



*5<sup>th</sup> International Symposium of*  
**Forest Engineering and Technologies-FETEC 2024**

*“Forest Operation Technologies and Systems for  
Small-Scale Forestry Applications”*

**16-18 September 2024**  
**Ljubljana, Slovenia**

# **CONFERENCE PROGRAMME**

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**Monday, 16 September 2024**

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**Bus departure at 7:45 from bus shuttle space at Miklošičeva ulica 9**

Please be there at 7:30 at the latest to facilitate smooth departure



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**08:00-09:00**

**Registration**

(Biotechnical Faculty, Jamnikarjeva 101, 1000 Ljubljana)

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**09:15-10:00**

**Welcome Notes**

(Biotechnical Faculty, D1)

*Matevž Mihelič (Chair), University of Ljubljana, Slovenia*

*H. Hulusi Acar (Co-Chair), FETEC, İstanbul Yeni Yüzyıl Unviversity, Türkiye*



**Opening Ceremony**

(Biotechnical Faculty, D1)

***Moderator: Matevž Mihelič, University of Ljubljana, Slovenia***

- **Simon Poljanšek**, Ministry of Agriculture, Forestry and Food of Republic of Slovenia
- **Nike Krajnc**, Slovenian Forestry Institute, Slovenia
- **Gregor Danev**, Public Forest Service, Slovenia
- **Robert Robek**, Slovenian State Forests d.o.o., Slovenia
- **Iztok Špan**, Tajfun Planina d.o.o., Slovenia
- **Abdullah E. Akay**, IUFRO Division 3.01, Türkiye
- **Marina Pintar**, Dean of Biotechnical Faculty, Slovenia

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**10:15-10:30**

**Break**

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10:30-12:00

Plenary Session

(Biotechnical Faculty, D1)

*Moderators: Matevž Mihelič & H. Hulusi Acar*

- **Raffaele Spinelli** (IBE, CNR Ivalsa, Italy): Technology for Small-Scale Forestry
- **Selçuk Gümüş** (Karadeniz Technical University, Türkiye): Utilizing Decision Trees Models for Machine Selection and Optimal Deployment in Forest Logging Planning
- **Jože Obrez** (Market Development Manager, Tajfun Planina doo, Slovenia): Sustainable Forestry with Tajfun
- **Tetsuhiko Yoshimura** (Shimane University, Japan): Productivity Calculation of Serial and Parallel Production Systems in Forestry

12:00-13:15

Lunch

13:15-13:30

Walk to the Department of Forestry  
(Večna pot 83, 1000 Ljubljana)



13:30-14:45

Technical Session 1

**1.1 Forest Operations Assessment**

(Department of Forestry, G6)

*Session chair: Anton Poje, Slovenia*

*Technical Assistant: Hakan Durgun*

Assessment of mechanization in timber harvesting: A case study of Çanakkale in Türkiye. *Ebru Bilici. USA.*

Analysis of skidder fuel consumption by work operations during timber extraction – Case study. *Marijan Šušnjar. Croatia.*

Analysis of production, utilization and material sources of small and medium-sized chippers in Slovenia. *Matjaž Dovečar, Slovenia.*

**1.2 Occupational Safety and Ergonomics**

(Department of Forestry, G7)

*Session chair: Abdurrahim Aydın, Türkiye*

*Technical Assistant: Burhan Gencal*

Statodynamic workloads of a chainsaw worker shown through the lens of motion capture technology. *Matija Landekić. Croatia.*

Assessment of machine-based hazards and risks in forestry transport works using HRNS and TOPSIS methods. *H.Hulusi Acar. Türkiye.*

Time consumption and potential improvements in silviculture practices to control ifolinvasive alien species - American pokeweed. *Matevž Triplat, Slovenia.*

An assessment on the methods of unit price calculation procedure for wood harvesting. <i>Hakan Durgun. Türkiye.</i>	Modelling of gas dispersion in forests and usage of actual dispersion models in forest areas: A software assisted study of a likely outflow scenario. <i>H. Hulusi Acar. Türkiye.</i>
<b>14:45-15:00</b>	<b>Break</b>
<b>15:00-16:15 Technical Session 2</b>	
<b>2.1 Forest Mechanization in Small-Scale Operations</b> (Department of Forestry, G6) <b>Session chair: Piotr S. Mederski, Poland</b> <i>Technical Assistant: Hakan Durgun</i>	<b>2.2 Small-scale logging machinery</b> (Department of Forestry, G7) <b>Session chair: Noriko Sato, Japan</b> <i>Technical Assistant: Burhan Gencal</i>
Effects of integrating roundwood processing in skidder operator's work cycle. <i>Branko Ursić. Croatia.</i>	Assessing the productivity of timber extraction with Lewis winch. <i>H. Hulusi Acar. Türkiye.</i>
Silvicultural and ecological effects of machine use in forestry. <i>Sena Yavruoglu. Türkiye.</i>	Dynamic modelling and optimisation of forestry machines. <i>Viatcheslav Loveikin. Ukraine.</i>
Stump harvesting operations: examples from the Mediterranean region. <i>Raffaele Spinelli. Italy.</i>	Substantiation of wood skidding equipment taking into account the natural and production conditions of Ukraine. <i>Ivan Radiak. Ukraine</i>
Assessment of PM10 exposure in chainsaw operators during tree felling. <i>İnanç Taş. Türkiye.</i>	Performance Analysis in Timber Loading Operations with A Tractor-Mounted Single-Gear Front Loader. <i>H. Hulusi Acar. Türkiye.</i>
<b>16:15-16:30</b>	<b>Break</b>
<b>16:30-17:30 Poster Session</b> (Department of Forestry, G6 - G7)	
Investigation of Mechanization Machines Used in Wood Production Studies in Türkiye. <i>Tolga Ozturk. Türkiye.</i>	
Assessment of timber forwarding efficiency in small-scale forestry. <i>Oleg Styranivsky, Ukraine.</i>	
Determination of Drainage Structure Excavation Areas by Close Range Photogrammetry. <i>Muhittin Inan. Türkiye.</i>	
Analysis of Cut and Fill Calculation Methods in Forest Road Design. <i>Hakan Topatan. Türkiye.</i>	
Assessment of Compatibility of Forestry Machines with Soils based on an Integral Indicator. <i>Yuliya Misuna</i>	

**Tuesday, 17 September 2024**

**Bus departure at 8:30 from bus shuttle space at Miklošičeva ulica 9**

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**09:00-10:15**

**Technical Session 3**

<b>3.1 Planning and Implementation of Small-Scale Logging</b> (Department of Forestry, G6) <b>Session chair: Marijan Šušnjar, Croatia</b> <i>Technical Assistant: Gizem Misirlioglu</i>	<b>3.2 Design and Construction of Forest Roads</b> (Department of Forestry, G7) <b>Session chair: Kazuhiro Aruga, Japan</b> <i>Technical Assistant: Taha Yasin Hatay</i>	<b>3.3 Soil Damage and Losses after Forest Harvesting and Roding</b> (Department of Forestry, G4) <b>Session chair: Thomas Kronholm, Sweden</b> <i>Technical Assistant: Sebahattin Açıkğöz</i>
Productivity and challenges of combined forest management in Japan a case study of wasabi and timber production. <i>Noriko Sato. Japan.</i>	Comparing manual and numerical methods for forest road design. <i>Hakan Durgun. Türkiye.</i>	Changes in topsoil carbon stock and some hydro physical soil properties and correlations among them after timber removal in broadleaf mixed forest. <i>Reyhan Sağlam. Türkiye.</i>
Small scale technologies and systems used for forest operations in urban forests. <i>Hajri Haska. Albania.</i>	Current situation of harvesting and forest roads in Japan. <i>Kazuhiro Aruga. Japan.</i>	Determination of soil deformation with unmanned aerial vehicles in logging activities with agricultural tractors. <i>Ebru Bilici. USA.</i>
Passing ability of medium-sized log trucks in mountainous forest areas in Japan. <i>Yasushi Suzuki. Japan.</i>	Identification of potential hydraulic structures on forest roads using ArcGIS® ModelBuilder. <i>Taha Yasin Hatay. Türkiye.</i>	Evaluation of GIS based landslide susceptibility mapping for determination of new forest road route: A case study Tanır Stream Watershed. <i>Kıvanç Yüksel. Türkiye.</i>
Use of environmentally friendly logging operations in the concept of small scale forestry. <i>Hajri Haska. Albania.</i>	Optimization of Secondary Forest Traffic Infrastructure Network. <i>Vladimir Petković. Bosnia and Herzegovina.</i>	Evaluation for Planning Optimal Forest Road Routes Using Landslide Susceptibility Maps. <i>Sebahattin Açıkğöz. Türkiye.</i>

10:15-10:30 Break

10:30-11:45

Technical Session 4

<b>4.1 Environmental Impact Assessment in Forestry Activities</b> (Department of Forestry, G6) <i>Session chair: Yasushi Suzuki, Japan</i> <i>Technical Assistant: Gizem Misirlioglu</i>	<b>4.2 Operational Planning to Mitigate Natural Hazards</b> (Department of Forestry, G7) <i>Session chair: Matevž Triplat, Slovenia</i> <i>Technical Assistant: Taha Yasin Hatay</i>	<b>4.3 Precision Forestry Applications I</b> (Department of Forestry, G4) <i>Session chair: Zennure Uçar, Türkiye</i> <i>Technical Assistant: Sebahattin Açıkgoz</i>
Swedish forest companies' advice and services to non-industrial private forest owners regarding management and prevention of forest damage. <i>Thomas Kronholm. Sweden.</i>	Assessing forest fire susceptibility and potential severity in the wildland-urban interface (WUI) with machine learning and google earth engine: case of Izmir regional directorate. <i>Remzi Eker. Türkiye.</i>	Log Volume Measurement Using a LiDAR-Enabled Smartphone. <i>Burhan Gencal. Türkiye.</i>
Estimating sediment yield from a road network by using a GIS-based sediment prediction model. <i>Ebru Bilici. USA.</i>	Interaction between forest road and wildfire. <i>Mohsen Mostafa. Italy.</i>	UAV-Based temporal change detections in an open-pit mine using python. <i>Hakan Durgun. Türkiye.</i>
Decay assessment in standing trees along urban-rural gradient of Megacity Bengaluru using non-destructive method: Electrical resistance tomograph. <i>Baragur Neelappa Divakara. India.</i>	Social benefits of a forest road network in fire-prone and protective forests. <i>Jaša Saražin, Slovenia.</i>	Log tracking information systems: Barcode application in Turkish forestry. <i>Zennure Uçar. Türkiye.</i>
Determining the effects of logging process on forest cover using Geographic Information Systems and UAV. <i>Gizem Misirlioglu. Türkiye.</i>	How to Save Timber Products from Wildfires by Improving Forest Road Standards? <i>Abdullah E. Akay. Türkiye.</i>	Development of Low-Cost IR Forest Scanner. <i>Abdurrahim Aydın. Türkiye.</i>

11:45-13:30 Lunch

<b>5.1 Forests, Biodiversity and Sustainable Forest Management</b> (Department of Forestry, G6) <b>Session chair: Rezo Vasadze, Georgia</b> <i>Technical Assistant: Sebahattin Açıkgöz</i>	<b>5.2 Assessment of Various Impacts on Forest Ecosystems</b> (Department of Forestry, G7) <b>Session chair: Baragur N. Divakara, India</b> <i>Technical Assistant: Taha Yasin Hatay</i>	<b>5.3 Digital Technology Applications in Forestry</b> (Department of Forestry, G4) <b>Session chair: Hajri Haska</b> <i>Technical Assistant: Hakan Durgun</i>
Buffering effects of the forest on particulate matter and noise isolation arising from motorway traffic. <i>Burak Arıcağ. Türkiye.</i>	Assessing windthrow impact in Kastamonu forests: environmental factors and Sentinel-2A imagery analysis. <i>Abdurrahim Aydın. Türkiye.</i>	Impact of bark thickness on timber volume calculation in harvester software. <i>Piotr S. Mederski. Poland.</i>
The biodiversity of Georgian forests and the current situation. <i>Rezo Vasadze. Georgia.</i>	Determination of the factors affecting the amount of water passing through the drainage structures planned on forest roads. <i>Stefano Grigolato. Italy.</i>	An evaluation of diameter measurement techniques: comparing calipers, laser devices, and the measure application. <i>Burhan Gencal. Türkiye.</i>
Analysis of Climate Change Variability Over Amasya Merzifon Forest Areas. <i>Mehmet Cetin. Türkiye.</i>	Detection of temporal change in forest road construction areas with satellite imagery: A case study. <i>Anil Azizoglu. Türkiye.</i>	Tree diameter measurement using a smartphone with laser technology. <i>Hajri Haska, Albania.</i>
Redesigning administrative measures on wildlife: Case study of deer management in Kumamoto Prefecture, Japan. <i>Junna Iwano. Japan.</i>	Assessment of Soil Contamination in Urban Forest Areas of Samsun City. <i>Ilknur Zeren Cetin. Türkiye.</i>	The potential of mobile applications in stand parameter estimation and time analysis: A case study of the arboreal application. <i>Burhan Gencal. Türkiye.</i>
<b>14:45-15:00 Break</b>		

<b>6.1 Using Spatial Analysis Tools in Forestry</b> (Department of Forestry, G6) <b>Session chair: Burak Aricak, Türkiye</b> <i>Technical Assistant: Sebahattin Açıköz</i>	<b>6.2 Precision Forestry Applications II</b> (Department of Forestry, G7) <b>Session chair: Ebru Bilici, USA</b> <i>Technical Assistant: Taha Yasin Hatay</i>	<b>6.3 Forest Transportation and Trucking</b> (Department of Forestry, G4) <b>Session chair: Jaša Saražin, Slovenia</b> <i>Technical Assistant: Hakan Durgun</i>
Possible Change in Distribution Areas of Scots Pine in Kastamonu due to Global Climate Change. <i>Burak Aricak. Türkiye.</i>	Potential use of under-canopy UAV-SfM 3D models to determine forest stand parameter. <i>Muhittin İnan. Türkiye.</i>	Automatic detection of round timber logs using the YOLOv8 Model. <i>Remzi Eker. Türkiye</i>
Assessment of urban green areas using i-Tree Canopy. <i>Abdifitah Mohamed Abdullahi. Somali.</i>	Using drone captured images to estimate productivity of a loading operation. <i>Ebru Bilici. USA.</i>	Key issues that need to be addressed for successful biomass harvesting and utilization. <i>Hakan Durgun. Türkiye.</i>
The use of satellite images and computer software in the study and monitoring of ratios between greening - building in residential urban centers. <i>Olsi Miraci. Albania.</i>	Monitoring long-term land use land cover changes in the coastal wetlands of Louisiana. <i>Zennure Uçar. Türkiye.</i>	Calculation of log stack volume using spatial photos. <i>İnanç Taş. Türkiye.</i>
Using GIS techniques to develop safe transportation of forest products. <i>Abdifitah Mohamed Abdullahi. Somalia.</i>	Allometric equations to predict aboveground biomass and carbon stock of <i>Faidherbia albida</i> in parkland agroforestry. <i>Girmay Darcha, Ethiopia.</i>	Overview of farm tractors performance for timber skidding in small scale forestry. <i>Mohammad Reza Ghaffariyan. Australia.</i>
Performance a Daily Traffic Load –DTV at the Main Forest Road Entrances at a Suburban Forest. <i>Anastasia Stergiadou. Greece.</i>		

19:00

Gala Dinner  
**Gostilna Sokol**  
 (Ciril Metodov trg 18, 1000 Ljubljana)





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**Wednesday, September 18**

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**Bus departure at 9.00 from bus shuttle space at Miklošičeva ulica 9.**  
Please be there at 8.30 at the latest to facilitate smooth departure.



**Another pick-up location is at bus station Vič, for attendees, who stay in hotels near the faculty.**  
Please be there at 9.00 at the latest.



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**09:00-17:00**

**Field Trip / *Lunch***

- All day field trip to look at typical local forest harvesting and transportation operations in Slovenia.
  - Busses will be leaving from the city center.
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