

Sediment Focussing at Site 1062 during Stage 5

The focussing factor is calculated by comparing the integral of the expected production of $^{230}\text{Th}_{\text{xs}}$ from the overlying water column with respect to time, to the total $^{230}\text{Th}_{\text{xs}}$ measured in the samples within the depth interval corresponding to that time. A focussing factor >1 indicates that material has been laterally brought to the site from surrounding areas (focussing), whilst a focussing factor <1 indicates the removal of material from the site (winnowing).

Any variation in focussing could have a significant impact on our result. To address this concern, we have analysed the data using an intermediate dated tie-point within the studied interval to gain a quantitative estimate of the potential variation in focussing.

Assuming constant focussing throughout stage 5 and using only the two tie-points that bound stage 5 (72-135 ka), we can calculate the average sedimentation rates for stages 5a-d and 5e using the $^{230}\text{Th}_{\text{xs}}$ -normalization method.

Using Stage 5 boundary tie-points (72 ka and 135 ka)

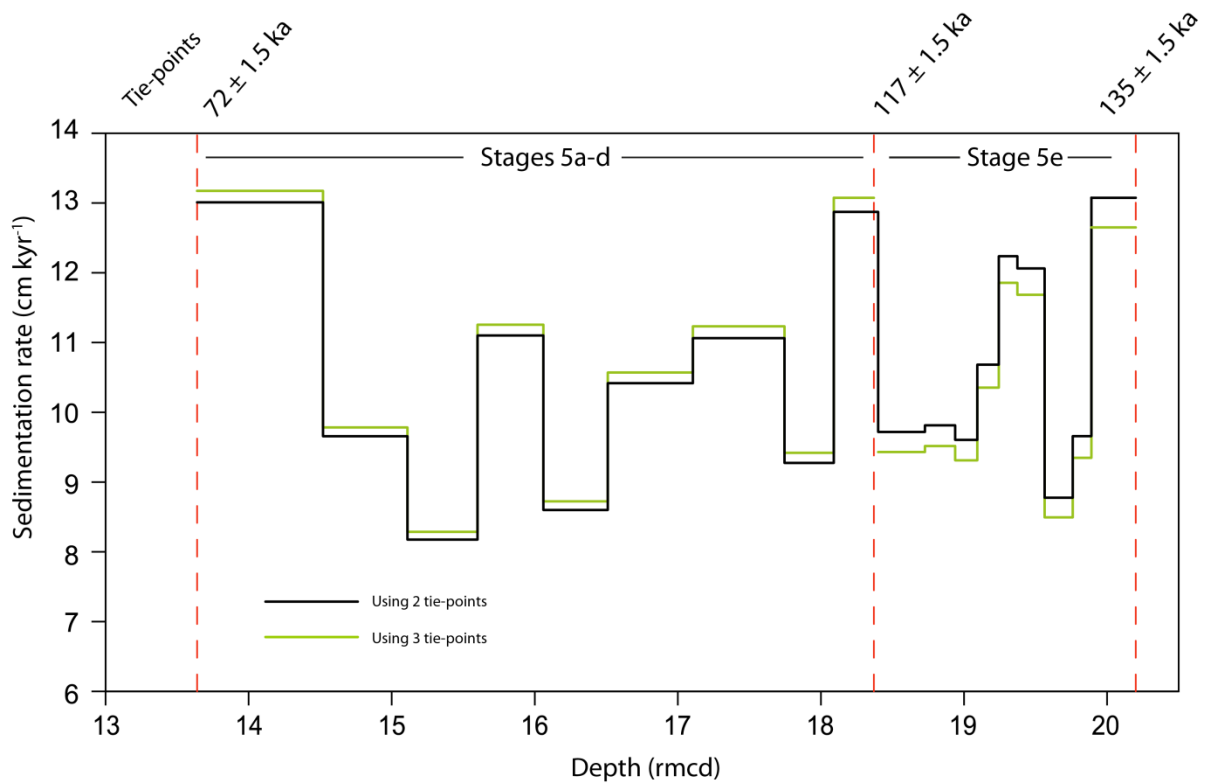
	Average Sed. Rate	Focussing Factor (ψ)
Stage 5	10.41	4.24
Stages 5a-d	10.34 (from $^{230}\text{Th}_{\text{xs}}$)	(4.24)
Stage 5e	10.46 (from $^{230}\text{Th}_{\text{xs}}$)	(4.24)

Using a third tie-point within stage 5, we investigated to what extent the focussing does remain constant throughout stage 5. Taking the third tie-point at the end of stage 5e (18.37 rmcd) and assuming an age of ~ 117 ka (Kawamura, 2007), we can calculate the focussing factor for two intervals, (1) stages 5a-d and (2) 5e, using the same $^{230}\text{Th}_{\text{xs}}$ data and method as before. We find that in stages 5a-d the focussing factor is $\psi = 4.30$, whilst in 5e, $\psi = 4.1$. This would suggest that the focussing factor within MIS 5 may vary by up to $\sim 15\%$ from the average.

Using all three tie-points (incl. end 5e 117 ka)

	Average Sed. Rate	Focussing Factor (ψ)
Stage 5	10.41	4.24
Stages 5a-d	10.51	4.30
Stage 5e	10.17	4.10

The reduced focussing in 5e relative to 5a-d results in an overestimate of the sedimentation rate in 5e when we use the $^{230}\text{Th}_{\text{xs}}$ -normalization method, where constant focussing is assumed across all of MIS 5. The duration of the excursions interval in this core, occurring within MIS 5e, may therefore be longer than we have already suggested. We add an additional 15% uncertainty onto our duration estimate to account for this additional source of uncertainty.



Graph shows the relative variation in sedimentation rate in core 1062E calculated using $^{230}\text{Th}^{\text{xs}}$ normalization. The line in black was calculated using only the two end tie-points (72-135 ka), the green line was calculated by dividing stage 5 into two independent intervals (72-117 ka and 117-135 ka).