﻿from PIL import Image

import matplotlib.pyplot as plt

photo =["G1945.JPG","G1985.JPG","G1990.JPG","G1995.JPG","G2000.JPG","G2005.JPG","G2010.JPG","G2015.JPG"]

photogris =["G1945gris.JPG","G1985gris.JPG","G1990gris.JPG","G1995gris.JPG","G2000gris.JPG","G2005gris.JPG","G2010gris.JPG","G2015gris.JPG"]

annee = [1945,1985,1990,1995,2000,2005,2010,2015]

for n in range (0,len(photo)) :

image = Image.open(photo[n])

taille = image.size

lignes = taille[0]

colonnes = taille[1]

imagegris = Image.new('RGB',(lignes,colonnes))

for x in range (lignes) :

for y in range (colonnes) :

pixel = image.getpixel((x,y))

r = pixel[0]

g = pixel[1]

b = pixel[2]

gris = int((r+g+b)/3)

p = (gris, gris, gris)

imagegris.putpixel((x,y),p)

imagegris.save(photogris[n])

albedo = 0

for x in range (lignes) :

for y in range (colonnes) :

pixel = imagegris.getpixel((x,y))

albedo = albedo + pixel[0]

albedo = albedo / (lignes\*colonnes\*255)

plt.plot(annee[n],albedo,'o')

plt.savefig('graph.png')