

# Why Florida: A comparison of Florida and Temperate Exposure Climates (Europe)

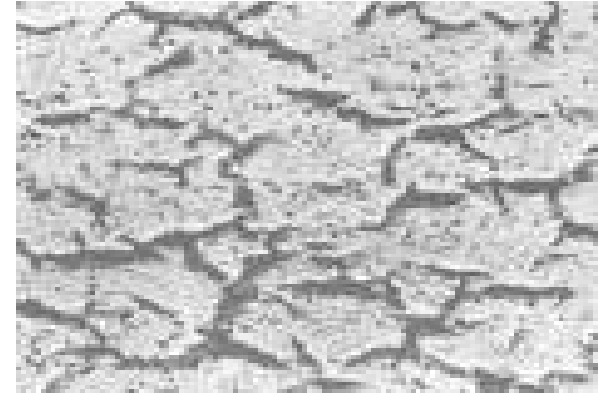
Michael Creadson

# What is Weathering?

Detrimental changes in a material or product as a result of exposure to environmental stresses.

- Color Change
- Corrosion
- Loss of Adhesion
- Chalking
- Cracking
- Mold Growth

# Coatings Failures



## What causes Weathering?

**Sunlight**



**Temperature**



**Moisture**



Basically.... The Weather



## Question

Which is the best type of accelerated weathering test?

## Answer

One which produces the same results as the end-use environment, but faster

BENCHMARK

To get the SAME results....

*Wise Old Sage Says*

**“You have to have the same weather”**

To get FASTER results....

*Wise Old Sage Says*

**“You have to have MORE weather”**

**BENCHMARK**

To get the SAME results but  
FASTER....

*Wise Old Sage Says*

**“You have to have MORE of the SAME  
weather”**



Question (Again)

What is the best accelerated weathering test?

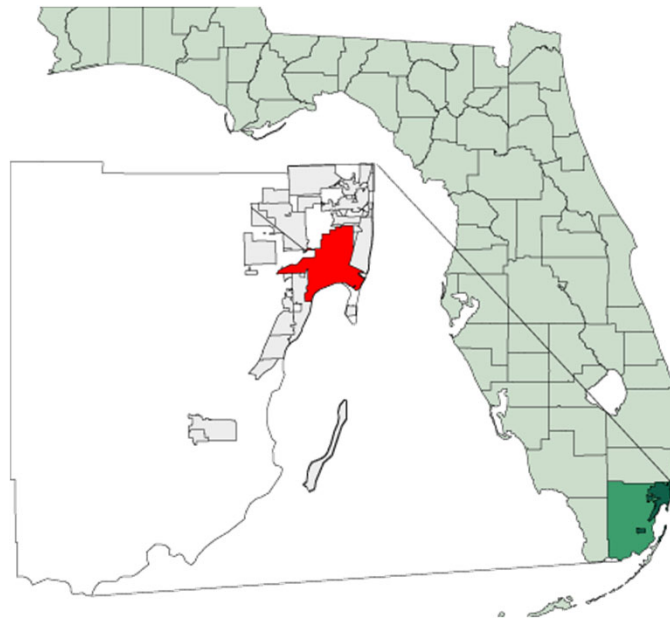
Answer

Another, more severe natural weathering location!

## Miami = Benchmark Weathering Site

Q-Lab's exposure site is located south of Miami on the Southernmost tip of Florida, in the only true subtropical region in the continental United States.

South Florida including Miami, is classed as a subtropical climate and has been the international benchmark for weathering for almost 100 years?



*“Our ideal exposure conditions can accelerate weathering two to three times faster than northern locations”*

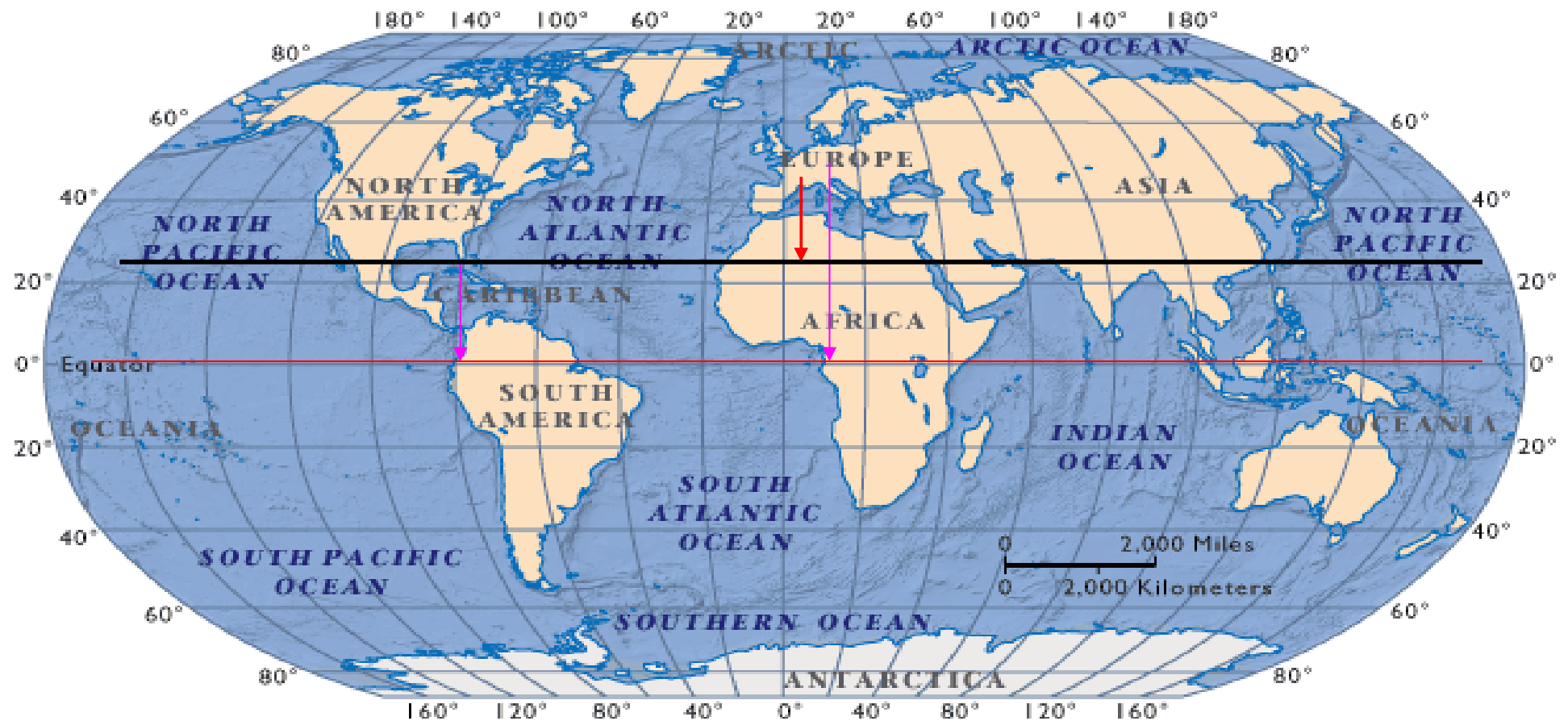
## The climate of Europe varies from subtropical to polar.

- The Mediterranean climate of the south is dry and warm.
- The western and northwestern parts have a mild, generally humid climate, influenced by the North Atlantic Drift.
- In central and eastern Europe the climate is of the humid continental-type with cool summers.
- In the northeast sub-arctic and tundra climates are found.
- All of Europe is subject to the moderating influence of prevailing westerly winds from the Atlantic Ocean and, consequently, its climates are found at higher latitudes than similar climates on other continents.

\*\*This information taken from Wikipedia.



## Oceans



# Florida vs Europe

- Florida and Europe are quite similar in the summer
- Florida and Europe are quite different in the winter
- Europe's climate in summer is much different than Europe's climate in Winter
- Florida's summer and winter are nearly the same
- Europe's summer is like Florida average
- Florida exposure is like summer in Europe but all year round

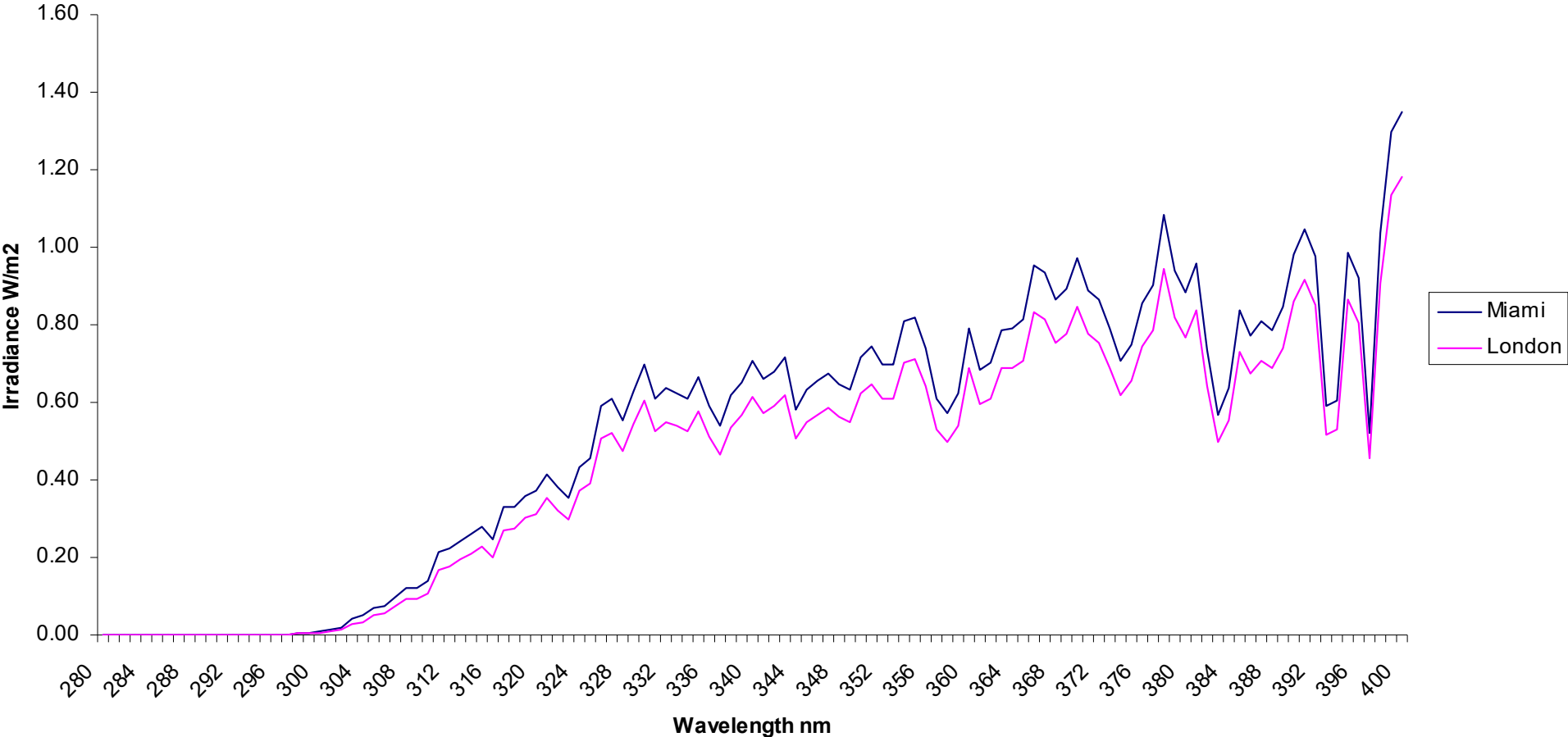
BENCHMARK

# Summer Comparison



Europe in the summer is the same as  
Florida

Summer Sunlight Comparison



Source: Smarts2 Radiation Model ASTM



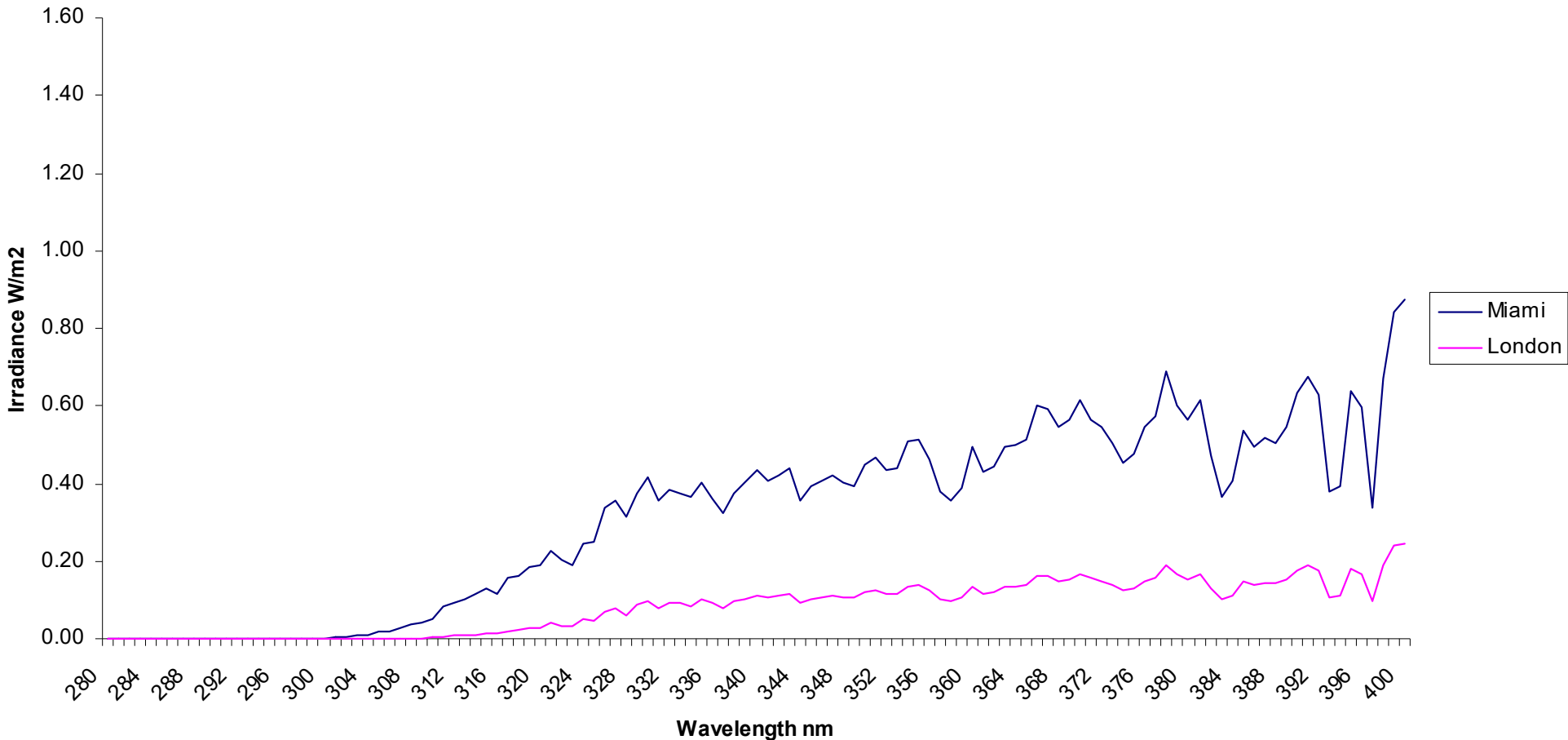
## Winter Comparison



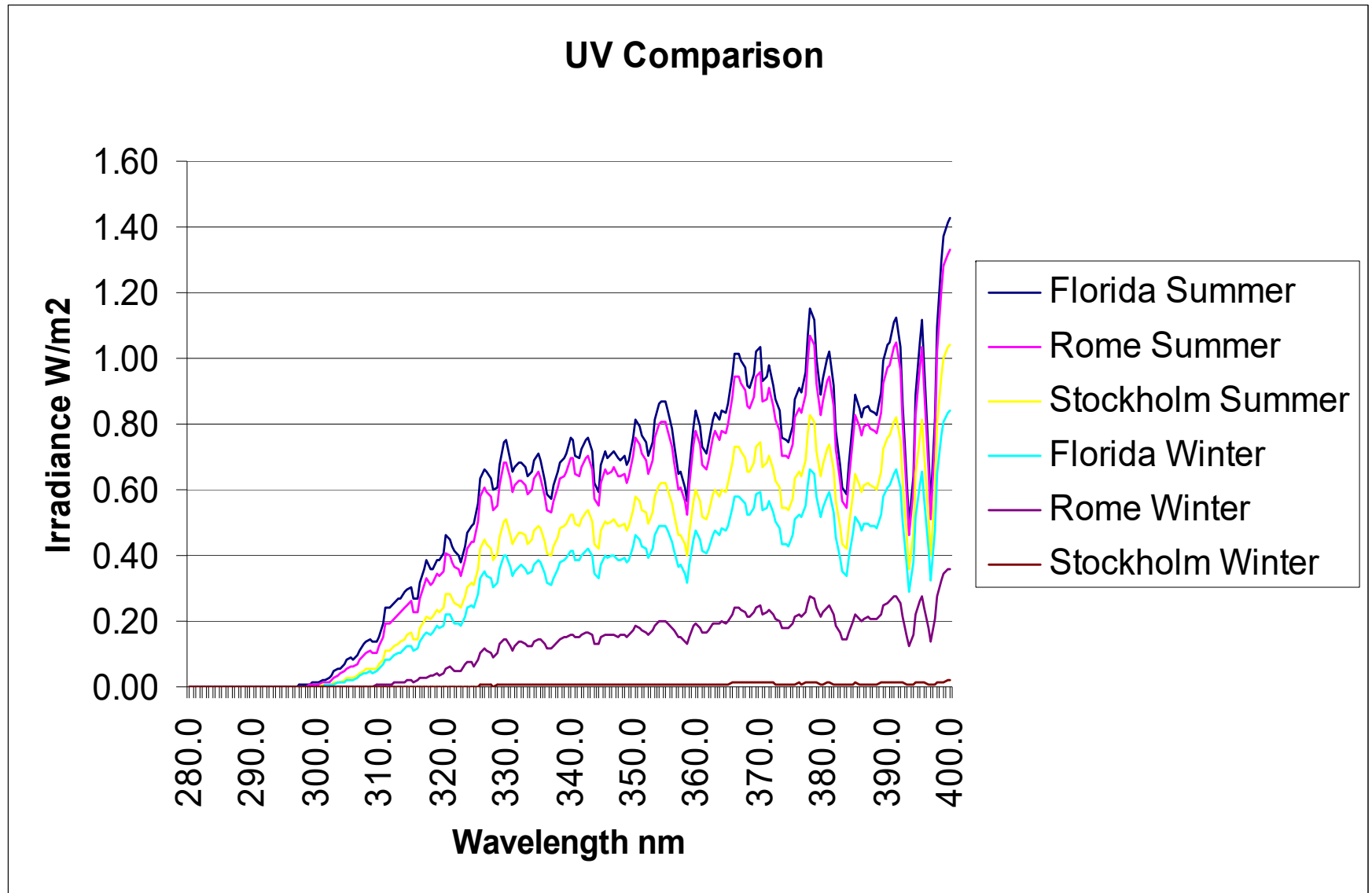
Europe is different than Florida in the winter

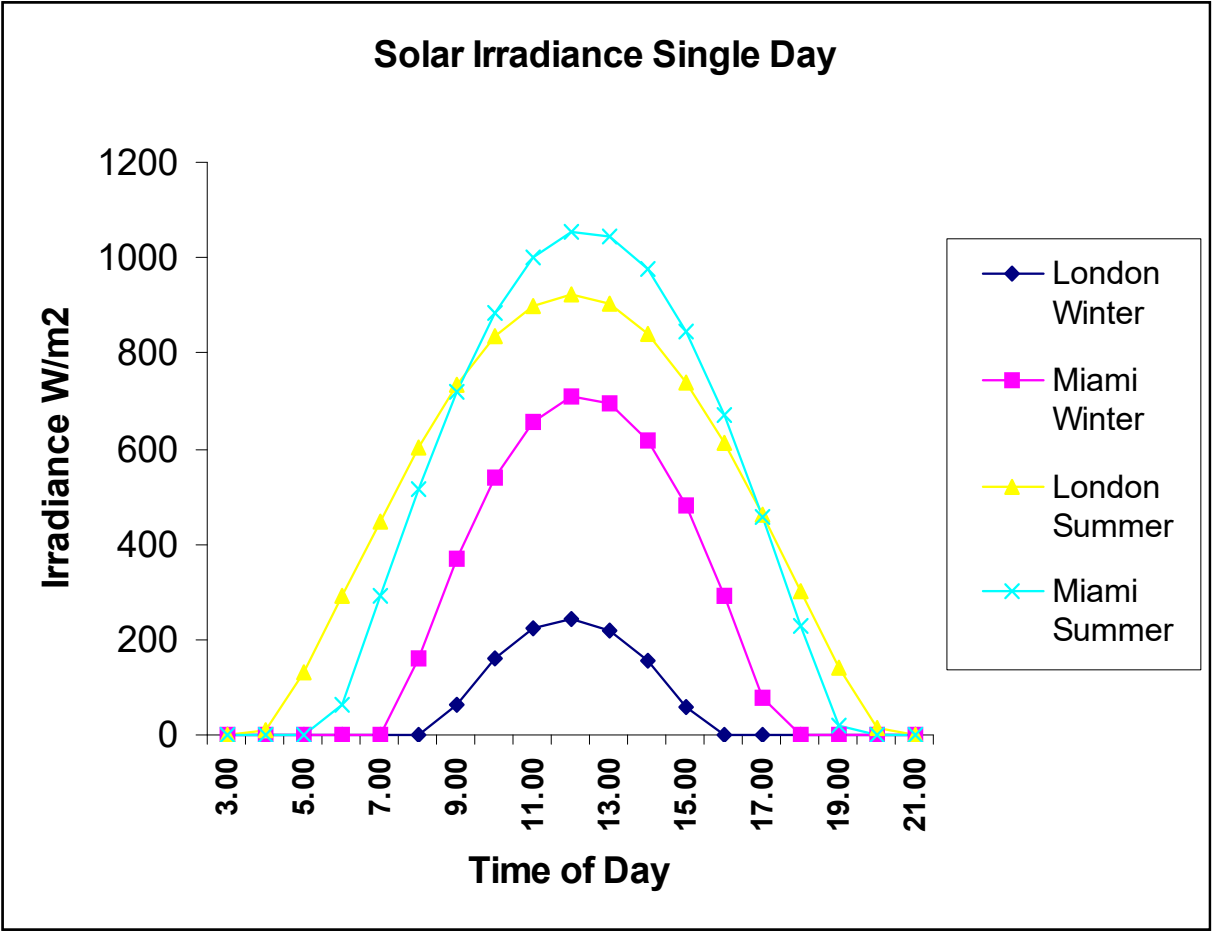


Winter Sunlight Comparison



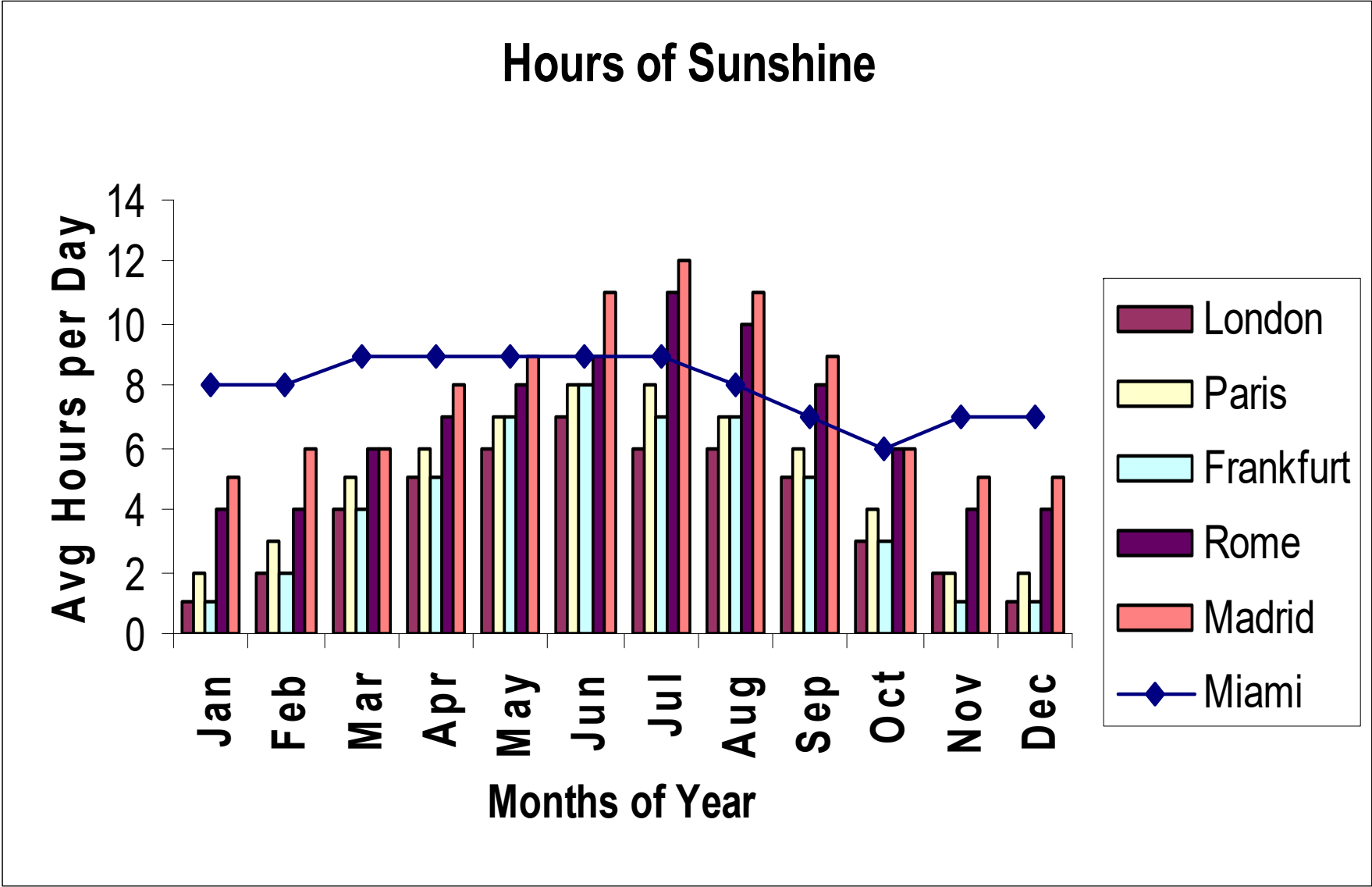
Source: Smarts2 Radiation Model ASTM



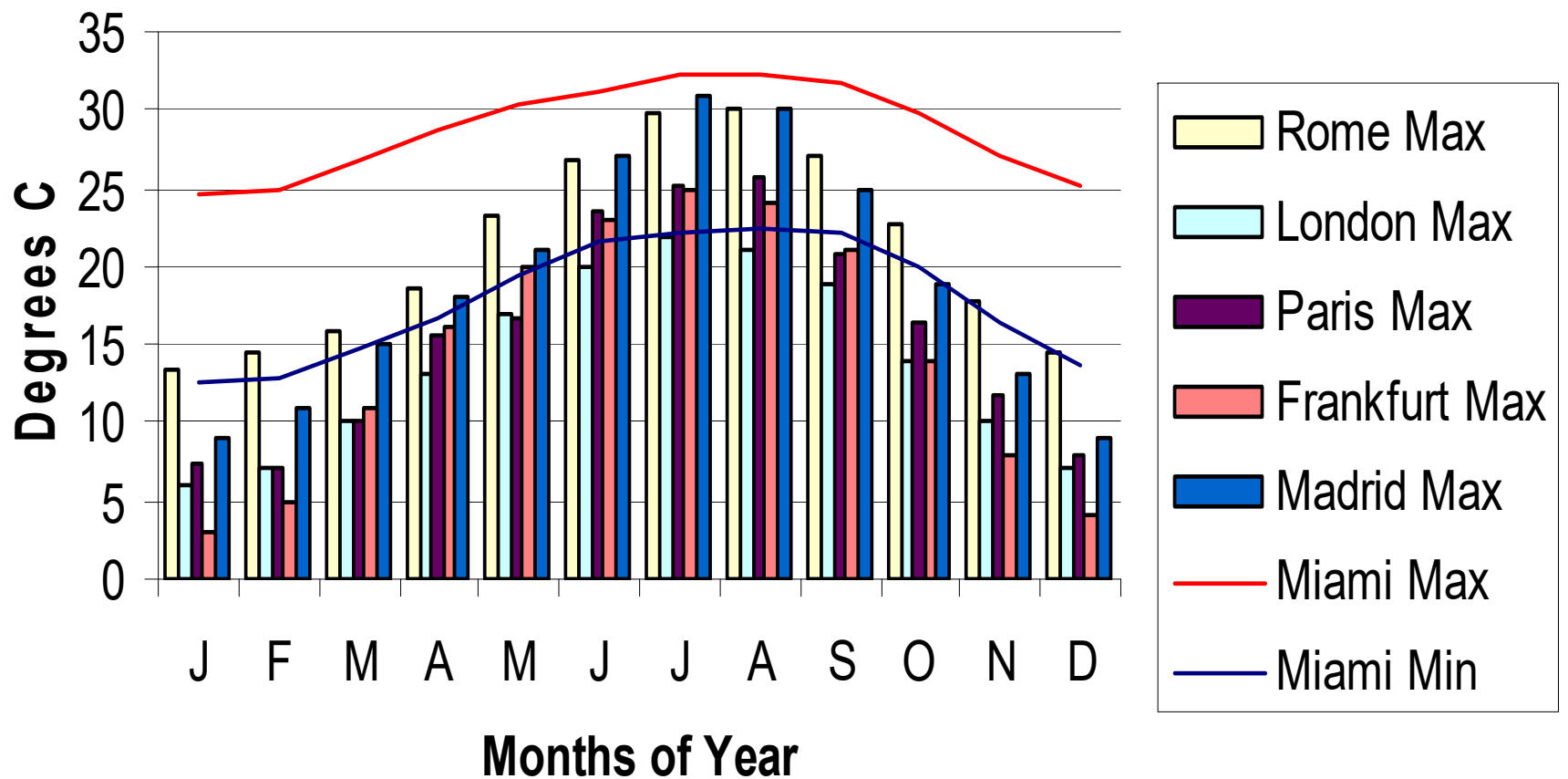


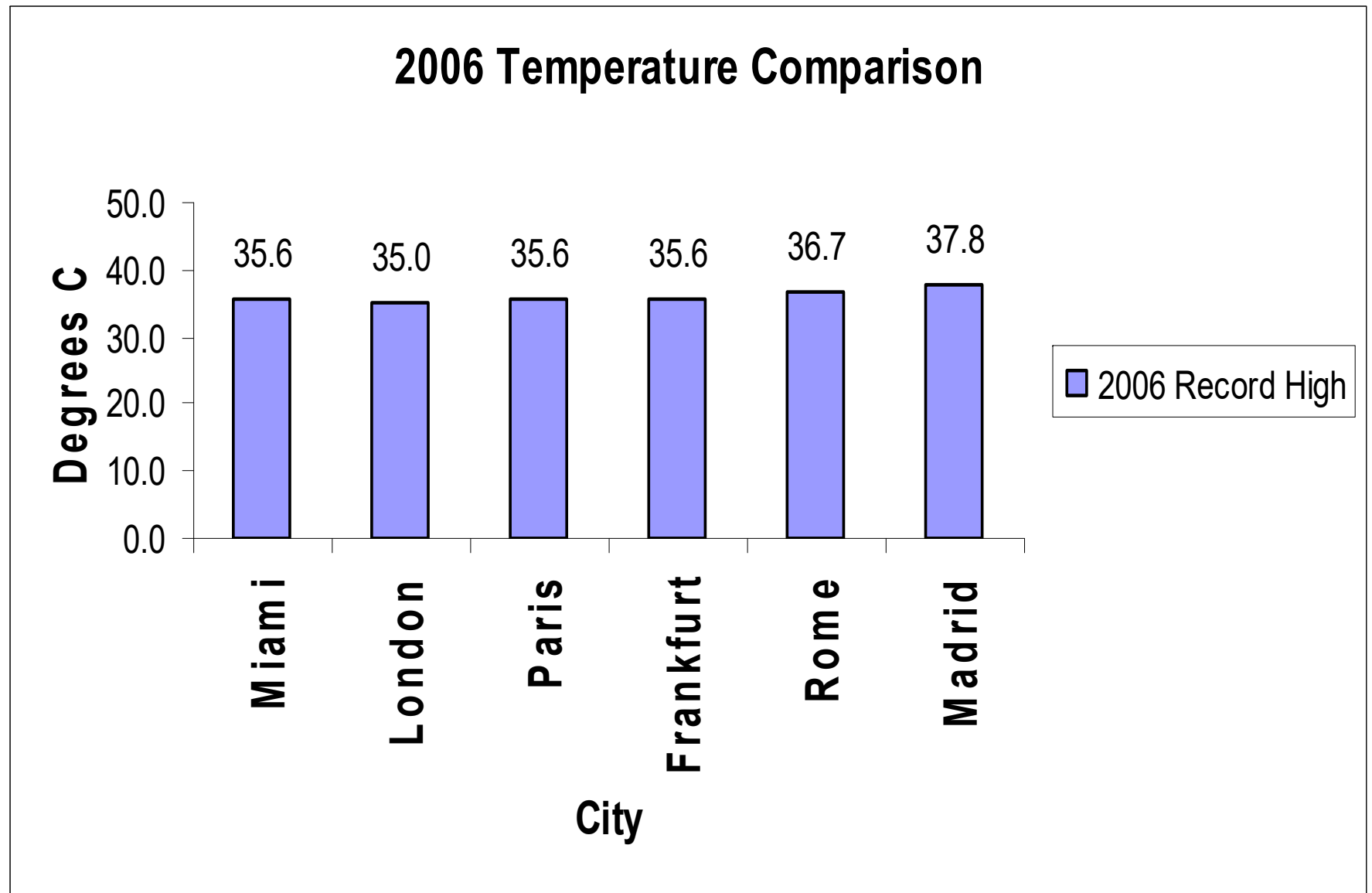
Source: NOAA Solar Model

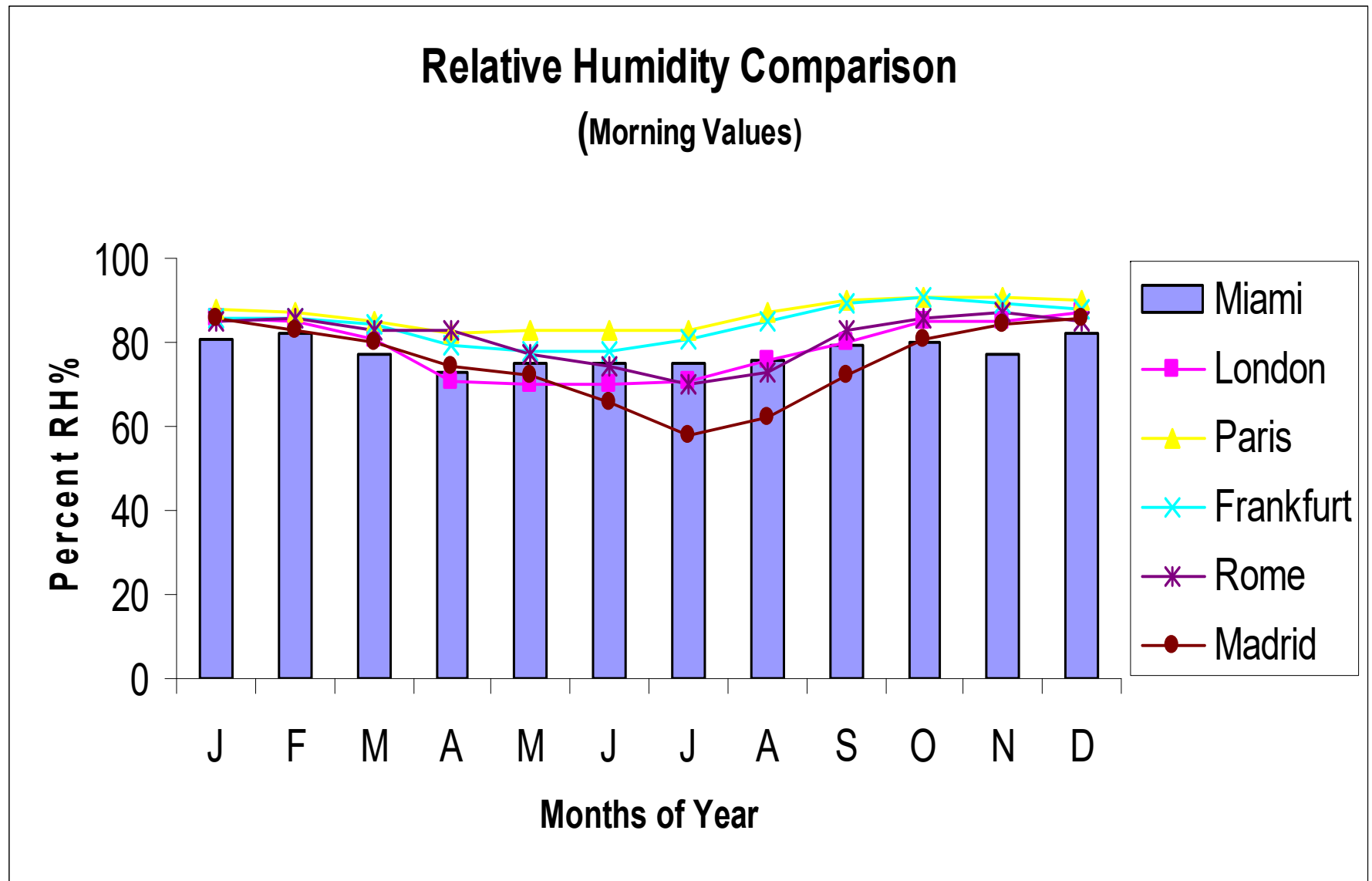
	Hourly Average Irradiance Values			
Time of Day	London Winter	Miami Winter	London Summer	Miami Summer
3.00	0.00	0.00	0.00	0.00
4.00	0.00	0.00	10.59	0.00
5.00	0.00	0.00	132.79	0.00
6.00	0.00	0.00	289.07	64.84
7.00	0.00	0.00	449.37	291.04
8.00	0.00	159.73	600.80	517.13
9.00	62.33	368.18	732.17	720.35
10.00	158.60	538.23	833.92	885.06
11.00	221.83	654.94	898.68	998.97
12.00	242.96	709.10	921.79	1053.71
13.00	219.89	696.54	901.56	1045.28
14.00	154.93	618.23	839.47	974.30
15.00	57.73	480.23	739.99	845.96
16.00	0.00	293.65	610.31	669.71
17.00	0.00	78.20	459.88	458.77
18.00	0.00	0.00	299.79	229.71
19.00	0.00	0.00	142.74	17.48
20.00	0.00	0.00	15.43	0.00
21.00	0.00	0.00	0.00	0.00
Potential Daily Dosage MJ/m2				
Sum	4.03	16.55	31.96	31.58

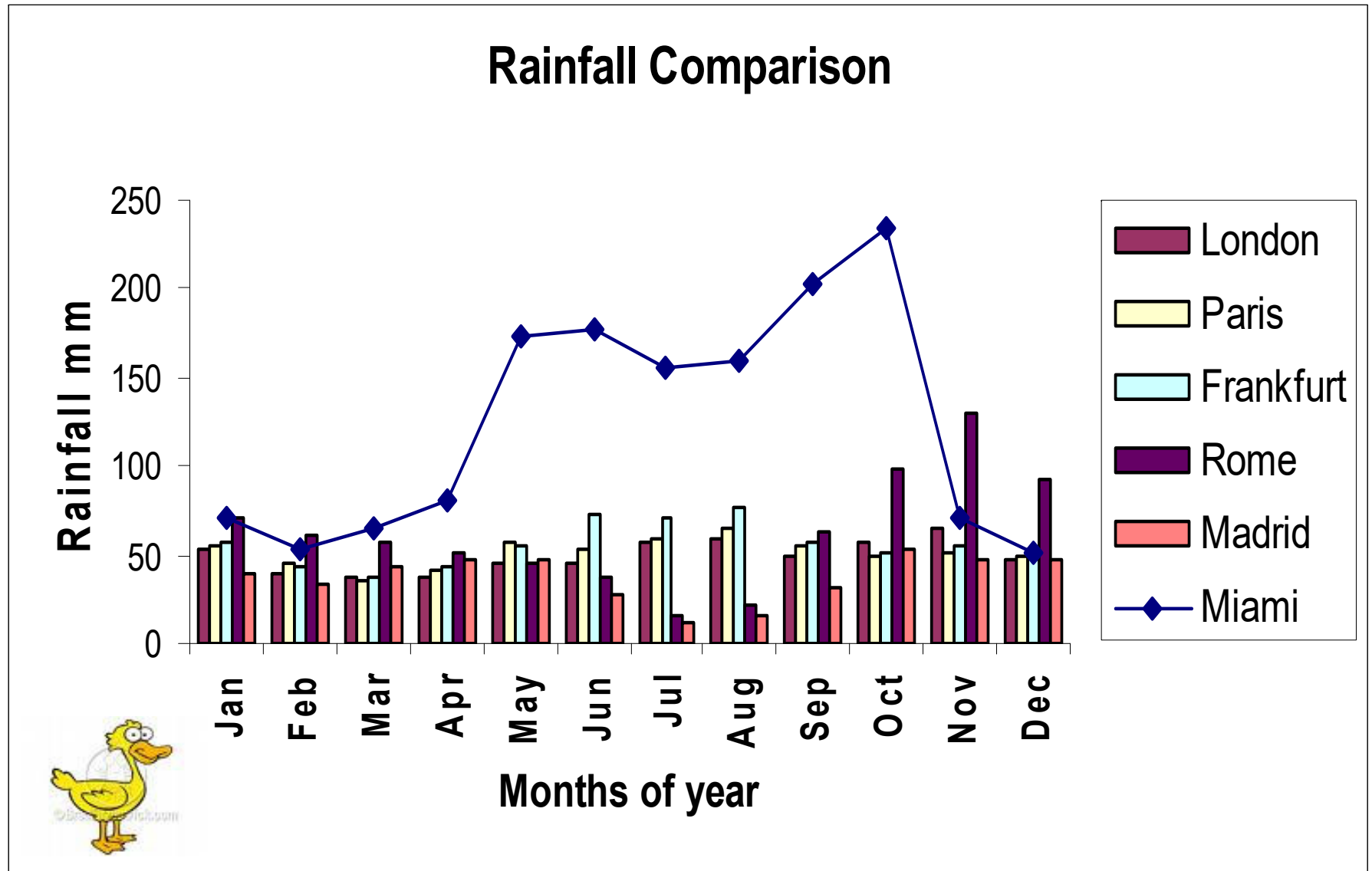


## Temperature Comparison











# Florida:

**“We have the same weather as Europe, only  
we have more of it”**

(Quote from a Wise Old Sage)



**Wir haben das gleiche Wetter wie Europa, nur wir mehr von ihm haben**

**Nous faisons survivre à la même chose que l'Europe, seulement nous avons plus d'elle**

**Tenemos el mismo tiempo que Europa, sólo tenemos más de ella**

**Abbiamo lo stesso tempo di Europa, solo gli abbiamo più**

## Accelerated Weathering Testing.....

**No time to Waste**



**“Get the specimens tested yesterday,  
and I want accurate, reliable results”**



**Your  
Boss**

## What is a Lab to do?

- Use Accelerated testing
- Use Outdoor testing

Xenon Arc  
Fluorescent UV  
Solar Concentrator

South Florida  
Central Arizona  
Solar Concentrator



**Your test  
specimens here**

# Thank You!

- Danke
- Merci
- Gracias
- Grazie
- Obrigado
- Dank U

**If you have any questions, please email me at  
[mcrewdson@bestweathertest.com](mailto:mcrewdson@bestweathertest.com)**