

Standard	Kiel	MAT 253		Nu Perspective	
	Calibration (2014, 2019) (N=17)	Long Term (2015, 2018–19) (N=27)	These Sessions (2016–17, 2019–20) (N=18)	Long Term (Jul–Dec 2020) (N=77)	These Sessions (2021A, 2022A) (N=18)
<b>CM</b>					
$\Delta_{47}\text{-CDES}_{25}$		0.396 ± 0.024	0.398 ± 0.023	0.4066 ± 0.018	0.395 ± 0.018
$\delta^{18}\text{O}$	-2.16 ± 0.09	-2.05 ± 0.29	-2.03 ± 0.16	-2.16 ± 0.07	-2.21 ± 0.13
$\delta^{13}\text{C}$	2.05 ± 0.04	1.89 ± 0.09	1.92 ± 0.05	2.02 ± 0.021	2.03 ± 0.05
<b>OO*</b>	(N=8)	(N=23)	(N=15)	(N=35)	(N=18)
$\Delta_{47}\text{-CDES}_{25}$		0.683 ± 0.022	0.700 ± 0.029	0.6864 ± 0.015	0.679 ± 0.029
$\delta^{18}\text{O}$	-0.16 ± 0.09	-0.06 ± 0.18	0.23 ± 0.16	-0.02 ± 0.07	0.05 ± 0.17
$\delta^{13}\text{C}$	4.77 ± 0.09	4.72 ± 0.09	4.76 ± 0.08	4.87 ± 0.03	4.89 ± 0.06
<b>CORS</b>	(N=5)	(N=12)	(N=7)	(N=38)	(N=3)
$\Delta_{47}\text{-CDES}_{25}$		0.723 ± 0.014	0.713 ± 0.045	0.7243 ± 0.016	0.715 ± 0.011
$\delta^{18}\text{O}$	-4.07 ± 0.08	-4.10 ± 0.14	-3.84 ± 0.11	-4.02 ± 0.06	-4.11 ± 0.07
$\delta^{13}\text{C}$	-3.64 ± 0.09	-3.70 ± 0.06	-3.68 ± 0.09	-3.64 ± 0.04	-3.62 ± 0.03
<b>Pica</b>				(N=67)	(N=15)
$\Delta_{47}\text{-CDES}_{25}$				0.7072 ± 0.023	0.701 ± 0.014
$\delta^{18}\text{O}$				0.52 ± 0.06	0.44 ± 0.10
$\delta^{13}\text{C}$				3.35 ± 0.03	3.33 ± 0.05
<b>Ice</b>				(N=30)	(N=20)
$\Delta_{47}\text{-CDES}_{25}$				0.7409 ± 0.011	0.727 ± 0.019
$\delta^{18}\text{O}$				2.08 ± 0.08	2.04 ± 0.15
$\delta^{13}\text{C}$				2.19 ± 0.03	2.20 ± 0.06

Table summarizing in-house standards run over many years at the University of Michigan, demonstrating reproducibility on multiple machines and consistency through time and across machines.