

I-BLAST 7.5

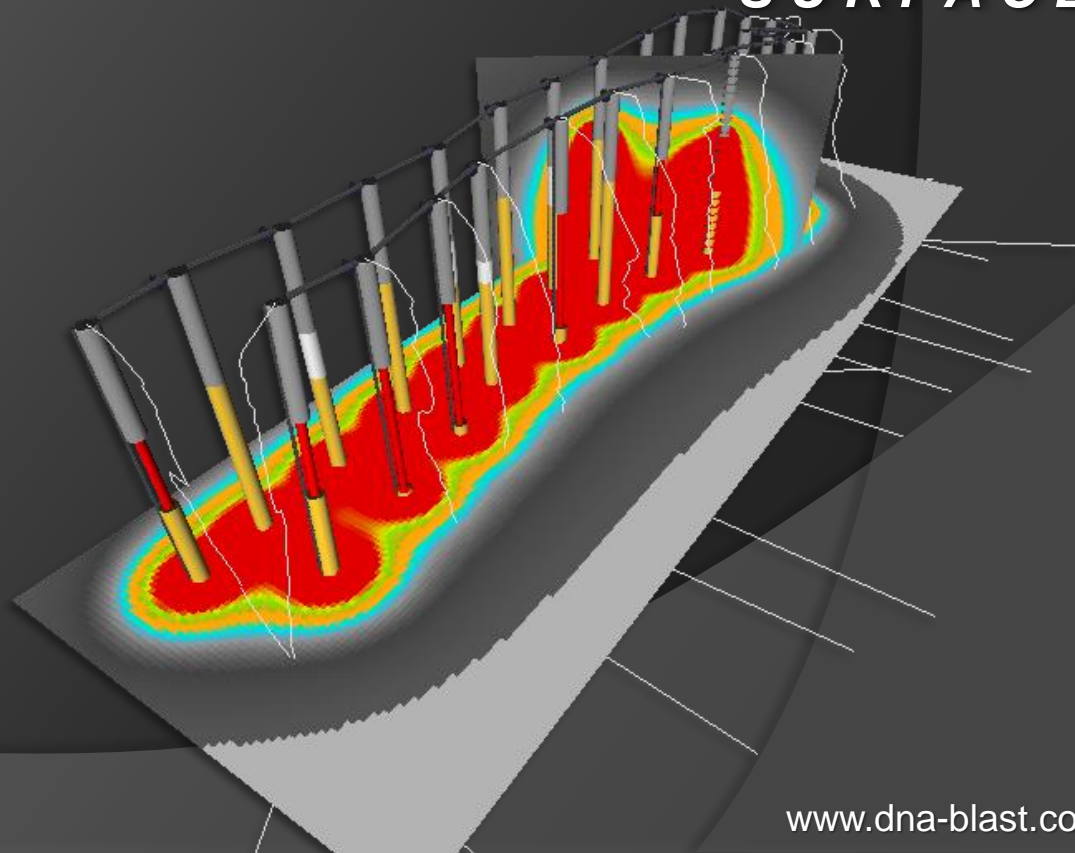
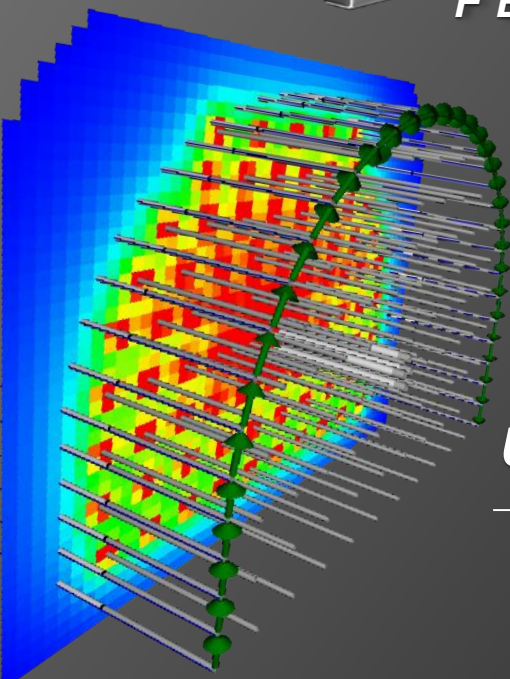


*PHYSICS-BASED SIMULATOR
FEATURES OVERVIEW FOR*

UNDERGROUND

&

SURFACE



The I-Blast Software

In a Few Words

I-Blast is a Unique All Inclusive Blasting Information System allowing the collection, storing & automated interactive custom edition of field documents, and of engineering or blasting reports that outclass the industry standard.

3 languages software:



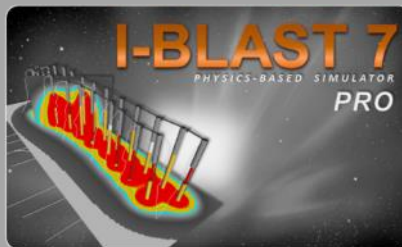
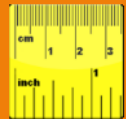
*Available
in 3 versions :*

**DESIGN EXPRESS
PRO
ADV**

CAN DO, in short:

- Define site-specific location and parameters such as explosives, geology, and more
- Design, analyze, simulate, keep record and document blast performances
- Integrate related data from other applications in use in the industry
- Store blast data in a structured data base, with specialist tools for analyzing, editing and reporting

*Metric &
Imperial
Compatible*



MINIMUM SYSTEM REQUIREMENTS FOR I-BLAST?

- Intel i5 or any newer CPU (recommended 3.30 GHz or faster),
- 4Go of system memory,
- 10Go of disk space,
- A dedicated graphic card

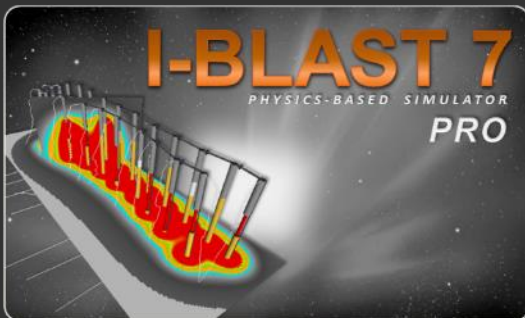
No needs for custom modules to be added to the system.

Whatever the version
I-Blast is ALL INCLUSIVE.

The I-blast Version You Need



The essential, quick & affordable tools you'll need for designing & reporting efficiently Your blast

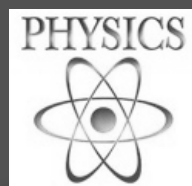


The all-in-one product for smarts blasting engineers who wants to simulate vibration, fragmentation distribution & cast on a daily basis



The blasting simulation software that includes the most advanced simulation & optimization modules for the whole blast

GOOD REASONS TO CHOOSE I-BLAST SOFTWARE



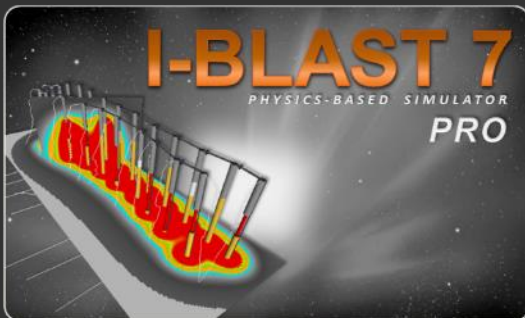
The I-blast Version You Need

AVAILABLE IN



- ✓ UNLIMITED VALIDITY
- ✓ 1 LICENSE

BEST OFFER!!



- ✓ UNLIMITED VALIDITY
- ✓ 1 LICENSE

✓ 1 YEAR LICENSE

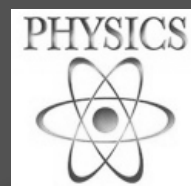
✓ 3 LICENSES

✓ PRIORITY SUPPORT



- ✓ UNLIMITED VALIDITY
- ✓ 1 LICENSE

GOOD REASONS TO CHOOSE I-BLAST SOFTWARE



I-Blast Licenses

Update & Support Policy



	✓ UNLIMITED VALIDITY	✓ 1 YEAR LICENSE
	✓ 1 LICENSE	✓ 3 LICENSES
		✓ PRIORITY SUPPORT
COST OF UPDATES (after 1 year)	40% of the license price	FREE
SUPPORT BY EMAIL	Non-priority	Priority Unlimited Installation, Set up & Support Answer guaranteed within 48 hours (business days)
SUPPORT BY PHONE	Not included	
SUPPORT & INSTALLATION PACK	Not included (refer to Support Pack details)	
TRAINING MANUAL IN ELECTRONIC FORMAT	Included (available in English, Spanish, French)	

WHAT IS THE SUPPORT PACK ?

1. A remote** installation, set up and support including updates
2. A support contract including a quantity of Technical Support Units (TSU) to be converted in the twelve months, into one or a combination of the hereafter services:
 - 1 day of training for a maximum of 2 people to new functionalities in one our office or at client site*** = 7 TSUs
 - 1 hour of Remote** technical support service**** = 1 TSU
 - 1 question by email related to the handling or the functionalities of I-Blast = 1 TSU

** Remote support & services are operated through a client Team Viewer (set up on users computers during the I-Blast license installation process)

*** Whatever the training place chosen by the client, accommodation and transportation expenses are client's costs

**** Technical support service do not cover engineering services and cannot include data processing of any kind



NEW

FEATURES

VERSION 7.5

UNDERGROUND/TUNNELING MODULE
PAGES 7-A

RING BLASTING MODULE
PAGES 7-B

ACCURATE FRAGMENTATION MEASUREMENT
PAGES 7-C

3D ENERGY DISTRIBUTION INCLUDING TIMING
PAGES 7-D

PPV SIMULATION INCLUDING TIMING WINDOW AND
P WAVE VELOCITY
PAGES 7-E

QUARMAN CLOUD OF POINTS IMPORTATION
PAGES 7-F

DRONE CLOUD OF POINTS IMPORTATION
PAGES 7-G

CLOUD OF POINT CROSS SECTION
PAGES 7-G

CRITICAL 3D PROFIL FROM CLOUD OF POINTS
PAGES 7-G

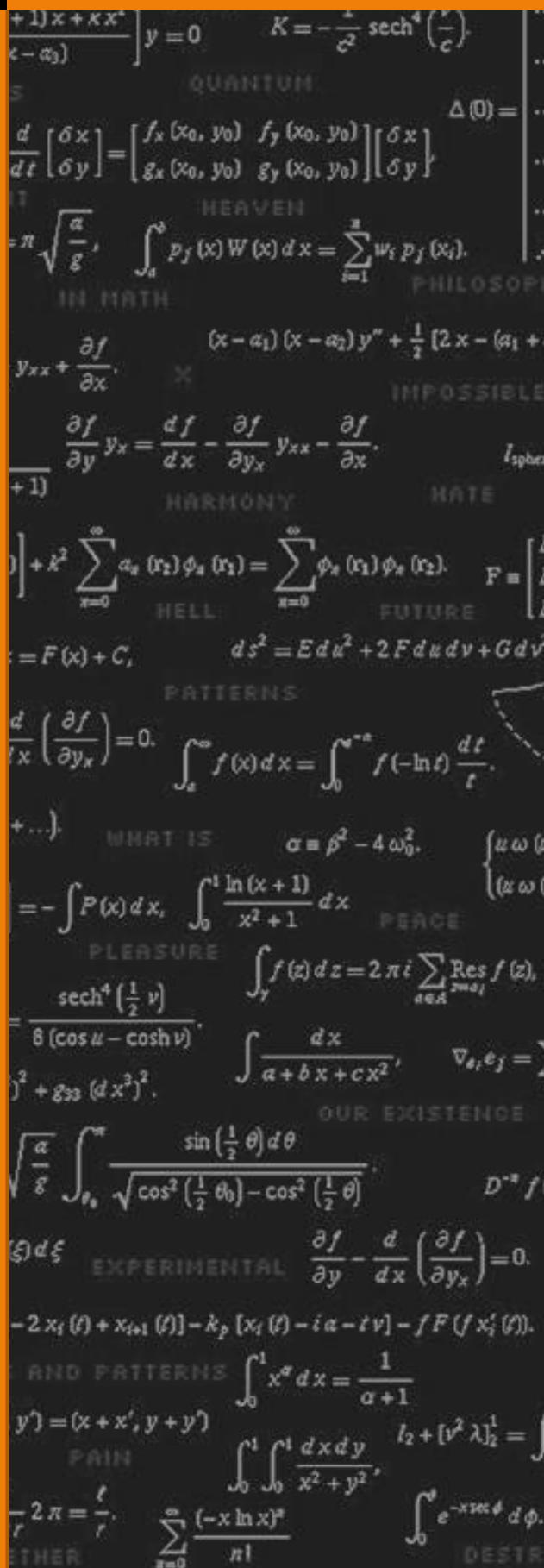
3D SURFACE IMPORTATION FROM GOOGLE MAP
PAGES 7-H

AUTOMATIC RAMP DESIGN
PAGES 7-I

HOLE SYMBOL DISPLAY
PAGES 7-J

I-BLAST 7.5

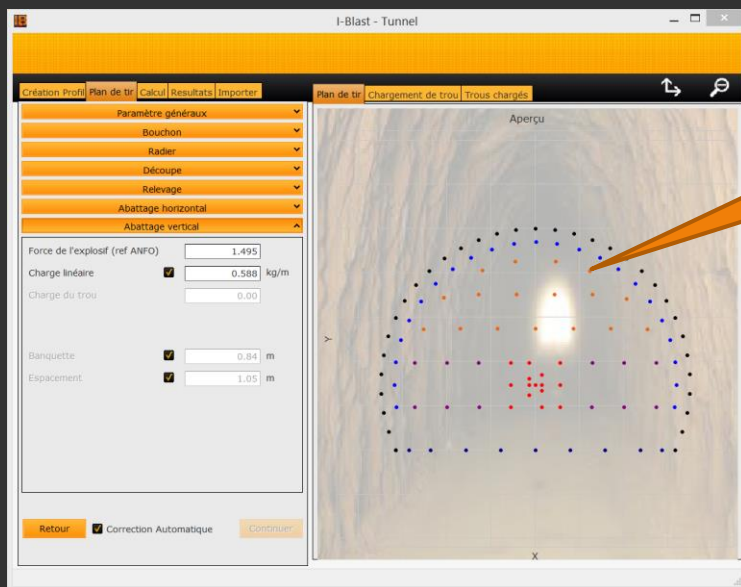
PHYSICS-BASED SIMULATOR



I-Blast PRO, ADV

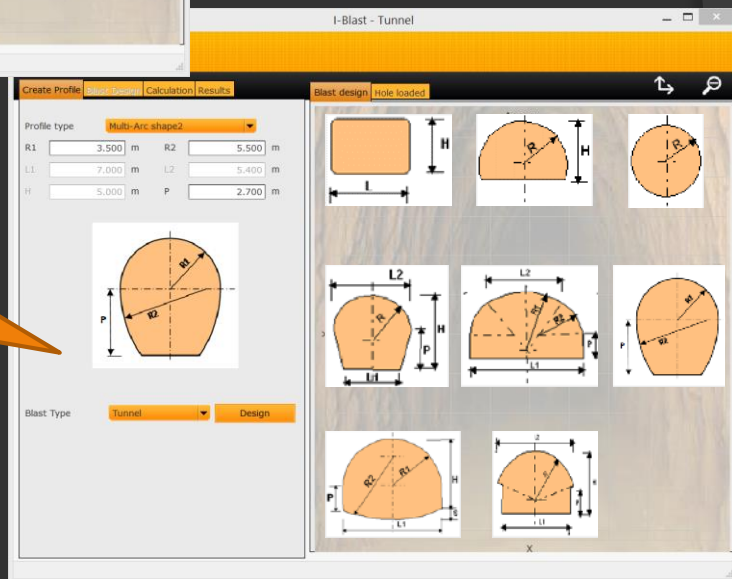
NEW

Tunnel Design Module



Automatic pattern and loading design

Various tunnel shape available



YOUR BENEFITS:

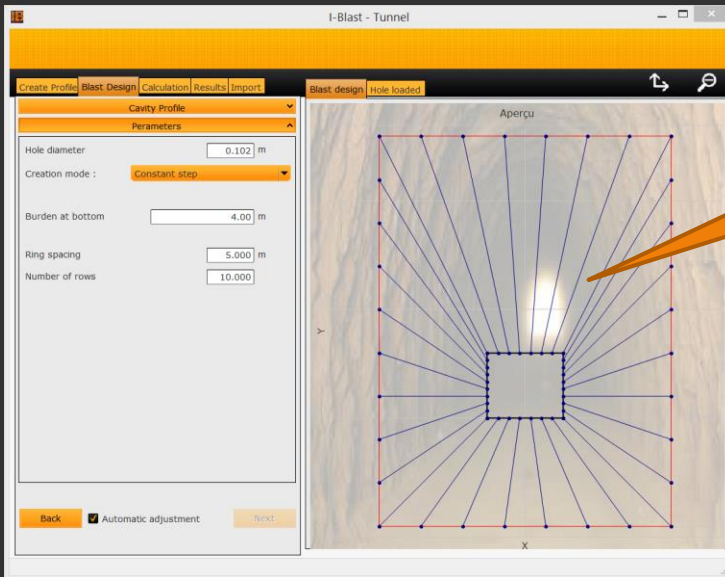
- ✓ Automatic design to save time when creating tunnel pattern
- ✓ Versatile range of parameters (explosives, diameter, strength,...) for full customization
- ✓ Export data to jumbo

I-Blast PRO, ADV



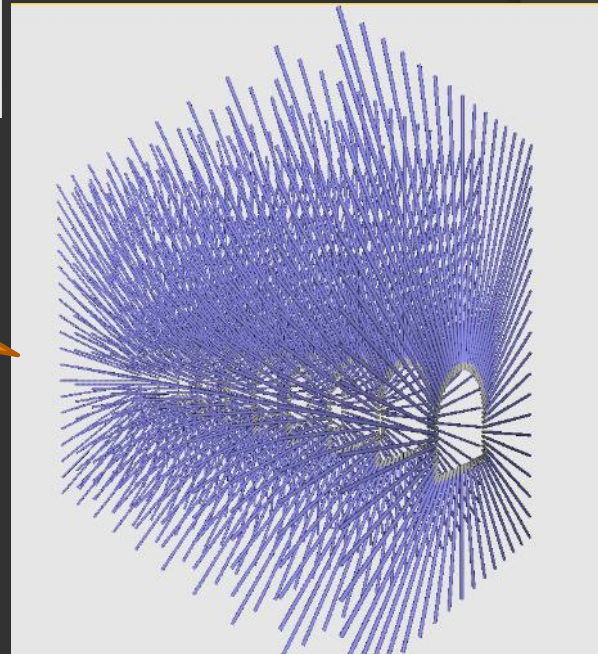
NEW

Underground Ring Blasting Design Module



*Automatic pattern design
around various tunnel
shape*

*3D view of ring blasting
design*



YOUR BENEFITS:

- ✓ Automatic hole design to save time when creating ring blasting pattern
- ✓ Allows advanced vibration and damage simulations based on 3D model

I-Blast PRO, ADV

NEW



Define block size by a simple line between two points : Quick and easy



YOUR BENEFITS:

- ✓ Easy, quick and efficient
- ✓ Allows to pinpoint boulders and fines at the same time
- ✓ Works whatever the quality of the image (light, contrast,...)

I-Blast PRO, ADV

NEW

3D Explosives Energy Distribution



3D Explosives Energy Distribution available in a choice of 5 scalable resolutions

Automatic simulation delivering 10 automatic horizontal cuts

NEW!

Timing Window based automatic simulations
(AVAILABLE ONLY IN I-Blast ADV)

Custom vertical cuts simulation

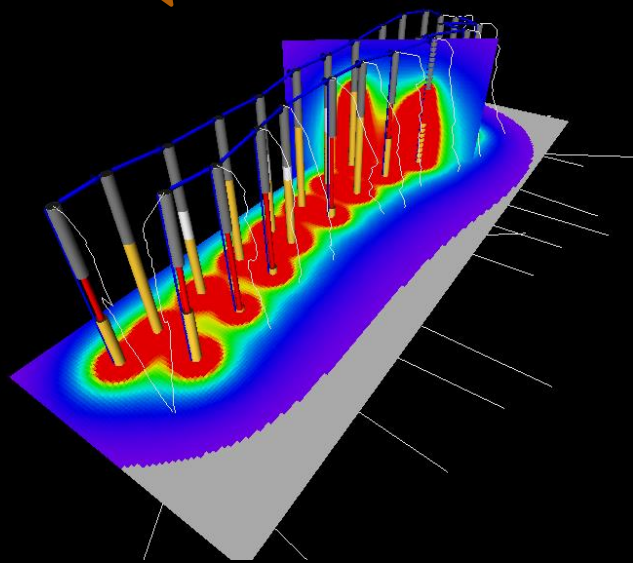
Option for the 3D Explosives Energy Distribution to take the timing sequence into account

NEW!

Your choice of horizontal & vertical cuts can be displayed in 3D

YOUR BENEFITS:

- ✓ Custom & simple tool to spot critical zone inside and around the blast
- ✓ Improve:
 - Your safety (flyrock risk)
 - Your productivity (fragmentation, loading-hauling, energy cost, etc.)
- ✓ Self-explicit images for efficient
- ✓ Reporting



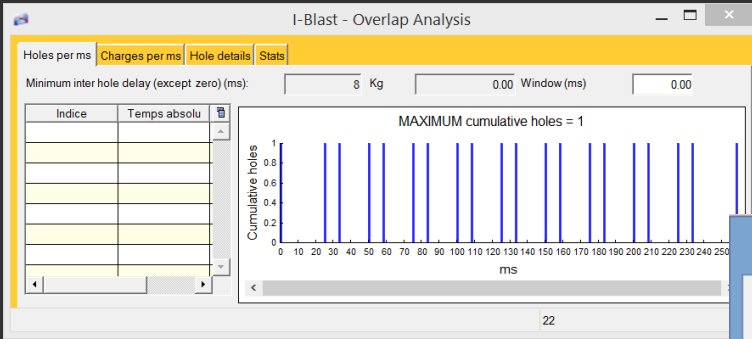
I-Blast PRO, ADV

3D ANALYSIS

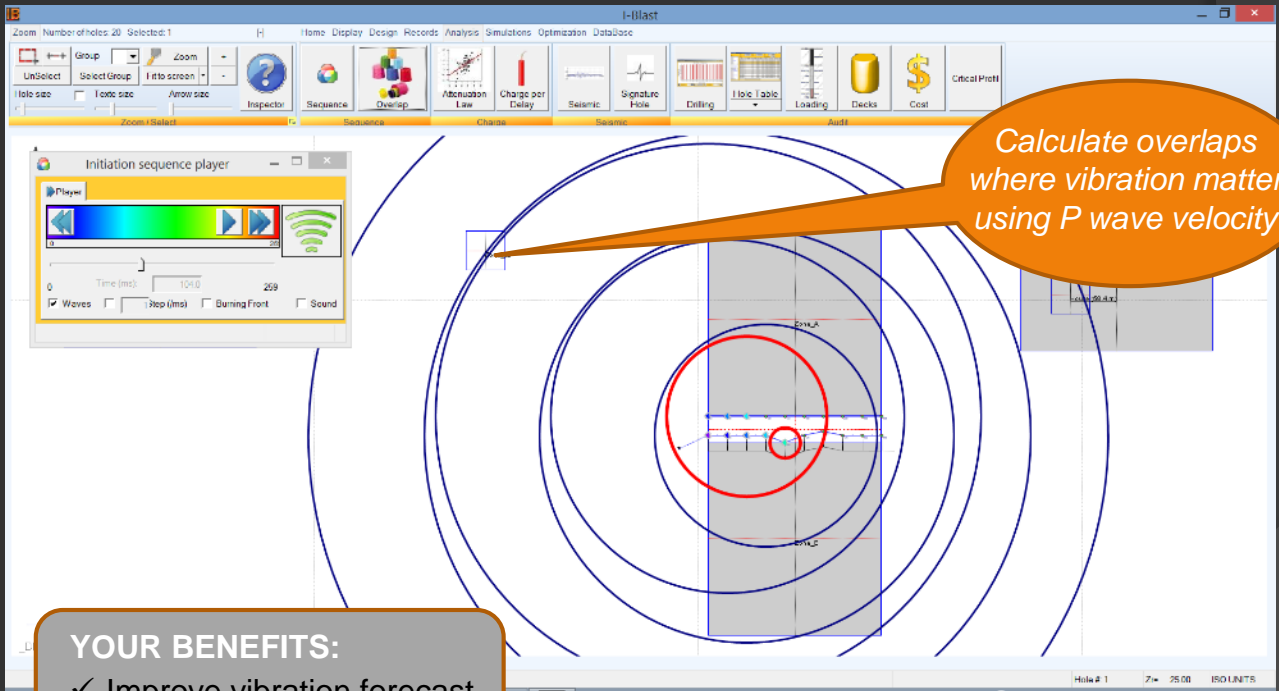
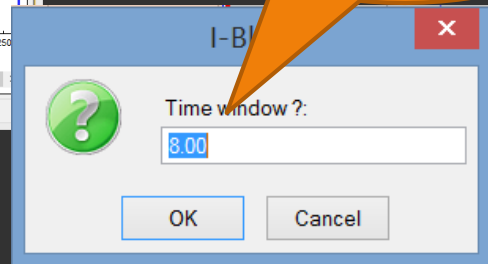


NEW

PPV Simulation by scaled distance technique
Including Timing window and P wave Velocity



Select a timing window
to calculate overlaps and
predict PPV



Calculate overlaps
where vibration matter
using P wave velocity

YOUR BENEFITS:

- ✓ Improve vibration forecast
- ✓ Predict more accurately PPV depending on timing sequence

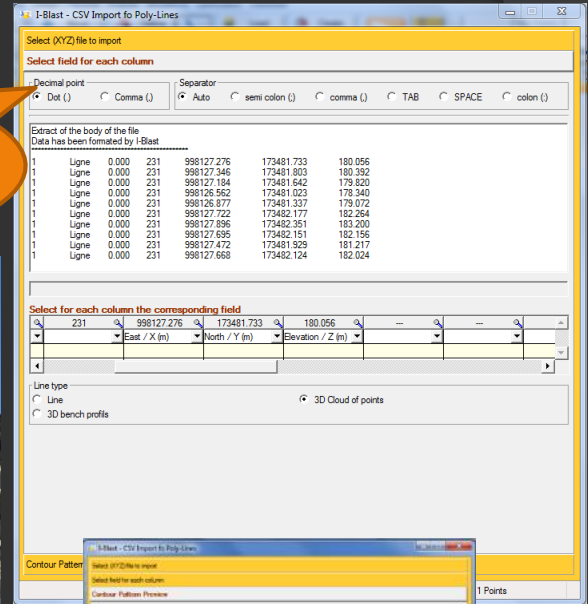
I-Blast DE, PRO, ADV

NEW

Automatic Cloud of Points Importation
From Your Favorite Measuring Devices

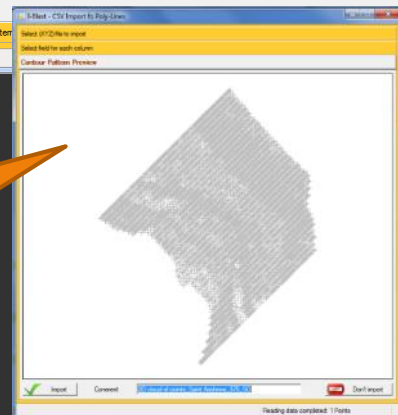
NEW!

Importing from your favorite
survey device: 3D profiles,
lines or cloud of points



NEW!

3D critical profiles
automatic definition from
imported cloud of points



YOUR BENEFITS:

- ✓ Free face profile importation + Hole deviation data = real burden
- ✓ No risk of mismatching profiles and holes
- ✓ Save time when designing your blast
- ✓ Mitigate human error risks during this critical step (flyrock risk)

I-Blast ADV

NEW

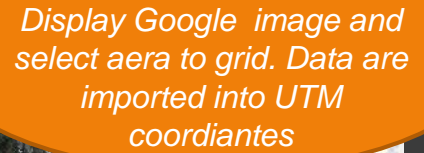
3D Critical Profile from Cloud of Points



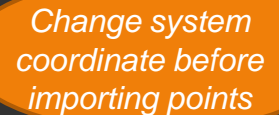
YOUR BENEFITS:

- ✓ Create automatic cross section of ground surface and visualize critical burden
- ✓ No risk of mismatching profiles (i.e. 2D profile not at the right place)
- ✓ Mitigate human error risks during this critical step (fly rock risk)
- ✓ Save time when designing your blast
- ✓ Visualize your blasting area in 3D for a better project management

Import 3D ground surface from Google map



*Imported cloud of point
visualized in 3D windows*



- ✓ Visualize site environment
- ✓ Easily position buildings or houses for vibration simulation
- ✓ Map vibrations on a grid with Z level

Ramp design

The screenshot displays the I-Blast software interface, which is used for mine layout optimization. The main window shows a 3D perspective view of a mine layout with various boreholes represented by red circles. A central window titled "Audit Foration" is open, showing a bar chart of borehole depths and a table of borehole data. The table includes columns for "Nombre de trous", "Fond de forage", "Profondeur", and "Fond de butée". The software interface includes various toolbars and a status bar at the bottom.

Audit Foration - Tir Mine A - Audit de la foration

Nombre de trous	Fond de forage	Profondeur	Fond de butée
1	-15.00	0.00	-10.50
2	-15.00	0.00	-10.50
3	-15.00	0.00	-10.50
4	-15.00	0.00	-10.50
5	-15.00	0.00	-10.50
6	-15.00	0.00	-10.50
7	-15.00	0.00	-10.50
8	-15.00	0.00	-10.50
9	-15.00	0.00	-10.50
10	-15.00	0.00	-10.50
11	-15.00	0.00	-10.50
12	-15.00	0.00	-10.50
13	-15.00	0.00	-10.50
14	-15.00	0.00	-10.50
15	-15.00	0.00	-10.50
16	-15.00	0.00	-10.50
17	-15.00	0.00	-10.50
18	-15.00	0.00	-10.50
19	-15.00	0.00	-10.50
20	-15.00	0.00	-10.50
21	-15.00	0.00	-10.50
22	-15.00	0.00	-10.50
23	-15.00	0.00	-10.50
24	-15.00	0.00	-10.50
25	-15.00	0.00	-10.50
26	-15.00	0.00	-10.50

Altitude (Z): 0, -2, -4, -6, -8, -10, -12, -14, -16, -18

Nombre de trous: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26

Fond de forage: -15.00, Profondeur: 0.00, Fond de butée: -10.50

Ajuster la Profondeur

100 %

Mine A

largeur de selection = 5.5

UNITES ISO

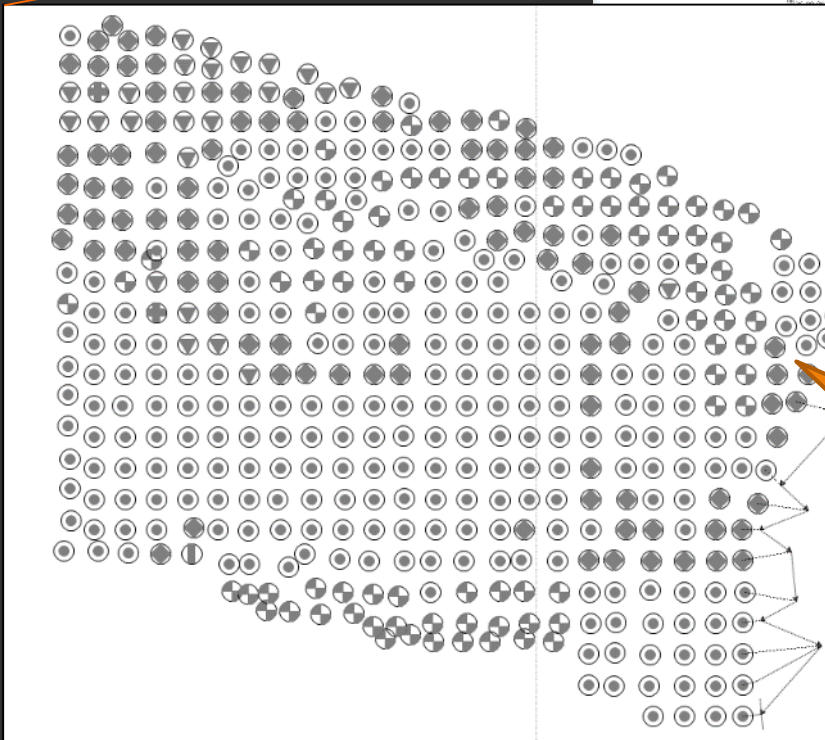
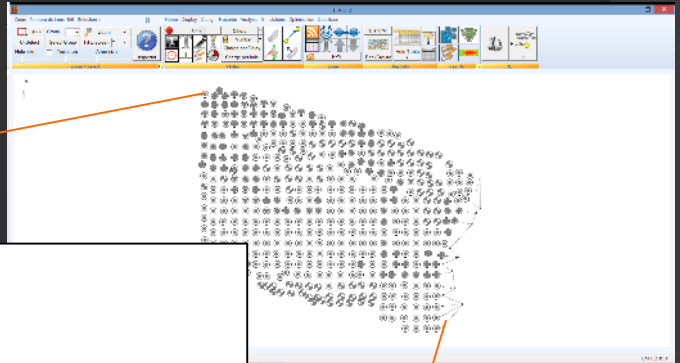
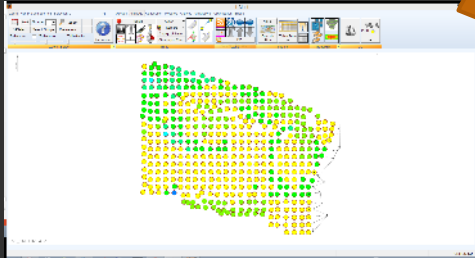
YOUR BENEFITS:

- ✓ Save time when designing a ramp
- ✓ Automatic hole depth set up for accurate drilling instruction

I-Blast DE, PRO, ADV

NEW
Hole Symbol Display
NEW!

Convert in **ONE CLICK**
Color Loading Hole into
Gray Scale Symbols



Each symbol represents a
different loading

YOUR BENEFITS:

- ✓ Print in B&W and save money
- ✓ Photocopy documents and key when highly readable

GLOBAL FEATURES OVERVIEW

3D SIGNATURE HOLE

PAGES 42 | 56-60 | 76-82

UNDERGROUND/TUNNELING

PAGES 14 | 34 | 73-74

3D PROJECT PROGRESS MONITORING

PAGES 13 | 22 | 32-35 | 39-40 | 49 | 54-55 | 60 | 62 | 72-74 | 76-77 | 82

FACE PROFILE

PAGES 20-22 | 32 | 36 | 51 | 74 | 76 | 82

3D ENERGY DISTRIBUTION

PAGES 38 | 49 | 51 | 75-76 | 79-82

AIR BLAST SIMULATION

PAGES 10 | 47-48 | 52 -53 | 72 | 74-77

PDF AUTOMATIC REPORT

PAGES 03-04 | 07 09 | 12-13 | 35 | 38-39 | 49 | 60-71 | 73 | 77-82

MULTIPLE ROWS CAST SIMULATION

PAGES 51 | 76 | 78 | 79-82

AUTOMATIC CHARGE PER DELAY

PAGES 41-45 | 50 | 74-76 | 82

3D MUCKPILE SHAPE

PAGES 10 | 51 | 54-55 | 56 | 72 | 74 | 76 | 79-82

AUTOMATIC LOADING

PAGES 28-30 | 50 | 74 | 79-80

MONTE CARLO SIMULATION

PAGES 31 | 74 | 79-82

EXCEL IMPORT/EXPORT

PAGES 11 | 24 | 28-29 | 23 | 35 | 72-74 | 79-80

PHOTOGRAMMETRIC ANALYSIS

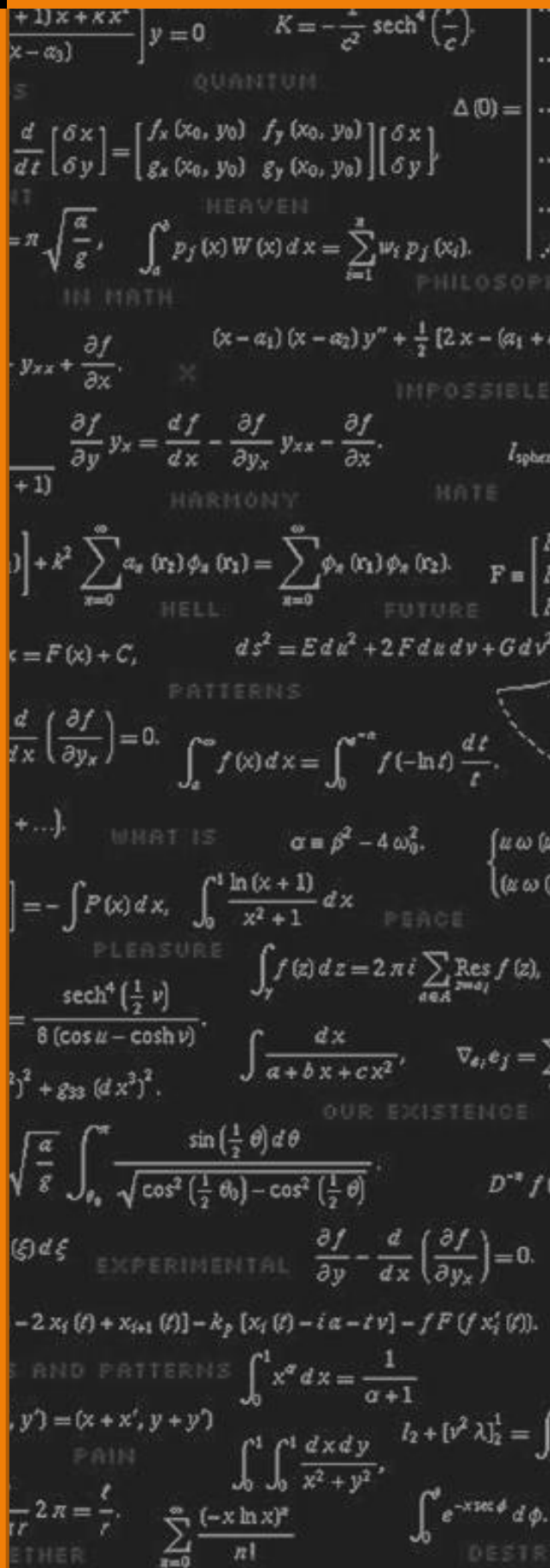
PAGES 39 | 75

3D BURNING FRONT

PAGES 40 | 73-74

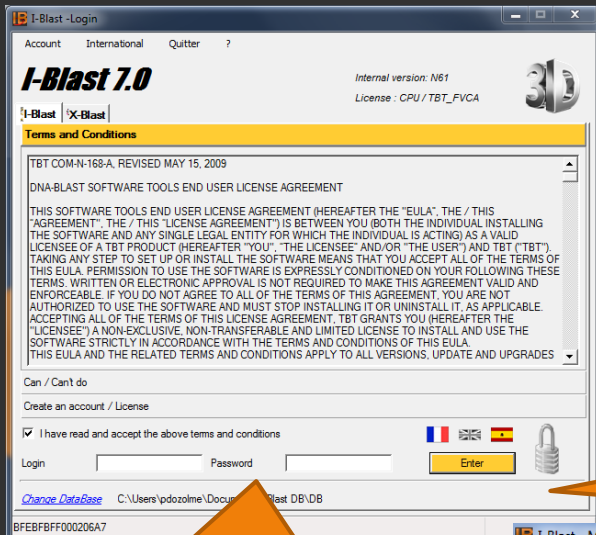
I-BLAST 7.5

PHYSICS-BASED SIMULATOR



I-Blast DE, PRO, ADV

I-Blast Takes Care of Your Data & Preferences

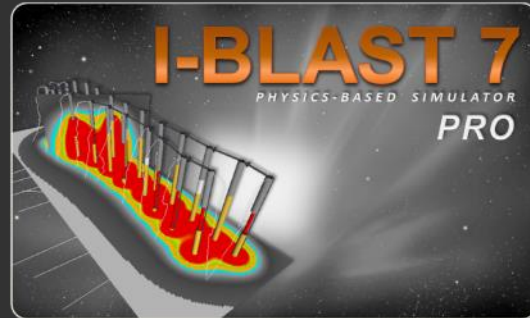


Once you have been identified, all the preferences you set during your last session are automatically initiated:

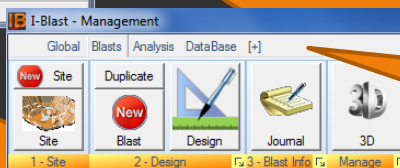
- Language
- Metric or imperial system
- Color codes for reports
- Logos for the sites & reports
- By default working folder

YOUR BENEFITS:

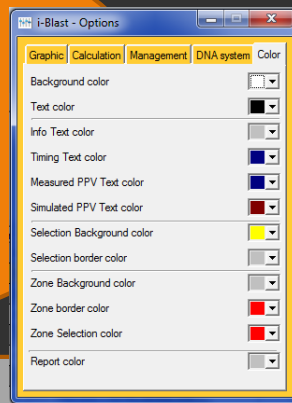
- ✓ Save time at logging time
- ✓ Create your own working environment
- ✓ Comply easily with your corporate marketing policy
- ✓ No risk of losing time and data through automatic real time back-up



Direct login through user automatic recognition = no needs for entering your login & pass at every connection



Simplified menus giving direct access to essential features



**FEEL SAFE AT ANY TIME!
NO RISK OF LOSING TIME
OR DATA FOR ANY
I-BLAST VERSION!**

WHATEVER HAPPEN,
YOU BENEFIT FROM
OUR REAL
TIME
AUTOMATIC
BACK-UP
FUNCTIONALITY



I-Blast DE, PRO, ADV

Improved Preferences Management

The Options window allows selecting your by default working folder

Save time!
Once done, every exported files will be saved in the same place

I-Blast 7.0 ADV Version

Last Name: [text]
First Name: [text]
Last Access: [text]
Licenses: [text]
End of license: [text]
Credits: [text]

Preview Compare Photos Objectives Info

Holes: [text]
Drilling pattern: [text]

Simulation results table:

No	Description	Rank	Status	%
1	Completed		Completed	100.0 %
2	Completed		Completed	100.0 %
3	Completed		Completed	100.0 %
4	Completed		Completed	100.0 %
5	Completed		Completed	100.0 %
6	Completed		Completed	100.0 %

Simulation results table (bottom):

Last change	Time	Blast ID
11/2013 18:51:59	13:34	341
11/2013 20:47:32	15:56	312
03/2013 10:23:53	16:50	173
08/2013 16:51:24	18:35	175
03/2013 10:25:16	18:15	176
02/2013 19:30:34	18:15	174
07/2013 17:13:02	18:37	62
11/2013 13:26:51	11:47	47
05/2013 14:49:04	14:28	45
03/2013 10:26:58	12:07	44
11/2013 14:56:55	09:29	342

YOUR BENEFITS:

- ✓ Save time in everyday operations
- ✓ Create your own working environment
- ✓ Share easily your design and simulation with other I-Blast users

I-Blast DE, PRO, ADV

An Easier and Smoother Access to Your Simulation Results

Browse and attach easily your blast report to the selected blast

Photos can be attached and will be automatically inserted on the Design Report recap page

The rotation features allows displaying the widest possible preview

A rating scale (1 to 5 stars) is available to keep record of the shot result perception and/or of objectives achievements

Fragmentation analysis (1 line per image)

Icons summarize the simulations done for the considered shot

A Blast Design (D), A Simulation Report (S) and a Blast Report (R) has been issued & attached for that blast

3 zones has been defined to simulate vibrations

2 seismic recordings have been attached to that blast

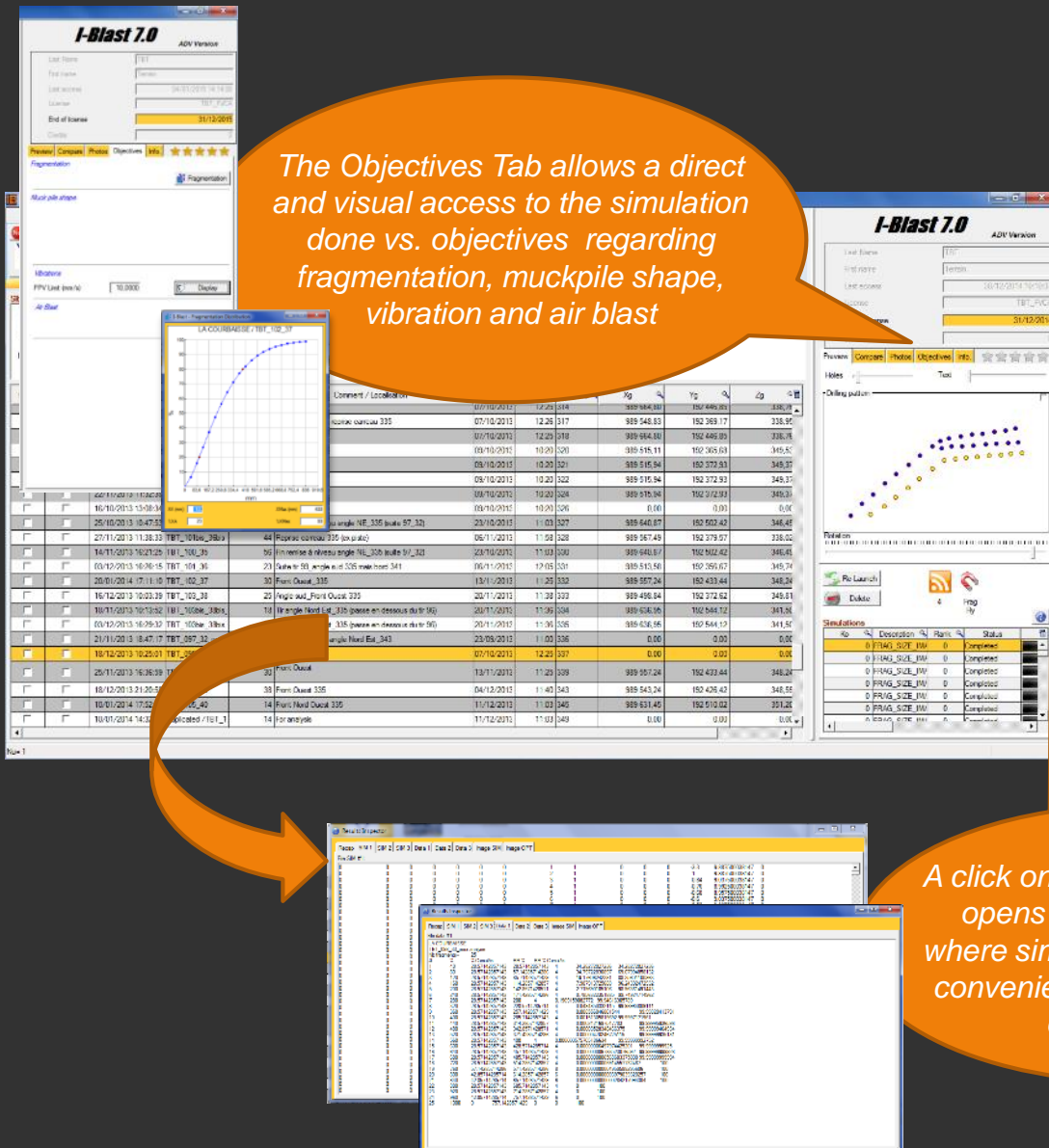
A cast (flyrock) analysis has been performed

YOUR BENEFITS:

- ✓ Every blast related simulation, calculation, measurements, data and documents in one place, conveniently organized
- ✓ Better client or corporate involvement about blasting achievements through blast rating functionality

I-Blast DE, PRO, ADV

An Easier and Smoother Access to Your Simulation Results

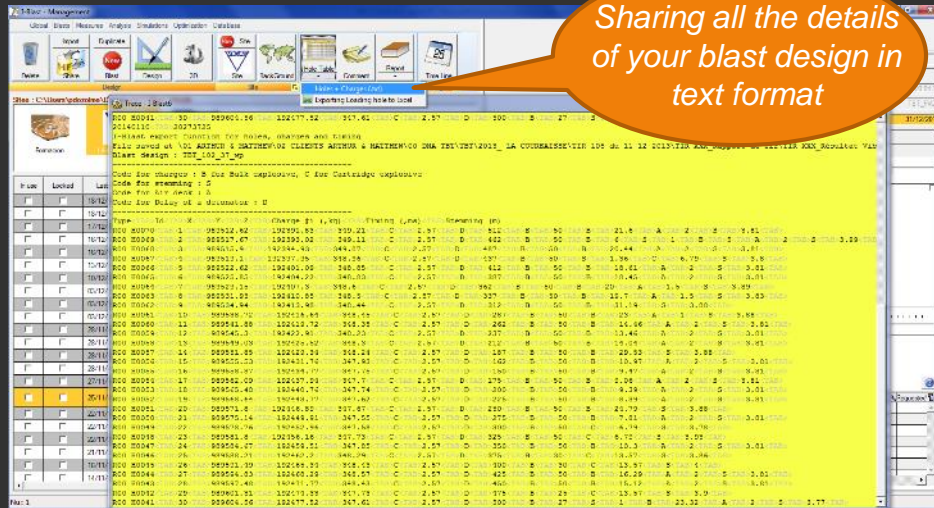


YOUR BENEFITS:

- ✓ Save time by getting a direct and full access to the simulation results of a considered blast directly from the Blast Management windows

I-Blast DE, PRO, ADV

Export Module: More possibility & Increased Flexibility



Open an existing Excel file, create a new Excel file and/or select a sheet

Sharing all the details of your blast design in Excel format



YOUR BENEFITS:

- ✓ Your I-Blast design is interoperable and can be process by any software of the market thanks to the text and Excel format exportation features
- ✓ Time saved! I-Blast keep record of your last column choices to organize your data.

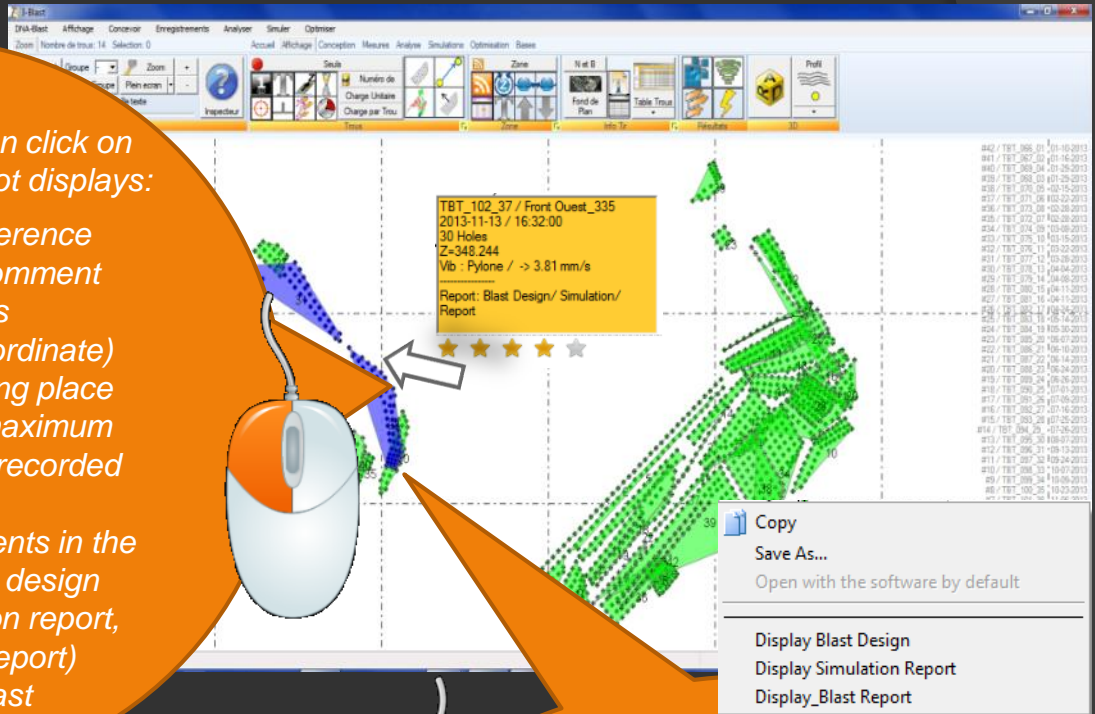
The next exportation will be done along the set preferences

I-Blast DE, PRO, ADV

A New Direct Access to Every Blast Data & Documents

Left mouse button click on any hole of the shot displays:

- Shot name / reference
- Localisation / comment
- Number of holes
- Elevation (Z coordinate)
- Seismic recording place where PPV is maximum
- Maximum PPV recorded for this shot
- Related documents in the database (Blast design report, simulation report, attached blast report)
- Rating of the blast



Right mouse button click on any hole of the shot allows opening a PDF version of:

- The blast design
- The simulation report
- The (attached) blast report

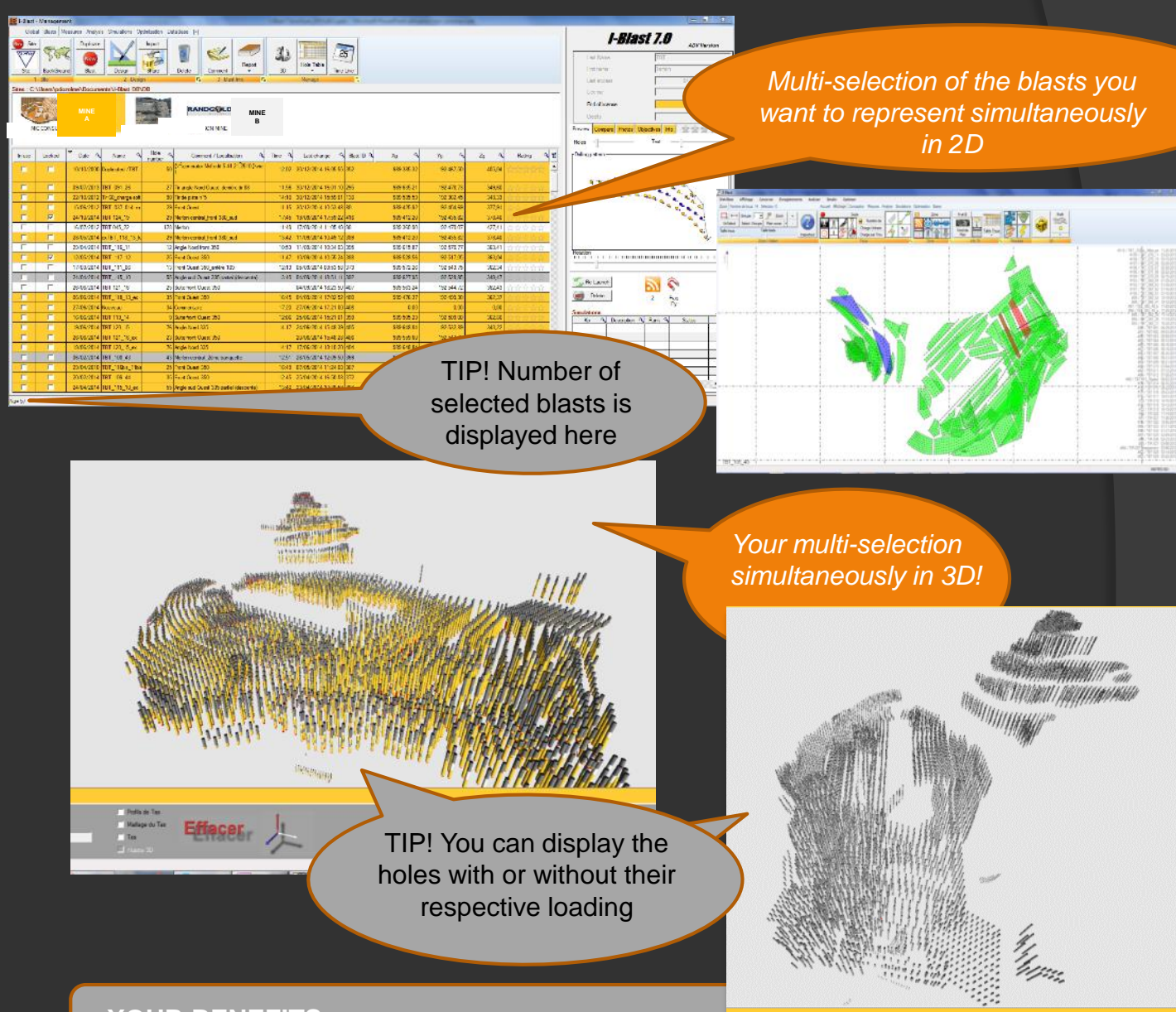


YOUR BENEFITS:

- ✓ Get at hand all the information related to any of your blasts for an easy data mining and management
- ✓ Enjoy or give access to an handy dashboard gathering the job done on a given site

I-Blast PRO, ADV

Enjoy the 3D Displays of Blasts Multiselection!

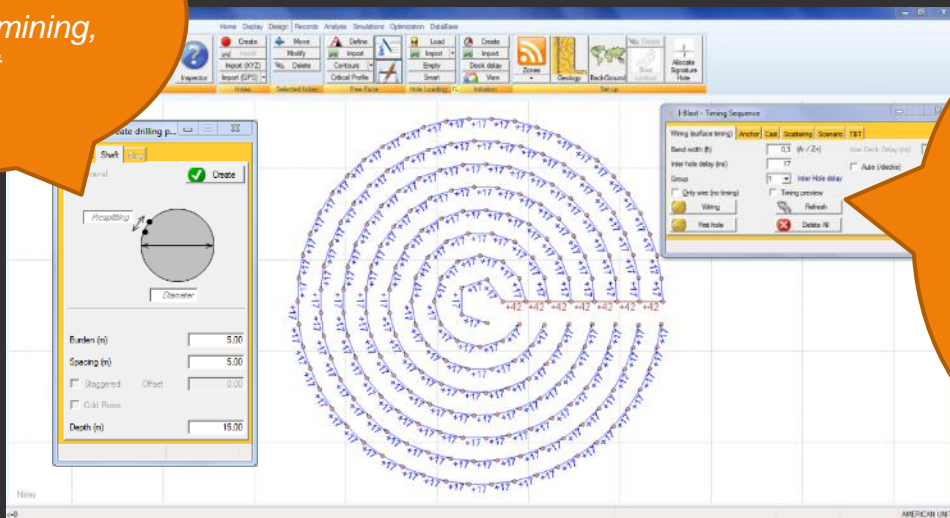
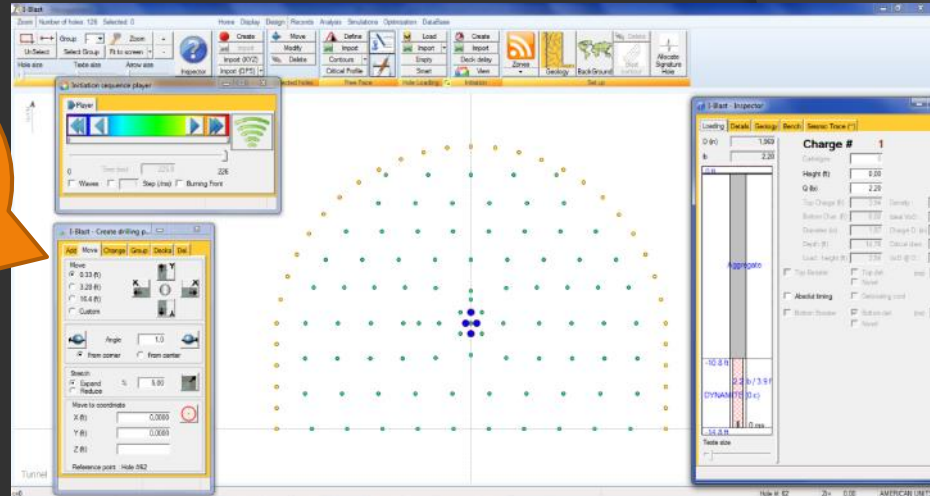


I-Blast DE, PRO, ADV

UG / Tunnel Full Compatibility

CAD functionalities, analysis, simulation and optimization features apply equally to surface (mine / quarry, civil works), underground and tunneling applications

Dedicated menu and functionalities to take into account underground mining, tunnel & shaft specifics



When possible, menus and ergonomics are common to UG and surface design, analysis, simulation and optimization

YOUR BENEFITS:

- ✓ No need for specific module or license: the same software allows addressing indifferently surface and underground cases with dedicated only when necessary
- ✓ Switch smoothly from UG to surface without minimum additional training

The screenshot shows the I-Blas software interface with the 'I-Blas - CSV Import' dialog box open. The dialog is titled 'Select field for each column'. It features a 'Line Pattern Preview' section with radio buttons for 'Primary point' and 'Secondary'. Under 'Primary point', there are options for 'P-Dot', 'P-Rule', 'P-arc column', 'P-column', 'T/B', 'SP/ICE', and 'column'. Under 'Secondary', there are options for 'P-Rule', 'P-arc column', 'P-column', 'T/B', 'SP/ICE', and 'column'. Below this is a text area for 'Select all the body of the file' and a table for mapping columns. The table has columns for 'I-Blas' and 'Import file'. The 'I-Blas' column contains 'A' and the 'Import file' column contains '15.00'. There is a checkbox for 'Add on existing holes' and a 'Finish depth (m)' field.

		CAN YOU IMPORT WITH I-BLAST ?
HOLE COORDINATES YOU GET	Surface + Depth	YES
	Surface + Bottom	YES
	Surface + Azimuth (angle)	YES
	Bottom + Depth	YES

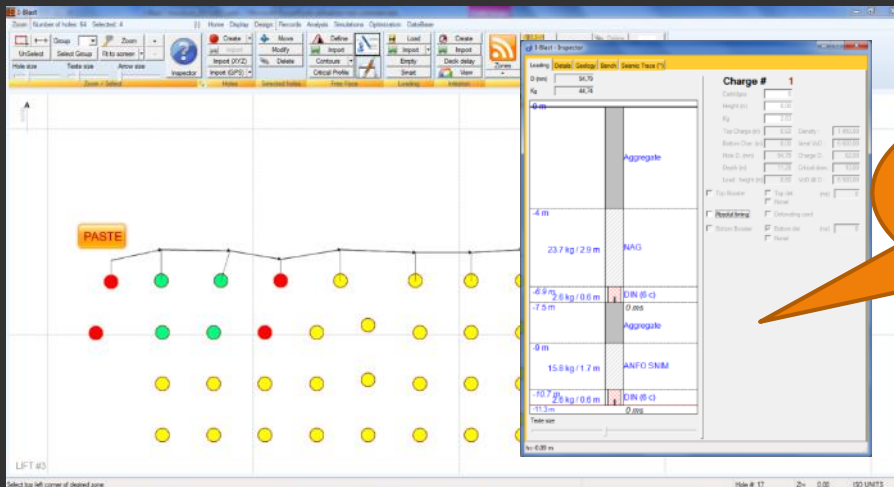
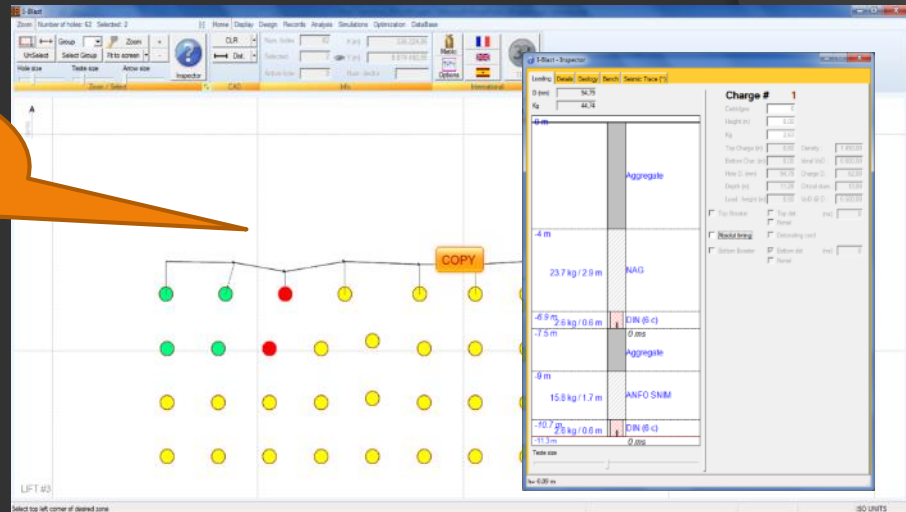
YOUR BENEFITS:

- ✓ No change in your working habits
- ✓ Compatible with industry survey standards and way of thinking (quarry or mine, surface or UG)

I-Blast DE, PRO, ADV

Make I-Blast CAD Functionalities Always More Flexible

Intuitive copy-paste feature



Copy-paste holes keep their characteristics (loading, timing, free face...)

YOUR BENEFITS:

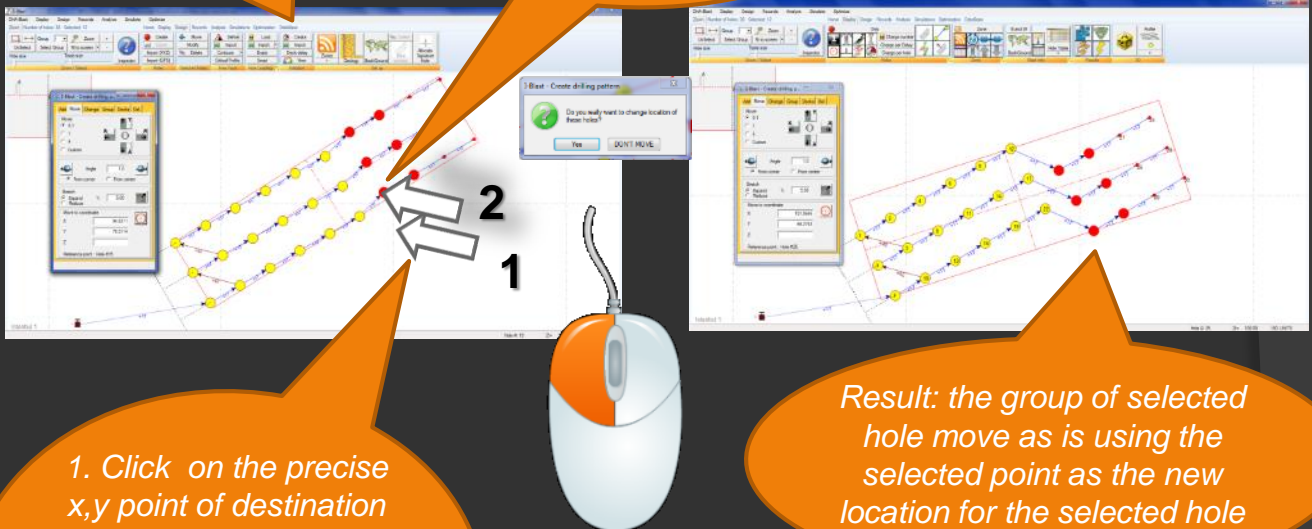
- ✓ Rapid update of design for last minute change and greater productivity
- ✓ Attached hole loading and characteristics save you time and efforts

I-Blast DE, PRO, ADV

Make I-Blast CAD Functionalities Always More Flexible

Move a group of holes at an exact position of a map in 2 clicks

2. Click on the hole you want to locate exactly in the location selected at stage 1.



1. Click on the precise x,y point of destination for the selected group of hole. Precise x, y coordinate of the point you selected are displayed at the bottom of the floating window.

Result: the group of selected hole move as is using the selected point as the new location for the selected hole

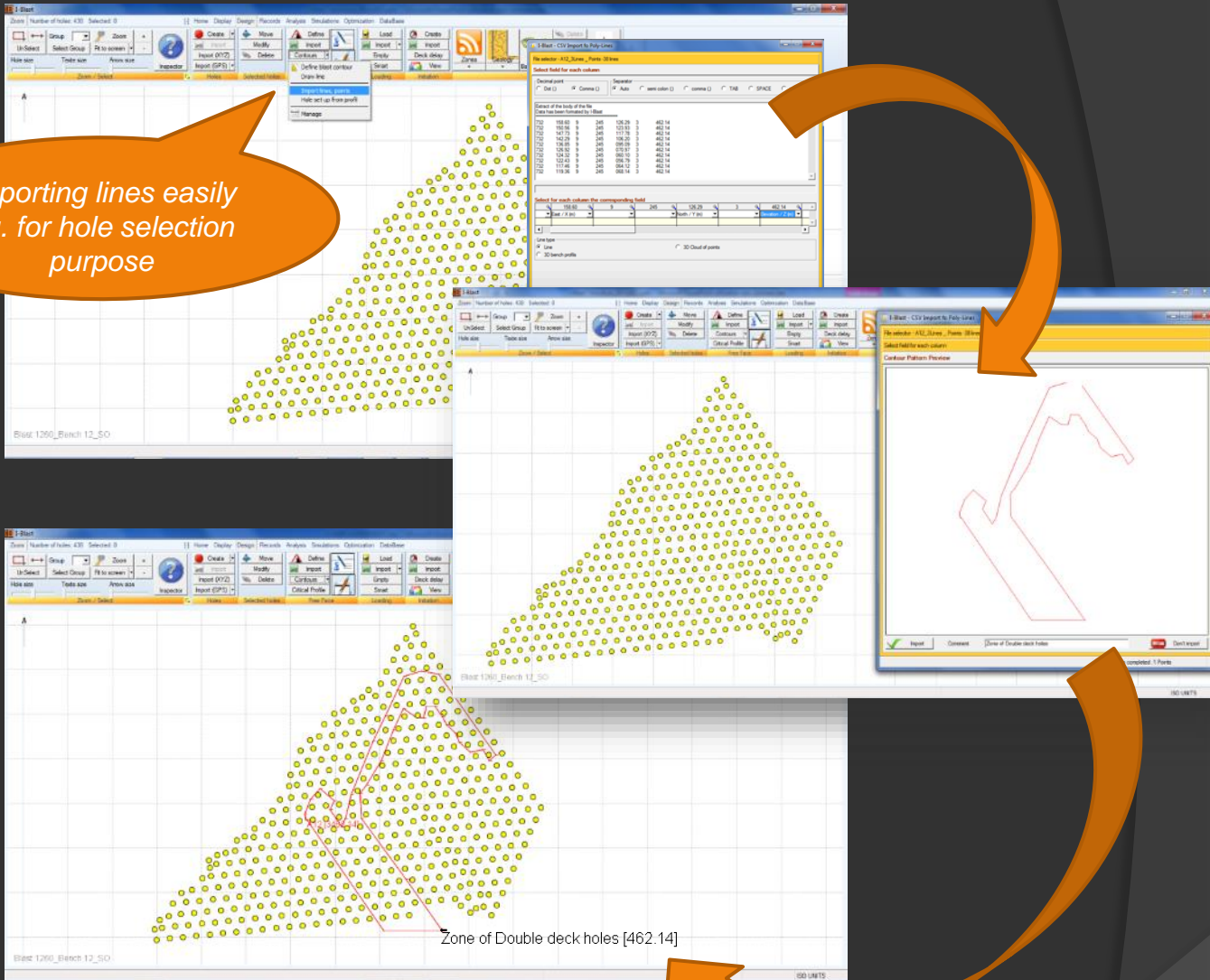
YOUR BENEFITS:

- ✓ Update rapidly and accurately your design to take into account last minute changes in shot configuration
- ✓ Adapt easily theoretical design to reality (drilling issue, survey error, etc.)

I-Blast DE, PRO, ADV

Make I-Blast CAD Functionalities Always More Flexible

Importing lines easily
eg. for hole selection
purpose



YOUR BENEFITS:

- ✓ Perform rapidly complex design by importing already available data about group of holes
- ✓ Mitigate human error in holes selections for better safety

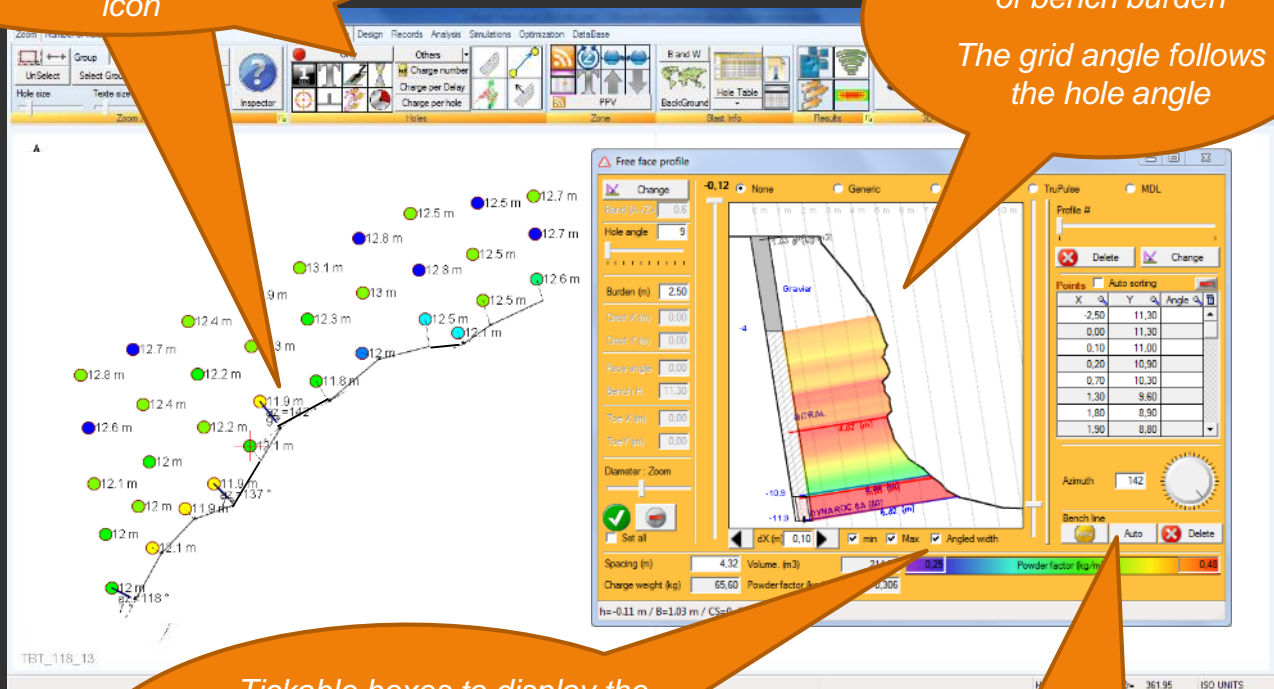
I-Blast DE, PRO, ADV

Make I-Blast CAD Functionalities Always More Flexible

The hole angle is now display together with the depth of the considered hole by pressing the Z icon

DIRECT READABILITY of bench burden

The grid angle follows the hole angle



Tickable boxes to display the minimum and maximum hole-face distance. 'Angle with' box measure this distance taking the hole angle into account

Bench line automatic calculation and drawing

YOUR BENEFITS:

- ✓ Prevent you to forget checking the critical burden, including for angled holes
- ✓ Mitigate the flyrock risk

I-Blast DE, PRO, ADV

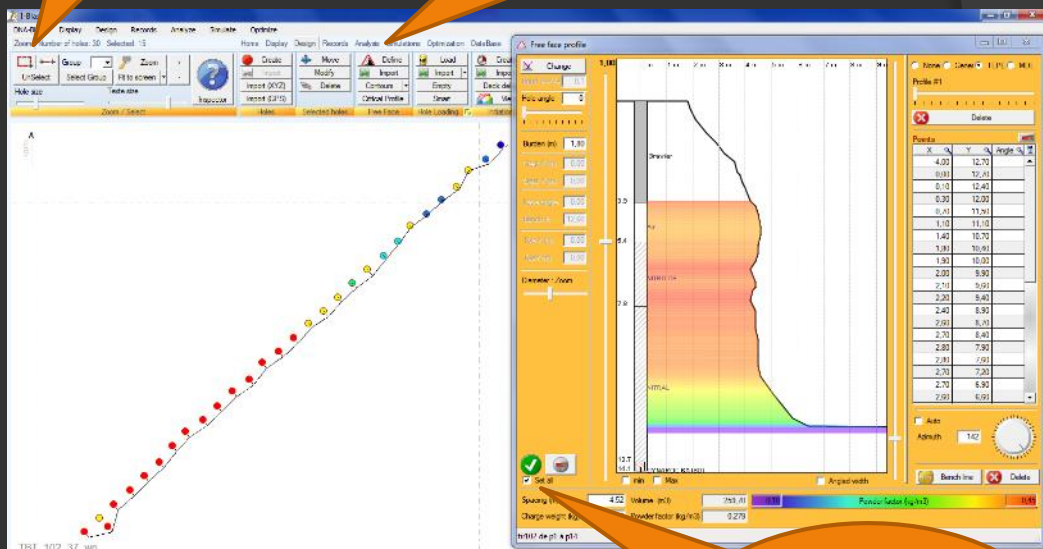
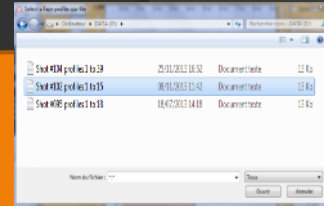
Importing Profiles Automatically
From Your Favorite Measuring Devices



1. Select the considered holes in the same order you scanned their profile

2. Browse the output file of your favorite:

- face profiler and/or
- deviation measurement device eg. Boretrack data



3. Tick the 'set all' box and import: each profile are automatically assigned to their respective hole.

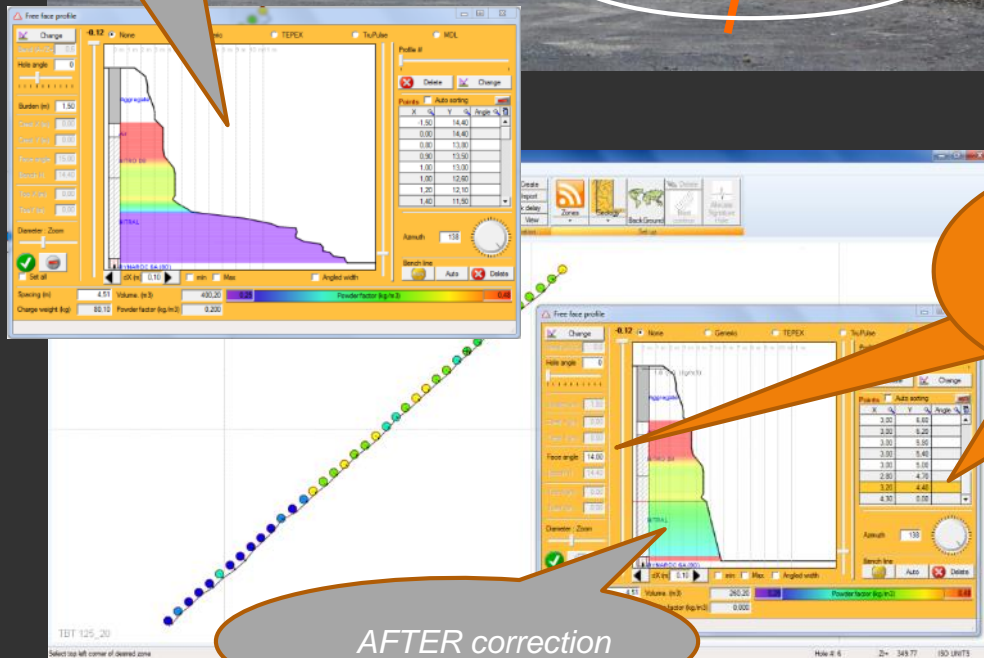
YOUR BENEFITS:

- ✓ Free face profile importation + Hole deviation data = real burden
- ✓ No risk of mismatching profiles and holes
- ✓ Save time when designing your blast
- ✓ Mitigate human error risks during this critical step (flyrock risk)

I-Blast DE, PRO, ADV

Intuitive correction of imported profiles

BEFORE correction



AFTER correction

NEW!

Choose your bending point from where a custom angled line will represent the assumed toe thickness

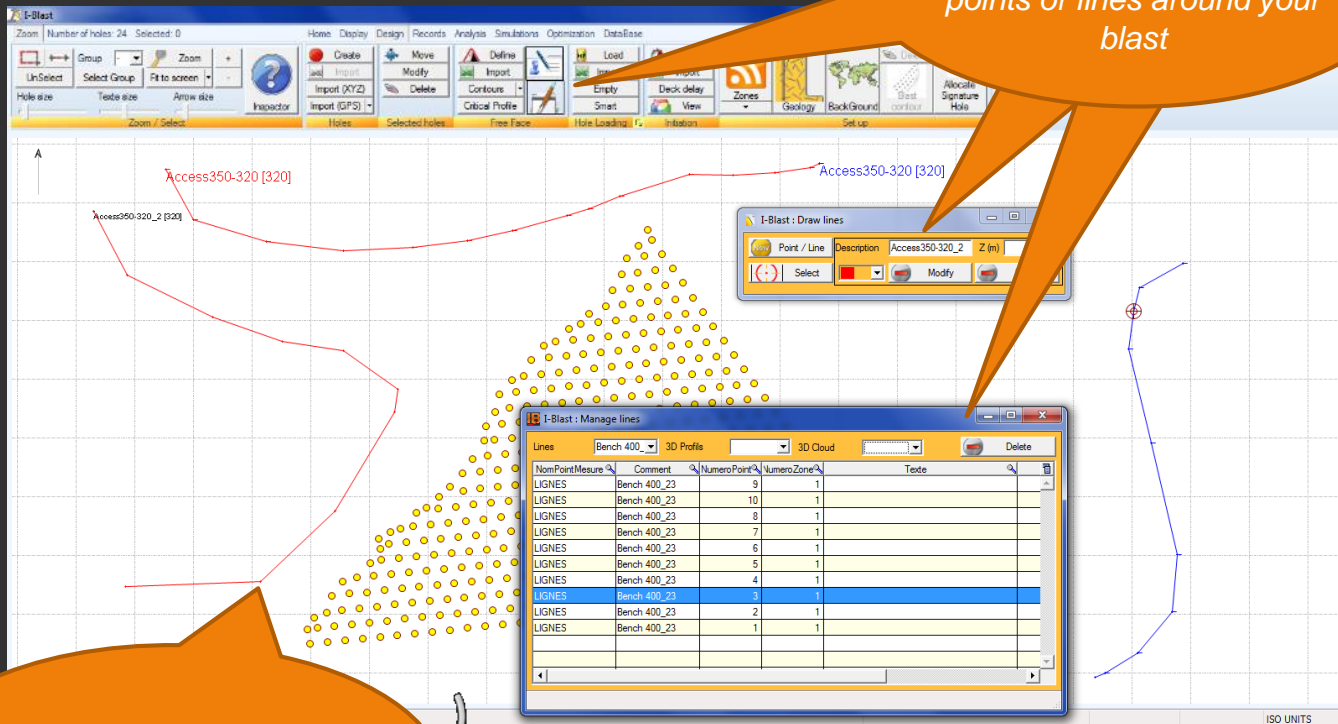
YOUR BENEFITS:

- ✓ Take real life constraints of mines and quarries into consideration (eg. not 100% evacuated toe)
- ✓ Get the most of your field measurements, whatever the actual field conditions

I-Blast DE, PRO, ADV

The Lines Creation Features

A complete set of editing tools allowing to hand draw, name, modify, delete any points or lines around your blast



Double-click to terminate a line, select a point or manage your lines directly from the chart

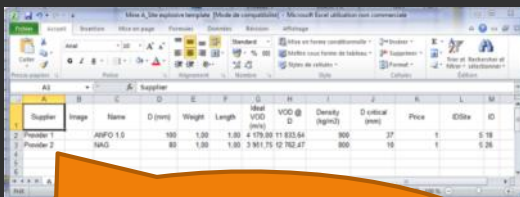
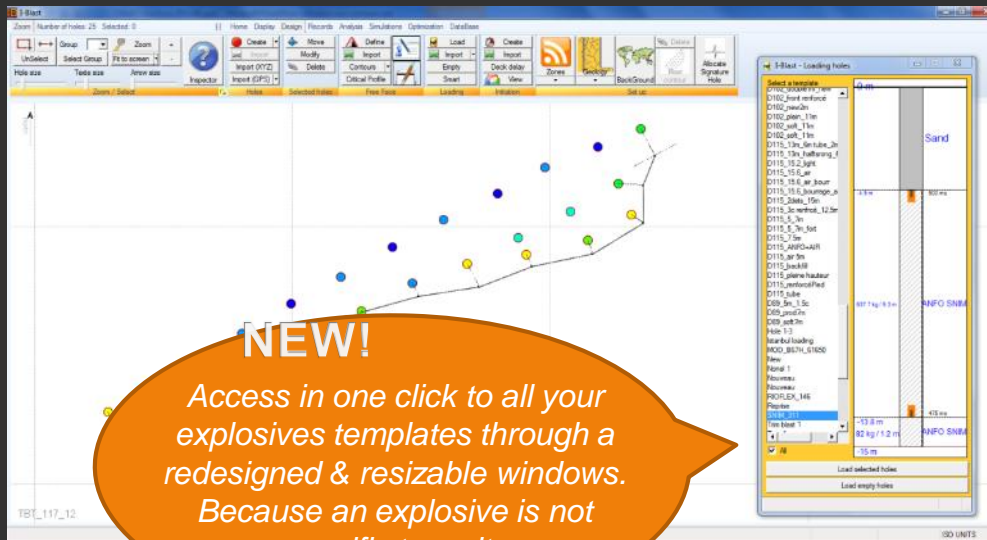


YOUR BENEFITS:

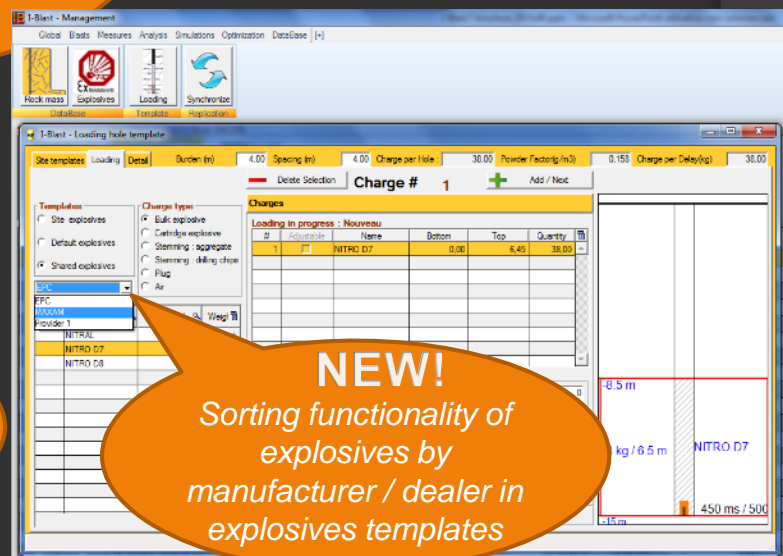
- ✓ More flexibility in representing shots environment
- ✓ Comply to your way of working

I-Blast DE, PRO, ADV

Explosives Templates: More possibility & Increased Flexibility



You can export explosives templates created for a given site under Excel format & More

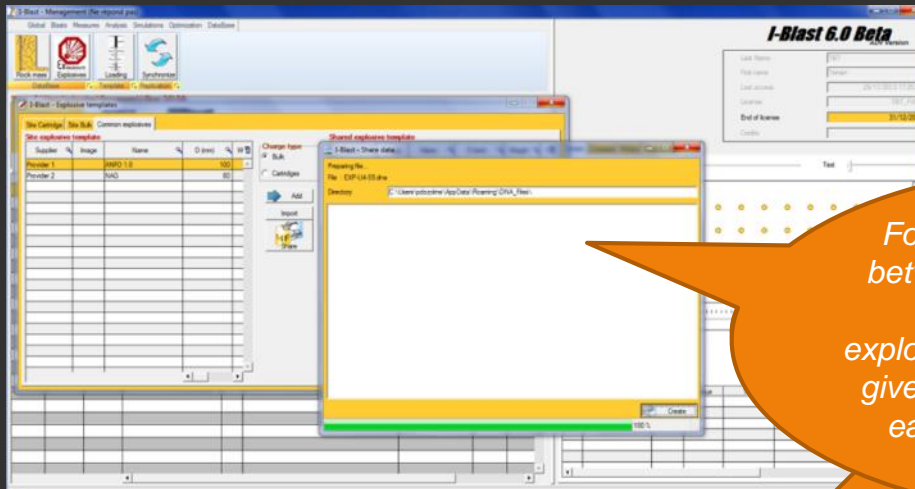


YOUR BENEFITS:

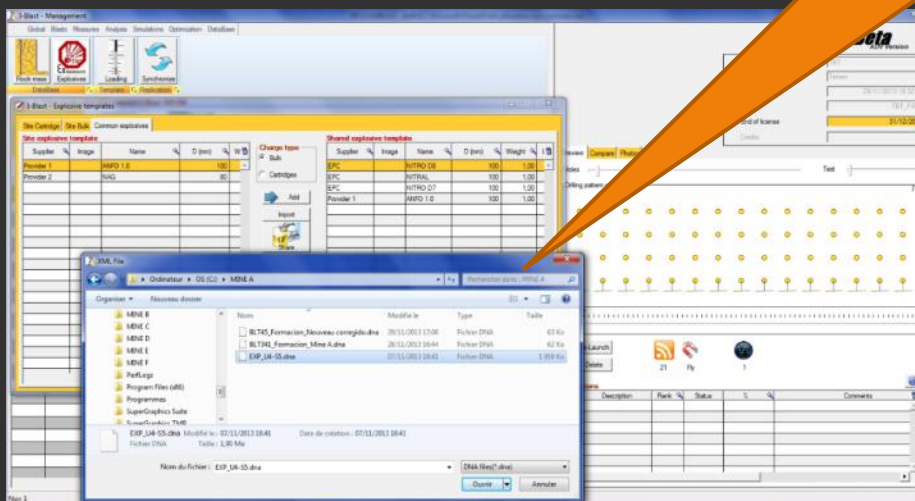
- ✓ Save time by not recreating existing explosives templates
- ✓ Share your templates in a click with other I-Blast users
- ✓ Share your templates with anybody thanks to MS Excel full compatibility

I-Blast DE, PRO, ADV

Explosives Templates: More possibility & Increased Flexibility



For a smoother collaboration between I-Blast users, you can now export and import explosives templates created for a given site under .dna format (as easy as you can share blast design files)



YOUR BENEFITS:

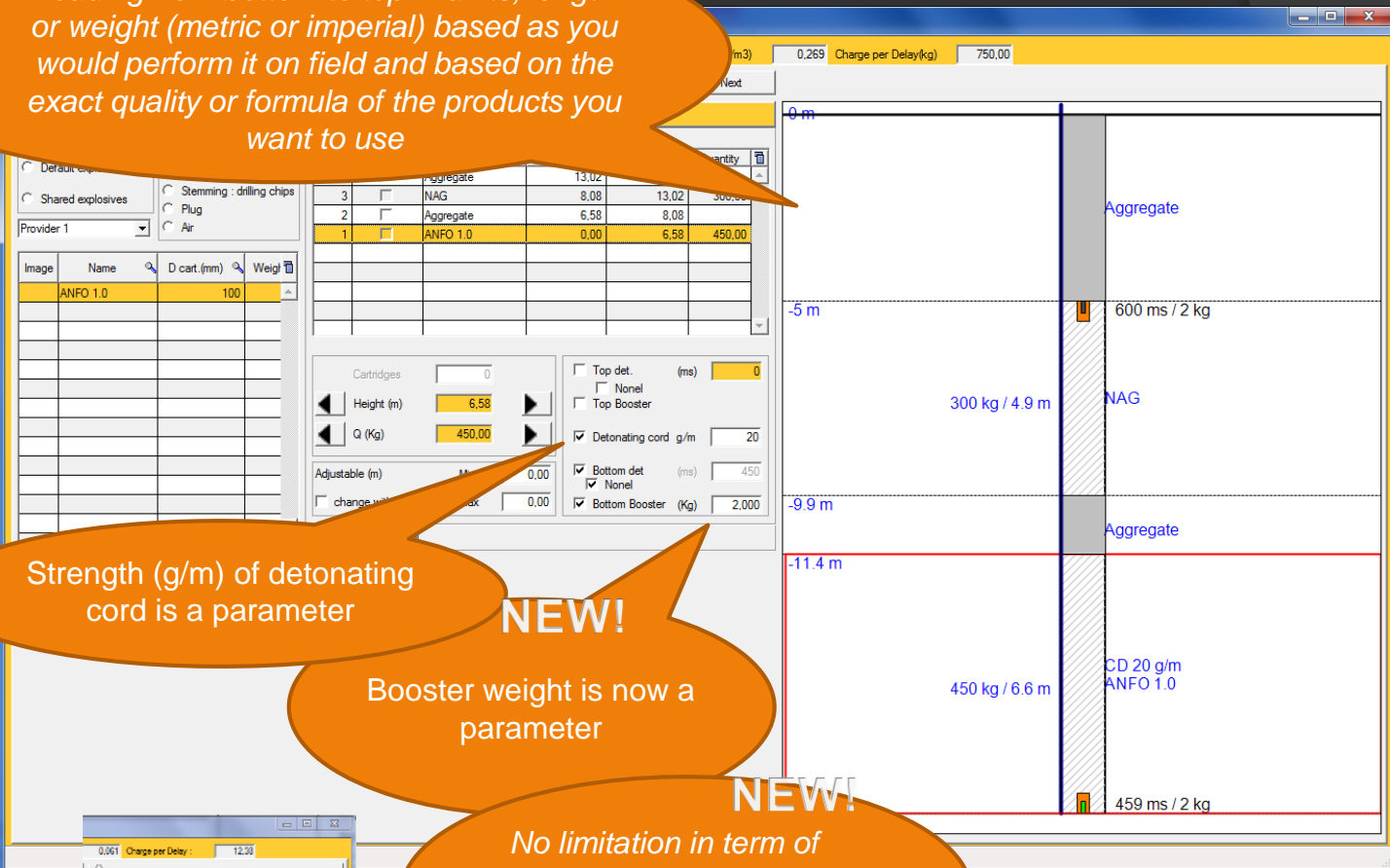
- ✓ Enhanced easier collaborative modes between I-Blast users (e.g. export/import, email)

I-Blast DE, PRO, ADV

Loading Interface: Real Life Loading is at Your Reach

NEW!

Loading from bottom to top in units, length or weight (metric or imperial) based as you would perform it on field and based on the exact quality or formula of the products you want to use



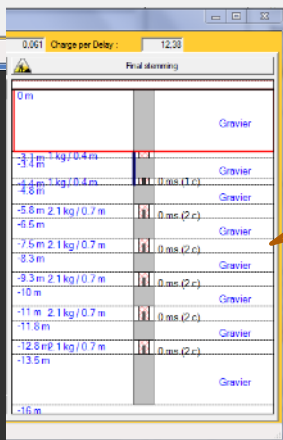
Strength (g/m) of detonating cord is a parameter

NEW!

Booster weight is now a parameter

NEW!

No limitation in term of combination, complexity, number of charge, of decks, etc.



YOUR BENEFITS:

- ✓ Time saved and shorter training following blaster 's way of working
- ✓ Simulation gets even closer to real outputs
- ✓ More accurate total quantity of explosives in the report

I-Blast - Loading hole template

Site templates Loading Detail Burden (m) 4.00 Spacing (m) 4.00 Charge per Hole : 5.14 Powder Factor(g/m3) 0.021 Charge per Delay(kg) 0.00

Templates

- Site explosives
- Default explosives
- Shared explosives

EPC

Charge type

- Bulk explosive
- Cartridge explosive
- Stemming : aggregate
- Stemming : drilling chips
- Plug
- Air

Charges

Loading in progress : Nouveau

#	Adjustable	Name	Bottom	Top	Quantity
2	<input type="checkbox"/>		0.63	0.63	
1	<input checked="" type="checkbox"/>	DYNAROC 6A (80)	0.00	0.63	5.14

Cartridges 2

Height (m) 0.63

Adjustable (kg) Min 0.00

changeable depth Max 0.00

Top det. (ms) 0

Nonel

Top Booster

Detonating cord g/m De à 9...

Bottom det. (ms) 0

Nonel

Bottom Booster

Adjustable emulsion cartridge height to take settling into account

5.14 kg of DYNAROC 6A (80) (2 c) -15m

- ✓ More accurate loading = higher safety (stemming) and productivity
- ✓ Real life case by case tuning of your modeling for more reliable simulation

I-Blast ADV

Smart Automatic Importation of Loading and Timing

No limitation of any kind (type of charge, number of decks, etc.)

You get your loading done on Excel?
No worry, just import your holes
and/or loading and/or timing
directly into I-Blast

Select your loading
parameters if not in the
Excel spreadsheet:

- ✓ Explosives type from the database
- ✓ Deck and final stemming

YOUR BENEFITS:

- ✓ No change in your working habits
- ✓ Full interoperability e.g. with EDD manufacturer software tools

I-Blast ADV

Smart Automatic Importation of Loading and Timing

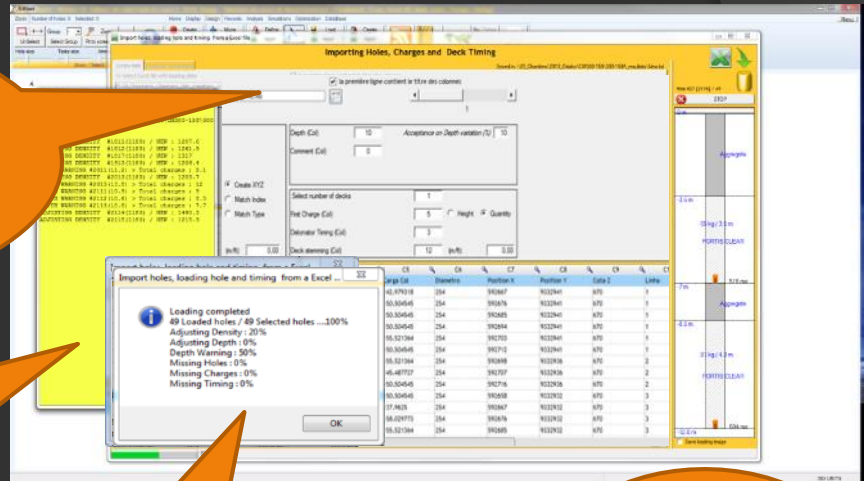
NEW!

More flexible importation of blasting configuration from Excel including holes location only, loading of a portion of holes, etc.

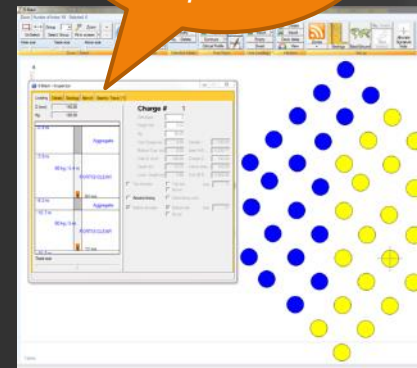
Smart importation with automatic adjustment and explicit warnings about inconsistencies between hole configuration and imported loading

Automatic checking and statistics about:

- ✓ Loading holes vs. selected holes
- ✓ Explosives density adjustment (up to a critical level of 1.4)
- ✓ Depth adjustment
- ✓ Missing holes, charges or timing between Excel chart and I-Blast design, if any



Check your imported loading using the Inspector



YOUR BENEFITS:

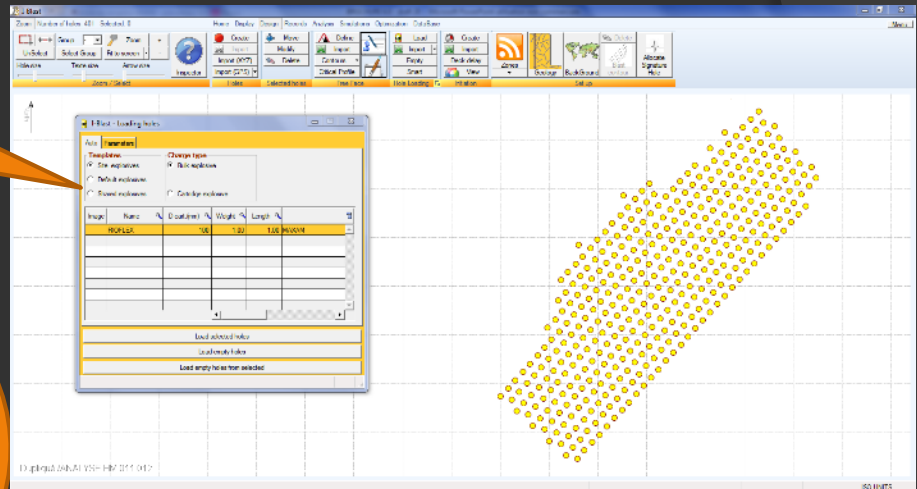
- ✓ Excellent match to large mines way of working
- ✓ Safety rules preventing potential human errors and/or environmental norm violation

I-Blast ADV

Smart Automatic Loading & Timing Function of Objectives

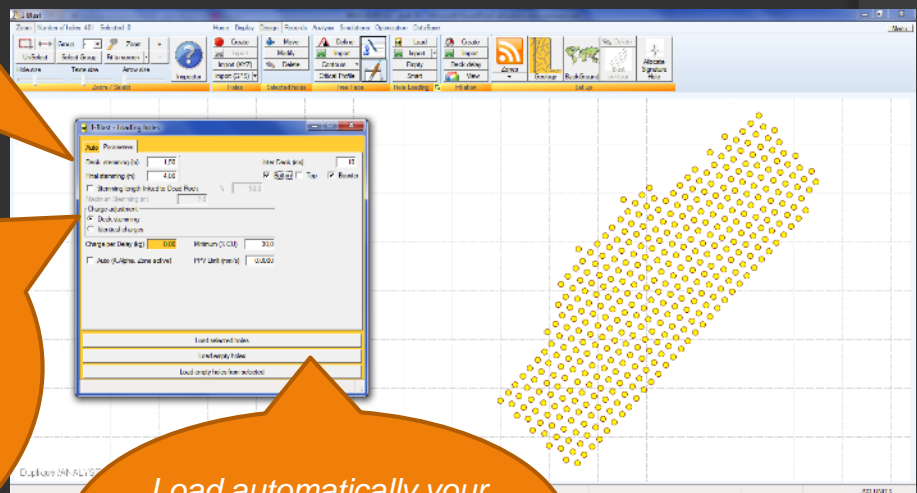
NEW!

1. Selecting explosives



2. Selecting your hole configuration including:

- ✓ Deck stemming length
- ✓ Final stemming length
- ✓ Inter deck timing
- ✓ Bottom/top detonators
- ✓ Booster



3. Selecting your adjustment options vs. hole depth:

- ✓ Deck stemming length adjustment or
- ✓ Identical charges forced parameter

Load automatically your holes function of your selected parameters and objectives

YOUR BENEFITS:

- ✓ Saved time thanks to this 3 seconds process to smartly charge your holes
- ✓ Smart, automatic but highly flexible to match with real life configuration

I-Blast DE, PRO, ADV

Non Electric Detonators Specifics Now Taken Into Account

Entered value for the non electric detonators (here 17ms)

Automatically adjusted timing based on down-the-hole tube VoD (here 23ms)

Non electric detonators VoD is now a parameter to be entered at loading time to take the detonation travel time in the down-the-hole tube. Down-the-hole timing is automatically update based on the VoD value

Non electric detonators specific green color code in loading templates to underline the specifics of nonel consideration

Down hole and surface non electric standard deviation are parameters to be entered in timing sequence windows

Monte Carlo simulations (1 or 50x) can be run to simulate the standard deviation impact on scattering and the out of sequence potential quantity

I-Blast - Loading hole template

Charge # 1

#	Name	Bottom	Top	Quantity
3	EMULSION	0.45	12.00	71.91
1	DYNAMITE	0.00	0.45	2.72

I-Blast - Timing Sequence

Wiring (surface timing) | Anchor | Cast | Scattering | Scenario | TBT

Down Hole Standard Deviation: 0.5 ☒

Surface Standard Deviation: 0.5 ☒

50x

Delay sum=1

Sequence list (partial):

- Hole #30 / 457.5 ms + 1.4
- Hole #29 / 457.5 ms + 0.6
- Hole #28 / 457.5 ms + 0.0
- Hole #27 / 457.5 ms + -0.8
- Hole #26 / 457.5 ms + -0.5
- Hole #25 / 457.5 ms + 1.4
- Hole #24 / 457.5 ms + -0.7
- Hole #23 / 457.5 ms + 1.4
- Hole #22 / 457.5 ms + 1.4
- Hole #21 / 457.5 ms + -0.5
- Hole #20 / 457.5 ms + -0.5
- Hole #19 / 457.5 ms + -0.9
- Hole #18 / 457.5 ms + 1.1
- Hole #17 / 457.5 ms + 0.1
- Hole #16 / 457.5 ms + -1.5
- Hole #15 / 457.5 ms + -0.5
- Hole #14 / 457.5 ms + -0.1
- Hole #13 / 457.5 ms + 0.9
- Hole #12 / 457.5 ms + 1.5
- Hole #11 / 457.5 ms + 0.6
- Hole #10 / 457.5 ms + 0.9
- Hole #9 / 457.5 ms + 1.1
- Hole #8 / 457.5 ms + -0.3
- Hole #7 / 457.5 ms + -0.9
- Hole #6 / 457.5 ms + -1.2
- Hole #5 / 457.5 ms + 0.2
- Hole #4 / 457.5 ms + -1.5
- Hole #3 / 457.5 ms + 1.5
- Hole #2 / 457.5 ms + 0.8
- Hole #1 / 457.5 ms + -0.2

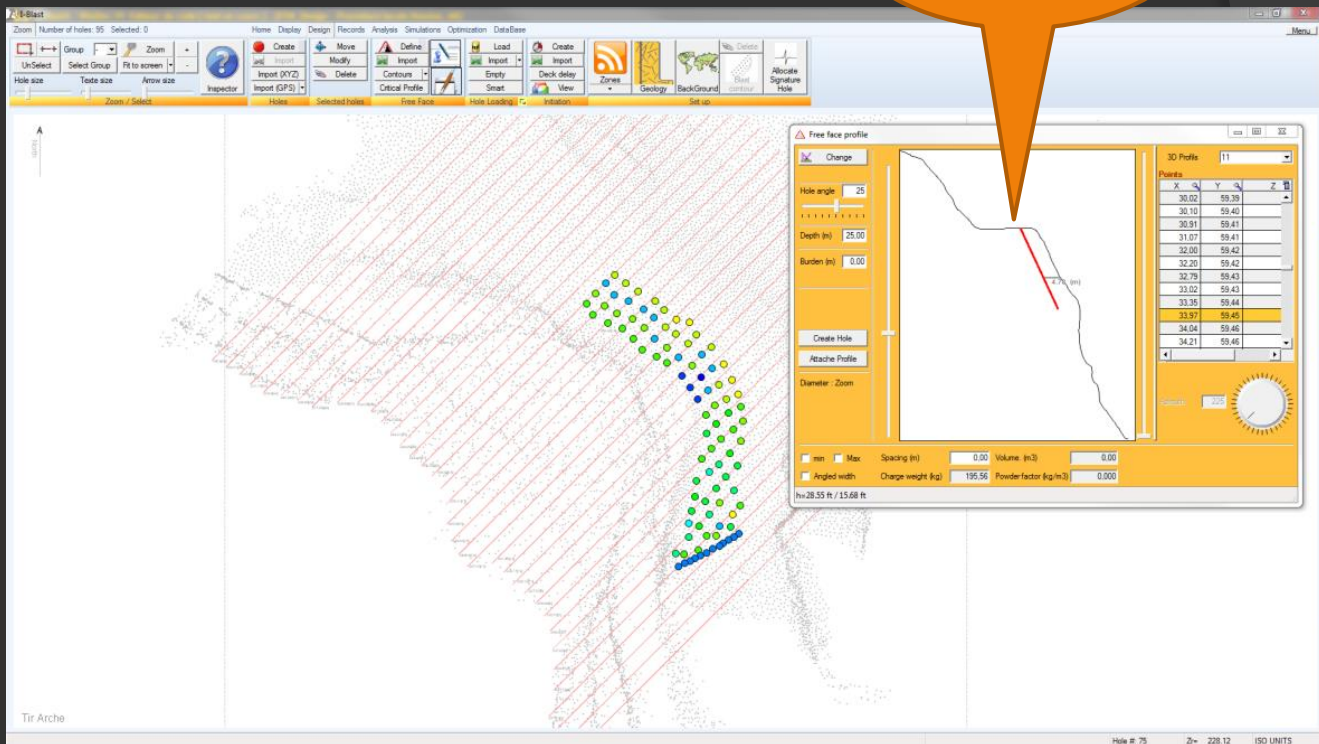
YOUR BENEFITS:

- ✓ Even more trustable simulations for non electric users through real life consideration of non electric detonators specifics
- ✓ Safer design by taking into account e.g. scattering effect, out of sequence

I-Blast DE, PRO, ADV

Hole Positioning vs. 3D Profiles

Locate and angle holes function of the imported 3D profiles

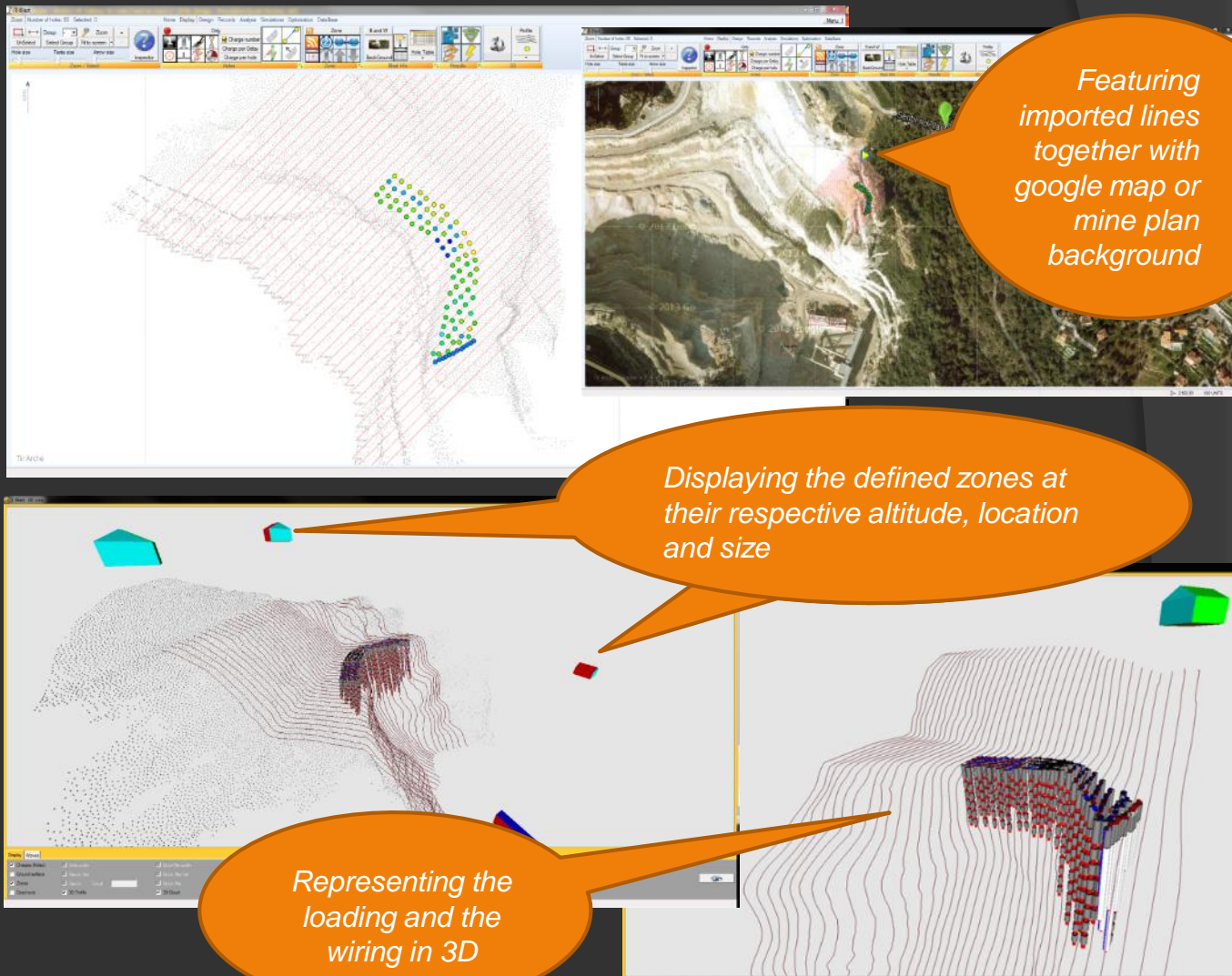


YOUR BENEFITS:

- ✓ Better control on cast and fragmentation through the positioning of holes vs. 3D real face profile
- ✓ Transfer x, y, z resulting coordinates to the driller for an accurate implementation of your prescriptions

I-Blast DE, PRO, ADV

The New Lines Management Features

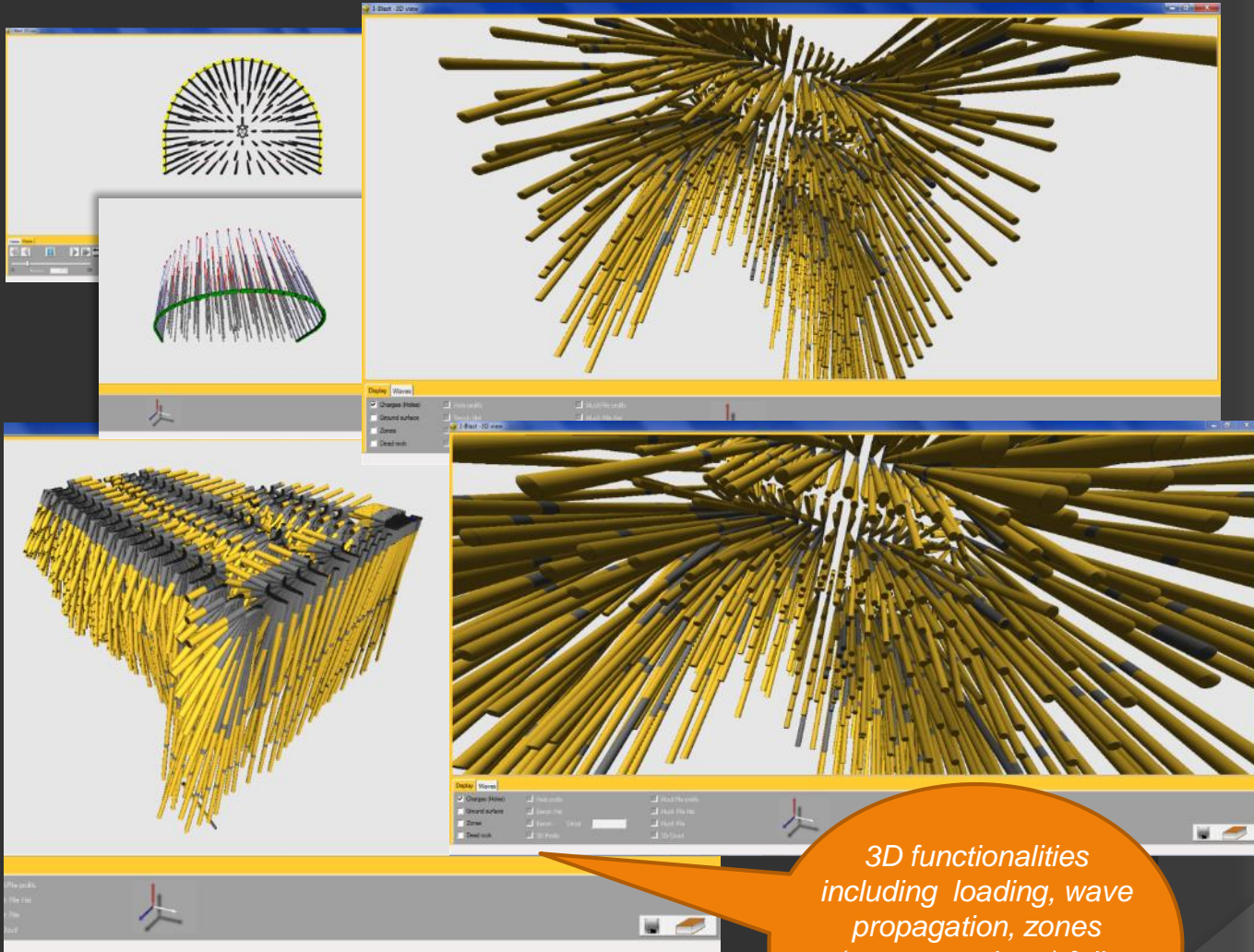


YOUR BENEFITS:

- ✓ Interoperability with your favorite survey device
- ✓ Real life featuring of blast configuration and environment for better and safer decision
- ✓ Report illustration

I-Blast DE, PRO, ADV

UG / Tunnel 3D Compatibility: The More Complex The Better!



3D functionalities including loading, wave propagation, zones (amongst others) fully apply to any surface, UG or tunneling

YOUR BENEFITS:

- ✓ Especially helpful for an easier perception and analysis of complex to very complex surface and/or underground blasting operations
- ✓ Clarifying interactive 3D display for impacting internal/external communication

I-Blast DE, PRO, ADV

Zones: New Features & 3D Displays

Create your zone with the I-Blast definition interface

NEW!
Scalable hole and wiring size in 3D display

NEW!
Custom colors for the created zone and background

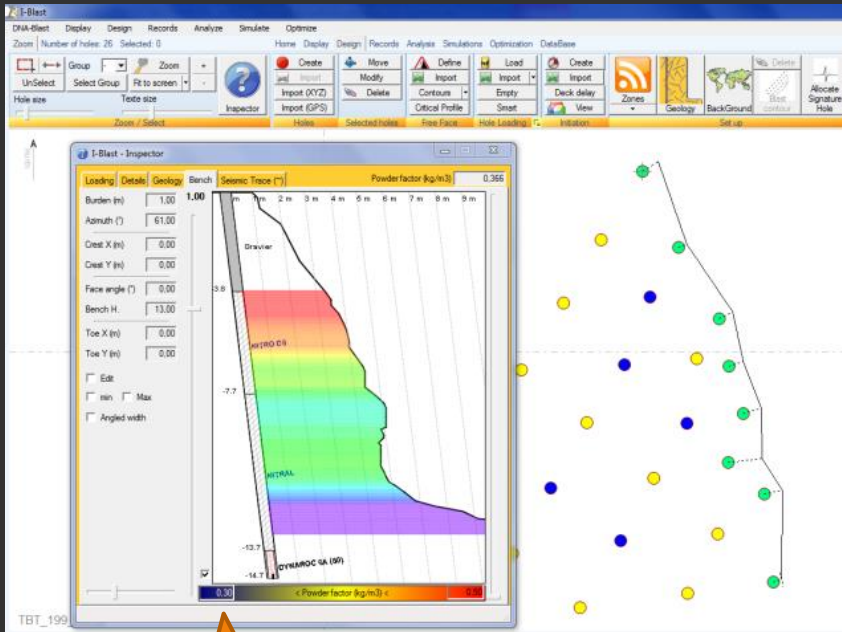
Import your zone location and definition from Excel through a more flexible interface

YOUR BENEFITS:

- ✓ More realistic modeling for trustworthy simulations
- ✓ Get easily clarifying self explicit displays to illustrate your reports
- ✓ Time saved! No need to recreate zones you have already on Excel thanks to I-Blast new MS full compatibility

I-Blast DE, PRO, ADV

Get Direct Operational Information From Your Face Profiles



Get your
POWDER FACTOR vs. Bench
burden in one click!



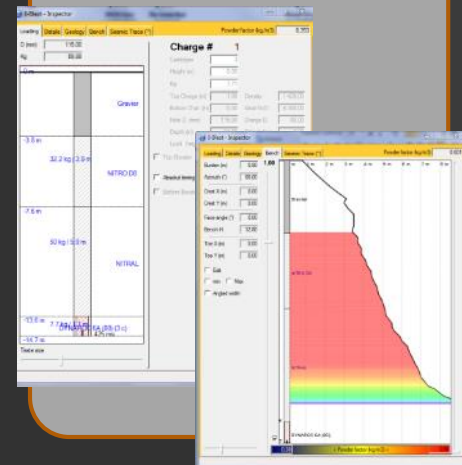
Intuitive self-explicit color code



GLOBAL BENEFITS OF THE INSPECTOR

VISUALIZE HOLE CHARACTERISTICS IN A CLICK

- LOADING full details
- HOLE position and characteristics
- GEOLOGY + K & Alpha around the hole
- BENCH PROFILE if it is a free face hole
- SEISMIC TRACE if it is a signature hole



YOUR BENEFITS:

- ✓ Direct visualization of areas, potential cause of flyrocks
- ✓ Intuitive decision aid tool to reach your fragmentation objectives

I-Blast PRO, ADV

Automatic calculation of rock strength from drilling logs

NEW!

Select the considered holes in the same they were drilled and assign to each hole in one click its respective drilling log

NEW!

A choice of 2 Compound Parameters and 4 drilling parameters

NEW!

Tick the box to display the resulting rock strength index besides the holes for a tailored loading

NEW!

Add the drilling log compound parameter to your report for a documented loading

YOUR BENEFITS:

- ✓ Get a qualitative rock strength index around each and every hole, from your drill logs
- ✓ Reach the optimum loading that balance productivity and cost

I-Blast DE, PRO, ADV

2D Explosives Energy Distribution

2D Explosives Energy Distribution available in a choice of 5 scalable resolutions

NEW!

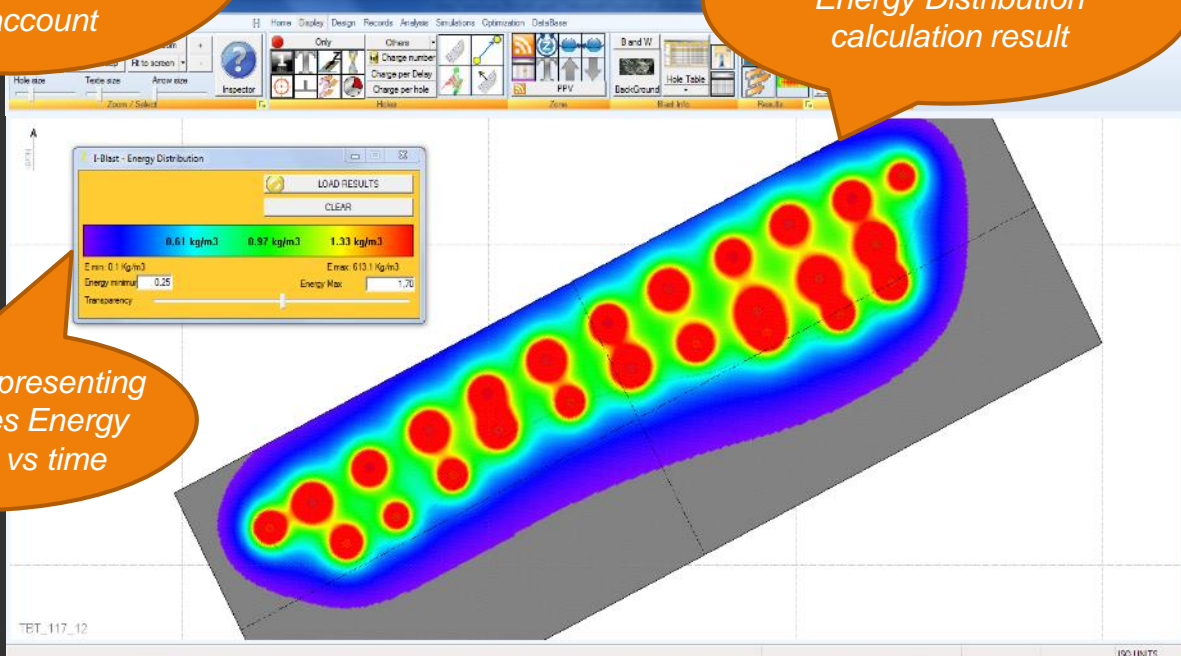


YOUR BENEFITS:

- ✓ Your fastest way to get an overview of the impact of your loading (and sequence, if « Timing option » is selected) inside & around the blast
- ✓ Simple analysis tool delivering immediately readable outputs
- ✓ Self-explicit images for efficient reporting

Option for the 2D Explosives Energy Distribution to take the timing sequence into account

NEW!



NEW!

Displaying 2D Explosives Energy Distribution calculation result

NEW!

Color scale representing 2D Explosives Energy Distribution vs time

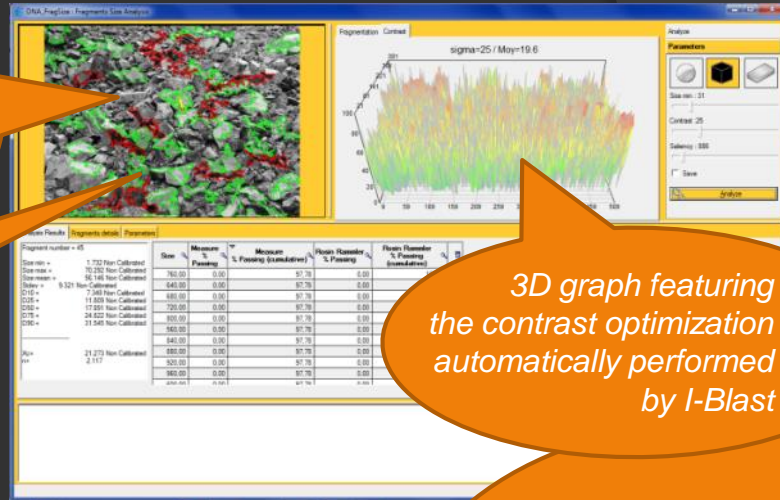
I-Blast PRO, ADV

A More Performing Photogrammetric Analysis System

For a finer contouring of fragments I-Blast **automatically**:

- Converts in grey scale to achieve a maximum contrast
- Adjusts the resulting contrast from the standard deviation of lightness

For a faster analysis I-Blast **automatically**:
Resize the uploaded photo



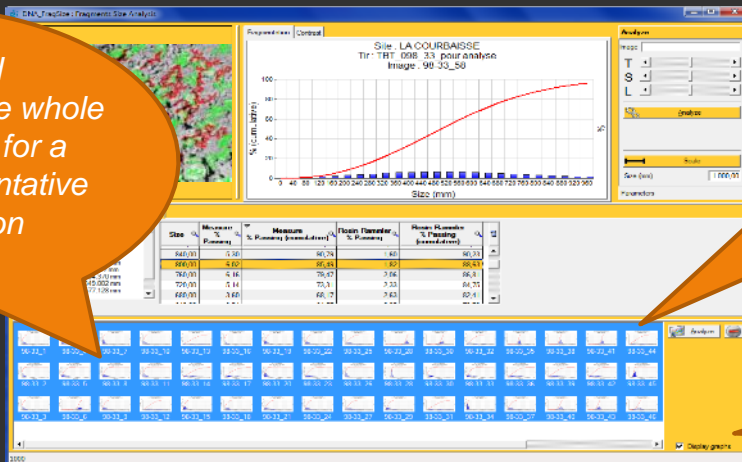
3D graph featuring the contrast optimization automatically performed by I-Blast

	BEFORE	I-BLAST 6.0
Average analysis duration for a 500ko photo	160 seconds	20 seconds

For each image are saved :

- The analyzed size distribution
- The selected and automatically set parameters
- Display of image name

Concatenated Analysis of the whole set of images for a more representative size distribution estimation



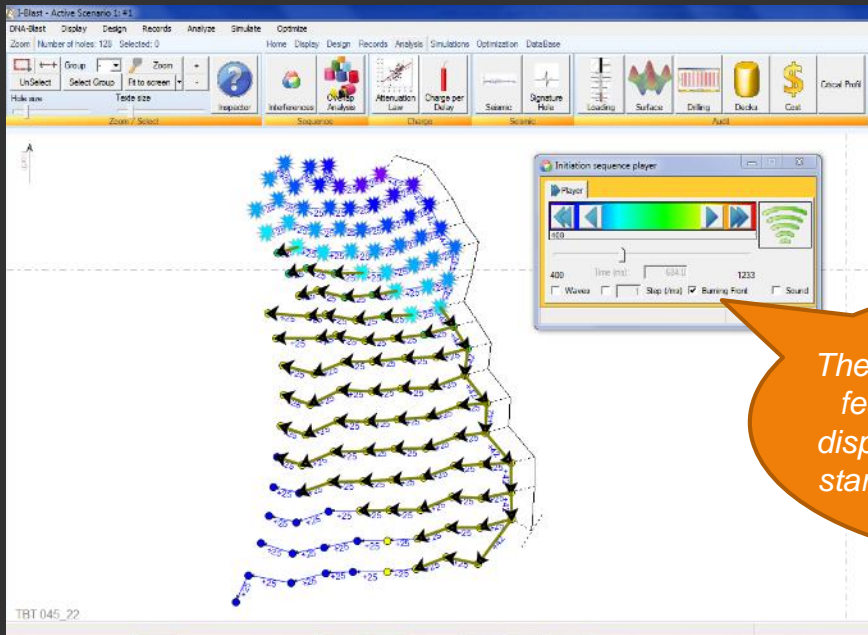
Saved by a simple drag and drop, you can feature the image preview or the size distribution curve

YOUR BENEFITS:

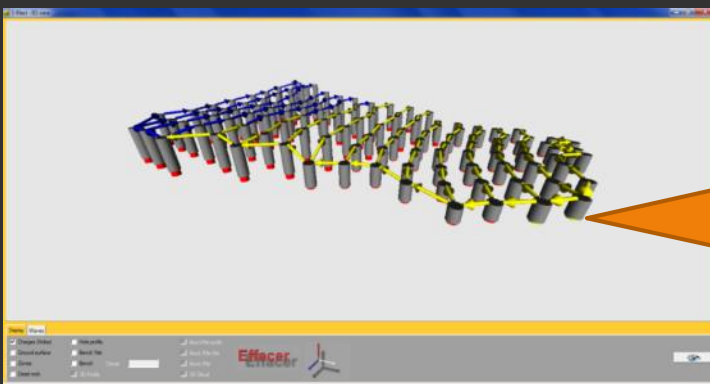
- ✓ Check even more rapidly your fragmentation outputs thanks to this included module
- ✓ Ground your reports comparing field results and simulations

I-Blast DE, PRO, ADV

Non Electric Detonators Specifics Now Taken Into Account



The burning front phenomenon is featured (green arrows) when displaying the sequence (colored stars being the detonating holes)



3D viewer offers another way to perceive the burning front:

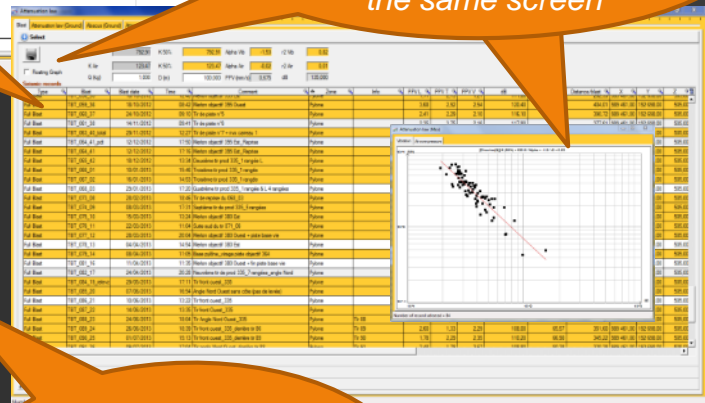
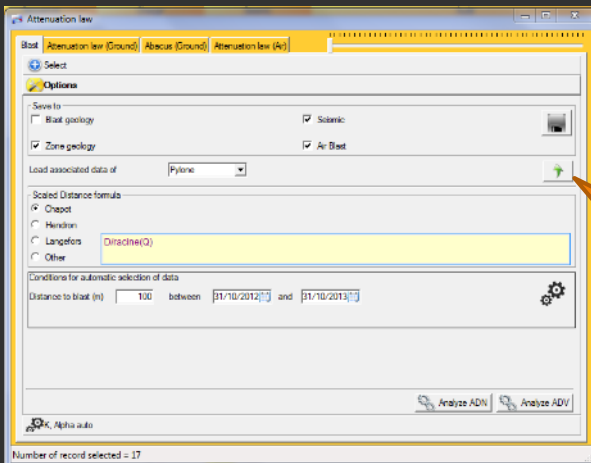
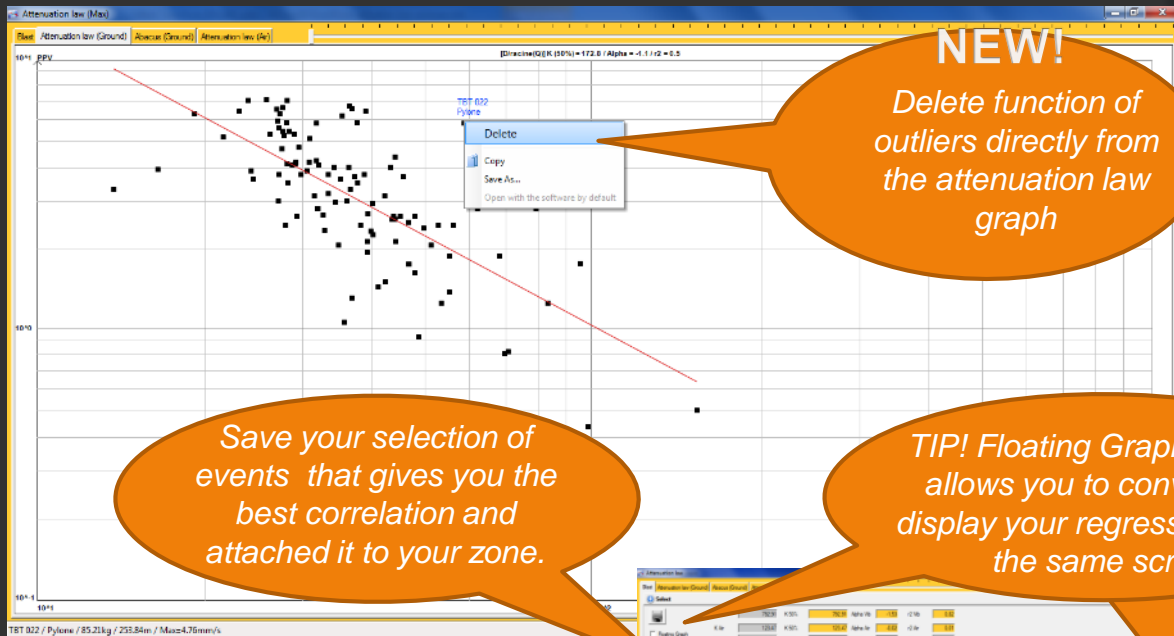
- Surface tube switch from blue to yellow after the wave propagated
- Down-the-hole detonators switch from red to yellow when detonating

YOUR BENEFITS:

- ✓ Mitigate surface or tube cut-offs risks that lead to safety issues
- ✓ More informed decision based on non electric detonators inherent inaccuracy and specifics

I-Blast PRO, ADV

Charge per delay Module Smarter Ergonomics



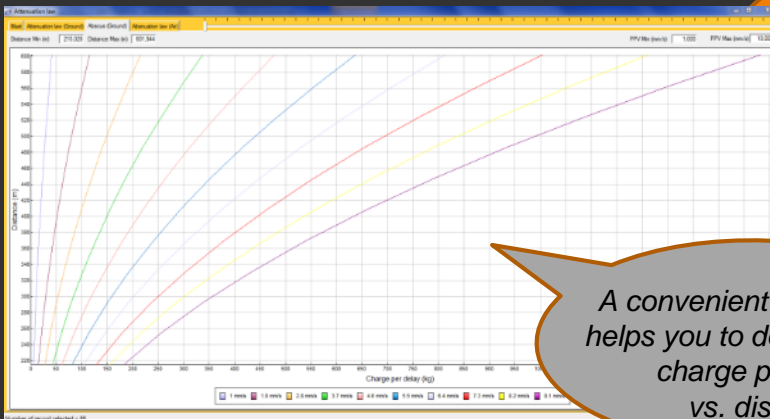
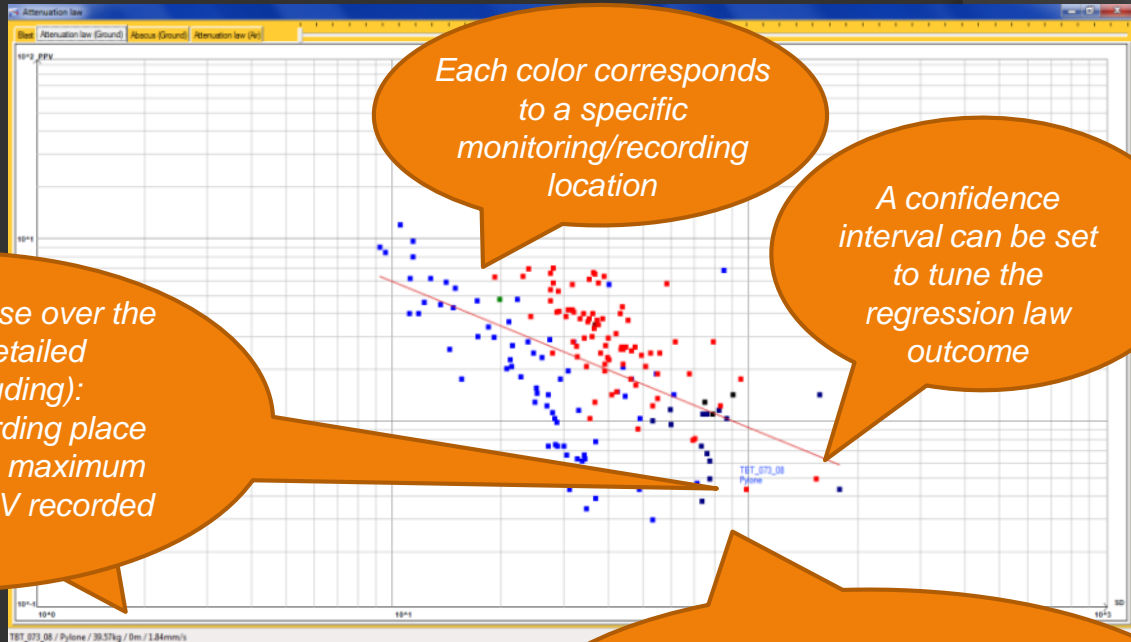
No need to make your selection again :
Just load it and add new recordings, if any.

YOUR BENEFITS:

- ✓ Save time especially for site where a lot of blasts have been entered in your database
- ✓ Prevent human error when selecting useful recordings. For meaningful regression law.

I-Blast PRO, ADV

Charge per delay Module Smarter Ergonomics

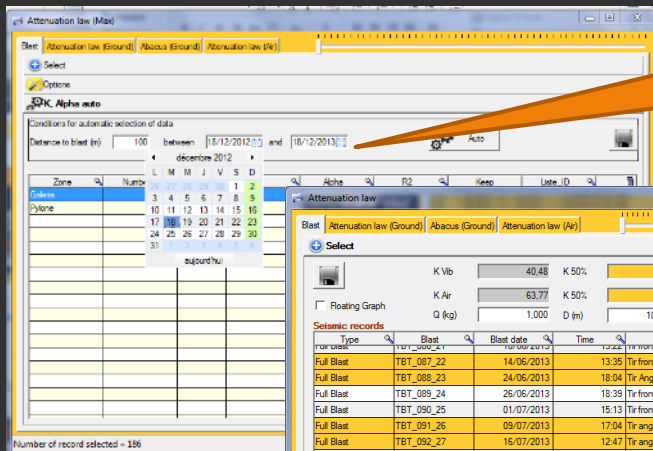


YOUR BENEFITS:

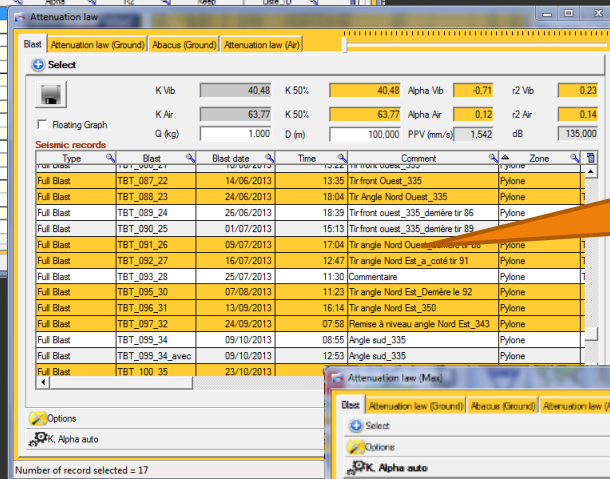
- ✓ Easier and Faster analysis and keep up with the production process
- ✓ Deliver intuitive and accurate decision tools to field operators

I-Blast ADV

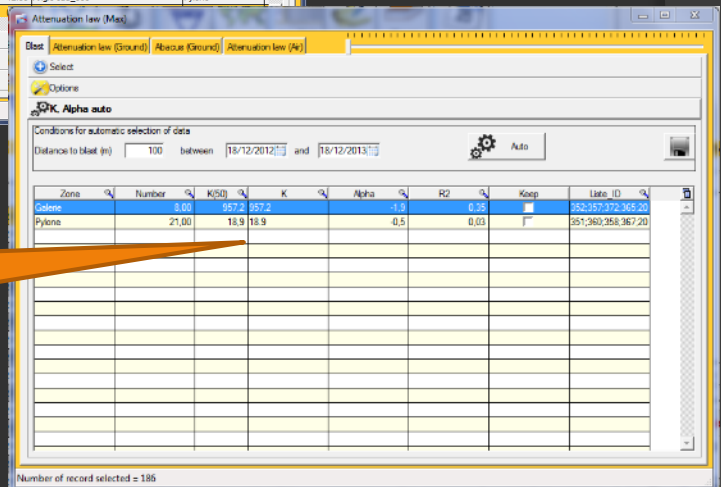
Charge per delay Module Smarter Ergonomics



Sort your recordings by distance to the blast and/or dates



Automatic selection of the seismic events from your criteria (date &/or distance)



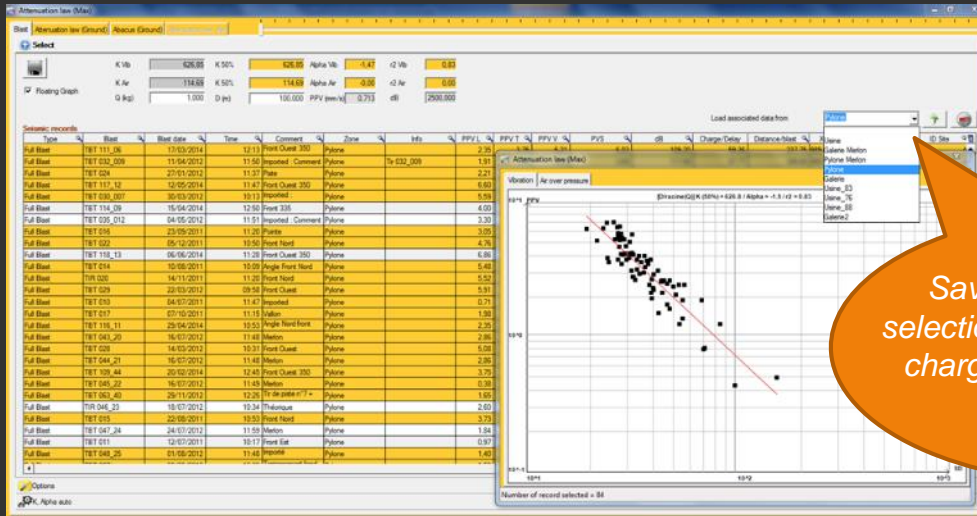
Automatic calculation your K & alpha for the considered zone

YOUR BENEFITS:

- ✓ Get automatically K & alpha for a zone at a given distance &/or period of time
- ✓ Design more rapidly a compliant sequence according to your vibration constraints

I-Blast PRO, ADV

Charge per delay Module Smarter Ergonomics

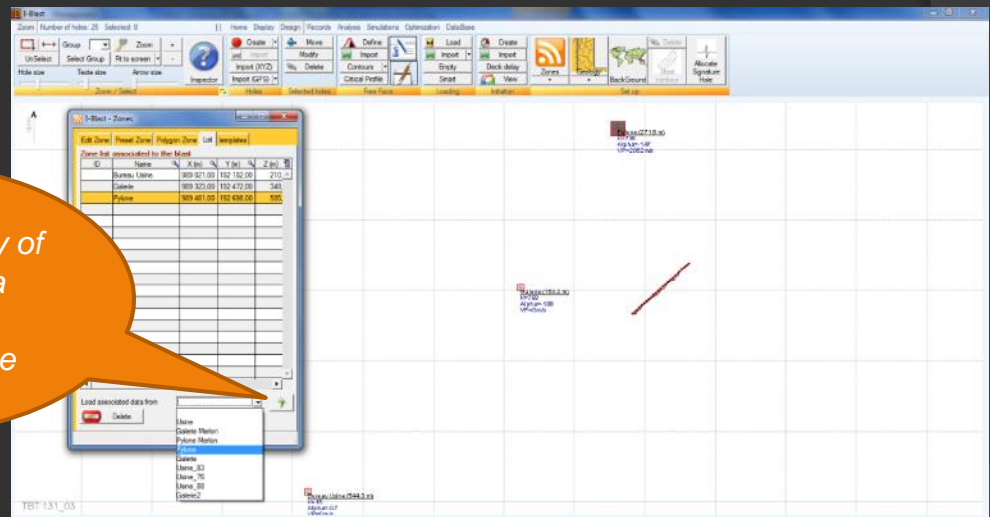


NEW!

Saved as scenarios your selections of seismic events for charge per delay calculation (k & alpha)

NEW!

Affect directly any of your k & alpha scenarios to a considered zone



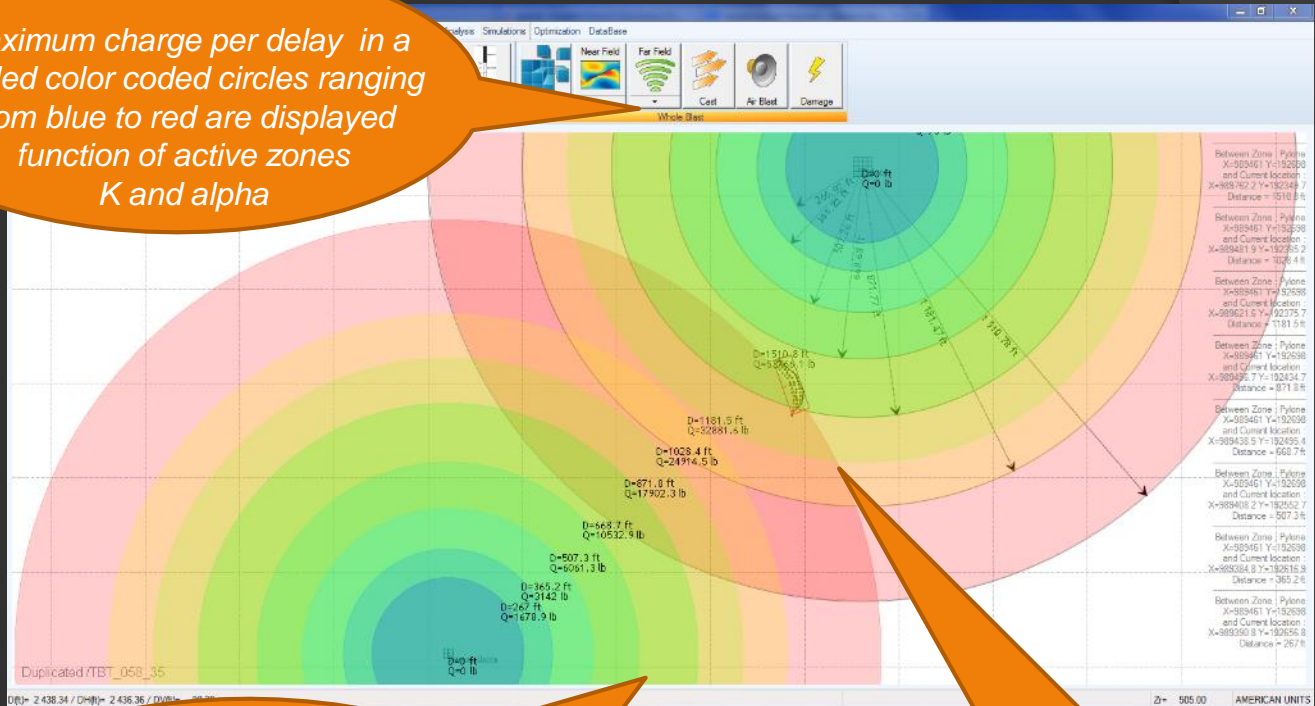
YOUR BENEFITS:

- ✓ Save time by getting a serie of k & alpha scenarios already selected and ready to apply
- ✓ Go deeper in the analysis by affecting easily different K& alpha to different zones of your site

I-Blast PRO, ADV

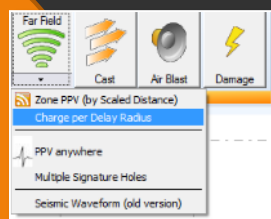
Charge per Delay Module: Far Field Radius

Maximum charge per delay in a scaled color coded circles ranging from blue to red are displayed function of active zones K and alpha



How to?

1. Select a zone and activate it
2. Use the Distance tool to draw concentric circles around one zone covering the desired areas where charge per delay matters
3. Press « Charge Per Delay Radius » in Far Field Simulation Menu



If 2 or more zone have been activated, I-Blast will automatically draw the same concentric circles around each zones for you to analyze the intersection at blast level

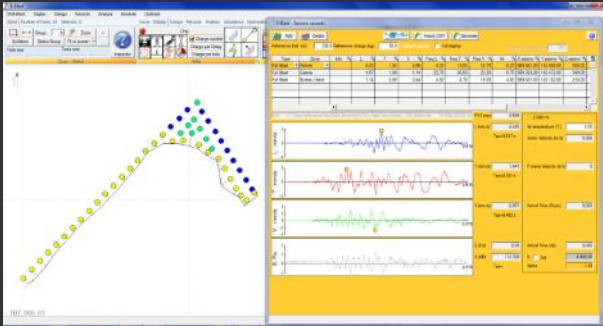
YOUR BENEFITS:

- ✓ Forecast automatically your charge per delay around selected zones
- ✓ Design successful blast faster and achieve vibration constraints

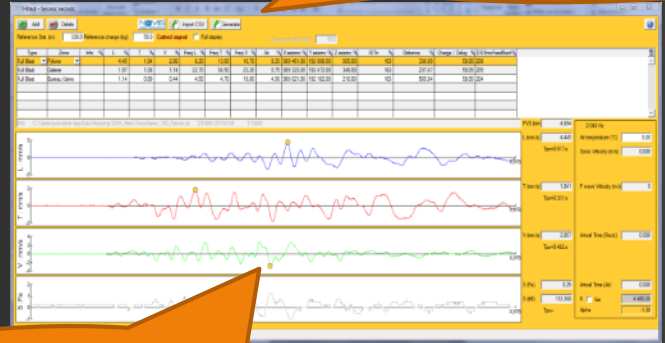
I-Blast PRO, ADV

Seismic Module Smarter Ergonomics & Accessibility

BEFORE



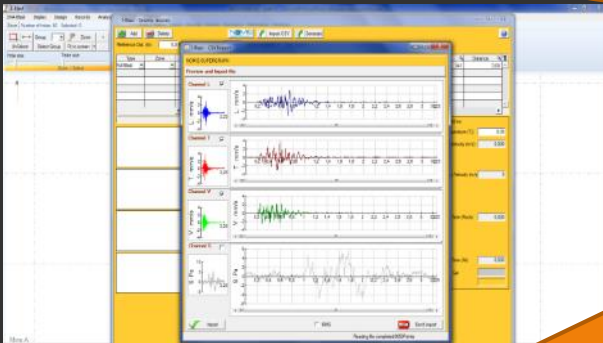
AFTER



Resizable windows for a better signal reading & analysis

Faster and more accurate analysis thanks to this red circle around the maximum amplitude of each channel

BEFORE



AFTER



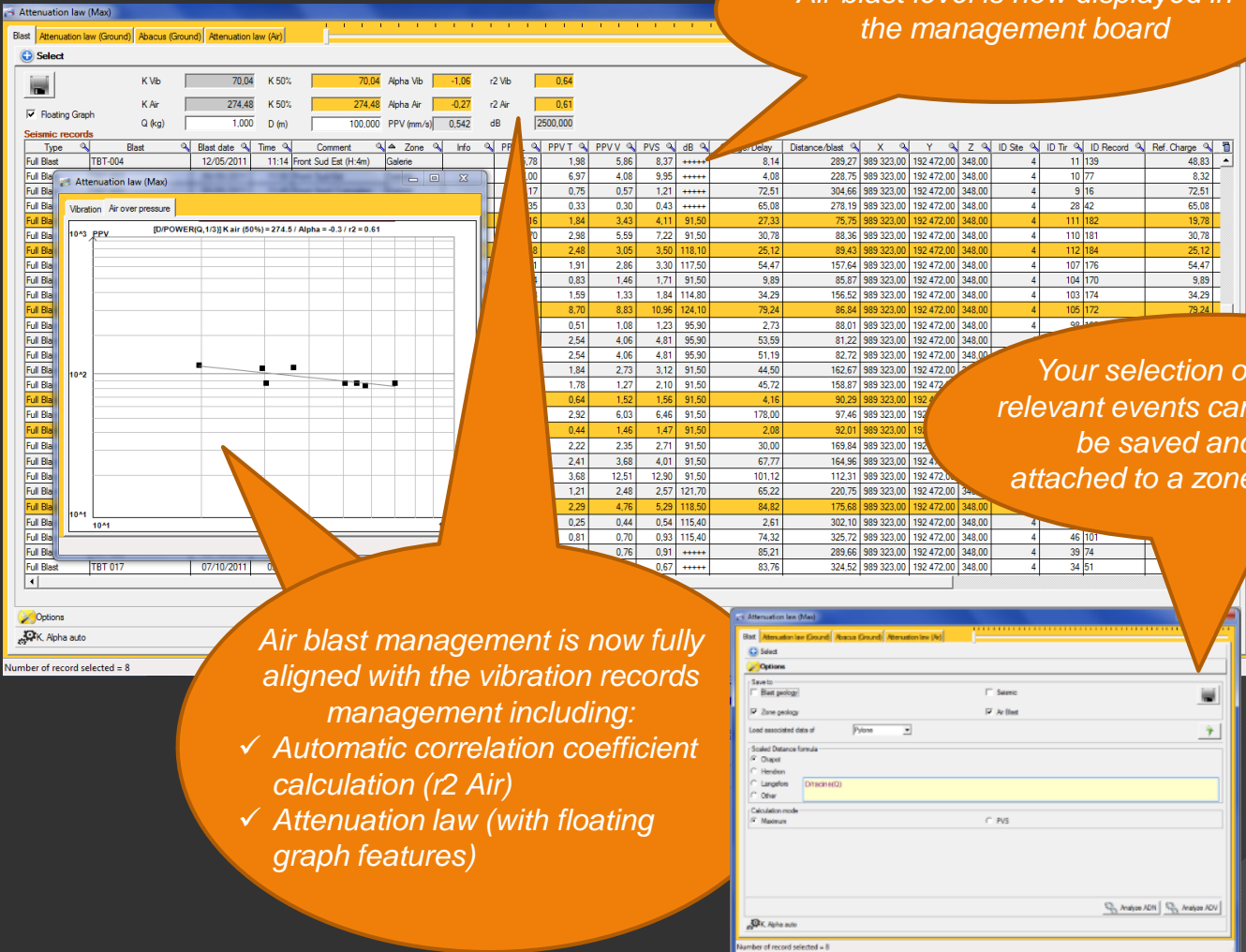
Tickable boxes for selective importation of signal channels. Benefit: No more unwanted signal disturbing the analysis

YOUR BENEFIT:

- ✓ Faster and more accurate analysis
- ✓ Clear automatic emphasis on critical information (e.g. max PPV)

I-Blast PRO, ADV

Air Blast Scaled Distance Model



YOUR BENEFITS:

- ✓ Saved time thanks to an easier selection and management of relevant events
- ✓ Comply with environmental regulations , manage community relationships

I-Blast ADV

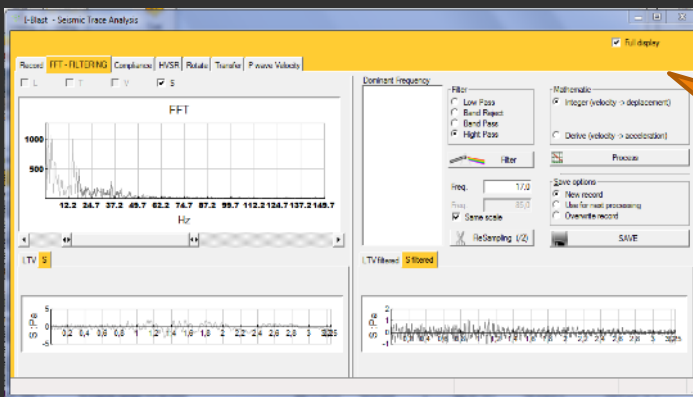
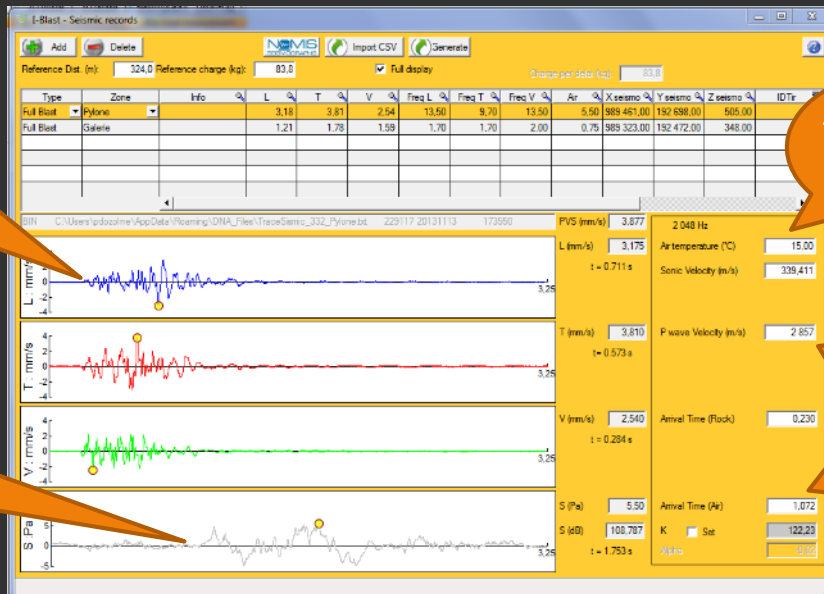
Automatic P wave Calculation from Combined Seismic & Air Blast

2. Click on
beginning of
signal on any
LTV
channels

3. Click on
beginning of
S channel
signal

1. Set the air
temperature

4. Get
automatically the
p wave velocity
and arrival time



The complete set of
filtering functionalities
available for seismic
records now also
apply to air blast
records

YOUR BENEFITS:

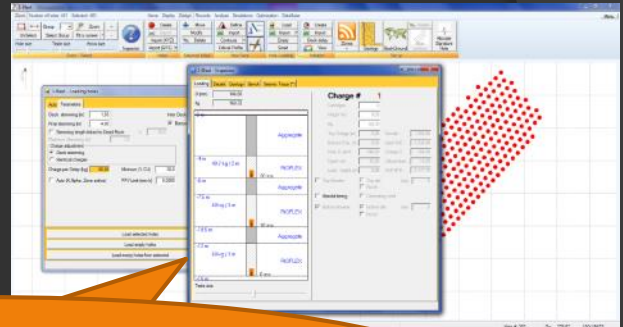
- ✓ A fast and performing way to automatically calculate the P wave velocity
- ✓ Deeper and richer analysis of air blast signals for better and safer blast outputs

I-Blast ADV

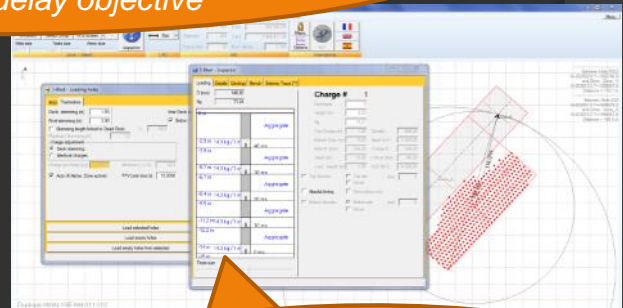
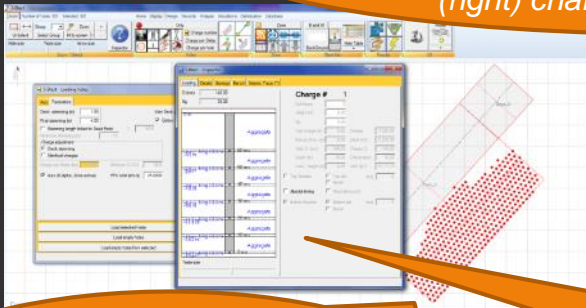
Smart Automatic Loading & Timing Function of Objectives

Decide your automatic loading options:

- ✓ Function of a targeted charge per delay
- ✓ A PPV limit



Note the difference in hole #302 automatic loading, respectively function of a 100kg (left) and 60kg (right) charge per delay objective



Automatic design of the charges takes into account each hole position and distance vs. the selected zone, where a PPV limit is required

Note the difference in loading between hole 302 (@ 118,10 m from zone H) and 32 (@ 198,50 m from zone H), for a 25mm/s PPV limit

YOUR BENEFITS:

- ✓ Comply easily but accurately with your charge per delay or PPV limit constraints
- ✓ Compare loading and timing configurations in a click

I-Blast ADV

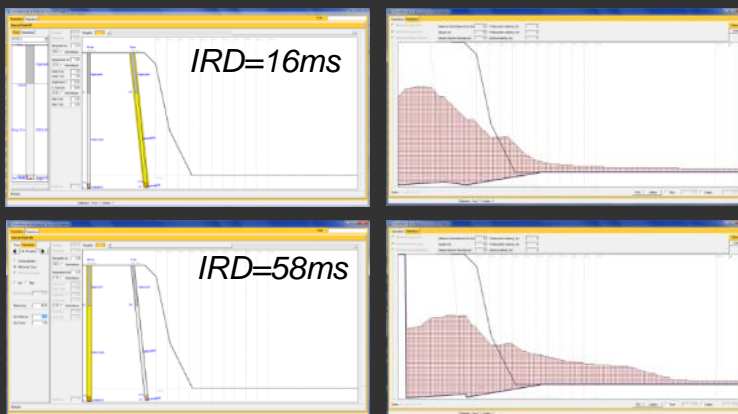
Automatic Cast Calculation

NEW!

Cast and muckpile shape simulation for several rows including real face profile



EXAMPLE: 16 vs. 58ms Inter Row Delay



YOUR BENEFITS:

- ✓ Get instantaneously the muckpile shape and cast minimum extension for a given field configuration
- ✓ Easy comparison of timing scenarios as regard muckpile shape (hauling & loading)

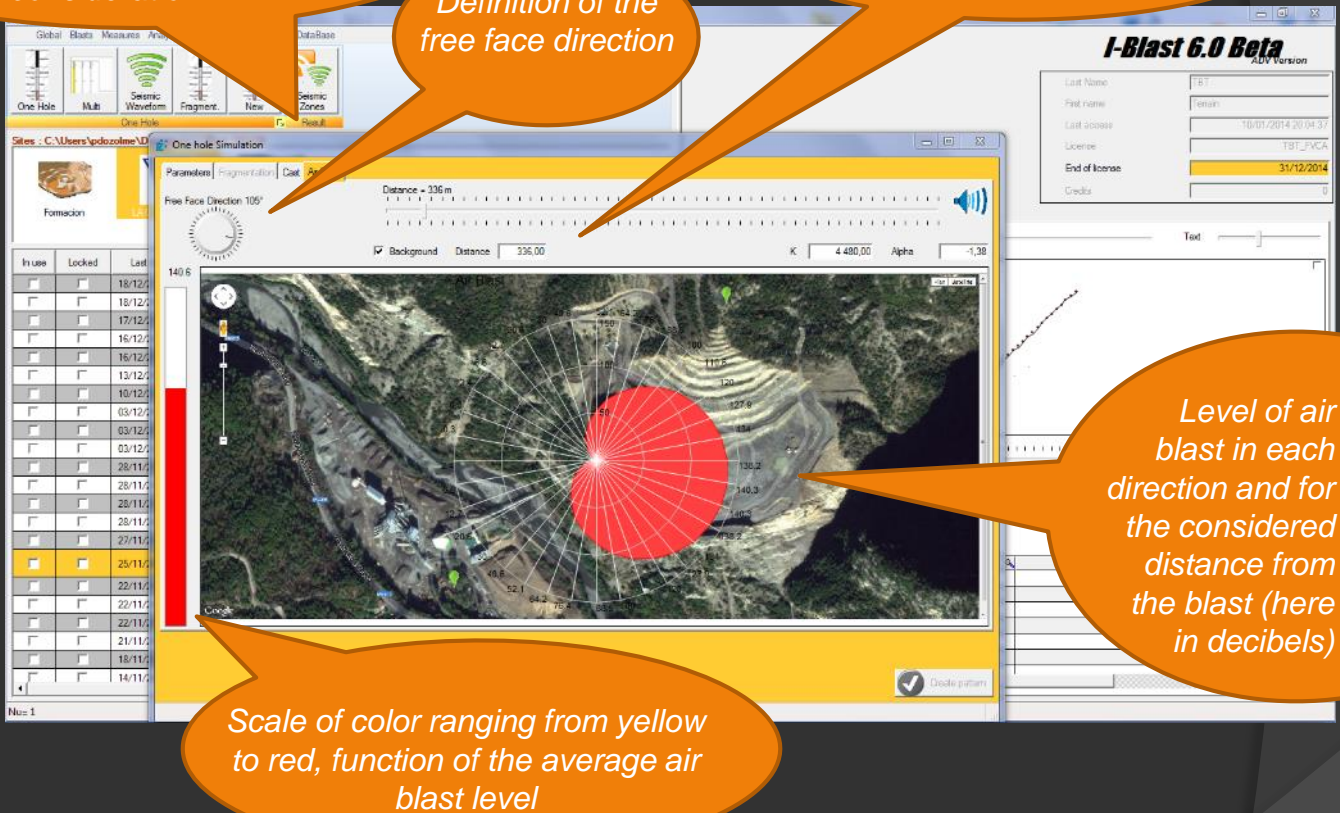
I-Blast PRO, ADV

Air Blast Simulation for 1 Hole, Function of Free Face Direction

Average level of air blast (here in decibels) taking the free face direction and the loading into consideration

Definition of the free face direction

Distance from the blast where air blast is concern



YOUR BENEFITS:

- ✓ Trustworthy simulation taking into free face orientation (not a simple radius)

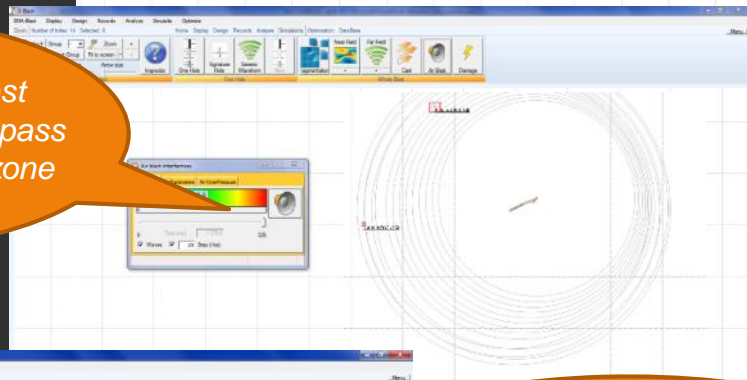
I-Blast ADV

Air Blast Simulation at Zone Level for the Whole Blast

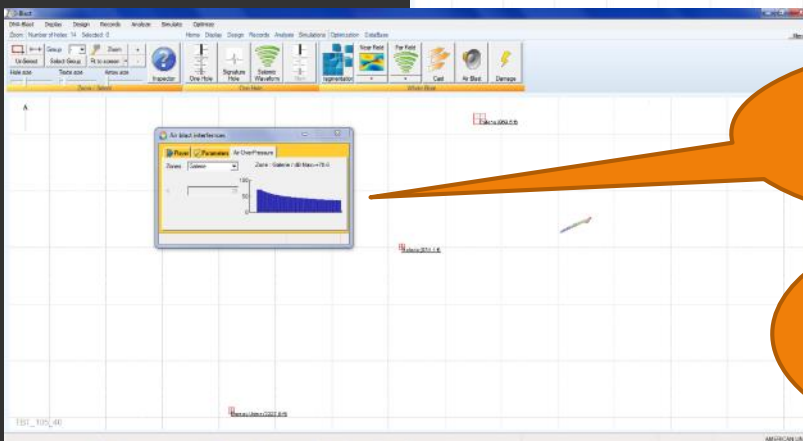
1. Set your parameters for a finer air blast simulation (temperature, wind strength and direction)



2. Display the Air blast interferences until they pass through the analyzed zone



3. A graph displays in real time the air blast level at the selected zone



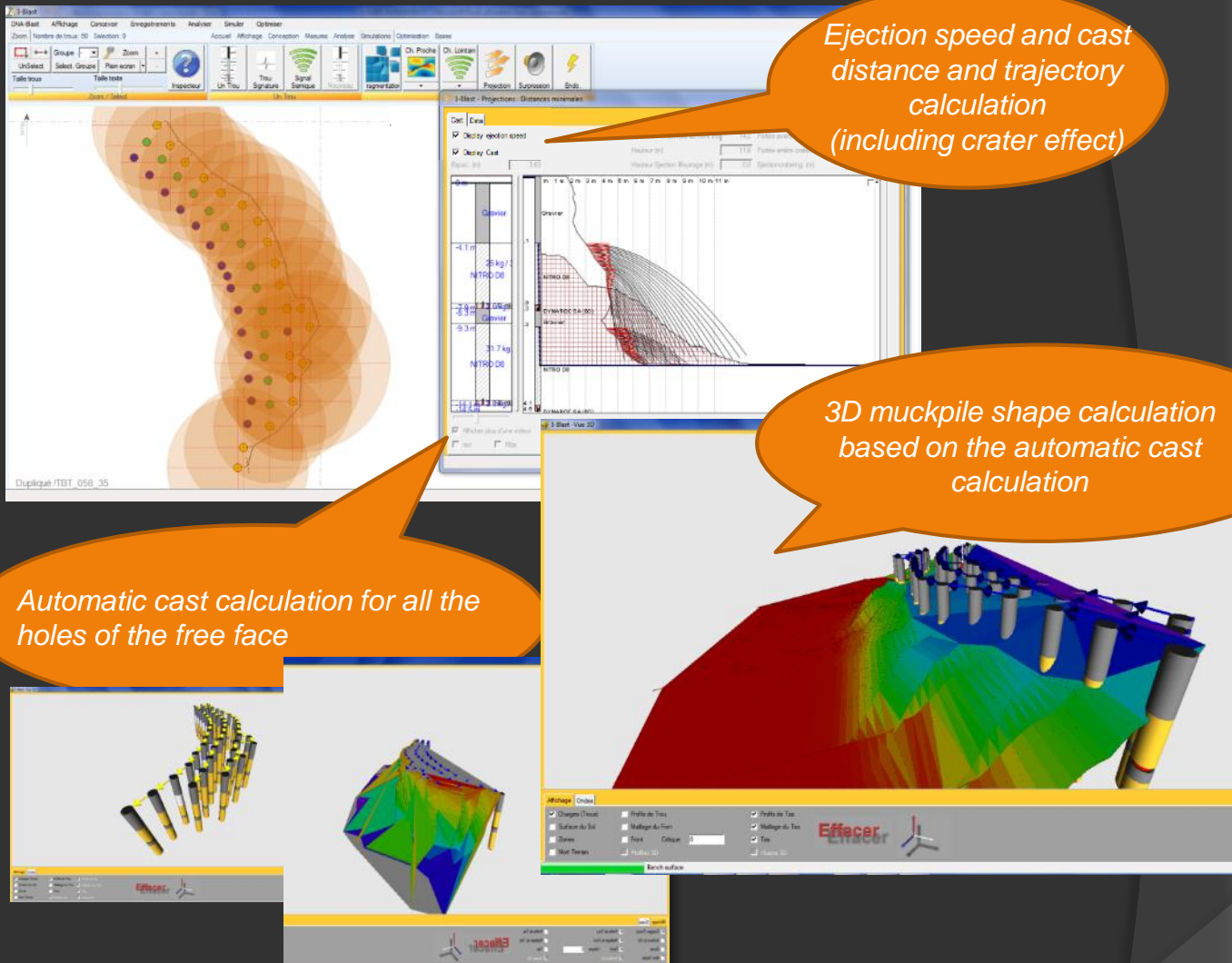
Takes the blast geometry, the loading and the timing into consideration for the air blast simulation

YOUR BENEFITS:

- ✓ Better anticipation and control on blast related environmental nuisances
- ✓ Simulate the impact of weather air blast propagation

I-Blast ADV

Automatic Cast Calculation & 3D Muckpile Shape Modeling

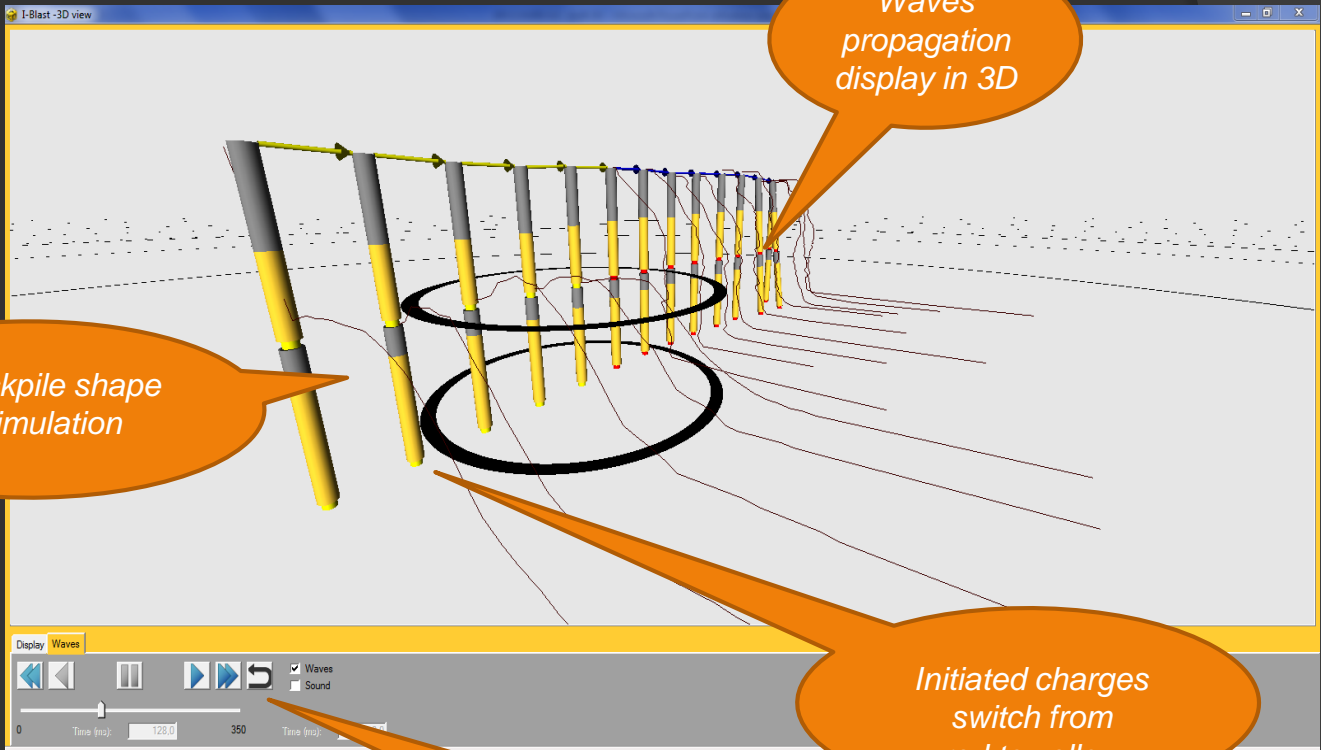


YOUR BENEFITS:

- ✓ Get the cast minimum extension of the whole blast for adequate clearance
- ✓ Save time! A single calculation automatically favors 2 critical purposes: cast calculation & 3D muckpile shape

I-Blast PRO, ADV

Enjoy the Benefits of the 3D Interactive Display



YOUR BENEFITS:

- ✓ Easier analysis on complex configuration thanks to 3D interactive features
- ✓ Convincing enlighten displays for better informed decision

I-Blast ADV

Signature Hole Optimization: Unlocked Possibilities!

I-Blast ADV Signature Hole Optimization features allows now a linear superposition in:

- ✓ Time domain
- ✓ Frequency domain

Deck signature analysis is now available!



Full filtering features

Single hole selection

You can now perform your optimization whatever if your Signature Hole gets one or several decks, if you want to process one or several single hole(s) or the type of configuration (far field / near field)

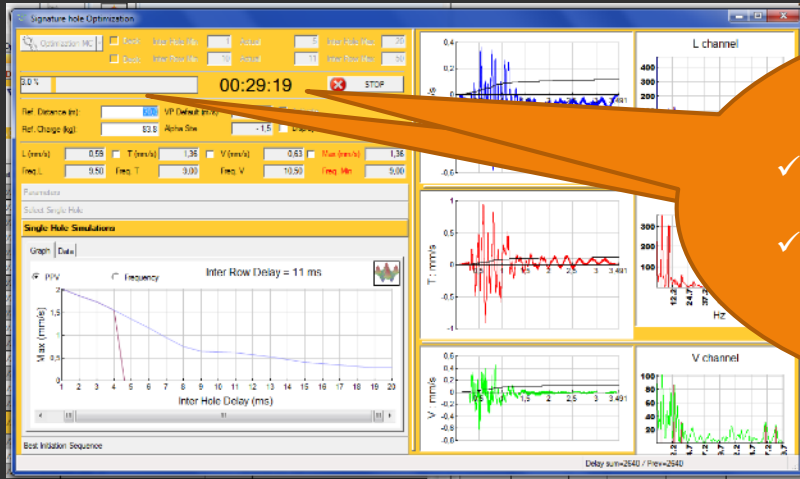
		1 Signature Hole	Multiple Signature Hole
FAR FIELD	No Deck	YES	YES
	Decks	YES	YES
NEAR FIELD	No Deck	YES	YES
	Decks	YES	YES

YOUR BENEFITS:

- ✓ More flexibility in selecting your signature holes
- ✓ Deeper and richer optimization process

I-Blast ADV

Calculation Times Have Also Been Optimized!

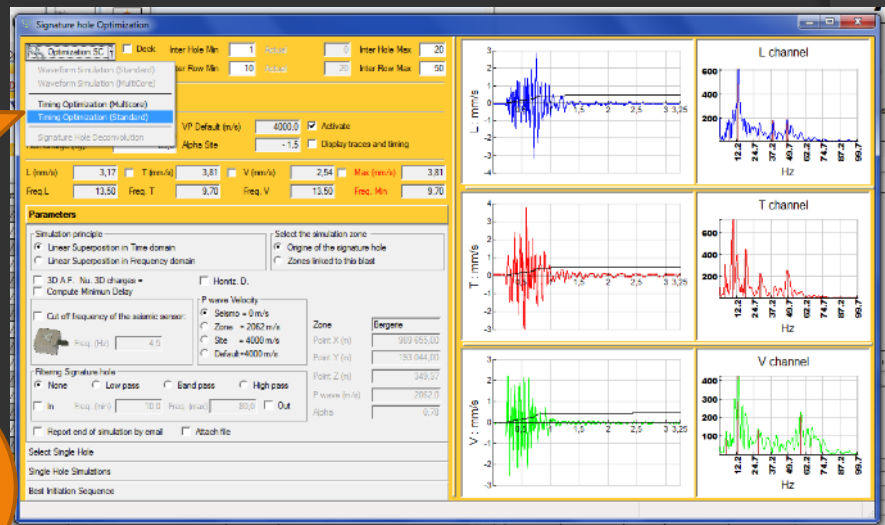


For any CPU demanding calculation you get in real time:

- ✓ The percentage of completion of the calculation in a bargraph
- ✓ The estimated time to complete the calculation taking into account the characteristics of your computer

Each CPU demanding calculation can be performed either using the multicore potential of your computer or be done with a single core (longer process)

By default parameter is set to multicore for any simulation with a sampling rate over 1024



YOUR BENEFITS:

- ✓ Faster simulation means more productivity for you
- ✓ Being informed, you can better organize your job

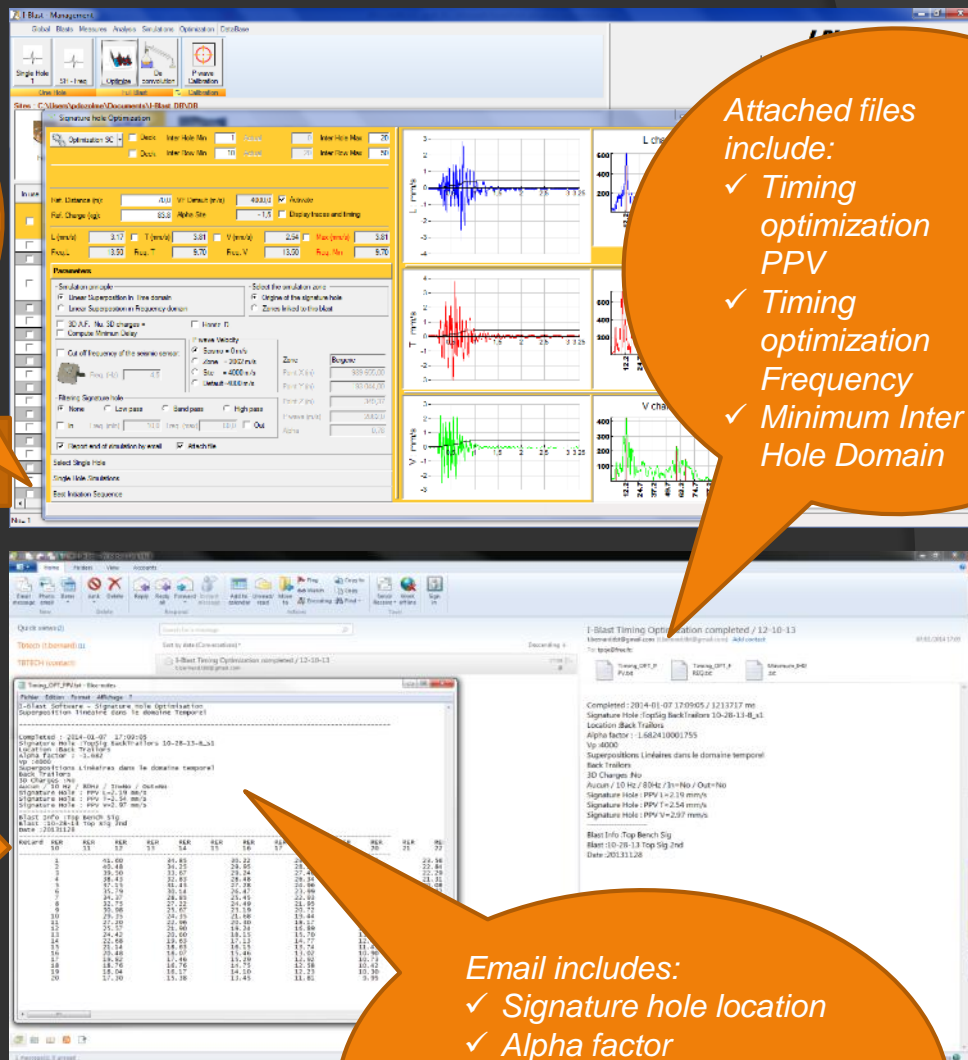
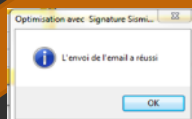
I-Blast ADV

Signature Hole Optimization: I-Blast Send You an Email!

I-Blast send you an email when the Signature Hole optimization Calculation is done. The email includes results in attachment in TXT format

Attached files include:

- ✓ Timing optimization PPV
- ✓ Timing optimization Frequency
- ✓ Minimum Inter Hole Domain



Email includes:

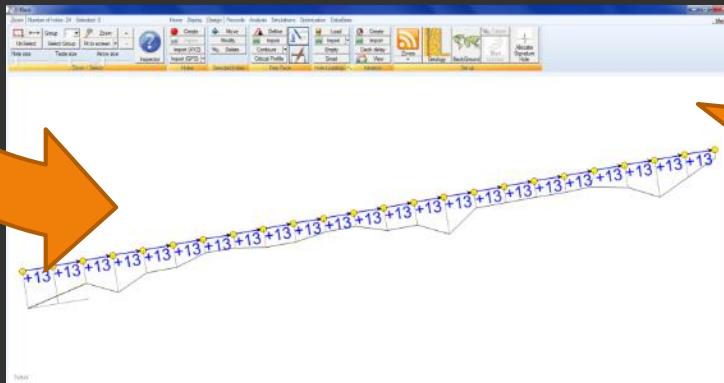
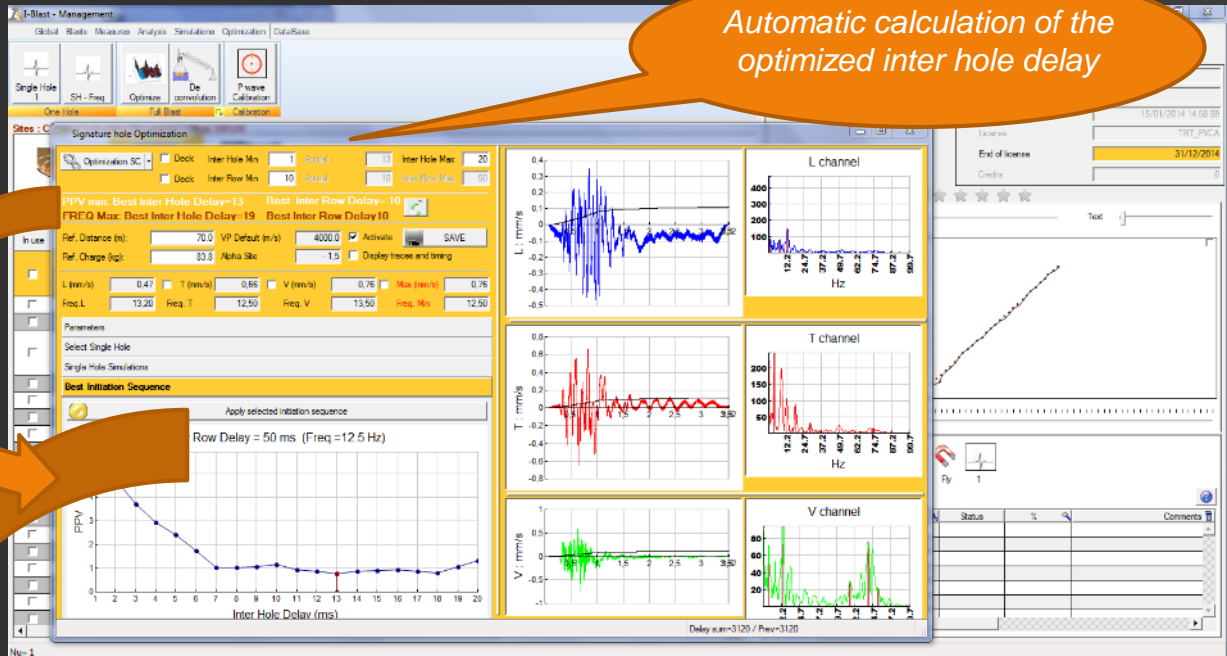
- ✓ Signature hole location
- ✓ Alpha factor
- ✓ Vp
- ✓ Type of calculation (time or frequency domain)
- ✓ Deck signature or not
- ✓ Filtering performed

YOUR BENEFITS:

- ✓ No need to wait until the end of calculation
- ✓ Get your results automatically summarized and transferable, including to I-Blast non users

I-Blast ADV

From Signature Hole Optimization to Design

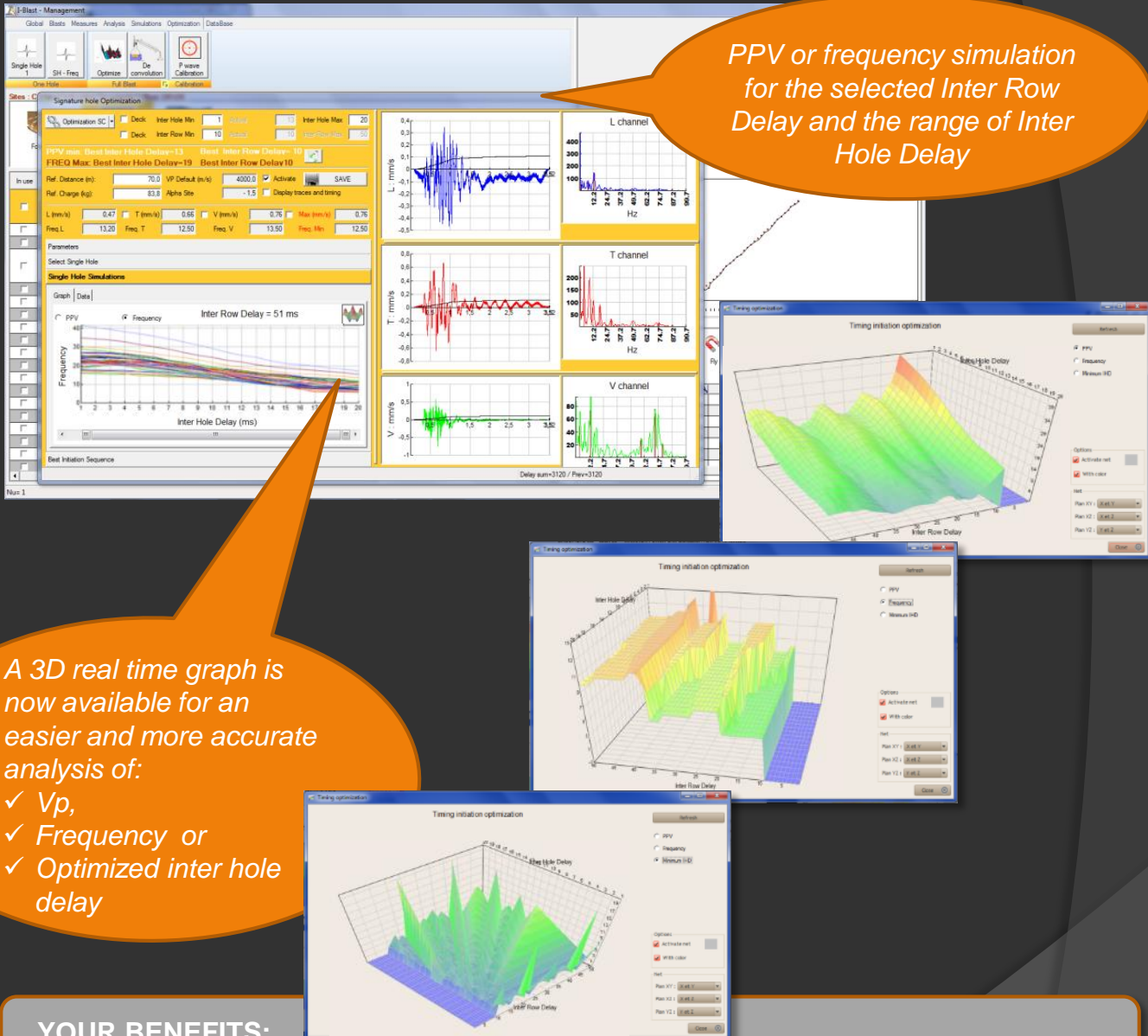


YOUR BENEFITS:

- ✓ Analyze, optimize and design with a unique integrated software
- ✓ No time lost in transferring or uploading data from a module to another

I-Blast ADV

Signature Hole Optimization: 3D Results



YOUR BENEFITS:

- ✓ Find automatically the best sequence that will match to your vibration objectives
- ✓ Get 3D graph for richer analysis and impressive illustration of your report

I-Blast DE, PRO, ADV

Reporting Your Design, Your Simulation & Your Results



**BLAST
DESIGN
REPORT**

**SIMULATION
REPORT**

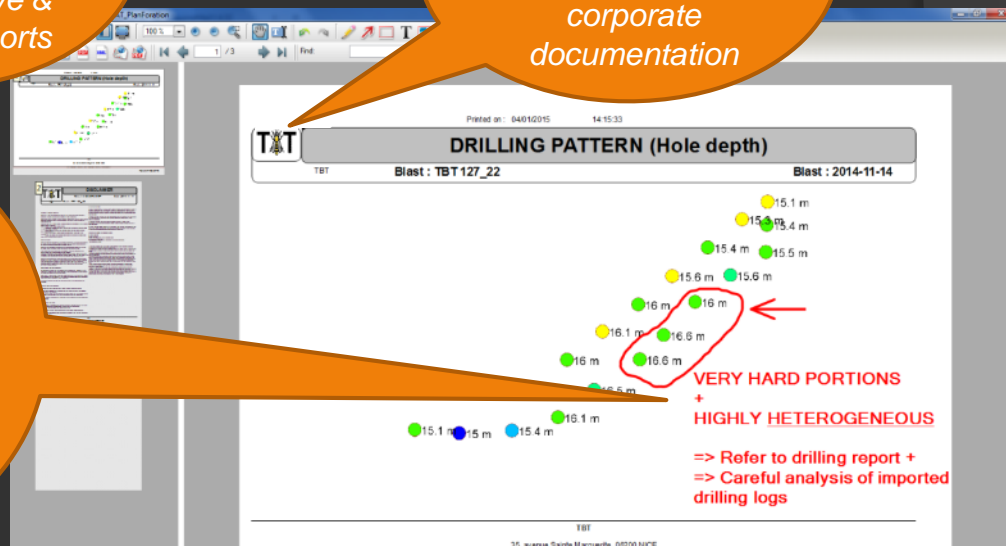
**RESULTS
REPORT**

NEW!

*Automatically compile,
customize, edit, save
and print your
comprehensive &
complaint reports*

*Upload your logo &
select your color code
to provide unique
corporate
documentation*

*The pdf edit toolbox
and paint-brush style
features allow
pinpointing and
commenting in a
second the critical
issues on any page of
the automatic reports*



YOUR BENEFITS:

- ✓ Full reporting capability including custom monitoring results for better compliance
- ✓ Editing functionalities for greater flexibility and real life way of working!

[illegible]

- ✓ There is always a reporting style that fits to your requirements!
- ✓ Appealing reporting increase your credibility and are statiscally more likely read

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

NEW!
A redesign interface and an extended content for the Blast Design report.

NEW!
Once created a pdf page is save in the data base and can be reuse anytime for printing of compiling purpose

NEW!
Amongst others: a blast location page is now available

Blasting Report Pages

Include	Page	PDF
<input type="checkbox"/>	Front Page	
<input type="checkbox"/>	Comment Page	
<input checked="" type="checkbox"/>	Blast location	
<input type="checkbox"/>	Recap Page	
<input type="checkbox"/>	Explosive List	
<input type="checkbox"/>	Hole Loading with Free Face	
<input type="checkbox"/>	Hole Number	
<input type="checkbox"/>	Hole Loading	
<input type="checkbox"/>	Drilling Pattern	
<input type="checkbox"/>	Detonator number	
<input type="checkbox"/>	Timing Pattern	
<input type="checkbox"/>	Wiring Pattern	
<input type="checkbox"/>	Hole Table	

Blast location
Blast : 2014-12-02

35, avenue Santa Margherita, 36200 NICO

YOUR BENEFITS:

- ✓ Increased safety and efficiency through flexible fully customizable field documents and simulation reporting
- ✓ Save time by creating once each page and reuse them anytime afterwards
- ✓ Meet easily your reporting requirements, ground & illustrate your technical options
- ✓ Share easily and safely your data & simulation in PDF format

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

I-Blast Automatic Report

Directory: C:\Users\DNA

Blast | Simulations | Results | PDF high quality

NEW!

Redigned Explosives List section which now also includes detonator number (for electric detonator only) and quantity of accessories in the blast design, sorted by reference number (electric detonator only) and/or length of cable

Blasting Report Pages

Include	
<input type="checkbox"/>	Front Page
<input type="checkbox"/>	Comment Page
<input type="checkbox"/>	Blast location
<input type="checkbox"/>	Recap Page
<input checked="" type="checkbox"/>	Explosive List
<input type="checkbox"/>	Hole Loading with
<input type="checkbox"/>	Hole Number
<input type="checkbox"/>	Hole Loading
<input type="checkbox"/>	Drilling Pattern
<input checked="" type="checkbox"/>	Detonator number
<input type="checkbox"/>	Timing Pattern
<input type="checkbox"/>	Wiring Pattern
<input type="checkbox"/>	Hole

EXPLOSIVES

Site : MINE A Date :2009-09-30

Blast : BT_1258_NO

Explosives product quantities :

Designation	Box or Bag	Shooter	Quantity	Unit
Subtech	30 025		750 644	Kg
Detonator			2 056	m
Booster 0 g			2 057	m
Booster 0 g			2 057	m

Printed on : 28/01/2015 11:30:49

ACCESSORIES

Site : MINE A Date :2009-09-30

Blast : BT_1258_NO

Explosives product quantities :

Designation	Length	Shooter	Number
Detonateur	40	1	254
Detonateur	10	1	254
Detonateur	70	2	253
Detonateur	40	1	253
Detonateur	75	2	252
Detonateur	40	2	252
Detonateur	35	1	256
Detonateur	5	1	255
Detonateur	70	2	255
Detonateur	40	1	255
Detonateur	35	1	257
Detonateur	10	2	257
Detonateur	70	2	256
Detonateur	40	1	256
Detonateur	70	1	253
Detonateur	50	1	253
Detonateur	100	1	253
Detonateur	75	1	253
Detonateur	50	1	255
Detonateur	25	1	255
Detonateur	15	2	254
Detonateur	55	1	254
Detonateur	35	1	256
Detonateur	10	1	256
Detonateur	50	1	256
Detonateur	30	1	255
Detonateur	20	2	255
Detonateur	40	2	270
Detonateur	10	1	270
Detonateur	100	1	270

Printed on : 28/01/2015 19:21:35

DETONATOR NUMBERS

Blast : TBT 123_18 Blast : 20144

Customized automatic conversion of delay in detonator numbers

35, avenue Sainte Marguerite, 06200 NICE
www.IBlast.fr Tel : +33 950 445 543 / Fax : +33 950 445 543

YOUR BENEFITS:

- ✓ Contribute efficiently to your references management at inventory level
- ✓ The more detailed the explosives and blasting accessories quantities are, the better and safer

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

NEW!

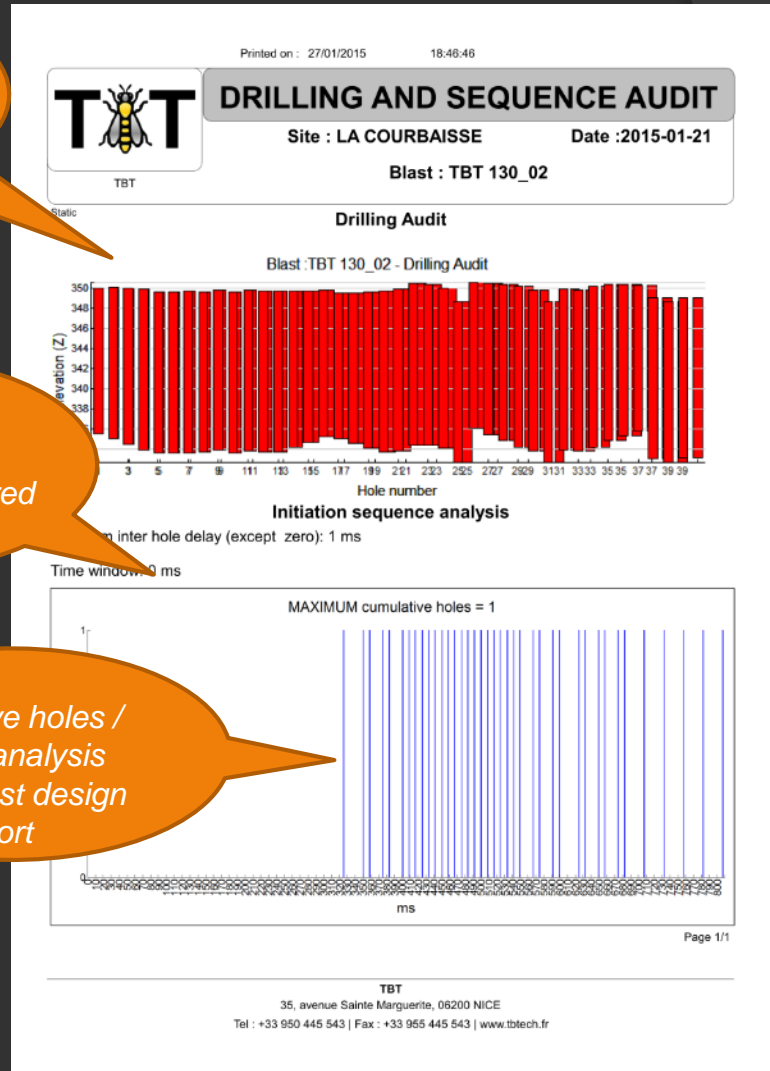
*Drilling audit output
now in blast design
report*

NEW!

*Enter your time
window for a
perfectly customized
report*

NEW!

*Cumulative holes /
overlap analysis
now in blast design
report*



YOUR BENEFITS:

- ✓ A even more complete reporting capability now covering the post design audits
- ✓ Increase your credibility by reporting on the audits that ground your design options

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

NEW!

Weather forecast, blast mats implementation and Blaster's name custom fields now available on top of Comment page. This information will be featured:

- in the new recap page and
- in the new "Info" tab of the Blast Management Screen

BLAST DESIGN RECAP

Site : MINA HERMOSA

Blast : TBT_091_26 NO angle_NGF 335

Type of Initiation: Electric Shock Tube Electronic Measurement Seismic

Useful volume: 214.4 m3

Hole Type : #11

Depth: 12.8 m 14 m

Diameter: 102 mm

Burden: 4m

Pattern: 11.4 m2

SubDrill: 0.7 m

Table of Blast Results:

ID	Blas ID	Xm	Zm	Rm	Rate
405	989 524.58	102.03	102.03	102.03	102.03
402	989 563.24	102.03	102.03	102.03	102.03
401	989 548.04	102.03	102.03	102.03	102.03
400	989 546.25	102.03	102.03	102.03	102.03
398	989 476.37	102.03	102.03	102.03	102.03
388	989 528.56	102.03	102.03	102.03	102.03
385	989 516.87	102.03	102.03	102.03	102.03
382	989 521.05	102.03	102.03	102.03	102.03
383	989 558.75	102.03	102.03	102.03	102.03
381	989 623.59	102.03	102.03	102.03	102.03
380	989 536.72	102.03	102.03	102.03	102.03
379	989 512.28	102.03	102.03	102.03	102.03
377	989 525.10	102.03	102.03	102.03	102.03
372	989 563.96	102.03	102.03	102.03	102.03
369	989 536.41	102.03	102.03	102.03	102.03
363	989 542.30	102.03	102.03	102.03	102.03
360	989 543.24	102.03	102.03	102.03	102.03
353	989 513.50	102.03	102.03	102.03	102.03


YOUR BENEFITS:

- ✓ Additional critical informations are now featured on the recap page for an higher readability and accountability
- ✓ Make Safe Choices and Informed Decisions from gathered and clearly stated facts and figures

I-Blast DE, PRO, ADV

Improved Blast Design Recap

Printed on : 04/01/2015 21:04:19



BLAST DESIGN RECAP

Site : LA COURBAISSE

Blast : TBT 124_19 Front 335

Type of Blast: ☒ Ore ☐ Waste Type of Initiation: ☒ Electric ☐ ShockTube ☐ Electronic Measurement: ☒ Seismic ☐ Topo

Useful volume: 9 840,0 m³ Hole Type : #22

Date : 2014-09-26 Hour : 11:55:00

Gravier

NO

JOHRI J.

Diameter : 115 mm Nb holes : 41 Spacing : 5 m

Burden : 3.2m

Pattern : 16 m²

	Min	Max
Depth :	13.1 m	15 m
Bench :	15 m	15 m
SubDrill :	0 m	0.9 m
Angle :	0 °	0 °

Hole charge : 44.7 kg 98.6 kg

Stemming : [88] 4.0 m 4.1 m

Charge per Delay (Holes) 44.7 kg 98.6 kg

Charge per Delay (Blast) 98.6 kg

Global Charge Blast 3 075.7 kg

Powder Factor 312.6 g/m³

Density 2.6

Blasted tons 24 425.9 t

Volume (with subd.) 9 394.6 m³

Comment

06200 NICE

www.tbtech.fr

43.5 kg / 5.2 m NITRO D8

50 kg / 5.9 m NITRAL

5.1 kg / 0.7 m DYNAROC 6A (80) (2 c)

500 ms

NEW!

Better match to blaster's way of working.

Get instantaneously:

- ✓ Type of blast
- ✓ Type of Initiation
- ✓ Hole survey source
- ✓ Weather forecast
- ✓ Mats implementation
- ✓ Blaster's name

NEW!

Greater readability of loading prescriptions thanks to larger windows and automatic fit to width features

NEW!

Add your comments thanks to the edit features of the report functionalities

Featuring more clearly only the critical information

NEW!

YOUR BENEFITS:

- ✓ Clear straightforward field documents for easier and safer implementation

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

Save automatically in the database
the last compiled Blast Design (D)
and Simulation Report (S)

The screenshot shows the I-Blast Management software interface. The main window is titled 'I-Blast Automatic Blast Report'. It features a table of simulation results with columns for 'Simulation Report Pages', 'Page', and 'PDF'. The table lists various simulation types such as 'Simulation Cover Page', 'Comments', 'Cast Simulation', 'Vibration Simulation (Scaled)', 'Regression Law', 'Vibration Simulation (Signature)', 'Fragmentation', and 'General Terms and Conditions'. To the right of the table, there is a 3D visualization of a blast design, showing a grid of points and a central point. Below the 3D visualization, there is a table of simulation parameters with columns for 'X', 'Y', 'Z', 'P', 'F', and 'R'. An orange arrow points from the 'Save automatically in the database' text to the 'Save Report' button in the software interface.

YOUR BENEFITS:

- ✓ Keep record of the compiled reports automatically organized in a structured database
- ✓ Save time and deliver customized, straightforward error free sheets to field operators for safe implementation

I-Blast DE, PRO, ADV

Reporting Your Blast Has Never Been so Easy, Fast & Flexible

I-Blast Automatic Report

Directory: \01 ARTHUR & MATTHEW\02 CLIENTS ARTHUR & MATTHEW\00 DNA-TBT\TBT_2014_LA COURBAISSE\TIR 128 du 02 12 2014\T

Blast | Simulations | Results | ☒ PDF high quality

Watermark: _____

Result Report Pages

Include	Page	PDF
<input checked="" type="checkbox"/>	Result Cover Page	
<input checked="" type="checkbox"/>	Comments	
<input checked="" type="checkbox"/>	Vibration result	
<input checked="" type="checkbox"/>	Sismic records	

NEW!
Monitoring / results report now available including seismic events, peak level and considered zone

I-Blast Automatic Blast Report

Printed on: 03/01/2015 13:17:19

TBT **VIBRATION RESULTS**
Site : LA COURBAISSE Date : 2014-12-02
Blast : TBT 128_23

Max vibration level

Vibration level result

Zone	X	Y	Z	Distance to blast	ppv	Charge per Delay	K	Alpha	Vp
Pylone	989 481.00	192 696.00	909.00	284	6.41	89.48	1 800.33	-1.87	2 982
Galerie	989 323.00	192 472.00	348.00	160	2.65	89.48	135.86	-1.37	0
Bureau Usine	989 021.00	192 162.00	210.00	542		89.48	15.71	-0.70	0

Page 1/1

TBT
35, avenue Sainte Marguerite, 06200 NICE
Tel : +33 950 445 543 | Fax : +33 950 445 543 | www.btech.fr

I-Blast Automatic Blast Report

Printed on: 03/01/2015 13:15:07

TBT **RESULTS**
Site : LA COURBAISSE Date : 2014-12-02
Blast : TBT 128_23

Results

LA COURBAISSE

I-Blast Automatic Blast Report

Printed on: 03/01/2015 13:15:57

TBT **VIBRATION RESULTS**
Site : LA COURBAISSE Date : 2014-12-02
Blast : TBT 128_23

Max vibration level : Pylone

Seismic records

TBT
35, avenue Sainte Marguerite, 06200 NICE
Tel : +33 950 445 543 | Fax : +33 950 445 543 | www.btech.fr

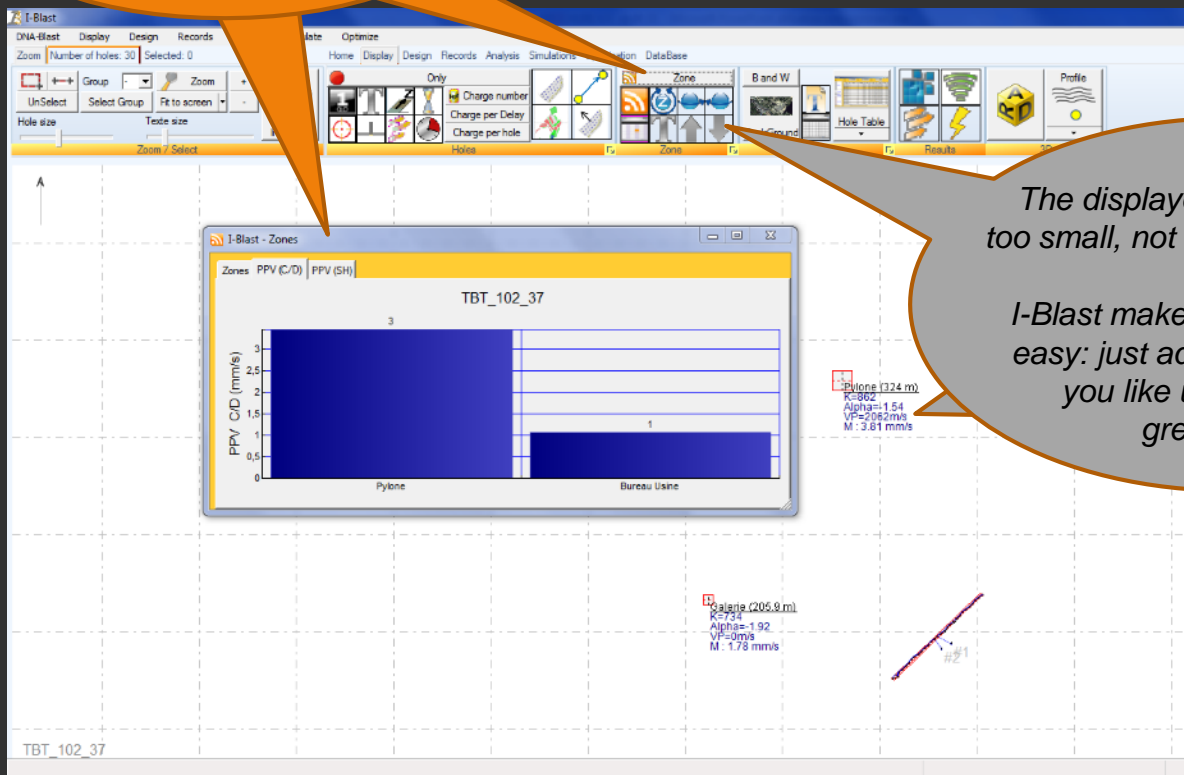
YOUR BENEFITS:

- ✓ Reporting now covers the design, the simulation and the result for full corporate compliance and accountability

I-Blast PRO, ADV

An Easier and Smoother Access to Your Simulation Results

Get in one click a graph representing your PPV level at each zone.



YOUR BENEFITS:

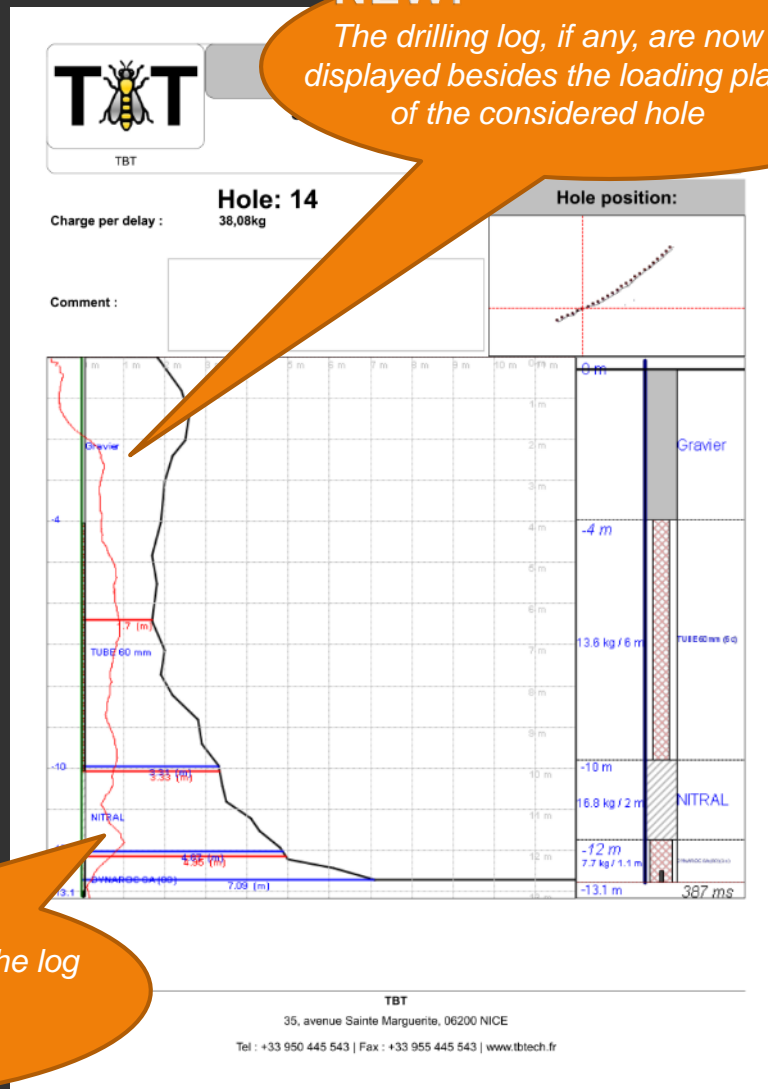
- ✓ A convenient way to check your recordings and simulation
- ✓ Another option to illustrate your reports

I-Blast PRO, ADV

Reporting The Processing of Drilling Logs

NEW!

The drilling log, if any, are now displayed besides the loading plan of the considered hole



As a rule of thumb, the more the log curve goes to the right, the harder the rock

YOUR BENEFITS:

- ✓ Clear straightforward field documents for easier and safer implementation
- ✓ Justify your loading choices with an additional tangible and self-explicit argument

MAIN FEATURES

DATABASE & ERGONOMICS	DE	PRO	ADV
Automatic preferences back-up (including language, unit system, color code, logos, etc.)	✓	✓	✓
Direct login through user automatic recognition	✓	✓	✓
Metric and imperial units compatible	✓	✓	✓
French, English and Spanish languages	✓	✓	✓
Direct and visual access to simulation done vs. objectives incl. Frag., muckpile shape, vibration & air blast		✓	✓
Simplified menus giving direct access to essential features	✓	✓	✓
Blast rating scale functionality	✓	✓	✓
By default working folder selection	✓	✓	✓
Bulk explosives templates incl. density, price, supplier, VoD @ diameter, ideal & measured VoD, critical diam.	✓	✓	✓
Packaged explosives templates incl. diam., length, weight, density, price, supplier, VoD, critical diam, etc.	✓	✓	✓
Sorting functionality of explosives by manufacturer / dealer in explosives templates	✓	✓	✓
Geology templates incl. density, Pwave velocity, Poisson ratio, K & alpha, tensi. & compr. strength, Young Mod.	✓	✓	✓
Loading templates for any hole diameter and depth	✓	✓	✓
Automatic adjustable charges with depth	✓	✓	✓
Blaster's way of loading from bottom to top	✓	✓	✓
Adjustable cartridge height to take settling into account	✓	✓	✓
Detonating cord features as input (g/m)	✓	✓	✓
Decked charge including air deck, plug, intermediate stemming	✓	✓	✓
Non electric distinctive color and in-hole tube VoD automatic calculation function of hole depth	✓	✓	✓
Top/bottom booster and detonator	✓	✓	✓
Adjustable booster weight	✓	✓	✓
Final stemming functionality	✓	✓	✓
Sand / gravel stemming quality alternative	✓	✓	✓
Direct access to any loading templates, disregarding the Site for which they had been created	✓	✓	✓
Image attachment functionality	✓	✓	✓
Pdf attachment functionality	✓	✓	✓
Rotation features for optimized display at management screen level	✓	✓	✓
Email sharing functionality for I-Blast files	✓	✓	✓
Exportation / importation module for I-Blast files including MS compatibility	✓	✓	✓
Explosives templates importation/exportation, Excel compatibility, sharing via email	✓	✓	✓
Excel and Text format importation/exportation of blast design	✓	✓	✓

MAIN FEATURES

DATABASE & ERGONOMICS	DE	PRO	ADV
2D mutiselection of blasts	✓	✓	✓
Blast configuration, seismic recording, blast rating display on mouse hover from 2D multiselection	✓	✓	✓
Direct access to created and attached reports from 2D multiselection	✓	✓	✓
3D mutiselection of blasts		✓	✓

DESIGN MODULE (CAD)	DE	PRO	ADV
Holes creation (round, staggered, odd rows)	✓	✓	✓
Move holes to xyz coordinates, from fix/custom step in 4 directions & custom angle	✓	✓	✓
Move graphically a group of holes in a click	✓	✓	✓
Expand or reduce the pattern of a group of holes (percentage)	✓	✓	✓
Holes creation and importation (xyz or GPS)	✓	✓	✓
Intuitive copy-paste of holes with their characteristics (loading, timing...)	✓	✓	✓
Automatic Importation of hole deviation data (eg. Boretrack data) NEW	✓	✓	✓
Delete a selection of hole, empty holes or delete loading without deleting the hole	✓	✓	✓
Dedicated menu and functionalities for underground and tunnel NEW	✓	✓	✓
Change charac. of holes s including depth, coordinates, diameter, free face burden or direction, timing & more	✓	✓	✓
Polylines importation for holes selection purpose	✓	✓	✓
Set deck timing (top and/or bottom detonators) along an absolute, constant or offset timing	✓	✓	✓
Loading module with created or default explosives	✓	✓	✓
Timing module for EDD, non electric and electric detonators	✓	✓	✓
Editing tools to hand draw, name, modify, delete any points or lines	✓	✓	✓
Measuring device in metric and imperial	✓	✓	✓
Zones importation / exportation from / to Excel	✓	✓	✓
2D / 3D display of zones	✓	✓	✓
Custom color for 3D displayed zones	✓	✓	✓
2D / 3D burning front display	✓	✓	✓
3D display of holes with or without respective loading and wiring	✓	✓	✓
Custom color background for 3D display	✓	✓	✓
Scalable size of 3D displayed holes and wiring representation	✓	✓	✓
Automatic rotation of 3D display (speed and trajectory)	✓	✓	✓
Non electric VoD, down hole and surface standard deviation consideration	✓	✓	✓

MAIN FEATURES

DESIGN MODULE (CAD)	DE	PRO	ADV
Automatic timing adjustment based on down-the-hole tube VoD	✓	✓	✓
2D/3D bench profile, cloud of points, lines import (.csv / .txt format, automatic with MDL, TruePulse & TEPEX)	✓	✓	✓
Bench line automatic calculation and drawing	✓	✓	✓
xyz hole positioning vs. 3D profiles	✓	✓	✓
Google Earth / Map, imported images / plan as a background	✓	✓	✓
Seismic / air blast event importation (automatic with NOMIS, IDETEC, other .csv)	✓	✓	✓
Semi-automatic timing design (for EDD only, ms/m of bench)	✓	✓	✓
Powder factor vs. bench burden	✓	✓	✓
Waves propagation display in 3D for every charges (deck)	✓	✓	✓
Automatic importation of profiles for a selection of holes or the whole blast	✓	✓	✓
Correction of imported profiles (non completed muckpile evacuation at toe level)	✓	✓	✓
3D real time muckpile shape simulation			✓
Automatic cloud of points importation from Google Map NEW	✓	✓	✓
3D critical profiles automatic definition from imported cloud of points	✓	✓	✓
Automatic timing design (for EDD only, ms/m of bench)			✓
Monte Carlo based standard deviation sim. for non electric initiators (impact on scattering & out of sequence)			✓
3D simultaneous display of blasts (including loading, timing, ground level, bench profile and zones)			✓
Flexible importation of blasting config. from Excel (holes only, adding missing one, loading only,...)	✓	✓	✓
Automatic loading from explosives type, deck characteristics and final stemming definition			✓
Automatic adjustment & warnings (explosives density, depth, missing holes, etc.)			✓
Automatic loading function of a targeted charge per delay			✓
Automatic loading function of a PPV limit			✓
Automatic timing (for EDD, based on charge per delay and PPV limit objectives)			✓

ANALYSIS CAPABILITIES	DE	PRO	ADV
Interferences and overlap sequence analysis	✓	✓	✓
Initiation sequence player with waves interferences & sound	✓	✓	✓
2D/3D burning front simulation	✓	✓	✓
Surface, underground and tunnel compatible set of analysis	✓	✓	✓
Timing based Charge per delay calculation		✓	✓
Seismic scaled distance model (Charge per Delay)		✓	✓

MAIN FEATURES

ANALYSIS CAPABILITIES	DE	PRO	ADV
Air blast scaled distance model (Charge per delay)		✓	✓
Automatic seismic correlation coefficient calculation (r2)		✓	✓
Automatic air blast correlation coefficient calculation (r2 Air)		✓	✓
Floating attenuation law graph features		✓	✓
Back-up feature of air blast records selection		✓	✓
Field abacus for charge per delay vs. distance	✓	✓	✓
Seismic analysis (Filtering, FFT, compliance)		✓	✓
Fragmentation analysis (Photogrammetric Analysis System)		✓	✓
Automatic conversion in grey scale of uploaded image for optimized contrast		✓	✓
Automatic adjustment of contrast from standard deviation of lightness		✓	✓
Automatic resizing of uploaded photo		✓	✓
Concatenated analysis of a set of images		✓	✓
Drilling control (Automatic adjustment of hole depth to targeted elevation)	✓	✓	✓
Importing drill log & automatic calculation of equivalent rock strength		✓	✓
Deck charges analysis as regard dead pressing and sympathetic detonation		✓	✓
2D Explosives Energy Distribution available in a choice of 5 scalable resolutions		✓	✓
2D Explosives Energy Distribution taking into account the timing sequence		✓	✓
Cost analysis module	✓	✓	✓
Automatic calculation of K & alpha for a zone at a given distance &/or period of time			✓
Selections of seismic events for attenuation law purpose can be saved as scenarios		✓	✓
Scenario attachement to a zone (selection of seismic events with the resulting k & alpha)		✓	✓
Delete function of outliers directly from the attenuation law graph		✓	✓
Attenuation law based on charge per delay for a custom time window		✓	✓
Advanced seismic Analysis module:			✓
p wave velocity			✓
Horizontal-to-Vertical Spectral Ratio			✓
Transfer function			✓
Waveform rotation			✓
Advanced filtering functionalities of Air Blast events			✓

MAIN FEATURES

SIMULATION FUNCTIONALITIES	DE	PRO	ADV
PPV simulation from Signature Hole (Far Field, Time domain)		✓	✓
Far field / time domain		✓	✓
Automatic application of calculated best inter hole delay to the sequence		✓	✓
Automatically forecast of charge per delay at any point around selected zones		✓	✓
Fragmentation simulation (for one hole with theoretical or real burden, spacing and profile)		✓	✓
Calibration feature from maximum size measured		✓	✓
Cast (flyrock) and muckpile shape simulation (for one hole with theoretical or real burden, spacing and profile)		✓	✓
Calibration feature from maximum cast distance measured		✓	✓
Air blast simulation (for one hole with theoretical or real burden, spacing and profile)		✓	✓
PPV simulation from charge per delay method (based on scaled distance model)		✓	✓
Air blast simulation for one hole, function of free face direction		✓	✓
Iso PPV mapping (based on scaled distance model)		✓	✓
PPV simulation from Signature Hole			✓
Near field / frequency domain option			✓
Far field / time domain option			✓
3D Explosives Energy Distribution available in a choice of 5 scalable resolutions		✓	✓
Automatic simulation for 10 automatic horizontal cuts		✓	✓
Custom vertical cuts simulation		✓	✓
3D Explosives Energy Distribution taking into account the timing sequence		✓	✓
Timing based automatic simulation for 10 automatic horizontal cuts			✓
Timing based custom vertical cuts simulation			✓
Fragmentation simulation for the whole blast			✓
Multi-rows cast simulation including real face profile			✓
Calibration feature from maximum size measured			✓
Cast (flyrock) and muckpile shape simulation (for several rows with real loading, burden, spacing and profile)			✓
Calibration feature from maximum cast distance measured			✓
Automatic cast simulation in 2D for the whole blast (ejection speed, cast distance, trajectory, crater effect sim.)			✓
3D cast simulation display of the whole blast			✓
Air blast simulation at zone level for the whole blast based on loading and the timing			✓
Weather impact of air blast propagation for the whole blast (temperature and wind direction)			✓
Damage simulation			✓

MAIN FEATURES

SIMULATION FUNCTIONALITIES <i>(continued)</i>	DE	PRO	ADV
Vibrations amplification factor mapping (Based on frequency spectrum of a Signature Hole)			✓
Deck / 3D charges option			✓
Fragmentation calculation (one hole based taking the initiation sequence into account)			✓

OPTIMIZATION CAPABILITIES	DE	PRO	ADV
Automatic Inter charge / inter hole / inter row optimization delay calculation based on one hole		✓	✓
Objective: to minimize PPV		✓	✓
Far field / time domain		✓	✓
Automatic application of calculated best inter hole delay to the sequence		✓	✓
Automatic Inter charge / inter hole / inter row optimization delay calculation based on one hole			✓
Minimize PPV or increase frequency or low PPV & high frequency together			✓
Far field / time domain			✓
Automatic application of calculated best inter hole delay to the sequence			✓
Automatic Inter charge / inter hole / inter row optimization delay calculation based on whole blast config.			✓
P wave velocity calculation from combined seismic and air blast waveform			✓
Far field / time domain option			✓
Deck / 3D charges option			✓
Waveform filtering in/out, low pass, high pass, band pass, rejecting			✓
Email notification when calculation is done + result in .txt attachment			✓
Estimated time to complete the calculation and percentage of completion of the calculation in a bar graph			✓
Multicore / single core option for optimized calculation times			✓
Automatic application of calculated best inter hole delay to the sequence			✓
3D real time graph of Vp, frequency or optimized inter hole delay			✓

DOCUMENT & REPORT YOUR BLAST	DE	PRO	ADV
Blast design report (automatically generated in .pdf format)	✓	✓	✓
Customized report incl. explosives list, hole loading, drilling pattern, detonator number, timing & wiring pattern	✓	✓	✓
GoogleMap™, Google Earth™-based location of the shot in the report (+ dedicated page)	✓	✓	✓
Customized corporate compliant report (colors, logo)	✓	✓	✓
Customized front page incl. 3D view of the blast / shot located on map) / site logo / pre-blast photo / others	✓	✓	✓

I-Blast 7

MAIN FEATURES

DOCUMENT & REPORT YOUR BLAST	DE	PRO	ADV
Customized automatic conversion of delay in detonator numbers	✓	✓	✓
Detailed recap chart of detonators by length	✓	✓	✓
Paint-brush style edit feature for pdf	✓	✓	✓
Weather forecast, blast mats implementation and Blaster's name custom fields	✓	✓	✓
Automatic back-up option in the database for the reports	✓	✓	✓
Customized blast time line	✓	✓	✓
Simulation report (automatically in .pdf format)			✓
Cast simulation, vibration sim. (scaled distance and/or signature hole), regression law, fragmentation sim.			✓
Customized corporate compliant report (colors, logo)			✓
Paint-brush style edit feature for pdf			✓
Monitoring / results report including seismic events, peak level and considered zone	✓	✓	✓
Cumulative holes / overlap analysis in blast design report	✓	✓	✓
Drilling audit output in blast design report	✓	✓	✓

*** COMING SOON ***	DE	PRO	ADV
DESIGN MODULE (CAD)			
Customizable position and size of texts and labels	✓	✓	✓
ANALYSIS CAPABILITIES			
Explosive quantity adjustment according to actual quantity	✓	✓	✓
DOCUMENT & REPORT YOUR BLAST			
Signature Hole optimization report		✓	✓
*** AND MORE ! ***	✓	✓	✓

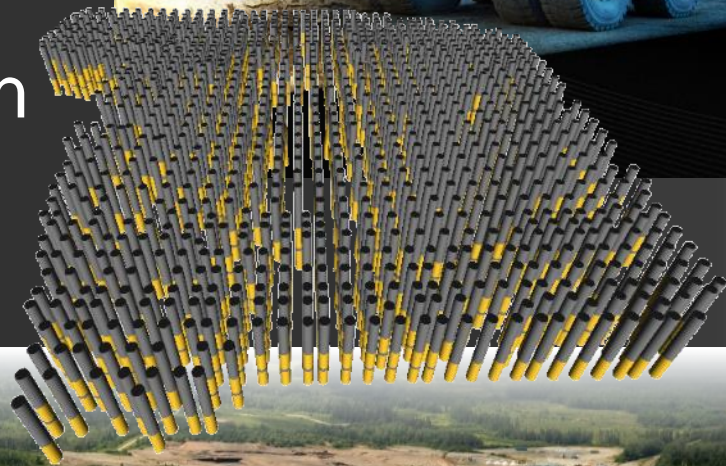
I-Blast ADV

Blasting 1 Million Tons, 205 Meters From a Town

Vibration simulation based on physics and relevant field data:

22%

maximum deviation
for PPV prediction
on **1806** charges



Use of Deck Signature Hole technique.
Including parameters: Hole location and loading, Initiation Sequence, 6 dedicated Signature Holes
More in the 40th Annual Conference on Explosives & Blasting Technique proceedings , Denver, CO 2014

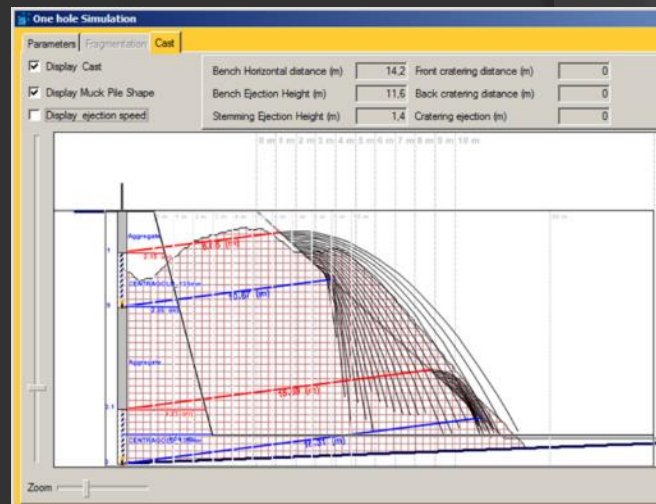
I-Blast ADV

Blasting 1 Million Tons, 205 Meters From a Town

Cast simulation based on physics and relevant field data:

<20%

on horizontal
cast prediction



Objectives: Evaluating horizontal cast from free face, choke blast effect and cratering effect
More in the 40th Annual Conference on Explosives & Blasting Technique proceedings, Denver, CO 2014

I-Blast ADV

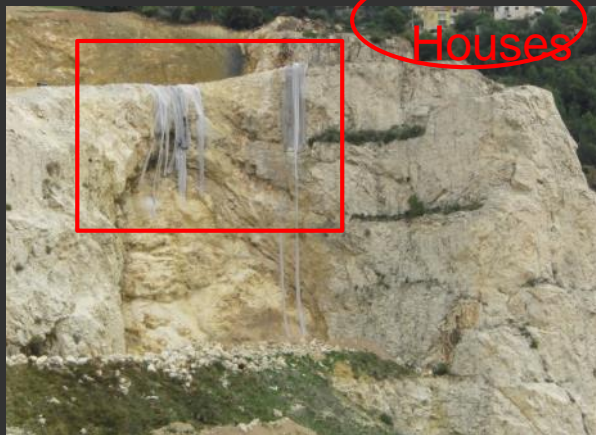
479 Charges, 13 Decks...

120 Meters Above a Crushing Plant

Based on physics and relevant field data:

<5%

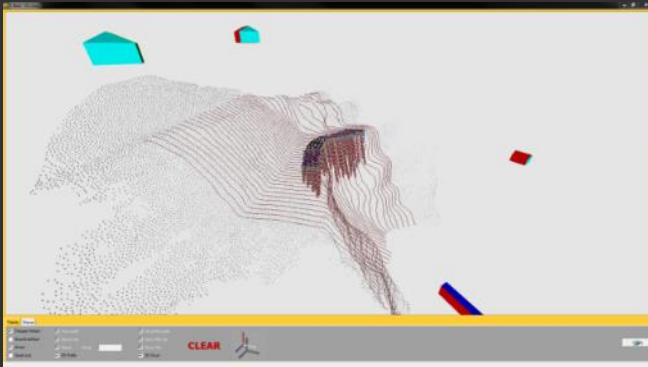
on Horizontal Cast distance
& Vibration Prediction



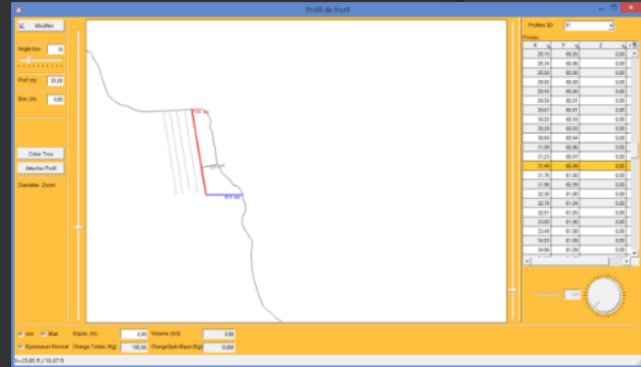
More in 41st Annual Conference on Explosives & Blasting Technique proceedings, New Orleans, LO 2015

I-Blast ADV

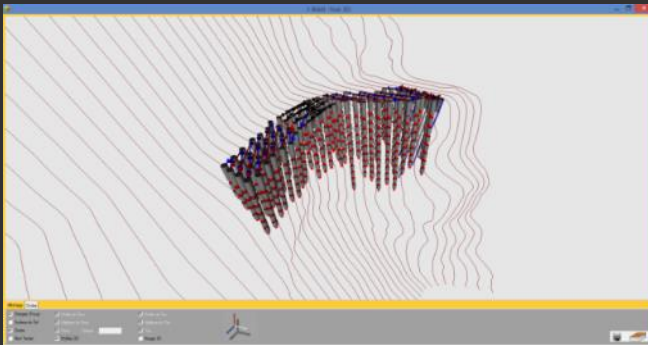
479 Charges, 13 Decks...
120 Meters Above a Crushing Plant



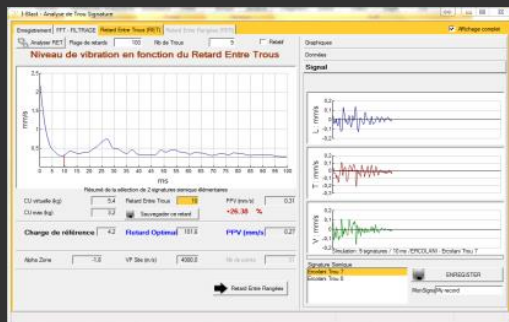
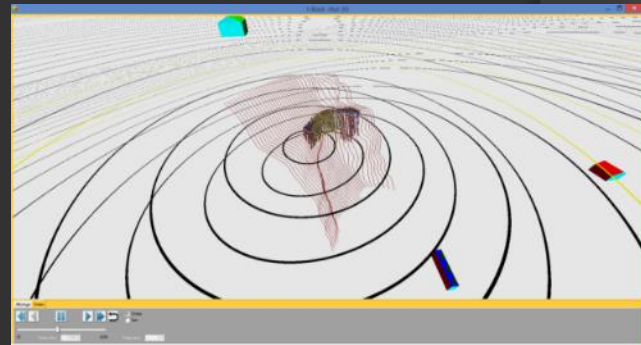
#1 - Hundred thousands points imported



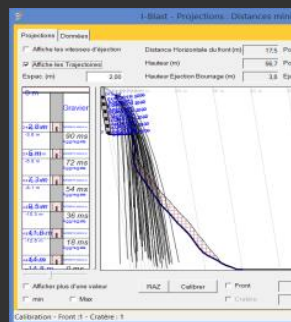
#2 - Holes positioning for minimum flyrock & prevent fault plane opening



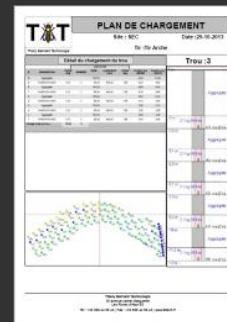
#3 - 3D simulation and calculations to keep charge per delay below 2 kg (4.4 lbs)
= 13 to 20 decked charges in the deepest holes (25 m) (82ft)!



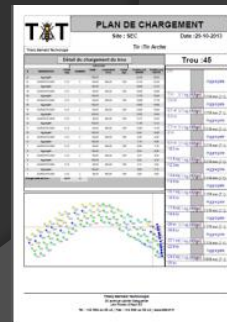
#4 - Searching for optimum delays using the signature hole method



#5 - Cast simulations for plant & residential area protection



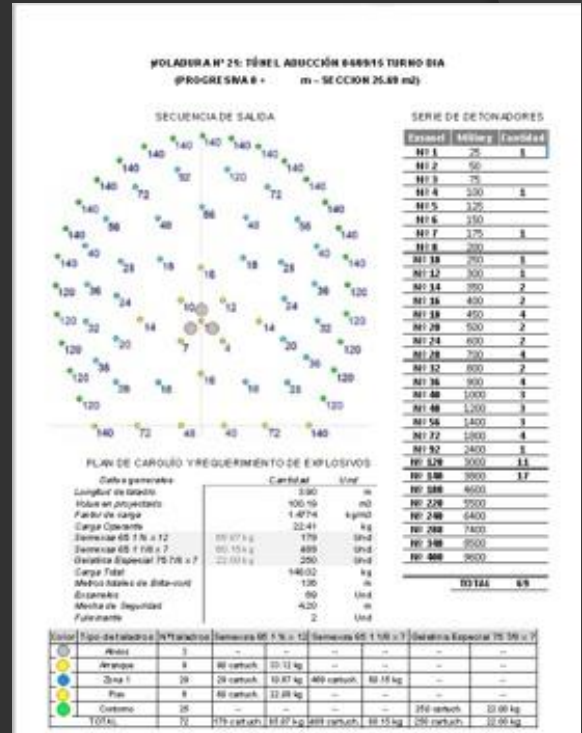
#6 - Giving operators a hole loading plans per hole!



More in the 41st Annual Conference on Explosives & Blasting Technique proceedings, New Orleans, LO 2015

I-Blast ADV

95 % Advance guaranty in tunnel !
CHAVIMOCHIC project choice for performances



I-Blast 7

3D PHYSICS-BASED SIMULATOR

They Trust I-Blast

Bedrocked with more than two decades of experience with hundreds of users throughout the world in surface and underground blasting applications, working in mines, quarries, explosives supply, consulting, state administration, contracting and education.

AngloAmerican, AngloGold, Audemard, Azot Mining Services, Barrick, Bluegrass Materials, Cadex, Conseil Général des Alpes Maritimes, Construction Boisvert, CCST du Québec, Deep Earth Logic, Docalsa, DTP Terrassement Bouygues Group, Dynamic Consult International, Dyfotech, Dyno Nobel, Entreprise Jean Lefèbvre, EPC Solutions, Enaex, Exsa, Freeport McMoran, Geoblast, Geotecminex, Goldex, GoldCorp, Graymont, Groupe Piercon, Kinross, Leica Geosystems, Luck Stone, Managem, Martin Marietta, Minera Aruntani, MTQ (Ministère des Transports du Québec), National Mineral - Resources University – St Petersburg University of Mines, Nelson Brothers, Newmont, Nordex, Odebrecht, Osisko, Protekrok, Simard Beaudry, Sequencia, SNC Lavalin, Suwannee American, Technical University of Madrid (UPM) – Escuela Tecnica Superior de Ingenieros de Minas y Energia, Terra Corporation, Titanobel, TP Monégasques, Universidad Federale do Rio Grande do Sul (UFRGS, Brazil) - Programa de Pós-Graduação em Engenharia de Minas, Metalúrgica e de Materiais (PPGEM3), Vale, Vicat, Vulcan Materials, Yamana Gold, ...



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