

Known Bugs of FEFLOW Version 5.3

Listing all known bugs for the FEFLOW version 5.3 (December, 2006)

List contains the following items:

NUMBER: (running index)
DATE: (recognizing date)
NOTIFIED BY: (person, institution)
IMPORTANCE: (0 - none, 1 - small, 2 - medium, 3 - high, 4 - extreme)
APPEARANCE: (formal description)
OVERCOMING: (ways for overcoming indicated bug if ever possible)
LOCATION: (context, files, functions, data, etc.)
FIXED IN WORKING VERSION: (if repaired indicate the version patch number)
BUGFIXING DONE BY: (abbreviated name, date)
hjd - Hans-Jörg G. Diersch
rg - Rainer Gründler
ap - André Pönitz

NUMBER: 1
DATE: Jan. 19, 2007
NOTIFIED BY:
K. Kernbach, DHI-WASY Berlin, Germany
IMPORTANCE: 1
APPEARANCE:
For using the formula editor (available in sink/source, reaction and viscosity editing): If using power function(s) or elemental distribution function(s) with names containing special characters (e.g., blanks) the formula editor could not be opened.
OVERCOMING:
Use normal (alphanumeric) characters in naming those functions (e.g., prefer underscore instead of blank character).
LOCATION:
Improved library `femmathed10.dll` of the formular editor.
FIXED IN THE WORKING VERSION: 5.301
BUGFIXING DONE BY: ap, 01/30/07

NUMBER: 2
DATE: Jan. 30, 2007
NOTIFIED BY:
A. Renz, University Stuttgart, Germany
IMPORTANCE: 1
APPEARANCE:

In adaptive predictor-corrector time stepping there is a circumstance that the time steps decrease unessentially if the solution approaches against steady-state. It only happens for instance in flow simulations once a zero-value head boundary condition and a negative initial head (pressure) condition exist, which can occur in unsaturated flow problems.

OVERCOMING:

Instead of a zero-value head boundary condition, use a small, but non-zero value, e.g. fix it to 1e-6.

LOCATION:

Improved normalization of error norms used in adaptive time stepping routines in `fe_kernel.c`.

FIXED IN THE WORKING VERSION: 5.301
BUGFIXING DONE BY: hjd,02/02/07

NUMBER: 3
DATE: Feb. 2, 2007
NOTIFIED BY:
P. Schätzl, DHI-WASY Berlin, Germany
IMPORTANCE: 1
APPEARANCE:

Some constrained boundary conditions (e.g., a seepage face) are controlled by budget fluxes. In that computations the *total* budget value has been applied. However, it has been shown for special cases of a seepage face condition operating with a relatively large sink/source value (evaporation, recharge, ...) the total budget control should be replaced by an intrinsic boundary-condition-related flux computation (excluding sink/

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source effects). This provides a better and physically correct constraint control for those special cases.

OVERCOMING:

Do not combine large sink/source values with constrained boundary conditions.

LOCATION:

Improved budget control of routine `compute_budget_constraint()` in `fe_bcc.c`.

FIXED IN THE WORKING VERSION: 5.301
BUGFIXING DONE BY: hjd,02/13/07

NUMBER: 4
DATE: Feb. 28, 2007

NOTIFIED BY:

K. König, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

Using the Extended Boussinesq approximation for a variable-density flow and transport problem, the budget analyzer for mass or heat flux evaluation crashes.

OVERCOMING:

Only occurs for the specific case of Extended Boussinesq approximation in the budget analyzer.

LOCATION:

Mismatched vectors in function `get_extended_boussinesq_QEB()` called in `abfl_v_tran_cbfm_cfte_xxx (fe_solvf.c)`.

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,02/28/07

NUMBER: 5
DATE: Apr. 2, 2007

NOTIFIED BY:

hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

Flipping edges of triangular elements for meshes on which a mesh refinement has been applied, a subsequent derefinement of the mesh can lead to bad-shaped elements or worse meshes.

OVERCOMING:

Avoid mesh derefinement after flipping operation.

LOCATION:

Freezing mesh option is added (`fe_mesh.c`, #2889).

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/02/07

NUMBER: 6
DATE: Apr. 4, 2007

NOTIFIED BY:

Sherko Sharif, KGS Group Inc., Canada

IMPORTANCE: 1

APPEARANCE:

Using the mesh inspector from the quick access menu the material parameter can be erroneously time-scaled. It appears after a second call.

OVERCOMING:

Prefer standard material data menu to call mesh inspector for materials.

LOCATION:

Improve function `show_inspector_qs()` in `fe_mainm.c`.

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/05/07

NUMBER: 7
DATE: Apr. 10, 2007

NOTIFIED BY:

F. Wenderoth, FlowFM HydroConsult, Germany

IMPORTANCE: 1

APPEARANCE:

Modeling heat transport in a 3D phreatic aquifer system (using phreatic option of free-surface condition) having a deep location of the free surface, the heat conduction in the dry elements remains still related to residual water content of those elements and does not quantify sufficiently the heat conduction of the solid phase.

OVERCOMING:

Prefer a full unsaturated modeling of the heat problem.

LOCATION:

Improving related functions in `fe_solvt.c`.

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FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/13/07

NUMBER: 8
DATE: Apr. 10, 2007

NOTIFIED BY:
 K. König, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

The export of nodal reference distributions fails with an alert box 'Invalid DSM format: FRINGES_REFERENCE' or 'Invalid DSM format: ISOLINES_REFERENCE'.

OVERCOMING:
 Copy the reference distribution to a regular parameter and export this parameter instead.

LOCATION:
 Invalid DSM id entry (fe_dsm.c).

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: rg, 04/11/07

NUMBER: 9
DATE: Apr. 11, 2007

NOTIFIED BY:
 S. Cone, Parsons Brinckerhoff Ltd, UK

IMPORTANCE: 1
APPEARANCE:

If using the multi-layer well input dialog FEFLOW can crash under MS Windows after editing the well screen bottom or top table and closing the dialog. This behavior appears with the new X server Exceed on PC by producing delayed expose events.

LOCATION:
 Skipping of delayed expose events in function `indicate_screened_wellbore()`.

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/13/07

NUMBER: 10
DATE: Apr. 11, 2007

NOTIFIED BY:
 hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

The legend units in drawing vertical cross sections for 3D problems are not updated for unsaturated problems when displaying *saturation* and *water content* results.

LOCATION:
 Extend legend parameters in function `cross_segment()`.

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/13/07

NUMBER: 11
DATE: Apr. 16, 2007

NOTIFIED BY:
 J. Luo, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

An isoline contour for a value of exactly 100,000.00 will be incorrectly labeled by an earlier label. Note that the location of the contour is exact.

LOCATION:
 Improper `ltex` variable in function `iso4()` of file `fe_gpcf.c`.

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/16/07

NUMBER: 12
DATE: Apr. 18, 2007

NOTIFIED BY:
 hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

The sensitivity of some menu items of the *3D Options* popup menu is only correctly managed when opening the full cascade of the dialog. As a consequence, certain menu items (e.g., *Visualize -> Velocity field*) can be activated outside the simulation or postprocessor environment, which will lead inevitably to a crash.

OVERCOMING:

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Don't activate such ('potentially insensitive') menu items of the 3D Options popup menu outside the simulation or postprocessor environment.

LOCATION:

Applying the managing function `check_3doption_sensitivities()` for more popup panes (`fe_basic.c`, #1085, #1087).

FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: hjd,04/18/07

NUMBER: 13
DATE: Apr. 18, 2007

NOTIFIED BY:
G. Colleselli, Studio Colleselli Ingegneria Geotecnica, Italy
IMPORTANCE: 1

APPEARANCE:

In case of loading a super-element mesh (*.smh) for joining via the 'Polygons' or 'Lines' options instead of the 'Supermesh' option, subsequent join operations can cause a crash.

OVERCOMING:

Loading the super-element mesh via 'Supermesh' option.

LOCATION:
Allocation of the ID to record number mapping (`fe_file.c`).
FIXED IN THE WORKING VERSION: 5.302
BUGFIXING DONE BY: rg, 04/18/07

NUMBER: 14
DATE: Apr. 18, 2007

NOTIFIED BY:
Chris Gabriel, AquaResource Waterloo, Canada
IMPORTANCE: 1

APPEARANCE:

FEFLOW drops in hidden batch mode all simulation warnings even if a log file has been specified.

OVERCOMING:

Don't use hidden batch mode.

LOCATION:

The suppression of unnecessary drawings (`fe_mkern.c`, `fe_batch.c`, `fe_main.c`).

FIXED IN THE WORKING VERSION: 5.302

BUGFIXING DONE BY: rg, 04/18/07

NUMBER: 15
DATE: May 10, 2007

NOTIFIED BY:
Eunjeong Seok, Fracflow Consultants, Canada

IMPORTANCE: 1
APPEARANCE:

In mass or heat transport with fracture elements the budget analyzer didn't consider the advective part from the fracture flow if using the '*Convective form transport*' equation option (as default in mass and heat transport) for evaluating the mass and heat fluxes. Note that the forward solution is correct. Furthermore, the flow budget evaluation works correctly too.

OVERCOMING:

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LOCATION:

Implementation of new fracture functions using CBFM ('Continuous Boundary Flux Method') for computing advective part in fracture mass and/or heat flux budgeting.

FIXED IN THE WORKING VERSION: 5.303
BUGFIXING DONE BY: hjd,05/14/07

NUMBER: 16
DATE: May 10, 2007

NOTIFIED BY:
hjd
IMPORTANCE: 1

APPEARANCE:

In mass transport with fracture elements the budget analyzer can crash if using the '*Divergence form transport*' equation option for evaluating the mass fluxes at specific boundaries.

OVERCOMING:

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LOCATION:

Improper species index in the function calls `assign_4th_bc_t ()` and `assign_4th_bc_t_cg ()` in `fe_solvt.c`.

FIXED IN THE WORKING VERSION: 5.303
BUGFIXING DONE BY: hjd,05/14/07

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<hr/>		IMPORTANCE:	1
NUMBER:	17	APPEARANCE:	Re-importing of observation points which are located exactly on the border geometry can fail. Those points can be considered as outside the domain.
DATE:	May 22, 2007	OVERCOMING:	Use a small increment to shift the points inside the domain.
NOTIFIED BY:	Ch. Gabriel, AquaResource, Waterloo, Canada	LOCATION:	Improved snapping distances for assignment of imported observation points in <code>import_obs_points()</code> at <code>fe_obs.c</code> .
IMPORTANCE:	1	FIXED IN THE WORKING VERSION:	5.303
APPEARANCE:	The IFM function <code>IfmFindElementAtXY()</code> for detecting a finite element at a given location doesn't work correctly.	BUGFIXING DONE BY:	rg, 06/18/07
OVERCOMING:	-	<hr/>	
LOCATION:	Corrected searching method for <code>FindElementAtXY()</code> in <code>feifm_doc.cxx</code> .	NUMBER:	20
FIXED IN THE WORKING VERSION:	5.303	DATE:	June 18, 2007
BUGFIXING DONE BY:	hjd,05/23/07	NOTIFIED BY:	J. Luo, DHI-WASY, Berlin, Germany
<hr/>		IMPORTANCE:	1
NUMBER:	18	APPEARANCE:	If debugging Dirichlet-type (1st kind) flow boundary conditions under the option of <i>pressure</i> inputs, the debugging will only concern changes in hydraulic head instead of pressure. Options for flow boundary conditions are ignored in the debug mode.
DATE:	June 13, 2007	OVERCOMING:	For debugging flow boundary conditions switch back possibly set options to the default option of <i>hydraulic head</i> boundary condition.
NOTIFIED BY:	S. Schmid, EMC, Erfurt, Germany	LOCATION:	Extensions in routine <code>run_debug_bc()</code> at <code>fe_debug.c</code> .
IMPORTANCE:	1	FIXED IN THE WORKING VERSION:	5.303
APPEARANCE:	Multispecies transport with user-defined reaction kinetics (applying the formula editor) leads to a crash if fracture elements are embodied in the mesh.	BUGFIXING DONE BY:	hjd,06/19/07
OVERCOMING:	Don't use the formula editor in such a case (combination with fracture elements).	<hr/>	
LOCATION:	Incomplete assignment in routine <code>set_mathed_vars_and_coeffs()</code> at <code>fe_kinetics.cxx</code> .	NUMBER:	21
FIXED IN THE WORKING VERSION:	5.303	DATE:	June 20, 2007
BUGFIXING DONE BY:	hjd,06/14/07	NOTIFIED BY:	D. Schäfer, GCI, Königs-Wusterhausen, Germany
<hr/>		IMPORTANCE:	1
NUMBER:	19	APPEARANCE:	
DATE:	June 18, 2007		
NOTIFIED BY:	I. Krusic-Hrustanpasic, Golder Associates, Hawthorn, Australia		

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Pathline backtracking around pumping wells in a 3D mode: Infrequently, 3D pathline drawing can generate numerical errors (division by zero) which can lead to a hang-up in drawing or can crash the program.

OVERCOMING:

Modify the number of pathlines starting around well or enlarge start-radius around well or prefer the 3D pathline computations in a 2D projection mode done from the Halt & View results dialog.

LOCATION:

Mitigation of some critical numerical parts in the pathline 'pipeline' shape computations #9366,#8772 at `fe_path3d.c`.

FIXED IN THE WORKING VERSION: 5.303
BUGFIXING DONE BY: hjd,06/26/07

NUMBER: 22
DATE: July 05, 2007

NOTIFIED BY:

J. Luo, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

In using the layer configurator: (1) If deleting a top slice the inheritance (data flow) for the layer data is not suited. (2) Having a larger number of slices/layers (more than 26) the interconnection lines indicating inheritance (data flow) of interactively selected items become invisible or incomplete for slices/layers larger than 26 (note that it is only a graphical effect in the interactive mode).

LOCATION:

(1) Changed layer indexing in function `make_deletion_dflow_indexing()` in file `fe_lconf.c`. (2) Separate graphics GC's in functions `set_dataflow_sln()`, `set_dataflow_lan()` and `redraw_interconnection_lines()` of file `fe_gpcf.c`.

FIXED IN THE WORKING VERSION: 5.303
BUGFIXING DONE BY: hjd,07/06/07

NUMBER: 23
DATE: Aug. 20, 2007

NOTIFIED BY:

hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

Observation points in extending the number of layers for 3D models by using the layer configurator: If adding further layers the required repositioning of nodal observation points can lead to illegal nodal numbers under certain conditions. If starting the simulation those corrupted observation nodal points can crash the program.

OVERCOMING:

Remove nodal points and re-assign observation point numbers on the new layer configuration.

LOCATION:

Improving the function `stretch_obs_pnts()` in `fe_obs.c` and reorder its calling statement in `fe_lconf.c`.

FIXED IN THE WORKING VERSION: 5.304
BUGFIXING DONE BY: hjd,08/21/07

NUMBER: 24
DATE: Sep. 07, 2007

NOTIFIED BY:

J. Luo, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

Creating a new mesh, expanding to a 3D problem (via layer configurator) and defining a phreatic (free-surface) flow model (via problem classifier) the material parameter of storativity is still set to zero (instead of setting to the default non-zero value of 0.2).

OVERCOMING:

Re-assign the storativity parameter to a non-zero value, copied to all layers.

LOCATION:

Extended check in function `classmenu_deactivate()` of file `fe_probl.c`.

FIXED IN THE WORKING VERSION: 5.304
BUGFIXING DONE BY: hjd,09/07/07

NUMBER: 25

DATE: Sep. 18, 2007
NOTIFIED BY:
 W. Rühaak, DHI-WASY Berlin, Germany
IMPORTANCE: 1
APPEARANCE:

Analyzing thermal energy flux by using the budget analyzer or evaluating balanced heat fluxes in grouped balance points:

The specific advective thermal energy flux can be defined as $q_{\text{advection}} = \varepsilon \rho v E$ (cf. FEFLOW's White Papers Vol. II, pp. 12-16), where ε is the porosity, ρ is the fluid density, v is the pore velocity of fluid and E is the internal (thermal) energy of fluid. By applying the equations of state the internal energy is expressed as $E = c(T - T_o)$, where c corresponds to a constant heat capacity of fluid and T_o describes a reference temperature, which have to be input (see FEFLOW's data referencer dialog). Unfortunately, for the advective heat flux part the budget analyzer only evaluate the integral balance quantity as $\int q_{\text{advection}} d\Gamma = \int \varepsilon c \rho v T d\Gamma$ instead of $\int q_{\text{advection}} d\Gamma = \int \varepsilon c \rho v (T - T_o) d\Gamma$, where Γ implies the boundary (area) of evaluation. Note that the remaining balance terms in the heat budget analysis are not influenced by a reference temperature.

OVERCOMING:

The evaluation of the advective thermal energy flux should be related to a reference temperature of zero.

LOCATION:

Including new function `modify_temperature()` in `compute_heat_balance_quantities()` at `fe_budg.c`.

FIXED IN THE WORKING VERSION: 5.304
BUGFIXING DONE BY: hjd,09/21/07

NUMBER: 26
DATE: Oct. 25, 2007

NOTIFIED BY:
 Volodymyr Myrnyy, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

ASCII FEM files containing reference distributions become corrupted after saving twice.

OVERCOMING:

Using binary file format.

LOCATION:

`fe_file.c`.
FIXED IN THE WORKING VERSION: 5.305
BUGFIXING DONE BY: rg, 10/29/07

NUMBER: 27
DATE: Oct. 26, 2007

NOTIFIED BY:
 P. Schätzl, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

Using edge flipping procedure on an unrefined (e.g., just generated) mesh FEFLOW crashes.

OVERCOMING:

Refine (and derefine) at least one element before edge flipping procedure is started.

LOCATION:

Missing if-statement in function `is_refined_mesh()` of file `fe_adapm2.cxx`.

FIXED IN THE WORKING VERSION: 5.305
BUGFIXING DONE BY: hjd,10/29/07

NUMBER: 28
DATE: Oct. 29, 2007

NOTIFIED BY:
 Tobias Geyer, Göttingen University, Germany

IMPORTANCE: 1
APPEARANCE:

For unsaturated problems isochrones evaluation in particle tracking is only based on porosity data available in the transport or flow dataset and don't consider the variable water content of the flow solution.

OVERCOMING:

Mapping intermediately the resulting water content to the porosity data field and start isochrone computation in the particle tracking procedures with the modified porosity dataset.

LOCATION:

Extension in `get_eff_por()` in file `fe_path2d.c`.

FIXED IN THE WORKING VERSION: 5.305
BUGFIXING DONE BY: hjd,10/30/07

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NUMBER:	29
DATE:	Oct. 31, 2007
NOTIFIED BY:	Jean Cho, Ground Water International, Peru
IMPORTANCE:	2
APPEARANCE:	FEFLOW crashes after editing observation point properties if the main window's scrollbars are visible (e.g., if the display height is less than 900 pixels).
OVERCOMING:	By using a higher resolution display.
LOCATION:	fe_obs.c.
FIXED IN THE WORKING VERSION:	5.305
BUGFIXING DONE BY:	rg, 10/31/07

NUMBER:	30
DATE:	Nov. 2, 2007
NOTIFIED BY:	Mundzir H. Basri, TetrES Consultants Inc., Canada
IMPORTANCE:	1
APPEARANCE:	The 64 bit version of FEFLOW starts the 64 bit version of the Map Assistant WGeo 5.0 for which only a 32 bit license is delivered by default.
OVERCOMING:	Substituting the 'bin64' substring of the registry key HKEY_CURRENT_USER\Software\WASY\Feflow\5.3\Tools\MapAssistant by 'bin32'.
LOCATION:	fe_map2.cxx.
FIXED IN THE WORKING VERSION:	5.305
BUGFIXING DONE BY:	rg, 11/06/07

NUMBER:	31
DATE:	Nov. 8, 2007
NOTIFIED BY:	Christian Gmünder, Simultec AG, Zürich, Switzerland

IMPORTANCE:	1
APPEARANCE:	FEFLOW ignores the diagram record while loading ASCII DAC files. In result, the time step history and all diagram windows have to be resampled from the recorded time steps. The diagram curves cannot completely reconstructed if some time steps have been dropped.
OVERCOMING:	By using binary file format.
LOCATION:	fe_post.c.
FIXED IN THE WORKING VERSION:	5.305
BUGFIXING DONE BY:	rg, 11/09/07

NUMBER:	32
DATE:	Jan. 04, 2008
NOTIFIED BY:	hjd, DHI-WASY Berlin, Germany
IMPORTANCE:	1
APPEARANCE:	Reducing a thermohaline transport model to a separate mass transport or heat transport model by using the <i>Problem class</i> dialog the density difference ratio and the expansion coefficient, respectively, are not correctly inherited.
OVERCOMING:	Re-assign the density-related coefficients.
LOCATION:	Modifying the function <code>extnd_fem_data()</code> in <code>fe_util.c</code> .
FIXED IN THE WORKING VERSION:	5.306
BUGFIXING DONE BY:	hjd, 01/04/08

NUMBER:	33
DATE:	Jan. 22, 2008
NOTIFIED BY:	A. Renz, DHI-WASY Berlin, Germany
IMPORTANCE:	1
APPEARANCE:	FEFLOW produces invalid ASCII FEM and DAC files if the mesh contains more than 999,999 nodes.
OVERCOMING:	

Known Bugs of FEFLOW Version 5.3

Using the binary file format or less than 1 million nodes.

LOCATION:

fe_file.c.

FIXED IN THE WORKING VERSION: 5.306
BUGFIXING DONE BY: rg, 01/24/08

NUMBER: 34
DATE: Feb. 28, 2008
NOTIFIED BY:

Mundzir H. Basri, TetrES Consultants Inc., Winnipeg, Canada

IMPORTANCE: 1
APPEARANCE:

Erasing boundary conditions by using the *Deleting* option in data debugging with joining FEFLOW crashes.

OVERCOMING:

Use other deleting options outside data debugging.

LOCATION:

Improvement of function `indicate_bcddata()` in `fe_debug.c`.

FIXED IN THE WORKING VERSION: 5.307
BUGFIXING DONE BY: hjd,02/28/08

NUMBER: 35
DATE: Feb. 20, 2008
NOTIFIED BY:

rg, DHI-WASY Berlin, Germany

IMPORTANCE: 2
APPEARANCE:

FEFLOW crashes when attempt to load DAC files with AMR technique containing reference distributions.

OVERCOMING:

By avoiding AMR technique and reference distributions at the same time.

LOCATION:

fe_refdistr.c.

FIXED IN THE WORKING VERSION: 5.307
BUGFIXING DONE BY: rg, 03/04/08

NUMBER: 36

DATE: Feb. 21, 2008

NOTIFIED BY:

W. Rhaak, DHI-WASY GmbH, Germany

IMPORTANCE: 0
APPEARANCE:

Parameters with a very small ($< 1.e-8$) variation are not plotted in 'Special' mode.

OVERCOMING:

These parameters should be redefined by a constant value.

LOCATION:

fe_iso.c.

FIXED IN THE WORKING VERSION: 5.307
BUGFIXING DONE BY: rg, 03/05/08

NUMBER: 37
DATE: Mar. 20, 2008

NOTIFIED BY:

W. Zawadzki, Golder Associates Ltd, Canada

IMPORTANCE: 1
APPEARANCE:

If FEFLOW attempts to allocate a chunk exceeding a predefined amount of memory it will be terminated by the Microsoft Visual C++ runtime library.

OVERCOMING:

By using the 64 bit version of FEFLOW.

LOCATION:

alloc.c (wu.dll).

FIXED IN THE WORKING VERSION: 5.307
BUGFIXING DONE BY: rg, 03/25/08

NUMBER: 38
DATE: May 16, 2008

NOTIFIED BY:

A. Knapton, Land and Water Division, Australia

IMPORTANCE: 1
APPEARANCE:

Storing ASCII fem-file containing formula expression(s) for flow parameters (e.g., user-defined sink/source relationships of flow), the formula expressions vanish after reloading the ASCII file.

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OVERCOMING:

Use binary fem-file.

LOCATION:

Improvement of function `file_mathed_param_-data_ascii()` in `fe_paramedit.cxx`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: hjd,05/27/08

NUMBER: 39

DATE: June 3, 2008

NOTIFIED BY:

D. Schäfer, GCI GmbH, Königs-Wusterhausen, Germany

IMPORTANCE: 1

APPEARANCE:

Particle tracking option in using file-based starting points: Applying 3D data points for starting points of a 3D model in the *Halt & view results* dialog the particle tracking procedure doesn't perform such file-based 3D points and operates in the default interactive input mode for selecting starting points.

OVERCOMING:

Use 3D data points for file-based starting points of particle tracking only in the *3D option->Pathline* dialog.

LOCATION:

Improvement of function `single_pathlines()` in `fe_path2d.c`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: hjd,06/03/08

NUMBER: 40

DATE: June 3, 2008

NOTIFIED BY:

S. Seifert, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

Setting arbitrary observation points in a very zoomed state can cause deletion of already existing observation points at the same slice.

OVERCOMING:

Zooming out before setting observation points.

LOCATION:

fe_obs.c

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: rg, 06/03/08

NUMBER: 41

DATE: June 12, 2008

NOTIFIED BY:

M. Gerber, FU Berlin, Institute for Geological Sciences, Germany

IMPORTANCE: 1

APPEARANCE:

Applying the Budget Analyzer can cause a crash for specific 3D problems if it affects any slice below the top slice.

LOCATION:

Automatic recreation of the inverse incidence matrix.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: rg, 06/13/08

NUMBER: 42

DATE: June 17, 2008

NOTIFIED BY:

hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 2

APPEARANCE:

Using formula editor for the (zero-order) sink/source(s) in flow, mass or heat: In the user-defined mode different variables (termed as blue and green variables) appears, which can be applied in designing the formula for the sink/source. Among them, there is the sink-source value denoted by the green variable Q, which relates to the value(s) of pre-assigned sink/sources. Unfortunately, the explicit use of Q within the formula leads to an erroneous computation of sink/source during simulation. Q is an exception, all other variables work correctly. Note further, the kinetics reaction and viscosity editors are not influenced by this error.

OVERCOMING:

Don't use the green variable Q in the sink/source formula editor for flow, mass and heat. Instead, express directly constant values in the formula editor by number. For distributed values

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prefer elemental reference distributions on which the formula can be related.

LOCATION:

Improvements in `fe_solvf.c` and `fe_solvt.c`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: hjd,06/19/08

NUMBER: 43

DATE: June 11, 2008

NOTIFIED BY:

D. Schäfer, GCI GmbH, Königs-Wusterhausen, Germany

IMPORTANCE: 1

APPEARANCE:

3D particle tracking uses a data compression algorithm to reduce the computed points per pathline. This algorithm is based on the curvature of the pathline curve controlled by a built-in criterion hidden for the user. Infrequently, the compression can remove too many pathline points. Otherwise, in exporting pathline points the full dataset is often desired. We decided that the pathline compression is now, as default, switched off. Only if specifically set in the *Numerical parameters for Runge-Kutta* dialog available in the *Particle tracking options* the data compression can be switched on again.

LOCATION:

Unset the pathline point compression as default in `fe_path3d.c`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: hjd,06/30/08

NUMBER: 44

DATE: July 3, 2008

NOTIFIED BY:

B. Sperling, IGwU GmbH, Germany

IMPORTANCE: 1

APPEARANCE:

Exceeding the 32-bit range (2GB) of DAC file size at exactly a multiple of 100 time steps corrupts the FEFLOW DAC file.

OVERCOMING:

By a local mesh enrichment/deenrichment so that the 2GB limit is reached with a different number of time steps.

LOCATION:

`fe_file.c`, `fe_post.c`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: rg, 08/13/08

NUMBER: 45

DATE: July 22, 2008

NOTIFIED BY:

A. Bakenhus, Dr.Stupp-Consulting GmbH, Berg.-Gladbach, Germany

IMPORTANCE: 1

APPEARANCE:

Restricted only to 2D horizontal phreatic (free surface) problems with multispecies transport: The dynamic behavior of the unconfined aquifer is not considered in the transport equations for species indices larger than 1. Except the first species equation, the species equations 2,3, ... are computed with an aquifer thickness of unity. Note that this error doesn't exist for confined and vertical 2D as well as 3D problems with and without free surface(s).

OVERCOMING:

Reform the 2D problem to a 2D confined aquifer problem with prescribed aquifer thicknesses or expand to a 3D phreatic problem.

LOCATION:

Computation of `av_thickness` variable for multispecies transport in `fe_solvf.c`.

FIXED IN THE WORKING VERSION: 5.308

BUGFIXING DONE BY: hjd,08/19/08

NUMBER: 46

DATE: Aug. 22, 2008

NOTIFIED BY:

Pete Sinton, AquaGeo Ltd., Conifer, Colorado, USA

IMPORTANCE: 1

APPEARANCE:

The algebraic multigrid equation solver SAMG don't work for multispecies transport equations.

OVERCOMING:

Known Bugs of FEFLOW Version 5.3

Use alternative (default) equation solver for nonsymmetric equation systems.

LOCATION:

Dynamic creation of sufficient number of SAMG-dll's according to the number of species: `fe_samg.cxx`, `fe_acc_s.c`.

FIXED IN THE WORKING VERSION: 5.308
BUGFIXING DONE BY: hjd,08/25/08

NUMBER: 47
DATE: Sep. 17, 2008

NOTIFIED BY:
hjd, DHI-WASY Berlin, Germany

IMPORTANCE: 2
APPEARANCE:

Unfortunately, the treatment of recent bug no. 42 introduced a new bug in reactive multispecies transport problems. The simulation with patch 5.308 produces erroneous results for multispecies transport.

OVERCOMING:

Use a previous patch level ≤ 5.307 .

LOCATION:

Corrections in `fe_solvt.c`.

FIXED IN THE WORKING VERSION: 5.309
BUGFIXING DONE BY: hjd,09/17/08

NUMBER: 48
DATE: Oct. 31, 2008

NOTIFIED BY:
M. Thomasson, Errol L. Montgomery & Associates Inc., Tucson, Arizona, USA

IMPORTANCE: 1
APPEARANCE:

Copying 2nd type boundary condition (gradient type, available for unsaturated flow problems) from one layer to remaining layers (in 3D) doesn't work.

OVERCOMING:

Convert gradient-type to flux-type boundary condition before copying. Subsequently, re-convert from flux-type to gradient-type boundary condition on the corresponding slices.

LOCATION:

Correction of `handl_dcopy_bc()` function in `fe_dcopy.c`.

FIXED IN THE WORKING VERSION: 5.310
BUGFIXING DONE BY: hjd,11/04/08

NUMBER: 49
DATE: Nov. 03, 2008

NOTIFIED BY:

J. Riegger, Institute of Hydraulic Engineering, Dept. of Hydrology & Geohydrology, University Stuttgart, Germany

IMPORTANCE: 1
APPEARANCE:

Particle tracking with isochrone evaluation for *unconfined* 2D models: For the case that the top elevation of aquifer is below the computed hydraulic head h at an evaluation point x (i.e., there are locally confined conditions), the effective thickness is computed as $B(x) = h(x) - z_{\text{bottom}}(x)$ instead of $B(x) = z_{\text{top}}(x) - z_{\text{bottom}}(x)$, where $z_{\text{top}}(x)$ is the aquifer top elevation at x and $z_{\text{bottom}}(x)$ is the aquifer bottom elevation at position x . That means the aquifer thickness $B(x)$ at the evaluation point x is overestimated, accordingly the integrated fluxes are underestimated and the isochrones become delayed. Note that this error only occurs in pathline evaluation.

OVERCOMING:

Switch to a 2D confined aquifer problem. Alternatively, extend to a unconfined 3D model.

LOCATION:

Correction of `get_aquifer_thickness_2d()` function in `fe_path2d.c`.

FIXED IN THE WORKING VERSION: 5.310
BUGFIXING DONE BY: hjd,11/04/08

NUMBER: 50
DATE: Nov. 19, 2008

NOTIFIED BY:

V. Clausnitzer, DHI-WASY Berlin, Germany

IMPORTANCE: 1
APPEARANCE:

Using *triangle* mesh generator: generating *areally* a supermesh consisting of only *one* polygon with one or more add-ins the

Known Bugs of FEFLOW Version 5.3

triangle mesh generator will hang up. The bug doesn't occur for more than one polygon.

OVERCOMING:

Prefer the option *Generate automatically* or use alternatively the TMesh generator.

LOCATION:

Correction of `reorder_subdiv()` function in `fe_triangle.cxx`.

FIXED IN THE WORKING VERSION: 5.310
BUGFIXING DONE BY: hjd,11/20/08

NUMBER: 51
DATE: Nov. 27, 2008

NOTIFIED BY:

W. Rühaak, DHI-WASY Berlin, Germany

IMPORTANCE: 1

APPEARANCE:

FEFLOW crashes when attempt to load FEFLOW 5.4 heat transport problems.

OVERCOMING:

Save as FEFLOW 5.3 version inside of FEFLOW 5.4.

LOCATION:

Correction in `fe_dbase2.cxx`.

FIXED IN THE WORKING VERSION: 5.311
BUGFIXING DONE BY: rg, 11/28/08

NUMBER: 52
DATE: Nov. 27, 2008

NOTIFIED BY:

Sean Needham, URS Corp., UK

IMPORTANCE: 1

APPEARANCE:

After inspecting material parameter via QUICK ACCESS menu some parameter appear wrong scaled in standard Mesh Inspector.

OVERCOMING:

Use Mesh Inspector only by corresponding push button.

LOCATION:

Correction in `fe_mainm.c`.

FIXED IN THE WORKING VERSION: 5.311

BUGFIXING DONE BY: rg, 11/28/08

NUMBER: 53
DATE: Jan. 28, 2009

NOTIFIED BY:

Willy Zawadzki, Golder Associates Ltd., Canada

IMPORTANCE: 2

APPEARANCE:

The mesh inspector can display scaled values if it is opened from the Quick Access menu.

OVERCOMING:

By opening the mesh inspector from within the material data menu.

LOCATION:

`fe_probl.c`.

FIXED IN THE WORKING VERSION: 5.312
BUGFIXING DONE BY: rg, 04/02/09

Known Bugs of FEFLOW Version 5.3