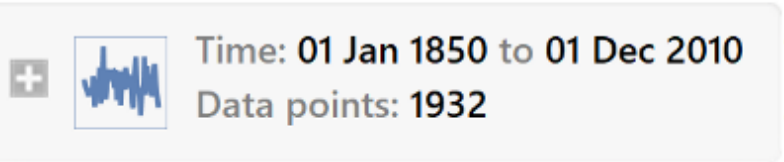
Cloud APIs For a Rainy Day

A (long) while back I had the good fortune to take a hiking trip to the western part of Ireland, near Galway and through the Connemara National Park. The scenery was spectacular, but it was the ever-changing weather patterns that really caught my attention. It was not unusual for a single day of hiking to have multiple rain-sun cycles and many days had afternoon rainbows.

In[ ]:=
```
csv = Import["University College Galway.csv"];
csv[[3 ;; 10]] // Grid[#, Frame → All] &
```

Out[ ]=

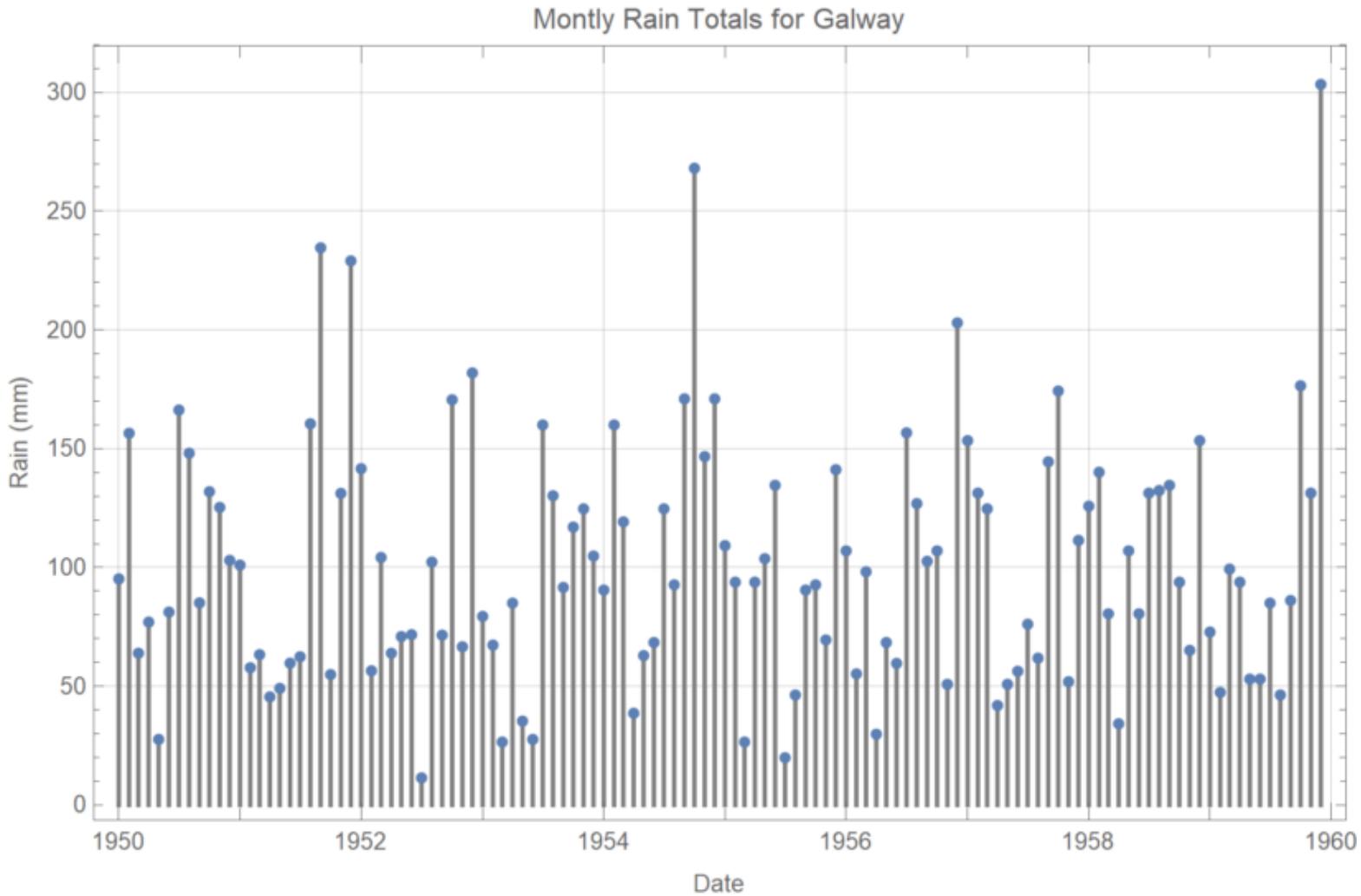
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1850	108.9	131.5	56.6	120.5	69.8	74.7	89.1	136.8	85.2	90.7	131.3	90.6
1851	163.8	92.8	86.1	69.3	42.1	114.2	107.4	155.9	66.7	141.3	87.1	71.4
1852	174.9	136.5	44.4	55.7	53.6	167.7	91.3	130.2	52.8	75.8	195.3	216.7
1853	152.8	52.5	104.7	84.2	29.4	78.2	114.4	93.8	64.3	149.1	104.1	52.4
1854	133.1	53.8	57.7	24.2	117.2	104	91.7	87.7	67.3	84	109.7	153
1855	33.9	55.5	100	48.9	74.2	71.6	89	115.3	56.7	111	50.6	91.3
1856	111.9	77.1	44.6	81.4	125.7	86	62.1	101.5	92.2	72.4	70.3	124.9

```
GalwayRainPlot[{y1_Integer, m1_Integer}, {y2_Integer, m2_Integer}] :=
 DateListPlot[
  TimeSeriesWindow[TimeSeries[ 

  ], {DateObject[{y1, m1}], DateObject[{y2, m2}]}],
  Filling → Axis, Joined → False,
  FillingStyle → Directive[Gray, AbsoluteThickness[2]],
  GridLines → Automatic, ImageSize → Large,
  FrameLabel → {"Date", "Rain (mm)"},
  PlotLabel → "Montly Rain Totals for Galway"]
```

In[•]:=
```
GalwayRainPlot[{1950, 1}, {1959, 12}]
```

Out[•]=



This raw data is best represented in the Wolfram Language with a TimeSeries object. We take the data fields from the **cvs** expression, generate the monthly dates with **DateRange**, and construct the **TimeSeries** (quick note: a notebook with complete code is provided at the end of this story)