

- Rust DM**  
Stereoscopic observations: Opportunities and challenges.
- Rust DM, Anderson BJ, Andrews MD, Strachan L, and Zanetti LJ**  
Analysis of SOHO images and NEAR magnetometer data on the coronal mass ejection (CME) from the Sun's west limb on August 13, 1997.
- Sanchez ER, Baker KB, Borovsky J, Thomsen M, Mukai T, and Saito Y**  
On the relationship between ionospheric and magnetospheric convection during the passage of solar wind disturbances.
- Skinner AJ, and Roelof EC**  
Automated extraction of energetic ion intensities from energetic neutral atom (ENA) images.
- Sotirelis T, Newell PT, and Meng C-I**  
Model of auroral electron precipitation.
- Takahashi K, and Anderson BJ**  
Quantitative explanation of reverse pitch angle dispersion ion injection signatures.

The following papers were presented at the American Control Conference, Philadelphia, PA (25 Jun 1998):

- Biermann PJ, Cranmer JH, Lebowitz CA (Edison Welding Inst.), and Brown LM (NSWC Carderock)**  
Installation and testing of an ultrasonic end-of-cure sensor in an autoclave environment.
- Hill SD, and Spall JC**  
Inequality-based reliability estimates for complex systems.

- Maryak JL**  
An efficient optimization technique for image restoration.
- Sadegh P (Technical Univ. of Denmark), and Spall JC**  
Optimal sensor configuration for complex systems.
- Spall JC**  
Resampling-based calculation of the information matrix for general identification problems.

## COLLOQUIA

The following topics were recently presented at the weekly APL Colloquium:

- 2 October 1998**  
Why Global Warming is a Controversial Issue, SG Philander, Princeton University
- 9 October 1998**  
Radar Propagation and Scattering from Ocean and Terrain, DJ Donohue, APL
- 16 October 1998**  
MRI Methods for Studying Brain Functions, PC vanZijl, JHU School of Medicine
- 23 October 1998**  
Protein/Receptor Matching, MF Shlesinger, Office of Naval Research
- 30 October 1998**  
The Impact of Comets and Asteroids upon the Earth, DK Yeomans, Jet Propulsion Laboratory

## AUTHOR INDEX

*Johns Hopkins APL Technical Digest*  
Volume 19 (1998)

- Acuña MH, see Lohr DA  
Anderson BJ, see Lohr DA  
Arnold AG, The Joint Countermine Advanced Concept Technology Demonstration 19(4), 407-410.  
Artis DA, see Stott DD  
Bartnick GR, see Brown JC  
Benokraitis B, Webspac engineering 19(3), 351-353.  
Biegel PE, Brown SP, Mason TC, and Poland DD, Development of a personal computer simulation-based multimedia ship control training program 19(4), 470-481.  
Bokulic RS, Flaherty MKE, Jensen JR, and McKnight TR, The NEAR spacecraft RF Telecommunications System 19(2), 213-219.  
Boldt JD, see Hersman CB  
Bostrom CO, and Williams DJ, The space environment 19(1), 43-52.  
Bric AD, see Iannuzzelli RJ  
Brown JC, and Barnick GR, Technical support for the Ballistic Missile Defense Organization 19(4), 413-415.  
Brown SP, see Biegel PE  
Buckman RG Jr, and Vetter JR, Test range systems development and testing 19(4), 398-401.  
Burek RK, The NEAR solid-state data recorders 19(2), 235-240.  
Butler MH, see Jenkins JE  
Carlsson PU, see Jenkins JE  
Carter DJ, Tomahawk Cruise Missile test and evaluation 19(4), 402-403.  
Chang Y, Hydrocode analysis at APL 19(1), 72-81.  
Cheng AF, Farquhar RW, and Santo AG, NEAR overview 19(2), 95-106.  
\_\_\_\_\_, see Heeres KJ  
Cole TD, NEAR Laser Rangefinder: A tool for the mapping and topologic study of asteroid 433 Eros 19(2), 142-157.  
Coleman DR, and Simkins LS, The Fleet Ballistic Missile Accuracy Evaluation Program 19(4), 393-397.  
Coughlin TB, The NEAR mission: Guest Editor's introduction 19(2), 93-94.  
Crawford MJ, see Kennedy GC  
Criss TB, South MM, and Levy LJ, Multiple image coordinate extraction (MICE) technique for rapid targeting of precision guided munitions 19(4), 493-500.  
Cronin DC, see South HM  
Dakermanji G, see Jenkins JE  
Danchik RJ, An overview of Transit development 19(1), 18-26.  
Darlington EH, see Peacock K  
Dettmer JR, Cooperative fabrication of the NEAR spacecraft 19(2), 241-246.  
Dockery GD, Development and use of electromagnetic parabolic equation propagation models for U.S. Navy applications 19(3), 283-292.

- Eisenreich P, see Hersman CB  
 Ercol CJ, and Krein SJ, Thermal design of NEAR 19(2), 185–194.  
 Farquhar RW, see Cheng AF  
 Fischell RE, Applications of Transit satellite technology to biomedical devices 19(1), 60–65.  
 Flaherty MKE, see Bokulic RS  
 Frostbutter DA, see Iannuzzelli RJ  
 Geffert DL, Undersea Systems Program 19(4), 410–413.  
 Gibson JP, Fleet Ballistic Missile test and evaluation 19(4), 388–393.  
 Gilreath HE, see Iannuzzelli RJ  
 Goldsten JO, The NEAR X-ray/Gamma-ray Spectrometer 19(2), 126–135.  
 Gordon SL, see South HM  
 Guier WH, and Weiffenbach GC, Genesis of satellite navigation 19(1), 14–17.  
 Haley DR, see Strikwerda TE  
 Hanson JM Jr, see Iannuzzelli RJ  
 Hartka TJ, and Persons DF, The design and testing of the NEAR spacecraft structure and mechanisms 19(2), 163–173.  
 Hawkins SE III, The NEAR Multispectral Imager 19(2), 107–114.  
 Heeres KJ, Holland DB, and Cheng AF, The NEAR Science Data Center 19(2), 257–266.  
 Heggstad BK, see Stott DD  
 Hersman CB, Boldt JD, Eisenreich P, Oden SF, and Temkin DK, Data processing hardware for the NEAR instruments 19(2), 158–162.  
 Holland DB, see Heeres KJ  
 Hughes AS, see Iannuzzelli RJ  
 Iannuzzelli RJ, Schemm CE, Marcotte FJ, Manzi LP, Gilreath HE, Hanson JM Jr, Frostbutter DA, Hughes AS, Bric AD, Kershner DL, and McKenzie LE, Aircraft wake detection using bistatic radar: Analysis of experimental results 19(3), 299–314.  
 Jenkins JE, Dakermanji G, Butler MH, and Carlsson PU, Power subsystem design and early mission performance 19(2), 195–204.  
 Jensen, JR, see Bokulic RS  
 Kennedy GC, and Crawford MJ, Innovations derived from the Transit Program 19(1), 27–35.  
 Kershner DL, see Iannuzzelli RJ  
 Krein SJ, see Ercol CJ  
 Kroutil JE, see Stott DD  
 Krueger RO, see Stott DD  
 Lee JN, Optical signal processing 19(3), 354–356.  
 Levy LJ, see Criss TB  
 Linstrom LA, see Stott DD  
 Lohr DA, Zanetti LJ, Anderson BJ, Potemra TA, and Acuña MH, The NEAR Magnetic Field Instrument 19(2), 136–141.  
 Magnani TP, see South HM  
 Maier-Tyler LL, Awards for publications and research and development 19(1), 82–84.  
 Manzi LP, see Iannuzzelli RJ  
 Marcotte FJ, see Iannuzzelli RJ  
 Mason TC, see Biegel PE  
 McKenzie LE, see Iannuzzelli RJ  
 McKnight TR, see Bokulic RS  
 Mentzer WR Jr, Test and evaluation of land-mobile missile systems 19(4), 421–435.  
 Moorjani K, Thomas A. Potemra (1938–1998) 19(3), 277.  
 Mosher LE, and Wiley S, Design, development, and flight of the NEAR Propulsion System 19(2), 174–184.  
 Oden SF, see Hersman CB  
 Peacock K, Warren JW, and Darlington EH, The Near-Infrared Spectrometer 19(2), 115–125.  
 Perschy JA, see Stott DD  
 Persons DF, see Hartka TJ  
 Pisacane VL, The legacy of Transit: Guest Editor's introduction 19(1), 5–10.  
 Poland DD, see Biegel PE  
 Potemra TA, see Lohr DA  
 Ray JC, see Strikwerda TE  
 Resch C, Exo-atmospheric discrimination of thrust termination debris and missile segments 19(3), 315–321.  
 Richeson KE, Commercial Vehicle Operations Program 19(4), 415–420.  
 Rueger LJ, Development of receivers to characterize Transit time and frequency signals 19(1), 53–59.  
 Santo AG, see Cheng AF  
 Schemm CE, see Iannuzzelli RJ  
 Schwartz PD, see Stott DD  
 Sellers WA, see Vetter JR  
 Silberman GL, Parametric classification techniques for theater ballistic missile defense, 19(3), 322–339.  
 Simkins LS, see Coleman DR  
 Sobel D, A brief history of early navigation 19(1), 11–13.  
 Somers AJ, see Whitworth GG  
 South HM, Cronin DC, Gordon SL, and Magnani TP, Technologies for sonar processing, 19(4), 459–469.  
 South MM, see Criss TB  
 Spall JC, An overview of the simultaneous perturbation method for efficient optimization 19(4), 482–492.  
 Stott DD, Artis DA, Heggstad BK, Kroutil JE, Krueger RO, Linstrom LA, Perschy JA, Schwartz PD, and Sweitzer GF, The NEAR Command and Data Handling System 19(2), 220–234.  
 Stratton WC, see Whitworth GG  
 Strikwerda TE, Ray JC, and Haley DR, The NEAR Guidance and Control System 19(2), 205–212.  
 Sweitzer GF, see Stott DD  
 Taylor R, Jim's bright idea 19(3), 278–282.  
 Temkin DK, see Hersman CB  
 Thomas ME, see Trof WJ  
 Thompson T, Demonstration of a precision missile intercept measurement technique 19(4), 513–523.  
 Thompson T, and Westerfield, EE, Global Positioning System translators for precision test and evaluation 19(4), 448–458.  
 Thompson T, Levy LJ, and Westerfield EE, The SATRACK System: Development and applications 19(4), 436–458.  
 Trof WJ, and Thomas ME, Infrared refractive index and thermo-optic coefficient measurement at APL 19(3), 293–298.  
 Tucker AJ, Computerized ionospheric tomography 19(1), 66–71.  
 Vetter JR, see Buckman RG  
 Vetter JR, and Sellers WA, Differential Global Positioning System navigation using high-frequency ground wave transmissions 19(3), 340–350.  
 Vigliotti V, Demonstration of submarine control of an unmanned aerial vehicle 19(4), 501–512.  
 Warren JW, see Peacock K  
 Watson JM, The origin of the APL Strategic Systems Department 19(4), 375–387.  
 Watson JM, Strategic systems and beyond: Guest Editor's introduction 19(4), 370–374.  
 Weiffenbach GC, see Guier WH  
 Whitworth GG, Somers AJ, and Stratton WC, Efficient spacecraft test and operations with the NEAR ground system 19(2), 247–256.  
 Wiley S, see Mosher LE  
 Williams DJ, see Bostrom CO  
 Worley PD, Unmanned aerial vehicle Tactical Control System 19(4), 403–407.  
 Yionoulis SM, The Transit satellite Geodesy Program 19(1), 36–42.  
 Zanetti LJ, see Lohr DA

## SUBJECT INDEX

*Johns Hopkins APL Technical Digest*  
Volume 19 (1998)

### APPLIED RESEARCH

Computerized ionospheric tomography 19(1), 66–71. Tucker AJ  
Development and use of electromagnetic parabolic equation propagation models for U.S. Navy applications 19(3), 283–292. Dockery GD  
Hydrocode analysis at APL 19(1), 72–81. Chang Y  
Infrared refractive index and thermo-optic coefficient measurement at APL 19(3), 293–298. Tropf WJ, and Thomas ME  
The NEAR Magnetic Field Instrument 19(2), 136–141. Lohr DA, Zanetti LJ, Anderson BJ, Potemra TA, and Acuña MH  
The Transit satellite Geodesy Program 19(1), 36–42. Yionoulis SM

### AWARDS

Awards for publications and research and development 19(1), 82–84. Maier-Tyler LL

### BASIC RESEARCH

An overview of the simultaneous perturbation method for efficient optimization 19(4), 482–492. Spall JC  
Jim's bright idea 19(3), 278–282. Taylor R  
The space environment 19(1), 43–52. Bostrom CO, and Williams DJ

### BIOMEDICAL DEVICES

Applications of Transit satellite technology to biomedical devices 19(1), 60–65. Fischell RE

### BOOK REVIEWS

Optical signal processing 19(3), 354–356. Lee JN  
Webpace engineering 19(3), 351–353. Benokraitis B

### DEVELOPMENT

Aircraft wake detection using bistatic radar: Analysis of experimental results 19(3), 299–314. Iannuzzelli RJ, Schemm CE, Marcotte FJ, Manzi LP, Gilreath HE, Hanson JM Jr, Frostbutter DA, Hughes AS, Bric AD, Kershner DL, and McKenzie LE  
An overview of Transit development 19(1), 18–26. Danchik RJ  
Exo-atmospheric discrimination of thrust termination debris and missile segments 19(3), 315–321. Resch C  
NEAR Laser Rangefinder: A tool for the mapping and topologic study of asteroid 433 Eros 19(2), 142–157. Cole TD  
Parametric classification techniques for theater ballistic missile defense 19(3), 322–339. Silberman GL  
The design and testing of the NEAR spacecraft structure and mechanisms 19(2), 163–173. Hartka TJ, and Persons DF  
The NEAR Guidance and Control System 19(2), 205–212. Strikwerda TE, Ray JC, and Haley DR  
The NEAR Magnetic Field Instrument 19(2), 136–141. Lohr DA, Zanetti LJ, Anderson BJ, Potemra TA, and Acuña MH  
The SATRACK System: Development and applications 19(4), 436–458. Thompson T, Levy LJ, and Westerfield EE

### HISTORY

A brief history of early navigation 19(1), 11–13. Sobel D  
Genesis of satellite navigation 19(1), 14–17. Guier WH, and Weiffenbach GC  
The origin of the APL Strategic Systems Department 19(4), 375–387. Watson JM

### IN MEMORIAM

Thomas A. Potemra (1938–1998) 19(3), 277. Moorjani K

### INFORMATION TECHNOLOGY

Data processing hardware for the NEAR instruments 19(2), 158–162. Hersman CB, Boldt JD, Eisenreich P, Oden SF, and Temkin DK  
The NEAR Command and Data Handling System 19(2), 220–234. Stott DD, Artis DA, Heggstad BK, Kroutil JE, Krueger RO, Linstrom LA, Perschy JA, Schwartz PD, and Sweitzer GF  
The NEAR Science Data Center 19(2), 257–266. Heeres KJ, Holland DB, and Cheng AF

### INSTRUMENTATION

The NEAR Multispectral Imager 19(2), 107–114. Hawkins SE III  
The NEAR solid-state data recorders 19(2), 235–240. Burek RK  
The NEAR X-ray/Gamma-ray Spectrometer 19(2), 126–135. Goldsten JO  
The Near Infrared Spectrometer 19(2), 115–125. Peacock K, Warren JW, and Darlington EH

## NEAR MISSION

Cooperative fabrication of the NEAR spacecraft 19(2), 241–246. Dettmer JR  
NEAR overview 19(2), 95–106. Cheng AF, Farquhar RW, and Santo AG  
The NEAR mission: Guest Editor's introduction 19(2), 93–94. Coughlin TB

## PATENTS

Patents 19(2), 274.

## PROGRAMS

Development of a personal computer simulation-based multimedia ship control training program 19(4), xxx–xxx. Biegel PE, Brown SP, Mason TC, and Poland DD  
Undersea Systems Program 19(4), 410–413. Geffert DL

## PUBLICATIONS, PRESENTATIONS, AND COLLOQUIA

Publications, presentations, and colloquia 19(1), 85–90.  
Publications, presentations, and colloquia 19(2), 267–274.  
Publications, presentations, and colloquia 19(3), 357–359.  
Publications, presentations, and colloquia 19(4), 524–529.

## SATELLITE NAVIGATION

The legacy of Transit: Guest Editor's introduction 19(1), 5–10. Pisacane VL

## SYSTEMS DEVELOPMENT

Strategic systems and beyond: Guest Editor's introduction 19(4), 370–374. Watson JM  
The NEAR spacecraft RF Telecommunications System 19(2), 213–219. Bokulic RS, Flaherty MKE, Jensen JR, and McKnight TR

## TECHNOLOGY DEMONSTRATION

Demonstration of a precision missile intercept measurement technique 19(4), 513–523. Thompson T  
Demonstration of submarine control of an unmanned aerial vehicle 19(4), 501–512. Vigliotti V  
Multiple image coordinate extraction (MICE) technique for rapid targeting of precision guided munitions 19(4), 493–500. Criss TB, South MM, and Levy LJ  
Technical support for the Ballistic Missile Defense Organization 19(4), 413–415. Brown JC, and Barnick GR  
The Joint Countermine Advanced Concept Technology Demonstration 19(4), 407–410. Arnold AG  
Unmanned aerial vehicle Tactical Control System 19(4), 403–407. Worley PD

## TECHNOLOGY DEVELOPMENT

Applications of Transit satellite technology to biomedical devices 19(1), 60–65. Fischell RE  
Design, development, and flight of the NEAR Propulsion System 19(2), 174–184. Mosher LE, and Wiley S  
Development of receivers to characterize Transit time and frequency signals 19(1), 53–59. Rueger LJ  
Innovations derived from the Transit Program 19(1), 27–35. Kennedy GC, and Crawford MJ  
Power subsystem design and early mission performance 19(2), 195–204. Jenkins JE, Dakermanji G, Butler MH, and Carlsson PU  
Technologies for sonar processing 19(4), 459–469. South HM, Cronin DC, Gordon SL, and Magnani, TP  
Thermal design of NEAR 19(2), 185–194. Ercol CJ, and Krein SJ

## TEST AND EVALUATION

Differential Global Positioning System navigation using high-frequency ground wave transmissions 19(3), 340–350. Vetter JR, and Sellers WA  
Efficient spacecraft test and operations with the NEAR ground system 19(2), 247–256. Whitworth GG, Somers AJ, and Stratton WC  
Fleet Ballistic Missile test and evaluation 19(4), 388–393. Gibson JP  
Global Positioning System translators for precision test and evaluation 19(4), 448–458. Thompson T, and Westerfield, EE  
Test and evaluation of land-mobile missile systems 19(4) 421–435. Mentzer JR Jr  
Test range systems development and testing 19(4), 398–401. Buckman RG Jr, and Vetter JR  
The Fleet Ballistic Missile Accuracy Evaluation Program 19(4), 393–397. Coleman DR, and Simkins LS  
Tomahawk Cruise Missile test and evaluation 19(4), 402–403. Carter DJ

## TRANSPORTATION

Commercial Vehicle Operations Program 19(4), 415–420. Richeson KE