

# Read Me for Kelowna Data Set

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## Info

The Kelowna Data Set contains meteorological and fire ignition data for the area surrounding Kelowna, British Columbia, Canada. It covers the years from 1980 to 2020 at a temporal resolution of 1 hour. The months from October thru March are excluded. This document contains summary histograms of the data set, a numerical summary of each feature, a description of each feature, and a location map of the data points.

## Acknowledgements

The Kelowna Data Set contains modified Copernicus Climate Change Service information from 2020. We have reduced the number of features contained in the information, the geographic area represented, and the number of years available. Neither the European Commission nor ECMWF is responsible for any use that may be made of the Copernicus information or data it contains. Muñoz Sabater, J., (2019, 2021)[1] was downloaded from the Copernicus Climate Change Service (C3S) Climate Data Store.

Feature	Unit	Description
date	seconds	Time passed since 1900 in seconds.
lon	degrees	Upper left hand corner longitude of a cell.
lat	degrees	Upper left hand corner latitude of a cell.
u10	m/s	Eastward component of wind at 10m above the earth's surface.
v10	m/s	Northward component of wind at 10m above the earth's surface.
d2m	Kelvin (K)	The dewpoint temperature at 2m above the earth's surface. It is a measure of humidity.
t2m	Kelvin (K)	Air temperature at 2m above the earth's surface.
e	m of water	The amount of water that has evaporated from the earth's surface.
cvh	$m^2/m^2$	One-half of the total green leaf area per unit horizontal ground surface area for high vegetation.
cvl	$m^2/m^2$	One-half of the total green leaf area per unit horizontal ground surface area for low vegetation.
slt	integer	The soil type based on texture. 1: Coarse, 2: Medium, 3: Medium fine, 4: Fine, 5: Very fine, 6: Organic, 7: Tropical organic. Zero is a non-land point.
skt	Kelvin (K)	Skin temperature is the temperature at the earth's surface.
stl1	Kelvin (K)	Temperature of the soil in layer 1 (0 -7 cm) of the ECMWF Integrated Forecasting System.
stl2	Kelvin (K)	Temperature of the soil in layer 2 (7 -28 cm) of the ECMWF Integrated Forecasting System.
stl3	Kelvin (K)	Temperature of the soil in layer 3 (28 -100 cm) of the ECMWF Integrated Forecasting System.
stl4	Kelvin (K)	Temperature of the soil in layer 1 (100 -289 cm) of the ECMWF Integrated Forecasting System.
sp	Pa	Surface pressure (force per unit area) is the atmospheric pressure at the earth's surface.
tp	m	Total precipitation.
swvl1	$m^3/m^3$	Volume of water in soil layer 1 (0 -7 cm) of the ECMWF Integrated Forecasting System.
swvl2	$m^3/m^3$	Volume of water in soil layer 1 (7 -28 cm) of the ECMWF Integrated Forecasting System.
swvl3	$m^3/m^3$	Volume of water in soil layer 1 (28-100 cm) of the ECMWF Integrated Forecasting System.
swvl4	$m^3/m^3$	Volume of water in soil layer 1 (100 -289 cm) of the ECMWF Integrated Forecasting System.
ignition	boolean	1 if ignition occurred in the cell on the day.
month	integer	The month of the year for the given year.
day	integer	The day of the month.
hour	integer	The hour for the given day.
year	integer	The year.
doy	integer	The day of the year for the given year.
year	year	The year.

Table 1: Description of features. (based on [1])

features	min	max	range	mean	sd
date	3.23E+08	1.60E+09	1.28E+09	9.64E+08	3.73E+08
lon	-122	-116	6	-119	1.802776
lat	49	52	3	50.5	0.935414
u10	-7.05325	8.853455	15.90671	0.346685	1.144646
v10	-7.30391	9.983047	17.28696	0.400354	1.153399
d2m	234.8329	296.2841	61.45123	275.4998	5.214091
t2m	238.0774	310.1319	72.05443	282.0397	7.303597
e	-0.00073	8.10E-05	0.000816	-7.47E-05	9.62E-05
cvh	0.156647	0.999878	0.843231	0.878662	0.15677
cvl	3.06E-05	0.622479	0.622448	0.10449	0.131285
skt	233.5343	315.5637	82.02937	280.8523	8.187633
stl1	247.226	307.8882	60.6622	280.752	6.315398
stl2	256.7656	299.6206	42.85498	280.4581	5.40597
stl3	270.6714	293.3479	22.67651	279.7688	4.591183
stl4	272.2055	288.9502	16.74467	278.4565	3.946321
slt	1	2	1	1.859107	0.347912
sp	75566.63	96598.5	21031.87	86133.18	2971.832
tp	-8.67E-19	0.012767	0.012767	0.000105	0.000292
swvl1	0.030548	0.457254	0.426705	0.316099	0.069188
swvl2	0.075025	0.453682	0.378657	0.315822	0.063187
swvl3	0.100568	0.453829	0.353261	0.315199	0.055933
swvl4	0.211334	0.437897	0.226563	0.351139	0.040686
month	4	10	6	7.009346	1.99764
day	1	31	30	15.78972	8.827405
hour	0	23	23	11.5	6.922187
ignition	0	1	1	0.000759	0.027533
year	1980	2020	40	2000	11.83216
doy	91	305	214	197.7683	61.77739

Table 2: Summary of features.

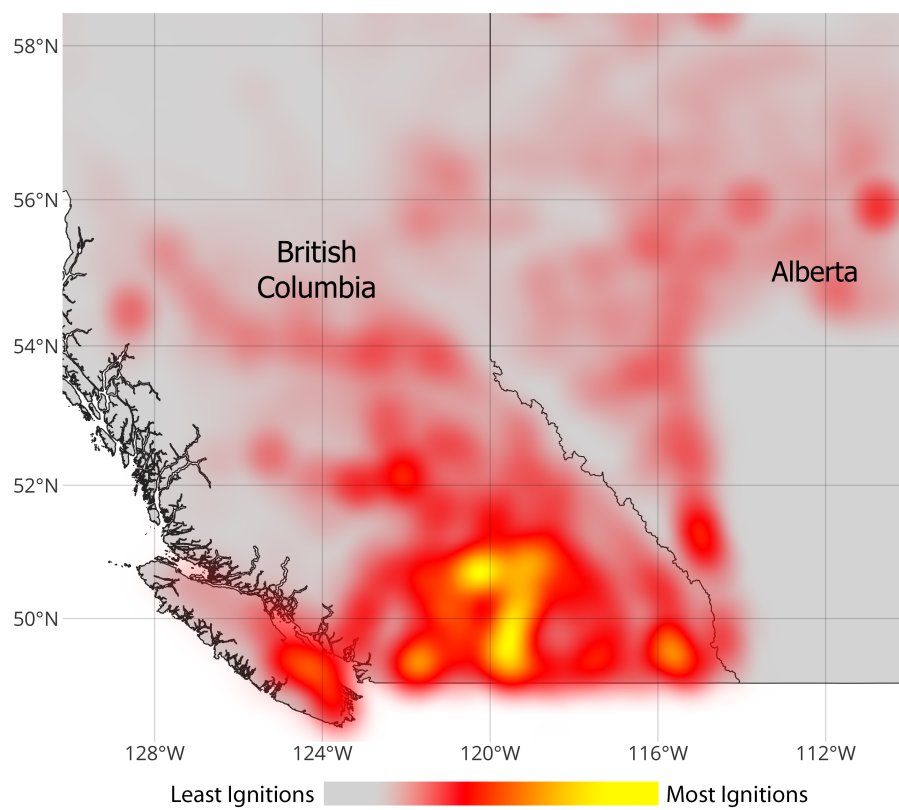


Figure 1: Heat map of number of ignitions from 1978 to 2018.

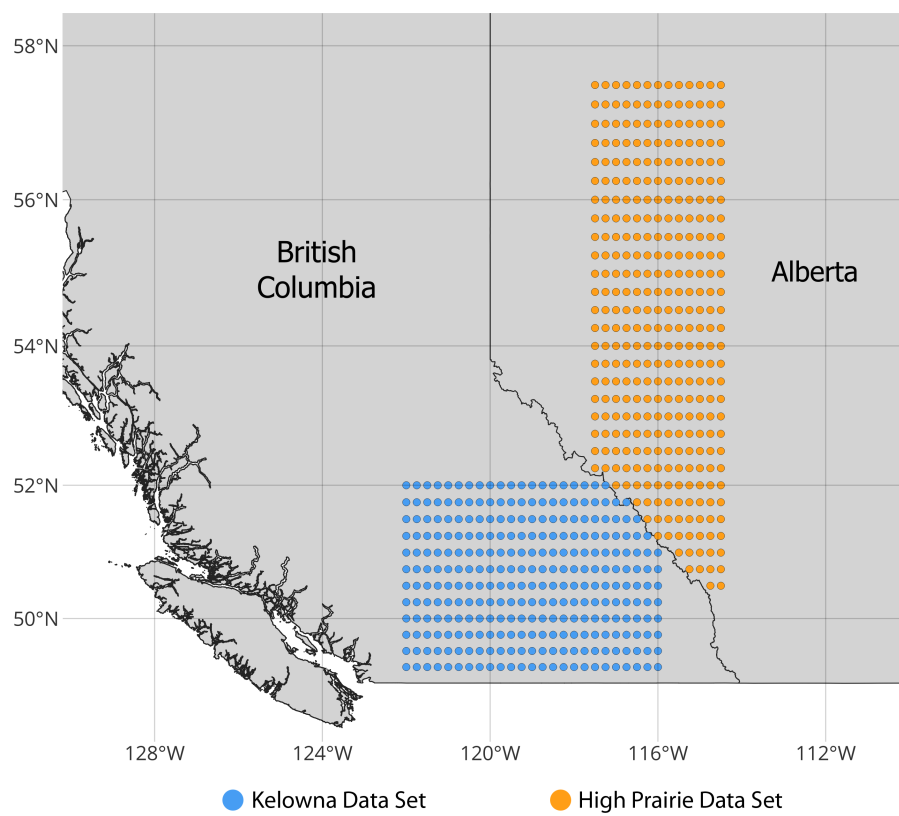


Figure 2: Locations of meteorological data collection points.

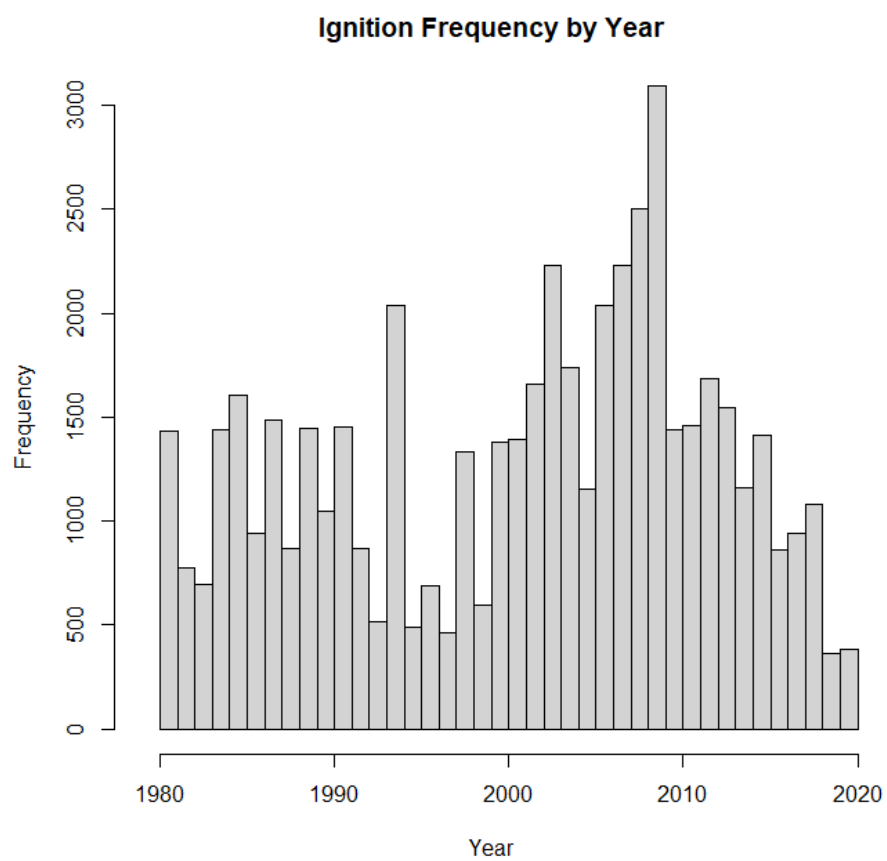


Figure 3: Kelowna Dataset, a histogram of frequency of ignitions by year.

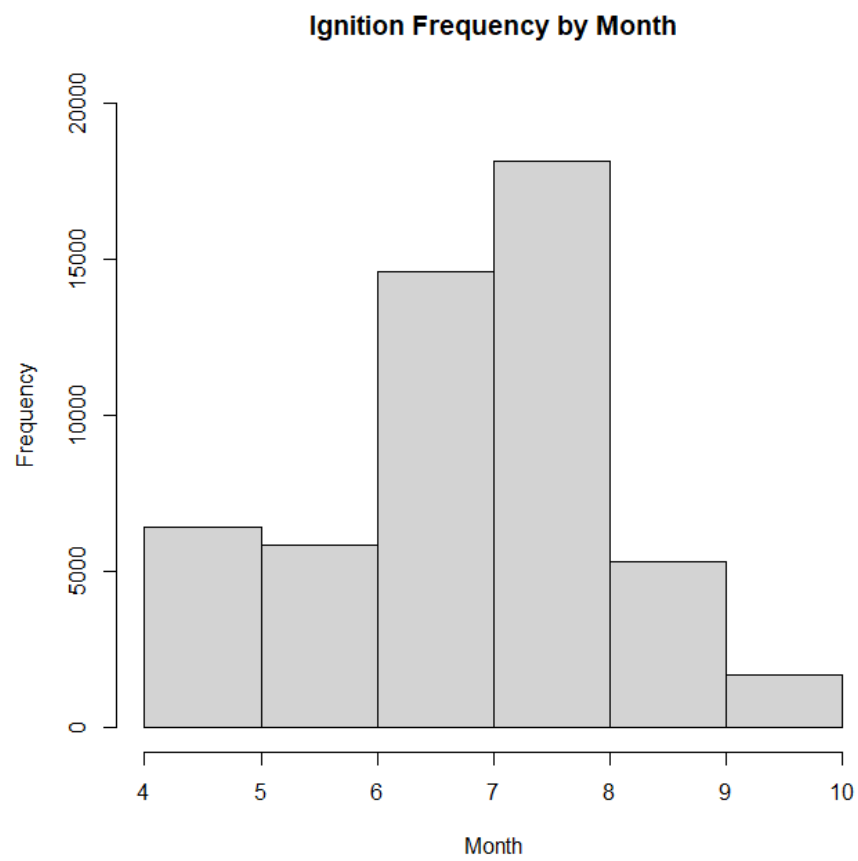


Figure 4: Kelowna Dataset, a histogram of frequency of ignitions by month.

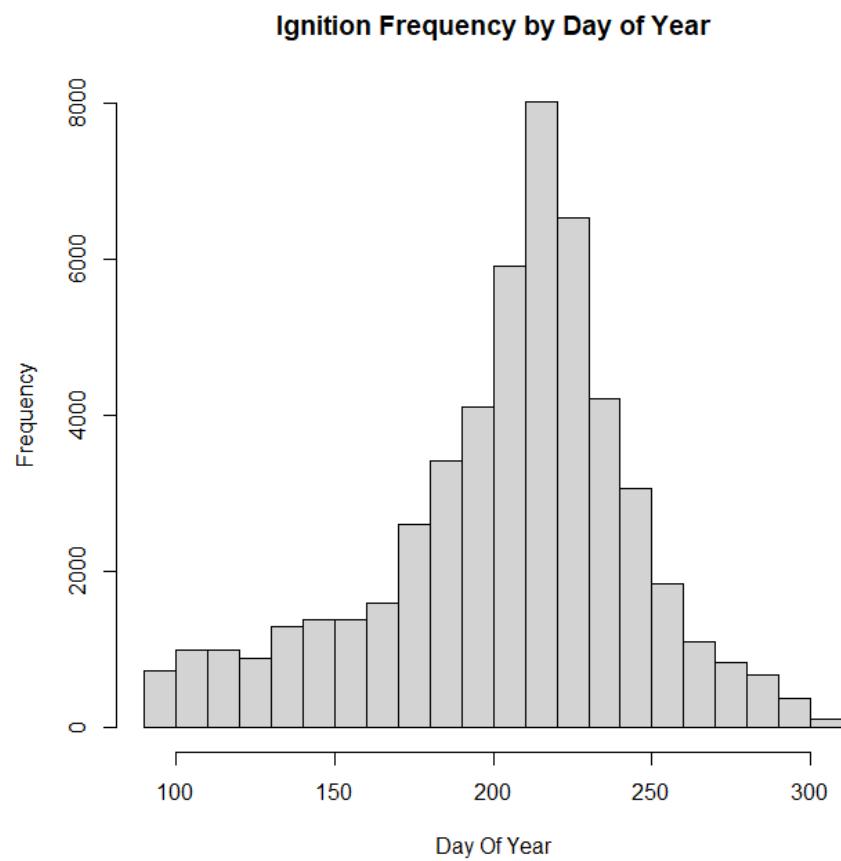


Figure 5: Kelowna Dataset, a histogram of frequency of ignitions by month.



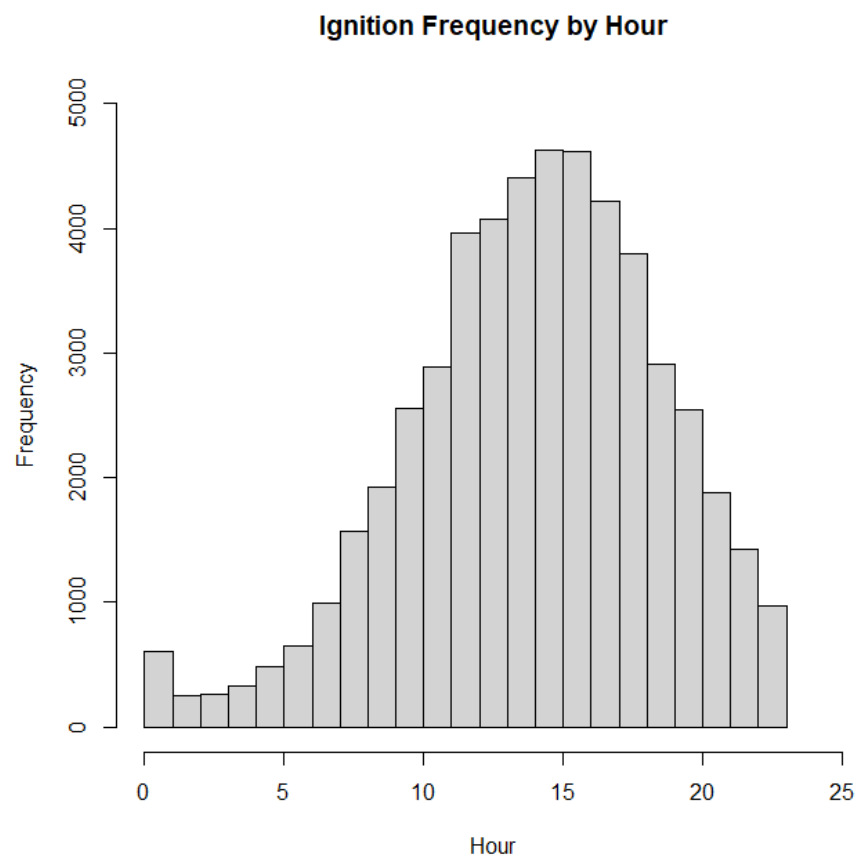


Figure 6: Kelowna Dataset, a histogram of frequency of ignitions by hour.

## References

- [1] J Muñoz Sabater. Era5-land hourly data from 1981 to present., 2021. Accessed: 15.07.2022. <https://doi.org/10.24381/cds.e2161bac>  
doi:10.24381/cds.e2161bac.