EDGES MEMO #481

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To: EDGES group

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Subject: List of EDGES results consistent with 2018 global 21-cm spectrum

Global 21-cm results consistent with the 2018 absorption of Bowman et al. https://doi.org/10.1038/nature25792 have been obtained with different antennas and ground planes in WA and a significant result has been obtained from Adak Island using data from 2024 day 345 and several days up to day 133 in 2025. A marginal was obtained from Devon Island. Table 1 summarizes these results below:

EDGES	ground plane	comments	center MHz	amp K	wid MHz	rms mK	memo	date range of data
H1 - low-1	10x10	see 2018 paper	78.1	0.48	20.4			2015_286 to 2016_240
H2 - low-1	30x30	"	78.1	0.54	18.8			
H3 - low-1	30x30	" re-calibrated	77.4	0.43	19.3			
H4 - low-2	30x30 NS	"	78.5	0.52	18.0			
H5 - low-2	30x30 EW	"	77.4	0.57	17.0			
H6 - low-2	30x30 EW	" No balun shield	78.1	0.50	21.9			
	30x30	60-99 MHz tau=7	78.0	0.56	20	31	222	2016_288 to 2016_298
	30x30	60-99 MHz tau=7	78.4	0.52	21		226	2016_259 to 2016_366
	30x30	60-99 MHz tau=7	78.1	0.49	20.3	22	236	2016_259 to 2017_017
		60-99 MHz tau=7	78.1	0.52	19.6	15	237	All lowband
	10x10	60-99 MHz tau=7	78.1	0.49	20.3		239	2015_284 to 2016_240
1owband2	30x30	61-99 MHz tau=7	78.9	0.46	18.3	30	245	2017_082 to 2017_119
lowband1	30x30	53-99 MHz tau=7	78.1	0.55	18.8	19	260	2016_251 to 2017_094
highband	5x5	electrically small antenna	80.1	0.42	18.8	23	275	2011 and 2012
midband	30x30	65-120 MHz tau=7	78.9	0.61	18.2	48	276	2017_329 to 2018_043
	30x30	2018 data release	78.1	0.53	18.7	23	278	2016_252 to 2017_092
	30x30	60-120 MHz tau=7	78.1	0.60	19.2	30	281	2018_166 to 2018_174
lowband	highband	52-110 MHz tau=7	80.1	0.59	16.7	51	285	2018_227 to 2018_238
low&mid	30x30	51-120 MHz tau=4 5&5tms	78.5	0.62	19.4	28	286	midb 2018_146 to 218
EDGES-3	48x48	60-100 MHz tau=7	77.7	0.41	20.9	33	412	2023_054 to 2023_071
EDGES-3	50x25 Dev	64-98 MHz tau=7	77.4	0.59	20.9	46	419	2022_221 to 2022_233
EDGES-3	48x48	58-102 MHz tau=4	78.1	0.44	20.9	17	432	2023_054 to 2023_398
EDGES-3	48x48	55-104 MHz tau=4	79.3	0.47	20.9	23	437	2023_054 to 2023_360
EDGES-3	48x48	58-102 MHz tau=4	78.9	0.49	20.6	18	440	2023_054 to 2024_040
EDGES-3	48x48	58-102 MHz tau=7	79.7	0.52	19.2	27	444	2023_363 to 2024_080
EDGES-3	48x48	58-102 MHz tau=4	79.7	0.68	19.8	21	445	2023_363 to 2024_087
EDGES-3	48x48	58-102 MHz tau=4 sun -20	79.3	0.54	20.3	18	448	2023_054 to 2024_142
EDGES-3	48x48	58-102 MHz tau=4 sun -30	77.3	0.59	21.5	20	466	2024_300 to 2024_360
EDGES-3	48x48	57-106 MHz tau=4 sun -30	79.3	0.54	19.4	26	475	2025_001 to 2025_080
EDGES-3	50x25 Ad	58-100 MHz tau=4 sun -20	78.5	0.69	22.7	24	478	2024_345 to 2025_116
EDGES-3	" Adak	60-100 MHz no beam corr	79.3	0.61	17.9	20	479	2024_345 to 2025_116
EDGES-3	48x48	60-102 MHz tau=4 sun -30	78.5	0.63	20.9	19	480	2023_285 to 2025_133

Table 1. Summary of global 21-cm results. Ad is Adak Island Alaska and Dev is Devon Island.

The column labeled rms is the residual after the subtraction of the best fit absorption and foreground parameters. Four or five terms are used for the data from WA and six terms are used for the data from Adak Island. Details are in the EDGES memo listed in the table. On average a better fit is obtained with less flattening, given by tau=4, than the flattening of tau=7 in Bowman et al. 2018 paper.