Cable road layout planner

Seilaplan

Seilaplan is a tool that supports the design of cable roads for timber harvesting. It works as a QGis-Plugin.

Starting point of the calculation are terrain data (digital elevation model or field measurement data in CSV format), machine and cable road properties.
The program calculates the skyline tensile forces, the skyline sag, support saddle forces. By knowing the rope forces, critical constructions can be avoided.
This increases the safety at work.

Seilaplan includes an optimization algorithm that proposes the height and location of the supports. The load path of the skyline together with the terrain profile are displayed graphically and a construction manual is generated. Coordinates and saddle height of the supports can be saved as CSV and KML data so that they are electronically available for further planning steps.

The planning of cable road layout goes much faster. The calculated routing takes advantage of the natural terrain shapes and helps to reduce overall harvesting costs in mountainous regions and steep terrain.

DETALLES

ORIGEN DE LA MADERA

Bosque

TIPO DE MADERA

Madera en rollo

TIPO DE MADERA AFECTADA

stemwood and full trees

IMPACTO EN EL MEDIO AMBIENTE Y LA BIODIVERSIDAD

The cost reduction will allow new, poorly accessible areas to be developed and additional timber to be harvested.
This has a positive effect on the protective function of the forest in the mountains and it promotes adaptation to climate change.

EFECTO SOBRE LOS INGRESOS

Improved profitability of logging in steep terrain

POTENCIAL DE EXPLOTACIóN

For forest owners and forest contractors

HUB

Eje Centro-Este

IMPACTO ECONóMICO

Reduced installation cost, improved profitability

POTENCIAL DE MOVILIZACIóN

> 100'000 m³ for Switzerland

POTENCIAL DE SOSTENIBILIDAD - VALOR

Muy positivo

FACILIDAD DE APLICACIóN

Very easy

FACILIDAD DE IMPLEMENTACIóN - EVALUACIóN

Very Easy

PREREQUISITOS CLAVE

Terrain data must be available or collected along the planned line.

TIPO DE EVENTO EN EL QUE SE HA PRESENTADO ESTA IFS

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EFECTO SOBRE EL EMPLEO

Faster and saver skyline layout planing

COSTES DE IMPLEMENTACIóN (EURO - €)

100

CONOCIMIENTOS ESPECíFICOS NECESARIOS

Knowledge of QGis is necessary

MáS DETALLES

RETO ABORDADO

5. Mejorar el rendimiento económico y medioambiental de las cadenas de suministro forestal

DOMINIO

Gestión forestal, silvicultura, servicios ecosistémicos, resiliencia

TIPO DE SOLUCIóN

Herramientas de asesoramiento y servicios para propietarios forestales

PALABRAS CLAVE

cable road

skyline

QGis plugin

mountain forest

SOLUCIóN DIGITAL

Sí

INNOVACIóN

Si

PAíS DE ORIGEN

Suiza

ESCALA DE APLICACIóN

Continental

AñO DE INICIO Y FIN

2012 - 2021

DATOS DE CONTACTO

PROPIETARIO O AUTOR

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REFERENCES AND RESOURCES

SITIO WEB PRINCIPAL

https://www.wsl.ch/en/index.html

SITIO WEB DEL PROYECTO

https://seilaplan.wsl.ch/en/index.html

REFERENCIA DEL PROYECTO

RECURSOS

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Bont, L. G., Moll, P. E., Ramstein, L., Frutig, F., Heinimann, H. R., & Schweier, J. (2022). SEILAPLAN, a QGIS plugin for cable road layout design. Croat J For Eng. Bont, L. G., Ramstein, L., Frutig, F., & Schweier, J. (2022). Tensile forces and deflections on skylines of cable yarders: comparison of measurements with close-to-catenary predictions. International Journal of Forest Engineering, 1-22. https://www.dora.lib4ri.ch/wsl/islandora/object/wsl%3A30255/datastream/PDF/Bont-2022-Tensile_forces_and_defl

LOGO DE LA BUENA PRáCTICA

LOGOTIPO DE LA ORGANIZACIóN PRINCIPAL

Swiss Federal Institute for Forest, Snow and Landscape Research WSL

Bern University of Applied Sciences

PROYECTO BAJO EL QUE SE HA CREADO ESTA FICHA

Rosewood 4.0

FECHA DE MENSAJE

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY

Centro de Servicios y Promoción Forestal y de su Industria de Castilla y León

EFI