



Phase²(4.0) – New Windows® version

Rocscience Inc., a software development and research company specializing in geomechanics analysis tools, has produced a new series of applications for Windows 95®, Windows 98® and Windows® NT 4.0.

Phase² (4.0) for Windows is a 2D elasto-plastic finite element program for calculating stresses and displacements around underground or surface excavations. The program is used to solve a wide range of mining and civil engineering problems, involving progressive failure (staging), rock-support interaction, large strain, non-linear rock mass and joint behaviour.

Phase² (3.0) for DOS was released last year and has been a great success. We have received very positive and useful feedback on this version, so we are confident that with the new features in v.4.0 for Windows, all users of the DOS version will want to upgrade. **Phase²** (4.0) contains all of the functionality of v.3.0 as well as all of the improvements a user would expect in a Windows version:

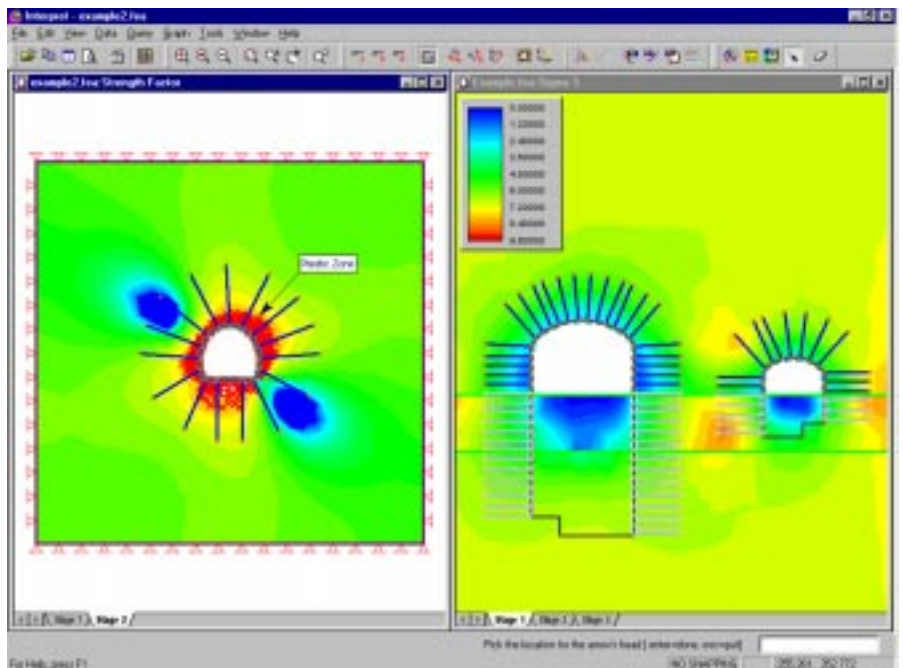
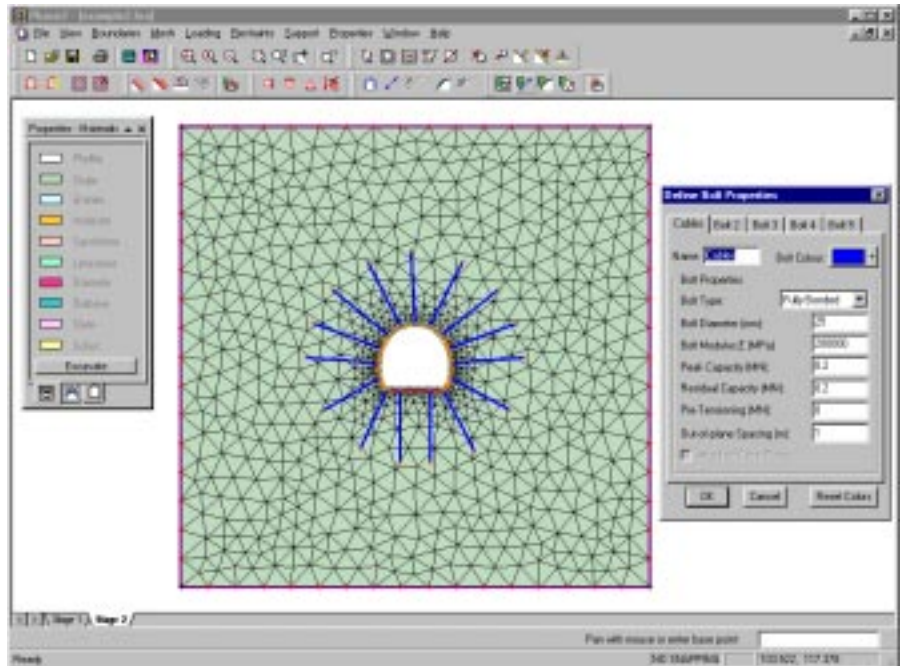
Wide range of hardware support

Easy access to printing

Multitasking

Multiple document interface

Phase² is now extremely easy and intuitive to use. Complex models can be very quickly created and analyzed, saving users time and money.



New Windows[®] releases . . .

Phase²(4.0)

Phase² (4.0) consists of three independent programs – MODEL, COMPUTE and INTERPRET. With **Phase²** MODEL, in a matter of minutes, a user can:

Enter the geometry

Define multiple material types

Mesh the model

Define boundary conditions

Add support (bolts and shotcrete)

Assign the staging sequence of the excavations

The **Phase²** COMPUTE finite element analysis engine is optimized for speed and accuracy – a simple elastic analysis

will take only a few seconds, and complex plasticity problems can be solved in a matter of minutes.

The **Phase²** INTERPRETER allows the user to plot and contour any type of data from the finite element analysis, including user-defined functions of stress and displacement. The INTERPRETER has especially benefited from the switch to Windows, since multiple files, different data types and plots can now be viewed and compared simultaneously with ease.

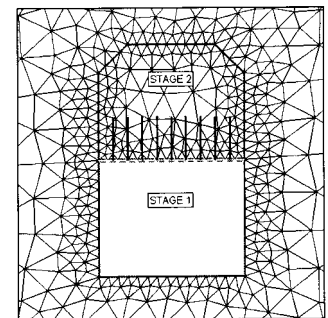
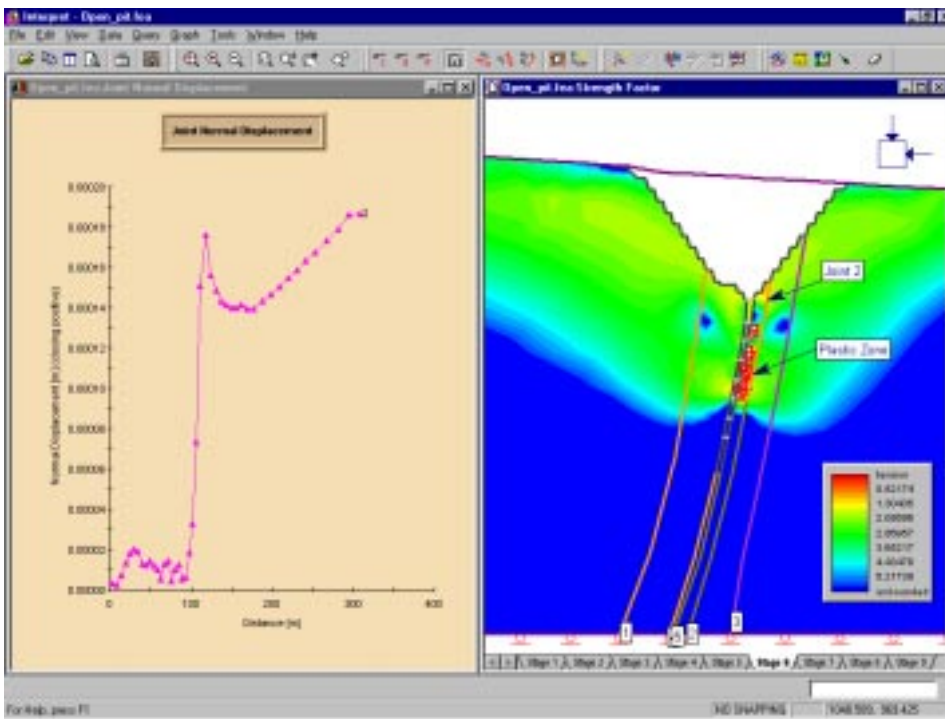
By using **Phase²** (4.0) for Windows, an engineer can quickly determine regions of failed/yielded material and easily see whether the support they have modeled is adequate. By optimizing the support

design, the user can minimize the cost of support for a required factor of safety.

Phase² (3.0) users will be able to switch to v.4.0 easily. For new users, comprehensive online help is available and includes reference, tutorial and verification documentation.

New Features

- Maximum number of stages has been increased from 10 to 50.
- Support (bolts and / or shotcrete) can now be placed WITHIN excavations and mined out as the staging progresses.



Two-stage model with bolts and shotcrete applied to intermediate stage boundary. Support within excavations is automatically mined out when material is excavated.

- Support can be “removed” at any stage after installation.
- The INTERPRETER is now very easy to use. For example, the stage or data being viewed can be changed with a single mouse click.

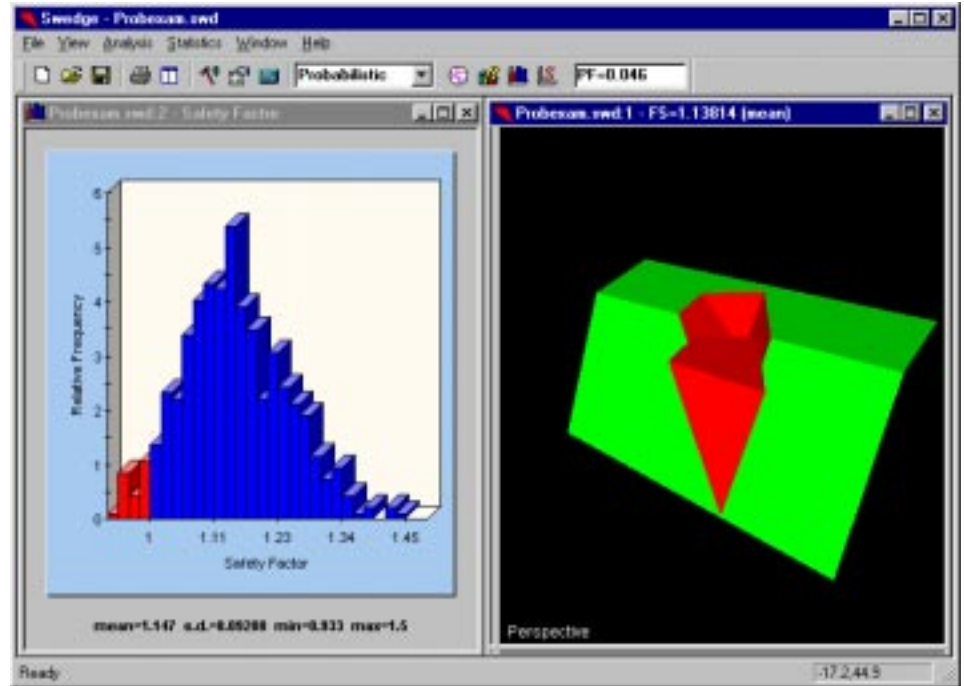
speed up analysis, minimize

Swedge(3.0)

Swedge (3.0) is a program for evaluating the geometry and stability of surface wedges defined by two intersecting discontinuity planes and a slope surface. Analysis type can be either probabilistic or deterministic. This program can quickly evaluate the effect of rock bolt support on the safety factor.

New Features

- Multiple document interface allows any number of Swedge files to be open simultaneously for viewing.
- New interactive capability — the wedge can be “moved” out of the slope and the perspective view can be rotated for viewing at any angle, all at the click of the mouse.
- Two viewing modes — shaded or wireframe. Shaded rendering allows a much improved viewing of the wedge and slope geometry. Colours of the wedge, slope and background are all user-definable.
- Instant recalculation of wedge geometry and safety factor, as input data is changed.
- Summary of all input and output data now viewable in convenient “infoviewer” listing.
- Seismic loading.
- Easier import and selection of planes from a DIPS planes file.



New Probabilistic Analysis Features

- Cumulative distributions (S-curves) of analysis results can now be plotted as well as histograms.
- Speed of computation is now an order of magnitude faster.
- Click at any point on a histogram to plot the nearest corresponding wedge.

New Software Lock for Windows Programs

The new HL lock (black) being shipped with all Windows programs offers significant benefits to the user. The new HL locks can be chained together, making it unnecessary to change the lock when switching to another Rocscience Windows program. Keep all the HL locks chained together for convenience. Your backup procedure or use of other devices such as a scanner will not damage these new locks while attached to your computer (the beige HT locks should still be detached).

For DOS customers *upgrading* to new Windows versions, we offer two options:

- The user can keep the original beige lock which will also run the Windows software.
- The user can exchange their beige HT lock for the new HL lock when upgrading for *no additional charge*. Customers wishing to exchange their lock at a later date will pay a shipping charge of \$40. *Only Windows programs will support the HL locks.*

costs, maximize safety . . .

RocFall(2.0)

RocFall (2.0) is a new statistical analysis program designed to assist with a risk assessment of falling rocks on steep slopes (eg. highway rockcuts, open pit mine slopes, etc.).

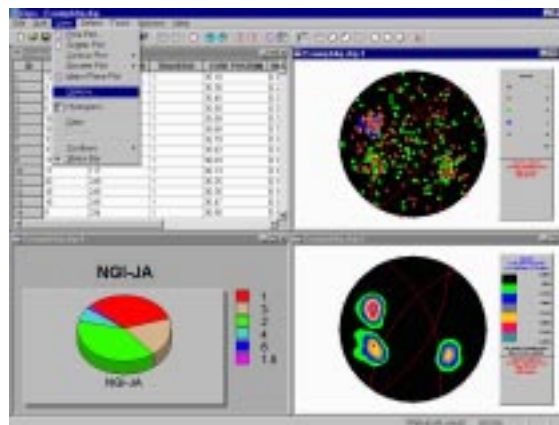
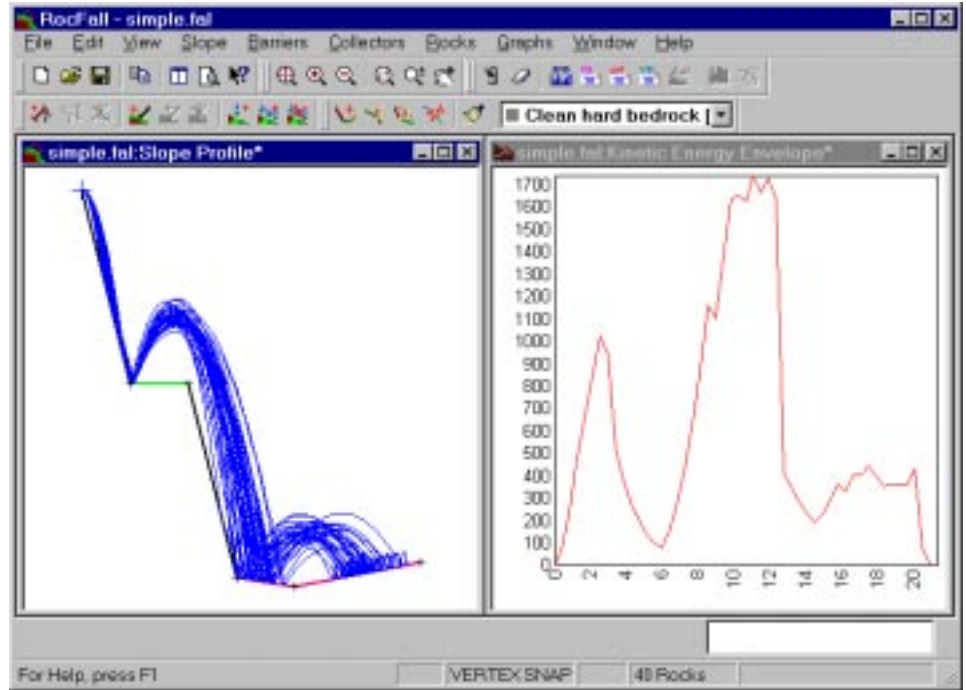
New Features

- Plot kinetic energy, velocity, "bounce height" envelopes, rock endpoint histograms.
- Quick parametric analysis — easily edit slope, barrier and rock properties and re-run the analysis.
- Remedial measures — information about the kinetic energy and location of impact on barriers can help determine the capacity, size and location of barriers.
- All input and output data can be pasted into a spreadsheet for further analysis.

Dips (5.0)

Dips (5.0) is a program for plotting, analysis and presentation of structural data using spherical projection techniques. **Dips** (5.0) for Windows is scheduled for release in early 1999 with the following new features:

- New charting options — histograms, line graphs or pie charts can now be used to plot data attributes.



- Improved editing / display of planes information — editing and display of planes is now simpler and more flexible.
- Generalized data querying — a completely general, easy to use query engine has now been implemented. The user can create any sort of logical expression to query the information in their DIPS file.

After November 1, 1998 purchase of **Dips** (4.0) for DOS will include a free Windows upgrade to **Dips** (5.0). Save on upgrade and shipping costs.

- Integrated spreadsheet for DIPS data input — DIPS file creation and editing is now integrated with the program. Users will no longer have to rely on an external program to create a DIPS file.

Spend time with one of the world's leading experts in rock engineering!

Visit our website www.rocscience.com and make sure you go to *Hoek's Corner*. Dr. Evert Hoek's course notes, *Practical Rock Engineering* can be downloaded directly from the site as separate PDF chapters. You will need to use Acrobat Reader V. 3.01 to get the best results.



Practical Rock Engineering includes chapters dealing specifically with the programs **Phase²**, **RocFall** and **Unwedge** and their uses in rock engineering. For those interested in problems related to rockfall danger, Chapter 9 titled *Analysis of Rock Hazards* would be of particular interest.

We expect that Dr. Hoek's latest research, published on our website, will be very useful for those interested in rock mechanics. He will be making additions to his set of notes as he gathers new information from projects around the world. Ordering information for other publications by Dr. Hoek is also available at *Hoek's Corner*.

Hoek's
Corner

Faster customer service at our new website

If you haven't visited our website recently we suggest you take a look!

In addition to *Hoek's Corner*, described above, we now offer an easy way to order Rocscience software from our site as well as an expanded FAQs pages (Frequently Asked Questions) for all of our programs.

Electronic Order Form

Now you can place an order directly over the internet using our new order forms. This completely secure feature allows you to place an order directly by credit card (Visa, MasterCard or American Express) without worry of your number being intercepted. It also gives you the option of printing out the form and faxing it to us. If you are requesting an upgrade, be

sure to include your registration number which can be found on the start-up screen of your DOS program, or the serial number found on the packaging of your Windows program.

FAQs Pages

FAQs will now be posted regularly on our website. If you have a problem or question about any of our programs, first visit our website www.rocscience.com.



Click on *Support* and then click on *FAQs*. Your question may have already been answered.

How do I get technical support?

If you don't find an answer to your technical question at our web site, send your question along with your registration or serial number either by email or by fax.

Email:
techsupport@rocscience.com

Fax:
1-416-698-0908

All other questions should be sent to:

Email:
software@rocscience.com

Fax:
1-416-698-0908

Trade Shows - 1998

FAQs

Win a free copy of *Dips* (5.0) for Windows at the Toronto GSA show in October!

Give us your business card for a chance to win a free copy of *Dips* for Windows! Email or fax us in advance to book a personal demonstration and a *special sneak preview* of this very popular program. Rocscience will be at booth #822 at the Geological Society of America's annual trade show, to be held at the Metro Toronto Convention Centre October 25th-28th, 1998.

Brent Corkum, Senior Research Engineer at Rocscience, giving a *Phase²* demonstration to an interested engineer at CIM Tradex '98, Montreal, Quebec



Learn from the experts in the field

Rocscience is organising a short course for the Spring of '99 featuring in-depth sessions on our new windows versions of our software.

There will be an opportunity to book a one-on-one session. If you would like to get on the "interested" list, send your request to us at Rocscience Inc.

Would you like to learn more about using Rocscience software and how it is used by top consultants in geotechnical engineering?

The course will be held in Toronto, Canada over a two-day period and will feature lectures by well-known consultants in the field. Detailed demonstrations of the programs will be followed by a Q/A period with the programmers/developers.

CONTACT US

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Q. Does the new 32 bit Windows software run under Windows® 3.1?

A. No, Windows® 3.1 is a 16 bit operating system. The new Windows software will run only under Windows 95®, Windows 98® or Windows® NT. We will continue to support the DOS versions of our software for customers who do not yet have one of the new operating systems.

Q. Can *Phase²* be used for surface excavations?

A. Yes, *Phase²* has been used extensively for surface and near-surface analyses. There are no restrictions on surface modeling, all options, including support, are equally applicable to surface or underground excavations.

Q. I would like to install temporary support that can be mined out at a later stage. Is this possible in *Phase²*?

A. Yes, this can be done in *Phase²* (4.0) for Windows. Bolts and/or shotcrete liners can be applied to stage boundaries within excavations, and are automatically mined out with the material. This capability was not in *Phase²* (3.0) for DOS. See the *Phase²* page of this newsletter in the *New Features* section for an illustration.

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