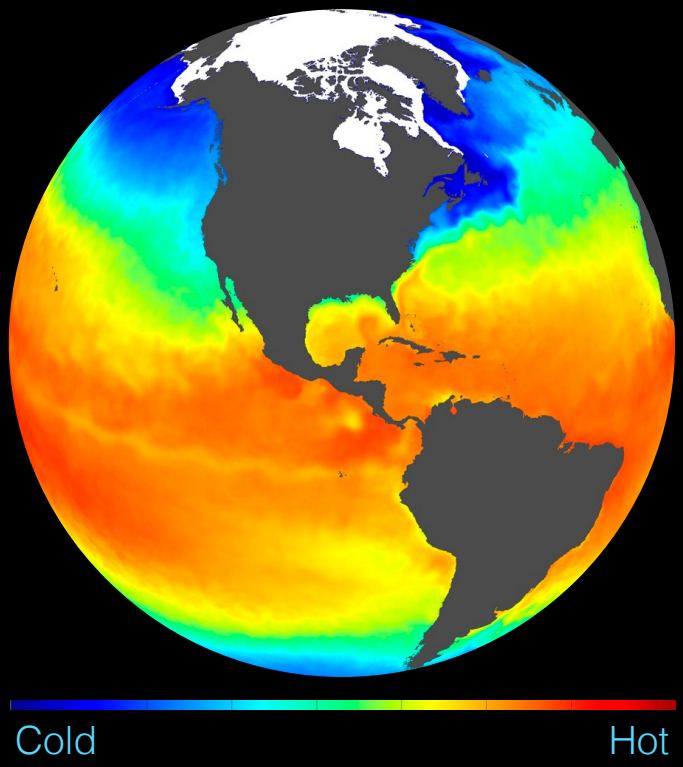
Field Maps and Isolines

What are the different types of field maps?

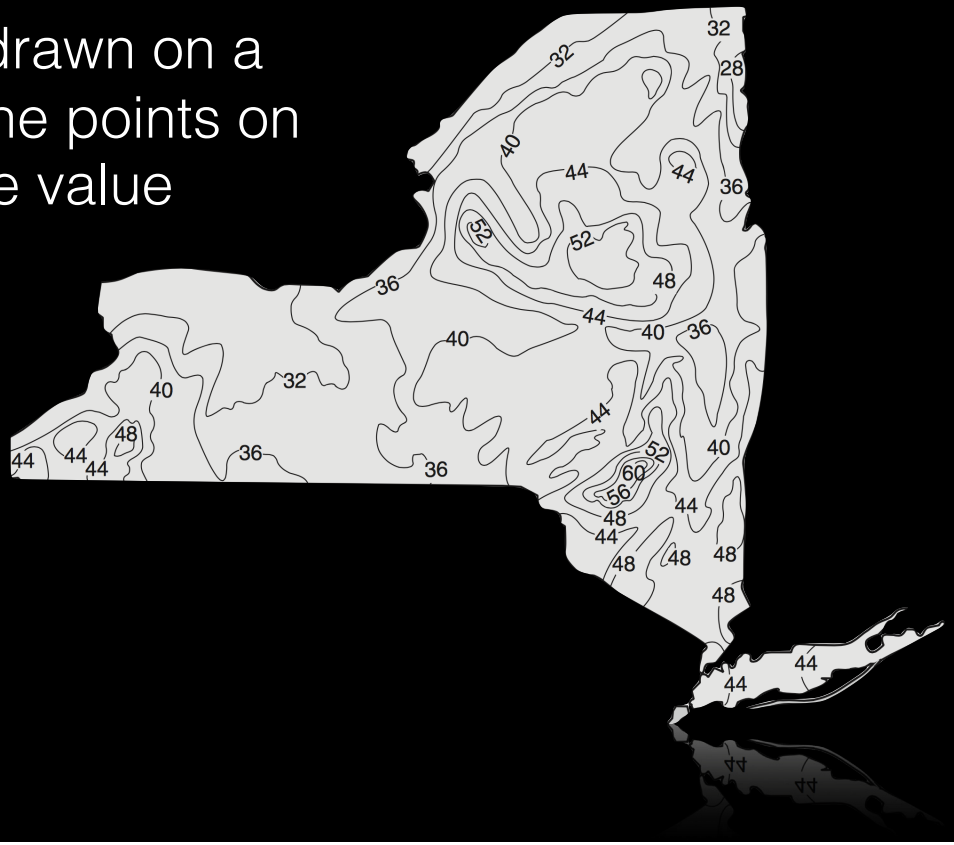
Field Maps and Isolines

- Field - a region with a measurable quantity at every location
    - Example: ocean temperature



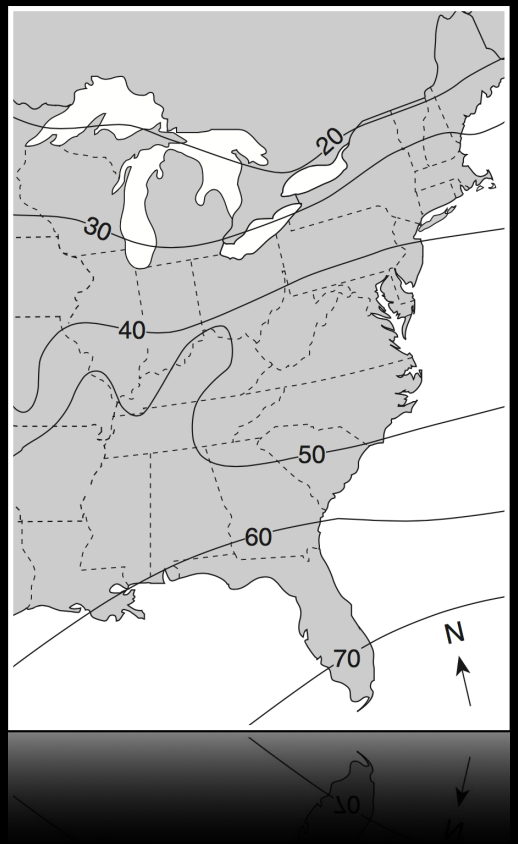
Field Maps and Isolines

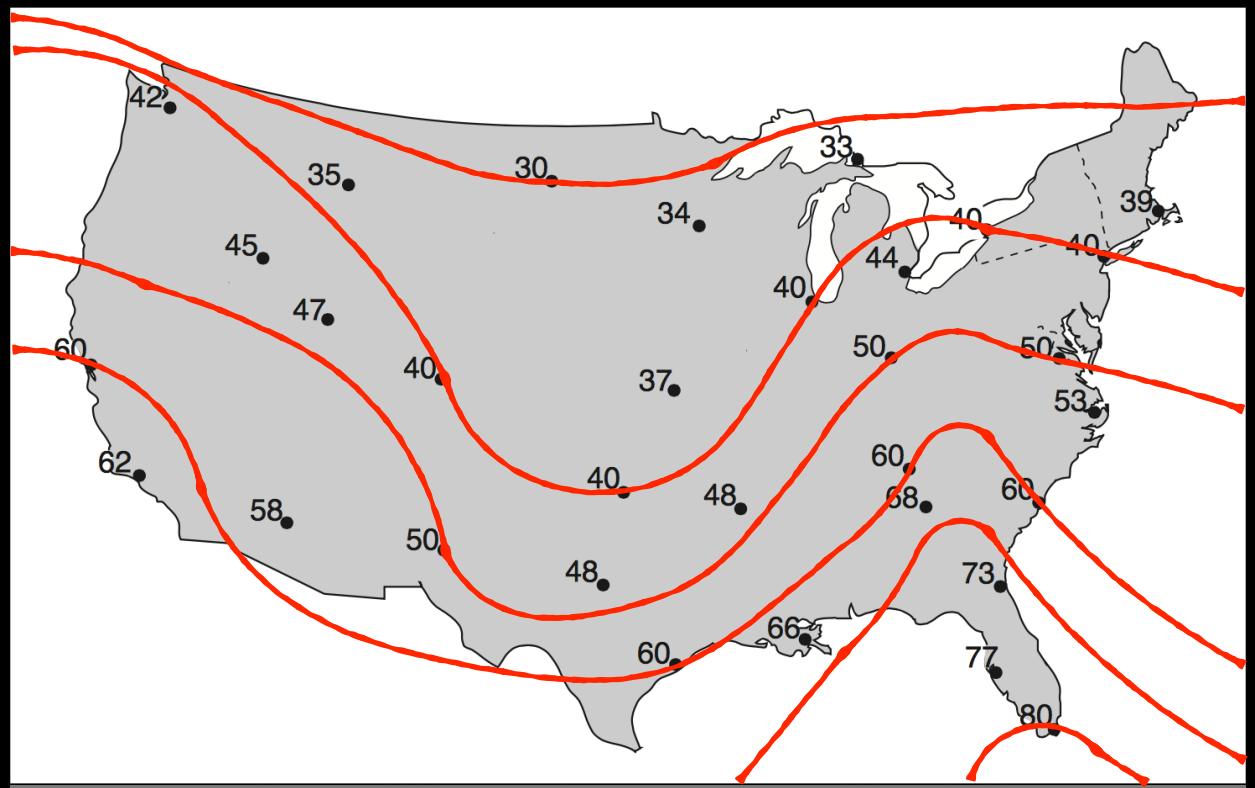
- Isolines - are lines that are drawn on a field map to connect all of the points on that map that have the same value
    - Example: precipitation amounts in inches



Field Maps and Isolines

- Points represent values of data found at a specific location
- To construct a field map connect the points of equal data
    - Do not connect every value… just whole numbers
    - Isolines form complete circles or end at the edge of the map

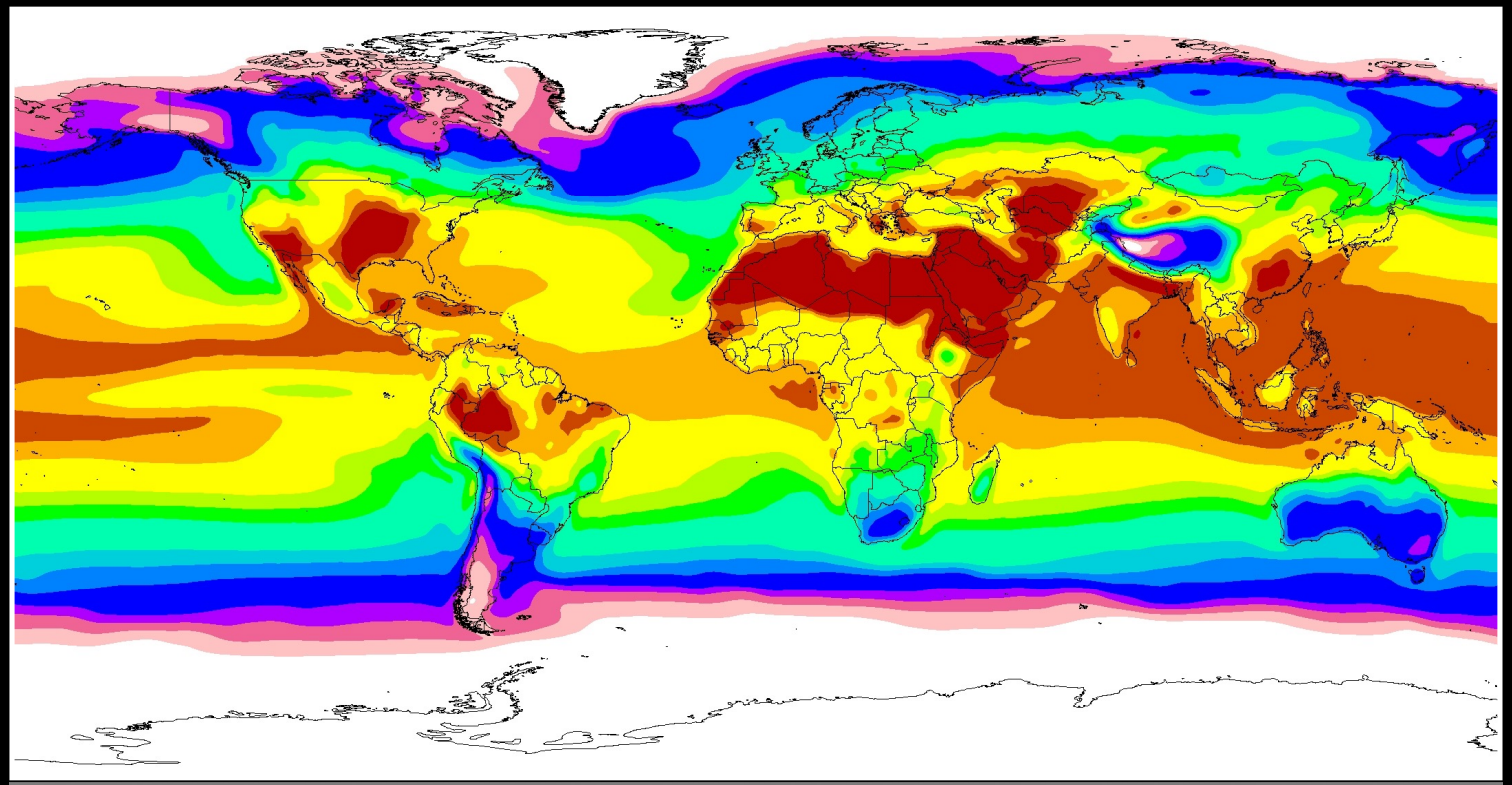




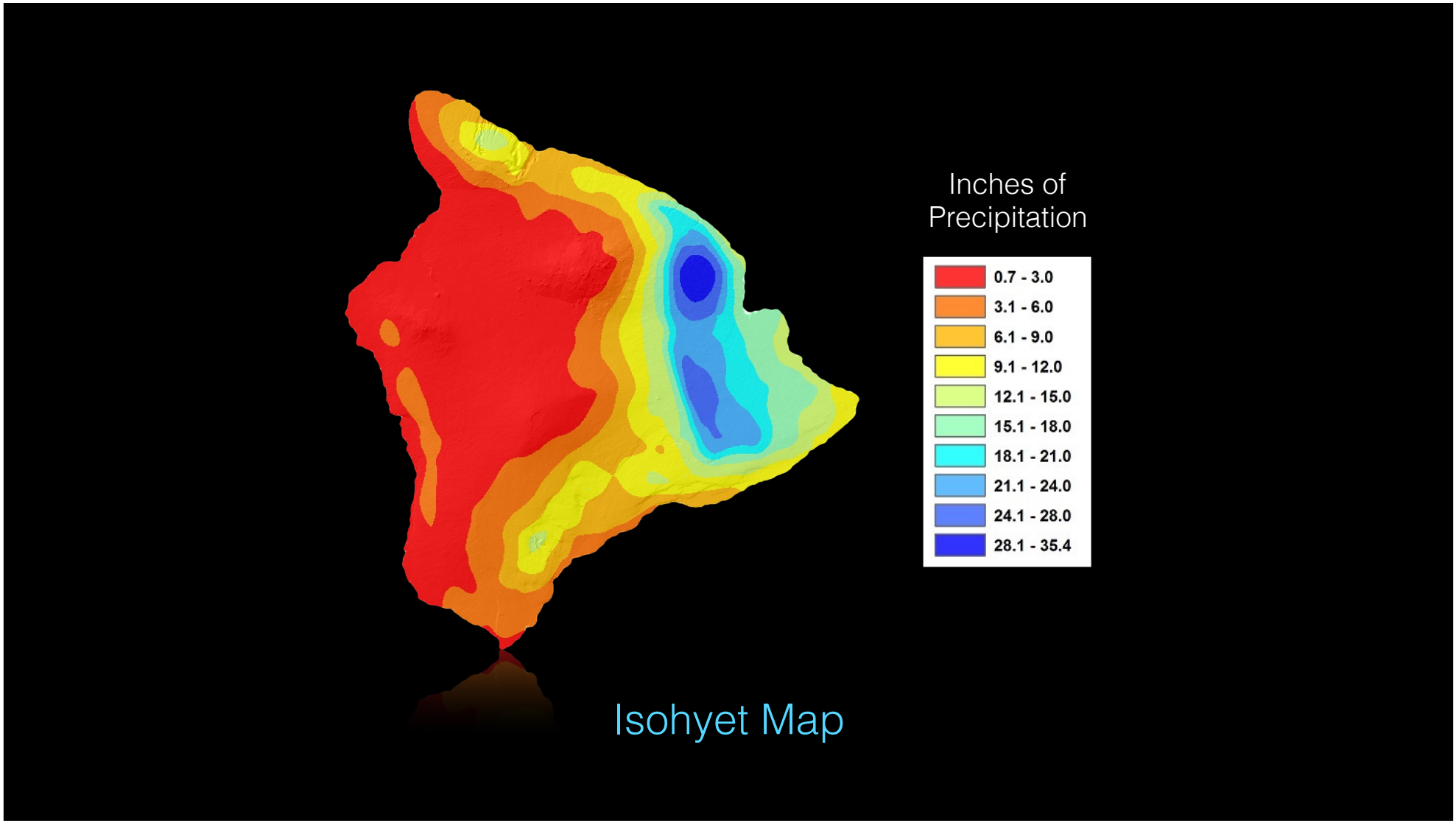
Temperature Values in the United States

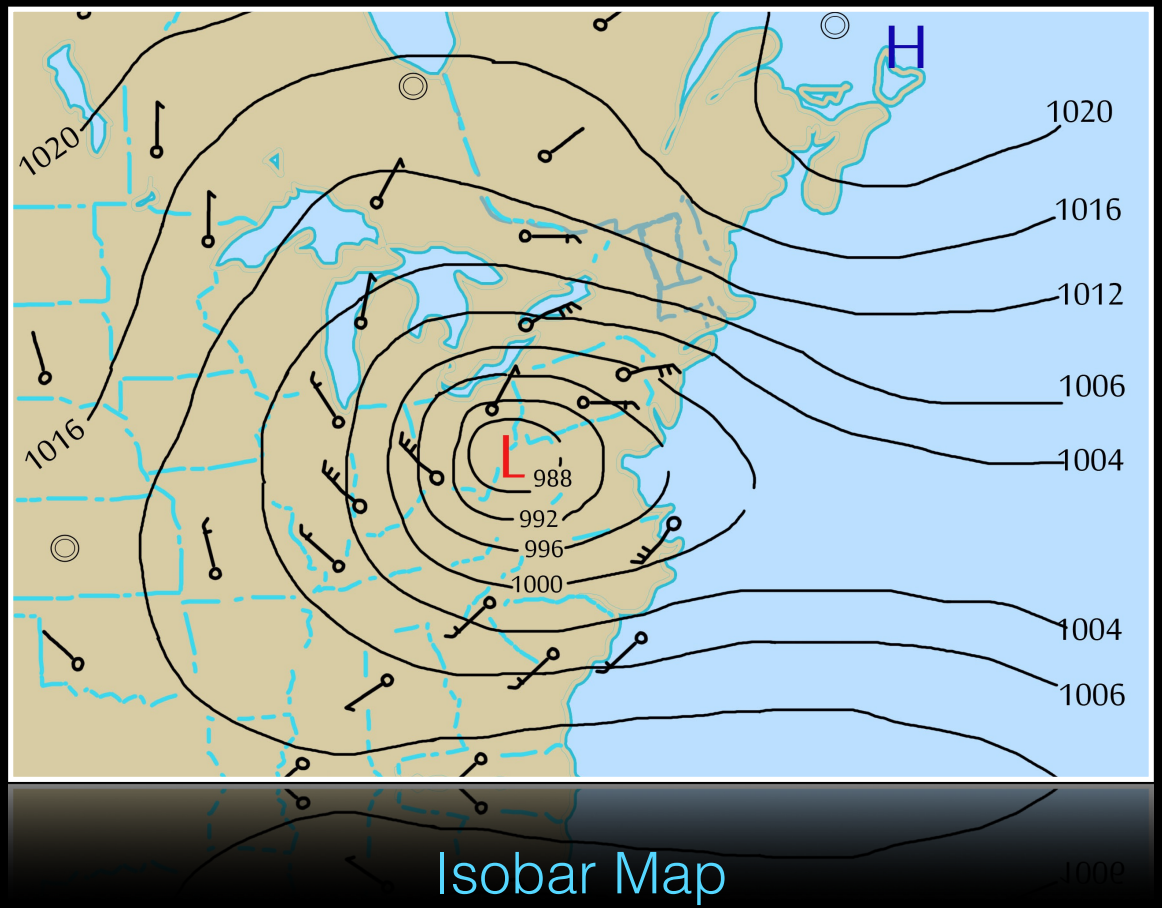
Field Maps and Isolines

- Different Types of Isolines:
  - Isotherm - lines that connect equal points of temperature
  - Isohyet - lines that connect equal points of rainfall
  - Isobar - lines that connect equal points of air pressure
  - Contour Line - lines that connect equal points of elevation

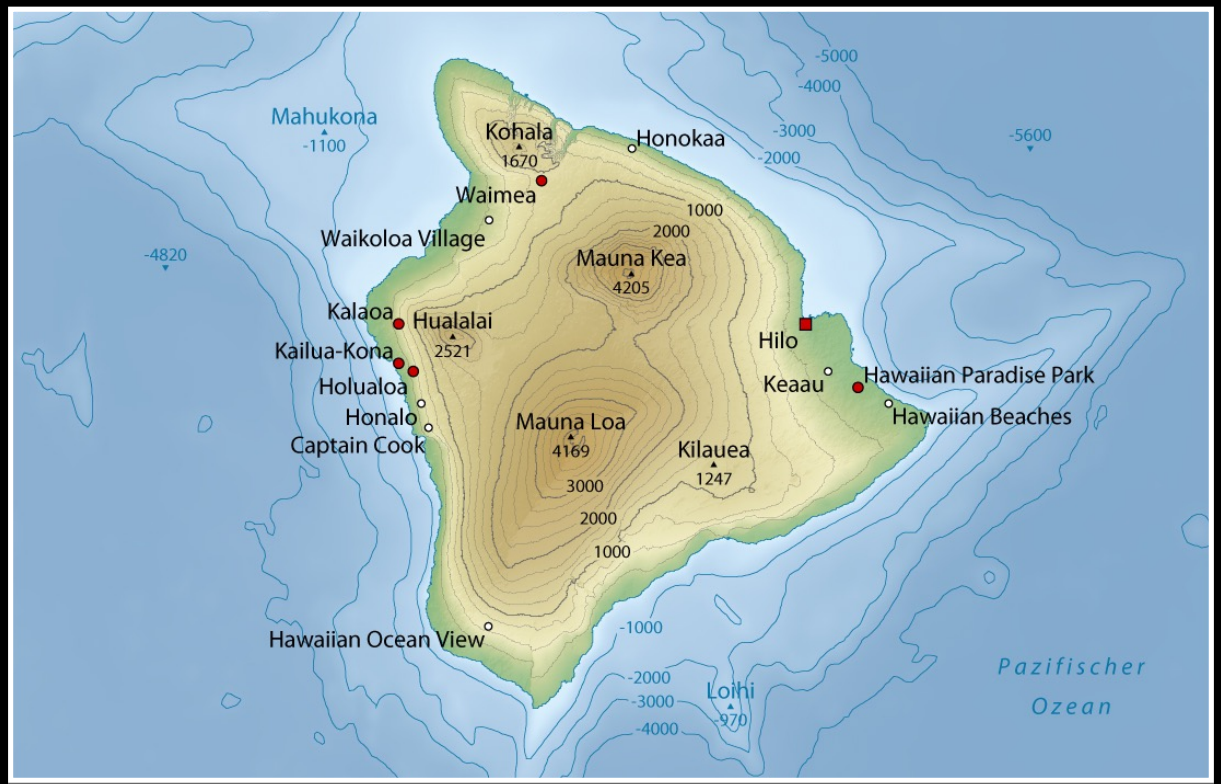


Isotherm Map


Inches of Precipitation
0.7 - 3.0
3.1 - 6.0
6.1 - 9.0
9.1 - 12.0
12.1 - 15.0
15.1 - 18.0
18.1 - 21.0
21.1 - 24.0
24.1 - 28.0
28.1 - 35.4
Isohyet Map


H
1020
1016
1012
1006
1004
1004
1006
1020
1016
L
988
992
996
1000

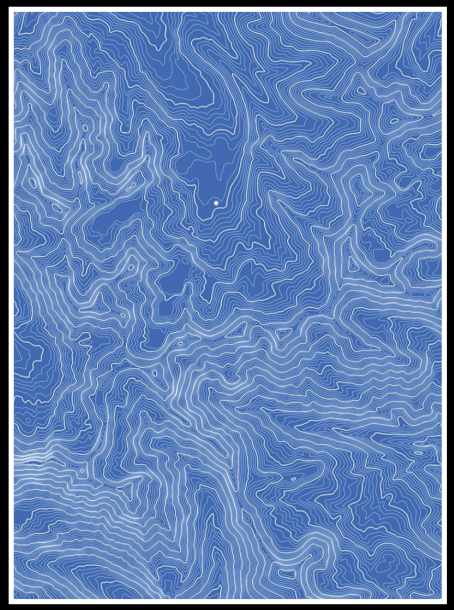
Isobar Map


Mahukona
-1100
Kohala
1670
Honokaa
Waimea
Waikoloa Village
Mauna Kea
4205
1000
2000
-4820
Kalaoa
Hualalai
2521
Kailua-Kona
Holualoa
Honalo
Captain Cook
Mauna Loa
4169
Kilauea
1247
3000
2000
1000
Hilo
Keaau
Hawaiian Paradise Park
Hawaiian Beaches
Hawaiian Ocean View
-1000
-2000
-3000
-4000
-5000
-4000
-3000
-2000
-5600
Loihi
-970
Pazifischer
Ozean

Contour Map

Field Maps and Isolines

- Rules of Isolines:
  - Connect equal points of data
  - Close around hills and depressions or extend to the edge of the map border
  - Isolines never cross one another
  - Close together represent higher gradient
  - Far apart represent lesser gradients



Stowe, VT

Field Maps and Isolines

- Gradient (slope) - rate of change from one place to another

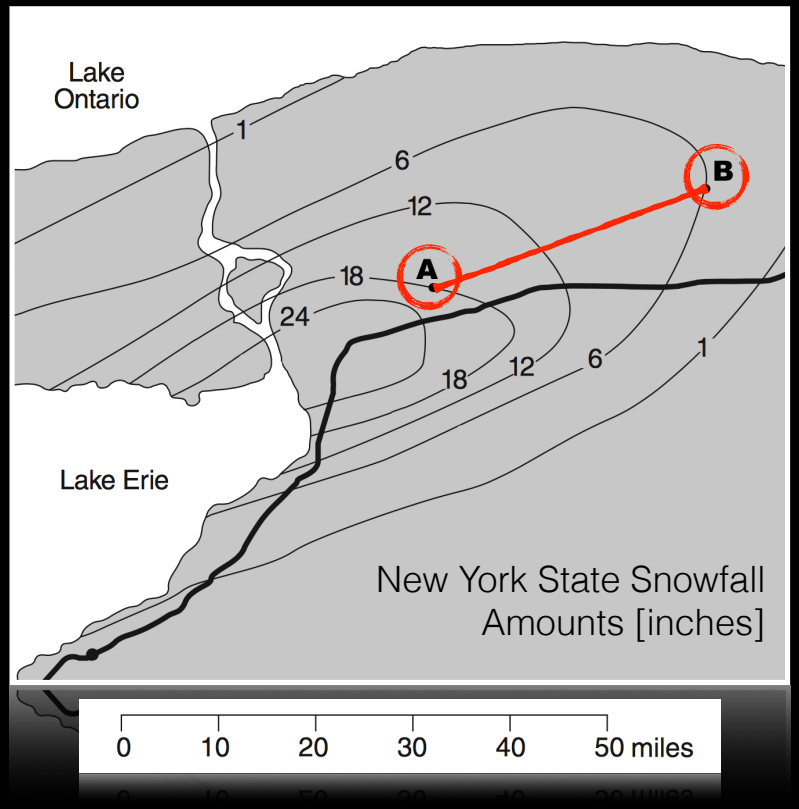
$$\text{Gradient} = \frac{\text{change in field value}}{\text{distance}}$$

Snowfall in Buffalo

Snowfall in Buffalo

Snowfall in Buffalo

Field Maps and Isolines



$$\text{Gradient} = \frac{\text{change in field value}}{\text{change in distance}}$$

$$\text{Gradient} = \frac{18 \text{ inches} - 6 \text{ inches}}{30 \text{ miles}}$$

$$\text{Gradient} = \frac{12 \text{ inches}}{30 \text{ miles}}$$

$$\text{Gradient} = 0.4 \ {}^{\text{inches}}/_{\text{mile}}$$