Geocap 5.0 Release Notes

About this release

> ⚠ The official version of Geocap 5 is 5.0.14.

The 5.0 release represents a substantial upgrade of the Geocap software. Geocap 5.0 features extended algorithms and an improved user interface as well as the new Seafloor module.The goal is to strengthen and expand algorithms and features while at the same time make the user interface easier and more intuitive.

Geocap has four major modules:

1. **Oil & Gas**: Includes seismic, depth conversion, general mapping, volumetric, reservoir models, wells.
2. **GIM**: A research venture of automatic interpretation and body generation from seismic.
3. **Shelf**: Delineation of the continental shelf in accordance with United Nations Convention on the Law of the Sea, Article 76.
4. **Seafloor**: Process survey data from single beam and multibeam echo sounders and create large high resolution grids. To be released with 5.0.

All four areas are naturally updated with this release. Details are listed below.

Updates

Project

> ℹ **Info**
> The project storage format has changed in Geocap 5.0. Projects created in Geocap 4.3 will be converted to Geocap 5.0 format. A project converted to Geocap 5.0 cannot be read back into Geocap 4.3 - we highly recommend that you backup your Geocap 4.3 projects!

- The project view has been re-written from scratch to improve performance.
- Projects now have an overall coordinate system. If set, imported data will be converted automatically. Check the Geodetic settings in the project setting (Gear wheel)
- The project now supports custom icons or icons generated from the dataset. This can be set in the dataset's Properties dialog.
- A partial repair of a (corrupt) project can now be performed based on the index.txt file.
- KML export has been added.
- The set of folder types in the project has been simplified. Some object types are found in the Generic folder type rather than in specialized folders. This is for instance the case with screen images captured into a folder.
- Schemas now have a modified flag. This can be found in pulldown: **Edit > Schemas**. User-modified schemas are not overwritten unless an explicit refresh is issued by the user.
- Some schemas have changed name from 4.3 version to 5.0. Missing schemas will still be loaded but are shown in red text. We recommend that you update a missing schema to a valid schema by **Right-click > Set Schema** e.g. **Seismic Lines** is no longer a valid schema, it is now called **Seismic Data**. New schemas: **Seismic Data**, **Outline**, **Amplitudes**, **Path**, **Log Values**.
- Copy/paste between the project and the workspace is now supported.
- Seismic cubes now have support for cut, copy & paste between folders.

User interface

- Commands are organized more intuitively for the user. The Shared Command view in the toolbox has been replaced with a general command view which will show the available item-, schema- and shared commands for the selected item in the project. The new user interface makes it easy to cut, copy and paste commands.
- The right-click menu on commands can now be customized. Use the **Pin to Menu** option under **Commands** in the **Toolbox**.
- Easy access to user scripts has been added: Any scripts in the directory geocaprc-5/userscripts will be available in pulldown **Tools > User Scripts**.
- New button introduced for changing between **2D**, **3D perspective**, and **3D Isometric** view. The current view mode button is kept pressed. This way it is easy to see the current mode of the graphics window.
- Improved editing of point values and field data in the table view of a dataset.
- Highlighted records in the table view are displayed as highlighted points in the graphics window when **Display marked points** is ticked.
- New toolbar icon show/hide a compass (or north arrow) in the graphical window.
- Several panels (e.g. Import Ascii (column)...) are "shrinked" in order to fit screens with resolution less than 800 pixes in height-direction.

Visualization

- Performance improvements to level-of-detail (LOD) seismic 2D display.
- BiCubic interpolation added to LOD seismic 2D display.
- Default seismic color table is now **Seismic RedBlack**.
- New command: **Display ArcSDE Layer**.
- New command: **Display ArcSDE Raster**.
- New command: **Display Simple Features Layer**.
- New command: **Well Names**.
- AVI movies of flight tours can now be generated through the shell commands.
- Improved PDF3D support. Note that you can now toggle individual elements on/off in the tree structure.

GIS/Databases

- Projects now have native support for the popular GDAL/OGR data types. Click **Data Source** in the project toolbar and select **Geospatial File**. The OGR support includes SQL and spatial filtering.
- Database management is now embedded in the project view. Click **Data Source** in the project toolbar to read data from ArcSDE and Oracle.
- The new project type Simple Features Layer supports spatial filtering and geometrical operations on polygons. To create layers click **Data Source** in the project toolbar and select **Geospatial File**
- The project supports connections to Oracle Spatial and Oracle 10g XE. Read and write georasters and vector data and perform SQL queries.
- The project supports connections to ArcSDE, including read-only support for features and rasters.

Oil & Gas

- A regular Cube (3D Structured Points) can be converted to a Seismic Cube.
- SEG-Y Import now has advanced options such as; setting amplitude min/max threshold (before storage conversion), transforming navigation (after scaler arithmetic) and allowing variable length traces in 3D seismic.
- Seismic properties panel has been improved.
- Import of Petrel ASCII Wells.
- Improved cube gridding of stacking velocity data into time/depth cube. Better extrapolation options to secure smooth velocity transitions.
- New way of displaying time/depth cube. The boundary surface will map the cube values. Organized under **Cube views > Map boundary surface**.

GIM

- New GIM interpretation center with integrated 2D editor, which supports digitize, cut (inside/outside), merge, send to project, plot and pdf export functionality.
- The surface movie and tracking movie have been renamed to surface scan and tracking scan, and now the user interfaces support slider move and color table selection.
- New snap mode: zero crossing.
- New track algorithm: maximize horizon continuity by ignoring negative peaks and positive troughs.
- New track criteria: track forward, backward, and both ways.
- New stop criteria: amplitude min/max for peaks/troughs.
- Generation of bodies representing salt or stratigraphic closures. To interactively select or delete a subset of bodies apply the new command menu: **Select or delete a contoured body**. Bulk volume calculation of bodies is available.

Shelf

- The mid-line generation algorithm is now able to calculate weighted mid-lines.
- The outer limit digitizer is now able to make geodetic correct crossing points between two lines.
- Seafloor multibeam gridding functionality has been added.
- The command "Gradient Band Analysis" will now only display within the visible area when Geocap is in 2D mode.

Seafloor

Geocap 5.0 is the first launch of the Seafloor package. The package will contain three alternatives, the Single Beam, the Basic, and the Multibeam processing tools. The actual functionality for the installed version is controlled by the feature in the license file.

- Geocap Seafloor has a strict project organization which simplifies the way to build effective production lines.
- The seafloor functionality is accessed from the Seafloor pulldown. This entry will open the **Seafloor Main Menu**.
- From the **Seafloor Main Menu**, the user can load data, define areas of interests (charts), select data, do terrain modeling, display different types of data in the project, and export polygons, points, surfaces and contours.
- From this panel the users can also make new projects, open recently used projects, and define the geodetic properties for the project.
- This first launch contains only a limited version of the Multibeam processing tools. More functionality will be launched in a later releases.

Bug fixes

Ge●cap

- Foot of Slope Analysis panel will not crash when closed from an "un-docked" position.
- Graphics stability (known issue of the screen not rendering properly has been addressed)
- Light controller (bulls eye-icon on the main toolbar) fixed to let light return to **Follow camera**-mode.
- Seismic 3D display manipulator can be used in all cubes.
- Rotated grids and cubes are displayed correct.

Known issues

- Linux is not supported for the Geocap 5.0 Beta release. Linux will be supported for the final 5.0 release.
- Some dialogues are too big to click on the appropriate boxes, such as "execute" or "close" on machines with lower resolution or laptops with small screens.
- Seismic 3D annotation will only toggle the outline.
- The cube manipulator will only work with unrotated cubes.
- There is no support for re-projecting Simple Features or geospatial rasters (GDAL/Oracle Georaster).
- There is no support for writing rasters or data of type Simple Features to ArcSDE.
- There is no support for Oracle Simple Feature read/write.
- When pasting VTK data into ArcSDE the spatial reference will not be preserved.
- PDF3D:
    1. Limited text character support. I.e. no unicode support.
    2. Point size is unsupported and points are always black.
    3. Line thickness is unsupported.
    4. Rendering of transparent geometry is wrong from certain view directions
    5. Geometry and or camera 'far' away from the origin generates problems for Adobe Reader.
    6. LOD display is unsupported.