

# **25th International Laser Radar Conference 2010**

**(ILRC 25)**

**St. Petersburg, Russia  
5-9 July 2010**

**Volume 1 of 2**

**ISBN: 978-1-61782-614-6**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2010) by the International Coordination Group on Laser Atmospheric Studies (ICLAS)  
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the International Coordination Group on  
Laser Atmospheric Studies (ICLAS)  
at the address below.

International Coordination Group on Laser Atmospheric Studies (ICLAS)  
c/o Dr. Pat McCormick  
Hampton University  
23 Tyler Street  
Hampton, VA 23368

Phone: (757) 728-6867  
Fax: (757) 727-5090

Pat.mccormick@hamptonu.edu

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: curran@proceedings.com  
Web: www.proceedings.com

# VOLUME I

---

## Session 1: Advances in Lidar Components and Techniques

---

<b>S01O-01</b>	AN EYE-SAFE DIODE-LASER-BASED MICRO-PULSE DIFFERENTIAL ABSORPTION LIDAR (DIAL). <i>A.R. Nehrir, K.S. Repasky</i> .....	3
<b>S01O-02</b>	NEW POLARIZATION MEASUREMENT TECHNIQUE DEVELOPED USING THE STOKES VECTOR LIDAR EQUATION. <i>M. Hayman, J.P. Thayer, R.R. Neely III</i> .....	7
<b>S01O-03</b>	AIRBORNE DOPPLER LIDAR BASED ON IODINE FILTER. <i>Z. Liu, D. Bi, X. Song, Z. Li, J. Guo, J. Xia, S. Wu, X. Wang, Q. Yin, Y. Chen</i> .....	11
<b>S01O-04</b>	IMPROVING OCEAN-ATMOSPHERE CARBON FLUX ESTIMATES WITH LIDAR MEASUREMENTS OF OCEAN SUBSURFACE AND OCEAN-ATMOSPHERIC INTERACTION. <i>Y. Hu</i> .....	15
<b>S01O-05</b>	NOTES ON RAYLEIGH SCATTERING IN LIDAR SIGNALS. <i>M. Adam</i> .....	19
<b>S01O-06</b>	DETERMINATION OF QUARTZ CONCENTRATION IN ASIAN AND SAHARAN DUST FROM MEASUREMENTS OF QUARTZ RAMAN SCATTERING WITH LIDAR AT TWO WAVELENGTHS. <i>D. Müller, I. Mattis, B. Tatarov, D. Shin, S. Shin, Y. Noh, T. Choi, N. Chae</i> .....	23
<b>S01O-07</b>	COMBINED VISIBLE AND UV PURE ROTATIONAL RAMAN LIDAR CHANNEL FOR AIR TEMPERATURE PROFILING. <i>I. Serikov, H. Linné, F. Jansen, B. Brüggemann</i> .....	27
<b>S01O-08</b>	2-MICRON HIGH-REPETITION RATE LASER TRANSMITTER FOR BIOSPHERE-ATMOSPHERE FLUX MEASUREMENTS. <i>D. Edouart, F. Gibert, F. Le Mounier, D. Bruneau, P. Flamant</i> .....	31
<b>S01O-09</b>	END-PUMPED SOLID-STATE LASERS FOR LIDAR APPLICATIONS. <i>C. Bollig</i> .....	31
<b>S01O-10</b>	GENERALIZED K DISTRIBUTION FOR RETURN FADING SIGNALS IN COHERENT LIDARS. <i>A. Belmonte</i> .....	39
<b>S01O-11</b>	IMAGE PROCESSING FOR AUTOMATIC CLOUD DETECTION FROM LIDAR DATA. <i>A. Baglioni, M. Del Guasta</i> .....	43
<b>S01O-12</b>	MULTI-CHANNEL LIDAR SPECTROMETER FOR ATMOSPHERIC AEROSOL TYPING ON THE BASIS OF CHEMICAL SIGNATURES IN RAMAN SPECTRA. <i>B. Tatarov, N. Sugimoto, I. Matsui, D. Shin, D. Muller</i> .....	47
<b>S01P-01</b>	AIRBORNE LIDAR SIMULATOR FOR THE LIDAR SURFACE TOPOGRAPHY (LIST) MISSION. <i>A.W. Yu, M.A. Krainak, D.J. Harding, J.B. Abshire, X. Sun, J. Cavanaugh, S. Valett, L. Ramos-Izquierdo</i> .....	51
<b>S01P-02</b>	NEW INTEGRAL INVERSION TECHNIQUES OF MULTIPOSITION LIDAR PROBING. <i>A.D. Yegorov, V.M. Ignatenko, I.A. Potapova, Y.B. Rzhonsnitskaya</i> .....	55
<b>S01P-03</b>	LIDAR RATIO ESTIMATION USING A TWO-POINT CALIBRATION IN A TURBID LAYER ALOFT. <i>F. Rocadenbosch, M. Nadzri, Md. Reba, M. Sicard, S. Tomás, D. Kumar</i> .....	59
<b>S01P-04</b>	WATER VAPOR DIFFERENTIAL ABSORPTION LIDAR MEASUREMENTS AT 935 NM USING A ND:YGG LASER. <i>A. Fix, J. Löhring, A. Meissner, D. Hoffmann, G.Ehret, M. Alpers</i> .....	63
<b>S01P-05</b>	MESOSPHERIC TEMPERATURE AND AEROSOL SOUNDINGS DURING DAY AND NIGHT: SPECTRAL AND SPATIAL FILTERING TECHNIQUES. <i>M. Gerding, J. Höffner, M. Kopp, R. Eixmann, F. Lübken</i> .....	67

<b>S01P-06</b>	DETERMINATION OF THE SMOKE-PLUME HEIGHTS WITH SCANNING LIDAR USING ALTERNATIVE FUNCTIONS FOR ESTABLISHING THE ATMOSPHERIC HETEROGENEITY LOCATIONS. <i>V.A. Kovalev, A. Petkov, C. Wold, W.M. Hao</i> .....	71
<b>S01P-07</b>	A REDESIGNED RAMAN LIDAR FOR CLOUD AND AEROSOL PROFILING IN THE ARCTIC. <i>A. Hoffmann, C. Ritter, R. Neuber, I. Beninga, J. Schmid</i> .....	75
<b>S01P-08</b>	OVERLAP FUNCTION OF A LIDAR WITH A FIELD STOP SHIFTED FROM THE FOCAL PLANE. <i>A. Malinka, J. Schmidt</i> .....	79
<b>S01P-09</b>	A HIGH ALTITUDE CLOUD-AEROSOL TRANSPORT LIDAR SYSTEM. <i>J.E. Yorks, M.J. McGill, D.L. Hlavka, W.D. Hart</i> .....	82
<b>S01P-10</b>	FEASIBILITY ANALYSIS OF A NOVEL SYSTEM FOR AUTOMATIC BEAM ALIGNMENT AND SPATIAL MODE ANALYSIS IN RAYLEIGH AND RESONANCE LIDAR. <i>J.A. Smith, X. Chu, J. Friedman</i> .....	86
<b>S01P-11</b>	LIDARS IN 3D AIRBORNE TERRESTRIAL MAPPING AND GROUND-BASED IMAGING. <i>A. Ulitsky</i> .....	90
<b>S01P-12</b>	ANALYTICAL ERROR ANALYSIS SCHEME TO BE USED IN THE INVERSION OF MULTIWAVELENGTH RAMAN LIDAR DATA: FIRST RESULTS FOR MICROPHYSICAL PARAMETERS. <i>E. Chemyakin, A. Kolgotin, D. Müller</i> .....	94
<b>S01P-13</b>	MOBILE DOPPLER LIDAR WITH INERTIAL NAVIGATION SYSTEM FOR MOVING MEASUREMENTS. <i>B. Liu, Z. Liu, X. Song, S. Wu, D. Bi, X. Wang, Q. Yin, Y. Chen</i> .....	98
<b>S01P-14</b>	TDLs SYSTEM FOR REMOTE DETECTION OF HF IN OPEN ATMOSPHERE ON THE BASE NEAR-INFRARED DIODE LASERS. <i>Sh.Sh. Nabiev, G.Yu. Grigoriev, A.I. Nadezhdinskii, Ya.Ya. Ponurovskii</i> .....	102
<b>S01P-15</b>	LIDAR BACKSCATTERING SIGNAL DENOISING BASED ON INTRINSIC MODE FUNCTIONS DECOMPOSITION. <i>P. Liu, Y. Zhang, S. Chen, W. Kong, T. Lan, Y. Wang, Z. Qiu, G. Ni</i> .....	106
<b>S01P-16</b>	PROFILES OF MICROPHYSICAL PARTICLE PROPERTIES DERIVED FROM INVERSION WITH TWO-DIMENSIONAL REGULARIZATION OF MULTIWAVELENGTH RAMAN LIDAR DATA: EXPERIMENT. <i>A. Kolgotin, D. Muller, I. Mattis, M. Tesche, A. Petzold, B. Weinzierl, M. Fiebig</i> .....	110
<b>S01P-17</b>	PERIODICALLY POLED NONLINEAR CRYSTALS FOR PARAMETRIC LIGHT GENERATION. <i>P.P. Geiko, S.M. Shandarov</i> .....	114
<b>S01P-18</b>	DEVELOPMENT OF RAYLEIGH LIDAR FOR CLEAR AIR TURBULENCE DETECTION. <i>J. Porteneuve, T. Gaudio, A. Hauchecorne, C. Cot, F. Dalaudier, J.M. Perrin, C. Planchat, V. Rialland, J.M. David, C. Nicolas, L. Lombard, A. Dolfi-Bouteyre</i> .....	118
<b>S01P-19</b>	315 MJ, 2-MM DOUBLE-PULSED COHERENT DIFFERENTIAL ABSORPTION LIDAR TRANSMITTER FOR ATMOSPHERIC CO <sub>2</sub> SENSING. <i>M. Petros, J. Yu, B. Trieu, Y. Bai, G. Koch, S. Chen, P. Petzar, U.N. Singh, M.J. Kavaya, J. Beyon</i> .....	122
<b>S01P-20</b>	DEVELOPMENT OF A COHERENT DIFFERENTIAL ABSORPTION LIDAR FOR RANGE RESOLVED ATMOSPHERIC CO <sub>2</sub> MEASUREMENTS. <i>J. Yu, M. Petros, S. Chen, Y. Bai, P.J. Petzar, B.C. Trieu, G.J. Koch, J.J. Beyon, M.J. Kavaya, U.N. Singh</i> .....	126
<b>S01P-21</b>	DEMONSTRATION OF A HIGH POWER 1.5344 MICROMETER OUTPUT ND:YAG PUMPED OPO. <i>M.D. Wojcik, R.J. Foltynowicz, G.W. Lemire, W.L. Brown, M.S. Marshall</i> .....	130

<b>S01P-22</b>	LASER COMPLEXES FOR THE SOLUTION OF THE INVERSE PROBLEM OF ECOLOGICAL MONITORING. <i>V. Donchenko, A. Boreisho, A. Morozov, I. Melnikova</i> .....	131
<b>S01P-23</b>	UNIFORM DATA ACQUISITION MODULES FOR LIDAR MEASUREMENTS. <i>A. Slesar, S. Denisov, A. Chaikovsky, F. Osipenko, M. Korol</i> .....	134
<b>S01P-24</b>	A NEW LIDAR FACILITY TO INVESTIGATE THE MIDDLE ATMOSPHERE OVER BUCKLAND PARK, AUSTRALIA, 35° S. <i>J. Lautenbach, I.M. Reid, D.J. Ottaway, D.J. Hosken, A.D. MacKinnon, J. Munch, N. Simakov, P.J. Veitch</i> .....	136
<b>S01P-25</b>	LIDAR CALIBRATION AT 1064 nm CHANNEL USING COMBINED CIRRUS AND LOW ALTITUDE WATER CLOUDS. <i>Y. Wu, C. Gan, B.R. Herman, B. Gross, F. Moshary, S. Ahmed</i> .....	140
<b>S01P-26</b>	OPTICAL PROPERTIES OF BIOMASS BURNING AEROSOLS IN RESPECT TO THEIR SOURCE DISTANCE OVER ATHENS, GREECE USING A 6-WAVELENGTH RAMAN LIDAR SYSTEM. <i>G. Tsaknakis, R.E. Mamouri, A. Papayannis, V. Amiridis, P. Kokkalis</i> .....	144
<b>S01P-27</b>	A HIGH SPECTRAL RESOLUTION LIDAR FOR THE DEPARTMENT OF ENERGY. <i>I. Rازenkov, E. Eloranta, Il. Rازenkov, M. Lawson, J. Garcia</i> .....	148
<b>S01P-28</b>	CHARACTERIZATION OF A SINGLE PHOTON AVALANCHE DIODE RESPONSE UNDER OVERLOAD CONDITIONS. <i>Il. Rازenkov, E. Eloranta</i> .....	151
<b>S01P-29</b>	MOBILE SCANNING UV AEROSOL-FLUORESCENT LIDAR. <i>M.M. Makogon, Yu.S. Balin, A.V. Klimkin, G.P. Kokhanenko, A.N. Kurjak, M.M. Novoselov, Yu.N. Ponomarev, O.A. Rynkov, G.V. Simonova</i> .....	155
<b>S01P-30</b>	THE POSSIBILITIES OF REMOTE SENSING OF CHEMICAL WARFARE AGENTS WITH A CO <sub>2</sub> LIDAR BY DIFFERENTIAL ABSORPTION METHOD. <i>S.M. Bobrovnikov, P.P. Geiko</i> .....	159
<b>S01P-31</b>	LIDAR AT POLISH POLAR STATION, INSTRUMENT DESIGN AND FIRST RESULTS. <i>A. Pietruczuk, G. Karasiński</i> .....	163
<b>S01P-32</b>	LIGHT SOURCE MODULE FOR LED LIDAR. <i>M. Koyama, T. Shiina</i> .....	166
<b>S01P-33</b>	SOFTWARE DEVELOPMENT TOOL FOR LIDAR SYSTEM CONSTRUCTION AND PERFORMANCE CHECKING. <i>P. Kokkalis, A. Papayannis</i> .....	N
<b>S01P-34</b>	ALTOCUMULUS CLOUD AND LOW-ALTITUDE ATMOSPHERE MEASUREMENT BY IN-LINE TYPED MICROPULSE LIDAR. <i>A. Nakago, T. Shiina</i> .....	174
<b>S01P-35</b>	COMPACT RAMAN LIDAR FOR HYDROGEN GAS LEAK DETECTION. <i>Y. Noguchi, H. Miya, T. Shiina, K. Noguchi, T. Fukuchi, I. Asahi, S. Sugimoto, Y. Shimamoto, H. Ninomiya</i> .....	178
<b>S01P-36</b>	LIDARS ON THE BASIS OF HARMONICS OF Nd:YAG LASER WITH SRS CONVERSION IN HYDROGEN FOR SENSING OF ATMOSPHERIC AEROSOL AND OZONE. <i>A.P. Makeev, V.D. Burlakov, S.I. Dolgii, A.V. Nevzorov, O.V. Kharchenko, O.A. Romanovskii</i> .....	182
<b>S01P-37</b>	RECEIVING CHARACTERISTICS IN HIGH PRECISION POLARIZATION LIDAR. <i>T. Shiina, D. Umaki, K. Noguchi, T. Fukuchi</i> .....	186
<b>S01P-38</b>	TEACHING LIDAR INVERSIONS. <i>G.G. Gimmetstad, D.W. Roberts</i> .....	190
<b>S01P-39</b>	SUPRAGLACIAL LAKE WATER DEPTH MEASUREMENT USING MODULATED POLARIZATION LIDAR. <i>S. Mitchell, J. Thayer, M. Hayman, J. Adler, L. Safari</i> .....	192

<b>S01P-40</b>	STABLE COAXIAL LIDAR TRANSCEIVER. <i>Il. Razenkov, E. Eloranta, I. Razenkov</i> .....	195
<b>S01P-41</b>	A NEW GENERATION OF MOBILE RAMAN LIDAR. <i>P. Royer, P. Chazette, M. Lardier, K. Butter, L. Sauvage</i> .....	199
<b>S01P-42</b>	DEVELOPMENT OF THE GLOBAL OZONE LIDAR DEMONSTRATOR (GOLD) INSTRUMENT FOR DEPLOYMENT ON THE NASA GLOBAL HAWK. <i>J.W. Hair, E.V. Browell, T. McGee, C. Butler, M. Fenn, S. Ismail, A. Notari, J. Collins, C. Cleckner, C. Hostetler</i> .....	203
<b>S01P-43</b>	BACKSCATTER AND COLUMN HEIGHT ESTIMATES FROM A PULSED AIRBORNE CO <sub>2</sub> LIDAR. <i>A. Amediek, X. Sun, J.B. Abshire, H. Riris, W.E. Hasselbrack, G.R. Allan</i> .....	207
<b>S01P-44</b>	OPTIMIZATION OF A 2-MICRON LASER FREQUENCY STABILIZATION SYSTEM FOR A DOUBLE-PULSE CO <sub>2</sub> DIFFERENTIAL ABSORPTION LIDAR. <i>S. Chen, J. Yu, Y. Bai, G.J. Koch, M. Petros, B.C. Trieu, P.J. Petzar, U.N. Singh, M.J. Kavaya</i> .....	211
<b>S01P-45</b>	MULTI-WAVELENGTH SCANNING RAMAN LIDAR DEVELOPMENT AT CEILAP (CITEFA-CONICET). <i>J.V. Pallotta, P.R. Ristori, F. Gonzalez, L.A. Otero, R.L. D'Elia, E.E. Pawelko, M. Proyetti, A. Etchegoyen, E.J. Quel</i> .....	215
<b>S01P-46</b>	THE REMOTE ELEMENT ANALYSIS OF SUBSTANCES ON BASIS OF STIMULATED RESONANCE ELECTRONIC RAMAN SCATTERING ON EXCITED ATOMIC STATES OF BROADBAND PROBING PULSE. <i>N.A. Iskanderov, V.A.Kudrjashov</i> .....	219
<b>S01P-47</b>	TIME-DOMAIN SPECTROSCOPY IN METHOD OF DIFFERENTIAL ABSORPTION OF BROADBAND PULSE. <i>N.A. Iskanderov, T.N. Makarov</i> .....	221
<b>S01P-48</b>	TRANSMITTER OF THE SCANNING WATER VAPOR DIAL OF THE UNIVERSITY OF HOHENHEIM. <i>G. Wagner, V. Wulfmeyer, A. Behrendt, F. Späth</i> .....	223
<b>S01P-49</b>	2-MICRON LASER DEVELOPMENTS FOR CO <sub>2</sub> AND WIND MEASUREMENTS. <i>K. Mizutani, S. Ishii, T. Itabe, T. Aoki, A. Sato, K. Asai, H. Fukuoka, T. Ishikawa, T. Kase, T. Shiina</i> .....	227
<b>S01P-50</b>	INJECTION SEEDERS BASED ON DFB LASERS FOR DIAL OF WATER VAPOR AT 820 nm AND CO <sub>2</sub> AT 1580 nm. <i>F. Späth, G. Wagner, H. Wizemann, A. Behrendt, V. Wulfmeyer</i> .....	231
<b>S01P-51</b>	DIFFRACTION MODEL FOR THE LIDAR TRANSMITTER. <i>I. Razenkov, E. Eloranta, Il. Razenkov</i> .....	235
<b>S01P-52</b>	MULTIWAVELENGTH AEROSOL RAMAN LIDAR FOR OPTICAL AND MICROPHYSICAL AEROSOL TYPING OVER EAST ASIA. <i>D.H. Shin, Y.M. Noh, B. Tatarov, S.K. Shin, Y.J. Kim, D. Müller</i> .....	239
<b>S01P-53</b>	QPM-OPGBASED HIGH POWER 1.6 μm LASER TRANSMITTER FOR CO <sub>2</sub> -DIAL. <i>Y. Shibata, C. Nagasawa, M. Abo</i> .....	243
<b>S01P-54</b>	ACHROMATIC LASER BEAM EXPANDER FOR IR AND UV SPECTRAL RANGES. <i>G.V. Simonova, G.P. Kochanenko, M.M. Makogon, Yu.N. Ponomarev, O.A. Rynkov</i> .....	247
<b>S01P-55</b>	COMPACT LIDAR SYSTEMS AND THEIR APPLICATIONS. <i>D.N. Vasiliev, S.Yu. Strakhov</i> .....	250

<b>S01P-56</b>	WIDEBAND CO LASER IN PROBLEMS OF LASER SENSING OF MINOR GASEOUS COMPONENTS IN THE ATMOSPHERE. <i>A.A. Ionin, Yu.M. Klimachev, A.Yu. Kozlov, A.A. Kotkov, G.G. Matvienko, O.A. Romanovskii, L.V. Seleznev, D.V. Sinitsyn, O.V. Kharchenko, S.V. Yakovlev</i> .....	251
<b>S01P-57</b>	ANALYSIS OF SYSTEMATIC ERRORS OF LIDAR GAS ANALYSIS IN THE ATMOSPHERE BY THE DIFFERENTIAL ABSORPTION METHOD. <i>O.A. Romanovskii</i> .....	255
<b>S01P-58</b>	FEMTOSECOND LASER RADIATION FREQUENCY CONVERTERS FOR LIDAR MONITORING OF THE ATMOSPHERE. <i>P.P. Geiko, V.E. Privalov, O.A. Romanovskii, O.V. Kharchenko</i> .....	259

---

## Session 2: Atmospheric Winds and Turbulence

---

<b>S2O-01</b>	FLIGHT TESTING OF THE TWILITE AIRBORNE MOLECULAR DOPPLER LIDAR. <i>B. Gentry, M. McGill, R. Machan, D. Reed, R. Cargo, D.J. Wilkens, W. Hart, J. Yorks, S. Scott, S. Wake, M. Hardesty, A. Brewer</i> .....	265
<b>S2O-02</b>	SET-UP OF A GROUND-BASED RAYLEIGH LIDAR TO DETECT CLEAR AIR TURBULENCE. <i>A. Hauchecorne, C. Cot, F. Dalaudier, J. Porteneuve, T. Gaudo, R. Wilson, C. Cénac, C. Laqui, P. Keckhut, J.M. Perrin, A. Dolfi, N. Cézard, L. Lombard, C. Besson</i> .....	269
<b>S2O-03</b>	COMPACT, HIGH ENERGY 2-MICRON COHERENT DOPPLER WIND LIDAR DEVELOPMENT FOR NASA'S FUTURE 3-D WINDS MEASUREMENT FROM SPACE. <i>U.N. Singh, G. Koch, J. Yu, M. Petros, J. Beyon, M.J. Kavaya, B. Trieu, S. Chen, Y. Bai, P. Petzar, E.A. Modlin, B.W. Barnes, B.B. Demoz</i> .....	273
<b>S2O-04</b>	COHERENT DOPPLER LIDAR MEASUREMENTS OF THE WIND VELOCITY VECTOR AT LOW SIGNAL-TO-NOISE RATIO. <i>V.A. Banakh, W.A. Brewer, Y.L. Pichugina, I.N. Smalikho</i> .....	277
<b>S2O-05</b>	WIND FIELDS MEASURED USING MULTI-BEAM COMMERCIAL AEROSOL LIDAR. <i>G.K. Schwemmer, M. Banta, A. Achey, S. Lee, N. Mehta, M. Yakshin, J. Blango</i> .....	281
<b>S2O-06</b>	OFFSHORE WIND MEASUREMENTS BY DOPPLER LIDAR. <i>Y.L. Pichugina, R.M. Banta, W.A. Brewer, S.P. Sandberg, M. Hardesty</i> .....	282
<b>S2O-07</b>	OPERATIONAL OBSERVATIONS OF THREE DIMENSIONAL WIND WITH INCOHERENT DOPPLER WIND LIDAR. <i>Z. Liu, S. Wu, H. Li, Z. Wang, D. Bi, R. Li, B. Liu, Z. Li</i> .....	286
<b>S2P-01</b>	WIND PROFILES WITH AN ELASTIC BACKSCATTER LIDAR USING AUTO AND CROSS CORRELATION TECHNIQUES. <i>B. Morley, W. Brown, S. Spuler</i> .....	290
<b>S2P-02</b>	EXPERIMENTAL WIND PROFILE RECONSTRUCTION FROM TURBULENT INTENSITY FLUCTUATIONS OF LASER BEAM. <i>D.A. Marakasov, A.L. Afanasiev, V.A. Banakh, A.P. Rostov</i> .....	293
<b>S2P-03</b>	AUTOMATED AND FULL-AZIMUTH-SCANNED WIND MEASUREMENTS IN PPI AND RHI MODES WITH A MOBILE DOPPLER WIND LIDAR BASED ON IODINE FILTERS. <i>Z. Wang, Z. Liu, S. Wu, B. Liu, Z. Li, X. Chu, W. Huang</i> .....	297
<b>S2P-04</b>	CLEAR AIR TURBULENCE DETECTION AND CHARACTERISATION IN THE DELICAT AIRBORNE LIDAR PROJECT. <i>P. Vrancken, M. Wirth, D. Rempel, G. Ehret, A. Dolfi-Bouteyre, L. Lombard, T. Gaudo, D. Rees, H. Barny, P. Rondeau</i> .....	301
<b>S2P-05</b>	APPLICATIONS OF A SHORT-RANGE LIDAR AT THE HONG KONG INTERNATIONAL AIRPORT. <i>P.W. Chan</i> .....	305

<b>S2P-06</b>	FORECASTING HEADWIND PROFILES AND LOW LEVEL WINDSHEAR USING LIDAR VELOCITY DATA AND A CHAOTIC OSCILLATORY-BASED NEURAL NETWORK. <i>P.W. Chan, K.M. Kwong</i> .....	309
<b>S2P-07</b>	DOPPLER WIND LIDAR MEASUREMENTS OF THE LAND AND SEA BREEZE IN QINGDAO COASTAL AREA. <i>S. Wu, Z. Liu, H. Li, Z. Wang, D. Bi, R. Li, B. Liu, Z. Li</i> .....	313
<b>S2P-08</b>	HORIZONTAL MOTION VECTORS FROM CROSS-CORRELATION: FIRST APPLICATION TO EYE-SAFE AEROSOL LIDAR DATA FROM CHATS. <i>S.D. Mayor</i> .....	317
<b>S2P-09</b>	DEVELOPMENT OF A COHERENT DOPPLER LIDAR TO MEASURE WINDSHEAR. <i>J. Liu, X. Zhu, J. Zhou, F. Yang, Y. He, W. Chen</i> .....	321
<b>S2P-10</b>	A WIND LIDAR COMPARISON EXPERIMENT AT THE HOWARD UNIVERSITY BELTSVILLE ATMOSPHERIC OBSERVATORY. <i>B. Demoz, B. Gentry, T. Bacha, K. Vermeesch, H. Chen, D. Venable, G. Koch, U. Singh, M. Boquet, L. Sauvage, E. Joseph</i> .....	324
<b>S2P-11</b>	ATMOSPHERIC WIND SPEED ESTIMATION FROM LASER BEAM IMAGE CENTROID MEASUREMENTS. <i>A.L. Afanasiev, A.V. Petrakov, A.P. Rostov</i> .....	328
<b>S2P-12</b>	METHOD OF TRACING ON ENERGY FLUX STREAMLINES IN AN OPTICAL WAVE PROPAGATING IN TURBULENT ATMOSPHERE THROUGH GRADIENT OF MUTUAL COHERENCE FUNCTION. <i>D.A. Marakasov, D.S. Rytchkov</i> .....	332
<b>S2P-13</b>	CROSS-CORRELATION TECHNIQUE FOR WIND VELOCITY OPTICAL MEASUREMENT ALONG THE ATMOSPHERIC PATH. <i>P.A. Konyaev</i> .....	336
<b>S2P-14</b>	1.5 $\mu\text{m}$ INCOHERENT DOPPLER LIDAR USING A FBG FILTER. <i>Y. Shibata, C. Nagasawa, M. Abo, M. Tsukamoto, T. Honda</i> .....	338
<b>S2P-15</b>	DEVELOPMENT OF A MOLECULAR DOPPLER WIND LIDAR. <i>D.J. Hui</i> .....	341
<b>S2P-16</b>	TWO-COLOR ADAPTIVE PHASE CORRECTION. NUMERIC ASSESSMENT OF EFFICIENCY. <i>V.A. Sennikov, P.A. Konyaev, V.P. Lukin</i> .....	351
<b>S2P-17</b>	POSITION OF THE SHARP IMAGE PLANE FOR LASER BEAMS IN TURBULENT ATMOSPHERE. <i>G.A. Filimonov, V.V. Dudorov, V.V. Kolosov</i> .....	354
<b>S2P-18</b>	ANISOPLANATIC TURBULENCE COMPENSATION IN INCOHERENT IMAGING. <i>V.V. Dudorov, V.V. Kolosov</i> .....	357
<b>S2P-19</b>	CALCULATION OF OROGRAPHIC WAVE PARAMETERS FOR ATMOSPHERIC APPLICATIONS. <i>A.V. Koval, N.M. Gavrilov</i> .....	361

---

### Session 3: Observations of Boundary Layer Structure and Dynamics

---

<b>S30-01</b>	INTERNAL GRAVITY WAVES CONVECTIVELY FORCED IN THE ATMOSPHERIC RESIDUAL LAYER DURING THE MORNING TRANSITION. <i>F. Gibert, N. Arnault, J. Cuesta, P.H. Flamant, D. Edouart</i> .....	36
<b>S30-02</b>	CHARACTERIZATION OF VERTICAL-VELOCITY FIELDS AT AND BELOW CUMULUS CLOUD BASE WITH DOPPLER LIDAR. <i>R. Engelmann, A. Ansmann, J. Fruntke</i> .....	369
<b>S30-03</b>	OBSERVATION OF BL DYNAMICS WITH A LONG RANGE WIND LIDAR. <i>M. Boquet, J.P. Cariou, S. Lolli, L. Sauvage, R. Parmentier, Thomas Nostrand</i> .....	373
<b>S30-04</b>	DENSE MOTION ESTIMATION FROM EYE-SAFE AEROSOL LIDAR DATA. <i>P. Dérian, P. Héas, É. Mémin, S.D. Mayor</i> .....	377



<b>S3O-05</b>	AIRBORNE WATER VAPOUR AND WIND LIDAR MEASUREMENTS OF LATENT HEAT FLUXES DURING COPS 2007. <i>C. Kiemle, M. Wirth, A. Fix, S. Rahm</i> .....	381
<b>S3O-06</b>	TURBULENT ATMOSPHERIC BOUNDARY LAYER EVAPORATION (TABLE) EXPERIMENT: PRELIMINARY RESULTS. <i>M. Froidevaux, C. Higgins, V. Simeonov, I. Serikov, H. van den Bergh, R. Calhoun, P. Ristori, E. Paradyjak, M. Parlange</i> .....	385
<b>S3O-07</b>	SOUNDING OF AEROSOLS, CLOUDS AND AIR QUALITY USING A SUPER SPACE-TIME RESOLUTION POLARIMETRIC LIDAR. <i>P.C.S. Devara, M.G. Manoj, Y. Jaya Rao, P. Ernest Raj, S.M. Sonbawne, K.K. Dani</i> .....	389
<b>S3P-01</b>	FIRST REGULAR MULTI-WAVELENGTH RAMAN LIDAR MEASUREMENTS IN PORTUGAL – A CASE STUDY. <i>J. Preißler, F. Wagner, A.M. Silva</i> .....	393
<b>S3P-02</b>	LIDAR AND CEILOMETER BACKSCATTER COEFFICIENT AND SIGNAL-TO-NOISE RATIO INTERCOMPARISON. <i>B. Heese, D. Althausen, A. Ansmann, H. Flentje, S. Frey</i> .....	397
<b>S3P-03</b>	AN AUTOMATIC PLANETARY BOUNDARY LAYER HEIGHT DETECTION WITH A COMPACT UV AEROSOL LIDAR. <i>L. Sauvage, S. Loaec, S. Lolli, M. Boquet, A. El Filali</i> .....	401
<b>S3P-04</b>	DEVELOPMENT OF PM <sub>2.5</sub> ESTIMATES USING STATISTICAL CLIMATOLOGY OF AEROSOL PROPERTIES AND LIDAR PBL HEIGHTS. <i>L. Cordero, C. Gan, Y. Wu, I. Gladkova, B. Gross, F. Moshary, S. Ahmed</i> .....	404
<b>S3P-05</b>	COHERENT STRUCTURE IN MOUNTAIN ATMOSPHERIC BOUNDARY LAYER. <i>V.V. Nosov, V.M. Grigoriev, P.G. Kovadlo, V.P. Lukin, E.V. Nosov, A.V. Torgaev</i> .....	408
<b>S3P-06</b>	TURBULENT SCALES IN THE ANISOTROPIC BOUNDARY LAYER. <i>V.V. Nosov, V.P. Lukin, A.V. Torgaev</i> .....	412
<b>S3P-07</b>	STUDY OF THE ATMOSPHERIC BOUNDARY LAYER AT REUNION ISLAND USING LIDAR OBSERVATIONS AND MESO-SCALE MODELING. <i>D. LeSouëf, F. Gheusi, P. Chazette, R. Delmas</i> .....	413
<b>S3P-08</b>	JOINT LIDAR AND SODAR OBSERVATION OF THE BOUNDARY LAYERS. <i>Yu.S. Balin, A.P. Kamardin, G.P. Kokhanenko, I.V. Nevzorova, S.L. Odintsov</i> .....	419
<b>S3P-09</b>	DETERMINATION OF BOUNDARY LAYER HEIGHT IN MANILA FROM TWO WAVELENGTH LIDAR MEASUREMENT USING NORMALIZED CONCENTRATION GRADIENT METHOD. <i>M.C.D. Galvez, E.P. Macalalad, E.A. Vallar</i> .....	423
<b>S3P-10</b>	LIDAR INVESTIGATIONS OF THE AEROSOL FIELDS OF THE ATMOSPHERE IN ARID ZONE OF GOBI DESERT. <i>Yu.S. Balin, G.P. Kokhanenko, I.E. Penner, S.V. Samoilova</i> .....	427

---

#### **Session 4: Aerosol Characterization and Direct and Indirect Effects on Climate**

---

<b>S4O-01</b>	RADIATIVE FORCING ASSOCIATED WITH A SPRINGTIME CASE OF BODÉLÉ AND SUDAN DUST TRANSPORT OVER WEST AFRICA 10 YEARS, CURRENT STATUS, AND FUTURE PLANS. <i>C. Lemaître, C. Flamant, J. Cuesta, J.-C. Raut, P. Chazette, P. Formenti, J. Pelon</i> .....	433
<b>S4O-02</b>	MULTI WAVELENGTH RAMAN AEROSOL OBSERVATION OF SAHARAN AND PATAGONIAN DUST ABOARD THE RESEARCH VESSEL POLARSTERN DURING ITS MERIDIONAL CRUISE ANT-26/1. <i>T. Kanitz, D. Althausen, R. Engelmann, H. Baars, A. Macke</i> .....	437

<b>S4O-03</b>	RAMAN LIDAR OBSERVATIONS OF A SAHARAN DUST OUTBREAK EVENT: CHARACTERIZATION OF THE DUST OPTICAL PROPERTIES AND DETERMINATION OF PARTICLE SIZE AND MICROPHYSICAL PARAMETERS. <i>P. Di Girolamo, D. Summa, R. Bhawar, T. Di Iorio, M. Cacciani, I. Veselovskii, A. Kolgotin, O. Dubovik</i> .....	441
<b>S4O-04</b>	VOLCANIC AEROSOL LAYERS OBSERVED WITH MULTI-WAVELENGTH RAMAN LIDAR OVER EUROPE SINCE SUMMER 2008. <i>I. Mattis, P. Seifert, D. Müller, M. Tesche, A. Hiebsch, T. Kanitz, J. Schmidt, F. Finger, A. Ansmann, U. Wandinger</i> .....	445
<b>S4O-05</b>	AN INTEGRATED ANALYSIS OF SPHERICAL AEROSOL DISTRIBUTION IN EASTERN ASIA BASED ON GROUND/SPACE-BASED LIDAR AND A CHEMICAL TRANSPORT MODEL. <i>Y. Hara, I. Uno, A. Shimizu, N. Sugimoto, I. Matsui, J. Kurokawa, T. Ohara, Z. Liu, Y. Zhang, X. Liu, Z. Wang</i> .....	449
<b>S4O-06</b>	DEPOLARIZATION LIDAR AT SUMMIT, GREENLAND FOR THE DETECTION OF CLOUD PHASE AND STRATOSPHERIC AEROSOLS. <i>R.R. Neely III, J.P. Thayer, R.M. Hardesty, M. Hayman, M. O'Neill, W. Eberhard, R.J. Alvarez, R. Marchbanks, S. Sandberg</i> .....	453
<b>S4O-07</b>	BACKSCATTERING LINEAR DEPOLARIZATION RATIO MEASUREMENT OF MINERAL DUST, SEA SALT, AND AMMONIUM SULFATE PARTICLES GENERATED IN A LABORATORY CHAMBER. <i>T. Sakai, T. Nagai, Y. Zaizen</i> .....	457
<b>S4O-08</b>	MULTI-WAVELENGTH POLARIZATION RAMAN LIDAR MEASUREMENTS OF DUST AND SMOKE AT CAPE VERDE DURING SAMUM-2. <i>M. Tesche, A. Ansmann, D. Althausen, D. Müller, V. Freudenthaler, S. Groß</i> .....	461
<b>S4O-09</b>	33 YEARS OF STRATOSPHERIC AEROSOL MEASUREMENTS AT GARMISCHPARTENKIRCHEN (1976–2010). <i>T. Trickl, H. Giehl, H. Jäger, M. Fromm</i> .....	465
<b>S4O-10</b>	AEROSOL VERTICAL DISTRIBUTION EFFECTS ON RADIATIVE BUDGET AND HEATING RATE VERTICAL PROFILES: STUDY CASE. <i>A.M. Tafuro, S. Kinne, V. Bellantone, P. Burlizzi, M.R. Perrone</i> .....	469
<b>S4O-11</b>	STRATOSPHERIC AEROSOL LAYERS OVER SOUTHERN ITALY DURING THE SUMMER OF 2009: LIDAR OBSERVATIONS AND MODEL COMPARISON. <i>G. D'Amico, A. Amodeo, A. Boselli, A. Giunta, F. Madonna, L. Mona, G. Pappalardo, J. Haywood, A. Jones, N. Bellouin, P. Telford</i> .....	473
<b>S4P-01</b>	DUST STORMS IMPACT ON RADIATIVE PROPERTIES OF THE ATMOSPHERE AT FAR EAST REGION. <i>A.N. Pavlov, K.A. Shmirko, S.Yu. Stolyarchuk, A.Yu. Mayor, O.A. Bukin</i> .....	477
<b>S4P-02</b>	REFINEMENT OF DUAL-WAVELENGTH AEROSOL RETRIEVAL MODELS THROUGH ANALYSIS OF HIGH SPECTRAL RESOLUTION LIDAR DATA FROM THE TEXAQS/GOMACCS CAMPAIGN. <i>C. McPherson, J. Reagan, C. Hostetler, R. Ferrare, J. Hair</i> .....	481
<b>S4P-03</b>	AEROSOLS AND CLOUDS STUDIES DURING WINTER USING INDIGENOUSLY DEVELOPED MICRO PULSE LIDAR. <i>R. Maurya, P.K. Dubey, A. Kumar, B.C. Arya, S.L. Jain</i> .....	483
<b>S4P-04</b>	ATMOSPHERIC AEROSOL LOAD MORPHOLOGICAL CLASSIFICATION AND RETRIEVED VISIBILITY BASED ON LIDAR BACKSCATTER MEASUREMENT. <i>M. Tesfaye, V. Sivakumar, G. Mengistu, J. Botai, A. Sharma, C. Bollig, C.J. deW. Hannes Rautenbach</i> .....	487

<b>S4P-05</b>	FORECASTING OF AEROSOL EXTINCTION AT MARINE AND COASTAL ENVIRONMENT. <i>G.A. Kaloshin, S.A. Shishkin</i> .....	491
<b>S4P-06</b>	OPTICAL PROPERTIES OF MARINE AEROSOLS, SAHARAN DUST, AND DUST AND BIOMASS BURNING AEROSOLS-LIDAR MEASUREMENTS DURING SAMUM 2. <i>S. Gross, V. Freudenthaler, M. Tesche, D. Althausen, M. Wiegner</i> .....	496
<b>S4P-07</b>	ANALYSIS OF SPATIOTEMPORAL DYNAMICS OF AEROSOL OPTICAL DEPTH ACCORDING TO SATELLITE AND LIDAR DATA IN PRIMORSKY KRAI DURING SPRING 2009. <i>S.V. Afonin, M.V. Engel, A.N. Pavlov, K.A. Shmirko, S.Yu. Stolyarchuk, O.A. Bukin</i> .....	500
<b>S4P-08</b>	VERTICAL PROFILES OF PM10 CONCENTRATIONS DERIVED FROM MOBILE LIDAR MEASUREMENTS IN THE FRAMEWORK OF THE MEGAPOLI EXPERIMENT. <i>P. Royer, P. Chazette, J.-C. Raut</i> .....	504
<b>S4P-09</b>	VERTICAL CHARACTERIZATION OF DUST INTRUSIONS: SYNERGETIC GROUND-BASED LIDAR AND AIRBORNE MEASUREMENTS. <i>C. Cordoba-Jabonero, J. Andrey, M. Sorribas, J.A. Adame, O. Serrano, V. Cachorro, M. Gil, B. de la Morena</i> .....	508
<b>S4P-10</b>	RETRIEVAL OF DUST PARTICLE PARAMETERS FROM MULTI-WAVELENGTH LIDAR MEASUREMENTS USING MODEL OF RANDOMLY ORIENTED SPHEROIDS. <i>I. Veselovskii, O. Dubovik, A. Kolgotin, T. Lapyonok, P. Di Girolamo, D. Summa, D.N. Whiteman, M. Mishchenko, D. Tanré</i> .....	512
<b>S4P-11</b>	AEROSOL-LAYER PROPERTY STUDIES BY POLARIZATION LIDAR AND SKY-RADIOMETER OVER HEFEI, CHINA IN SPRING. <i>Z. Wang, D. Liu, D. Wu, C. Xie, J. Zhou, Y. Wang</i> .....	516
<b>S4P-12</b>	RETRIEVAL OF TIME-SEQUENCES OF PARTICLE PARAMETERS FROM MULTI-WAVELENGTH LIDAR MEASUREMENTS USING PRINCIPAL COMPONENT ANALYSIS. <i>I. Veselovskii, A. Kolgotin, M. Korenskiy, V. Griaznov, D.N. Whiteman, K. Allakhverdiev, F. Huseyinoglu, N. Volkov</i> .....	520
<b>S4P-13</b>	STATISTICAL CHARACTERISTICS OF ATMOSPHERE AEROSOLS ACCORDING TO COMPLEX AEROSOL EXPERIMENT AT THE PRIMORSKY KRAI IN SPRING, 2009. <i>A.N. Pavlov, K.A. Shmirko, S.Yu. Stolyarchuk, A.Yu. Mayor, O.A. Bukin, S.M. Sakerin, D.M. Kabanov, Yu.S. Turchinovich</i> .....	524
<b>S4P-14</b>	COMPARISON OF DEPOLARIZATION RATIO MEASUREMENTS WITH MICRO-PULSE LIDAR AND A LINEAR POLARIZATION LIDAR IN LANZHOU, CHINA. <i>Z. Huang, N. Sugimoto, J. Huang, T. Hayasaka, T. Nishizawa, J. Bi, I. Matsui</i> .....	528
<b>S4P-15</b>	LONG-TERM VARIATIONS OF ATMOSPHERIC AEROSOL CONDENSATION ACTIVITY IN WEST SIBERIA. <i>S.A. Terpugova, M.V. Panchenko, E.P. Yausheva, T.A. Dokukina</i> .....	532
<b>S4P-16</b>	OPTICAL, MICROPHYSICAL AND CHEMICAL PROPERTIES OF SAHARAN DUST AEROSOLS USING A MULTI-WAVELENGTH RAMAN LIDAR, <i>IN SITU</i> SENSORS AND MODELLING. <i>A. Papayannis, R.E. Mamouri, E. Remoundaki, A. Bourliva, G. Tsaknakis, V. Amiridis, P. Kokkalis, I. Veselovskii, A. Kolgotin, C. Samara</i> .....	535
<b>S4P-17</b>	FIRST REGULAR MULTI-WAVELENGTH RAMAN LIDAR MEASUREMENTS IN PORTUGAL-OVERVIEW. <i>F. Wagner, J. Preißler, J.L. Guerrero-Rascado, A.M. Silva</i> .....	539
<b>S4P-18</b>	AUTOMATIC AEROSOL CLASSIFICATION USING MULTI-WAVELENGTH LIDAR DATA. <i>A. Nemuc, D. Nicolae, L. Belega</i> .....	542

<b>S4P-19</b>	THE COMBINED USE OF CALIPSO, MODIS AND OMI LEVEL 2 AEROSOL PRODUCTS FOR CALCULATING DIRECT AEROSOL RADIATIVE EFFECTS. <i>J. Redemann, M. Vaughan, Y. Shinozuka, P. Russell, J. Livingston, A. Clarke, L. Remer, S. Christopher, C. Hostetler, R. Ferrare, J. Hair, P. Pilewskie, S. Schmidt, E. Bierwirth</i> .....	546
<b>S4P-20</b>	AEROSOL OPTICAL PROPERTIES IN MOSCOW AND BACKGROUND REGION. <i>M.A. Sviridenkov, N.Y. Chubarova</i> .....	550
<b>S4P-21</b>	STUDY ON SPECTRAL LIDAR-RELATED OPTICAL PROPERTIES OF MINERAL DUST AEROSOL WITH COMPLEX MICROPHYSICAL PROPERTIES. <i>M.A.J. Gasteiger, S. Gross, M. Wiegner</i> .....	553
<b>S4P-22</b>	POTENTIAL OBSERVATIONS OF CLOUD-AEROSOL INTERACTION WITH A MULTIPLE-WAVELENGTH RAMAN-ELASTIC LIDAR. <i>Y. Wu, L. Cordero, C. Gan, B. Gross, F. Moshary, S. Ahmed</i> .....	557
<b>S4P-23</b>	LIDAR RATIO OF SUBMICRON AEROSOL CONTAINING BLACK CARBON IN A CONDENSATION PROCESS. <i>S.A. Terpugova</i> .....	561
<b>S4P-24</b>	ONE YEAR OF RAMAN LIDAR MEASUREMENTS AT GUAL PAHARI CLOSE TO DELHI IN INDIA. <i>M. Komppula, T. Mielonen, A. Arola, H. Lihavainen, A.-P. Hyvärinen, H. Baars, R. Engelmann, D. Althausen, D. Müller, T.S. Panwar, R.K. Hooda, V.P. Sharma, K. Korhonen, K.E.J. Lehtinen and Y. Viisanen</i> .....	564
<b>S4P-25</b>	CALIPSO OBSERVATIONS OF AEROSOL PROPERTIES NEAR CLOUDS. <i>A. Marshak, T. Várnai, W. Yang</i> .....	568
<b>S4P-26</b>	LIDAR MEASUREMENTS OF ATMOSPHERIC AEROSOLS. <i>A.D. Yegorov, I.A. Potapova, Y.B. Rzhonsnitskaya, N.A. Sanotskaya</i> .....	572
<b>S4P-27</b>	CALIPSO LIDAR OBSERVATIONS OF MINERAL DUST AND BIOMASS BURNING AEROSOLS DURING THE WEST AFRICAN DRY SEASON. <i>S. Kim, S. Yoon, P. Chazette, F. Dulac</i> .....	576
<b>S4P-28</b>	CHARACTERIZATION OF ATMOSPHERIC AEROSOLS FOR A LONG-RANGE TRANSPORT OF BIOMASS-BURNING FROM NORTH AMERICA OVER THE IBERIAN PENINSULA. <i>J.L. Guerrero-Rascado, F.J. Olmo, F. Molero, F. Navas-Guzmán, M.J. Costa, A.M. Silva, M. Pujadas, M. Sicard, L. Alados-Arboledas</i> .....	580
<b>S4P-29</b>	AEROSOL CHARACTERIZATION WITH DUAL-WAVELENGTH AND POLARIZATION LIDAR DURING JAPANESE CLOUD SEEDING EXPERIMENT. <i>T. Sakai, T. Nagai, M. Murakami, Observation group of Japanese Cloud Seeding Experiment for Precipitation Augmentation (JCSEPA)</i> .....	584
<b>S4P-30</b>	DETERMINATION OF BACKSCATTER-EXTINCTION COEFFICIENT RATIO FOR LIDAR-RETRIEVED AEROSOL OPTICAL DEPTH BASED ON SUNPHOTOMETER DATA. <i>P.W. Chan, M.L. Kuo</i> .....	588
<b>S4P-31</b>	SHIP-BORNE LIDAR-DERIVED OPTICAL PROPERTIES OF SOUTHERN BIOMASS BURNING AEROSOLS. <i>V. Dufлот, P. Royer, P. Chazette, Y. Courcoux, R. Delmas, J-L. Baray</i> .....	592
<b>S4P-32</b>	ON POSSIBILITY TO RETRIEVE THE AEROSOL OPTICAL CHARACTERISTICS FROM DIFFUSE RADIATION MEASUREMENTS IN SOLAR ALMUCANTAR IN THE CLOUDY ATMOSPHERE. <i>T.B. Zhuravleva, T.V. Bedareva</i> .....	596
<b>S4P-33</b>	BIOMASS BURNING MEASUREMENTS IN BRAZIL - ANALYSIS FROM NEAR AND FAR SOURCES WITH TWO LIDAR SYSTEMS. <i>G.L. Mariano, M.P.P. Martins, E. Landulfo, F. Lopes, G. Held, S. dos Anjos, J. Steffens</i> .....	600

<b>S4P-34</b>	LONG-RANGE SCANNING MIE LIDAR FOR QUANTITATIVE MEASUREMENTS OF ATMOSPHERIC EXTINCTION OVER VIPAVA VALLEY, SLOVENIA. <i>F. Gao, K. Bergant, B. Forte, S. Stanič, D. Veberič, A. Filipčič, M. Zavrtanik, X-Q. Song, D-X. Hua</i> .....	604
<b>S4P-35</b>	AEROSOL MODELS FOR PROCESSING OF DATA OF TWO WAVELENGTH SENSING. <i>V.A. Korshunov</i> .....	608
<b>S4P-36</b>	LONDON POLLUTION OBSERVED USING THE SYNERGY BETWEEN GROUND-BASED MOBILE LIDAR AND AIRBORNE MEASUREMENTS. <i>P. Chazette, J.-C. Raut, J. Haywood, C. Ryder, H. Coe, W. Morgan, K. Turnbull, G. McMeeking, P. Williams</i> .....	611
<b>S4P-37</b>	STUDY OF CORRELATION BETWEEN PM10 MASS CONCENTRATION NEAR THE GROUND AND AEROSOL OPTICAL DEPTH (AOD). <i>L. Filip, S. Stefan</i> .....	615
<b>S4P-38</b>	AEROSOL LIGHT-ABSORPTION PROPERTIES OF EAST ASIAN AEROSOLS DERIVED FROM MULTI-WAVELENGTH RAMAN LIDAR DATA. <i>Y.M. Noh, D. Müller, D.-H. Shin, Y.J. Kim</i> .....	619
<b>S4P-39</b>	INVESTIGATIONS OF THE VERTICAL DISTRIBUTION OF TROPOSPHERIC AEROSOL LAYERS USING THE DATA OF MULTI WAVELENGTH AEROSOL SENSING. <i>S.V. Samoilova, Yu.S. Balin, G.P. Kokhanenko, I.E. Penner, A.V. Samoilov</i> .....	623
<b>S4P-40</b>	COMPARISON OF AEROSOL OPTICAL PROPERTIES BETWEEN RAMAN LIDAR AND SUN PHOTOMETER MEASUREMENTS OVER BEIJING, CHINA. <i>C. Xie, N. Sugimoto, Z. Wang</i> .....	627
<b>S4P-41</b>	RAMAN LIDAR MEASUREMENT OF WATER VAPOR AND AEROSOLS IN DAYTIME. <i>D. Wu, B. Liu, D. Liu, Z. Wang, C. Xie, B. Wang, Y. Wang, J. Zhou</i> .....	631
<b>S4P-42</b>	FINE-DETECTION OF AEROSOL OPTICAL PROPERTIES USING AN ULTRAVIOLET ROTATIONAL RAMAN LIDAR. <i>J. Mao, D. Hua, Y. Wang, F. Gao, W. Li, T. Kobayashi</i> .....	635
<b>S4P-43</b>	CALIBRATION OF 1064 nm CHANNEL AND RETRIEVAL OF AEROSOL EXTINCTION FROM CALIOP. <i>H. Okamoto, N. Kumaoka, T. Nishizawa, N. Sugimoto, Y. Hagihara</i> .....	636
<b>S4P-44</b>	ÅNGSTRÖM TURBIDITY COEFFICIENT AND WAVELENGTH EXPONENT DERIVED FROM A 355nm–532nm LIDAR AND A SUNPHOTOMETER IN MANILA, PHILIPPINES. <i>E. Vallar, Ma. A. Esguerra, E. Macalalad, M. Lajara, Ma. C. Galvez</i> .....	640
<b>S4P-45</b>	GEOMETRICAL AND OPTICAL PROPERTIES OF DIFFERENT AEROSOL LAYERS OVER THESSALONIKI LIDAR STATION. <i>E. Giannakaki, D. Balis, V. Amiridis, N. Kouremeti, S. Bourtzoukidis</i> .....	64
<b>S4P-46</b>	STRONG DUST EVENT OVER ABASTUMANI/SOUTHERN CAUCASUS, GEORGIA, DURING MAY 2009. SUN-PHOTOMETRIC AND LIDAR MEASUREMENTS AND MODEL VALIDATION. <i>M. Todua, G.G. Didebulidze, P. Kokkalis, A. Papayannis, R.E. Mamouri, G. Tsaknakis, V. Amiridis</i> .....	N
<b>S4P-47</b>	OPTICAL PROPERTIES OF BIOMASS BURNING AEROSOLS IN RESPECT TO THEIR SOURCE DISTANCE OVER ATHENS, GREECE USING A 6-WAVELENGTH RAMAN LIDAR SYSTEM. <i>G. Tsaknakis, R.E. Mamouri, A. Papayannis, V. Amiridis, and P. Kokkalis</i> .....	651

<b>S4P-48</b>	STATE OF STRATOSPHERIC AEROSOL LAYER IN 2006–2009 ACCORDING TO DATA OF LIDAR OBSERVATIONS IN TOMSK (56.5 N, 85.0 E). <i>V.D. Burlakov, O.E. Bazhenov, S.I. Dolgii, E.V. Makienko, A.V. Nevzorov, N.S. Salnikova</i> .....	655
<b>S4P-49</b>	RAMAN LIDAR DATA RETRIEVAL AS INVERSE PROBLEM. <i>T. Hayek, M. Wiegner</i> .....	659
<b>S4P-50</b>	AEROSOL SOUNDING AT ARURAL SWEDISH AREA AND IN AMAJOR CHINESE CITY – ACOMPARATIVE STUDY WITH THE LUND LIDAR SYSTEM. <i>P. Lundin, Z. Guan, L. Mei, G. Somesfalean, E. Swietlicki, S. Svanberg</i> .....	663
<b>S4P-51</b>	AEROSOL AND CIRRUS OBSERVATION BY THE CEILOMETER CHM15K. <i>S. Frey, B. Heese, J. Reichardt</i> .....	667
<b>S4P-52</b>	SAHARAN DESERT DUST MICROPHYSICAL PROPERTIES FROM PRINCIPLE COMPONENT ANALYSIS (PCA) INVERSION OF RAMAN LIDAR DATA OVER WESTERN EUROPE. <i>M. de Graaf, D.P. Donovan, A. Apituley</i> .....	671
<b>S4P-53</b>	PROPERTIES OF ARCTIC AEROSOL MEASURED DURING PAM-ARCMIP CAMPAIGN. <i>C. Ritter</i> .....	675
<b>S4P-54</b>	CHAITÉN VOLCANIC AEROSOL TRANSPORT STUDY DURING MAY 2008. <i>E.E. Pawelko, L.A. Otero, P.R. Ristori, E.J. Quel</i> .....	676
<b>S4P-55</b>	THE COMMON CALCULUS CHAIN DEVELOPED IN THE FRAME OF THE EARLINET-ASOS PROJECT. <i>A. Amodeo, G. D'Amico, I. Mattis, C. Bockmann, D. Muller, L. Osterloh, A. Chaikovsky, G. Pappalardo</i> .....	680
<b>S4P-56</b>	AEROSOL AND ATMOSPHERIC BOUNDARY LAYER TEMPORAL EVOLUTION IN BUENOS AIRES, ARGENTINA DURING MAY 12, 2006. <i>P.R. Ristori, L.A. Otero, E.E. Pawelko, J.V. Pallotta, E.J. Quel</i> .....	684
<b>S4P-57</b>	ASIAN DUST MEASURMENTS BY TWO WAVE LENGTHS DEPOLARIZATION LIDAR OVER SUWON, KOREA IN 2009. <i>C.B. Park, C.H. Lee, N. Sugimoto</i> .....	687

---

### Session 5: Cloud Microphysics and Radiative Properties

---

<b>S5O-01</b>	COMBINED HIGH SPECTRAL RESOLUTION LIDAR AND MILLIMETER WAVE RADAR MEASUREMENTS OF ICE CRYSTAL PRECIPITATION FROM MIXED-PHASE ARCTIC CLOUDS. <i>E.W. Eloranta</i> .....	693
<b>S5O-02</b>	RETRIEVAL OF CLOUD AND AEROSOL PROPERTIES FROM COMBINED IIR, LIDAR AND WFC OBSERVATIONS OF CALIPSO. <i>A. Garnier, M. Faivre, P. Dubuisson, J. Pelon, N. Scott, R. Armante, L. Doppler, N. Pascal, T. Tremas, D. Josset, S. Ackerman, H. Chepfer, O. Chomette, V. Giraud, Y. Hu, D. Kratz, V. Noel, F. Parol, M. Platt, C. Stubenrauch, M. Vaughan, M. Viollier, D. Winker, P. Yang</i> .....	697
<b>S5O-03</b>	POTENTIALITIES OF POLARIZED LIDAR SOUNDING OF CRYSTAL, WARM, AND MIXED CLOUDS. <i>E.P. Zege, I.L. Katsev, A.S. Prikhach, A. Cohen, R. Billmers, M. Ludwig</i> .....	701
<b>S5O-04</b>	LIGHT BACKSCATTERING BY HEXAGONAL ICE CRYSTALS. <i>A.G. Borovoi, N.V. Kustova, A. Cohen</i> .....	705
<b>S5P-01</b>	THE ANALYSIS OF OBSERVED DATA OF THE BACKSCATTERING MATRIXES: ESTIMATES OF OCCURRENCE AND DIRECTIVITY OF NONSPHERICAL PARTICLES AT VARIOUS PENETRATION DEPTHS IN THE Ci CLOUDS. <i>S.N. Volkov, I.V. Samokhvalov</i> .....	709

<b>S5P-02</b>	CLOUD BOUNDARIES DETECTION ALGORITHM FOR MIE SCATTERING LIDAR. <i>D. Wu, Z. Wang, D. Liu, B. Wang, J. Zhou, Y. Wang</i> .....	713
<b>S5P-03</b>	ANALYTICAL APPROXIMATION OF THE PHASE FUNCTION, SPECIFIED BY FRAUNHOFER DIFFRACTION BY CLOUD ICE CRYSTALS. <i>A. Malinka</i> .....	717
<b>S5P-04</b>	SPECULAR REFLECTED LAYERS AND PARTICLES IN CRYSTAL CLOUDS. <i>Yu.S. Balin, B.V. Kaul, G.P. Kokhanenko, D. Winker</i> .....	720
<b>S5P-05</b>	THE INFLUENCE OF THE MICROPHYSICAL PARAMETERS OF LARGE CRYSTALS ON EXTINCTION OF THE OPTICAL RADIATION. <i>O. Shefer</i> .....	724
<b>S5P-06</b>	ASYMPTOTIC MODEL FOR ESTIMATION OF MULTIPLE SCATTERING CONTRIBUTION TO LIDAR SIGNALS FROM WATER-DROP CLOUDS. <i>V.V. Veretennikov</i> .....	727
<b>S5P-07</b>	CRYSTALS ORIENTATION INFLUENCE ON BACKSCATTER COEFFICIENT AND DEPOLARIZATION RATIO: ANALYSIS OF MEASUREMENT BY GROUND-BASED LIDAR. <i>L.I. Chaikovskaya, F.P. Osipenko, I.V. Samokhvalov, V.V. Bryukhanova, B.V. Kaul</i> .....	731
<b>S5P-08</b>	PECULIARITIES OF USING THE SCATTERING THEORY FOR CLOUD MEDIA. <i>I. Melnikova</i> .....	735
<b>S5P-09</b>	SPATIAL AND TEMPORAL ATMOSPHERIC CLOUD COVER OVER CHIBA, JAPAN FROM PORTABLE AUTOMATED LIDAR (PAL) SYSTEM. <i>N. Lagrosas, C. Jamandre, N. Takecuhi, H. Kuze, A. Sone, H. Kan</i> .....	739
<b>S5P-10</b>	CONTROL ON THE PARAMETERS OF PHOTONIC NANOJETS FROM WATER MICRODROPLETS. <i>A.A. Zemlyanov, Yu.E. Geints, E.K. Panina</i> .....	743
<b>S5P-11</b>	FOUR YEAR CLOUD COUNT ANALYSIS OF MANILA OBSERVATORY LIDAR DATA AND CLIMATOLOGICAL RELATIONSHIP. <i>C.A. Jamandre, N.D. Lagrosas, S. Dorado, J. Holdsworth, M. Alarcon</i> .....	747
<b>S5P-12</b>	APPLICATION OF OPTIMAL ESTIMATION TO RETRIEVE HYDROMETEOR PROPERTIES FROM LIDAR/RADAR METHOD. <i>K. Sato, H. Okamoto</i> .....	751
<b>S5P-13</b>	DUAL-FIELD-OF-VIEW RAMAN LIDAR FOR MEASUREMENT OF CLOUD DROPLET SIZE AND LIQUID-WATER CONTENT. <i>J. Schmidt, U. Wandinger, A.V. Malinka</i> .....	754
<b>S5P-14</b>	A FIRST LOOK AT CALIOP/CALIPSO CLOUD ICE WATER CONTENT. <i>M. Avery, D. Winker, M. Vaughan, S. Young, R. Kuehn, Y. Hu, J. Tackett, B. Getzewich, Z. Liu, A. Omar, K. Powell, C. Trepte, K.-P. Lee</i> .....	758
<b>S5P-15</b>	RADIATIVE FORCING DETERMINATION OF THE ATMOSPHERIC BROWN CLOUD WITH MULTIWAVLENGTH LIDAR SOUNDING DATA. <i>G.I. Gorchakov, B.B. Chen, I.A. Gorchakova, I.G. Sverdlik, S.I. Popel, A.V. Karpov, A.B. Kolesnikova</i> .....	762
<b>S5P-16</b>	STUDYING ON THE LASER SCATTERING IN AN ANISOTROPIC MEDIA. <i>B. Thi T. Lan, L.T. Thang, C.D. Thuy, T.D. Chinh</i> .....	764

## VOLUME II

---

### Session 6: Trace Gas Sensing for Climate and Air Quality

---

<b>S6O-01</b>	PULSED AIRBORNE LIDAR MEASUREMENTS OF ATMOSPHERIC CO <sub>2</sub> COLUMN ABSORPTION FROM 3–13 KM ALTITUDES. <i>J.B. Abshire, H. Riris, G.R. Allan, C. Weaver, J. Mao, X. Sun, W. Hasselbrack</i> .....	771
<b>S6O-02</b>	CHARM-F: THE AIRBORNE INTEGRAL PATH DIFFERENTIAL ABSORPTION LIDAR FOR SIMULTANEOUS MEASUREMENTS OF ATMOSPHERIC CO <sub>2</sub> AND CH <sub>4</sub> . <i>M. Quatrevalet, A. Amediek, A. Fix, C. Kiemle, M. Wirth, C. Büdenbender, S. Schweyer, G. Ehret, D. Hoffmann, A. Meissner, J. Löhring, J. Luttmann</i> .....	775
<b>S6O-03</b>	AIRBORNE VALIDATION OF LASER REMOTE MEASUREMENTS OF ATMOSPHERIC CARBON DIOXIDE. <i>E.V. Browell, J. Dobler, S. Kooi, Y. Choi, F.W. Harrison, B. Moore III, T. Scott Zaccheo</i> .....	779
<b>S6O-04</b>	CAN CO <sub>2</sub> TURBULENT FLUX MEASUREMENTS BE MADE BY LIDAR? A PRELIMINARY STUDY. <i>F. Gibert, G.J. Koch, J.Y. Beyon, T.W. Hilton, K.J. Davis, A. Andrews, P.H. Flamant, U.N. Singh</i> .....	783
<b>S6O-05</b>	REMOTE SENSING OF SULPHUR DIOXIDE EMISSIONS OF SEAGOING VESSELS ON INLAND WATERWAYS. <i>G.R. van der Hoff, A.J.C. Berkhout, J.B. Bergwerff, L.F.L. Gast, D.P.J. Swart</i> .....	787
<b>S6O-06</b>	PROGRESS IN MEASUREMENT OF CARBON DIOXIDE USING A BROADBAND LIDAR. <i>W.S. Heaps, El. Georgieva, W. Huang, W.S. Heaps, E. Georgieva, W. Huang</i> .....	791
<b>S6O-07</b>	LIDAR TECHNOLOGIES OF REMOTE MONITORING. <i>A.S. Boreysho, D.N. Vasilyev, A.V. Morozov</i> .....	795
<b>S6P-01</b>	CARBONYL COMPOUNDS AND GENERATION OF TROPOSPHERIC OZONE. <i>T. Gasmí</i> .....	796
<b>S6P-02</b>	SUPERCONTINUUM LIDAR ABSORPTION SPECTROSCOPY FOR GAS DETECTION & CONCENTRATION ESTIMATION. <i>J. Fade, N. Cézard</i> .....	798
<b>S6P-03</b>	VERTICAL LIDAR MEASUREMENTS OF Hg AND NO IN THE ATMOSPHERE OF A MAJOR CHINESE CITY. <i>Z. Guan, P. Lundin, L. Mei, G. Somesfalean, S. Svanberg</i> .....	802
<b>S6P-04</b>	REMOTE SENSING OF NITROGEN DIOXIDE PROFILES WITH THE RIVM MOBILE LIDAR. <i>A.J.C. Berkhout, G.R. van der Hoff, H. Volten, J.B. Bergwerff, D.P.J. Swart</i> .....	806
<b>S6P-05</b>	INSPECTION METHOD OF RADIOACTIVE EMISSION FROM NPP. <i>G.A. Kolotkov, S.T. Penin</i> .....	810
<b>S6P-06</b>	HIGH SPEED REMOTE MONITORING OF HAZARDOUS URANIUM HEXAFLUORIDE BY LIDAR. <i>G. Shayeganrad, L. Mashhadi</i> .....	814
<b>S6P-07</b>	ATMOSPHERIC AIR MONITORING IN CUBATÃO CITY USING LIDAR. <i>J. Steffens, R. Guardani, E. Landulfo, P.F. Moreira Jr., A. Moreira</i> .....	818
<b>S6P-08</b>	AIRBORNE MEASUREMENT OF THE WEIGHTED COLUMN CARBON DIOXIDE MIXING RATIO USING 1.57 MICRON DIRECT DETECTION AMCW LASER ABSORPTION SENSOR. <i>D. Sakaizawa, S. Kwakami, H. Ohyama, M. Nakajima, T. Tanaka, Y. Miyamoto, I. Morino, O. Uchino</i> .....	822



<b>S6P-09</b>	DIFFERENTIAL OPTICAL ABSORPTION SPECTROSCOPY (DOAS) MEASUREMENTS OF ATMOSPHERIC CO <sub>2</sub> USING A COHERENT WHITE LIGHT CONTINUUM. <i>T. Somekawa, C. Yamanaka, M. Fujita</i> .....	826
<b>S6P-10</b>	CHARACTERISTICS AND TRANSPORT PROCESSES OF ASIAN DUST AND AIR POLLUTANTS TO TAIWAN. <i>C.-Y. Lin, C.C.K. Chou, Z. Wang, W.N. Chen, S.Y. Chang</i> .....	830
<b>S6P-11</b>	APPLICATION OF TUNABLE INFRARED LASER-DIODE ABSORPTION SPECTROSCOPY FOR CO CONCENTRATION MEASUREMENT IN NEAR-WALL LAYER OF POWER BOILER. <i>W. Wójcik, A. Kotyra, P. Komada</i> .....	831
<b>S6P-12</b>	DEVELOPMENT OF COHERENT 2 μM DIFFERENTIAL ABSORPTION LIDAR WITH LASER FREQUENCY OFFSET LOCKING. <i>S. Ishii, K. Mizutani, H. Fukuoka, T. Ishikawa, P. Baron, H. Iwai, T. Aoki, T. Itabe, A. Sato, K. Asai</i> .....	834
<b>S6P-13</b>	REMOTE DETECTION OF EXPLOSIVE VAPORS IN THE AIR. <i>S.M. Bobrovnikov, E.V. Gorlov, V.I. Zharkov, Yu.N. Panchenko</i> .....	838
<b>S6P-14</b>	THE EFFECT OF COMPLEX TERRAIN ON OZONE DISTRIBUTION AND TRANSPORT IN THE LOS ANGELES BASIN. <i>C.J. Senff, A.O. Langford, R.J. Alvarez II, R.M. Hardesty, A.M. Weickmann, R.M. Banta, R.D. Marchbanks, S.P. Sandberg, W.A. Brewer</i> .....	842
<b>S6P-15</b>	MEASURING TRACE GAS EMISSION AND TRANSPORT WITH AIRBORNE DOPPLER AND DIAL LIDARS. <i>R.M. Hardesty, C.J. Senff, R.J. Alvarez II, B.J. McCarty, G.N. Pearson, F.C. Davies, S.C. Tucker</i> .....	846
<b>S6P-16</b>	A MOBILE LIDAR FOR MONITORING ATMOSPHERIC POLLUTANTS. <i>K. Cao, K. Yuan, S. Wang, X. Meng, S. Hu</i> .....	850
<b>S6P-17</b>	DEVELOPMENT OF A 1.6μM DIAL FOR NIGHTTIME AND DAYTIME MEASUREMENTS OF VERTICAL CO <sub>2</sub> PROFILES IN THE ATMOSPHERE. <i>C. Nagasawa, M. Abo, Y. Shibata, T. Nagai, M. Nakazato, T. Sakai, M. Tsukamoto</i> .....	858
<b>S6P-18</b>	TROPOSPHERIC OZONE DIAL FOR AIR QUALITY AND CLIMATE MONITORING, AND VALIDATION STUDIES. <i>A. Apituley, M. Hoexum, C. Potma, K. Wilson</i> .....	862
<b>S6P-19</b>	FIELD TESTING OF A TWO-MICRON DIAL SYSTEM FOR PROFILING ATMOSPHERIC CARBON DIOXIDE. <i>T.F. Refaat, S. Ismail, G.J. Koch, L. Diaz, K. Davis, M. Rubio, M. Nurul Abedin, U.N. Singh</i> .....	866
<b>S6P-20</b>	LIDAR REMOTE SENSING FOR ENVIRONMENTAL MONITORING AND AVIATION SAFETY. <i>A.V. Chugreev, K.A. Kononov, M.A. Konyaev, A.V. Morozov</i> .....	870
<b>S6P-21</b>	TRACE GASES REMOTE SENSING IN THE ATMOSPHERE OVER URAL. <i>K.G. Gribanov, V.I. Zakharov, S.A. Beresnev, V.A. Poddubny, R. Imasu, P.A. Chistyakov, G.G. Skorik, V.V. Vasin</i> .....	871

---

### **Session 7: Lidar Networks and Assimilation of Observations into Forecast Models**

---

<b>S70-01</b>	THE NASA MICRO PULSE LIDAR NETWORK (MPLNET): SUMMARY OF THE LAST 10 YEARS, CURRENT STATUS, AND FUTURE PLANS. <i>E.J. Welton, T.A. Berkoff, S.A. Stewart, L. Belcher, J.R. Campbell, B.N. Holben, S.-C. Tsay</i> .....	875
<b>S70-02</b>	EARLINET AND AERONET: FIRST COMPARISON AND INTEGRATED STUDY. <i>L. Mona, D. Balis, P. Goloub, M. Iarlori, S. Kinne, Z. Li, H. Linné, F. Madonna, I. Mattis, A. Papayannis, M.R. Perrone, N. Spinelli, G. Pappalardo</i> .....	879

<b>S7O-03</b>	REPRESENTATIVENESS OF AEROSOL MEASUREMENTS: EARLINET-CALIPSO CORRELATIVE STUDY. <i>G. Pappalardo, U. Wandinger, L. Mona, A. Hiebsch, I. Mattis, H. Linné, A. Apituley, L.A. Arboledas, D. Balis, A. Comeron, V. Freudenthaler, E. Giannakaki, A. Giunta, J.L.G. Rascado, F. Madonna, R.-E. Mamouri, F. Molero, A. Papayannis, M. Pujadas, F. Rocadenbosch, N. Spinelli, X. Wang, M. Wiegner</i> .....	883
<b>S07O-04</b>	SALINAS: AN EMERGING AEROSOL LIDAR NETWORK SUPPORTING THE SEVEN SOUTHEAST ASIAN STUDIES (7SEAS) CAMPAIGN. <i>J.R. Campbell, N. Lagrosas, N.X. Anh, B.N. Chew, B.N. Holben, N.-H. Lin, J.S. Reid, S.V. Salinas, N. Sugimoto, S.-C. Tsay, E.J. Welton</i> .....	887
<b>S7O-05</b>	EARLI09 - DIRECT INTERCOMPARISON OF ELEVEN EARLINET LIDAR SYSTEMS. <i>V. Freudenthaler, S. Gross, R. Engelmann, I. Mattis, U. Wandinger, G. Pappalardo, A. Amodeo, A. Giunta, G. D'Amico, A. Chaikovsky, F. Osipenko, A. Slesar, D. Nicolae, L. Belegante, C. Talianu, I. Serikov, H. Linne, F. Jansen, K. Wilson, M. de Graaf, A. Apituley, T. Trickl, H. Giehl, M. Adam</i> .....	891
<b>S7O-06</b>	<i>Polly</i> <sup>NET</sup> -A CONTRIBUTION TO GLOBAL, VERTICALLY RESOLVED AEROSOL TYPING. <i>D. Althausen, R. Engelmann, H. Baars, B. Heese, T. Kanitz, D. Müller, M. Komppula, A. Hänel</i> .....	895
<b>S7P-01</b>	THE CANADIAN OBSERVATIONAL RESEARCH AEROSOL LIDAR NETWORK (CORALNET): FIRST RESULTS. <i>K.B. Strawbridge, M.S. Travis, B.J. Firanski</i> .....	899
<b>S7P-02</b>	DEVELOPMENT OF MULTI-WAVELENGTH HIGH-SPECTRAL RESOLUTION LIDAR SYSTEM ( $2\alpha+3\beta+2\delta$ ). <i>T. Nishizawa, N. Sugimoto, I. Matsui</i> ....	903
<b>S7P-03</b>	SOLUTIONS TO OVERLAP TEMPERATURE SENSITIVITY IN MICRO PULSE LIDARS. <i>S.A. Stewart, E.J. Welton, T.A. Berkoff</i> .....	907
<b>S7P-04</b>	DETAILED DESCRIPTION OF DATA PROCESSING SYSTEM FOR LIDAR NETWORK IN EAST ASIA. <i>A. Shimizu, N. Sugimoto, I. Matsui</i> .....	911
<b>S7P-05</b>	POTENTIAL OF CEILOMETERS FOR AEROSOL REMOTE SENSING: A PRELIMINARY ASSESSMENT. <i>M. Wiegner</i> .....	914
<b>S7P-06</b>	GALION: THE GAW AEROSOL LIDAR OBSERVATION NETWORK. <i>G. Pappalardo, R.M. Hoff</i> .....	918
<b>S7P-07</b>	TESTING THE IFU HIGH-SPECTRAL-RESOLUTION LIDAR AT THE 2009 LEIPZIG FIELD CAMPAIGN. <i>H. Giehl, T. Trickl</i> .....	920
<b>S7P-08</b>	TOWARDS A LIDAR FEDERATION IN LATIN AMERICA. <i>J.C. Antuña, E. Quel, E. Landulfo, B. Clemesha, F. Zaratti, A. Bastidas</i> .....	924
<b>S7P-09</b>	RETRIEVAL OF AEROSOL EXTINCTION COEFFICIENT PROFILES FROM RAMAN LIDAR SIGNALS BY REGULARIZATION. <i>C. Böckmann, P. Pornsawad, G. D'Amico, A. Amodeo, G. Pappalardo</i> .....	928

---

### Session 8: Middle and Upper Atmosphere Physics and Chemistry

---

<b>S8O-01</b>	THIRTY YEARS ANNIVERSARY OF CONTINUOUS TEMPERATURE LIDAR MEASUREMENTS OVER SOUTH OF FRANCE. <i>P. Keckhut, A. Hauchecorne, J. Porteneuve, M.-L. Chanin</i> .....	935
<b>S8O-02</b>	LIDAR OBSERVATION OF SUDDEN STRATOSPHERIC WARMING EVENTS' IMPACTS ON MIDLATITUDE MESOPAUSE REGION TEMPERATURE, AND WINDS. <i>C.-Y. She, T. Yuan, D.A. Krueger</i> .....	939
<b>S8O-03</b>	LIDAR POLARIZATION APPROACHES FOR POLAR MESOSPHERIC CLOUD DETECTION. <i>J.P. Thayer, M. Hayman</i> .....	943

<b>S8O-04</b>	PROGRESS IN MRI FE-RESONANCE/RAYLEIGH/MIE DOPPLER LIDAR. <i>X. Chu, W. Huang, J.P. Thayer, Z. Wang, J.A. Smith</i> .....	947
<b>S8O-05</b>	STUDIES OF NORTHERN HEMISPHERIC POLAR STRATOSPHERIC CLOUDS WITH GROUND-BASED AND SPACE-BORNE LIDAR. <i>P. Achtert, F. Khosrawi, U. Blum, K.H. Fricke</i> .....	951
<b>S8O-06</b>	STRATOSPHERIC AND UPPER TROPOSPHERIC AEROSOLS IN THE LAST TWO DECADES OVER MID-LATITUDES OF THE SOUTHERN HEMISPHERE. <i>J.B. Liley, T. Nagai, T. Sakai, O. Uchino</i> .....	955
<b>S8O-07</b>	SEASONAL VARIATIONS OF GRAVITY WAVE ACTIVITY AND SPECTRA DERIVED FROM SODIUM TEMPERATURE LIDAR AT 23°S. <i>G. Yang, B. Clemesha, P. Batista, D. Simonich</i> .....	959
<b>S8O-08</b>	HIGHLY-RELIABLE PUMP LASER DIODES FOR SPACEBORNE LIDAR APPLICATIONS. <i>E. Deichsel, P. Hennig</i> .....	963
<b>S8P-01</b>	LIDAR TEMPERATURE OBSERVATIONS DURING WINTER STRATOSPHERIC WARMING OF 2005–2006 YEARS. <i>S.V. Nikolashkin, S.V. Titov, V.M. Ignatyev, V.N. Marichev</i> .....	967
<b>S8P-02</b>	FE DOPPLER-FREE SPECTROSCOPY AND OPTICAL HETERODYNE DETECTION FOR ACCURATE FREQUENCY CONTROL OF FE-RESONANCE DOPPLER LIDAR. <i>X. Chu, W. Huang</i> .....	969
<b>S8P-03</b>	RESPONSE OF MESOSPHERIC SODIUM LAYER TO THE PASSAGE OF GRAVITY WAVES OVER SAO JOSE DOS CAMPOS, BRAZIL (23°S, 46°W). <i>A.A. Pimenta, D.M. Simonich</i> .....	973
<b>S8P-04</b>	AVERAGE BEHAVIOR OF SPORADIC SODIUM LAYERS FOR THREE STRENGTH FACTORES. <i>D.M. Simonich, B.R. Clemesha, P.P. Batista</i> .....	976
<b>S8P-05</b>	A GLOBAL VIEW OF ORIENTED ICE CRYSTALS FROM SPACEBORNE LIDAR. <i>V. Noel, H. Chepfer</i> .....	980
<b>S8P-06</b>	SODIUM DENSITY VARIATIONS OVER 9 HOURS DURING JAN, 2010 AT BEIJING, CHINA. <i>Z. Yan, X. Hu, S. Guo, Y. Cheng</i> .....	984
<b>S8P-07</b>	DURBAN RAYLEIGH LIDAR MEASUREMENTS OF STRATOSPHERE- MESOSPHERE TEMPERATURE STRUCTURE. <i>N. Mbatha, V. Sivakumar, S.B. Malinga, H. Bencherif, S.R. Pillay, A. Moorgawa, M. M Michaelis</i> .....	987
<b>S8P-08</b>	COORDINATED MEASUREMENTS OF MESOSPHERIC NEUTRAL CALCIUM AND ITS ION ALONG WITH ELECTRON CONCENTRATIONS FROM ARECIBO. <i>S. Raizada, C. Tepley, B. Williams, M. Sulzer, N. Aponte, S. Gonzalez, E. Cabassa</i> .....	991
<b>S8P-09</b>	CLIMATOLOGY OF STRATOSPHERIC OZONE PROFILES IN RÍO GALLEGOS, ARGENTINA. <i>W. Elian, J. Salvador, R. D'Elia, S. Godin-Beekmann, E. Quel</i> .....	995
<b>S8P-10</b>	RAYLEIGH LIDAR TEMPERATURE PROFILES BETWEEN 15–60 KM DURING SOLAR CAMPAIGN IN RIO GALLEGOS (51°55' S, 69°14' W), ARGENTINA. METHODOLOGY AND RESULTS. <i>S. Jacobo, E. Wolfram, R. D'Elia, S. Godin-Beekmann, E. Quel</i> .....	999
<b>S8P-11</b>	WIND AND TEMPERATURE FROM 10 TO 45 KM SIMULTANEOUSLY MEASURED WITH A NA-DEMOF-BASED 3-FREQUENCY DOPPLER LIDAR. <i>W. Fong, W. Huang, Z. Wang, B. Roberts, B. Tan, C. Yamashita, X. Chu, T. Yuan, S.D. Harrell, C.-Y. She</i> .....	1003
<b>S8P-12</b>	MESOPAUSE TEMPERATURE TREND UNCERTAINTIES USING BOOTSTRAP MONTE CARLO. <i>D.A. Krueger, C.-Y. She</i> .....	1007

<b>S8P-13</b>	DYNAMICS OF LIDAR REFLECTIONS OF UPPER ATMOSPHERE IN KAMCHATKA AND ITS CONNECTION WITH IONOSPHERIC PHENOMENA. <i>V.V. Bychkov, B.M. Shevtsov</i> .....	1011
<b>S8P-14</b>	LIDAR OBSERVATIONS OF VOLCANIC AEROSOL LAYERS IN THE STRATOSPHERE OVER TOMSK IN 2008–2009. <i>V.N. Marichev, I.V. Samokhvalov</i> .....	1015
<b>S8P-15</b>	LIDAR OBSERVATIONS OF THE VERTICAL TEMPERATURE DISTRIBUTION IN THE LOWER AND MIDDLE ATMOSPHERE OVER WESTERN SIBERIA IN 2008–2009. <i>V.N. Marichev</i> .....	1019
<b>S8P-16</b>	A PROPOSAL OF ALL SOLID RESONANCE SCATTERING LIDAR USING A QUASI-PHASE-MATCHED OPTICAL PARAMETRIC GENERATOR. <i>M. Abo, C. Nagasawa, Y. Shibata</i> .....	1022
<b>S8P-17</b>	LONG TERM OBSERVATIONS OF STRATOSPHERIC AND MESOSPHERIC TEMPERATURE BY NIES OZONE DIAL OVER TSUKUBA, JAPAN. <i>B. Tatarov, H. Nakane, C.B. Park, N. Sugimoto, I. Matsui</i> .....	1024
<b>S8P-18</b>	ABSORPTION OF OZONE, NITROGEN DIOXIDE, AND SULPHUR DIOXIDE MOLECULES IN THE UV SPECTRAL REGION 250–400 nm. <i>Yu.V. Voronina, O.N. Sulakshina, T.Yu. Chesnokova, A.V. Chentsov</i> .....	1029

---

### **Session 9: Combining Lidar with Other Techniques and Unique Lidar Applications**

---

<b>S90-01</b>	OBSERVING THE FOREST CANOPY WITH A NEW ULTRA-VIOLET COMPACT AIRBORNE LIDAR. <i>J. Cuesta, P. Chazette, T. Allouis, P.H. Flamant, S. Durrieu, J. Sanak, P. Genau, D. Guyon, D. Loustau, C. Flamant</i> .....	1035
<b>S90-02</b>	LIDAR AND RADAR MEASUREMENTS OF THE MELTING LAYER IN THE FRAME OF THE CONVECTIVE AND OROGRAPHICALLY INDUCED PRECIPITATION STUDY. <i>P. Di Girolamo, D. Summa, R. Bhawar, T. Di Iorio, G. Vaughan, G. Peters</i> .....	1039
<b>S90-03</b>	LONG RANGE TRANSPORT OF AIR POLLUTION IN THE EAST EUROPEAN REGIONS: FOUR YEARS OBSERVATIONS. <i>V. Kabashnikov, A. Chaikovsky, S. Denisov, O. Dubovik, P. Goloub, A. Ivanov, V. Kusmin, B. Kazeruk, M. Korol, Y. Karol, A. Lopatsin, N. Miatselskaya, F. Osipenko, A. Pietruczuk, A. Slesar, P. Sobolewski, D. Tanre</i> .....	1043
<b>S90-04</b>	INTEGRATING RAMAN LIDAR AND MICROWAVE OBSERVATION TECHNIQUES FOR THE IMPROVEMENT OF WATER VAPOUR PROFILING IN CLOUDY CONDITIONS. <i>F. Madonna, A. Amodeo, C. Cornacchia, G. D'Amico, A. Giunta, L. Mona, G. Pappalardo</i> .....	1047
<b>S90-05</b>	LIDAR AND AIRBORNE INVESTIGATION OF SMOKE PLUME CHARACTERISTICS: KOOTENAI CREEK FIRE CASE STUDY. <i>S. Urbanski, V. Kovalev, W.M. Hao, C. Wold, A. Petkov</i> .....	1051
<b>S90-06</b>	EZ LIDAR AND SUN-PHOTOMETER MEASUREMENTS OF THE OPTICAL PROPERTIES OF THE TROPOSPHERIC AEROSOLS IN THE GANGE BASIN ALONG CALIPSO SATELLITE TRACK IN THE FRAME OF NASA TIGER-Z CAMPAIGN. <i>S. Lolli, L. Sauvage, F. Fajjan</i> .....	1055
<b>S90-07</b>	THE CO-PRESENCE OF WILDFIRE AND SAHARAN AEROSOLS OBSERVED BY MEANS OF LIDAR, IN-SITU INSTRUMENTS AND SATELLITE IMAGERY. <i>M. Del Guasta, A. Baglioni, F. Castagnoli, P. Cristofanelli, A. Marinoni, J. Arduini, M. Maione, P. Bonasoni</i> .....	1059

<b>S9O-08</b>	SYNERGISM OF NIGHTTIME STARPHOTOMETRY AND LIDAR MEASUREMENTS. <i>K. Baibakov, N.T. O'Neill, A. Saha, D. Daou, B. Firanski, K. Strawbridge, E. Eloranta</i> .....	1063
<b>S9O-09</b>	CONTRIBUTION OF LIDAR OBSERVATIONS TO URBAN BOUNDARY LAYER NO <sub>2</sub> ANALYSIS. <i>E. Dieudonné, F. Ravetta, J. Pelon, F. Goutail, A. Pazmiño</i> .....	1067
<b>S9O-10</b>	COMBINATION OF WIND LIDAR WITH CFD TOOLS FOR IMPROVING MEASUREMENTS IN COMPLEX TERRAIN. <i>M. Boquet, A. Albergel, R. Parmentier, L. Sauvage, J.-P. Cariou</i> .....	1071
<b>S9O-11</b>	FLUORESCENCE LIDAR FOR STUDIES OF MOVEMENTS OF INSECTS AND BIRDS. <i>Z. Guan, M. Brydegaard, P. Lundin, M. Wellenreuther, A. Runemark, E. Svensson, S. Akesson, S. Svanberg</i> .....	1075
<b>S9P-01</b>	AEROSOL OPTICAL DEPTH BY LIDAR, AERONET SUN-PHOTOMETER, AND MODIS MEASUREMENTS: INTERCOMPARISON STUDY. <i>A.M. Tafuro, M.R. Perrone, F. De Tomasi</i> .....	1079
<b>S9P-02</b>	ADAPTIVE OPTICS CORRECTION USING LASER BEACON WITH RANDOM CENTER. <i>L.A. Bolbasova, V.P. Lukin</i> .....	1083
<b>S9P-03</b>	THE RETRIEVAL OF AEROSOL MICROPHYSICAL PROPERTIES IN THE VERTICAL COLUMN USING COMBINED LIDAR/PHOTOMETER DATA: A STEP TO INTEGRATING PHOTOMETER AND LIDAR NETWORKS. <i>A. Chaikovsky, O. Dubovik, P. Goloub, D. Tanre, A. Lopatsin, S. Denisov, T. Lapyonok, Y. Karol</i> .....	1087
<b>S9P-04</b>	LIDAR RATIOS AND DEPOLARIZATION RATIOS OF SAHARAN DUST MEASURED WITH LIDAR AND INFERRED FROM AERONET SUN PHOTOMETER DURING SAMUM 2006. <i>K. Lee, D. Müller, A. Ansmann, M. Tesche, D. Althausen, M. Esselborn, B. Heese, B. Weinzierl, A. Petzold, K. Kandler, C. Toledano</i> .....	1091
<b>S9P-05</b>	FIRST SIMULTANEOUS MEASUREMENT OF WATER VAPOR CONCENTRATION, EXTINCTION COEFFICIENT AND TRANSPORT OF A VOLCANIC PLUME BY DIFFERENTIAL ABSORPTION LIDAR. <i>L. Fiorani, F. Colao, A. Palucci, D. Poreh</i> .....	1095
<b>S9P-06</b>	2D AND 3D AIR QUALITY MONITORING USING A LIDAR IN INDUSTRIAL AND URBAN AREAS. <i>S. Loaec, B. Guinot, S. Lolli, M. Fofana, L. Sauvage</i> .....	1099
<b>S9P-07</b>	ON THE LIDAR RATIO ESTIMATION FROM THE SYNERGY BETWEEN AERONET SUN-PHOTOMETER DATA AND ELASTIC LIDAR INVERSION. <i>M. Nadzri Md. Reba, F. Rocadenbosch, M. Sicard, D. Kumar, S. Tomás</i> .....	1102
<b>S9P-08</b>	LIDAR AND <i>IN SITU</i> SENSING OF BAIKAL LAKE WATER. <i>G.P. Kokhanenko, Yu.S. Balin, I.E. Penner, V.S. Shamanaev</i> .....	1106
<b>S9P-09</b>	COMBINED DOPPLER LIDAR AND PHASED ARRAY, DOPPLER RADAR WIND MEASUREMENTS IN TORNADIC SUPERCELLS USING TWOLF AND MWR-05XP. <i>H.B. Bluestein, G.D. Emmitt, I. PopStefanija, R. T. Bluth, M.M. French, J. Houser</i> .....	1110
<b>S9P-10</b>	MONITORING OF HIGHER AND LOWER ATMOSPHERE USING THE YAKUTSK EAS ARRAY DATA. <i>S.P. Knurenko, Z.Ye. Petrov, S.V. Nikolashkin, A.V. Sabourov</i> .....	1114
<b>S9P-11</b>	REABSORPTION OF LASER-INDUCED FLUORESCENCE IN A PLANT COVER: STOCHASTIC MODEL. <i>G.M. Krekov, A.A. Lisenko, G.G. Matvienko</i> .....	1118

<b>S9P-12</b>	STUDY OF THE AEROSOL LOAD AT AN URBAN AND A NEARBY SUBURBAN SITE USING LIDAR, SUNPHOTOMETER MEASUREMENTS AND MODEL PM <sub>10</sub> ESTIMATES. <i>D. Balis, E. Giannakaki, E. Katragkou, M. Wiegner, K. Markakis, T. Giannaros, V. Amiridis, A. Bais</i> .....	1122
<b>S9P-13</b>	SAHARAN DUST BACKSCATTER AS MEASURED BY LIDAR AND CALCULATED FROM IN-SITU AEROSOL SIZE DISTRIBUTIONS. <i>M. Del Guasta, A. Baglioni, P. Cristofanelli, A. Marinoni, P. Bonasoni</i> .....	1126
<b>S9P-14</b>	AN AUTOMATED LIDAR FOR THE MONITORING OF TROPOSPHERIC CLOUDS AND AEROSOLS AT CONCORDIA STATION (ANTARCTICA). <i>M. Del Guasta, F. Castagnoli, V. Vitale</i> .....	1130
<b>S9P-15</b>	RAMAN-LIDAR, SUNPHOTOMETRIC AND AIRBORNE DATA IN COMBINATION WITH INVERSION MODELS FOR THE ESTIMATION OF THE AEROSOL PROPERTIES OVER ATHENS, GREECE. <i>R.E. Mamouri, A. Papayannis, V. Amiridis, D. Müller, I. Veselovskii, A. Kolgotin, P. Kokkalis, G. Tsaknakis, S. Rapsomanikis, A. Nenes</i> .....	1134
<b>S9P-16</b>	REMOTE SENSING AND IN SITU INVESTIGATION OF THE ATMOSPHERE OVER MOUNTAIN VALLEY (SOFIA-BULGARIA). <i>T. Evgenieva, B. Tatarov, B.L.B. Wiman, N. Kolev, E. Donev, D. Ivanov, V. Danchovski, D. Petkov, V. Grigorieva, I. Kolev</i> .....	1138
<b>S9P-17</b>	LIDAR AND TWO SUN PHOTOMETERS OBSERVATIONS IN SOFIA (BULGARIA). <i>N. Kolev, T. Evgenieva, D. Petkov, I. Kolev, P. Devara, P.E. Raj</i> .....	1142
<b>S9P-18</b>	ON THE SYNERGIC USE OF PASSIVE AND ACTIVE REMOTE SENSING FOR ATMOSPHERIC AEROSOL RADIATIVE EFFECT COMPUTATIONS. <i>F. Navas-Guzmán, D. Pérez-Ramírez, F.J. Olmo, H. Lyamani, J.L. Guerrero-Rascado, J.A. Bravo-Aranda, L. Alados-Arboledas</i> .....	1146
<b>S9P-19</b>	COMBINED LIDAR AND SUN/SKY PHOTOMETER MEASUREMENTS OVER PORQUEROLLES, FRANCE: OBSERVATION OF AN AFRICAN DUST OUTBREAK BETWEEN 21–25 MAY 2007. <i>O. Lado-Bordowsky, M. Kervella, C. Klein</i> .....	1150
<b>S9P-20</b>	ON FORWARD KLETT'S INVERSION OF CEILOMETER SIGNALS. <i>I.S. Stachlewska, K.M. Markowicz</i> .....	1154
<b>S9P-21</b>	ON THE WAY TO COMBINED DIAL AND RAMAN LIDAR SOUNDING OF WATER VAPOUR AT THE NDACC STATION ZUGSPITZE. <i>L. Klanner, T. Trickl, H. Vogelmann</i> .....	1158
<b>S9P-22</b>	DAILY BEHAVIOUR OF FLUORESCENCE CHARACTERISTICS OF PINE FROM LIDAR SENSING DATA. <i>O.V. Kharchenko, M.V. Grishaev, N.S. Salnikova</i> ...	1160

---

### Session 10: Atmospheric Water Vapor and Tropospheric Temperature

---

<b>S10O-01</b>	MEASUREMENTS OF HUMIDITY IN THE ATMOSPHERE AND VALIDATION EXPERIMENTS (MOHAVE)-2009: OPERATIONS AND RESULTS OVERVIEW. <i>T. Leblanc, I.S. McDermid, H. Vömel, T.J. McGee, C. Straub, N. Kampf, G. Nedoluha, S. Gutman, D.N. Whiteman, T.M. Van Hove, J.J. Braun</i> .....	1167
<b>S10O-02</b>	LASE OBSERVATIONS OF INTERACTIONS BETWEEN AFRICAN EASTERLY WAVES AND THE SAHARAN AIR LAYER. <i>S. Ismail, R. Ferrare, E. Browell, S. Kooi, M. Biswas, T. N. Krishnamurti, A. Notari, A. Heymsfield, C. Butler, S. Burton, M. Fenn, J. Dunion</i> .....	1171

<b>S100-03</b>	A RAMAN LIDAR AS OPERATIONAL TOOL FOR WATER VAPOR PROFILING IN THE SWISS METEOROLOGICAL OFFICE. <i>V. Simeonov, T. Dinoev, B. Calpini, S. Bobrovnikov, Y. Arshinov, P. Ristori, H. van den Bergh, M. Parlange</i> .....	1175
<b>S100-04</b>	FIRST WATER VAPOR AND CLOUD MEASUREMENTS WITH THE NEW FAR-RANGE RECEIVER OF THE GERMAN METEOROLOGICAL SERVICE RAMAN LIDAR RAMSES. <i>J. Reichardt, R. Begbie, U. Wandinger, V. Klein, B. Hilber, D. Engelbart</i> .....	1179
<b>S100-05</b>	THREE YEARS OF WATER-VAPOR SOUNDING WITH THE DIFFERENTIAL ABSORPTION LIDAR (DIAL) ON MT. ZUGSPITZE. <i>H. Vogelmann, T. Trickl, M. Wirth</i> .....	1183
<b>S100-06</b>	SCANNING DIFFERENTIAL ABSORPTION LIDAR FOR 3DOBSERVATIONS OF THE ATMOSPHERIC HUMIDITY FIELD. <i>A. Behrendt, V. Wulfmeyer, A. Riede, G. Wagner, S. Pal, H. Bauer, F. Späth</i> .....	1187
<b>S10P- 01</b>	COMPARISON OF METHODS FOR EVALUATION OF TEMPERATURE USING ROTATIONAL RAMAN SCATTERING SPECTRA. <i>S.M. Bobrovnikov, A.I. Nadeev</i> .....	1191
<b>S10P- 02</b>	INITIAL RESULTS FROM ARCLITE TROPOSPHERIC WATER VAPOR PROFILING AND BALLOON VALIDATION. <i>R.R. Neely III, J.P. Thayer</i> .....	1195
<b>S10P- 03</b>	STROZ LIDAR RESULTS AT THE MOHAVE III CAMPAIGN, OCTOBER, 2009, TABLE MOUNTAIN, CA. <i>T.J. McGee, L. Twigg, G. Sumnicht</i> .....	1198
<b>S10P- 04</b>	ULTRAVIOLET RAMAN LIDAR FOR QUANTITATIVE MEASUREMENTS OF ATMOSPHERIC WATER VAPOR AND AEROSOL EXTINCTION PROFILES. <i>D. Hua, Y. Wang, J. Mao, Y. Xue, T. Kobayashi</i> .....	1199
<b>S10P- 05</b>	LOW TROPOSPHERIC TEMPERATURE MEASUREMENTS USING A PURE ROTATIONAL RAMAN LIDAR IN UV. <i>W.-N. Chen, C.C.K. Chou, Y. Balin, S. Bobrovnikov</i> .....	1200
<b>S10P- 06</b>	PRELIMINARY STATISTICAL STUDY OF SUBTROPICAL WATER VAPOR PROFILES FROM RAMAN LIDAR AT LA REUNION (21°S, 55°E) OVER THE PERIOD 2002–2005. <i>C. Hoareau, P. Keckhut, J.-L. Baray, F. Goutail, J. Porteneuve, Y. Courcoux</i> .....	1204
<b>S10P- 07</b>	MULTI-SENSORS INVESTIGATION OF ATMOSPHERIC WATER VAPOR PROBABILITY DISTRIBUTION FUNCTION IN THE FREE TROPOSPHERE FOR A MEDITERRANEAN COASTAL SITE. <i>G.L. Liberti, F. Cheruy, D. Dionisi, F. Congeduti</i> .....	1208
<b>S10P-08</b>	TEMPERATURE AND AEROSOL BACKSCATTER RATIO MEASUREMENTS WITH THE SWISS RAMAN LIDAR FOR METEOROLOGICAL APPLICATIONS. <i>T. Dinoev, I. Serikov, V. Simeonov, Y. Arshinov, S. Bobrovnikov, B. Calpini, H. van den Bergh, M.B. Parlange</i> .....	1212
<b>S10P- 09</b>	HIGH-SPECTRAL-RESOLUTION LIDAR FOR TEMPERATURE MEASUREMENT WITH POTASSIUM ABSORPTION FILTERS. <i>M. Abo, C. Nagasawa, Y. Shibata</i> .....	1216

---

**Session 11: Space-based Missions, Validation, and Global Monitoring**

---

<b>S110-01</b>	ACTIVE SENSING TECHNOLOGY INVESTMENTS SUPPORTING THE EARTH SCIENCE DECADEAL SURVEY. <i>G.J. Komar</i> .....	1221
<b>S110-02</b>	CALIPSO AT FOUR: RESULTS AND PROGRESS. <i>D. Winker, Y. Hu, M. Pitts, J. Tackett, C. Kittaka, Z. Liu, M. Vaughan</i> .....	1225

<b>S110-03</b>	CHARACTERIZATION OF CIRRUS AND POLAR STRATOSPHERIC CLOUDS USING CALIPSO'S CALIOP MEASUREMENTS. <i>M.P. McCormick, H. Nazaryan, M. T. Hill</i> .....	1229
<b>S110-04</b>	LIDAR ATMOSPHERIC MEASUREMENTS ON MARS. <i>J. Whiteway, L. Komguem, C. Dickinson, M. Daly, A. Carswell, T. Duck</i> .....	1233
<b>S110-05</b>	ESA'S WIND LIDAR MISSION ADM-AEOLUS: ON-GOING SCIENTIFIC ACTIVITIES RELATED TO CALIBRATION, RETRIEVAL AND INSTRUMENT OPERATION. <i>O. Le Rille, A.e-G. Straume, M.O. Vieitez, W. Ubachs, W. van de Water, B. Witschas, O. Reitebuch, G.-J. Marseille, J. de Kloe, A. Stoffelen, K. Houchi, H. Körnich, H. Schyberg</i> .....	1237
<b>S110-06</b>	LONG-TERM AEROSOL AND CLOUD DATABASE FROM CORRELATIVE EARLINET-CALIPSO OBSERVATIONS. <i>A. Hiebsch, U. Wandinger, I. Mattis, A. Ansmann, G. Pappalardo, L. Mona, F. Madonna, G. D'Amico, A. Giunta, H. Linné, I. Serikov, A. Apituley, K. Wilson, L.A. Arboledas, F.N. Guzmán, D. Balis, E. Giannakaki, A. Chaikovsky, F. De Tomasi, M.R. Perrone, V. Freudenthaler, M. Wiegner, F. Schnell, I. Grigorov, D. Stoyanov, M. Iarlori, V. Rizi, R.-E. Mamouri, A. Papayannis, F. Molero, M. Pujadas, A. Pietruczuk, F. Rocadenbosch, S. Tomas, D. Kumar, N. Spinelli, X. Wang</i> .....	1241
<b>S110-07</b>	THE CALIPSO CLOUD AND AEROSOL DISCRIMINATION: VERSION 3 ALGORITHM AND TEST RESULTS. <i>Z. Liu, R. Kuehn, M. Vaughan, D. Winker, A. Omar, K. Powell, C. Trepte, Y. Hu, and C. Hostetler</i> .....	1245
<b>S110-08</b>	A COMPARISON OF SPACE-BORNE AND AIRBORNE LIDAR OBSERVATIONS OF COMPLEX, HIGH CLOUD FIELDS DURING CLASIC. <i>S.A. Young, D.L. Hlavka, M.A. Vaughan, M.J. McGill</i> .....	1249
<b>S110-09</b>	ICE CLOUD MICROPHYSICS FROM CLOUDSAT AND CALIOP: ANAYSIS OF ORIENTED CRYSTALS. <i>H. Okamoto, K. Sato, Y. Hagihara, M. Hirakata</i> .....	1253
<b>S110-10</b>	FEATUREMASK ALGORITHM FOR THE EARTHCARE LIDAR. <i>G.-J. van Zadelhoff, D.P. Donovan</i> .....	1257
<b>S110-11</b>	IN ORBIT PERFORMANCE OF THE LUNAR ORBITER LASER ALTIMETER. <i>X. Sun, G.A. Neumann, J.F. Cavanaugh, J.F. McGarry, P.M. Liiva, H. Riris, D.E. Smith, M.T. Zuber</i> .....	1261
<b>S110-12</b>	THE EARTHCARE HIGH SPECTRAL RESOLUTION LIDAR. <i>A. Hélière, R. Gelsthorpe, A. Lefebvre, T. Wehr</i> .....	1265
<b>S11P-01</b>	MULTIPLE-SCATTERING EFFECTS IN CALIPSO MEASUREMENTS OF DESERT DUST. <i>U. Wandinger, M. Tesche, P. Seifert, A. Ansmann, D. Muller, D. Althausen</i> .....	1269
<b>S11P-02</b>	SPACE-BORNE REMOTE SENSING OF GREENHOUSE GASES BY IPDALIDAR: A POTENTIALITIES ESTIMATE. <i>G.G. Matvienko, G.M. Krekov, A.Ya. Sukhanov</i> .....	1273
<b>S11P-03</b>	SPACEBORNE MULTIWAVELENGTH AEROSOL HSRL: FEASIBILITY STUDY IN THE FRAMEWORK OF ICAROHS. <i>A. Ansmann, U. Wandinger, D. Muller, E. Chemyakin, A. Petzold, M. Esselborn, B. Weinzierl, R. Buras, D.P. Donovan, G.-J. van Zadelhoff, M. Wiegner, J. Gasteiger, B. Mayer, A. Kolgotin, D. Lajas, T. Wehr</i> .....	1277
<b>S11P-04</b>	ADVANCES IN RESEARCH PRODUCTS FROM CALIPSO: OPTICAL DEPTH DIRECT RETRIEVAL OVER OCEAN, WATER CLOUDS AND LAND. <i>D. Josset, Y. Hu, J. Pelon, P. Zhai, D. Tanré, R. Rogers, P. Lucker, C. Trepte, K. Powell, S. Rodier, N. Pascal, and the ICARE team</i> .....	1280



<b>S11P-05</b>	THE IMPACT OF MULTIPLE SCATTERING ON SPACE-BASED HSR LIDAR POLARIZATION MEASUREMENTS: IMPLICATIONS FOR EARTHCARE. <i>D.P. Donovan</i> .....	1284
<b>S11P-06</b>	VALIDATION OF THE DUST LAYER STRUCTURE OVER THE TAKLIMAKAN DESERT, CHINA FROM THE SPACE-BORNE LIDAR CALIOP USING A GROUND-BASED LIDAR. <i>Y. Jin, K. Kai, T. Shibata, K. Zhang, H. Zhou</i> ..	1288
<b>S11P-07</b>	STRATEGY AND DEVELOPMENT OF AN ALGORITHM FOR BIOMASS BURNING AEROSOL TRANSPORT TRACKING WITH CALIPSO SATELLITE, SUNPHOTOMETER AND A BACKSCATTER LIDAR SYSTEM IN BRAZIL. <i>F.J.S. Lopes, E. Landulfo</i> .....	1292
<b>S11P-08</b>	NOAA'S GLOBAL MONITORING DIVISIONS'S LIDAR NETWORK FOR THE DETECTION OF UPPER TROPOSPHERIC AND STRATOSPHERIC AEROSOLS. <i>R.R. Neely III, M. O'Neill</i> .....	1295
<b>S11P-09</b>	SMOKE INJECTION HEIGHTS FROM AGRICULTURAL BURNING IN EASTERN EUROPE AS SEEN BY CALIPSO. <i>V. Amiridis, E. Giannakaki, D.S. Balis, I. Pytharoulis, P. Zanis, D. Melas, S. Kazadzis, E. Gerasopoulos, C. Zerefos</i> .....	1300
<b>S11P-10</b>	MULTIPLE SCATTERING OF LASER PULSES IN SNOW OVER ICE: MODELING THE POTENTIAL BIAS IN ICESAT ALTIMETRY. <i>A.B. Davis, T. Várnai, A. Marshak</i> .....	1304
<b>S11P-11</b>	LIDAR TECHNOLOGY FOR MEASURING TRACE GASES ON MARS AND EARTH. <i>H. Riris, S. Li, K. Numata, S. Wu, A. Seas, J. Abshire</i> .....	1308
<b>S11P-12</b>	AIRBORNE LIDAR EXPERIMENTAL MEASUREMENT OF THE SEA SURFACE REFLECTANCE. <i>Z. Li, C. Lemmerz, U. Paffath, O. Reitebuch, B. Witschas</i> .....	1312
<b>S11P-13</b>	CALIPSO LAND SURFACE MAPPING PRINCIPLE AND FIRST RESULTS. <i>D. Josset, J. Pelon, Y. Hu, P. Zhai, K. Powell, S. Rodier, C. Trepte</i> .....	1316
<b>S11P-14</b>	RECEIVER PERFORMANCE ANALYSIS OF A PULSED PHOTON COUNTING LIDAR TO MEASURE ATMOSPHERE CO <sub>2</sub> CONCENTRATIONS. <i>X. Sun, J.B. Abshire</i> .....	1320
<b>S11P-15</b>	GLOBAL AND SEASONAL CHARACTERISTICS OF THE CLOUD PHASE AND ICE ORIENTATION OBSERVED BY CALIPSO. <i>M. Hidakata, H. Okamoto, Y. Hagihara, R. Yoshida, T. Hayasaka</i> .....	1324
<b>S11P-16</b>	COINCIDENCE NTUA'S GROUND BASED AND CALIOP'S SPACE BORNE LIDAR MEASUREMENTS IN THE FRAME OF THE EARLINET-ASOS AND ESA-CALIPSO PROJECTS. <i>R.E. Mamouri, A. Papayannis, V. Amiridis, G. Tsaknakis</i> .....	1328
<b>S11P-17</b>	CRITICAL LIDAR TECHNOLOGY DEVELOPMENTS IN SUPPORT OF ESA'S EARTH OBSERVATION MISSIONS. <i>Y. Durand, J. Caron, J.-L. Bézy, R. Meynard, M. Zahir, M. Jost, N. Nelms</i> .....	1332
<b>S11P-18</b>	ERROR ANALYSIS SIMULATION FOR A FLUORESCENCE LIDAR SYSTEM OF THE PROPOSED GLEME ESA MISSION. <i>V. Antakis, A. Vouldis, A. Papayannis, T. Sarris, X. Chu, E. R. Tallaat, E. Armandillo</i> .....	1336
<b>S11P-19</b>	STRATEGIES FOR IMPROVED CALIPSO AEROSOL OPTICAL DEPTH ESTIMATES. <i>M. Vaughan, R. Kuehn, J. Tackett, R. Rogers, Z. Liu, A. Omar, B. Getzewich, K. Powell, Y. Hu, S. Young, M. Avery, D. Winker, C. Trepte</i> .....	1340

<b>S11P-20</b>	EXTINCTION-TO-BACKSCATTER RATIOS OF SAHARAN DUST LAYERS DERIVED FROM IN-SITU MEASUREMENTS AND CALIPSO OVERFLIGHTS DURING NAMMA. <i>A. Omar, Z. Liu, M. Vaughan, Y. Hu, S. Ismail, K. Powell, D. Winker, C. Trepte, B.E. Anderson</i> .....	1344
<b>S11P-21</b>	THE FRENCH-GERMAN CLIMATE MONITORING INITIATIVE ON GLOBAL OBSERVATIONS OF ATMOSPHERIC METHANE. <i>Ge. Ehret, P. Flamant, A. Amediek, P. Ciais, F. Gibert, A. Fix, C. Kiemle, M. Quatrevalet, M. Wirth</i> .....	1348
<b>S11P-22</b>	ATMOSPHERIC PRESSURE MEASUREMENTS USING THE OXYGEN A BAND. <i>H. Riris, M. Rodriguez, M. Stephen, J. Mao, X. Sun, J. Abshire</i> .....	1351
<b>S11P-23</b>	STUDY RESULTS FOR THE GLOBAL LIDAR EXPLORATION OF THE MESOSPHERE. <i>T.E. Sarris, E.R. Talaat, A. Papayannis, X. Chu, M. Daly, P. Dietrich, J. Penson, V. Antakis, A. Vouldis, M. Koukouli, Ch. Kalaitzidis, E. Armandillo</i> .....	1355
<b>S11P-24</b>	CALIPSO VALIDATION MEASUREMENTS WITH THE RAMAN LIDAR MULIS IN MAISACH, GERMANY. <i>F. Schnell, M. Wiegner, V. Freudenthaler</i> .....	1359
<b>S11P-25</b>	DEVELOPMENT OF A COMBINED CLOUDSAT/CALIPSO CLOUD MASK AND REVISIT CLOUD TOP HEIGHTS FROM CLOUDSAT AND CALIPSO. <i>Y. Hagihara, H. Okamoto, Z. Luo</i> .....	1363
<b>S11P-26</b>	THE CALIOP 532-NM CHANNEL DAYTIME CALIBRATION: VERSION 3 ALGORITHM. <i>K.A. Powell, M.A. Vaughan, R.R. Rogers, R.E. Kuehn, W.H. Hunt, K.-P. Lee, T.D. Murray</i> .....	1367
<b>S09-18</b>	CONSISTENCY BETWEEN BACKSCATTER LIDAR PRODUCTS AND VISIBILITY RANGE. <i>Valentin Mitev, Renaud Matthey</i> .....	1371