



## SELECTING OPTIMAL GRADIENT FACTORS FOR USE BY BELGIAN MILITARY DIVERS

MORE CONSERVATIVE SETTINGS ARE NOT NECESSARILY SAFER

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2

Selecting optimal Gradient Factors for use by Belgian military divers: more conservative settings are not necessarily safer

**What is the issue?**

Shearwater Perdix – default gradient factors (30/70) are too restrictive:

- Shorter usable work time under water
- Introduction of mandatory deco-stops

⇒ Belgian Navy divers asked us to have a closer look at the dive computer algorithm and gradient factors settings

- ⇒ Recommendations to increase usable work time under water while maintaining safety
- ⇒ Guidelines for gradient factor settings



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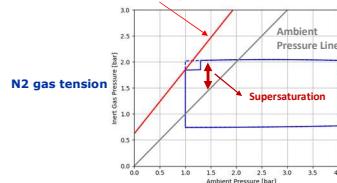
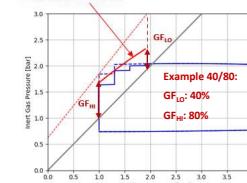
### BÜHLMANN ZHL-16C AND GRADIENT FACTORS

**Bühlmann ZH-L16C**  
16 parallel compartments, each having its own:  

- theoretical half-time
- tolerated overpressure limit

**Gradient Factors (GF)**

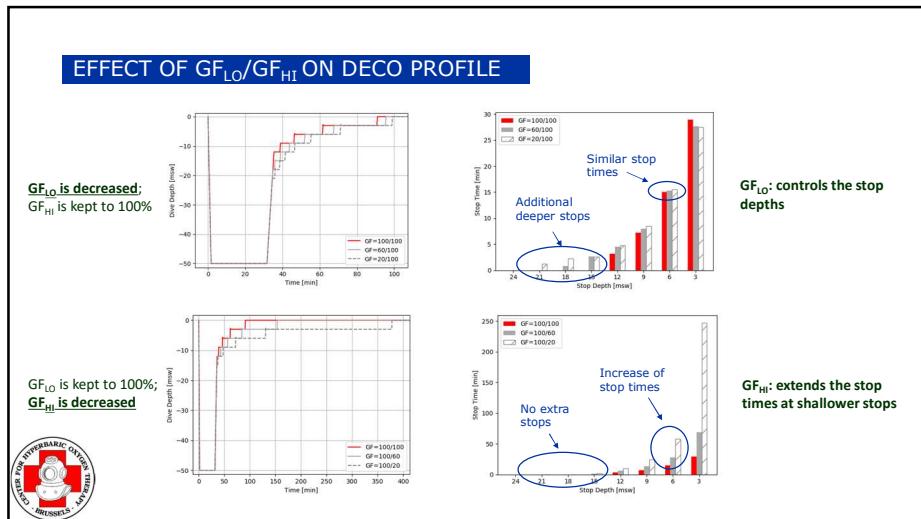
- $GF_{LO}$  /  $GF_{HI}$
- GF: fraction of the difference between  $P_{amb}$  and M-line (100% is the original M-line)
- Convention:  $GF_{LO} \leq GF_{HI}$

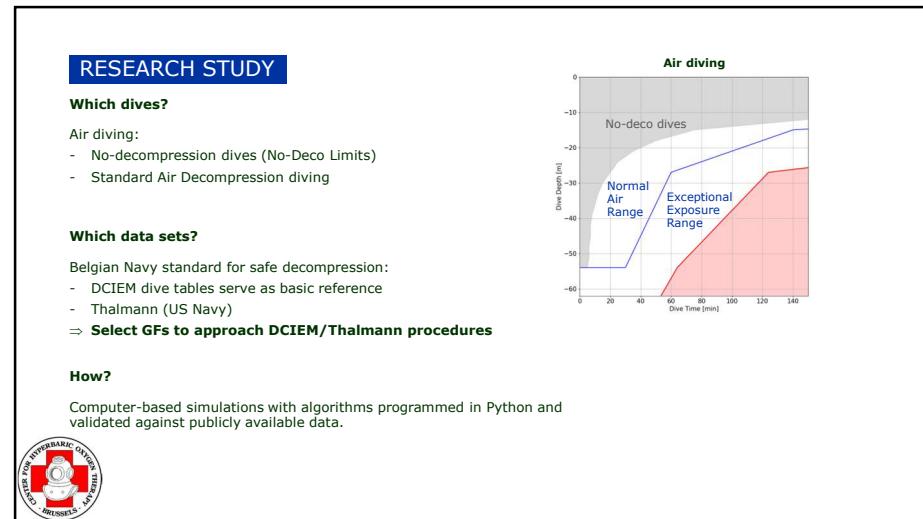
Gradient Factors modify validated decompression profiles and the validated Bühlmann ZH-L16 model by changing the original M-value lines.



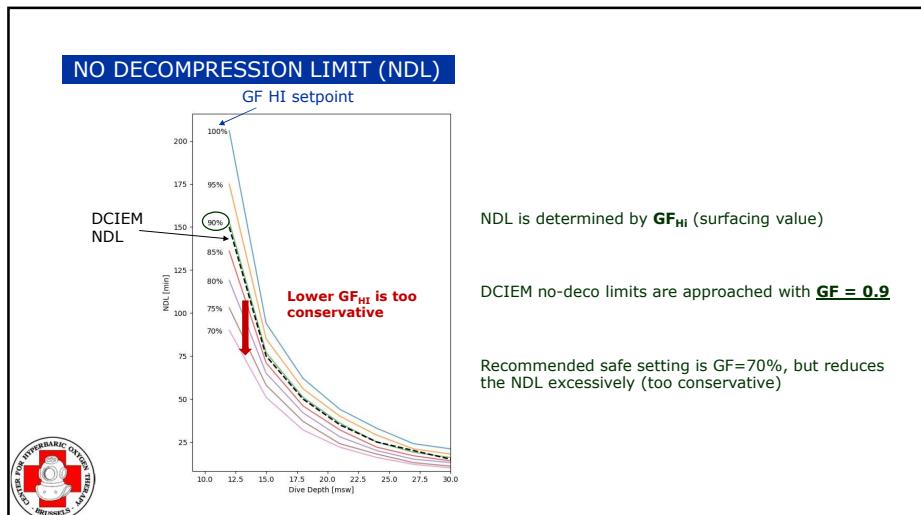
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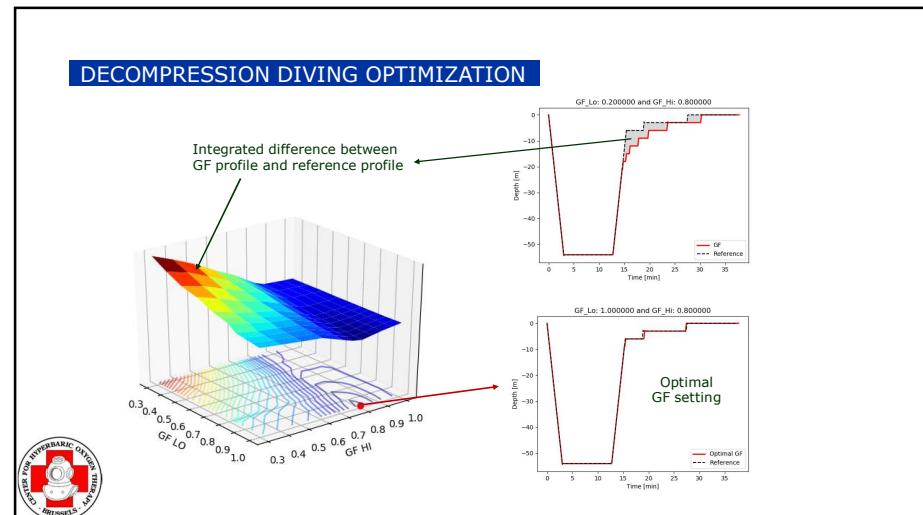
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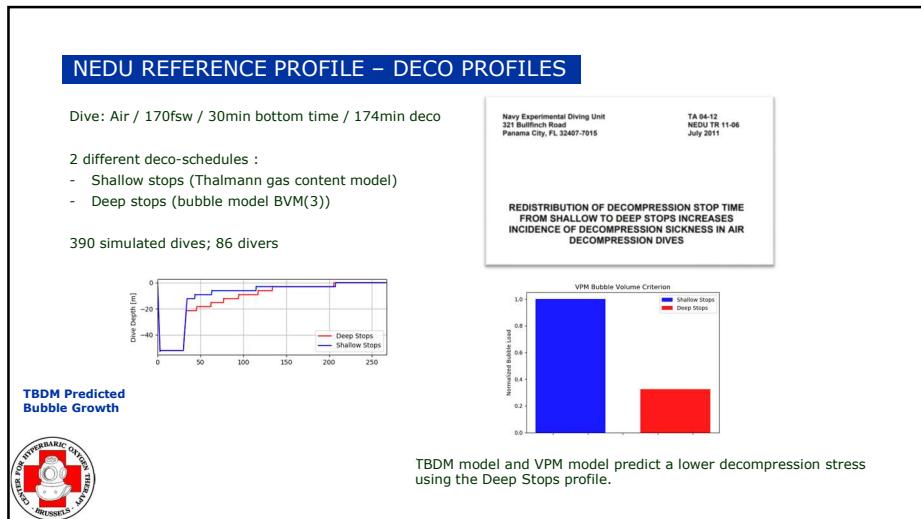
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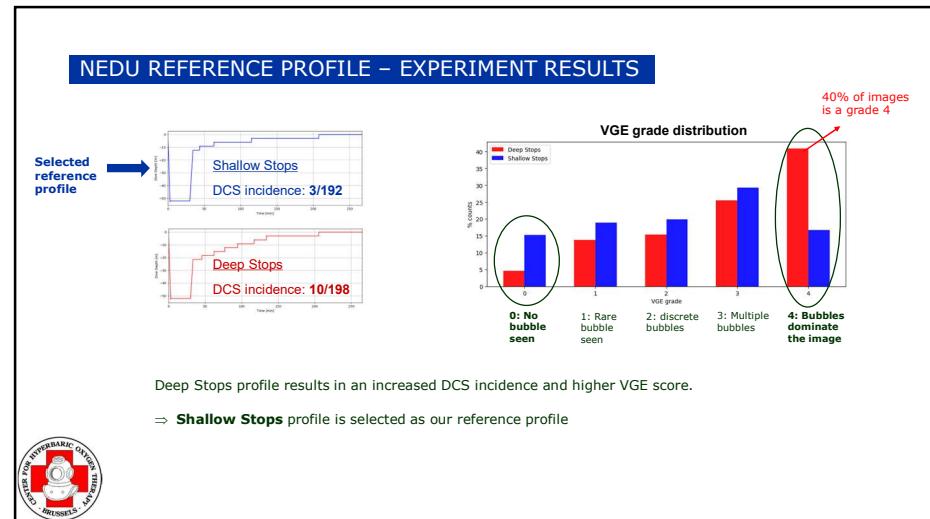
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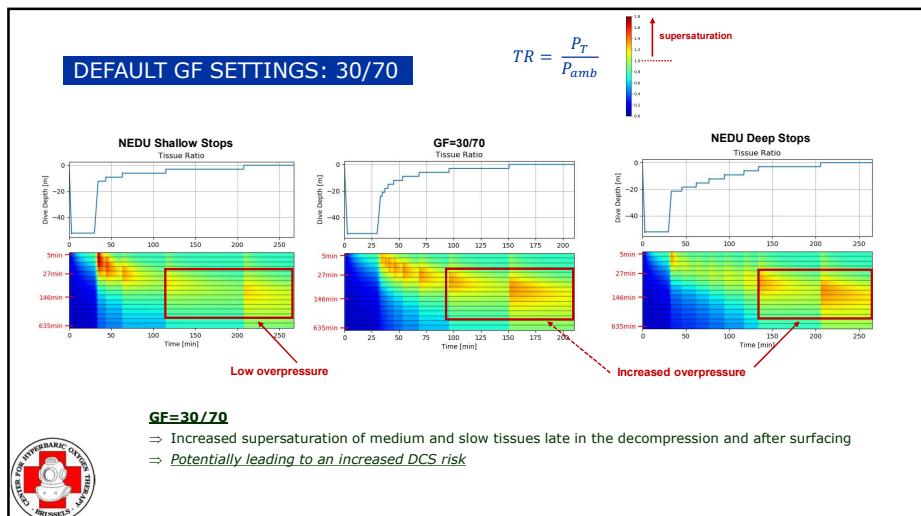
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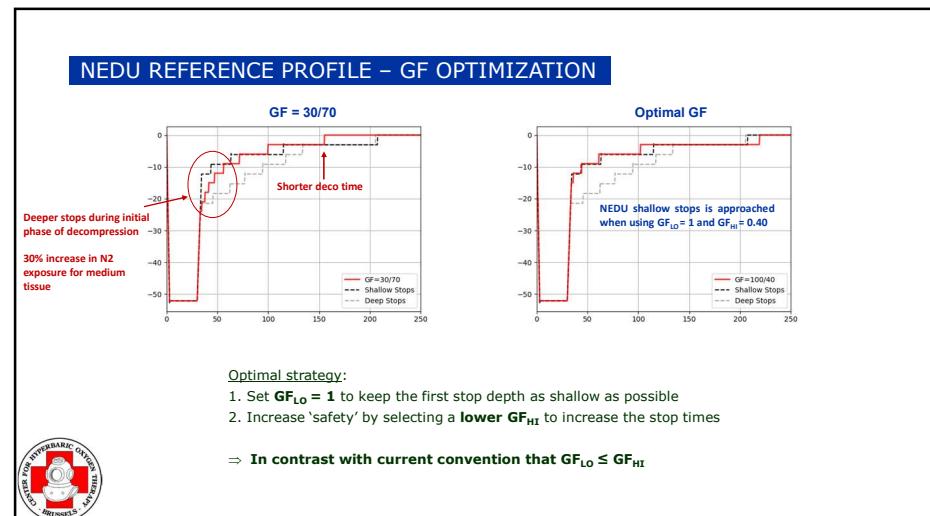
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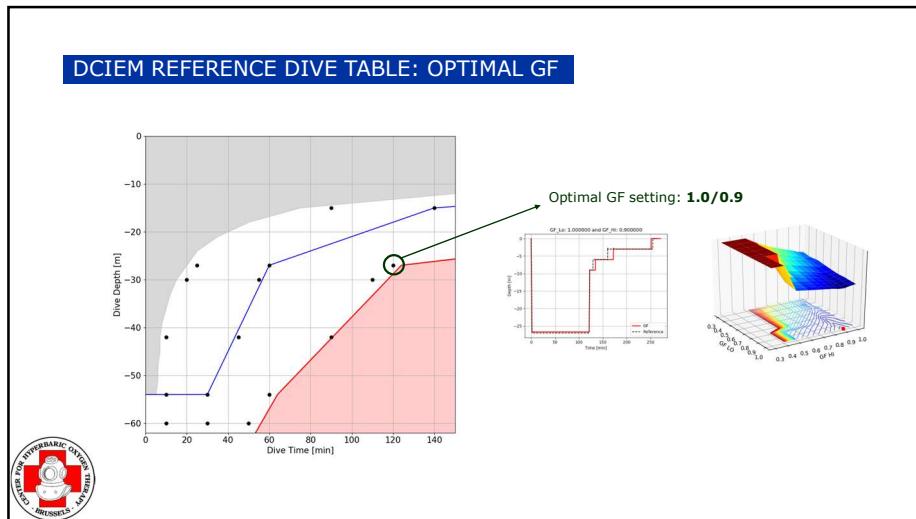
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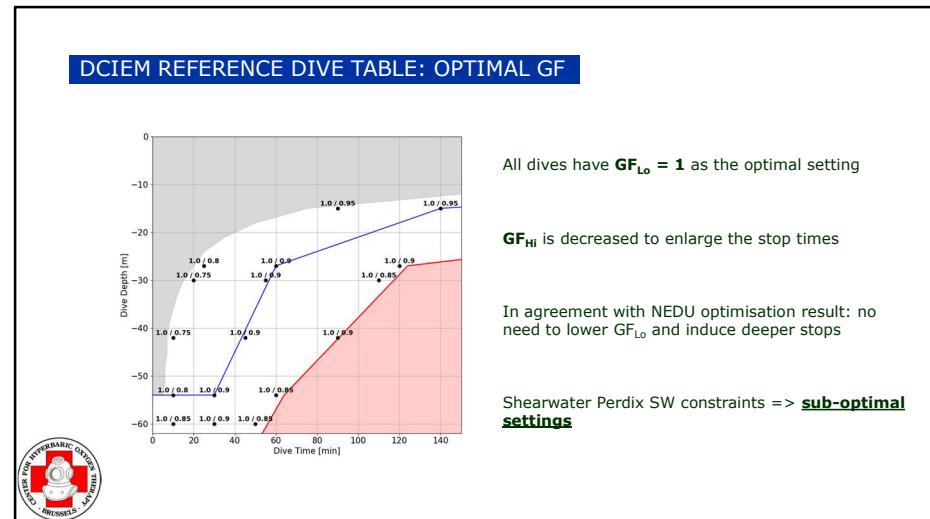
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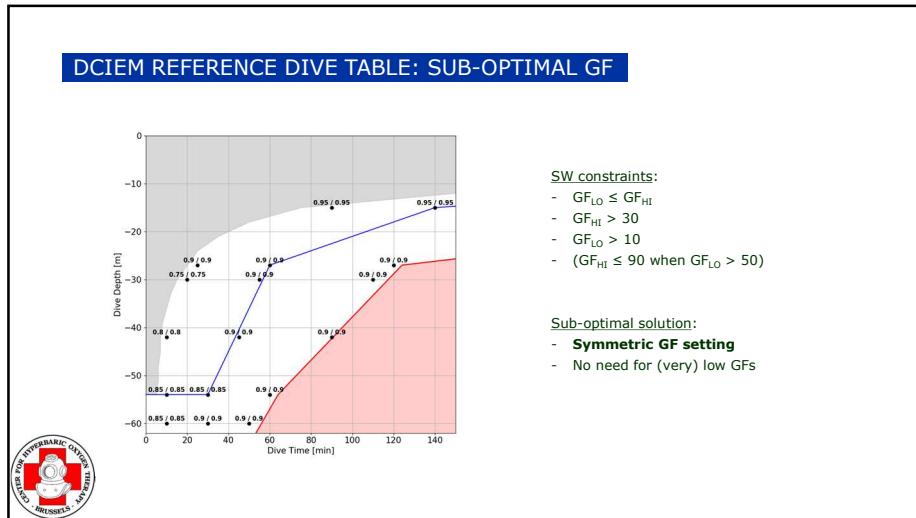
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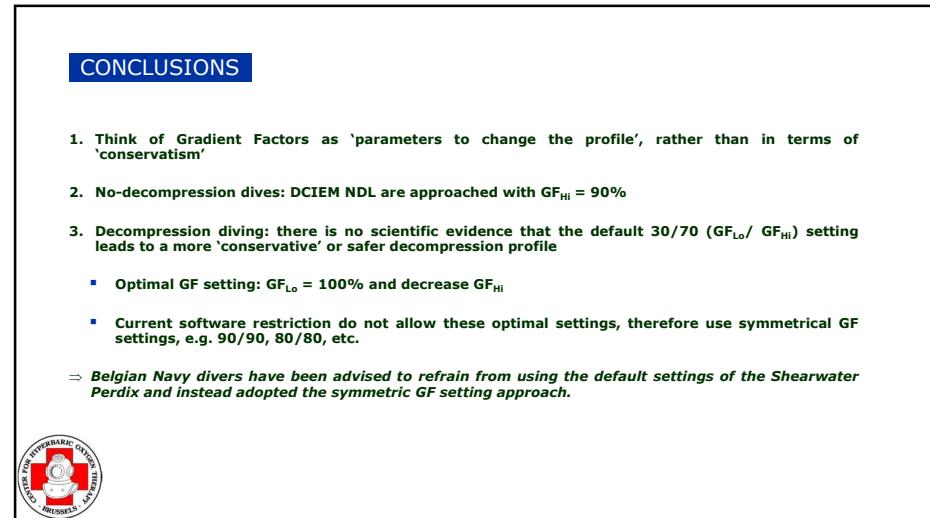
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