

Bruce T. Tsurutani

Professional Experience

- Jet Propulsion Laboratory (1972-Present)
 - Senior Research Scientist (equivalent to Professor at Cal Tech or equivalent University) (1985-Present)
 - Research Scientist (1972-1985)
 - Manager of the Space Physics and Astrophysics Section (1985-1987)
 - Leader of space plasma physics group (1987-2004)
- Visiting Professor, Brazilian National Space Research Institute (INPE), Sao Jose dos Campos, SP, Brazil, Sept-Oct 2010
- Visiting Scientist, Technical University of Braunschweig, Germany, May-Aug, 2010
- Visiting Professor, Kyoto University (Oct. 2006- April 2007)
- Visiting Professor, Kyoto University (August- Nov 2005)
- Adjunct Professor, Physics and Astronomy Department, University of Southern California (2004-Present)
- Visiting Associate, California Institute of Technology, Solar Physic Group (1996-2002)
- Visiting Scientist, National Oceanic & Atmospheric Administration SEL, Boulder CO (July-Aug, 1993)
- Visiting Professor University of Alaska, Geophysical Institute (July-Aug, 1992)
- Visiting Professor Kyoto University (Mar-July, 1988)
- PhD, 1972, University of California at Berkeley (K. A. Anderson, thesis advisor): *Energetic Electron Precipitation and Substorms*

Selected Awards

- Listed in Reuters ISI as one of the top 250 referenced authors in both space science and geosciences.
- American Geophysical Union J.A.Fleming Medalist, 2009
- American Geophysical Union Fellow, 2009
- The Federal Univ. of Santa Maria (UFMS), Rio Grande do Sul, Brazil University Medal, 2009
- AGU Excellence in Refereeing awards (2007-JGR; 2003-GRL; 1984-GRL)
- Latin American Geophysical Society (ALAGE) Gold Medal, inaugural awardee (2001)
- Von Humboldt (Germany) Research Fellow (1993-1994), spent at Technical University of Braunschweig and Cologne University, Germany
- Brazilian National Space Medal (1992). Other awardees include: W. Von Braun, V. Suomi and Y. Gagarin. Only six awardees to date.
- President-Elect/President, AGU Space Physics and Aeronomy Section (1988-1992)
- Kyoto University International Scholarship (Oct, 1989)
- Secretary, AGU Solar Interplanetary Physics section (1982-1986)
- NASA awards (Exceptional Service Medals: 1985; 2001) and ~10 space flight team achievement awards

Areas of Scientific Interest

Space Weather: Magnetic Storms and Substorms, Solar and Interplanetary Causes thereof

Nonlinear Plasma Waves (Evolution, Turbulence, Stochastic Particle Acceleration)

Plasma Physics (Instabilities and Wave-Particle Interactions)

Ionospheric Physics: The Dayside Superfountain Effect, Space Weather

Auroral and Magnetospheric Physics (Energetic Particle Precipitation, Auroras, Relativistic Electron Acceleration)

Solar Wind Interaction with Magnetospheres (Upstream Waves and Particles, Viscous Interaction)

Solar Corona Physics (Heating)

Astrophysics (X-Ray Bursters)

Publications

1. Tsurutani, B. T., *Energetic Electron Precipitation and Substorms*, Ph.D. Thesis, University of California, Berkeley, 1972.
2. Tsurutani, B. T., and F. Bogott, Onset of Magnetospheric Substorms, *J. Geophys. Res.*, 77, 4677, 1972.
3. Tsurutani, B. T., and C.-I. Meng, Interplanetary Magnetic Field Variations and Substorm Activity, *J. Geophys. Res.*, 77, 2964, 1972.
4. Clay, D., C. Elachi, C. E. Griffin, W. Huntress, L. D. Jaffe, R. L. Newburn, R. H. Parker, P. W. Schaper, F. W. Taylor, T. E. Thorpe, B. T. Tsurutani, *Science Rationale and Instrument Package for a Slow Flyby of Comet Encke*, Ed. R. L. Newburn, JPL, Pasadena, CA 760-90, 1973.
5. Meng, C.-I., B. T. Tsurutani, K. Kawasaki, and S. -I. Akasofu, Cross-Correlation Analysis of the AE Index and the Interplanetary Magnetic Field B_z Component, *J. Geophys. Res.*, 78, 617, 1973.
6. Mozer, F. S., F. H. Bogott and B. T. Tsurutani, Relations Between Ionospheric Electric Fields and Energetic Trapped and Precipitating Electrons, *J. Geophys. Res.*, 78, 630, 1973.
7. Parker, R. H., J. M. Ajello, A. Bratenahl, D. R. Clay, B. T. Tsurutani, A Study of the Compatibility of Science Instruments with the Solar Electric Propulsion Space Vehicle, *Tech. Mem. 33-641*, JPL Pasadena, CA, Oct., 1973.

8. Smith, E. J., A. M. A. Frandsen, B. T. Tsurutani, R. M. Thorne and K. W. Chan, Plasmaspheric Hiss Intensity Variations During Magnetic Storms, *J. Geophys. Res.*, *79*, 2507, 1974.
9. Tsurutani, B. T., and E. J. Smith, Postmidnight Chorus: A Substorm Phenomenon, *J. Geophys. Res.*, *79*, 118, 1974.
10. Kelley, M. C., B. T. Tsurutani and F. S. Mozer, Properties of ELF Electromagnetic Waves and the Earth's Ionosphere Deduced from Plasma Wave Experiments on the OVI-17 and OGO-6 Satellites, *J. Geophys. Res.*, *80*, 4603, 1975.
11. Tsurutani, B. T., E. J. Smith, and R. M. Thorne, Electromagnetic Hiss and Relativistic Electron Losses in the Inner Zone, *J. Geophys. Res.*, *80*, 600, 1975.
12. Smith, E. J., and B. T. Tsurutani, Magnetosheath Lion Roars, *J. Geophys. Res.*, *81*, 2261, 1976.
13. Smith, E. J., B. T. Tsurutani, D. L. Chenette, T. F. Conlon and J. A. Simpson, Jovian Electron Bursts: Correlation with the Interplanetary Field Direction and Hydromagnetic Waves, *J. Geophys. Res.*, *81*, 65, 1976.
14. Tsurutani, B. T., B. E. Goldstein, and A. Bratenahl, Acceleration of Energetic Particles of the Outer Regions of Planetary Magnetospheres-Inferences from Laboratory and Space Experiments, *Planet. Spa. Sci.*, *24*, 995, 1976.
15. Thorne, R. M., S. R. Church, W. J. Malloy, and B. T. Tsurutani, The Local Time Variation of ELF Emissions during Periods of Substorm Activity, *J. Geophys. Res.*, *82*, 1585, 1977.
16. Tsurutani, B. T., and E. J. Smith, Two Types of ELF Chorus in the Outer Magnetosphere and their Substorm Dependences, *J. Geophys. Res.*, *82*, 5112, 1977.
17. Neugebauer, M., and B. T. Tsurutani, Can X-Ray Bursts be Caused by Substorms at a Neutron Star?, *Astrophys. J.*, *226*, 494, 1978.
18. Smith, E. J., B. T. Tsurutani, and R. L. Rosenberg, Observations of the Interplanetary Sector Structure up to Heliographic Latitudes of 16° : Pioneer 11, *J. Geophys. Res.*, *83*, 717, 1978.
19. Gurnett, D. A., R. R. Anderson, B. T. Tsurutani, E. J. Smith, G. Paschmann, G. Haerendel, S. J. Bame, and C. T. Russell, Plasma Wave Turbulence at the Magnetopause: Observations from ISEE 1 and 2, *J. Geophys. Res.*, *84*, 7043, 1979.
20. Kelly, M. C., J. A. Holtet, and B. T. Tsurutani, Observations of ELF Electromagnetic Waves Associated with Equatorial Spread F, *Planet. Spa. Sci.*, *27*, 127, 1979.
21. Pesses, M. E., Tsurutani, B. T., J. A. Van Allen, and E. J. Smith, Acceleration of Energetic Proton by Interplanetary Shocks, *J. Geophys. Res.*, *84*, 7297, 1979.
22. Thorne, R. M., and B. T. Tsurutani, Power-Line Harmonic Radiation: Can It Significantly Affect the Earth's Radiation Belts?, *Science*, *204*, 839, 1979.

23. Thorne, R. M., and B. T. Tsurutani, Diffuse Jovian Aurora Modulated by Volcanic Activity on Io, *Geophys. Res. Lett.*, 6, 649, 1979.
24. Tsurutani, B. T., and D. N. Baker, A Real-Time ISEE Data System, *Proceeds. Sol. Terr. Predict. Workshop Vol. 2*, ed. R. Donnelly, NOAA, Boulder, CO, 464, 1979.
25. Tsurutani, B. T., and D. N. Baker, Substorm Warnings: An ISEE-3 Real Time Data System, *EOS*, 60, 702, 1979.
26. Tsurutani, B. T., S. R. Church, R. M. Thorne, A Search for Geographical Control of the Occurrence of Magnetospheric ELF Emissions, *J. Geophys. Res.*, 84, 4116, 1979.
27. Tsurutani, B. T., and E. J. Smith, Interplanetary Discontinuities: Temporal Variations and the Radial Gradient from 1 to 8.5 AU, *J. Geophys. Res.*, 84, 2773, 1979.
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30. Tsurutani, B. T., E. J. Smith, J. H. Wolfe, and B. U. O. Sonnerup, Structure of Jupiter's Magnetosphere, in *Magnetospheric Boundary Layers*, E.S.A.. SP-148, 229, August 1979.
31. Jones, D. E., B. T. Tsurutani, E. J. Smith, R. J. Walker, and C. P. Sonett, A Possible Magnetic Wake of Titan: Pioneer 10, *J. Geophys. Res.*, 85, 5835, 1980.
32. Newton, G. P., *Report of the NASA Plasma Turbulence Explorer Study Group Subcommittee*, NASA report 715-18, Jet Propulsion Lab., Pasadena, CA, September, 1980.
33. Tsurutani, B. T., and R. M. Thorne, Power Line Radiation, *Science*, 207, 715, 1980.
34. Tsurutani, B. T., and P. Rodriguez, Upstream Particles and Waves, *EOS*, 61, 569, 1980.
35. Duggal, S. P., B. T. Tsurutani, M. A. Pomerantz, C. H. Tsao, and E. J. Smith, The Influence of Co-Rotating Interaction Regions on Relativistic Cosmic Rays and Geomagnetic Activity, *Proc. of 17th International Cosmic Ray Conference*, Paris, France, July 1981.
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41. Tsurutani, B. T., and S. A. Collins, A Brief Summary of Saturn Science: Voyager I, *Scientific American, Nihon Keizai Shimbun*, Tokyo, Japan, *6*, 46, 1981.
42. Tsurutani, B. T., and S. A. Collins, Saturn Science: Voyager 2 Results, *Scientific American, Nihon Keizai Shimbun*, Tokyo, Japan, *12*, 48, 1981.
43. Tsurutani, B. T., and P. Rodriguez, Upstream Waves and Particles: An Overview of ISEE Results, *J. Geophys. Res.*, *86*, 4317, 1981.
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49. Tsurutani, B. T., E. J. Smith, K. R. Pyle, and J. A. Simpson, Energetic Protons Accelerated at Co-Rotating Shocks: Pioneer 10 and 11 Observations from 1 to 6 AU, *J. Geophys. Res.*, *87*, 7389, 1982.
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51. Tsurutani, B. T., R. M. Thorne, E. J. Smith, R. R. Anderson, K. W. Ogilvie, J. D. Scudder, and D. N. Baker, Observations of Instabilities in a High Beta Plasma: Electron Cyclotron and Drift-Mirror Instabilities in the Terrestrial Magnetosheath, *Proceedings 1982 International Conference on Plasma Physics*, eds. H. Wilhelmsson and J. Weiland, Chalmers University of Technology, Goteborg, Sweden, 36, 1982.
52. Baker, D. N., R. D. Zwickl, S. J. Bame, E. W. Hones, Jr., B. T. Tsurutani, E. J. Smith, and S. I. Akasofu, An ISEE-3 High Time Resolution Study of Interplanetary Parameter Correlations with Magnetospheric Activity, *J. Geophys. Res.*, *88*, 6230, 1983.

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55. Reinhard, R., P. Van Nes, T. R. Sanderson, K.-P. Wenzel, B. T. Tsurutani, and E. J. Smith, A Statistical Study of Interplanetary Shock-Associated Proton Intensity Increases, *Proc. of the 18th International Cosmic Ray Conference*, Bangalore, India, MG 4-15, 160, 1983.
56. Russell, C. T., E. J. Smith, B. T. Tsurutani, J. T. Gosling, and S. J. Bame, Multiple Spacecraft Observations of Interplanetary Shocks: Characteristics of the Upstream ULF Turbulence, *Solar Wind V*, ed. M. Neugebauer, NASA Conf. Publ. 2280, Washington, D.C., 1983.
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59. Slavin, J. A., B. T. Tsurutani, E. J. Smith, D. E. Jones, and D. G. Sibeck, Average Configuration of the Distant (<220 Re) Magnetotail: Initial ISEE-3 Magnetic Field Results, *Geophys. Res. Lett.*, 10, 912, 1983.
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61. Tsurutani, B. T., E. J. Smith, and D. E. Jones, Upstream Waves Associated with Interplanetary Shocks, *J. Geophys. Res.*, 88, 5645, 1983.
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