

In [1]:

```
# Dependencies and Setup
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
import requests
import time

# Import API key
import api_keys

# Incorporated citipy to determine city based on latitude and longitude
from citipy import citipy

# Output File (CSV)
output_data_file = "output_data/cities.csv"

# Range of latitudes and longitudes
lat_range = (-90, 90)
lng_range = (-180, 180)
```

## Generate Cities List

In [2]:

```
# List for holding lat_lngs and cities
lat_lngs = []
cities = []

# Create a set of random lat and lng combinations
lats = np.random.uniform(low=-90.000, high=90.000, size=1500)
lngs = np.random.uniform(low=-180.000, high=180.000, size=1500)
lat_lngs = zip(lats, lngs)

# Identify nearest city for each lat, lng combination
for lat_lng in lat_lngs:
    city = citipy.nearest_city(lat_lng[0], lat_lng[1]).city_name

    # If the city is unique, then add it to a our cities list
    if city not in cities:
        cities.append(city)

# Print the city count to confirm sufficient count
len(cities)
```

Out[2]:

595

# Perform API Calls

In [3]:

```
# OpenWeatherMap API Key
api_key = api_keys.api_key

# Starting URL for Weather Map API Call
url = "http://api.openweathermap.org/data/2.5/weather?"
units = "imperial"

# Build partial query URL
query_url = f"{url}appid={api_key}&units={units}&q="
```

In [4]:

```
# List of city data
city_list = []
city_info = []

# Print on log
print("Begin")
print(".....")

# Loop through the list of cities and perform a request for data on each
for city in cities:
    print(f"Processing record for the city: {city}")
    response = requests.get(query_url + city).json()
    searchCityID = response.get("id")
    if response.get("id"):
        print(f"    Record found for city: {city}    city id: {searchCityID}")
        city_info.append(response)
        city_list.append(city)

    else:
        print(f"    No weather record found for city: {city}")

# Indicate that Data Loading is complete
print("-----")
print("Complete")
```

Begin

```
.....
Processing record for the city: aquiraz
    Record found for city: aquiraz    city id: 3407407
Processing record for the city: broken hill
    Record found for city: broken hill    city id: 2173911
Processing record for the city: alandi
    Record found for city: alandi    city id: 1279066
Processing record for the city: zhigansk
    Record found for city: zhigansk    city id: 2012530
```

Processing record for the city: araouane  
Record found for city: araouane city id: 2460954

Processing record for the city: acapulco  
Record found for city: acapulco city id: 3533462

Processing record for the city: new norfolk  
Record found for city: new norfolk city id: 2155415

Processing record for the city: najran  
Record found for city: najran city id: 103630

Processing record for the city: jamestown  
Record found for city: jamestown city id: 2069194

Processing record for the city: bargal  
No weather record found for city: bargal

Processing record for the city: suoyarvi  
Record found for city: suoyarvi city id: 486186

Processing record for the city: kaitangata  
Record found for city: kaitangata city id: 2208248

Processing record for the city: castro  
Record found for city: castro city id: 3896218

Processing record for the city: kavaratti  
Record found for city: kavaratti city id: 1267390

Processing record for the city: ushuaia  
Record found for city: ushuaia city id: 3833367

Processing record for the city: kiruna  
Record found for city: kiruna city id: 605155

Processing record for the city: cape town  
Record found for city: cape town city id: 3369157

Processing record for the city: tumanny  
No weather record found for city: tumanny

Processing record for the city: narsaq  
Record found for city: narsaq city id: 3421719

Processing record for the city: harper  
Record found for city: harper city id: 4696310

Processing record for the city: kendari  
Record found for city: kendari city id: 1640344

Processing record for the city: port alfred  
Record found for city: port alfred city id: 964432

Processing record for the city: bambous virieux  
Record found for city: bambous virieux city id: 1106677

Processing record for the city: saint george  
Record found for city: saint george city id: 262462

Processing record for the city: hobart  
Record found for city: hobart city id: 2163355

Processing record for the city: butaritari  
Record found for city: butaritari city id: 2110227

Processing record for the city: indianola  
Record found for city: indianola city id: 5697383

Processing record for the city: sadowara  
No weather record found for city: sadowara

Processing record for the city: avarua  
Record found for city: avarua city id: 4035715

Processing record for the city: ancud  
Record found for city: ancud city id: 3899695

Processing record for the city: taolanaro

No weather record found for city: taolanaro  
Processing record for the city: rikitea  
Record found for city: rikitea city id: 4030556  
Processing record for the city: cairns  
Record found for city: cairns city id: 2172797  
Processing record for the city: port blair  
Record found for city: port blair city id: 1259385  
Processing record for the city: kauhajoki  
Record found for city: kauhajoki city id: 653627  
Processing record for the city: hermanus  
Record found for city: hermanus city id: 3366880  
Processing record for the city: hilo  
Record found for city: hilo city id: 5855927  
Processing record for the city: palabuhanratu  
No weather record found for city: palabuhanratu  
Processing record for the city: santa isabel  
Record found for city: santa isabel city id: 3668716  
Processing record for the city: yellowknife  
Record found for city: yellowknife city id: 6185377  
Processing record for the city: mataura  
Record found for city: mataura city id: 6201424  
Processing record for the city: barrow  
Record found for city: barrow city id: 3833859  
Processing record for the city: waipawa  
Record found for city: waipawa city id: 2185329  
Processing record for the city: kirundo  
Record found for city: kirundo city id: 432456  
Processing record for the city: tiksi  
Record found for city: tiksi city id: 2015306  
Processing record for the city: norfolk  
Record found for city: norfolk city id: 4776222  
Processing record for the city: matara  
Record found for city: matara city id: 3948642  
Processing record for the city: tasiilaq  
Record found for city: tasiilaq city id: 3424607  
Processing record for the city: clyde river  
Record found for city: clyde river city id: 5924351  
Processing record for the city: touros  
Record found for city: touros city id: 3386213  
Processing record for the city: tecoanapa  
Record found for city: tecoanapa city id: 3532499  
Processing record for the city: nizhneyansk  
No weather record found for city: nizhneyansk  
Processing record for the city: dingle  
Record found for city: dingle city id: 1714733  
Processing record for the city: ribeira grande  
Record found for city: ribeira grande city id: 3372707  
Processing record for the city: bluff  
Record found for city: bluff city id: 2175403  
Processing record for the city: bethel  
Record found for city: bethel city id: 5880568  
Processing record for the city: hithadhoo  
Record found for city: hithadhoo city id: 1282256

Processing record for the city: nikolskoye  
Record found for city: nikolskoye city id: 546105

Processing record for the city: khatanga  
Record found for city: khatanga city id: 2022572

Processing record for the city: sao joao da barra  
Record found for city: sao joao da barra city id: 3448903

Processing record for the city: torbay  
Record found for city: torbay city id: 6167817

Processing record for the city: moyo  
No weather record found for city: moyo

Processing record for the city: mergui  
No weather record found for city: mergui

Processing record for the city: mahebourg  
Record found for city: mahebourg city id: 934322

Processing record for the city: alban  
Record found for city: alban city id: 5106834

Processing record for the city: comodoro rivadavia  
Record found for city: comodoro rivadavia city id: 3860443

Processing record for the city: barentsburg  
No weather record found for city: barentsburg

Processing record for the city: georgetown  
Record found for city: georgetown city id: 3378644

Processing record for the city: liuzhou  
Record found for city: liuzhou city id: 1803300

Processing record for the city: tuatapere  
Record found for city: tuatapere city id: 2180815

Processing record for the city: zheleznodorozhnyy  
Record found for city: zheleznodorozhnyy city id: 463355

Processing record for the city: fare  
Record found for city: fare city id: 4034496

Processing record for the city: kotdwara  
Record found for city: kotdwara city id: 1266014

Processing record for the city: fairbanks  
Record found for city: fairbanks city id: 5861897

Processing record for the city: ijaki  
No weather record found for city: ijaki

Processing record for the city: haines junction  
Record found for city: haines junction city id: 5969025

Processing record for the city: marv dasht  
No weather record found for city: marv dasht

Processing record for the city: cap malheureux  
Record found for city: cap malheureux city id: 934649

Processing record for the city: mar del plata  
Record found for city: mar del plata city id: 3863379

Processing record for the city: busselton  
Record found for city: busselton city id: 2075265

Processing record for the city: mys shmidta  
No weather record found for city: mys shmidta

Processing record for the city: saskylakh  
Record found for city: saskylakh city id: 2017155

Processing record for the city: kodiak  
Record found for city: kodiak city id: 4407665

Processing record for the city: hamilton

Record found for city: hamilton city id: 5969785  
Processing record for the city: pevek  
Record found for city: pevek city id: 2122090  
Processing record for the city: naze  
Record found for city: naze city id: 2337542  
Processing record for the city: henties bay  
Record found for city: henties bay city id: 3356832  
Processing record for the city: komsomolskiy  
Record found for city: komsomolskiy city id: 1486910  
Processing record for the city: grand river south east  
No weather record found for city: grand river south east  
Processing record for the city: verkh-usugli  
Record found for city: verkh-usugli city id: 2013459  
Processing record for the city: vaini  
Record found for city: vaini city id: 1273574  
Processing record for the city: nanortalik  
Record found for city: nanortalik city id: 3421765  
Processing record for the city: punta arenas  
Record found for city: punta arenas city id: 3874787  
Processing record for the city: morant bay  
Record found for city: morant bay city id: 3489440  
Processing record for the city: ust-nera  
Record found for city: ust-nera city id: 2120048  
Processing record for the city: tilichiki  
Record found for city: tilichiki city id: 2120591  
Processing record for the city: kathu  
Record found for city: kathu city id: 991664  
Processing record for the city: shakawe  
Record found for city: shakawe city id: 933077  
Processing record for the city: sibolga  
Record found for city: sibolga city id: 1213855  
Processing record for the city: lumeje  
Record found for city: lumeje city id: 876123  
Processing record for the city: ponta do sol  
Record found for city: ponta do sol city id: 3453439  
Processing record for the city: amderma  
No weather record found for city: amderma  
Processing record for the city: bakchar  
Record found for city: bakchar city id: 1511057  
Processing record for the city: saint-philippe  
Record found for city: saint-philippe city id: 6138908  
Processing record for the city: ixtapa  
Record found for city: ixtapa city id: 4004293  
Processing record for the city: lamu  
Record found for city: lamu city id: 1623890  
Processing record for the city: linchuan  
No weather record found for city: linchuan  
Processing record for the city: perene  
Record found for city: perene city id: 3932502  
Processing record for the city: timaru  
Record found for city: timaru city id: 2181133  
Processing record for the city: walvis bay  
Record found for city: walvis bay city id: 3359638

Processing record for the city: husavik  
Record found for city: husavik city id: 5961417

Processing record for the city: sola  
Record found for city: sola city id: 3137942

Processing record for the city: lebu  
Record found for city: lebu city id: 344979

Processing record for the city: sentyabrskiy  
No weather record found for city: sentyabrskiy

Processing record for the city: kysyl-syr  
Record found for city: kysyl-syr city id: 2021017

Processing record for the city: havre-saint-pierre  
Record found for city: havre-saint-pierre city id: 5972291

Processing record for the city: kapaa  
Record found for city: kapaa city id: 5848280

Processing record for the city: nome  
Record found for city: nome city id: 4732862

Processing record for the city: saleaula  
No weather record found for city: saleaula

Processing record for the city: lhokseumawe  
Record found for city: lhokseumawe city id: 1214658

Processing record for the city: tautira  
Record found for city: tautira city id: 4033557

Processing record for the city: lubumbashi  
Record found for city: lubumbashi city id: 922704

Processing record for the city: slavgorodskoye  
No weather record found for city: slavgorodskoye

Processing record for the city: kirakira  
Record found for city: kirakira city id: 2178753

Processing record for the city: provideniya  
Record found for city: provideniya city id: 4031574

Processing record for the city: leningradskiy  
Record found for city: leningradskiy city id: 2123814

Processing record for the city: luba  
Record found for city: luba city id: 1705460

Processing record for the city: bubaque  
Record found for city: bubaque city id: 2374583

Processing record for the city: iqaluit  
Record found for city: iqaluit city id: 5983720

Processing record for the city: jacareacanga  
Record found for city: jacareacanga city id: 3397763

Processing record for the city: saulkrasti  
Record found for city: saulkrasti city id: 455812

Processing record for the city: vardo  
Record found for city: vardo city id: 4372777

Processing record for the city: thompson  
Record found for city: thompson city id: 6165406

Processing record for the city: cheremukhovo  
Record found for city: cheremukhovo city id: 466423

Processing record for the city: werda  
Record found for city: werda city id: 2810970

Processing record for the city: letterkenny  
Record found for city: letterkenny city id: 2962961

Processing record for the city: magnitka

Record found for city: magnitka city id: 532292  
Processing record for the city: aracuai  
Record found for city: aracuai city id: 3471846  
Processing record for the city: denpasar  
Record found for city: denpasar city id: 1645528  
Processing record for the city: gat  
Record found for city: gat city id: 2249901  
Processing record for the city: victoria  
Record found for city: victoria city id: 1733782  
Processing record for the city: vanimo  
Record found for city: vanimo city id: 2084442  
Processing record for the city: tessalit  
Record found for city: tessalit city id: 2449893  
Processing record for the city: strezhevoy  
Record found for city: strezhevoy city id: 1490796  
Processing record for the city: kavieng  
Record found for city: kavieng city id: 2094342  
Processing record for the city: fort nelson  
Record found for city: fort nelson city id: 5955902  
Processing record for the city: khonuu  
No weather record found for city: khonuu  
Processing record for the city: puerto ayora  
Record found for city: puerto ayora city id: 3652764  
Processing record for the city: beaupre  
Record found for city: beaupre city id: 6325479  
Processing record for the city: saldanha  
Record found for city: saldanha city id: 2737599  
Processing record for the city: mollendo  
Record found for city: mollendo city id: 3934707  
Processing record for the city: illoqqortoormiut  
No weather record found for city: illoqqortoormiut  
Processing record for the city: xixiang  
Record found for city: xixiang city id: 6942880  
Processing record for the city: souillac  
Record found for city: souillac city id: 3026644  
Processing record for the city: bonavista  
Record found for city: bonavista city id: 5905393  
Processing record for the city: belushya guba  
No weather record found for city: belushya guba  
Processing record for the city: college  
Record found for city: college city id: 5859699  
Processing record for the city: astaneh-ye ashrafiyeh  
Record found for city: astaneh-ye ashrafiyeh city id: 142679  
Processing record for the city: mahajanga  
Record found for city: mahajanga city id: 1062663  
Processing record for the city: beohari  
Record found for city: beohari city id: 1276455  
Processing record for the city: pitimbu  
Record found for city: pitimbu city id: 3391889  
Processing record for the city: sorong  
Record found for city: sorong city id: 1626542  
Processing record for the city: esperance  
Record found for city: esperance city id: 3573739



Processing record for the city: cidreira  
Record found for city: cidreira city id: 3466165

Processing record for the city: biak  
Record found for city: biak city id: 1637001

Processing record for the city: qaqortoq  
Record found for city: qaqortoq city id: 3420846

Processing record for the city: severnoye  
Record found for city: severnoye city id: 496381

Processing record for the city: kabanjahe  
Record found for city: kabanjahe city id: 1214965

Processing record for the city: portland  
Record found for city: portland city id: 5746545

Processing record for the city: herat  
Record found for city: herat city id: 1140026

Processing record for the city: upernavik  
Record found for city: upernavik city id: 3418910

Processing record for the city: lavrentiya  
Record found for city: lavrentiya city id: 4031637

Processing record for the city: kashi  
No weather record found for city: kashi

Processing record for the city: olafsvik  
No weather record found for city: olafsvik

Processing record for the city: east london  
Record found for city: east london city id: 1006984

Processing record for the city: padang  
Record found for city: padang city id: 1633419

Processing record for the city: lata  
Record found for city: lata city id: 1253628

Processing record for the city: isangel  
Record found for city: isangel city id: 2136825

Processing record for the city: ribas do rio pardo  
Record found for city: ribas do rio pardo city id: 3451399

Processing record for the city: ahipara  
Record found for city: ahipara city id: 2194098

Processing record for the city: luderitz  
Record found for city: luderitz city id: 3355672

Processing record for the city: nam tha  
No weather record found for city: nam tha

Processing record for the city: port elizabeth  
Record found for city: port elizabeth city id: 4501427

Processing record for the city: taltal  
Record found for city: taltal city id: 3870243

Processing record for the city: urumqi  
No weather record found for city: urumqi

Processing record for the city: rocha  
Record found for city: rocha city id: 3440777

Processing record for the city: porto seguro  
Record found for city: porto seguro city id: 3452640

Processing record for the city: tuktoyaktuk  
Record found for city: tuktoyaktuk city id: 6170031

Processing record for the city: camacha  
Record found for city: camacha city id: 2270385

Processing record for the city: noumea

Record found for city: noumea city id: 2139521  
Processing record for the city: mandalgovi  
Record found for city: mandalgovi city id: 2030065  
Processing record for the city: myingyan  
Record found for city: myingyan city id: 1307835  
Processing record for the city: hambantota  
Record found for city: hambantota city id: 1244926  
Processing record for the city: plaeng yao  
Record found for city: plaeng yao city id: 1607398  
Processing record for the city: cockburn town  
Record found for city: cockburn town city id: 3576994  
Processing record for the city: lompoc  
Record found for city: lompoc city id: 5367788  
Processing record for the city: broome  
Record found for city: broome city id: 2656067  
Processing record for the city: saint-joseph  
Record found for city: saint-joseph city id: 3037456  
Processing record for the city: port macquarie  
Record found for city: port macquarie city id: 2152659  
Processing record for the city: mareeba  
Record found for city: mareeba city id: 2158767  
Processing record for the city: makakilo city  
Record found for city: makakilo city city id: 5850554  
Processing record for the city: te anau  
Record found for city: te anau city id: 2181625  
Processing record for the city: acari  
Record found for city: acari city id: 3390864  
Processing record for the city: bredasdorp  
Record found for city: bredasdorp city id: 1015776  
Processing record for the city: tsihombe  
No weather record found for city: tsihombe  
Processing record for the city: hay river  
Record found for city: hay river city id: 5972762  
Processing record for the city: tondano  
Record found for city: tondano city id: 1623424  
Processing record for the city: mizdah  
Record found for city: mizdah city id: 2214827  
Processing record for the city: caravelas  
Record found for city: caravelas city id: 3466980  
Processing record for the city: bealanana  
Record found for city: bealanana city id: 1068670  
Processing record for the city: chokurdakh  
Record found for city: chokurdakh city id: 2126123  
Processing record for the city: doctor pedro p. pena  
No weather record found for city: doctor pedro p. pena  
Processing record for the city: ust-kulom  
Record found for city: ust-kulom city id: 478050  
Processing record for the city: ponnani  
Record found for city: ponnani city id: 1259411  
Processing record for the city: dikson  
Record found for city: dikson city id: 1507390  
Processing record for the city: visnes  
Record found for city: visnes city id: 3131500

Processing record for the city: durant  
Record found for city: durant city id: 4535414

Processing record for the city: saryozek  
Record found for city: saryozek city id: 1519580

Processing record for the city: ponta delgada  
Record found for city: ponta delgada city id: 3372783

Processing record for the city: pontes e lacerda  
Record found for city: pontes e lacerda city id: 3453060

Processing record for the city: pemba  
Record found for city: pemba city id: 1028918

Processing record for the city: xichang  
Record found for city: xichang city id: 1789647

Processing record for the city: hasaki  
Record found for city: hasaki city id: 2112802

Processing record for the city: sapao  
No weather record found for city: sapao

Processing record for the city: longyearbyen  
Record found for city: longyearbyen city id: 2729907

Processing record for the city: buenos aires  
Record found for city: buenos aires city id: 3435910

Processing record for the city: cherskiy  
Record found for city: cherskiy city id: 2126199

Processing record for the city: praia  
Record found for city: praia city id: 3460954

Processing record for the city: warragul  
Record found for city: warragul city id: 2144604

Processing record for the city: conceicao do araguaia  
Record found for city: conceicao do araguaia city id: 340184

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Processing record for the city: anadyr  
Record found for city: anadyr city id: 2127202

Processing record for the city: atocha  
Record found for city: atocha city id: 3660689

Processing record for the city: grindavik  
Record found for city: grindavik city id: 3416888

Processing record for the city: goderich  
Record found for city: goderich city id: 5962442

Processing record for the city: hunza  
No weather record found for city: hunza

Processing record for the city: arraial do cabo  
Record found for city: arraial do cabo city id: 3471451

Processing record for the city: shagonar  
Record found for city: shagonar city id: 1492499

Processing record for the city: medak  
Record found for city: medak city id: 1263230

Processing record for the city: marawi  
Record found for city: marawi city id: 1701054

Processing record for the city: korla  
No weather record found for city: korla

Processing record for the city: bagaha  
Record found for city: bagaha city id: 1277939

Processing record for the city: belen  
Record found for city: belen city id: 321572

Processing record for the city: poplar bluff  
Record found for city: poplar bluff city id: 4404233

Processing record for the city: middlebury  
Record found for city: middlebury city id: 5238499

Processing record for the city: soyo  
Record found for city: soyo city id: 2236967

Processing record for the city: kilindoni  
Record found for city: kilindoni city id: 157429

Processing record for the city: willowmore  
Record found for city: willowmore city id: 939676

Processing record for the city: katsuura  
Record found for city: katsuura city id: 1865309

Processing record for the city: atuona  
Record found for city: atuona city id: 4020109

Processing record for the city: vila velha  
Record found for city: vila velha city id: 6320062

Processing record for the city: buraydah  
Record found for city: buraydah city id: 107304

Processing record for the city: norman wells  
Record found for city: norman wells city id: 6089245

Processing record for the city: zonguldak  
Record found for city: zonguldak city id: 737021

Processing record for the city: batticaloa  
Record found for city: batticaloa city id: 1250161

Processing record for the city: rocky mountain house  
Record found for city: rocky mountain house city id: 6126749

Processing record for the city: zuwarah  
Record found for city: zuwarah city id: 2208425

Processing record for the city: kalmunai  
Record found for city: kalmunai city id: 1242110

Processing record for the city: nemuro  
Record found for city: nemuro city id: 2128975

Processing record for the city: falam  
Record found for city: falam city id: 1326105

Processing record for the city: constitucion  
Record found for city: constitucion city id: 4011743

Processing record for the city: hammerfest  
Record found for city: hammerfest city id: 779683

Processing record for the city: monticello  
Record found for city: monticello city id: 5038045

Processing record for the city: zhangjiakou  
Record found for city: zhangjiakou city id: 2033196

Processing record for the city: general elizardo aquino  
Record found for city: general elizardo aquino city id: 3437

342

Processing record for the city: lianzhou  
Record found for city: lianzhou city id: 1803841

Processing record for the city: araguaina  
Record found for city: araguaina city id: 3407357

Processing record for the city: zykovo  
Record found for city: zykovo city id: 480484

Processing record for the city: tezu  
Record found for city: tezu city id: 1254709

Processing record for the city: marcona  
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Processing record for the city: sao jose da coroa grande  
Record found for city: sao jose da coroa grande city id: 338  
8456

Processing record for the city: suntar  
Record found for city: suntar city id: 2015913

Processing record for the city: feicheng  
Record found for city: feicheng city id: 1789176

Processing record for the city: viedma  
Record found for city: viedma city id: 3832899

Processing record for the city: sahrak  
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Processing record for the city: adoni  
Record found for city: adoni city id: 1279335

Processing record for the city: bonthe  
Record found for city: bonthe city id: 2409914

Processing record for the city: aklavik  
Record found for city: aklavik city id: 5882953

Processing record for the city: ruatoria  
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Processing record for the city: leh  
Record found for city: leh city id: 1264976

Processing record for the city: maragogi  
Record found for city: maragogi city id: 3395458

Processing record for the city: orebro  
Record found for city: orebro city id: 2686657

Processing record for the city: tiznit  
Record found for city: tiznit city id: 2527089

Processing record for the city: tucumcari  
Record found for city: tucumcari city id: 5495360

Processing record for the city: abu samrah  
Record found for city: abu samrah city id: 172515

Processing record for the city: qaanaaq  
Record found for city: qaanaaq city id: 3831208

Processing record for the city: cabo san lucas  
Record found for city: cabo san lucas city id: 3985710

Processing record for the city: carnarvon  
Record found for city: carnarvon city id: 1014034

Processing record for the city: krasnoborsk  
Record found for city: krasnoborsk city id: 542423

Processing record for the city: spornoye  
Record found for city: spornoye city id: 578283

Processing record for the city: zhezkazgan  
Record found for city: zhezkazgan city id: 1516589

Processing record for the city: agnibilekrou  
Record found for city: agnibilekrou city id: 2293260

Processing record for the city: riacho de santana  
Record found for city: riacho de santana city id: 3451448

Processing record for the city: awjilah  
Record found for city: awjilah city id: 88533

Processing record for the city: pahrump  
Record found for city: pahrump city id: 5509851

Processing record for the city: salinopolis  
Record found for city: salinopolis city id: 3389822

Processing record for the city: shumikhinskiy  
Record found for city: shumikhinskiy city id: 493452

Processing record for the city: prince rupert  
Record found for city: prince rupert city id: 6113406

Processing record for the city: airai  
Record found for city: airai city id: 1651810

Processing record for the city: talaya  
Record found for city: talaya city id: 1485724

Processing record for the city: boddam  
Record found for city: boddam city id: 2655288

Processing record for the city: sulangan  
Record found for city: sulangan city id: 1685422

Processing record for the city: valparaiso  
Record found for city: valparaiso city id: 4927537

Processing record for the city: faanui  
Record found for city: faanui city id: 4034551

Processing record for the city: beringovski  
Record found for city: beringovski city id: 2126710

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Record found for city: nishihara city id: 1850144

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Record found for city: evensk city id: 2125693

Processing record for the city: ostrovnoy  
Record found for city: ostrovnoy city id: 556268

Processing record for the city: bytow  
Record found for city: bytow city id: 3101943

Processing record for the city: san jose de guanipa  
Record found for city: san jose de guanipa city id: 3628142

Processing record for the city: chicama  
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Processing record for the city: solnechnyy  
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No weather record found for city: malakal

Processing record for the city: klyuchi  
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Processing record for the city: geraldton  
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Processing record for the city: mount gambier  
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Processing record for the city: louisbourg  
No weather record found for city: louisbourg

Processing record for the city: kushiro  
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Processing record for the city: fredericksburg  
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Processing record for the city: vaitupu  
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Processing record for the city: faya

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Record found for city: baiyin city id: 1817240  
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Processing record for the city: vila franca do campo  
Record found for city: vila franca do campo city id: 3372472  
Processing record for the city: klaksvik  
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Processing record for the city: nouadhibou  
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Processing record for the city: buala  
Record found for city: buala city id: 2109528  
Processing record for the city: agadir  
Record found for city: agadir city id: 2561668  
Processing record for the city: sao filipe  
Record found for city: sao filipe city id: 3374210  
Processing record for the city: torbat-e jam  
Record found for city: torbat-e jam city id: 1159362  
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Record found for city: necochea city id: 3430443  
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Record found for city: magistralnyy city id: 2020584  
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Record found for city: kommunar city id: 545788  
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No weather record found for city: asau  
Processing record for the city: lorengau  
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Processing record for the city: puerto madryn  
Record found for city: puerto madryn city id: 3840092  
Processing record for the city: port-gentil  
Record found for city: port-gentil city id: 2396518  
Processing record for the city: eureka  
Record found for city: eureka city id: 5563397  
Processing record for the city: mehamn  
Record found for city: mehamn city id: 778707  
Processing record for the city: baijiantan  
Record found for city: baijiantan city id: 1529626  
Processing record for the city: sinnamary  
Record found for city: sinnamary city id: 3380290  
Processing record for the city: zatreni  
Record found for city: zatreni city id: 662274  
Processing record for the city: hobyoy  
Record found for city: hobyoy city id: 57000

Processing record for the city: amberley  
Record found for city: amberley city id: 2193968

Processing record for the city: abancay  
Record found for city: abancay city id: 3948642

Processing record for the city: whitehorse  
Record found for city: whitehorse city id: 6180550

Processing record for the city: onguday  
Record found for city: onguday city id: 1496130

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No weather record found for city: bokoro

Processing record for the city: mugumu  
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Processing record for the city: vaitape  
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Processing record for the city: bandarbeyla  
Record found for city: bandarbeyla city id: 64814

Processing record for the city: kalabo  
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Processing record for the city: san patricio  
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Processing record for the city: archidona  
Record found for city: archidona city id: 3660573

Processing record for the city: vestmannaeyjar  
Record found for city: vestmannaeyjar city id: 3412093

Processing record for the city: namibe  
Record found for city: namibe city id: 3347019

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Processing record for the city: aasiaat  
Record found for city: aasiaat city id: 3424901

Processing record for the city: iztapa  
Record found for city: iztapa city id: 3595255

Processing record for the city: jalu  
Record found for city: jalu city id: 86049

Processing record for the city: auki  
Record found for city: auki city id: 2339937

Processing record for the city: obeliali  
Record found for city: obeliali city id: 595213

Processing record for the city: iskateley  
Record found for city: iskateley city id: 866062

Processing record for the city: moranbah  
Record found for city: moranbah city id: 6533368

Processing record for the city: tamandare  
Record found for city: tamandare city id: 3661980

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Record found for city: kishi city id: 2334327

Processing record for the city: churapcha  
Record found for city: churapcha city id: 2025241

Processing record for the city: talnakh  
Record found for city: talnakh city id: 1490256

Processing record for the city: teguise  
Record found for city: teguise city id: 2510573

Processing record for the city: byron bay



Record found for city: byron bay city id: 2172880  
Processing record for the city: nigel  
Record found for city: nigel city id: 970566  
Processing record for the city: bondoukou  
Record found for city: bondoukou city id: 2291136  
Processing record for the city: rupert  
Record found for city: rupert city id: 5606000  
Processing record for the city: lethem  
Record found for city: lethem city id: 3379316  
Processing record for the city: mahibadhoo  
Record found for city: mahibadhoo city id: 1337605  
Processing record for the city: miranda de ebro  
Record found for city: miranda de ebro city id: 3116689  
Processing record for the city: emba  
Record found for city: emba city id: 146639  
Processing record for the city: skvyra  
Record found for city: skvyra city id: 693615  
Processing record for the city: severo-kurilsk  
Record found for city: severo-kurilsk city id: 2121385  
Processing record for the city: shubarshi  
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Processing record for the city: pangnirtung  
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Processing record for the city: sangar  
Record found for city: sangar city id: 2017215  
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Processing record for the city: nichinan  
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Processing record for the city: magetan  
No weather record found for city: magetan  
Processing record for the city: abu kamal  
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No weather record found for city: cheuskiny  
Processing record for the city: svetlaya  
Record found for city: svetlaya city id: 2015852  
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No weather record found for city: bur gabo  
Processing record for the city: camacupa  
Record found for city: camacupa city id: 3351014  
Processing record for the city: jahrom  
No weather record found for city: jahrom  
Processing record for the city: takoradi  
Record found for city: takoradi city id: 2294915

Processing record for the city: oussouye  
Record found for city: oussouye city id: 2246901

Processing record for the city: dukat  
Record found for city: dukat city id: 786562

Processing record for the city: christchurch  
Record found for city: christchurch city id: 2192362

Processing record for the city: sikandra rao  
Record found for city: sikandra rao city id: 1256322

Processing record for the city: seoul  
Record found for city: seoul city id: 1835848

Processing record for the city: vysokogornyy  
Record found for city: vysokogornyy city id: 2013216

Processing record for the city: westport  
Record found for city: westport city id: 2960970

Processing record for the city: makubetsu  
Record found for city: makubetsu city id: 2128815

Processing record for the city: bloomsburg  
Record found for city: bloomsburg city id: 5180934

Processing record for the city: bengkulu  
No weather record found for city: bengkulu

Processing record for the city: canchungo  
Record found for city: canchungo city id: 2373951

Processing record for the city: lundazi  
Record found for city: lundazi city id: 909299

Processing record for the city: shar  
Record found for city: shar city id: 2347266

Processing record for the city: samalaeulu  
No weather record found for city: samalaeulu

Processing record for the city: ilulissat  
Record found for city: ilulissat city id: 3423146

Processing record for the city: kanniyakumari  
Record found for city: kanniyakumari city id: 1268008

Processing record for the city: fortuna  
Record found for city: fortuna city id: 2517679

Processing record for the city: chuy  
Record found for city: chuy city id: 3443061

Processing record for the city: armacao dos buzios  
No weather record found for city: armacao dos buzios

Processing record for the city: manado  
Record found for city: manado city id: 1636544

Processing record for the city: tucuman  
Record found for city: tucuman city id: 3934608

Processing record for the city: linxia  
Record found for city: linxia city id: 1803331

Processing record for the city: nizhniy chir  
Record found for city: nizhniy chir city id: 520783

Processing record for the city: bilibino  
Record found for city: bilibino city id: 2126682

Processing record for the city: jakhal mandi  
No weather record found for city: jakhal mandi

Processing record for the city: shellbrook  
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Processing record for the city: sechura

Record found for city: sechura city id: 3691954  
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Processing record for the city: monrovia  
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Processing record for the city: banjar  
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Processing record for the city: kahului  
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Processing record for the city: corrente  
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Processing record for the city: mount isa  
Record found for city: mount isa city id: 2065594  
Processing record for the city: port hardy  
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No weather record found for city: magui  
Processing record for the city: tambopata  
No weather record found for city: tambopata  
Processing record for the city: ceres  
Record found for city: ceres city id: 3862100  
Processing record for the city: salalah  
Record found for city: salalah city id: 286621  
Processing record for the city: boden  
Record found for city: boden city id: 606531  
Processing record for the city: coahuayana  
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Processing record for the city: freeport  
Record found for city: freeport city id: 3572375

Processing record for the city: shahr-e kord  
Record found for city: shahr-e kord city id: 115770

Processing record for the city: vondrozo  
Record found for city: vondrozo city id: 1053507

Processing record for the city: gandala  
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Processing record for the city: port hedland  
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Processing record for the city: dwarka  
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Processing record for the city: shenzhen  
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Processing record for the city: srednekolymsk  
Record found for city: srednekolymsk city id: 2121025

Processing record for the city: cooma  
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Processing record for the city: novo aripuana  
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Processing record for the city: kashira  
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Processing record for the city: laguna  
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Processing record for the city: yongan  
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Processing record for the city: tateyama  
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Processing record for the city: muli  
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Processing record for the city: balkhash  
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Processing record for the city: dubna  
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No weather record found for city: samusu

Processing record for the city: belomorsk  
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Processing record for the city: mildura  
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Processing record for the city: varkaus  
Record found for city: varkaus city id: 632371

Processing record for the city: neuquen  
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Processing record for the city: mezen  
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Processing record for the city: berlevag  
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Processing record for the city: zhanaozen  
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Processing record for the city: karratha

Record found for city: karratha city id: 6620339  
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Processing record for the city: parangan  
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Processing record for the city: victor harbor  
Record found for city: victor harbor city id: 2059470  
Processing record for the city: yeppoon  
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Record found for city: marsa matruh city id: 352733  
Processing record for the city: eyrarakki  
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Processing record for the city: west wendover  
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Processing record for the city: chapais  
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Processing record for the city: vagay  
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Processing record for the city: carinhanha  
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Processing record for the city: morondava  
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Processing record for the city: shelburne  
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No weather record found for city: temaraia

Processing record for the city: rincon  
Record found for city: rincon city id: 4218882

Processing record for the city: mattoon  
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Processing record for the city: bilma  
Record found for city: bilma city id: 2446796

Processing record for the city: andenes  
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Processing record for the city: lazaro cardenas  
Record found for city: lazaro cardenas city id: 3996234

Processing record for the city: kieta  
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Processing record for the city: zhongshu  
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Processing record for the city: lesogorsk  
Record found for city: lesogorsk city id: 1500609

Processing record for the city: abha  
Record found for city: abha city id: 110690

Processing record for the city: carauari  
Record found for city: carauari city id: 3664659

Processing record for the city: ilebo  
Record found for city: ilebo city id: 215976

Processing record for the city: qibili  
No weather record found for city: qibili

Processing record for the city: sitka  
Record found for city: sitka city id: 4267710

Processing record for the city: manhattan beach  
Record found for city: manhattan beach city id: 5370082

Processing record for the city: caen  
Record found for city: caen city id: 3029241

Processing record for the city: pedasi  
Record found for city: pedasi city id: 3703239

Processing record for the city: falealupo  
No weather record found for city: falealupo

Processing record for the city: kailua  
Record found for city: kailua city id: 5847486

Processing record for the city: baixa grande  
Record found for city: baixa grande city id: 3471094

Processing record for the city: mecca  
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Processing record for the city: taburi  
No weather record found for city: taburi

Processing record for the city: aurangabad  
Record found for city: aurangabad city id: 1278149

Processing record for the city: meadow lake  
Record found for city: meadow lake city id: 6071421

Processing record for the city: mahanoro  
Record found for city: mahanoro city id: 1062553

Processing record for the city: ahuimanu  
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Processing record for the city: cozumel  
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Processing record for the city: pisco

Record found for city: pisco city id: 3932145  
Processing record for the city: kolpashevo  
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Processing record for the city: mbanza-ngungu  
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Processing record for the city: upata  
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Processing record for the city: baiao  
Record found for city: baiao city id: 3406844  
Processing record for the city: high prairie  
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Processing record for the city: racine  
Record found for city: racine city id: 5268249  
Processing record for the city: mianyang  
Record found for city: mianyang city id: 1800627  
Processing record for the city: bathsheba  
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Processing record for the city: saint-augustin  
Record found for city: saint-augustin city id: 3031582  
Processing record for the city: savannakhet  
Record found for city: savannakhet city id: 1653316  
Processing record for the city: abong mbang  
Record found for city: abong mbang city id: 2236053  
Processing record for the city: guerrero negro  
Record found for city: guerrero negro city id: 4021858  
Processing record for the city: wanning  
Record found for city: wanning city id: 3220813  
Processing record for the city: macaboboni  
No weather record found for city: macaboboni  
Processing record for the city: powell river  
Record found for city: powell river city id: 6112608  
Processing record for the city: kismayo  
No weather record found for city: kismayo  
Processing record for the city: bitung  
Record found for city: bitung city id: 1648636  
Processing record for the city: taoudenni  
Record found for city: taoudenni city id: 2450173  
Processing record for the city: sorvag  
No weather record found for city: sorvag  
Processing record for the city: kruisfontein  
Record found for city: kruisfontein city id: 986717  
Processing record for the city: moose factory  
Record found for city: moose factory city id: 6078372  
Processing record for the city: teguldet  
Record found for city: teguldet city id: 1489822  
Processing record for the city: umm lajj  
Record found for city: umm lajj city id: 100926  
Processing record for the city: puri  
Record found for city: puri city id: 1635111  
Processing record for the city: altagracia de orituco  
Record found for city: altagracia de orituco city id: 364940

Processing record for the city: meyungs

No weather record found for city: meyungs  
Processing record for the city: manzil salim  
Record found for city: manzil salim city id: 2469252  
Processing record for the city: dudinka  
Record found for city: dudinka city id: 1507116  
Processing record for the city: ossora  
Record found for city: ossora city id: 2122389  
Processing record for the city: socorro  
Record found for city: socorro city id: 1685936  
Processing record for the city: scottsburgh  
No weather record found for city: scottsburgh  
Processing record for the city: mariental  
Record found for city: mariental city id: 2873499  
Processing record for the city: da nang  
No weather record found for city: da nang  
Processing record for the city: houma  
Record found for city: houma city id: 1784874  
Processing record for the city: turiacu  
Record found for city: turiacu city id: 3665361  
Processing record for the city: venado tuerto  
Record found for city: venado tuerto city id: 3833062  
Processing record for the city: gigmoto  
Record found for city: gigmoto city id: 1712961  
Processing record for the city: vitim  
Record found for city: vitim city id: 2013375  
Processing record for the city: gualaquiza  
Record found for city: gualaquiza city id: 3657661  
Processing record for the city: kulhudhuffushi  
Record found for city: kulhudhuffushi city id: 1337613  
Processing record for the city: bayan  
Record found for city: bayan city id: 2030079  
Processing record for the city: camargo  
Record found for city: camargo city id: 4013724  
Processing record for the city: kloulklubed  
Record found for city: kloulklubed city id: 7671223  
Processing record for the city: dibaya  
No weather record found for city: dibaya  
Processing record for the city: the valley  
Record found for city: the valley city id: 3573374  
Processing record for the city: bondo  
Record found for city: bondo city id: 218253  
Processing record for the city: penzberg  
Record found for city: penzberg city id: 2854923  
Processing record for the city: aleksandrov gay  
Record found for city: aleksandrov gay city id: 583345  
Processing record for the city: mopti  
Record found for city: mopti city id: 2453348  
Processing record for the city: egvekinot  
Record found for city: egvekinot city id: 4031742  
Processing record for the city: kurumkan  
Record found for city: kurumkan city id: 2021188  
Processing record for the city: ureki  
Record found for city: ureki city id: 611274



```
Processing record for the city: tlahualilo
    No weather record found for city: tlahualilo
Processing record for the city: serta
    Record found for city: serta    city id: 3181569
Processing record for the city: codrington
    Record found for city: codrington    city id: 2160063
Processing record for the city: sorland
    Record found for city: sorland    city id: 3137469
Processing record for the city: simplicio mendes
    Record found for city: simplicio mendes    city id: 3387620
Processing record for the city: bafilo
    Record found for city: bafilo    city id: 2367656
Processing record for the city: urfa
    No weather record found for city: urfa
Processing record for the city: maarianhamina
    No weather record found for city: maarianhamina
Processing record for the city: waddan
    Record found for city: waddan    city id: 2209055
Processing record for the city: pueblo nuevo
    Record found for city: pueblo nuevo    city id: 4002745
```

```
-----
Complete
```

In [5]:

```
len(city_info)
```

Out[5]:

524

In [6]:

```
# Use list comprehension to gather necessary data series

lat_data = [data.get("coord").get("lat") for data in city_info]
max_temp = [data.get("main").get("temp") for data in city_info]
humidity = [data.get("main").get("humidity") for data in city_info]
clouds = [data.get("clouds").get("all") for data in city_info]
wind = [data.get("wind").get("speed") for data in city_info]
```

In [8]:

```
# Convert jsons into dataframe
weather_data = pd.DataFrame({"City Name":city_list,
                             "Latitude":lat_data,
                             "Temperature":max_temp,
                             "Humidity":humidity,
                             "Cloudiness":clouds,
                             "Windspeed":wind})

# Force column order
weather_data = weather_data[["City Name", "Latitude","Temperature","Humidity","C
loudiness","Windspeed"]]
weather_data.head()
```

Out[8]:

	City Name	Latitude	Temperature	Humidity	Cloudiness	Windspeed
0	aquiraz	-3.90	77.00	94	75	3.36
1	broken hill	-31.97	57.67	66	0	14.25
2	alandi	18.68	70.72	99	92	6.64
3	zhigansk	66.77	70.27	78	32	5.08
4	araouane	18.90	84.22	34	12	10.11

In [9]:

```
# Save weather data to csv file
weather_data.to_csv("weatherdata.csv", encoding="utf-8", index=False)
```

In [10]:

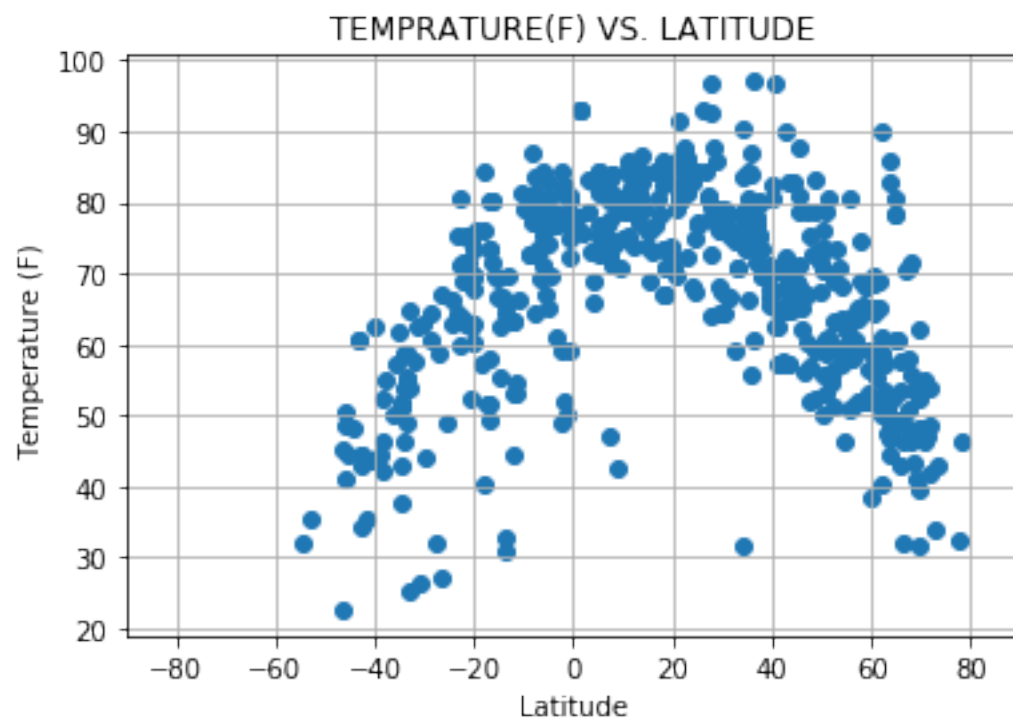
```
# TEMPRATURE(F) VS. LATITUDE

# Build a scatter plot for each data type

# Latitude vs Max Temp
plt.scatter(weather_data["Latitude"], weather_data["Temperature"])

# Add chart labels
plt.title("TEMPRATURE(F) VS. LATITUDE")
plt.ylabel("Temperature (F) ")
plt.xlabel("Latitude")
plt.grid(True)
plt.xlim(-90,90)

# Save the figure
plt.savefig("Lat_vs_MaxTemp.png")
# Show plot
plt.show()
```



In [11]:

```
# HUMIDITY(%) VS. LATITUDE
```

```
plt.scatter(weather_data["Latitude"], weather_data["Humidity"], marker="o")
```

```
# Add chart labels
```

```
plt.title("HUMIDITY(%) VS. LATITUDE")
```

```
plt.ylabel("Humidity")
```

```
plt.xlabel("Latitude")
```

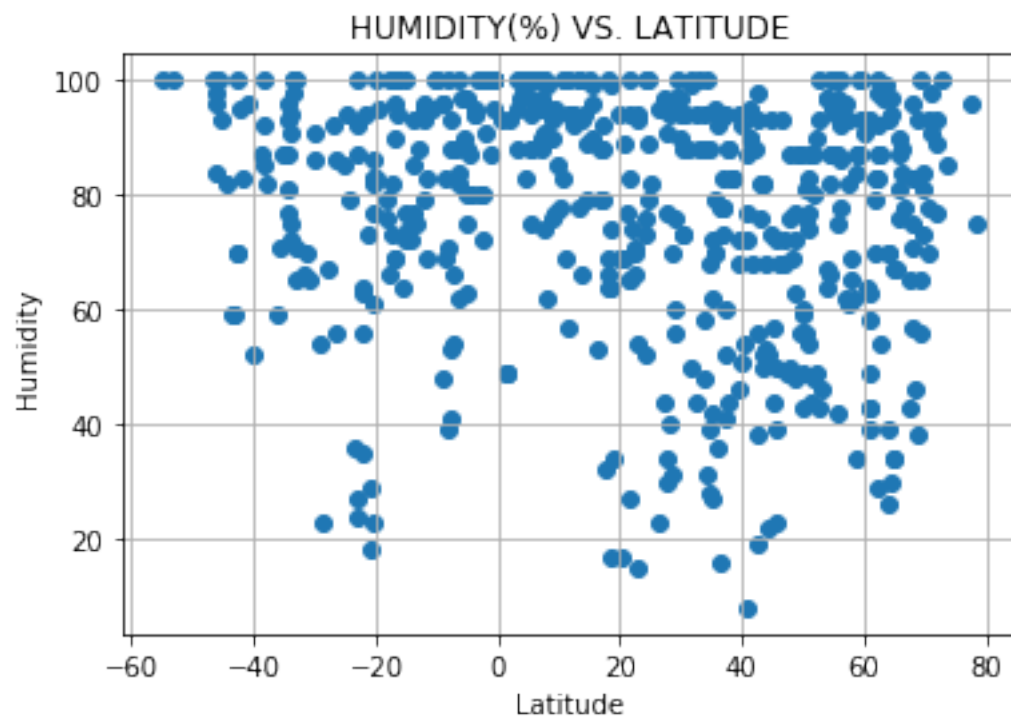
```
plt.grid(True)
```

```
# Save the figure
```

```
plt.savefig("Humidity_vs_Lat.png")
```

```
# Show plot
```

```
plt.show()
```



In [12]:

```
# CLOUDINESS(%) VS. LATITUDE
```

```
plt.scatter(weather_data["Latitude"], weather_data["Cloudiness"], marker="o")
```

```
# Add chart labels
```

```
plt.title("CLOUDINESS(%) VS. LATITUDE")
```

```
plt.ylabel("Cloudiness")
```

```
plt.xlabel("Latitude")
```

```
plt.grid(True)
```

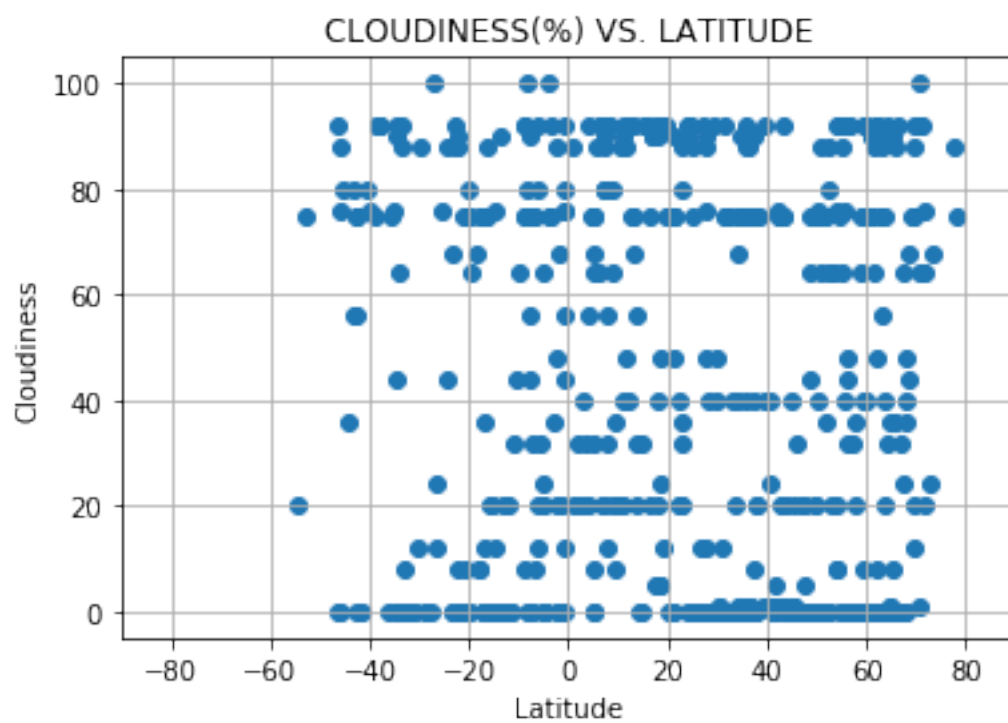
```
plt.xlim(-90,90)
```

```
# Save the figure
```

```
plt.savefig("Cloudiness_vs_Lat.png.png")
```

```
# Show plot
```

```
plt.show()
```



```
In [13]:
```

```
# WIND SPEED (MPH) VS. LATITUDE
```

```
# Latitude vs Wind Speed
```

```
plt.scatter(weather_data["Latitude"], weather_data["Windspeed"], marker="o")
```

```
# Add chart labels
```

```
plt.title("WIND SPEED (mph) VS. LATITUDE")
```

```
plt.ylabel("Wind Speed (mph)")
```

```
plt.xlabel("Latitude")
```

```
plt.grid(True)
```

```
# Save the figure
```

```
plt.savefig("WindSpeed_vs_Lat.png")
```

```
# Show plot
```

```
plt.show()
```

