

A 3D visualization of plant water transport structures, likely xylem vessels, rendered in a rainbow color gradient from red to purple. The structures are arranged in a fan-like shape, with the top part being more dense and the bottom part more sparse. The colors transition from red on the left, through orange, yellow, green, blue, to purple on the right.

Exploring Structural & Functional Aspects of Plant Water Transport Using X-ray Microtomography

Andrew J. McElrone



UC DAVIS
UNIVERSITY OF CALIFORNIA

Institution(s)



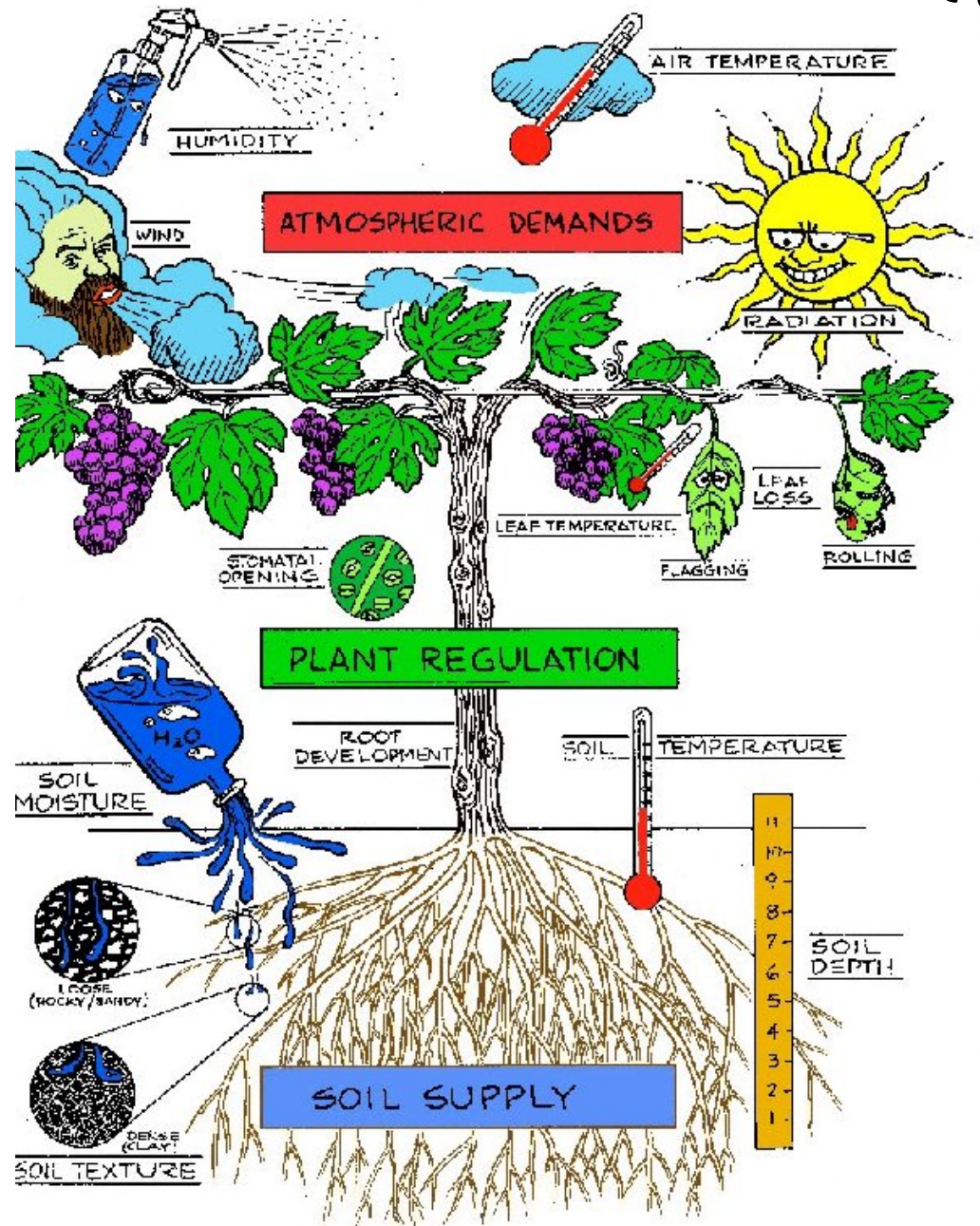
**Research Plant Physiologist
US Department of Agriculture
Agricultural Research Service**



Adjunct Assistant Professor

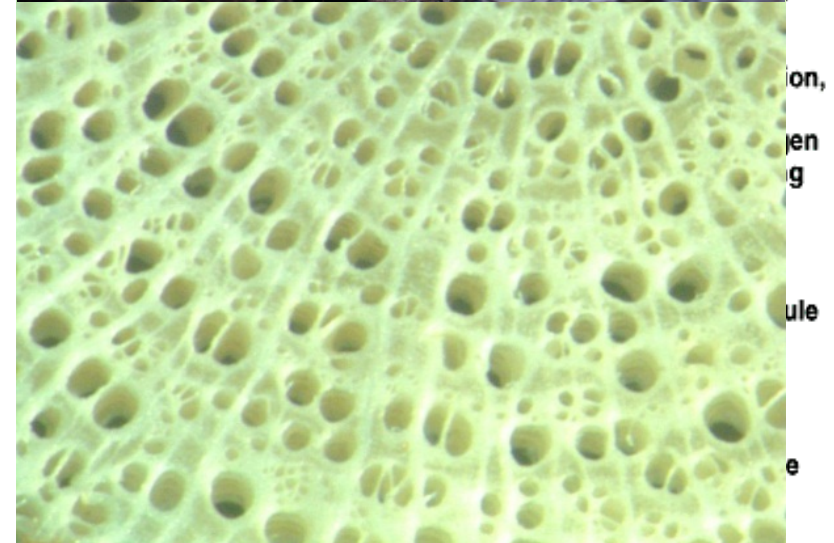
Improved Water Use Efficiency for Agriculture

Plant Thresholds



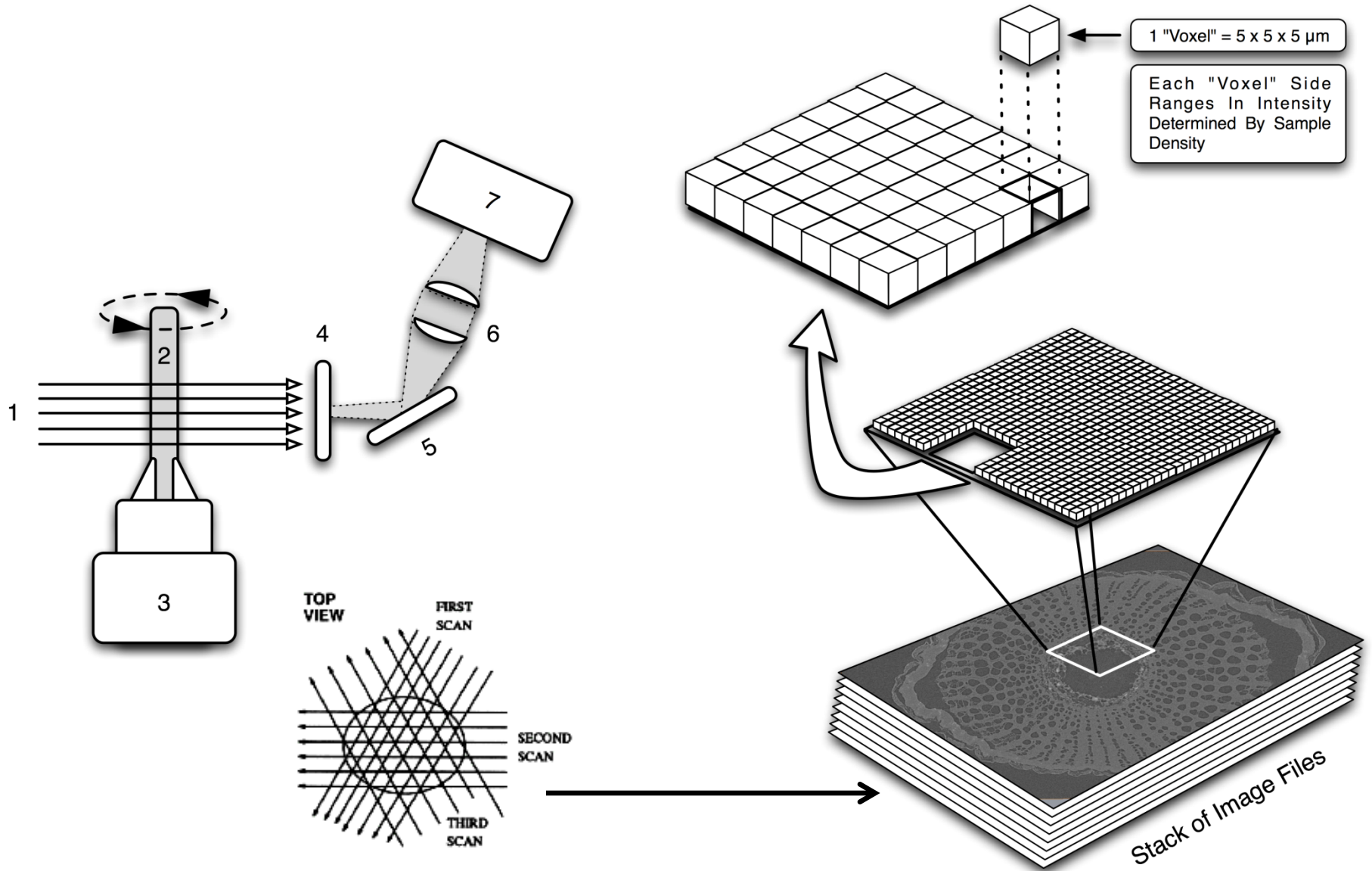


Cohesion-Tension Mechanism

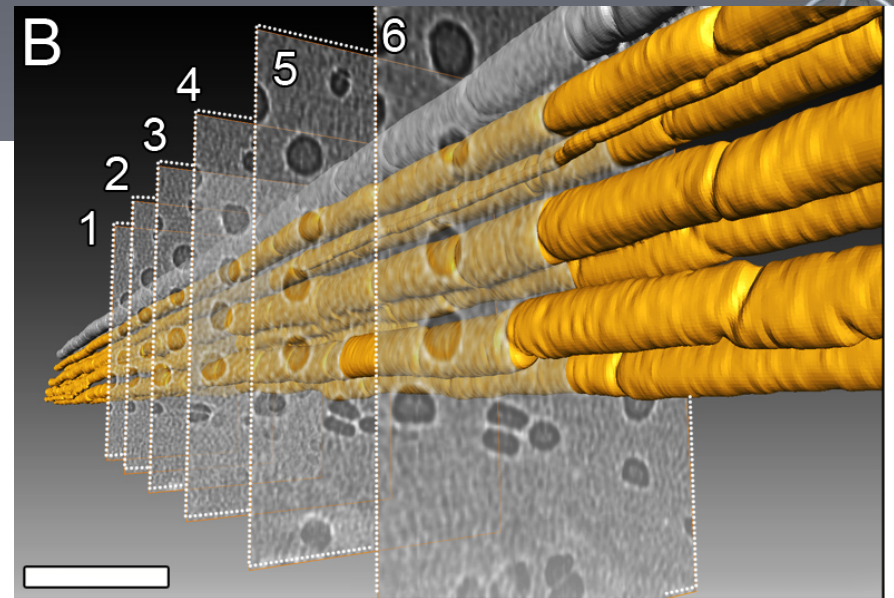
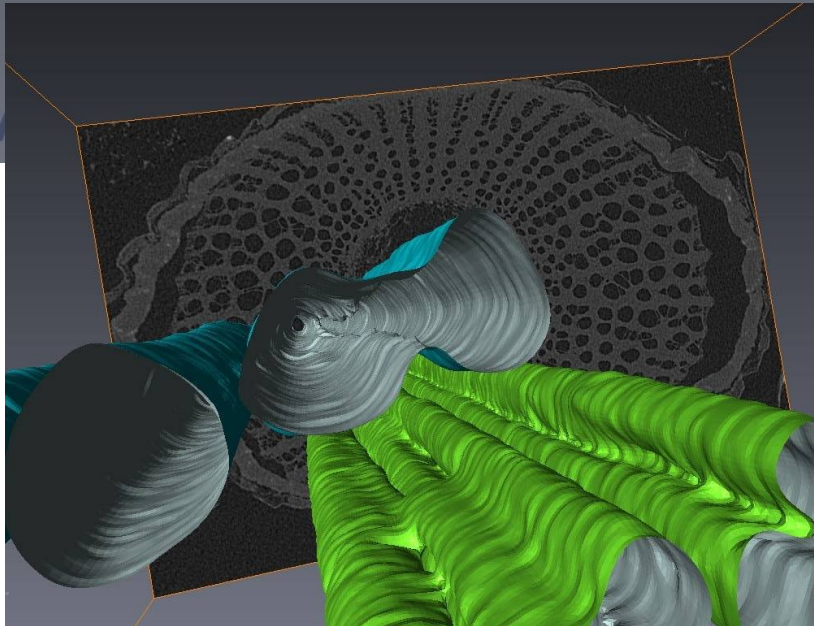
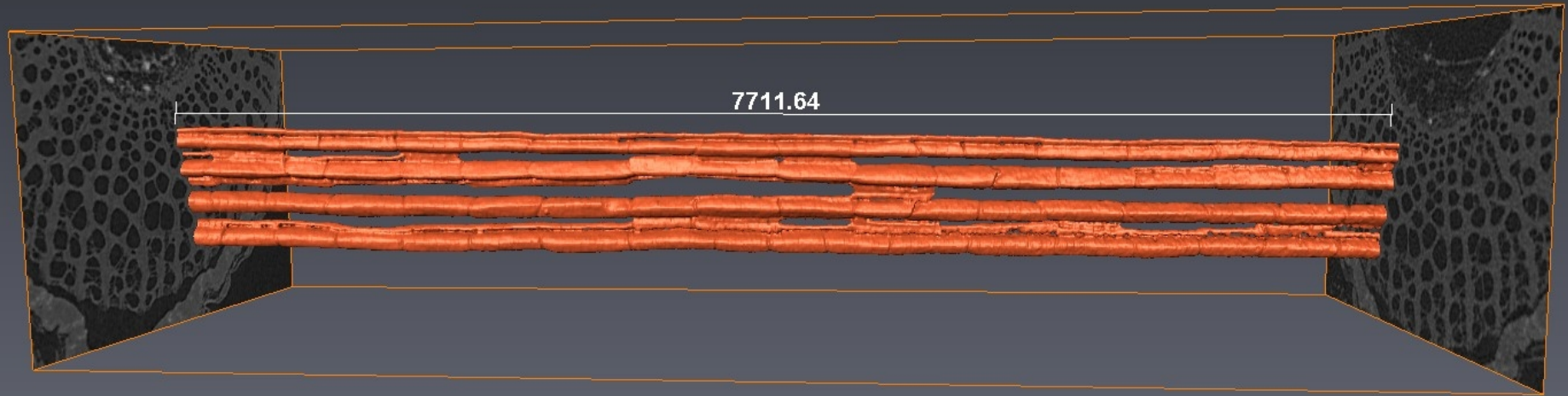


water uptake
from soil

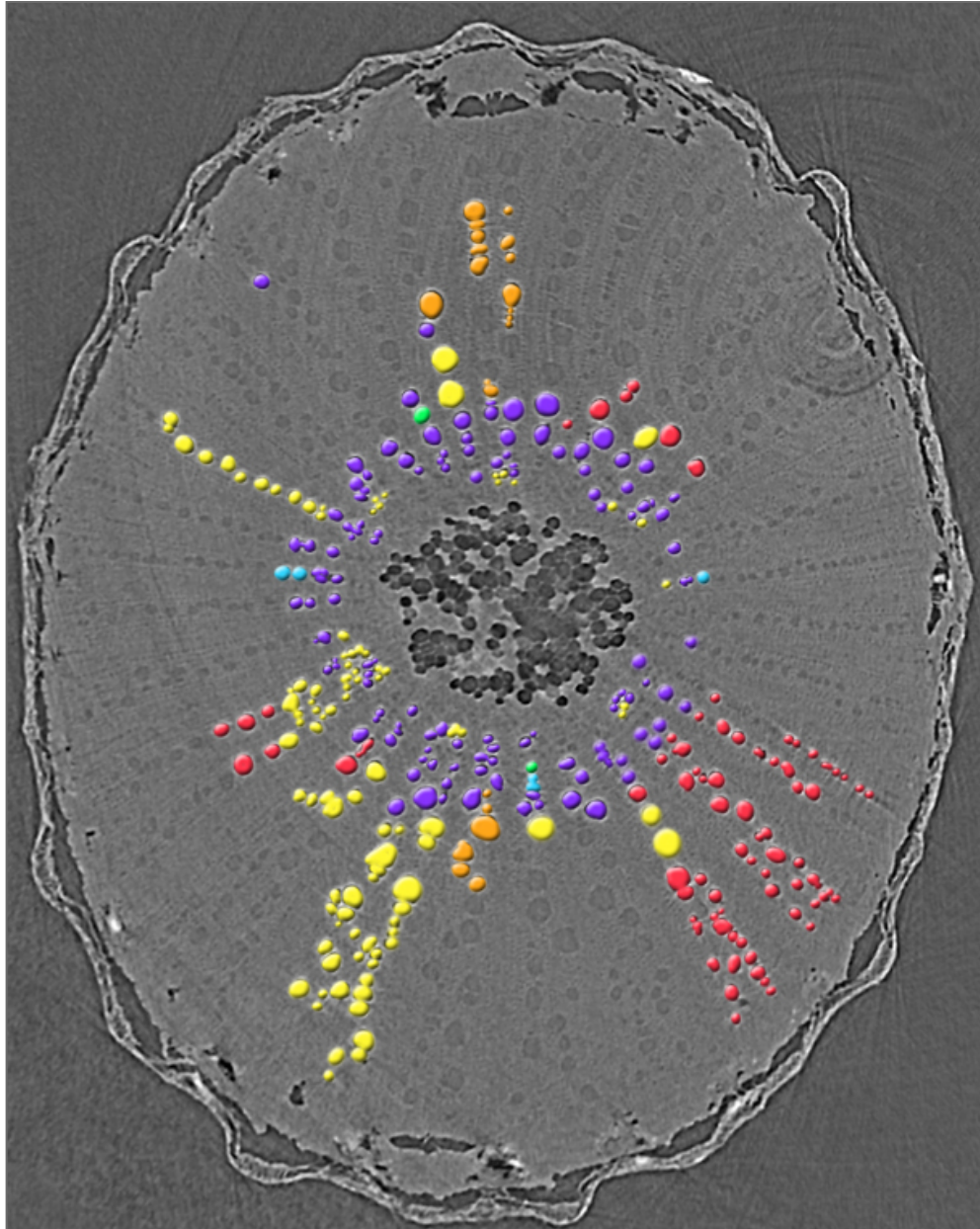
X-ray micro-Tomography-ALS 8.3.2



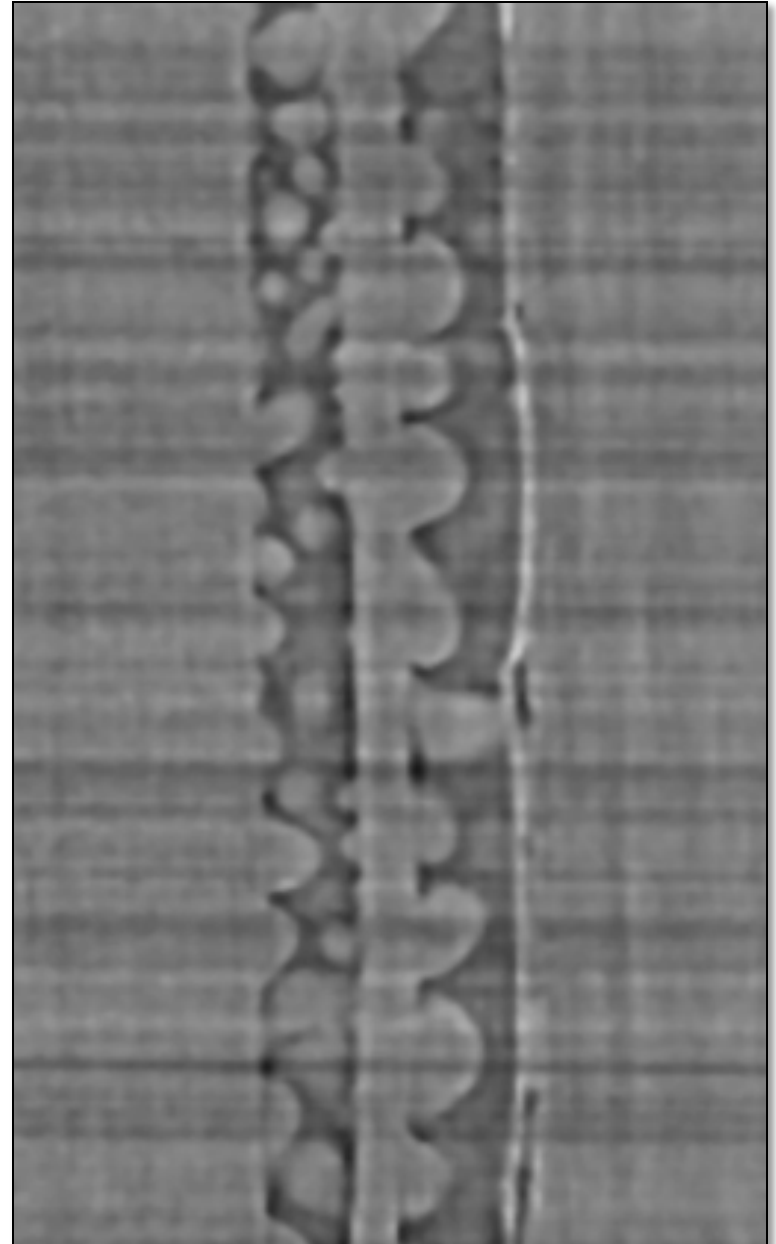
Examples of Grapevine Xylem



Cavitation & Embolism Spread



Embolism Repair





Days of Yore

ALS image capture



Onsite Reconstruction



Transfer to Hard Drive
(several days at ALS)



Pick up Hard Drive



Local Backup (Drobo)
& Prayers

Transfer Files

Get Globus Connect

Turn your computer into an endpoint.





















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-  20111217_114735_101-14_B Folder
-  20111217_123626_5C_A Folder
-  20111217_132638_Arizonica_B24-16 Folder
-  20111217_140321_Arizonica_Nogales_A_15_B24-34 Folder
-  20111217_143201_101-14_A Folder
-  20111217_150235_St_George_A Folder
-  20111217_153042_St_George_B Folder
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Endpoint

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