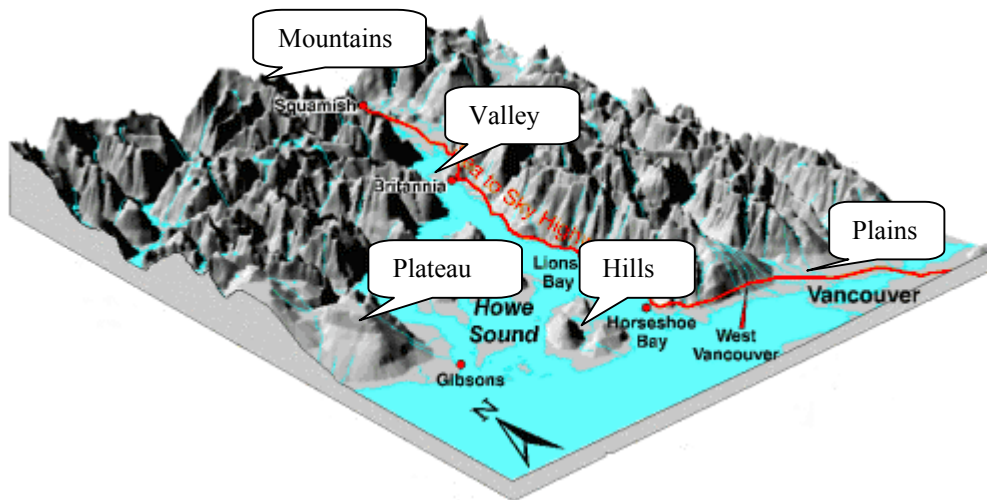


Landforms of Canada

Landform is the term given to the physical features of the earth's crust. The three distinct landforms of Canada are the Canadian Shield, the Highlands (mountains) and the Lowlands (plains). The Canadian Shield consists of the oldest, Precambrian rock. Much of its original mountainous surface has been worn away by glaciations and weathering to smooth, rounded hills. The mountain ranges of the Western Cordillera (Coastal, Columbia and Rocky Mountains), the Appalachian Mountains of the east coast and the Inuitian Mountains of the far north constitute the highlands in Canada. The Lowlands of Canada are formed by the Interior Plains (prairies and Manitoba lowlands), the Great Lakes - St. Lawrence Lowlands (St. Lawrence valley) and the Hudson Bay lowlands.

However, when we look at Canada's profile, we see that within mountainous highland regions there are plateaus and valleys. Using the information we learned from Canada's geological history, we can see how Canada's landforms came to be. Let's extend our classification of landforms into five categories for Canada:

- B** - Plateau – a relatively flat elevated area of land
- H** - Hills – natural rises in the landscape, not as high as a mountain
- M** - Mountains – large natural elevations rising abruptly from the surrounding area
- P** - Plains – flat, level areas of land
- V** - Valley – depression between hills or mountains



Adapted 3D model taken from the Natural Resources Canada, Geological Survey of Canada web site, Geoscape Vancouver Living with our Geological Landscape

<http://sts.gsc.nrcan.gc.ca/page1/urban/geoscape/geoscape.htm>

Ecozones are rarely composed of one particular landform but are usually covered by several landforms in various combinations. To help visualize this combination, the following table gives you the percentage of any one landform in the ecozone by the percentage of land surface that it covers. Some landforms occur in only very small percentages, therefore only the top five percentages are given at this time, which may not account for a full 100% of the area.

Table 1: Percentage of each landform in an ecozone

Ecozone Names	Landform 1	Landform 2	Landform 3	Landform 4	Landform 5
Arctic Cordillera	82 M	9 H	5 B	2 P	2 V
Northern Arctic	30 M	26 B	26 P	14 H	4 V
Southern Arctic	92 P	7 H	1 V		
Taiga Plains	55 P	21 B	10 V	9 H	5 M
Taiga Shield	37 P	27 H	21 B	12 M	3 V
Boreal Shield	49 P	30 H	16 M	4 B	1 V
Atlantic Maritime	40 P	28 H	26 B	5 M	1 V
Mixedwood Plains	87 P	12 H	1 B		
Boreal Plains	62 P	21 H	12 B	5 V	
Prairies	73 P	18 H	6 B	3 V	
Taiga Cordillera	63 M	18 V	10 P	8 B	1 H
Boreal Cordillera	47 M	17 B	17 H	15 V	4 P
Pacific Maritime	83 M	7 H	5 P	4 V	1 B
Montane Cordillera	51 M	35 B	6 H	6 V	2 P
Hudson Plains	100 P				

Legend: M- Mountains, P- Plains, V- Valley, H- Hills, and B- Plateau

How data is presented is extremely important. Although the information in the table above tells us the relative amount of each landform in an ecozone, the data is difficult to interpret. Now, let's put the data into another format. Rearrange the data so that all the values for mountains are in one column, those for plains in another, etc.

Table 2: Rearrange table into categories of landforms (percentages)

Ecozone	Mountains	Plains	Hills	Plateau	Valley
Arctic Cordillera	82	2	9	5	2
Northern Arctic	30	26	14	26	4
Southern Arctic		92	7		1
Taiga Plains	5	55	9	21	10
Taiga Shield	12	37	27	21	3
Boreal Shield	16	49	30	4	1
Atlantic Maritime	5	40	28	26	1
Mixedwood Plains		87	12	1	
Boreal Plains		62	21	12	5
Prairies		73	18	6	3
Taiga Cordillera	63	10	1	8	18
Boreal Cordillera	47	4	17	17	15
Pacific Maritime	83	5	7	1	4
Montane Cordillera	51	2	6	35	6
Hudson Plains		100			

Elevation tables also tell us a great deal about our landscape. Elevations are measured from sea level. Consequently, the higher is the elevation, the higher the mountain or plateau. For example, a flat area of land that occurs at relatively low elevations is referred to as a plain while a large flat area of land occurring among mountains is referred to as a plateau.

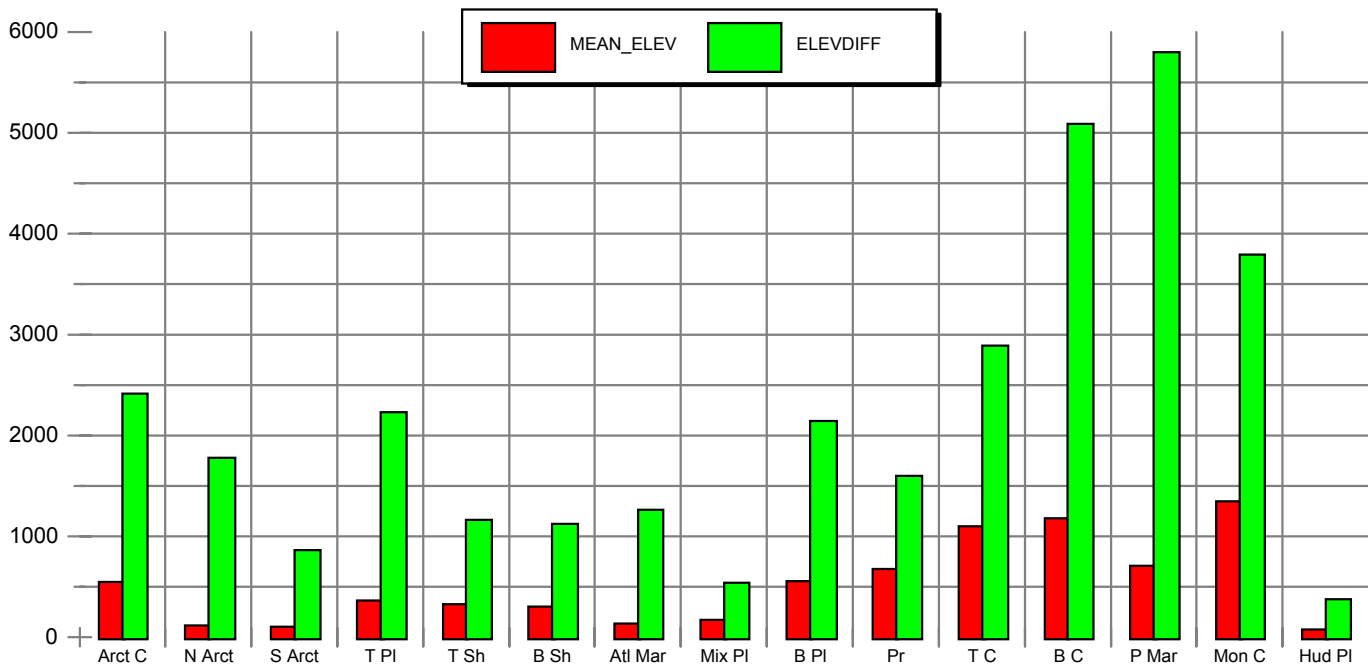
It is also possible to have elevations below sea level. This land is often the most agriculturally productive since it contains high amounts of nutrient rich material washed into it from the surrounding areas and decomposed there. Dikes are often built to hold back the water and the land is drained for farming. Examples of this are found in Holland.

An indicator of the relative vertical position of one ecozone to another is the *mean elevation*. Mean elevation is the average elevation from a series of statistically distributed elevation measurements within an ecozone. A low mean elevation indicates that the ecozone is relatively flat and close to sea level while a high mean elevation indicates the ecozone is mountainous. Another indicator is *elevation difference*. Elevation difference is the mathematical value reached when the lowest elevation within an ecozone is subtracted from the highest. High *elevation differences* mean that the terrain is rugged with mountains and valleys while a low elevation difference indicates that the terrain is relatively flat.

Table 3: Elevation tables for each ecozone

ECOZONE NAMES	MEAN ELEVATION (From Sea Level)	ELEVATION DIFFERENCE
Arctic Cordillera	549	2416
Northern Arctic	115	1778
Southern Arctic	104	864
Taiga Plains	364	2231
Taiga Shield	328	1164
Boreal Shield	305	1122
Atlantic Maritime	138	1264
Mixedwood Plains	174	541
Boreal Plains	557	2141
Prairies	675	1598
Taiga Cordillera	1100	2892
Boreal Cordillera	1177	5089
Pacific Maritime	706	5800
Montane Cordillera	1346	3792
Hudson Plains	76	377

BAR GRAPH SHOWING MEAN ELEVATION AND ELEVATION DIFFERENCE FOR EACH ECOZONE



Landform tells us the general overall lay of the land, that is, whether it is mountainous or flat. However, if we chose to traverse the ecozone it would be important for us to know what the *surface form*, or the ground we are to walk across is like. To help us, the surface characteristics of Canada's landscape have been given 14 classes. They are:

Table 4: Surface characteristics of Canada's landscape

B - BOG	Wet, spongy swamp composed chiefly of decaying vegetation or peat
D - DISSECTED	Cut by erosion into hills and valleys or flat upland areas separated by valleys
F - FEN	Low land covered by water but producing reeds, sedges or coarse grasses
H - HUMMOCKY	Lumpy or in small uneven mounds
I - INCLINED	The dip of a bed, fault, vein or other tabular body measured from the horizontal
L - LEVEL	Flat alluvial plain
M - MARSH	Very shallow lakes with little or no drainage producing rushes, reeds and sedge often bordered by trees. Salt marshes are located along the coastline.
R - RIDGED	The narrow, elongated crests of hills or mountains
O - ROLLING	A succession of low hills giving a wave effect to the surface
S - STEEP	Sloping sharply as to be almost perpendicular to the horizon
W - SWAMP	Low, spongy land that may contain trees and shrubs
T - TERRACED	A level topped surface with step-like features where one side is bordered by a steeply ascending slope and the other by a steeply descending slope
U - UNDULATING	Rising and falling like waves
# - NOT APPLICABLE	Cannot be described by the definitions of surface form in this table

Table 5: Canada's Surface Forms

Ecozone Names	Percent	Primary surface	Percent	Secondary surface	Percent	Tertiary surface	Percent	Quaternary surface
Arctic Cordillera	44	#	21	I	18	S	8	H
Northern Arctic	34	U	14	D	14	S	13	I
Southern Arctic	49	U	26	L	8	I	7	S
Taiga Plains	33	B	27	U	10	F	8	I
Taiga Shield	31	U	26	H	13	O	9	R
Boreal Shield	54	H	15	B	10	U	8	O
Atlantic Maritime	39	O	31	U	6	H	6	L
Mixedwood Plains	48	U	20	L	12	H	12	O
Boreal Plains	26	U	21	H	18	B	18	O
Prairies	41	U	31	H	15	D	8	O
Taiga Cordillera	47	S	35	I	3	D	3	L
Boreal Cordillera	22	O	20	S	17	I	11	U
Pacific Maritime	52	S	14	H	9	#	7	R
Montane Cordillera	31	S	27	O	15	I	11	R
Hudson Plains	46	B	36	F	6	H	5	R