

The Richard Carter Prize

Dr Jonathan Iliffe Geospatial engineer of the year 2008

Darrell Smart, CES Editor

THE RICHARD CARTER PRIZE for geospatial engineer of the year 2008 was presented to Dr Jonathan Iliffe, a senior lecturer in geodesy at University College London (UCL), at the Institution dinner at the House of Commons on 10 October 2008. The prize comprises a certificate, £500 and a glass trophy.

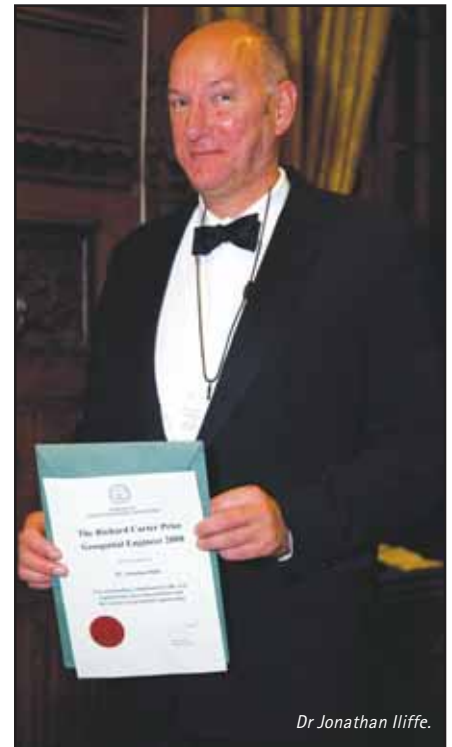
Jonathan joined UCL and the department of photogrammetry and surveying, as it was known then, in 1986. It later changed its name to geomatic engineering, and finally, in 2007, became part of the merged department of civil, environmental and geomatic engineering. At UCL he runs the MSc programmes in surveying and hydrographic surveying, as well as having oversight of all the department's MSc programmes, from geographic information science to earthquake engineering and disaster management.

That represents something of a circular journey for Jonathan, who, at the age of 16 and in a confused state, put down civil engineering on his UCCA form and then found himself less than impressed by a career that seemed to offer a lifetime of rolling bits of mud to find its sheer strength or something – apparently, he was still confused. Fortunately for Jonathan, having chosen Nottingham University, Vidal Ashkenazi and Alan Dodson were on hand to offer some mathematical respite and lured him into the wonderful world of surveying and geodesy and he's never looked back.

Jonathan is the author of *Datums and Map Projections for GIS, Remote Sensing and Surveying* which has been completely rewritten for the second edition and published earlier this year. In fact, datums, map projections and coordinate systems – and their impact on everyday surveying, mapping, and engineering – has pretty much been the theme of Jonathan's research and professional activity over the last few years. Or perhaps, more precisely, it is dealing with all the different consequences of having a fantastic positioning system, such as GPS, not delivering coordinates in a form that users want.

In 2002, he was part of the team (with Marek Ziebart, Paul Cross, and colleagues in Denmark and at the Ordnance Surveys) that developed the OSGM02 model to transform heights derived by GPS to national height datums, which nowadays is in constant use by all geospatial surveyors in Britain and Ireland.

Currently, Jonathan and Marek at UCL are working with the UK Hydrographic Office to try and do the same kind of thing with offshore datums. The VORF project (vertical offshore reference frames) has been going since 2005 and aims to develop a continuous chart datum surface from the coast to the offshore zone, and find its relationship to the datums used in satellite positioning as well as to those used on land. The work has involved developing some interesting mathematical models for the way that sea level and the tides vary in



Dr Jonathan Iliffe.

space and time. It has also involved Jonathan getting out and about and seeking out obscure tide gauge benchmarks and surveying them with precise GPS. Recent expeditions have had Jonathan driving around the whole coast of Ireland and along the west coast of Scotland, and getting out to the islands of Lundy, Foula, Sule Skerry and Colonsay. In fact, as Jonathan puts it:

"The perfect project: Using your brain in some fairly taxing mathematical modelling, and then scrambling onto a remote island with a GPS receiver to verify it – if there is a better definition of the whole point of being involved in surveying, then I'd like to hear it."

Another aspect of Jonathan's work is the development of SnakeGrid. This was

The Richard Carter Prize finalists

Name:	Simon Barnes	Ian Kemp	Carolyn Mary Pope	Alan Alcock Wild
Company:	Plowman Craven	Skanska Construction	Ground Control Surveys	Surrey Space Centre
Job title:	Managing Director (CEO)	Senior Engineering Surveyor	Instrument Technician	PHD Research Student
Area of expertise:	As CEO, Simon has transformed a successful national geomatics/ engineering surveying company into an international organisation undertaking 3D measurement in many innovative markets, such as the film industry and forensics.	Ian is responsible for project engineering surveying, setting up and maintaining surveying control and the reporting of the as-built condition of the works relating to construction accuracy. He also maintains as-built records for utility services existing or installed.	Carolyn's work covers the accurate acquisition of geospatial information and the accurate setting out of construction works.	Alan is conducting research into the autonomous navigation of high precision planetary landers.

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originally developed for Network Rail as a means of establishing a coordinate system for use on railway projects. By unravelling the earth along a line that follows the general trend of the project, the projection scale factor can be kept very near unity; despite the project extending for many hundreds of kilometres. What that means, in practice, is that surveyors and other engineers can proceed as if the earth is flat for a few kilometres on either side of track and happily ignore any scale factor corrections or reductions to the ellipsoid.

After initially being used on the West Coast Main Line, the SnakeGrid software has since been used on many other railway projects in Britain, such as the East Coast Main Line, the Midland Main Line and the Cambrian Line. After being redeveloped and improved this summer, it is now ready for use anywhere in the world – on railways, highways, pipelines or any similar long linear engineering projects that require a continuous grid with near-unity scale factor.

In between all that, there have been many other projects for Jonathan, ranging from determining international boundaries on land and at sea to advising national and regional governments around the world on geodesy and coordinate systems. Highlights in recent years have included flying over mountains in Africa to

examine a border settlement and checking out geodetic networks on Caribbean islands, and thinking that it's not turned out too badly after that initial confused career choice. Of the prize itself, Jonathan commented

"It's a really impressive thing for Richard Carter to have done to endow something of this kind, and I'm very honoured to be the recipient this year. It's definitely another highlight of my career".

Richard Carter was a young land surveyor who was killed whilst working overseas. He was an active member of the Institution and was particularly interested in the education and training of surveyors. Richard left a percentage of his estate to the Institution to fund an award in his name.

While the Institution congratulates Jonathan, we would also like to thank all the candidates who participated in the award. The judging panel – the chairmen of the Geospatial Engineering Practices Committee and its specialist panels – was extremely impressed by the high quality of the nominations this year. All the finalists had made considerable contributions to the geospatial engineering profession.

Network RTK 

Best practice guidance notes for network RTK surveying in Great Britain launched

The Survey Association (TSA) recently launched best practice guidance for network RTK surveying in Great Britain on 6 November at Old Trafford Stadium. CES joined almost 200 people at the launch, including delegates from government departments, local authorities, surveying companies, academia, the police and construction firms.

TSA was aware that there was a great deal of confusion regarding understanding of network RTK and achievable accuracies both inside the survey industry but more particularly amongst clients. The association commissioned a study from Newcastle University's geodesy research group which was jointly funded by TSA, Ordnance Survey, and the two current providers of commercial network RTK services in Great Britain, Leica Geosystems and Trimble.

The resulting guidance note, which consists of a six page A5 size leaflet, contains information on the background to the research, equipment configuration, quality indicators, height effects, surveying at the limits, additional satellite constellations, how to improve solution robustness, ocean tide loading and, of course, accuracy.

The study has been well received and has helped promote a positive image of the UK survey industry. Since the launch, guidance note downloads have included organisations from the United States and other parts of the globe, indicating a worldwide appetite for clarification and more information on GPS usage.

Both the best practice leaflet and a more extensive scientific report on the project are available for free download at www.tsa-uk.org.uk

