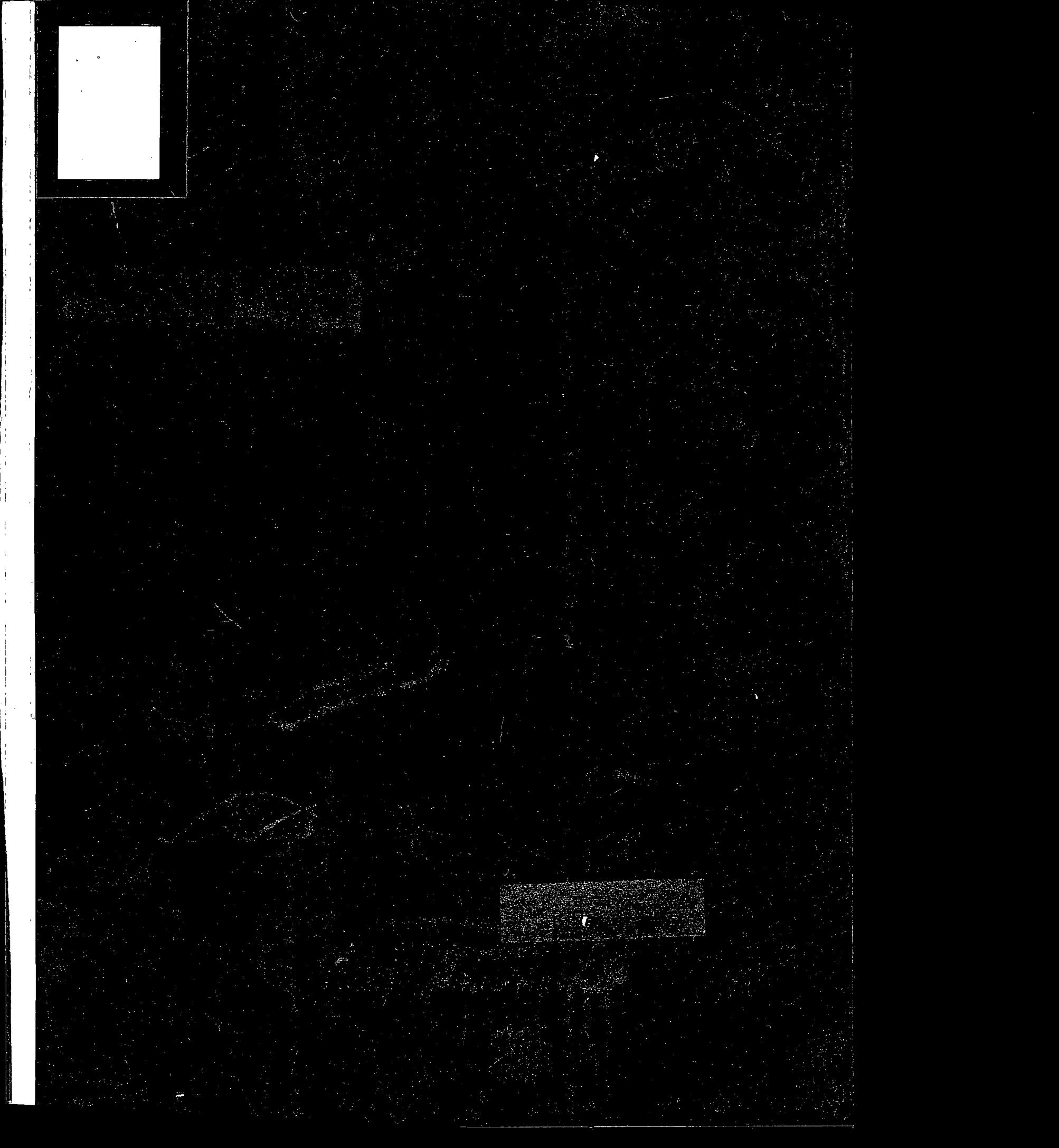


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DIGITAL BATHYMETRY OF GREAT SLAVE LAKE

Schertzer, W.M.

NWRI Contribution No. 00-257

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Digital Bathymetry of Great Slave Lake

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Management Perspective

Assessment of climate change impacts on Canada's ecosystem is an Environment Canada priority issue. As part of the Global Energy and Water Cycle Experiment (GEWEX), this report describes the first derivation of a computer-compatible bathymetry for Great Slave Lake which is located in Canada's vulnerable northern ecosystem within the Mackenzie Basin. Dramatic changes in climate have been observed in this basin. This investigation is in partial fulfillment of research being conducted on modelling the climatic impacts on large lake systems of the Basin through the GEWEX. Aspects of these results were presented at the CAGONT-99 Conference (McMaster U., Oct. 23, 1999), GEWEX-MAGS Workshop (Edmonton, AB, Nov. 21-23, 1999), MAGS-GAME Workshop (Edmonton, AB, Nov. 26-28, 1999), and the IAGLR-2000 Conference (Cornwall, ON, May 21-26, 2000). To date, this is the only comprehensive digital bathymetry for this lake. The results will be disseminated to the GEWEX-MAGS research community and to a broader audience on large lake aquatic systems through journal publication. The computed 2 x 2 km digital bathymetry will form an integral part of lake models for annual heat content, heat and mass exchange and climate change analyses for this lake. The paper makes recommendation for future comprehensive bathymetric surveys to increase spatial resolution.

Sommaire à l'intention de la direction

L'évaluation des impacts des changements climatiques sur les écosystème du Canada est une question d'importance prioritaire pour Environnement Canada. Dans le cadre de l'Expérience mondiale sur les cycles de l'énergie et de l'eau (GEWEX), ce rapport décrit la première numérisation de la bathymétrie du Grand lac des Esclaves, qui fait partie de l'écosystème vulnérable du nord du Canada, dans le bassin du Mackenzie, où l'on observe des changements climatiques marqués. Cette étude fait partie des recherches portant sur la modélisation des impacts du climat sur les grands réseaux lacustres du bassin dans le cadre de GEWEX. On a présenté divers aspects de ces résultats à la conférence CAGONT-99 (U. McMaster, 23 oct. 1999), à l'atelier GEWEX-MAGS [Edmonton (Alberta), 21-23 nov. 1999], à l'atelier MAGS-GAME [Edmonton (Alberta), 26-28 nov. 1999], ainsi qu'à la conférence AIRGL-2000 [Cornwall (Ontario), 21-26 mai 2000]. À ce jour, c'est le seul ensemble numérique complet pour la bathymétrie de ce lac. Les résultats seront diffusés à la communauté des chercheurs de GEWEX-MAGS et à un plus vaste public s'intéressant aux grands réseaux aquatiques lacustres par des articles de publications scientifiques. La bathymétrie numérique (grille de 2 x 2 km) constituera une partie intégrante des modèles lacustres utilisés pour les analyses du contenu thermique annuel, de l'échange de chaleur et de masse et du changement climatique pour ce lac. On recommande l'augmentation de la résolution spatiale des futurs relevés bathymétriques généraux.

Abstract

Assessment of the annual heat content cycle and modelling of the energy and mass exchange of large lake systems such as Great Slave Lake requires detailed computer-compatible data bases of the lake bathymetry and hypsometric data. A detailed bathymetry of Great Slave Lake is derived based on depth soundings collated from past and current research. Based on a 2 x 2 km grid mesh, the main-lake portion of Great Slave Lake has a maximum "grid-averaged" depth of 168.8 m, a surface area of $1.85 \times 10^{10} \text{ m}^2$ and an integrated volume of $5.96 \times 10^{11} \text{ m}^3$. The maximum depth of the mid-lake is 187.8 m at the eastern part of the lake. Spatial distribution of depth is illustrated by contour map and hypsometric curves are derived to describe the variation of area and volume with depth. Basic procedures (GIS, and geographic conversion formulae) used to determine the grid bathymetry are described. It is recommended that detailed depth sounding surveys be conducted in Great Slave Lake, especially in mid-lake sections, to increase the spatial representation of depth.

Résumé

Pour l'évaluation du cycle du contenu thermique annuel et la modélisation de l'énergie et de l'échange massique des grands réseaux lacustres comme celui du Grand lac des Esclaves, il faut des bases de données informatiques détaillées qui rassemblent les données bathymétriques et hypsométriques du lac. On a obtenu une bathymétrie détaillée du Grand lac des Esclaves, basée sur des mesures de profondeur provenant d'études actuelles et antérieures. Selon une grille de 2 x 2 km, la partie principale du Grand lac des Esclaves a une profondeur maximale de 168,8 m, une superficie de $1,85 \times 10^{10} \text{ m}^2$ et un volume intégré de $5,96 \times 10^{11} \text{ m}^3$ (valeurs moyennes pour la grille). La profondeur maximale au milieu du lac est de 187,8 m dans la partie est du lac. La distribution spatiale des profondeurs est illustrée par une carte bathymétrique à partir de laquelle on calcule des courbes hypsométriques pour décrire la variation de la superficie et du volume en fonction de la profondeur. On décrit les procédures de base (SIG et formules de conversion géographique) utilisées pour déterminer la bathymétrie selon la grille choisie. Afin d'accroître la représentation spatiale de la profondeur, on recommande que soient effectués des relevés détaillés de mesures des profondeurs dans le Grand lac des Esclaves, surtout dans les sections du milieu.

Digital Bathymetry of Great Slave Lake

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Abstract : *Assessment of the annual heat content cycle and modelling of the energy and mass exchange of large lake systems such as Great Slave Lake requires detailed computer-compatible data bases of the lake bathymetry and hypsometric data. A detailed bathymetry of Great Slave Lake is derived based on depth soundings collated from past and current research. Based on a 2 x 2 km grid mesh, the main-lake portion of Great Slave Lake has a maximum "grid-averaged" depth of 168.8 m, a surface area of $1.85 \times 10^{10} \text{ m}^2$ and an integrated volume of $5.96 \times 10^{11} \text{ m}^3$. The maximum depth of the mid-lake is 187.8 m at the eastern part of the lake. Spatial distribution of depth is illustrated by contour map and hypsometric curves are derived to describe the variation of area and volume with depth. Basic procedures (GIS, and geographic conversion formulae) used to determine the grid bathymetry are described. It is recommended that detailed depth sounding surveys be conducted in Great Slave Lake, especially in mid-lake sections, to increase the spatial representation of depth.*

Key Words : *Great Slave Lake, computer-compatible digital bathymetry, depth contours, hypsometric curves, surface area, volume, morphometric characteristics, co-ordinate transformations*

1. Introduction

Computer-compatible databases containing depths, shoreline digitizations and hypsometric data on depth versus area and volumes are essential for modelling research conducted on large lake systems in such applications as lake hydrodynamics, thermal modelling and ecosystem modelling. Such data bases have been constructed for the Great Lakes (Robertson and Jordan (unpublished); Schwab and Sellers, 1996). Similar databases are required for investigations being conducted in large lakes of the Mackenzie Basin (Schertzer *et al.*, 1998, 1999) as part of the Global Energy and Water Cycle Experiment (GEWEX-MAGS). The Mackenzie Basin includes three large lake systems being Lake Athabasca, Great Slave Lake and Great Bear Lake.

The purpose of this report is to derive computer-compatible database of depths, hypsometric curves, morphometric characteristics and depth contours for the main-lake of Great Slave Lake. These databases will be applied in computer models of heat storage,

and evaluations of surface heat and mass exchange and climate change analyses as part of the ongoing GEWEX-MAGS investigations. This report is provided for future reference and documentation of current procedures used to derive the 2 x 2 km grid mesh bathymetry which can be updated as additional depth soundings become available on this and other large lake systems.

2. Charts and Depth Soundings

2.1 Bathymetric Chart : Great Slave Lake is located within the Mackenzie Basin (Fig. 1). Bathymetric data files are available from the Canadian Hydrographic Service. In this analysis, Chart No. 6270 is used which depicts the main-lake section of Great Slave Lake including the north arm (Fig. 1). Christie Arm which is located at the eastern extension of the lake is not included in this analysis. Chart No. 6270 is a bathymetric chart in polyconic projection at the scale 1:250,000.

2.2 Depth Soundings and Elevations : Chart No. 6270 includes depth soundings and elevations, however, these data do not exist in a digital format and depth contours over the lake have not been derived (Bruce Richards, Hydrographics - pers. comm.). Depth soundings are in metres and have been reduced to a low water datum which at Yellowknife is 156.27 m above Geodetic Datum. Elevations and clearances are in metres above chart datum. Depth information contained in Chart No. 6270 have been compiled from Canadian Hydrographic Service reconnaissance surveys conducted from 1928-64; from Energy, Mines and resources through the ice spot sounding surveys, 1975-76 and Fisheries Research Board of Canada track line surveys, 1944-46. These surveys have provided valuable depth soundings and elevations, however, spatial resolution is not uniform over the whole lake. Spatial representations for depths are best within the North Arm and in shoreline areas of the main-lake. There is a paucity of soundings within the mid-lake. Consequently, additional soundings were conducted in the centre sections of the main-lake of Great Slave Lake during deployment and retrieval cruises as part of the GEWEX-MAGS-I investigation (Schertzer *et al.*, 1998, 1999). Depth soundings were recorded from the Canadian Coast Guard vessel (CCGC-775) by the Research Support Division of the National Water Research Institute (Barry Moore, pers. comm.) using GPS positioning. A listing of these additional soundings is provided in Appendix 1a (June, 1999 survey) and Appendix 1b (July survey).

3. Digitization of Shoreline and Bathymetric Data

Robertson and Jordan (unpublished) produced bathymetry files for the Laurentian Great Lakes by applying largely manual procedures using published hydrographic charts in polyconic projection. Schwab and Sellers (1996) applied refinements to these procedures. In this analysis, we rely on the general procedures used in the Great Lakes applications with additional use of Geographical Information Systems (GIS).

3.1 Shoreline Digitization : A previously digitized shoreline map outline of Great Slave Lake was downloaded from CD by the National Water Research Institute (NWRI) Geomatics Unit (Ian Gillespie, per. comm.). Such shoreline digitizations are generally available from the Internet from Digital Base Mapping courtesy of Digital Chart of the World. The digital shoreline used for Great Slave Lake was at a scale of 1:1,000,000. The original shoreline digitization for Great Slave Lake was received in geographic coordinates (latitude and longitude) and was modified to polyconic projection through the GIS (e.g. ARCINFO) to conform to previous analyses of the Great Lakes case examples. Five registration points within the lake proper were used to register the map to a polyconic grid (Fig. 2).

3.2 Digitization of Depth Soundings : Individual sounding depths from Chart No. 6270 were digitized (Rebecca Kay, NWRI Geomatics Unit) for the main-lake section of Great Slave Lake. A total of 2227 soundings were incorporated in this analysis. Depth soundings included 93 measurements conducted during mooring surveys though the GEWEX-MAGS-I investigation (Schertzer et al., 1998, 1999) listed in Appendix 1a and Appendix 1b. Appendix 3 lists the combined digitized depth soundings from the current surveys and sites from Chart No. 6270 showing the sounding depth, x- and y-coordinates from the grid reference and the latitude and longitudes of each location. Figure 3 shows the spatial distribution of combined sounding locations in polyconic projection with the 2 x 2 km grid mesh superimposed over the lake.

4. Grid Bathymetry

Robertson and Jordan (unpublished) superimposed 2 x 2 km grids on standard bathymetric charts of the Great Lakes and subjectively averaged a mean depth in each grid square. For most of the Great Lakes, the procedure adopted was to align the grids to the central meridian of the bathymetric chart providing a zero grid rotation. In some cases, e.g. Lake Erie, the grid was rotated to obtain a better fit to the shoreline. Schwab and Sellers (1996) carried out similar procedures for Lake St. Clair and introduced computer procedures for bilinear interpolation of arbitrary latitude and longitude sounding locations to each 2-km square which could then be used to calculate the average depth at the centre of each square. Depths at some grid squares near the shoreline were subjectively adjusted to provide a better fit to the shoreline.

A similar procedure was adopted for Great Slave Lake to define the grid bathymetry. A 2 x 2 km grid was superimposed on the polyconic projection of the lake. The grid mesh is aligned parallel to the central meridian (115°N) and the left-most origin is located at $60^{\circ} 46' 58.597''\text{N}$ longitude and $117^{\circ} 00' 10''\text{W}$ latitude (Fig. 2). The grid mesh size is 110 along the north-south axis and 118 along the west-east axis. Table 1 lists the statistics for the grid mesh used for Great Slave Lake. Mean depth for the central point of each grid square was derived by applying an inverse distance square interpolation procedure.

5. Geographical Conversions

Since the 2 x 2 km bathymetric grid is based on charts with polyconic projection, a method is required to convert the geographic coordinates (latitude and longitude) to grid coordinates and vice versa if required. Description of conversion techniques for bathymetric grids have been described for the Great Lakes (Rodgers, 1969; Robertson and Jordan (unpublished); Schwab and Sellers, 1996). As indicated in Schwab and Sellers (1996), exact polyconic projection formulas for the original charts can be used (e.g. Clarke's Speroid, NAV-20), however, such formulas are time-consuming to calculate. Conversion formulas with sufficient accuracy for most purposes can be obtained by a simple expansion of the geographical coordinate in terms of the grid coordinate and vice versa.

5.1 Geographical-to-Map Coordinate Transformation : The formulas for the geographical-to-map coordinate transformation are :

$$x = a(Dlon) + b(Dlat) + c(Dlon * Dlat) + d(Dlon^2) + e(Dlat^2) \quad (1)$$

$$y = f(Dlon) + g(Dlat) + h(Dlon * Dlat) + i(Dlon^2) + j(Dlat^2) \quad (2)$$

where x and y are the eastward and northward grid distances (km) from the base latitude and longitude of the grid, Dlat is latitude minus base latitude, Dlon is base longitude minus longitude, and a ... j are the transformation coefficients. For grids orientated parallel to the central meridian, coefficients c and h are generally not required. This is equivalent to assuming a linear variation of x with longitude and a quadratic variation of y with longitude for a fixed latitude. The transformation coefficients a ... j and base longitude and latitude for each bathymetric grid are given in Table 2.

5.2 Map-to-Geographic Coordinate Transformations : Schwab and Sellers (1996) provide additional formulas for map-to-geographic coordinate transformations. These formulations are not used in this analysis but are reproduced below for convenience.

$$Dlon = Ax + By + Cxy + Dx^2 \quad (3)$$

$$Dlat = Ex + Fy + Gxy + Hx^2 \quad (4)$$

where A ... H are the map-to-geographic transformation coefficients. Equations 3 and 4 can be used to determine the maximum error in longitude and latitude deviations of the geographical conversion procedure (see Schwab and Sellers, 1996). Error using the coordinate transformations (e.g. Table 2) is expected to be in the order of ± 500 m which is well within the tolerable limits of the present 2 x 2 km grid mesh.

6. Depth Contours, Hypsometric Curves and Morphometric Characteristics

One of the main modelling purposes of developing computer-compatible databases of the lake bathymetry is to provide graphical representation of depth contours and for development of hypsometric curves and morphometric characteristics.

6.1 Depth Contours : Figure 4 shows the depth contours of Great Slave Lake at a contour interval of 10 m. The maximum depth of the main-lake of Great Slave Lake is 187.8 m based on the composite of observations depicted in Fig. 3. A large part of the main-lake is less than 60 m in depth. The maximum depth occurs in a small area in the easternmost part of the main-lake. After averaging to the 2 x 2 km grid, the maximum depth of the deepest grid cell is 167.8 m.

6.2 Hypsometric Curves : The 2 x 2 km bathymetry is used to derive basic hypsometric curves. Figure 5 shows the variation of area with depth and Fig. 6 shows the variation of volume with depth. Tables 3 and 4 provide summaries of hypsometric data (area and volume) at 5 m intervals from the surface to the lake bottom.

6.3 Morphometric Characteristics : Comparisons between different lakes is often done by expressing characteristics of the lake form quantitatively. Hutchinson (1957) summarizes the main morphometric characteristics used to describe lakes. The primary method of recording lake morphometry is through use of the bathymetric map such as derived in this report. Based on the derived bathymetry a number of parameters can be calculated. For example, morphometric characteristics include the maximum depth, mean depth (\bar{z}), area for given depth (A_z), volume (V), and conical ratio defined as the ratio of mean to maximum depth (D_v). Other characteristics include, for example, the length (l), breadth (b_x), shoreline length (L), and development of shoreline (D_L) (see Hutchinson, 1957). Table 5 includes morphometric characteristics for the main-lake of Great Slave Lake and comparison to those of the Laurentian Great Lakes. The main-lake section of Great Slave Lake has a surface area nearly identical to Lake Ontario and a volume comparable to Lake Erie.

7. Summary and Recommendations

Computer-compatible databases of Great Slave Lake shoreline digitizations, bathymetry and hypsometric curves are required for models of the lake heat content, and energy and mass exchange and has direct application for future modelling of potential climate changes in this lake. Prior to this analysis there were no digitizations of depth soundings and no bathymetric files for use in modelling of Great Slave Lake, although preliminary hand-interpolated depth contours were constructed by Rawson (1950). This analysis described procedures adopted to develop a computer-compatible digital bathymetry file for the main-lake of Great Slave Lake. A 2 x 2 km grid mesh was used to incorporate depth soundings from numerous sources from which a detailed depth contour map was

developed along with hypsometric and morphometric characteristics of the lake. The maximum depth in the main-lake is 187.8 m near the easternmost part of the main-lake. Based on a 2 x 2 km grid, the grid-averaged maximum depth is 168.8 m. The surface area of the main-lake is $1.85 \times 10^{10} \text{ m}^2$ and the integrated volume is $5.96 \times 10^{11} \text{ m}^3$. The surface area of Great Slave Lake (main-lake) is similar to Lake Ontario and the volume is comparable to Lake Erie.

Data incorporated within this analysis was based on Chart No. 6270 and includes data from several lake surveys conducted over the period 1928-1976 and also includes soundings conducted from mooring and retrieval surveys from the authors investigations through GEWEX-MAGS-I. Data from Chart No. 6270 are referenced to 156.27 m above Geodetic. Incorporation of additional data from the GEWEX-MAGS investigation (Schertzer et al., 1998,1999) significantly reduced the paucity of observations in the mid-lake region. Never-the-less, there are still mid-lake areas with low spatial resolution for sounding depths (Fig. 3). It is recommended that future hydrographic surveys be conducted on Great Slave Lake to increase the spatial resolution of the mid-lake in particular. In addition, the eastern sections of the main-lake has significant undulating bottom topography (Barry Moore, pers. comm.) which may not be completely accounted in the depth contours or the current digital bathymetry files. This investigation concentrated on the main-lake section of Great Slave Lake. The main-lake is approximately 66% of the entire lake volume. Consequently, detailed soundings are required in the Christie Arm to complete the bathymetric characteristics of this lake.

Acknowledgements

This report is part of an ongoing investigation on Great Slave Lake to analyze the heat and mass exchange and climate impacts which has been funded by the Global Energy and Water Cycle Experiment on the Mackenzie Basin (GEWEX-MAGS) and from Environment Canada. We would like to acknowledge the initial work conducted by Keith Rodgers, Don Robertson and Diane Jordan on formulating initial procedures for the derivation of bathymetry for the Great Lakes and to David Schwab (GLERL) who provided advice on procedures for determining geographical conversions. In addition, Ian Gillespie, Susan Holland-Hibert, and Rebecca Kay of the GIS Laboratory did substantial work in digitizing the Great Slave Lake sounding data for GIS analyses. We are grateful to Barry Moore and Bob Rowsell of the Research Support Division of the National Water Research Institute and the Canadian Coast Guard for conducting additional depth soundings in Great Slave Lake in 1998 and 1999 which were integrated into this analysis.

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Table 1. Statistics for the bathymetric grid used for Great Slave Lake.

Grid Parameter

Grid Size	2 x 2 km
East-West Grids	118 grid squares
North-South Grids	110 grid squares
Reference Datum	156.27 m
Central Meridian	115° N
Origin	60° 46' 58.597" N 117° 00' 10" W

Table 2. Geographical-to-map coordinate transformation coefficients for Great Slave Lake based on equations 1 and 2. $Dlat$ is station latitude minus base latitude. $Dlon$ is base longitude minus station longitude. Values of x and y are in km.

Base Latitude	60.7829437°
Base Longitude	117.0028306°
Grid Orientation	0°

x-coefficients

a = 54.4680658
b = 3.43214554
c = -1.71421313
d = -0.00014912
e = not used

y-coefficients

f = -1.60935373
g = 111.394891
h = -0.03173789
i = 0.43691974
j = not used

Table 3. Hypsometric data of depth (5 m intervals) vs. area ($\times 10^{10} \text{ m}^2$) for the main-lake Great Slave Lake.

Depth (m)	Area ($\times 10^{10} \text{ m}^2$)	Depth (m)	Area ($\times 10^{10} \text{ m}^2$)	Depth (m)	Area ($\times 10^{10} \text{ m}^2$)
1	1.8520	5	1.7860	10	1.5684
15	1.3540	20	1.1420	25	0.9848
30	0.8444	35	0.7160	40	0.6184
45	0.5232	50	0.4204	55	0.2996
60	0.2216	65	0.1924	70	0.1648
75	0.1384	80	0.1140	85	0.0884
90	0.0648	95	0.0400	100	0.0276
105	0.0188	110	0.0104	115	0.0084
120	0.0060	125	0.0040	130	0.0032
135	0.0024	145	0.0012	150	0.0008
155	0.0008	160	0.0004	165	0.0004
168	0.0004				

Table 4. Hypsometric data of depth (5 m intervals) vs. volume ($\times 10^{11} \text{ m}^3$) for the main-lake of Great Slave Lake.

Depth (m)	Volume ($\times 10^{11} \text{ m}^3$)	Depth (m)	Volume ($\times 10^{11} \text{ m}^3$)	Depth (m)	Volume ($\times 10^{11} \text{ m}^3$)
1	0.000	5	0.732	10	1.572
15	2.304	20	2.924	25	3.455
30	3.913	35	4.304	40	4.636
45	4.924	50	5.160	55	5.340
60	5.464	65	5.564	70	5.656
75	5.732	80	5.792	85	5.844
90	5.884	95	5.908	100	5.924
105	5.936	110	5.944	115	5.948
120	5.952	125	5.956	130	5.956
135	5.956	145	5.960	150	5.960
155	5.960	160	5.960	165	5.960
168	5.960				

Table 5. Morphometric parameters of the main-lake of Great Slave Lake and comparison to the Laurentian Great Lakes.

	Area (x10 ¹⁰ m ²)	Volume (x10 ¹¹ m ³)	Max. Depth (m)	Mean Depth (m)	½ Vol. Depth (m)	Conical Ratio
Great Slave (main-Lake)	1.852	5.960	168.7	32.18	20.50	0.19
Ontario ¹	1.848	16.706	237.0	90.38	55.71	0.38
Erie ¹	2.532	4.730	64.0	18.68	9.97	0.29
Huron ¹	4.049	26.474	226.0	65.39	40.02	0.29
Georgian Bay ¹	1.511	6.596	162.0	43.66	28.06	0.27
North Channel ¹	0.397	0.875	73.0	22.02	13.68	0.30
Superior ¹	8.224	118.184	402.0	143.71	82.29	0.36

¹ Robertson and Jordan (unpublished)

Figures

Figure 1. Location of Great Slave Lake within the Mackenzie Basin.

Figure 2. Boundary of the 2 x 2 km grid mesh, alignment along the central meridian (115°W) and location of points used to register the digitized shoreline to polyconic projection.

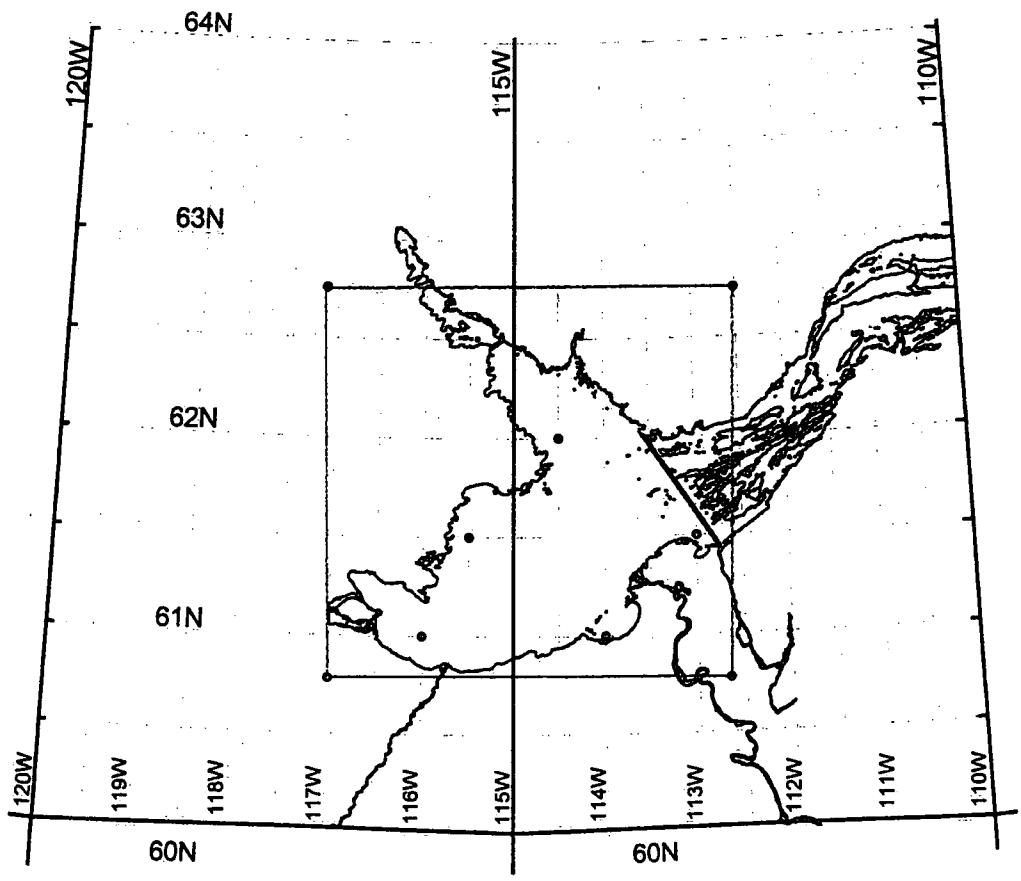
Figure 3. Combined depth sounding locations in the main-lake of Great Slave Lake including the 2 x 2 km grid mesh superimposed over the lake.

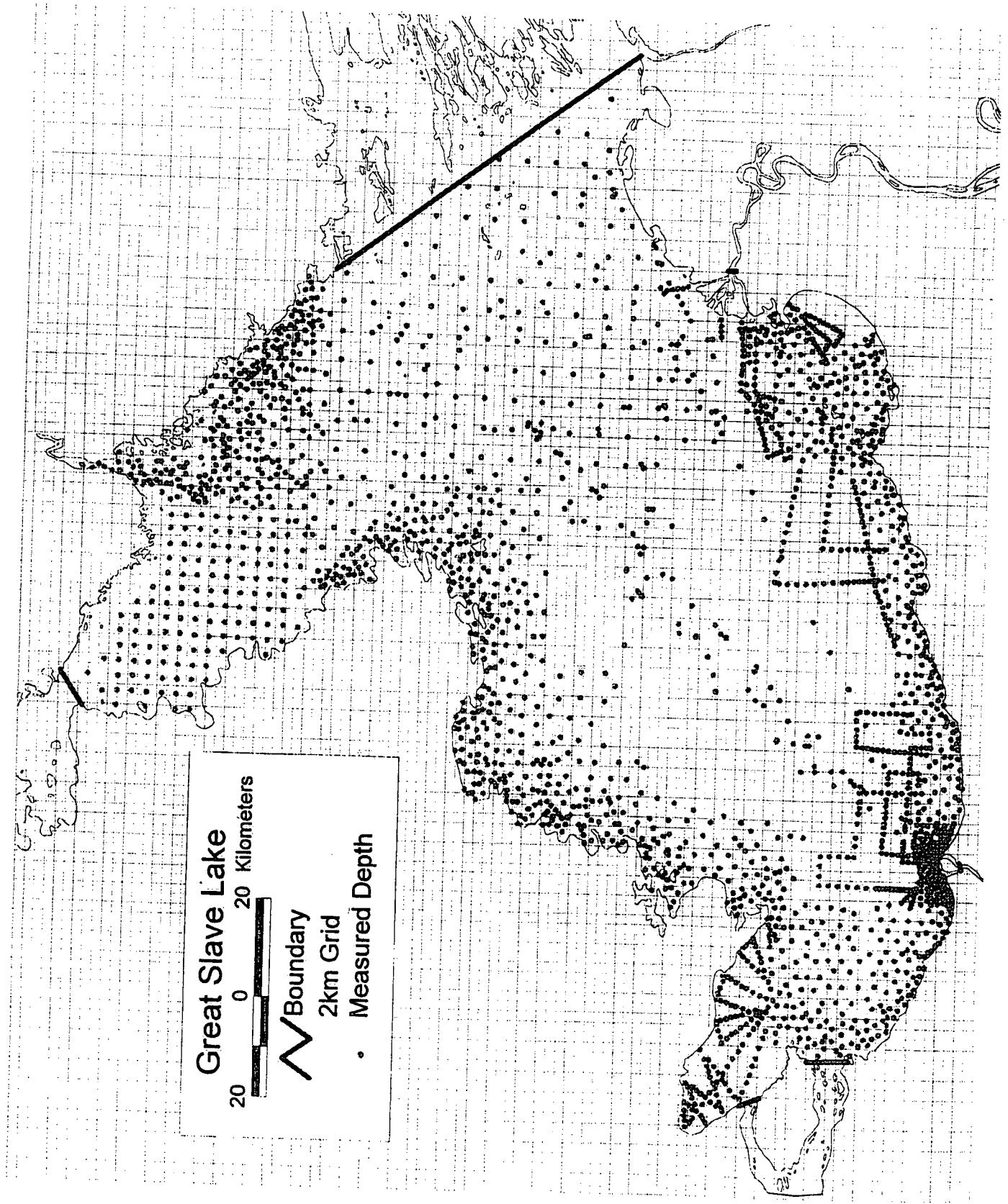
Figure 4. Depth contours based on 2 x 2 km grid bathymetry for the main-lake of Great Slave Lake.

Figure 5. Plot of area vs. depth of the main-lake of Great Slave Lake.

Figure 6. Plot of the accumulated volume vs. depth of the main-lake Great Slave Lake.



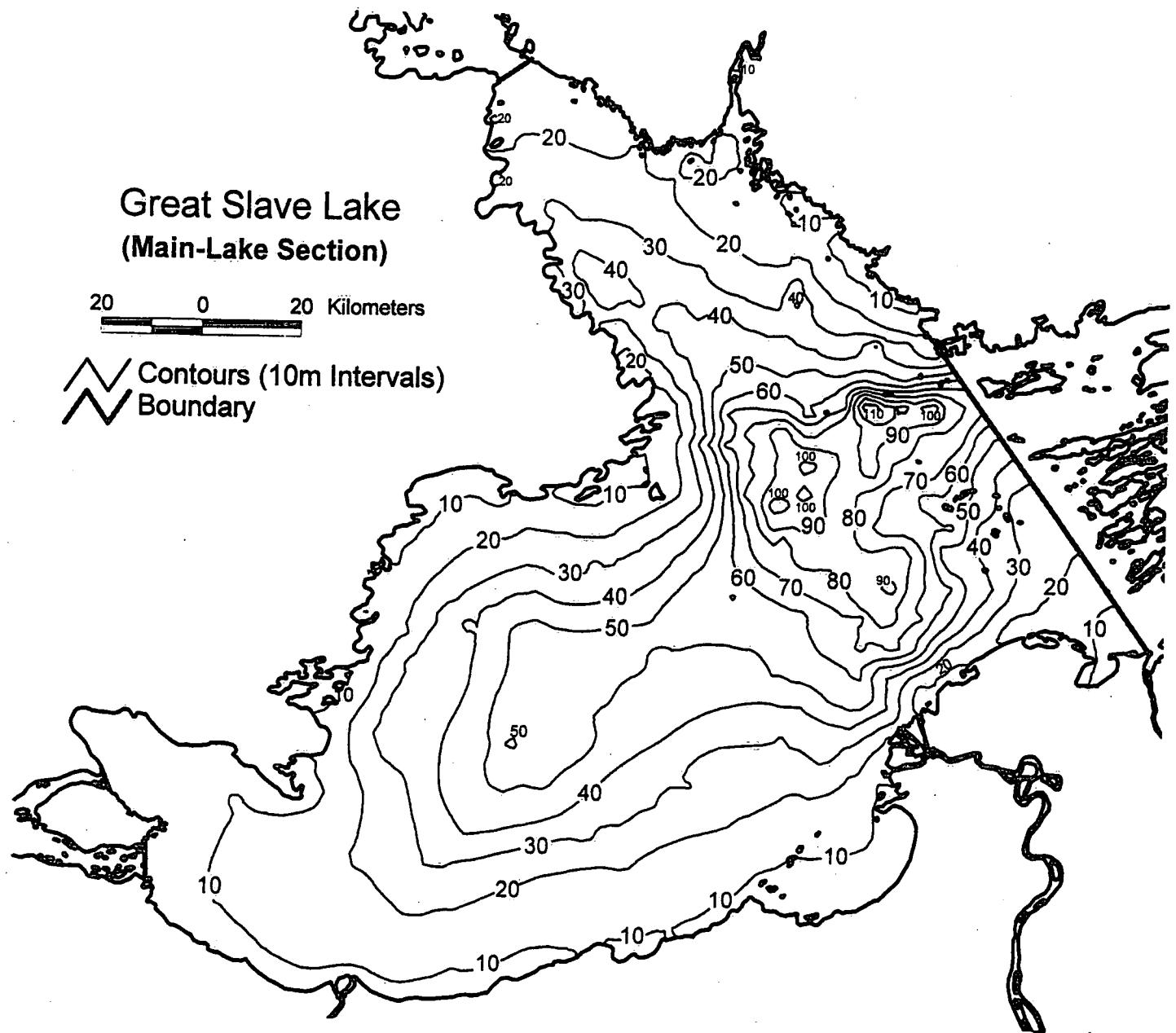


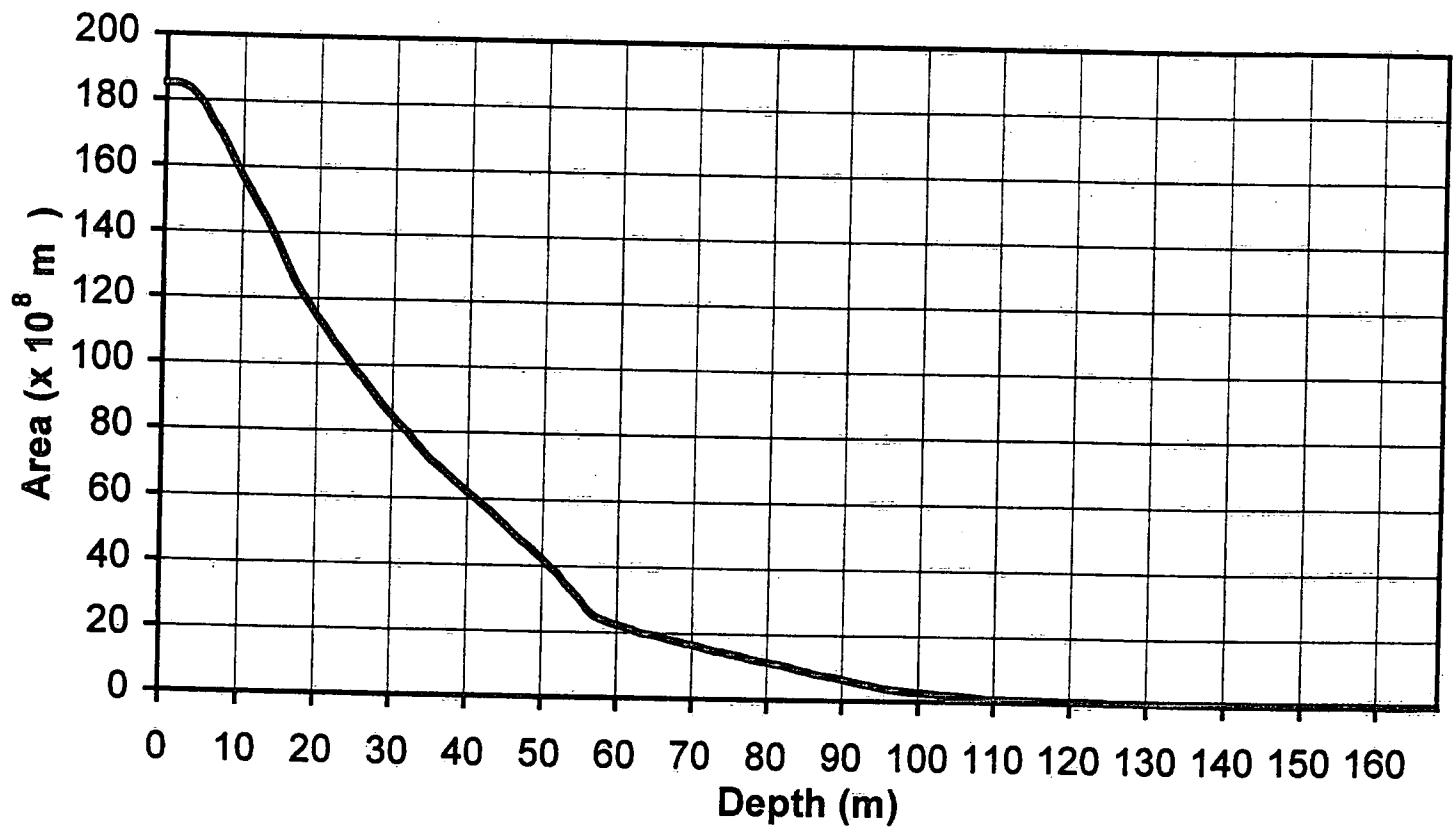


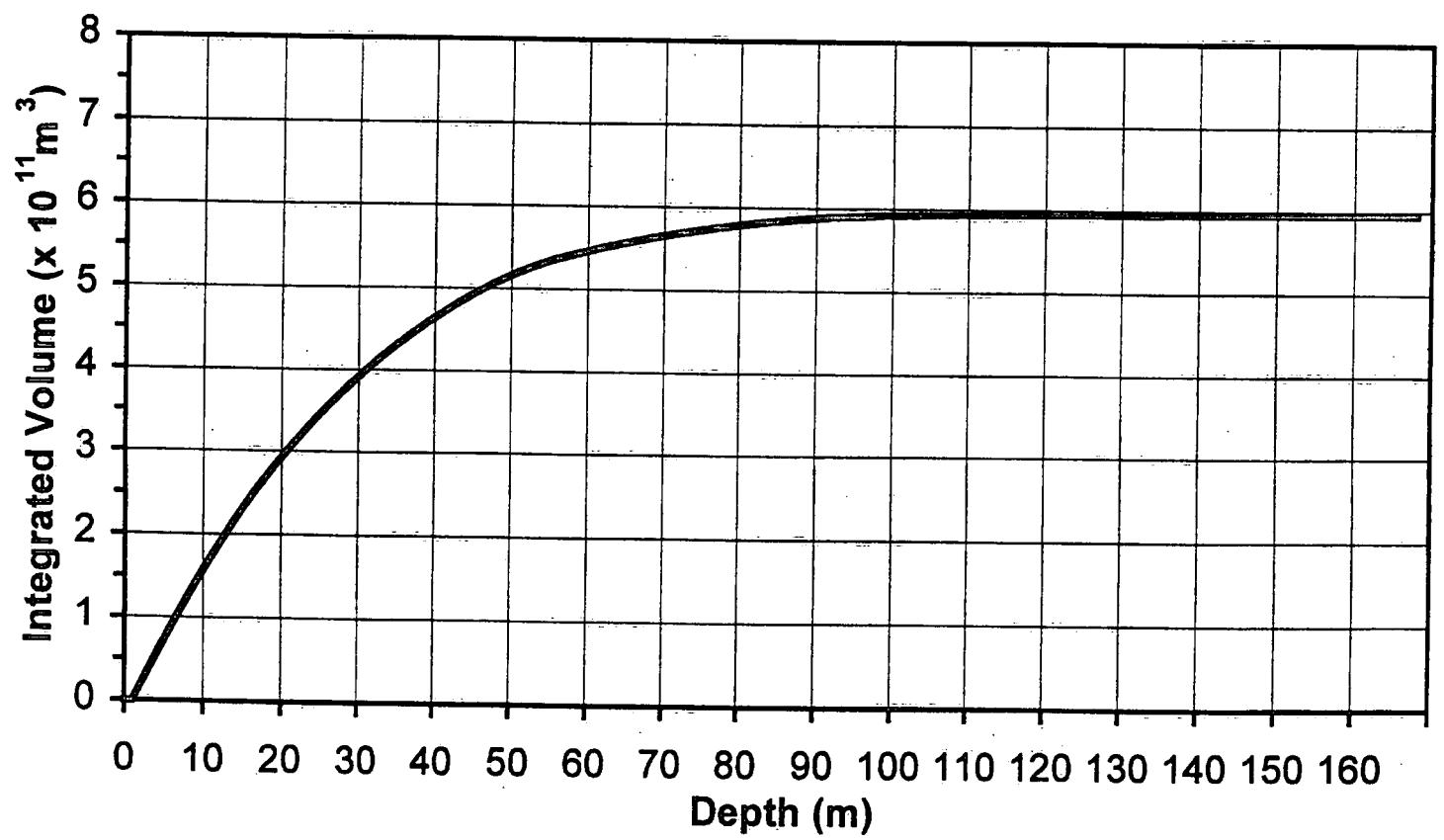
Great Slave Lake (Main-Lake Section)

20 0 20 Kilometers

Contours (10m Intervals)
Boundary







APPENDIX : 1

Appendix 1a and 1b contain additional depth soundings for Great Slave Lake which were conducted during June 14-19, 1999 and July 14-19, 1999. Observations were conducted by the NWRI Research Support Division (Barry Moore, pers. comm.) off the Coast Guard vessel while on mooring and refurbishment cruises for the GEWEX-MAGS investigations (Schertzer et al. 1999). Observations were recorded along mid-lake transects using GIS positioning. These depth soundings were used to augment digitized depths from bathymetric Chart 6270 which had a paucity of soundings in the mid-lake areas.

Appendix 1a : June 1999 Great Slave Lake Survey

Stn.	Latitude	Longitude	Depth (m)
1	61° 12'50"	115° 12'50"	55.5
2	61° 17'26"	114° 53'22"	56.7
3	61° 22'20"	114° 43'14"	44.5
4	61° 26'54"	114° 33'13"	51.0
5	61° 31'06"	114° 23'49"	51.5
6	61° 35'08"	114° 15'22"	63.7
7	61° 38'48"	114° 08'17"	103.0
8	60° 54'59"	115° 41'24"	15.5
9	60° 59'58"	115° 33'18"	26.2
10	61° 04'17"	115° 25'20"	37.8
11	61° 08'32"	115° 19'25"	52.7
12	61° 12'50"	115° 09'54"	56.4
13	61° 21'31"	114° 53'20"	61.6
14	61° 25'38"	114° 36'18"	52.7
15	61° 25'47"	114° 47'25"	59.4
16	61° 26'07"	114° 46'27"	57.0
17	61° 18'10"	115° 00'26"	62.8
18	61° 17'34"	115° 04'33"	58.5
19	61° 11'57"	115° 10'59"	57.3
20	61° 06'43"	115° 19'45"	42.7
21	61° 01'02"	115° 28'35"	29.1
22	60° 56'00"	115° 37'57"	19.0
23	61° 22'14"	113° 50'24"	75.0
24	61° 22'48"	113° 50'12"	75.9
25	61° 25'54"	113° 49'48"	75.0
26	61° 32'30"	113° 48'30"	77.7
27	61° 32'07"	113° 48'23"	131.9
28	61° 39'54"	113° 46'54"	45.7
29	61° 45'48"	113° 46'48"	110.9
30	61° 52'30"	113° 46'18"	152.4
31	61° 55'30"	113° 46'30"	39.0
32	61° 53'36"	113° 49'36"	187.8 maximum sounding depth
33	61° 49'01"	113° 59'36"	90.2
34	61° 42'36"	114° 09'54"	157.6
35	61° 33'42"	114° 30'42"	53.6
36	61° 32'25"	114° 30'34"	61.6
37	61° 27'30"	114° 41'16"	53.9
38	61° 22'30"	114° 31'20"	39.9
39	60° 54'18"	115° 42'30"	13.4
40	60° 59'54"	115° 22'29"	26.5
41	61° 03'55"	115° 28'29"	40.2
42	61° 09'10"	115° 14'19"	56.7

Appendix 1b : July 14-19 Lake Survey

Stn.	Latitude	Longitude	Depth (m)
1	61° 03'03"	115° 25'18"	32.0
2	61° 06'56"	115° 17'29"	42.4
3	61° 10'10"	115° 09'43"	44.8
4	61° 13'03"	115° 03'35"	58.8
5	61° 16'48"	114° 55'22"	56.1
6	61° 20'02"	114° 49'11"	44.5
7	61° 23'25"	114° 42'19"	45.1
8	61° 26'19"	114° 36'08"	43.9
9	61° 28'15"	114° 31'21"	53.0
10	61° 31'35"	114° 23'17"	52.7
11	61° 35'41"	114° 14'56"	67.4
12	61° 37'29"	114° 11'14"	66.8
13	61° 38'02"	114° 09'57"	101.8
14	61° 38'50"	114° 08'53"	117.3
15	61° 37'49"	114° 11'57"	83.8
16	61° 34'53"	114° 20'49"	56.7
17	61° 33'59"	114° 26'14"	56.7
18	61° 30'47"	114° 32'04"	62.8
19	61° 27'35"	114° 41'37"	57.6
20	61° 26'15"	114° 46'11"	57.3
21	61° 25'41"	114° 47'18"	58.2
22	61° 25'21"	114° 30'39"	49.1
23	61° 24'42"	114° 27'37"	44.5
24	61° 23'24"	114° 04'21"	49.4
25	61° 22'41"	113° 58'13"	54.9
26	61° 22'23"	113° 53'14"	64.3
27	61° 22'03"	113° 50'11"	73.8
28	61° 20'23"	113° 57'03"	48.2
29	61° 19'28"	114° 00'42"	37.5
30	61° 18'15"	114° 05'22"	29.0
31	61° 17'41"	114° 07'56"	17.1
32	61° 17'09"	114° 10'06"	25.6
33	61° 15'09"	114° 17'32"	30.8
34	61° 13'41"	114° 23'23"	25.9
35	61° 12'17"	114° 29'20"	36.3
36	61° 10'18"	114° 37'55"	32.6
37	61° 06'40"	114° 52'15"	39.6
38	61° 04'45"	114° 58'45"	24.4
39	61° 02'40"	115° 06'52"	21.0
40	61° 00'40"	115° 14'46"	19.8
42	60° 58'31"	115° 23'47"	19.5
43	60° 57'09"	115° 30'17"	19.5
44	60° 55'28"	115° 35'59"	17.4
45	60° 54'02"	115° 40'00"	13.4
46	60° 54'13"	115° 42'30"	14.9
47	60° 56'55"	115° 38'28"	18.9
48	61° 01'44"	115° 28'17"	29.7
49	61° 07'12"	115° 19'46"	46.6
50	61° 13'38"	115° 07'35"	51.8
51	61° 19'31"	114° 55'58"	56.1

APPENDIX : 2

Appendix 2 contains a listing of all depth sounding digitizations from the main-lake section of Great Slave Lake as contained in Chart No. 6270 including values of Appendix 1a and 1b. X-Coord and Y-Coord refer to the frame of reference and latitude and longitude are listed as decimal degrees. Gridpt is a sequential listing of digitized points from the map listed in Figure 3.

Appendix 2 : Great Slave Lake Sounding Depth Digitization Record

Gridpt.	Depth (m)	X-Coord.	Y-Coord.	Longitude (degrees)	Latitude (degrees)
1	14.9	34350.04	275323.56	-114.3341699	62.4691679
2	4.0	34079.62	273266.69	-114.3398187	62.4507390
3	10.1	-6982.96	273100.94	-115.1352699	62.4507481
4	2.4	34882.46	271911.97	-114.3245417	62.4385103
5	28.7	34248.38	270803.09	-114.3370394	62.4286205
6	14.0	-10437.30	270121.78	-115.2020046	62.4239371
7	11.9	-4162.61	269837.91	-115.0805569	62.4215131
8	8.5	33621.26	269261.28	-114.3494782	62.4148448
9	4.9	35390.15	268003.75	-114.3155129	62.4033985
10	3.0	37380.00	267822.53	-114.2770692	62.4015784
11	44.0	33661.60	267707.88	-114.3490004	62.4009042
12	23.5	-13243.39	267270.94	-115.2560949	62.3982690
13	16.8	-10318.96	267090.47	-115.1995330	62.3967423
14	13.4	-4266.95	266959.13	-115.0825052	62.3956822
15	18.3	-7305.57	266948.34	-115.1412588	62.3955383
16	17.4	1708.79	266808.56	-114.9669606	62.3943518
17	11.9	-1285.26	266746.91	-115.0248501	62.3938003
18	8.8	4525.11	266666.16	-114.9125109	62.3930505
19	3.4	35405.90	265858.22	-114.3156475	62.3841477
20	7.0	32787.71	265363.47	-114.3663442	62.3799483
21	2.4	34421.95	264933.34	-114.3348486	62.3759420
22	16.2	31613.23	264323.66	-114.3892307	62.3707205
23	18.6	-10308.73	264097.22	-115.1991570	62.3698858
24	20.7	-7282.73	264031.53	-115.1406944	62.3693678
25	3.0	35770.91	263955.22	-114.3089858	62.3670394
26	3.0	35783.68	263917.03	-114.3087471	62.3666956
27	19.8	-1325.97	263817.25	-115.0256148	62.3675138
28	19.8	-4421.78	263787.31	-115.0854178	62.3672214
29	18.9	1598.43	263662.28	-114.9691234	62.3661223
30	8.2	4478.26	263564.56	-114.9134968	62.3652221
31	6.7	7555.08	263530.78	-114.8540660	62.3648694
32	42.0	33337.08	263448.06	-114.3560963	62.3627146
33	14.3	34614.84	263380.22	-114.3314318	62.3619896
34	17.4	31482.04	262699.94	-114.3920600	62.3561636
35	67.0	32931.38	262657.88	-114.3640819	62.3556611
36	4.6	31775.96	261624.50	-114.3865815	62.3464898
37	18.0	-13420.07	261335.09	-115.2590515	62.3450039
38	16.5	-10444.73	261116.50	-115.2016049	62.3431376
39	7.0	31045.72	261082.08	-114.4007745	62.3416846
40	23.8	-7469.58	261050.75	-115.1441758	62.3426190
41	21.9	-4576.98	260908.45	-115.0883400	62.3413889
42	21.0	1417.84	260751.55	-114.9726356	62.3400064
43	21.6	-1569.82	260664.42	-115.0302968	62.3392241
44	20.4	4564.82	260533.20	-114.9119046	62.3380221
45	31.0	33722.63	260513.69	-114.3492203	62.3363529

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46	18.0	7540.01	260435.61	-114.8544916	62.3370982
47	11.0	10413.54	260293.28	-114.7990464	62.3357522
48	21.9	31930.53	260198.64	-114.3838599	62.3336838
49	5.2	35776.38	260090.67	-114.3096769	62.3323667
50	2.4	31410.54	259319.14	-114.3940521	62.3258369
51	112.0	33292.16	259252.36	-114.3577684	62.3250749
52	14.3	35714.07	259199.23	-114.3110622	62.3243747
53	9.1	29561.34	258933.95	-114.4297891	62.3225318
54	58.0	34107.28	258209.64	-114.3422498	62.3156462
55	39.0	31323.39	258013.83	-114.3959683	62.3141329
56	22.6	-10580.56	258008.41	-115.2040376	62.3152464
57	24.4	-4534.87	257838.83	-115.0874471	62.3138470
58	27.1	-7713.33	257821.48	-115.1487372	62.3136394
59	23.5	-1610.51	257715.69	-115.0310547	62.3127662
60	22.6	1536.33	257605.61	-114.9703765	62.3117788
61	22.6	4435.21	257527.00	-114.9144826	62.3110503
62	21.6	7334.14	257410.20	-114.8585920	62.3099568
63	25.6	13430.52	257374.44	-114.7410528	62.3094666
64	17.1	10277.54	257312.56	-114.8018470	62.3090114
65	3.7	33237.83	257221.30	-114.3592045	62.3068570
66	25.3	28165.37	257187.09	-114.4569974	62.3069664
67	17.1	16361.37	257149.41	-114.6845665	62.3073308
68	72.0	31248.42	257090.55	-114.3975796	62.3058554
69	5.5	19260.30	257026.23	-114.6286922	62.3060877
70	13.4	22407.00	257024.42	-114.5680308	62.3058961
71	30.0	25147.02	256894.64	-114.5152284	62.3045576
72	0.3	33886.68	256878.63	-114.3467628	62.3037243
73	1.5	36346.96	256660.03	-114.2993848	62.3015322
74	60.0	28605.92	255812.66	-114.4487303	62.2946013
75	13.7	32191.09	255748.81	-114.3796557	62.2937373
76	19.2	34791.32	255454.06	-114.3296096	62.2908602
77	23.8	30793.09	255440.80	-114.4066489	62.2910914
78	6.4	-13857.01	255112.30	-115.2669902	62.2891540
79	23.5	-10722.98	255072.25	-115.2066031	62.2888976
80	33.0	-7747.77	254961.92	-115.1492742	62.2879810
81	31.0	-4810.74	254870.64	-115.0926848	62.2872113
82	26.2	-1644.71	254671.42	-115.0316855	62.2854511
83	26.2	1419.52	254535.75	-114.9726539	62.2842347
84	62.0	34703.67	254505.28	-114.3314872	62.2823558
85	23.8	4356.48	254501.78	-114.9160762	62.2839072
86	4.0	30381.27	254478.72	-114.4147514	62.2824931
87	24.1	7299.87	254416.89	-114.8593782	62.2830997
88	23.5	10383.01	254402.23	-114.7999869	62.2828954
89	21.0	13167.59	254227.95	-114.7463599	62.2812441
90	22.6	19276.76	254128.52	-114.6286954	62.2800873
91	6.4	33312.14	254120.88	-114.3583646	62.2790333
92	32.0	16155.53	254098.53	-114.6888176	62.2799659
93	25.6	22334.58	254037.42	-114.5698096	62.2791001
94	1.5	42262.24	254034.45	-114.1860111	62.2773549

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95	13.4	35613.35	254016.61	-114.3140648	62.2778861
96	9.8	25042.94	253812.06	-114.5176777	62.2769068
97	12.8	29556.59	253305.84	-114.4308355	62.2720359
98	5.5	30771.20	252938.67	-114.4075120	62.2686438
99	4.0	28330.86	252539.73	-114.4545622	62.2652569
100	20.1	-13726.03	252138.33	-115.2642325	62.2624748
101	18.9	-10744.60	252129.91	-115.2068386	62.2624966
102	0.3	29202.45	252012.80	-114.4378709	62.2604622
103	25.9	-7731.20	251975.05	-115.1488226	62.2611814
104	38.0	-4972.12	251858.03	-115.0957082	62.2601782
105	36.0	-1945.95	251658.61	-115.0374553	62.2584168
106	28.0	1092.81	251561.11	-114.9789665	62.2575454
107	26.5	4258.61	251533.86	-114.9180341	62.2572783
108	7.0	27804.81	251450.13	-114.4648629	62.2555200
109	4.0	32820.17	251407.84	-114.3683499	62.2547351
110	26.2	7252.96	251366.23	-114.8604086	62.2557283
111	29.0	9986.46	251363.83	-114.8077998	62.2556438
112	25.3	13088.67	251355.58	-114.7480955	62.2554743
113	1.5	44319.32	251262.14	-114.1470988	62.2522450
114	25.3	16121.14	251200.75	-114.6897476	62.2539670
115	2.1	36780.62	251166.38	-114.2921844	62.2522011
116	1.5	30328.88	251078.84	-114.4163512	62.2519931
117	22.9	19109.12	251039.48	-114.6322624	62.2523797
118	0.6	31574.97	250928.20	-114.3924000	62.2505387
119	15.8	22300.52	250884.89	-114.5708683	62.2508163
120	1.2	29242.22	250860.50	-114.4372982	62.2501204
121	2.1	50079.01	250781.84	-114.0364097	62.2472110
122	18.3	25218.55	250736.27	-114.5147395	62.2492979
123	0.9	40214.34	250319.17	-114.2263058	62.2442475
124	0.3	33146.09	250179.64	-114.3623106	62.2436869
125	6.7	28416.88	250146.02	-114.4532954	62.2437733
126	6.7	31150.39	249997.94	-114.4007353	62.2422277
127	13.1	27756.09	249941.16	-114.4660400	62.2419847
128	1.5	51263.16	249485.09	-114.0140085	62.2354174
129	4.9	30388.38	249455.45	-114.4154882	62.2374229
130	3.0	42656.86	249177.39	-114.1795967	62.2337339
131	24.7	40463.98	249097.20	-114.2217861	62.2332574
132	2.4	32194.24	249025.64	-114.3808341	62.2334159
133	28.0	-5038.38	249017.52	-115.0969017	62.2346903
134	14.3	-7809.91	248937.09	-115.1502021	62.2339213
135	44.0	-1980.43	248824.52	-115.0380868	62.2329872
136	2.7	47355.03	248682.52	-114.0893838	62.2287306
137	11.0	42257.25	248578.23	-114.1874261	62.2284036
138	37.0	905.96	248573.95	-114.9825782	62.2307431
139	10.7	39161.68	248534.69	-114.2469556	62.2283487
140	6.4	3944.71	248476.45	-114.9241446	62.2298486
141	2.7	36714.52	248466.81	-114.2940228	62.2279871
142	1.5	34006.78	248366.64	-114.3461052	62.2273434
143	27.1	10022.12	248364.23	-114.8072852	62.2287287

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144	2.7	53305.25	248323.52	-113.9750911	62.2247121
145	28.3	7129.76	248315.47	-114.8629040	62.2283572
146	0.9	48112.00	248295.47	-114.0749359	62.2251620
147	26.5	13169.02	248203.20	-114.7467862	62.2271866
148	33.0	16004.25	248188.20	-114.6922726	62.2269418
149	9.1	35316.66	248056.92	-114.3209825	62.2244437
150	28.7	19062.13	248046.16	-114.6334926	62.2255244
151	20.7	29526.15	247862.31	-114.4323407	62.2231977
152	9.4	43332.61	247790.63	-114.1669448	62.2212148
153	19.5	21967.64	247757.41	-114.5776662	62.2227748
154	6.4	30931.14	247718.30	-114.4053557	62.2217924
155	22.6	25006.34	247704.48	-114.5192560	62.2221099
156	1.8	49143.13	247329.52	-114.0553838	62.2163624
157	3.7	44890.62	247328.55	-114.1371145	62.2168861
158	7.9	32374.79	247211.45	-114.3776972	62.2171232
159	6.4	40422.62	246875.17	-114.2230940	62.2133260
160	11.9	44351.15	246735.52	-114.1476329	62.2116297
161	12.2	41427.23	246679.55	-114.2038340	62.2114615
162	3.4	36933.20	246659.06	-114.2901992	62.2117465
163	19.2	53358.58	246566.42	-113.9746007	62.2089411
164	1.5	38083.89	246540.08	-114.2681122	62.2105640
165	2.4	47180.10	246523.92	-114.0933283	62.2093867
166	13.4	30049.32	246488.02	-114.4225184	62.2108256
167	2.7	39660.52	246396.36	-114.2378483	62.2091114
168	6.7	34505.80	246094.61	-114.3369577	62.2069130
169	24.7	43246.17	245988.72	-114.1690509	62.2050585
170	18.3	-1982.83	245767.56	-115.0380985	62.2055581
171	8.5	37328.60	245742.94	-114.2827958	62.2034879
172	45.0	1024.11	245695.48	-114.9803230	62.2049152
173	1.5	38867.04	245624.63	-114.2532660	62.2022704
174	11.9	35275.70	245561.14	-114.3222722	62.2020552
175	38.0	3821.43	245495.75	-114.9265803	62.2031050
176	32.0	7057.27	245385.80	-114.8644159	62.2020715
177	2.1	40666.31	245360.33	-114.2187620	62.1997087
178	30.0	9930.70	245319.89	-114.8092155	62.2014152
179	11.3	47919.18	245309.17	-114.0794590	62.1983949
180	0.6	51726.76	245290.28	-114.0063308	62.1977206
181	33.0	12918.54	245266.91	-114.7518187	62.2008490
182	14.3	32612.75	245250.94	-114.3734879	62.1995125
183	2.4	54587.33	245193.34	-113.9514188	62.1964464
184	27.7	18938.88	245039.97	-114.6361871	62.1985576
185	28.3	16192.77	244965.94	-114.6889454	62.1980217
186	25.0	24806.54	244901.98	-114.5234934	62.1969780
187	26.8	21945.97	244853.27	-114.5784463	62.1967188
188	20.4	28221.32	244600.34	-114.4579506	62.1940306
189	22.3	50380.32	244485.75	-114.0324229	62.1906857
190	6.4	52573.35	244464.08	-113.9903179	62.1901910
191	8.2	38176.63	243891.72	-114.2669061	62.1867936
192	21.3	46433.84	243829.55	-114.1083802	62.1853067

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193	22.9	30434.55	243776.50	-114.4155858	62.1864662
194	5.2	48817.68	243731.80	-114.0626393	62.1841278
195	4.0	53922.06	243664.20	-113.9646654	62.1828241
196	14.6	55892.63	243629.41	-113.9268472	62.1822242
197	0.9	42302.57	243497.73	-114.1877797	62.1828172
198	18.0	51602.17	243494.67	-114.0092513	62.1816286
199	11.3	33848.46	243457.69	-114.3500964	62.1833139
200	1.5	43777.38	243436.61	-114.1594815	62.1821000
201	13.4	36956.88	243399.38	-114.2904303	62.1824981
202	14.6	28833.34	243328.06	-114.4464048	62.1825689
203	6.4	40720.61	242922.00	-114.2182842	62.1778264
204	43.0	869.04	242708.38	-114.9833172	62.1781130
205	1.5	54571.87	242646.66	-113.9525068	62.1736017
206	41.0	3793.34	242636.19	-114.9271817	62.1774472
207	21.0	31523.22	242568.70	-114.3948985	62.1755398
208	38.0	6895.72	242494.19	-114.8676329	62.1761289
209	37.0	9769.31	242313.66	-114.8124833	62.1744454
210	22.6	50790.46	242137.17	-114.0252258	62.1695604
211	33.0	12725.54	242120.52	-114.7557543	62.1726240
212	32.0	15611.67	242073.73	-114.7003649	62.1720956
213	29.3	18891.91	242033.91	-114.6374125	62.1715878
214	3.0	52920.07	242007.14	-113.9843997	62.1681003
215	33.0	46849.71	241926.64	-114.1009028	62.1681829
216	28.3	21835.33	241923.53	-114.5809355	62.1704382
217	2.1	54019.97	241856.25	-113.9633413	62.1665904
218	11.0	44269.07	241852.16	-114.1504411	62.1678271
219	27.7	24893.17	241813.31	-114.5222668	62.1692593
220	28.0	27939.34	241728.50	-114.4638229	62.1682845
221	14.3	58755.84	241673.42	-113.8725373	62.1642406
222	25.9	30761.72	241663.33	-114.4096734	62.1674796
223	23.8	32745.10	241564.89	-114.3716325	62.1664290
224	17.1	41904.88	241542.48	-114.1958807	62.1653195
225	10.7	39406.93	241423.58	-114.2438363	62.1645225
226	21.6	36705.45	241399.81	-114.2956748	62.1645825
227	44.0	45585.61	241326.00	-114.1253148	62.1629494
228	7.6	53544.03	241288.80	-113.9726457	62.1615676
229	1.8	55540.32	241043.94	-113.9344267	62.1590816
230	23.8	48026.93	241037.34	-114.0785565	62.1600561
231	18.6	51923.72	240859.44	-114.0038564	62.1579426
232	5.2	44047.99	240822.05	-114.1549410	62.1586111
233	1.5	53913.52	240716.44	-113.9657328	62.1563800
234	2.7	59266.18	240381.86	-113.8631810	62.1525739
235	29.9	26974.05	240147.75	-114.4825888	62.1541718
236	2.4	56253.57	240115.64	-113.9210417	62.1506478
237	23.2	36490.73	239913.14	-114.3001026	62.1512648
238	0.6	54963.64	239801.45	-113.9458765	62.1480196
239	1.4	38754.11	239687.14	-114.2567442	62.1490109
240	13.4	42155.13	239653.86	-114.1915314	62.1483470
241	42.0	879.41	239606.86	-114.9831336	62.1502838

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242	59.0	3841.77	239598.41	-114.9263184	62.1501894
243	15.8	51950.96	239579.78	-114.0037114	62.1464585
244	49.0	6715.24	239500.67	-114.8712116	62.1492721
245	8.5	45391.09	239442.00	-114.1295324	62.1460701
246	41.0	9722.19	239422.22	-114.8135474	62.1485026
247	21.6	50444.80	239341.63	-114.0326595	62.1445266
248	26.5	28983.94	239309.98	-114.4441753	62.1465057
249	24.4	34635.30	239292.69	-114.3358095	62.1458732
250	25.3	31914.63	239212.33	-114.3879944	62.1453925
251	39.0	12716.61	239197.28	-114.7561370	62.1463950
252	36.0	15780.90	239017.03	-114.6973908	62.1446618
253	35.0	18673.43	238932.06	-114.6419347	62.1437671
254	31.0	21648.53	238898.16	-114.5848923	62.1433036
255	4.3	56636.71	238881.17	-113.9140911	62.1395157
256	23.5	40617.81	238823.70	-114.2212030	62.1410678
257	29.9	24680.93	238800.64	-114.5267621	62.1422422
258	15.5	55753.31	238765.05	-113.9310623	62.1386057
259	15.5	58461.21	238750.63	-113.8791597	62.1380658
260	0.3	59726.21	238714.59	-113.8549238	62.1375442
261	29.9	27821.47	238645.97	-114.4665716	62.1406355
262	26.2	30898.25	238644.05	-114.4075833	62.1403785
263	25.3	36759.46	238569.73	-114.2952289	62.1391854
264	25.3	33809.84	238565.47	-114.3517776	62.1394234
265	10.4	44515.10	238459.97	-114.1465773	62.1373641
266	0.9	54298.32	238304.14	-113.9590954	62.1346832
267	1.5	60712.26	238156.03	-113.8362154	62.1323757
268	22.6	52290.01	238058.75	-113.9976614	62.1327658
269	40.0	49505.87	238034.11	-114.0510292	62.1329207
270	1.5	57699.60	237921.64	-113.8940298	62.1307463
271	25.6	37103.93	237646.78	-114.2888193	62.1308708
272	0.6	55405.30	237637.55	-113.9380876	62.1285419
273	36.0	47612.52	237241.66	-114.0875315	62.1260551
274	0.9	59544.25	237033.50	-113.8589790	62.1224918
275	29.0	29177.72	236934.77	-114.4408523	62.1251793
276	5.5	-2441.71	236844.42	-115.0467916	62.1254901
277	25.3	32877.63	236812.75	-114.3699759	62.1237800
278	12.2	51789.71	236739.98	-114.0076371	62.1210036
279	21.0	520.94	236606.70	-114.9900176	62.1233646
280	68.0	3616.81	236592.08	-114.9306946	62.1232164
281	7.0	54288.08	236559.67	-113.9598283	62.1190345
282	22.6	43786.62	236471.89	-114.1610352	62.1196127
283	13.1	53372.88	236462.59	-113.9773902	62.1182942
284	56.0	6674.70	236443.66	-114.8721049	62.1218429
285	24.1	36145.60	236435.36	-114.3074346	62.1200949
286	51.0	9579.93	236365.06	-114.8164417	62.1210751
287	26.2	49024.91	236358.47	-114.0607128	62.1179504
288	52.0	27156.99	236326.81	-114.4796683	62.1198755
289	42.0	15631.88	236278.30	-114.7004911	62.1200942
290	23.5	39826.52	236249.63	-114.2369547	62.1180576

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291	3.7	60861.23	236201.73	-113.8340344	62.1148198
292	47.0	12771.35	236191.36	-114.7553048	62.1194219
293	3.7	59030.59	236173.11	-113.8691076	62.1148540
294	40.0	18708.98	236021.64	-114.6415617	62.1176512
295	7.6	63048.14	236014.52	-113.7922144	62.1127810
296	34.0	24621.11	235902.81	-114.5283135	62.1162453
297	37.0	21639.76	235853.92	-114.5854340	62.1159895
298	13.7	62228.54	235732.97	-113.8080106	62.1103914
299	1.5	57168.84	235673.30	-113.9049295	62.1106569
300	27.7	33756.51	235559.39	-114.3533748	62.1124569
301	1.8	63672.02	235347.09	-113.7805062	62.1066889
302	1.5	58160.94	235331.22	-113.8860420	62.1074364
303	27.1	31277.61	235320.17	-114.4008992	62.1105243
304	0.9	59413.28	235256.97	-113.8620858	62.1065751
305	27.1	36579.41	235245.05	-114.2993697	62.1093733
306	14.9	52020.75	235180.56	-114.0036699	62.1069814
307	24.4	35181.13	235051.97	-114.3261884	62.1077740
308	5.5	55822.20	235002.48	-113.9309315	62.1048405
309	26.5	49153.99	234855.66	-114.0586581	62.1044509
310	3.0	63177.43	234486.73	-113.7902843	62.0990539
311	10.7	57145.33	234317.17	-113.9058181	62.0984943
312	13.1	60101.16	234277.70	-113.8492466	62.0976811
313	72.0	47126.97	234196.75	-114.0976478	62.0987980
314	72.0	47120.61	234196.73	-114.0977695	62.0987987
315	24.1	51417.92	234196.59	-114.0155000	62.0982364
316	21.6	45150.02	234149.31	-114.1355086	62.0986141
317	5.2	61646.44	233828.33	-113.8198224	62.0934005
318	18.9	53770.73	233808.39	-113.9705761	62.0944258
319	2.8	34114.87	233725.75	-114.3468646	62.0959727
320	7.6	359.57	233587.73	-114.9931161	62.0962761
321	0.6	64043.34	233475.94	-113.7740736	62.0898403
322	66.0	6519.63	233462.91	-114.8751862	62.0950998
323	36.0	48558.24	233460.06	-114.0704488	62.0920072
324	60.0	9551.95	233422.72	-114.8171368	62.0946747
325	19.2	3550.98	233420.39	-114.9320197	62.0947580
326	25.3	42887.91	233400.91	-114.1789981	62.0921633
327	59.0	12508.12	233280.52	-114.7605542	62.0933123
328	1.5	65925.20	233249.98	-113.7381441	62.0874894
329	48.0	15508.83	233112.91	-114.7031264	62.0916971
330	5.8	55920.33	233035.36	-113.9296743	62.0871783
331	41.0	18407.72	233021.56	-114.6476456	62.0907472
332	39.0	21624.46	232930.69	-114.5860845	62.0897613
333	37.0	24415.23	232883.78	-114.5326744	62.0891702
334	14.3	58450.56	232797.80	-113.8813331	62.0846639
335	25.9	53085.69	232775.81	-113.9839986	62.0852590
336	0.3	66968.42	232716.98	-113.7183828	62.0825244
337	36.0	27415.98	232684.33	-114.4752712	62.0871747
338	31.0	30473.71	232663.28	-114.4167544	62.0867514
339	3.4	60014.54	232609.48	-113.8514707	62.0827292

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340	2.4	63478.94	232539.06	-113.7852110	62.0815310
341	25.9	39589.78	232517.25	-114.2423257	62.0845954
342	28.7	33213.80	232476.19	-114.3643491	62.0848416
343	31.0	36386.04	232385.25	-114.3036614	62.0837334
344	0.6	64782.61	232127.48	-113.7604193	62.0776174
345	26.5	50479.95	231985.31	-114.0340873	62.0785243
346	11.6	62138.54	231957.39	-113.8110603	62.0765358
347	5.5	61000.74	231942.69	-113.8328309	62.0765893
348	16.2	55057.85	231620.48	-113.9466194	62.0746117
349	4.3	66741.15	231608.80	-113.7231486	62.0726235
350	2.1	68400.27	231567.09	-113.6914320	62.0719527
351	27.7	58160.06	231453.94	-113.8873330	62.0726527
352	55.0	49088.54	231391.02	-114.0608723	62.0733758
353	33.0	32210.92	231302.91	-114.3837547	62.0744014
354	56.0	24474.56	231247.13	-114.5317650	62.0744814
355	1.5	65941.01	231059.89	-113.7386568	62.0678399
356	6.1	64924.14	230930.80	-113.7581502	62.0668579
357	5.2	69139.03	230568.80	-113.6776919	62.0628630
358	34.0	51053.95	230540.45	-114.0235221	62.0654844
359	2.7	71274.88	230534.28	-113.6368689	62.0621566
360	73.0	47258.90	230490.39	-114.0961112	62.0655289
361	29.6	46241.82	230463.44	-114.1155687	62.0654129
362	28.0	37679.12	230361.89	-114.2793474	62.0654526
363	7.6	3243.45	230356.63	-114.9379632	62.0672699
364	5.2	63005.30	230348.13	-113.7950518	62.0619556
365	2.8	42758.39	230324.66	-114.1822198	62.0645780
366	60.0	9428.89	230270.05	-114.8196606	62.0663894
367	15.8	60354.93	230133.45	-113.8458010	62.0604623
368	35.0	31436.89	230123.58	-114.3987714	62.0638852
369	52.0	15430.08	230106.78	-114.7048958	62.0647270
370	25.3	55142.63	230099.00	-113.9454708	62.0609495
371	0.9	73856.45	229946.64	-113.5877563	62.0563897
372	48.0	18621.73	229748.39	-114.6438932	62.0613675
373	8.8	66139.92	229742.33	-113.7353442	62.0559857
374	41.0	27458.05	229646.55	-114.4749368	62.0599151
375	4.0	64392.11	229580.16	-113.7688148	62.0548326
376	3.4	72649.34	229498.89	-113.6110142	62.0526072
377	63.0	33427.43	229495.97	-114.3608230	62.0580833
378	79.0	32118.08	229353.95	-114.3858838	62.0569226
379	7.3	69611.20	229302.66	-113.6691608	62.0514184
380	48.0	21807.16	229294.45	-114.5830351	62.0571241
381	55.0	11133.88	229247.17	-114.7871149	62.0571649
382	3.7	71511.91	229223.17	-113.6328653	62.0503507
383	41.0	48137.88	229160.61	-114.0796627	62.0534875
384	29.3	50992.21	229120.16	-114.0251109	62.0527504
385	0.3	67621.88	229114.59	-113.7072544	62.0500923
386	41.0	41425.15	228991.67	-114.2080276	62.0527669
387	37.0	46065.74	228985.66	-114.1193200	62.0521760
388	11.0	63725.67	228872.31	-113.7818082	62.0485955

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389	5.5	62181.13	228805.98	-113.8113505	62.0482576
390	0.3	64869.99	228772.42	-113.7599751	62.0475048
391	56.0	23339.87	228768.08	-114.5537990	62.0523096
392	25.6	60674.70	228765.17	-113.8401552	62.0481361
393	49.0	58412.07	228557.55	-113.8834667	62.0466297
394	17.7	54960.49	228545.22	-113.9494347	62.0470364
395	48.0	34471.36	228421.17	-114.3410718	62.0483461
396	0.6	69682.69	228201.34	-113.6682268	62.0415259
397	44.0	29698.17	227732.83	-114.4324226	62.0425749
398	49.0	21815.58	227695.94	-114.5830705	62.0427806
399	3.0	65144.86	227684.19	-113.7551212	62.0376952
400	49.0	25121.46	227503.30	-114.5199196	62.0408470
401	32.0	43747.39	227479.30	-114.1640079	62.0389363
402	7.3	12547.48	227427.78	-114.7602151	62.0407955
403	4.6	67084.05	227369.20	-113.7181929	62.0345308
404	1.2	71445.14	227001.09	-113.6350352	62.0304304
405	22.6	63906.35	226969.00	-113.7790400	62.0314906
406	45.0	36171.17	226493.94	-114.3089745	62.0308956
407	63.0	14576.62	226443.58	-114.7215189	62.0318916
408	34.0	42306.03	226190.75	-114.1918555	62.0275393
409	42.0	48300.84	226040.20	-114.0773959	62.0254712
410	2.7	12682.84	225982.30	-114.7577314	62.0278208
411	29.3	54303.13	225921.03	-113.9628000	62.0235886
412	64.0	19338.84	225781.77	-114.6306121	62.0257400
413	6.7	11449.86	225770.34	-114.7812973	62.0259583
414	41.0	34665.70	225619.25	-114.3379040	62.0231885
415	42.0	60259.90	225415.61	-113.8492183	62.0181531
416	28.7	66419.43	225375.30	-113.7316336	62.0167612
417	2.1	11673.39	224974.59	-114.7770801	62.0188113
418	22.9	13511.02	224614.23	-114.7420156	62.0155167
419	49.0	31418.60	224601.94	-114.4000977	62.0143441
420	38.0	14617.68	224189.14	-114.7209198	62.0116613
421	57.0	28387.02	224068.95	-114.4580644	62.0098012
422	60.0	23391.29	223418.48	-114.5535199	62.0043062
423	8.5	12978.63	223377.94	-114.7522713	62.0044422
424	53.0	39146.46	223348.23	-114.2528305	62.0023757
425	64.0	45032.73	223256.53	-114.1405176	62.0008991
426	45.0	51192.65	222936.08	-114.0230597	61.9972420
427	29.6	57295.02	222857.47	-113.9066506	61.9956633
428	25.3	15801.80	222853.44	-114.6984314	61.9996287
429	13.4	13932.87	222837.98	-114.7340996	61.9995634
430	93.0	63175.02	222708.45	-113.7945212	61.9933921
431	46.0	69245.60	222636.16	-113.6787437	61.9916832
432	4.0	11956.50	222338.38	-114.7718506	61.9951479
433	0.6	74795.53	222149.13	-113.5730841	61.9862601
434	50.0	33522.66	222128.88	-114.3603910	61.9919743
435	7.9	13552.91	221710.19	-114.7414366	61.9894575
436	59.0	17825.05	221512.58	-114.6599536	61.9875076
437	13.7	15447.91	221228.92	-114.7053259	61.9850667

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438	0.9	12396.72	221109.86	-114.7635360	61.9841104
439	44.0	19320.20	220533.97	-114.6315373	61.9786535
440	38.0	48825.08	220525.41	-114.0688951	61.9759262
441	1.8	13980.81	220175.97	-114.7333934	61.9756756
442	61.0	28186.01	220126.92	-114.4625249	61.9744460
443	8.2	15004.44	220056.44	-114.7138837	61.9745639
444	42.0	45266.47	219787.11	-114.1369375	61.9697436
445	28.0	18126.26	219627.89	-114.6543989	61.9705823
446	79.0	22601.90	219373.25	-114.5690996	61.9680572
447	0.9	14052.18	219061.56	-114.7321202	61.9656734
448	12.5	16442.59	218912.17	-114.6865657	61.9642369
449	14.3	18998.47	218622.91	-114.6378764	61.9615221
450	6.4	15490.12	218082.86	-114.7047937	61.9568356
451	7.9	19762.09	218012.63	-114.6233890	61.9560071
452	61.0	33579.88	217627.77	-114.3601459	61.9515832
453	3.0	14359.23	217578.11	-114.7263861	61.9523510
454	56.0	39002.11	217541.63	-114.2568542	61.9502921
455	6.1	17658.85	217302.66	-114.6635403	61.9497403
456	40.0	45130.34	217163.83	-114.1401951	61.9462236
457	66.0	50972.04	217122.97	-114.0289287	61.9451180
458	15.8	21416.07	217110.67	-114.5919776	61.9478243
459	43.0	56960.21	216891.36	-113.9149415	61.9421893
460	0.6	16178.49	216676.39	-114.6918023	61.9441868
461	50.0	62923.01	216621.52	-113.8014731	61.9388277
462	19.8	69000.00	216511.03	-113.6857944	61.9367815
463	69.0	29914.11	216252.61	-114.4302221	61.9395510
464	8.2	20762.82	215937.89	-114.6045592	61.9373374
465	37.0	23312.06	215858.80	-114.5560190	61.9364799
466	1.5	13210.95	215780.48	-114.7483991	61.9362627
467	39.0	64193.96	215060.38	-113.7778300	61.9246100
468	69.0	24711.68	215020.16	-114.5294798	61.9288665
469	11.6	21686.17	214703.72	-114.5871233	61.9262118
470	7.0	20930.73	213906.53	-114.6015988	61.9191011
471	1.8	20067.01	213262.05	-114.6181107	61.9133648
472	13.4	24015.49	212643.64	-114.5430535	61.9075871
473	29.9	50705.09	212614.92	-114.0352894	61.9047084
474	8.8	21644.67	212385.47	-114.5881933	61.9054128
475	2.4	19064.25	211993.23	-114.6373283	61.9020314
476	22.3	26417.70	211987.30	-114.4974446	61.9015386
477	78.0	31846.39	211831.14	-114.3942054	61.8997219
478	1.5	20170.82	211638.20	-114.6163177	61.8987887
479	187.8	61544.09	211481.73	-113.8294967	61.8929434
480	72.0	38731.21	211333.67	-114.2633573	61.8946199
481	43.0	28497.36	211226.89	-114.4580048	61.8945656
482	6.4	23527.84	211222.72	-114.5525181	61.8948678
483	57.0	44700.18	211191.17	-114.1498788	61.8926872
484	68.0	50707.48	210921.41	-114.0357222	61.8895141
485	27.1	56841.57	210887.41	-113.9191044	61.8883426
486	7.6	20991.99	210773.25	-114.6007992	61.8909831

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487	183.0	62804.43	210579.36	-113.8058472	61.8846422
488	146.0	68887.77	210468.89	-113.6902518	61.8825993
489	0.9	17477.01	210449.73	-114.6676732	61.8882578
490	2.4	19397.00	210299.66	-114.6311813	61.8868182
491	154.0	74825.09	210237.20	-113.5774979	61.8794007
492	14.9	25563.38	210206.69	-114.5139495	61.8856199
493	2.7	23421.22	210101.69	-114.5546920	61.8848155
494	89.0	80851.30	210082.06	-113.4630445	61.8767776
495	152.4	64474.15	209492.19	-113.7744967	61.8746100
496	3.7	50474.68	209227.47	-114.0406242	61.8743472
497	137.0	34354.74	209091.44	-114.3470176	61.8749215
498	97.0	38086.11	209027.84	-114.2761144	61.8739962
499	9.1	24427.37	208746.63	-114.5357467	61.8725936
500	28.7	27503.40	208385.66	-114.4773429	61.8691450
501	3.0	21338.67	208137.13	-114.5945195	61.8673101
502	6.1	22979.39	207655.48	-114.5634047	61.8628929
503	60.0	30098.42	207288.70	-114.4282148	61.8591062
504	12.8	25313.61	206722.67	-114.5191887	61.8543751
505	4.9	22294.19	206616.41	-114.5765515	61.8536101
506	18.3	27493.41	206462.92	-114.4778264	61.8518934
507	70.0	60376.42	205953.00	-113.8535550	61.8435301
508	1.2	18989.90	205586.28	-114.6394193	61.8445456
509	81.0	55749.55	205473.89	-113.9415434	61.8399360
510	69.0	34035.96	205270.91	-114.3537985	61.8406700
511	135.0	38606.31	205259.69	-114.2670357	61.8401342
512	148.0	44670.46	205238.31	-114.1519216	61.8392806
513	1.5	20700.51	205130.20	-114.6069912	61.8403643
514	63.0	50601.35	205063.91	-114.0393868	61.8369753
515	15.8	28665.11	204981.52	-114.4558094	61.8385148
516	7.9	25888.05	204927.55	-114.5085358	61.8382291
517	109.0	56633.96	204870.58	-113.9249445	61.8343931
518	8.8	23052.98	204821.55	-114.5623692	61.8374598
519	102.0	62546.05	204498.78	-113.8128708	61.8301343
520	2.4	25144.90	204455.19	-114.5227093	61.8340404
521	84.0	68584.90	204394.59	-113.6983219	61.8281623
522	61.0	74477.71	204169.19	-113.5866086	61.8250360
523	7.6	21178.76	203984.55	-114.5980461	61.8300580
524	80.0	80554.90	203925.00	-113.4714294	61.8216116
525	43.0	86625.47	203859.08	-113.3563163	61.8196913
526	12.5	23621.07	203032.78	-114.5518193	61.8213746
527	129.0	34007.49	202927.94	-114.3547805	61.8196500
528	108.0	46129.41	202904.27	-114.1248231	61.8181655
529	23.5	25858.55	202843.84	-114.5093945	61.8195343
530	90.2	52913.16	202822.77	-113.9961633	61.8165545
531	23.5	25903.10	202805.72	-114.5085548	61.8191891
532	93.0	28649.48	202549.42	-114.4564922	61.8166932
533	1.2	18104.16	202305.14	-114.6565665	61.8151469
534	7.6	19699.92	202180.08	-114.6263094	61.8139457
535	5.2	21340.99	201430.95	-114.5952691	61.8071356

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536	14.6	25981.77	201112.33	-114.5073057	61.8039892
537	86.0	34150.91	200400.63	-114.3525372	61.7969604
538	5.2	18602.50	200376.16	-114.6473118	61.7978140
539	38.0	31665.91	200116.20	-114.3996969	61.7946223
540	4.6	16956.40	200099.92	-114.6785458	61.7954119
541	21.3	27540.70	199994.50	-114.4779151	61.7938498
542	3.4	19576.27	199485.95	-114.6289467	61.7897775
543	12.5	23333.35	199395.86	-114.5577477	61.7887582
544	117.0	38544.79	199319.50	-114.2694709	61.7868421
545	1.5	13302.18	199298.56	-114.7478795	61.7883658
546	41.0	28717.79	199194.33	-114.4557292	61.7865834
547	0.3	16182.19	199067.08	-114.6933153	61.7861776
548	1.2	11535.34	198996.67	-114.7813860	61.7857143
549	7.0	20625.81	198990.72	-114.6091104	61.7852785
550	100.0	44463.20	198979.55	-114.1573962	61.7831495
551	134.0	50463.88	198888.03	-114.0437206	61.7815836
552	97.0	56324.71	198809.00	-113.9327027	61.7800563
553	3.7	14930.52	198562.16	-114.7170782	61.7816978
554	120.0	62370.18	198513.83	-113.8182727	61.7764701
555	69.0	59770.54	198388.39	-113.8675593	61.7757598
556	27.7	30295.44	198318.45	-114.4259769	61.7786025
557	2.1	12979.36	198228.16	-114.7540747	61.7787720
558	86.0	74339.97	198190.67	-113.5916790	61.7714323
559	14.6	26736.07	198121.31	-114.4934443	61.7770990
560	47.0	31770.50	198079.06	-114.3980719	61.7763349
561	67.0	68155.53	197868.05	-113.7089282	61.7696897
562	32.0	86456.10	197765.91	-113.3624398	61.7650765
563	8.8	22146.81	197687.34	-114.5804453	61.7734982
564	31.0	92577.72	197566.38	-113.2466468	61.7618550
565	2.4	-16108.93	197319.92	-115.3051410	61.7705032
566	3.4	20755.19	197258.64	-114.6068570	61.7697295
567	5.5	15752.26	197251.39	-114.7016210	61.7699031
568	0.9	-13826.52	197119.44	-115.2618921	61.7687935
569	1.8	17583.27	197094.83	-114.6669539	61.7684185
570	3.7	-20603.00	197084.16	-115.3902407	61.7681720
571	110.9	64268.80	197041.08	-113.7828300	61.7629434
572	1.8	13934.75	196802.97	-114.7360824	61.7659499
573	2.4	12243.92	196711.36	-114.7681119	61.7651857
574	4.9	22466.08	196586.03	-114.5745336	61.7635975
575	1.2	-14950.82	196429.98	-115.2831305	61.7625646
576	1.2	-16272.99	196370.77	-115.3081634	61.7619793
577	4.6	18391.54	196369.97	-114.6517181	61.7618762
578	8.5	24322.90	196130.19	-114.5394310	61.7593937
579	6.7	-22655.04	196106.78	-115.4289850	61.7592860
580	6.7	-18001.51	195928.83	-115.3408522	61.7579364
581	1.5	21100.22	195896.25	-114.6004800	61.7574858
582	2.7	10407.95	195785.25	-114.8029362	61.7569298
583	92.0	35454.24	195736.13	-114.3287421	61.7549887
584	0.9	-10894.15	195716.20	-115.2062653	61.7562967

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585	6.7	-20378.71	195689.73	-115.3858357	61.7556718
586	3.0	-12540.52	195650.14	-115.2374321	61.7556535
587	3.0	-14352.08	195513.77	-115.2717195	61.7543661
588	28.7	30274.14	195402.50	-114.4268674	61.7524398
589	15.2	27687.14	195328.00	-114.4758521	61.7519672
590	4.9	13714.21	195293.28	-114.7403734	61.7524111
591	0.3	7039.48	195226.30	-114.8667361	61.7519909
592	4.3	-23194.22	195208.02	-115.4390794	61.7511891
593	4.0	-28349.48	195022.23	-115.5366383	61.7491751
594	1.5	9093.06	195012.73	-114.8278709	61.7500313
595	7.0	15812.41	194984.25	-114.7006794	61.7495572
596	0.3	18863.76	194975.92	-114.6429208	61.7493443
597	6.7	-15787.71	194709.25	-115.2988292	61.7470906
598	1.8	17516.45	194693.75	-114.6684514	61.7468763
599	1.2	11070.62	194588.89	-114.7904623	61.7461760
600	1.2	3016.48	194488.08	-114.9429075	61.7454195
601	8.5	12443.97	194399.83	-114.7644816	61.7444373
602	7.6	-24756.98	194396.94	-115.4685519	61.7438134
603	0.9	22297.46	194254.88	-114.5780134	61.7426897
604	3.4	302.53	194121.14	-114.9942747	61.7421386
605	0.6	-29142.92	194110.38	-115.5515106	61.7409335
606	5.5	23492.82	194059.17	-114.5554167	61.7408622
607	9.1	-21520.75	193981.30	-115.4072552	61.7402793
608	33.0	32113.38	193845.84	-114.3923253	61.7383224
609	0.9	-1171.93	193845.16	-115.0221768	61.7396604
610	0.9	4886.38	193752.02	-114.9075360	61.7387952
611	8.8	-18659.75	193698.84	-115.3530863	61.7378949
612	3.7	-12912.98	193643.47	-115.2443413	61.7376348
613	1.2	18808.39	193549.27	-114.6441166	61.7365454
614	3.0	2757.12	193500.56	-114.9478313	61.7365601
615	6.4	-13993.46	193482.69	-115.2647736	61.7361541
616	17.7	29635.02	193364.06	-114.4392989	61.7341991
617	3.4	-28976.64	193340.00	-115.5482412	61.7340336
618	2.7	22648.28	193331.92	-114.5714891	61.7343874
619	137.0	38368.93	193328.20	-114.2740711	61.7331024
620	12.5	24847.91	193239.58	-114.5298856	61.7334225
621	0.3	-24666.19	193008.70	-115.4666451	61.7313626
622	10.4	13494.69	192993.88	-114.7447000	61.7317857
623	106.0	44281.00	192975.50	-114.1623140	61.7293002
624	0.6	-27266.13	192960.36	-115.5158225	61.7307526
625	0.6	-27278.83	192953.97	-115.5160620	61.7306944
626	128.0	50319.76	192928.61	-114.0481040	61.7281342
627	1.2	-9720.83	192902.95	-115.1838997	61.7310842
628	70.0	56180.69	192773.19	-113.9372998	61.7259256
629	9.1	-16319.18	192766.03	-115.3087142	61.7296314
630	1.2	-30279.04	192739.47	-115.5727815	61.7285444
631	8.2	27334.86	192723.44	-114.4829128	61.7286218
632	66.0	62251.38	192624.48	-113.8225428	61.7236537
633	8.5	-22796.64	192540.13	-115.4312185	61.7272737

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634	28.0	32007.22	192502.30	-114.3945706	61.7262758
635	1.2	-12561.82	192459.41	-115.2376147	61.7270215
636	34.0	68106.03	192418.13	-113.7119097	61.7208070
637	10.4	-17907.94	192394.36	-115.3387320	61.7262254
638	3.4	7424.60	192367.33	-114.8595624	61.7263292
639	10.7	-21257.93	192293.98	-115.4020845	61.7251535
640	41.0	74125.85	192282.06	-113.5981460	61.7184699
641	3.4	9757.76	192243.33	-114.8154371	61.7251642
642	8.5	16114.78	192201.58	-114.6952025	61.7245751
643	3.4	1932.54	192085.53	-114.9634485	61.7238676
644	4.9	-311.35	191993.13	-115.0058885	61.7230432
645	7.3	18689.67	191956.94	-114.6465267	61.7222630
646	3.0	-27131.32	191947.94	-115.5131213	61.7216777
647	5.2	10743.54	191894.48	-114.7968122	61.7220076
648	8.5	-9795.75	191845.66	-115.1852600	61.7215948
649	55.0	86235.67	191825.45	-113.3694329	61.7118421
650	2.1	-24957.04	191791.88	-115.4719803	61.7204251
651	14.6	92382.67	191651.42	-113.2533461	61.7088500
652	8.2	-12223.84	191638.34	-115.2311665	61.7196648
653	5.2	6675.45	191614.75	-114.8737603	61.7195899
654	7.9	-2084.42	191595.70	-115.0394185	61.7194714
655	7.9	-7487.78	191543.30	-115.1415987	61.7189337
656	8.5	-14868.02	191392.52	-115.2811502	61.7173655
657	7.3	1329.56	191371.38	-114.9748585	61.7174618
658	15.5	98275.62	191336.89	-113.1421583	61.7045647
659	15.8	27158.99	191233.34	-114.4864621	61.7152637
660	11.0	15391.34	191232.50	-114.7089676	61.7159090
661	0.9	-26189.42	191121.38	-115.4951894	61.7143265
662	2.7	-29132.67	191098.02	-115.5508340	61.7139046
663	8.8	-4486.62	191025.42	-115.0848322	61.7143335
664	12.8	29644.70	191014.80	-114.4394987	61.7131186
665	1.8	7903.12	191011.50	-114.8505700	61.7141534
666	4.9	3300.71	190985.73	-114.9375914	61.7139894
667	18.0	22606.85	190962.72	-114.5725676	61.7131308
668	7.0	8863.10	190955.58	-114.8324219	61.7136306
669	157.6	44017.50	190777.59	-114.1678300	61.7096100
670	3.7	-22088.69	190745.19	-115.4176095	61.7112090
671	11.0	-16068.60	190709.33	-115.3037923	61.7111867
672	11.3	-19234.23	190602.84	-115.3636291	61.7100855
673	10.7	-8064.93	190517.11	-115.1524676	61.7097137
674	0.6	6511.61	190500.00	-114.8768986	61.7095897
675	10.7	-3831.11	190453.19	-115.0724260	61.7092057
676	10.1	-23276.93	190342.25	-115.4400221	61.7075231
677	62.0	34807.17	190323.36	-114.3420286	61.7064807
678	1.8	-12711.45	190185.59	-115.2402861	61.7066130
679	16.5	18723.85	190103.70	-114.6460709	61.7056319
680	56.0	70048.05	190097.64	-113.6760831	61.6996401
681	7.0	4376.22	190070.20	-114.9172781	61.7057632
682	0.9	-11026.53	189939.66	-115.2084213	61.7044583

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683	13.4	10447.30	189938.88	-114.8025273	61.7044675
684	65.0	66838.35	189856.55	-113.7368197	61.6980497
685	35.0	31801.37	189732.45	-114.3989480	61.7014395
686	14.0	12895.06	189681.31	-114.7562787	61.7020818
687	12.5	-778.77	189680.63	-115.0147191	61.7022916
688	8.8	886.82	189632.09	-114.9832390	61.7018559
689	1.5	-26435.22	189477.91	-115.4995981	61.6995627
690	9.1	-8985.34	189471.33	-115.1698162	61.7003091
691	4.6	-3772.52	189383.34	-115.0712961	61.6996062
692	6.1	-14070.65	189266.53	-115.2659080	61.6983186
693	27.1	28782.74	189224.28	-114.4560782	61.6971180
694	12.2	5706.07	189110.47	-114.8921707	61.6971337
695	9.8	-22887.15	188795.23	-115.4324597	61.6936650
696	8.8	-24940.44	188785.89	-115.4712546	61.6934532
697	4.3	-27552.75	188476.42	-115.5205660	61.6904977
698	13.1	-20394.80	188467.67	-115.3853304	61.6908663
699	19.2	16011.57	188443.94	-114.6974850	61.6908611
700	12.8	-17349.56	188274.66	-115.3277778	61.6892840
701	14.3	-10770.10	188271.44	-115.2034757	61.6894961
702	27.4	21167.33	188247.59	-114.6000996	61.6888496
703	14.0	-14863.79	188125.41	-115.2808037	61.6880490
704	25.3	25280.47	188100.70	-114.5224156	61.6872828
705	14.0	-2397.71	188067.02	-115.0452966	61.6878053
706	16.5	8790.63	188000.42	-114.8339345	61.6871146
707	14.9	3266.52	187928.73	-114.9382927	61.6865581
708	1.2	-26153.28	187752.42	-115.4940225	61.6840991
709	17.1	-5988.84	187635.13	-115.1131244	61.6838906
710	12.8	-23165.05	187400.09	-115.4375334	61.6811296
711	77.0	38008.86	187241.06	-114.2821534	61.6785203
712	16.5	813.69	187192.80	-114.9846321	61.6799672
713	18.0	11982.90	187177.11	-114.7736834	61.6796404
714	141.0	44117.73	187060.61	-114.1668348	61.6762481
715	24.1	17450.09	187019.44	-114.6704431	61.6780160
716	16.8	5696.18	186926.00	-114.8924258	61.6775318
717	7.0	-25560.95	186874.41	-115.4827110	61.6762605
718	98.0	55998.36	186858.27	-113.9425660	61.6728844
719	108.0	50048.74	186797.06	-114.0549145	61.6731565
720	4.6	-26679.43	186605.30	-115.5037930	61.6737697
721	78.0	61942.18	186524.72	-113.8304632	61.6689796
722	34.0	27534.38	186490.84	-114.4800808	61.6726824
723	7.3	9174.01	186485.23	-114.8267683	61.6735093
724	51.0	67866.65	186394.86	-113.7186786	61.6668139
725	34.0	20387.92	186310.41	-114.6150405	61.6715090
726	1.2	-30410.50	186243.25	-115.5741838	61.6702438
727	1.8	-29463.30	186238.25	-115.5562998	61.6702728
728	11.0	-9203.59	186191.16	-115.1737755	61.6708697
729	58.0	74064.59	186157.25	-113.6017924	61.6635377
730	4.0	-28338.00	186144.36	-115.5350392	61.6695149
731	45.7	64385.52	186082.44	-113.7844967	61.6646101

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732	14.6	-12102.11	185989.53	-115.2284894	61.6689801
733	13.4	-20372.51	185977.56	-115.3846313	61.6685232
734	80.0	80078.19	185925.69	-113.4884072	61.6602546
735	21.3	13758.15	185893.22	-114.7402520	61.6680601
736	20.4	86053.61	185719.53	-113.3757546	61.6571142
737	17.1	-16418.12	185703.06	-115.3099494	61.6662493
738	12.8	-25101.57	185575.86	-115.4738575	61.6646388
739	25.0	-3042.84	185531.36	-115.0574418	61.6650473
740	20.4	98029.75	185402.75	-113.1499914	61.6514059
741	1.2	-32589.56	185182.91	-115.6151354	61.6605508
742	15.2	7554.78	185094.53	-114.8574014	61.6610652
743	0.9	-30567.77	184962.92	-115.5769388	61.6587430
744	29.3	-6404.93	184953.31	-115.1208899	61.6598189
745	21.3	4433.72	184937.16	-114.9163161	61.6597017
746	39.0	31808.21	184900.19	-114.3996612	61.6580794
747	14.6	11496.42	184845.48	-114.7830180	61.6587327
748	25.9	709.43	184243.95	-114.9866126	61.6535062
749	40.0	24065.11	184099.44	-114.5459021	61.6514569
750	17.1	-22792.05	184076.20	-115.4300737	61.6513260
751	5.2	-30629.93	183873.80	-115.5779295	61.6489653
752	54.0	34218.84	183834.75	-114.3543660	61.6483124
753	117.3	45004.98	183793.61	-114.1508856	61.6468322
754	10.7	-27934.46	183788.55	-115.5270604	61.6484056
755	3.4	-34952.52	183765.64	-115.6594629	61.6476263
756	10.3	45535.80	183738.66	-114.1408856	61.6462766
757	36.0	13080.80	183688.69	-114.7531976	61.6483017
758	22.9	-13160.55	183536.06	-115.2482960	61.6469294
759	22.6	-17070.04	183498.56	-115.3220505	61.6464393
760	21.3	-20616.99	183321.48	-115.3889474	61.6446765
761	7.0	-33362.68	183303.03	-115.6293843	61.6436165
762	18.9	9388.25	183033.73	-114.8229001	61.6425324
763	25.0	-9593.62	183012.64	-115.1809727	61.6423381
764	33.0	-4806.76	182962.25	-115.0906729	61.6419755
765	41.0	18536.04	182945.08	-114.6503478	61.6414048
766	4.6	-29261.74	182761.27	-115.5519377	61.6390891
767	26.2	7272.34	182298.28	-114.8628438	61.6359787
768	101.8	44081.75	182295.67	-114.1686633	61.6334988
769	16.2	-25555.01	182282.61	-115.4819569	61.6350581
770	0.9	-33977.94	182244.95	-115.6407939	61.6340686
771	27.1	77890.57	182121.03	-113.5313072	61.6265745
772	28.3	-1207.40	181942.09	-115.0227691	61.6328493
773	83.8	42319.27	181871.17	-114.2019967	61.6298878
774	83.8	42542.51	181688.16	-114.1978300	61.6282211
775	8.8	-31949.28	181630.13	-115.6024301	61.6287256
776	22.6	2581.97	181463.56	-114.9513157	61.6285485
777	42.0	27395.29	181460.95	-114.4834605	61.6275587
778	105.0	69984.07	181407.08	-113.6806205	61.6216883
779	56.0	31889.54	181328.64	-114.3987488	61.6260253
780	71.0	37807.54	181275.19	-114.2871890	61.6250099

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781	66.8	42960.37	181259.91	-114.1900522	61.6243322
782	41.0	10808.33	181125.20	-114.7962247	61.6253691
783	95.0	43655.82	181075.17	-114.1769860	61.6225964
784	53.9	45616.35	180984.38	-114.1400522	61.6215544
785	113.0	49834.56	180933.03	-114.0605561	61.6205708
786	21.3	-22889.63	180879.00	-115.4315151	61.6226310
787	80.0	55720.80	180860.41	-113.9496333	61.6191123
788	3.4	-33168.80	180851.39	-115.6252829	61.6216349
789	14.6	-28083.21	180833.27	-115.5294134	61.6218768
790	48.0	22264.05	180759.66	-114.5802926	61.6215968
791	83.0	61931.54	180571.89	-113.8326791	61.6155750
792	23.2	-15044.43	180336.28	-115.2835753	61.6181476
793	111.0	67856.18	180314.70	-113.7211306	61.6122693
794	26.8	-11357.34	180297.03	-115.2140748	61.6179218
795	12.2	-31165.56	180230.16	-115.5874151	61.6162279
796	89.0	73780.71	180133.92	-113.6095777	61.6095582
797	24.1	-18826.53	180107.91	-115.3548401	61.6159319
798	17.1	-22221.12	180083.89	-115.4188163	61.6155355
799	18.9	79870.34	180074.39	-113.4948817	61.6078096
800	35.0	2736.90	179642.36	-114.9484218	61.6122049
801	37.0	91795.81	179630.20	-113.2704730	61.6011685
802	8.8	-28348.64	179629.22	-115.5342309	61.6110533
803	32.0	-2202.34	179546.05	-115.0415031	61.6113440
804	45.0	7542.99	179464.63	-114.8578559	61.6105458
805	19.8	-25239.79	179398.08	-115.4756149	61.6091955
806	35.0	-7052.46	179354.34	-115.1328960	61.6095655
807	23.2	97853.97	179354.14	-113.1565373	61.5972017
808	45.0	15375.04	179259.42	-114.7102834	61.6084714
809	18.9	103981.88	179192.81	-113.0412530	61.5941504
810	5.5	-30585.67	179141.95	-115.5763043	61.6065099
811	16.5	-23014.50	179127.44	-115.4336492	61.6069064
812	0.9	-35168.32	178587.63	-115.6625402	61.6011449
813	22.9	-21983.98	178587.59	-115.4141675	61.6021224
814	82.3	44587.04	178525.20	-114.1600522	61.5996100
815	16.8	-28601.19	178285.06	-115.5387803	61.5989734
816	1.5	-32923.76	178157.80	-115.6201802	61.5974863
817	67.4	39728.07	177877.77	-114.2517189	61.5943323
818	6.4	-30361.39	177766.66	-115.5718512	61.5941870
819	33.0	-13197.56	177740.55	-115.2485768	61.5949227
820	8.8	-26985.75	177688.75	-115.5082628	61.5937391
821	8.5	-32401.76	177598.13	-115.6102493	61.5925086
822	22.3	-25224.63	177506.61	-115.4750693	61.5922240
823	16.5	-22897.85	177401.70	-115.4312359	61.5914279
824	7.9	-35020.49	177333.22	-115.6595161	61.5899026
825	14.0	-31212.16	176937.50	-115.5877334	61.5866790
826	29.0	-18472.74	176892.25	-115.3478483	61.5870939
827	63.7	39356.26	176851.91	-114.2589411	61.5851656
828	11.0	-34142.37	176665.78	-115.6428561	61.5839925
829	3.7	-33347.46	176444.03	-115.6278497	61.5820723

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830	56.7	34537.08	176336.08	-114.3497744	61.5809989
831	4.0	-32056.37	175961.88	-115.6034591	61.5778554
832	37.0	-9679.81	175924.20	-115.1822245	61.5787281
833	25.6	-21948.62	175823.66	-115.4131711	61.5773228
834	21.0	-28686.96	175788.44	-115.5400061	61.5765645
835	44.0	-5121.66	175771.58	-115.0964124	61.5774460
836	61.0	28369.54	175764.50	-114.4659725	61.5763731
837	1.5	-35278.89	175600.56	-115.6640494	61.5743320
838	19.8	-26938.34	175440.69	-115.5070404	61.5735701
839	35.0	-17447.31	175378.00	-115.3283957	61.5735537
840	55.0	37701.50	175347.66	-114.2904054	61.5718336
841	13.7	-32805.64	175304.83	-115.6174461	61.5718967
842	53.0	43651.53	175122.36	-114.1784822	61.5691847
843	74.0	49620.39	175062.61	-114.0661794	61.5679271
844	5.5	-33745.69	174698.44	-115.6350267	61.5663745
845	76.0	55615.11	174697.33	-113.9534917	61.5638323
846	56.7	29756.42	174620.00	-114.4400522	61.5659989
847	94.0	61622.23	174548.52	-113.8405284	61.5615847
848	8.5	-36459.84	174490.72	-115.6860568	61.5642637
849	125.0	67610.30	174386.94	-113.7279446	61.5591326
850	11.6	-30534.99	174365.55	-115.5745558	61.5636548
851	81.0	73515.81	174174.30	-113.6169522	61.5561455
852	77.0	79624.57	174076.59	-113.5021098	61.5540574
853	53.6	25804.33	174062.03	-114.5144967	61.5612766
854	52.0	89515.38	174036.36	-113.3161427	61.5515301
855	26.2	-25239.21	174035.67	-115.4748674	61.5610775
856	12.2	-34933.39	173887.91	-115.6572215	61.5589959
857	50.0	85701.69	173876.98	-113.3879255	61.5509658
858	24.7	91785.12	173709.20	-113.2736297	61.5480628
859	25.3	-20496.49	173705.00	-115.3856002	61.5583913
860	41.0	-13510.08	173625.95	-115.2541609	61.5579897
861	4.9	-33610.78	173603.23	-115.6322880	61.5565590
862	19.8	97671.41	173598.39	-113.1630309	61.5456251
863	9.1	-28397.71	173324.19	-115.5341812	61.5544737
864	18.3	103710.64	173220.44	-113.0497258	61.5406611
865	11.0	-33101.35	172928.89	-115.6225840	61.5505521
866	28.3	36272.33	172669.91	-114.3178300	61.5479433
867	20.4	-31339.70	172332.78	-115.5893506	61.5453501
868	77.7	63224.00	172313.81	-113.8111633	61.5412767
869	29.3	-27791.93	171885.75	-115.5225697	61.5416104
870	61.6	25940.29	171679.42	-114.5122744	61.5398878
871	45.0	-17995.58	171677.02	-115.3383534	61.5403180
872	131.9	63340.41	171603.81	-113.8092189	61.5348877
873	55.0	-4366.00	171486.58	-115.0820859	61.5390036
874	53.0	-9337.15	171485.75	-115.1755488	61.5389080
875	40.0	-22197.12	171358.88	-115.4173107	61.5372446
876	29.0	95170.17	171314.81	-113.2112279	61.5257676
877	14.3	-31198.38	171199.38	-115.5865014	61.5351914
878	3.4	-34948.95	171168.47	-115.6569984	61.5345930

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879	1.5	-35908.16	170632.11	-115.6749246	61.5296923
880	64.0	74709.54	170598.30	-113.5959508	61.5238364
881	68.0	77532.14	170380.34	-113.5430132	61.5213254
882	52.7	32410.79	170186.05	-114.3908856	61.5259989
883	6.4	-36988.17	170114.69	-115.6951192	61.5249476
884	3.7	-35119.10	170015.50	-115.6599773	61.5242319
885	3.4	-38577.15	169908.59	-115.7249354	61.5229430
886	22.6	-31228.33	169779.13	-115.5868240	61.5224448
887	14.0	-29905.99	169710.97	-115.5619657	61.5219378
888	27.4	-27833.44	169573.86	-115.5230013	61.5208623
889	44.0	37563.64	169451.91	-114.2942017	61.5189450
890	19.5	-33007.86	169451.73	-115.6202033	61.5193593
891	51.5	31946.10	169284.00	-114.3997744	61.5179434
892	52.7	44706.74	169239.22	-114.1600522	61.5162766
893	55.0	-14591.35	169159.97	-115.2741488	61.5178749
894	48.0	43507.51	169086.53	-114.1826170	61.5150434
895	43.0	49470.14	168931.28	-114.0706517	61.5129336
896	35.0	-25353.30	168857.80	-115.4763019	61.5146074
897	56.0	55483.73	168712.45	-113.9577642	61.5101542
898	62.8	24632.19	168636.20	-114.5372744	61.5126656
899	47.0	61414.56	168569.88	-113.8464258	61.5079788
900	51.5	30799.55	168530.67	-114.4214411	61.5112767
901	6.7	-33960.19	168514.17	-115.6379237	61.5108640
902	7.9	100479.37	168506.52	-113.1130205	61.4992371
903	4.0	-38022.16	168412.77	-115.7141990	61.5095761
904	15.8	-30139.52	168411.44	-115.5661416	61.5102587
905	108.0	67447.21	168351.09	-113.7332192	61.5050112
906	3.7	110865.47	168331.94	-112.9182029	61.4948356
907	91.0	73231.76	168271.94	-113.6246373	61.5032493
908	4.9	96120.95	168245.69	-113.1949635	61.4980048
909	46.0	-22332.82	168142.52	-115.4194726	61.5083752
910	56.0	79385.14	168085.17	-113.5091898	61.5003603
911	39.0	85471.76	167795.16	-113.3950649	61.4964622
912	59.0	33148.29	167738.03	-114.3774657	61.5039700
913	101.0	65102.59	167691.28	-113.7774773	61.4994933
914	5.5	92881.23	167566.25	-113.2561132	61.4927018
915	16.8	91451.68	167513.30	-113.2829673	61.4925672
916	7.9	91935.05	167049.22	-113.2741267	61.4882901
917	15.8	-34295.05	166927.89	-115.6439193	61.4966006
918	23.2	-30073.82	166762.05	-115.5646392	61.4954635
919	60.0	-4353.13	166449.00	-115.0817251	61.4937985
920	60.0	-10023.53	166434.42	-115.1881792	61.4935623
921	58.0	-18929.53	166357.84	-115.3553681	61.4925420
922	7.6	-38057.25	166056.31	-115.7143732	61.4884283
923	12.2	-28000.51	166039.03	-115.5256050	61.4891313
924	11.0	88813.47	165507.66	-113.3334408	61.4751912
925	21.3	-32767.49	165465.31	-115.6149808	61.4836090
926	12.2	-36708.46	165192.13	-115.6888855	61.4808041
927	6.7	-29556.73	165081.47	-115.5546629	61.4804231

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928	44.0	-25532.42	164813.45	-115.4791086	61.4783044
929	11.6	-30427.18	164729.94	-115.5709392	61.4772013
930	58.0	-6925.05	164394.56	-115.1299330	61.4753252
931	58.0	-6937.75	164388.19	-115.1301711	61.4752677
932	1.2	-37991.11	164063.02	-115.7127227	61.4705489
933	56.0	49210.12	164022.16	-114.0768416	61.4689197
934	5.2	-32218.82	163937.64	-115.6044181	61.4699470
935	53.0	25302.27	163935.73	-114.5253300	61.4704434
936	16.8	-34557.79	163634.92	-115.6482375	61.4670291
937	54.0	37292.59	163345.84	-114.3005248	61.4641816
938	7.9	85567.98	163298.95	-113.3953360	61.4561093
939	54.0	-22211.95	163162.41	-115.4166048	61.4636935
940	51.0	43204.55	163069.53	-114.1897128	61.4610883
941	7.3	-38771.63	162991.95	-115.7271402	61.4608610
942	39.0	-29306.04	162941.97	-115.5496203	61.4612439
943	54.0	49275.25	162914.47	-114.0759144	61.4589726
944	3.0	-34550.33	162781.53	-115.6479385	61.4593722
945	67.0	55155.30	162727.25	-113.9657157	61.4565007
946	58.0	1322.19	162655.13	-114.9752045	61.4597757
947	57.6	16187.04	162643.13	-114.6964411	61.4593322
948	87.0	61194.26	162540.30	-113.8525557	61.4539171
949	53.9	16498.83	162489.81	-114.6906078	61.4579433
950	103.0	70373.20	162454.27	-113.6805193	61.4515878
951	89.0	67144.12	162429.59	-113.7410573	61.4519391
952	1.5	-36183.53	162365.20	-115.6784833	61.4554874
953	67.0	73494.78	162077.64	-113.6221565	61.4476299
954	28.0	-32260.80	161995.14	-115.6048678	61.4525131
955	14.3	79470.19	161884.22	-113.5102529	61.4447162
956	3.0	-38223.46	161859.14	-115.7166272	61.4507507
957	53.0	-25706.04	161431.44	-115.4818975	61.4479448
958	51.0	23660.97	161416.77	-114.5564411	61.4479433
959	59.0	10598.81	161254.72	-114.8013168	61.4470662
960	43.9	21074.48	160316.70	-114.6050522	61.4382211
961	57.3	12137.13	160150.25	-114.7725522	61.4371100
962	45.0	37716.77	160061.38	-114.2932369	61.4346689
963	75.0	62291.28	160036.28	-113.8328300	61.4312767
964	18.6	-35779.94	159964.81	-115.6704534	61.4339859
965	57.0	11900.81	159901.80	-114.7769967	61.4348878
966	48.0	19640.42	159707.48	-114.6319911	61.4328295
967	35.7	36855.06	159488.36	-114.3094967	61.4296100
968	37.0	-30534.66	159361.02	-115.5720724	61.4290161
969	63.0	-22022.63	159316.02	-115.4125976	61.4291888
970	59.4	11042.99	159279.88	-114.7931078	61.4293322
971	58.2	11147.37	159094.48	-114.7911633	61.4276656
972	52.7	20933.88	159046.69	-114.6078300	61.4268322
973	52.7	20933.88	159046.69	-114.6078300	61.4268322
974	25.9	-34252.87	158884.36	-115.6416416	61.4244286
975	8.8	81906.75	158656.70	-113.4660160	61.4152568
976	49.1	25964.30	158554.31	-114.5136633	61.4221100

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977	41.0	28673.86	158352.27	-114.4629441	61.4201062
978	6.1	-38644.83	158343.03	-115.7237951	61.4191588
979	54.0	-28238.39	158275.30	-115.5288885	61.4194475
980	52.1	14842.92	158272.48	-114.7219967	61.4201655
981	3.0	81494.32	158127.44	-113.4739691	61.4105958
982	1.5	-23069.62	157843.34	-115.4320300	61.4159129
983	15.2	-37582.50	157790.50	-115.7037883	61.4143052
984	9.1	78376.36	157750.38	-113.5324935	61.4078550
985	44.5	28673.21	157368.30	-114.4631078	61.4112768
986	7.9	66039.02	157270.70	-113.7636055	61.4058451
987	1.2	-38872.06	157088.08	-115.7277885	61.4078754
988	1.2	-41230.48	157078.30	-115.7719383	61.4075444
989	2.7	-43804.94	156991.78	-115.8201133	61.4064863
990	4.0	-40340.31	156926.73	-115.7552407	61.4062779
991	14.6	73476.68	156901.53	-113.6245412	61.4011976
992	54.0	43048.05	156868.16	-114.1940843	61.4054617
993	52.0	49175.89	156757.77	-114.0794065	61.4037438
994	3.0	78161.66	156744.08	-113.5369346	61.3988709
995	48.0	37689.70	156731.58	-114.2944190	61.4047930
996	61.0	54979.47	156710.47	-113.9707921	61.4025414
997	76.0	60935.58	156676.17	-113.8593274	61.4013451
998	37.0	-33327.84	156350.97	-115.6238608	61.4017765
999	3.7	-41356.50	156211.98	-115.7741050	61.3997577
1000	6.7	-39309.49	156157.63	-115.7357812	61.3994824
1001	21.0	72320.87	156141.91	-113.6464663	61.3945997
1002	50.0	49711.42	155644.52	-114.0696797	61.3936869
1003	1.2	-47966.93	155584.66	-115.8976621	61.3933690
1004	26.5	-35335.64	155583.83	-115.6612967	61.3947153
1005	1.2	72938.39	155474.48	-113.6351734	61.3884967
1006	17.7	-37630.24	155376.70	-115.7041944	61.3926414
1007	0.6	-43497.49	155202.64	-115.8139401	61.3904671
1008	49.4	49415.95	155185.95	-114.0753300	61.3896100
1009	7.3	74400.80	155184.14	-113.6079327	61.3856148
1010	55.0	47112.49	155016.11	-114.1184699	61.3883721
1011	45.1	15599.55	154901.72	-114.7081078	61.3898878
1012	44.0	-29238.36	154847.52	-115.5470782	61.3886147
1013	5.5	-38258.38	154452.34	-115.7157585	61.3842857
1014	1.5	73194.20	154386.22	-113.6308153	61.3786855
1015	75.9	62037.91	154273.05	-113.8394967	61.3796100
1016	0.9	-44761.23	154200.92	-115.8373447	61.3813354
1017	54.9	54899.39	153936.70	-113.9731078	61.3776655
1018	3.0	-45186.20	153461.55	-115.8451144	61.3746520
1019	64.3	59348.75	153452.27	-113.8900522	61.3726655
1020	13.4	-36928.38	153371.59	-115.6906641	61.3747165
1021	2.1	73418.19	153317.02	-113.6270471	61.3690512
1022	11.0	71854.52	153288.86	-113.6562910	61.3690905
1023	39.9	25394.81	153256.73	-114.5250522	61.3746099
1024	75.0	61878.39	153217.56	-113.8428300	61.3701656
1025	70.0	56936.18	152995.72	-113.9353035	61.3689299

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1026	44.5	14791.59	152886.16	-114.7233856	61.3718323
1027	73.8	62077.52	152880.53	-113.8392189	61.3671100
1028	0.9	-44409.82	152819.44	-115.8304427	61.3689798
1029	4.9	-40036.00	152647.45	-115.7486251	61.3679113
1030	2.4	-47600.75	152617.39	-115.8900530	61.3667895
1031	38.0	-33646.90	152376.47	-115.6291159	61.3660847
1032	0.9	-45788.59	152288.84	-115.8560921	61.3640590
1033	3.7	-40505.92	152264.64	-115.7573282	61.3644277
1034	11.0	-39603.23	152259.58	-115.7404511	61.3644752
1035	21.0	70305.00	152248.42	-113.6856513	61.3600394
1036	3.7	73413.44	152177.38	-113.6275839	61.3588281
1037	28.7	-36462.75	152155.86	-115.6817187	61.3638515
1038	0.6	-42342.86	152090.03	-115.7916300	61.3626653
1039	69.0	63669.14	152001.41	-113.8097636	61.3589654
1040	1.2	-51407.30	151637.48	-115.9609495	61.3575129
1041	0.6	-47389.39	151394.92	-115.8857913	61.3558464
1042	61.6	5792.72	151342.86	-114.8917189	61.3582211
1043	37.0	68526.49	151315.83	-113.7192338	61.3519898
1044	61.0	-30161.89	151298.84	-115.5637840	61.3567006
1045	48.8	3920.50	151185.48	-114.9267189	61.3568322
1046	1.5	73840.88	151083.06	-113.6200279	61.3489299
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1048	2.1	-50185.81	150894.13	-115.9379198	61.3510025
1049	73.0	60441.69	150824.38	-113.8704661	61.3489196
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1051	52.0	54860.87	150681.06	-113.9747846	61.3484601
1052	53.0	66906.85	150415.33	-113.7498197	61.3441924
1053	8.8	-44317.59	150323.06	-115.8281262	61.3465906
1054	14.9	-40852.77	150111.55	-115.7633419	61.3450716
1055	0.9	-48366.58	150017.88	-115.9036982	61.3433704
1056	23.8	-39097.91	149852.97	-115.7305008	61.3429315
1057	11.0	-43261.64	149789.63	-115.8082732	61.3419228
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1059	9.4	-42637.67	149019.92	-115.7964410	61.3350851
1060	8.8	-46343.52	148823.50	-115.8656073	61.3328994
1061	33.0	-37907.66	148689.23	-115.7080282	61.3326068
1062	44.5	9500.42	148596.05	-114.8225522	61.3334989
1063	45.0	-33616.48	148510.75	-115.6278520	61.3313991
1064	37.0	49499.54	148150.63	-114.0756299	61.3264737
1065	37.5	52777.02	147928.92	-114.0144967	61.3240544
1066	16.2	-43360.88	147872.52	-115.8096829	61.3247096
1067	44.5	3314.46	147748.95	-114.9381078	61.3259989
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1069	3.4	-92018.61	147635.06	-116.7178498	61.3141306
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1071	56.1	3448.46	147625.27	-114.9356078	61.3248878
1072	0.6	-86602.33	147586.50	-116.6167561	61.3149356
1073	3.0	-94084.59	147580.77	-116.7563729	61.3131506
1074	0.9	-95305.08	147534.20	-116.7791222	61.3124366

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1075	62.0	-31459.78	147208.30	-115.5873550	61.3198917
1076	7.9	-46328.72	147205.89	-115.8649307	61.3183866
1077	3.0	-87428.02	147056.55	-116.6319173	61.3099975
1078	42.0	63231.46	146856.41	-113.8196822	61.3128760
1079	25.8	-40371.76	146832.39	-115.7536478	61.3156976
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1081	2.7	-94451.86	146529.30	-116.7626962	61.3036305
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1083	4.0	-89581.77	146104.09	-116.6716466	61.3009652
1084	4.0	-91882.87	145985.72	-116.7145089	61.2993682
1085	3.7	-87382.02	145948.42	-116.6305426	61.3000676
1086	3.7	-93580.13	145925.66	-116.7461343	61.2984261
1087	36.0	63340.96	145837.94	-113.8179827	61.3037206
1088	64.0	59826.05	145659.97	-113.8836186	61.3026787
1089	29.0	48643.45	145609.06	-114.0922744	61.3037767
1090	4.0	-90788.80	145503.45	-116.6938697	61.2952984
1091	38.0	-36523.66	145182.11	-115.6814967	61.3012686
1092	4.0	-92123.32	145163.73	-116.7185902	61.2919384
1093	62.8	-538.72	145116.33	-115.0100522	61.3023878
1094	4.3	-88054.70	145093.89	-116.6426888	61.2922511
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1096	18.0	-43382.35	144815.53	-115.8093766	61.2972769
1097	29.9	48862.30	144775.20	-114.0884080	61.2962673
1098	48.0	54627.68	144772.41	-113.9808646	61.2954777
1099	1.8	-79999.73	144667.48	-116.4922938	61.2901601
1100	17.1	46365.13	144525.59	-114.1350522	61.2943323
1101	4.6	-88676.59	144284.03	-116.6539030	61.2848457
1102	2.7	67309.73	144208.55	-113.7445227	61.2884374
1103	3.7	-92948.34	144143.36	-116.7334691	61.2825902
1104	20.7	64926.16	144128.05	-113.7889992	61.2881189
1105	9.4	66025.85	144117.20	-113.7684963	61.2878372
1106	21.6	63743.98	144030.50	-113.8110773	61.2874386
1107	58.5	-4217.09	144004.48	-115.0786633	61.2923878
1108	4.3	-90742.21	143968.61	-116.6922594	61.2815417
1109	3.4	-93678.94	143798.27	-116.7469160	61.2793202
1110	4.6	-81848.44	143791.94	-116.5263853	61.2819225
1111	56.7	5775.51	143759.08	-114.8922744	61.2901656
1112	60.0	-33800.93	143676.67	-115.6304254	61.2880052
1113	25.6	44442.09	143510.03	-114.1711633	61.2854434
1114	4.6	-89323.94	143493.23	-116.6655955	61.2776045
1115	25.9	-40272.02	143444.41	-115.7510590	61.2853070
1116	1.8	-94345.80	143338.61	-116.7591150	61.2750367
1117	44.2	-7494.68	143328.98	-115.1397744	61.2862767
1118	4.9	-83195.34	143210.19	-116.5512367	61.2764191
1119	31.0	47618.85	143060.44	-114.1120382	61.2810347
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1121	4.9	-84275.51	142819.92	-116.5711945	61.2726866
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1126	4.6	-90288.56	142281.56	-116.6829928	61.2665139
1127	35.0	-38331.64	142275.39	-115.7146359	61.2750125
1128	4.9	-86404.02	142001.25	-116.6104855	61.2648778
1129	5.5	-83193.34	141738.95	-116.5505485	61.2632216
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1131	0.9	-69792.53	141652.38	-116.3008259	61.2650684
1132	4.9	-87522.26	141559.98	-116.6311145	61.2606706
1133	54.8	3320.32	141558.17	-114.9381078	61.2704434
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1135	1.2	-74248.53	141428.63	-116.3837665	61.2622397
1136	1.8	-68647.88	141367.63	-116.2793929	61.2627165
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1138	5.2	-88818.49	141118.44	-116.6550533	61.2564174
1139	5.5	-76161.55	141100.70	-116.4192757	61.2589296
1140	5.5	-86250.20	141090.75	-116.6072024	61.2567442
1141	49.0	-32443.52	141061.13	-115.6046581	61.2646499
1142	5.8	-84362.02	140985.53	-116.5719841	61.2562124
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1144	4.6	-70058.27	140728.45	-116.3054336	61.2567317
1145	5.2	-74069.51	140677.38	-116.3801354	61.2555339
1146	6.4	-77394.16	140608.30	-116.4420354	61.2542700
1147	4.6	-90235.34	140549.30	-116.6811707	61.2509876
1148	0.9	-65061.21	140424.47	-116.2122377	61.2548682
1149	3.0	-66090.96	140359.11	-116.2313969	61.2541090
1150	7.3	-78569.85	140338.91	-116.4638217	61.2516188
1151	5.8	65529.13	140264.53	-113.7791015	61.2533551
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1153	6.1	-85676.68	140072.64	-116.5960563	61.2477374
1154	0.3	66858.00	140012.16	-113.7544384	61.2508658
1155	6.4	-84576.70	139915.20	-116.5755021	61.2465646
1156	0.9	-50050.80	139895.66	-115.9324630	61.2523337
1157	1.2	-92014.40	139871.31	-116.7139700	61.2444914
1158	39.0	54647.34	139857.41	-113.9819264	61.2513749
1159	14.3	64633.44	139855.53	-113.7959260	61.2498346
1160	25.3	-40337.28	139833.30	-115.7515014	61.2528971
1161	21.6	63546.62	139751.78	-113.8162032	61.2490820
1162	11.9	-45683.38	139749.13	-115.8510705	61.2515536
1163	42.0	56338.34	139745.72	-113.9504621	61.2501328
1164	41.0	53102.89	139727.41	-114.0107315	61.2504213
1165	30.8	37839.54	139717.75	-114.2950522	61.2521101
1166	27.4	62319.95	139654.17	-113.8390820	61.2484036
1167	5.2	-70393.73	139651.55	-116.3112801	61.2470098
1168	37.0	57342.86	139607.39	-113.9317941	61.2487456
1169	5.8	-73756.51	139569.69	-116.3738712	61.2456556
1170	29.9	61245.84	139556.81	-113.8591186	61.2476999
1171	32.0	60133.45	139554.89	-113.8798365	61.2478553
1172	4.0	-65187.16	139551.72	-116.2142819	61.2470169

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1175	2.7	65651.33	139258.81	-113.7771759	61.2443113
1176	7.0	-77672.02	139244.89	-116.4466487	61.2419836
1177	6.7	-83106.94	138974.97	-116.5477190	61.2384451
1178	7.3	-48059.62	138771.30	-115.8950845	61.2424948
1179	35.0	52303.37	138739.20	-114.0258982	61.2416623
1180	6.1	-65631.05	138735.77	-116.2222643	61.2396220
1181	39.0	54432.84	138711.03	-113.9862531	61.2411189
1182	35.0	-36877.58	138666.47	-115.6868222	61.2427685
1183	3.7	-49540.63	138641.77	-115.9226297	61.2411477
1184	18.3	-42719.46	138537.02	-115.7955843	61.2410124
1185	7.0	-70907.12	138523.42	-116.3204163	61.2367960
1186	17.1	60421.02	138473.06	-113.8748276	61.2381045
1187	7.0	-73335.43	138462.17	-116.3655990	61.2357988
1188	0.9	-51116.89	138442.06	-115.9519274	61.2391530
1189	5.5	-87842.20	138432.31	-116.6356163	61.2325426
1190	36.0	49062.00	138415.28	-114.0863419	61.2391758
1191	3.4	65398.32	138373.42	-113.7821946	61.2364100
1192	7.3	-76780.81	138354.69	-116.4296927	61.2341734
1193	7.6	64133.45	138320.30	-113.8057610	61.2361428
1194	26.2	62086.78	138227.64	-113.8438948	61.2356417
1195	32.0	58857.72	138190.23	-113.9040225	61.2358052
1196	29.0	51649.48	138145.97	-114.0382370	61.2364262
1197	7.6	-81643.54	138041.11	-116.5200714	61.2303758
1198	0.9	-52444.57	137726.86	-115.9764496	61.2325599
1199	7.9	-66341.55	137645.53	-116.2351094	61.2297206
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1202	7.6	-73098.95	137532.69	-116.3608365	61.2275042
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1204	4.0	-89048.77	137494.13	-116.6576301	61.2238540
1205	32.0	-33748.41	137467.33	-115.6283323	61.2322906
1206	1.2	-49030.43	137375.16	-115.9127998	61.2298469
1207	1.5	65666.71	137374.31	-113.7775458	61.2274011
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1209	33.0	54371.63	137049.23	-113.9878722	61.2262168
1210	4.0	-60250.66	137043.97	-116.1215440	61.2253085
1211	36.0	55852.72	137032.69	-113.9603111	61.2258597
1212	12.5	50379.76	137029.63	-114.0621755	61.2265751
1213	23.5	60543.88	137002.58	-113.8730124	61.2248919
1214	27.1	57365.64	136984.38	-113.9321680	61.2252074
1215	25.9	32631.50	136941.36	-114.3925522	61.2276656
1216	11.3	-47237.18	136919.20	-115.8793047	61.2259763
1217	32.0	53011.56	136887.73	-114.0132313	61.2249543
1218	16.2	63614.25	136880.55	-113.8159125	61.2233100
1219	7.9	-80135.33	136878.03	-116.4915067	61.2202537
1220	18.9	62559.10	136859.63	-113.8355554	61.2232924
1221	12.2	59069.41	136828.14	-113.9005080	61.2235521

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1222	51.8	-6941.79	136703.73	-115.1292189	61.2268323
1223	28.0	49058.09	136683.55	-114.0868652	61.2236377
1224	8.8	-75405.16	136503.55	-116.4033456	61.2178338
1225	8.8	-67039.20	136453.41	-116.2476712	61.2189061
1226	0.9	-89555.88	136423.31	-116.6665577	61.2141329
1227	17.4	-39296.68	136414.83	-115.7314034	61.2223283
1228	8.8	-48399.78	136363.45	-115.9008010	61.2208475
1229	3.7	65242.26	136354.92	-113.7857980	61.2183261
1230	15.8	-44318.55	136318.41	-115.8248404	61.2209267
1231	32.0	52453.02	136301.03	-114.0237897	61.2197652
1232	9.1	-72773.05	136291.27	-116.3542925	61.2164275
1233	5.5	-61012.47	136278.45	-116.1354744	61.2183221
1234	0.9	-59009.96	136256.22	-116.0982069	61.2184296
1235	28.0	47673.04	136210.02	-114.1127620	61.2195599
1236	9.8	-71577.73	136146.72	-116.3319991	61.2153511
1237	26.2	51423.53	136108.27	-114.0429993	61.2181722
1238	8.5	-78703.80	136001.42	-116.4645061	61.2126800
1239	3.0	-88124.84	135909.75	-116.6396989	61.2098508
1240	15.5	62992.71	135892.64	-113.8278088	61.2145469
1241	1.5	66075.66	135859.77	-113.7704648	61.2137438
1242	25.6	46777.27	135858.31	-114.1295183	61.2165122
1243	1.5	-58538.87	135760.20	-116.0892874	61.2140499
1244	10.1	-67406.83	135656.69	-116.2542270	61.2116949
1245	58.8	-3361.42	135615.11	-115.0625522	61.2171101
1246	22.9	49053.29	135582.11	-114.0872407	61.2137552
1247	19.2	50159.36	135558.55	-114.0666686	61.2134037
1248	27.1	45582.68	135550.66	-114.1518203	61.2138925
1249	7.3	-61806.07	135519.27	-116.1499922	61.2113860
1250	28.3	-35341.43	135478.00	-115.6576168	61.2142989
1251	9.8	-74621.81	135447.56	-116.3883539	61.2085103
1252	56.4	-9019.84	135222.67	-115.1678300	61.2134989
1253	55.5	-2346.64	135211.88	-115.0436633	61.2134988
1254	13.4	-41678.89	135144.03	-115.7754575	61.2106788
1255	28.0	44477.22	135141.28	-114.1724843	61.2103462
1256	25.3	52111.42	135128.98	-114.0304697	61.2092944
1257	4.9	-86222.99	135110.34	-116.6039616	61.2031030
1258	0.6	64493.98	135093.03	-113.8001519	61.2071283
1259	4.0	-49574.12	135049.81	-115.9223096	61.2089134
1260	10.4	-72148.23	134948.42	-116.3421551	61.2044957
1261	2.1	-57768.55	134946.23	-116.0747071	61.2068610
1262	3.0	65511.37	134846.50	-113.7813141	61.2047476
1263	28.7	43454.25	134833.92	-114.1915857	61.2077031
1264	9.1	-76680.61	134794.59	-116.4263813	61.2022546
1265	23.5	42354.87	134628.30	-114.2120825	61.2059784
1266	20.7	50097.22	134552.52	-114.0680915	61.2043847
1267	16.2	60413.88	134538.47	-113.8762201	61.2028033
1268	10.1	-62796.36	134479.53	-116.1680684	61.2018998
1269	6.4	-46941.57	134454.97	-115.8731901	61.2039003
1270	3.4	-84670.97	134450.48	-116.5748058	61.1975222

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1271	1.5	-57157.59	134444.08	-116.0631911	61.2024451
1272	22.6	47345.01	134433.17	-114.1193116	61.2036562
1273	10.4	-73692.16	134334.50	-116.3706287	61.1987005
1274	36.3	27324.70	134295.84	-114.4917189	61.2043322
1275	6.7	48616.52	134288.92	-114.0956997	61.2022061
1276	25.6	41312.92	134257.23	-114.2315449	61.2027601
1277	11.3	-68174.07	134216.06	-116.2679796	61.1986370
1278	3.7	-57926.48	134213.55	-116.0774200	61.2002637
1279	1.2	68283.77	134170.05	-113.7299972	61.1982050
1280	23.2	-38022.26	134079.39	-115.7072153	61.2014975
1281	14.6	63166.91	134072.09	-113.8251766	61.1981846
1282	25.9	51973.16	134008.22	-114.0333498	61.1992564
1283	4.6	-82864.96	134007.58	-116.5410341	61.1939351
1284	29.0	39864.07	133949.13	-114.2585574	61.2001455
1285	6.7	-44162.83	133879.44	-115.8213722	61.1990591
1286	9.8	-75624.09	133872.81	-116.4063656	61.1941904
1287	7.0	-58822.29	133817.22	-116.0939554	61.1965742
1288	1.2	67388.30	133608.23	-113.7468482	61.1933196
1289	10.7	-71764.95	133586.09	-116.3345098	61.1923439
1290	57.3	-9994.88	133584.77	-115.1858856	61.1987766
1291	2.4	-48021.07	133536.31	-115.8930347	61.1955264
1292	0.9	68876.02	133394.34	-113.7192673	61.1911419
1293	10.7	-72743.68	133393.44	-116.3526305	61.1904350
1294	6.1	-81471.91	133379.31	-116.5148663	61.1885911
1295	9.4	-60074.02	133369.36	-116.1170879	61.1923659
1296	8.3	64763.45	133323.58	-113.7957459	61.1912082
1297	8.2	64763.45	133323.58	-113.7957459	61.1912082
1298	11.6	-63799.18	133312.38	-116.1863240	61.1912659
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1302	25.3	40265.91	132975.73	-114.2512914	61.1913699
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1304	19.5	58877.86	132937.80	-113.9052851	61.1886753
1305	10.7	-61077.84	132928.28	-116.1356079	61.1882532
1306	8.8	61827.37	132879.22	-113.8504751	61.1876955
1307	12.2	-68795.09	132762.94	-116.2789985	61.1854913
1308	4.0	-46341.82	132755.41	-115.8616184	61.1887215
1309	5.5	-79303.26	132726.81	-116.4742834	61.1831822
1310	19.8	54371.43	132694.45	-113.9891291	61.1871429
1311	16.5	49610.43	132667.14	-114.0776402	61.1875294
1312	11.6	-62024.62	132621.05	-116.1531069	61.1853480
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1314	12.5	-40747.31	132464.17	-115.7575488	61.1867297
1315	9.1	-73282.52	132278.00	-116.3622150	61.1803274
1316	20.7	44672.03	132232.06	-114.1695475	61.1842193
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1318	2.7	66869.12	132155.75	-113.7570138	61.1803769
1319	0.6	-49049.05	132114.63	-115.9117808	61.1826423

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1320	28.7	-33684.25	132098.64	-115.6261806	61.1841203
1321	13.1	-63676.67	132045.16	-116.1836200	61.1799161
1322	13.1	-65011.65	132043.00	-116.2084282	61.1796777
1323	12.2	-44834.22	131986.98	-115.8334092	61.1820017
1324	23.5	40731.34	131983.34	-114.2428516	61.1824168
1325	7.9	-42927.12	131977.00	-115.7979601	61.1821256
1326	15.2	60284.02	131972.48	-113.8794531	61.1798004
1327	19.2	56457.40	131965.89	-113.9505708	61.1803109
1328	11.0	63614.88	131940.03	-113.8175636	61.1789829
1329	6.7	-77388.68	131914.69	-116.4383701	61.1762791
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1331	36.0	14622.62	131869.23	-114.7281806	61.1832361
1332	3.0	61117.00	131776.56	-113.8640361	61.1779136
1333	33.0	16498.25	131623.56	-114.6933366	61.1809570
1334	18.9	46541.76	131585.89	-114.1349521	61.1782037
1335	1.2	-53110.46	131580.14	-115.9871180	61.1773174
1336	20.4	43776.72	131555.66	-114.1863461	61.1782508
1337	19.5	51277.50	131498.56	-114.0469670	61.1768294
1338	5.5	-75919.56	131445.77	-116.4108852	61.1723594
1339	7.9	-72124.38	131439.17	-116.3403735	61.1730165
1340	11.3	-69403.54	131424.47	-116.2898168	61.1733755
1341	6.4	-47776.69	131358.59	-115.8879407	61.1760156
1342	12.8	62369.85	131339.42	-113.8408985	61.1737942
1343	3.0	-54445.02	131259.78	-116.0118261	61.1742599
1344	19.8	42467.71	131247.80	-114.2107425	61.1756323
1345	21.6	41082.00	131239.05	-114.2364953	61.1757014
1346	7.0	-56466.45	131199.53	-116.0493690	61.1734334
1347	13.4	-65900.41	131137.17	-116.2246292	61.1714022
1348	7.9	-57616.91	131083.23	-116.0707098	61.1722226
1349	32.0	19098.95	131079.63	-114.6450515	61.1759577
1350	5.5	-55461.85	131041.77	-116.0306564	61.1721613
1351	8.2	-71113.05	131026.83	-116.3214290	61.1695018
1352	9.4	-58754.71	131005.16	-116.0918257	61.1713533
1353	34.0	14350.48	130939.01	-114.7333100	61.1748983
1354	3.7	-52944.20	130816.15	-115.9838146	61.1704847
1355	56.4	-17193.03	130733.90	-115.3194967	61.1729434
1356	0.6	-49339.66	130706.73	-115.9168152	61.1699729
1357	4.6	65091.42	130650.16	-113.7905682	61.1671677
1358	56.7	-16894.51	130639.59	-115.3139411	61.1721100
1359	11.3	-61316.27	130622.34	-116.1392932	61.1675264
1360	33.0	20962.16	130598.30	-114.6104783	61.1715432
1361	12.2	-67368.13	130574.32	-116.2516971	61.1661030
1362	32.6	19654.84	130561.06	-114.6347744	61.1712767
1363	14.3	-64151.25	130426.68	-116.1918913	61.1653175
1364	1.8	70946.13	130399.22	-113.6819067	61.1639013
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1366	17.1	57584.79	130350.71	-113.9301097	61.1656547
1367	4.9	-43776.79	130300.82	-115.8133651	61.1669910
1368	44.8	-8868.10	130269.73	-115.1647744	61.1690545

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1369	2.7	68753.41	130204.44	-113.7227051	61.1625441
1370	29.3	22844.34	130199.80	-114.5755524	61.1678620
1371	4.0	-50781.98	130163.30	-115.9434669	61.1649128
1372	14.0	60248.50	130119.73	-113.8807024	61.1631823
1373	6.1	-69713.15	130035.53	-116.2950582	61.1608594
1374	6.4	-56318.73	130027.92	-116.0462758	61.1629423
1375	14.0	49054.93	129928.53	-114.0886762	61.1630259
1376	26.8	24745.48	129884.13	-114.5402716	61.1649139
1377	26.8	-36484.76	129846.46	-115.6778038	61.1636598
1378	2.7	-73241.05	129845.13	-116.3605039	61.1585085
1379	4.6	-54551.22	129820.31	-116.0133851	61.1613292
1380	7.9	65721.93	129791.74	-113.7791533	61.1593609
1381	3.0	70139.85	129691.13	-113.6971445	61.1576934
1382	5.5	-45695.79	129680.28	-115.8488663	61.1612039
1383	21.3	41643.58	129680.19	-114.2264021	61.1616541
1384	17.7	54649.05	129658.05	-113.9848445	61.1598596
1385	9.1	-57405.26	129637.86	-116.0663395	61.1592850
1386	33.0	26398.86	129440.71	-114.5096174	61.1608270
1387	1.2	-76336.33	129387.91	-116.4177991	61.1538168
1388	23.5	39940.54	129320.72	-114.2581118	61.1586055
1389	7.6	-43362.29	129295.17	-115.8054345	61.1580131
1390	0.9	-78097.08	129276.80	-116.4504453	61.1524736
1391	34.0	14327.24	129244.91	-114.7338699	61.1596964
1392	7.9	-53043.87	129236.58	-115.9852243	61.1562981
1393	11.6	62716.10	129219.93	-113.8351664	61.1547223
1394	3.7	-70741.84	129193.16	-116.3138488	61.1531177
1395	7.9	-53050.14	129172.88	-115.9853230	61.1557258
1396	18.6	44790.80	129157.18	-114.1680670	61.1566144
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1398	4.6	67699.82	129075.73	-113.7426767	61.1526006
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1401	4.3	69893.22	128793.01	-113.7020555	61.1496796
1402	31.0	29834.43	128781.23	-114.4459053	61.1546628
1403	7.0	-68115.70	128694.27	-116.2649081	61.1491063
1404	1.2	-74879.45	128568.68	-116.3904252	61.1467477
1405	10.4	-59558.75	128440.63	-116.1059584	61.1482219
1406	56.7	-13001.11	128425.35	-115.2414411	61.1523878
1407	12.2	-47054.50	128385.48	-115.8737822	61.1494250
1408	4.3	66162.55	128366.38	-113.7714676	61.1464984
1409	10.7	64528.95	128344.46	-113.8018014	61.1465736
1410	8.5	-50773.25	128322.78	-115.9428117	61.1483991
1411	29.6	31881.88	128319.99	-114.4079589	61.1503629
1412	7.3	-54828.81	128183.17	-116.0180677	61.1466009
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1416	15.8	52858.96	127929.60	-114.0185738	61.1445959
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1418	5.8	68496.13	127848.34	-113.7283344	61.1414504
1419	18.0	42421.74	127797.00	-114.2123691	61.1446724
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1421	13.1	60709.54	127739.41	-113.8729009	61.1417540
1422	0.9	-73301.70	127692.32	-116.3607983	61.1391831
1423	25.3	35404.43	127587.53	-114.3426866	61.1434882
1424	11.3	-66480.38	127556.88	-116.2341492	61.1391818
1425	22.6	37152.75	127393.19	-114.3102679	61.1415827
1426	33.0	14259.74	127366.07	-114.7352649	61.1428381
1427	27.1	-36150.98	127356.80	-115.6711288	61.1413497
1428	2.4	-70701.16	127327.13	-116.3123983	61.1363834
1429	52.7	-17584.02	127269.01	-115.3264411	61.1418323
1430	8.5	66132.35	127245.80	-113.7724185	61.1364496
1431	6.7	67696.34	127044.77	-113.7434658	61.1343795
1432	6.1	68923.16	127034.15	-113.7207038	61.1340709
1433	0.9	-75067.89	126906.08	-116.3932660	61.1317957
1434	18.3	39365.71	126766.70	-114.2693182	61.1357454
1435	10.1	63647.66	126744.91	-113.8186983	61.1323660
1436	5.5	-68405.47	126744.90	-116.2695854	61.1315662
1437	10.7	-54661.32	126614.30	-116.0145065	61.1325472
1438	15.5	49593.58	126606.08	-114.0795391	61.1331459
1439	12.8	-57521.92	126552.34	-116.0675708	61.1315829
1440	18.9	-44750.84	126497.33	-115.8305638	61.1327517
1441	10.4	65142.01	126340.02	-113.7911081	61.1284883
1442	15.2	44585.03	126330.04	-114.1725526	61.1312694
1443	8.8	66890.33	126145.68	-113.7587393	61.1264509
1444	7.0	68581.23	126097.66	-113.7273869	61.1257286
1445	12.8	58773.26	125997.98	-113.9093808	61.1264236
1446	12.5	55855.72	125922.91	-113.9635325	61.1261757
1447	13.4	-51844.40	125869.30	-115.9620293	61.1262443
1448	3.4	-70915.22	125798.23	-116.3158000	61.1226280
1449	2.4	-72968.55	125794.91	-116.3538866	61.1222222
1450	10.7	41630.16	125688.28	-114.2275270	61.1258349
1451	8.8	63884.41	125637.53	-113.8146773	61.1223919
1452	21.9	-23176.44	125567.92	-115.4300522	61.1262767
1453	13.4	-64742.18	125553.47	-116.2012057	61.1214973
1454	12.8	-61792.50	125551.88	-116.1464892	61.1219578
1455	33.0	14370.26	125474.74	-114.7333564	61.1258612
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1457	14.6	47014.57	125379.23	-114.1277036	61.1224545
1458	11.3	61348.53	125378.49	-113.8618025	61.1204717
1459	12.5	51985.74	125114.04	-114.0355549	61.1194488
1460	7.3	68163.11	125103.74	-113.7355002	61.1168840
1461	10.1	63135.12	125088.70	-113.8287591	61.1175887
1462	8.8	54757.49	124902.36	-113.9842022	61.1171731
1463	11.0	65716.27	124806.66	-113.7809837	61.1146351
1464	46.6	-17910.81	124794.36	-115.3322744	61.1196100
1465	27.1	-36395.56	124770.77	-115.6751736	61.1181214
1466	0.9	-75509.96	124759.02	-116.4006155	61.1124488

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1467	10.7	62360.40	124539.84	-113.8433081	61.1127878
1468	13.7	-54677.46	124461.56	-116.0141868	61.1132290
1469	0.3	-77149.57	124380.60	-116.4308652	61.1087355
1470	14.0	43316.59	124303.26	-114.1965528	61.1132244
1471	42.4	-15861.72	124289.30	-115.2942189	61.1151656
1472	11.6	-67315.07	124288.25	-116.2484831	61.1097135
1473	14.6	40303.63	124285.33	-114.2524368	61.1133840
1474	10.7	54339.00	124163.10	-113.9921754	61.1105979
1475	7.6	67668.67	124135.16	-113.7450148	61.1082793
1476	10.7	61814.34	124112.33	-113.8535735	61.1090383
1477	11.0	65208.81	124054.52	-113.7906525	61.1079713
1478	7.3	-70099.14	124054.46	-116.3000194	61.1071295
1479	16.2	-50150.99	123967.52	-115.9301090	61.1093995
1480	4.0	-72972.41	123960.64	-116.3532545	61.1057651
1481	14.0	49648.19	123951.28	-114.0792191	61.1093176
1482	42.7	-17900.40	123896.66	-115.3319967	61.1115545
1483	39.6	6811.95	123764.96	-114.8736633	61.1107211
1484	33.0	14417.06	123691.59	-114.7326231	61.1098573
1485	11.0	61090.37	123639.95	-113.8671494	61.1049131
1486	11.0	56094.32	123510.37	-113.9598173	61.1044947
1487	11.0	59329.80	123503.22	-113.8998335	61.1039557
1488	14.9	-60422.92	123484.18	-116.1204264	61.1036185
1489	15.5	-57765.42	123303.78	-116.0711025	61.1023991
1490	7.6	67180.50	123230.26	-113.7543856	61.1002441
1491	7.0	47958.41	123203.47	-114.1107424	61.1028171
1492	14.0	-64751.68	123190.57	-116.2005776	61.1002954
1493	10.7	60493.50	123186.89	-113.8783596	61.1009402
1494	11.6	64618.90	123174.91	-113.8018890	61.1001766
1495	4.6	49172.57	123154.63	-114.0882446	61.1022290
1496	2.7	-75158.12	123135.51	-116.3934501	61.0979508
1497	5.8	-72106.72	123134.08	-116.3368920	61.0985091
1498	13.1	45523.97	123129.24	-114.1558951	61.1024404
1499	3.0	47043.31	123036.36	-114.1277497	61.1014281
1500	6.7	43191.34	122978.78	-114.1991764	61.1013533
1501	47.0	-21996.22	122774.52	-115.4078300	61.1012767
1502	10.4	59763.10	122759.06	-113.8920339	61.0972132
1503	10.7	61981.53	122756.52	-113.8509149	61.0968472
1504	0.9	-78812.91	122753.82	-116.4610309	61.0938114
1505	50.3	-23165.60	122658.19	-115.4294967	61.1001656
1506	12.2	51728.67	122611.51	-114.0410038	61.0970277
1507	0.9	-77147.04	122520.87	-116.4300647	61.0920516
1508	12.2	48258.14	122516.39	-114.1053596	61.0966152
1509	11.6	64035.04	122511.77	-113.8129352	61.0943223
1510	16.2	-53480.11	122472.45	-115.9914222	61.0955457
1511	7.6	66819.27	122459.27	-113.7613523	61.0933882
1512	10.1	59102.53	122401.40	-113.9043891	61.0941038
1513	10.4	54691.24	122304.66	-113.9861774	61.0938737
1514	10.4	62700.51	122267.53	-113.8377493	61.0923458
1515	18.9	21627.73	122243.60	-114.5990623	61.0965327

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1516	36.6	-15976.07	122184.98	-115.2961633	61.0962767
1517	3.7	-73535.70	122138.21	-116.3629940	61.0893100
1518	13.4	41539.91	122078.24	-114.2299895	61.0934503
1519	18.9	23458.76	122067.93	-114.5651409	61.0948513
1520	10.4	63469.95	122058.76	-113.8235593	61.0903493
1521	28.7	14603.79	121851.32	-114.7293012	61.0933358
1522	18.6	25150.03	121828.37	-114.5338224	61.0925970
1523	17.7	27015.68	121779.43	-114.4992490	61.0920342
1524	14.3	-67457.82	121746.80	-116.2502297	61.0868871
1525	17.1	28668.56	121648.58	-114.4686329	61.0907430
1526	14.6	-61551.85	121558.93	-116.1407339	61.0861693
1527	9.4	55232.68	121503.39	-113.9763746	61.0866085
1528	16.5	-56021.09	121472.35	-116.0382255	61.0862186
1529	17.1	-50573.58	121393.98	-115.9372618	61.0862530
1530	15.2	30480.57	121365.20	-114.4350946	61.0880639
1531	7.6	66280.53	121350.55	-113.7717222	61.0835318
1532	1.6	-78226.06	121289.91	-116.4495547	61.0807953
1533	15.2	32470.29	121273.13	-114.3982362	61.0870785
1534	19.8	-46053.61	121266.78	-115.8534742	61.0856665
1535	21.6	-42112.29	121259.75	-115.7804384	61.0860448
1536	20.7	-44210.08	121256.71	-115.8193108	61.0857875
1537	23.5	-40046.12	121141.73	-115.7421262	61.0852015
1538	5.2	44751.31	121122.41	-114.1706916	61.0845213
1539	12.2	43607.24	121050.41	-114.1919073	61.0840035
1540	8.5	62772.24	120987.96	-113.8368414	61.0808536
1541	14.6	34320.51	120945.26	-114.3640078	61.0839793
1542	12.2	45838.62	120882.36	-114.1506022	61.0822421
1543	9.4	60058.17	120875.05	-113.8871584	61.0802639
1544	9.8	57013.45	120837.97	-113.9435763	61.0803840
1545	12.2	35922.54	120814.33	-114.3343474	61.0826614
1546	7.6	65976.21	120789.76	-113.7775545	61.0785514
1547	14.6	37448.18	120759.66	-114.3060896	61.0820286
1548	6.4	50186.77	120673.39	-114.0700954	61.0798367
1549	7.0	-71639.26	120638.20	-116.3272892	61.0762020
1550	13.4	40086.35	120611.41	-114.2572399	61.0804385
1551	14.0	-64748.15	120598.41	-116.1996314	61.0770385
1552	14.3	38846.89	120564.70	-114.2802135	61.0801437
1553	0.5	-80634.38	120547.22	-116.4938522	61.0736466
1554	7.9	63707.38	120473.88	-113.8196890	61.0760909
1555	18.9	21534.80	120364.72	-114.6009972	61.0796767
1556	3.4	-74683.91	120353.05	-116.3835705	61.0730780
1557	13.4	41313.53	120346.13	-114.2345610	61.0779312
1558	17.1	-53585.41	120332.43	-115.9927723	61.0763294
1559	24.4	971.70	120198.93	-114.9819967	61.0787767
1560	13.4	42572.37	120170.03	-114.2112793	61.0762169
1561	8.8	52984.37	120162.52	-114.0184087	61.0748861
1562	17.1	-58129.73	120074.13	-116.0768713	61.0733671
1563	7.6	65621.30	120044.25	-113.7843855	61.0719219
1564	24.4	14835.04	119998.38	-114.7251590	61.0766986

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1565	7.9	64324.64	119991.08	-113.8084182	61.0716587
1566	11.3	-69991.89	119984.88	-116.2965361	61.0706367
1567	8.8	55495.64	119842.15	-113.9719853	61.0716656
1568	0.6	-77728.01	119673.01	-116.4396697	61.0663881
1569	6.7	46336.23	119603.52	-114.1416930	61.0707086
1570	7.6	65024.53	119521.16	-113.7956162	61.0673276
1571	37.8	-22946.99	119406.61	-115.4250522	61.0709989
1572	20.1	-46114.77	119400.68	-115.8541562	61.0689144
1573	0.5	-79113.43	119365.05	-116.4651943	61.0633495
1574	23.5	-40075.54	119313.89	-115.7422873	61.0687964
1575	4.0	-76653.04	119209.81	-116.4195796	61.0624432
1576	15.5	-61332.34	119081.76	-116.1358701	61.0639773
1577	11.9	44468.20	119052.77	-114.1764201	61.0659819
1578	7.3	-73671.35	119049.05	-116.3643143	61.0615697
1579	13.4	37234.49	119040.30	-114.3103846	61.0666201
1580	3.7	48638.10	119034.49	-114.0992048	61.0653250
1581	8.8	61255.95	118928.92	-113.8655935	61.0626179
1582	13.4	39885.33	118917.53	-114.2613184	61.0652590
1583	40.2	-25786.19	118745.20	-115.4775522	61.0648878
1584	16.2	-50589.19	118719.13	-115.9368418	61.0622495
1585	14.3	-66576.39	118697.50	-116.2328334	61.0596784
1586	7.9	58186.13	118656.23	-113.9225163	61.0606364
1587	17.1	21460.84	118575.02	-114.6025690	61.0636200
1588	7.9	56241.25	118506.45	-113.9585694	61.0595749
1589	6.7	50863.72	118439.87	-114.0581494	61.0597084
1590	7.9	54188.29	118369.20	-113.9966174	61.0586311
1591	17.1	-56226.43	118211.11	-116.0410694	61.0569270
1592	22.6	14862.95	118075.09	-114.7247917	61.0594377
1593	10.7	46669.18	117897.84	-114.1359433	61.0553638
1594	1.3	-77681.09	117896.14	-116.4380783	61.0504563
1595	5.8	-75182.73	117874.71	-116.3918330	61.0507485
1596	16.5	-63352.15	117804.70	-116.1728453	61.0521995
1597	12.2	42010.34	117552.38	-114.2222668	61.0527880
1598	20.4	-46233.08	117489.91	-115.8558847	61.0517548
1599	22.6	-39977.73	117416.17	-115.7400785	61.0517772
1600	7.3	60056.77	117367.03	-113.8882879	61.0487883
1601	13.4	-69835.59	117246.48	-116.2926403	61.0460957
1602	18.0	-58469.78	117134.66	-116.0822696	61.0469420
1603	15.8	21647.06	117123.23	-114.5992849	61.0505815
1604	32.0	-22931.85	117115.94	-115.4244967	61.0504433
1605	20.7	14997.87	116979.88	-114.7223796	61.0496040
1606	8.8	48278.74	116939.25	-114.1063889	61.0465683
1607	0.2	-79466.13	116937.91	-116.4707145	61.0415040
1608	7.3	53262.30	116909.65	-114.0141678	61.0456609
1609	4.0	43435.20	116848.13	-114.1960513	61.0463141
1610	18.0	-54210.23	116841.50	-116.0033555	61.0449202
1611	8.2	62860.82	116786.13	-113.8365838	61.0431391
1612	8.5	58640.27	116657.89	-113.9147215	61.0426387
1613	13.4	38649.07	116610.68	-114.2846789	61.0446816

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1614	6.7	40943.79	116601.91	-114.2422136	61.0443712
1615	13.4	35413.74	116515.97	-114.3445722	61.0441356
1616	6.7	56250.42	116513.70	-113.9589862	61.0416932
1617	21.0	-6336.63	116335.37	-115.1172744	61.0440545
1618	16.8	-61404.85	116311.15	-116.1363223	61.0391068
1619	7.6	50987.61	116243.59	-114.0564418	61.0399851
1620	17.1	-50935.55	116183.91	-115.9425791	61.0394563
1621	13.4	34142.93	116163.61	-114.3681533	61.0410857
1622	14.9	-66712.77	116136.96	-116.2344644	61.0366817
1623	0.9	-80234.13	116057.75	-116.4845542	61.0334523
1624	8.2	45635.77	115992.43	-114.1555293	61.0383871
1625	2.7	-76267.16	115943.16	-116.4111320	61.0332112
1626	4.6	58876.51	115919.77	-113.9105774	61.0359806
1627	13.7	33043.64	115887.95	-114.3885431	61.0387056
1628	10.4	-72115.88	115847.98	-116.3343089	61.0331381
1629	6.1	43665.55	115778.93	-114.1920323	61.0366943
1630	1.6	-78523.66	115748.45	-116.4527893	61.0310216
1631	7.3	-74041.92	115742.96	-116.3698942	61.0318391
1632	19.2	15132.97	115738.18	-114.7199771	61.0384557
1633	22.6	-40121.61	115613.64	-115.7423635	61.0355876
1634	15.2	21642.74	115550.17	-114.5995430	61.0364650
1635	20.7	-46268.66	115509.21	-115.8560640	61.0339773
1636	13.4	31817.41	115478.37	-114.4113008	61.0351310
1637	7.3	61114.73	115407.93	-113.8693341	61.0310477
1638	30.8	-24759.67	115394.85	-115.4581078	61.0348878
1639	1.2	42439.40	115312.05	-114.2148218	61.0326387
1640	13.4	30673.71	115145.33	-114.4325144	61.0322330
1641	0.6	45548.05	115094.59	-114.1573661	61.0303406
1642	7.3	59348.09	115073.81	-113.9021156	61.0283195
1643	18.0	-56610.85	115048.44	-116.0472494	61.0284941
1644	8.5	40119.66	115034.29	-114.2577941	61.0303889
1645	13.4	29459.91	114939.51	-114.4550013	61.0304785
1646	8.5	38632.61	114770.69	-114.2853552	61.0281719
1647	6.1	64090.50	114757.30	-113.8145097	61.0247377
1648	17.7	15159.74	114700.13	-114.7195640	61.0291391
1649	29.7	-25635.57	114689.16	-115.4742189	61.0284989
1650	7.9	57448.03	114688.54	-113.9373742	61.0251438
1651	16.5	-63506.70	114588.13	-116.1746378	61.0233142
1652	12.2	28417.94	114581.17	-114.4743297	61.0273393
1653	19.8	-11107.08	114572.95	-115.2054601	61.0281327
1654	19.8	-12550.08	114551.77	-115.2321514	61.0278992
1655	19.8	-12619.99	114538.92	-115.2334437	61.0277818
1656	23.5	-15703.07	114502.62	-115.2904707	61.0273453
1657	25.0	-16701.11	114494.80	-115.3089311	61.0272342
1658	21.9	-14431.63	114466.25	-115.2669495	61.0270675
1659	7.6	55515.97	114462.38	-113.9731715	61.0233910
1660	26.2	-17864.36	114435.80	-115.3304426	61.0266538
1661	11.9	27280.37	114407.31	-114.4953962	61.0258594
1662	3.7	41143.97	114393.02	-114.2389841	61.0245290

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1663	21.6	-40170.84	114352.57	-115.7430095	61.0242663
1664	7.3	53342.29	114286.73	-114.0134189	61.0221148
1665	10.4	39644.00	114269.47	-114.2667513	61.0235739
1666	12.5	35467.78	114262.27	-114.3439899	61.0239067
1667	13.4	33058.73	114213.55	-114.3885533	61.0236787
1668	6.1	62896.26	114201.34	-113.8367776	61.0199416
1669	20.7	-37843.99	114196.73	-115.6999441	61.0230979
1670	13.4	-69914.05	114170.14	-116.2929680	61.0184809
1671	0.9	-80345.98	114165.99	-116.4858291	61.0164581
1672	6.7	50157.88	114134.80	-114.0723470	61.0211692
1673	19.8	-36235.56	114109.89	-115.6701812	61.0224696
1674	12.2	26317.01	114079.41	-114.5132598	61.0229822
1675	14.0	21581.07	114078.93	-114.6008499	61.0232653
1676	19.8	-51619.30	114017.57	-115.9546460	61.0199288
1677	18.0	-58751.76	113975.41	-116.0865179	61.0185531
1678	3.7	-74814.97	113894.71	-116.3834704	61.0151113
1679	19.5	-10794.69	113879.23	-115.1996424	61.0219157
1680	0.9	-77910.81	113864.23	-116.4406879	61.0142390
1681	24.4	-33311.01	113840.27	-115.6160477	61.0203078
1682	26.5	-31346.60	113760.32	-115.5797071	61.0197513
1683	13.1	24950.69	113752.63	-114.5385721	61.0201385
1684	18.0	-54555.80	113694.89	-116.0088534	61.0166384
1685	2.4	45111.46	113674.07	-114.1657768	61.0176440
1686	16.5	15243.71	113668.53	-114.7180927	61.0198781
1687	6.1	60704.05	113643.66	-113.8774898	61.0152811
1688	27.1	-27138.13	113632.67	-115.5018631	61.0189176
1689	26.2	-28994.36	113629.98	-115.5361883	61.0187615
1690	20.1	-46272.58	113624.09	-115.8556808	61.0170610
1691	27.7	-30240.22	113580.19	-115.5592189	61.0182211
1692	4.0	63876.16	113496.34	-113.8188941	61.0134587
1693	14.0	23132.95	113476.15	-114.5722209	61.0177680
1694	13.4	30421.85	113451.37	-114.4374431	61.0170511
1695	28.6	-28919.41	113445.34	-115.5347744	61.0171100
1696	7.3	42715.43	113402.54	-114.2101414	61.0154740
1697	29.1	-25915.37	113391.13	-115.4792189	61.0168322
1698	1.5	65020.53	113358.24	-113.7977856	61.0120328
1699	7.3	-73345.74	113349.36	-116.3561007	61.0104943
1700	23.5	-18028.12	113263.73	-115.3333614	61.0161280
1701	11.9	36963.09	113182.52	-114.3165431	61.0140802
1702	6.4	39200.69	113109.98	-114.2751875	61.0132134
1703	2.4	40866.10	113106.48	-114.2443977	61.0130131
1704	14.6	21970.13	113085.98	-114.5937682	61.0143331
1705	6.1	59103.23	112921.47	-113.9073086	61.0090440
1706	1.5	45659.22	112891.91	-114.1558347	61.0105625
1707	14.3	-66606.63	112888.97	-116.2313710	61.0075580
1708	1.2	43739.68	112805.84	-114.1913400	61.0100074
1709	28.0	-26701.15	112777.90	-115.4936633	61.0112767
1710	14.3	20158.88	112713.98	-114.6272970	61.0110913
1711	15.8	-61349.09	112706.41	-116.1341356	61.0067718

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1712	3.7	61455.51	112658.13	-113.8639129	61.0063220
1713	19.8	-13465.00	112640.96	-115.2489411	61.0107211
1714	2.4	-75830.31	112587.43	-116.4017231	61.0031892
1715	13.4	27937.68	112581.22	-114.4835049	61.0094261
1716	15.2	15334.20	112515.94	-114.7165116	61.0095310
1717	14.6	18976.76	112502.10	-114.6491729	61.0092485
1718	0.9	-78531.91	112474.78	-116.4516000	61.0016506
1719	2.4	46962.92	112461.23	-114.1318398	61.0065449
1720	6.1	57470.26	112453.89	-113.9376334	61.0050896
1721	17.4	-10850.00	112407.98	-115.2005821	61.0087109
1722	3.0	42367.45	112255.95	-114.2168289	61.0052226
1723	4.9	60197.49	112254.86	-113.8872911	61.0028975
1724	12.5	34313.76	112235.69	-114.3656963	61.0058228
1725	14.6	17820.16	112213.84	-114.6705815	61.0067155
1726	22.6	-18109.38	112193.69	-115.3347628	61.0065215
1727	4.0	45577.63	112153.25	-114.1575187	61.0039436
1728	25.9	-27142.54	112129.66	-115.5017318	61.0054294
1729	5.5	48457.20	112107.28	-114.1043092	61.0031883
1730	7.0	54941.00	112003.86	-113.9845093	61.0014115
1731	9.4	35381.98	112001.96	-114.3459941	61.0036311
1732	6.4	51514.88	111972.48	-114.0478346	61.0015917
1733	14.0	21558.40	111951.77	-114.6015086	61.0041772
1734	14.6	16638.13	111931.91	-114.6924564	61.0042370
1735	14.9	15557.66	111764.76	-114.7124413	61.0027810
1736	19.8	-46397.20	111675.10	-115.8575133	60.9995576
1737	1.5	-77221.09	111540.67	-116.4270021	60.9935287
1738	15.5	14483.69	111495.72	-114.7323122	61.0004074
1739	26.2	-30183.31	111443.88	-115.5578300	60.9990545
1740	1.5	61647.94	111436.06	-113.8607492	60.9953270
1741	12.2	31435.39	111428.52	-114.4190334	60.9988190
1742	4.9	56327.65	111350.49	-113.9590756	60.9953536
1743	0.6	37092.88	111298.22	-114.3145079	60.9971590
1744	15.5	13269.79	111271.06	-114.7547627	60.9984340
1745	26.5	-20429.61	111250.43	-115.3775522	60.9979434
1746	2.4	43792.78	111214.27	-114.1907219	60.9957197
1747	20.7	-18298.76	111168.06	-115.3381657	60.9973087
1748	4.3	49526.66	111001.33	-114.0848292	60.9931317
1749	4.9	53372.42	110957.03	-114.0137886	60.9922334
1750	18.0	-11089.62	110904.64	-115.2049249	60.9952128
1751	12.5	-69025.96	110897.94	-116.2753702	60.9892788
1752	1.5	48128.39	110884.32	-114.1106930	60.9922546
1753	6.7	-73361.45	110878.18	-116.3554458	60.9883204
1754	1.2	45159.92	110866.47	-114.1655420	60.9924448
1755	4.6	57707.70	110862.64	-113.9337237	60.9907771
1756	3.0	-75293.97	110855.95	-116.3911323	60.9877575
1757	16.2	12348.58	110849.40	-114.7718145	60.9946797
1758	12.8	25672.79	110843.20	-114.5256080	60.9939829
1759	14.3	15501.65	110841.23	-114.7135514	60.9944952
1760	13.1	21642.51	110811.90	-114.6000825	60.9939434

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1761	3.0	46011.80	110791.53	-114.1498208	60.9916741
1762	1.8	50137.33	110690.41	-114.0736279	60.9902648
1763	16.8	-59820.61	110664.45	-116.1052479	60.9886846
1764	24.4	-26981.66	110614.16	-115.4985448	60.9918403
1765	0.3	-78300.45	110558.10	-116.4465409	60.9845011
1766	12.2	28963.99	110520.20	-114.4648431	60.9908568
1767	18.1	-54861.70	110366.77	-116.0135571	60.9867330
1768	15.8	11300.34	110338.39	-114.7912146	60.9901252
1769	2.4	50970.72	110201.63	-114.0583614	60.9857722
1770	4.6	55935.31	110101.95	-113.9666887	60.9842064
1771	19.8	-18335.47	110059.86	-115.3387382	60.9873618
1772	2.4	34221.60	109981.73	-114.3678018	60.9856043
1773	15.8	10182.15	109846.38	-114.8119002	60.9857401
1774	18.6	-46444.22	109832.66	-115.8579363	60.9830193
1775	9.1	-71001.52	109805.65	-116.3114583	60.9791287
1776	0.9	-77008.93	109795.92	-116.4223830	60.9779169
1777	13.4	15509.39	109771.30	-114.7134948	60.9848932
1778	14.6	-63792.55	109766.37	-116.1783200	60.9800053
1779	1.2	35613.99	109761.30	-114.3421219	60.9835032
1780	9.4	32442.19	109685.80	-114.4007221	60.9830987
1781	14.0	8822.00	109666.09	-114.8370352	60.9841549
1782	13.1	21726.69	109621.09	-114.5986619	60.9832523
1783	12.5	-66417.78	109590.16	-116.2267388	60.9779920
1784	1.8	54512.18	109583.80	-113.9931215	60.9797559
1785	10.4	31075.89	109435.15	-114.4259998	60.9809592
1786	16.2	-11087.66	109388.91	-115.2048012	60.9816103
1787	18.9	-50461.25	109367.59	-115.9320088	60.9783537
1788	14.0	13526.54	109360.84	-114.7501524	60.9812825
1789	15.8	7919.70	109359.09	-114.8537155	60.9814189
1790	3.7	-74287.32	109220.75	-116.3719064	60.9732774
1791	22.6	-26948.00	109162.16	-115.4977190	60.9788123
1792	18.3	-46454.39	109128.68	-115.8579539	60.9767010
1793	18.9	-18448.44	108932.45	-115.3407169	60.9772389
1794	15.5	6712.51	108873.33	-114.8760305	60.9770818
1795	3.4	55078.96	108846.25	-113.9828658	60.9730593
1796	20.1	-37812.79	108789.76	-115.6983011	60.9745806
1797	19.8	-39107.28	108785.91	-115.7222042	60.9744202
1798	16.2	16375.22	108772.68	-114.6975855	60.9758964
1799	19.8	-36636.29	108723.92	-115.6765634	60.9741006
1800	19.5	-21617.64	108688.36	-115.3992189	60.9748878
1801	14.3	10501.52	108668.65	-114.8060648	60.9751625
1802	3.0	34020.14	108606.20	-114.3717669	60.9732779
1803	17.1	-52761.39	108542.28	-115.9742590	60.9706478
1804	18.9	-35263.69	108503.05	-115.6511767	60.9722433
1805	17.2	-56918.82	108478.23	-116.0509958	60.9694966
1806	0.3	-76256.98	108459.66	-116.4079682	60.9660742
1807	19.8	-33967.46	108450.94	-115.6272330	60.9718891
1808	13.7	-61444.98	108426.32	-116.1345379	60.9683535
1809	15.8	5664.24	108387.80	-114.8954047	60.9727409

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1810	11.3	26521.47	108360.66	-114.5102690	60.9716485
1811	21.6	-33142.33	108356.53	-115.6119810	60.9711120
1812	17.7	-46488.53	108356.28	-115.8583974	60.9697660
1813	9.1	29710.79	108337.73	-114.4513830	60.9712160
1814	7.3	-70242.84	108201.90	-116.2968625	60.9648753
1815	22.3	-32055.97	108200.03	-115.5918960	60.9697971
1816	1.2	32743.09	108171.06	-114.3954223	60.9694809
1817	14.3	7705.13	108148.74	-114.8577274	60.9705610
1818	22.6	-30879.83	108144.62	-115.5701716	60.9693934
1819	22.6	-29659.26	108127.48	-115.5476330	60.9693331
1820	22.6	-28419.59	108097.65	-115.5247401	60.9691564
1821	11.9	23699.35	108076.36	-114.5624143	60.9692764
1822	14.9	4571.31	108023.20	-114.9155952	60.9694831
1823	18.0	-18599.72	107938.72	-115.3434146	60.9683139
1824	17.1	-11015.81	107898.74	-115.2033885	60.9682391
1825	21.6	-25255.38	107878.14	-115.4662894	60.9674012
1826	19.8	-24022.09	107848.08	-115.4435162	60.9672083
1827	19.8	-22864.96	107722.38	-115.4221379	60.9661489
1828	19.2	-39229.72	107712.12	-115.7242461	60.9647722
1829	21.6	-27041.43	107678.13	-115.4992358	60.9654882
1830	2.7	-73318.95	107674.66	-116.3534384	60.9595869
1831	17.4	-46501.58	107634.45	-115.8584638	60.9632872
1832	3.4	-71456.17	107563.04	-116.3190203	60.9589262
1833	14.9	3567.59	107493.15	-114.9341377	60.9647365
1834	12.8	-63871.97	107396.98	-116.1789993	60.9587333
1835	13.4	15760.38	107396.16	-114.7090531	60.9635682
1836	12.2	19244.00	107394.84	-114.6447445	60.9634022
1837	15.5	-59313.93	107372.52	-116.0948720	60.9592234
1838	16.2	-9203.34	107334.56	-115.1698975	60.9632223
1839	15.2	2620.75	107230.66	-114.9516213	60.9623883
1840	8.2	-67603.19	107117.08	-116.2477584	60.9556020
1841	16.5	-55054.29	107073.70	-116.0161711	60.9571578
1842	2.7	30856.83	107021.81	-114.4304334	60.9593193
1843	18.0	-49815.96	106999.39	-115.9194783	60.9571852
1844	0.3	-75568.41	106989.55	-116.3946813	60.9530169
1845	1.5	-74277.91	106978.90	-116.3708668	60.9531657
1846	9.8	25874.93	106914.05	-114.5224020	60.9587094
1847	16.8	-46504.76	106892.16	-115.8583430	60.9566260
1848	6.1	28244.53	106858.14	-114.4786741	60.9580456
1849	1.5	-72605.70	106752.32	-116.3399277	60.9514432
1850	13.7	12175.92	106722.27	-114.7752666	60.9576470
1851	17.1	-18687.09	106683.97	-115.3449059	60.9570494
1852	14.0	4210.78	106615.21	-114.9222828	60.9568512
1853	18.0	-39396.17	106585.49	-115.7270881	60.9546457
1854	15.2	-3341.23	106566.07	-115.0616672	60.9564185
1855	13.4	9029.45	106545.76	-114.8333496	60.9561473
1856	15.8	-11083.89	106472.07	-115.2045633	60.9554338
1857	15.2	905.41	106419.37	-114.9832899	60.9551150
1858	4.6	26954.90	106333.85	-114.5025501	60.9534306

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1859	3.0	-70818.78	106322.13	-116.3068011	60.9479072
1860	18.3	-22920.28	106257.52	-115.4229846	60.9529998
1861	19.8	-27064.96	106213.30	-115.4994642	60.9523413
1862	19.5	-27503.43	106190.91	-115.5075522	60.9521100
1863	11.3	22392.27	106176.61	-114.5867688	60.9523039
1864	16.8	-46510.59	106142.29	-115.8582694	60.9498964
1865	1.2	28093.18	106004.75	-114.4815921	60.9503980
1866	16.2	-52897.71	105949.89	-115.9760630	60.9473679
1867	18.9	-34898.17	105822.51	-115.6439411	60.9482211
1868	15.2	-7097.22	105815.50	-115.1309618	60.9496331
1869	12.5	-61180.63	105707.20	-116.1287933	60.9439969
1870	15.2	-14572.78	105632.73	-115.2688897	60.9477882
1871	16.2	-18717.46	105582.15	-115.3453591	60.9471600
1872	6.4	24274.81	105497.89	-114.5521146	60.9461020
1873	8.5	-65363.20	105426.56	-116.2058503	60.9408104
1874	16.2	-39469.17	105414.45	-115.7281951	60.9441299
1875	1.5	-72667.43	105402.00	-116.3405571	60.9393169
1876	15.5	-46547.86	105329.25	-115.8587605	60.9425964
1877	12.5	6456.48	105312.88	-114.8808785	60.9451334
1878	10.7	20314.68	105294.73	-114.6252011	60.9445019
1879	14.3	-12601.63	105253.46	-115.2324946	60.9444522
1880	14.6	-57085.94	105159.73	-116.0530967	60.9396961
1881	3.4	23417.06	105159.11	-114.5679814	60.9431135
1882	10.1	17352.66	105048.44	-114.6798707	60.9424325
1883	14.3	-11094.76	105045.48	-115.2046817	60.9426308
1884	18.3	-27114.25	104996.82	-115.5002023	60.9414211
1885	12.2	10627.10	104962.27	-114.8039505	60.9418969
1886	7.0	-63086.69	104927.10	-116.1636976	60.9366982
1887	10.4	14600.25	104923.45	-114.7306571	60.9414219
1888	17.1	-22982.06	104875.43	-115.4239598	60.9405932
1889	14.3	-8869.59	104870.38	-115.1636229	60.9411155
1890	20.9	-32031.29	104866.88	-115.5908856	60.9398878
1891	2.7	-69379.93	104738.59	-116.2796867	60.9339543
1892	14.3	-4832.75	104736.11	-115.0891494	60.9399804
1893	1.2	-71344.18	104678.09	-116.3158846	60.9330625
1894	8.5	-3243.30	104579.19	-115.0598264	60.9385883
1895	15.2	-46574.70	104533.88	-115.8590633	60.9354560
1896	12.2	3520.61	104499.82	-114.9350598	60.9378737
1897	15.2	-18785.98	104499.38	-115.3465178	60.9374398
1898	15.2	-40950.41	104462.20	-115.7553186	60.9354344
1899	12.2	8269.34	104443.01	-114.8474688	60.9372931
1900	14.3	-38746.06	104426.48	-115.7146562	60.9353356
1901	15.8	-39859.95	104425.43	-115.7351996	60.9352156
1902	1.2	21669.84	104424.19	-114.6002975	60.9366176
1903	4.3	-67294.38	104423.52	-116.2411189	60.9314872
1904	15.8	-49338.47	104398.77	-115.9099997	60.9339089
1905	15.5	-37770.28	104373.38	-115.6966493	60.9349533
1906	15.5	-37548.23	104363.72	-115.6925522	60.9348878
1907	16.2	-36756.18	104332.48	-115.6779383	60.9346818

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1908	14.0	-11233.66	104306.52	-115.2072010	60.9359952
1909	6.7	10106.70	104286.45	-114.8135862	60.9358454
1910	17.4	-33768.41	104131.71	-115.6227997	60.9331461
1911	19.0	-34448.01	104115.64	-115.6353300	60.9329434
1912	13.4	482.53	104075.09	-114.9911005	60.9340773
1913	14.0	-15047.53	104071.72	-115.2775276	60.9337615
1914	13.4	-59665.39	104040.98	-116.1003261	60.9292776
1915	2.4	9128.08	104011.18	-114.8316494	60.9333989
1916	8.8	15790.21	103988.98	-114.7087818	60.9329900
1917	1.5	-68641.44	103950.03	-116.2657881	60.9270079
1918	18.3	-32406.13	103913.16	-115.5976394	60.9312986
1919	14.9	-48659.22	103891.84	-115.8973451	60.9294441
1920	18.2	-29430.94	103854.28	-115.5427642	60.9310025
1921	1.5	11321.46	103836.03	-114.7912071	60.9317704
1922	18.3	-31026.49	103800.75	-115.5721791	60.9304004
1923	17.7	-28254.81	103798.87	-115.5210668	60.9305909
1924	14.3	-46575.86	103755.97	-115.8588966	60.9284754
1925	8.8	18625.76	103725.60	-114.6565123	60.9305032
1926	8.5	13235.05	103724.16	-114.7559242	60.9307071
1927	16.5	-25930.17	103692.96	-115.4781837	60.9297995
1928	16.2	-23126.67	103633.33	-115.4264782	60.9294379
1929	16.2	-24823.93	103592.66	-115.4577711	60.9289703
1930	12.5	-6973.47	103516.59	-115.1285950	60.9290041
1931	15.2	-22166.53	103450.03	-115.4087517	60.9278479
1932	14.9	-21111.27	103445.19	-115.3892926	60.9278621
1933	14.3	-55303.57	103404.78	-116.0197182	60.9242019
1934	14.3	-20087.72	103389.35	-115.3704130	60.9274142
1935	13.1	-17951.75	103366.97	-115.3310248	60.9273159
1936	14.3	-48056.65	103357.91	-115.8861012	60.9247266
1937	1.2	-70013.75	103355.49	-116.2908720	60.9214335
1938	15.5	-39672.08	103355.30	-115.7315145	60.9256315
1939	14.0	-19026.06	103352.68	-115.3508330	60.9271375
1940	13.4	-11092.57	103351.42	-115.2045437	60.9274278
1941	10.7	6020.49	103267.92	-114.8889863	60.9267880
1942	14.9	-40988.32	103255.13	-115.7557613	60.9245986
1943	14.0	-13902.12	103175.40	-115.2563379	60.9257595
1944	16.5	-27105.49	103137.19	-115.4997791	60.9247332
1945	8.8	7196.71	103123.14	-114.8673029	60.9254691
1946	17.4	-32679.93	103108.41	-115.6025522	60.9240544
1947	12.2	-58793.14	103067.95	-116.0839468	60.9206772
1948	5.8	-63421.02	103022.24	-116.1692368	60.9195534
1949	8.2	16636.99	102983.95	-114.6932517	60.9239360
1950	13.4	-52944.49	102956.41	-115.9761036	60.9205009
1951	2.4	20819.91	102951.80	-114.6161332	60.9234497
1952	14.0	-46643.86	102928.07	-115.8599502	60.9210383
1953	14.9	-47403.56	102800.48	-115.8739235	60.9198032
1954	10.4	-3126.52	102751.55	-115.0576425	60.9221873
1955	2.4	-66007.95	102725.09	-116.2168172	60.9164647
1956	15.2	-23061.86	102671.76	-115.4251681	60.9208124

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1957	6.7	-60814.09	102631.59	-116.1210616	60.9164568
1958	14.0	-50318.53	102591.26	-115.9276019	60.9175664
1959	13.1	-15039.23	102568.73	-115.2772573	60.9202736
1960	11.3	2416.99	102568.52	-114.9554410	60.9205497
1961	6.7	14488.89	102554.15	-114.7328896	60.9201632
1962	12.2	-8529.68	102552.68	-115.1572497	60.9203231
1963	1.2	-67984.75	102549.92	-116.2531879	60.9145590
1964	12.8	-17867.88	102411.79	-115.3293897	60.9187476
1965	14.3	-49470.38	102325.99	-115.9119005	60.9152929
1966	15.5	-37585.54	102259.21	-115.6928300	60.9159989
1967	14.3	-41008.88	102192.74	-115.7559144	60.9150630
1968	14.0	-48905.48	102173.89	-115.9014504	60.9139982
1969	3.0	16828.77	102156.31	-114.6897880	60.9165004
1970	12.2	-18916.43	102142.79	-115.3486928	60.9162849
1971	14.6	-36569.45	102136.17	-115.6740780	60.9149898
1972	2.7	19047.38	102127.68	-114.6488948	60.9161430
1973	15.2	-27085.10	102118.23	-115.4992601	60.9155905
1974	14.6	-37988.98	102103.41	-115.7002355	60.9145623
1975	8.2	4642.54	102100.46	-114.9144228	60.9163293
1976	14.9	-37246.46	102099.04	-115.6865491	60.9145936
1977	12.8	-46628.43	102066.06	-115.8594576	60.9133050
1978	14.3	-38808.74	102042.68	-115.7153325	60.9139379
1979	0.9	13084.70	102010.78	-114.7588131	60.9153357
1980	7.9	-5712.84	102009.05	-115.1053036	60.9154950
1981	11.9	-57374.03	101974.79	-116.0574627	60.9110763
1982	14.3	-39771.11	101968.51	-115.7330545	60.9131769
1983	14.9	-35687.21	101946.97	-115.6577820	60.9133724
1984	14.0	-48026.56	101931.34	-115.8851913	60.9119292
1985	13.4	-12298.54	101923.10	-115.2266904	60.9145740
1986	14.9	-34887.13	101878.30	-115.6430236	60.9128274
1987	0.9	-67926.56	101836.70	-116.2518646	60.9081697
1988	15.5	-28887.63	101683.35	-115.5324198	60.9115605
1989	14.0	-47208.84	101676.88	-115.8700592	60.9097439
1990	14.3	-23060.55	101665.52	-115.4250238	60.9117823
1991	10.4	720.87	101655.35	-114.9867138	60.9123612
1992	15.2	-25323.61	101649.50	-115.4667303	60.9115004
1993	2.7	-64302.76	101632.38	-116.1850260	60.9069408
1994	13.4	-40994.21	101628.19	-115.7555242	60.9099984
1995	13.7	-40063.50	101623.95	-115.7383717	60.9100556
1996	0.9	-66953.60	101589.88	-116.2338519	60.9061206
1997	15.2	-33393.48	101587.25	-115.6154446	60.9103442
1998	5.8	-3277.58	101585.88	-115.0604077	60.9117248
1999	14.3	-24223.74	101561.93	-115.4464487	60.9107833
2000	3.0	5412.49	101515.66	-114.9002466	60.9110713
2001	3.0	13899.04	101508.84	-114.7438389	60.9108033
2002	6.1	-1097.00	101480.77	-115.0202178	60.9107935
2003	14.0	-46324.65	101446.98	-115.8537103	60.9077853
2004	15.2	-32199.22	101359.54	-115.5933976	60.9083995
2005	15.2	-30800.64	101336.33	-115.5676208	60.9083023

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2006	1.8	14757.50	101299.91	-114.7280335	60.9088973
2007	8.5	-59248.41	101271.16	-116.0917872	60.9044871
2008	21.0	-37672.02	101207.68	-115.6942189	60.9065545
2009	7.0	1617.78	101204.48	-114.9701865	60.9083122
2010	12.5	-17859.92	101176.29	-115.3291288	60.9076603
2011	12.5	-14916.56	101104.13	-115.2748825	60.9071343
2012	13.4	-45124.73	101068.15	-115.8315111	60.9045242
2013	4.0	3607.74	101029.03	-114.9335176	60.9067246
2014	11.9	-19143.84	101027.95	-115.3527741	60.9062691
2015	13.4	-38593.83	101000.88	-115.7111633	60.9046100
2016	13.1	-39938.44	100956.30	-115.7359289	60.9040768
2017	12.5	-41955.78	100910.82	-115.7730883	60.9034604
2018	1.2	-65407.88	100885.43	-116.2051345	60.9000580
2019	12.8	-38904.59	100874.48	-115.7168636	60.9034454
2020	11.6	-55662.46	100862.99	-116.0256015	60.9013442
2021	14.9	-38595.51	100846.13	-115.7111633	60.9032212
2022	14.3	-27038.93	100825.46	-115.4982280	60.9039921
2023	12.5	-42987.02	100822.27	-115.7920688	60.9025554
2024	13.4	-37579.04	100740.65	-115.6924146	60.9023723
2025	1.8	2508.36	100734.48	-114.9537804	60.9040897
2026	13.4	-36091.60	100721.69	-115.6650061	60.9023403
2027	14.3	-34514.91	100719.39	-115.6359563	60.9024600
2028	12.5	-40966.82	100715.18	-115.7548256	60.9018082
2029	11.0	-10535.92	100575.49	-115.1941279	60.9025308
2030	4.0	417.18	100534.03	-114.9923134	60.9022984
2031	3.4	-60111.90	100486.39	-116.1074518	60.8973156
2032	13.4	-36337.78	100481.85	-115.6694967	60.9001655
2033	3.4	-62432.21	100476.27	-116.1501874	60.8968663
2034	13.1	-48198.67	100415.84	-115.8879849	60.8983091
2035	13.1	-46835.75	100403.55	-115.8628751	60.8983621
2036	13.1	-45528.72	100394.52	-115.8387958	60.8984333
2037	13.1	-44493.80	100386.41	-115.8197290	60.8984780
2038	13.1	-49567.41	100377.35	-115.9131888	60.8977950
2039	12.8	-43779.47	100367.15	-115.8065656	60.8983846
2040	14.3	-33355.49	100353.79	-115.6145315	60.8992784
2041	1.5	-64135.69	100320.65	-116.1815123	60.8951982
2042	12.2	-42567.23	100311.02	-115.7842218	60.8980129
2043	14.6	-30087.18	100254.77	-115.5543046	60.8986511
2044	11.9	-39849.64	100243.34	-115.7341457	60.8976879
2045	11.0	-24355.51	100224.33	-115.4487084	60.8987714
2046	4.3	-5418.07	100188.05	-115.0998190	60.8991566
2047	11.9	-53328.49	100178.92	-115.9824150	60.8955267
2048	11.6	-17833.10	100093.66	-115.3285344	60.8979456
2049	8.5	-6969.00	100058.43	-115.1283876	60.8979692
2050	11.9	-38364.90	100038.84	-115.7067541	60.8959991
2051	12.2	-37207.97	100026.64	-115.6854404	60.8959999
2052	11.6	-19180.66	100008.91	-115.3533514	60.8971222
2053	12.5	-36233.60	99876.94	-115.6674639	60.8947467
2054	11.6	-41858.35	99742.70	-115.7710402	60.8929884

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2055	10.7	-13465.38	99717.86	-115.2480438	60.8947454
2056	11.0	-40584.68	99713.76	-115.7475748	60.8928611
2057	1.5	-102.96	99660.77	-115.0018966	60.8944616
2058	0.9	-3656.42	99591.95	-115.0673522	60.8938271
2059	12.8	-35081.14	99557.19	-115.6461777	60.8919809
2060	11.0	-39405.68	99469.93	-115.7258097	60.8907919
2061	11.3	-14831.79	99461.13	-115.2731943	60.8923927
2062	0.9	-62462.57	99425.34	-116.1504069	60.8874319
2063	13.1	-33484.49	99353.80	-115.6167347	60.8902936
2064	0.9	-60129.43	99352.69	-116.1074220	60.8871404
2065	10.4	-16217.47	99350.86	-115.2987082	60.8913488
2066	9.4	-21480.99	99317.77	-115.3956509	60.8908018
2067	8.8	-8995.87	99284.89	-115.1656919	60.8909863
2068	6.4	-2562.57	99249.62	-115.0471988	60.8907634
2069	11.6	-45032.43	99198.44	-115.8293747	60.8877569
2070	1.5	-4952.72	99195.21	-115.0912204	60.8902525
2071	11.6	-44030.71	99180.59	-115.8109236	60.8877091
2072	11.6	-46292.22	99133.14	-115.8525583	60.8870260
2073	10.7	-17831.84	99125.63	-115.3284220	60.8892582
2074	11.6	-47556.68	99095.87	-115.8758339	60.8865420
2075	13.4	-32170.67	99066.77	-115.5924897	60.8878265
2076	12.8	-28502.64	99059.96	-115.5249374	60.8880459
2077	11.6	-48783.08	99053.02	-115.8984064	60.8860086
2078	10.7	-38203.82	99050.41	-115.7035916	60.8871447
2079	9.1	-55284.91	99035.71	-116.0181234	60.8850007
2080	11.3	-37189.90	98996.80	-115.6849095	60.8867600
2081	8.8	-39751.70	98935.39	-115.7320725	60.8859605
2082	7.9	-11944.98	98885.77	-115.2199857	60.8873266
2083	10.7	-43078.97	98873.56	-115.7933285	60.8850585
2084	3.0	-1239.82	98856.68	-115.0228331	60.8872434
2085	10.7	-50726.54	98769.23	-115.9341186	60.8832184
2086	9.1	-41206.43	98755.63	-115.7588223	60.8841991
2087	11.3	-46524.14	98749.68	-115.8567368	60.8835579
2088	11.6	-35643.49	98661.87	-115.6563701	60.8838962
2089	0.9	-2301.17	98651.34	-115.0423770	60.8853959
2090	4.0	-59219.41	98647.20	-116.0904490	60.8809471
2091	10.7	-44330.38	98510.72	-115.8162884	60.8816646
2092	9.8	-37863.32	98507.12	-115.6972148	60.8823020
2093	10.7	-36596.22	98376.56	-115.6738593	60.8812493
2094	10.1	-45525.57	98340.37	-115.8382540	60.8800007
2095	7.9	-39010.28	98331.06	-115.7182977	60.8806110
2096	9.1	-42446.11	98324.00	-115.7815545	60.8801951
2097	10.7	-46929.95	98299.79	-115.8640999	60.8794730
2098	10.7	-48245.42	98253.00	-115.8883063	60.8788954
2099	10.7	-49585.90	98234.49	-115.9129798	60.8785642
2100	1.5	-5860.49	98206.76	-115.1079099	60.8813693
2101	5.2	-20544.97	98121.82	-115.3782840	60.8801186
2102	6.7	-40513.77	98121.42	-115.7459352	60.8785791
2103	9.8	-44674.62	98098.18	-115.8225313	60.8779241

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2104	2.7	-9858.82	98048.13	-115.1815231	60.8798665
2105	9.4	-23723.33	98028.05	-115.4367924	60.8790999
2106	11.0	-34727.52	97994.30	-115.6393839	60.8779867
2107	10.4	-26622.05	97985.65	-115.4901558	60.8785355
2108	0.9	-58830.60	97896.30	-116.0830626	60.8742671
2109	9.1	-53007.53	97892.98	-115.9758765	60.8750576
2110	8.8	-43892.24	97861.95	-115.8080744	60.8758916
2111	1.2	-3571.54	97859.79	-115.0657567	60.8782827
2112	6.7	-41662.02	97856.41	-115.7670177	60.8760822
2113	0.9	-8148.54	97853.17	-115.1500250	60.8781557
2114	8.5	-38004.47	97720.82	-115.6996593	60.8752324
2115	3.4	-39461.95	97701.27	-115.7264852	60.8749147
2116	11.3	-33636.38	97654.99	-115.6192367	60.8750358
2117	9.4	-36870.62	97520.79	-115.6787485	60.8735443
2118	2.4	-41079.93	97488.00	-115.7562239	60.8728368
2119	9.8	-46123.11	97473.45	-115.8490485	60.8721525
2120	6.7	-43058.72	97470.00	-115.7926433	60.8724656
2121	11.3	-32952.76	97447.98	-115.6066169	60.8732354
2122	9.1	-15108.89	97441.88	-115.2781405	60.8742607
2123	10.1	-48898.19	97435.09	-115.9001171	60.8714762
2124	0.6	-40483.26	97421.92	-115.7452273	60.8723051
2125	2.1	-38624.86	97380.45	-115.7110117	60.8721181
2126	4.3	-5363.48	97303.13	-115.0987333	60.8732668
2127	11.9	-39720.57	97298.73	-115.7311633	60.8712767
2128	4.0	-42100.75	97241.70	-115.7749606	60.8705197
2129	3.4	-7073.41	97230.59	-115.1302077	60.8725890
2130	5.2	-56083.44	97225.63	-116.0323020	60.8686468
2131	2.7	-57895.19	97216.34	-116.0656415	60.8683034
2132	0.6	-39354.68	97209.25	-115.7244104	60.8705101
2133	3.7	-10976.55	97199.48	-115.2020548	60.8722211
2134	11.3	-30750.49	97190.22	-115.5660372	60.8710989
2135	4.0	-43073.30	97167.66	-115.7928443	60.8697509
2136	1.5	-41474.50	97111.70	-115.7634062	60.8694190
2137	10.1	-35017.66	97105.68	-115.6445646	60.8699869
2138	8.5	-45012.30	97088.13	-115.8285130	60.8688222
2139	9.8	-48383.13	97003.98	-115.8905294	60.8676708
2140	9.8	-47404.59	96966.09	-115.8725115	60.8674487
2141	8.2	-18140.53	96953.47	-115.3339035	60.8697506
2142	9.8	-34356.21	96947.26	-115.6323622	60.8686230
2143	9.4	-49424.55	96915.56	-115.9096725	60.8667491
2144	3.7	-44163.70	96858.69	-115.8128427	60.8668586
2145	0.9	-42541.65	96827.85	-115.7829846	60.8667589
2146	7.6	-36842.80	96811.16	-115.6781015	60.8671787
2147	0.6	-38722.40	96794.44	-115.7126899	60.8668499
2148	2.7	-38382.20	96754.51	-115.7064211	60.8665246
2149	1.2	-9234.07	96679.77	-115.1699548	60.8676013
2150	0.3	-39740.02	96593.86	-115.7313766	60.8649494
2151	0.3	-43374.91	96538.48	-115.7982546	60.8640721
2152	7.3	-45855.16	96488.74	-115.8438834	60.8633472

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2153	4.3	-37582.47	96487.55	-115.6916515	60.8642055
2154	8.2	-35944.98	96469.23	-115.6615145	60.8641925
2155	1.2	-57302.77	96325.64	-116.0544756	60.8603971
2156	0.9	-44233.42	96262.16	-115.8139895	60.8614978
2157	4.3	-45077.76	96260.20	-115.8295251	60.8613853
2158	7.9	-34773.29	96248.38	-115.6399129	60.8623150
2159	6.7	-53564.68	96229.79	-115.9856722	60.8600587
2160	0.6	-11553.75	96211.50	-115.2126209	60.8633382
2161	3.7	-19512.66	96199.98	-115.3590832	60.8629235
2162	6.1	-13340.02	96183.44	-115.2454910	60.8630303
2163	0.9	-38482.40	96160.91	-115.7081472	60.8611880
2164	9.1	-26187.42	96158.48	-115.4819065	60.8621671
2165	5.8	-21648.40	96044.04	-115.3983680	60.8614134
2166	8.5	-48028.59	96028.34	-115.8837626	60.8589589
2167	7.3	-51186.86	96023.46	-115.9418683	60.8585207
2168	7.9	-46866.49	96021.15	-115.8623800	60.8590332
2169	8.2	-33884.48	95985.37	-115.6235118	60.8600315
2170	9.4	-31746.83	95921.19	-115.5841682	60.8596322
2171	1.8	-37858.81	95847.89	-115.6966117	60.8584390
2172	1.2	-43789.52	95834.49	-115.8057249	60.8577093
2173	0.6	-12373.26	95796.35	-115.2276755	60.8595877
2174	8.2	-33328.11	95772.36	-115.6132378	60.8581671
2175	4.6	-36682.57	95764.27	-115.6749544	60.8577989
2176	8.2	-49180.13	95712.52	-115.9048690	60.8559841
2177	1.2	-44394.04	95710.00	-115.8168185	60.8565250
2178	0.9	-56265.68	95677.69	-116.0352064	60.8547313
2179	3.4	-45885.47	95629.86	-115.8442377	60.8556365
2180	1.2	-45112.51	95620.01	-115.8300154	60.8556366
2181	3.7	-55019.57	95584.16	-116.0122569	60.8540666
2182	6.4	-35654.82	95438.47	-115.6559851	60.8549688
2183	2.7	-37378.58	95295.20	-115.6876694	60.8535246
2184	9.1	-28987.01	95295.13	-115.5332939	60.8542248
2185	6.7	-48412.62	95153.62	-115.8906097	60.8510630
2186	6.7	-34677.84	95118.41	-115.6379544	60.8521831
2187	6.7	-23872.10	95091.90	-115.4391696	60.8527412
2188	6.4	-49530.61	95045.84	-115.9111463	60.8499582
2189	4.3	-47671.72	95037.41	-115.8769531	60.8501098
2190	4.6	-52310.67	95002.61	-115.9622686	60.8492140
2191	7.0	-16002.06	95001.39	-115.2943812	60.8523239
2192	2.7	-46556.58	94949.47	-115.8564206	60.8494529
2193	0.6	-19549.16	94932.57	-115.3596271	60.8515476
2194	4.9	-36092.00	94930.52	-115.6639334	60.8503710
2195	3.0	-21252.77	94885.52	-115.3909608	60.8510379
2196	1.2	-54999.46	94819.92	-116.0116701	60.8472117
2197	1.8	-12893.05	94649.24	-115.2371636	60.8492766
2198	4.3	-17762.49	94648.56	-115.3267339	60.8490827
2199	0.9	-46589.32	94621.94	-115.8569441	60.8465099
2200	4.6	-14488.61	94615.09	-115.2665104	60.8489151
2201	6.1	-34942.82	94559.96	-115.6427282	60.8471483

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2202	2.7	-48493.02	94521.63	-115.8919307	60.8453822
2203	4.0	-49474.85	94508.72	-115.9099837	60.8451453
2204	0.3	-53219.05	94504.36	-115.9788393	60.8446225
2205	6.4	-34359.06	94481.34	-115.6319773	60.8464937
2206	1.2	-46999.00	94431.41	-115.8644324	60.8447520
2207	2.7	-50326.34	94317.98	-115.9255935	60.8433268
2208	1.2	-47721.15	94262.66	-115.8776716	60.8431517
2209	6.1	-33610.47	94194.70	-115.6181595	60.8439853
2210	0.9	-48450.56	94119.42	-115.8910493	60.8417781
2211	0.9	-51432.17	94099.64	-115.9458711	60.8412261
2212	0.6	-49202.86	93976.47	-115.9048467	60.8404030
2213	7.0	-31540.74	93966.25	-115.5800581	60.8421049
2214	1.5	-14087.23	93927.86	-115.2590774	60.8427620
2215	6.1	-32953.35	93914.30	-115.6060269	60.8415241
2216	4.3	-27643.65	93813.34	-115.5083690	60.8410227
2217	2.7	-16750.63	93803.00	-115.3080486	60.8415382
2218	1.5	-18040.83	93597.34	-115.3317561	60.8396360
2219	2.1	-19947.81	93511.78	-115.3668144	60.8387771
2220	1.2	-15752.15	93460.54	-115.2896586	60.8385056
2221	3.0	-23856.94	93200.43	-115.4386580	60.8357676
2222	4.3	-25497.03	93191.69	-115.4688122	60.8355874
2223	1.5	-22146.56	92922.69	-115.4071783	60.8333740
2224	1.2	-28198.38	92913.93	-115.5184394	60.8329123
2225	2.7	-30159.66	92796.60	-115.5544786	60.8317155
2226	1.8	-24345.68	92620.17	-115.4475714	60.8305306
2227	1.5	-25928.26	92388.62	-115.4766337	60.8283525

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