

File 89, GeoRef: Geographic Coordinates Fields

Support : Dialog Search Aids : File 89 Geographic Coordinates Fields

Since September 1977, coordinates of latitude and longitude have been assigned to some records to define geographic areas discussed in a document. The geographic coordinates permit searching of quadrangular geographic areas. Geographic coordinates are searchable with two types of prefixes. Searching with the boundary-defining prefixes (N1=, N2=, S1=, S2=, E1=, E2=, W1=, W2=) allows specification of the precise boundaries of a quadrangle. Searching with the intermediate prefixes (LN=, LS=, LE=, LW=) permits retrieval of a specific quadrangle, even when it is contained inside a larger area.

For some geographic terms from GeoRef's controlled vocabulary, coordinates of latitude and longitude are listed in the GeoRef Thesaurus and in the online thesaurus. For other geographic areas, coordinates are assigned according to information given in the document or are derived from an atlas. Coordinates are assigned at the discretion of an indexer and are not automatically added when a geographic descriptor is assigned. Therefore, for the most comprehensive retrieval, search geographic terms as well as coordinates. The following example shows that only 34 records have been indexed with the exact coordinates for the Gulf of Alaska, while many records are indexed with the Descriptor "Gulf of Alaska":

```
?SELECT N1=N54(S)N2=N61(S)W1=W135(S)W2=W163
      S1      34  N1=N54(S)N2=N61(S)W1=W135(S)W2=W163
```

```
?SELECT GULF OF ALASKA/DE
      S2      1145  GULF OF ALASKA/DE  (N5400-N6115
      W13500-W16300)
```

```
?TYPE S2/TI,DE,LL
```

```
2/TI,DE,LL/1
```

```
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```
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```

Title: Evolution of deglacial North Pacific abyssal circulation based on Delta (super 14) C, delta (super 13) C (sub benthic) and (super 231) Pa/ (super 230) Th

Monograph Title: Abstracts of the 18th annual V. M. Goldschmidt conference

Coordinates: Latitude: N502148 ; N502148 ; Longitude: E1673600 ; E1673600

Descriptors: actinides; benthic environment; C-13/C-12; C-14/C-12; carbon; Cenozoic; deep-sea environment; deglaciation; East Pacific; Emperor Seamounts; glacial environment; glaciomarine environment; **Gulf of Alaska**; isotope ratios; isotopes; last glacial maximum; Leg 145; marine environment ; metals; North Pacific; Northeast Pacific; Northwest Pacific; Ocean Drilling Program; ODP Site 882; ODP Site 887; Pa-231/Th-230; Pacific Ocean; paleo-oceanography; paleocirculation; Pleistocene; protactinium; Quaternary ; radioactive isotopes; stable isotopes; subarctic regions; thorium; upper Pleistocene; West Pacific

Research Program Descriptors: ODP -- Ocean Drilling Program

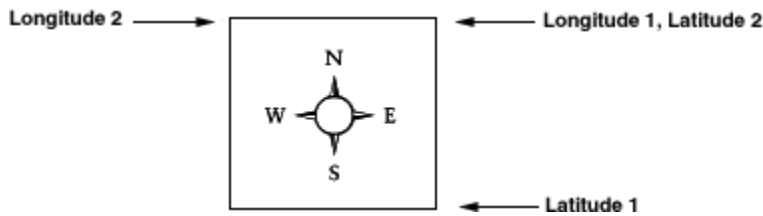
Use the (S) operator to link coordinates in the SELECT statement in order to specify that they belong in the same set of coordinates for a single area. Note that although the Descriptor field includes several geographic terms, only one set of coordinates (those for the specific area discussed in the document) is assigned. Searching by coordinates is the most useful when the area of interest is not equivalent to an area that can be defined by a specific geographic name that would be in the Descriptor field. Geographic coordinates are displayable by the individual display codes and also by using the LL display code.

Latitude. Latitude indicates the number of degrees north or south of the equator (0 degrees). Latitude is indicated by a character string of seven characters: a letter N or S to indicate direction (i.e., north or south of the equator) and a six-digit number indicating the number of degrees, minutes, and seconds. Latitude

coordinates are also cascaded to the full degree (i.e., first two digits): N451430 is North, 45 degrees, 14 minutes, 30 seconds; it is also cascaded to N45.

Longitude. Longitude indicates the number of degrees east or west of the prime meridian (0 degrees). Longitude is indicated by a character string of eight characters: a letter E or W to indicate direction (i.e., east or west of the prime meridian) and a seven-digit number indicating the number of degrees, minutes, and seconds. Longitude coordinates are also cascaded to the full degree (i.e., first three digits): W1211752 is West, 121 degrees, 17 minutes, 52 seconds; it is also cascaded to W121.

Latitude and longitude define a quadrangle. Quadrangular geographic areas are defined by two coordinates of latitude and two coordinates of longitude. Coordinates are specified in order, starting from the southeastern-most point of the quadrangle (i.e., the lower right corner of the quadrangle). At the southeastern corner, Latitude 1 is specified. Moving north to the northeastern corner, Latitude 2 and Longitude 1 are specified. Moving west to the northwestern corner, Longitude 2 is specified. The figure below illustrates the points at which latitude and longitude coordinates are assigned:



Boundary-defining coordinates and intermediate coordinates. A quadrangle is assigned two sets of coordinates. Boundary-defining coordinates identify the four boundaries of a quadrangle. Intermediate coordinates identify boundaries of a quadrangle and every full degree between boundaries. One set of prefixes is used to search the boundary-defining coordinates and another set of prefixes is used to search the intermediate coordinates:

Boundary-defining Prefixes Intermediate Prefixes

N1= Latitude one, North
 N2= Latitude two, North
 S1= Latitude one, South
 S2= Latitude two, South
 E1= Longitude one, East
 E2= Longitude two, East
 W1= Longitude one, West
 W2= Longitude two, West

LN= Latitude, North
 LS= Latitude, South
 LE= Longitude, East
 LW= Longitude, West

The following figure shows the two sets of coordinates assigned to a particular quadrangle. All records with this quadrangle are retrieved when any one of the coordinates shown is selected:



Coordinates: Latitude N370000; N420000; Longitude W1210000; W1250000

Search examples using geographic coordinates. The following searches use coordinates that define a quadrangle encompassing the Gulf of Alaska to illustrate how retrieval can be broadened or narrowed,

depending upon which prefixes and search techniques are used. The coordinates defining this quadrangle are: Latitude: N540000; N611500; Longitude: W1350000; W1630000.

Searching a quadrangle with precise boundaries. Searching with boundary-defining prefixes provides the most narrow, precise retrieval. Use N1= or S1= to specify Latitude 1; N2= or S2= to specify Latitude 2; E1= or W1= to specify Longitude 1; and E2= or W2= to specify Longitude 2. Use the (S) operator to link the four boundary-defining prefixes. Retrieval includes only areas whose exact boundaries are indexed by the coordinates that are selected. Larger areas that may contain the defined area are NOT retrieved:

```
?SELECT N1=N54(S)N2=N61(S)W1=W135(S)W2=W163
      S3      34 N1=N54(S)N2=N61(S)W1=W135(S)W2=W163
```

```
?TYPE S3/TI,LL
```

```
3/TI,LL/1
```

```
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```

```
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```

Title: Controls on glacial-marine accumulation rates in the Yakataga Formation, Gulf of Alaska

Monograph Title: Rates of geologic processes; tectonics, sedimentation, eustasy and climate; implications for hydrocarbon exploration; papers presented at the Gulf Coast Section Society of Economic Paleontologists and Mineralogists Foundation Fourteenth annual research conference

Coordinates: Latitude: N540000 ; N611500 ; Longitude: W1350000 ; W1630000

Searching quadrangles with a range of boundary possibilities. This type of search will not retrieve areas with boundary values larger or smaller than the specified values, nor will it retrieve areas that encompass, overlap, or share a boundary with the defined areas. This strategy retrieves quadrangles that have a bottom boundary between N50 and N55, a top boundary between N60 and N65, a right boundary between W130 and W135, and a left boundary between W160 and W165:

```
?S N1=N50:N55(S)N2=N60:N65(S)W1=W130:W135(S)W2=W160:W165
      S4      49 N1=N50:N55(S)N2=N60:N65(S)W1=W130:W135
              (S)W2=W1-60:W165
```

```
?TYPE S4/TI,LL
```

```
4/TI,LL
```

```
DIALOG(R)File 89: GeoRef
```

```
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```

Title: Controls on glacial-marine accumulation rates in the Yakataga Formation, Gulf of Alaska

Monograph Title: Rates of geologic processes; tectonics, sedimentation, eustasy and climate; implications for hydrocarbon exploration; papers presented at the Gulf Coast Section Society of Economic Paleontologists and Mineralogists Foundation Fourteenth annual research conference

Coordinates: Latitude: N540000 ; N611500 ; Longitude: W1350000 ; W1630000

Searching a quadrangle and all quadrangles that contain it. Intermediate coordinates may identify either boundaries or points within a quadrangle. Use LN= or LS= to specify Latitude 1 and Latitude 2. Use LE= or LW= to specify Longitude 1 and Longitude 2. Use the (S) operator to link the four intermediate coordinates. When intermediate coordinates are used to define an area, retrieval includes all quadrangles

that encompass the four coordinates specified. The defined quadrangle is retrieved even when it lies inside a larger area, as shown in the following example:

```
?SELECT LN=N54(S)LN=N61(S)LW=W135(S)LW=W163
      S5      1778 LN=N54(S)LN=N61(S)LW=W135(S)LW=W163

?TYPE S5/TI,LL/1,2

5/TI,LL/1
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Title: Postseismic deformation and interseismic models; examples from recent large earthquakes

Monograph Title: AUG 2005 fall meeting
Coordinates: Latitude: N510000 ; N720000 ; Longitude: W1300000 ; E1730000

5/TI,LL/2
DIALOG(R)File 89: GeoRef
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Title: 3D radial and azimuthal anisotropic structure of the North American upper mantle

Monograph Title: AUG 2006 fall meeting
Coordinates: Latitude: N080000 ; N840000 ; Longitude: W0100000 ; W1730000
```

Item 1 specifies the precise area defined by the search (Gulf of Alaska); while item 2 specify larger areas that encompass the Gulf of Alaska (Alaska, Canada, and North America).

Broadest retrieval. This example illustrates the most general type of search using geographic coordinates. Intermediate coordinates are used to specify a range of values for latitude and a range for longitude. Retrieved quadrangles must include at least one value from the specified latitude range and one from the longitude range. Thus, search results include the area defined by the coordinates selected, as well as all larger quadrangles that contain the defined area, quadrangles that overlap the defined area by at least one point, or quadrangles that share a boundary with the defined area.

```
?SELECT LN=N54:N61(S)LW=W135:W163
      S6      8199 LN=N54:N61(S)LW=W135:W163

?TYPE S6/TI,LL
Retrieved area matches coordinates selected
6/TI,LL/1
Title: Palaeobathymetry on the continental shelf based on examples using ostracods from the Gulf of Alaska Monograph Title: Ostracoda in the earth sciences
Coordinates: Latitude: N540000; N611500; Longitude: W1350000; W1630000

Retrieved quadrangle is larger than the defined area and contains the defined area
6/TI,LL/2
Monograph Title: Principal mineral areas of Canada Coordinates: Latitude: N400000; N840000; Longitude: W0520000; W1640000

Retrieved quadrangle overlaps the defined area
6/TI,LL/3
Title: Pb, Sr, and Nd isotopes in seamount basalts from the Juan de Fuca Ridge and Kodiak-Bowie seamount chain, Northeast Pacific
```

Coordinates: Latitude: N410000; N580000; Longitude: W1250000; W1500000

Retrieved quadrangle overlaps defined area at one point only

6/TI,LL/4

Title: Detailed heat flow measurements over the Juan de Fuca Ridge system

Coordinates: Latitude: N480000; N540000; Longitude: W1260000; W1350000

Retrieved area has one shared boundary with defined quadrangle

6/TI,LL/5

Title: The distribution of dissolved copper in the Pacific

Coordinates: Latitude: N100000; N540000; Longitude:; W1390000 W1790000

Area that crosses the prime meridian. This example shows a search using the intermediate coordinates to search an area in the North Sea that includes longitude coordinates east and west of the prime meridian:

```
?SELECT LN=N51(S)LN=N61(S)LE=E011(S)LW=W004
      S7      1128 LN=N51(S)LN=N61(S)LE=E011(S)LW=W004
```

```
?TYPE S7/TI,DE,LL
```

```
7/TI,DE,LL/1
```

```
DIALOG(R)File 89: GeoRef
```

```
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```

Title: The origin of the 1500-year climate cycles in Holocene; North-Atlantic records

Coordinates: Latitude: N150000 ; N750000 ; Longitude: E0200000 ; W0800000

Descriptors: analysis; Atlantic Ocean; atmospheric transport; Cenozoic; clastic sediments; climate change; climate forcing; cycles; dust; glacial extent; glacial geology; Holocene; ice cores; ice movement; mathematical methods; North Atlantic; ocean circulation; oscillations; Quaternary; sediments; solar cycles; solar forcing; statistical analysis; time series analysis; wavelets

Note that using the intermediate coordinates retrieves the defined area and all larger quadrangles that contain the defined area.

The following search shows an example of using the boundary-defining prefixes to search an area that crosses the prime meridian. Longitude 1 is east of the prime meridian and Longitude 2 is west. Search results include only quadrangles with boundaries that fall within the range of values specified in the SELECT statement:

```
?SELECT N1=N50:N55(S)N2=N60:N65(S)E1=E008:E010(S)W2=W005:W015
      S8      30 N1=N50:N55(S)N2=N60:N65(S)E1=E008:E010(S)W2=W005:W015
```

```
?TYPE S8/TI,DE,LL
```

```
8/TI,DE,LL/1
```

```
DIALOG(R)File 89: GeoRef
```

```
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```

Title: Observed increases in offshore pile driving resistance

Coordinates: Latitude: N550000 ; N620000 ; Longitude: E0100000 ; W0050000

Descriptors: Atlantic Ocean; clastic sediments; clay; correlation; depth; layered materials; North Atlantic; North Sea; overconsolidated materials; penetration; piles; sand; sediments; shear strength; soil mechanics; steel piles; stiffness

Areas that cross the equator. This example uses the coordinates for Brazil to illustrate searching an area that crosses the equator. Latitude 1 is in the Southern Hemisphere; Latitude 2 is in the Northern Hemisphere. Intermediate coordinates retrieve the defined area and all areas that may contain the defined area:

```
?SELECT LS=S34(S)LN=N05(S)LW=W034(S)LW=W074
      S9      546 LS=S34(S)LN=N05(S)LW=W034(S)LW=W074
```

```
?TYPE S9/TI,DE,LL
```

```
9/TI,DE,LL/1
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```

Title: An overview of the tectonic organization and evolution of the Precambrian in Brazil

Monograph Title: GAC-MAC annual meeting; abstracts--AGC-AMC congres annuel; resumes

Coordinates: Latitude: S340000 ; N051500 ; Longitude: W0340000 ; W0740000

Descriptors: Brazil; Neoproterozoic; plate collision; plate tectonics; Precambrian; Proterozoic; review; South America; tectonic belts; tectonics; upper Precambrian

The following search again uses the coordinates for Brazil to illustrate searching an area that crosses the equator. Latitude 1 is in the Southern Hemisphere; Latitude 2 is in the Northern Hemisphere. Boundary-defining prefixes retrieve only areas with boundaries that match the coordinates specified in the SELECT statement:

```
?S S1=S34(S)N2=N05(S)W1=W034(S)W2=W074
      S10      255 S1=S34(S)N2=N05(S)W1=W034(S)W2=W074
```

```
?TYPE S10/TI,DE,LL
```

```
10/TI,DE,LL/1
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```

Title: Statistical assessment of unidirectional propagation of a leachate contamination plume

Coordinates: Latitude: S340000 ; N051500 ; Longitude: W0340000 ; W0740000

Descriptors: Brazil; chlorides; concentration; contaminant plumes; damage; drainage; experimental studies; field studies; ground water; halides; hydrodynamics; ions; laboratory studies; landfills; leachate; measurement; monitoring; municipal waste; pollution; sanitary landfills; Sao Pedro da Aldeia Brazil; soil profiles; South America; statistical analysis; tracers; waste disposal

Areas that cross the International Date Line (180 degrees east and west). This example uses the coordinates for the Aleutian Islands to illustrate searching for an area that crosses hemispheres at the International Date Line.

```
?S LN=N51(S)LN=N55(S)LW=W161(S)LE=E172
      S11      1003 LN=N51(S)LN=N55(S)LW=W161(S)LE=E172
```

```
?TYPE S11/TI,DE,LL
```

```
      11/TI,DE,LL/1
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```

Title: Aleutian primitive andesites; from the mantle, but how?

Monograph Title: Abstracts of the 18th annual V. M. Goldschmidt conference
Coordinates: Latitude: N510000 ; N553000 ; Longitude: W1610000 ; E1720000
Descriptors: Alaska; Aleutian Islands; andesites; chemical ratios; geochemistry; igneous rocks; magmas; mantle; Southwestern Alaska; United States; volcanic rocks

```
      11/TI,DE,LL/2
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```

Title: Propagation of short, dispersive tsunami waves in ocean basins

Monograph Title: AUG 2004 fall meeting
Coordinates: Latitude: N510000 ; N553000 ; Longitude: W1610000 ; E1720000
Descriptors: Alaska; Aleutian Islands; Boussinesq equation; elastic waves; failures; guided waves; ocean basins; ocean waves; propagation; seismic waves; Southwestern Alaska; surface waves; tsunamis; Ugamak Slide; United States

Note that using intermediate coordinates retrieve the defined area and all larger areas that contain it.

The next example uses coordinates for the Aleutian Islands to retrieve a defined quadrangle that crosses hemispheres at 180 degrees east and west. Search results include only quadrangles that match the coordinates specified in the SELECT statement:

```
?SELECT N1=N51(S)N2=N55(S)W1=W161(S)E2=E172
      S12      132 N1=N51(S)N2=N55(S)W1=W161(S)E2=E172
```

```
?TYPE S12/TI,DE,LL
```

```
      12/TI,DE,LL
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```

Title: Aleutian primitive andesites; from the mantle, but how?

Monograph Title: Abstracts of the 18th annual V. M. Goldschmidt conference
Coordinates: Latitude: N510000 ; N553000 ; Longitude: W1610000 ; E1720000
Descriptors: Alaska; Aleutian Islands; andesites; chemical ratios; geochemistry; igneous rocks; magmas; mantle; Southwestern Alaska; United States; volcanic rocks

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 Within North America 1 800 3 DIALOG (334 2564)
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 Email: Customer@dialog.com

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