Case study 8.2: ***Futility of tuning based on 1 extreme meal*** V.2

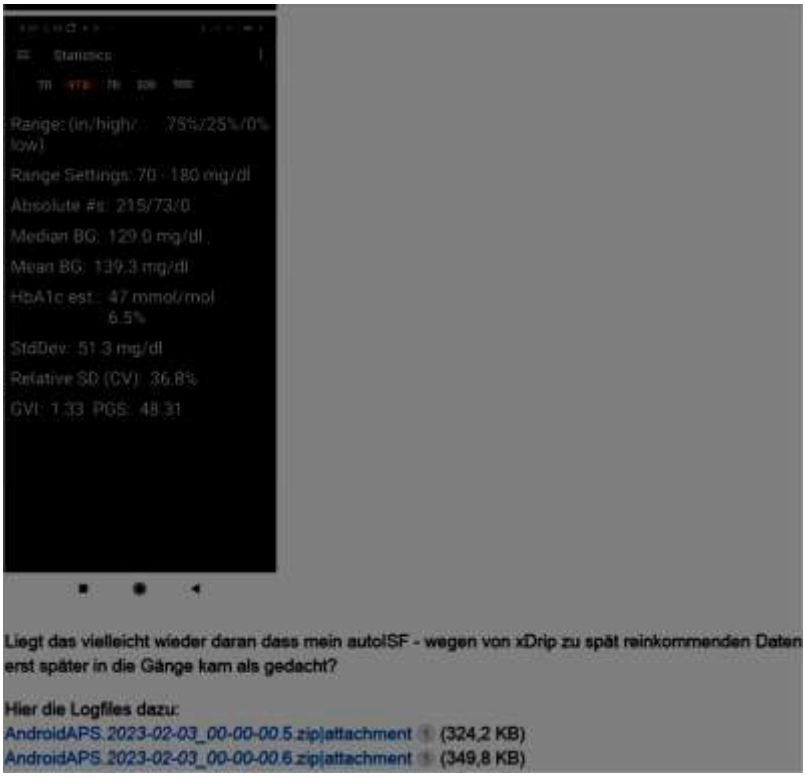
Below a detailed application example is given for using the emulator to fine-tune autoISF parameters.

Key learning: It turned out a mistake to tinker more with a loop that already had been well tuned for months, to adjust it „better“ to data from just one day.

Glucose data from a „bad day“ for logfile analysis

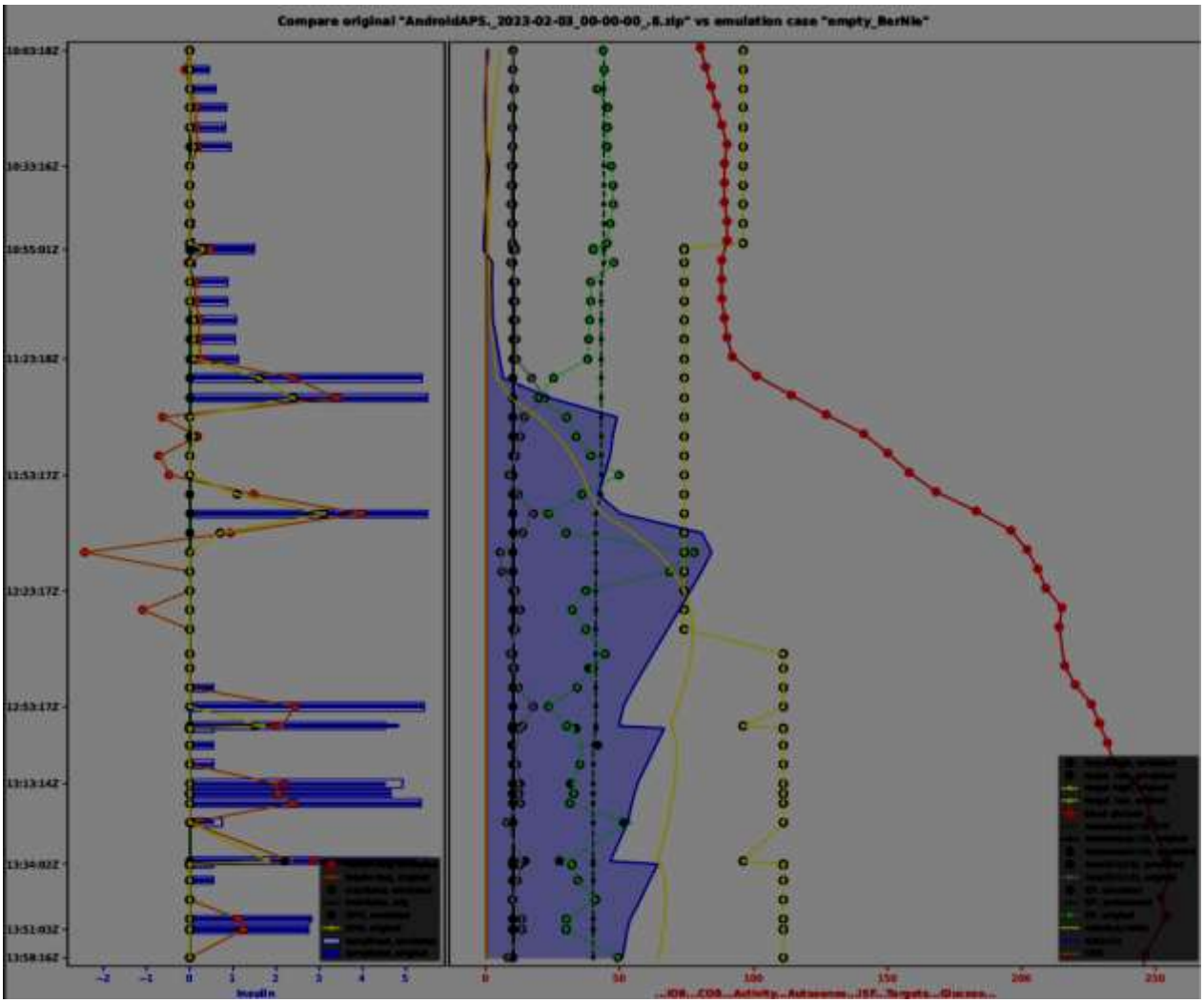
Frustrated about an extremely bad day, after a month with over 90% TIR, the logfiles of this day were analyzed.

The first assumption was that higher peaks than usual resulted because perhaps CGM values arrived late, or were released late by the built-in quality assurance. However, with one isolated exception (18.12 UTZ in table below), there was no problem that could be attributed to CGM "delays".



Emulator Analysis of the First Peak ~ 12:30 – 15:00 central EU winter time

= Greenwich UTZ 11:30 – 16:00 (the Emulator uses universial time zone)



References to columns (letters) are for the table on the following page.

Column (E) and the red curve in the top right graph show the glucose progression. There was an EatingSoonTT of 74 (G) set until UTZ 12:33. Column (L) shows the iob. Values above my iobTH, for SMB shut-down, are highlighted in orange. Column (AH) shows the insulin_required, which is multiplied by the delivery_ratio (0.5...1) to the SMB size column (AL).

The insulinReq is no longer defined by the profile_ISF shown in (AF), but by the ISF of column (AE), which results from a calculation of the five autoISF components (columns Y - AC).

A	B	C	E	G	L	O	P	Q	R	S	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
			bg	targ		final	dur		lin.fi		acce	bg	pp	delt	dura	final				ins.	ins.	mi	m				
	UTC		acce	lov		ISF	mir	dura	min	lin.f	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	Req.	Req.	bol	bc	SMI	SME	TBR	TBR
id	ime	Z		orig	iob	orig	ute	avg.	ute	delt	emul	emul	emul	emu	emul	emul	orig	pro	emu	orig	emul	ori	e	orig	emu	orig	emul
16	11:13	Z	89	74	0,25	1,11	55	89	10	0,5	1	1	1,02	1	1,11	1,11	39	43	39	0,23	0,23	0	0	0,1	0,1	1,07	1,07
17	11:18	Z	90	74	0,38	1,12	60	89	10	1	1,1	1	1,02	1	1,12	1,12	38	43	38	0,21	0,21	0	0	0,1	0,1	1,05	1,05
18	11:23	Z	92	74	0,51	1,13	65	89	10	1,5	1,1	1	1,04	1	1,13	1,13	38	43	38	0,26	0,26	0	0	0,1	0,1	1,13	1,13
19	11:28	Z	101	74	0,64	1,7	0	101	10	5,5	1,7	1,01	1,18	1	1	1,7	25	43	25	2,38	2,38	0	0	1,6	1,6	5,37	5,37
20	11:33	Z	114	74	2,38	2,2	0	114	10	11	2,2	1,02	1,26	1	1	2,2	20	43	20	3,42	3,42	0	0	2,4	2,4	5,5	5,5
21	11:38	Z	127	74	4,89	1,43	0	127	10	13	1,4	1,04	1,26	1	1	1,43	30	43	30	-0,6	-0,6	0	0	0	0	0	0
22	11:43	Z	141	74	4,73	1,28	0	141	10	14	1,1	1,05	1,28	1	1	1,28	34	43	34	0,18	0,18	0	0	0,1	0,1	0	0
23	11:48	Z	150	74	4,63	1,1	0	150	25	12	0,9	1,06	1,18	1	1	1,1	39	43	39	-0,7	-0,7	0	0	0	0	0	0
24	11:53	Z	158	74	4,42	0,87	0	158	30	12	0,8	1,07	1,16	1	1	0,87	50	43	50	-0,5	-0,5	0	0	0	0	0	0
25	11:58	Z	168	74	4,18	1,2	0	168	10	9,2	1,1	1,07	1,2	1	1	1,2	36	43	36	1,48	1,48	0	0	1,1	1,1	0	0
26	12:03	Z	183	74	5,03	1,76	0	183	40	11	1,8	1,07	1,3	1	1	1,76	23	41	23	3,97	3,97	0	0	3,1	3,1	5,5	5,5
27	12:08	Z	196	74	5,06	1,37	0	196	15	13	1,4	1,07	1,26	1	1	1,37	30	41	30	0,94	0,94	0	0	0,7	0,7	0	0
28	12:13	Z	202	74	5,42	0,53	5	199	50	11	0,5	1,07	1,12	1	1	0,53	78	41	78	-2,4	-2,4	0	0	0	0	0	0
29	12:18	Z	206	74	5,04	0,6	10	201	55	11	0,5	1,07	1,08	1	1,17	0,6	69	41	69	0	0	0	0	0	0	0	0
30	12:23	Z	209	74	7,62	1,1	15	203	65	10	0,8	1,07	1,06	1	1,26	1,1	37	41	37	0	0	0	0	0	0	0	0
31	12:28	Z	215	74	7,21	1,27	15	208	20	4,5	1,2	1,07	1,12	1	1,27	1,27	32	41	32	-1,1	-1,1	0	0	0	0	0	0
32	12:33	Z	214	74	6,78	1,1	20	209	80	9,2	0,8	1,07	1	1	1,37	1,1	37	41	37	0	0	0	0	0	0	0	0
33	12:39	Z	214	111	6,23	0,92	20	210	5	-1	0,8	1,07	1	1	1,18	0,92	45	41	45	0	0	0	0	0	0	0	0
34	12:43	Z	216	111	5,91	1,03	30	211	10	1	0,8	1,07	1	1	1,27	1,07	40	41	38	0	0	0	0	0	0	0	0
35	12:48	Z	220	111	5,49	1,21	30	213	105	7,8	0,9	1,07	1,06	1	1,28	1,2	34	41	34	0	0	0	0	0	0	0,55	0,55
36	12:53	Z	226	111	5,13	1,76	35	215	10	5	1,8	1,07	1,12	1	1,33	1,76	23	41	23	2,44	2,44	0	0	0	0	5,43	5,43
37	12:58	Z	229	96	4,96	1,37	35	218	15	4,5	0,9	1,07	1,06	1	1,44	1,36	30	41	30	2,13	1,99	0	0	1,7	1,5	4,81	4,53
38	12:58	Z	229	111	6,82	1,26	30	220	15	4,4	0,9	1,07	1,06	1	1,3	1,22	32	41	34	0	0	0	0	0	0	0,55	0,55
39	12:59	Z	229	111	6,64	1,26	30	221	5	3	0,9	1,07	1,06	1	1,3	1,23	32	41	34	0	0	0	0	0	0	0	0
40	13:03	Z	232	111	6,35	1,12	15	228	5	3,1	0,8	1,07	1,06	1	1,16	0,96	36	40	42	0	0	0	0	0	0	0,55	0,55
41	13:08	Z	234	111	6	1,14	20	228	15	2,7	0,9	1,07	1,04	1	1,21	1,14	35	40	35	0	0	0	0	0	0	0,55	0,55
42	13:13	Z	242	111	5,65	1,22	25	230	30	4	1	1,07	1,16	1	1,27	1,27	33	40	32	1,98	2,19	0	0	0	0	4,51	4,93

A	B	C	E	G	L	O	P	Q	R	S	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
			bg	targ		final	dur		lin.fi		acce	bg	pp	delt	dura	final				ins.	ins.	mi	m				
	UTC		acce	lov		ISF	mir	dura	min	lin.f	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	Req.	Req.	bol	bc	SMI	SME	TBR	TBR
id	ime	Z		orig	iob	orig	ute	avg.	ute	delt	emul	emul	emul	emu	emul	emul	orig	pro	ems	orig	emul	ori	e	orig	emu	orig	emul
43	13:15	Z	242	111	5,55	1,22	20	233	5	8	1	1,07	1,16	1	1,22	1,22	33	40	33	2,04	2,04	0	0	0	0	4,63	4,63
44	13:15	Z	242	111	5,54	1,22	20	234	5	8,2	1	1,07	1,16	1	1,22	1,22	33	40	33	2,04	2,05	0	0	0	0	4,63	4,65
45	13:18	Z	247	111	5,44	1,28	25	235	5	5	1,2	1,07	1,1	1	1,28	1,28	31	40	31	2,4	2,4	0	0	0	0	5,35	5,35
46	13:23	Z	248	111	5,29	0,75	30	236	40	4,2	0,6	1,07	1,02	1	1,34	0,78	53	40	51	0	0,1	0	0	0	0	0,55	0,75
47	13:33	Z	254	96	4,63	1,32	30	243	50	3,9	1,2	1,07	1,06	1	1,46	1,46	30	40	27	2,34	2,85	0	0	1,8	2,2	5,23	5,5
48	13:34	Z	254	111	6,38	1,25	20	247	10	3	1,2	1,07	1,06	1	1,25	1,25	32	40	32	0	0	0	0	0	0	0,55	0,55
49	13:34	Z	254	111	6,4	1,25	20	248	10	3	1,2	1,07	1,06	1	1,25	1,25	32	40	32	0	0	0	0	0	0	0	0
50	13:38	Z	255	111	6,1	1,17	25	249	5	1	0,9	1,07	1,02	1	1,31	1,17	34	40	34	0	0	0	0	0	0	0,55	0,55
51	13:43	Z	252	111	5,76	0,98	30	249	95	3,2	0,7	1,07	1	1	1,37	0,98	41	40	41	0	0	0	0	0	0	0	0
52	13:48	Z	254	111	5,38	1,34	35	250	100	3,1	0,9	1,07	1,04	1	1,44	1,34	30	40	30	1,14	1,13	0	0	0	0	2,83	2,81
53	13:50	Z	254	111	5,28	1,34	35	250	5	2	0,9	1,07	1,04	1	1,44	1,34	30	40	30	1,24	1,24	0	0	0	0	2,75	2,75
54	13:51	Z	254	111	5,27	1,34	35	250	100	3	0,9	1,07	1,04	1	1,44	1,34	30	40	30	1,24	1,24	0	0	0	0	2,75	2,75
55	13:58	Z	246	111	5,09	0,81	45	250	10	-4	0,5	1,07	1	1	1,56	0,81	49	40	49	0	0	0	0	0	0	0	0

The problem can be seen that at 12:53 and 13:13-13:33 as well as 13:48-13:51, that an odd TT 111 switched SMBs off too early. A too low iobTH triggered the TT, therefore, some measures should be taken:

- **M1)** Set **iobTH** from 5.7 to 6.5 in my Automation

  Note: In *autoISF versions before 3.0* iobTH had tob e set via a user-defined Automation.

To break the SMB blockade at TT 111 with high BG/high duraISF, the SMB shutdown, triggered by an odd TT, should not come so fast, and also dura_ISF is far from exhausted with weight=0.6. Tim Street had built the dura effect into OpenAps for an investigation and used it to run Scott Leibrand's backtest... and he thus found that 1.5 is the upper limit for dura_ISF_weight, above which hypos threaten. I don't quite trust this based on my experience so far, (and as my set SMB_delivery_ratio of ~ 0.8 (see „M3“) vs defalut 0.5 might mean another ~60% boost), hence "only":

- **M2)** Increase **duraISF_weight** carefully from 0.6 -> 0.8

Increases of weights can also be checked in the emulator. The only line for the VDF file for this would be e.g. to test M2): profile dura_ISF_weight 0.8 ### was 0.6.

In the table, the effects of each 5 minute calculation of SMBs * are then shown in column AM (i.vs. AL); the underlying insulinReq in column AI insulinReq (i.vs. AH); the ISF used in column AG (i.vs. AE).

> * *We can only ever see how ONE changed decision would affect the loop. However, this changed decision would alter the further course of the glucose curve, which is exactly the intention. You can not calculate, with the model, the overall resulting new glucose curve.*

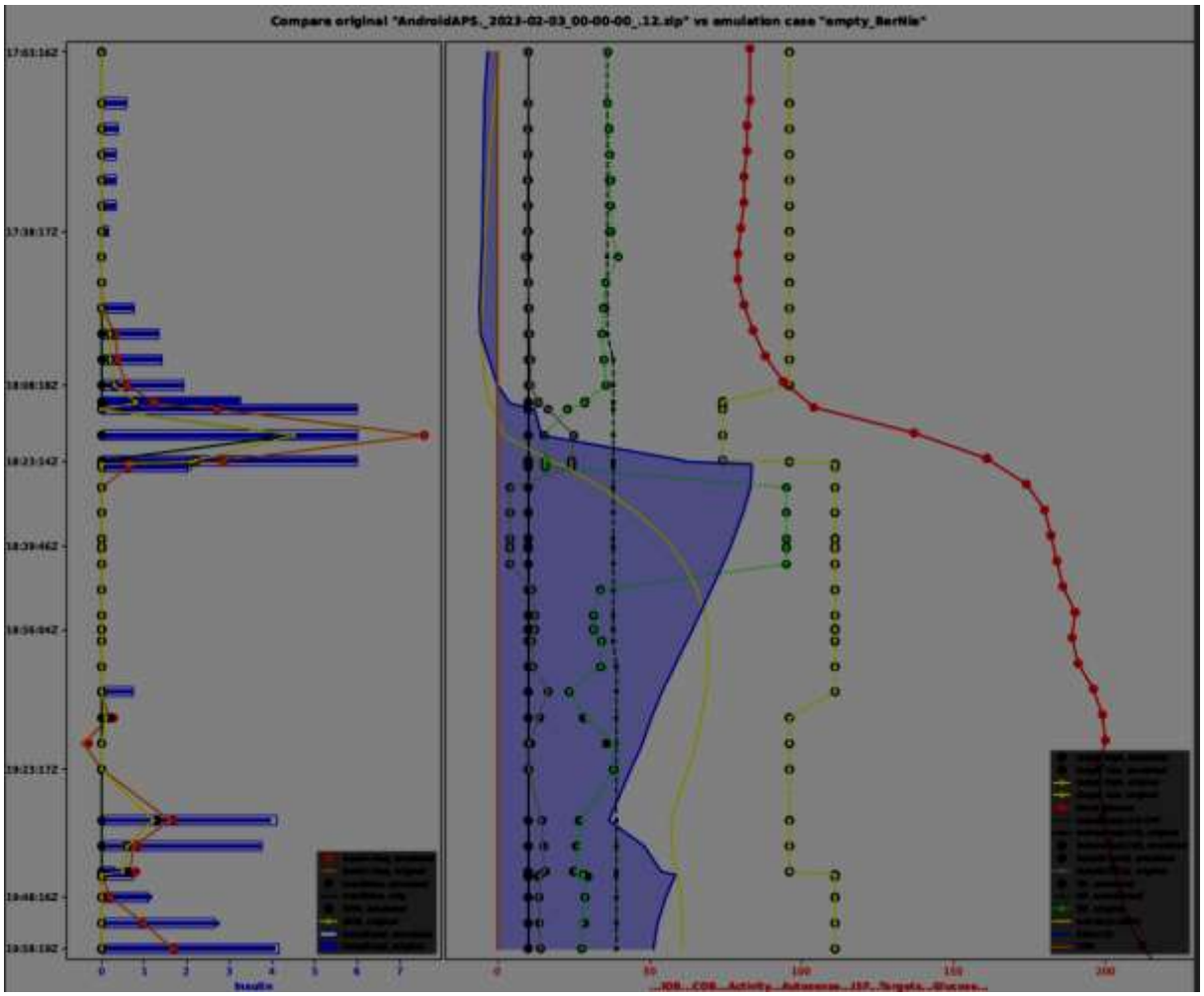
At the points marked in yellow, in columns AH and AL, it can be seen that the SMB_delivery_ratio of 0.65 should be significantly increased, Therefore these actions could be taken:

- **M3)** Set **SMB_delivery_ratio** from 0.65-0.75 to 0.8 to 0.9

In many cases, shown in the yellow highlighted entries in column Y, a higher insulinReq and thus higher SMB requested would be achievable with higher bgAccel_ISF_weight.

- **M4) bgAccel_ISF_weight** is tuned from 0.22 to 0.26. This increases insulin required up to +18%*

Emulator Analysis of the Second Peak ~ 19:00 – 21:00 central EU winter time
= Greenwich UTZ 18:00 – 20:00



A	B	E	G	L	O	P	Q	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
		bg	targe		final	duri		acce	bg	pp	delt	dura	final				ins.	ins.	max	max				
	UTC	accel	low		ISF	min	dura	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	Req.	Req.	bolus	bolus	SMB	SMB	TBR	TBR
id	ime		orig	iob	orig	utes	avg.	emul	emul	emul	emu	emul	emul	orig	pro	emul	orig	emul	orig	emul	orig	emul	orig	emul
8	17:48:15	79	96	-0,6	1,01	45	81,1	1,05	0,97	1	1	1	1,01	35,6	38	35,6	0	0	0	0	0	0	0	0
9	17:53:16	81	96	-0,6	1,04	50	81,1	1,07	0,97	1	1	1	1,04	34,7	36	34,7	0,03	0,03	0	0	0	0	0,76	0,76
10	17:58:18	84	96	-0,6	1,05	55	81,4	1,09	0,97	1	1	1	1,05	34,3	36	34,3	0,32	0,32	0	0	0,2	0,2	1,34	1,34
11	18:03:19	88	96	-0,3	1,09	5	86	1,12	0,97	1	1	1	1,09	36	38	36	0,37	0,37	0	0	0,2	0,2	1,425	1,425
12	18:08:18	94	96	-0	1,07	0	94	1,09	0,98	1	1	1	1,07	35,7	38	35,7	0,59	0,59	0	0	0,3	0,3	1,93	1,93
13	18:11:30	94	74	0,36	1,33	0	94	1,33	1	1,12	1	1	1,33	28,6	38	28,6	1,22	1,22	0	0	0,8	0,8	3,265	3,265
14	18:11:47	94	74	0,36	1,33	0	94	1,33	1	1,12	1	1	1,33	28,6	38	28,6	1,22	1,22	0	0	0,8	0,8	3,265	3,265
15	18:12:59	104	74	1,21	1,65	0	104	1,65	1,01	1,2	1	1	1,65	23	38	23	2,7	2,7	0	0	0	0	6	6
16	18:18:05	137	74	1,45	2,5	0	137	3,59	1,05	1,66	1	1	2,5	15,2	38	15,2	7,55	7,55	4,5	0	4,5	0	6	6
17	18:23:00	161	74	6,14	2,43	0	161	2,43	1,07	1,48	1	1	2,43	15,6	38	15,6	2,86	2,86	0	0	2,2	2,2	6	6
18	18:23:14	161	96	6,14	2,43	0	161	2,43	1,05	1,48	1	1	2,43	15,6	38	15,6	2,86	2,86	0	0	2,1	2,1	0	0
19	18:23:40	161	111	8,33	2,43	0	161	2,43	1,04	1,48	1	1	2,43	15,6	38	15,6	0,67	0,67	0	0	0	0	2,094	2,094
20	18:24:15	161	111	8,37	2,43	0	161	2,43	1,04	1,48	1	1	2,43	15,6	38	15,6	0,63	0,63	0	0	0	0	2,018	2,018
21	18:28:16	174	111	8,32	0,4	0	174	-0,2	1,05	1,26	1	1	0,4	95	38	95	0	0	0	0	0	0	0	0
22	18:33:09	180	111	8,08	0,4	5	177	-0,1	1,05	1,12	1	1	0,4	95	38	95	0	0	0	0	0	0	0	0
23	18:38:15	182	111	7,76	0,4	10	179	0,35	1,06	1,04	1	1,06	0,4	95	38	95	0	0	0	0	0	0	0	0
24	18:39:46	182	111	7,66	0,4	10	180	0,35	1,06	1,04	1	1,06	0,4	95	38	95	0	0	0	0	0	0	0	0
25	18:40:08	182	111	7,64	0,4	10	180	0,35	1,06	1,04	1	1,06	0,4	95	38	95	0	0	0	0	0	0	0	0
26	18:43:12	184	111	7,41	0,4	15	181	0,27	1,06	1,04	1	1,09	0,4	95	38	95	0	0	0	0	0	0	0	0
27	18:48:13	186	111	7,02	1,13	20	181	1	1,06	1,04	1	1,13	1,13	33,8	38	33,8	0	0	0	0	0	0	0	0
28	18:53:14	190	111	6,62	1,21	20	184	1,21	1,06	1,08	1	1,13	1,21	31,5	38	31,5	0	0	0	0	0	0	0	0
29	18:55:52	190	111	6,42	1,21	20	185	1,21	1,06	1,08	1	1,13	1,21	31,5	38	31,5	0	0	0	0	0	0	0	0
30	18:56:04	190	111	6,41	1,21	20	185	1,21	1,06	1,08	1	1,13	1,21	31,5	38	31,5	0	0	0	0	0	0	0	0
31	18:58:13	189	111	6,22	1,11	25	186	0,95	1,06	1	1	1,17	1,11	34,2	38	34,2	0	0	0	0	0	0	0	0
32	19:03:14	191	111	5,81	1,15	30	186	0,96	1,06	1,04	1	1,2	1,15	33,9	39	33,9	0	0	0	0	0	0	0	0
33	19:08:06	196	111	5,41	1,66	35	187	1,66	1,06	1,1	1	1,24	1,66	23,5	39	23,5	0	0	0	0	0	0	0,75	0,75
34	19:13:14	199	96	5,06	1,34	40	188	1,09	1,07	1,06	1	1,38	1,38	29,1	39	28,2	0,17	0,28	0	0	0,1	0,2	0	0
35	19:18:14	200	96	4,76	1,03	45	189	0,76	1,07	1,02	1	1,43	1,09	38	39	35,8	-0,4	-0,3	0	0	0	0	0	0
36	19:23:17	198	96	4,38	1,03	40	192	0,73	1,07	1	1	1,4	1,02	38	39	38,1	0	0	0	0	0	0	0	0

At 18:18, maxSMB size is 4.5 < insulin required; at 0.75 delivery ratio, as mentioned above in **M3)** 5.7 U (+1.2 U) would be asked for, but also ~ 25% bigger SMBs would have to be allowed, therefore some measures to take would be:

- **M5)** Allow 25%...33% larger SMB: change **SMB_range_extention from** 2.5 to 3.2
- **M6) autoISF_max** was already set quite high with 2.5, but to be able to ask for the "allowed" **M5)** SMB size, I increase **autoISF_max** by a similar percentage to 3.2

A	B	E	I	G	L	I	O	P	Q	N	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO
		bg		targe			final	duri			acce	bg	pp	delt	dura	final						ins.	ins.	max	max				
	UTC	accel		low			ISF	min	dura		ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	ISF	Req.	Req.	bolus	bolus	SMB	SMB	TBR	TBR
id	Ime			orig	iob		orig	utes	avg.		emul	emul	emul	emu	emul	emul	orig	pro	emul	orig	emul	orig	emul	orig	emul	orig	emul
37	19:33:15	199		96	3,66		1,42	50	193		0,97	1,07	1	1	1,5	1,46	27,5	39	26,8	1,6	1,68	0	0	1,2	1,3	3,95	4,11
38	19:38:15	201		96	4,82		1,47	50	194		1,01	1,07	1,04	1	1,51	1,51	26,5	39	25,8	0,75	0,85	0	0	0,6	0,6	3,75	3,75
39	19:43:14	203		96	5,38		1,53	55	195		1,18	1,07	1,04	1	1,57	1,57	25,6	39	24,9	0,66	0,8	0	0	0,5	0,6	0,55	0,28
40	19:43:51	203		111	5,84		1,39	50	196		1,18	1,07	1,04	1	1,38	1,38	28,1	39	28,2	0	0	0	0	0	0	0,75	0,75
41	19:44:13	203		111	5,82		1,39	40	199		1,18	1,07	1,04	1	1,32	1,32	28,1	39	29,6	0	0	0	0	0	0	0	0
42	19:48:16	205		111	5,53		1,36	45	200		1	1,07	1,04	1	1,36	1,36	28,7	39	28,7	0,21	0,17	0	0	0	0	1,17	1,09
43	19:53:19	207		111	5,26		1,4	45	201		1	1,07	1,04	1	1,37	1,37	27,9	39	28,5	1	0,95	0	0	0	0	2,75	2,65
44	19:58:19	212		111	5,13		1,41	50	202		1,3	1,07	1,1	1	1,41	1,41	27,7	39	27,6	1,66	1,7	0	0	0	0	4,07	4,15

Also, in the evening, it shows in yellow fields in AH and AL columns, that a higher delivery ratio would bring improvements as described in **M3)**. Likewise, 19:53 shows again that stagnant high values at TT=111 produce the problem that no SMBs are allowed for correction and therefore the BG values remain elevated longer than necessary as described in **M2)**. On the other hand, at 18:58 - 19:08, the SMB blockade was harmless, because insulin required = 0. **M2)** would not have helped either.

At 18:12, we see a special case where a new CGM value received by the loop triggers a new loop run, however, the calculated **insulinReq**=2.7 did not trigger a SMB, because 3 minutes have not yet passed since the preceding SMB. Therefore some measures to be taken could be:

- **M7)** You could consider lowering the minimum 3 minutes between two SMBs in the source code

  I don't pursue this for now, because the incident 18:12 seems rather exotic, and a shortening of the time span between 2 SMBs could lead to "tangling" of the loop with complications in delivery speeds; "restlessness" with overlapping information and actions. This is just an assumption by the author.

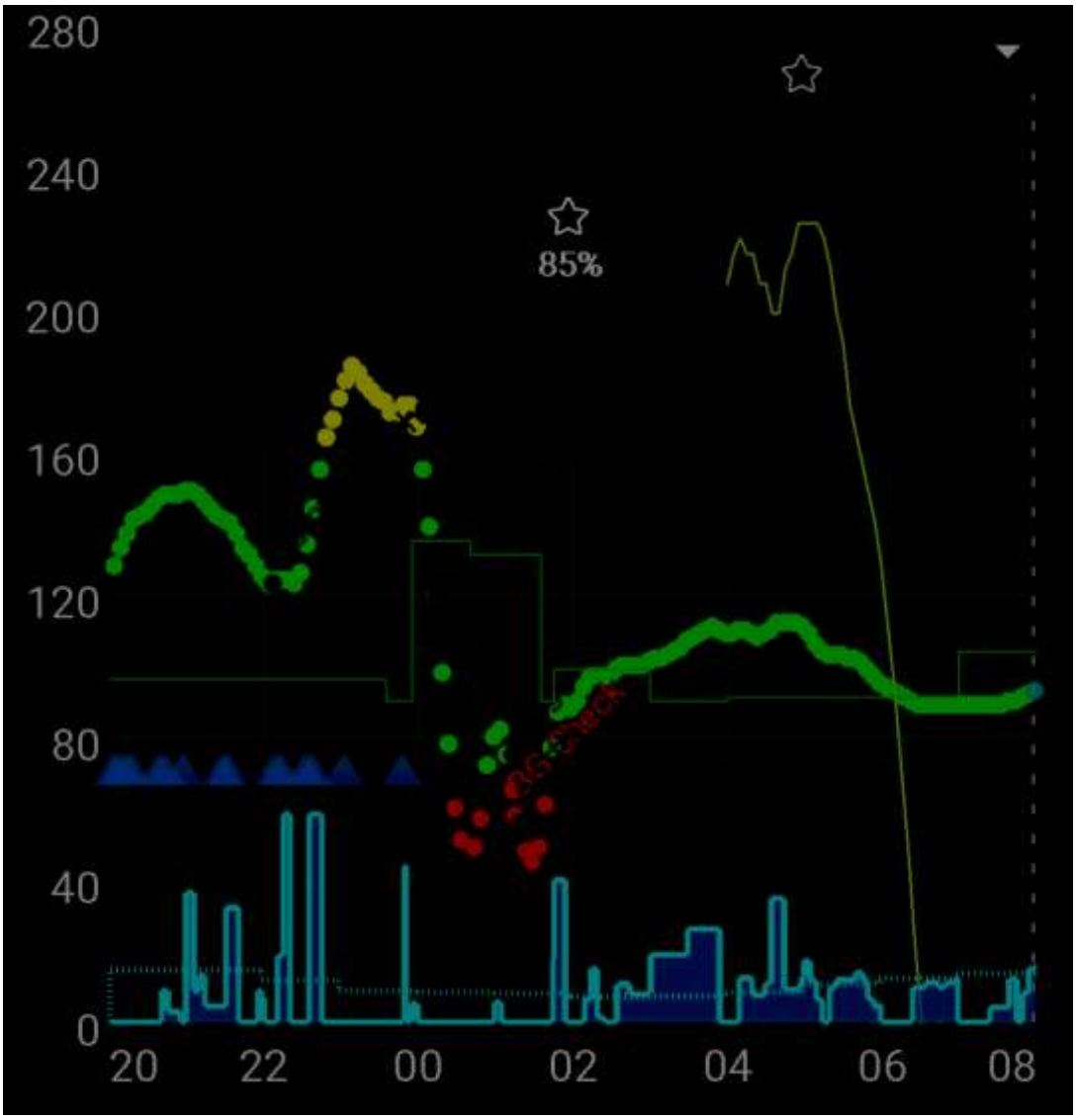
The actions **M1) - M6)** would definitely help to optimize the discussed day.

However, it's a bit daring to re-sharpen so many parameters at once.

Experience with the More Aggressive Settings

After 2-3 days with more aggressive settings, as described in **M1) - M6)** above, it was already clear that too often carbs must be eaten additionally to stay out of the hypo-zone. It just **didn't make sense to question everything** after a whole month at 94%TIR, just **because of one problem day** with 75% TIR!

The following dinner example shown in the screen shot on the next page shows the problems with the sharpened settings. It was initially well regulated until 22h. Then came influences of fat, some stress, and finally, "at an unfavorable moment" shortly after midnight, a dog walk.



It took a whopping 34 g of CHO, and over an hour of waiting before bedtime, to be feel reasonably safe to go to sleep. Annoying low alarms did not help. So I had received 3 - 4 U too much insulin from the loop, which equates to 34 g / my profile IC, of which 1 - 2 U could be owed to reduced need, because of activity.

So I had to "row back" to settings that result in about 2 U lower iob before zero temping, and/or lower my iobTH a bit.

Concerning 1-2 U reduction during activity, see section on Exercise

Interim conclusion

The measures developed above are strongly attenuated for further testing as follows, respectively: By analyzing valid parameters in successful results obtained in previous months, I will decide on new settings, **N#)**, that are not as agressive as the ones described above in **M1) - M6)**

N1) set **iobTH** from 5.7 to 6.2 in my automation, rather than 6.5

Especially before activities, always pay attention to lowered iob threshold, as well as use sport button more often.

N2) increase **dura_ISF_weight** carefully 0.6 -> 0.8 (0.8)

N3) increase **SMB_delivery_ratio** from 0.65-0.75 to 0.8 (not 0.8 to 0.9, because I don't want to get much insulin, especially at high glucose levels)

N4) bgA**ccel_ISF_weight** becomes from 0.22 to 0.24 (not 0.26)

N5) SMB_range_extention increases from 2.5 -> 2.9 (not 3.2)

N6) autoISF_max increases from 2.5 -> 2.9 (not 3.2)

Do not copy these settings!

Options to consider

- A complete reset to the satisfactory settings that provided good results for months, before starting the analysis presented here, is one option.
- It could also well be that in further steps I have to rebalance the "job distribution" between **bgAccel_ISF_weight** and **pp_ISF_weight**, with a view also to **bgBrake_ISF_weight**. Especially **bgAccel_ISF_weight** could trigger too large

SMBs, but I do not want to over-provide iob, because a relatively flat glucose curve could follow after the first small rise, attributed to a low carb meal or a snack.

- I could use the autoISF 3.0 enabled options to provide different settings for different clusters of meals (via Automation, or via FCL cockpit pre-set)