

OpendTect ACADEMIC LICENSE AGREEMENT VERSION 4.0

--- Covers License, Update, Maintenance & Support ---

This Agreement between _____ whose Registered Office is situated at _____

_____ (hereinafter called "Licensee") and dGB Earth Sciences BV, whose Registered Office is situated at Nijverheidstraat 11-2, 7511 JM Enschede, The Netherlands (hereinafter called "dGB").

Whereas

Licensee wishes to be able to obtain a license to use Software (as defined below) and dGB is willing and able to grant such a license to Licensee and agrees to provide computer Software support services in respect of Software on the terms and conditions set out in this Agreement.

Now therefore it is hereby agreed as follows:

1. DEFINITIONS

In this Agreement the following expressions shall have the following meanings:

- A. "Software" shall mean associated operational and application computer programs in object and source code form released under the name OpendTect, OpendTect Pro and optionally extended with one or more closed source Plugins, set out in the Schedule hereto.
- B. "Documentation" shall mean any written or printed technical material provided by dGB with the software to explain its operation or its use.
- C. "Support" shall mean the support service provided by dGB to Licensee under this Agreement.

2. TERM

- A. This Agreement shall commence on _____ and shall, subject to the provisions for earlier termination set out below, last for an initial period of one year and shall continue thereafter for further one-year periods unless and until 30 days' notice of termination in writing is given by either party to the other, expiring on or at any time after the said initial period has elapsed.
- B. At the end of each annual period Licensee can request dGB to issue a new license key for the Software for the expected number of simultaneous users that will use the Software in the next annual period. Requests should be made per email to academic.licenses@dgbes.com.

3. TRANSFER OF KNOWLEDGE

- A. Under the condition that Licensee is entitled to do so, Licensee will at dGB's request make available research results, produced under the scope of this agreement, that are of interest to dGB. In the case of research projects where confidentiality exists and the Software is used, Licensee will use its best endeavours to obtain release of the data to dGB under similar terms to those agreed between Licensee and other participants. Nevertheless it is recognised that ownership of any intellectual property and copyright will remain with Licensee.
- B. Where applicable, dGB, ARK CLS and the Software will be acknowledged in Licensee's publications and presentations.

4. **LICENSE**

- A dGB, warranting that it is entitled to do so, agrees to grant to Licensee a one-year, irrevocable, nonexclusive license to use the Software and its accompanying Documentation.
- B Licensee shall have the right to give its personnel and its students access to the Software and Documentation for which it has obtained a license in order to allow them to use such Software and Documentation for research, development and educational purposes and to make copies of the Software in machine-readable form for emergency back up, fallback and archiving.
- C The license to use the Software entitles Licensee to download the Software from the Internet and to receive from dGB a multi-user, floating license key and/or one or several single-user, node-locked license keys for one-year periods.
- D Licensee shall be entitled during the term of the license to use the Software without disturbance, subject only to the fulfilment of its obligations under this Agreement. dGB represents that the Software for which Licensee takes out a license is not subject or subordinate to any rights of dGB's creditors, or if such subordination exists, that the agreement or instrument creating the same provides for non-disturbance of Licensee so long as Licensee shall not be in default hereunder.
- E A license to use the Software entitles Licensee to run the latest version of the Software and to receive from dGB new license keys as and when needed.
- F Licensee shall be entitled to use the Software ordered pursuant to this Agreement on the hardware configuration, irrespective of whether or not it owns such hardware configuration. In the event the hardware configuration is wholly or partly temporarily or permanently inoperable or has been replaced by a new system in the course of modernisation or has been moved to another location, Licensee shall be entitled to use the Software on the alternative or new system and/or at such different location(s), as the case may be, provided it has given dGB prior written notice thereof. For the purpose of this Agreement that alternative or new system will temporarily or permanently, as the case may be, replace the hardware configuration on which the Software was originally intended to be installed.
- G At the Licensee's request, the dGB shall use his best endeavours to train or arrange for the training of Licensee's personnel in the installation and use of Software for which Licensee has obtained a license. Such training will be provided as soon as reasonably possible and the cost of such training shall be agreed separately.
- H Licensee is free to connect the hardware configuration with other computer systems of Licensee. Licensee is free to use the Software for which it has obtained a license in conjunction with its own and third party software products resident in the hardware configuration or connected computer systems.
- I Licensee is free to develop code using the Software for research purposes and to keep such code proprietary, or to release it, either as closed source Plugins, or as open source Plugins. dGB does not impose restrictions on the release of such research Plugins. It is thus permitted to release research Plugins developed under this Agreement under Licensee's own research terms and conditions. It is not permitted, however, to release research Plugins under commercial terms and conditions. dGB offers two possible ways to release commercial Plugins: as open source Plugins under the terms and conditions of the GNU GPL license version 3 or higher, and as closed source Plugins under dGB's commercial license agreement. Licensee is requested to contact dGB in case of doubt about what is and what is not allowed.

J Licensee may occasionally wish to use the Software in commercial or semi-commercial projects. Such usage is in principle not permitted. However, dGB may at its sole discretion, grant Licensee permission to use the Software in commercial or semi-commercial projects under the conditions that Licensee pays the then current lease price for the Software for the duration of the project. Licensee is requested to contact dGB in case of doubt about what is considered a commercial or semi-commercial project. In the event of unlawful commercial use of the Software Licensee is liable to pay the then current License fee plus one year maintenance and support fee plus a penalty of Euro 10.000,- (Ten Thousand Euro).

5. **SUPPORT**

A. dGB shall provide support for the Software and Documentation as follows:

- (i) Upgrades and enhancements to the Software as and when developed by dGB.
- (ii) dGB shall use its reasonable endeavours to correct within a reasonable time errors and defects in the Software in order to ensure that the Software operates in accordance with the specifications set out in the operating manual.
- (iii) Corresponding updates to Documentation.

6. **COSTS**

The license is provided free-of-charge.

7. **NOTICE**

All notices required to be given hereunder shall be in writing and may be sent by recorded delivery first-class post addressed to the other party at the address set out above. A notice shall be deemed to have been served 7 days after posting. Either party upon written notice to the other may change any name or address to which future notices shall be sent.

8. **TERMINATION**

A. Following the initial term of this Agreement either party may terminate the Agreement by giving 30 days written notice to the other.

B. Either party may terminate the whole or any part of the Agreement forthwith if:

- (i) Notice has been given to the other party of a substantial or persistent breach stating a reasonable period during which such a breach is to be rectified and the party given such notice has failed to satisfactorily remedy such breach within the period stated; or
- (ii) The other party shall become bankrupt or enter into liquidation (provisional or otherwise) except for purpose of amalgamation or reconstruction or a receiver and / or manager or administrator appointed in respect of its assets or any part thereof or it enters into any composition or arrangement with creditors generally.

- C. Provided always that such termination shall not prejudice or affect any right of action or remedy which shall have accrued or shall thereafter accrue to either party.

9. **GENERAL PROVISIONS**

- A. This Agreement shall be construed so far as possible to give validity to all its provisions. Any provision found to be void or unenforceable shall be deemed to be omitted herefrom and the remaining provisions shall continue in full force and effect.
- B. This Agreement shall be governed by Netherlands law and the parties irrevocably submit to the exclusive jurisdiction of the Dutch Courts.
- C. This Agreement sets out the entire understanding of the parties and supersedes all proposals oral or written and all other prior promises representations understandings implications or negotiations between the parties. No modification of any of the provisions hereof or any future representation promise or condition in connection with the subject matter hereof shall be binding on either party unless made in writing and signed by both parties.
- D. The headings are included for reference purposes only and shall not affect the meaning or interpretation of this Agreement.
- E. The waiver by either party of any breach of any provision of this Agreement shall not prevent the subsequent enforcement of that provision and shall not be deemed to be a waiver of any subsequent breach of that or any other provision.

Signed on behalf of
(Licensee)

Signed on behalf of
(Licensor)

BY:

BY: dGB Earth Sciences BV

NAME:

NAME:

TITLE:

TITLE:

Signature Field

Signature Field

Instructions: This form can be signed digitally in Acrobat Professional by a University staff member who is authorized to sign on behalf of the University. The signed form should be sent per e-mail to academic.licenses@dgbes.com by the person whose signature is on the document. He/she should also send a link to the relevant staff page of the University website to identify the University and verify his/her personal credentials. dGB will countersign and return the duly signed document for the University's files. If the authorized person does not have access to Acrobat Professional he/she can e-mail the filled out, dated and signed form to the e-mail address given above. dGB will countersign the document and return this for the University's files. The document will be deemed signed by both parties as soon as the authorized person returns a scanned image of the signature page. Once the document is duly signed dGB will issue a multi-user, floating license key and/or one or several single user node-locked license keys to activate the OpendTect Plugins. The license key will be valid for a period of 12 months. The key will be extended with further 12-month periods following e-mail request. In the same way University can request per e-mail to increase the number of consecutive users if usage demands this.

Licensing Policy

OpendTect is an open source seismic interpretation software system that is released under a triple licensing scheme:

- 1- OpendTect under GNU GPLv3 or higher,
- 2- OpendTect Pro under a Commercial License Agreement,
- 3- OpendTect Pro under this Academic License Agreement.

Commercial Plugins are only released under 2 and 3.

OpendTect is currently supported on Linux (64-bit), Mac-OS/X and Windows (7, 8, 10; 32 and 64-bit). Not all Plugins are supported on all platforms and supported platforms for OpendTect and Plugins may change as the market evolves. For an up-to-date overview of supported platforms for each Plugin, see <http://www.dgbes.com/index.php/platforms.html> . OpendTect itself runs without license managing software. OpendTect Pro and all commercial Plugins are protected by FlexNet license managing software. OpendTect, OpendTect Pro and its Plugins support multi-platform distributed computing platforms and it is allowed to run the software on different platforms and on different sites within the same country from a central license server.

Research licenses provided under this scheme are single- or multi-user, floating or node-locked licenses that are issued for 12 month periods. At the end of each 12-month period Licensee can request per e-mail to extend the license with another 12 months. Under this Agreement it is possible to increase the number of simultaneous users by e-mail request.

SCHEDULE

- The Software refers to OpendTect Pro, a seismic interpretation software system and to commercial Plugins, all of which are released via the Internet (www.opendtect.org).
- OpendTect is not protected by license managing software. OpendTect Pro is a commercial layer on top of OpendTect with additional functionality.
- The SSIS plugin is an add-on to the HorizonCube, which itself is an add-on to the Dip-Steering plugin.
- Workstation Access, GeoDataSync Accelerate, SCI, SSB, SFE, SNP, SB, Spotlight and XField are plugins by ARK CLS that are marketed by dGB.
- Deterministic Inversion and Stochastic Inversion are plugins by Earthworks / ARK CLS that are marketed by dGB. The Stochastic Inversion plugin is an add-on to the Deterministic Inversion plugin.
- CLAS Lite is a plugin by Sitfal, that is marketed by dGB
- MGS-destripping is a plugin by Estimages, which is marketed by dGB.

Technical Specifications of OpendTect and its Plugins (Extension Modules)

- **OpendTect** is the open source part of the system. It is a seismic interpretation system and R&D environment that supports a/o data IO, visualization, interactive attribute analysis, spectral decomposition, horizon tracking, fault interpretation and multi-platform distributed computing.
- **OpendTect Pro** is a commercial layer on top of OpendTect with PetrelDirect link to Petrel[®], Basemap + mapping, PDF-3D for sharing 3D images, Thalweg tracker for seismic facies tracking and Ray-tracer for AVA Attributes and Angle Stacks.
- **Dip Steering** calculates steering cubes (i.e. volumes with local dip and azimuth information) for advanced attributes, filters, chrono-stratigraphic horizon tracking (HorizonCube) and gridding.
- **HorizonCube** maps a dense set of correlated stratigraphic surfaces which can be used for high resolution low-frequency models, sequence stratigraphy, etc.
- **SSIS** is a Sequence Stratigraphic Interpretation System supporting a/o 3D Wheeler transformation of seismic data and (meta-)attributes, to perform system tracts interpretations.
- **Neural Networks** supports supervised and unsupervised neural networks for object detection (*TheChimneyCube*, *TheFaultCube*), seismic facies analysis and inversion to rock properties.
- **Well Correlation Panel** allows correlation of wells and seismic horizons that can be integrated with a stratigraphic column.
- **Faults & Fractures** supports special attributes, filters and tools for analyzing faults and fractures. Included are among others: Thinned Fault Likelihood, Smoothed Seismic, Un-faulting, automatic fault-plane extraction, fracture density and fracture proximity. In combination with dip-steering also: dip-steered attributes and filters (SOF), and curvature attributes.
- **Fluid Contact Finder** is used to detect subtle hydrocarbon-related seismic anomalies and to pinpoint Gas-Water, Gas-Oil and Oil-Water contacts.
- **Velocity Model Building** supports picking of residual move-outs on pre-stack gathers and semblance gathers, picking of pre-stack events for tomographic inversion and building / updating of 3D velocity models. Two modules are supported: vertical update and horizon-consistent update.
- **SynthRock** is a forward pseudo-well modeling and probabilistic inversion package supporting wedge models, stochastic models, pre- and post-stack synthetic seismograms and cross-matching (HIT cube) inversion.
- **Workstation Access** is to exchange data with SeisWorks/OpenWorks[®] or GeoFrame/ IESX[®].
- **GeoDataSync – Accelerate** is a plug-in for Petrel[®] seismic to simulation software. It provides users with easy access to 3D seismic data volumes stored in an OpendTect survey without copying. This can be for viewing and using within a Petrel[®] workflow. It also provides a facility for importing, and exporting of various data objects between OpendTect and Petrel[®].
- **Seismic Coloured Inversion** is an easy method to create band-limited acoustic impedance.
- **Seismic Spectral Blueing** is a method for shaping the seismic spectrum to resemble the spectrum of measured well logs. SSB increases the vertical resolution without boosting noise.
- **Seismic Broadband** is an innovative technique that integrates well data into your seismic analysis. By using acoustic impedance logs and reflectivity two operators are simultaneously derived, once applied, they effectively broaden the amplitude spectrum of the seismic data at both ends, low and high.
- **Seismic Net Pay** is an improved method to estimate net pay from seismic colour inverted attributes.
- **Spotlight** can rapidly combine up to four different coloured seismic datasets into a single cube that resembles the behaviour of a given elastic attribute. The relationship between the input data and the desired output is established from prior well log analysis.
- **Seismic Feature Enhancement** is a flat-spot utility that enhances the signal of consistent flat events and reduces the "noise" of the channel reflections.
- **Deterministic Inversion** includes a 3D model builder for constructing a priori impedance models using well log and seismic horizon data; a 2D error grid generation module for providing spatial inversion constraints and a model-based deterministic inversion module.
- **Stochastic Inversion** includes the MPSI ultraFast stochastic inversion module for generating multiple geostatistical realizations and the utilities for processing the multiple realizations to represent the inversion uncertainty for lithology, porosity, saturation or other attributes as probability cubes. This plug-in also requires the purchase of the deterministic inversion plug-in.
- **CLAS Lite** is a petro-physics package that supports log editing and calculation of derived logs such as porosity, saturation, volume of clay and temperature.
- **XField** is an integrated potential field modelling software package. XField empowers explorationists with the tools to create 2D/2.5D geological models through fully integrating potential field data alongside seismic data and other available geophysical datasets in a 3D workspace.
- **MGS-destriping** is a footprint removal tool. The algorithm uses geostatistics to quickly and efficiently remove a striping effect in 2D.

[®] Registered Trademark of Landmark Graphics Corporation.

[®] Registered Trademark of Schlumberger.

* Is a mark of Schlumberger