**Efficient windowed Radon transform**

**Finding lines faster!**
The commonly used Radon transform algorithm has **quadratic complexity** w.r.t. the scanned line length. A modified algorithm with a theoretically linear complexity has been investigated.

The seismic seabed image has low resolution. The transform detects the probable fault lines. The red lines are the final result after two-pass peak detection. Drilling for oil is expensive!

Seismic images are generated in order to know where to start drilling. These images are scanned for **fault lines** where oil is likely to be found. The Radon transform is a common way to detect the fault lines in the images.

**Linear runtime complexity!**
The implementation reuses data already available, lowering the order of computational complexity from quadratic to **linear**. By local optimization with a cost function the best angle for the line is chosen. Post-processing, thinning of the lines, is done by a peak detection algorithm.

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