THE ROYAL INSTITUTE OF NAVIGATION

Aims and Objects

The objects of the Institute are to unite in one body those who are concerned with or who are interested in navigation and to further its development. Navigation is conceived as applying to locomotion of all kinds and is perceived as encompassing aspects of: command and control, psychology and zoology, operational research, risk analysis, theoretical physics, operation in hostile environments, instrumentation, ergonomics, financial planning and law as well as electronics, astronomy, mathematics, cartography and other subjects traditionally associated with navigation.

The aims of the Institute are to encourage the creation and dissemination of knowledge through research and development, to co-ordinate information from all the disciplines involved, to provide a forum in which new ideas and new products can have the benefit of informed and professional scrutiny and to further education and communication.

The Institute initiates conferences and symposia on specific subjects and has a programme of meetings at which lectures are given and discussed. There are standing Special Interest Groups (SIGs), which keep under constant review pertinent aspects of navigation. The success of these Special Interest Groups is crucially dependent on the active involvement of members.

The SIGs include: Land Navigation and Location Group (LN&L), General Aviation Navigation Group (GANG), History of Air Navigation Group (HANG), Civil and Military Air Group (CMAG), Marine Traffic & Navigation Group (MT&NG), Small Craft Group (SCG), eLORAN Group (eLORAN), Space Group (Space), Animal Navigation Group (ANG) and Research & Development Group (R&D).

The Institute publishes *The Journal of Navigation* four times a year. It contains papers which have been presented at meetings, other original papers and selected papers and reports from Special Interest Groups. The Institute also publishes *Navigation News* six times a year which contains a full account of the Institute's proceedings and activities. This includes Branch News, a record of current navigational work, a diary of events, topical articles, news about Membership and advertising. A great deal of the Institute's work is international in character and is co-ordinated with that of similar organizations in other countries.

Membership

There are nine classes of membership under which individuals or organisations may apply to join the Institute. Details of the various membership criteria and current subscriptions are available on the RIN website (Home / Join the RIN / Membership Types http://www.rin.org.uk/general.aspx?ID=59) and from the Membership Secretary (membership@rin.org.uk Tel: +44(0)20 7591 3130 Fax: 44(0)20 7591 3131).

- (1) Ordinary Membership
- (2) Associate Membership
- (3) Associate Fellow Membership
- (4) Student Membership
- (5) Junior Associate Membership
- (6) Corporate Membership
- (7) Small Business Membership
- (8) Affiliate College University Membership
- (9) Affiliate Club Membership

Additional membership classes of Fellowship, Honorary Fellowship, Retired Membership and Affiliate Membership also exist and details are available from the Membership Secretary.

The subscription price (excluding VAT) to The *Journal* (ISSN 0373–4633) for Volume 66, 2013, which includes print and electronic access, is £398 (USA, Canada and Mexico US \$734) and includes delivery by air; single parts are available at £110 (USA, Canada and Mexico US \$195) plus postage. The electronic-only price available to institutional subscribers is £321 (USA, Canada and Mexico US \$585). EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. The *Journal* is issued free to all Members of the Institute. Orders, which must be accompanied by payment, may be sent to any bookseller or subscription agent or direct to the publishers: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8Ru, or in the USA, Canada and Mexico to Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994–2133. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan.

THE JOURNAL OF NAVIGATION

VOLUME 66 NUMBER 4 JULY 2013

CONTENTS

GPS Signal Detection under Multiplicative and Additive Noise P. Huang, Y. Pi and I. Progri	479
A New Avionics-Based GNSS Integrity Augmentation System: Part 2 – Integrity Flags Roberto Sabatini, Terry Moore and Chris Hill	501
Increasing the Usability of Pedestrian Navigation Interfaces by means of Landmark Visibility Analysis Ioannis Delikostidis, Juri Engel, Bas Retsios, Comé P.J.M. van Elzakker, Menno-Jan Kraak and Jürgen Döllner	523
GPS based onboard orbit determination system providing fault management features for a LEO satellite H. Bolandi, M. H. Ashtari Larki, M. Abedi and M. Esmailzade	539
The Estimation of Angular Misalignments for Ultra Short Baseline Navigation Systems. Part I: Numerical Simulations Hsin-Hung Chen	561
Usability of the GPS Precise Point Positioning Technique in Marine Applications <i>R. M. Alkan and T. Öcalan</i>	579
Container Slot Co-Allocation Planning with Joint Fleet Agreement in a Round Voyage for Liner Shipping Jihong Chen and Shmuel Yahalom	589
Image Processing Algorithms For Deep-Space Autonomous Optical Navigation Shuang Li, Ruikun Lu, Liu Zhang and Yuming Peng	605
Techno-Economic Assessment of Hull-mounted Sonar for Oil-spill Risk Control <i>Ernestos Tzannatos and Alexandros Xirouchakis</i>	625
CALL FOR PAPERS Ideas in movement: the role of conflict and commerce in the history of navigation	637

