



Connected Trees

A tool for safety and sustainability

Connected Trees is a [unique](#), [operational](#), and [non-intrusive system](#). It makes it possible to monitor the [vitality](#) and [statics](#) of trees at any time from a distance. This [unique system](#) offers several advantages: for example, it reduces the risk of accidents, helps people to take responsibility and anticipates the need to care for trees. It's an opportunity to [improve](#) the [quality of life](#) for residents and to promote the environmental benefits of our tree heritage. For a fair price, this Swiss-developed [tree-monitoring](#) system provides live, personalized feedback on screen.

Recipient	Public - Institutions - Companies
Author	Arbres Connectés - Limited company in incorporation Champ-Belluet 26 1807 Blonay +41 79 626 11 77
Sensitivity	Public information
Date	10 April 2024
Validity of the offer	2024

Connected Trees	1
1. Introduction	1
2. Situation: understanding your needs	2
3. Proposal: a response to current challenges	2
4. How it works	4
Tree equipment	4
Measures	4
Services and possibilities	4
Tree monitoring	4
Energy and Sustainability	4
5. Data and alerts	5
Telecommunications	5
Alerts and alarms	5
Feedback on measurements and results	5
Location of trees / location of data	5
Ownership and data protection	5
6. Your investment	6
Ownership of the appliance	6
Operating	6
Duration of service contract and warranty	6
Consulting - Training - Expertise	6
Pre-order prices	6
7. Return on investment	7
Protecting the population	7
Cost reduction	7
Agenda 2030	7
8. General terms and conditions	8
9. Pre-order confirmation	9
10. Tall trees: a risk for city dwellers	10
11. Dashboard example	11
12. Explanation of application	12
Vitality	12
Static	15
13. Photographic plate	18
14. Project references in the media	20



1. Introduction



Dear Sir or Madam,

Now you can **monitor** the **safety** and **health** of your trees **24 hours a day**, both in terms of their statics and vitality, with live viewing on your smartphone and an option to receive active alerts.

Large-scale deployment has demonstrated that the system works. The devices track the vitality and movements of the trees. The data collected automatically is transmitted to the server, then monitored using an algorithm. The results are delivered on a web application in the form of a user-friendly, intuitive Dashboard.

The scientific conference held on 30 November at **HEPIA**, the HES-SO Geneva School of Landscape, Engineering and Architecture, confirmed the **success** of the project.

This innovative solution paves the way for a **new approach** to trees, one that is more inclusive in terms of **understanding** and **risk management**.

This document provides you the main information about the Connected Trees system, and the www.arbres-connectés.ch website gives you more detailed information about the benefits and advantages of the service, as well as about the project and the research itself.

Of course, we are always ready to listen to you and remain at your disposal for any further information you may require.

We hope you enjoy reading this presentation and extend to you our warmest regards.

Stéphane Krebs
Master landscaper
Expert in large trees



2. Situation: understanding your needs

It's important to you to ensure the **good health** of your trees, to help them grow and **extend** their life expectancy, in order to **combat** heat islands, cool the atmosphere and, of course, **beautify** your parks and gardens.

You also want to **secure** your trees to **prevent** accidents, personal injury and damage to property, and to **reduce** your risk-taking as a tree owner.

You can also measure the benefits of trees in relation to the **Agenda 2030** sustainable development goals (good health and well-being, industry, innovation and infrastructure, sustainable cities and communities, action on climate change, life on earth, etc.).

3. Proposal: a response to current challenges

Our **proposal** for equipping your trees has been built around the requirements expressed during the various discussions with the towns and cities that are partners in the roll-out. Connected Trees aims to **meet** both your **needs** and the **expectations** of the local citizen.

Constantly monitoring the health of your trees allows you to :

- 1) **Monitor** their health over the long term in order to predict their stability and vitality, and to provide early warning so that we can better protect them.
- 2) **Measure** the vitality of your trees over time, so you can make an early diagnosis, facilitate decision-making and anticipate treatment.
- 3) **Increase** the life expectancy of trees so that we can enjoy their benefits for longer.
- 4) **Increase** the surface area of tree canopies in complete safety to cool cities better and fix more CO2.
- 5) **Optimize** and rationalize tasks, thereby saving resources, time, travel, and energy.

Thanks to the project's **success**, you can benefit from the fruits of **research** resulting from the public-private partnership between **HEPIA**, the Geneva University of Applied Sciences' School of Landscape, Engineering and Architecture, and **Krebs paysagistes SA**, specialists in trees, gardens and biodiversity for 4 generations. The project has also benefited indirectly from financial support from **Innosuisse** for the Connected Trees research programme.

The Connected Trees device is an **intelligent tool** for developing a practical environmental and climate strategy. It offers several opportunities (non-exhaustive) :

- 1) **Reduce**: keeping a constant eye on the vitality and statics of your trees is one way of ensuring that they develop properly. As they grow, trees capture CO2, so they help to reduce greenhouse gas emissions (GHG).
- 2) **Adaptation**: given the increase in stress factors (lack of water, drought, storms, etc.) due to climate change, the Connected Trees system is a good way of better understanding and adapting. Not only does it help to protect the public by minimizing the risk of falling trees, it also enhances the protection of the trees themselves.



- 3) **Document**: thanks to the multitude of data collected by the sensor, you have access to previously unpublished data. Climate change can be better deciphered and documented. It's an easy and effective way of analyzing the impact of climate change on the region. These analyses can then be used to raise awareness and inform the public.

The large-scale roll-out of the system is also intended to create a **network** of stakeholders who will be able to collect data and make a **commitment** to greater **protection** for the population and biodiversity of our territories. With this in mind, we have already acquired a network of key partners in the early stages of large-scale deployment.

Active **monitoring** and **adaptation** of the management of environments and natural resources are necessary in order to preserve ecosystem services as well as possible (mitigation of heat islands, population well-being, soil maintenance, etc.).

The system we are proposing is a **tool** that is **adapted** to today's challenges, because it helps to create more **resilient** and **dynamic** regions that can cope with change and make the transition to **sustainability**.

Finally, the system we are proposing will enable us to meet today's **environmental challenges** while improving the quality of life of citizens and the **working conditions** of tree managers. This last point is important: this system is not intended to replace certain tree management functions. Rather, it aims to provide an additional tool in the managers' arsenal.



4. How it works

Tree equipment

Tree installation is [straightforward](#), and is carried out directly by the tree owners, their staff or their agent specializing in large trees, in accordance with the installation instructions supplied with the equipment. The company's technical department will carry out the installation on request.

Measures

[Vitality](#) is measured using the NDVI process, or the quality and intensity of photosynthesis activity, the most comprehensive indicator of the physiological processes and biological functions of trees.

The [statics](#) are measured using an inertial platform and an inclinometer, which track the movements of the shaft.

Services and possibilities

The system provides access to a wealth of data, enabling [targeted action](#) to be taken to meet specific needs. For example, it can be used to :

- 1) [Continuously](#) monitor your health, vitality and stability.
- 2) [See](#) micro-movements live
- 3) [Early detection](#) of disease, fungal and parasitic attack, as well as water and heat stress.
- 4) [Predictive](#) analysis of tree health can be used to anticipate the need for care (optimizing watering and pruning, for example).
- 5) [Communicate](#) online about the health of trees (public authorities, hotels, companies, etc.)
- 6) [Supporting](#) remarkable trees, trees close to works, trees that cannot be felled, protected trees, etc.
- 7) [Evaluate](#) the measures taken in favor of trees, particularly in terms of maintenance, protection and support.
- 8) [Gathering](#) data for corporate sustainability reporting (CSR - ESG)

Tree monitoring

Apart from trimming vegetation in the immediate vicinity, any cleaning required and in situ monitoring, the device requires [no maintenance](#).

Energy and Sustainability

The device is [energy self-sufficient](#). What's more, it is assembled in Switzerland using components sourced both in Europe and, where strictly necessary, in Asia. At the end of their life, the appliances are returned to the company for dismantling and [recycling](#).



5. Data and alerts

Telecommunications

Data is transmitted via the low-emission [LoRa network](#), which is widely used in the built environment. If required, additional discrete antennas can be easily installed by specialist companies.

Alerts and alarms

A [system of alerts](#) and alarms [can be configured](#) by the user according to parameters specific to each tree.

Feedback on measurements and results

The results can be viewed [remotely](#) on a computer or smartphone via a portal and a user-friendly, intuitive web [platform](#). The data is presented in the form of a range of self-explanatory graphs and other specific visuals for easy understanding.

There are [different](#) support [models](#). Standard level 1 support (customer response, problems registering or using the application, special requests, support requests or error reports).

There are also additional maintenance support and reactivity contract proposals based on 2 models:

- 1) Extra Standard: Support by ticketing - Support included - 5 working day response time
- 2) Extra Premium: Support by telephone or ticketing - Support included - Reactivity within 2 working days - Annual checkup

Location of data

The data is used and stored in [Switzerland](#) on servers hosted in certified data centers that comply with strict environmental and energy management standards: SOC 1 Type II / SOC 2 Type II / ISO 27011 / ISO 45001 / ISO 22301 / ISO 50001 / ISO 14001 / ISO 9001:2015. Data is also backed up by a private data center, also located in Switzerland.

Ownership and data protection

The data collected as part of the Connected Trees service is technical data, i.e. linked to trees, and is therefore not, in principle, subject to the law on the protection of personal data.

The data belongs both to the owners of the trees and to the company. The company has the right to grant access to the data to its research partners and service providers.

Access, use and exploitation of the data may be granted to third parties by the owners of the trees with the prior agreement of the company.



6. Your investment

Ownership of the appliance

The device is sold. The buyer acquires the material property, excluding intellectual property and patented technologies. The company will take back and recycle the equipment at the end of its life.

Operating

A subscription for operating services is taken out with the company when the equipment is purchased for a period of 5 years, renewable from year to year.

The operating service includes management of the device initialization and activation procedures, the communications system, data processing, analysis and retrieval, the information system and data storage infrastructure, and standard level 1 user support.

Duration of service contract and warranty

5 years from the date of purchase, tacitly renewable from year to year. The guarantees are those usually applied under Swiss law and comply with the various applicable laws in force.

Consulting - Training - Expertise

On request, we'll be happy to support you in using the Connected Trees system and monitoring your trees, interpreting data, handling alarms, assessing results and providing advice, as well as any other requests you may have.

Pre-order prices

Pre-order prices excluding VAT are subject to change at the time of order confirmation, calculated on the basis of offers from suppliers of equipment and services, subject to changes in prices, in particular of electronic components, transport and labor. In addition, the subscription rates are subject to price indexation according to the Consumer Price Index (CPI), as well as to any specific increase in services and supplies.

Private						
	Buy	Annual subscription (Data transmission, analysis and reporting)				
	By device	1 ^{ère} year	2 ^{ème} year	3 ^{ème} year	4 ^{ème} year	5 ^{ème} year
	The piece	The piece	The piece	The piece	The piece	The piece
	CHF HIT	CHF HIT	CHF HIT	CHF HIT	CHF HIT	CHF HIT
1 to 4 appliances (fixed price)	1'950.00	936.00	936.00	936.00	936.00	936.00
From 5 appliances upwards (fixed price)	1'800.00	864.00	864.00	864.00	864.00	864.00



Public authorities						
	Buy	Annual subscription (Data transmission, analysis and reporting)				
	By device	1 ^{ère} year	2 ^{ème} year	3 ^{ème} year	4 ^{ème} year	5 ^{ème} year
	The piece	The piece	The piece	The piece	The piece	The piece
	CHF HIT	CHF HIT	CHF HIT	CHF HIT	CHF HIT	CHF HIT
1 to 4 appliances (fixed price)	1'800.00	864 .00	864.00	864.00	864.00	864.00
From 5 appliances upwards (fixed price)	1'650.00	792 .00	792.00	792.00	792.00	792.00

7. Return on investment

Protecting the population

The return on investment is **maximum** for each accident that can be avoided (damage, repairs, recovery costs, legal costs, compensation, etc.).

Cost reduction

Anticipating the need for care and maintenance and postponing the replacement of large trees as long as possible will **reduce** costs in both the short and long term.

Research has also revealed the significant financial return on trees: for every franc spent on their upkeep, trees generate benefits ranging from 1.88 to 12.70 francs a year, depending on the town¹.

In a study carried out for the European Commission², it is estimated that by the middle of the century, the loss of biodiversity caused by human activities will generate annual costs equivalent to 7% of global GDP.

Agenda 2030

Monitoring trees 24 hours a day also has undeniable **political advantages**: it's an opportunity to provide a precise, concrete and measurable response to environmental policies and the 2030 objectives for sustainable development.

ODD 2030	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Pas de pauvreté	Faim zéro	Santé - Bien-être	Éducation	Égalité des sexes	Eau propre	Énergie propre	Croissance économique	Industrie innovation	Inégalités réduites	Villes durables	Consommation durable	Changements climatiques	Vie aquatique	Vie terrestre	Paix - Justice	Partenariat ODD
Cibles atteintes	1.5	2.3 2.4	3.9			6.6	Bois	8.2 8.3	9.1 9.2 9.5		11.6 11.6 11.7 11.8		13.1 13.3		15.1 15.3 15.5		
	Impact direct avec n° du sous-objectif							Contribution indirecte									

1 https://www.td.com/francais/document/PDF/economics/special/UrbanForestsInCanadianCities_FR.pdf

2 Braat L. and ten Brink P. (2008) - The cost of policy inaction: The case of not meeting the 2010 biodiversity target. Information mentioned in the PCV: <https://www.vd.ch/environnement/climat/plan-climat-vaudois#c2092614>



8. General terms and conditions

The sales and operating contracts, as well as the user manual, will be drawn up once the minimum number of trees to be initially equipped has been reached.

Please note that the items described in this proposal are based on our current estimates and are subject to adjustment as our launch phase progresses. We are committed to maintaining open and transparent communication at every stage to keep you informed of any developments.

Once the threshold of 500 pre-orders has been reached, the customer undertakes, firmly and unconditionally, to purchase the number of devices and subscriptions linked to the devices mentioned in the document entitled Pre-order Confirmation from the company.

This commitment, covering equipment and services, will be reflected in a contract drawn up by the company and which will include the terms of this offer, subject to price adjustments which may not, however, exceed 20% of the total amount of the commitment. Obviously, our intention remains to offer the lowest possible prices in order to equip as many trees as possible. The contract must be signed within 15 days of written confirmation from the company to the customer that the minimum pre-order threshold has been reached.

Validity of this offer : 31 December 2024

Legal form of contract : Canton of Vaud, municipality to be specified.

Swiss law applies.

Terms of payment

Net payment.

Device : Payable within 15 days of signing the Contract.

Annual subscription

with a minimum term of 5 years: During the year, on delivery pro rata to the balance for the year, then at the beginning of the calendar year, payable within 15 days.

Other services : On request with deposit and invoice, payable within 15 days.

After the due date, interest on arrears: 5% per annum.

We thank you for your interest in our offer and remain at your disposal for any further information you may require.

With our warmest regards.

Connected Trees
SA in incorporation

Stéphane Krebs
Master landscaper
Expert in large trees



9. Pre-order confirmation

The customer acknowledges that he/she has read the detailed offer, prices and applicable commercial conditions on the website, which he/she approves by signing:

Name of institution / company name	
Name	
First name	
Street and number	
Postcode	
Location	
Telephone landline	
Mobile phone	
E-mail address	
Invoice address	

Device control

Quantity	No. of parts	Connected Trees device with 5-year subscription
----------	--------------	-------------------------------------------------

This pre-order commitment is valid until 31 December 2026 at the latest.

Date and place :

Full name :

Functions :

Signature :



10. Tall trees: a risk for city dwellers

There are more than 500,000 city trees in French-speaking Switzerland, including around 40,000 in Geneva and almost 80,000 in Lausanne.

Although popular with everyone, large urban trees have always been a source of **risk** for city dwellers. Every year, children, teenagers and adults in Switzerland narrowly escape, are injured or die as a result of falling trees in towns and peri-urban forests.

These **serious accidents** occur because, to date, there is no tool that allows us to know at any given moment the health or statics of a large tree. Nor is there a system for measuring the risk to which the trees are exposed, limiting the action that owners can take to prevent personal injury or damage to property.

What's more, the **impact** of global warming on trees is increasing the risks: more intense and more frequent climatic hazards are weakening the health and statics of trees (droughts, floods, etc.). They are also increasing the number of parasites, fungi and diseases, making it more difficult for certain species to survive in the decades to come.

154 victims of falling trees in towns (excluding tree felling) reported in the media in Switzerland and neighboring countries since the accident in Vevey, Switzerland.

A tree fell and injured three teenage girls in Vevey on Friday 23 June 2014 (source: RTS, 24/06/2014).



6 months old, the age of the latest Swiss victim to die when tree branches fell on her pushchair in Flums (SG).

1 month, the time elapsed since the last article on the fall of a remarkable tree in Switzerland.

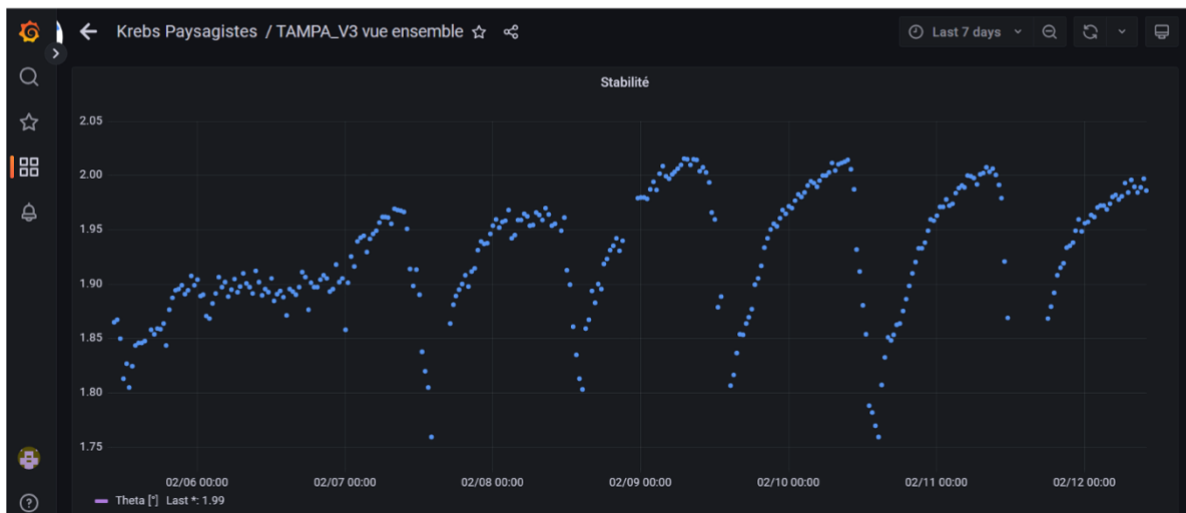
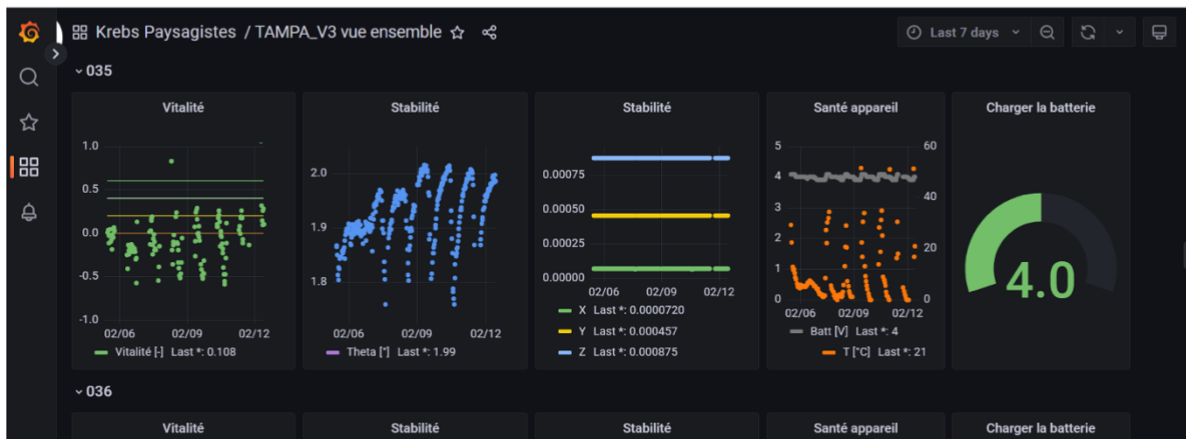
A hundred-year-old tree falls in Lausanne. Luckily at around 2am, it only damaged the front of the building.

"He was monitored by the co-ownership and by specialists every two years. As far as we knew, he was in perfect health," says the PPE administrator.





11. Dashboard example





12.Explanation of application



The sensor (yellow rectangle) is installed on the south-west face of the trunk (brown circle) at a height of 3-4 meters. The data returned by this analysis are those measured from the installation of the system at the end of February 2023 until the end of the same year.

Vitality

Vitality is measured using the NDVI process, or the quality of photosynthesis activity, the most comprehensive indicator of the physiological processes and biological functions of trees.

First example

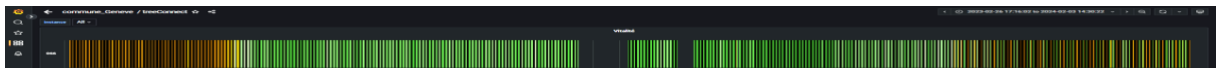


Image 1: Summary of annual vitality

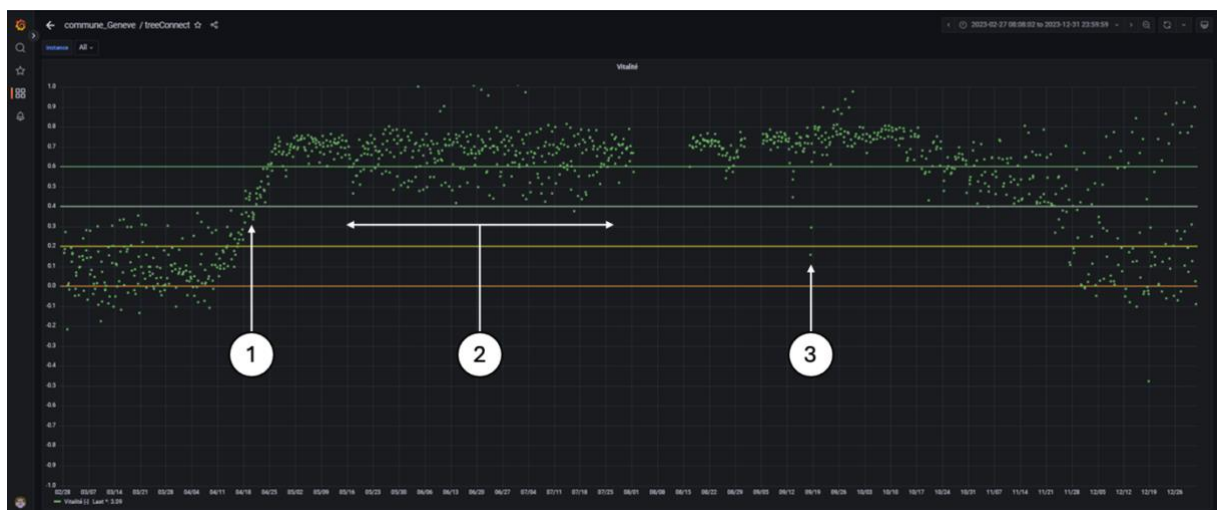


Image 2: detail and intensity of annual vitality

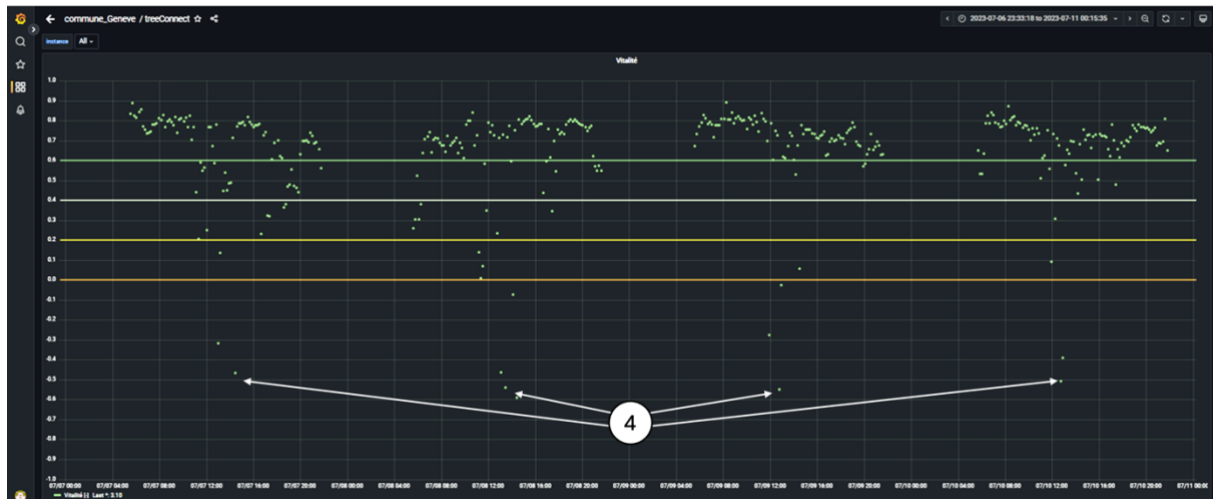


Image 3: Daily signature (from 7 to 10 July 2023, heatwave and drought period)

Results

Overall, the vitality measured expresses classic data, i.e. a detailed study of the signatures does not reveal any acute or chronic problems.

Sap rise and budburst were rapid and compact (point 1 - image 2). However, there was a slight loss of vitality (point 2 - image 2) after the storm of 17 May 2023. This can be explained by the bruising to the foliage. It also demonstrates the impact of extreme weather events on a tree's health.

The point at which vitality fell on 18 September 2023 (point 3 - image 2) corresponds to the particularly calamitous weather observed that day: heavy cloud cover, 1hr 30min of sunshine and 35.6mm of rainfall.

Practical measures

Overall, the tree is in good health.

Continue the actions undertaken to encourage biological activity in the soil. Organic mulching, soil activation using bio-stimulators, and the addition of biological fertilizer and biochar by spreading and catalytic wells are recommended.

Monitor vitality in relation to the presence of Ganoderma-type wood-eating fungi, present in the south-west of the trunk.



Second example



Small attack: budburst is fairly classic, and vitality is relatively good until the leaves fall off in autumn.

Heavy attack: budburst is also classic, but there is a sharp drop in vitality as the months go by. This is a sign of poor tree health.

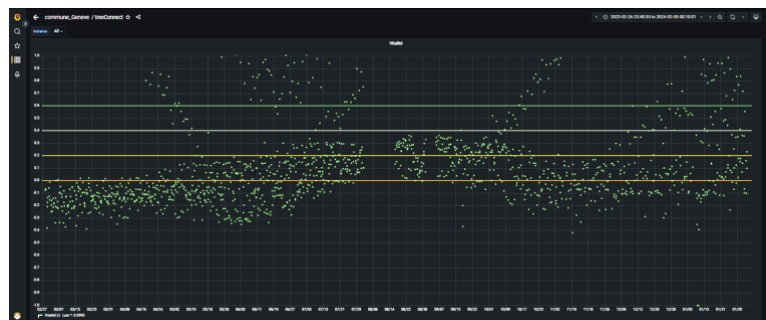
Disease-resistant subject: classic budburst with no drop in vitality before leaf fall in autumn

Third example



First plant, vitality is good and corresponds to the reference curve.

In the second plant, vitality is much lower and more irregular. It expresses a low vitality which may be linked to a multitude of factors.





Static

Technology used

Movements are measured using an inertial platform and an inclinometer.

First example

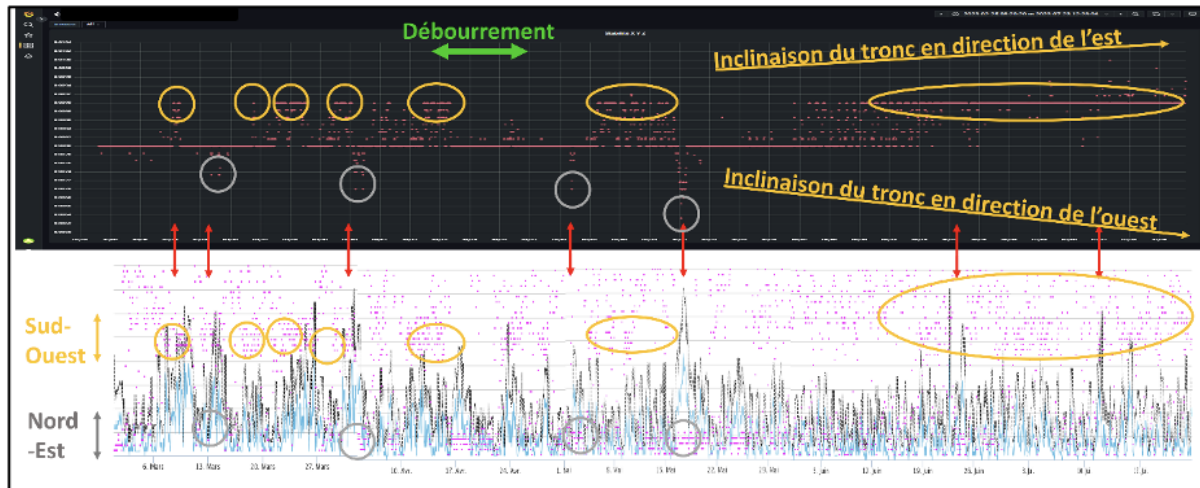


Image 1: General stability (X,Y,Z axis) in relation to the wind

The top image shows the **general stability** of the tree, i.e. on the three axes X, Y and Z. The red line represents 'normal' statics and the higher and lower points (yellow and grey circles) represent movements of the tree.

The image below shows **wind** and **precipitation**. The black peaks correspond to wind gusts, their elevations representing the strength of the gusts in km/h. The blue peaks correspond to precipitation, their heights representing their intensity in m. The violet dots represent wind direction. This direction is measured in degrees (1 to 360°), indicating where the wind is coming from: 0° = North / 90° = East / 180° = South / 270° = West. For example, a westerly wind (270°) blows from west to east.

In the presence of north-easterly winds, the subject **tilts towards** the west, showing peaks of flexion whose inclination is proportional to the strength of the gusts (grey circles).

In the presence of south-westerly winds, we can see that the trunk **bends towards the** east. The bending peaks are also proportional to the strength of the gusts (yellow circles).

The subject tilts towards the east or west, showing peaks of flexion whose inclination is proportional to the strength of the gusts. These **correlations** show how well the device works.



Second example



Image 1: x axis



Image 2: y axis

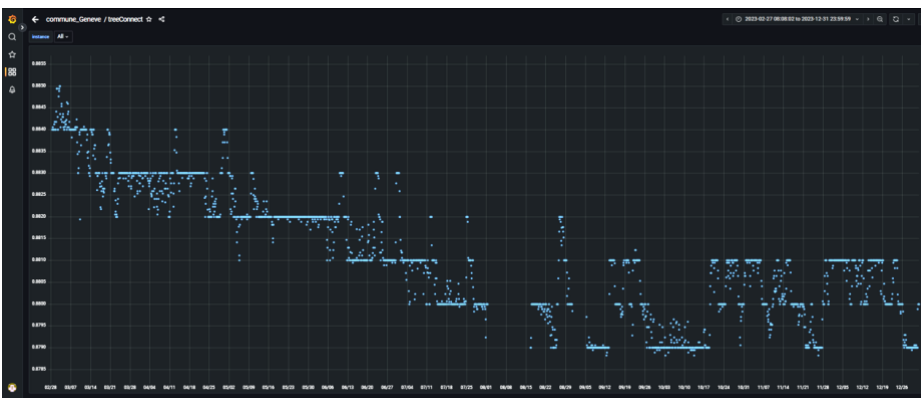
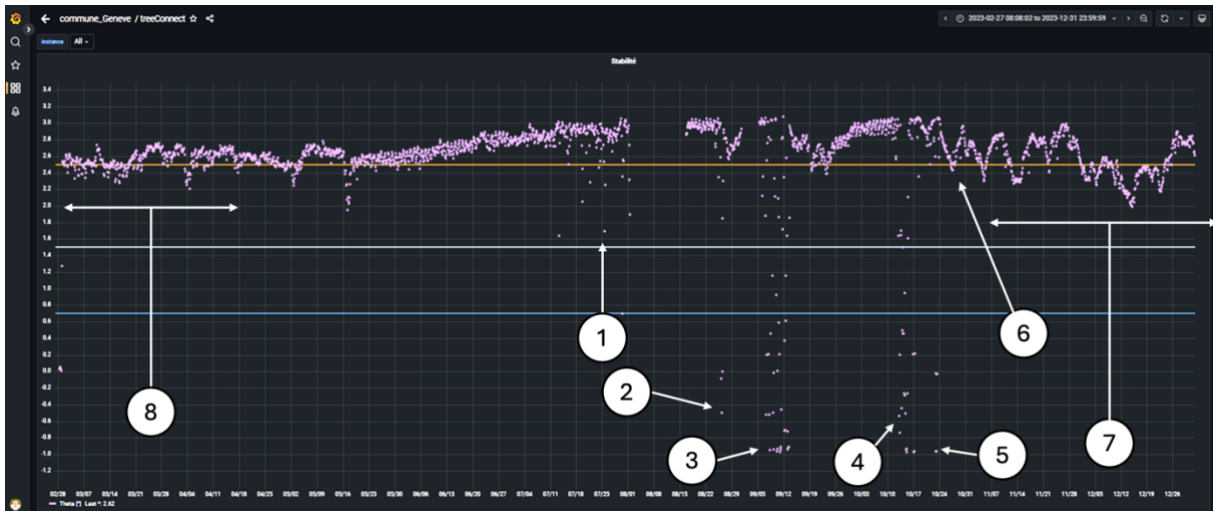


Image 3: z axis

In this example, the X axis (North-West <-> South-East) shows a regular curve of low amplitude.

However, the Y-Z axis (North-East <-> South-West) suggests a tendency for the tree to lean progressively towards the South-West (rising green curve and falling blue curve).



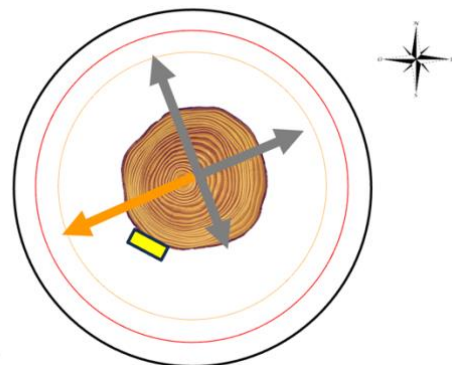
The **Theta value** (algorithm) indicates a period of instability from the end of July (point 1) with four marked episodes on 26 August (point 2), from 6 to 16 September (point 3), from 12 to 17 October (point 4) and finally from 22 to 23 October (point 5).

It should be noted that the **re-stabilization** of the curve (point 6) corresponds to the descent of sap and leaf fall, but that it is more unstable (7) than during the vegetation rest period at the beginning of the year (point 8). This amplitude of 3.5 degrees Theta is relatively large and has been frequent since last summer.

The **pictogram** opposite summarizes the subject's stability situation.

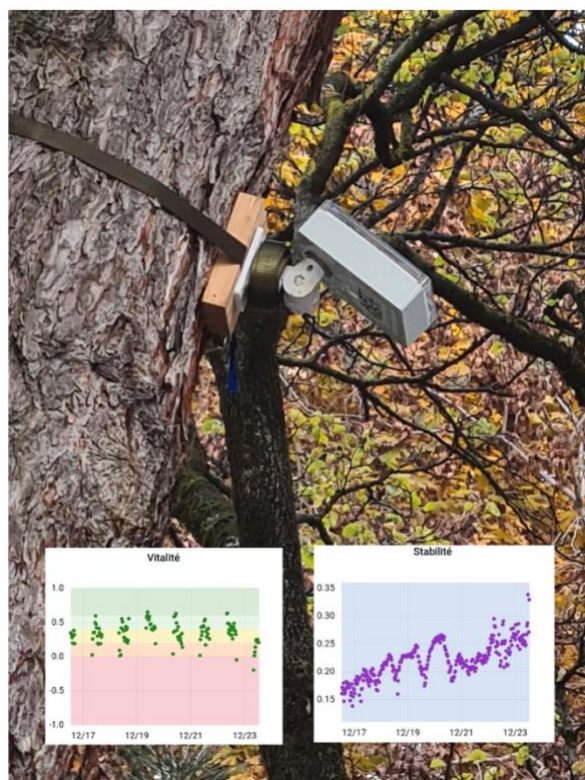
Prophylactic measures :

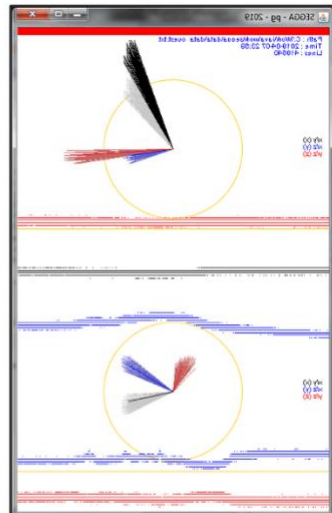
- 1) Actively **monitor** developments in this area and correlate data from several years in order to verify the trend.
- 2) **Avoid** excessive windthrow by ensuring that the crown is relatively permeable to the wind (air porosity of the crown).
- 3) **Avoid** overloading and reduce loads, particularly the mass of rainwater or snow retained by the crown.
- 4) Every two to three years, depending on the growth of the vegetation, **carry out** a soft pruning operation to lighten the canopy and increase its air porosity.
- 5) **Encouraging** the subject to take root.
- 6) **Take** preventive measures to avoid any damage in the event of a static problem (breakage, drop zone, protective perimeter, etc.).





13. Photographic plate







14. Project references in the media

- **TSR** – Téléjournal 19h30 – 14 décembre 2022 – Janvier 2024 : <https://www.rts.ch/play/tv/redirect/detail/13629527>
- G+ – **Fachmagazin von JardinSuisse** - Janvier 2024 https://xn--arbres-connects-onb.ch/wp-content/uploads/2024/03/gplus_01-2024_12-15_Krebs-SKOK20240304.pdf
- G+ – **Magazine professionnel de JardinSuisse** Côté jardin - 27 novembre 2022 : https://xn--arbres-connects-onb.ch/wp-content/uploads/2024/03/gplus_romandie_02-2023_28-29_arbres_connectes-SKOK20240304.pdf
- Journal **Le Matin Dimanche** - 3 décembre 2023 : <https://xn--arbres-connects-onb.ch/wp-content/uploads/2024/03/article-le-matin-12-2023.jpg>
- Journal **Le Temps** - 30 novembre 2023 : <https://www.letemps.ch/sciences/des-arbres-connectes-pour-etre-mieux-preserves>
- **TSR** – Côté jardin - 27 novembre 2022 <https://www.rts.ch/la-1ere/programmes/monsieur-jardinier/13540383-arbres-connectes-arbres-securises-stephane-krebs-27-11-2022.html?mediaShare=1>
- Journal **24 heures** - 30 novembre 2022 : <https://www.24heures.ch/une-application-surveille-la-sante-des-arbres-178021486564>
- Communiqué de presse **HEPIA** - HES-SO Genève – 22 novembre 2022 : <https://www.hesge.ch/hepia/recherche-developpement/projets-recherche/arbres-connectes-segga>
- Journal **20 minutes** - 28 novembre 2022 : <https://www.20min.ch/fr/story/connecter-les-arbres-pour-les-soigner-et-prevenir-les-chutes-202908020955>
- **TSR** - Le Rencard - 28 novembre 2022 : https://www.rts.ch/info/le-rencard/13580852-geneve-des-arbres-connectes-pour-mieux-les-proteger.html?rts_source=rss_t
- **ICT Journal** - 29 novembre 2022 : <https://www.ictjournal.ch/articles/2022-11-29/quand-les-capteurs-iot-contribuent-a-la-survie-des-arbres-en-milieu-urbain>
- Radio **LFM** - 1er décembre 2022 <https://www.lfm.ch/actualite/suisse/romandie/val-de-aoste/les-arbres-romands-ont-desormais-leur-propre-montre-connectee-vaudoise/>
- **RTS** – 1er décembre 2022 <https://www.rts.ch/info/regions/val-de-aoste/13591507-yverdonlesbains-teste-un-nouveau-dispositif-darbres-connectes.html>
- Journal **LE TEMPS** - 1er décembre 2022 <https://www.letemps.ch/suisse/yverdonlesbains-arbres-connectes-mieux-proteger>
- Journal **LA REGION** Nord vaudois - 2 décembre 2022 : <https://www.laregion.ch/>
- Journal **LA TRIBUNE DE GENEVE** - 5 décembre 2022 : <https://www.tdg.ch/des-arbres-connectes-aux-smartphones-pour-surveiller-leur-etat-de-sante-957047396977>



- RTS - LA MATINALE - 5 décembre 2022 : <https://www.rts.ch/play/tv/redirect/detail/13599699>
- RHONE FM – 5 décembre 2022 : <https://www.rhonefm.ch/player/podcasts/avez-vous-deja-entendu-parle-des-arbres-connectes>
- Luzerner Zeitung – 11 décembre 2022 : <https://www.luzernerzeitung.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- BADENER Tagblatt – 11 décembre 2022 : <https://www.badenertagblatt.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- APPENZELLER Zeitung – 11 décembre 2022 : <https://www.appenzellerzeitung.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- OBWALDNER Zeitung – 11 décembre 2022 : <https://www.obwaldnerzeitung.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- THURGAUER Zeitung – 11 décembre 2022 : <https://www.thurgauerzeitung.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- ZUGER Zeitung – 11 décembre 2022 : <https://www.zugerzeitung.ch/schweiz/sicherheit-big-brother-is-watching-the-trees-warum-jetzt-sogar-baeume-digital-ueberwacht-werden-ld.2384700>
- WATSON – 13 décembre 2022 : <https://www.watson.ch/fr/suisse/ecologie/464054302-plusieurs-villes-romandes-espionnent-leurs-arbres>
- Journal Terre & Nature – 15 décembre 2022 : <https://arbres-connectés.ch/wp-content/uploads/2023/06/AC-Terre-Nature-15-decembre-2022--1024x501.png>