 2002.
123. MOORE, T., ROBERTS, G.W., CLOSE, G. and MOORE, R., (2001). River Level Monitoring using GPS Heighting. In: Proc UN/USA Workshop on the Use and Applications of Global Navigation Satellite Systems., Vienna, Austria. November 2001.
124. Evans A J; Roberts G W; Dodson A H; Denby B; Hollands R; Cooper S; A New Vision for Engineering Geodesy, Proc IAG 2001 Scientific Assembly, Budapest , Hungary, 6 pages, 2 – 8 September 2001.
125. Evans A J; Roberts G W; Ashkenazi V; Improving Position Solutions Over Long Baselines Using IGS. Proc IAG 2001 Scientific Assembly, Budapest , Hungary, poster, 2 – 8 September 2001.
126. ROBERTS, G.W., EVANS, A.J., DODSON, A.H., DENBY, B., HOLLANDS, R.J. and COOPER, S.J., (2001). Integrating GPS, INS and augmented reality for sub-surface visualisation. In: The 14th International Technical Meeting of the Satellite Division of the Institute of Navigation, Salt Lake City, USA, pp 233 – 241. September 2001.
127. Roberts G W; Meng X; Dodson A H; Data Processing and and Multipath Mitigation Approaches for GPS/Accelerometer Based Hybrid Structural Deflection Monitoring System, Proc ION-GPS-01, The 14th International Technical Meeting of the Satellite Division of the Institute of Navigation, Salt Lake City, USA, pp 473 - 481, September 2001.
128. Meng X; Roberts G W; Dodson A H; Error Analysis and Accuracy Improvements to GPS/Accelerometer Structural Monitoring. Proc IAG 2001 Scientific Assembly, Budapest , Hungary, poster, 6 pages, 2 – 8 September 2001.
129. Dodson A H; Meng X; Roberts G W; Adaptive FIR Filtering for Multipath Mitigation and its Application for Alrge Structural Deflection Monitoring. Proc International Symposium on kinematic Systems in Geodesy, Geomatics and Navigation (KIS 2001), Banff, Canada, 10 pages, 5 – 8 June 2001.
130. Roberts G W; Meng X; Dodson A H; The Use of Kinematic GPS and Triaxial Accelerometers to Monitor the deflections of Large Bridges, Proc - Deformation Measurements and Analysis, 10th INTERNATIONAL SYMPOSIUM ON DEFORMATION MEASUREMENTS, INTERNATIONAL FEDERATION OF SURVEYORS (FIG), Commission 6 - Engineering Surveys, Working Group 6.1, Orange, California, USA 8 pages, 19 - 22 March 2001.
131. Roberts, G W; Dodson, A H; Brown, C J; Karuna, R; Evans, R A; Monitoring the Height Deflections of the Humber Bridge by GPS, GLONASS and Finate Element Modelling, IAG Symposia, Springer-Verlag, Vol 121, ISBN 3-540-67002-5, pp 355 - 360, Berlin, 2000.
132. Roberts, G. W.; Meng, X.; Dodson. A. H; Structural Dynamic and Deflection Monitoring Using Integrated GPS and Triaxial Accelerometers, Proc ION-GPS-00, The

13th International Technical Meeting of the Satellite Division of the Institute of Navigation, Salt Lake City, USA, 10 pages, September 2000.

133. Evans, A. J.; Roberts, G. W.; Ashkenazi, V.; Precise Kinematic Positioning for Aerial Survey, Proc GNSS 00, 4th European Symp on Global Navigation Satellite Systems, Edinburgh, 7 pages, May 1999.
134. Roberts, G W; Dodson, A H; Ashkenazi, V; Brown, C J; Karuna, R; Evans, E; The Use of Kinematic GPS and Finite Element Modelling for the Deformation Measurements of the Humber Bridge, Proc GNSS 99, 3rd European Symp on Global Navigation Satellite Systems, pp 230-235, Genoa, Italy, October 1999.
135. Roberts, G W; Dodson, A H; Ashkenazi, V; Brown, C J; Karuna, R; Evans, E; Comparison of GPS Measurements and Finite Element Modelling for Deformation Measurements of the Humber Bridge, Proc ION-GPS-99, The 12th International Technical Meeting of the Satellite Division of the Institute of Navigation, 8 pages, Nashville, USA, September 1999.
136. Roberts, G. W; Ashkenazi, V; Dodson, A. H; Monitoring the height deflections of the Humber Bridge by GPS, GLONASS and finite element modelling, International Association of Geodesy Symposia, vol 121. Geodesy Beyond 2000, the challenges of the first decade. IAG General Assembly Birmingham, Springer. ISSN 0939-9585, ISBN 3-540-67002-5, 6 pages, July 19 – 30 1999.
137. Roberts, G W; Ashkenazi, V; Dodson, A H; Monitoring the height deflections of the Humber Bridge by GPS and GLONASS, Proc XXII General Assembly of the International Union of Geodesy and Geophysics, Birmingham, 8 pages, July 1999.
138. Roberts, G W and Dodson, A H; Height Control of Construction Plant by GPS and GLONASS, Proc FIG 5 symposium on the Importance of Heights in Surveying, LMV-Rapport 1999:3, ISSN 0280-5731, pp 195-204, Gävle, Sweden, March 1999.
139. Moore, T; Roberts, G W; Zhang, K; Ashkenazi, V; Dumville, M; Close, G; Moore, R; A Real Time GPS River Level Monitoring System, Proc ION-GPS-99, The 12th International Technical Meeting of the Satellite Division of the Institute of Navigation, 8 pages, Nashville, USA, September 1999.
140. Moore, T; Roberts, G W; Zhang, K F; Ashkenazi, V; Dumville, M; Close, G; Lee, C; Moore, R; Tindall, I; A Novel GPS River Level Monitoring System, Proc GNSS 99, 3rd European Symp on Global Navigation Satellite Systems, pp 507-512, Genoa, Italy, October 1999.
141. Moore, T; Roberts, G W; Zhang, K F; Real Time GPS Monitoring of River Levels, Proc XXII General Assembly of the International Union of Geodesy and Geophysics, Birmingham, 5 pages July 1999.
142. Evans, A. J.; Roberts, G. W.; Ashkenazi, V.; Long Range OTF GPS, Proc IUGG99, The International Union of Geodesy and Geophysics, Birmingham, 6 pages 18-30 July 1999.
143. Dodson, A H; Chen, W; Baker, H C; Penna, N T; Roberts, G W; Jeans, R J; Westbrook, J; Assessment of the EGNOS Tropospheric Correction Model, Proc ION-GPS-99, The 12th International Technical Meeting of the Satellite Division of the Institute of Navigation, Nashville, USA, 7 pages September 1999.

144. Ashkenazi, V; Dumville, M; Moore, T; Roberts, G W; Zhang, K F; Close, G; Lee, C; Moore, R; Tindall, I; Real Time River Level Monitoring System Based on GPS, Proc GIS Brasil 99, V Latin American Congress for Users of Geoprocessing, Salvador, Brazil, 6 pages July 1999.
145. Ashkenazi, V; Roberts, G W; [Simonds, S]; The Use of Kinematic GPS and for Construction Plant Control, Proc GNSS 98, The 2nd European Symposium on Global Navigation Satellite Systems, pp (VIII-O-08) 1 - 6, Toulouse, France, October 1998.
146. ASHKENAZI, V., DODSON, A., ROBERTS, G., BROWN, C. and EVANS, R., (1998). The Use of Kinematic GPS and Glonass to Monitor the Deflection of the Humber Bridge under High Loading. In: The 2nd European Symposium on Global Navigation Satellite Systems (GNSS 98), Toulouse, France, October. VIII-O-06, pp. 1-6
147. ASHKENAZI, V., MOORE, T., ROBERTS, G., ZHANG, K., MOORE, R. and CLOSE, G., (1998). Real Time River Level Monitoring by GPS. In: The 2nd European Symposium on Global Navigation Satellite Systems (GNSS 98), Toulouse, France, October. VIII-O-02, pp. 1-6
148. AQUINO, M., ASHKENAZI, V., MOORE, T. and ROBERTS, G., (1998). A Simplified Approach to WAD Correction Generation. In: The 2nd European Symposium on Global Navigation Satellite Systems (GNSS '98), Toulouse, France, October. II-P-01, pp. 1-6
149. ASHKENAZI, V., MOORE, T. and ROBERTS, G., (1998). The Control of Construction Plant using GPS and Glonass. In: The 11th International Technical Meeting of the Satellite Division of the Institute of Navigation (ION-GPS-98), Nashville, USA, September. pp. 945-952
150. Ashkenazi, V; Dodson, A H; Moore, T; Roberts, G W; Monitoring the Humber Suspension Bridge by GPS, Proc GNSS '97, First European Symposium on Global Navigation Satellite Systems, pp 553 - 560, Munich, April 1997.
151. Ashkenazi, V; Roberts, G W; Dumville, M; Real Time Positioning of Construction Plant through the use of GPS, Proc XXI International Congress of the FIG, Commission 6, Engineering Surveys, ISBN 0-85406-902-X, pp 475 - 484, Brighton, July 1998.
152. Ashkenazi, V; Roberts, G W; Dodson, A H; Real Time Monitoring of Bridges by GPS, Proc XXI International Congress of the FIG, Commission 5, Positioning and Measurement, ISBN 0-85406-901-1, pp 503 - 512, Brighton, July 1998.
153. Moore, T; Roberts, G W; Centimetric GPS Navigation to the North Pole, Proc ION-GPS-97, The 10th International Technical Meeting of the Satellite Division of the Institute of Navigation, pp 1189 - 1196, Kansas City, USA, September 1997.
154. Ashkenazi, V; Dodson, A H; Moore, T; Roberts, G W; Monitoring the Movement of Bridges by GPS, Proc ION-GPS-97, The 10th International Technical Meeting of the Satellite Division of the Institute of Navigation, pp 1165 - 1172, Kansas City, USA, September 1997.
155. Ashkenazi, V; Dodson, A H; Hansen, P; Roberts, G W; A New Cycle Slip Recovery Technique, and its use for Long Range OTF Measurements, Proc DSNS '96, St Petersburg, Russia, 9 pages May 1996.

156. Roberts, G W; Ashkenazi, V; Dodson, A H; The Use of Doppler to Calculate Cycle Slips, XIX United Kingdom Geophysical Assembly, Manchester. Abstract in 'The JAG Newsletter, UKGA Abstracts' Issue, ISSN 0968-3259, 1 page 6 April 1995.
157. Ashkenazi, V; Hansen, P; Lowe, D P; Moore, T; Roberts, G W; Smith, M J; Novel Applications of on-the-fly GPS, Proc Fourth International Conference on Differential Satellite Navigation Systems, DSNS 95, Bergen, Norway, 8 pages , 1995.

Other Conference Proceedings

158. Roberts, G. W; Real Time Construction Plant Control and Monitoring by GPS: 'Guidance From Above', World of Surveying The Spatial Awareness Event, Solihull, UK. 23 April 1997.
159. Roberts, G. W; Monitoring Large Structures by Real Time OTF GPS, World of Surveying The Spatial Awareness Event, Solihull, UK. 24 April 1997.
160. Roberts, G W; Ashkenazi, V; Dodson, A H; High Precision Surveying Technology, Proc Real Time Precise Positioning, Meeting of the Royal Institute of Navigation, pp 5.1 - 5. 8, December 1996.

External Lectures and Seminar Notes

161. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , January 2008.
162. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , April 2007.
163. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , January 2006.
164. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , May 2005.
165. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , 2004.
166. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , April 2003.
167. Bingley, R M; Roberts, G W; Moore, T; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, , July 2002.
168. Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 120 pages, , June 2001.
169. Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 125 pages, , August 2000.
170. Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 115 pages, , December 1999.
171. Roberts, G W; Penna, N T; Bingley, R M; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 120 pages, , December 1998.
172. Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 110 pages, , May 1998.

173. Moore, T; Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 90 pages, , July 1997.
174. Moore, T; Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 88 pages, , January 1997.
175. Moore, T; Bingley, R M; Roberts, G W; Space Geodesy and GPS Theory, Seminar for the Army Survey Course of the School of Military Survey, Denison Barracks, Hermitage, 120 pages, , 1996.
176. Moore, T; Bingley, R M; Roberts, G W; Global Positioning System, Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 86 pages, , 1996.
177. Moore, T; Bingley, R M; Roberts, G W; Global Positioning System. Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 80 pages, , 1995.
178. Moore, T; Bingley, R M; Roberts, G W; Global Positioning System. Seminar for the Royal Navy Long Hydrographic Course, HMS Drake, Plymouth, 80 pages, , 1994.

Reports to External Sponsors

179. Roberts G W; Dodson, A H; Final Report on EPSRC Grant GR/R28218/01: A Remote Bridge Health Monitoring System Using Computational Simulation and GPS Sensor Data. Report for the EPSRC, , January 2005.
 180. Roberts, G W; Meng, X; Brown, C J; Monitoring the Deflections of the Forth Road Bridge using GPS; a Viability Study. Report for the Forth Bridge Transport Authority, , August 2005.
 181. Roberts, G W; Dodson, A H; Deformation Monitoring of the Hammersmith Bridge. Report for Hammersmith and Fullham Council, , March 2002.
 182. Roberts, G W; Dodson A H; Bridon International Rope Measuring; Report on Findings, report on Consultancy provided to Bridon Internationa, 49 pages, 2001.
- Roberts, G W; Meng, X; [C J Brown, Brunel University]; The Use of GPS for the Measurement of Bridge Movements – A Viability Study on the Millennium Bridge, report Submitted to Arup, 27 pages, , 2000.

Languages

English and Welsh

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