0.1 Layer Counting and Annual Layer Thickness

	Site A	Site B	Site D	Site E	Site G
λ [m]	0.311 ± 0.006	0.326 ± 0.008	0.354 ± 0.012	0.246 ± 0.005	0.264 ± 0.006

Table 0.1: Annual Layer Thickness, λ, estimation at the depth between Laki and Tambora events.

0.2 Final Diffusion Length Estimates

0.2.1 AWI B-cores

0.2.2 Crete and Surrounding Alphabet Cores

0.2.2.1 Diffusion Length Estimates vs. Counted Peaks

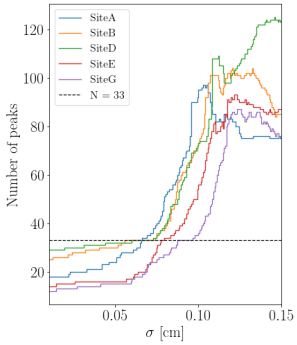

Figure 0.1: Number of peaks estimated given diffusion length, based on diffusion length in the interval [0.01; 0.15] m.

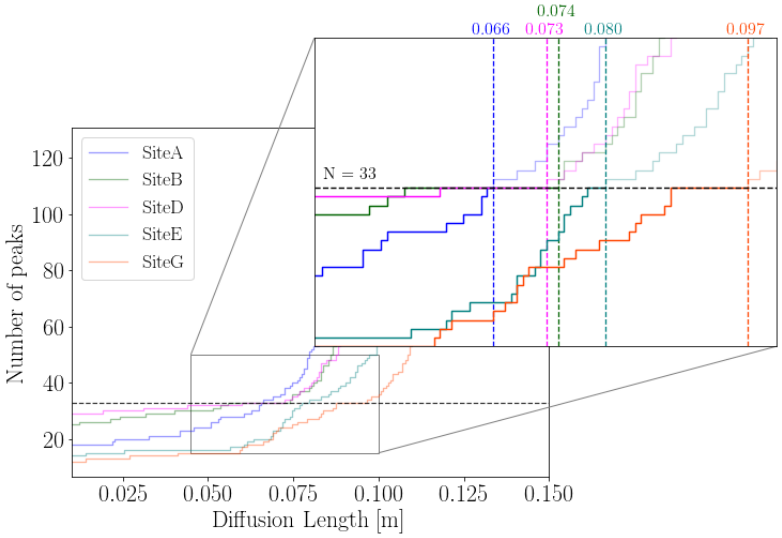

Figure 0.2: A zoom-in of the N peaks v. diffusion length plot in Figure 0.2. Specifically in focus are the maximal diffusion lengths corresponding to $N_{\text{peaks}} = 33$.

			FFT	DCT	NDCT
Site A	σ_{opt}	[cm]	7.57 ± 0.60	7.80 ± 0.68	7.26 ± 0.53
	σ_{firn}	[cm]			
	t	[s]	8.00 ± 0.91	7.93 ± 0.91	17.46 ± 0.98
Site B	σ_{opt}	[cm]	7.11 ± 0.40	7.30 ± 0.20	7.36 ± 0.21
	σ_{firn}	[cm]			
	t	[s]	8.64 ± 0.51	8.41 ± 0.82	19.06 ± 0.55
Site D	σ_{opt}	[cm]	7.00 ± 0.41	6.96 ± 0.28	7.21 ± 0.27
	σ_{firn}	[cm]			
	t	[s]	9.24 ± 0.73	9.20 ± 0.69	19.55 ± 1.03
Site E	σ_{opt}	[cm]	8.07 ± 0.01	8.15 ± 0.11	8.21 ± 0.14
	σ_{firn}	[cm]			
	t	[s]	7.28 ± 0.36	7.03 ± 0.56	16.61 ± 0.54
Site G	σ_{opt}	[cm]	9.38 ± 0.32	9.35 ± 0.25	9.44 ± 0.24
	σ_{firn}	[cm]			
	t	[s]	7.53 ± 0.49	7.24 ± 0.49	16.45 ± 0.34

Table 0.2: Diffusion length estimates resulting in $N_{\text{peaks}} = 33$ based on different spectral transform methods, namely the FFT, DCT and NDCT presented in earlier chapters and described in Appendix **??**. Along with the optimal diffusion length, the actual firn diffusion length is presented - corrected for sampling diffusion, ice diffusion and thinning. The computational time of the back diffusion process given the different spectral transforms is also presented.

0.2.2.2 Diffusion Length Estimates vs. Spectral Transform Methods

0.2.2.3 Diffusion Length Estimates if Diffusion Length Constant or Variable

0.2.2.4 Diffusion Length Estimates if Constrained or Not Constrained

0.2.2.5 Final σ Estimates Based on Previous Conclusions

0.3 Final Temperature Estimates from Optimal Estimated σ

RES-DATAEST: Write entire section.

0.3.1 Steady State Solution

RES-DATAESTSTST: Write entire section.

			σ_{constant}	$\sigma(z)$
Site A	σ_{opt}	[cm]	±	±
	σ_{firn}	[cm]		
Site B	σ_{opt}	[cm]	±	±
	σ_{firn}	[cm]		
Site D	σ_{opt}	[cm]	±	±
	σ_{firn}	[cm]		
Site E	σ_{opt}	[cm]	±	±
	σ_{firn}	[cm]		
Site G	σ_{opt}	[cm]	±	±
	σ_{firn}	[cm]		

Table 0.3: Optimal and corrected firn diffusion length estimates given either a σ estimated to be constant, σ_{constant}, or varying, $\sigma(z)$, over the Laki to Tambora depth section.

			No Constraints	Constraints
Site A	σ_{opt}	[cm]	5.40±	6.67±
	σ_{firn}	[cm]		
Site B	σ_{opt}	[cm]	6.03±	7.42±
	σ_{firn}	[cm]		
Site D	σ_{opt}	[cm]	4.36±	7.27±
	σ_{firn}	[cm]		
Site E	σ_{opt}	[cm]	6.12±	8.04±
	σ_{firn}	[cm]		
Site G	σ_{opt}	[cm]	8.74±	9.71±
	σ_{firn}	[cm]		

Table 0.4: Optimal and corrected firn diffusion length estimates with either the non-constrained or the constrained method.

0.3.1.1 Accumulation Distributions

RES-DATAESTACCUM: Write entire section.

0.3.2 Further Possibilities of the Iso-CFM

RES-DATAESTCFM: Write entire section.

			σ_{final}
Site A	σ_{opt}	[cm]	$\pm$
	σ_{firn}	[cm]	
Site B	σ_{opt}	[cm]	$\pm$
	σ_{firn}	[cm]	
Site D	σ_{opt}	[cm]	$\pm$
	σ_{firn}	[cm]	
Site E	σ_{opt}	[cm]	$\pm$
	σ_{firn}	[cm]	
Site G	σ_{opt}	[cm]	$\pm$
	σ_{firn}	[cm]	

Table 0.5: Final diffusion length estimates, based on conclusions made previously in different tests.

		Site A	Site B	Site D	Site E	Site G
T_0	[°C]	-29.41	-29.77	-28.3	-30.37	-30.1
$\bar{T}_{\text{StSt}}$	[°C]	-31.04 ± 2.02	-30.46 ± 0.83	-30.00 ± 1.05	-30.89 ± 0.48	-25.97 ± 0.70

Table 0.6: Steady state temperature estimates based on the final firn diffusion length estimates found. T_0 is the temperature used to generate the theoretical diffusion length and density profiles, and originates from [**?**, add. text]

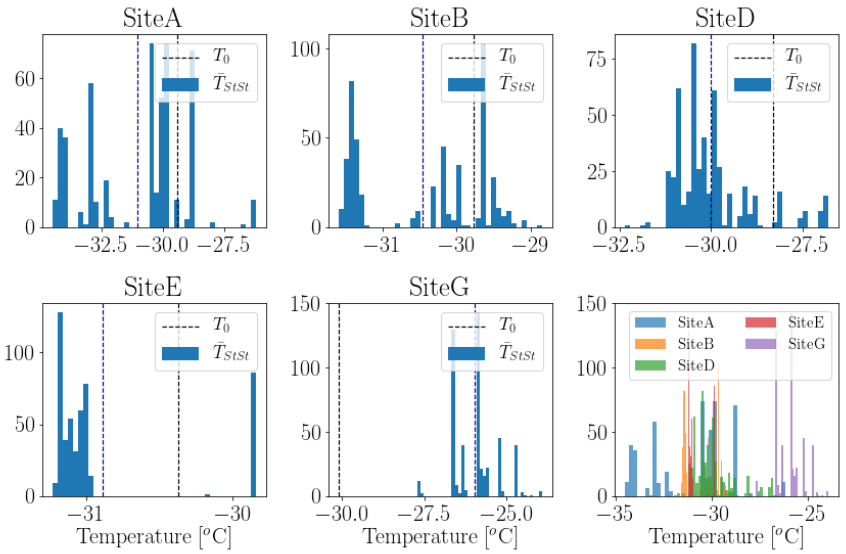

Figure 0.3: Steady State Temperature Distributions