Geoteric 2020.1 Release Notes

Discover a deeper level of subsurface understanding with increased speed and accuracy. Geoteric 2020.1 now brings expertise in deep learning and combines it with 30 years of geological interpretation experience to revolutionise your workflows. With an easy-to-use interface, you can quickly integrate customised Geoteric networks into your workflows and start informing your decisions with an enhanced understanding of the Earth.

Collaborative Artificial Intelligence (AI) interpretation techniques are based on neural networks that extract fault information. These AI results directly integrate into your existing Geoteric interpretation workflow and also feed into the automated fault stick extraction, either regionally or within a reservoir zone of interest.

Desktop Geoteric 2020.1 also provides updates to the creation of multiple surfaces from interpretations in one easy selection and bug fixes which target interpretation workflows.

This release of Geoteric 2020.1 will be on Windows only, with a Linux version to follow.

Key areas of updates in Geoteric 2020.1

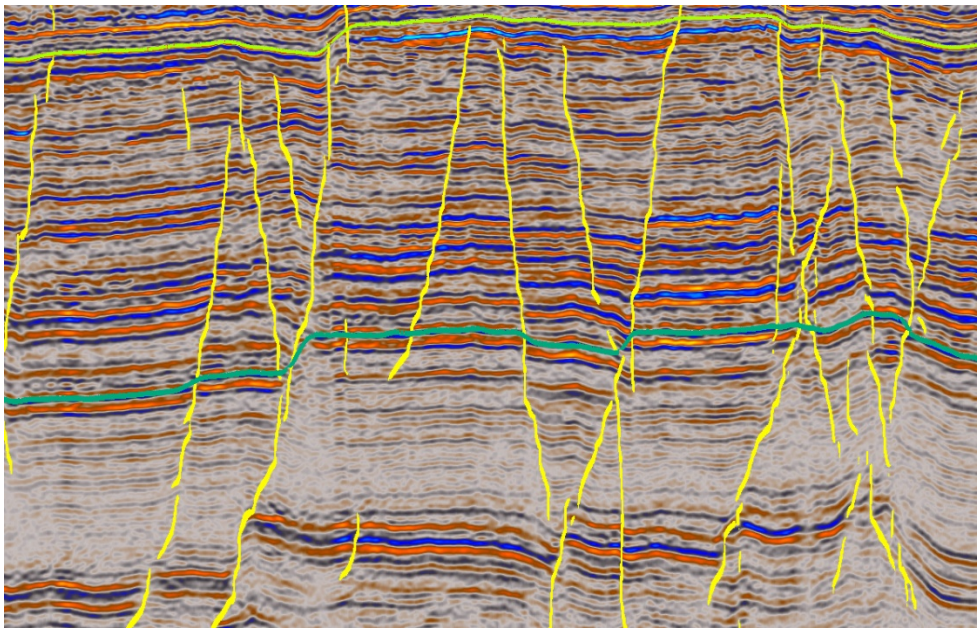
- Collaborative AI Faults
- Automated fault stick extraction between horizons
- Create multiple interpreted surfaces at once
- Bug fixes

Collaborative AI Faults

AI provides a significant new tool for fault detection and extraction in addition to conventional workflows. Geoteric includes collaborative AI interpretation techniques to extract fault information via pre-trained deep learning convolutional neural networks (CNNs). The networks have been pre-trained to recognise faults from different seismic basins and with varying data quality. Therefore, the input can be seismic amplitude from any region or geological environment, quantity, or scale, in time or depth. The output is an AI confidence visualisation which can be visualised using the many volume visualization techniques within Geoteric.

Fine-tuning is possible using interpreted fault sticks which are added to the network when it is submitted for calculation.

An interpreter can instil additional geological knowledge by fine-tuning the network with additional information. To achieve this, interpreted fault sticks are used to tune the network to the geological environment.



Automated fault stick extraction between horizons

For interpretation of faults targeting a zone or stratigraphic layer of interest, the automated fault stick extraction introduced in Geoteric 2019.1 has been greatly improved so that upper and lower constraints can be used to limit your fault stick extraction.

As well as an update to the algorithm to improve the quality of the fault stick extraction, parameters within the dialog now relate to real-world units of measurement instead of voxel units, and an interval velocity can be applied if a project is in time. Whilst you are free to manually choose the detection threshold, an automated method provides an enhanced extraction technique that uses enhanced parameters throughout the volume for better and fast extraction of fault sticks.

Create multiple interpreted surfaces at once

An update, which limits the repetitive task of creating surfaces from interpretations is enabled through selecting multiple interpretations at once for conversion to surfaces. When creating interpretations, they can be made into smoothed surfaces. In previous versions, this conversion was only possible one interpretation at a time. In Geoteric 2020.1 it is now possible to select multiple interpretations in one go and then create smoothed surfaces at once, with the same smoothing parameters.

Bug fixes

11 bugs have been fixed in Geoteric 2020.1.

Fixed 2020.1

Bug 18	Horizon tracked lines now correctly follow the peak or trough whilst tracking away from manual interpretation picks, on in-line, and cross-lines. Some small deviation was seen which has now been corrected. Note that differences in interpretations may be observed if a new tracking is attempted on the same input as when compared to an existing tracked line.
Bug 124	Some horizons imported from Petrel via the link for Petrel incorrectly transferred, leaving surfaces looking like they had many holes in a grid-like pattern with missing data in the holes. The cause was incorrect seismic survey XY increments, where these were not 1:1.
Bug 230	Spectral Expression – Fixed the issue where the error message 'cancelled at user request' was displayed, when attempting to run spectral expression on volumes that have blank data at the edges which contains NAN values.
Bug 268	Fixed a fault stick edit issue where multiple fault sticks on one slice were active for editing at the same time. Now only one fault stick will be active when selected, at any one time.
Bug 301	Fault trends on floating-point data produced big volume values (as could be observed in the properties pane). This has now been fixed and the fault trends volume values range from zero to 180 degrees.
Bug 303	FaultIn calculation in the Parser no longer gives errors and now completes the calculation as expected.
Bug 335	For colour control on volumes, the 'interpolation' settings option is now remembered. It will remain off when switched off, instead of reverting to an 'on' state each time a view change is made (e.g. remove a volume from scene and then again add to scene). Note this does not apply to Colour Blends which have independant interpolation settings.
Bug	HDFD in certain instances did not add a blend into the project tree. The intermediate volumes were added to the tree such that the blend could still be made. Now the blend is added.
Bug 358	On opening a project the slice step selection had been set to '1' but the slice moved in steps of '16'. The slice step selection is now returned to '16' on startup and moves in steps of '16'.
Bug 370	Volumetrics calculation has been fixed for non 1:1 seismic scaling, and for time conversion error. Survey increment: With a 1:1 survey increment there was no error but when the increment was any other factor then the volumetrics would increase or decrease depending on that grid increment. Velocity: the given velocity would be used incorrectly giving volumetrics of twice the size. Gaps in lower surfaces plus a shallower contact: When the lower surfaces contained holes in the interpretation, these areas were removed from the entire thickness being calculated resulting in an undercalculation.

Bug 413	The volumetrics from the volumetrics process and the Geobody metrics process, which enables a volumetric result, now give the same output response when compared. This follows an update of the volumetrics process calculation (Bug 370).