

# **Imagerie du Bois: Relations Structure – Propriétés Physiques**

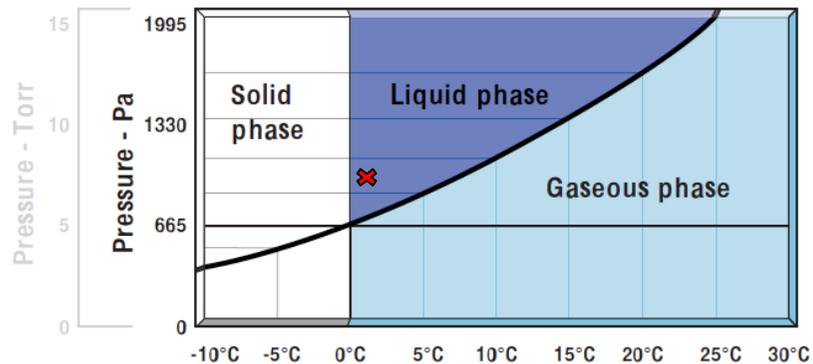
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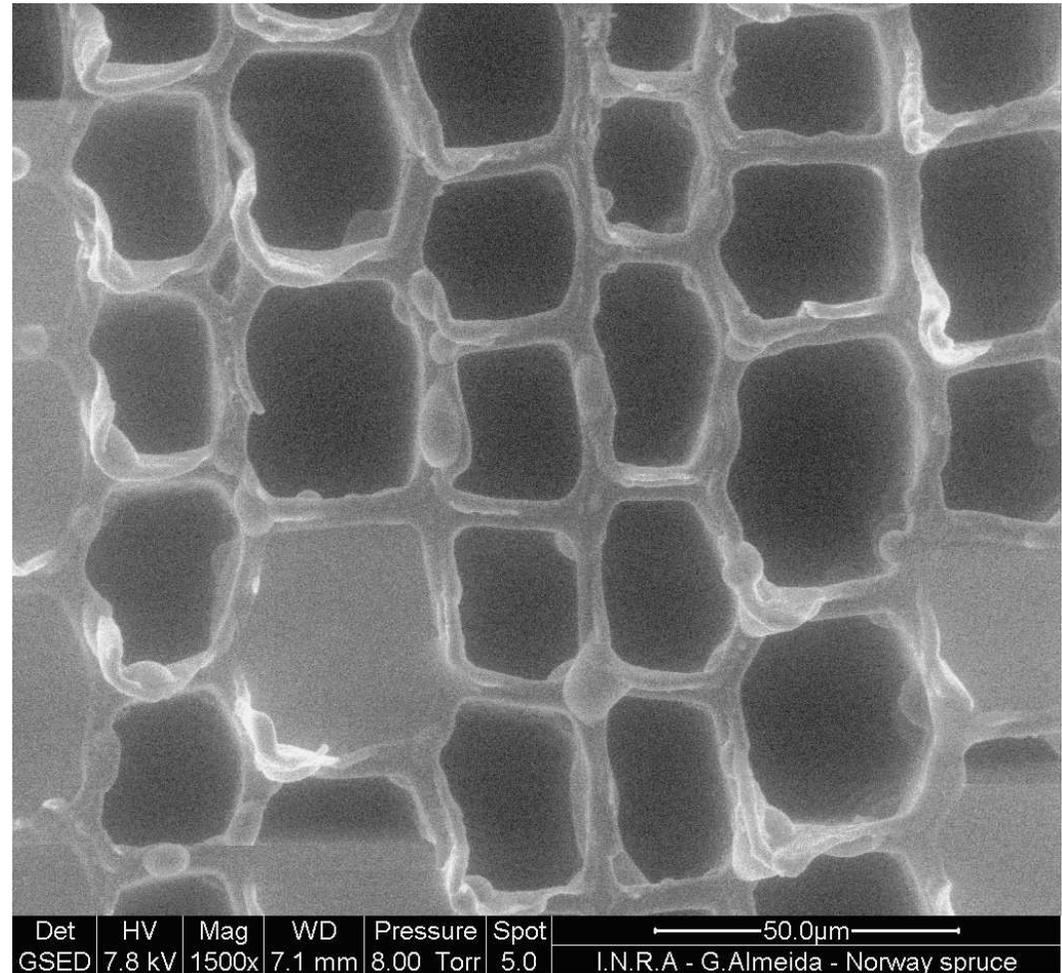


# Retrait du bois à l'échelle de la paroi cellulaire

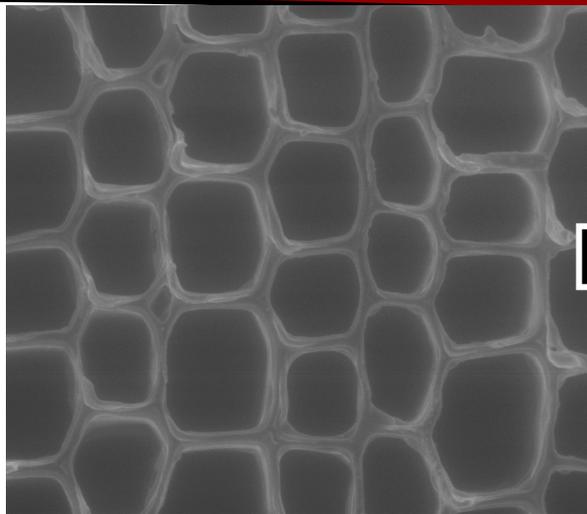
MEBE FEI, Quanta 200  
(accelerating voltage of 8kV, spot size of 5,  
working distance of 7 mm).



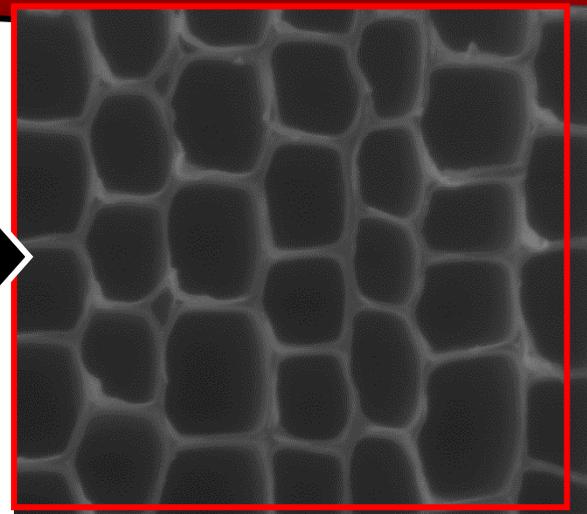
**Phase Diagram for Water**



# Retrait du bois à l'échelle de la paroi cellulaire



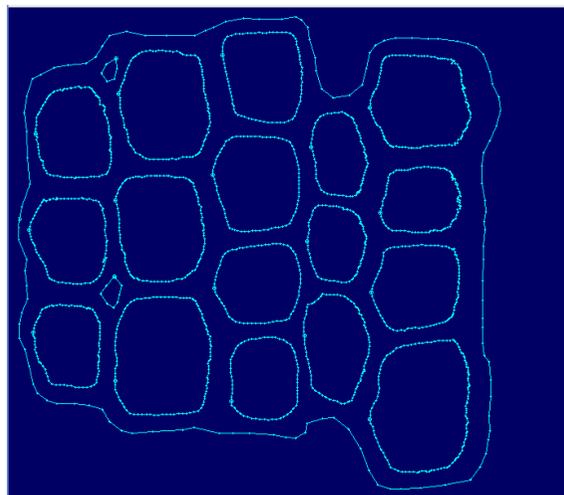
Saturated sample



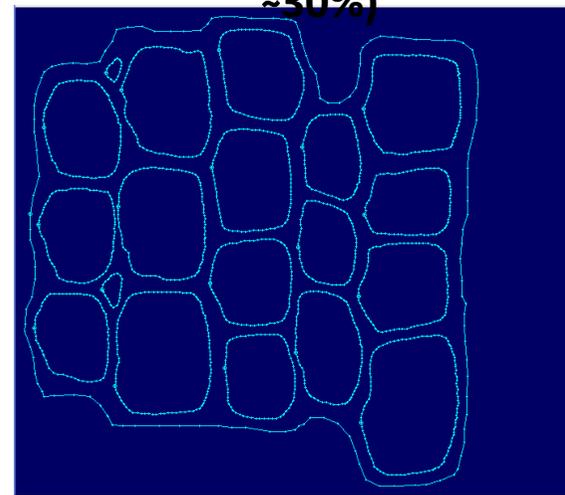
Dried sample

T=5.83%  
R=1.60%

(equilibrium state at 1° C, 8 Torr: RH ≈100%) (equilibrium state at 16° C, 4 Torr: RH ≈30%)



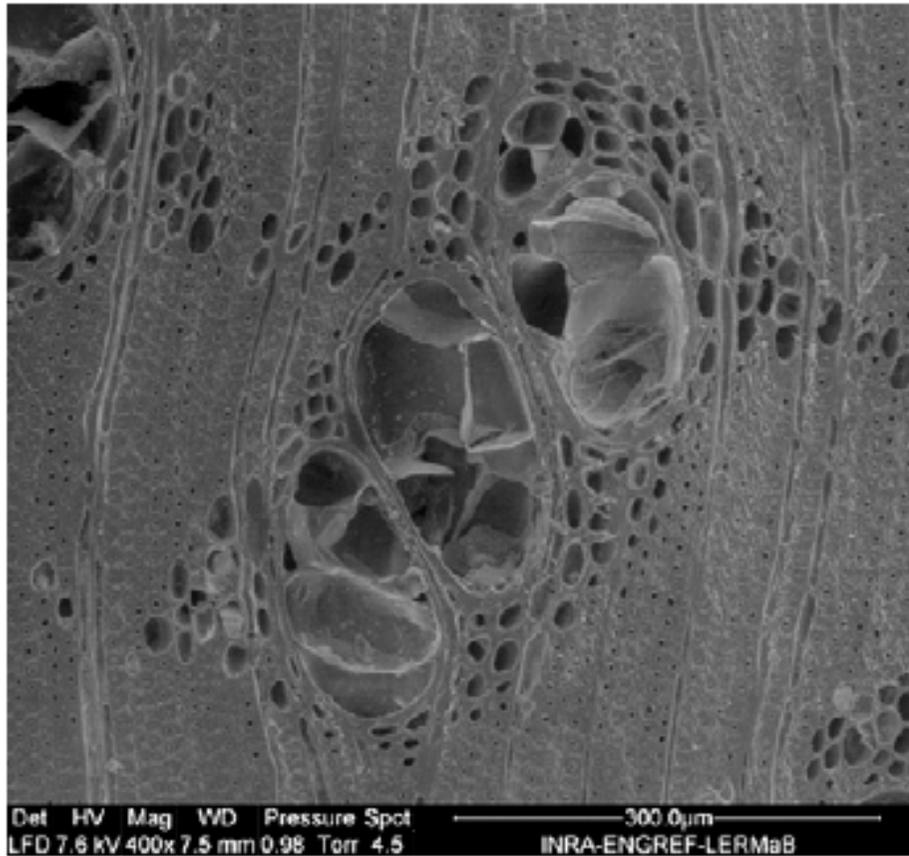
Saturated sample: 3.6 μm



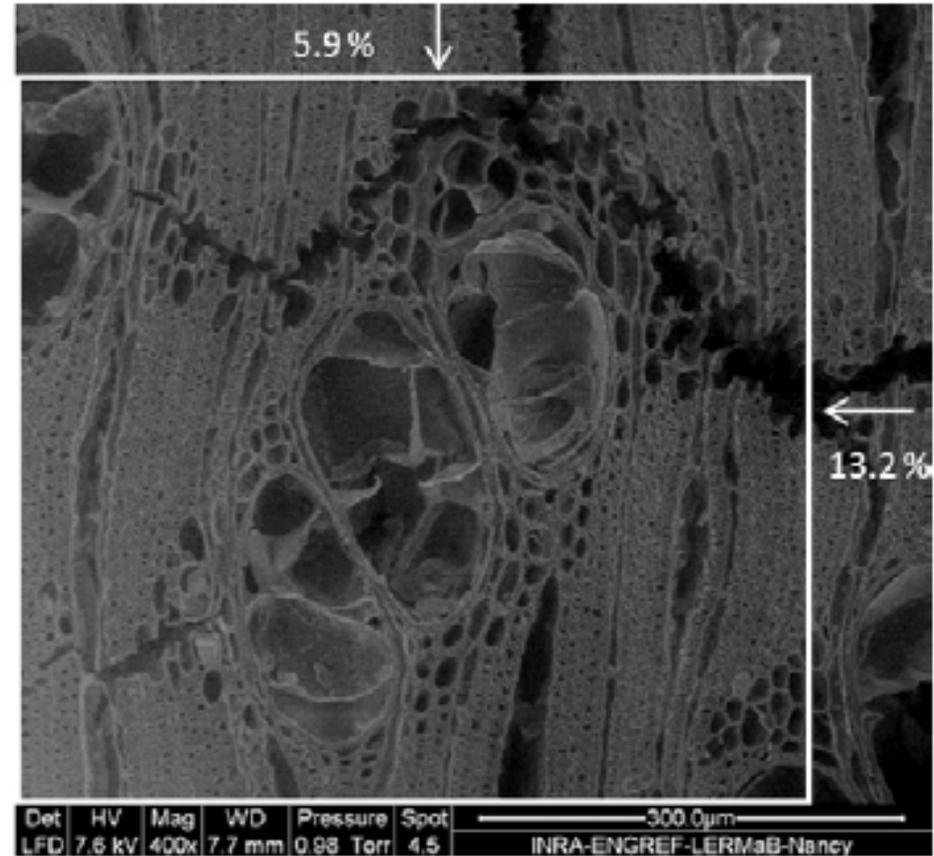
Dried sample: 3.0 μm

— Cell wall contour of earlywood zone (software MeshPore).

# Changement de la structure du bois



Untreated sample



Torrefied sample at 280° C, 5h

## Imagerie par Résonance Magnétique Nucléaire

Imageur 2.35 T – 100 MHz ( Biospec Bucker)  
– Collaboration Université de Lorraine

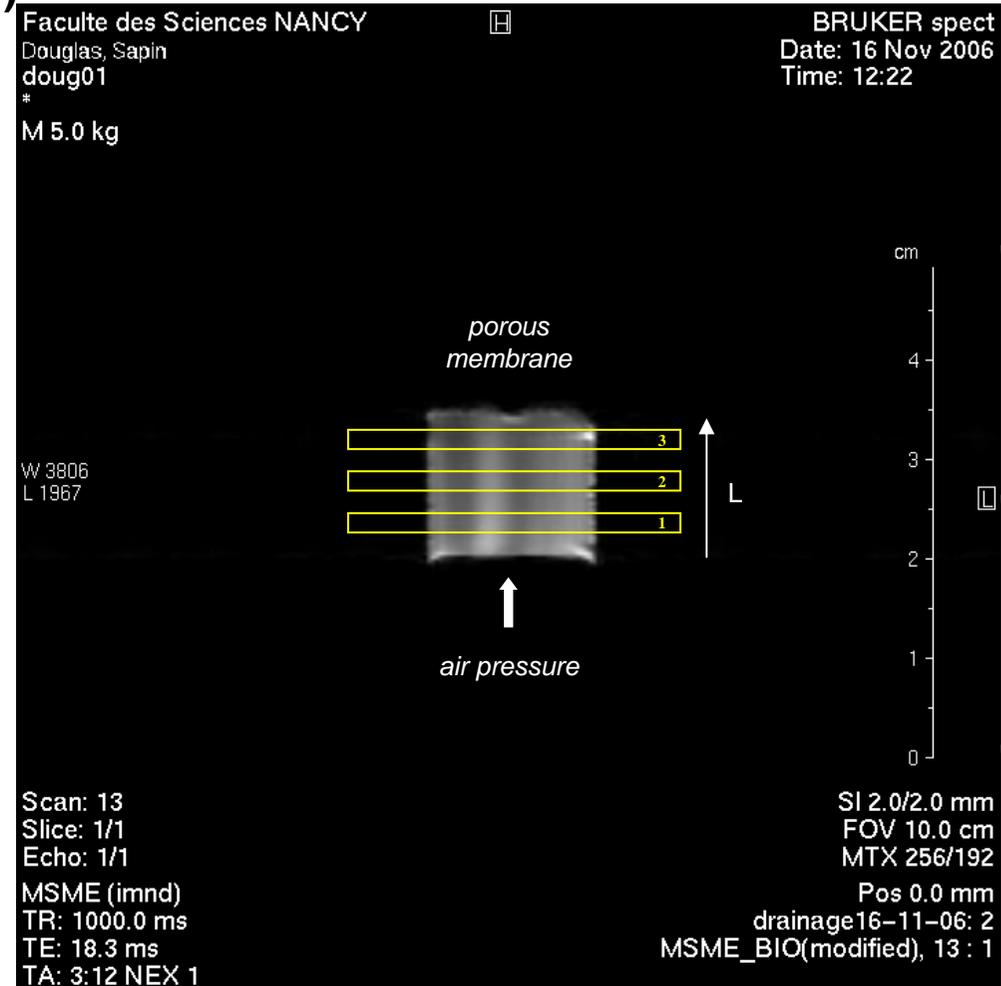
Douglas (*Pseudotsuga menziesii*)

Drainage longitudinale:

17 mm de diamètre (RT), 20 mm (L)

Application d'une pression de  
5 bar pendant 4H30

Intervalle d'acquisition  
d'images a été de 4 minutes



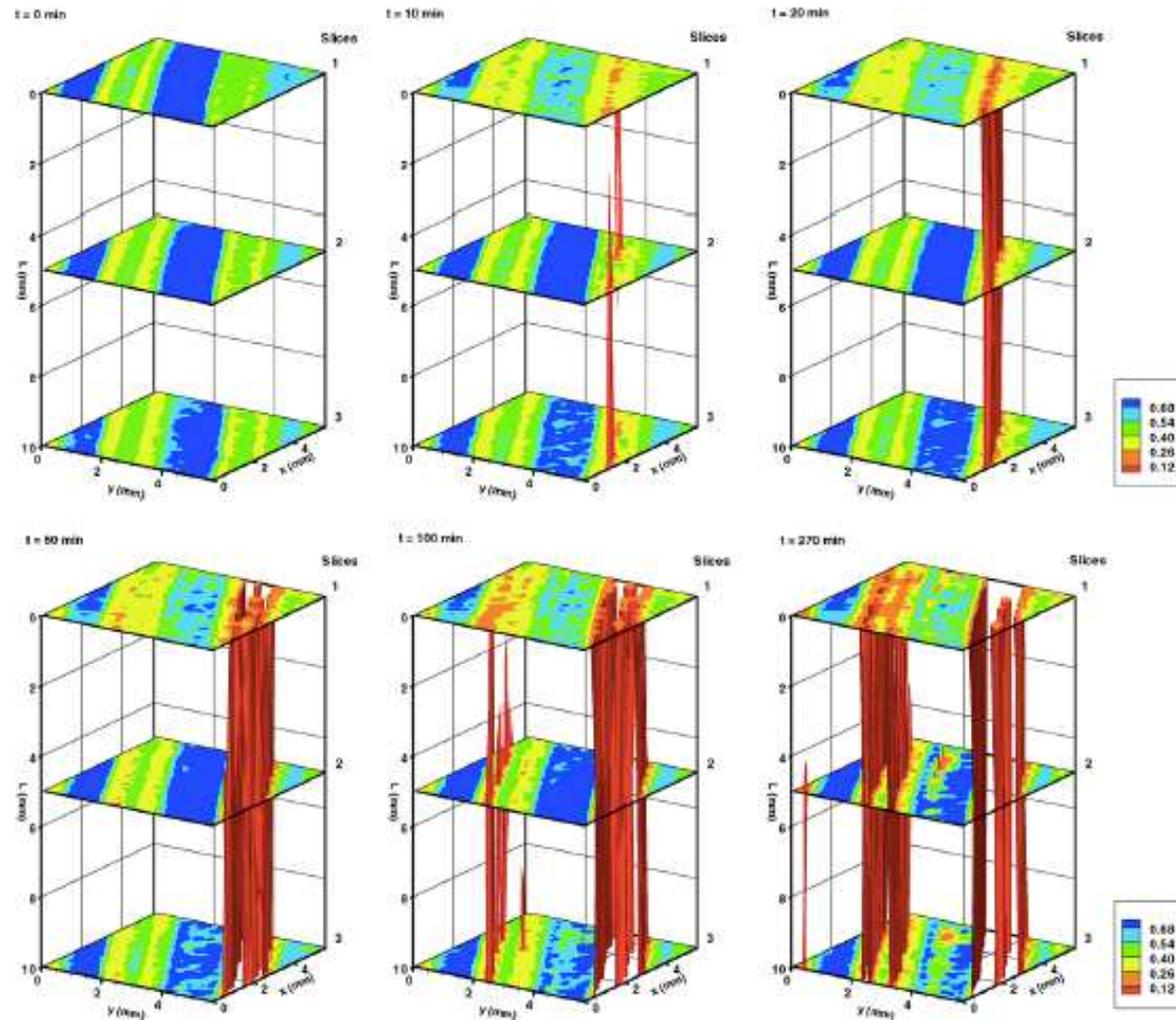


Fig. 5. Three-dimensional MRI of the apparent specific gravity of water at six different drainage times. This magnified zone is specified by a square in Fig. 4 (top left).

*Travaux en cours...*

