Release Notes

D-Stability

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Release Notes

D-Stability

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Release Notes

D-Stability

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Summary

This document contains the release notes for D-Stability.

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Contents

1   Purpose and scope of this document

This document lists all new features released in each version of D-Stability. It helps
the user to find new functionality or see when old functionality was implemented.

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2   Version history

2.1   Version 2023.02

The following items are new in this version:
- Safety overview for Bishop Brute Force, Uplift-Van Particle Swarm and Spencer Genetic Algorithm

2.2   Version 2023.01

This version contains a major update of the GUI and of the data format. Note to all users: an input file saved with version 2023.01 cannot be opened in an older version. After converting, a backup of the original file is made.

The following items are new in this version:
- Updated project data format to support the scenarios and stages. Note: this is a breaking change, converted files cannot be opened in version 2022 or older. Backup of old file is made after conversion.
- Added Monte Carlo Importance Sampling: probabilistic analysis when a search algorithm is selected.
- Updated the probabilistic FORM calculation for improved speed with a smarter algorithm (warning: results can differ, precision is the same).
- Improved probabilistic calculation speed due to the use of all processors during calculation.
- Introduced scenarios and stages view that allows multiple scenarios, stages and calculation configurations.
- Added a new Migration Console that converts (in batch) input data from the old data version to the new.
- Updated the Calculation Console to deal with scenarios.
- Updated the fragility curve exporter to support scenarios.
- Added an option to Copy and Paste geometry from and to a stage. Pasting will work in D-Geo Flow 2023.01.
- Added options to duplicate a stage, calculation or scenario.
- Added options to move stages, calculations and scenarios up and down.
- Changed Mohr-Coulomb with c, phi, psi to Mohr-Colomb (Classic) with c, phi and Mohr-Coulomb (Advanced) with c, phi and psi.
- Added slip plane constraints to Spencer single slip plane. Changed to defaults in line with Spencer Genetic Algorithm. To reproduce old results, put 0% and 0 degrees as constraints.
- During a calculation the calculation progress will be visible for probabilistic calculations.
- Added a Cancel button when running the calculation which can cancel probabilistic calculations.
- Changed the default Spencer single analysis constraints in line with Spencer search constraints.
- Bishop Grid points will be rendered more accurately.
- Improved the speed of the Profile Inspector.
- The open source licenses of applications and components has been made more visible.

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GEOLib is updated in line with the input file format changes

2.3 Version 2022.01

In this version, several bugs in the Uplift-Van that prevented some models from getting a valid result are fixed. Additionally in this version, the User Interface has received a major visual overhaul to improve the user experience and to better align with the Windows 11 style guide. Additionally,

- Fixed bug: Some Uplift-Van calculations failed to run with the error "A slice is beyond the geometry at x...".
- Fixed bug: Some Uplift-Van calculations would fail when the slip circle passes through a vertical layer boundary.
- Fixed bug: The Resolution of a Bishop search grid was not read from the .stix file.
- Fixed bug: The application would crash during a probabilistic calculation if there were material correlations defined for materials not used in the geometry.
- **Fixed bug (version 2022.01.2)**: maintain forbidden line after moving its coordinates in inspector
- The log messages screen has been updated with new visuals and colored indicators of errors and warnings.
- You can now get to the log screen instantly by clicking on the log messages in the bottom left bar in the application.
- Updated the visual elements in the User Interface.
- Updated the visuals in the installer.
- The application will now remember the previous window location and size when re-opening the application.
- Most objects in the application now have a notes and label field.
- The button for a Berm has been renamed to Elevation.

2.4 Version 2021.02

This version adds improvements to the probabilistic calculations and adds the ability to export a fragility curve (File -> Export).

- Update to the probability library version 21.1.1.
- Export fragility curve to JSON format.
- Show uncorrelated alpha values in user interface (required for HydraRing).
- Fixed bug: improved reliability of kernel with vertical layer boundaries.
- Fixed bug: allow two Uplift-Van circles to have the same x-coordinate.
- Move waternet creator to a separate kernel in preparation for a groundwater flow product.

Please be careful when using (earthquake) loads in combinations with Spencer, as there are no unit tests to verify the numeric result.

2.5 Version 2021.01

The probabilistic features remain in beta. All (non-)probabilistic features are carefully tested. Most, but not all features are covered by unit tests. Please be careful when using (earthquake) loads in combinations with Spencer, as there are no unit tests to verify the numeric result.

- Enable import D-Geo Stability 18.2 (old .sti format)

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2.6   Version 2020.03

The probabilistic features remain in beta. All (non-)probabilistic features are carefully tested. Most, but not all features are covered by unit tests. Please be careful when using (earthquake) loads in combinations with Spencer, as there are no unit tests to verify the numeric result.

- SU table (undrained) material model is implemented
- Improved feedback in console
- Delete material by right mouse click in materials list
- Application info to show source of .stix file
- Improved "Last modified by"
- Fixed bug that the Uplift-Van tangent line can move above the surface line during search
- Improved feedback while dragging search area
- Prompt to save changes after undo/redo
- Updated to latest version of MacroStability API

2.7   Version 2020.02

The probabilistic features remain in beta. All (non-)probabilistic features are carefully tested. Most, but not all features are covered by unit tests. Please be careful when using (earthquake) loads in combinations with Spencer, as there are no unit tests to verify the numeric result.

- Update version numbering to align with the D-HYDRO Suite
- Fixed bug upon start up when D-Stability says the license has expired.
- Fixed bug in the pre-processor to convert yield or OCR tot POP.
- Fixed exception on saving after splitting a layer with a state point with correlation.
- Fixed bug that excavation is not cut out after making a new construction phase.
- Points can be added on a water and reference lines.
- Unit weight of water is a variable.
- Alpha values of POP of previous stages are shown in the result inspector.
- Shadings and colour picker in material inspector is added.
- The location of the centre of the slip plane is shown while moving the search area for Bishop and Uplift-Van.
- Materials can be assigned to multiple layers at once.
- Improved refreshing of canvas after undo/redo.
- Updated to the latest version of the MacroStability kernel. This update will not cause any different results.
- Updated to the latest version of the Reliability library. This improves the stability of probabilistic calculations and can therefore lead to different results. Note that this new version is still in beta.

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2.8 Version 2020.01

The probabilistic features are in beta. All (non-)probabilistic features are carefully tested. Most, but not all features are covered by unit tests. Please be careful when using (earthquake)loads in combinations with Spencer, as there are no unit tests to verify the numeric result.

- Driving moment due to a load is now properly taken into account
- Included support to Helpdesk Water
- Extended undo/redo functionality
- Improved visibility reference lines in water tab
- Simplified assigning water lines to reference lines
- Checksum on input file, feedback in project info
- Removed inactive buttons

2.9 Version 1.1.0

Updates contain:
- Updated licence conditions
- Full Probabilistic functionality (beta)
- Proper volumetric weight used below phreatic line
- Head lines are considered besides the line
- Batch functionality through user interface and console
- Import more information from .sti file
- Shadings visible in Geometry
- Improved labelling
- Delete state points and lines

2.10 Version 1.0.0

Strength models
- Mohr Coulomb
- SHANSEP

Limit equilibrium models
- Bishop
- Uplift-Van
- Spencer

Calculate safety factor
- Deterministic

Building stages for SHANSEP yield stress administration with yield as state parameter

Ground improvement techniques
- Forbidden line
- Geo textile
- Nails

Loads
- Uniform
- Line
- Tree on slope
- Earthquake

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for applied research in the field of water
and subsurface. Throughout the world,
we work on smart solutions for people,
environment and society.

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