

Ecography

ECOG-01764

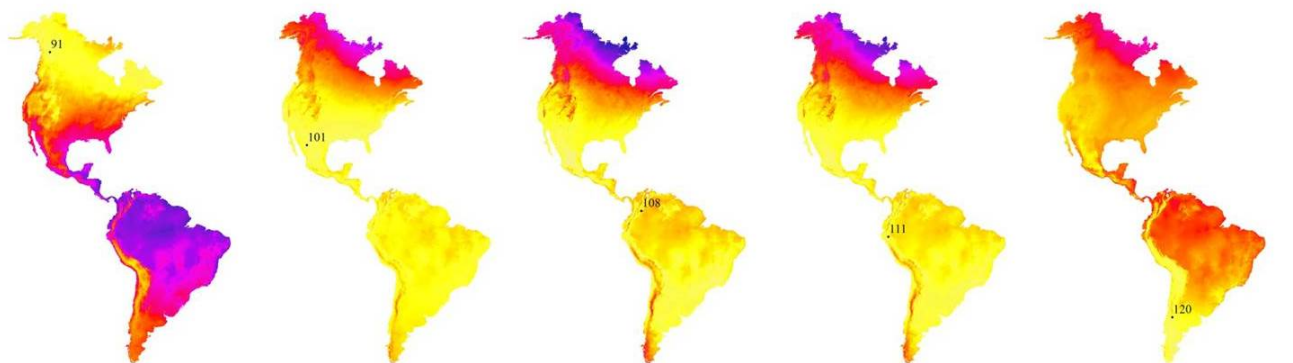
Zuloaga, J. and Kerr, J. T. 2016. Over the top: do thermal barriers along elevation gradients limit biotic similarity? – Ecography doi: 10.1111/ecog.01764

Supplementary material

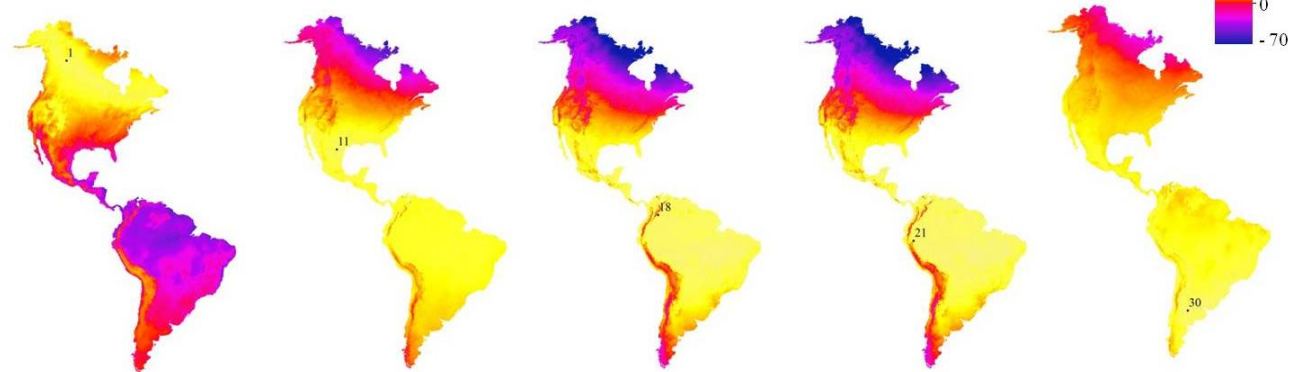
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2 Appendix 1

(a) Highlands (2000 masl)



(b) Lowlands (300 masl)

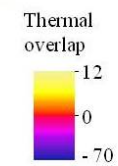
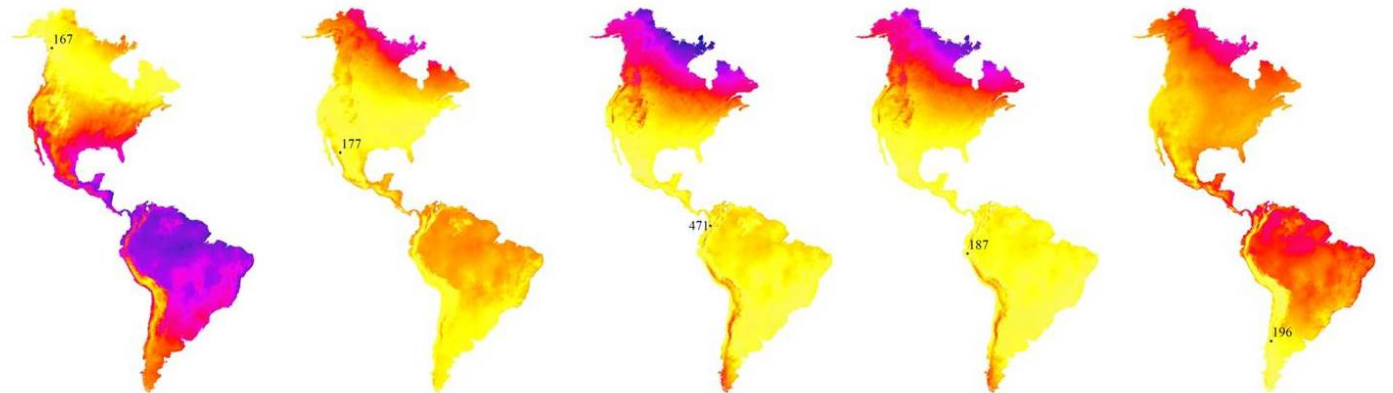


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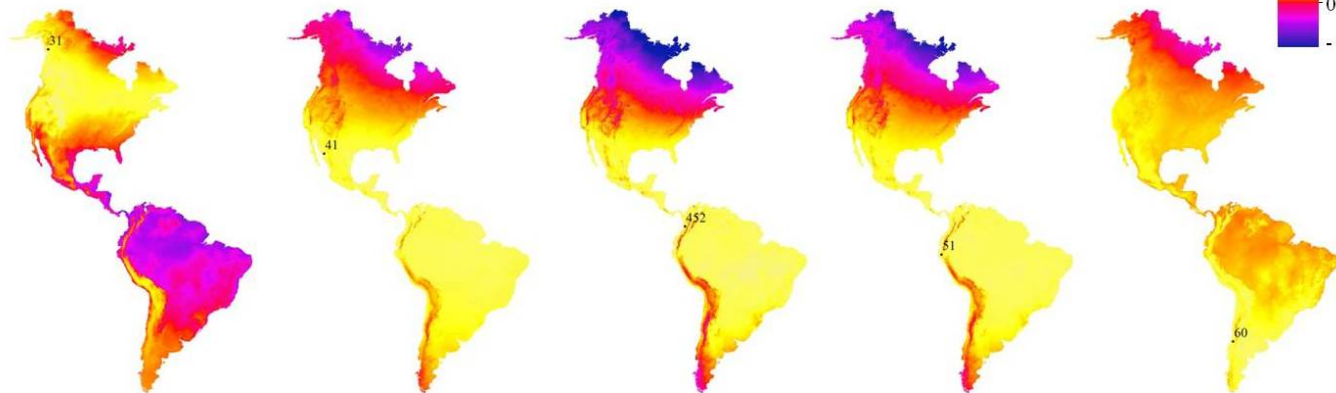
4 **Figure A1.1.** Thermal Overlap (TOV) between focal sites and their surrounding environmental space in the eastern side of the
5 Americas. Figure shows a selected group of sites in the (a) highlands (b) lowlands.

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(a) Highlands (2000 masl)

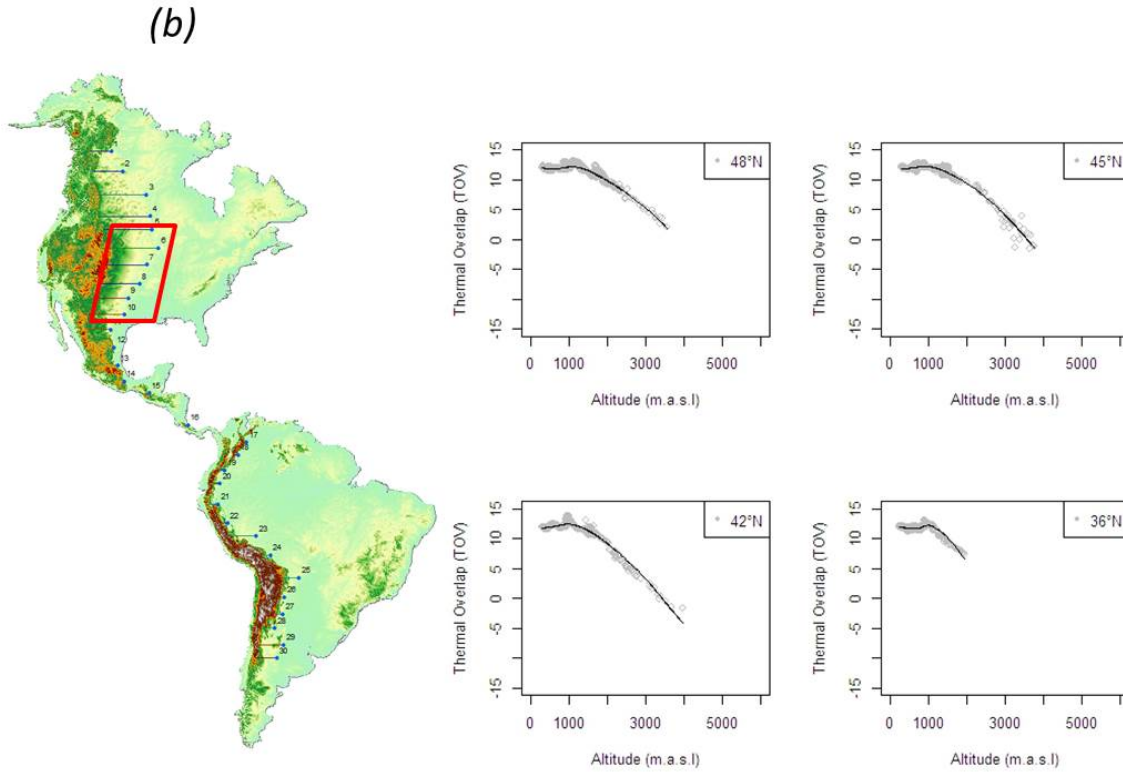
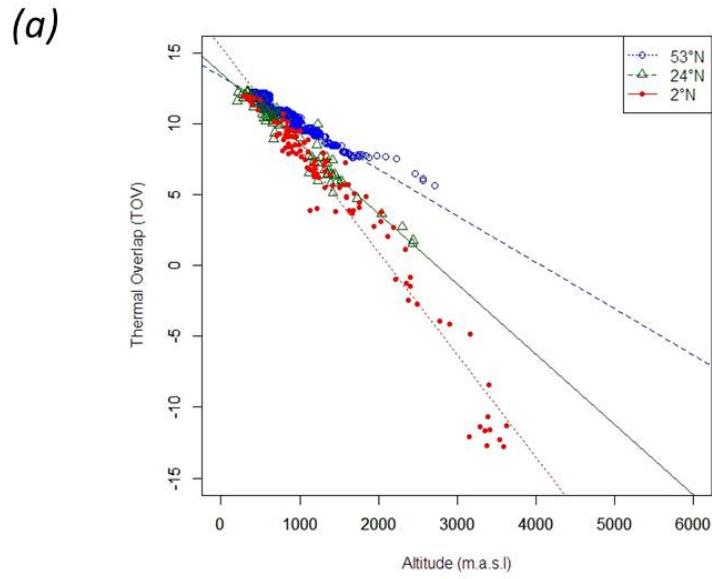


(b) Lowlands (300 masl)



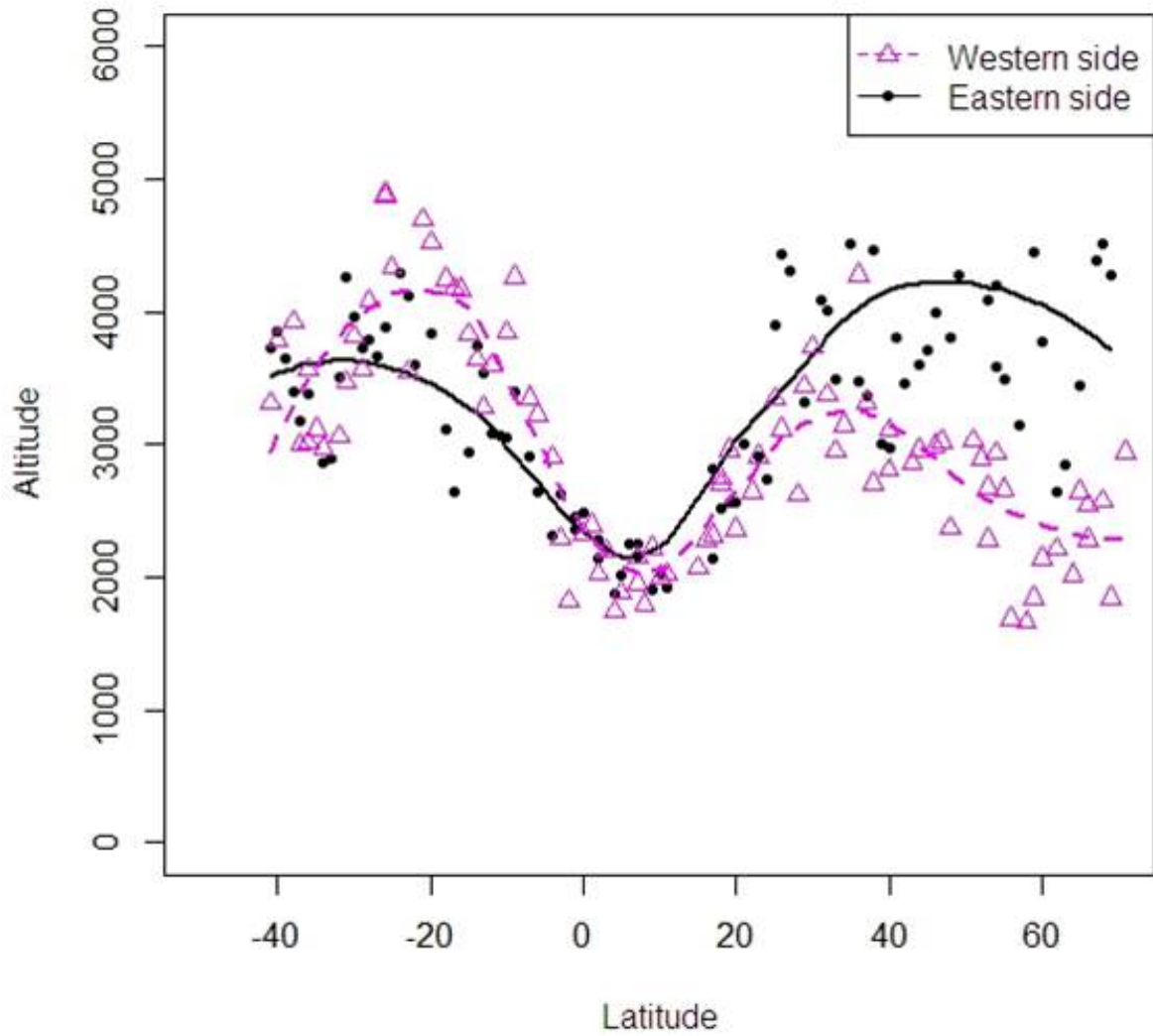
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8 **Figure A1.2.** Thermal Overlap (TOV) between focal sites and their surrounding environmental space in the western side of the
9 Americas. Figure shows a selected group of sites in the (a) highlands (b) lowlands.



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11 **Figure A2.** Thermal overlap as a function of altitude: (a) This relationship is linear for most of
 12 the Americas (three sites in eastern side), but is non-linear in some regions east of the Rockies in
 13 North America between 33°N and 48°N (b).

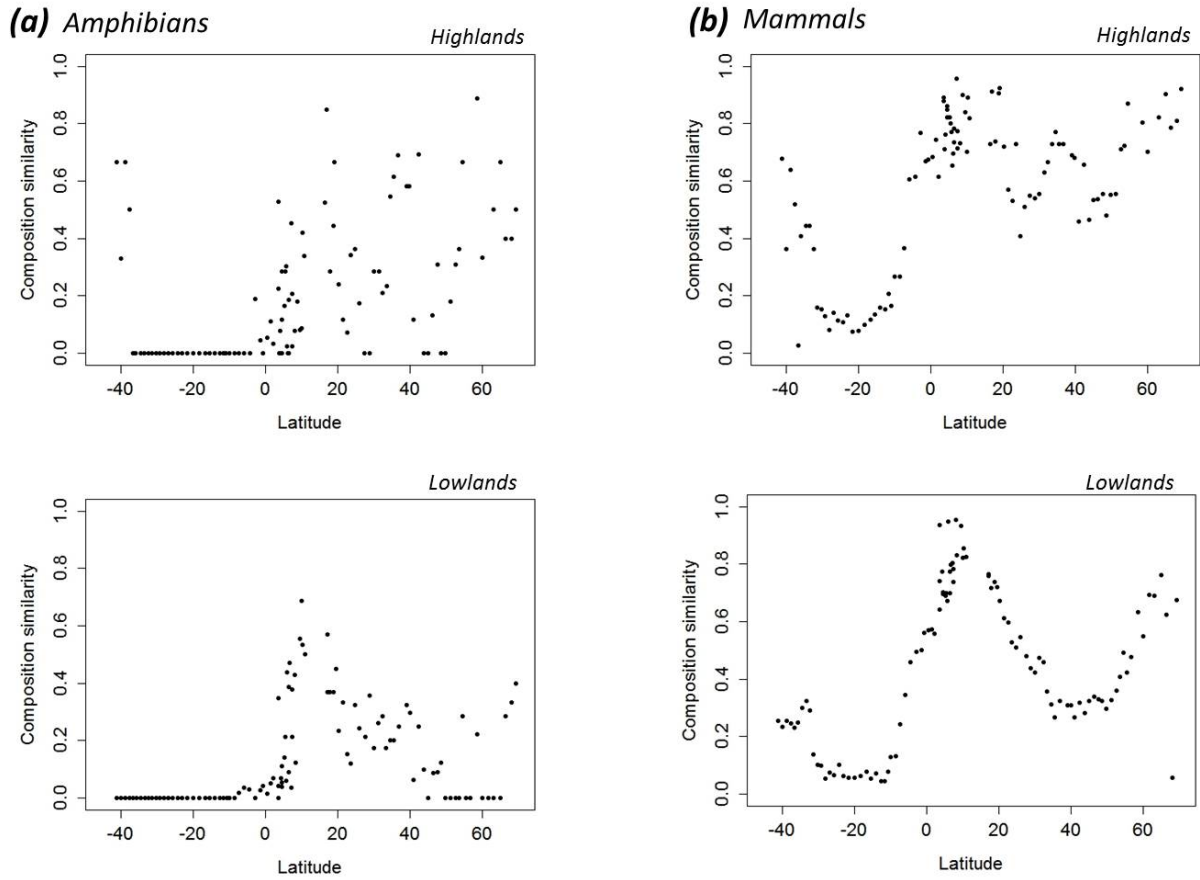


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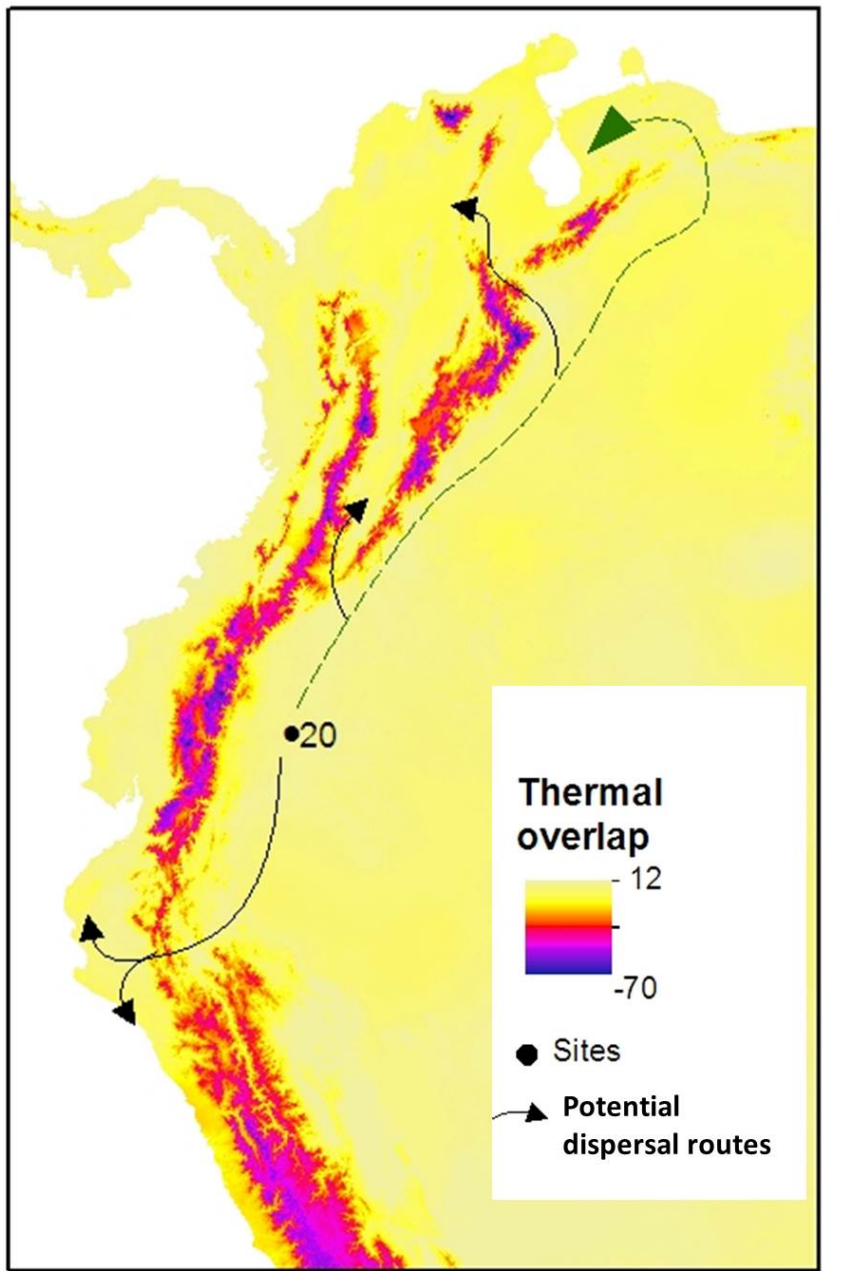
16 **Figure A3.** Elevation at which thermal overlap decreases to zero at all locations across the
17 Americas.

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20 **Figure A4.** Compositional similarity between pairwise comparisons of quadrats across a
 21 latitudinal gradient in the Americas' mountains. (a) Amphibians and (b) Mammals. Upper panel
 22 shows pairwise comparisons of sites between sites in the highlands and lower panel in lowlands



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25 **Figure A5.** Potential ‘passes’ in northern South America that could allow species to circumvent
 26 thermal barriers imposed by differences in thermal regimes between focal sites. Arrows represent
 27 potential dispersal routes.

28 Table A1. Models for thermal overlap (y) as a function of elevation (x) in the Americas. Coordinates indicate the focal site at 300 masl
 30 used to compare measurements of thermal regimes with all sites encounter towards the highest elevation in the mountaintop.

Western side					Eastern side			
	Latitude	Longitude	Model	R2	Latitude	Longitude	Model	R2
	7075030	-3805520	$y = -4.0427E-03x + 11.914$	0.7821	6924190	-3075140	$y = -2.9672E-03x + 12.758$	0.7723
2	6636390	-3890880	$y = -5.5827E-03x + 14.181$	0.8256	6508520	-2832130	$y = -3.8689E-03x + 13.319$	0.6929
3	6355640	-3966410	$y = -6.2727E-03x + 12.713$	0.8901	6006140	-2321130	$y = -3.3734E-03x + 12.727$	0.8705
4	5858640	-3818730	$y = -6.6783E-03x + 12.312$	0.8250	5547640	-2249130	$y = -3.9905E-03x + 13.936$	0.7689
5	5465050	-3875530	$y = -5.244E-03x + 13.959$	0.9655	5267090	-2200570	$y = -3.2967E-03x + 13.376$	0.9144
6	5267260	-4283520	$y = -6.487E-03x + 14.804$	0.9031	4867110	-2061600	$y = -0.0013E-03x^2 + 1.9382E-03x + 11.260$	0.9211
7	4834640	-4460130	$y = -5.6956E-03x + 13.518$	0.9624	4514770	-2314000	$y = -0.0015E-03x^2 + 2.2707E-03x + 11.251$	0.9485
8	4418120	-4462130	$y = -4.7839E-03x + 14.154$	0.9898	4106400	-2473370	$y = -0.0011E-03x^2 + 0.417E-03x + 11.956$	0.984
9	3974940	-4126420	$y = -4.8802E-03x + 13.721$	0.9736	3808640	-2714380	$y = -2.9666E-03x + 13.242$	0.8706
10	3567640	-4067530	$y = -3.1102E-03x + 13.306$	0.9283	3453700	-2785420	$y = -0.0018E-03x^2 + 2.4733E-03x + 11.038$	0.5755
11	3179370	-3872130	$y = -3.7919E-03x + 12.822$	0.9776	3136340	-3090820	$y = -3.1158E-03x + 12.768$	0.9411
12	2766890	-3705880	$y = -5.1708E-03x + 13.560$	0.9450	2757040	-3009730	$y = -2.9475E-03x + 12.706$	0.9559
13	2307480	-3640130	$y = -4.8647E-03x + 14.160$	0.9508	2368150	-2931130	$y = -4.9641E-03x + 13.597$	0.9468
14	1908340	-3042820	$y = -4.2007E-03x + 12.437$	0.9487	2037110	-2791660	$y = -4.2453E-03x + 12.751$	0.8816
15	1688310	-2393470	$y = -6.1983E-03x + 14.354$	0.9867	1786520	-2262260	$y = -5.351E-03x + 13.469$	0.9916
16	1057900	-1540130	$y = -7.3075E-03x + 14.777$	0.9582	1107640	-1439510	$y = -7.42E-03x + 14.216$	0.9594
17	755800	-399651	$y = -7.3721E-03x + 13.231$	0.9634	737130	-192130	$y = -6.9312E-03x + 15.656$	0.9745
18	468643	-523130	$y = -7.7117E-03x + 14.498$	0.9952	467260	-371130	$y = -7.4971E-03x + 15.106$	0.9752
19	168259	-920514	$y = -7.0457E-03x + 14.299$	0.9698	145047	-657462	$y = -7.2321E-03x + 15.451$	0.9495
20	-154781	-1039710	$y = -6.5807E-03x + 12.005$	0.9744	-143357	-754130	$y = -5.7991E-03x + 13.369$	0.9699
21	-590357	-1108130	$y = -3.9943E-03x + 12.883$	0.9766	-581357	-793130	$y = -4.8577E-03x + 12.937$	0.9522
22	-1020750	-924130	$y = -3.4936E-03x + 13.455$	0.8934	-986357	-592130	$y = -3.523E-03x + 12.794$	0.9603
23	-1383800	-734684	$y = -4.0904E-03x + 14.917$	0.9658	-1260130	17092	$y = -3.8576E-03x + 13.656$	0.9456
24	-1712360	-526776	$y = -3.4718E-03x + 14.507$	0.8927	-1664780	312818	$y = -5.0148E-03x + 13.269$	0.9852
25	-2080210	-22130	$y = -3.3546E-03x + 15.773$	0.9678	-2147160	931870	$y = -3.6806E-03x + 13.269$	0.9891
26	-2584220	-43130	$y = -3.6027E-03x + 16.911$	0.8483	-2560540	618870	$y = -3.1806E-03x + 12.382$	0.9808
27	-2906120	-54364	$y = -3.8919E-03x + 13.918$	0.9871	-2918360	583870	$y = -3.4772E-03x + 12.955$	0.9794

28	-3232190	-117130	$y = -4.4388E-03x + 13.616$	0.9885	-3224360	412870	$y = -3.8112E-03x + 13.348$	0.9648
29	-3564730	-125761	$y = -4.5198E-03x + 13.649$	0.9621	-3572360	599727	$y = -4.2064E-03x + 14.219$	0.9562
30	-3841040	-112451	$y = -3.2651E-03x + 12.810$	0.9567	-3860360	454870	$y = -3.6746E-03x + 13.429$	0.9904

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