

Climograph

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Project home: <https://github.com/StevenBlack/climographs>

Introduction

The motivation for this repository is, given a location, create its climograph.

See: <https://en.wikipedia.org/wiki/Climograph>.

This Wolfram community forum question was very helpful: <https://community.wolfram.com/-groups/-/m/t/1599725>

In[35]:=

```
ClearAll[climograph];

Options[climograph] = {
  "StartDate" → {1980, 1, 1}
  , "EndDate" → {2022, 12, 31}
  , "TemperaturePlotRange" → {-30, 40}
  , "PrecipitationPlotRange" → {0, 50}
  , "Background" → White
  , "Frame" → True
  , "FrameStyle" → Gray
};

climograph[location_, OptionsPattern[]] := (
  startDate = OptionValue["StartDate"];
  endDate = OptionValue["EndDate"];

  tempByMonth =
    WeatherData[location, "MeanTemperature", {startDate, endDate, "Month"}];
  tempGroupByMonth =
    GroupBy[tempByMonth["DatePath"], DateValue[First[#], "MonthNameShort"] &];
  tempMinMaxMean = {Min[Map[Last, #]], Max[Map[Last, #]], Mean[Map[Last, #]]} & /@
    tempGroupByMonth;

  ptemp = BoxWhiskerChart[
    tempMinMaxMean,
    Joined → True,
    Frame → {{True, True}, {None, True}},
    PlotTheme → "Detailed",
    PlotRange → OptionValue["TemperaturePlotRange"]
  ];
```

```

precipByMonth = DeleteMissing[WeatherData[location,
  "TotalPrecipitation", {startDate, endDate, "Month"}]];
precipGroupByMonth = GroupBy[
  precipByMonth["DatePath"], DateValue[First[#], "MonthNameShort"] &];
precipMeanByMonth = Mean[Map[Last, #]] & /@precipGroupByMonth;
precipMinMaxMean =
  {Min[Map[Last, #]], Max[Map[Last, #]], Mean[Map[Last, #]]} & /@
  precipGroupByMonth;
pprecip2 = BoxWhiskerChart[
  precipMinMaxMean,
  ChartLabels → Automatic,
  Joined → True,
  Frame → {{True, True}, {True, None}},
  PlotTheme → "Detailed",
  PlotRange → OptionValue["PrecipitationPlotRange"]
];

Return[
  GraphicsColumn[
    {TextCell[location["Name"], "Subsection"],
      TextCell[
        ToString[startDate[[1]]] <> " - " <> ToString[endDate[[1]], "Text"],
        GraphicsColumn[
          {ptemp, pprecip2},
          Frame → True,
          FrameStyle → LightGray,
          Background → White
        ]
      ]
    },
    Frame → OptionValue["Frame"]
  , FrameStyle → OptionValue["FrameStyle"]
  , Background → OptionValue["Background"]
]
]
);

```

Examples

In[38]:= `climograph` [**Vancouver** CITY]

Out[38]=

