

Comprehensive 2D seismic coverage in Kazakhstan

34,000 km of 2D seismic, including 7,400 km of recently reprocessed data, located in the North and Central Caspian to best enable explorers and producers to optimize the potential of this prolific region.

CGG has been operating in the Republic of Kazakhstan for more than 15 years. During this period, in association with the Kazakhstan government, a unique and comprehensive 2D seismic data set has been compiled for the review and assessment of the prospectivity of the Kazakhstan sector of the Caspian Sea.

A reprocessing project has been completed in 2023, providing more than 7,400 km of comprehensive, enhanced, workstation-ready 2D seismic data.

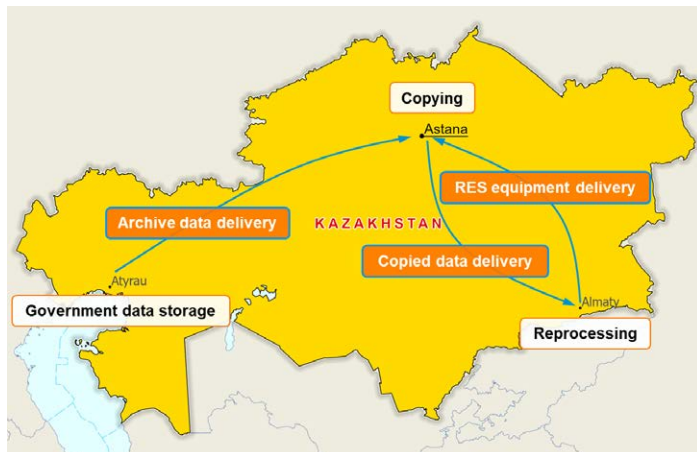
Data package

Data reprocessed in 2023:

- North Caspian: 5,000 km
- Central Caspian: 2,400 km

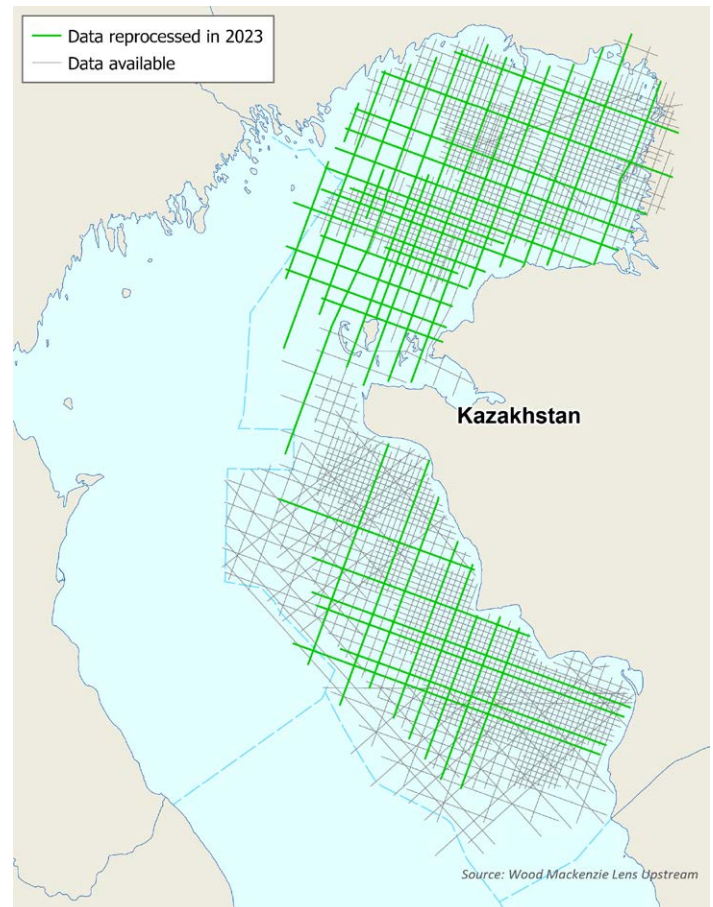
Data available:

- Around 34,000 km of 2D seismic data of different vintages



Data recovery challenges:

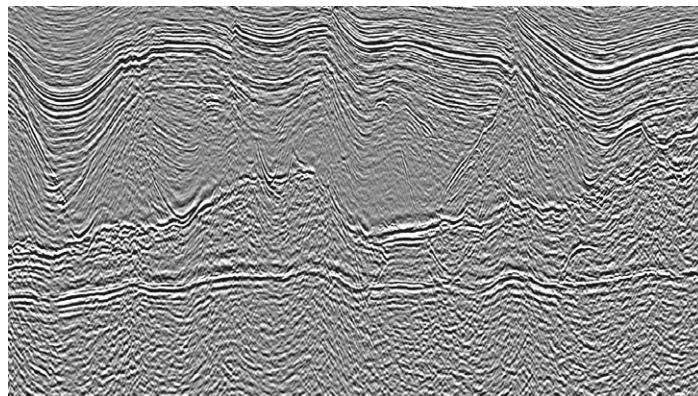
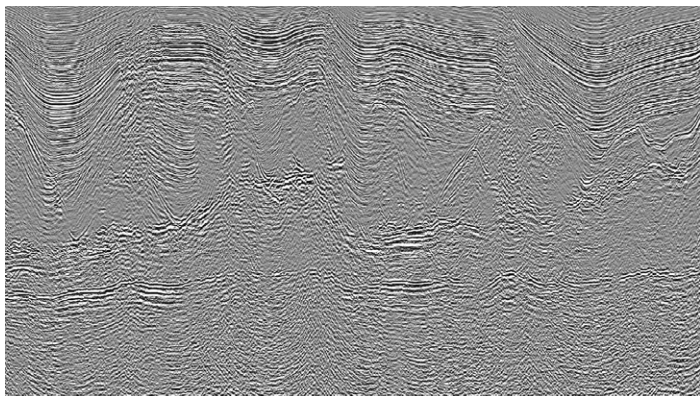
- Originally recorded on 3480 tapes
- Later copied to 3590 tapes – not well documented
- Navigation on separate Exabyte tapes
- Observer logs not always complete
- Data not shot sequentially
- Data from two recording systems



Work completed:

- All data from a line identified
- Data from different recording systems merged
- Navigation data found
- Seismic and navigation data merged
- Initial stacks generated using a similar sequence to 1995 checked against original data

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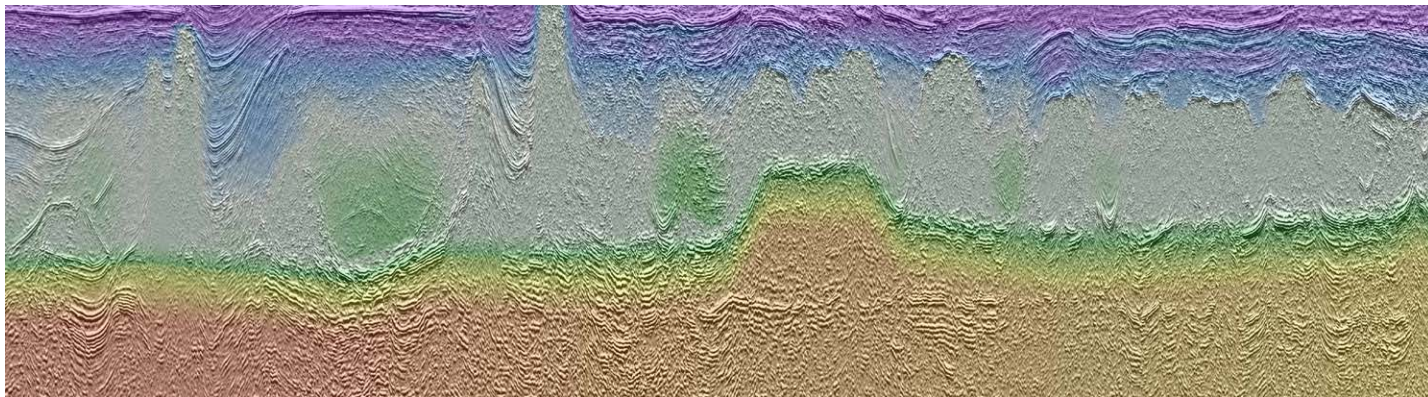
Representative 2D seismic before (left) and after (right) reprocessing.

Key challenges include:

- Data vintages
- Different acquisition types (OBC, streamers)
- Data collection and preparation
- Demultiple in extremely shallow water
- Velocity model building

Key processing steps

- Deghosting
- Two passes of demultiple
- Multilayer tomographic update with salt geometry assessment
- Surface-consistent scaling
- Surface-consistent spectral whitening
- Controlled beam migration



Representative seismic section (seismic pseudo relief with velocity overlay).

Deliverables

- Full stack (depth and time)
- Final PSDM velocity field
- Reprocessing report

Local contact

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| Acquisition Parameters | | | |
|------------------------|---------------|----------|-----------------|
| Area | North Caspian | | Central Caspian |
| Type | OBC | Streamer | Streamer |
| Streamer Length | 8,975 m | 4,207 m | 4,500 m |
| Record Length | 8,000 ms | 8,000 ms | 8,000 ms |
| Sampling Rate | 2 ms | 2 ms | 2 ms |
| Water Depth | 2 – 10 m | 2 – 10 m | 30 – 500 m |

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