Addendum1: RGBM vs. RGBM Ascents from 200 ft (61m) Dives on Trimix 18/45

Comparison of Tables Generated by Hydrospace Engineering's *Explorer* Diving Computer to GAP Decompression Tables

•All ascents are calculated by the RGBM-based decompression models incorporated in Hydrospace Engineering (HSE) and GAP software.

•Tables generated by the 2003 model HSE *Explorer* closely match GAP RGBM tables.

•Tables generated by an 'Old' 2002 *Explorer* have much shorter ascent times than GAP tables.

Organization

•Original Slides VPM-B vs GAP RGBM and GF Slides (pages 1-38)
VPM-Bv3.2_vs_GAP_RGBM_and_GF_200ft_3mix1845_Dives.pdf

•Addendum HSE RGBM vs. GAP RGBM (pages 39-46)
HSE_vs_GAP_RGBM_200ft_3mix1845_Dives.pdf

Notations and Conventions

General

•Old HSE *Explorer* tables date from the circa Fall, 2002 software. The differences between old and new tables possibly arise from different default settings for “bFac,” the RGBM Boyle-expansion fudge-factor. I do not know when the transition from old to new Explorer software occurred.

Profiles

•12 profiles of 200 ft on Trimix 18/45 back gas, with bottom time ranging from 10-120 min are modeled, with deco using back gas and standard mixes: Nitrox 50% and O2.

•Total of 24 HSE models = 12 profiles each on 2003 and 2002 versions of Explorer software. Total of 12 GAP RGBM models calculated as described in the original slide set.

HSE and GAP Software Settings

•HSE profiles from current and old *Explorer* models provided to me by users of the simulation software –I do not own these computers.

•All HSE and GAP profiles calculated at Nominal (N) conservatisms
•Notation: “HSE (N),” or “HSE” denote 2003 HSE tables. “HSE (N_O),” or “HSE O” denote old 2002 HSE tables.

Discussion of Correlations of Total Ascent Times (TATs) for GAP to 2003 and 2002 HSE

TATs Calculated by 2003 HSE Explorer are Similar to GAP RGBM

2003 HSE vs. GAP (page 46 -Upper Graph)

•GAP and HSE TATs are linearly correlated, with GAP TATs slightly longer than HSE's TATs.
•Compare the similarity of the GAP vs HSE TAT correlation plot to the VPM-B (N) vs. GAP RGBM correlation plot on page 12 of the original slide set.

2002 HSE vs. GAP (page 46 -Lower Graph)

•GAP and HSE O TATs are linearly correlated, with GAP TATs approximately twice as long as HSE O TATs.

Discussion of Correlation Plots of GAP to HSE Stop Times

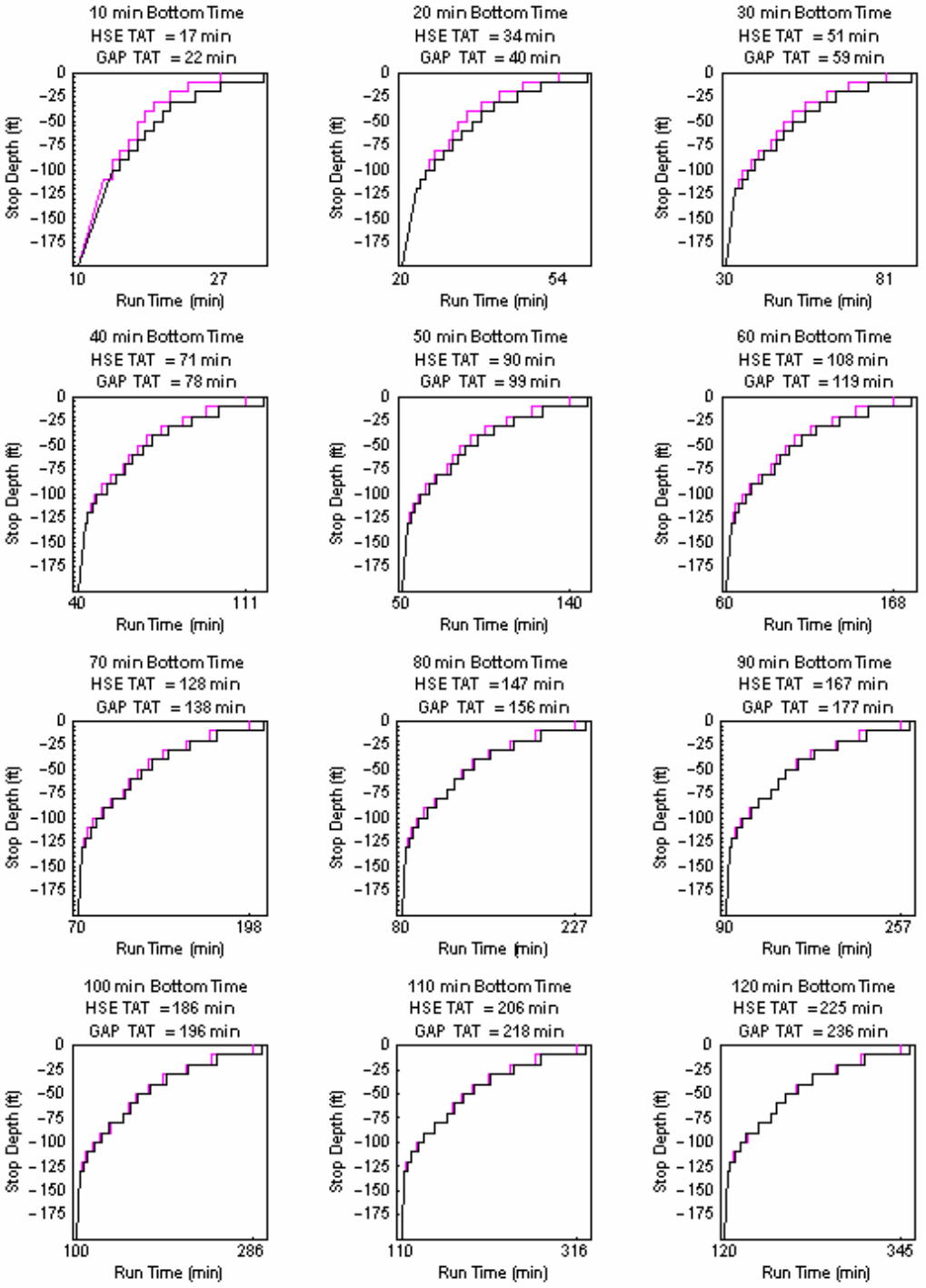
2003 HSE vs. GAP (page 43)

GAP and HSE Explorer stop times are close to 1:1 linearly correlated. GAP has slightly longer shallow stops.

2002 HSE vs. GAP (page 45)

GAP stop times are linearly correlated at 2:1 (nearly twice as long) to old HSE Explorer stop times.

Comparison of GAP and HSE (N) RGBM Ascents for Array of 200 ft Dives on Back Gas {O_2, He, N_2} = {18, 45, 37} Deco on {18, 45, 37}, {50, 0, 50}, and {100, 0, 0}



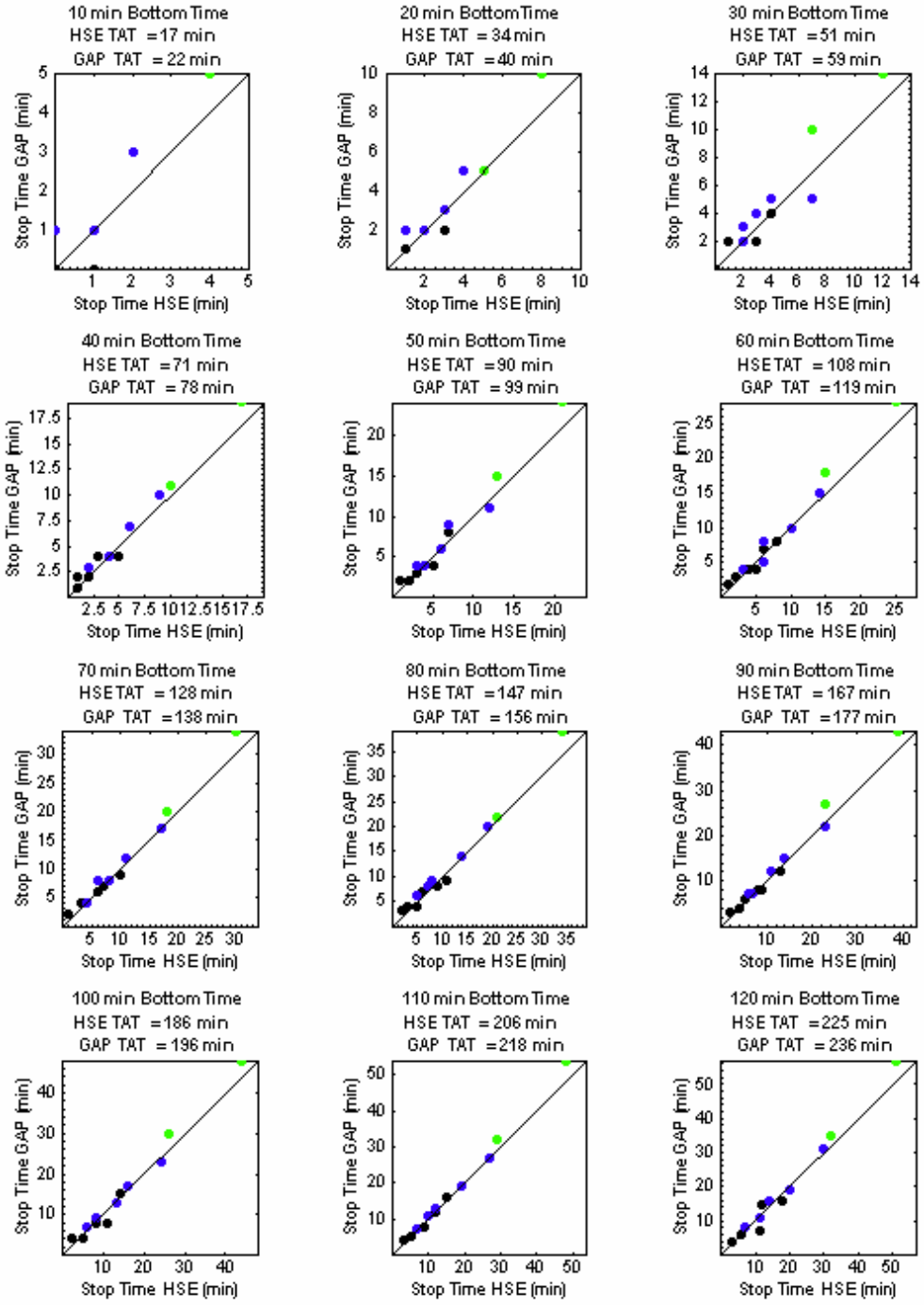
LEGEND
Dive Profiles

HSE
GAP

Eric Maiken, 2003

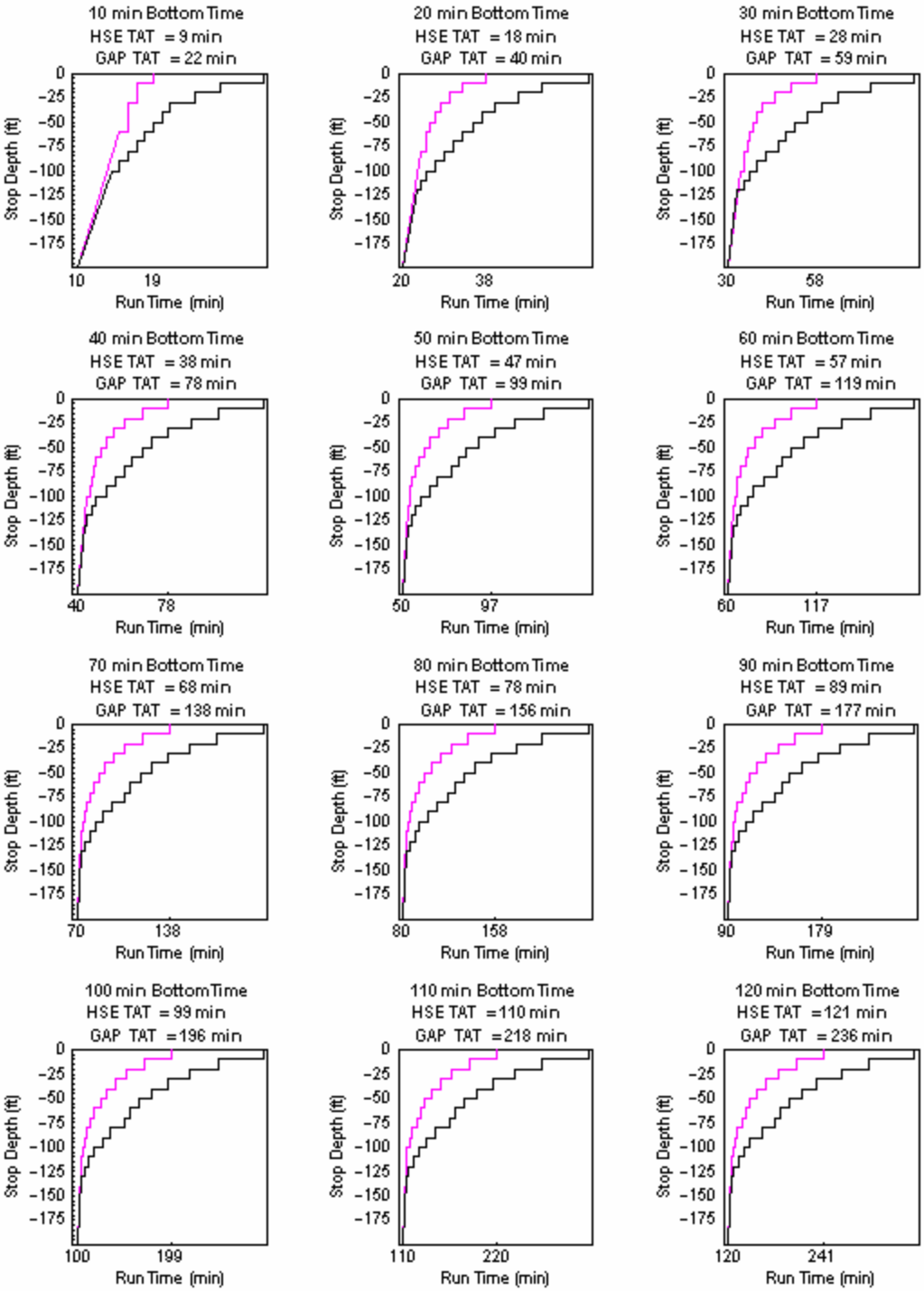
Limited Distribution

Correlation of GAP to HSE (N) RGBM Stop Times for Array of 200 ft Dives on Back Gas {O_2, He, N_2} = {18, 45, 37} Deco on {18, 45, 37}, {50, 0, 50}, and {100, 0, 0}



LEGEND
Deco Gases
O_2, He, N_2
100, 0, 0
50, 0, 50

Comparison of GAP and HSE (N_O) RGBM Ascents for Array of 200 ft Dives on Back Gas {O_2, He, N_2} = {18, 45, 37} Deco on {18, 45, 37}, {50, 0, 50}, and {100, 0, 0}



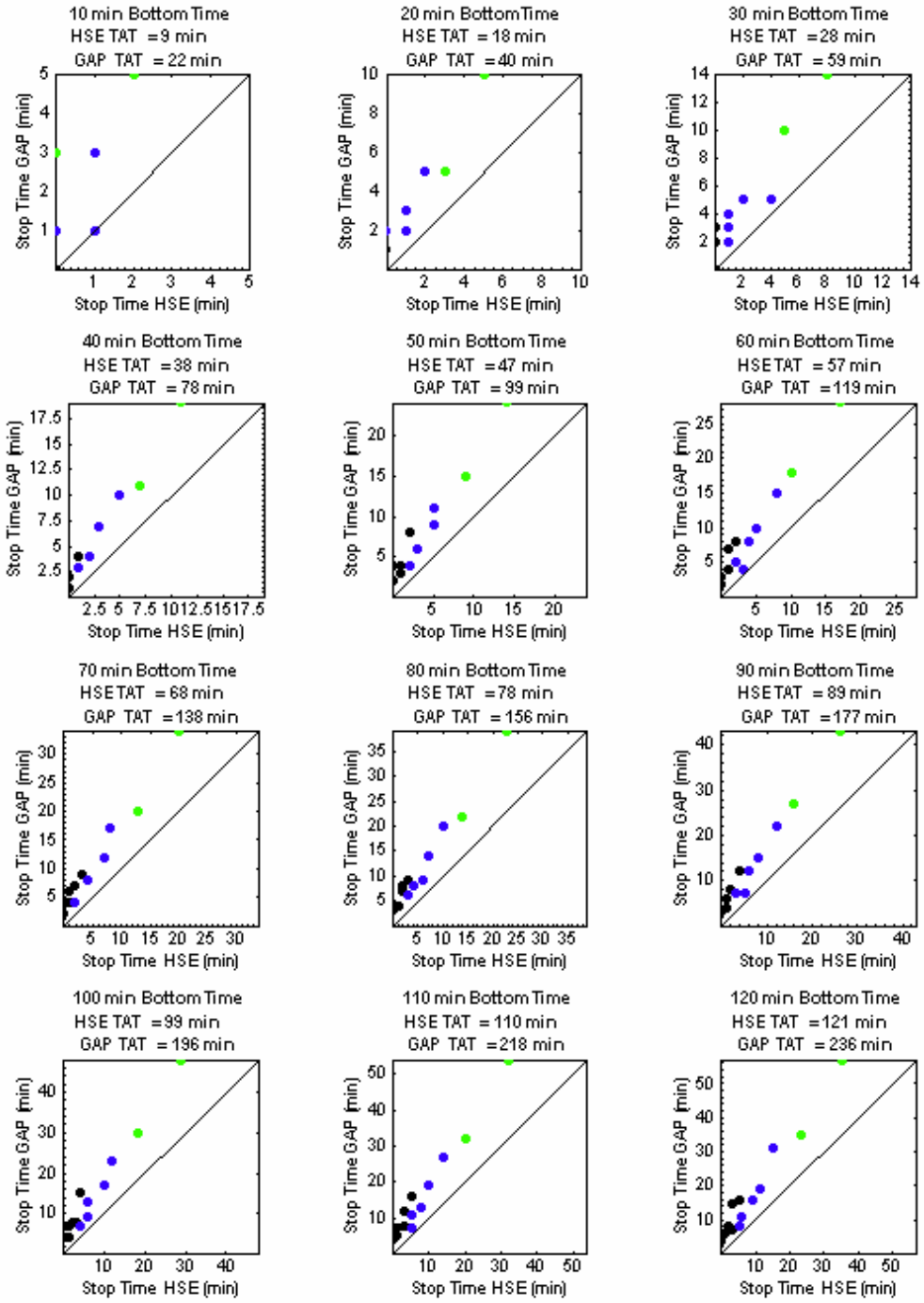
LEGEND
Dive Profiles

HSE O
GAP

Eric Maiken, 2003

Limited Distribution

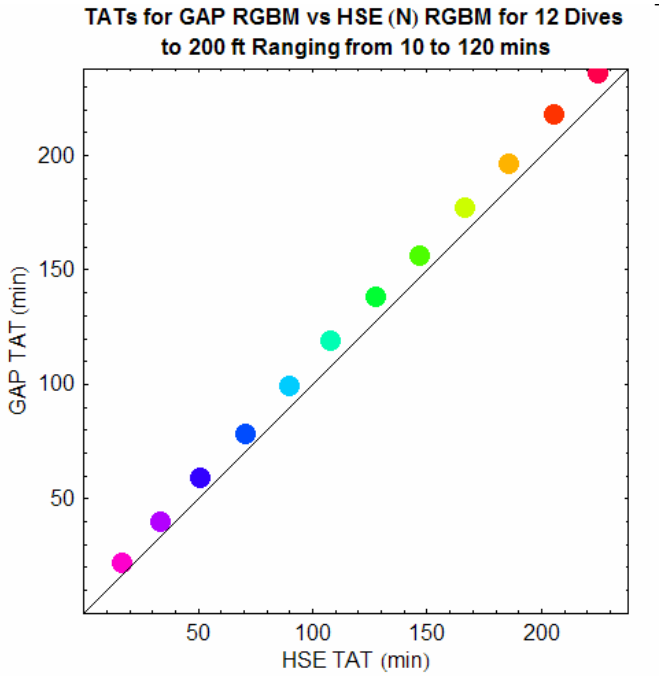
Correlation of GAP to HSE (N_O) RGBM Stop Times for Array of 200 ft Dives on Back Gas {O_2, He, N_2} = {18, 45, 37} Deco on {18, 45, 37}, {50, 0, 50}, and {100, 0, 0}



LEGEND
Deco Gases
O_2, He, N_2
100, 0, 0
50, 0, 50

Correlation of GAP and HSE TATs for 12 Different Dives at 200 ft

GAP vs. 2003 HS



GAP vs. 2002 HSE