Name_____ Date_____ Per._____

Finding Epicenters

Materials:
--brain
--drawing compass
--world map (provided)
--regional maps (provided)
--earthquake data

Part I: Determining Epicenter Location
Below is a set of data for past earthquake activity. For each earthquake:
1. Locate the distance from each city to the earthquake.
2. Use the distance scale and your compass to draw a circle on the map representing that distance.
3. After drawing all three circles, label on the map the location of the epicenter. Using the lines of latitude and longitude, determine the latitude and longitude of the epicenter. Record this information below.

Part II: Where in the World is the Earthquake Located?
1. Using the latitude/longitude data from Part I, plot the location of the earthquakes on the world map (Map 4) provided.

Data For Map 1
10/29/2002 M 4.5 SOUTHERN CALIFORNIA Z = 6km

Lat: _____ Long: _____
Nearby Cities:
35 miles from Baker, California
45 miles from Barstow, California
160 miles from Bakersfield, California

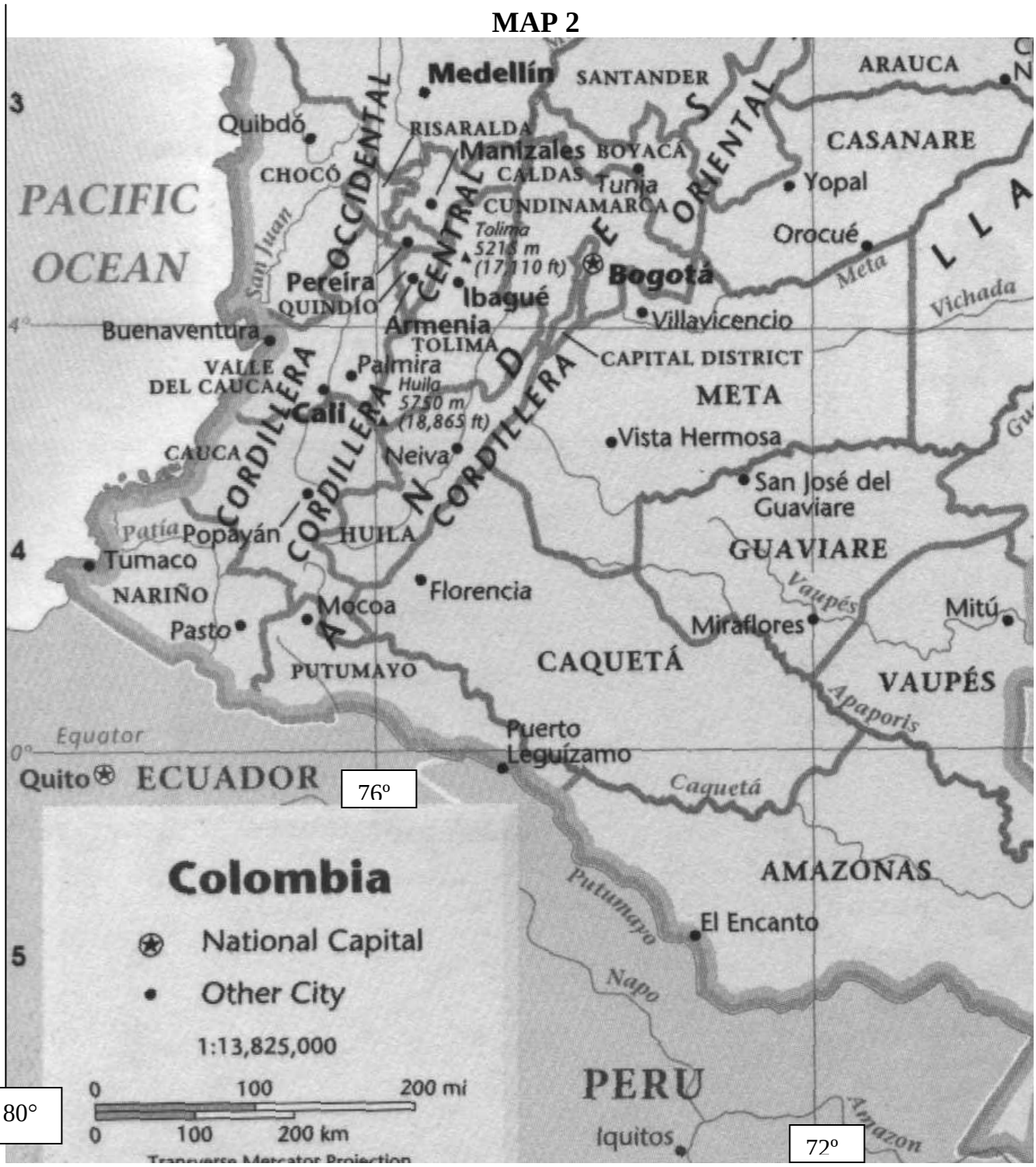
Data For Map 2
12/21/2002 M 5.5 PANAMA Z= 10km

Lat: _____ Long: _____
Nearby Cities
130 miles from Buenaventura, Colombia
135 miles from Tumaco, Colombia
335 miles from Bogota, Colombia

Data For Map 3
10/23/2002 M 6.7 CENTRAL ALASKA Z = 10 km

Lat: _____ Long: _____
Nearby Cities
85 miles from Fairbanks, Alaska
180 miles from Anchorage, Alaska
230 miles from Beaver Creek, Yukon Territory, Canada

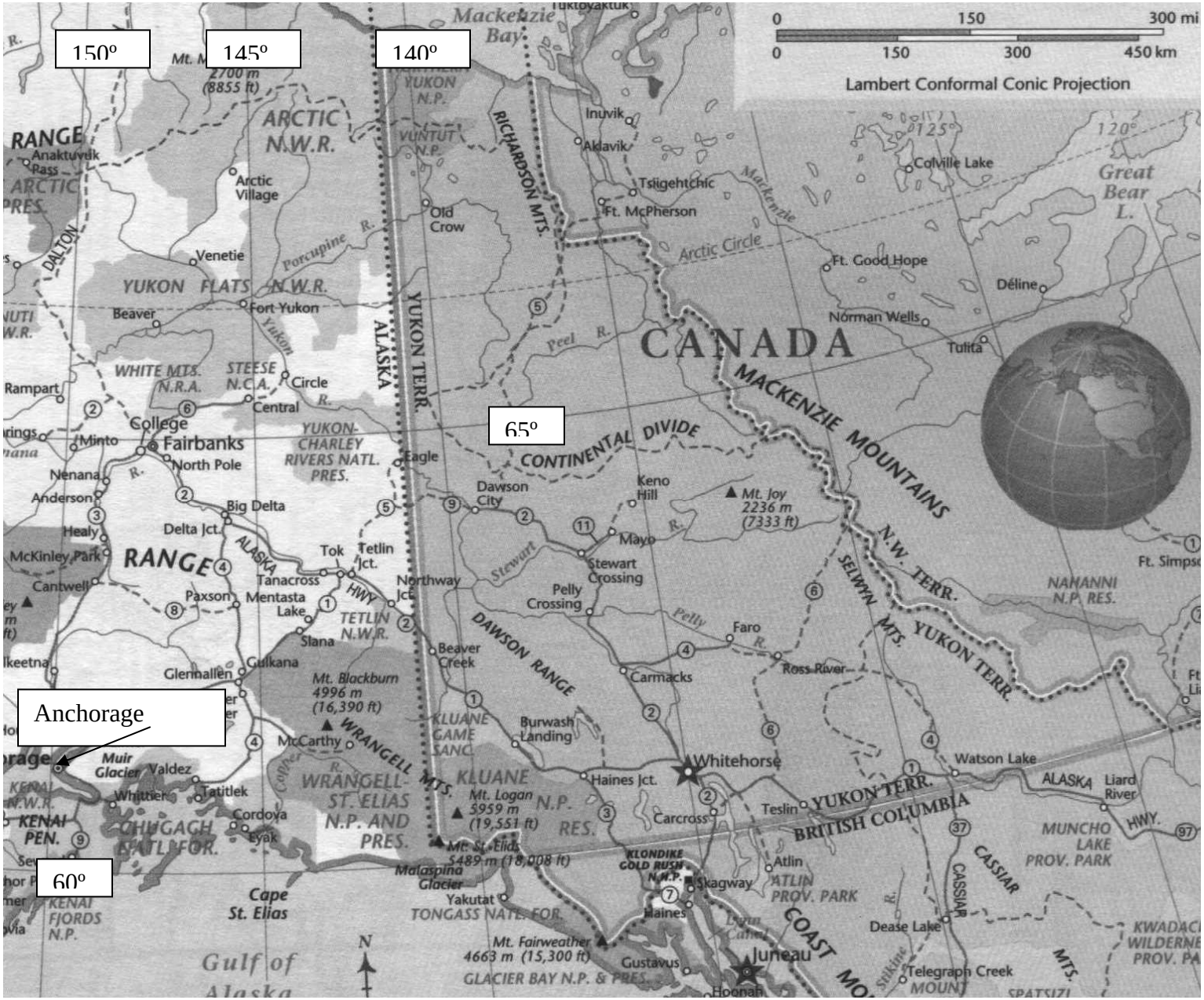
MAP 2


Medellín
SANTANDER
ARAUCA
Quibdó
RISARALDA
Manizales
BOYACÁ
CASANARE
CHOCÓ
CALDAS
Tunja
Yopal
PACIFIC
OCEAN
CUNDINAMARCA
Tolima
5215 m
(17,110 ft)
Orocué
Bogotá
Pereira
QUINDÍO
Ibagué
Meta
Vichada
Villavicencio
Buenaventura
Armenia
TOLIMA
CAPITAL DISTRICT
VALLE
DEL CAUCA
Palmira
Huila
5750 m
(18,865 ft)
META
Cali
Vista Hermosa
CAUCA
Neiva
San José del
Guaviare
Patía
Popayán
HUILA
GUAVIARE
Tumaco
Florencia
NARIÑO
Mocoa
Vaupés
Mitú
Pasto
Miraflores
CAQUETÁ
PUTUMAYO
VAUPÉS
Apaporis
Puerto
Leguízamo
Equator
Quito
ECUADOR
76º
Caquetá
Colombia
AMAZONAS
Putumayo
El Encanto
National Capital
Other City
1:13,825,000
Napo
0 100 200 mi
0 100 200 km
PERU
Iquitos
Amazon
80°
72º

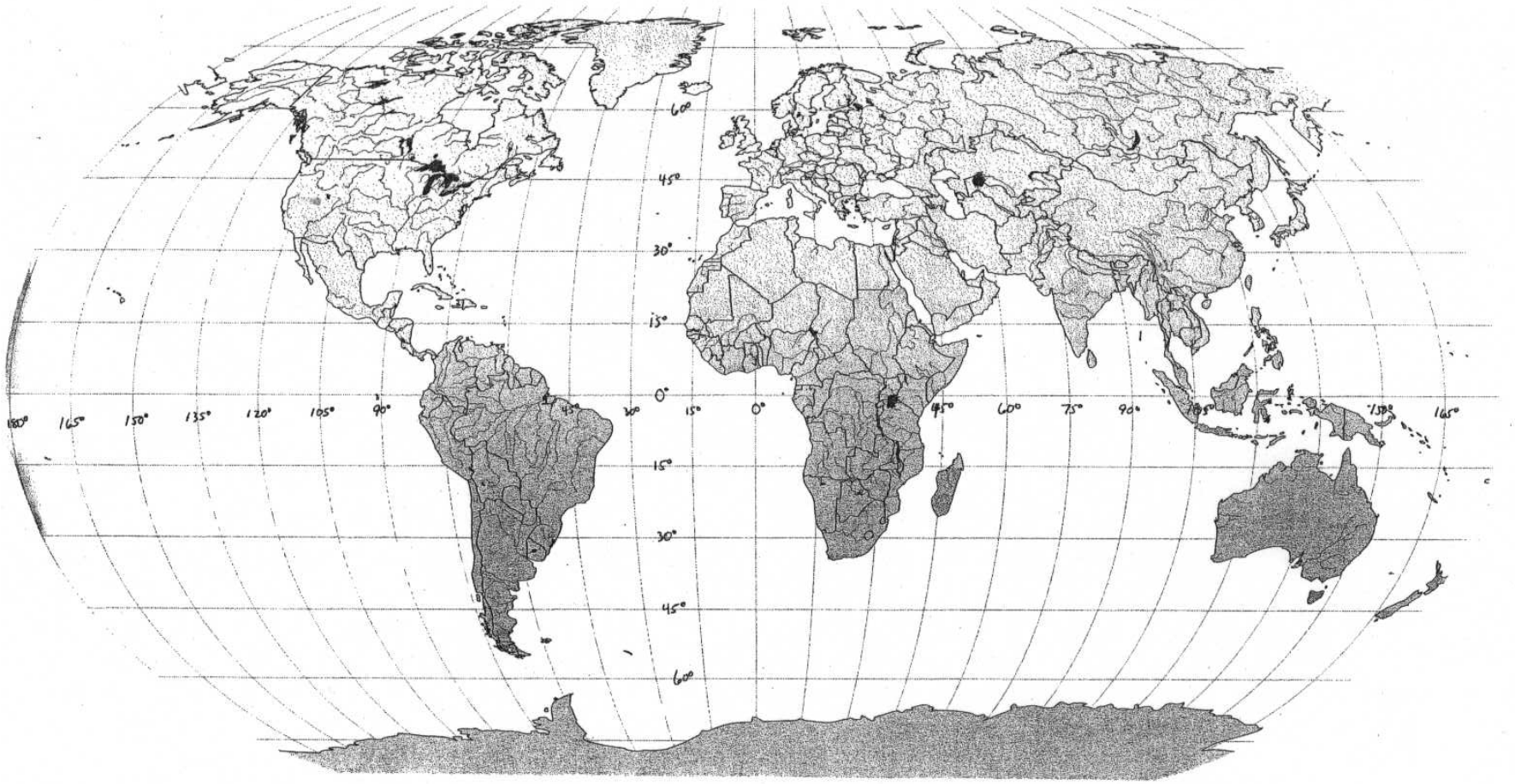
MAP 1

Oildale
Bakersfield
Isabella
SEQUOIA N.F.
CHINA LAKE NAVAL AIR WEAPONS STA.
FORT IRWIN NATL. TRAINING CENTER
Johannesburg
Cantil
Lamont
Loraine
Arvin
KERN
California City
MOJAVE DESERT
SAN BERNARDINO
Baker
Cima
LANFAIR VALLEY
Tehachapi
Lakeview
TEHACHAPI MTS.
Mojave
North Edwards
Kelso
MOJAVE NATL. PRES.
DEVILS PLAYGROUND
Frazier Park
Rosamond
EDWARDS A.F.B.
Boron
Barstow
Mojave R.
Gorman
Lancaster
Quartz Hill
Hi Vista
Adelanto
Victorville
Newberry Springs
Ludlow
Amboy
Essex
OLD WOMAN MTS.
Palmdale
Littlerock
Apple Valley
Hesperia
BULLION MTS.
TWENTYNINE PALMS MARINE CORPS AIR GROUND COMBAT CENTER
Santa Clarita
LOS ANGELES
Wrightwood
SAN BERNARDINO MTS.
Santa Paula
Simi Valley
SAN GABRIEL MTS.
ANGELES N.F.
Crestline
Big Bear Lake
Joshua Tree
Twentynine Palms
Glendale
Pasadena
San Bernardino
Ontario
Redlands
Yucca Valley
JOSHUA TREE NATL. PARK
Los Angeles
Pomona
Yucaipa
Morongo Valley
Desert Hot Springs
Eagle Mountain
Inglewood
Anaheim
Riverside
Moreno Valley
Palm Springs
Torrance
ORANGE
Cathedral City
Desert Center
Long Beach
Santa Ana
Hemet
Indio
Huntington Beach
Irvine
215
SAN BERNARDINO N.F.
Coachella
10
Newport Beach
Temecula
Palm Desert
Mecca
RIVERSIDE
Santa Barbara I.
San Juan Capistrano
SANTA ROSA AND SAN JACINTO MTS. NATL. MON.
Bombay Beach
CHOCOLATE MOUNTAINS GUNNERY RANGE
San Clemente
Fallbrook
CLEVELAND N.F.
COLORADO DESERT
Borrego Springs
Niland
Avalon
CAMP PENDLETON MARINE CORPS BASE
SAN DIEGO
Vista
Escondido
Santa Catalina I.
Oceanside
Julian
Calipatria
ISLANDS
Carlsbad
Ramona
IMPERIAL VALLEY
Encinitas
Poway
Westmorland
Brawley
U.S. NAVAL RES.
Del Mar
Lakeside
El Centro
Pine Valley
Seeley
Holtville
El Cajon
Alpine
San Diego
CLEVELAND N.F.
CALIF.
Calexico
San Clemente I.
Chula Vista
U.S.
Campo
BAJA CALIF.
Imperial Beach
Tijuana
MEX.
Mexicali
119°
118°
117°
116°
33°
32°
31°
California
State Capital
County Seat
Limited Acce
Other Major
1:5,273,000
0
50
100 mi
0
50
100
150 km
Albers Equal Area Projection

MAP 3


150º
145º
140º
65º
60º
Anchorage
0 150 300 mi
0 150 300 450 km
Lambert Conformal Conic Projection
CANADA
ALASKA
YUKON TERR.
N.W. TERR.
BRITISH COLUMBIA
MACKENZIE MOUNTAINS
CONTINENTAL DIVIDE
RICHARDSON MTS.
SELWYN MTS.
DAWSON RANGE
WRANGELL MTS.
ALASKA RANGE
Mackenzie Bay
Arctic Circle
Mackenzie R.
Porcupine R.
Yukon R.
Peel R.
Stewart R.
Pelly R.
Copper R.
Stikine R.
Inuvik
Aklavik
Tsiigehtchic
Ft. McPherson
Old Crow
Arctic Village
Venetie
Fort Yukon
Beaver
Rampart
Circle
Central
College
Fairbanks
North Pole
Minto
Nenana
Anderson
Healy
McKinley Park
Cantwell
Big Delta
Delta Jct.
Tok
Tetlin Jct.
Tanacross
Paxson
Mentasta Lake
Slana
Northway Jct.
Eagle
Dawson City
Keno Hill
Mt. Joy 2236 m (7333 ft)
Mayo
Stewart Crossing
Pelly Crossing
Faro
Ross River
Carmacks
Beaver Creek
Burwash Landing
Glennallen
Gulkana
Mt. Blackburn 4996 m (16,390 ft)
McCarthy
Muir Glacier
Valdez
Whittier
Tatitlek
Cordova
Eyak
Chugach Natl. For.
Kenai Pen.
Kenai Fjords N.P.
Cape St. Elias
Gulf of Alaska
Wrangell-St. Elias N.P. and Pres.
Kluane N.P. Res.
Kluane Game Sanc.
Mt. Logan 5959 m (19,551 ft)
Mt. St. Elias 5489 m (18,008 ft)
Malaspina Glacier
Yakutat
Tongass Natl. For.
Mt. Fairweather 4663 m (15,300 ft)
Glacier Bay N.P. & Pres.
Gustavus
Juneau
Haines
Skagway
Klondike Gold Rush N.P.
Whitehorse
Haines Jct.
Carcross
Teslin
Atlin
Atlin Prov. Park
Watson Lake
Liard River
Muncho Lake Prov. Park
Dease Lake
Telegraph Creek
Cassiar
Cassiar Mts.
Colville Lake
Great Bear L.
Ft. Good Hope
Déline
Norman Wells
Tulita
Nahanni N.P. Res.
Ft. Simpson
Yukon Flats N.W.R.
White Mts. N.R.A.
Steese N.C.A.
Yukon-Charley Rivers Natl. Pres.
Arctic N.W.R.
Yukon N.P.
Vuntut N.P.
Dalton
Arctic Pres.
Alaska Hwy.
Tetlin N.W.R.
N

MAP 4


60°
45°
30°
15°
0°
15°
30°
45°
60°
180°
165°
150°
135°
120°
105°
90°
30°
15°
0°
45°
60°
75°
90°
165°