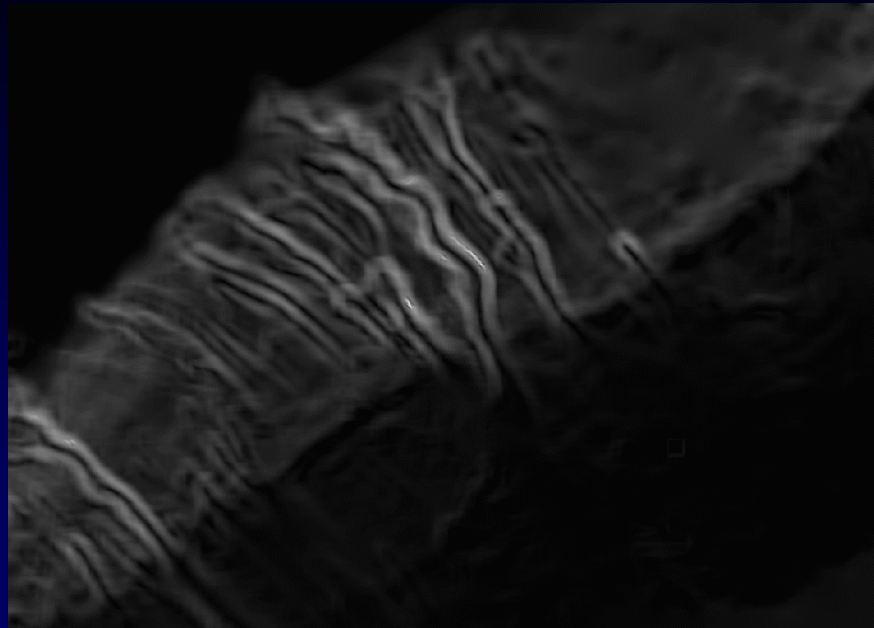


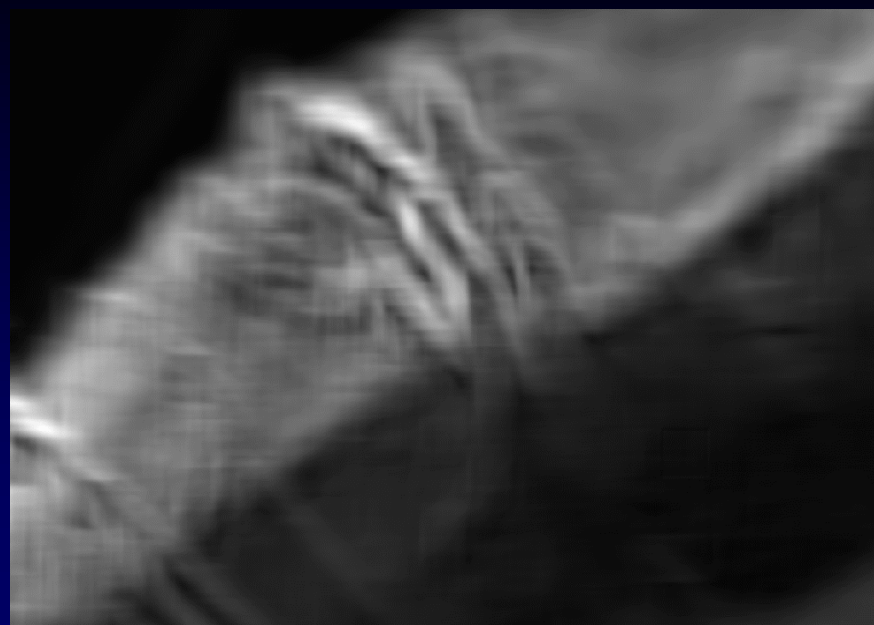
Absolute value of the gradient of the Wiener filtered
3" x 3" data with a 1' x 1' window 37



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Absolute value of the gradient of the Wiener filtered
3" x 3" data with a 3' x 3' window 38

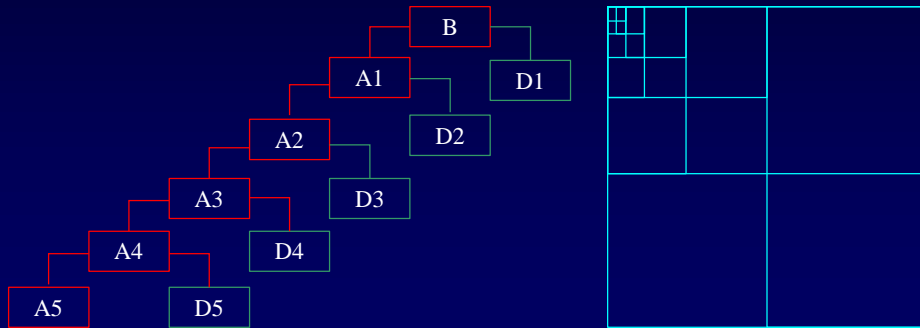


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Wavelet Denoising

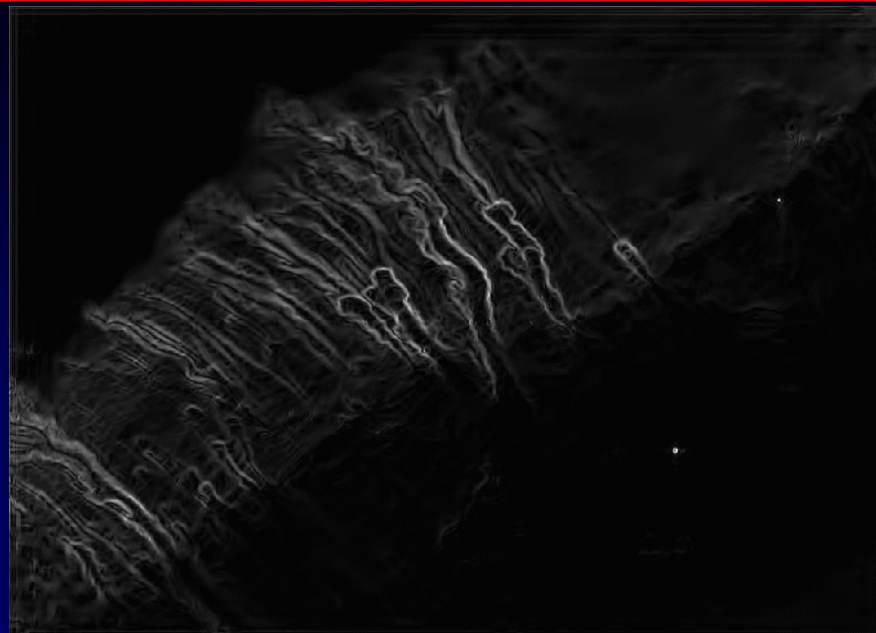
Wavelets	Coefficients	Levels	Threshold
Daubechies (db7)	14	5, 10, 15	58.5
Symlet (Sym4)	8	5, 10, 15	58.5



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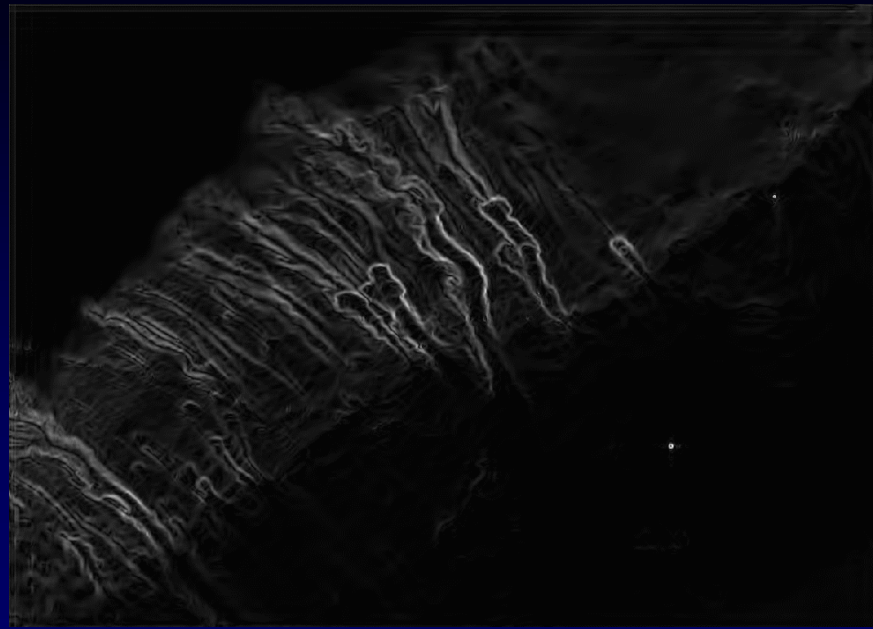
Absolute value of the gradient of the db7 de-noised 3" x 3" data up to level 5



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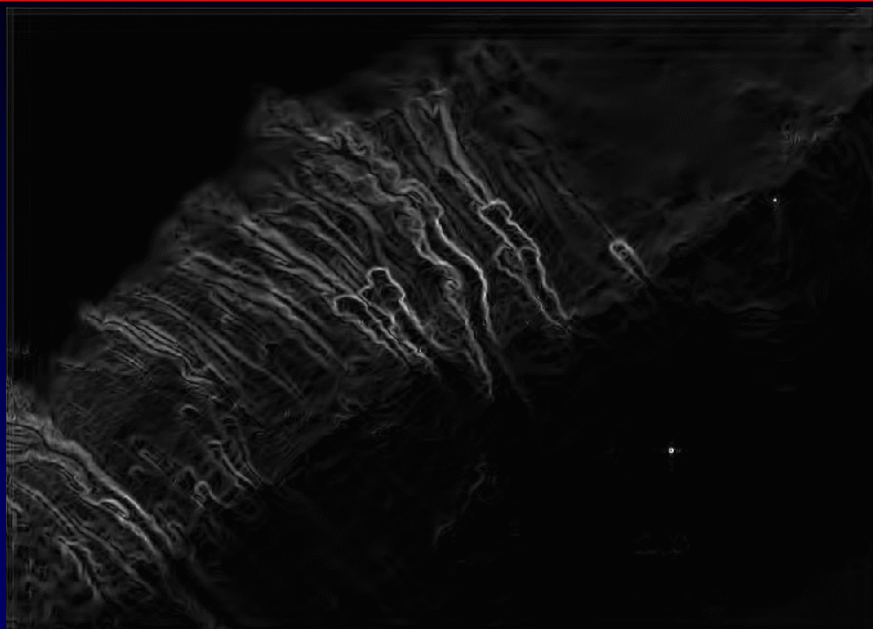
Absolute value of the gradient of the db7 de-noised
3" x 3" data up to level 10 41



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Absolute value of the gradient of the db7 de-noised
3" x 3" data up to level 15 42

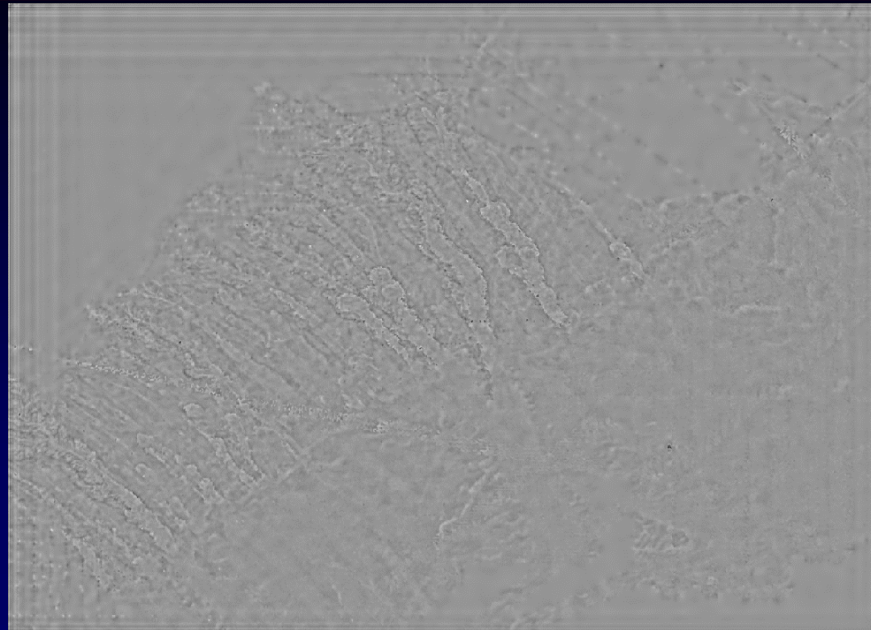


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Difference: original - db7 de-noised
3" x 3" data up to level 5

43

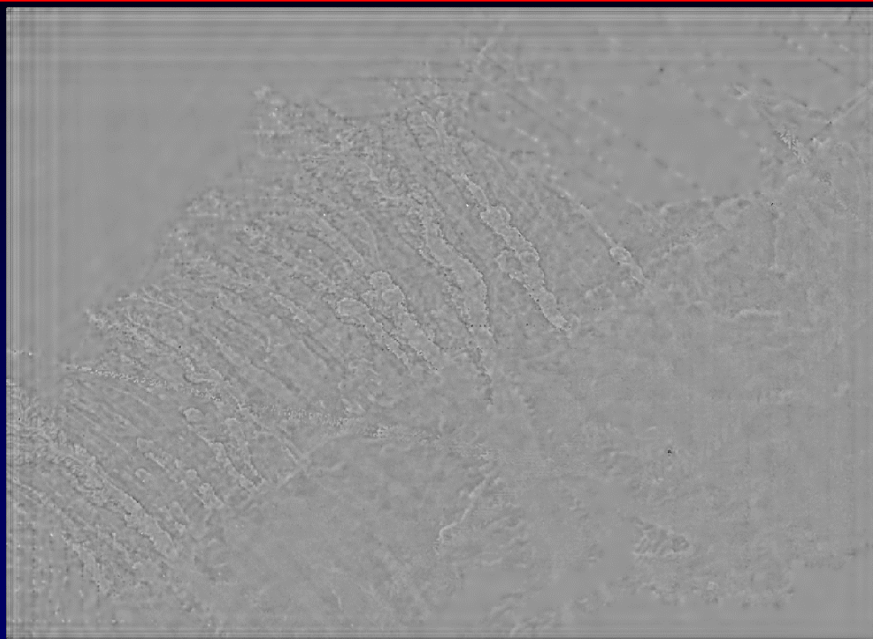


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Difference: original - db7 de-noised
3" x 3" data up to level 10

44

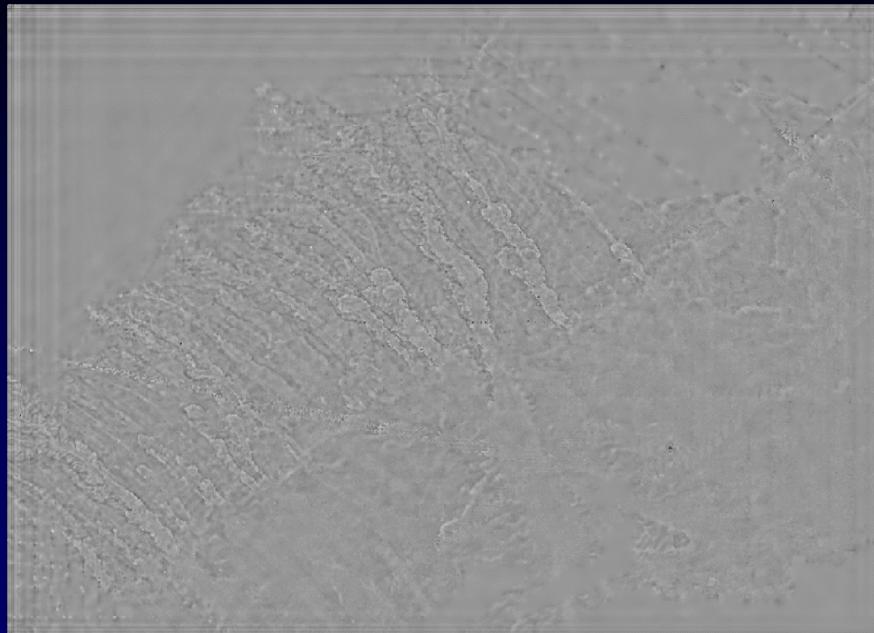


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Difference: original - db7 de-noised 3" x 3" data up to level 15

45



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Statistics of the differences: de-noised - raw data

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db7	Level 5	Level 10	Level 15
min	-128.2	-128.8	-129.1
max	102.0	100.4	100.1
mean	-0.04	-0.4	-0.7
stddev	6.8	6.9	6.9

sym4	Level 5	Level 10	Level 15
min	-100.8	-100.3	-100.4
max	81.9	80.0	79.8
mean	-0.02	-0.3	-0.5
Stddev	6.4	6.5	6.5

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Statistics of the differences: denoised data at level 15 – de-noised data at level 5

	db75	sym4
min	-6.6	-4.8
max	4.0	4.7
mean	-0.6	-0.4
Stddev	1.3	1.2

db7 denoised at level 15 - db7 de-noised at level 5





Conclusions and Recommendations

- The 2,500 m isobath: risks of aliasing and biases
- The search for the maximum change in the gradient:
 - 1 Decimation
 - 2 Non-linear filtering
 - 3 Linear filtering
 - 4 Wiener adaptive filtering
 - 5 Wavelet decomposition
- Recommendations:
 - wavelet decomposition removes multi-scale noise while preserving the sharpness of the location of the FOS
 - the level of wavelet decomposition did not need to be high in this case
 - Non-linear order and adaptive filtering schemes offered interesting results in that order