Z-Design
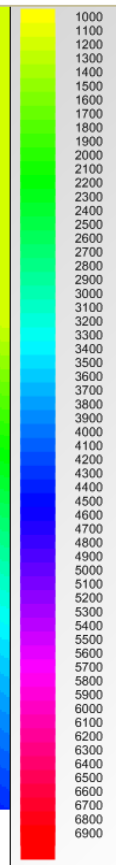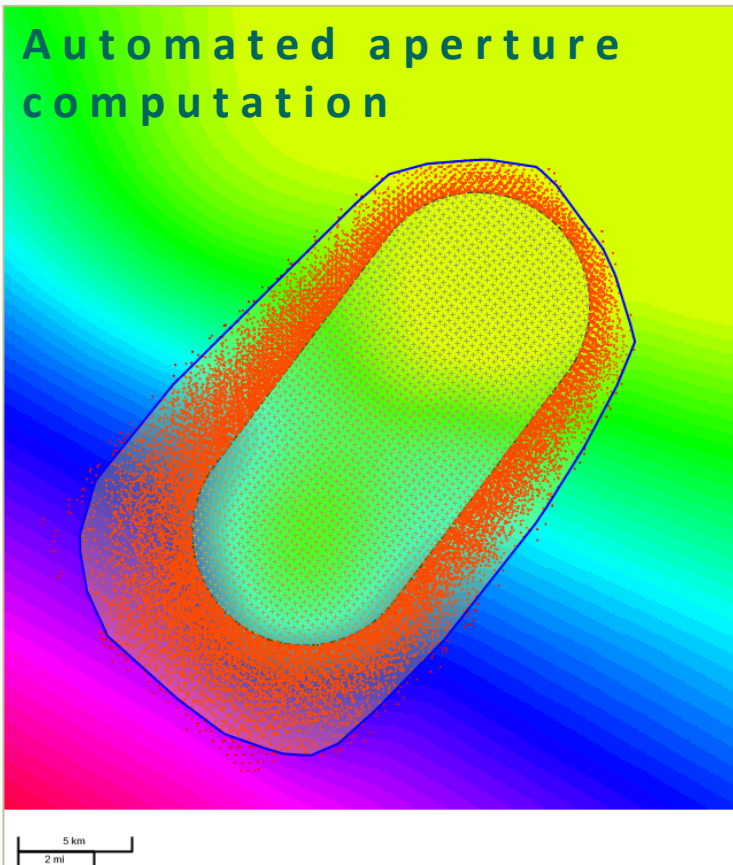## 3D ray tracIng for TesserACT

Automated aperture computation

The success of any 3D survey requires that the area of interest is adequately illuminated, and sufficient aperture is recorded to meet imaging objectives.

Z-Design is a seamlessly integrated module of TesserACT that delivers fast, accurate 3D ray tracing assuring reliable and efficient survey designs

Crossplot & fIlter by any ray attribute

Arbitary 2D line
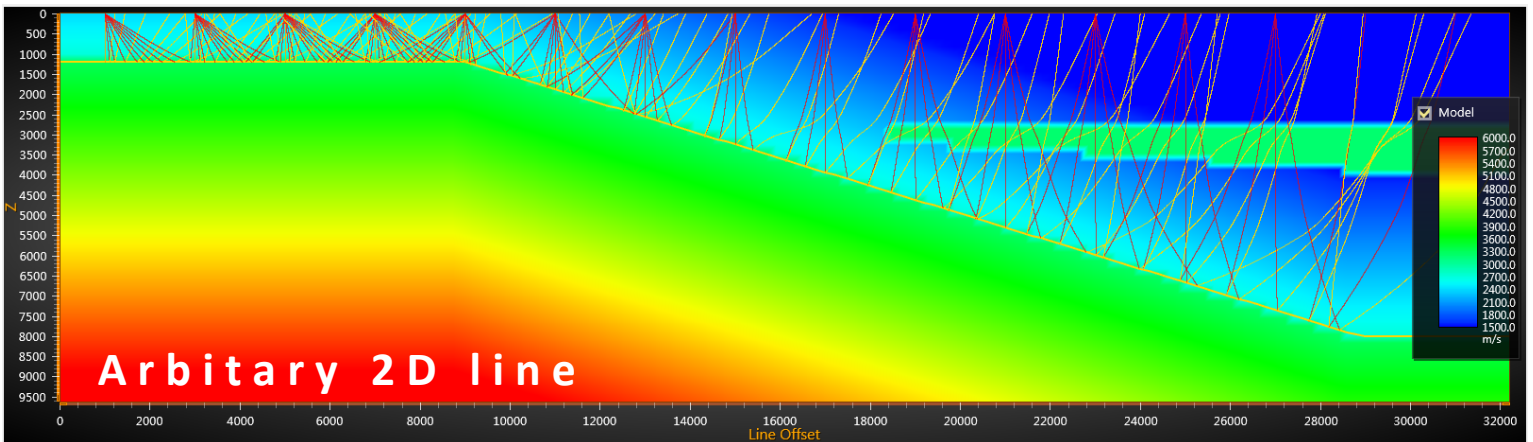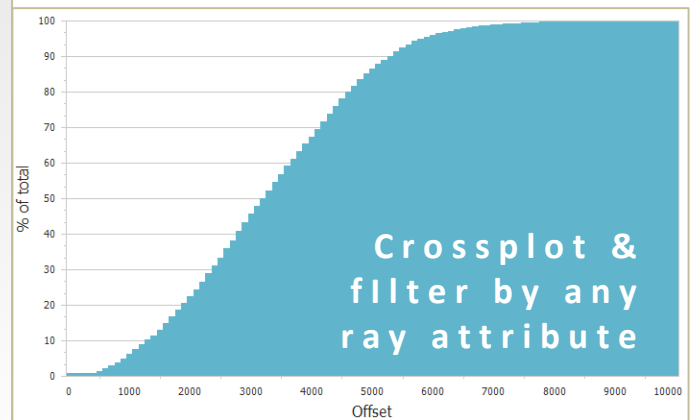
Z-Design is a collaboration between ACTeQ and Z-Terra. The 3D ray tracing engine was developed over many years by Mihai Popovici and his Z-Terra team. Conventional reflections and diving waves are supported..

Interactive 3D ray tracing
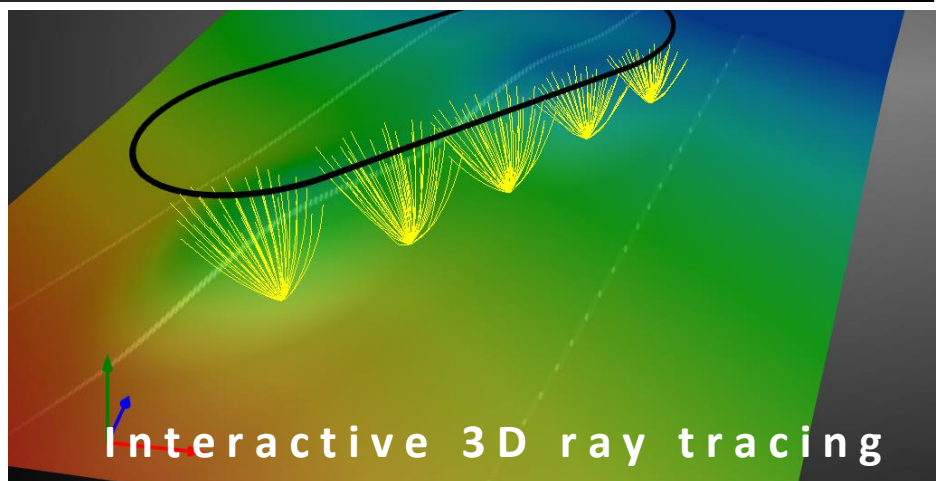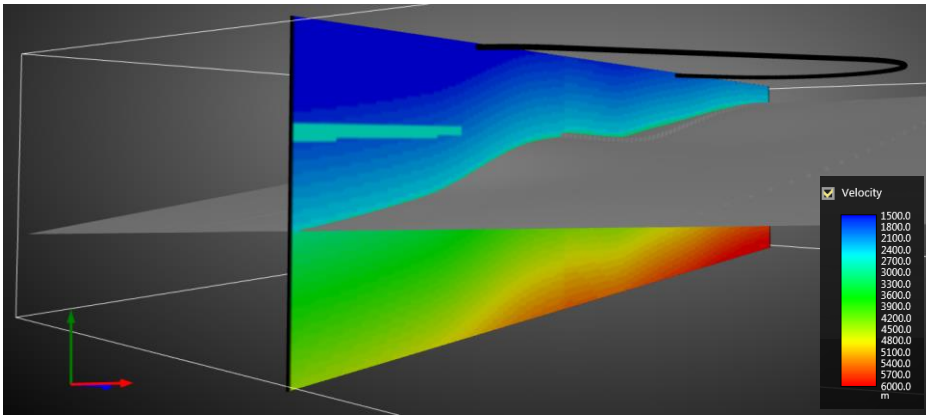
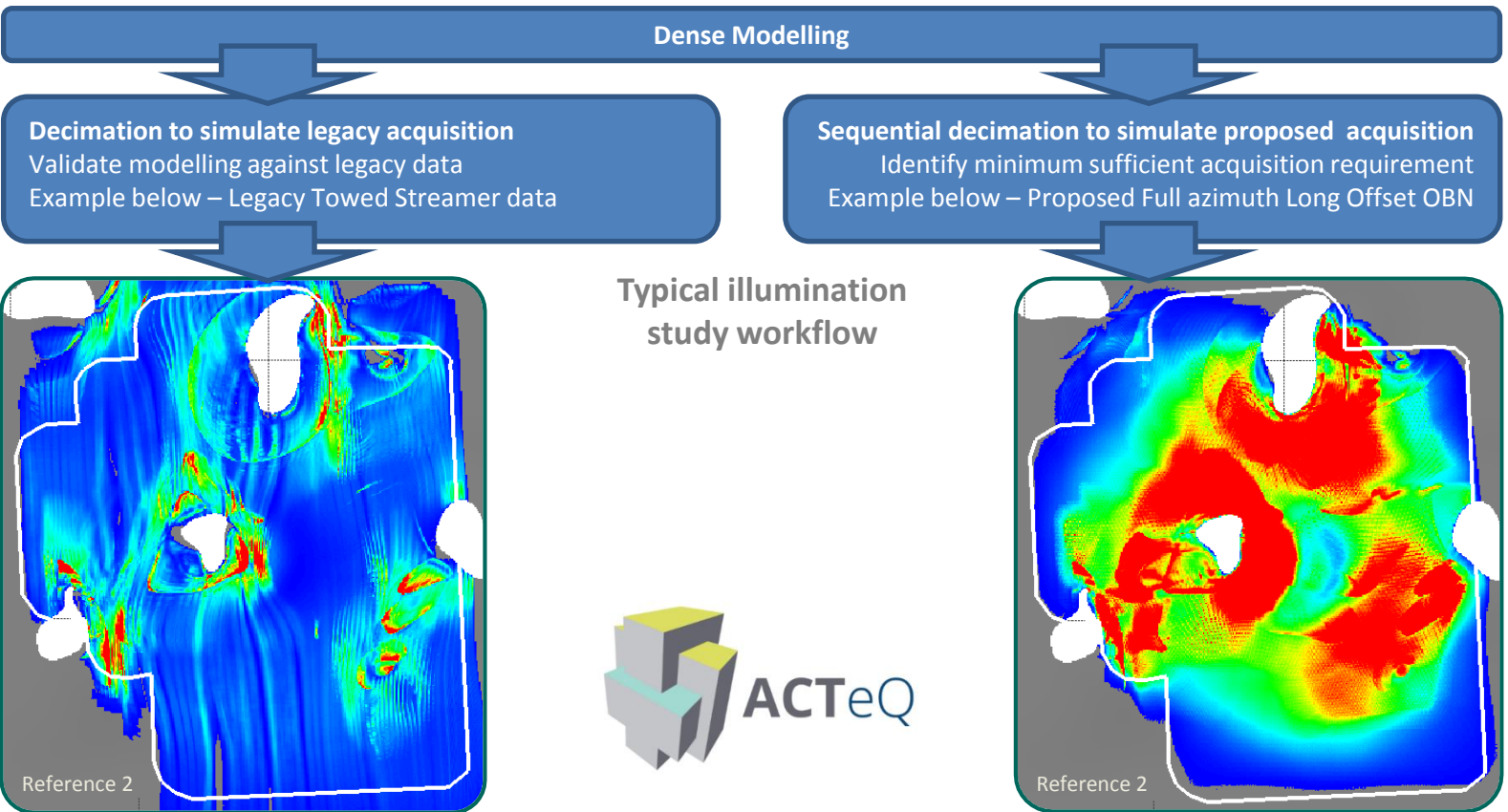Z-Design features a powerful 3D visualization tool for velocity models, horizons and surface culture data. Data can be imported in most standard formats such as SEG-Y, text and shape files.

Additional modeling and illumination study options from ACTeQ

Certain very complex geologic settings may require more rigorous analysis , and ACTeQ is pleased to offer a range of options

	Z-Design	Z-Terra	NORSAR
Business Model	Monthly software license rental	Fixed fee service	Contact NORSAR
Implementation	Seamlessly integrated TesserACT module	TesserACT connector	TesserACT Connector
Technology	3D ray tracing	3D ray tracing Wave equation modelling & illumination analysis	3D ray tracing Ray based wavefront modelling & illumination analysis
Model building	No	Yes	Yes

Dense Modelling

Decimation to simulate legacy acquisition
Validate modelling against legacy data
Example below – Legacy Towed Streamer data

Sequential decimation to simulate proposed acquisition
Identify minimum sufficient acquisition requirement
Example below – Proposed Full azimuth Long Offset OBN

Typical illumination study workflow

Reference 2

Reference 2

References :
(1) "Simulating large scale streamer and OBN acquisition over subsalt targets …", Ridyard et al. First Break Nov.2022
(2) "Rapid OBN survey design using a wave equation illumination study." Gruffeille et al. First Break Nov. 2020