EUROPEAN ASSOCIATION OF REMOTE SENSING LABORATORIES
ASSOCIATION EUROPÉENNE DE LABORATOIRES DE TÉLÉDÉTECTION

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*ANNUAL REPORT OF THE **SIG FORESTRY** FOR THE YEAR **2016***

THE DEADLINE FOR THE SUBMISSION OF THIS REPORT TO THE EARSEL SECRETARIAT IS JANUARY 10th, 2017 (by email: secretariat@earsel.org*)*

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WORKSHOPS

At September 15-16, 2016 - the Laboratory of Geomatics (ZULGiEL, IZZL, Faculty of Forestry, University of Agriculture in Krakow), together with the European Association of Remote Sensing Laboratories (EARSeL) organized an international conference 3rd Workshop Special Interest Group on Forestry "Breaking dimensions and resolutions of forest remote sensing data", which was attended by scientists and specialists from 27 countries (including Australia, USA, Japan, Canada, Germany), decision-makers from the European Space Agency (ESA) and professionals in the field of forestry and nature conservation, representing commercial companies performing equipment, software or technology implementation geo-information, such as: Esri, Planet Labs, Terrasolid, Riegl, EC Test Systems, PANalytical, SphereOptics, Hexagon, Wasat, Gispro, PROGEA Consulting, TPI, Leica Geosystems, NaviGate, Eurotech, Geotronics Distribution of the Bureau of Forest Management and Geodesy. For 2 days during the plenary lectures and thematic sessions were discussed issues of management and monitoring of forest resources through the use of measurement technology 2D and 3D (including LiDAR), automatic classification of remote sensing images (GEOBIA), new sources of satellite images (eg. SENTINEL-1 and - 2; Copernicus project-ESA; Planet Labs - nanosatellites) spatial databases, global positioning satellite and digital photogrammetry using drones and hyperspectral cameras.
Among the invited lecturers appeared in a number of well-known professionals, including: Frank Martin Seifert (ESA / ESRIN); Juha Hyyppä (Finland); Christian Thiel (Germany); Iain Woodhouse (Scotland); Robert J. McGaughey (USA); Norbert Pfeifer (Austria); Joachim Hill (Germany); Monika L. Moskal (USA); Jaan prakse (Finland); Martin Isenburg (Germany). They delivered their speeches

during the 6 plenary sessions: Forestry Remote Sensing, Radar, multispectral LiDAR, Point cloud processing, UAV, From UAV to Hyperspectral imaging and Forest applications.
The conference also hosted a session of the sponsors presented their latest achievements demonstrated on stands during the two days of the exhibition accompanying the (GeoExpo). Presented, among others, innovative devices for remote measuring of the spectral characteristics of vegetation and rocks (Spectroradiometers), which can be used to calibrate the data collected by the sensors, aerial or satellite or direct determination of the condition of vegetation. Undoubtedly, the innovative solutions presented at the 3rd Workshop on Forestry SIG was nano-satellite constellation (3U, 10 x 10 x 30 cm) Dove Planet. Extremely popular were new ground based Riegl scanners and a the Leica Pegasus Backpack (Leica Geosystems) for mobile mapping (Wearable technology). In terms of software TerraScan (Terrasolid) presented the first solutions using information stored in the point cloud from the ALS scanning device performed multispectral TITAN (Optech). Software Terrasolid outside a function using three ranges of the electromagnetic wave to the classification of vegetation has also grouping functionality point clouds to individual objects (trees) which allows, among others, counting trees or specifying their spatial characteristics (eg. height). At the conference there were also systems for mobile laser scanning (ang. MLS). Presented system IP-S3 (Topcon; TPI).
The conference brought together a total of up to 163 participants, of which there were grouped in nine thematic sessions (TAS; Thematic Abstract Session) concerning: Airborne Laser Scanning (ALS), Terrestrial Laser Scanning (TLS), UAV, the monitoring of forests, the use of hyperspectral imaging, object-based image analysis (GEOBIA) and analysis of the state of forest health and to determine the biomass using remote sensing methods. In total, TAS sessions presented over 100 posters (3 minute presentations and one poster session).

Quite unusual technologically innovative session was a lecture by Robert McGaughey (USA; US Forest Service) that took place through a combination of Skype video conferencing, where the creator of the well-known Software FUSION unveiled its new functionality.
Parallel to the 3rd Workshop on Forestry EARSeL SIG, waged a conference Young Scientist Days on Forestry (YSDoF), which focused young students and researchers under 30 years of age. They competed among for prizes (financial participation 500 USD and complimentary with a stay and travel) for the best article. The conference YSDoF participants took part in workshops with a range of software: LasTools (rapidlasso, led by Martin Isenburg), GuidosToolbox (Peter Vogt) for GIS analysis of the scope of the classes cover and land use, the environment R (Piotr Tompalski) or the use of GNSS navigation in applications in forestry (Navigate, field excercise). It should be noted that just before the conference, the 3rd Workshop SIG on Forestry a Summer School (Summer School) "Advanced Geomatics in modern forestry" was held, dedicated to people interested in technology: LiDAR, Radar, UAV, Hyperspectral Imaging and GEOBIA. The school attended by about 80 students from around the world and nearly 30 teachers, well-known experts both guests and lecturers conferences 3rd EARSeL Workshop SIG on Forestry.
For the conference participants a special mobile application "SIGon4est" (systems, IOS and Android) was prepared, which allows users to access mile updated conference program and, among others they had the opportunity to vote on issues they would like addressed during the closing conference a panel discussion on new directions in science and technology geoinformation implemented in forestry. The most interesting topics for discussion moderated by prof. L. Monika Moskal (USA) and Martin Isenburg (Rapidlasso) proved: multispectral LiDAR, Big Data, Time series and hyper-temporal analysis, Data Fusion and UAV Laser Scanning. They were discussed by the panelists, ie. Recognized in their fields specialists. Guests of the panel were: Joachim Hill, Jaan Praks, Peter Vogt, Piotr Wężyk, Frank Martin Seifert, Yuri Raizman and Lars T. Waser. Apparently the scientific community united in EARSeL expected faster development of multi scanners and perhaps even in the future hyper-spectral

that beyond the geometry of the point cloud provide information about spectral characteristics of the object being imaged.

WEBSITE AND PROMOTION ACTIVITIES

http://sigforestry2016.eu

www.facebook.com/SIGonForestry

http://www.earsel.org/SIG/Forestry/index.php

SIGon4est - please see the PlayStore (Android), AppStore (IOS)

OTHER INFORMATION

Work on the preparation of the conference lasted over 16 months and ended with a great organizational success. Total income achieved by the 3rd Conference on Forestry SIG amounted to € 10,501.76. The sum of more than € 5,000.00 was submitted to the EARSeL Secretariat. A total of 12 sponsors obtained the amount of € 25,200.00 which made it possible to organize a conference on a high technical level with a lot of very valuable conference materials.

Post-workshop Technical Visit's were organised at 17 September 2016 to 2 different locations:

Technical Visit 1: Niepolomice Primeval Forest - Royal Salt Mine Wieliczka:

Niepolomice Polish State Forest District (RDLP Krakow) where the LiDAR and RS technology is very often tested in the scientific projects performed by the University of Agriculture in Krakow. The Niepolomice Primeval Forest (Puszcza Niepołomicka; 10.000 ha) is also famous for breeding of European bison and reserve areas. Technical visit to the Niepolomice State Forest can be combined with a short stay in the kings summer residence in Niepolomice castle and/or Salt Mine in Wieliczka (UNESCO, WHC).

Technical Visit 2: Zakopane - Tatra National Park:

Tatra National Park - TPN (approx. 120 km from Krakow to the South) with entrance to the windstorm area's in Norway spruce stands in the Koscieliska Valey (West Tatras) and the stay in the Visitor Centre and GIS Department of TPN. Depending on weather we plan the tour trough different natural and semi-natural five climatic-vegetation belts (lower montane, upper montane, dwarf pine, alpine, and subnival). The highest peak of our tour will be Kasprowy Wierch (1987 m a.s.l.), which will be get with the cable car.