



Wednesday 4.9.2013

08:00 -	Delegates Registration	
09:00 - 09:30	Opening Ceremony Prof. Dr. Schareck - Rector of Rostock University Prof. Dr. Christian Heipke, ISPRS Secretary General	
09:30 - 09:40	Awards	
09:40 - 10:30	Keynote I - Prof. Dr. Thomas Kolbe	
10:30 - 11:00	Coffee Break	
11:00 - 12:30	Parallel Sessions	
<b>UAS for Cadastral Applications</b> 11:00 - 12:30 <i>Audimax</i> Session chair: <i>Costas Armenakis</i>	<b>Real Time Photogrammetry</b> 11:00 - 12:30 <i>Arno-Esch HS I</i> Session chair: <i>Danilo Schneider</i>	<b>UAS and direct georeferencing</b> 11:00 - 12:30 <i>Arno-Esch HS II</i> Session chair: <i>Ismael Colomina</i>
<i>Michael Cramer</i> <i>Stuttgart University, Germany</i> <b>On the use of RPAS in national mapping - the EuroSDR point of view</b>	<i>Florian Burkert, F. Fraundorfer</i> <i>Technical University of Munich, Germany</i> <b>UAV-based monitoring of pedestrian groups</b>	<i>F. Chiabrando, A. Lingua, Marco Piras</i> <i>Politecnico di Torino, Italy</i> <b>Direct photogrammetry using UAV: tests and first results</b>
<i>M. Rijsdijk, W.H.M. van Hinsbergh, W. Witteveen, G.H.M. ten Buuren, G.A. Schakelaar, G. Poppinga, Mark van Persie, R. Ladiges</i> <i>M. Rijsdijk Kadaster, Netherlands</i> <b>Unmanned aerial systems in the process of juridical verification of cadastral borders</b>	<i>Holger Fritze, S. Walter, T. Prinz</i> <i>University of Muenster, Germany</i> <b>Facilitating UAS-based oblique imagery to support Urban Search and Rescue Operations</b>	<i>Daniel Bender, M. Schikora, J. Sturm, D. Cremers</i> <i>Fraunhofer FKIE, Germany</i> <b>A Graph Based Bundle Adjustment for INS-Camera Calibration</b>
<i>Mónica Pérez, Sáiz, J. J. Ruiz, L. Diaz-Mas, A. Viguria</i> <i>Center for Advanced Aerospace Technologies, Spain</i> <b>Low cost surveying using an Unmanned Aerial Vehicle</b>	<i>Johannes Schneider, Wolfgang Förstner</i> <i>University of Bonn, Germany</i> <b>Incremental Real-time Bundle Adjustment for Multi-camera Systems with Points at Infinity</b>	<i>M. Bäumker, Heinz-Jürgen Przybilla, A. Zurhorst</i> <i>Bochum University of Applied Sciences, Germany</i> <b>Enhancements in UAV Flight Control and Sensor Orientation</b>
<i>Henri Eisenbeiss</i> <i>Land Surveying Office Winterthur, Switzerland</i> <b>Evaluation of UAV-based orthoimages for the use in cadastral mapping</b>	<i>Jinling Wang</i> <i>University of New South Wales, Australia</i> <b>Online Quality Monitoring for Rapid UAV Mapping</b>	<i>Martin Rehak, Romain Mabillard, Jan Skaloud</i> <i>Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland</i> <b>A Micro-UAV with the Capability of Direct Georeferencing</b>
12:30- 13:30	Lunch Break	

13:30 - 15:00	Parallel Sessions	
<p><b>UAS for Geosciences</b></p> <p>13:30 - 15:00 Audimax Session chair: Charles Toth</p>	<p><b>UAS Imaging Sensors</b></p> <p>13:30 - 15:00 Arno-Esch HS I Session chair: Arko Lucieer</p>	<p><b>UAS navigation and position/ orientation determination</b></p> <p>13:30 - 15:00 Arno-Esch HS II Session chair: Friedrich Fraundorfer</p>
<p>Dirk Holz, Matthias Nieuwenhuisen, David Droeschel, Sven Behnke University of Bonn, Germany <b>Towards autonomous 3D navigation of UAVs in restricted spaces</b></p>	<p>Ralf Gehrke, A. Greiwe University of Applied Sciences Frankfurt am Main, Germany <b>Multispectral Image Capturing with Foveon Sensors</b></p>	<p>Reiner Jäger, Jan Zwiener Karlsruhe University of Applied Sciences, Germany <b>High precise GNSS/MEMS multisensor navigation of UAV including the georeferencing of cameras and other sensors</b></p>
<p>V. Baiocchi, D. Dominici, M.V. Milone, Martina Mormile Sapienza University of Rome, Italy <b>UAV application in post seismic environment</b></p>	<p>Irmgard Runkel GEOSYSTEMS GmbH, Germany <b>Processing, Cataloguing and Distribution of UAS Images in near real time</b></p>	<p>David Droeschel, Michael Schreiber, Sven Behnke University of Bonn, Germany <b>Omnidirectional Perception for Lightweight UAVs Using a Continuous Rotating Laser Scanner</b></p>
<p>Stefania Amici Istituto Nazionale di Geofisica e Vulcanologia, Italy <b>Volcanic environments monitoring by drones mud volcano case study</b></p>	<p>Antti Mäkeläinen MosaicMill, Finland <b>2D Hyperspectral Frame Imager Camera Data in Photogrammetric Mosaicking</b></p>	<p>Meng Lun Tsai, K. W. Chiang, C. F. Lo, C. H. Chu National Cheng Kung University, Taiwan <b>The Performance Analysis of a UAV Based MMS Platform</b></p>
<p>Johannes B. Stoll Mobile Geophysical Technologies, Germany <b>Unmanned aircraft systems for rapid near surface geophysical measurements</b></p>	<p>Bavo Delauré Vision on Technology, Belgium <b>The development of a family of lightweight and wide swath UAV camera systems around an innovative dual-sensor on-single-chip detector</b></p>	<p>Christian Eling, L. Klingbeil, H. Kuhlmann University of Bonn, Germany <b>A precise position and attitude determination system for lightweight unmanned aerial vehicles</b></p>

15:00 - 15:30		Coffee Break	
<b>UAS for Meteorology</b> 15:30 - 17:00 Audimax Session chair: Rune Storvold		<b>UAS-Multispectral/multitemporal imaging</b> 15:30 - 17:00 Arno-Esch HS I Session chair: Dorata Grejner-Brzezinska	
Barbara Altstädter, Astrid Lampert, A. Scholtz, J. Bange, A. Platis, M. Hermann, B. Wehner Braunschweig University of Technology, Germany <b>Aerosol Variability observed with RPAS</b>		Katharina Pech, Nadine Stelling, P. Karrasch, H.-G. Maas Dresden University of Technology, Germany <b>Generation of multitemporal thermal orthophotos from UAV data</b>	
Michael Gausa, Torbjørn Houge, Burkhard Wrenger Andøya Rocket Range, Norway <b>The future application of fixed and rotary wing systems in Atmospheric Chemistry. Overview, motivation and plans for first investigations in a pilot project</b>		J. Araújo, Tiago Hormigo Spin.Works, Portugal <b>A Micro-UAV System for Forest Management</b>	
Burkhard Wrenger, Jens Dünnermann, Norman Wildmann, Jens Bange, Torbjørn Houge, Michael Gausa University of Applied Sciences Ostwestfalen-Lippe, Germany <b>Meteorological Data Acquisition System AMOC and Multicopter Applications</b>		Teemu Hakala, E. Honkavaara, H. Saari, J. Mäkynen, J. Kaivosoja, L. Pesonen, I. Pölönen, H. Salo Department of Remote Sensing and Photogrammetry, Finland <b>Stereoscopic spectral imaging from UAVs for environmental remote sensing</b>	
Norbert Haala, Mathias Rothermel Stuttgart University, Germany <b>Dense Multiple Stereo Matching of Highly Overlapping UAV Imagery</b>		Axel Buettner, H.-P. Roeser University of Stuttgart, Germany <b>Hyperspectral remote sensing with the UAS "Stuttgarter Adler" - challenges, experiences and first results</b>	
17:00 - 20:30		Poster Session and Icebreaker Party	
		<b>Obstacle avoidance and cooperative UAS Systems</b> 15:30 - 17:00 Arno-Esch HS II Session chair: Jörg Dittrich	
		Jürgen Sturm, E. Bylow, C. Kerl, F. Kahl, D. Cremers Technical University of Munich, Germany <b>Dense Tracking and Mapping with a Quadrocopter</b>	
		Matthias Nieuwenhuisen, Mark Schadler, Sven Behnke University of Bonn, Germany <b>Predictive Potential Field-based Collision Avoidance for Multicopters</b>	
		Stefan Nowak, T. Krüger, J. Matthaei, P. Hecker Braunschweig University of Technology, Germany <b>Martian Swarm Exploration and Mapping using Laser SLAM</b>	
		Thomas Krüger, S. Nowak, J. Matthaei, P. Hecker Braunschweig University of Technology, Germany <b>Single-Layer Laser Scanner for Detection and Localization of Unmanned Swarm Members</b>	

17:00 - 18:30	Poster Session	
<b>Authors</b>	<b>Affiliation</b>	<b>Title</b>
<i>Till Sieberth, R. Wackrow, J. Chandler</i>	Loughborough University, United Kingdom	Automatic isolation of blurred images from UAV image sequences
<i>Krzysztof Kusnierek, Audun Korsæth</i>	Norwegian Institute for Agricultural and Environmental Research, Norway	Accuracy of water stress determination in spring wheat based on thermal imaging from a UAV
<i>Ryuji Matsuoka, I. Nagusa, H. Yasuhara, M. Mori</i>	Research and Development Division, Japan	Some Aspects in Height Measurement by UAV Photogrammetry
<i>Nicole Berger, H. Ingensand, H. Eisenbeis, P. Theiler, D. Bänni, D. Lanz, D. Lüdi, B. Streit</i>	Bern University of Applied Sciences, Switzerland	Fawn Rescue
<i>Zhang Chunxiao, Wen Gaojin, Lin Zhaorong, Li Fudong, Yao Yigang</i>	Beijing Institute of Space Mechanics & Electricity, China	A digital-map aided target location in an aerial image
<i>Hongmin Wang, Z. Chunxiao, W. Gaojin, L. Zhaorong</i>	Beijing Institute of Electrical and Mechanical Space, China	A Fast Display System Of Aerial Image Sequence
<i>Katharina Haubeck, Torsten Prinz</i>	Westfälische Wilhelms-University of Münster, Germany	A UAV-based low-cost stereo camera system for archaeological surveys - Experiences from Doliche (Turkey)
<i>Zhang Weiwei, Lin Zhaorong, Chen Shiyang, Liu Tao, Yao Yigang</i>	Beijing Institute of Space Mechanics & Electricity, China	Study on safety technology scheme of the unmanned helicopter
<i>Kristina Knoppe, Torsten Prinz</i>	Westfälische Wilhelms-University of Münster, Germany	3D Information from an UAV-based close-range Stereoscopic System for Web Mapping Services (WMS)
<i>Giovanna Sona, Rossana Gini, Daniele Passoni, Livio Pinto, Paolo Dosso</i>	Department of Civil and Environmental Engineering, Italy	UAV photogrammetry: block triangulation comparisons
<i>Philipp Rauneker, G. Lischeid</i>	Leibniz Centre for Agricultural Landscape Research, Germany	Assessing spatial distribution of evapotranspiration using UAV-borne multispectral and thermal imagery
<i>Lee Impyeong, K. Choi, I. Lee, H. Kim</i>	University of Seoul, Korea	A Multi-sensor Small UAV Based Automatic Rapid Mapping System for Damage Assessment in Disaster Areas
<i>Fernando Carvajal, F. Agüera, M. Pérez, P.J. Martínez</i>	University of Almeria, Spain	Comparison of the inclined versus vertical axis photos taken from a rotatory helix UAV for photogrammetric projects
<i>Francisco Agüera-Vega, F. Carvajal, M. Pérez</i>	University of Almeria, Spain	UAV in precision agriculture
<i>Birute Ruzgiene</i>	Vilnius Gediminas Technical University, Lithuania	The Use Of UAV Systems For Mapping Of Built-Up Area
<i>Jing-Jing Ge, Yan Qin, De-Bin Deng</i>	Beijing Institute of Space Mechanics & Electricity, China	Design Of MWIR Continuous Zoom With Light Weight

**Thursday 5.9.2013 - UAS Airshow at the Airfield Barth-Stralsund**

<i>08:30</i>	Bus Departure to Airfield Barth
<i>09:45 - 10:00</i>	Airfield Visit
<i>10:00 - 12:00</i>	UAS - Air Show
<i>12:00 - 13:00</i>	Lunch Break
<i>13:00 - 16:00</i>	UAS - Air Show
<i>16:15</i>	Bus Departure to Stralsund (Social Event) or Rostock
<i>17:00 - 18:30</i>	Visit and guided tour Ozeaneum Stralsund
<i>18:45 - 19:00</i>	Bus Tansfer to Alte Brauerei Stralsund
<i>19:00 - 22:00</i>	Social Event
<i>22:00 - 23:00</i>	Bus Transfer back to Rostock

UAS-Airshow - Participating Companies and Schedule

Starting time	Flight Demonstration		Data Analysis Demonstration	
	Slot 1	Slot 2	Hall 1	Hall 2
<b>10:00 - 10:20</b>	Airrobot	Service-drones	C-Astral	MAVinci UG
<b>10:20 - 10:40</b>	Astec	Geo-Technic	simactive	Larsen, UAS Test Site
<b>10:40 - 11:00</b>	Uni Rostock	Germap	Microdrones	Height Tech
<b>11:00 - 11:20</b>	geo-konzept	MAVinci UG	Airrobot	div-gmbh/Aibotix
<b>11:20 - 11:40</b>	CIS	SenseFly	Astec	Geo-Technic
<b>11:40 - 12:00</b>	Microdrones	Trimble / Gatewing	C-Astral	geo-konzept
<b>Lunch Break</b>				
<b>13:00 - 13:20</b>	div-gmbh/Aibotix	C-Astral	CIS	Geo-Technic
<b>13:20 - 13:40</b>	Height Tech	Geo-Technic	Trimble / Gatewing	SenseFly
<b>13:40 - 14:00</b>	Uni Rostock	MAVinci UG	Astec	Service-drones
<b>14:00 - 14:20</b>	Airrobot	Microdrones	CIS	Height Tech
<b>14:20 - 14:40</b>	Astec	Service-Drones	Trimble / Gatewing	div-gmbh/Aibotix
<b>14:40 - 15:00</b>	geo-konzept	SenseFly	Larsen, UAS Test Site	MAVinci UG
<b>15:00 - 15:20</b>	Height Tech	C-Astral	Airrobot	Service-drones
<b>15:20 - 15:40</b>	CIS	Trimble / Gatewing	simactive	geo-konzept
<b>15:40 - 16:00</b>	div-gmbh/Aibotix	Germap	Microdrones	SenseFly

Friday 6.9.2013

09:00 - 09:40	Keynote II - Prof. Dr. Christian Wietfeld	
09:50 - 11:10	Parallel Sessions	
<b>UAS for Environmental Sciences</b> 09:50 - 11:10 Audimax Session chair: Hans-Peter Thamm	<b>UAS and Photogrammetry</b> 09:50 - 11:10 Arno-Esch HS I Session chair: Henri Eisenbeiss	<b>Sensor Fusion</b> 09:50 - 11:10 Arno-Esch HS II Session chair: Markus Gerke
Dimitrios Skarlatos, S. Kiparissi, S. Theodoridou Cyprus University of Technology, Cyprus <b>The use of UAV for direct orthophoto generation from color point clouds over archaeological sites</b>	Steve Harwin University of Tasmania, Australia <b>An investigation into the contribution of oblique photography inclusion in a UAV-MVS 3D reconstruction</b>	Boris Jutzi, M. Weinmann, P. Solbrig, D. Bulatov, P. Wernerus, J. Meidow, S. Hinz Karlsruhe Institute of Technology, Germany <b>Improved UAV-borne 3D Mapping by Fusing Optical and Laserscanner Data</b>
Andrew Fletcher University of Queensland, Australia <b>Rehabilitation closure criteria assessment using high resolution photogrammetrically derived surface models</b>	Paudie Barry, Ross Coakley, Tony Barry Baseline Surveys, Ireland <b>Field Accuracy Test of UAV Photogrammetry</b>	Klaus-Dieter Kuhnert, L. Kuhnert University of Siegen, Germany <b>Light weight sensor package for precision 3D measurement with micro UAVs</b>
Arko Lucieer University of Tasmania, Australia <b>Monitoring Antarctic mosses with a multi-sensor Unmanned Aircraft System (UAS)</b>	Frank Niemeyer, R. Schima, G. Grenzdörffer Rostock University, Germany <b>Relative and absolute calibration of a multihead camera system with oblique and nadir looking cameras for a UAS</b>	He Hongyan, Zhou Nan, Yue Chunyu Beijing Institute of Space Mechanics and Electricity, China <b>POS-supported Automatic Digital Surface Model (DSM) Generation</b>
Stian Solbø, R. Storvold Northern Research Institute Tromsø, Norway <b>Mapping Svalbard glaciers with the CryoWing UAS</b>	Domantas Bručas, J. Suziedelyte-Visockiene, U. Ragauskas, E. Berteska, D. Rudinskas Space Science and Technology Institute, Lithuania <b>Testing and Implementation of Low Cost UAV Platform for Orthophoto Imaging</b>	Youness Dehbi University of Bonn, Germany <b>Automatic reasoning for UAV supported reconstruction of 3D building models</b>
11:10- 11:30	Coffee Break	

11:30 - 13:00		Parallel Sessions	
<b>UAS for Agriculture</b> 11:30 - 13:00 Audimax Session chair: Görres Grenzdörffer		<b>UAS Data fusion with Laserscanning</b> 11:30 - 13:00 Arno-Esch HS I Session chair: Wolfgang Förstner	
Ferry Bachmann, Verena V. Hafner, Ruprecht Herbst, Robin Gebbers Humboldt University of Berlin, Germany <b>Micro UAV based geo-referenced orthophoto generation in VIS+NIR for precision agriculture</b>		Gianpaolo Conte, A. Kleiner, P. Rudol, K. Korwel, M. Wzorek, P. Doherty Linköping University, Sweden <b>Performance evaluation of a light weight multi-echo LIDAR for unmanned rotorcraft applications</b>	
Anette Eltner, C. Mulsow, H.-G. Maas Dresden University of Technology, Germany <b>Quantitative Measurement of Soil Erosion from TLS and UAV data</b>		Zhu Lingli, Anttoni Jaakkola, Juha Hyyppä Finnish Geodetic Institute, Finland <b>Register UAV images to Mobile Laser Scanning for the use of 3D city modeling</b>	
Juliane Bendig, M. Willkomm, N. Tilly, M. L. Gnyp, S. Bennertz, C. Qiang, Y. Miao, V. I. S. Lenz-Wiedemann, G. Bareth University of Cologne, Germany <b>Very high resolution crop surface models (CSMs) from UAV-based stereo images for rice growth monitoring in Northeast China</b>		Armin Gruen, Huang Xianfeng, Qin Rongjun, Joao Boavida, Adriano Oliveira Artescan, Portugal <b>Joint Processing of UAV Imagery and Terrestrial Mobile Mapping System Data for Very High Resolution City Modeling</b>	
Hans-Peter Thamm, G. Menz, M. Becker, D.N. Kuria, S. Missana, D. Kohn Geo-Technic, Germany <b>The use of UAS for Assessing Agricultural Systems in an Inland Valley in Tansania in the Dry- and Wet-Season for Sustainable Agriculture and Providing Ground Truth for Terra-SAR X Data</b>		Andreas Fritz, Teja Kattenborn, Barbara Koch University of Freiburg, Germany <b>UAV-based photogrammetric point clouds - tree stem mapping in open stands in comparison to terrestrial laser scanner point clouds</b>	
13:00 - 14:00		Lunch Break	



14:00 - 15:30		Parallel Sessions	
<b>UAS for Cultural Heritage</b> 14:00 - 15:30 Audimax Session chair: Ralf Bill		<b>UAS derived DSM and DEM</b> 14:00 - 15:30 Arno-Esch HS I Session chair: Jingling Wang	
Zhe Li, Y. Li Tian Jin University, China <b>Get Optimal Point Cloud of Eaves of Sino Ancient Buildings with Mini VTOL</b>		J. J. Ruiz, L. Diaz-Mas, Francisco Perez, A. Viguria Center for Advanced Aerospace Technologies, Spain <b>Evaluating the accuracy of DEM generation algorithms from UAV imagery</b>	
Görres Grenzdörffer Rostock University, Germany <b>UAS-based automatic bird count of a common gull colony</b>		Ansgar Greiwe, R. Gehrke, V. Spreckels, A. Schlienkamp University of Applied Sciences Frankfurt am Main, Germany <b>Aspects Of DEM Generation From UAS Imagery</b>	
Paolo Fallavollita, M. Balsi, S. Esposito, M. G. Melis, M. Milanese, Luca Zappino Sapienza University of Rome, Italy <b>UAS for archaeology. New perspectives on aerial documentation</b>		Janós Treuheit, K. Jütte National Forestry Mecklenburg-Western Pomerania, Germany <b>Extraction of surface models from low-cost air pictures - A software comparison</b>	
Stefan Hautz, M. F. Buchroithner, D. A. McFarlane Dresden University of Technology, Germany <b>Gomantong Caves: Combining two different sets of UAV data with subterranean TLS data for a comprehensive 3D cave model</b>		Matthias Naumann Rostock University, Germany <b>Accuracy comparison of DSM created by UAS and terrestrial laser scanner</b>	
15:30 - 16:00		Closing Session	
Daniel Stødle, Njål T. Borch, Rune Storvold Northern Research Institute Tromsø, Norway <b>High-performance fusion of UAS sensor and image data with raster maps and topography in 3D</b>		Wolfgang Rüter-Kindel, J. Brauchle Technical University of Applied Sciences Wildau, Germany <b>The Salsa Project high-end aerial 3D camera</b>	
Senthil Kumar, A. Mohamed Rasheed, R. Krishna Kumar, Mahesh Giridharan, Ganesh Anna University, India <b>Dhaksha The Unmanned Aircraft System In Its New Avatar Automated Aerial Inspection Of India's Tallest Tower</b>		Christian Eschmann, C.-M. Kuo, C.-H. Kuo, C. Boller Fraunhofer Institute for NDT (IZFP), Germany <b>High-Resolution Multisensor Infrastructure Inspection with Unmanned Aircraft Systems</b>	