

The JOURNAL of NAVIGATION

VOL. 41 NO. 1

JANUARY

1988

Presidential Address: The Provenance of Navigational Science J. E. D. WILLIAMS	1
Radar Simulator Training for Inland Waterway Shipping D. BREEDVELD	25
Official General Charts of New Zealand 1772-1885 BRIAN HOOKER	35
Cetacean 'Navigation' and the Geomagnetic Field M. KLINOWSKA	52
Operational Aspects of JTIDS Relative Navigation P. A. DOHERTY, C. P. SHEPPARD AND G. L. WRAY	72
The Position-fixing Needs of Merchant Ships: An Assessment in the Area Portland Bill to the Thames Estuary J. L. STRANGE	90
An Overview of Current Methods Used in Weather Routeing R. MOTTE, R. S. BURNS AND S. CALVERT	101
Analysis of Apparent Spontaneous Yawing for a Ship Under Way C. DE WIT	115
Analysis of Radar PAD Information and a Suggestion to Reshape the PAD WU ZHAO-LIN	124
'Analysis of Radar PAD Information and a Suggestion to Reshape the PAD' J. P. O'SULLIVAN	130
'Practical Weather Routeing of Sail-assisted Motor Vessels' C. DE WIT	134
The Authors' Reply H. HAGIWARA AND J. A. SPAANS	135
Record	137
Reviews	144

THE ROYAL INSTITUTE OF NAVIGATION
OXFORD UNIVERSITY PRESS

THE ROYAL INSTITUTE OF NAVIGATION

Patron

HRH THE PRINCE PHILIP DUKE OF EDINBURGH, KG, KT, OM

OFFICERS AND COUNCIL 1987-8

President

Sir John Charnley, CB

Vice Presidents

D. W. Newson

Rear Admiral A. F. R. Weir, CB

Treasurer

J. H. Beattie

Chairman of the Technical Committee

Air Cdre D. F. H. Grocott, CBE, AFC, RAF

Chairman of the Membership & Fellowship Committee

Wg Cdr E. E. Eatwell, RAF

Other Members of Council

H. J. Agnew

J. C. Bell

W. F. Blanchard

N. Dahl

Captain J. D. Eames

P. F. C. Griffiths

D. Halliwell

L. Lee

R. D. Pike

S. G. Smith

Director Rear Admiral R. M. Burgoyne, CB

THE JOURNAL OF NAVIGATION

The *Journal* is published three times a year by Oxford University Press and is edited by Professor J. F. Kemp. It contains original papers contributing to the science of navigation, including those presented at the meetings of the Institute together with the ensuing discussion. In addition the *Journal* includes a record of current navigational work, reviews of important books, and other matters of concern to those interested in navigation. The views expressed in the *Journal* are not necessarily those of the Institute, or of any organization or department to which the authors may belong. Crown Copyright may be reserved. Any facts stated or opinions expressed in this *Journal* are the sole responsibility of the contributors. Neither the Royal Institute of Navigation, the Editor nor the Publishers can be held responsible for any injury or loss sustained in reliance thereon.

The *Journal* (ISSN 0373-4633) is issued free to all Members of the Institute. The subscription price to non-members for Volume 41, 1988, is £59 (US \$100 in N. America, £47 in the UK); single parts are available at £21 (US \$36 in N. America, £17 in the UK). Prices include postage by surface mail or, for subscribers in the USA, Canada, Japan, Australia and New Zealand, by Air Speeded Post. Airmail rates are available on request. Back issues are sold at the current single issue rate. Please send orders and requests for sample copies to the Journals Subscriptions Dept, Oxford University Press, Walton Street, Oxford OX2 6DP, UK. Telex 837330 OXPRESG. Payment is required with all orders and subscriptions are accepted and entered by the volume.

Enquiries for advertising space should be addressed to the Journals Advertising Coordinator, Journals Production Dept., Oxford University Press at the address given above.

The postal address of the Institute is The Royal Institute of Navigation, at The Royal Geographical Society, 1 Kensington Gore, London SW7 2AT (Telephone: 01-589 5021).