

NAV09 – Land: Location Systems for Intelligent Transport Systems and Indoor Guidance Applications

**Teddington, Middlesex, UK
19 November 2009**

ISBN: 978-1-61567-979-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2009) by the Royal Institute of Navigation except where indicated otherwise
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact the Royal Institute of Navigation
at the address below.

Royal Institute of Navigation
1 Kensington Gore
London SW7 2AT

Phone: 44(0)20 7591 3130
Fax: 44(0)20 7591 3131

conference@rin.org.uk

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

SESSION 1: OPENING SESSION

Welcome to NPL	1
<i>J. Pethica</i>	
Location and Timing Programme	6
<i>B. Cockshott</i>	
A Global Navigation Satellite System Update	20
<i>C. Beatty</i>	

POSITIONING & LOCATION: NOW AND INTO THE FUTURE LOOKING BEYOND THE HORIZON

Future Developments in Satellite Navigation Systems	50
<i>T. Moore</i>	

NAV09 – POSITIONING & LOCATION – SESSION 2

Indoor Positioning - NAV09	54
<i>D. Harmer</i>	
Towards a Multi-sensor Future	58
<i>P. D. Groves</i>	

NAV09 – POSITIONING & LOCATION – SESSION 3

Precise Point Positioning: Do We Need RTK GPS in the Future?	62
<i>A. Dodson, X. Meng, J. Geng, F. Teferle</i>	
Challenging the Boundaries - How accurate can we make GNSS positioning?	66
<i>P. Cross</i>	
It Is Good - But Can We Trust It?	69
<i>W. Ochieng</i>	

NAV09 – POSITIONING & LOCATION – SESSION 4

Navigating Autonomous Vehicles	72
<i>D. F. Trommer</i>	
The Future of the Consumer Navigation Receiver	75
<i>P. G. Mattos</i>	
Navigation on Mars and the Moon: Looking Beyond the Horizon 2030-2040	77
<i>M. Ziebart</i>	

SESSION 2: LOCATION AND MAPPING FOR INTELLIGENT TRANSPORT SYSTEMS

Current Status and Future Directions for ITS	83
<i>N. Wall</i>	
The Local Dynamic Map - A Data Store for Cooperative Applications	106
<i>N. Smith</i>	
Intelligent Speed Adaptation London Trial	123
<i>M. Lanigan</i>	

SESSION 3: LOCATION SOLUTIONS WITHOUT GPS

What No GPS?	160
<i>T. Gooley</i>	

Surveying Railway Infrastructure Above and Below Ground 205
M. Richardson

Locating Wireless Devices Where GPS May Not Be Available - Ofcom Study: Progress to Date..... 236
S. Methley, C. Davis

SESSION 4: INDOOR LOCATION

Current Uses of Indoor Location Solutions 252
R. Willmott

SWB With Other Techniques for Indoor Location..... 268
D. Bartlett

Author Index