OpendTect: driving the open source model into the world of oil and gas

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& Yuancheng Liu

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• What is OpendTect?
• Open Source Model Commercially viable?
• Academia
• *How to contribute*
What is OpendTect?
Madagascar

Band Pass Filter
Band Pass Filter + Clipping
What is OpendTect?

Processing

Interpretation

Attributes

Rock Properties

www.dgbes.com
Completely Free Open Source Seismic Interpretation System

Key Features
- 2D, 3D & Prestack seismic
- 2D & 3D viewers
- Stereo viewing & Volume rendering
- Seismic Attributes & crossplots
- Spectral decomposition
- Movie-style parameter testing
- Distributed computing
- Horizon trackers
- Faults
- Well-tie
- Depth Conversion
- Geobodies
- Madagascar processing
- GMT Mapping
- ... a lot more
Evaluate Attribute
Evaluate Attribute
Volume Rendering
Volume Rendering
Volume Rendering
Volume Rendering
Horizon Tracking
Spectral Decomposition
Prestack Viewer
OpendTect has a generic user interface to Madagascar, the open-source software package for geophysical data processing and reproducible numerical experiments.
Via the link to the open-source GMT package you can create within the OpendTect UI scaled maps of OpendTect results.
Extract even more geology with advanced closed source plugins

- Neural Networks
- Dip-Steering
- **HorizonCube**
- SSIS
- **Well Correlation Panel**
- Common Contour Binning

- PSDM Kirchhoff
- PSDM Tomography

- Deterministic Inversion
- MPSI Stochastic Inversion

- Spectral Blueing
- Coloured Inversion
- Workstation Access
- PDF3D
- Petrel link (via Oceanstore)

www.dgbes.com
Extract even more geology with advanced closed source plugins

Coming Soon from GeoInfo: CLAS – Computer Log Analysis Software
Is the Open Source model commercially viable?

YES!
<table>
<thead>
<tr>
<th>Freemium Business Model</th>
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<tbody>
<tr>
<td><strong>Free</strong></td>
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<tr>
<td>open source seismic interpretation package</td>
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<tr>
<td><img src="image" alt="OpendTect" /></td>
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<tr>
<td><strong>Premium</strong></td>
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<td>commercial products &amp; services</td>
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<tr>
<td>- Plugins</td>
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<td>- Maintenance &amp; Support</td>
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<td>- Paid Development</td>
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<td>- Consultancy &amp; Training</td>
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<td>- Proprietary case studies</td>
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# Triple Licensing Policy

**OpendTect**

<table>
<thead>
<tr>
<th>Open Source</th>
<th>Commercial</th>
<th>Academic</th>
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- Run OpendTect
- Links to Open S. systems*
- Distribute Open S. plugins
- Distribute Closed S. plugins
- Run Closed Source plugins
- Get priority support

* GMT and Madagascar
Estimated number of OpendTect users: 10000+?
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<thead>
<tr>
<th>NOC’s</th>
<th>Majors</th>
<th>Independents</th>
<th>Service Companies</th>
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<td>Anadarko</td>
<td>AGR – Tracs</td>
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Excluding Independent Consultants and Commercial Research Institutes
OpendTect is being actively used by the Geophysicists of tomorrow in more than 200 universities worldwide, including most of the leading institutions.
Open Seismic Repository
www.opendtect.org/osr

• Wiki site with free seismic surveys + interpretations in OpendTect format

• Download as bit-torrents

• Freely you receive, freely you give
Open Source Functionality
Open Source Plugins
Closed Source Plugins

How can you contribute?
OpendTect is:

- Open source
- Available under GPL & Commercial licensing
- Easily extendable using its plugin architecture
- Natively C++
- Built using Agile Development strategy
- Using
  - Qt (Trolltech)
  - Coin3D (SIM)
Why Develop in OpendTect?

• Direct Access to Existing Framework:
  • base and advanced functionalities,
  • attributes and filters (for developer and end-user)
  • modern visualization techniques

• Develop in:
  • open source, cross-platform environment
  • safely and rapidly growing powerful toolkit
  • Structure designed for easy plugin development (reduce overhead!)
  • GPL or Commercial License

• Make your contribution!
How to get started?

- **Tutorial Plugins** available with Development Package
- Developers pages on OpendTect.org
- Development **webinars**
- **developers@opendtect.org** mailing list
- Development **training course**
- Quick and automatic creation of your development environment launchable from OpendTect menu
• BG Partners in Development project

• **Volume builder**: parallelization, gridding algorithms, Time/Depth conversion
• **Horizons**: 4D tracking, Horizon attribute engine, tracking
• **Processing tools**: ray-tracer, pre-stack picks, gain correction
• **Various**: pre-stack viewer, SEG-Y headers, screenshots to ODF, ...

Sponsored by **BG GROUP**
Open Source
- Simple wedge models & synthetics

Closed source plugin
- Stochastic models
- Pre-stack synthetics
- Cross-plot analysis
- Neural network & HIT cube inversion

Under development

Sponsored by
Future

- Who will contribute?
  - Commercial
  - Individual/Academic

- Will other commercial companies join?
Summary

- OpendTect is...
- Extended open source workflows
- User collaboration
- Scientific accountability
- Open Source is commercially viable