Integrating well data with ease, interpreting with accuracy and presenting with quality

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ODM is a subsurface application for the integration, interpretation and presentation of well based data.

1.   **Integrate & work with ALL well-data in a single package**
     Interpret with confidence knowing you have the full dataset before you

2.   **Extremely strong geological & presentation tools**
     Fast correlations, stratigraphic awareness, spectacular presentations – ODM
          designed for geology

3.   **Manage field history and monitor performance**
     Reservoir management tool to integrate and understand well, field-history and
          spatial data

ODM – Data Management

Canvas to understand widest variety of data available:

- Geology
- Stratigraphy
- Core data
- Drilling
- GIS
- Grids
- History (production, injection etc.)

*'ODM [is] utilised as a 'digital oilfield' and the 'missing link' between downhole and aerial information' – **Middle-Eastern co.***

Data management

- All discrete data will be tagged to an Interpreter
  - Might designate the name of an individual interpreter, the name of the data provider or for final, quality-checked data the name of your organization

- Different interpretations of the same data are easier to manage and compare.

Data browser: viewing all interpretations of same tops, with option to filter down on a chosen interpreter name
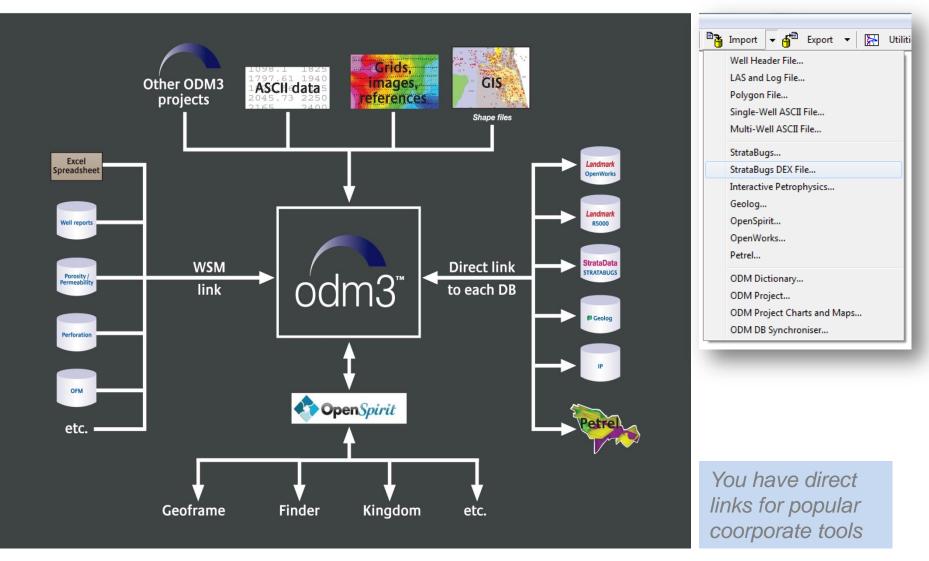
ODM can be populated with the following data types from Diskos and the NPD:

- Import ASCII, LAS, LIS/DLIS (via IP) files to ODM
    - Well header files from NPD or Diskos
    - Logs, composite (NPD standard), MWD/LWD
    - Deviation survey, wellpath, checkshots & velocity log
    - Tops (lithostrat, chronostrat, sequence strat)
    - Pressure & fluid data, drilling data, mudlogs, well tests, geochemistry, petrography, mineralogy, biostratigraphy, core photos, lithology data and descriptions, CPI...
- References
    - Hyperlinks to reports & documents (PDF, Microsoft Office), image file formats (JPEG, GIF, TIFF, CGM) and to webpages (e.g. link to NPD FactPage for each well).
- Production data
    - ODM's Reservoir Performance Module (RPM) – import/link to production data, water geochemistry and drilling reports, completion reports, well evaluation reports...

You have direct links for popular coorporate tools

ODM – IP – Petrel

ODM-IP

- Both packages have equivalent data links
- 2-way transfer of wells, well headers info, wellpaths, logs (within Sets) and tops
- Grids (surfaces) and polygons imported from Petrel to ODM3
- Saved Sessions

ODM-PETREL

- Single user interface in ODM handles 2-way data transfer to Petrel
- Wells, well header info, wellpaths, checkshots, logs and tops
- Grids (surfaces) and polygons imported from Petrel to ODM3
- Saved Sessions

A growing number of companies are using ODM in conjunction with Petrel and IP, for which ODM offers a flexible and straight-forward 'wells database' solution.
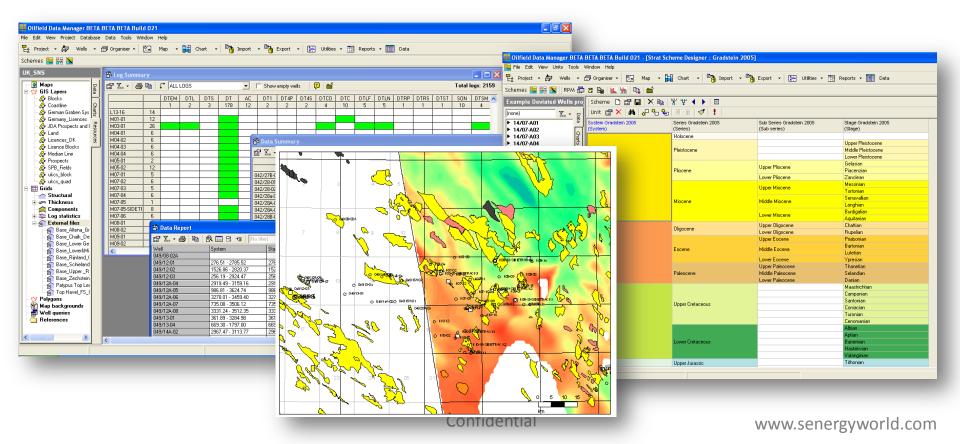
IP-PETREL

- **Accessed from Petrel, allowing 2-way transfer of data**
- **Wells, well header info, wellpaths, logs and tops**

Full data reporting, map interface for fast access

- Queries, search/replace data, data summary charts

- All data accessible direct from GIS maps

Summary Reports

All active wells in your project and what each one contains individually
Browse the data directly

Summary Reports

See at a glance which logs you have imported, and equally important, what data you've **not** imported

Essential geological tools
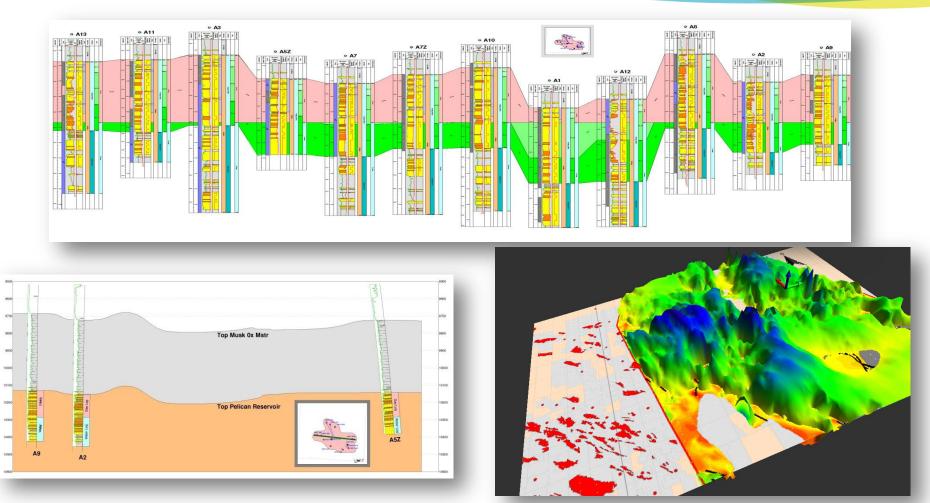
- Control subsurface data with log-scripting, curve cut-offs, core-shifting and more

- Full set of data reports to understand stratigraphy, zonal analysis, surface intersection reports

ODM – As a Subsurface Tool

ODM Subsurface

With full geology functionality, mapping front end & relational database back-end, ODM can be used for:

- Exploration & play fairway mapping

- Development & reservoir performance analysis

- Well-planning & drilling

- Pre-modeling work
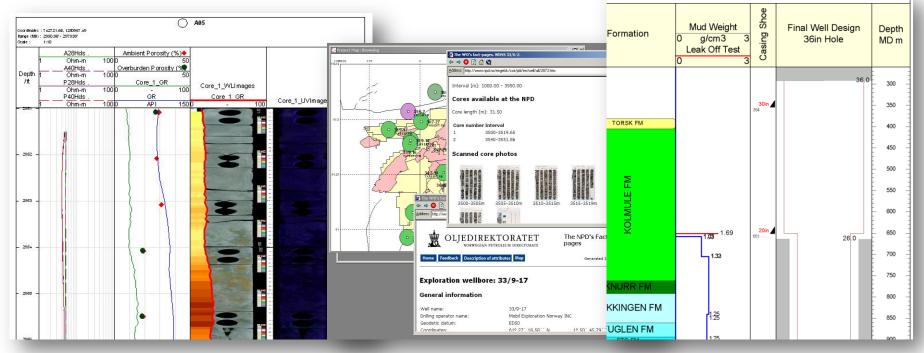
Total data integration

- Fully understand your dataset by viewing ALL available data to give **better understanding of the subsurface**

- Integrate logs, geology, strat data, drilling, engineering sedimentology, core, scanned images & more in a single chart

ODM Subsurface
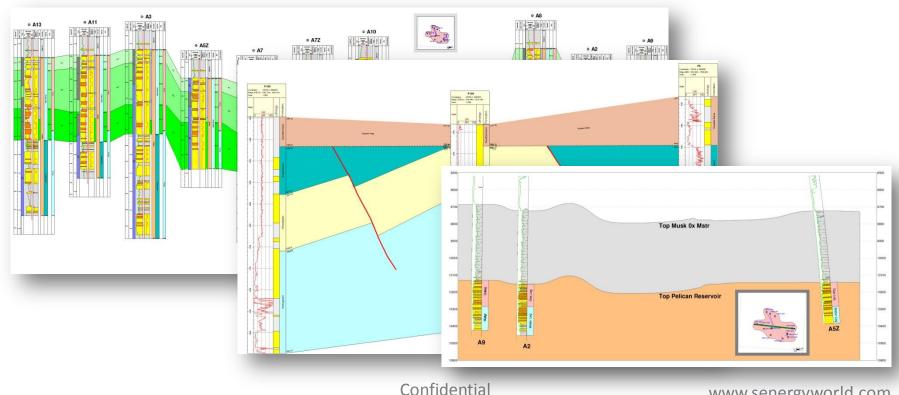
Fast, fantastic well-composite and correlations

- Extremely fast and geological correlations, built directly from the GIS-enabled map

- Infinite flexibility in well-composite design

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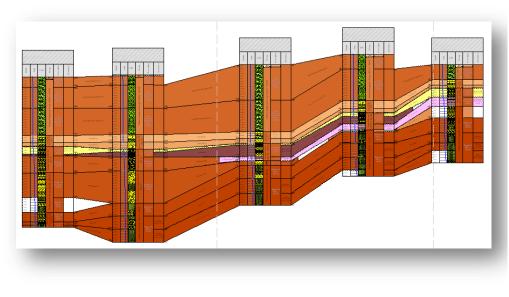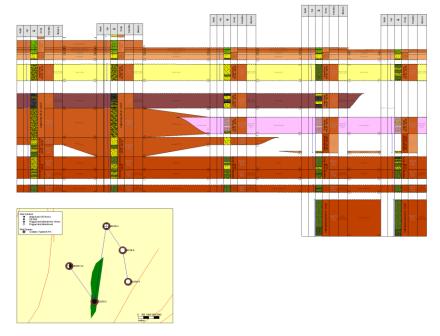
Full stratigraphic awareness

- Display data in MD, TVD, TVDSS, TWT, TST & Age

- Build and maintain stratigraphic columns and chronostratigraphic schemes

- Create instant Wheeler charts using auto-
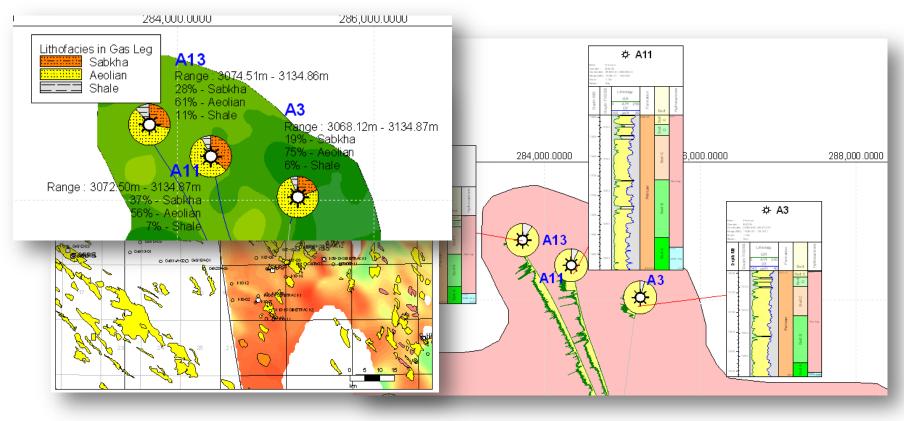
Subsurface on maps
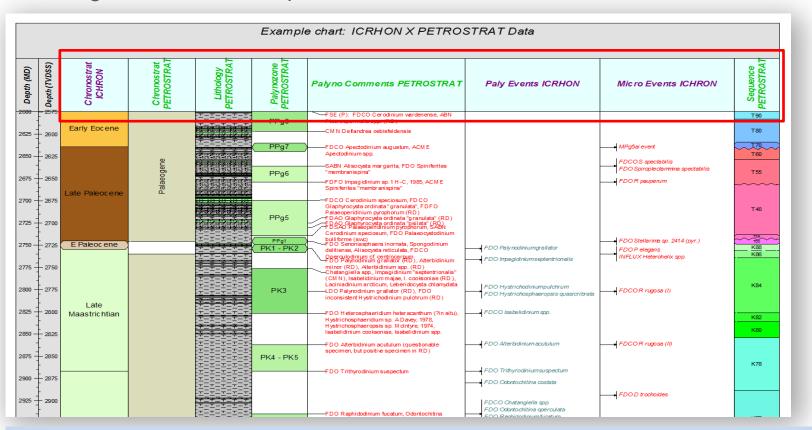
- Access all well-data and tools from GIS & grin enabled maps

- Bubbles, polygons, log stats, well summaries etc. on maps

The same data type from different vendors are displayed along side allowing an accurate interpretation and Qc.

Example chart: ICRHON X PETROSTRAT Data
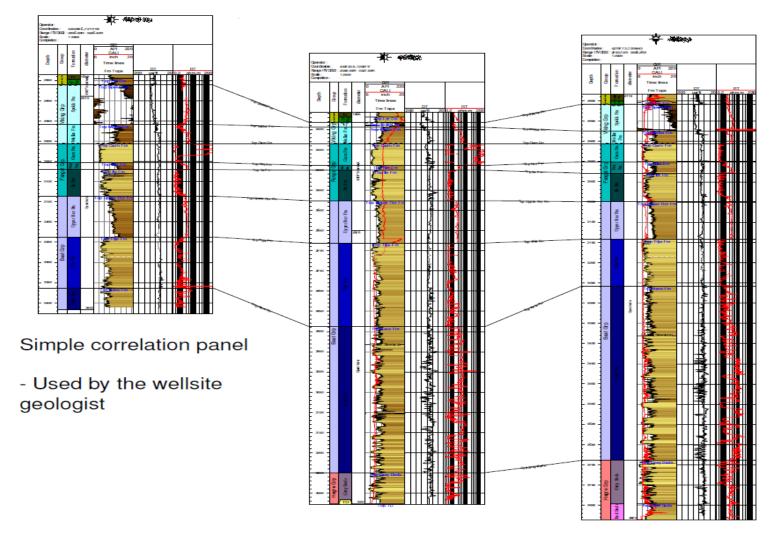
Once the data is displayed the tops can be moved interactivaly.

Well planning

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Simple correlations can be built quickly

Simple correlation panel

- Used by the wellsite geologist

Store engineering & drilling data easily next to well data for existing wells
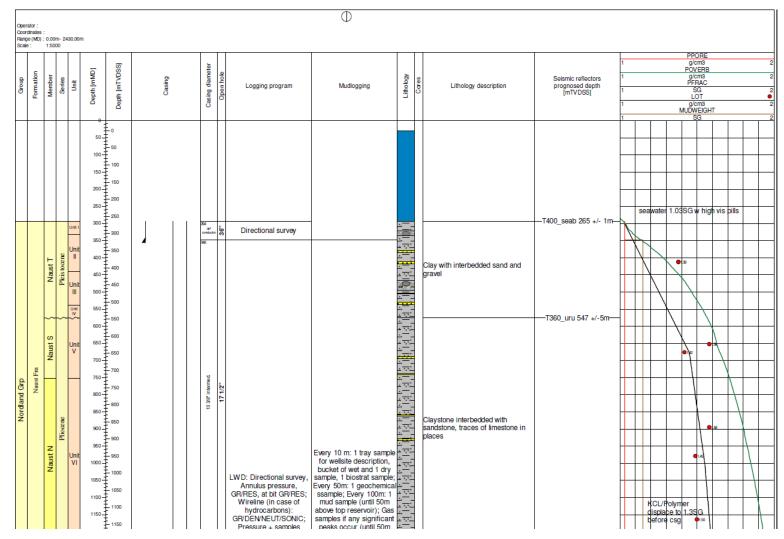
- Casing, leak-off tests, mudweights, lithology etc.

- Flexible templates allow users to display any data in the database on any wellstick

- Relational database back-end for comparison of data

- Full data reporting, edits & searching

Well planning

Well planning template example
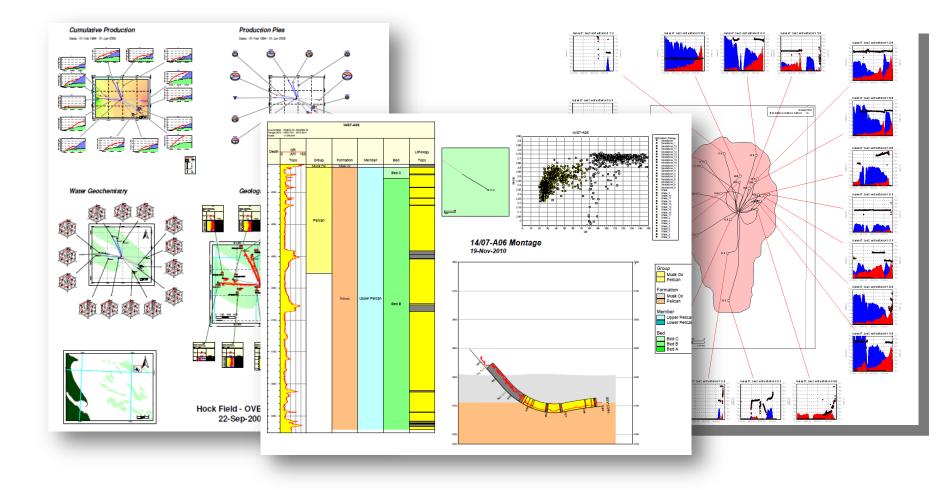
Create well-review montages and wellbooks

- Create review maps and attach user-defined graphs to show production, pressure, injection, pump activity etc.
- Animate field history
- Create production dashboards
- Create single-well templates with full geological and well history & use these to auto-create digital wellbooks
- Display data-tables from each well on charts
- Charts automatically display latest data when opened

Images on next slides

ODM – Reservoir Performance

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Reservoir Performance Module benefits:

- Visualisation production, injection, pressure, financial data etc. like never before
- Identification reservoir communication, pressure declines, un-exploited regions & new targets etc.
- Auto-build and auto-maintain of wellbook & field reviews charts
- Integration with subsurface & GIS data
- Field history animation
- Performance dashboards & summary tables

Unprecedented visualisation for field history

RPM

# Linkage to any data source, database or spreadsheet
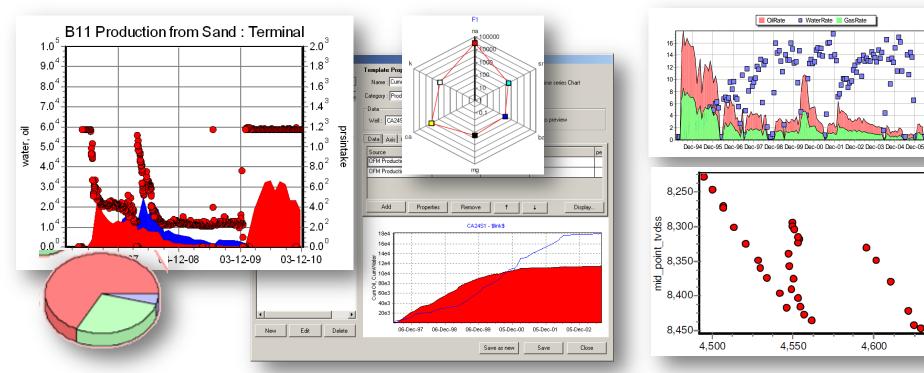
- Import from OFM, proprietary databases and/or spreadsheets
- Button-click synchronisation with any/all external data

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# Custom build field history displays
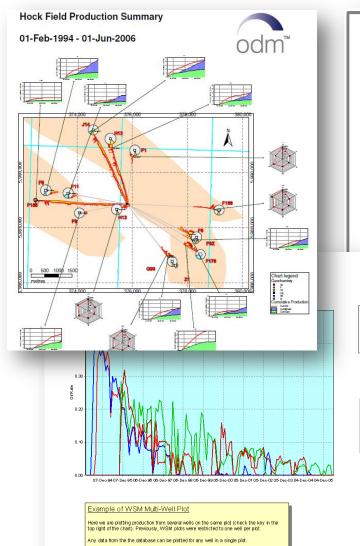
- Full charting control for any imported field-history data
- Display data from different sources on a single chart
- Save, edit and use entire libraries of user-created templates
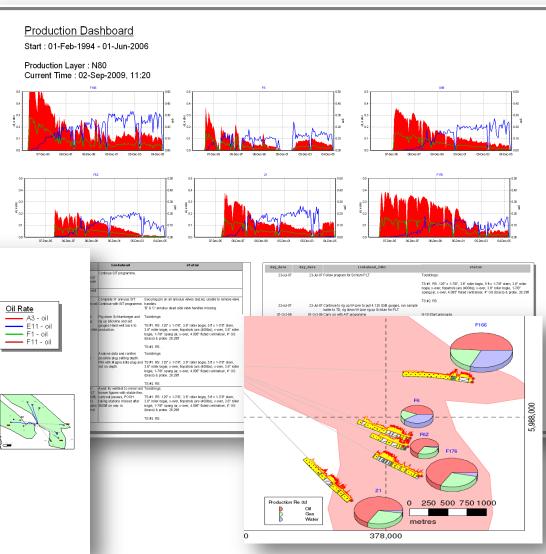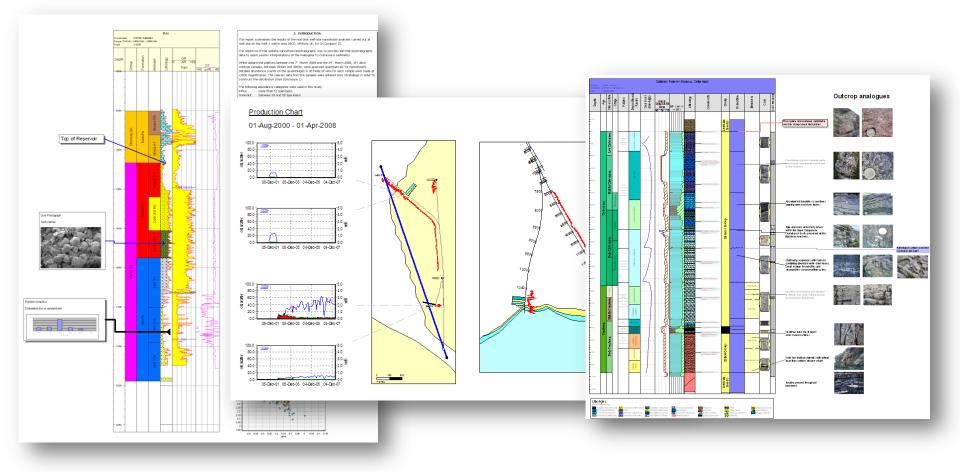
Reservoir Performance Module

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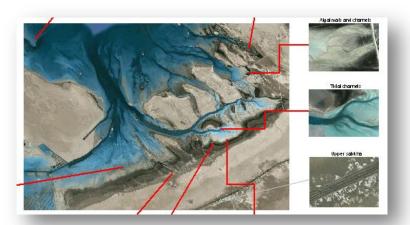
Totally integrated montaging interface allows:

Presentation quality montages created directly in ODM

- Linked maps, cross-sections, X-plots & production all on a single montage
- Auto-update from to always show latest data
- Edit montages while remaining connected to data
- Cut/paste all montages directly into MS Office
- Print directly to plotter, printer, PDF, CGM, bmp or emf
- Screen-capture & email functionality built-in
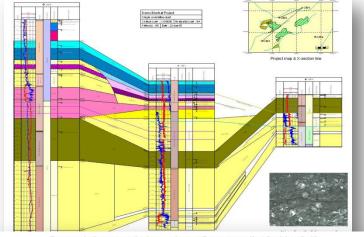
*Better charts, better presentations mean better understanding*
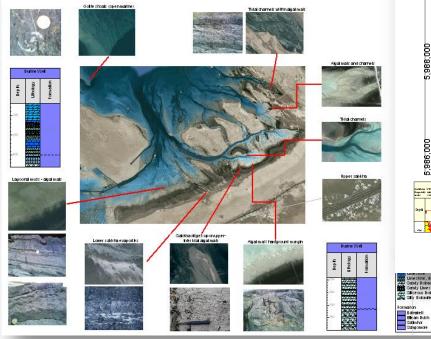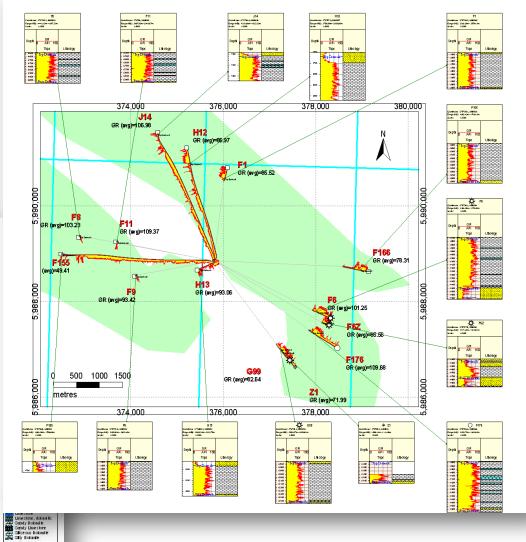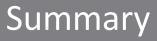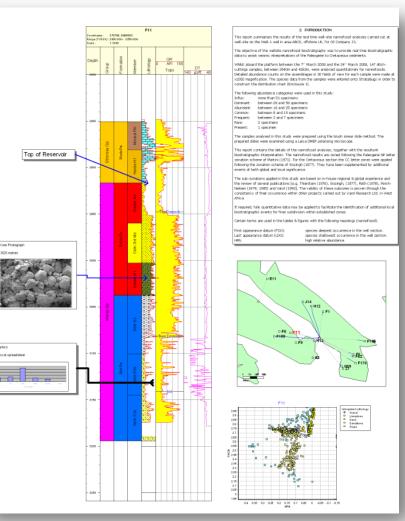
ODM

- Totally integrated workflows between geology, drilling, GIS, field history and more

- Excellent geological interpretation and visualisation tools

- Can act as geological database & front-end to Petrel

- Reservoir monitoring and animation

- Data management and manipulation tools to control data

- Data links to industry standard systems

- Presentation of quality montages

Thank You!