

Absolute gravity measurements at the iGrav047 site on Helgoland (GFZ Potsdam, AWI facility) with the Hannover gravity meter FG5X-220 in July 2020

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Table 1. Coordinates of the absolute gravity site occupied by the Hannover FG5X-220 in 2020

Station	φ [deg]	λ [deg]	H [m NHN]	Description
Helgoland AWI	54.1779	7.8917	2.0	station in the basement of AWI

Table 2: Absolute gravity values of the FG5X-220 measurements. The gradient insensitive sensor height depends on the gravimeter setup and is here ~ 1.264 m above floor level. The reference height $h=1.250$ m (above floor point) has been chosen for comparison reasons in the future. The assumed vertical gradient of $-3.000 \mu\text{m/s}^2$ has to be replaced after the measurement of the gradient which will result in a slight change of the total result.

Site	Measurement run (orientation)	Date in 2020	Drops	$\delta g/\delta h$ [$\mu\text{m/s}^2 / \text{m}$]	$g_{h=1.250}$ [$\mu\text{m/s}^2$]
Helgoland					
Run 1/setup1	20200702 (S)	02./03. July	2510	-3.000	9814054.299
Run 2/setup1	20200703 (S)	03./04. July	2813	-3.000	9814054.339
Run 3/setup2	20200704 (W)	04./05. July	2149	-3.000	9814054.328
Run 4/setup3	20200705 (W)	05./06. July	2691	-3.000	9814054.343
Average	(arithm. mean of set-ups without Run1!)		7653		9814054.337

Run 1 is not used for calculating the mean g-value because of instrumental misalignment. But the drops of Run 1 can be used for scale transfer from FG5X-220 to iGrav047 when considering the offset.

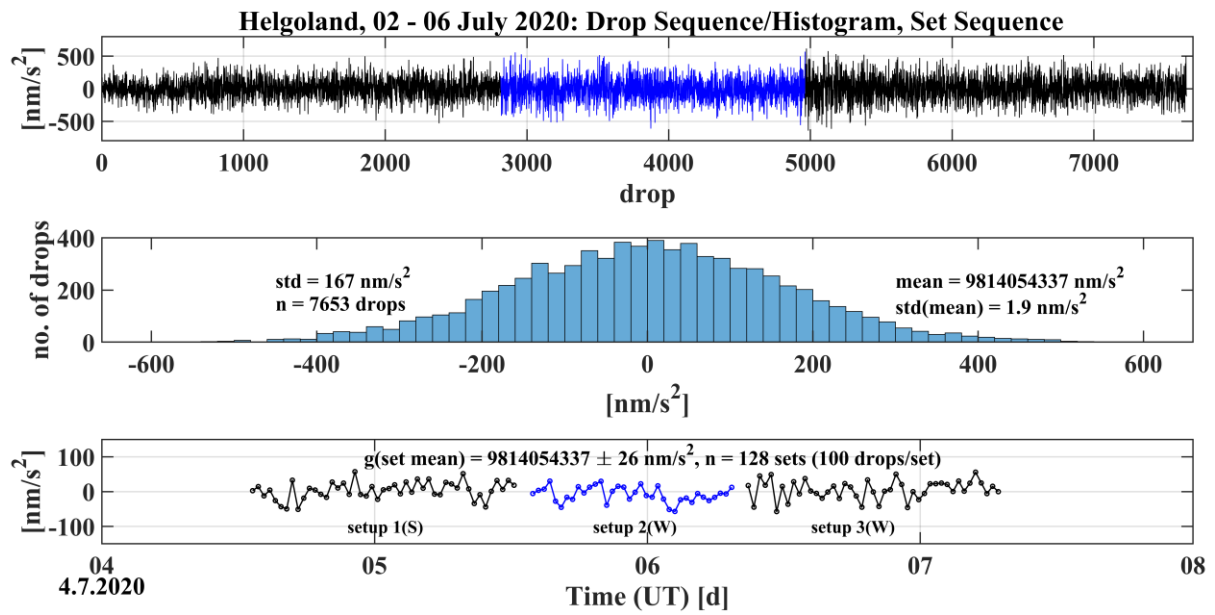


Figure 1: Statistical compilation of the station determination with the Hannover FG5X absolute gravimeter on Helgoland in July 2020