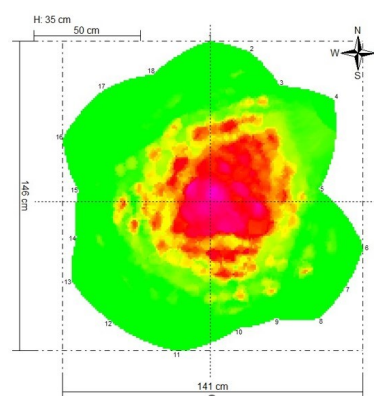
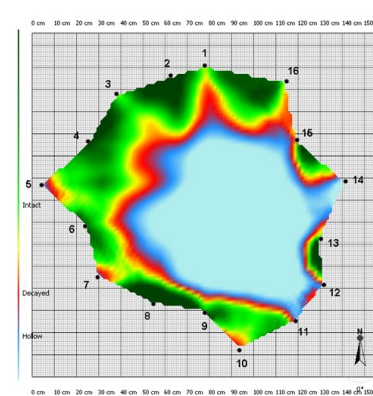


Example
PiCUS
Tomogram



Example
Arbotom
Tomogram



Example
Fakopp
ArborSonic
Tomogram

CONSIDERATION FOR DECAY DETECTION USING SONIC TOMOGRAPHY

Sonic Tomography (SOT) is an excellent method to help understand the internal condition of wood in a tree. It can be used to inform Tree Safety, Risk Management and Important Management Decisions, helping extend a trees safe, useful life.

However, the equipment does have limitations, and if used incorrectly or if these limitations are not considered, the final SOT result may poorly represent the actual state of the tree and be misinterpreted or misleading.

Here are some important issues requiring consideration when a decay detection report is received:

- Where on the tree was the tomogram produced? - Does the report include images showing the actual shape, including buttressing and adaptations, and where the sensors were attached?
- Does the tomogram accurately represent the shape of the tree at the test height? Beware of round scans! Most trees *are not perfect circles!*
- Does the report explain how sonic tomograms are produced and how different sonic velocities are represented and can be affected by internal features?
- Does the report explain what the colours in the tomogram are likely to represent?
- Does the tomogram 'look reasonable' – i.e. does it describe a progression between apparently sound and decayed wood?
- Have other methods been used to confirm the results shown in the tomogram on borderline cases to ensure that a tomogram is reasonably accurate?
- Does the report provide details of the limitations of sonic tomography, e.g:
 - ◆ Different types of decay can affect the results, i.e. decay caused by *Kretzschmaria* can be difficult to interpret, and may require secondary assessment such as micro drilling.
 - ◆ Are there included foreign bodies? i.e. Internal metal fence or concrete are likely to adversely affect the results.
 - ◆ Have internal defects, depressions between buttressing etc resulted in exaggerated decay on the circumference of the tomogram? Is surface decay present where depicted in the tomogram?
 - ◆ Internal Cracks, Bark Inclusions, & Ring Shake can slow sound waves and be represented as false decay. Does the report include secondary assessment such as Electrical Impedance Tomography (EIT) or micro drilling?.
- Does the report indicate how issues can affect sonic tomography and how these details have been considered and addressed for each specific tomogram in the report?
- Have the findings referred to the outdated t/R ratio failure criteria? Has the site geography , Bio-Mechanics and Windloading on the tree been considered?
- Have independent functional units, cambial columns, adaptive growth or buttressing been accounted for both in the tomogram and within in the analysis?

If any of the above issues are not adequately explained and or accounted for the tomogram results and subsequent recommendations may be inaccurate and actually require verification through further investigation. Erroneous data may lead to unnecessary tree removals.