

PUBLICATIONS

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

- Awadallah RS, Gehman JZ, Kuttler JR, and Newkirk MH**
Effects of lateral terrain variations on tropospheric radar propagation, *IEEE Trans. Antennas Propagation* 53(1), 420–434 (2005).
- Chen YQ, and Moore KL**
Relay feedback tuning of robust PID controllers with iso-damping property, *IEEE Tran. Systems Man Cybernetics-B* 35(1), 23–31 (2005).
- Mazzafro JM**
Book Review: *Intelligence in War Knowledge of the Enemy from Napoleon to Al Qaeda, Intelligence and National Security* 20(1) (2005).
- Murray GM, and Lawrence DS**
Hazardous environment monitoring, Chap. 5 in *Chemical Weapons Convention Chemicals Analysis: Sample Collection, Preparation and Analytical Methods*, John Wiley & Sons, New York (2005).
- Priebe CE, Fishkind DE, Abrams L, and Piatko CD**
Random disambiguation paths for traversing a mapped hazard field, *Naval Res. Logistics* 52(3), 285–292, <http://www3.interscience.wiley.com/cgi-bin/abstract/109924898/ABSTRACT> (2005).

CONFERENCES WITH PROCEEDINGS

APL staff members were among those who gave the following presentations that appeared in conference proceedings:

- Broadwater JB, Meth R, and Chellappa R**
A hybrid algorithm for subpixel detection in hyperspectral imagery, in *Proc. IEEE IGARSS 2005*, Anchorage, AK, p. 4 (Sep 2004).
- Feldmesser HS, and Adams GS**
The effects of thick copper on laminography data, in *Agilent Technologies Global 5DX Users' Conf.*, Loveland, CO (Mar 2005).
- Hammons AR Jr**
Rate-diversity optimal space-time code constructions based on the generalized binary rank criterion, in *Proc. Workshop on Coding and Cryptography 2005 (WCC 2005)*, Bergen, Norway, pp. 196–203 (Mar 2005).
- Roth MW, Scheck AE, Chiu WW, and Murphy KE**
Precision geo-location at long range with multi-look lidar, in *Proc. SPIE Laser Radar Technol. and Applications X*, Vol. 5791, 5791-20, Orlando, FL (Mar 2005).

PRESENTATIONS

The following papers were presented at the 55th Int. Astronaut. Congress, Vancouver, Canada (Oct 2004):

- Bowman AF, Chacos AA, DeBoy CC, Furrow RM, and Whittenbu KE**
New Horizons mission to Pluto/Charon: Reducing costs of a long-duration mission.
- Brandt PC, and DeMajistre R**
Fault protection system development process for STEREO.
- Guo Y, and Farquhar RW**
Baseline design of New Horizons mission to Pluto and the Kuiper Belt.
- Sotirelis T**
The use of the Aerojet MR-103H thruster on the New Horizons mission to Pluto.

The following papers were presented at the 36th Annual Div. of Planetary Sciences Mtg., Am. Astronomical Soc., Louisville, KY (Nov 2004):

- Barone C, Magee-Sauer K, Mumma MJ, Weaver HA, Dello-Russo N, DiSanti MA, Bonev B, Gibb EL, and Chin G**
Spectroscopy of C/2000 WM1 (LINEAR) in the 3 μ m region using NIRSPEC.
- Bonev BP, Mumma MJ, Dello-Russo N, DiSanti MA, Gibb EL, Magee-Sauer K, Weaver HA, and Chin G**
OH vibrational prompt emission and water hot-band fluorescent emission in C/2000 WM1 (LINEAR).
- Chang S, and Gallagher DL**
A transition size in physical properties?
- Fernandez YR, Lisse CM, Schleicher DG, Bus SJ, Kassis M, Hora JL, and Deutsch LK**
The nucleus of comet 2P/Encke as observed in the Fall 2003 apparition.
- Huestis DL, Vervack RJ, and Paxton LJ**
The pioneer Venus Orbiter Ultraviolet Spectrometer data set.
- Lederer SM, Thomas-Osip JE, Domingue DL, Gill SL, Osip DJ, Vilas F, and Jarvis KS**
The Las Campanas/Lowell Observatory 2004 Itokawa campaign: Broadband photometry and Hapke modeling results.
- Lisse CM, A'Hearn MF, Belton MJS, Fernandez YR, Groussin O, Lamy P, Meech KJ, Toth I, and Weaver HA**
Physical properties of the Deep Impact target comet 9P/Tempel 1 from Spitzer and Hubble Space Telescope observations.
- Meech KJ, A'Hearn MF, Pittichova J, Lisse CM, Weaver HA, Biver N, and Woodney L**
The Deep Impact Earth-based observing campaign.

- Saur J, Brandt PC, Roelof EC, Mitchell DG, Mauk BH, and Krimigis SM**
Neutral gas distribution in the E-ring region of Saturn's magnetosphere inferred from energetic neutral atom imaging.

- Vervack RJ Jr, Weaver HA, Chin G, Levenson NA, Davies JK, Kim SJ, Bockelee-Morvan D, Biver N, Crovisier J, and Brooke TY**
Infrared spectroscopy of C/1999 T1 (McNaught-Hartley).

- Zhu X**
Maintenance of equatorial superrotation in a planetary atmosphere: Analytic evaluation of the zonal momentum budget for the stratospheres of Venus, Titan and Earth.

The following papers were presented at the Am. Geophys. Union Fall Mtg., San Francisco, CA (Dec 2004):

- Anderson BJ, Brandt PC, Korth H, DeMajistre R, Roelof EC, and Mitchell DG**
Global proton pressure distributions in the inner magnetosphere derived by IMAGE/HENA using realistic magnetic fields and their relation to Birkeland currents measured by Iridium.

- Barnes RJ, and Greenwald RA**
SuperDARN: An established international, ground based data system.

- Basu S, Makela J, Sheehan R, MacKenzie E, Keskinen M, Pallamraju D, and Paxton LJ**
Two components of ionospheric plasma structuring at mid-latitudes during large magnetic storms.

- Bernasconi PN, and Rust DM**
Advanced automated solar filament detection and characterization code: Description, performance, and results.

- Bolton SJ, Santos-Costa D, Krupp N, Dougherty M, Roelof EC, Mitchell DG, Thorne RM, and Blanc M**
Energetic proton and electron distributions in Saturn magnetosphere as revealed by Cassini / Voyager observations and proposed by models.

- Boudouridis A, Lyons LR, Zesta E, Ruohoniemi JM, and Anderson PC**
Super Dual Auroral Radar Network (SuperDARN) observations of ionospheric convection enhancements driven by solar wind dynamic pressure fronts.
- Brandt PC, Saur J, Mitchell DG, Paranicas C, Roelof EC, Krimigis S, Mauk BH, and Krupp N**
Saturn's energetic ion distribution observed by CASSINI/INCA and LEMMS.
- Cancro GJ, and Driesman AS**
Aurora boundaries quantified by geomagnetic index.
- Chang S, Gallagher DL, Spann JF, Mende SB, Greenwald RA, and Newell PT**
Ionospheric signatures of LLBL for northward IMF.
- Christensen AB, and Paxton LJ**
GUVI observations of the ionosphere and thermosphere.
- Craven JD, Christensen AB, Meier RR, Paxton LJ, and Strickland DJ**
Thermospheric composition changes in the morning sector near local midnight in association with substorm activity and IMF orientation.
- Cravens TE, Waite JH, Ip WT, Kazprzak WT, Luhmann JG, McNutt RL, Niemann HB, Yelle R, Mueller-Worday I, Ledvina SA, and de La Haye V**
Saturn's A-ring ionosphere as observed by the Cassini Ion and Neutral Mass Spectrometer.
- Crowley G, Tapley B, Bettadpur S, Cheng M, Paxton LJ, Zhang Y, Morrison D, Christensen A, Meier R, and Strickland DJ**
Effect of the October-November 2003 super-storms on thermospheric density and composition.
- Daley R, Weiss M, Morrison D, Immer E, Fortner B, Jen J, Hashemian M, and Steele J**
Demonstrating interoperability and heterogeneous resource access: The Scientific Resource Access System (SRAS) and the Space Physics Data Markup Language (SPDML).
- Dandouras I, Mitchell DG, Roelof EC, Krimigis SM, Brandt PC, Hamilton DC, and Krupp N**
Energetic neutral atom emissions associated with Titan: Observations during Cassini's first orbits of Saturn.
- Decker RB, Krimigis SM, and Roelof EC**
Low-energy ions and electrons observed near the termination shock by Voyager I in 2004 (93 AU).
- Demajistre R, Kil H, and Paxton LJ**
A climatology of the nighttime ionosphere acquired by the TIMED/GUVI instrument and the changes associated with storm time.
- Denton RE, Takahashi K, Menietti JD, and Anderson RR**
Field line dependence of the mass density and electron density.
- Desai MI, Mason GM, Ho GC, Lario D, Mazur JE, Dwyer JR, Hu Q, Smith CW, and Kasper JC**
Multi-spacecraft observations of energetic heavy ions accelerated by interplanetary shocks near Earth.
- Donegan M, Vandegriff J, Ho GC, and Julia SJ**
Operational warning of interplanetary shock arrivals using energetic particle data from ACE: Real-time upstream monitoring system.
- Eichert J, Demajistre R, Paxton LJ, Kil H, and Talaat E**
Storm-time modifications of the mid-latitude nighttime ionosphere measured by the TIMED/GUVI instrument.
- Elphic RC, Lawrence DJ, Feldman WC, Maurice S, Bussey B, Lucey PG, and Spudis PD**
Lunar Prospector Neutron Spectrometer response to shadow-constrained distributions of water at the lunar poles.
- Eriksson S, Baker JB, Petrinec SM, Elkington SR, Dunlop MW, Reme H, Greenwald RA, Frey HU, Ergun RE, and Balogh A**
On the generation of enhanced sunward convection and transpolar aurora in the high-latitude ionosphere by magnetic merging.
- Fernandez BR, Berdichevsky DB, Acuña MH, Larson DE, Lepping RP, Maksimovic M, McEntire RW, Perche C, Lin R, Kasper J, and Nagai T**
Exploring the evidence of particle-wave coupling in the distant upstream ion-foreshock.
- Fok M-C, Brandt PC, Jones SJ, Mitchell DG, Ohtani S-I, DeMajistre R, and Roelof EC**
Observations and modeling of global O⁺ substorm injections.
- Fox NJ, Mauk BH, and Blake JB**
The role of non-adiabatic processes in the creation of the outer radiation belts.
- Fox NJ, Goldberg R, Barnes RJ, Sigwarth JB, Beisser KB, Moore TE, Hoffman RA, Russell CT, Scudder J, Spann JF, Newell PT, Hobson LJ, Gribben SP, O'Brien JE, Menietti JD, Germany GC, Mobilia J, and Schulz M**
Packaging a successful NASA mission to reach a large audience within a small budget. Earth's dynamic space: Solar-terrestrial physics and NASA's polar mission.
- Georgoulis MK, LaBonte BJ, Rust DM, Bernasconi PN, and Foukal PV**
Finding the sources of irradiance variation at sunspot minimum.
- Georgoulis MK, and LaBonte BJ**
Forecasting and real-time diagnostics of solar coronal mass ejections.
- Ghosh S, Yee J, Demajistre R, Gibson ST, Lewis B, Dalgarno A, Naduvalath B, and Yoshino K**
Remote sensing of molecular oxygen densities and temperatures in the thermosphere using stellar occultation techniques.
- Gjerloev JW, Friel M, Hoffman R, Takahashi K, Barnes R, Meng C, and Greenwald R**
The global magnetometer network initiative: SuperMAG.
- Gold RE, Solomon SC, McNutt RL, and Leary JC**
The MESSENGER payload.
- Goldstein J, Sandel BR, Brandt PC, and Burch JL**
Remote-sensing and *in situ* study of inner magnetospheric coupling during storms and substorms.
- Greenwald RA, Ruohoniemi JM, and Baker J**
Wallops HF radar observations of penetrating electric fields and plasma structuring in the mid-latitude ionosphere.
- Hackert CL, Crowley G, Yee J, Talaat E, and Roble RG**
Solar cycle and seasonal variations in the energy balance of the middle and upper atmosphere.
- Higuchi T, Ohtani S-I, Ueno G, and Kawan H**
Seasonal variations of the intensities of large-scale field-aligned currents.
- Ho GC, Lario D, Desai MI, Hu Q, and Kasper J**
Energetic particle acceleration at near-Earth by interplanetary shocks.
- Hoffman RA, Gjerloev JW, Friel M, Sigwarth JB, and Frank LA**
Two component M-I coupling during auroral substorms.
- Holland D, Weiss MB, Morrison D, Paxton LJ, and Eichert J**
The need for an integrated ionosphere-thermosphere data system: Lessons learned from the GUVI DP POC.
- Hori T, Ohtani S-I, Mauk BH, McEntire RW, Maezawa K, Mukai T, Kasaba Y, and Hayakawa H**
Convection electric field in the near-Earth tail during the super magnetic storm on November 20-21, 2003.
- Hsieh S-Y, Lui ATY, and Carr SS**
Linking a solar wind model with an empirical prediction model of MeV electron intensity at the geostationary latitude.

- Jahn J, Perez JD, Brandt PC, Mitchell DG, Henderson MG, and Pollock CJ
Ring current composition during sawtooth storms.
- Jen SJ, Vandegriff J, Donegan M, Ho GC, and Desa M
Forecasting interplanetary shocks using energetic particle data.
- Johnson JR, and Wing S
A solar cycle dependence of nonlinearity in magnetospheric activity.
- Jones GH, Morrill JS, Lawrence GR, Lisse CM, Farnham TL, and Hammer D
Comet C/2002 V1 (NEAT): Behavior of a cometary dust tail at 0.1 AU from the Sun.
- Kamalabadi F, Comberiate J, Krekeler J, and Paxton LJ
Characterization of ionospheric plasma bubbles with the Global Ultraviolet Imager.
- Keika K, Nosé M, Brandt PC, Ohtani S, Takahashi K, and Mitchell DG
Contribution of charge exchange at high altitudes to ring current decay: IMAGE/HENA observation.
- Kil H, Paxton L, Zhang Y, Wolven B, and Morrison D
The nighttime F-region climatology during magnetically quiet periods seen from TIMED/GUVI and DMSP.
- Kim K, Takahashi K, Lee D, Sutcliffe P, and Yumoto K
Pi2 pulsations associated with poleward boundary intensifications during the absence of substorms.
- Korth H, Anderson BJ, Lyon JG, and Wiltberger MJ
Comparison of Iridium observations of Birkeland currents associated with two magnetic cloud events with MHD simulations.
- Kozyra JU, Anderson BJ, Brandt PC, Cattell CA, Dombeck JP, Hairston MR, Heelis RA, Huang CY, Korth H, Liemohn MW, Mendillo MJ, Mitchell DG, Paxton LJ, Pollock CJ, Ridley AJ, Shiokawa K, Thomsen MF, and Zanetti LJ
Coupling processes in the inner magnetosphere associated with mid-latitude red auroras during superstorms.
- Kozyra JU, Crowley G, Goncharenko LP, Hagan ME, Lu G, Mlynczak MG, Paxton LJ, Russell JM, Solomon SC, Talaat ER, and Yee J-H
First three years of TIMED: New results in Sun-Earth connections.
- Krimigis SM, Mitchell DG, Hamilton DC, Krupp N, Livi S, Roelof EC, Douras J, Armstrong TP, Mauk BH, Paranicas C, Brandt PC, Bolton S, Cheng AF, Choo T, Gloeckler G, Hayes J, Hsieh KC, Ip W-H, Jaskulek S, Keath EP, Kirsch E, Kusterer M, Lagg A, Lanzertotti LJ, LaVallee D, Manweiler J, McEntire RW, Rasmuss W, Saur J, Turner FS, and Williams DJ
Imaging of Saturn's magnetosphere and energetic particles observed during Cassini's orbit insertion at Saturn.
- Krupp N, Woch J, Lagg A, Lim J, Krimigis SM, Mitchell DG, Roelof EC, Mauk BH, Paranicas C, Livi S, Armstrong TP, Dougherty MK, Kurth WS, Louarn P, Douras I, and Hamilton DC
Structure of Saturn's magnetosphere as revealed by energetic particles.
- LaBonte BJ, and Rust D
Heliospheric energetic particle variability over the solar cycle.
- LaBonte BJ, Rust D, Bernasconi P, and Georgoulis M
An integrated program to forecast geostorms.
- Liou K, and Carbary JF
Comparison of the ultraviolet aurora at high and low spatial resolution.
- Liou K, Yumoto K, Mukai T, and Nagai T
Multipoint observations of Pi2 pulsations during substorm recovery.
- Livi S, Armstrong TP, Brandt PC, Hamilton DC, Krimigis SM, Krupp N, Mauk BH, Mitchell DG, Paranicas CP, Roelof EC, and Manweiler JW
Energetic particle injections in Saturn's magnetosphere.
- Lui ATY, Hori T, Ueno G, and Mukai T
Plasma transport from multi-component approach.
- Lui ATY, Hori T, Ueno G, and Mukai T
Transport characteristics from multi-component approach in magnetotail plasma measurements.
- McNutt RL, Solomon SC, Gold RE, and Domingue DL
MESSENGER: The Discovery Mission to Mercury.
- Meier RR, Crowley G, Strickl DJ, Christensen A, Paxton LJ, and Morrison D
Looking at the November 20, 2003 super storm with TIMED/GUVI: Comparison with the TIMEGCM.
- Milillo A, Orsini S, Mura A, Liemohn MW, and Brandt PC
Storm-time global evolution of the inner magnetospheric proton distributions: An empirical approach applied to the April 21–24th, 2001 storm.
- Mitchell DG, Krimigis SM, Mauk BH, Roelof EC, Paranicas CP, Douras I, Livi S, Hamilton DC, Kurth WS, Gurnett DA, and Zarka P
Energetic neutral atom emission during Cassini's first orbits at Saturn: Source strength and dynamics.
- Miyasaka H, Mewaldt RA, Mason GM, Haggerty DK, Nagata K, Kikuchi J, Doke T, Hasebe N, Maezawa K, Takashima T, and Ihara A
NOZOMI/ACE multispacecraft observations of solar energetic particles.
- Miyashita Y, Wu C, Liou K, Kamide Y, Ieda A, Machida S, Mukai T, Saito Y, Meng C, Parks GK, and Creutzberg F
Substorms during prolonged northward interplanetary magnetic field.
- Morgan MF, Yee J-H, Talaat E, Mlynczak MG, Martin-Torres FJ, Skinner WR, and Russell JM
Morphological studies of mesospheric chemical heating rates using HRDI/UARS and SABER/TIMED measurements.
- Morrison D, and Nylund S
Virtual metadata for multi-satellite data discovery.
- Morrison D, Nylund S, Yee J-H, Talaat E, McGuire R, Bilitza D, and Jackman C
A virtual observatory for the ionosphere, thermosphere, and mesosphere community.
- Mustard JF, Bibring J, Pelkey S, Milliken RE, Langevin Y, Gondet B, Gendrin A, Poulet F, Erard S, Murchie SL, and Arvidson RE
Global spectral and compositional diversity of Mars: A test of CRISM global mapping with Mars Express OMEGA.
- Narock T, and Gjerloev JW
Auroral electrodynamics during pseudo-breakups.
- Newell PT, Wing S, Sotirelis T, and Meng C-I
The ion aurora and its seasonal variations.
- Ohtani S, Ukhorskiy AY, Brandt PC, and Mitchell DG
Estimation of the substorm-related variation of the ring current intensity from the Sym-H index.
- Oieroset M, Phan T, Raeder J, Fujimoto M, Wing S, McFadden JP, Reme H, and Balogh A
Observations of cold dense plasma sheet and cusp reconnection during extended periods of northward IMF.
- Oksavik K, Moen J, Carlson HC, Greenwald RA, Milan SE, Lester M, Denig WF, and Barnes RJ
Multi-instrument mapping of the small-scale flow dynamics related to a cusp auroral transient.
- Paranicas C, Krupp N, Armstrong TP, Mitchell DG, Krimigis SM, Mauk BH, Roelof EC, Brandt PC, and Williams DJ
Charged neutral interactions inside 3 Saturn radii using Cassini MIMI data.
- Park J, Min K, Kim VP, Kil H, Lee J, Kim H, Lee E, and Lee D
Global distribution of the equatorial plasma bubbles in the pre-midnight sector during solar maximum as observed by KOMPSAT-1.

- Paxton LJ, and Morrison D**
Far ultraviolet remote sensing: Challenges and opportunities.
- Paxton LJ, Morrison D, Meng C-I, Ogorzalek B, Weiss M, Zhang Y, Wolven B, Kil H, Eichert J, Holl D, Wood B, and DeMajistre R**
Far ultraviolet remote sensing of space weather parameters: Current and future systems.
- Prockter L, and Schenk P**
Origin and evolution of Castalia Macula, an anomalous young depression on Europa.
- Roelof EC**
Collaborative analysis of planetary waves in the mesospheric neutral winds with SuperDARN and TIMED observations.
- Roelof EC, Brandt PC, Mitchell DG, Krimigis SM, Mauk BH, Paranicas C, Saur J, and Demajistre R**
Low altitude ENA emission from energetic ions trapped in Saturn's exosphere.
- Rust DM, Bernasconi PN, Foukal PV, and LaBonte BJ**
Finding the sources of irradiance variation at sunspot minimum.
- Saur J, Pouquet A, and Matthaeus WH**
Spatially and chemically segregated energization of Jupiter's magnetosphere.
- Sharma A, Ukhorskiy AY, and Chen J**
Space weather forecasting: Integrated model based on nonlinear dynamics and statistical.
- Shue J, Kamide Y, and Newell PT**
Positive/negative effects of solar wind density on auroral electrojets.
- Sotirelis T, Newell PT, and Meng C-I**
Real-time Kp and b2i nowcast from GOES magnetometer estimates of magnetotail stretching.
- Takahashi K, Denton RE, Anderson RR, and Hughes WJ**
Mass density inferred from toroidal wave frequencies and its comparison to electron density.
- Talaat ER, Yee J, Paxton L, Zhang Y, Zhu X, Meier R, Christensen A, Mlynczak M, and Russell JM**
Observations of tides and planetary waves from the stratosphere to the thermosphere.
- Ukhorskiy AY, and Takahashi K**
The impact of ULF waves on radiation belt electrons.
- Ukhorskiy AY, Sitnov MI, Sharma AS, Anderson BJ, Ohtani S, and Lui ATY**
Complexity in magnetospheric dynamics: From modeling to forecasting.
- Vervack RJ Jr**
An updated view of Saturn's upper atmosphere from a reanalysis of the Voyager 1 and 2 UVS occultations.
- Waite JH Jr, Cravens TE, Ip W, Kasprzak W, Luhmann J, McNutt RL, Niemann H, Yelle R, Worday-Muller I, Ledvina S, and De La Haye V**
Cassini-Huygens Ion Neutral Mass Spectrometer: Early Saturn and Titan results.
- Watermann J, Luehr H, Newell PT, Stauning P, Christiansen F, and Schlegel K**
Mapping the low-altitude cusp: Intense small-scale field-aligned currents vs. energetic particle precipitation.
- Weaver HA, A'Hearn MF, Arpigny C, Combi MR, Feldman PD, Festou MC, and Tozzi G-P**
Detection of deuterium emission from C/2001 Q4 (NEAT).
- Weygand JM, McPherron RL, Liou K, and Frey H**
Solar wind and IMF control of substorm onset.
- Wing S, Fujimoto M, Nishino MN, Newell PT, and Meng C-I**
Evolution of the plasma sheet cold-dense ions during periods of northward IMF.
- Wing S, Johnson J, Jen J, Meng C, Carr S, Sibeck D, Costello K, Freeman J, Balikhin M, Bechtold K, and Vandegriff J**
Kp forecast models.
- Wolven B, Paxton L, Morrison D, and Woods T**
TIMED GUVI and SEE observations of solar irradiance variations and the terrestrial airglow response.
- Wu C, Liou K, Meng C-I, and Newell PT**
Neutral composition effects on negative ionospheric storms at middle and low latitudes: Polar ultraviolet imager observations.
- Yamaguchi R, Ohtani S, and Mukai T**
Geosynchronous response to fast plasma flows in the plasmashet: Geotail-GOES coordinated observations.
- Yee J-H, Swartz WH, DeMajistre R, Shetter RE, and Randall CE**
Effects of field inhomogeneity on high-latitude ozone measurements from spaceborne remote sensing.
- Yelle RV, Waite JH, Cravens TE, Ip W, Kasprzak W, Luhmann J, McNutt RL, Ledvina S, and De La Haye V**
INMS observations of Titan's upper atmosphere on 26 October 2004.
- Young SL, Denton RE, Anderson BJ, and Hudson MK**
Magnetic field line curvature induced pitch angle diffusion in the radiation belts.
- Zhang Y, Paxton LJ, Kozyra JU, DeMajistre R, Kil H, Morrison D, Wolven B, Brandt PC, Mitchell DG, and Talaat E**
GUVI/TIMED observations of the auroral inputs and thermospheric response during the October and November 2003 superstorms.
- Zhu D, Balikhin MA, Billings SA, and Wing S**
Continuous time model for the Dst index.
- Zhu X**
Maintenance of equatorial superrotation in Titan's atmosphere.

COLLOQUIA

The following topics were presented at the weekly APL Colloquium in 2005:

- 1 Apr**
U.S.-India Strategic Relations, A Tellis, Carnegie Endowment for International Peace
- 8 Apr**
Defending the Earth from Asteroid Impacts, RE Gold, APL
- 15 Apr**
Beyond the Widget: Columbia Accident Lessons Affirmed, Brig. Gen. DW Deal, USAF
- 29 Apr**
The Future of Islam: Egypt and the New Islamists, RW Baker, Trinity College
- 6 May**
Permissive Action Links and the History of Public Key Cryptography, S Bellovin, Columbia University
- 13 May**
Surprise! U.S. and Western Intelligence and Warning Failures During the Cold War, N Polmar, Analyst, Consultant, and Author
- 26 May**
Democracy and Counterterrorism: Lessons from the Past, L Richardson, Radcliffe Institute for Advanced Study