

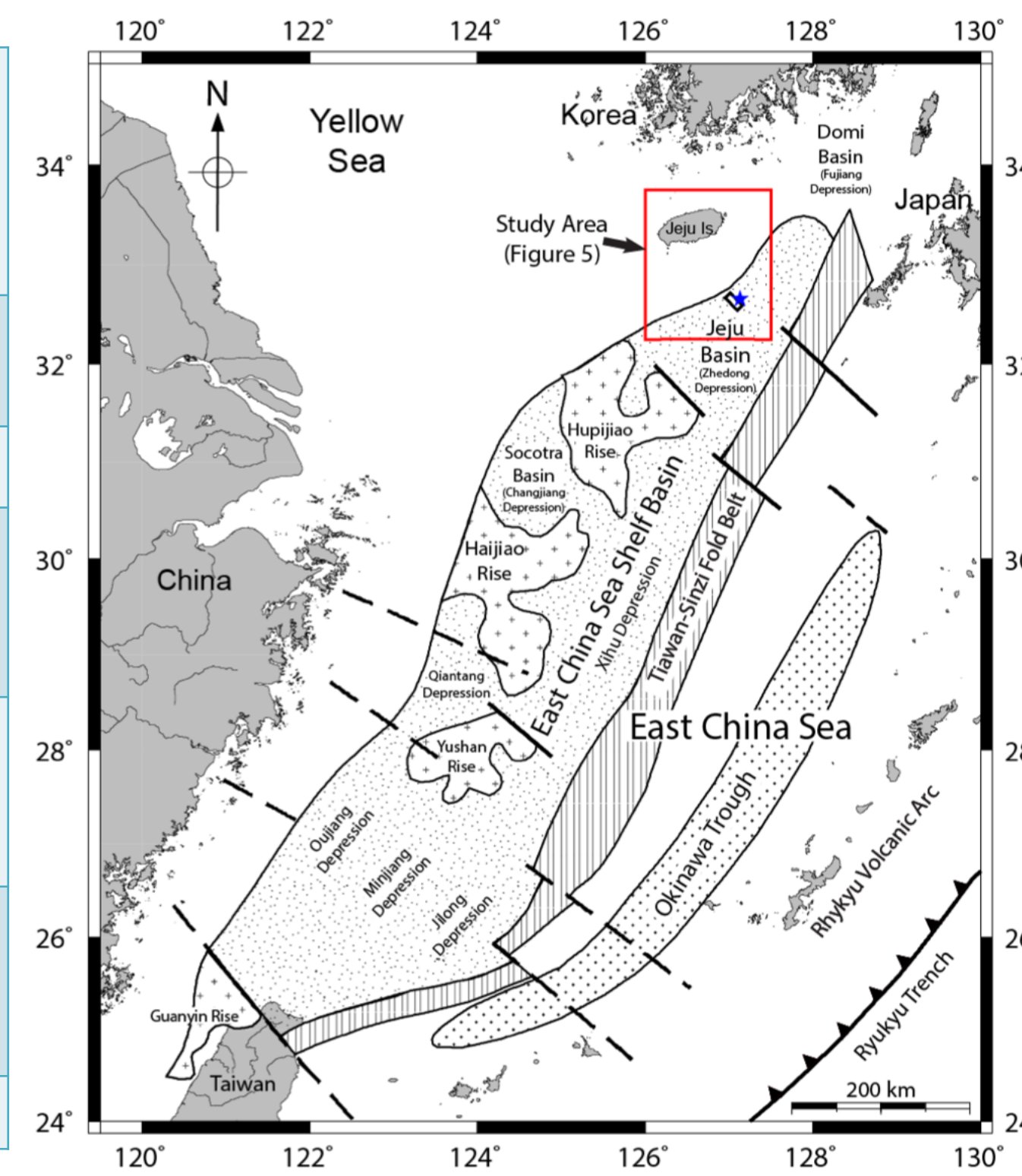
# Seismic Processing and Interpretation of a Large 3D Jeju Basin Survey



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## Data description

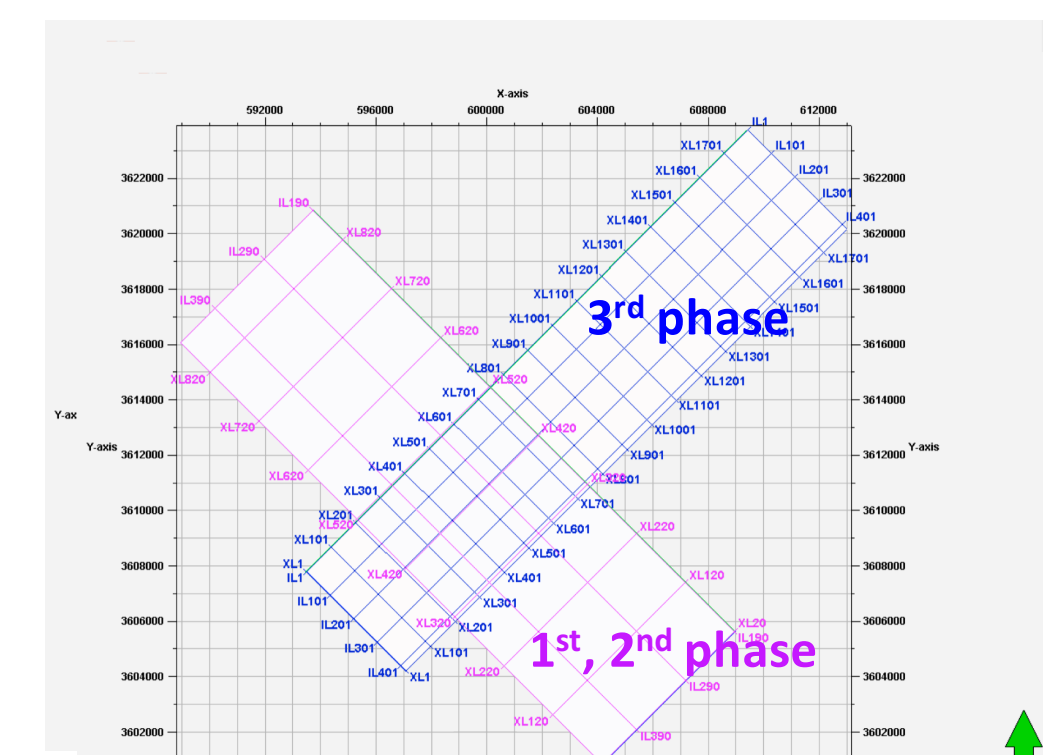
Project	3D Marine seismic processing of KIGAM survey acquired over a fluvial system, Jeju Basin, South Korea
Acquired by	Korean Institute of Geoscience and Mineral Resources (KIGAM)
Location	Jeju Basin, South Korea
Acquisition in three campaigns	1 <sup>st</sup> phase : 2012 2 <sup>nd</sup> phase : 2013 3 <sup>rd</sup> phase : 2014
Data processing	1 <sup>st</sup> phase : Hawkins(2013) 2 <sup>nd</sup> phase : Larry Aboaba (2014) 3 <sup>rd</sup> phase : Yuji Kim
Data type	SEG-D format Navigation data in UKOOA p1/90 format
Well log	Dragon-1 well (1993)



Regional map of the East China Sea.

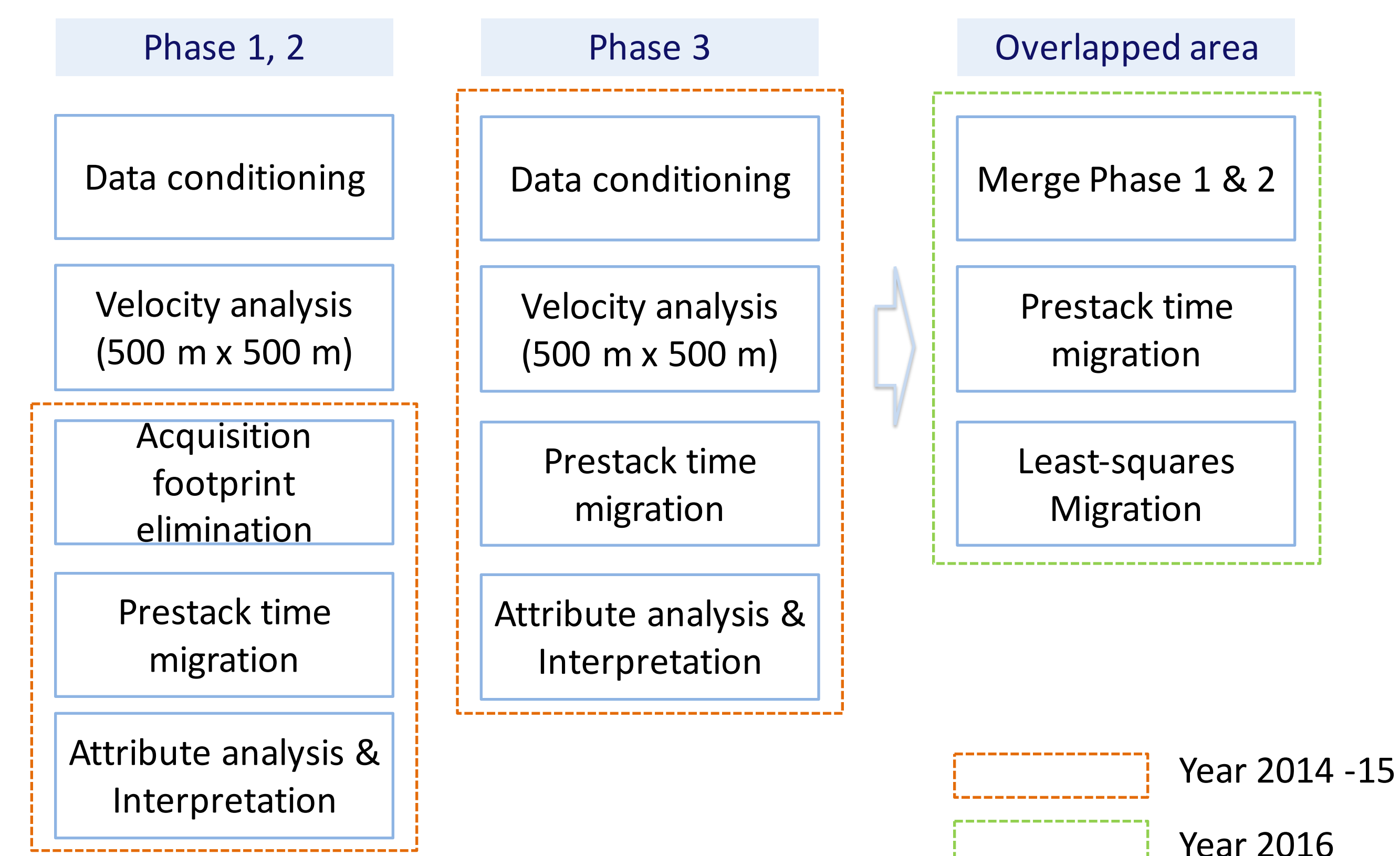
## Acquisition parameters

Streamer/Source onfiguration	2/2
Streamer length	2.4 km (1 <sup>st</sup> , 3 <sup>rd</sup> phase) 2.1 km (2 <sup>nd</sup> phase)
Streamer depth	7 m
Source depth	5 m
Record length	5 s
Sample rate	2 ms
Group interval	12.5m
No of Groups	192 per streamer
Shot interval	25 m
Bin size	6.25 x 25 m
Sail direction	135 / 315 degree (1 <sup>st</sup> , 2 <sup>nd</sup> phase) 45 / 225 degree (3 <sup>rd</sup> phase)



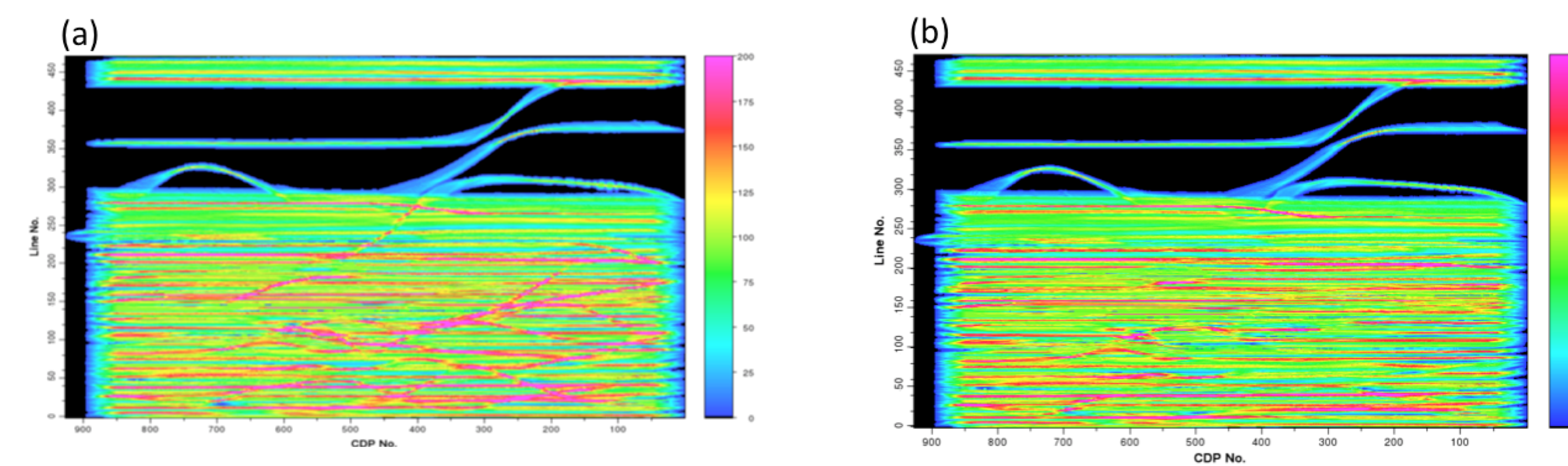
Phase 1-3 seismic survey areas.

## Processing work flow



## Acquisition footprint elimination (Phase 1-2)

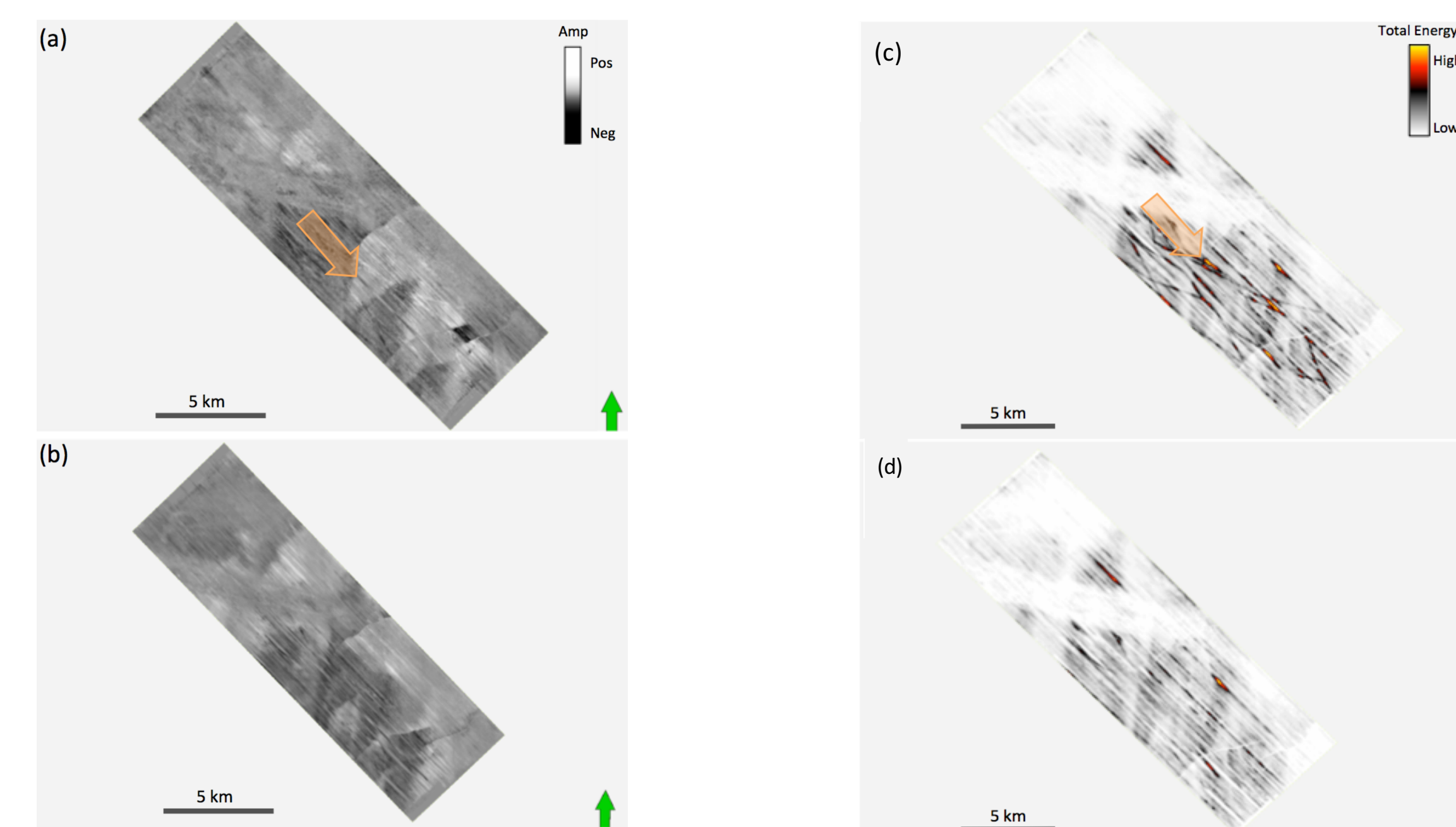
- Cable feathering results in irregular acquisition geometry and fold coverage. Such irregularities can contaminate subsequent quantitative analysis using stacked amplitude or energy attributes; thus, we removed irregular acquisition lines and remigrated the data



Fold map of the phase 1-2 survey area: (a) original data, (b) with irregular seismic lines removed

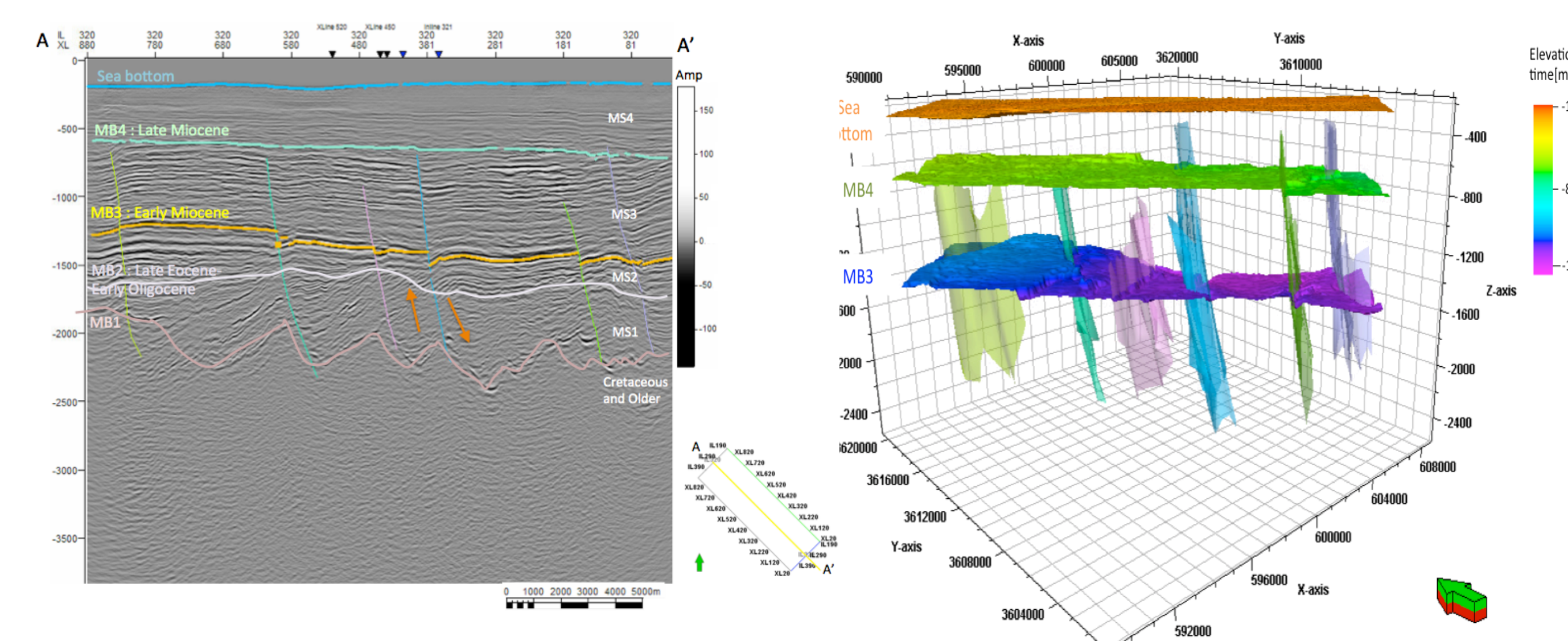
## Remigration and generating attribute volume

- After remigration, high amplitude caused by cable feathering is somewhat reduced



Time slices at t = 400 ms through amplitude (left) and total energy (right) : (a) and (c) migration stack of original data, (b) and (d): migration stack after irregular acquisition lines were removed

## Interpretation

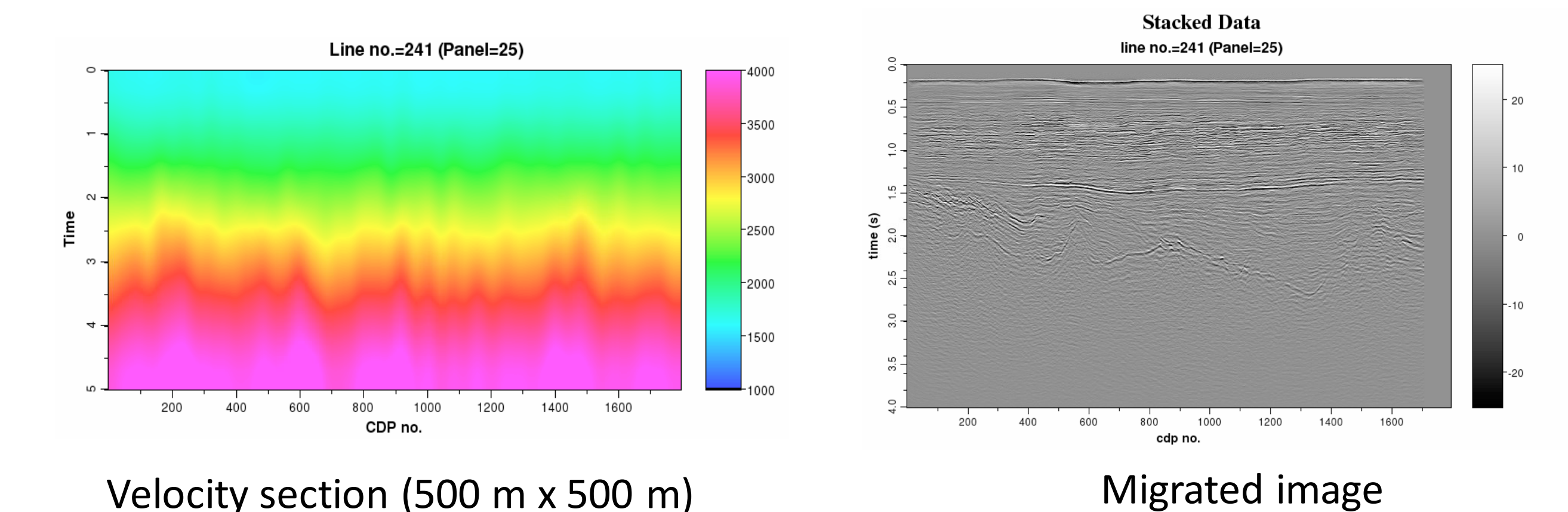


Seismic cross-section showing stratigraphical and structural interpretation in study area

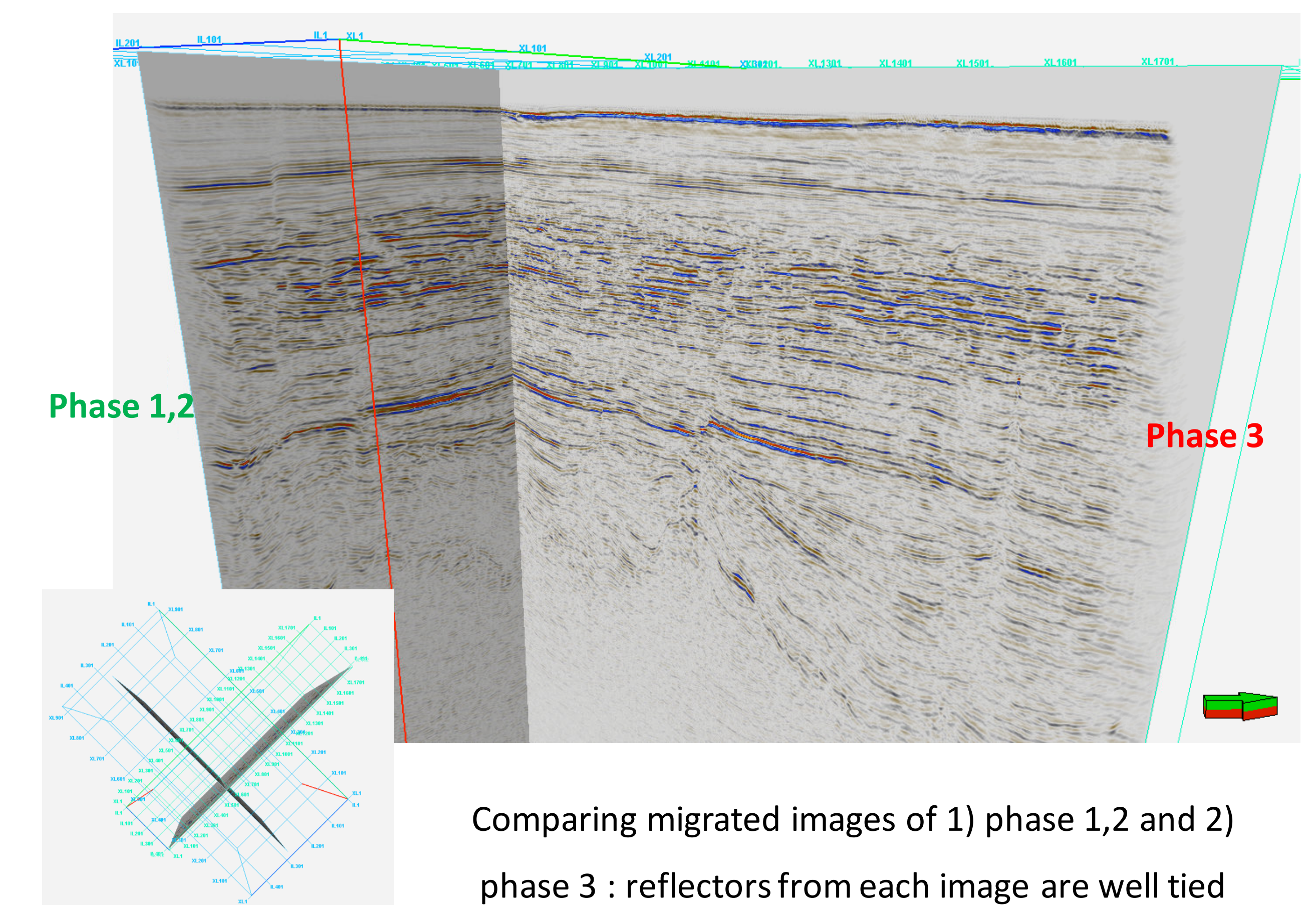
3D structural model illustrating fault models and horizons

## Seismic imaging (Phase 3)

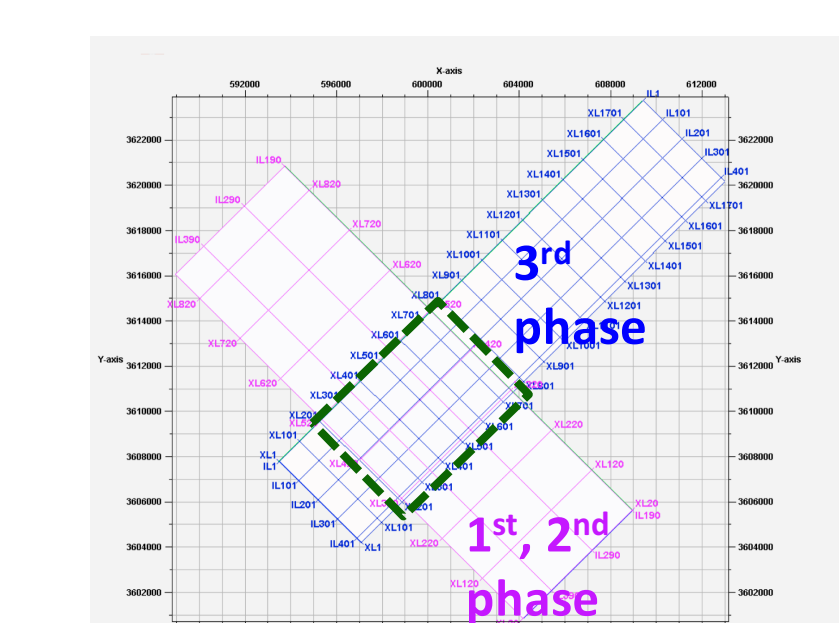
- Velocity analysis and Kirchhoff time migration



## Migrated image (Phase 1-3)



## Work plan for year 2016



- Merging phase 1,2 + phase 3 area
  - Velocity analysis and PSTM for overlapped area
  - Application of Least-squares migration
- Attribute volume generation and stratigraphic Interpretation