

# 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.

## DÉTAILS

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### ORIGINE DU BOIS

Forêt

### TYPE DE BOIS

Grume

### TYPE DE BOIS CONCERNÉ

stemwood and full trees

### IMPACT SUR L'ENVIRONNEMENT ET LA BIODIVERSITÉ

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.

### EFFET SUR LE REVENU

Improved profitability of logging in steep terrain

### POTENTIEL D'EXPLOITATION

For forest owners and forest contractors

### HUB

Centre-Est

### IMPACT ÉCONOMIQUE

Reduced installation cost, improved profitability

### POTENTIEL DE MOBILISATION

> 100'000 m<sup>3</sup> for Switzerland

### POTENTIEL DE DURABILITÉ - VALEUR

Très positif

### FACILITÉ D'IMPLÉMENTATION

Very easy

### FACILITÉ D'IMPLÉMENTATION - ÉVALUATION

Very Easy

### PRÉREQUIS CLÉS

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

### TYPE D'ÉVÉNEMENT OÙ CETTE ICPE A ÉTÉ PRÉSENTÉE

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### EFFET SUR L'EMPLOI

Faster and saver skyline layout planing

### COÛTS D'IMPLÉMENTATION (EURO - €)

100

## CONNAISSANCES SPÉCIFIQUES REQUISES

Knowledge of QGis is necessary

## PLUS DE DÉTAILS

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<b>DÉFI CONCERNÉ</b>	<b>DOMAINE</b>	<b>TYPE DE SOLUTION</b>
5. Accroître les performances économiques et environnementales de la chaîne logistique forestière	Gestion forestière, sylviculture, services écosystémiques, résilience	Conseil, outils de service pour les propriétaires forestiers
<b>MOTS-CLÉS</b>	<b>SOLUTION DIGITALE</b>	<b>INNOVATION</b>
cable road skyline QGis plugin mountain forest	Oui	Oui
<b>PAYS D'ORIGINE</b>	<b>ECHELLE D'APPLICATION</b>	<b>DÉBUT ET FIN D'ANNÉE</b>
Suisse	Continentale	2012 - 2021

## INFORMATIONS DE CONTACT

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## REFERENCES AND RESOURCES

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### SITE WEB PRINCIPAL

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

### SITE WEB DU PROJET

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

### RÉFÉRENCE DU PROJET

Bont, L. G., Moll, P. E., Ramstein, L., Frutig, F., Heinimann, H. R., & Schweier, J. (2022).

### RESSOURCES

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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](https://www.dora.lib4ri.ch/wsl/islandora/object/wsl%3A30255/datastream/PDF/Bont-2022-Tensile_forces_and_defl)

LOGO DE LA BONNE PRATIQUE

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Swiss Federal Institute for Forest,  
Snow and Landscape Research WSL

LOGO DE L'ORGANISATION PRINCIPALE

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Bern University  
of Applied Sciences

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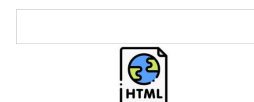
PROJET SOUS LEQUEL CETTE FICHE D'INFORMATION A été CRéÉE

Rosewood 4.0

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY

