

**ENHANCING GLOBAL AWARENESS THROUGH SMALL SATELLITES**  
**AUGUST 13-16, 2012**

Technical Session	Paper/Presentation Title	Paper Number	First Author's Last Name	First Author's Affiliation
<b>Keynote Address</b>	U.S Geological Survey Disaster Response	Keynote	Jones	Disaster Response Coordinator, USGS EROS Data Center
<b>Guest Lecture</b>	Satellite Contributions to Disaster Monitoring - Japanese Earthquake and Tsunami Case in 2011 -	XII-1	Iwasaki	University of Tokyo
<b>Technical Session I: The Horizon</b>	International Scientific Micro-satellite RISESAT based on Space Plug and Play Avionics	I-1	Kuwahara	Tohoku University
	Nanosatellites for Earth Environmental Monitoring: The MicroMAS Project	I-2	Blackwell	Lincoln Laboratory, Massachusetts Institute of Technology
	System F6: Progress to Date	I-3	Ong	Kinsey Technical Services, Inc.
	NEMO-HD: High-Resolution Microsatellite for Earth Monitoring and Observation	I-4	Pranajaya	Space Flight Laboratory, University of Toronto Institute for Aerospace Studies
	EDSN: A Large Swarm of Advanced Yet Very Affordable, COTS-based NanoSats that Enable Multipoint Physics and Open Source Apps	I-5	Cockrell	NASA Ames Research Center
	GomX-1: A Nano-satellite Mission to Demonstrate Improved Situational Awareness for Air Traffic Control	I-6	Alminde	GomSpaceAps
	NovaSAR – Bringing Radar Capability to the Disaster Monitoring Constellation	I-7	Davies	Surrey Satellite Technology Ltd (SSTL)
	Development of Multiple Parameter-based Cost Model for Small Earth Observation Satellite	I-8	Kang	U.S. Naval Academy
	The Canadian Advanced Nanospace eXperiment 7 (CanX-7) Demonstration Mission: De-Orbiting Nano- and Microspacecraft	I-9	Shmuel	UTIAS Space Flight Laboratory
<b>Technical Session II: Mission Lessons I</b>	Attitude Control on the Pico Satellite Solar Cell Testbed-2	II-1	Janson	The Aerospace Corporation
	Validation of Astrodynamic Formation Flying Models Against SPACE-SI Experiments with Prisma Satellites	II-2	Matko	Space-SI
	TacSat-4 Early Flight Operations Including Lessons From Integration, Test, And Launch Processing	II-3	Duffey	Naval Research Laboratory
	CubeSat Lessons Learned: Two Launch Failures Followed by One Mission Success (Subtitle: What can go wrong will go wrong.)	II-4	Klumpar	Space Science and Engineering Laboratory, Montana State University
	Small Spacecraft Design for the GRAIL Mission	II-5	Spath	Lockheed Martin Space Systems Company
<b>Technical Session III: Advanced Technologies I</b>	Maximum Power Point Tracking Techniques for Efficient Photovoltaic Microsatellite Power Supply System	III-1	Malek	Utah State University
	Additively Manufactured Propulsion System	III-2	Dushku	Experimental Propulsion Lab
	EDDE: A Multi-Km Modular Upper Stage for SmallSats	III-3	Carroll	Tether Applications, Inc.
	CubeSec and GndSec: A Lightweight Security Solution for CubeSat Communications	III-4	Challa	University of Florida
	A Novel Hemispherical Anti-Twist Tracking System (HATTS) for CubeSats	III-5	Bashevkin	Space and Systems Development Laboratory, Stanford University
	High Performance Green Propulsion (HPGP): A Flight-Proven Capability and Cost Game-Changer for Small and Secondary Satellites	III-6	Dinardi	Ecological Advanced Propulsion Systems, Inc.
	A Constrained Attitude Control Module for Small Satellites	III-7	Kjellberg	The University of Texas at Austin
Reducing Link Budget Requirements with Model-Based Transmission Reduction Techniques	III-10	Straub	University of North Dakota	

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<b>Technical Session IV: Global Missions</b>	Sensitivity of Ionospheric Specifications to In Situ Plasma Density Observations Obtained From Electrostatic Analyzers Onboard of a Constellation of Small Satellites	IV-1	Blalthazor	United States Air Force Academy
	Achieving Global Awareness via Advanced Remote Sensing Techniques on 3U CubeSats	IV-2	Clark	Clyde Space Ltd
	Global Coverage from Ad-hoc Constellations in Rideshare Orbits	IV-3	Ellis	Jet Propulsion Laboratory
	The Ability of a Small Satellite Constellation to Tip and Cue Other Commercial Assets	IV-5	Cudzilo	Surrey Satellite US, LLC
	Moderately Elliptical Very Low Orbits (MEVLOs) as a Long-Term Solution to Orbital Debris	IV-6	Wertz	Microcosm, Inc.
	'Charybdis' – The Next Generation in Ocean Colour and Biogeochemical Remote Sensing	IV-7	Lowe	University of Strathclyde
	Feasibility Study of using a Small Satellite Constellation to Forecast, Monitor and Mitigate Natural and Man-made Disasters in Chile and Similar Developing Countries	IV-8	Becena	University of Chile
	GEOScan: A GEOScience Facility From Space	IV-9	Dyrud	The Johns Hopkins University Applied Physics Laboratory
<b>Technical Session V: Getting There</b>	Atlas V Aft Bulkhead Carrier Rideshare System	V-1	Willcox	NRO/OSL
	Small Satellite Rideshares on Commercial Resupply Missions to the International Space Station	V-2	Robinson	Orbital Sciences Corporation
	Secondary Launch Services and Payload Hosting Aboard the Falcon and Dragon Product Lines	V-3	Doud	Space Exploration Technologies Corp.
	Round the World Ticket for Your SmallSat	V-4	Bonnema	ISL-Innovative Space Logistics BV
	ELaNa – Educational Launch of Nanosatellite: <i>Providing Routine RideShare Opportunities</i>	V-5	Skrobot	Launch Services Program, NASA
	Spaceflight Secondary Payload System (SSPS) and SHERPA Tug - A New Business Model for Secondary and Hosted Payloads	V-6	Andrews	Spaceflight, Inc.
	ORBCOMM Generation 2 access to LEO on the Falcon 9 using SoftRide, a case history	V-7	Johal	Moog CSA Engineering
	µLambda Rocket Concept for Micro Satellites	V-8	Noguchi	IHI AEROSPACE Co., Ltd.
	Technical and Programmatic Challenges for Dedicated Ride Share Missions	V-9	Kehrl	Lockheed Martin Space Systems Company
<b>Technical Session VI: Small But Mighty</b>	Enabling Dexterous Manipulation and Servicing by Smallsats	VI-1	Akin	University of Maryland Space Systems Laboratory
	Releasing the Cloud: A Deployment System Design for the QB50 CubeSat Mission	VI-2	Bernal	ISIS-Innovative Solutions In Space BV
	Development and Testing of a Multiple Use Plug Hybrid (for) Nanosats (MUPHyN)	VI-3	Eilers	Utah State University
	Miniature Ion Electro Spray Thrusters and Performance Test on CubeSats	VI-5	Martel	Espace Inc.
	Microhard MHX2420 Orbital Performance Evaluation Using RT Logic T400CS	VI-6	Kearney	Universities Space Research Association
	X Band Downlink for CubeSat	VI-7	Peragin	Centre National d'Etudes Spatiales
	The Drag-free CubeSat	VI-8	Conklin	Stanford University
	Nanosat Ka-Band Communications - A Paradigm Shift in Small Satellite Data Throughput	VI-9	King	Southern Cross Space & Communications Pty Ltd

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<b>Technical Session VII:</b>  <b>Growing the Community</b>	Educational Programs: Investment with a Large Return	VII-1	Voss	Air Force Research Laboratory
	The SAMSON Project – Cluster Flight and Geolocation with Three Autonomous Nano-satellites	VII-2	Gurfil	Distributed Space Systems Lab, Israel Institute of Technology
	TERSat: Trapped Energetic Radiation Satellite	VII-3	Clements	MIT Department of Aeronautics and Astronautics
	EdUCE, Educate Utilizing CubeSat Experience: A Pragmatic Approach to Shatter Barriers to Space	VII-4	Buckley	University of Florida
	Argus: Radiation Effects Modeling on a University Nanosat	VII-5	Swartwout	Saint Louis University
	The Cosmic X-Ray Background NanoSat (CXBN): Measuring the Cosmic X-Ray Background Using the CubeSat Form Factor	VII-6	Brown	Morehead State University
	FASTRAC Mission Analysis and Results	VII-9	Muñoz	The University of Texas at Austin
<b>Technical Session VIII:</b>  <b>Frank J. Redd Student Scholarship Competition</b>	Overview of Nano-satellite Environmental Tests Standardization Project: Test Campaign and Standard Draft	VII-10	Cho	Laboratory of Spacecraft Environment Interaction Engineering, Kyushu
	HiMARC 3D- High-speed, Multispectral, Adaptive Resolution Stereographic CubeSat Imaging Constellation	VIII-1	Chirayath	Stanford University
	A Precise Attitude Determination and Control Strategy for Small Astrometry Satellite "Nano-JASMINE"	VIII-2	Hosonuma	University of Tokyo
	Automated Proximity Operations Using Image-Based Relative Navigation	VIII-3	Walker	Georgia Institute of Technology
	Characterization and Testing of an Energetic Particle Telescope for a CubeSat Platform	VIII-4	Blum	University of Colorado
	New Methodologies for the Thermal Modelling of CubeSats	VIII-5	Reiss	Technische Universitat Munchen
<b>Technical Session IX:</b>  <b>Advanced Technologies II</b>	CubeSat Aerodynamic Stability at ISS Altitude and Inclination	VIII-6	Rawashdeh	Space Systems Laboratory, University of Kentucky
	The QEYSSat Mission: Demonstrating Global Quantum Key Distribution Using a Microsatellite	IX-1	D'Souza	COM DEV Canada
	Ensuring Clean Power for RF and Digital Applications	IX-4	Boehler	AEi Systems
	Differential Optical Shadow Sensor CubeSat Mission	IX-6	Zoellner	Hansen Experimental Physics Laboratory, Stanford University
	A Stellar Gyroscope for Small Satellite Attitude Determination	IX-7	Rawashdeh	Space Systems Laboratory, University of Kentucky
<b>Technical Session X:</b>  <b>Advanced Technologies III</b>	Configuration of 3U CubeSat Structures for Gain Improvement of S-band Antennas	III-8	Shrivante	University of Florida
	Comparison of Control Moment Gyros and Reaction Wheels for Small Earth-Observing Satellites	X-1	Votel	Skybox Imaging, Inc.
	Advanced MEMS Components in Closed-loop Micro Propulsion Applications	X-2	Rangsten	NanoSpace AB
	Counting Down to the Launch of POPACS (Polar Orbiting Passive Atmospheric Calibration Spheres)	X-3	Holemans	Planetary Systems Corporation
	Cadet: A High Data Rate Software Defined Radio for SmallSat Applications	X-4	Kneller	L-3 Communications Systems – West
	Investigating the Use of Miniaturized Electrodynamic Tethers to Enhance the Capabilities of Femtosatellites and other Ultra-small Satellites	X-6	Bell	The University of Michigan
	The Things You Can't Ignore: Evolving a Sub-Arcsecond Star Tracker	X-7	Enright	Ryerson University
Evaluation of Power Control System for Micro and Nano Satellites by Hardware-in-the-Loop Simulator	X-8	Sakamoto	Tohoku University	

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<b>Technical Session XI:</b>  <b>Mission Lessons II</b>	DICE Mission Design, Development, and Implementation: Success and Challenges	XI-1	Fish	Space Dynamics Laboratory/Utah State University
	First Results From the GPS Compact Total Electron Content Sensor (CTECS) on the PSSCT-2 Nanosat	XI-2	Bishop	The Aerospace Corporation
	Operationally Responsive Space-1 (ORS-1) Lessons Learned	XI-3	Davis	Operationally Responsive Space Office
	QbX - The CubeSat Experiment	XI-4	Arnold	Naval Research Laboratory
	Initial Flight Results of the RAX-2 Satellite	XI-5	Springmann	The University of Michigan
	Commissioning of the NigeriaSat-2 High Resolution Imaging Mission	XI-6	da Silva Curiel	Surrey Satellite Technology Ltd (SSTL)
	DISC Experiment Overview and On-Orbit Performance Results	XI-7	Nicholas	Naval Research Laboratory
	Experiences in Combining Cubesat Hardware and Commercial Components from Different Manufacturers in Order to Build the Nano Satellite AlSat/Clavis-1	XI-8	Nohka	German Aerospace Center (DLR) – Institute of Space Systems