PUBLICATIONS

APL staff authored or co-authored the following unclassified books and technical articles that were recently published:

Andersson SK, and Thomas ME
Infrared properties of CVD β-SiC, *Infrared Phys. Tech.* 39(4), 223–234 (Jun 1998).

Arnold AG
The Joint Countermine Advanced Concept Technology Demonstration, *Johns Hopkins APL Tech. Dig.* 19(4), 407–410 (1998).

Baker KB, Engebretson MJ, Rodger AS, and Arnoldy RL
The coherence scale length of band-limited Pc3 pulsations in the ionosphere, *Geophys. Res. Lett.* 25, 2357–2360 (1998).

Barabash S, Norberg O, Lundin R, Olsen S, C:son Brandt P, Roelof EC, Chase CJ, Mauk BH, Koskinen H, and Ryno J
Energetic neutral atom imager on the Swedish microsatellite Astrid, *Geophys. Monogr.* 103, *Measurement Techniques in Space Plasmas: Fields*, RF Pfaff, JE Borovsky, and DT Young (eds.), American Geophysical Union, pp. 257–262 (1998).

Beaulieu MR, Alfriend KT, and Jerardi TW
Launch detection satellite system engineering error analysis, reprinted by AIAA from *J. Spacecr. Rockets* 35(4), 487–495 (Jul–Aug 1998).

Biegel PE, Brown SP, Mason TC, and Poland DD
Development of a personal computer simulation-based multimedia submarine ship control program, *Johns Hopkins APL Tech. Dig.* 19(4), 470–481 (1998).

Brown JC, and Barnick GR
Technical support for the Ballistic Missile Defense Organization, *Johns Hopkins APL Tech. Dig.* 19(4), 413–415 (1998).

Buckman RG Jr, and Vetter JR
Test range systems development and testing, *Johns Hopkins APL Tech. Dig.* 19(4), 398–401 (1998).

Burgan MW, and Peck A
Scientific illustration, in *Society for Technical Communication: 1998 Proc.*, Arlington, VA, pp. 478–480 (1998).

Carter DJ
Tomahawk Cruise Missile test and evaluation, *Johns Hopkins APL Tech. Dig.* 19(4), 402–403 (1998).

Castella FR, Guevara WJ, and Wright CAH
Inter-facial alignment of sensors with multi-phased array antennas, in *Proc. IRS 98 Int. Radar Symp.*, Munich, Germany, pp. 695–703 (1998).

Chang S-W, Scudder JD, Sigwarth JB, Frank LA, Maynard NC, Burke WJ, Peterson WK, Shelley EG, Friedel R, Blake JB, Greenwald RA, Lepping RP, Sofko GJ, Villain J-P, and Lester M
A comparison of a model for the theta aurora with observations from Polar, Wind, and SuperDARN, *J. Geophys. Res.* 103(A8), 17,367–17,390 (Aug 1998).

Chin DC
The simultaneous perturbation method for processing magnetospheric images, in *Proc. 1998 ISIC/CIRA/ISAS Joint Conf.*, Gaithersburg, MD, pp. 616–621 (14–17 Sep 1998).

Christon SP (Univ. of MD), Cohen CS, Gloeckler G (Univ. of MD), Eastman TE (Univ. of MD), Galvin AB, Ipavich FM, Ko Y-K, Lui ATY, Lundgren RA, McEntire RW, Roelof EC, and Williams DJ
Concurrent observations of solar wind oxygen by Geotail in the magnetosphere and wind in interplanetary space, *Geophys. Res. Lett.* 25, 2987–2990 (Aug 1998).

Christon SP (Univ. of MD), Eastman TE (Univ. of MD), Doke T (Waseda Univ.), Frank LA (UI), Gloeckler G (Univ. of MD), Kojima H (KU), Kokubun S (NU), Lui ATY, Matsumoto H (KU), McEntire RW, Mukai T (ISAS), Nylund SR, Paterson WR (UI), Roelof EC, Saito Y (ISAS), Sotirelis T, Williams DJ, and Yamamoto T (ISAS)
Magnetospheric plasma regimes identified using Geotail measurements, 2: Statistics, spatial distribution, and geomagnetic dependence, *J. Geophys. Res.* 103(A10), 23,521–23,542 (1998).

Coleman DR, and Simkins LS
The Fleet Ballistic Missile Accuracy Evaluation Program, *Johns Hopkins APL Tech. Dig.* 19(4), 393–397 (1998).

Criss TB, South MM, and Levy LJ
Multiple image coordinate extraction (MICE) technique for rapid targeting of precision guided munitions, *Johns Hopkins APL Tech. Dig.* 19(4), 493–500 (1998).

Domingue DL, Lane AL, and Beyer RA
IUE's detection of tenuous SO_2 frost on Ganymede and its rapid time variability, *Geophys. Res. Lett.* 25(16), 3117–3120 (Aug 1998).

Eastman TE (Univ. of MD), Christon SP (Univ. of MD), Doke T (Waseda Univ.), Frank LA (UI), Gloeckler G (Univ. of MD), Kojima H (KU), Kokubun S (NU), Lui ATY, Matsumoto H (KU), McEntire RW, Mukai T (ISAS), Paterson WR (UI), Roelof EC, Saito Y (ISAS), Tsuruda K (ISAS), Williams DJ, and Yamamoto T (ISAS)
Magnetospheric plasma regimes identified using Geotail measurements, 1: Regime identification and distant tail variability, *J. Geophys. Res.* 103(A10), 23,503–23,520 (1998).

Eviatar A, Cheng AF, Paranicas C, Mauk BH, McEntire RW, and Williams DJ
Plasma flow in the magnetosphere of Ganymede, *Geophys. Res. Lett.* 25, 1257–1260 (1998).

Gavrilov BG, Erlandson RE, Kiselev YN, Meng C-I, Podgorny IM, Sobyanin DB, and Zetzer JI
Dynamics of a high energy plasma jet in space, *In situ* experiment and laboratory simulation, *Adv. Space Res.* 21(5), 773–776 (1998).

Geffert DL
Undersea Systems Program, *Johns Hopkins APL Tech. Dig.* 19(4), 410–413 (1998).

Gibson JP
Fleet Ballistic Missile test and evaluation, *Johns Hopkins APL Tech. Dig.* 19(4), 388–393 (1998).

Gilreath HE, Driesman AS, Kroshl WM, White MJ, Cartland H, and Hunter JD
The feasibility of launching small satellites with a light gas gun, *Proc. AIAA/USU Conf. on Small Satellites*, CD-ROM (Sep 1998).

Haase SF, Shen MY, and Wright CAH
A constant false alarm rate approach for automatic target tracking, in *Proc. IRS 98 Int. Radar Symp.*, Munich, Germany, pp. 799–808 (1998).

Hannegan B, Olsen S, Prather M, and Zhu X
The dry stratosphere: A limit on cometary water influx, *Geophys. Res. Lett.* 25, 1649–1652 (1998).

Hawkins III SE, Cheng AF, and Lanzerotti LJ
Bulk flows of hot plasma in the Jovian magnetosphere: A model of anisotropic fluxes of energetic ions, *J. Geophys. Res.* 103(E9), 20,031–20,054 (1998).

Humm DC, Paxton LJ, Christensen AB, Ogorzalek BS, Pardoe CT, Meng C-I, Morrison D, Strickland DJ, Evans JS, Weiss MB, Cram W, Lew PH, Mabry DJ, Goldsten O, Gary SA, Peacock K, Persons DF, Harold MJ, Alvarez EB, and Ercol CJ
Design and performance of the Global Ultraviolet Imager (GUVI), EUV, x-ray, and gamma-ray instrumentation, *Astronomy IV, SPIE,* 3556 (1998).

Ip W-H, Williams DJ, McEntire RW, and Mauk BH
Ion sputtering and surface erosion at Europa, *Geophys. Res. Lett.* 25, 829–832 (1998).

Jensen JR, and Raney RK
Delay/Doppler radar altimeter: Better measurement precision, in *Proc. IEEE Int. Geoscience and Remote Sensing Symp.*, pp. 2011–2013 (Jul 1998).

Kamide Y, Baumjohann W, Daglis IA, Gonzalez WD, Grande M, Joselyn JA, McPherron RL, Phillips JL, Reeves EGD, Rostoker G, Sharma AS, Singer HJ, Tsurutani BT, and Vasyliunas VM
Current understanding of magnetic storms: Storm–substorm relationships, *J. Geophys. Res.* 103(A8), 17,705–17,728 (Aug 1998).

Krupp N (Max-Planck), Woch J (Max-Planck), Lagg A (Max-Planck), Wilken B (Max-Planck), Livi S (Max-Planck), and Williams DJ
Energetic particle bursts in the predawn Jovian magnetotail, *Geophys. Res. Lett.* 25(8), 1249–1252 (1998).

Ku HC, and Sibeck DG
Flux transfer events produced by bursty merging at a single x-line, *J. Geophys. Res.* 103, 14,965–14,978 (Aug 1998).

Kupperman DG, Paxton LJ, Carbary JF, Romick GJ, Anderson DE, Meng C-I, and Feldman PD
On the sodium tail of comet Hale-Bopp, *Geophys. Res. Lett.* 25(17), 3261–3268 (Sep 1998).

Laakso H, Fairfield DH, Collier MR, Opgenoorth H, Phan T-D, Sibeck DG, Giles BL, Singer HJ, Lepping RP, Lin RP, Mozer FS, Pfaff RF, Tsuruda K, and Wygant JR
Oscillations of magnetospheric boundaries driven by IMF rotations, *Geophys. Res. Lett.* 25(15), 3007–3010 (Aug 1998).

Lee SC, and Santo AG
Reducing mission operations costs through spacecraft autonomy. The Near Earth Asteroid Rendezvous (NEAR) experience, *J. Reducing Space Mission Costs* 1(1), 87–104 (1998).

Libershal DM
Lessons learned implementing Call Tracking with Remedy, in *SANS 98 Tech. Conf. Day 2 Proc.*, Monterey, CA, pp. 16-1–16-49 (1998).

Liou K, Newell PT, Meng C-I, Brittnacher M, and Parks G
Characteristics of the solar wind controlled auroral emissions, *J. Geophys. Res.* 103(A8), 17,543–17,557 (Aug 1998).

Lu G, Baker DN, McPherron RL, Farrugia CJ, Lummerzheim D, Ruohoniemi JM, Rich FJ, Evans DS, Lepping RP, Brittnacher M, Li X, Greenwald RA, Sofko G, Villaon J, Lester M, Thayer J, Moretto T, Milling D, Troshichev O, Zaitzev A, Odintzov V, Makarov G, and Hayashi K
Global energy deposition during the January 1997 magnetic cloud event, *J. Geophys. Res.* 103, 11,685–11,694 (1998).

Lui ATY, Brittnacher MJ (UW), Christon SP (Univ. of MD), Eastman TE (Univ. of MD), Kokubun S (STEL), Liou K, McEntire RW, Meng C-I, Newell PT, Parks GK (UW), Yamamoto T (ISAS), and Williams DJ
Ionospheric signature of a magnetic flux rope in the magnetotail, *Geophys. Res. Lett.* 25(19), 3733–3736 (1998).

Lui ATY, Williams DJ, McEntire RW, Christon SP (Univ. of MD), Eastman TE (Univ. of MD), Yamamoto T (ISAS), and Kokubun S (NU)
Ion composition and charge state of energetic particles in flux ropes/plasmoids, *J. Geophys. Res.* 103, 4467–4475 (1998).

Lui ATY, Williams DJ, McEntire RW, Ohtani S, Zanetti LJ, Bristow WA, Greenwald RA, Newell PT, Christon SP, Mukai T, Tsuruda T, Yamamoto T, Kokubun S, Matsumoto H, Kojima H, Murata T, Fairfield DH, Lepping RP, Samson JC, Rostoker G, Reeves GD, Rodger AL, and Singer HJ
Multipoint study of a substorm on February 9, 1995, *J. Geophys. Res.* 103(A8), 17,333–17,343 (1998).

Maryak JL, and Chin D
A conjecture on global optimization using gradient-free stochastic approximation, in *Proc. 1998 ISIC/CIRA/ISAS Joint Conf.*, Gaithersburg, MD, pp. 441–444 (14–17 Sep 1998).

Mauk BH, Krimigis SM, Mitchell DG, and Roelof EC
Energetic neutral atom imaging of Jupiter's magnetosphere using the Cassini MIMI instrument, *Adv. Space Res.* 21, 1483–1486 (1998).

Mauk BH, McEntire RW, Williams DJ, Lagg A, Roelof EC, Krimigis SM, Armstrong TP, Fritz TA, Lanzerotti LJ, Roederer JG, and Wilken B (Max-Planck)
Galileo-measured depletion of near-Io hot ring current plasmas since the Voyager epoch, *J. Geophys. Res.* 103, 4715–4722 (1998).

McAdams JV, Horsewood J, and Yen C
Discovery Class Mercury Orbiter Trajectory Design for the 2005 Launch Opportunity, AIAA-98-4283 (Aug 1998).

McCally RL, and Bargeron CB
Epithelial damage thresholds for sequences of 80 ns pulses of 10.6 μm laser radiation, *J. Laser Appl.* 10(3), 137–139 (Jun 1998).

McNamee P, and Hall M
Developing a tool for memoizing functions in C++, *ACM SIGPLAN Notices* 33(8), 17–22 (1998).

Mehoke DS, and Ossing DA
A thermal modeling technique to maximize science data collection in a maneuverable LEO satellite, *33rd Intersociety Energy Conversion Engineering Conf.*, Colorado Springs, CO, CD-ROM (Aug 1998).

Meier RR, Nicholas AC, Picone JM, Melendez-Alvira DJ, Ganguli GI, Reynolds MA, and Roelof EC
Inversion of plasmaspheric EUV remote sensing data from the STP 72-1 satellite, *J. Geophys. Res.* 103(A8), 17,505–17,518 (Aug 1998).

Mendel LL (Univ. of MS), Hamill BW, Hendrix JE (Oxford Signal Proc.), Crepeau LJ (Navy Experimental Diving Unit), Pelton JD (Navy Experimental Diving Unit), Miley MD (X Technologies), and Kadlec EE (Univ. of GA)
Speech intelligibility assessment in a helium environment. II. The speech intelligibility index, *J. Acoustical Soc. Am.* 104(3), 1609–1615 (1998).

Mentzer WR Jr
Test and evaluation of land-mobile missile systems, *Johns Hopkins APL Tech. Dig.* 19(4), 421–435 (1998).

Miller J, Carranza E, Helfrich C, Owen W, Williams B, Dunham DW, Farquhar RW, Guo Y, and McAdams JV
Near Earth Asteroid Rendezvous (NEAR) Orbit Phase Trajectory Design, AIAA 98-4286 (Aug 1998).

Mitchell DG, Krimigis SM, Cheng AF, Jaskulek SE, Keath EP, Mauk BH, McEntire RW, Roelof EC, Schlemm CE, Tossman BF, and Williams DJ
The imaging neutral camera for the Cassini mission to Saturn and Titan, *Geophys. Monogr.* 103, *Measurement Techniques in Space Plasmas: Fields*, RF Pfaff, J Borovsky, and DT Young (eds.), American Geophysical Union, pp. 281–288 (1998).

Moor AF
The rational use of plastic parts in satellites, in *Proc. 1998 IEEE Frequency Control Symp.* (27 Mar 1998).

Moor AF
The rational use of plastic parts in satellites, *NASA Electronic Packaging and Space Parts News EEE Links* 4(3) (Jul 1998).

Mount D (Univ. of MD), Kanungo T (Univ. of MD), Netanyahu N (Univ. of MD), Silverman R (Univ. of the District of Columbia), Wu A (American Univ.), and Piatko C
Approximating large convolutions in digital images, *Vision Geom. VII, SPIE* (Jul 1998).

Nichols RA, and Conklin RE
Uplink packing of Army Milstar services, in *Proc. IEEE Military Communications Conf.,* Boston, MA (1998).

Nose M, Iyemori T, Sugiura M, Slavin JA, Hoffman RA, Winningham JD, and Sato N
Electron precipitation accompanying Pc5 pulsations observed by the DE satellites and at a ground station, *J. Geophys. Res.* 103(A8), 17,587–17,604 (Aug 1998).

Orsini S, Cerulli-Irelli P, Maggi M, Baldetti P, Bellucci G, Candidi M, Chionchio G, Orfei R, Livi S, Daglis IA, Wilken B, Guettler W, Curtis CC, Hsieh KC, Sabbagh J, Flamini E, Roelof EC, Chase CJ, and Grande M
Imaging Earth's magnetosphere: Measuring energy, mass and direction of energetic neutral atoms with the ISENA instrument, *Geophys. Monogr.* 103, *Measurement Techniques in Space Plasmas: Fields*, RF Pfaff, JE Borovsky, and DT Young (eds.), American Geophysical Union, pp. 269–274 (1998).

Osaki H, Takahashi K, Fukunishi H, Nagatsuma T, Oya H, Matsuoka A, and Milling DK
Pi2 pulsations observed from the Akebono satellite in the plasmasphere, *J. Geophys. Res.* 103(A8), 17,605–17,615 (Aug 1998).

Osiander R, and Spicer JWM
Time-resolved infrared radiometry with step heating: A review, *Rev. Gen. Therm.* 37, 680–692 (1998).

Pace DK
Dimensions and attributes of simulation fidelity, in *Proc. Fall 1998 Simulation Interoperability Workshop,* Paper 98F-S1W-017, CD–ROM (1998).

Pace DK
Impact of simulation description on conceptual validation, in *Proc. Fall 1998 Simulation Interoperability Workshop*, Paper 98F-S1W-020, CD-ROM (1998).

Pace DK
Verification and validation for Wargame 2000, in *Proc. 1998 Summer Computer Simulation Conf.*, Reno, NV, pp. 639–644 (19–22 Jul 1998).

Paranicas CP, Cheng AF, and Williams DJ
Inference of Europa's conductance from the Galileo energetic particles detector, *J. Geophys. Res.* 103(A8), 15,001–15,007 (Aug 1998).

Prikryl P, Greenwald RA, Sofko GJ, Villain J-P, Ziesolleck CWS, and Friis-Christensen E
Solar-wind–driven pulsed magnetic reconnection at the dayside magnetopause, Pc5 compressional oscillations and field line resonances, *J. Geophys. Res.* 103(A8), 17,307–17,322 (Aug 1998).

Raney RK
Radar fundamentals: Technical perspective, Chap. 2, in *Principles and Applications of Imaging Radar, Manual of Remote Sensing*, 3rd Ed., F Henderson and A Lewis (eds.), John Wiley and Sons, NY, pp. 9–130 (Jul 1998).

Richeson KE
Commercial Vehicle Operations Program, *Johns Hopkins APL Tech. Dig.* 19(4), 415–420.

Ruohoniemi JM, and Greenwald RA
The response of high-latitude convection to a sudden southward IMF turning, *Geophys. Res. Lett.* 25, 2913–2916 (Aug 1998).

Sedegh P (Tech. U. of Denmark), and Spall JC
Optimal sensor configuration for complex systems, in *Proc. 1998 ISIC/CIRA/ISAS Joint Conf.,* Gaithersburg, MD, pp. 376–380 (14–17 Sep 1998).

Sadegh P (Tech. Univ. of Denmark), and Spall JC
Optimal random perturbations for stochastic approximation using a simultaneous perturbation gradient approximation, *IEEE Trans. Automatic Control*, 43(10), 1480–1484 (Oct 1998).

Simnett GM, Kunow H, Fluekiger F, Heber B, Horbury T, Kota J, Lazarus AJ, Roelof EC, Simpson JA, Zhang M, and Decker RB
Corotating particle events in cosmic rays in the heliosphere, *Space Sci. Rev.* 83, 215–258 (1998).

South HM, Cronin DC, Gordon SL, and Magnani, TP
Technologies for sonar processing, *Johns Hopkins APL Tech. Dig.* 19(4), 459–469 (1998).

Sova RM, Linevsky MJ, Thomas ME, and Merk FF
High-temperature infrared properties of sapphire, AlON fused silica, yttria and spinel, *Infrared Phys. Technol.* 39(4), 251–262 (Jun 1998).

Spall JC
Implementation of the simultaneous perturbation algorithm for stochastic optimization, *IEEE Trans. Aerospace Electron. Systems* 34(3), 817–823 (Jul 1998).

Spall JC
An overview of the simultaneous perturbation method for efficient optimization, *Johns Hopkins APL Tech. Dig.* 19(4), 482–492 (1998).

Spall JC, and Cristion JA
Model-free control of nonlinear stochastic systems with discrete-time measurements, *IEEE Trans. Automatic Control* 43(9), 1198–1210 (Sep 1998).

Spall JC, Maryak JL, and Asher MS
Neural network approach to locating acoustic emission sources in nondestructive evaluation, in *Proc. Amer. Control Conf.,* p. 68 (Jun 1998).

Swaminathan PK, Stroble DF, Kupperman DG, Kumar CK, Acton L, DeMajistre R, Yee J-H, Paxton LJ, Anderson DF, Strickland DJ, and Duff JW
Nitric oxide abundance in the mesosphere lower thermosphere region: Roles of solar soft x-rays, suprathermal N(^{4}5) atoms, and vertical transport, *J. Geophys. Res.* 103(A6), 11,579–11,594 (Jun 1998).

Thomas ME, Anderson SK, Cotler TM, and Constantikes KT
Infrared properties of polycrystalline magnesium, *Infrared Phys. Technol.* 39(4), 213–222 (Jun 1998).

Thomas ME, Andersson SK, Sova RM, Joseph RI
Frequency and temperature dependence of the refractive index of sapphire, *Infrared Phys. Technol.* 39(4), 235–250 (Jun 1998).

Thompson T
Demonstration of a precision missile intercept measurement technique, *Johns Hopkins APL Tech. Dig.* 19(4), 513–523 (1998).

Thompson T, and Westerfield, EE
Global Positioning System translators for precision test and evaluation, *Johns Hopkins APL Tech. Dig.* 19(4), 448–458 (1998).

Thompson T, Levy LJ, and Westerfield EE
The SATRACK System: Development and applications, *Johns Hopkins APL Tech. Dig.* 19(4), 436–458 (1998).

Vichot PA, Mix JA (Univ. of CO), Schoenborn Z (Univ. of CO), Dunn J (Univ. of CO), and Piker-May M (Univ. of CO)
Numerical modeling of a clock distribution network for a superconducting multichip module, *IEEE Trans. Components Packaging Manufacturing Technol.* 21(1), 98–104 (1998).

Vigliotti V
Demonstration of submarine control of an unmanned aerial vehicle, *Johns Hopkins APL Tech. Dig.* 19(4), 501–512 (1998).

Wang I-J, and Spall JC
A constrained simultaneous perturbation stochastic approximation algorithm based on penalty functions, in *Proc. IEEE Int. Symp. on Intelligent Control - A Joint Conf. on the Science and Technology of Intelligent Systems*, pp. 452–458 (Sep 1998).

Watanabe M, Pinnock M, Rodger AS, Sato N, Yamagishi H, Yukimatu AS, Greenwald RA, Villain J-P, and Hairston MR
Localized activation of the distant tail neutral line just prior to substorm onsets, *J. Geophys. Res.* 103(A8), 17,651–17,669 (Aug 1998).

Watson JM
The origin of the APL Polaris Division, *Johns Hopkins APL Tech. Dig.* 19(4), 375–387 (1998).

Wickenden DK, Givens RB, Osiander R, Champion JL (JHU), Oursler DA, and Kistenmacher TJ
MEMS-based resonating xylophone bar magnetometers, in *SPIE Proc., Micromachined Devices and Components IV*, Vol. 3514, pp. 350–358 (1998).

Williams DJ, Mauk BH, and McEntire RW
Properties of Ganymede's magnetosphere as revealed by energetic particle observations, *J. Geophys. Res.* 103(A8), 17,523–17,534 (Aug 1998).

Winstead NS, Young GS, and Babin SM
Inferring wind direction from the organization of mesoscale atmospheric signatures in RADARSAT imagery, in *Proc. IEEE Int. Geoscience and Remote Sensing Symp.*, pp. 1159–1161 (Jul 1998).

Woch J (Max-Planck), Krupp N (Max-Planck), Lagg A (Max-Planck), Wilken B (Max-Planck), Livi S (Max-Planck), and Williams DJ
Quasi-periodic modulations of the Jovian magnetotail, *Geophys. Res. Lett.* 25(8), 1253–1256 (1998).

Worley PD
Unmanned aerial vehicle Tactical Control System, *Johns Hopkins APL Tech. Dig.* 19(4), 403–407 (1998).

Wright CAH, Haase SF, and Shen MY
Techniques for improving target altitude estimations in an air target tracking system, in *Proc. IRS 98 Intl. Radar Symp.*, Munich, Germany, pp. 685–694 (1998).

Zong Q-G, Wilken B (Max-Planck), Woch J (Max-Planck), Mukai T, Yamamoto T (ISAS), Reeves GD (LANL), Doke T (Waseda Univ.), Maezawa K, Williams DJ, Kokubun S (STEL), and Ullaland S
Energetic oxygen ion bursts in the distant magnetotail as a product of intense substorms: Three case studies, *J. Geophys. Res.* 103(A9), 20,339–20,364 (1998).

PRESENTATIONS

APL staff were among those who gave the following unclassified presentations:

Ali SW
Using ISO-9000 in a research and development organization, *1998 APL Annual Quality Forum,* Laurel, MD (1 May 1998).

Ali SW
The future of quality and business management, *Int. Leadership Forum*, University of Cambridge, UK (11 Jun 1998).

Antoine MD, Bryden WA, Ko HW, Scholl PF, Potember RS, and Cotter RJ (JHU)
Real time sampling and analysis of biological biomarkers by TOF mass spectrometry, *Society of Automotive Engineers Technical Paper Series, 28th Int. Conf. on Environmental Systems*, Danvers, MA (13–16 Jul 1998).

Baluck M, Moor AF, and Utterback HK
Reliability: Space-based approach, *PMS-403 Long-Term Mine Reconnaissance System (LMRS) Technology Briefing*, Naval Warfare College, Newport, RI (3–4 Mar 1998).

Casasnovas A, and Moor AF
Military application of PEMS, *Kongsburg Defense & Aerospace Workshop on Commercial Components in Defense and Space*, Kongsburg, Norway (5 Mar 1998).

Farrell RA, Wharam JF (JHU Biomedical Eng.), and McCally RL
Polarized light propagation in corneal lamellae, *XIII Int. Congress of Eye Research,* Paris, France (26–31 Jul 1998).

Hart EF
What you need to know about processing and rendering multilingual text, *Int. Unicode Conf. 13*, San Jose, CA (8–11 Sep 1998).

Humm DC
Design and performance of the global ultraviolet imager (GUVI), *SPIE Int. Symp. on Optical Science and Instrumentation*, San Diego, CA (19–24 Jul 1998).

Kinnison JD
Achieving affordable, reliable systems, *IEEE Nuclear and Space Radiation Effects Conf.*, Newport Beach, CA (20 Jul 1998).

Libershal DM
Lessons learned implementing Call Tracking with Remedy, *The 7th Annual System Administration Networking and Security Conf.*, Monterey, CA (13 May 1998).

McCally RL, and Farrell RA
Small-angle scattering and birefringence properties of chick cornea, *XIII Int. Congress of Eye Research*, Paris, France (26–31 Jul 1998).

Mehoke DS, and Ossing DA
A thermal modeling technique to maximize science data collection in a maneuverable LEO satellite, *33rd Intersociety Energy Conversion Engineering Conf.*, Colorado Springs, CO (5 Aug 1998).

Moor AF
PEMs strategies for space, *Space Parts Working Group*, Torrance, CA (24–25 Mar 1998).

Moor AF
The rational use of plastic parts in satellites, *1998 IEEE Frequency Control Symp.* (27 Mar 1998).

Moor AF
PEMs strategies for space, *Hughes Space and Communications Strategic Material Management. Business Unit Technical Review Board*, El Segundo, CA (29 Jul 1998).

Moor AF
The use of plastic encapsulated microcircuits in space, *Military Aerospace Transportation COTS Conf.* (26 Aug 1998).

Saksena A
FY98 modifications to CONTAM96, *Indoor Air Quality Group of National Inst. of Standards & Technology Technical Briefing* (12 Aug 1998).

Wickenden DK, Zeto R (Army Res. Laboratory), and D'Amico W (Army Res. Laboratory)
An extremely sensitive MEMS magnetometer for use as an orientation sensor, *DARPA/ETO Principal Investigators Mtg.*, Durham, NC (8–10 Jul 1998).

Wickenden DK, Givens RB, Osiander R, Champion JL (JHU), Oursler DA, and Kistenmacher TJ
Micromachined devices and components IV, *SPIE Conf.*, Santa Clara, CA (21–22 Sep 1998).

Wing S, Sibeck DG, Frank LA, Singer HJ, Kokubun S, and Wiltberger M
Changes in geosynchronous magnetic field as a function of IMF B_z and solar wind dynamic pressure, *32nd COSPAR Scientific Assembly*, Nagoya, Japan (12–19 Jul 1998).

Wing S, Newell PT, and Meng C-I
Modeling of open field line particle precipitation: Signatures of high and low latitude merging, *Western Pacific Geophysics Mtg.*, Taipei, Taiwan (21–24 Jul 1998).

The following papers were presented at the IEEE International Geoscience and Remote Sensing Symposium, Seattle, WA (6–10 Jul 1998):

Beal RC, and Pichel W
Stormwatch 97–98 and beyond: Application of SAR as a high resolution scatterometer in coastal regions.

Donohue DJ, Ku H-C, Thompson DR, Chapman RD, and Gotwols BL
Computational models and experimental measurements of the statistics of ocean radar backscatter.

Elfouhaily TM, Thompson DR, Vandemark D, and Chapron B
Non-linear waves and the electromagnetic bias.

Jensen JR, and Raney RK
Delay-Doppler radar altimeter: Better measurement precision.

Monaldo FM, and Beal RC
Toward processing, blending, and disseminating real-time wind products from the RADARSAT SAR.

Thompson DR, and Beal RC
Mapping mesoscale and submesoscale wind fields using synthetic aperture radar.

Thompson DR, Elfouhaily TM, and Chapron B
Polarization ratio for microwave backscattering from the ocean surface at low to moderate incidence angles.

The following papers were presented at the AIAA/AAS Astrodynamics Specialist Conference, Boston, MA (10–12 Aug 1998):

McAdams JV, Horsewood J, and Yen C
Discovery class Mercury Orbiter trajectory design for the 2005 launch opportunity.

Miller J, Carranza E, Helfrich C, Owen W, Williams B, Dunham DW, Farquhar RW, Guo Y, and McAdams JV
Near Earth Asteroid Rendezvous (NEAR) orbit phase trajectory design.

Sharer PJ, Strikwerda TF, Haley DR, Ray JC, and Ossing D
MSX attitude system performance for gyro disabled operations.

The following papers were presented at the IEEE ISIC/CIRA/ISAS '98 Joint Conference, Gaithersburg, MD (14–17 Sep 1998):

Chin DC
The simultaneous perturbation method for processing magnetospheric images.

Hill SD, Ilenda VA, and Kleinman NL (JHU, Math & Sciences)
SPSA/SIMMOD optimization of air traffic delay cost.

Maryak JL, and Chin D
A conjecture on global optimization using gradient-free stochastic approximation.

Sedegh P (Tech. U. of Denmark), and Spall JC
Optimal sensor configuration for complex systems.

Wang I-J, and Spall JC
A constrained simultaneous perturbation stochastics approximation algorithm based on penalty functions.

The following papers were presented at the IRS 98 International Radar Symposium, Munich, Germany (16 Sep 1998):

Castella FR, Guevara WJ, and Wright CAH
Inter-facial alignment of sensors with multi-phased array antennas.

Haase SF, Shen MY, and Wright CAH
A constant false alarm rate approach for automatic target tracking.

Wright CAH, Haase SF, and Shen MY
Techniques for improving target altitude estimations in an air target tracking system.

The following papers were presented at the Mid-Atlantic Probability and Statistics Day 1998 Conference, U.S. Naval Academy, Annapolis, MD (3 Oct 1998):

Chin DC
Simultaneous perturbation stochastic approximation for a nonlinear regression problem.

Hill SD, and Spall JC
Reliability estimates for complex systems.

Maryak JL, and Chin DC
A conjecture on global optimization using gradient-free stochastic approximation.

Spall JC
The information matrix: Statistical applications and efficient computation in general problems.

Spall JC
Gaussian-based estimation in a non-Gaussian world: What can we say?

COLLOQUIA

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

6 November 1998
The Search for Neutrino Mass at Super-Kamiokande, GW Sullivan, University of Maryland

13 November 1998
Mathematics in Bronze and Stone, C Ferguson (author) and H Ferguson, Institute for Defense Analysis

20 November 1998
Deak Parsons: The Proximity Fuze and the Atomic Bomb, A Christman, Former Navy Historian

4 December 1998
Future Changes in Electronics, RC Pfahl, Jr, Motorola, Inc.

11 December 1998
Environmental Satellite Information Systems: The Future Is Now, RS Winokur, National Oceanic and Atmospheric Administration

18 December 1998
Future Strategic Issues, DM Bushnell, NASA Langley Research Center