Decompression Expert OR Internet Spin Doctor

The truth is out there, but its often impossibly difficult to find. A couple of years back I completed a 260metre dive that resulted in terrible decompression injuries. The program that generated the plan was Abyss, the Algorithm RGBM. The bends I received were treated and I contacted Abyss and Bruce Wienke (developer of RGBM) to advise the outcome. Bruce's replies were not as expected and are detailed below. I had used the RGBM algorithm many times before, both shallow (60-90m) and deep (120m-260m), contrary to Bruce Wienke's website I received DCS every time using the RGBM algorithm. Satisfactory results were obtained only after manually adding significant extra shallow decompression stops, usually in the order of hours of extra time. I have used the VPM a/b algorithms since they became available, also with similar results, only the version using VPMbE (2005) with maximum conservatism provides acceptable decompression times.

I will get to the point now because thousands of divers who still use Abyss and RGBM are continuing to put their health in grave danger.

Abyss users should not use the RGBM algorithm option.

Divers should not use the RGBM algorithm within Abyss as it has been programmed badly according to Dr Bruce Wienke. Interestingly, the RGBM algorithm was launched within Abyss Dive Software and according to Bruce Wienke's own website was developed by him, although in the face of a recent law suit, he denies having much involvement in Abyss/RGBM implementation. Bruce Wienke is fully aware of the dangers inherent in Abyss software, yet he has decided not to inform the Abyss user base, instead he harvests bends data from users (similar to VPM) in an attempt to make the algorithm less full of holes.

Decompression software's typical users are internet enabled technical divers who sometimes, and through no fault of their own get decompression sickness after following the decompression schedule properly. All manner of things are usually blamed for getting DCS, but things may not be what they seem. Below is a fairly damning email from Bruce Wienke to Mark Ellyatt. It points out problems with Abyss staff and their lack of understanding about decompression. Ironically it also states one Abyss staff member was expelled from NAUI for training violations. Bruce Wienke is responsible for some gross ETHICS and SAFETY violations also, yet I have not read of his NAUI membership being revoked. At the top of the email it is clear to see the email is copied to senior management at the NAUI technical division, who also decided that safety comes second.

The following email text is dated July 2003...one of a series of exchanges taking place after the problematic 260m dive of Feb 2003.

Abyss software went bankrupt to avoid further litigation from numerous sources soon afterwards. The software has still not been withdrawn or any advisory notes issued

From: Bruce Wienke [mailto:brwtech@earthlink.net]
Sent: 09 July 2003 05:15
To: Mark Ellyatt
Cc: Nauitec@aol.com; EANx@aol.com
Subject: RE: Ellyat On GAP/ABYSS RGBM

Hi Mark,

Glad you are back

Damn, I thought your earlier email was about 500 ft dives and vestibular probs. We haven't seen vestibular probs above 500 - 400 ft on tmix, heliox, etc, with isobaric nitrox switches in the shallow zone, so please fill me in with your problematic 1000+ ft dives. You definitely are one or two data points, blazing some frontiers.

And pushing the envelope a bit too hard. You need back off for awhile here.
I am quite worried about you on 1000+ ft dives -- using any algorithm, OC, or RB.

Judas, you are likely up against fluid shifts in the inner ear. Having done some 3D hydrodynamic flow calcs in 3D, fluid flows/shifts appear to worsen for isobaric switches. I am trying to get a better handle on all variables. Fast compartments at 34+ atm do have enough "driving power" to push things around, no matter what mix. Please send me you profiles/ switches/mixes/etc. when you can. They are important research points. And a favor -- blow off those 1000 ft dives for the time being. For your questions, please see comments between ******** in your email text below.**

Read on, in addition to the above.

BW

----- Original Message -----

From: Mark Ellyatt

To: brwtech@earthlink.net

Sent: 7/8/2003 7:25:27 AM

Subject: GAP/ABYSS RGBM

Hi Bruce,

I have been corresponding with Kees Hofwegen from GAP software who has

recently incorporated RGBM in his deco software.

Kees has advised me that the software has an effective depth limit of

600' (180m) and that this depth limit was imposed by you, something to

do with diffusion codes etc.

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Yes, data only goes down to 500 ft or so. Code operates for any depth.

And works on bubbles -- not fluid shifts. BW

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Do you know how Abyss software gets around this problem, as the version

that I have quite happily produces RGBM profiles down to 305m.

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Same comment as above. ABYSS doesn't stay in close touch with me, has had probs with implementation (mentioned to me by Chris), and I am not sure if they have fully implemented the same code as GAP. ABYSS, of course, receives all the same info as GAP, Hydrospace, Plexus, Mares, Suunto, etc. But be careful with ABYSS, and I say that in the most respectful way. ABYSS Users often complain to me, but I try to stay out of personal ranglings. Plus Joel Silverstein at ABYSS is a difficult person, does not understand RGBM nor deco theory, and is super pissed off at me as one of 9 NAUI BOD members who suspended him for ethics and training violations, and then revoked his NAUI membership. So, deal with Chris on ABYSS/RGBM matters when you need do so, not Joel. BW

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Does Abyss have a different version of your algorithm than GAP? As you may remember, I completed a 260m+ dive quite recently and came off worst! (over burdened inner ear compartment further over loaded with a counter diffussing gas)

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Don't know (yet) if ABYSS has brought their RGBM up to GAP, as in the above. Please send me your profiles/mixes/switches on the 1000 ft dives you have done already. Counterdiffusing gas is only part of prob with fluid shifts. BW

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I have plans to go deeper soon, would you say that the Abyss software in RGBM mode will give acceptable results, If not…why not.

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PLEASE DO NOT GO DEEPER YET -- a few more things need checking. RGBM will most likely do the best job, but there are some concerns. BW

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Special Note: Bruce Wienke's reference to "Fluid Shifts" is more totally irrelevant rubbish! For more irrelevant ramblings, read any of his books!

I have collected two years of case papers related to a recent lawsuit. I will put them all on the internet quite soon so divers can learn what the experts are prepared to do in pursuit of the limelight. What was also interesting was this case being dismissed on the grounds of a non US citizen bringing a case against a US company and US individuals, where the alleged accident occurred outside of the United States. Divers may want to reconsider any purchase of US products where they will be used outside of the US by non US citizens.

An offer of out of court settlement was rejected as it likely required non disclosure of all the case related papers! I wasn't having that!

RGBM as it has never been validated within technical depths and times. RGBM comes in many flavours, the versions in recreational dive computers is an overly conservative model developed as a marketing tool to gain brand recognition for RGBM. The recreational RGBM model offers no benefits over more traditional algorithms such as DSAT or Buehlmann models (if suitably applied). RGBM comes in a printed form, again conservative tables used by a dubious diver training agency. The versions inside software applications aimed at technical divers are the most dangerous when used aggressively. Even during minor technical dives, RGBM and its typically inadequate decompression gives cumulative damage that will present itself over time

Abyss software had/has quite a following. Luckily the RGBM algorithm was added quite late in its development, and prior to this technical divers were not attempting particularly aggressive dive profiles.

Below is a text from two other "renowned experts" explaining just how good Abyss software is! The internet is full of these dubious endorsements...

A Hard Look at Decompression Software

By Bill Hamilton and George Irvine, As printed in DeepTech,

ABYSS, Advanced Dive Planning Software

Abyss is a masterpiece. Chris Parrett has really poured his heart and soul into this one. It is Windows based, and fully incorporates the graphical user interface inherent in Windows. Abyss provides the user with access to the building blocks of the decompression algorithm, including such things as factors for each of thirty-two tissue compartments (32 compartments allow for some fine tuning, but for practical purposes this is more than is really needed). It offers three basic variations on the algorithm, using different levels of conservatism achieved by slowing the outgassing. The latest version now incorporates Dr. Bruce Wienke's RGBM bubble theory as well. The program allows virtually every aspect of the dive to be specified with over 800 user modifiable variables including the user's age, weight, etc. The graphics are fantastic, and the program is well written and well supported. It comes with an extensive manual as well as comprehensive on-line help. It also tracks the oxygen limit fraction and will generate sets of tables entirely or in sections.

Real World Analysis by George Irvine

Most of our extreme dives are conducted according to commercial tables produced by Hamilton Research. I checked sample Abyss and DECOM dive plans against dives in my logbook that produced

asymptomatic decompressions which were confirmed by doppler. Both programs produced tables that matched what I had used, so long as I injected three or four short deep stops into the plan prior to using the first stop recommended by each of the programs. Whether or not these deep stops were necessary is supported only by the fact that I did get mild DCS (Type I) when I didn't do the deep stops. However, I only allowed this to happen twice in 200 dives, so this is not exactly conclusive. The point is that both Abyss and DECOM produced tables as good as the custom tables I have used from commercial sources. I also checked some wreck dive profiles that had worked well in the field and found the same conformance. These are a very few data points, but they are better than none.

Dr. R. W. Bill Hamilton is Founder and President of Hamilton Research. George Irvine is Director of the Woodville Karst Plain Project and a Stock Broker in Ft. Lauderdale, Florida.

I would imagine the above text disagrees somewhat with Bruce Wienke's appraisal of Abyss, but who cares? plus its only divers getting hurt...Heaven forbid the dubious reputations of diving's many religious leaders are dented.

Hand Bag Fighting of decompression experts is a recent addition to the sport, coming about at roughly the same time as the re incarnation of bubble models. It is one that needs stamping out if safety is to be improved.

This article will be updated soon with more outrageous quotes from the "experts"

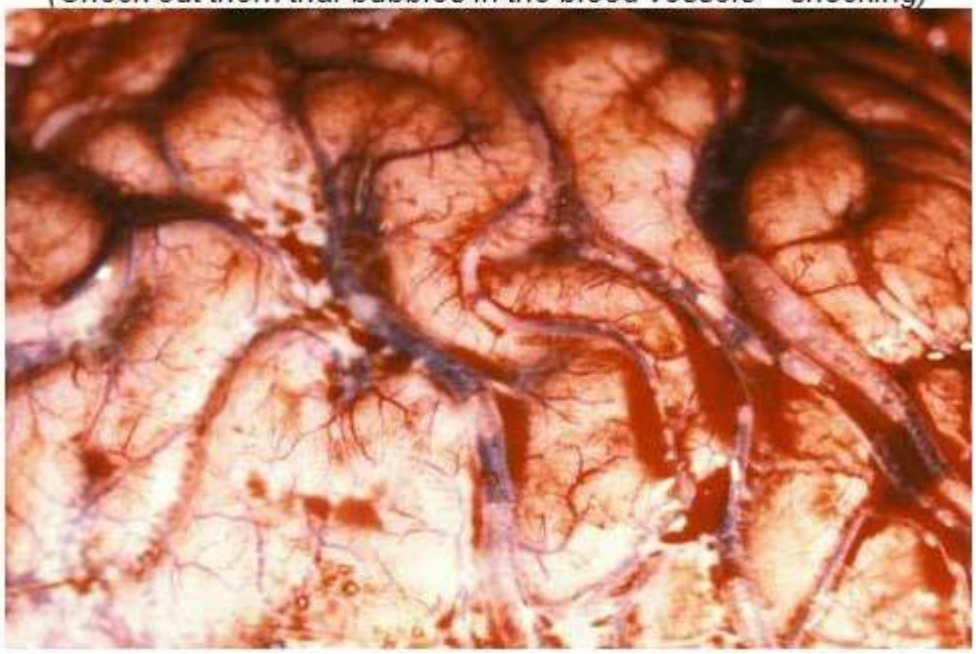
You will particularly like the ones where Bruce Wienke boasts of designing my 313metre dive profile, even supplying a copy of the dive plan used. Predictably the VPM experts also went on scubabored a mille second later, implying that my dive plan was clearly a bubble model and a mirror of VPM. I have never published my dive plan and it certainly does not look like an RGBM or VPM plan despite what the internet *marketeers* state.

Unfortunately it seems that Bubble model internet marketing strategies are believed by some. Even more sadly they were actually followed by two European divers to 316m and 320m in 2004, both divers were predictably horrendously injured.

The words and reputations of "experts" can indeed inflict terrible injuries.

The Really Ginourmous BENDS Model

(Check out them thar bubbles in the blood vessels - shocking)



Dive Safe, Dive Educated