Depth Dependent Measurements Observed in Phantoms

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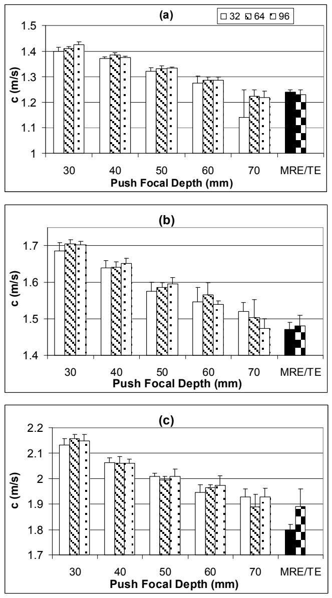
Previous Phantom Study

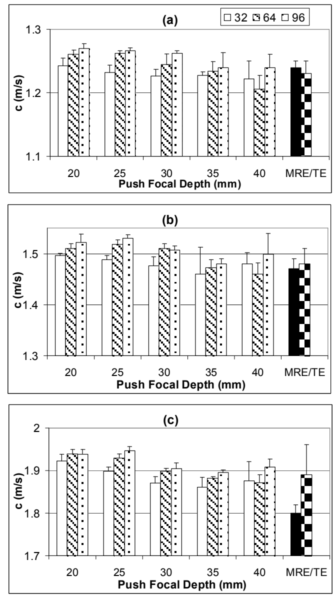
1. Three “homogeneous” CIRS phantoms
2. C4-2 and L7-4
3. Aperture size: 32, 64, and 96 elements
4. SWS measurements at 5 depths with Verasonics (4 kHz detection frame rate)
5. Five readings at different spatial positions for each combination above
6. MRE and Transient Elastography validation

Ultrasound in Med. & Bio. 37(11): 1884-1892, 2011

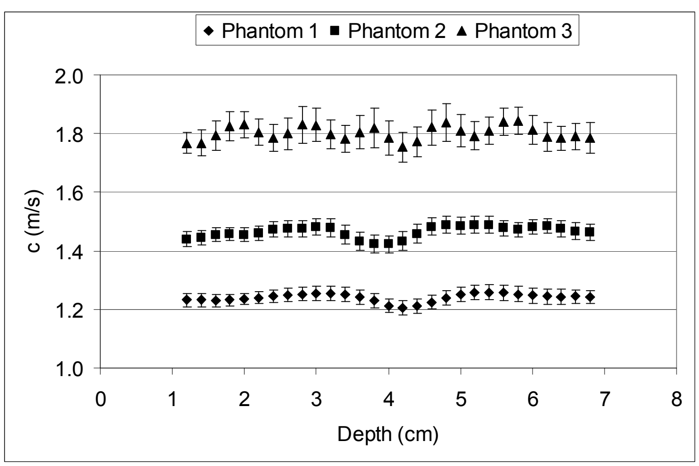
C4-2 Results



L7-4 Results



MRE Results in Phantoms



Rough Preliminary Study

1. A homemade phantom: Ø10cm, depth 7.5cm
2. Verasonics with C4-2 (QIBA phantom test code)
3. SWS measurements at 3 and 4.5 cm
4. Ten readings at different spatial positions
5. Flip phantom upside down and repeat measurements

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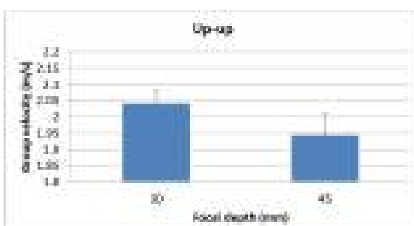
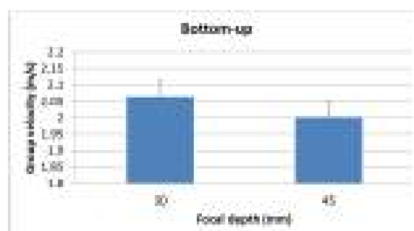
Results





- Limitations: phantom sound speed, attenuation, uniformity not controlled; one appraiser; gel coupling; probe compression not controlled: hard to catch a small depth effect (by chance?).
- CIRS will make a test phantom with double acoustic windows and water wells, with thickness of 10 cm so that depths at 3, 5, 7 cm are symmetric from both windows.
- Significance vs. in vivo variation (biological, technology, operator)

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